WING-TO-STUB ATTACHMENT BOLTS - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

A. This section gives the procedures to remove and install the Wing-To-Stub Attachment Bolts.

B. The procedures to removal and installation must be applied one bolt at a time in each half-wing.

NOTE:
- The next bolt in each half-wing only must be removed if the previous bolt is installed.
- The removal and installation could be done in any sequence, since that the bolt removed in the (LH) and the (RH) half-wing stub be in the same position.
- It is not necessary to wait for sealant cure time and final torque in order to start with the next bolt removal.

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*
57-10-01-000-801-A	WING-TO-STUB ATTACHMENT BOLTS - REMOVAL	ALL
57-10-01-400-801-A	WING-TO-STUB ATTACHMENT BOLTS - INSTALLATION	ALL

TASK 57-10-01-000-801-A
EFFECTIVITY: ALL

2. WING-TO-STUB ATTACHMENT BOLTS - REMOVAL

A. General

(1) This procedure gives the instructions to remove the Wing-To-Stub Attachment Bolts.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-01/100	-
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM MPP 07-20-00/200	- MAINTENANCE PRACTICES
AMM MPP 28-00-00/200	- MAINTENANCE PRACTICES
AMM TASK 12-11-01-600-802-A/300	FUEL-TANK PRESSURE DEFUELING - SERVICING
AMM TASK 20-40-02-910-801-A/200	STATIC GROUNDING - STANDARD PRACTICES
AMM TASK 53-04-01-000-801-A/400	FORWARD WING-TO-FUSELAGE FAIRING - REMOVAL
AMM TASK 53-04-10-000-801-A/400	CENTER WING-TO-FUSELAGE FAIRING - REMOVAL

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
155	155BZ/155NZ	Wing Stub, LH wing
156	156BZ/156NZ	Wing Stub, RH wing
531	531AB/531EZ	LH wing
631	631AB/631EZ	RH wing

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Wrench, ratchet, 1/2 in drive	To remove the bolts	
Commercially available	Wrench, socket, long, 15/16 in, 7/8 in, 3/4 in, 11/16 in, 5/8 in drives	To remove the bolts	
Commercially available	Wrench, socket, short, 11/16 in, 5/8 in drives	To remove the bolts	
Commercially available	Wrench, spline, small, 11/16 in, 15/16 in, 3/4 in, 5/8 in drives	To remove the bolts	
Commercially available	Wrench, spline, small, 11/16 in x 15/16 in drive	To remove the bolts	
Commercially available	Ratchet Adaptor, big and small 1/2 in	To remove the bolts	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

Not Applicable

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
2	Do the task	Wing-to-stub attachment area

I. Preparation

SUBTASK 841-002-A

(1) Make sure that the aircraft is safe for maintenance.

(2) Do the aircraft shoring (AMM MPP 07-20-00/200).

(3) Statically ground the aircraft (AMM TASK 20-40-02-910-801-A/200).

(4) Defuel the tanks (AMM TASK 12-11-01-600-802-A/300).

(5) Remove the forward wing-to-fuselage fairing (AMM TASK 53-04-01-000-801-A/400).

(6) Remove the center wing-to-fuselage fairing (AMM TASK 53-04-10-000-801-A/400).

WARNING: DO NOT WORK IN THE TANK BEFORE A COMPLETE VENTILATION IS APPLIED TO ITS INTERIOR (AMM MPP 28-00-00/200). WEAR PROTECTIVE MASK AND GOGGLES TO WORK IN THE FUEL TANK.

CAUTION: FUEL MAY SPILL DURING REMOVAL OF THE LOWER SKIN ACCESS PANELS.

(7) Remove access panels 155BZ/156BZ, and 155NZ/156NZ (AMM MPP 06-41-01/100).

(8) Remove access panels 531AB/631AB, and 531EZ/631EZ (AMM MPP 06-44-00/100).

