



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

WATER SPRAY NOZZLE - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install the water spray nozzles of the cooling pack system.
- B. These procedures are applicable to the LH and RH water spray nozzles.
- C. The LH water spray nozzle is installed in the LH ram-air inlet duct, between the LH ram air valve and the LH dual heat exchanger, inside the forward lower fairing.
- D. The RH water spray nozzle is installed in the RH ram-air inlet duct, between the RH ram air valve and the RH dual heat exchanger, inside the forward lower fairing.
- E. 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
21-51-13-000-801-A	WATER SPRAY NOZZLE - REMOVAL	ONLY AIRCRAFT WITH SPRAY NOZZLE 145-25793
21-51-13-400-801-A	WATER SPRAY NOZZLE - INSTALLATION	ONLY AIRCRAFT WITH SPRAY NOZZLE 145-25793
21-51-13-000-802-A	WATER SPRAY NOZZLE - REMOVAL	ONLY AIRCRAFT WITH SPRAY NOZZLE 145-53171
21-51-13-400-802-A	WATER SPRAY NOZZLE - INSTALLATION	ONLY AIRCRAFT WITH SPRAY NOZZLE 145-53171



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TASK 21-51-13-000-801-A

EFFECTIVITY: ONLY AIRCRAFT WITH SPRAY NOZZLE 145-25793

2. WATER SPRAY NOZZLE - REMOVAL

A. General

- (1) This task gives the procedure to remove the water spray nozzle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
191	191EL	LH side of the forward lower fairing
191	191FR	RH side of the forward lower fairing
191	191GL	Bottom of the forward lower fairing

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Plastic or wooden spatula	To remove the sealant	1

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Under the forward lower fairing

I. Preparation ([Figure 401](#))

SUBTASK 841-002-A

- (1) On the overhead circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them:
- PACK 1 (Location tip: DC BUS 1/AIR COND/PNEU/PACK 1).
 - PACK 2 (Location tip: DC BUS 2/AIR COND/PNEU/PACK 2).
 - RAM AIR (Location tip: ESSENTIAL DC BUS 1/AIR COND/PNEU/RAM AIR).



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- (2) Remove access panels 191EL and 191FR (AMM MPP 06-41-01/100).
- (3) Through the openings left by the removal of panels 191EL and 191FR ([Figure 401](#)):
 - Loosen the clamps (1) and move the fittings apart.
 - Loosen the clamps (2) and move the fitting apart.
 - Disconnect the electrical connectors (3).
- (4) Remove access panel 191GL (AMM MPP 06-41-01/100).

