ENGINE-DRIVEN PUMP - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

   A. This section gives the procedures to remove/install the EDP (Engine-Driven Pump).

   B. The two EDPs operated by the gear box are installed in the LH engine (system 1) and in the RH engine (system 2).

   C. You can get access to the EDP of the LH engine (system 1) through lower cowling 413 (AMM MPP 06-30-00/100).

   D. You can get access to the EDP of the RH engine (system 2) through lower cowling 423 (AMM MPP 06-30-00/100).

   E. If the replacement is because of a mechanical failure, examine the pressure and case drain filter elements for contamination (AMM TASK 29-10-08-000-801-A/400).

   F. 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*
29-10-03-000-801-A	EDP - REMOVAL	ALL
29-10-03-400-801-A	EDP - INSTALLATION	ALL

TASK 29-10-03-000-801-A
EFFECTIVITY: ALL

2. EDP - REMOVAL

A. General

(1) This task gives the procedures to remove the EDP.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 71-12-01-000-801-A/400	ENGINE LOWER COWLING - OPENING

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
413	413	LH Lower cowling
423	423	RH Lower cowling

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
Commercially available	Drip Pan	To collect the hydraulic fluid when you remove the EDP	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	LH engine (system 1) and (or) RH engine (system 2)

I. Preparation

SUBTASK 841-002-A

(1) On the circuit breaker panel, open the ELEC PUMP 1 and (or) ELEC PUMP 2 circuit breaker(s) and attach a DO-NOT-CLOSE tag to it (them).

(2) Release the pressure of the related hydraulic system (AMM TASK 29-10-00-860-802-A/200).

(3) Open the lower cowling (AMM TASK 71-12-01-000-801-A/400) to get access to the EDP.

J. Removal (Figure 401)

SUBTASK 020-002-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 GOGGLES AND RUBBER 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.

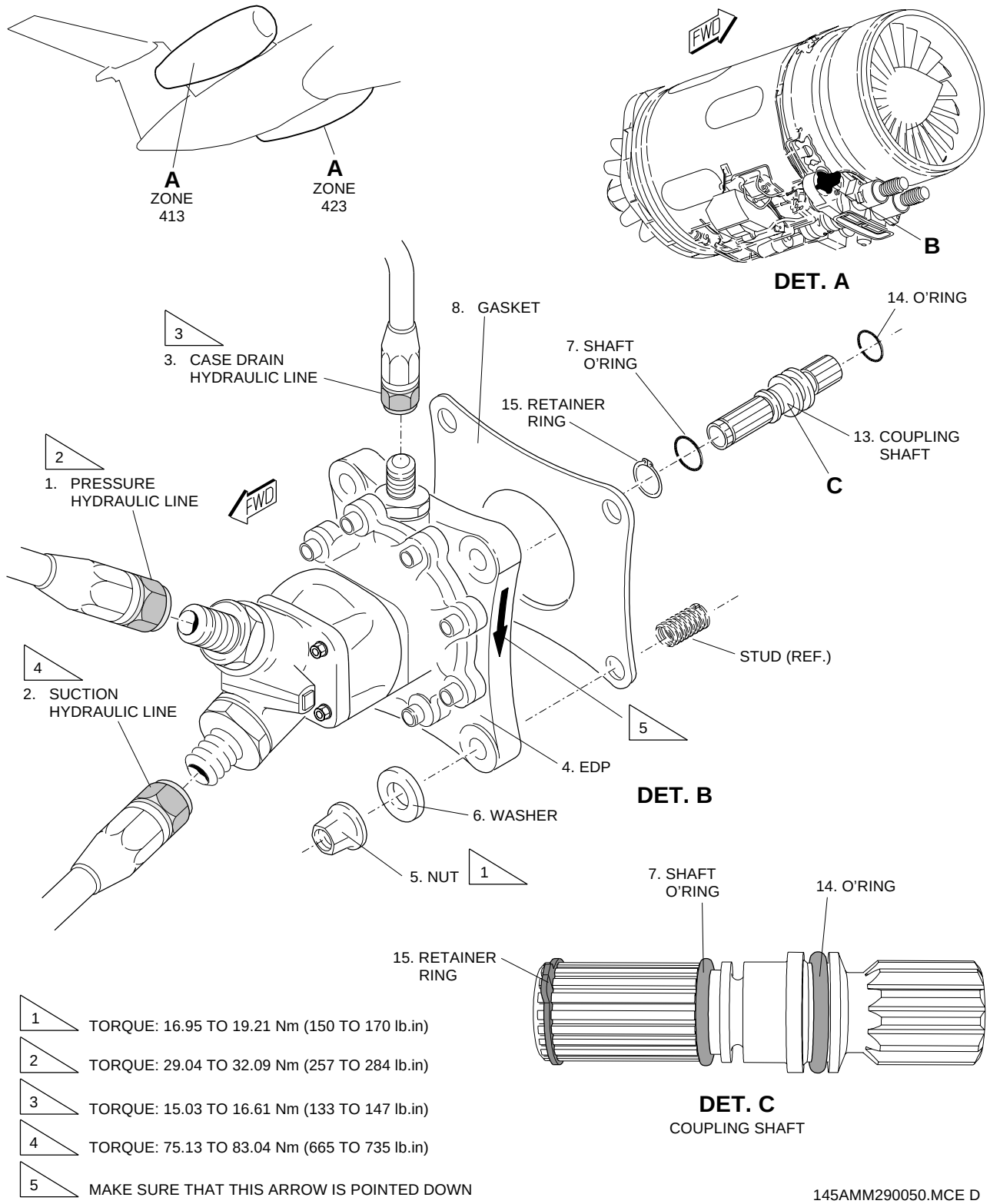
(1) Disconnect the pressure (1), suction (2), and case drain (3) hydraulic lines.

