RADIO ALTIMETER ANTENNA - REMOVAL/INSTALLATION

EFFECTIVITY: ACFT MODEL(S) EMB-135

1. General

A. This section gives the procedures to remove and install the radio altimeter antennas.

B. These procedures are applicable to radio altimeter 1 or 2 antennas.

C. 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*
34-31-02-000-802-A	RADIO ALTIMETER ANTENNA - REMOVAL	ACFT MODEL(S) EMB-135
34-31-02-400-802-A	RADIO ALTIMETER ANTENNA - INSTALLATION	ACFT MODEL(S) EMB-135

TASK 34-31-02-000-802-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

2. RADIO ALTIMETER ANTENNA - REMOVAL

A. General

(1) This task gives the procedures to remove radio-altimeter antennas 1 or 2.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 53-01-02-000-802-A/400	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
141		Area below passenger cabin floor
171		Area below passenger cabin floor

D. Tools and Equipment

Not Applicable

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Polyethylene spatula	To remove the sealant	AR

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Center fuselage II (for RA1) or Rear fuselage I (for RA2)

I. Preparation

SUBTASK 841-006-B

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 safe for maintenance.

(2) On the cockpit ceiling, open the circuit breakers below and attach a DO-NOT-CLOSE tag to them:

- RA1 (Location Tip: DC BUS1/NAV/RA1).
- RA2 (Location Tip: DC BUS2/NAV/RA2).
- Remove floor panels 241BF and 241DF (for RA1) or 271BF (for RA2) to get access to the antenna connector (AMM TASK 53-01-02-000-802-A/400).

J. Removal

SUBTASK 020-006-B

(1) (AIRCRAFT WITH ANTENNAS THAT DO NOT HAVE GEL CONDUCTIVE GASKET). To remove the radio altimeter antenna, do as follows: (Figure 401).

CAUTION: IDENTIFY THE COAXIAL CONNECTORS TO PREVENT A POSSIBLE INVERSION DURING THE INSTALLATION. INCORRECT CONNECTIONS CAN CAUSE MALFUNCTION OR DAMAGE TO THE COMPONENT.

(a) Disconnect the coaxial connector (1) from the radio altimeter antenna (3).

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(b) Use a spatula to remove the sealant from around the fuselage skin hole and the radio altimeter antenna (3), on the inner surface of the fuselage skin hole.

(c) Use a spatula to remove the sealant from around the radio altimeter antenna (3) and from the aircraft skin.

(d) Remove the sealant used as a protection of the screws (2).

(e) Remove the screws (2).

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(f) Use a spatula between the baseplate of the radio altimeter antenna (3) and the aircraft skin to make the separation.

(g) Carefully pull the radio altimeter antenna (3) away from the fuselage.

(h) Remove the radio altimeter antenna (3).

(2) (AIRCRAFT WITH ANTENNAS THAT HAVE GEL CONDUCTIVE GASKET) To remove the radio altimeter antenna, do as follows: (Figure 402).

CAUTION: IDENTIFY THE COAXIAL CONNECTORS TO PREVENT A POSSIBLE INVERSION DURING THE INSTALLATION. INCORRECT CONNECTIONS CAN CAUSE MALFUNCTION OR DAMAGE TO THE COMPONENT.

(a) Disconnect the coaxial connector (1) from the radio altimeter antenna (3).

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(b) Use a spatula to remove the sealant from around the fuselage skin hole and the radio altimeter antenna (3), on the inner surface of the fuselage skin hole.

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(c) Use a spatula to remove the sealant from around the radio altimeter antenna (3) and from the aircraft skin.

(d) Remove the sealant used as a protection of the screws (2).

(e) Remove the screws (2).

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(f) Use a spatula between the baseplate of the radio altimeter antenna (3) and the aircraft skin to make the separation.

(g) Carefully pull the radio antenna (3) away from the fuselage.

(h) Remove the radio altimeter antenna (3).