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

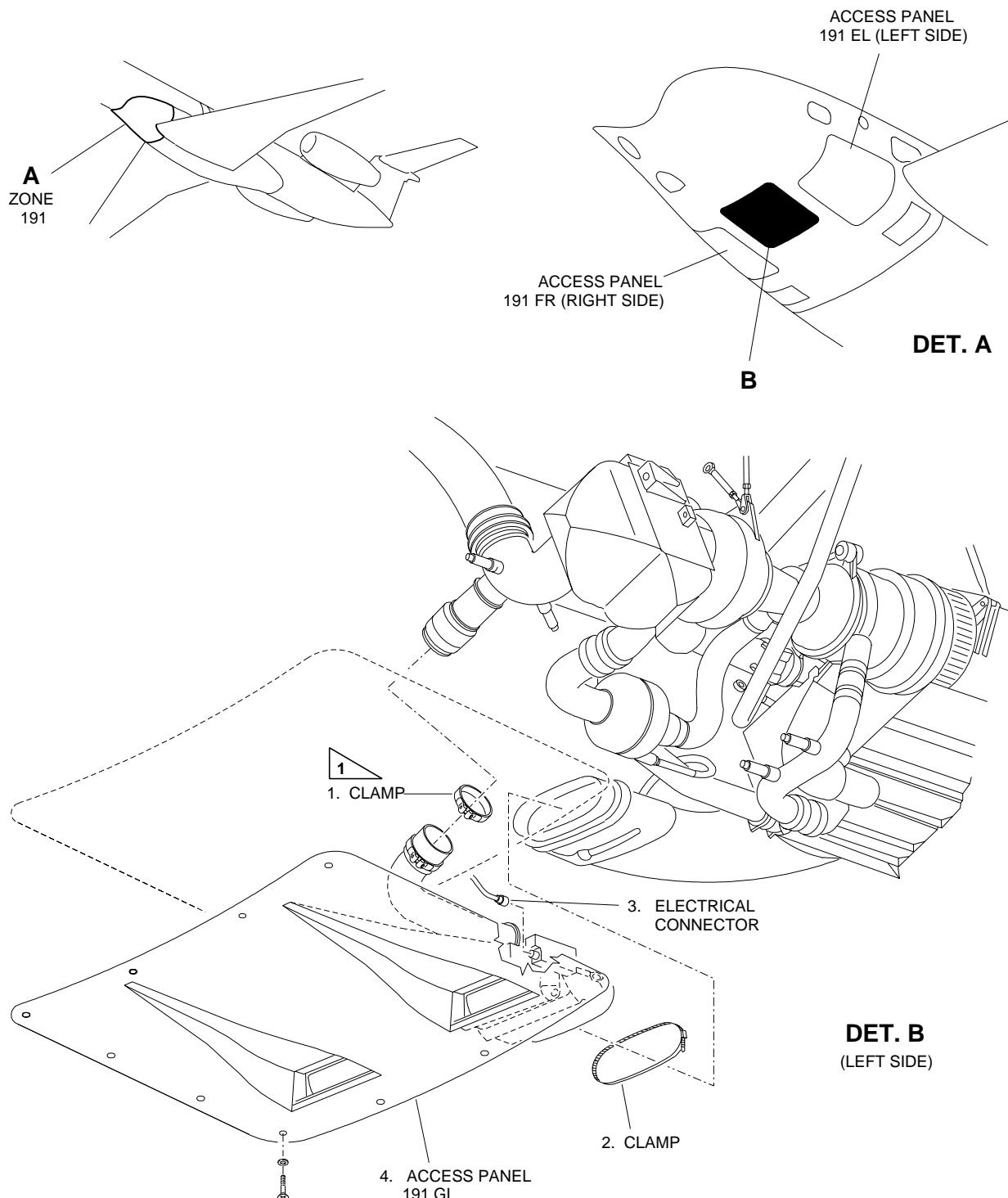
SUBTASK 020-002-A

- (1) Loosen the clamp (2) and disconnect the hose (1) from the water spray nozzle (3).
- (2) With a plastic or wooden spatula, remove all the sealant from the water-spray nozzle (3) flange and screw (4) heads.
- (3) Remove the screws (4), nuts (6) and flange (5).
- (4) Remove the water spray nozzle (3) from the ram-air inlet duct (7).

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Access Panel 191GL - Removal/Installation

