

THRUST REVERSER PLUMBING - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedure to remove and install the thrust reverser plumbing.
- 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
78-36-01-000-801-A	THRUST REVERSER PLUMBING - REMOVAL	ALL
78-36-01-400-801-A	THRUST REVERSER PLUMBING - INSTALLATION	ALL

TASK 78-36-01-000-801-A

EFFECTIVITY: ALL

2. THRUST REVERSER PLUMBING - REMOVAL

A. General

- (1) The procedures given in this task are related to the plumbing assembly installed on thrust reverser structure.
- (2) This task is applicable to the LH and RH thrust reversers.

B. References

<i>REFERENCE</i>	<i>DESIGNATION</i>
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
AMM TASK 54-52-01-000-801-A/400	PYLON FAIRINGS - REMOVAL
AMM TASK 71-11-01-000-801-A/400	ENGINE UPPER COWLING - REMOVAL
AMM TASK 71-12-01-000-801-A/400	ENGINE LOWER COWLING - OPENING
AMM TASK 78-33-01-980-801-A/200	ISOLATION CONTROL UNIT - INHIBITION PROCEDURES

C. Zones and Accesses

<i>ZONE</i>	<i>PANEL/DOOR</i>	<i>LOCATION</i>
416	416HT	LH Thrust reverser
416	416JT	LH Thrust reverser
416	416QL	LH Thrust reverser
416	416CB	LH Thrust reverser
416	416PR	LH Thrust reverser
416	416BB	LH Thrust reverser
416	416AB	LH Thrust reverser
426	426HT	RH Thrust reverser
426	426JT	RH Thrust reverser
426	426QL	RH Thrust reverser
426	426CB	RH Thrust reverser
426	426PR	RH Thrust reverser
426	426BB	RH Thrust reverser
426	426AB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the thrust reverser.	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Phosphate Ester-Base, Fluid-Resistant	Protection for hands	1
Commercially available	Goggles, Phosphate Ester-Base, Fluid-Resistant	Protection for eyes	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Thrust reverser

I. Preparation

SUBTASK 841-002-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVE IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

- MAKE SURE THAT THRUST REVERSERS ARE DEENERGIZED. ENERGIZED CIRCUITS CAN CAUSE INJURY TO PERSONS.
- MAKE SURE THAT THE HYDRAULIC TEST STAND IS NOT CONNECTED. THE THRUST LEVERS MUST BE IN THE IDLE OR FWD THRUST POSITION BEFORE YOU START REMOVE THE PLUMBING.
- THE PHOSPHATE-ESTER-BASE OIL IS HIGHLY CORROSIVE AND CAUSES INJURY TO THE EYES AND SKIN. BE CAREFUL NOT TO TOUCH THIS OIL. YOU MUST USE GLOVES AND GOGGLES.

CAUTION: • ALWAYS CLEAN THE HYDRAULIC FLUID THAT FALLS FROM THE ENGINE. DAMAGE CAN COME FROM ITS CORROSIVE ACTION.

- USE APPLICABLE CONTAINERS TO COLLECT THE REMAINING FLUIDS FROM THE OPEN LINES, TO KEEP THE WORK AREA CLEAN AND SAFE.

- (1) On the circuit breaker panel, open these circuit breakers and attach a DO-NOT-CLOSE tag to them:

- (a) THRUST REVERSER 1/2;
 - (b) HYD. ELEC. PUMP 1/2.
- (2) Put a DO-NOT-OPERATE-THE-THRUST-REVERSERS sign on the instrument panel, in the cockpit.
 - (3) Fully release the pressure from the hydraulic system ([AMM TASK 29-10-00-860-802-A/200](#)).
- NOTE:** Hydraulic system No. 1 pressurizes the LH engine thrust reverser, and hydraulic system No. 2 pressurizes the RH engine thrust reverser.
- (4) Inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)) .
 - (5) Put the workstand under the engine thrust reverser
 - (6) Remove the pylon lower fairing ([AMM TASK 54-52-01-000-801-A/400](#)).
 - (7) Open the engine lower cowling ([AMM TASK 71-12-01-000-801-A/400](#)).
 - (8) Remove the engine upper cowling ([AMM TASK 71-11-01-000-801-A/400](#)), if necessary.
 - (9) Put a container below the hydraulic connections.

