

NOSE-LANDING-GEAR LEG - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the nose landing-gear (NLG) leg.
- 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
32-20-01-000-801-A	NOSE LANDING-GEAR LEG - REMOVAL	ALL
32-20-01-400-801-A	NOSE LANDING-GEAR LEG - INSTALLATION	ALL
32-20-01-000-802-A	NOSE LANDING-GEAR UPLOCK PIN - REMOVAL	ALL
32-20-01-400-802-A	NOSE LANDING-GEAR UPLOCK PIN - INSTALLATION	ALL

TASK 32-20-01-000-801-A

EFFECTIVITY: ALL

2. NOSE LANDING-GEAR LEG - REMOVAL

A. General

(1) This task gives the procedures to remove the NLG leg.

B. References

REFERENCE	DESIGNATION
AMM TASK 07-10-00-500-801-A/200	-
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 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 32-20-02-000-801-A/400	MAIN BRACE STRUT OF THE NOSE LANDING GEAR - REMOVAL
AMM TASK 32-33-05-000-801-A/400	NOSE LANDING GEAR ACTUATOR - REMOVAL
AMM TASK 32-49-05-000-801-A/400	WHEEL ASSEMBLY OF THE NOSE LANDING GEAR - REMOVAL
AMM TASK 32-61-02-000-801-A/400	DOWNLOCK PROXIMITY SWITCH - REMOVAL
AMM TASK 32-63-02-000-801-A/400	AIR/GROUND (WOW) PROXIMITY SWITCH OF NLG - REMOVAL
AMM TASK 32-63-03-000-801-A/400	DOOR-SEQUENCE PROXIMITY SWITCH OF THE NLG - REMOVAL
AMM TASK 32-63-04-000-801-A/400	NLG DOOR-OPEN PROXIMITY SWITCH - REMOVAL
AMM TASK 33-41-02-000-802-A/400	LANDING LIGHT ASSEMBLY - REMOVAL
AMM TASK 33-42-02-000-802-A/400	NOSE-LANDING-GEAR TAXI LIGHT ASSEMBLY - REMOVAL
SB 145-32-0036	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 002	Hydraulic Crane, NLG Removal/Installation	To remove the NLG leg	
GSE 102	Adapter, Hoist, NLG	To remove the NLG leg	
GSE 111	Stand, NLG Maintenance/Transportation	For maintenance and transportation of the NLG	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves Resistant to Phosphate-Ester Base Fluid	For protection of the hands	2
Commercially available	Rubber Goggles Resistant to Phosphate-Ester Base Fluid	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	NLG wheelwell
1	Helps the other technician	NLG wheelwell

I. Preparation
SUBTASK 841-002-A

- (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) For aircraft PRE-MOD [SB 145-32-0036](#), make sure that the pressure in hydraulic system No. 1 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
- (3) For aircraft POST-MOD [SB 145-32-0036](#), install the safety pin of the NLG doors solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).
- (4) Make sure that the safety pins of the landing gears are installed ([AMM TASK 32-00-01-910-801-A/200](#)).
- (5) Lift the aircraft. Refer to AMM TASK 07-10-00-500-801-A/200.
- (6) Remove the proximity switch from the target to be adjusted. Refer to the applicable task as follows:
[AMM TASK 32-61-02-000-801-A/400](#)
[AMM TASK 32-63-02-000-801-A/400](#)
[AMM TASK 32-63-03-000-801-A/400](#)
[AMM TASK 32-63-04-000-801-A/400](#)
- (7) Remove the landing light supports ([AMM TASK 33-41-02-000-802-A/400](#)).
- (8) Release, from the clamps, the harness of the air/ground proximity switch, feedback potentiometer, landing lights, and taxi lights.
- (9) Remove the taxi light supports ([AMM TASK 33-42-02-000-802-A/400](#)).

- (10) Disconnect the ground cable from the NLG leg. For this, remove the nut, washer, and bolt.
- (11) Remove the wheel assemblies ([AMM TASK 32-49-05-000-801-A/400](#)).
- (12) Release the main brace strut from the NLG leg ([AMM TASK 32-20-02-000-801-A/400](#)).
- (13) Release the NLG actuator from the NLG leg ([AMM TASK 32-33-05-000-801-A/400](#)).