(2) Hold the EDP (4), and remove the nuts (5) and washers (6) that attach the pump to the gear box flange.

(3) Remove the EDP (4) with the related O-ring (7) of the coupling shaft and gasket (8).

(a) Discard the O-ring (7) and the gasket (8).

EFFECTIVITY: ALL
EDP - Removal/Installation
Figure 401



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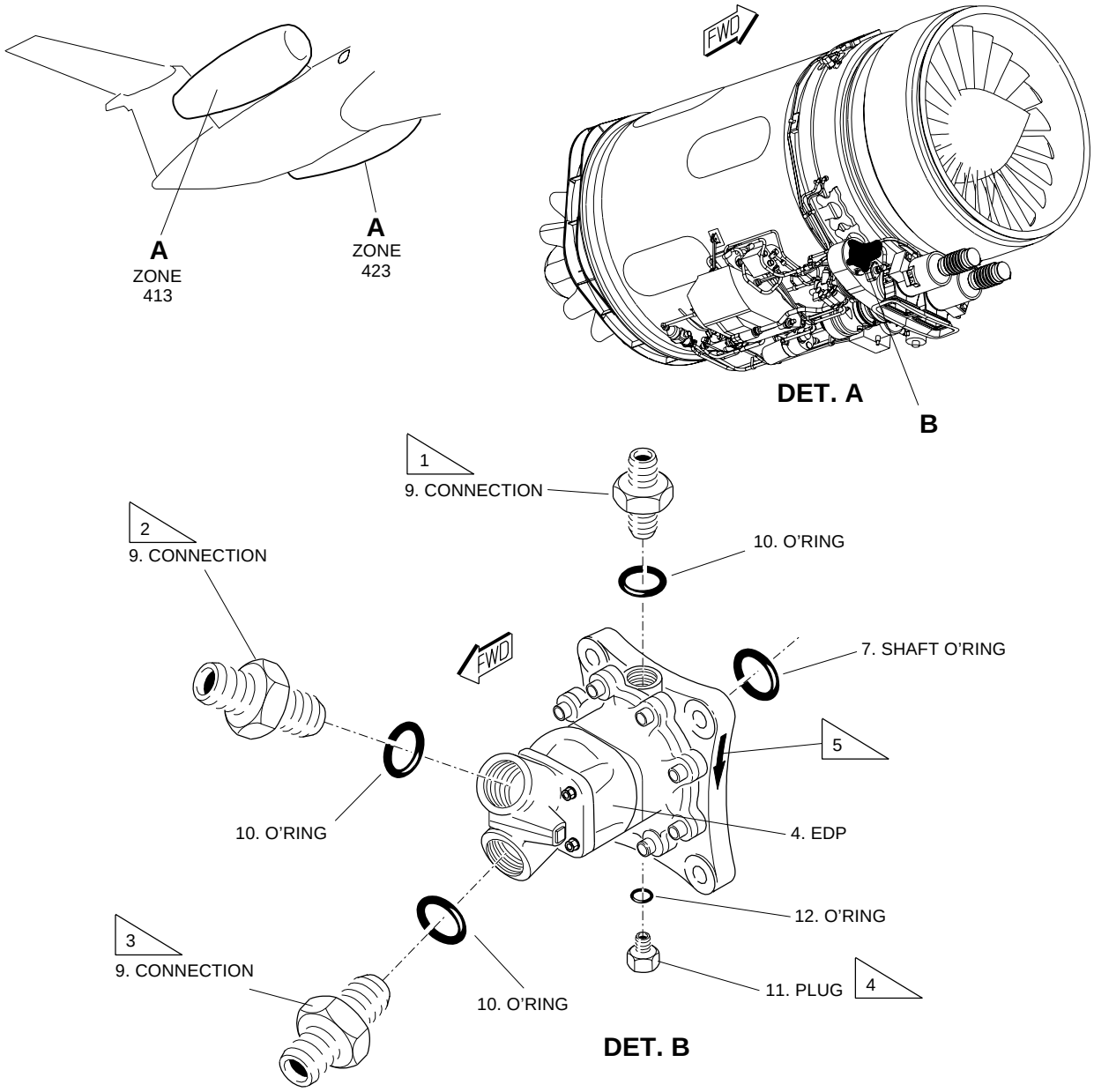
EFFECTIVITY: ALL

Connections of the EDP - Removal/Installation
Figure 402



1 TORQUE: 10.73 TO 11.86 Nm (95 TO 105 lb.in)

2 TORQUE: 31.64 TO 34.46 Nm (280 TO 305 lb.in)

3 TORQUE: 42.94 TO 45.76 Nm (380 TO 405 lb.in)

4 TORQUE: 9.6 TO 10.73 Nm (85 TO 95 lb.in)

5 MAKE SURE THAT THIS ARROW IS POINTED DOWN

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TASK 29-10-03-400-801-A
EFFECTIVITY: ALL

3. EDP - INSTALLATION

A. General

(1) This task gives the procedures to install the EDP.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 12-13-01-600-802-A/300	HYDRAULIC SYSTEM RESERVOIR - REPLENISHMENT
AMM TASK 20-10-06-300-801-A/800	TUBING - TEMPORARY REPAIRS
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
AMM TASK 29-10-00-860-803-A/200	HYDRAULIC SYSTEM - BLEED OF AIR
AMM TASK 71-12-01-400-801-A/400	ENGINE LOWER COWLING - CLOSING
IPC 29-10-03	ENGINE DRIVEN PUMP

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
413	413	LH Lower cowling
423	423	RH Lower cowling

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Torque wrench	To apply the torques	

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*
MIL-G-21164	Grease	AR

G. Expendable Parts

ITEM	*IPC REFERENCE (VENDOR REFERENCE)*	*QTY*
Gasket	IPC 29-10-03	1/LRU
O-ring	IPC 29-10-03	2/LRU
O-ring	IPC 29-10-03	1/LRU
O-ring	IPC 29-10-03	1/LRU
O-ring	IPC 29-10-03	1/LRU
O-ring	IPC 29-10-03	1/LRU

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	LH engine (system 1) and (or) RH engine (system 2)

I. Installation (Figure 401) (Figure 402)

SUBTASK 420-002-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 GOGGLES AND RUBBER 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) Remove the connections (9) with the related O-rings (10) from the used EDP (4).