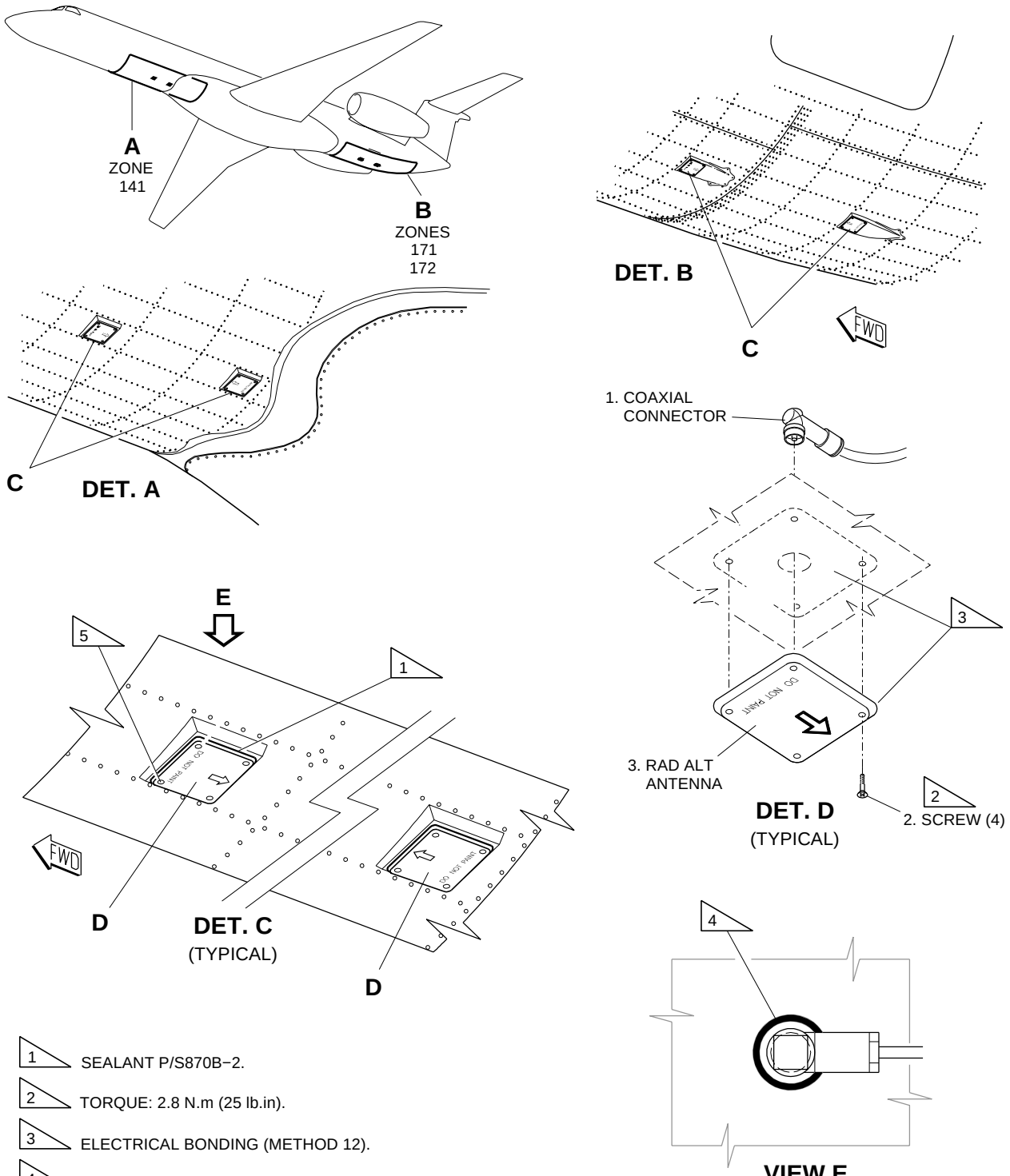
(i) Remove and discard the gel conductive gasket (4).

(j) Use a spatula to remove the sealant from around the connector of the radio altimeter antenna (3).