J. Removal ([Figure 401](#))

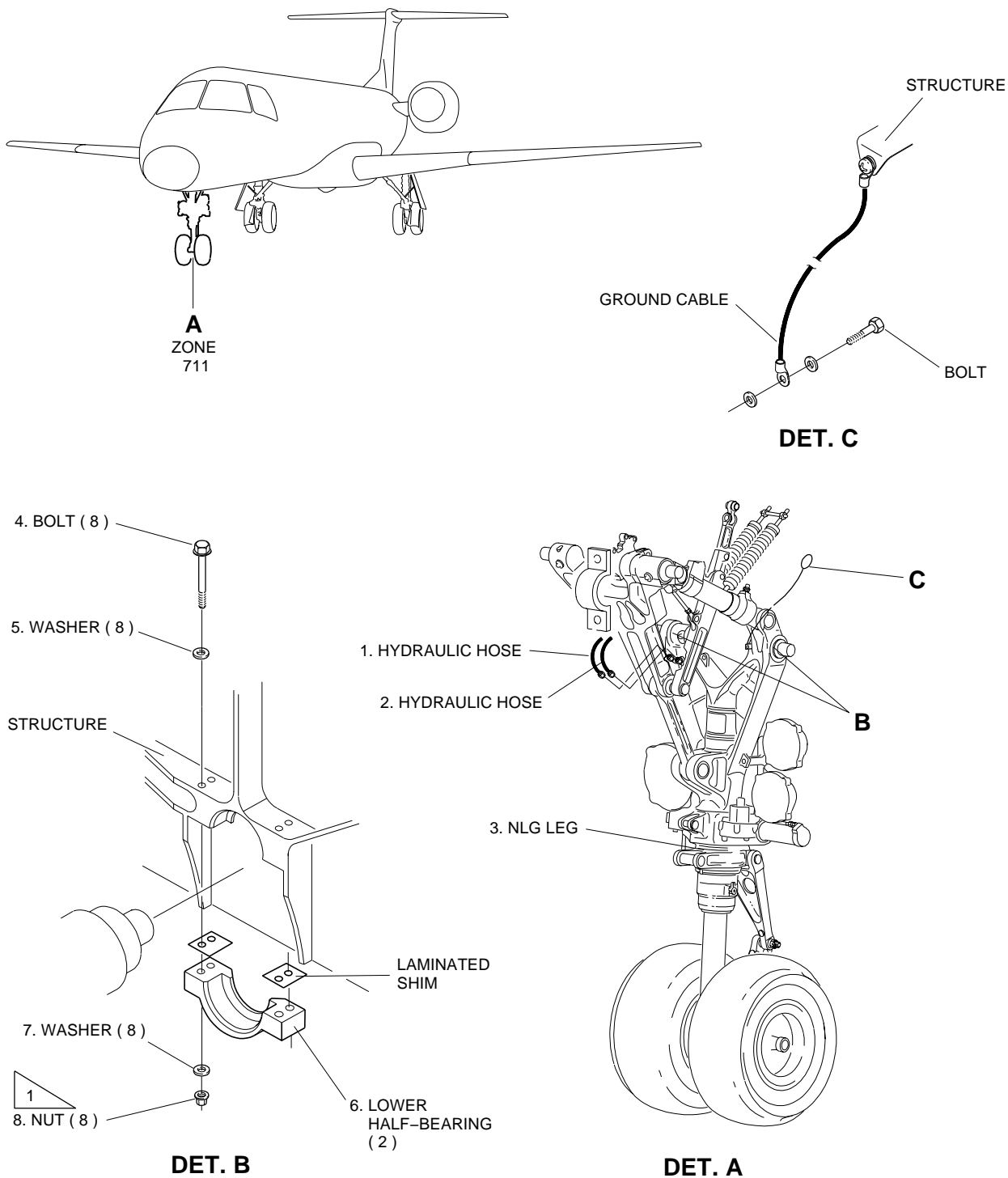
SUBTASK 020-002-A

- (1) Disconnect the hydraulic hoses (1) and (2) from the NLG leg (3).
NOTE: Use a drip pan to collect the remaining hydraulic fluid.
- (2) Put GSE 002 and GSE 102 on the NLG leg (3).
NOTE: During the removal of the NLG leg, identify the position (left and right) of the half-bearings, shims, laminated washer, and solid spacer washers to prevent their inverted installation.
- (3) Remove the nuts (8).
- (4) Remove the washers (7) and (5).
- (5) Remove the bolts (4).
- (6) Remove the lower half-bearings (6).
- (7) Remove the NLG leg (3) and put it on GSE 111.