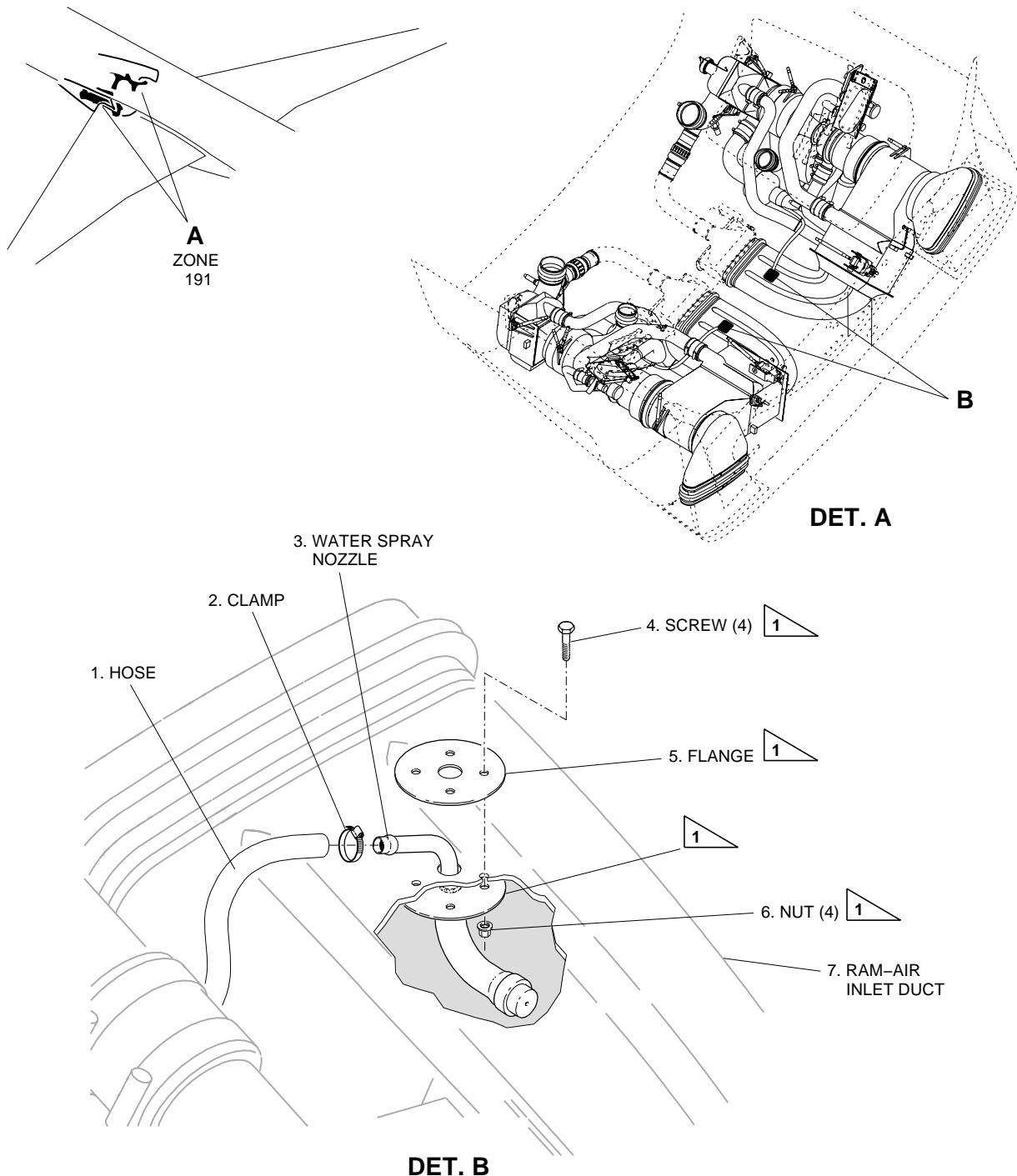
Figure 401



1 TORQUE: 2.9 Nm (25 lb.in).

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EFFECTIVITY: ONLY AIRCRAFT WITH SPRAY NOZZLE 145-25793
Water Spray Nozzle - Removal/Installation
Figure 402



 **1** APPLY SEALANT PR-1440B2. REFER TO SRM 51-20-01.
FOR ALTERNATIVE SEALANTS, REFER TO AMM 20-30-03/201

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TASK 21-51-13-400-801-A

EFFECTIVITY: ONLY AIRCRAFT WITH SPRAY NOZZLE 145-25793

3. WATER SPRAY NOZZLE - INSTALLATION

A. General

- (1) This task gives the procedure to install the water spray nozzle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 21-51-00-700-802-A/500	-
AMM TASK 28-41-00-200-801-A/600	-
SRM 51-20-01	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
191	191EL	LH side of the forward lower fairing
191	191FR	RH side of the forward lower fairing
191	191GL	Bottom of the forward lower fairing

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MIL-S-8802 Type II, Class B2	Sealant PR-1440 B2	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Under the forward lower fairing

I. Installation (Figure 402)

SUBTASK 420-002-A

- (1) Put the water spray nozzle (3) in position on the ram-air inlet duct (7). Make sure that the water-spray nozzle orifice points to the dual heat exchanger.



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- (2) Apply sealant at the interface between the water-spray nozzle (3) flange and the ram-air inlet duct (57). Refer to SRM 51-20-01.
- (3) Install the screws (4) and nuts (6).
- (4) Apply sealant over the screw (4) heads and water-spray nozzle (3) flange. Refer to SRM 51-20-01.
- (5) Connect the hose (1) to the water spray nozzle (3) and tighten the clamp (2).

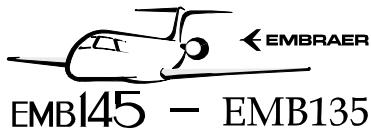
J. Follow-on (Figure 401)

SUBTASK 842-002-A

- (1) Do an inspection on the fuel quantity indication harness (AMM TASK 28-41-00-200-801-A/600).

NOTE: The inspection of fuel quantity indication harness is a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations (Section 6) of the Maintenance Review Board Report (MRB).