(2) Remove the plug (11) with related O-ring (12) from the used EDP (4).

(3) Discard the O-rings (10) and (12).

(4) Put the new O-rings (10) to the connections (9).

(5) Put the new O-ring (12) to the plug (11).

(6) Install the connection (9)/O-ring (10) and plug (11)/O-ring (12) assemblies to the new EDP (4). Torque the connections (9) and plug (11) as given in (Figure 402)

(7) Remove the coupling shaft (13) with the O-ring (14) from the engine-gear-box.

(8) Discard the O-ring (14).

(9) Put the new O-ring (7) to the coupling shaft (13).

(10) Fill the coupling shaft housing to one third of its capacity with MIL-G-21164 grease. Also, coat with MIL-G-21164 grease the portion of the coupling shaft splines that will be engaged to the EDP (4).

(11) Install the retaining ring (15)/O-ring (7)/coupling shaft (13) assembly to the EDP (4). Use the retaining ring (15) to attach it.

(12) Lubricate O-ring (14) with the engine-gear-box oil and install it to the coupling shaft (13).

CAUTION: INSTALL THE EDP (4) WITH ITS IDENTIFICATION PLACARD POINTED OUTBOARD ON THE RH SIDE AND INBOARD TO THE LH SIDE TO PREVENT THE INVERTION OF THE CASE DRAIN AND THE SEEPAGE DRAIN PORTS.

(13) Put the new EDP (4), with the new gasket (8), to the gear box flange.

(14) Install the washers (6) and nuts (5). Torque the nuts (5) as given in (Figure 401).

(15) Connect the pressure hydraulic line (1). Torque as given in (Figure 401).

NOTE: Torque the flexible hoses with reusable fittings, use the points shown in AMM TASK 20-10-06-300-801-A/800.

(16) Connect the suction hydraulic line (2).

NOTE: Torque the flexible hoses with reusable fittings, use the points shown in AMM TASK 20-10-06-300-801-A/800.

(17) Fill the EDP (4) at the connection point of the case drain hydraulic line (3) with hydraulic fluid.

(18) Connect the case drain hydraulic line (3). Apply the torque as given in (Figure 401).

NOTE: Torque the flexible hoses with reusable fittings, use the points shown in AMM TASK 20-10-06-300-801-A/800.

J. Follow-on

SUBTASK 842-002-A

(1) On the circuit breaker panel, close the ELEC PUMP 1 and (or) ELEC PUMP 2 circuit breaker(s) and remove the DO-NOT-CLOSE tag from it (them).

(2) Pressurize the related hydraulic system through the EMDP (Electrical-Motor-Driven Pump). Do the bleed of air from the hydraulic system lines (AMM TASK 29-10-00-860-803-A/200).

(3) Apply the torque to the connections of suction hydraulic line (2) as given in (Figure 401).

(4) Fill the hydraulic reservoir (AMM TASK 12-13-01-600-802-A/300).

(5) Pressurize the related hydraulic system (AMM TASK 29-10-00-860-801-A/200), with the engine in operation. Make sure that there are no leaks in the EDP and that the pressure shown on the MFD (Multi Function Display) is 2900 ± 200 psi.

(6) Close the lower cowling (AMM TASK 71-12-01-400-801-A/400).

(7) Do the engine leak test (run at maximum take-off power for a minimum of three minutes but not more than five minutes). Refer to the latest revision of Rolls-Royce MM CSP34022.