EFFECTIVITY: AIRCRAFT WITH ANTENNAS THAT DO NOT HAVE GEL CONDUCTIVE GASKET

Radio Altimeter Antenna - Removal/Installation

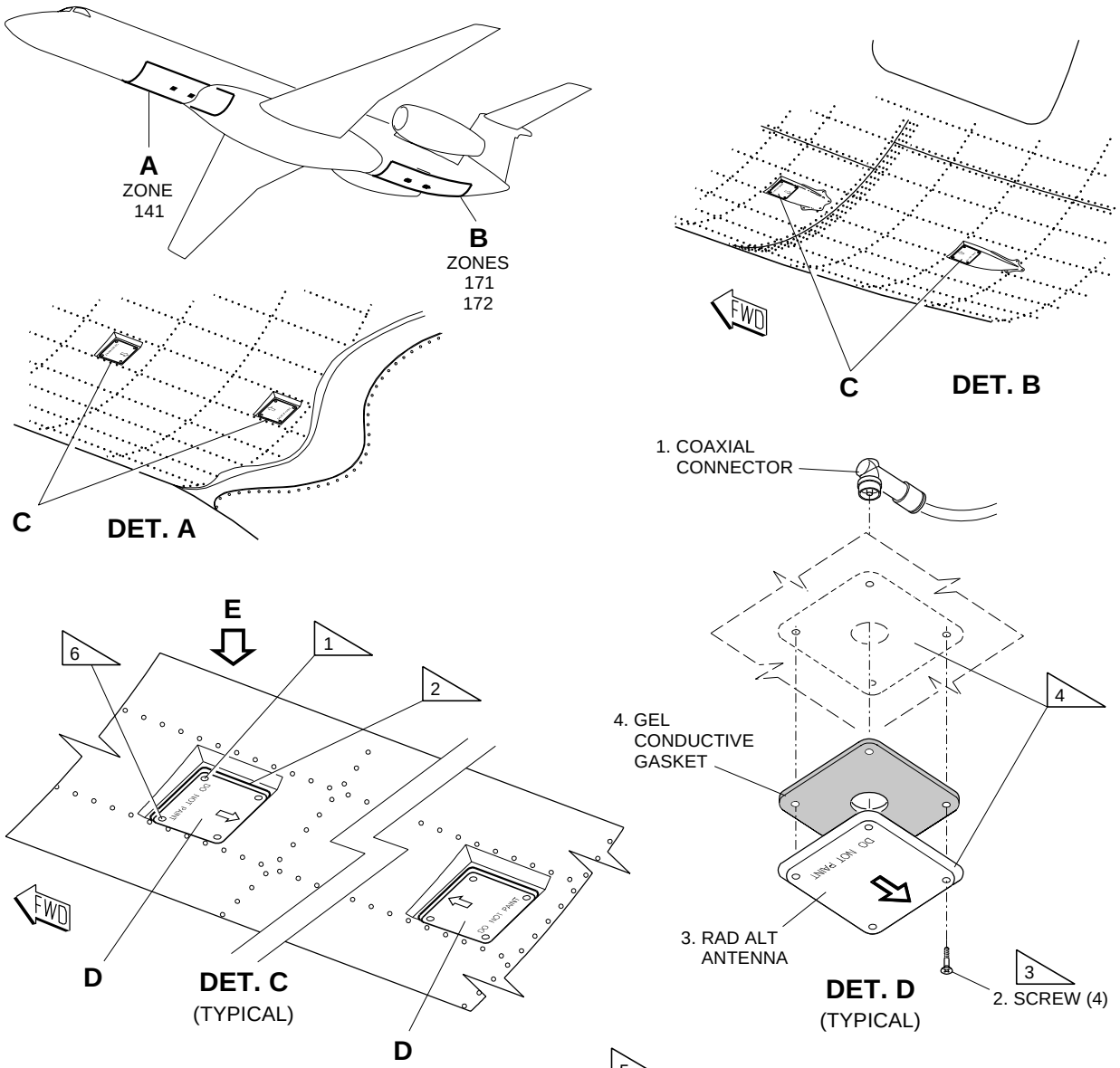
Figure 401



1. SEALANT P/S870B−2.
2. TORQUE: 2.8 N.m (25 lb.in).
3. ELECTRICAL BONDING (METHOD 12).
4. SEALANT PR1422B−2.
5. SEALANT 780 (WHITE).

EM145AMM340317D.DGN

EFFECTIVITY: AIRCRAFT WITH ANTENNAS THAT HAVE GEL CONDUCTIVE GASKET
Radio Altimeter Antenna - Removal/Installation
Figure 402



1. PAINT ECL−G−46/PC−233/TR109.
2. SEALANT P/S870B−2.
3. TORQUE: 2.8 N.m (25 lb.in).
4. ELECTRICAL BONDING (METHOD 12).
5. SEALANT PR1422B−2.
6. SEALANT 780 (WHITE).

EM145AMM341024D.DGN

TASK 34-31-02-400-802-A
EFFECTIVITY: ACFT MODEL(S) EMB-135

3. RADIO ALTIMETER ANTENNA - INSTALLATION

A. General

(1) This task gives the procedures to install radio altimeter antenna 1 or 2.