J. Removal ([Figure 401](#)) ([Figure 402](#)) ([Figure 403](#))

SUBTASK 020-002-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVE IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

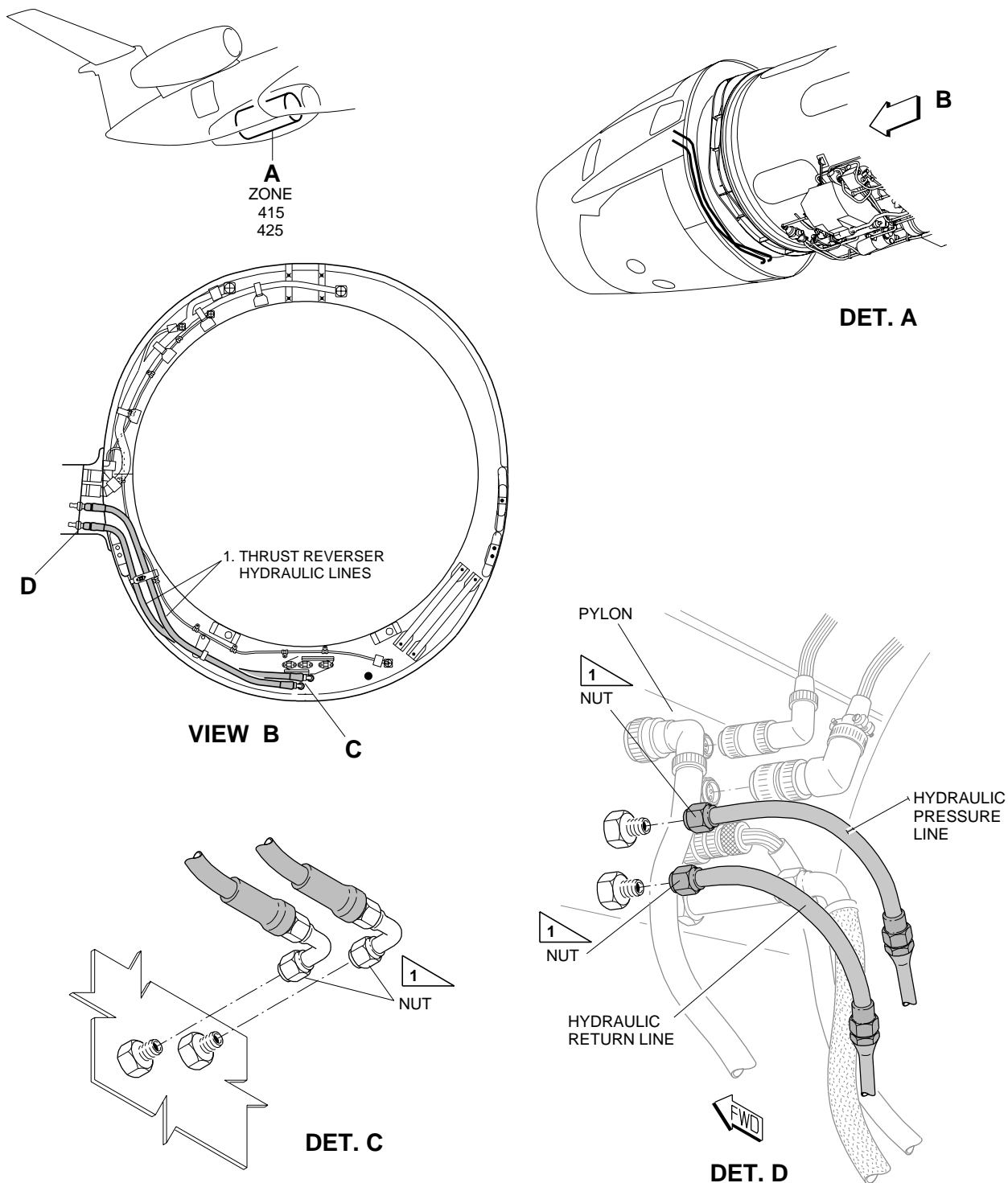
- BE CAREFUL WHEN YOU USE THE HYDRAULIC FLUID. THE HYDRAULIC FLUID IS DANGEROUS. IT CAN CAUSE DAMAGE TO YOUR EYES AND SKIN. PUT ON SAFETY GOGGLES AND PROTECTION CLOTHING. IF HYDRAULIC FLUID COMES IN YOUR EYES OR ON YOUR SKIN, FLUSH YOUR EYES WITH WATER FOR A MINIMUM OF 15 MINUTES AND CLEAN YOUR SKIN WITH SOAP AND WATER. GET MEDICAL HELP.

- (1) Open the applicable access panel ([AMM MPP 06-43-00/100](#)).
- (2) Remove the bolts, washers and nuts of the clamps of the applicable pipe or hose.
- (3) Remove the applicable pipe or hose. Refer to [Figure 401](#), [Figure 402](#) and [Figure 403](#).
- (4) Install protection caps to the disconnected points.

EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Torsion Box/Pylon Connection(LH TYPICAL)

Figure 401



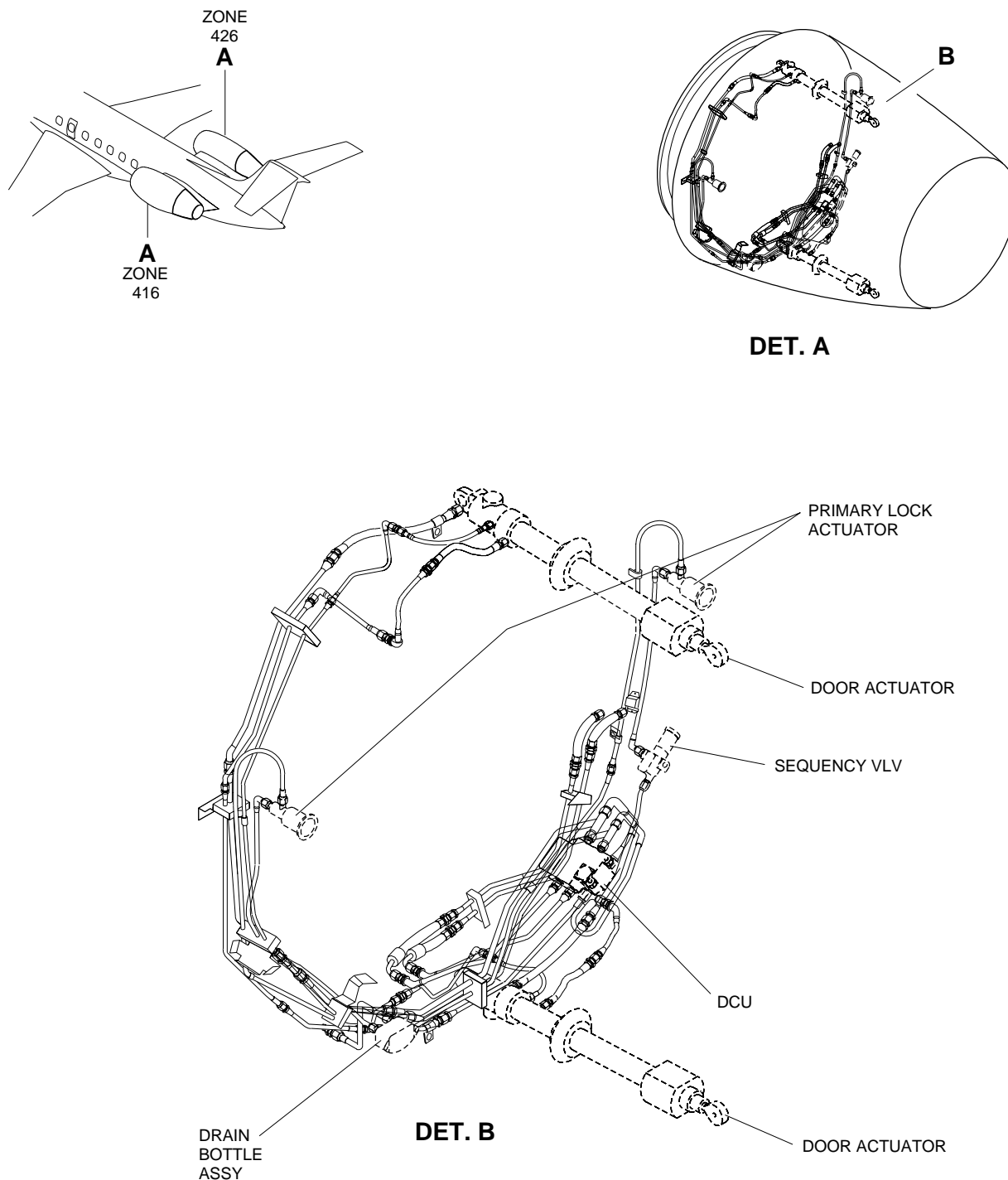
1 TORQUE VALUE OF HYDRAULIC INTERFACE CONNECTIONS 30.5 Nm (270 lb.in)

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EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - General