EFFECTIVITY: ALL

Nose Landing-Gear Leg - Removal/Installation

Figure 401

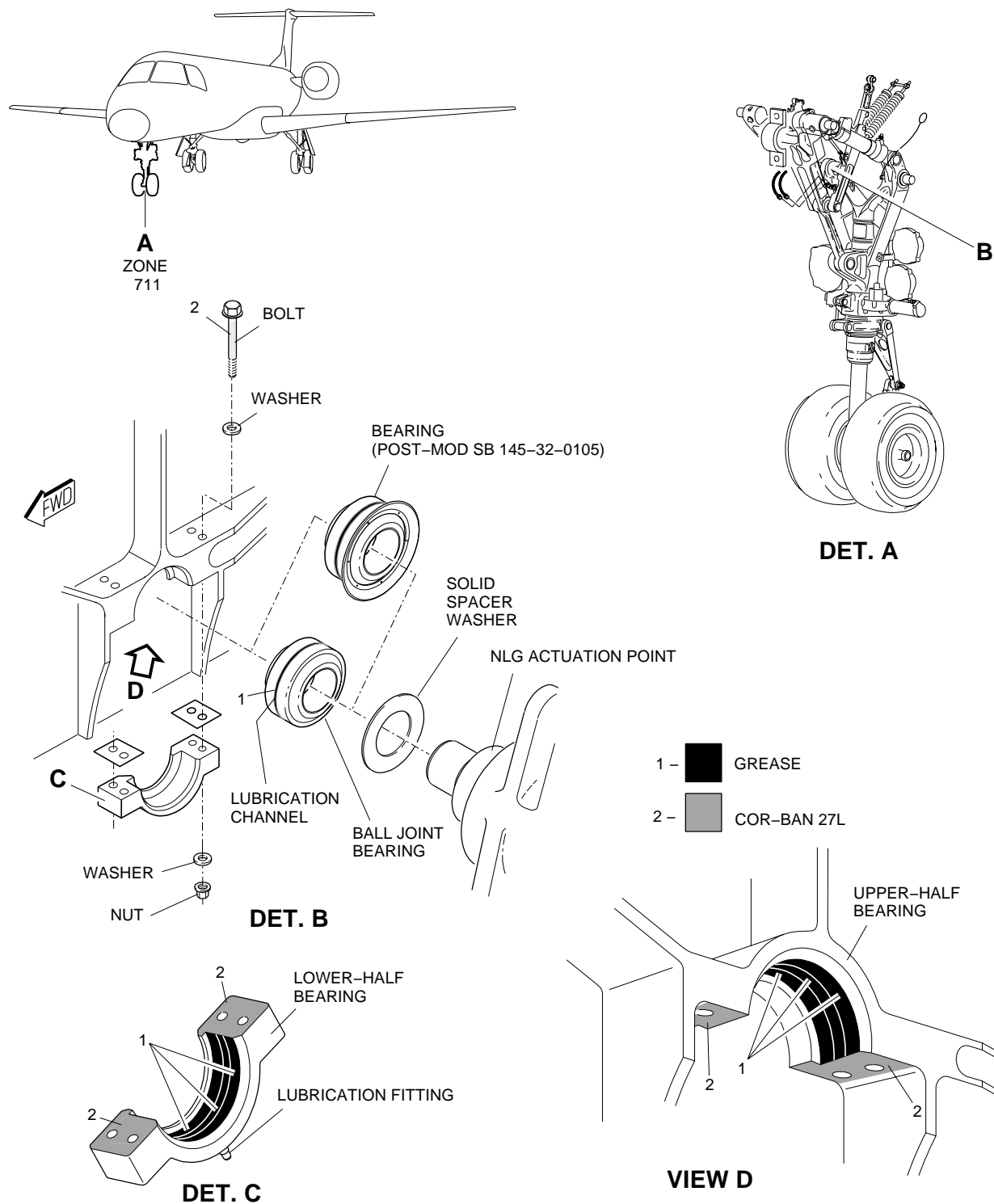


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EFFECTIVITY: ALL

Nose Landing-Gear Leg - Removal/Installation

Figure 402