- (2) Install access panel 191GL (AMM MPP 06-41-01/100).
- (3) Through the opening of panels 191EL and 191FR (Figure 401):
 - Attach the fittings and tighten the clamps (1).
 - Attach the couplings and tighten the clamps (2).
 - Connect the electrical connectors (3).
- (4) Install access panels 191EL and 191FR (AMM MPP 06-41-01/100).
- (5) On the overhead circuit breaker panel, remove the DO-NOT-CLOSE tags from the circuit breakers below and close them:
 - PACK 1 (Location tip: DC BUS 1/AIR COND/PNEU/PACK 1).
 - PACK 2 (Location tip: DC BUS 2/AIR COND/PNEU/PACK 2).
 - RAM AIR (Location tip: ESSENTIAL DC BUS 1/AIR COND/PNEU/RAM AIR).
- (6) Do an operational check of the cooling pack system (AMM TASK 21-51-00-700-802-A/500).



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TASK 21-51-13-000-802-A

EFFECTIVITY: ONLY AIRCRAFT WITH SPRAY NOZZLE 145-53171

4. WATER SPRAY NOZZLE - REMOVAL

A. General

- (1) This task gives the procedure to remove the water spray nozzle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
191	191EL	LH side of the forward lower fairing
191	191FR	RH side of the forward lower fairing
191	191GL	Bottom of the forward lower fairing

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Under the forward lower fairing

I. Preparation (Figure 401)

SUBTASK 841-003-A

- (1) On the overhead circuit breaker panel, open these circuit breakers and attach DO-NOT-CLOSE tags to them:
 - PACK 1 (Location tip: DC BUS 1/AIR COND/PNEU/PACK 1).
 - PACK 2 (Location tip: DC BUS 2/AIR COND/PNEU/PACK 2).
 - RAM AIR (Location tip: ESSENTIAL DC BUS 1/AIR COND/PNEU/RAM AIR).
- (2) Remove access panels 191EL and 191FR (AMM MPP 06-41-01/100).
- (3) Through the openings left by the removal of panels 191EL and 191FR (Figure 401):



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- Loosen the clamps (1) and move the fittings apart.
- Loosen the clamps (2) and move the fitting apart.
- Disconnect the electrical connectors (3).

(4) Remove access panel 191GL (AMM MPP 06-41-01/100).