Figure 402

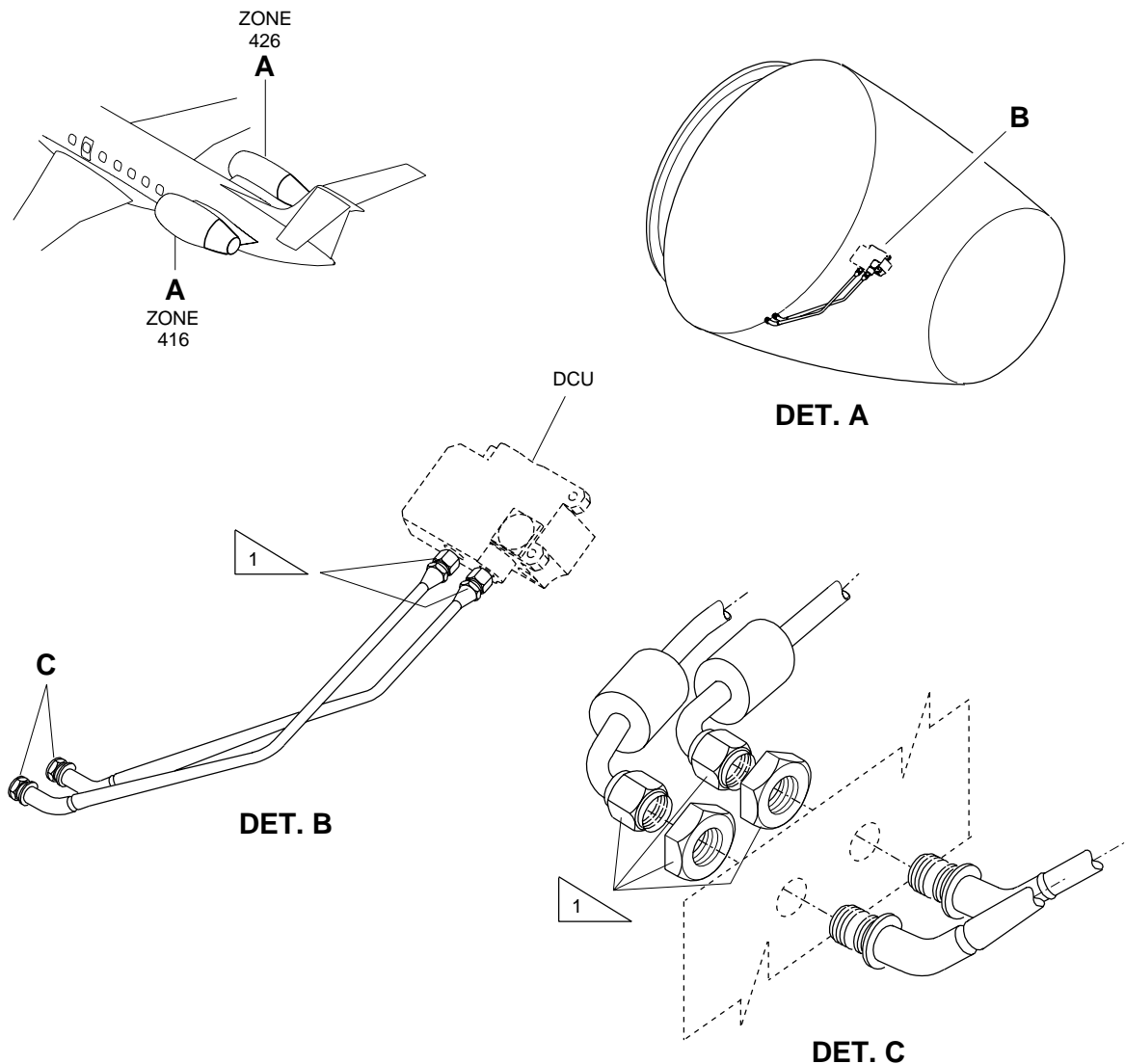


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EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Removal/Installation

