



EMB145 – EMB135

AIRCRAFT  
MAINTENANCE MANUAL

**HYDRAULIC ACCUMULATOR - REMOVAL/INSTALLATION**

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the hydraulic accumulator of the emergency/parking brake system.
- 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
32-44-02-000-801-A	HYDRAULIC ACCUMULATOR OF THE EMERGENCY/PARKING BRAKE SYSTEM - REMOVAL	ALL
32-44-02-400-801-A	HYDRAULIC ACCUMULATOR OF THE EMERGENCY/PARKING BRAKE SYSTEM - INSTALLATION	ALL



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TASK 32-44-02-000-801-A

EFFECTIVITY: ALL

2. HYDRAULIC ACCUMULATOR OF THE EMERGENCY/PARKING BRAKE SYSTEM - REMOVAL

A. General

- (1) This procedure gives the instructions to remove the hydraulic accumulator of the emergency/parking brake system.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-02/100	-
AMM TASK 32-44-02-910-801-A/200	HYDRAULIC ACCUMULATOR EMERGENCY/PARKING BRAKE - RELEASE

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193CR	Hydraulic compartment 2

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	1 1/8-inch Open-End Wrench	To hold the hydraulic accumulator	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Resistant to Phosphate Ester-Base Fluid	Protection for the Hands	1
Commercially available	Rubber Goggles, Resistant to Phosphate Ester-Base Fluid	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	Hydraulic compartment 2

I. Preparation

SUBTASK 841-002-A

**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) On the Circuit Breaker panel, open the ELEC PUMP 2 circuit breaker and attach a DO-NOT-CLOSE tag to it.
- (2) 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](#)).
- (3) Remove access panel 193CR of hydraulic compartment 2 (AMM MPP 06-41-02/100).
- (4) Slowly open the charging valve of the nitrogen chamber of the hydraulic accumulator (1) to let all pressure in it go out.

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

SUBTASK 020-002-A

**CAUTION: TO DISCONNECT THE TUBES (3) AND (7), HOLD THE HYDRAULIC ACCUMULATOR (1) BY THE NEAREST FITTING WITH THE AID OF AN OPEN-END WRENCH. THIS WILL PREVENT THE TWIST OF THE HYDRAULIC ACCUMULATOR, WHICH CAN CAUSE DAMAGE TO IT. REFER TO FIGURE 401.**

- (1) Disconnect the hydraulic tubes (3) and (7).
- (2) Remove the lockwires (2) and (6).
- (3) Loosen the clamps (4) and (5).
- (4) Remove the hydraulic accumulator (1).