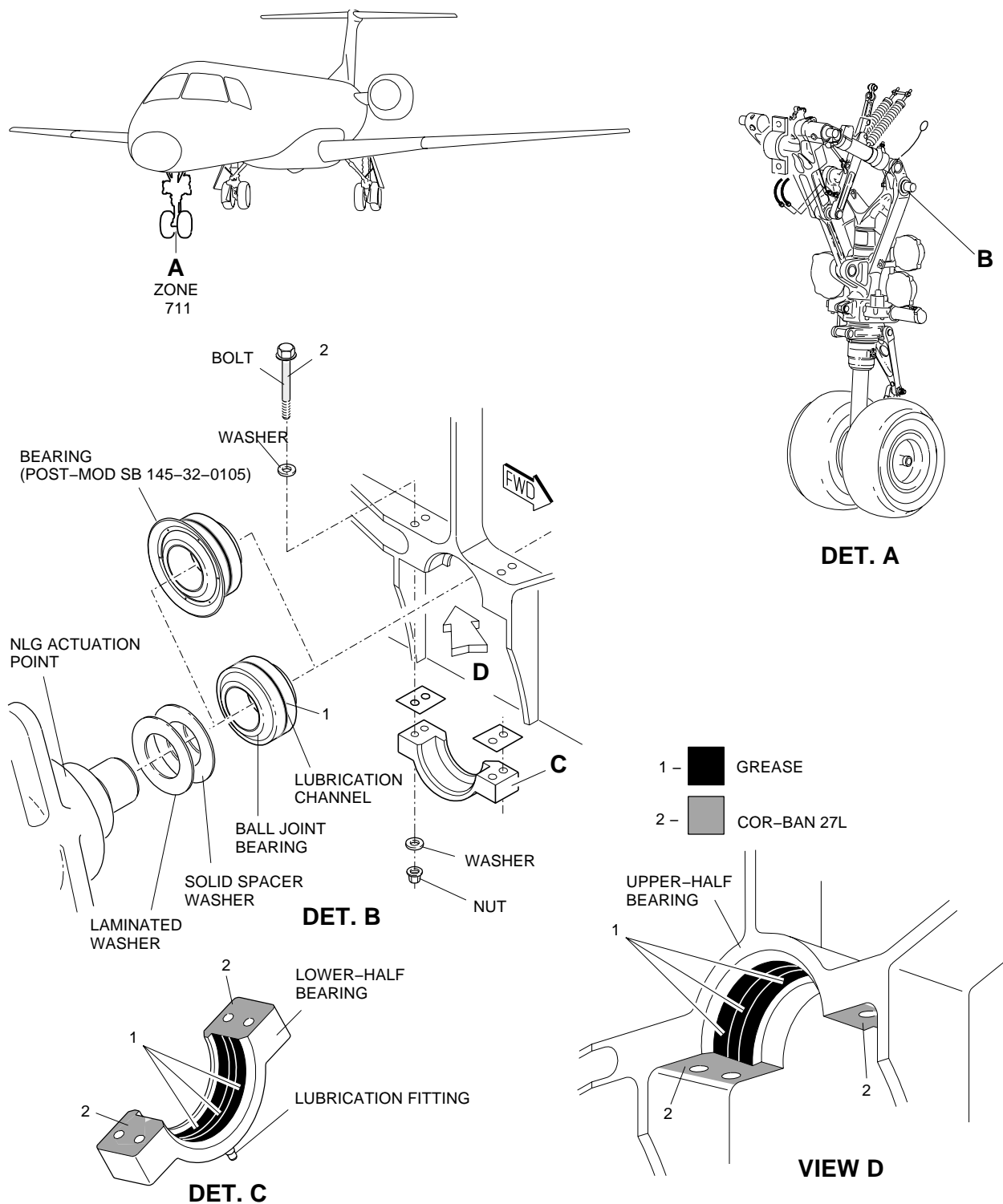
NOTE:
THE UPPER AND LOWER HALF-BEARINGS DO NOT HAVE A LUBRICATION CHANNEL.

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EFFECTIVITY: ALL

Nose Landing-Gear Leg - Removal/Installation

Figure 403



NOTE:

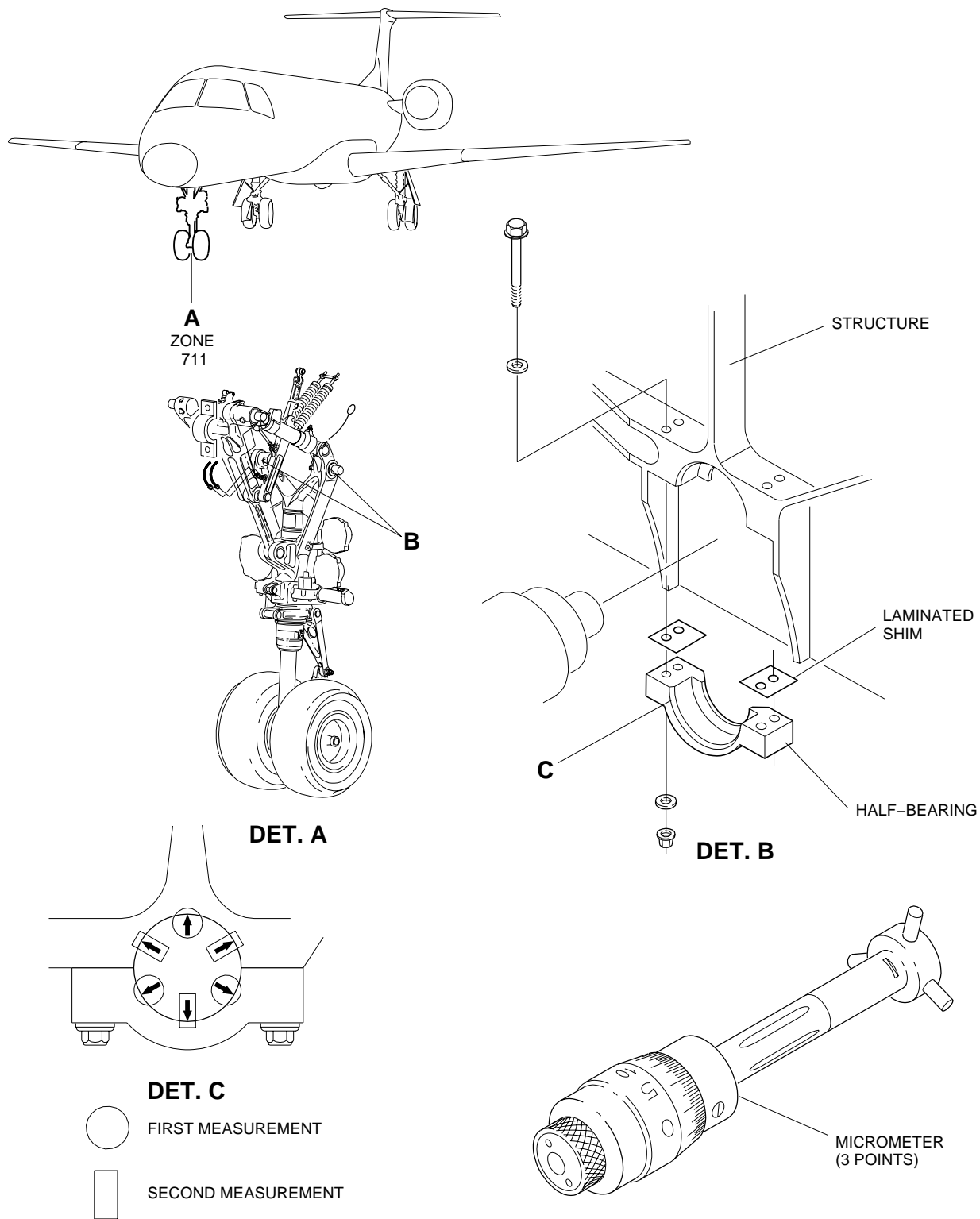
THE UPPER AND LOWER HALF-BEARINGS DO NOT HAVE A LUBRICATION CHANNEL

EM145AMM320498C.DGN

EFFECTIVITY: ALL

Procedure to Find the Thickness of the Half-Bearing Shim

Figure 404



EM145AMM320277C.DGN

TASK 32-20-01-400-801-A

EFFECTIVITY: ALL

3. NOSE LANDING-GEAR LEG - INSTALLATION

A. General

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

B. References

REFERENCE	DESIGNATION
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 32-00-02-910-801-A/200	SAFETY PIN OF THE NLG DOORS SOLENOID VALVE - INSTALLATION AND REMOVAL
AMM TASK 32-20-01-200-801-A/600	NLG - INSPECTION
AMM TASK 32-20-02-400-801-A/400	MAIN BRACE STRUT OF THE NOSE LANDING GEAR - INSTALLATION
AMM TASK 32-30-00-700-801-A/500	EXTENSION AND RETRACTION SYSTEM - OPERATIONAL CHECK
AMM TASK 32-33-05-400-801-A/400	NOSE LANDING GEAR ACTUATOR - INSTALLATION
AMM TASK 32-34-00-700-801-A/500	LG EMERGENCY EXTENSION - OPERATIONAL AND FUNCTIONAL CHECKS
AMM TASK 32-49-05-400-801-A/400	WHEEL ASSEMBLY OF THE NOSE LANDING GEAR - INSTALLATION
AMM TASK 32-50-00-700-802-A/500	NOSE WHEEL STEERING SYSTEM - QUICK ADJUSTMENT
AMM TASK 32-50-00-700-803-A/500	NOSE WHEEL STEERING SYSTEM ACTUATION - OPERATIONAL CHECK
AMM TASK 33-41-02-400-802-A/400	LANDING LIGHT ASSEMBLY - INSTALLATION
AMM TASK 33-42-02-400-802-A/400	NOSE-LANDING-GEAR TAXI LIGHT ASSEMBLY - INSTALLATION
SB 145-32-0036	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 002	Hydraulic Crane, NLG Removal/Installation	To remove the NLG leg	
GSE 111	Stand, NLG Maintenance/Transportation	For maintenance and Transportation of the NLG	
GSE 102	Adapter, Hoist NLG	For removal/installation of the NLG	
Commercially available	Torque Wrench (Range: 0 to 1000 lb.in)	To torque the bolts of the NLG leg	

(Continued)

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially Available	Feeler Gage	To measure the clearance between the upper half-bearing and the solid spacer washer	
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 Fluid	For protection of the hands	2
Commercially Available	Rubber Goggles Resistant to Phosphate-Ester Base Fluid	For protection of 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 B	Sealant PR-1440 B2	AR
MEP 13-073	Rhodiasolve E-23	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

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

I. Preparation

SUBTASK 841-003-A

- (1) Procedure to find the thickness of the half-bearing shim (Figure 404).

NOTE: This procedure is applicable when the shims of the half-bearings are lost or damaged, or when the NLG leg is replaced.

- (a) Install the lower half-bearing to the structure, without the laminated shims.
- (b) Apply a torque of 50.80 to 56.45 N.m (450 to 500 lb.in) to the nuts.