Figure 403 - Sheet 1



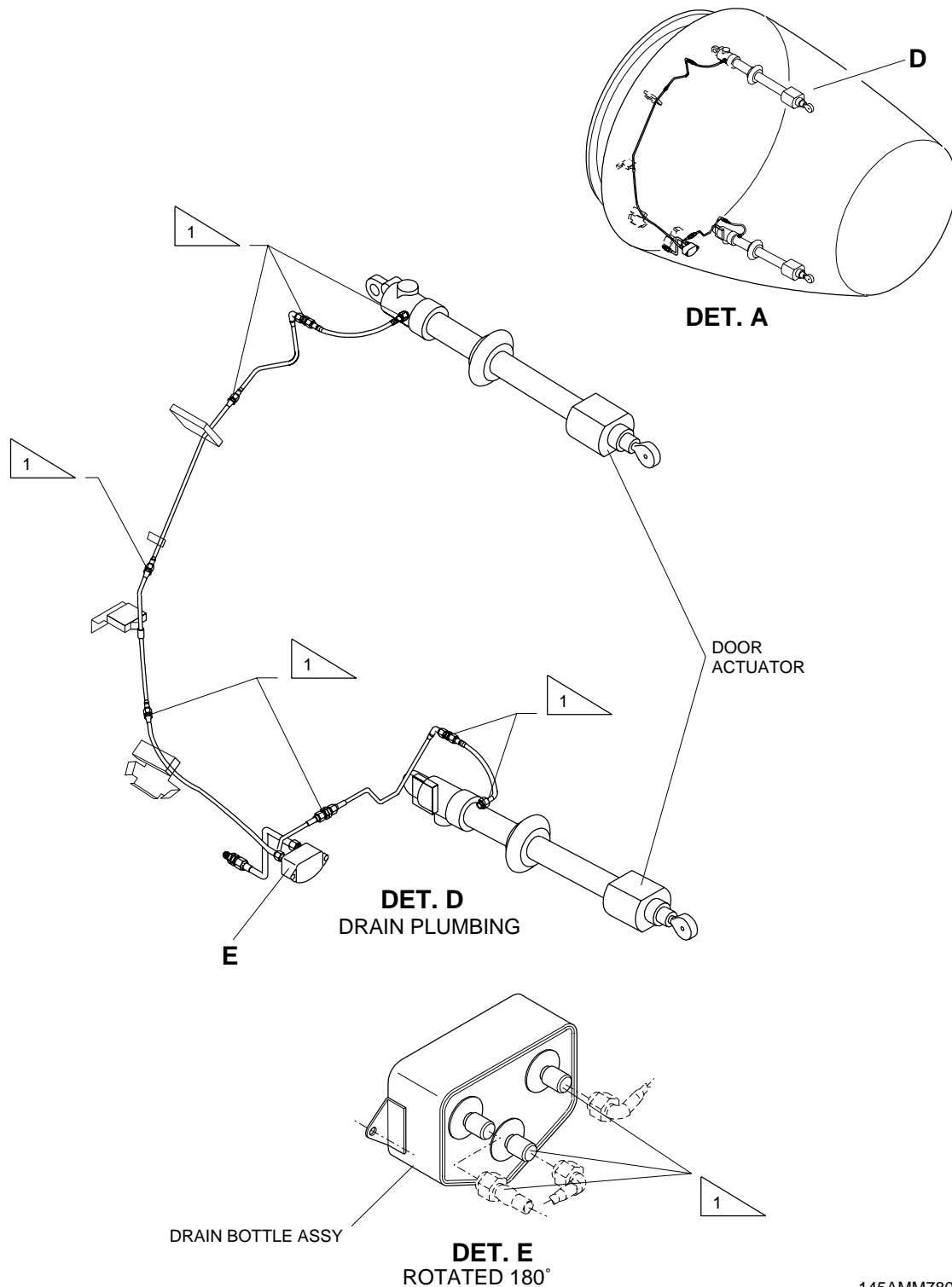
TUBE SIZE (inch)	TORQUE VALVE (lbf.in)
$\frac{3}{16}$	100
$\frac{1}{4}$	140
$\frac{3}{8}$	270
$\frac{1}{2}$	500

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EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Removal/Installation

Figure 403 - Sheet 2

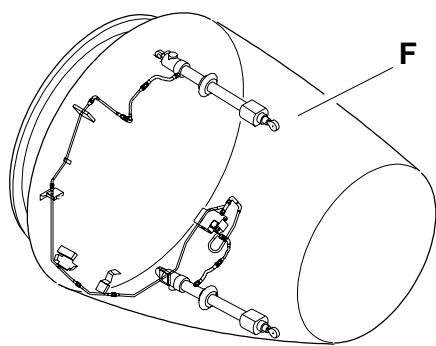


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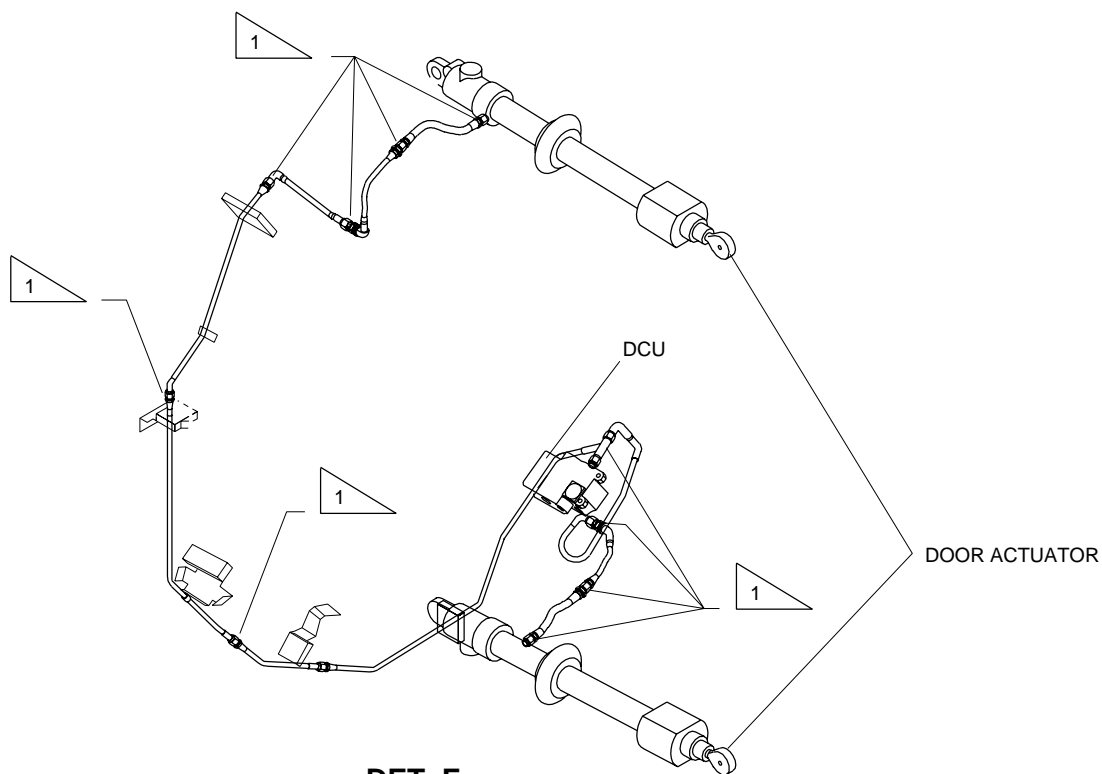
EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Removal/Installation