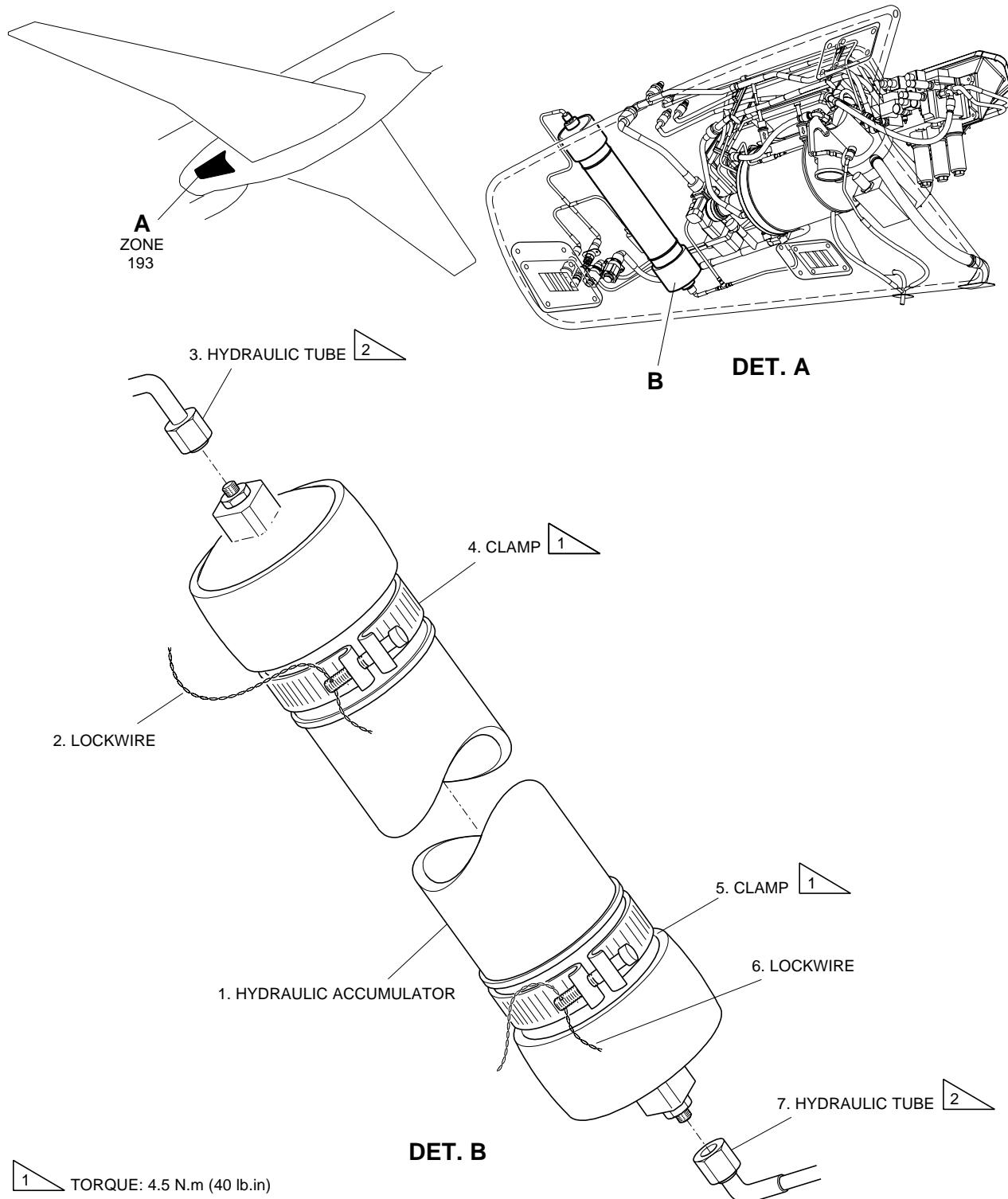
**CAUTION: TO LOOSEN THE FITTINGS (8) AND (11), HOLD THE HYDRAULIC ACCUMULATOR (1) BY THE NEAREST DRIVE POINT WITH THE AID OF AN 1 1/8-INCH OPEN-END WRENCH. THIS WILL PREVENT THE TWIST OF THE HYDRAULIC ACCUMULATOR, WHICH CAN CAUSE DAMAGE TO IT. REFER TO FIGURE 402.**

- (5) Remove and keep the fittings (8) and (11).
- (6) Remove and discard the O-rings (9) and (10).

**EFFECTIVITY: ALL**

Hydraulic Accumulator of the Emergency/Parking Brake System - Removal/Installation