- (c) Measure the diameter in two different positions, as shown in the figure. Write the values.
 - (d) Calculate the average between the two values found in step (c), with this formula (all values in mm):
$$M = (M1 + M2)/2$$
, where:
M1 = the first measurement
M2 = the second measurement
M = the average between the two measurements
 - (e) Calculate the thickness of the laminated shims as follows (all values in mm):
$$X = 61.922 - M$$
.
 - (f) Adjust the thickness of the laminated shims to the value "X" found in step (e).
 - (g) Install the lower half-bearing again to the structure, but, at this time, together with the laminated shims.
 - (h) Apply a torque of 50.80 to 56.45 N.m (450 to 500 lb.in) to the nuts.
 - (i) Do step (c) and make sure that the values found are between 61.907 and 61.937 mm.
 - (j) Do steps (a) thru (i) for the other lower half-bearing.
- (2) Procedure to find the thickness of the laminated washer of the NLG leg (Figure 402 and Figure 403).
- NOTE:**
- This procedure is applicable when the laminated washer is lost or damaged, or when the NLG leg is replaced.
 - The NLG leg has two solid spacer washers. The solid washer larger thickness is installed on the right side of the NLG leg. The solid washer smaller thickness is installed on the left side of the NLG leg together with the laminated washer.
- (a) With the NLG leg on GSE 102 and GSE 002, install the solid washer larger thickness and the ball joint bearing on the right side of the NLG leg. Refer to DET. B, Figure 402.
 - (b) With the NLG leg on GSE 102 and GSE 002, install the solid washer smaller thickness and the ball joint bearing on the left side of the NLG leg, without the laminated washer.
 - (c) Temporally install the NLG leg in the upper half-bearings with device GSE 002 and GSE 102.
 - (d) Put the lower half-bearing in position.
 - (e) Manually move the NLG leg to the right.

- (f) Measure the clearance between the upper half bearing and the solid spacer washer with a feeler gage on the left side.
- (g) Remove the NLG leg.
- (h) Adjust the laminated washer to the thickness found in step (f).

NOTE: The maximum permitted clearance is 0.05 mm (0.002 in).

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

SUBTASK 420-002-A

- (1) Use a dry lint-free cloth to remove excess 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.
- (3) Install the solid washer larger thickness and the ball joint bearing on the right side of the NLG leg. Refer to DET. B, Figure 402.
- (4) Install the laminated washer adjusted in paragraph I.(2), the solid washer smaller thickness, and the ball joint bearing on the left side of the NLG leg. Refer to DET. B, Figure 403.

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.

- (5) Apply grease to the lubrication channel of the NLG ball joint bearing.
- (6) Apply grease to the inner surface of the upper-half bearing and lower-half bearing (contact surface with the ball joint bearing). Refer to Figure 402 and Figure 403.
- (7) 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.

- (8) Apply corrosion-inhibiting compound to the bolts and to the upper half-bearing (faying surface to the lower half-bearing). Refer to Figure 402 and Figure 403.
- (9) Put the NLG leg (3) in the upper half-bearings with the aid of GSE 002 and GSE 102.
- (10) Apply corrosion-inhibiting compound to the lower half-bearing (faying surface to the upper half-bearing). Refer to Figure 402 and Figure 403.
- (11) Put the lower half-bearing in position.

(12) Install the washers (5) and (7).

(13) Install the bolts (4).

(14) Install the nuts (8).

Apply a torque of 50.80 to 56.45 N.m (450 to 500 lb.in) to the nuts.

(15) Manually lift the NLG leg and make sure that it moves freely.

NOTE: If the NLG leg does not have a free movement, adjust the thickness of the laminated washer (obey the instructions given in paragraph I.(2)) and do steps (3) thru (15) again.

(16) Apply the same grease as that used in step 5 to the bearing through the lubrication fitting installed at the bottom of the lower half-bearing until the grease comes out from the bearing.

(17) Connect the hydraulic hoses (1) and (2) to the NLG leg (3).

(18) Remove GSE 102 and GSE 002.

K. Follow-on

SUBTASK 842-002-A

(1) Apply sealant PR-1440 B2 to all bolts (4) and nuts (8) open to environmental conditions to prevent corrosion. Refer to (Figure 401).

(2) Connect the NLG actuator to the NLG leg ([AMM TASK 32-33-05-400-801-A/400](#)).

(3) Connect the main brace strut to the NLG leg ([AMM TASK 32-20-02-400-801-A/400](#)).

(4) Install the wheel assemblies ([AMM TASK 32-49-05-400-801-A/400](#)).

(5) Connect the ground cable to the NLG leg. For this, install the washer, bolt, and nut.

(6) Install the landing light supports ([AMM TASK 33-41-02-400-802-A/400](#)).