B. References

REFERENCE	*DESIGNATION*
AMM TASK 20-13-21-700-801-A/200	ELECTRICAL BONDING TEST - STANDARD PROCEDURES
AMM TASK 20-13-21-910-801-A/200	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
AMM TASK 34-31-00-700-801-A/500	RADIO ALTIMETER SYSTEM - OPERATIONAL TEST
AMM TASK 34-31-02-000-801-A/400	-
AMM TASK 53-01-02-400-802-A/400	-
CPM 51-21-06	-
IPC 34-31-02	RADIO ALTIMETER ANTENNA
SRM 51-20-01	-
WM 20-50-00/201	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
141		Area below passenger cabin floor
171		Area below passenger cabin floor

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Torque wrench	To torque	

E. Auxiliary Items

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Polyethylene spatula	To remove the sealant	AR
Commercially available	Clean dry cloth	To clean the antenna base	AR

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
ASTM-D-740	Methyl Ethyl Ketone (MEK)	AR

(Continued)

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
780(WHITE) (ASTM-C-920)	Type II Class A White Silicone, Sealant	AR
P/S870 B-2 (MIL-PRF-81733)	Type II CL B-2 Polysulfide Aerodynamic Sealant	AR
PR1422 B-2 (AMS-S-8802)	Type I CL B2 Polysulfide Sealant	AR
ECL-G-46/PC-233/TR109 (MEP 10-069)	High Solids Polyurethane White Paint	AR
DOW CORNING No. 4 (MIL-S-8660)	Lubricant Compound	AR

G. Expendable Parts

ITEM	*IPC REFERENCE (VENDOR REFERENCE)*	*QTY*
Gel Conductive Gasket	IPC 34-31-02	4

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
1	Does the task	Center fuselage II (for RA1) or Rear fuselage I (for RA2)

I. Installation

SUBTASK 420-006-B

(1) Make sure that the aircraft is in the same configuration as it was at the end of the removal (AMM TASK 34-31-02-000-801-A/400).

(2) Examine and clean or replace the coaxial connector (1) as required (WM 20-50-00/201).

(3) (AIRCRAFT WITH ANTENNAS THAT DO NOT HAVE GEL CONDUCTIVE GASKET). To install the radio altimeter antenna, do as follows: (Figure 401)

WARNING: BE CAREFUL WHEN YOU USE THE METHYL ETHYL KETONE (MEK). PUT ON SAFETY GOGGLES, PROTECTIVE GLOVES AND CLOTHING. DO NOT BREATHE THE GAS. DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR. THE METHYL ETHYL KETONE (MEK) IS POISONOUS AND HIGHLY FLAMMABLE.

(a) With a clean cloth soaked in Methyl Ethyl Ketone (MEK), clean the antenna base surface.

CAUTION: MAKE SURE THAT THE ELECTRICAL BONDING GIVES A GOOD ELECTRIC CONDUCTIVE PATH. IF NOT, DAMAGE TO THE AIRCRAFT AND TO THE EQUIPMENT CAN OCCUR.

(b) Do the bonding procedure, method 12, on the antenna installation surface on the aircraft skin (AMM TASK 20-13-21-910-801-A/200)

CAUTION: INSTALL THE ANTENNAS WITH ARROWS HEAD ON, ONE IN THE FLIGHT DIRECTION AND THE OTHER ONE OPPOSITE TO THE FLIGHT DIRECTION.

(c) Put the radio altimeter antenna (3) in installation position.

(d) Install the screws (2).

(e) Use a torque wrench to torque the screws (2) to 2.8 N.m. (25 lb.in) in a crisscross pattern.

(f) Do the bonding test between the connector of the radio altimeter antenna (3) and aircraft ground (AMM TASK 20-13-21-700-801-A/200).

(g) Apply aerodynamic sealant P/S870 B-2 around the contour of the radio altimeter antenna (3), on the skin (SRM 51-20-01).

(h) Apply sealant 780 (WHITE) on the screw heads until you fully fill the recesses in the antenna body (SRM 51-20-01).

(i) Apply sealant PR1422 B-2 around the fuselage skin hole and the radio altimeter antenna base, on the inner surface of the fuselage skin (SRM 51-20-01).

(j) Fill the internal part of the coaxial connector (1) and its mate with Dow Corning No. 4 Lubricant Compound (WM 20-50-00/201).

CAUTION: LOOK AT THE IDENTIFICATION OF THE COAXIAL CONNECTORS TO MAKE SURE THAT YOU MAKE THE CORRECT CONNECTIONS. INCORRECT CONNECTIONS CAN CAUSE MALFUNCTION OF THE SYSTEM OR DAMAGE TO THE COMPONENT.