Figure 401



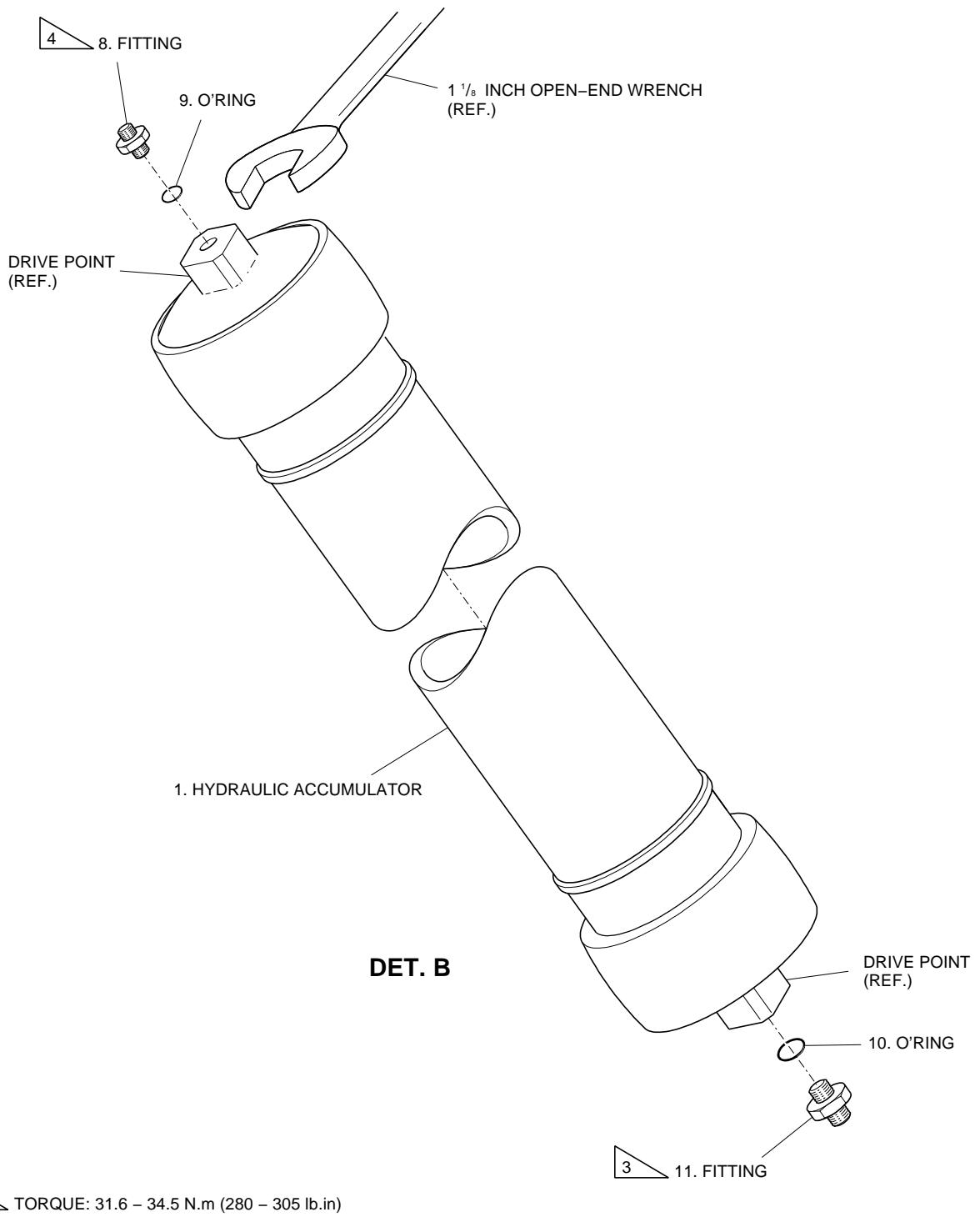
[1] TORQUE: 4.5 N.m (40 lb.in)

[2] TORQUE: 15.3 – 16.4 N.m (135 – 145 lb.in)