(7) Install the taxi light supports ([AMM TASK 33-42-02-400-802-A/400](#)).

(8) Attach to the clamps the harness of the air/ground proximity switch (WOW), feedback potentiometer, landing lights, and taxi lights.

(9) On the forward pressure bulkhead, connect the connectors of the air/ground proximity switch (WOW), landing lights, and taxi lights.

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 Lektro-Tech Super Corr-A into the plug connector to prevent corrosion and clean the contacts.

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

(11) Bleed the air from the hydraulic system lines ([AMM TASK 29-10-00-860-803-A/200](#)).

- (12) Do an operational check of the landing gear ([AMM TASK 32-30-00-700-801-A/500](#)).
- (13) Do the functional check of the landing gear free-fall system ([AMM TASK 32-34-00-700-801-A/500](#)).
- (14) Install the landing-gear safety pins ([AMM TASK 32-00-01-910-801-A/200](#)).
- (15) Lower the aircraft and remove the jacks (AMM TASK 07-10-00-500-802-A/200).
- (16) Do the inspection/check of the nose landing gear leg ([AMM TASK 32-20-01-200-801-A/600](#)).
- (17) Do the operational check of the nose-wheel steering system ([AMM TASK 32-50-00-700-803-A/500](#)).
- (18) If the results of the operational check are unsatisfactory, adjust the nose-wheel steering system ([AMM TASK 32-50-00-700-802-A/500](#)).
- (19) For aircraft POST-MOD [SB 145-32-0036](#), remove the safety pin of the NLG doors solenoid valve ([AMM TASK 32-00-02-910-801-A/200](#)).

TASK 32-20-01-000-802-A

EFFECTIVITY: ALL

4. NOSE LANDING-GEAR UPLOCK PIN - REMOVAL

A. General

(1) This task gives the procedure to remove the NLG uplock pin.

B. Zones and Accesses

Not Applicable

C. Tools and Equipment

Not Applicable

D. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
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

E. Consumable Materials

Not Applicable

F. Expandable Parts

Not Applicable

G. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	NLG

H. Preparation

SUBTASK 020-006-A

- (1) Make sure that the safety pins of the landing gears are installed (AMM TASK 32-00-01-910-801-A/200).
- (2) On the Circuit Breaker Panel, open the ELEC PUMP 1, CMD, IND 1, and IND 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.

I. Removal [\(Figure 405\)](#)

SUBTASK 020-007-A

- (1) Use a polyethylene spatula, to remove the sealant from the uplock pin (1), nut (3) and cotter pin (4).
- (2) Remove the cotter pin (4) and nut (3) from the uplock pin (1).
- (3) Remove the uplock pin (1) from the nose landing gear.

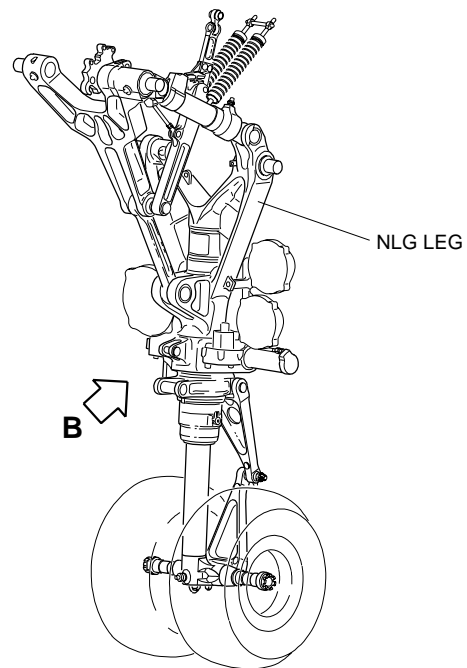
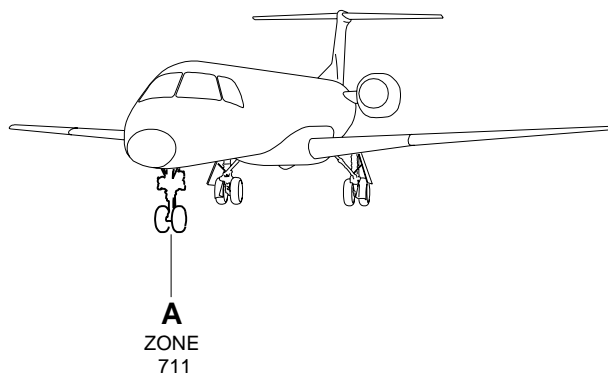


- (4) With a cloth soaked in Rhodiasolve E-23, clean the remaining of the sealant from the components as necessary.