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

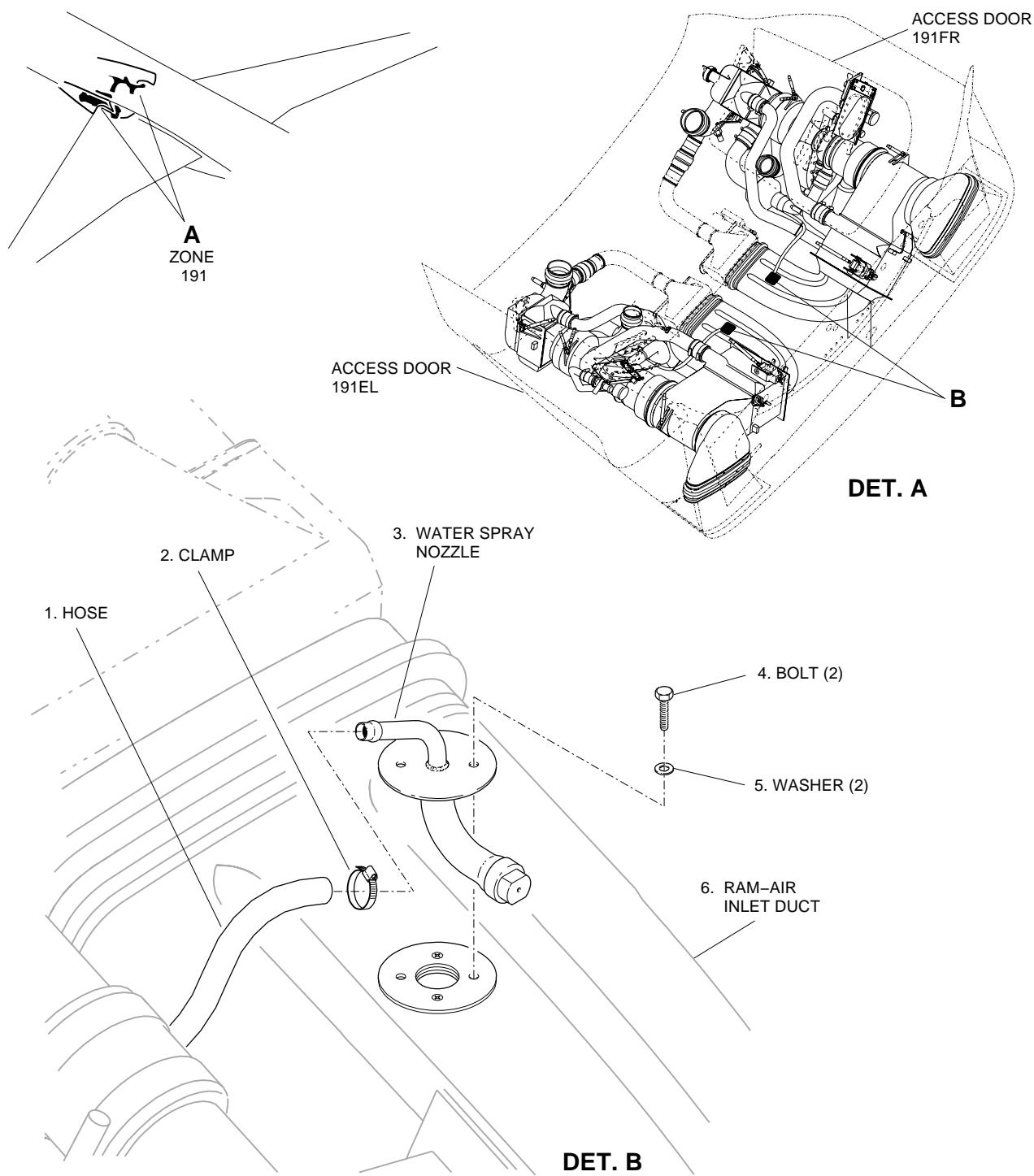
SUBTASK 020-003-A

- (1) Loosen the clamp (2) and disconnect the hose (1) from the water spray nozzle (3).
- (2) Remove the bolt (4) and washer (5).
- (3) Remove the water spray nozzle (3) from the ram-air inlet duct (6).

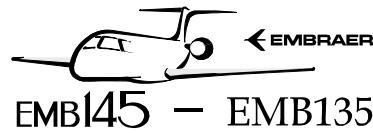
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Water Spray Nozzle - Removal/Installation

Figure 403



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TASK 21-51-13-400-802-A

EFFECTIVITY: ONLY AIRCRAFT WITH SPRAY NOZZLE 145-53171

5. WATER SPRAY NOZZLE - INSTALLATION

A. General

- (1) This task gives the procedure to remove the water spray nozzle.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-41-01/100	-
AMM TASK 21-51-00-700-802-A/500	-
AMM TASK 28-41-00-200-801-A/600	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
191	191EL	LH side of the forward lower fairing
191	191FR	RH side of the forward lower fairing
191	191GL	Bottom of the forward lower fairing

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

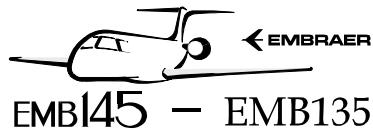
H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Under the forward lower fairing

I. Installation (Figure 403)

SUBTASK 420-003-A

- (1) Put the water spray nozzle (3) in its position on the ram-air inlet duct (6). Make sure that the water-spray nozzle orifice points to the dual heat exchanger.
- (2) Install the washer (5) and the bolt (4) on the ram-air inlet duct (6).
- (3) Tighten the bolt (4) on the ram-air inlet duct (6).
- (4) Connect the hose (1) to the water spray nozzle (3) and tighten the clamp (2).



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J. Follow-on (Figure 401)

SUBTASK 842-003-A

- (1) Through the opening of panels 191EL and 191FR (Figure 401):
 - Attach the fittings and tighten the clamps (1).
 - Attach the couplings and tighten the clamps (2).
 - Connect the electrical connectors (3).
- (2) Do an inspection on the fuel quantity indication harness (AMM TASK 28-41-00-200-801-A/600).

NOTE: The inspection of fuel quantity indication harness is a part of Critical Design Configuration Control Limitations (CDCCL) in the Airworthiness Limitations (Section 6) of the Maintenance Review Board Report (MRB).
- (3) Install access panels 191EL and 191FR (AMM MPP 06-41-01/100).
- (4) On the overhead circuit breaker panel, remove the DO-NOT-CLOSE tags from these circuit breakers and close them:
 - PACK 1 (Location tip: DC BUS 1/AIR COND/PNEU/PACK 1).
 - PACK 2 (Location tip: DC BUS 2/AIR COND/PNEU/PACK 2).
 - RAM AIR (Location tip: ESSENTIAL DC BUS 1/AIR COND/PNEU/RAM AIR).
- (5) Do an operational check of the cooling pack system (AMM TASK 21-51-00-700-802-A/500).