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**EFFECTIVITY: ALL**

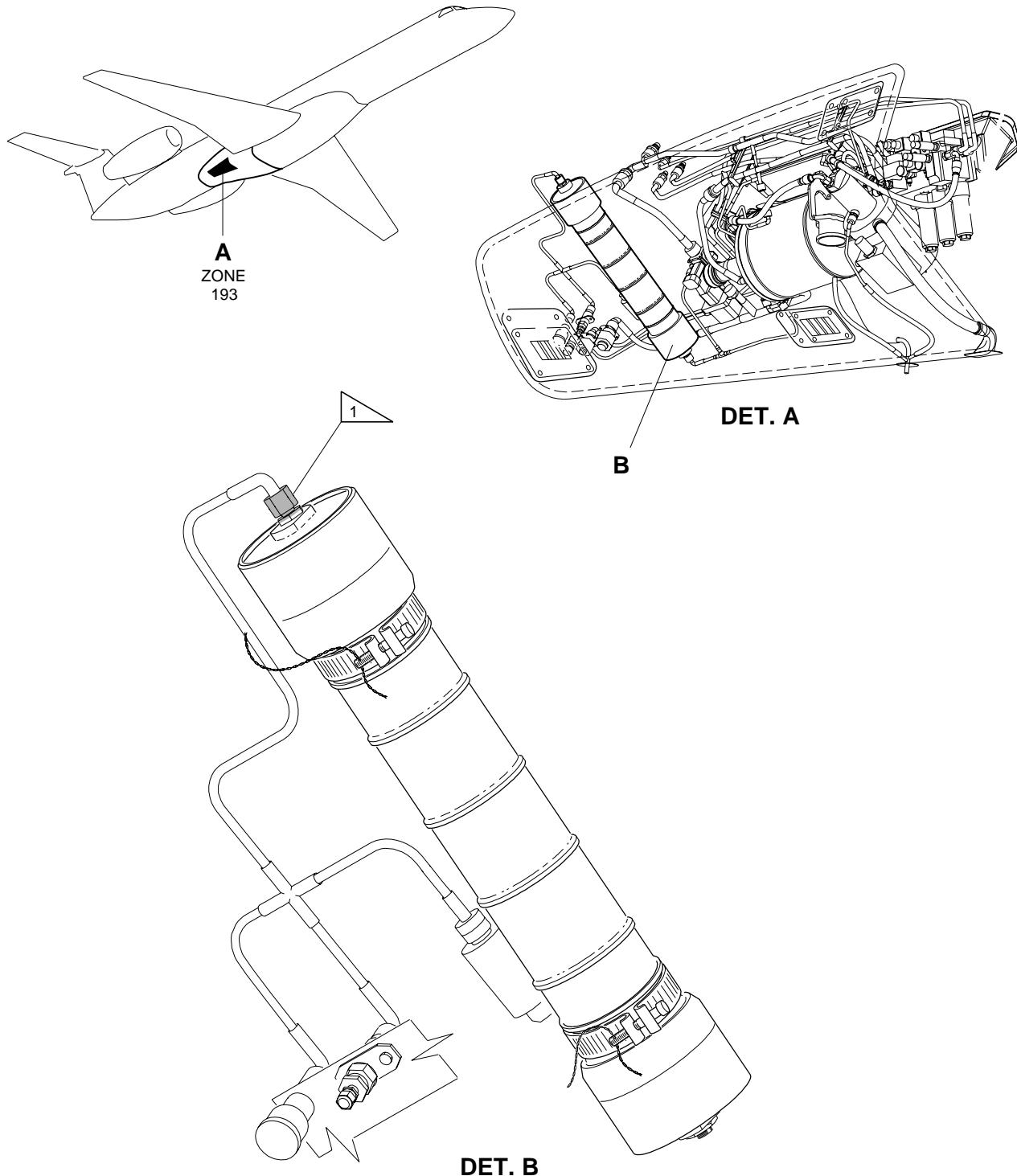
Hydraulic Accumulator of the Emergency/Parking Brake System - Removal/Installation  
Figure 402



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**EFFECTIVITY: ALL**

Hydraulic Accumulator of the Emergency/Parking Brake System - Test For Gas Leakage  
Figure 403



 **1** APPLY LEAK DETECTION FLUID.

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# AIRCRAFT MAINTENANCE MANUAL

TASK 32-44-02-400-801-A

EFFECTIVITY: ALL

### 3. HYDRAULIC ACCUMULATOR OF THE EMERGENCY/PARKING BRAKE SYSTEM - INSTALLATION

#### A. General

- (1) This procedure gives the instructions to install the hydraulic accumulator of the emergency/parking brake system.

#### B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-02/100	-
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 32-40-00-800-801-A/200	NORMAL BRAKE AND EMERGENCY PARKING BRAKE SYSTEMS - BLEEDING
AMM TASK 32-44-02-600-801-A/300	EMERGENCY/PARKING BRAKE ACCUMULATOR - CHARGE
IPC 32-44-02	HYDRAULIC ACCUMULATOR

#### C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
193	193CR	Hydraulic compartment 2

#### D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Torque Wrench	To torque the fittings and clamps	
Commercially available	1 1/8-inch Open-End Wrench	To hold the hydraulic accumulator	

#### E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Resistant to Phosphate Ester-Base Fluid	Protection for the Hands	1
Commercially available	Rubber Goggles, Resistant to Phosphate Ester-Base Fluid	Protection for the Eyes	1
Commercially available	Brush	To apply the leak detector fluid	1

#### F. Consumable Materials

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



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## G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Lockwire	IPC 32-44-02	AR
O-ring	IPC 32-44-02	1
O-ring	IPC 32-44-02	1

## H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Hydraulic compartment 2

## I. Preparation (Figure 402)

## SUBTASK 841-003-A

**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) Lubricate new O-rings (9) and (10) and install them.

**CAUTION:** TO APPLY THE TORQUE TO THE FITTING (8), HOLD THE HYDRAULIC ACCUMULATOR (1) BY THE NEAREST DRIVE POINT WITH THE AID OF AN 1 1/8-INCH OPEN-END WRENCH. THIS WILL PREVENT THE TWIST OF THE HYDRAULIC ACCUMULATOR, WHICH CAN CAUSE DAMAGE TO IT. REFER TO FIGURE 402.