Figure 403 - Sheet 3



DET. A



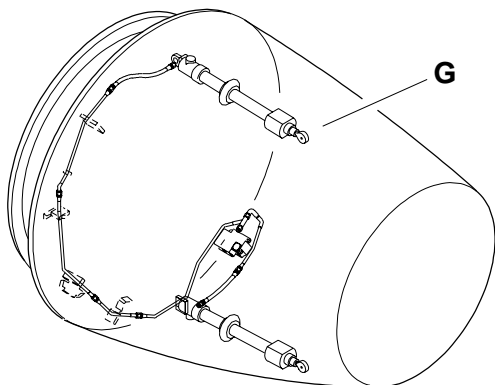
DET. F
STOW PLUMBING

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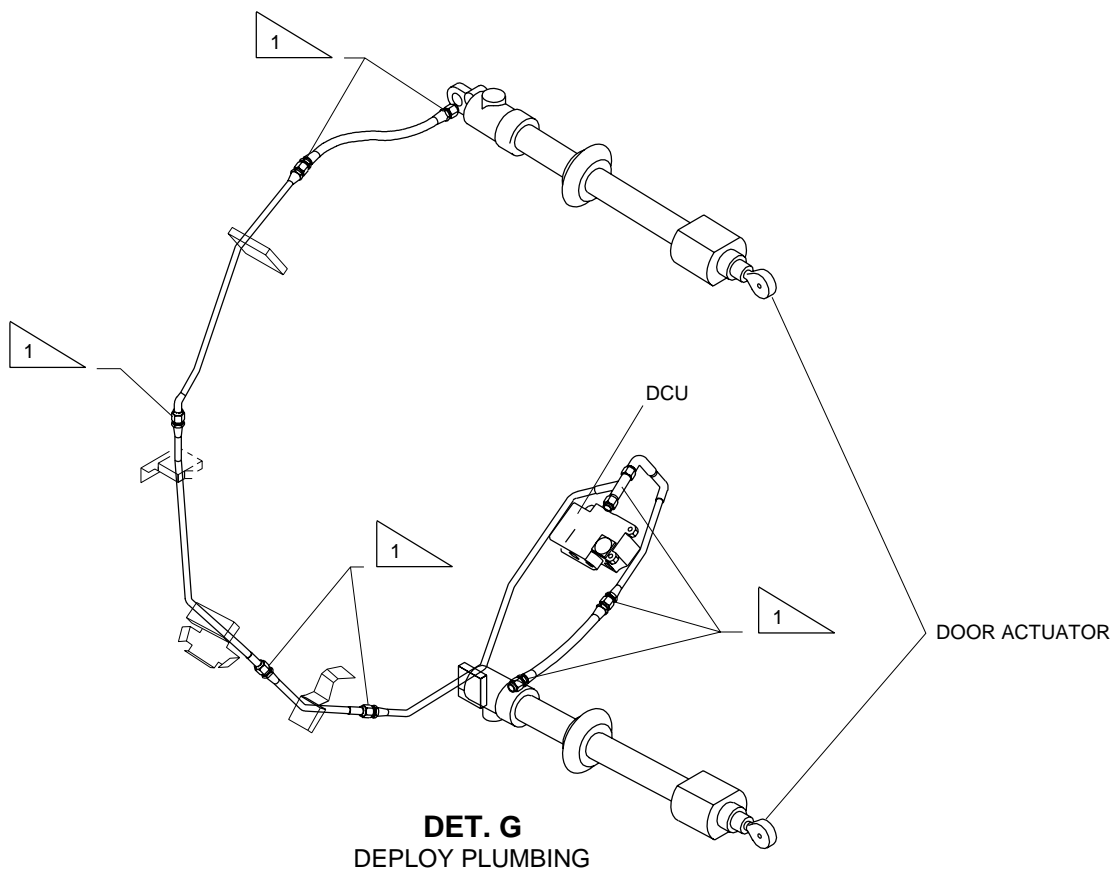
EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Removal/Installation