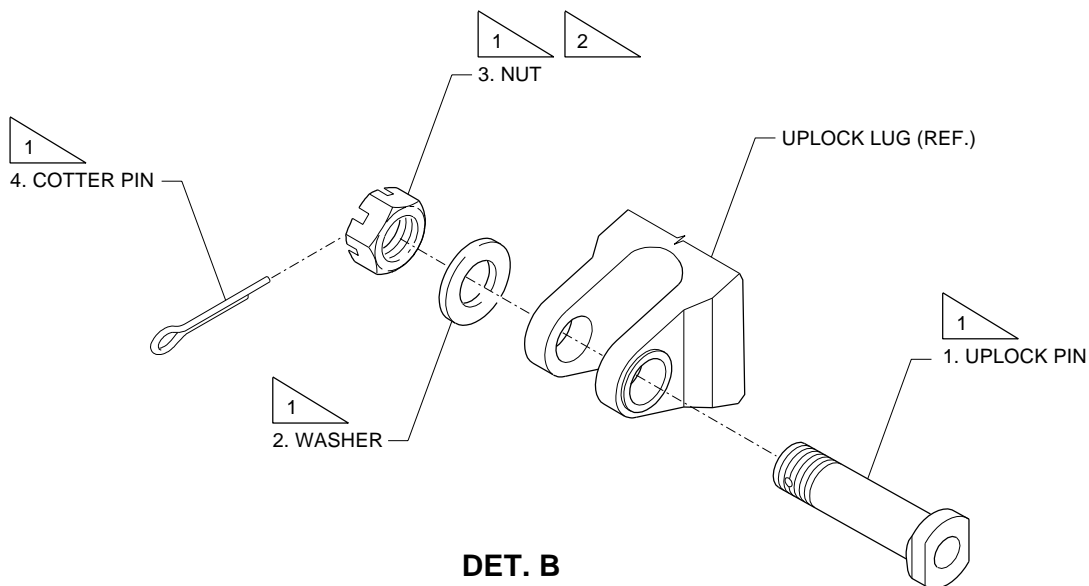
EFFECTIVITY: ALL

Nose Landing Gear - Uplock Pin

Figure 405



DET. A



1 SEALANT

2 LUBRICANT

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TASK 32-20-01-400-802-A

EFFECTIVITY: ALL

5. NOSE LANDING-GEAR UPLOCK PIN - INSTALLATION

A. General

(1) This task gives the procedure to install the NLG uplock pin.

B. References

REFERENCE	DESIGNATION
Cotter pin	-

C. Zones and Accesses

Not Applicable

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
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

SPECIFICATION (BRAND)	DESCRIPTION	QTY
-	Lubricant MOLYKOTE DX	AR
SAE AMS 3277, Type I, Class B2	Sealant PR1826B2ALO	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
MS24665-372	Cotter pin	1

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	NLG

I. Preparation

SUBTASK 840-002-A

WARNING: MAKE SURE THAT THE AIRCRAFT IS IN A SAFE CONDITION BEFORE YOU DO THE MAINTENANCE PROCEDURES. THIS IS TO PREVENT INJURY TO PERSONS AND/OR DAMAGE TO THE EQUIPMENT.

- (1) Make sure that the aircraft is in the same configuration as it was at the end of the removal task (AMM TASK 32-20-01-000-802-A/400).

J. Installation (Figure 405)

SUBTASK 420-005-A

- (1) Apply the lubricant MOLYKOTE DX on the thread of the nut (3).
- (2) Install the uplock pin (1) in the nose landing gear.
- (3) Install the washer (2) and nut (3) in the uplock pin (1).
- (4) Tighten the nut (3) with your hand.
- (5) Make sure that the uplock pin turns freely when you move it manually.
- (6) Safety the nut (3) with a new cotter pin (4).
- (7) Apply sealant PR1826B2ALO, as follows (SRM 51-20-01):
 - (a) To the end of the uplock pin (1)
 - (b) To the nut (3)
 - (c) To the washer (2)
 - (d) To the cotter pin (4)
- (8) Make sure that there is no sealant between the washer (2) and uplock lug of the nose landing gear. If there is sealant in the washer (2) and uplock lug of the nose landing gear, the uplock pin will not turn freely when you manually move it .

K. Follow-on

SUBTASK 867-002-A

- (1) Put the aircraft back to its initial condition:
 - (a) On the circuit breaker panel, close the ELEC PUMP 1, CMD, IND 1, and IND 2 circuit breaker and remove the DO-NOT-CLOSE tag from them.
 - (b) Remove the safety pins from the landing gear (AMM TASK 32-00-01-910-801-A/200).

CAUTION: EXAMINE ALL THE WORK AREAS TO MAKE SURE THAT YOU REMOVED ALL TOOLS AND EQUIPMENT AFTER YOU COMPLETED THE WORK. IF YOU DO NOT OBEY THIS PROCEDURE, DAMAGE TO THE AIRCRAFT CAN OCCUR.

- (c) Remove all tools, equipment, and unwanted materials from the work area.