**CAUTION:** MAKE SURE THAT YOU APPLY THE CORRECT TORQUE ON THE FITTING. AN OVERTORQUE DURING THE ACCUMULATOR INSTALATION COULD CAUSE A DAMAGE TO THE INTERNAL ACCUMULATOR THAT WILL HAVE A LEAKAGE AS RESULT.

- (2) Install fitting (8) and tighten it with a torque of 14.1 - 15.3 N.m (125 - 135 lb.in).

**CAUTION:** TO APPLY THE TORQUE TO THE FITTING (11), HOLD THE HYDRAULIC ACCUMULATOR (1) BY THE NEAREST DRIVE POINT WITH THE AID OF AN 1 1/8-INCH OPEN-END WRENCH. THIS WILL PREVENT THE TWIST OF THE HYDRAULIC ACCUMULATOR, WHICH CAN CAUSE DAMAGE TO IT. REFER TO FIGURE 402.

**CAUTION:** MAKE SURE THAT YOU APPLY THE CORRECT TORQUE ON THE FITTING. AN OVERTORQUE DURING THE ACCUMULATOR INSTALATION COULD CAUSE A DAMAGE TO THE INTERNAL ACCUMULATOR THAT WILL HAVE A LEAKAGE AS RESULT.

- (3) Install fitting (11) and tighten it with a torque of 31.6 - 34.5 N.m (280 - 305 lb.in).

J. Installation (Figure 401)

**SUBTASK 420-002-A**

- (1) Put the hydraulic accumulator (1) in position in the clamps (4) and (5).

**CAUTION:** MAKE SURE THAT YOU APPLY THE CORRECT TORQUE ON THE HYDRAULIC TUBE. AN OVERTORQUE DURING THE ACCUMULATOR INSTALATION COULD CAUSE A DAMAGE TO THE INTERNAL ACCUMULATOR THAT WILL HAVE A LEAKAGE AS RESULT.

- (2) Connect the hydraulic tubes (3) and (7) and apply a torque of 15.3 to 16.4 N.m (135 to 145 lb.in) to the nuts.

**NOTE:** To apply the torque to the nut of the hydraulic tube, hold the assembly by the nearest fitting with the aid of an open-end wrench. Refer to Figure 401.

**CAUTION:** MAKE SURE THAT YOU APPLY THE CORRECT TORQUE ON THE CLAMPS. AN OVERTORQUE DURING THE ACCUMULATOR INSTALATION COULD CAUSE A DAMAGE TO THE INTERNAL ACCUMULATOR THAT WILL HAVE A LEAKAGE AS RESULT.

- (3) Tighten the clamps (4) and (5) to a torque of 4.5 N.m (40 lb.in) and safety them.

K. Follow-on (Figure 403)

**SUBTASK 842-002-A**

- (1) Pressurize the nitrogen chamber of the hydraulic accumulator (1) ([AMM TASK 32-44-02-600-801-A/300](#)).
- (2) Use a brush to apply the leak detection fluid to the hydraulic-accumulator upper fitting and examine it for gas leakage. Refer to (Figure 403).
- (3) On the Circuit Breaker panel, close the ELEC PUMP 2 circuit breaker and remove the DO-NOT-CLOSE tag from it.
- (4) Pressurize hydraulic system 2 ([AMM TASK 29-10-00-860-801-A/200](#)).
- (5) Do a check on the hydraulic accumulator assembly for oil leakage.
- (6) Install access panel 193CR of hydraulic compartment 2 (AMM MPP 06-41-02/100).
- (7) Bleed the Normal Brake and Emergency Parking Brake systems ([AMM TASK 32-40-00-800-801-A/200](#)).