(k) Connect the coaxial connector (1) to the radio altimeter antenna (3).

(4) (AIRCRAFT WITH ANTENNAS THAT HAVE GEL CONDUCTIVE GASKET). To install the radio altimeter antenna, do as follows: (Figure 402)

WARNING: BE CAREFUL WHEN YOU USE THE METHYL ETHYL KETONE (MEK). PUT ON SAFETY GOGGLES, PROTECTIVE GLOVES AND CLOTHING. DO NOT BREATHE THE GAS. DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR. THE METHYL ETHYL KETONE (MEK) IS POISONOUS AND HIGHLY FLAMMABLE.

(a) With a clean cloth soaked in Methyl Ethyl Ketone (MEK), clean the antenna base surface.

(b) Carefully remove the protective release film from the gel conductive gasket (4).

(c) Carefully remove the protective release film identified with "ANTENNA SIDE" from the gel conductive gasket (4).

(d) Carefully align the gel conductive gasket (4) with the screw holes and connector, and install it to the base of the radio altimeter antenna (3).

(e) Carefully remove the protective release film from the gel conductive gasket (4).

(f) Carefully remove the protective release film identified with "AIRCRAFT SIDE" from the gel conductive gasket (4).

CAUTION: MAKE SURE THAT THE ELECTRICAL BONDING GIVES A GOOD ELECTRIC CONDUCTIVE PATH. IF NOT, DAMAGE TO THE AIRCRAFT AND TO THE EQUIPMENT CAN OCCUR.

(g) Do the bonding procedure, method 12, on the antenna installation surface on the aircraft skin (AMM TASK 20-13-21-910-801-A/200).

CAUTION: INSTALL THE ANTENNAS WITH ARROWS HEAD ON, ONE IN THE FLIGHT DIRECTION AND THE OTHER ONE OPPOSITE TO THE FLIGHT DIRECTION.

(h) Put the radio altimeter antenna (3) in installation position.

(i) Install the screws (2).

(j) Use a torque wrench to torque the screws (2) to 2.8 N.m. (25 lb.in) in a crisscross pattern.

CAUTION: BE CAREFUL WHEN YOU USE THE POLYETHYLENE SPATULA TO BREAK THE ANTENNA SEAL. TOO MUCH FORCE CAN CAUSE DAMAGE TO THE AIRCRAFT SKIN, THE COAXIAL CABLE, OR THE ANTENNA.

(k) With a spatula, remove the excess gel of the conductive gel gasket (4) from around the radio altimeter antenna (3) and from the aircraft skin.

(l) Do the bonding test between the connector of the radio altimeter antenna (3) and aircraft ground (AMM TASK 20-13-21-700-801-A/200).

(m) Apply aerodynamic sealant P/S870 B-2 around the contour of the radio altimeter antenna (3), on the skin (SRM 51-20-01).

(n) Apply paint ECL-G-46/PC-233/TR109 on the screw (2) heads (CPM 51-21-06).

(o) Apply sealant 780 (WHITE) on the screw heads until you fully fill the recesses in the antenna body (SRM 51-20-01).

(p) Apply sealant PR1422 B-2 around the fuselage skin hole and the radio altimeter antenna base, on the inner surface of the fuselage skin (SRM 51-20-01).

(q) Fill the internal part of the coaxial connector (1) and its mate with Dow Corning No. 4 Lubricant Compound (WM 20-50-00/201).

CAUTION: LOOK AT THE IDENTIFICATION OF THE COAXIAL CONNECTORS TO MAKE SURE THAT YOU MAKE THE CORRECT CONNECTIONS. INCORRECT CONNECTIONS CAN CAUSE MALFUNCTION OF THE SYSTEM OR DAMAGE TO THE COMPONENT.

(r) Connect the coaxial connector (1) to the radio altimeter antenna (3).

J. Follow-on

SUBTASK 842-006-B

(1) Install floor panels 241BF and 241DF or 271BF (AMM TASK 53-01-02-400-802-A/400).

(2) On the cockpit ceiling, close the circuit breakers below and remove the DO-NOT-CLOSE tag from them:

- RA1 (Location Tip: DC BUS1/NAV/RA1).
- RA2 (Location Tip: DC BUS2/NAV/RA2).

(3) Do the Radio-Altimeter System Operational Test (AMM TASK 34-31-00-700-801-A/500).