Figure 403 - Sheet 4



DET. A

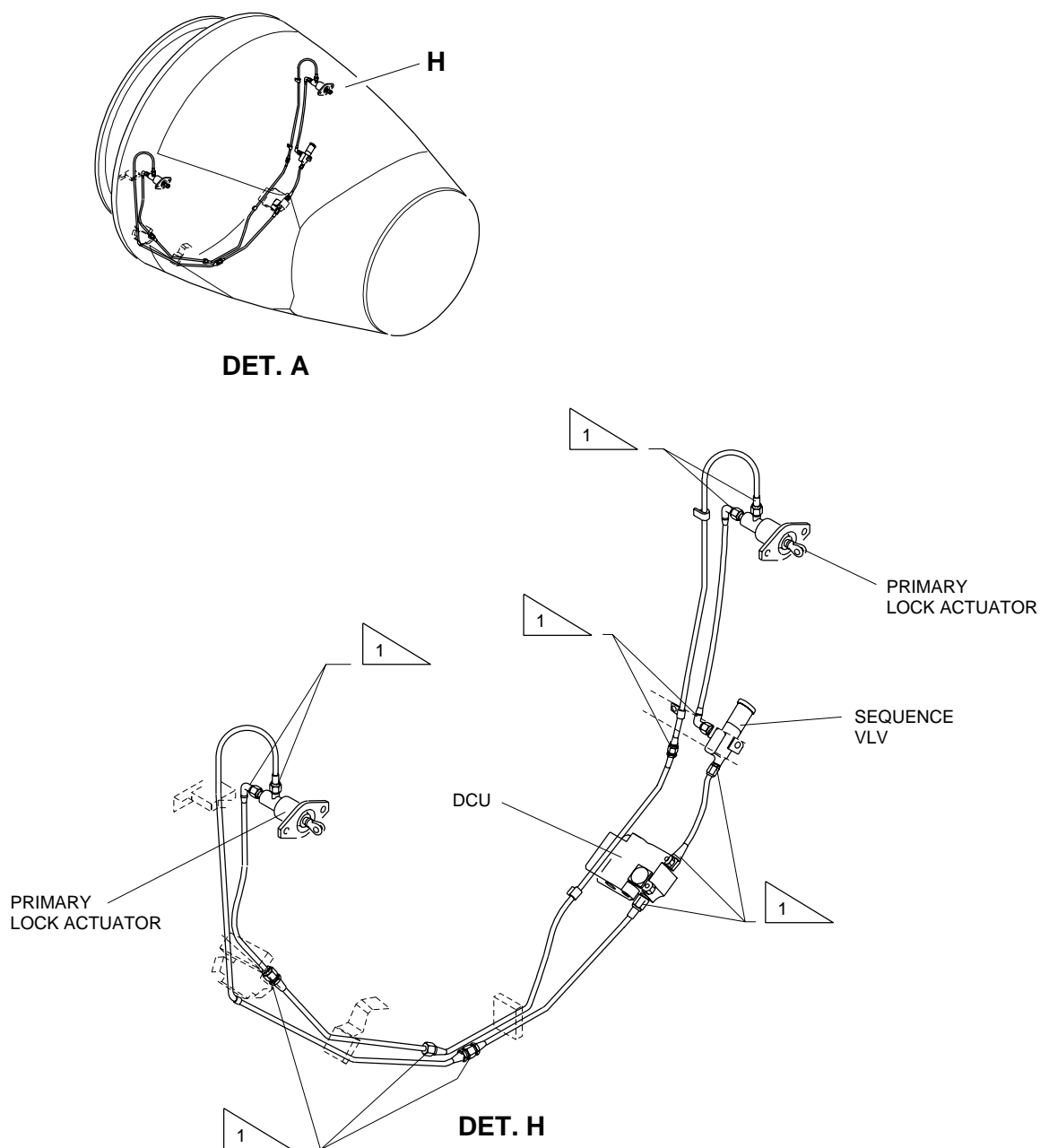


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EFFECTIVITY: ALL

Thrust Reverser Hydraulic Plumbing - Removal/Installation

Figure 403 - Sheet 5



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TASK 78-36-01-400-801-A

EFFECTIVITY: ALL

3. THRUST REVERSER PLUMBING - INSTALLATION

A. General

- (1) The procedures given in this task are related to the plumbing assembly installed on thrust reverser structure.
- (2) This task is applicable to the LH and RH thrust reversers.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-43-00/100	- COMPONENT LOCATION
AMM MPP 78-30-00/200	- MAINTENANCE PRACTICES
AMM TASK 54-52-01-400-801-A/400	PYLON FAIRINGS - INSTALLATION
AMM TASK 71-11-01-400-801-A/400	ENGINE UPPER COWLING - INSTALLATION
AMM TASK 71-12-01-400-801-A/400	ENGINE LOWER COWLING - CLOSING
AMM TASK 78-31-01-700-801-A/500	THRUST REVERSER - OPERATIONAL CHECK
AMM TASK 78-33-01-980-801-A/200	ISOLATION CONTROL UNIT - INHIBITION PROCEDURES

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
416	416HT	LH Thrust reverser
416	416JT	LH Thrust reverser
416	416QL	LH Thrust reverser
416	416CB	LH Thrust reverser
416	416PR	LH Thrust reverser
416	416BB	LH Thrust reverser
416	416AB	LH Thrust reverser
426	426HT	RH Thrust reverser
426	426JT	RH Thrust reverser
426	426QL	RH Thrust reverser
426	426CB	RH Thrust reverser
426	426PR	RH Thrust reverser
426	426BB	RH Thrust reverser
426	426AB	RH Thrust reverser

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Workstand	To get access to the thrust reverser.	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves, Phosphate Ester-Base, Fluid-Resistant	Protection for hands	1
Commercially available	Goggles, Phosphate Ester-Base, Fluid-Resistant	Protection for eyes	1

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
AS41088	Spiral Wrap (PTFE)	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Thrust reverser

I. Installation (Figure 401) (Figure 402) (Figure 403)

SUBTASK 420-002-A

WARNING: • REFER TO THE GROUND SAFETY PRECAUTIONS GIVE IN [AMM MPP 78-30-00/200](#) WHEN YOU DO THE THRUST REVERSER MAINTENANCE PROCEDURES.

- MAKE SURE THAT THRUST REVERSERS ARE DEENERGIZED. ENERGIZED CIRCUITS CAN CAUSE INJURY TO PERSONS.
- MAKE SURE THAT THE HYDRAULIC TEST STAND IS NOT CONNECTED. THE THRUST LEVERS MUST BE IN THE IDLE OR FWD THRUST POSITION BEFORE YOU START REMOVE THE PLUMBING.
- THE PHOSPHATE-ESTER-BASE OIL IS HIGHLY CORROSIVE AND CAUSES INJURY TO THE EYES AND SKIN. BE CAREFUL NOT TO TOUCH THIS OIL. YOU MUST USE GLOVES AND GOGGLES.

CAUTION: • ALWAYS CLEAN THE HYDRAULIC FLUID THAT FALLS FROM THE ENGINE. DAMAGE CAN COME FROM ITS CORROSIVE ACTION.

- USE APPLICABLE CONTAINERS TO COLLECT THE REMAINING FLUIDS FROM THE OPEN LINES, TO KEEP THE WORK AREA CLEAN AND SAFE.

CAUTION: LEAKAGE IN THE THRUST REVERSER HYDRAULIC SYSTEM CAN OCCUR BECAUSE OF CHAFING OF THE ACTUATOR PIPES AGAINST THE ADJACENT PARTS OF THE TORSION BOX. MAKE SURE THAT SPIRAL WRAPS ARE INSTALLED ON THE DRAIN AND STOW HYDRAULIC PIPES OF THE ACTUATOR TO PREVENT DAMAGE TO THEM AND, THUS, LEAKAGE IN THE HYDRAULIC SYSTEM.

- (1) Apply spiral wraps on the drain and stow hydraulic pipes of the pivot door actuator, if applicable.
- (2) Remove protection caps from the disconnect points, if applicable.
- (3) Install the applicable pipe or hose. Set the torque correctly. Refer to (Figure 401), (Figure 402) and (Figure 403).
- (4) Install the bolts, washers and nuts to the clamps that attach the pipe or hose to the thrust reverser structure.

J. Follow-on

SUBTASK 842-002-A

WARNING: MAKE SURE THAT NO LEAKING OCCURS DURING THRUST REVERSER OPERATION. THIS CAN CAUSE DAMAGES TO THRUST REVERSER AND HYDRAULIC SYSTEMS.

- (1) Do a visual inspection of the thrust reverser plumbing. It must not show:
 - (a) Chafing areas;
 - (b) Leaking areas;
 - (c) Loose connections.
- (2) Close the applicable access panel ([AMM MPP 06-43-00/100](#)).
- (3) Install the pylon lower fairing ([AMM TASK 54-52-01-400-801-A/400](#)).
- (4) Install the engine upper cowling ([AMM TASK 71-11-01-400-801-A/400](#)), if necessary.
- (5) Close the engine lower cowling ([AMM TASK 71-12-01-400-801-A/400](#)).
- (6) De-inhibit the ICU ([AMM TASK 78-33-01-980-801-A/200](#)).
- (7) Remove the container from below the hydraulic connections.
- (8) Remove the workstand from under the engine thrust reverser.
- (9) Remove the DO-NOT-OPERATE-THE-THRUST-REVERSERS sign from the instrument panel, in the cockpit.
- (10) On the circuit breaker panel, close these circuit breakers and remove the DO-NOT-CLOSE tags to them:
 - (a) THRUST REVERSER 1/2;
 - (b) HYD. ELEC. PUMP 1/2.

(11) Do the thrust reverser operational check ([AMM TASK 78-31-01-700-801-A/500](#)).