J. Removal (Figure 401)

SUBTASK 020-002-A

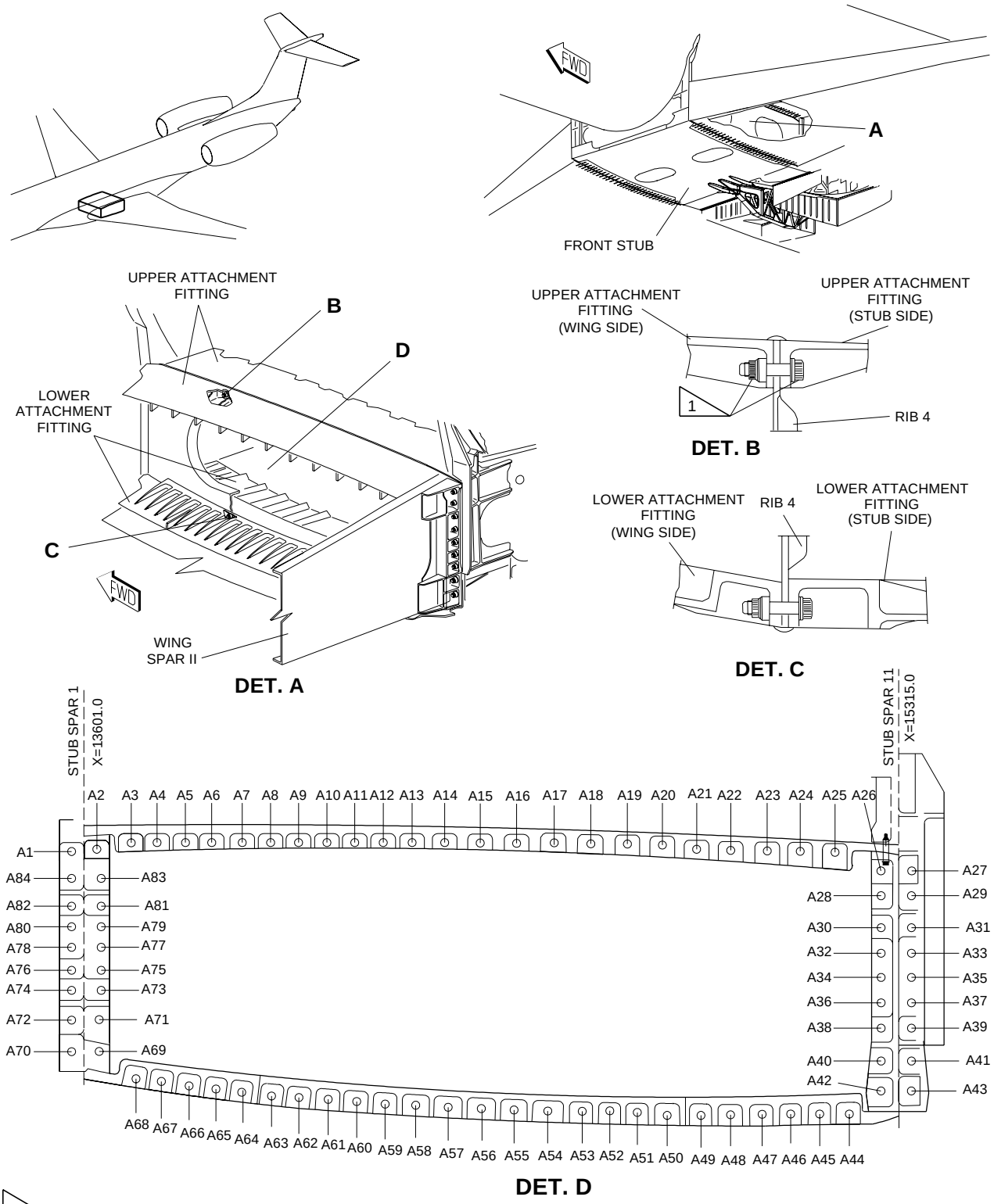
(1) Remove one bolt at a time in each half-wing.

NOTE: The removal could be done in any sequence in each half-wing, since that the bolt removed in the (LH) and the (RH) half-wing stub be in the same position.

(2) Remove the old sealant from the assembly (its bolt, washers, rings, and nut).

EFFECTIVITY: ALL

Wing-To-Stub Attachment Bolts - Removal/Installation
Figure 401

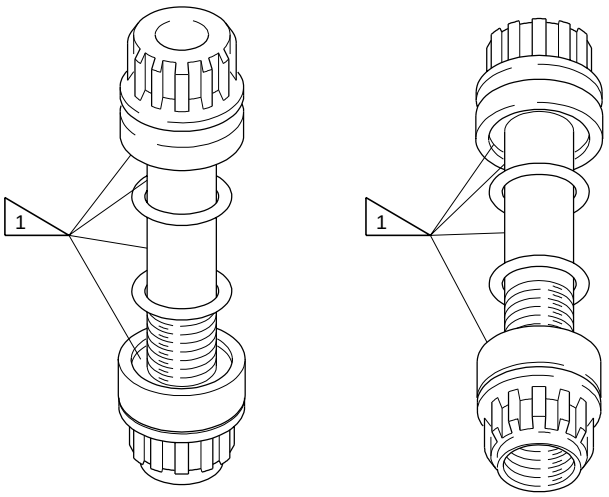


1 APPLY THE ANTIBIOLOGICAL COMPOUND COATING.

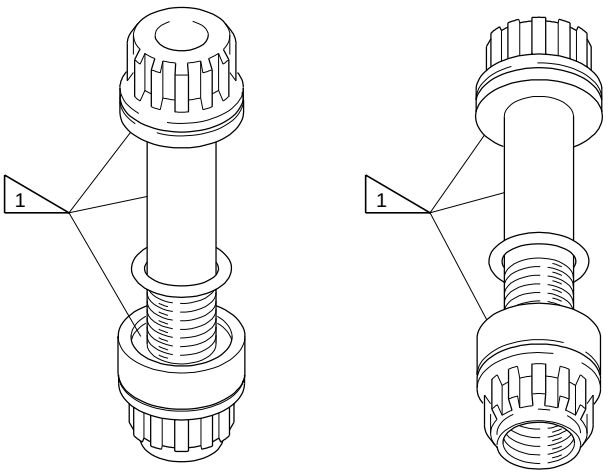
EM145AMM570189A.DGN

EFFECTIVITY: ALL

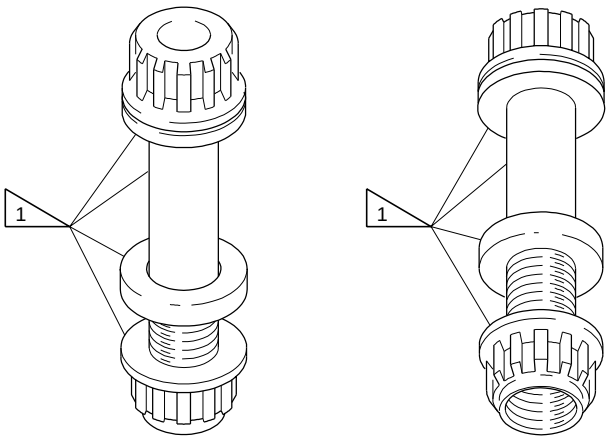
Areas Where Apply Sealant
Figure 402



BOLTS WITH TWO RINGS − WET WING−STUB



BOLTS WITH ONE RING − DRY WING−STUB



BOLTS WITHOUT RING − DRY PARTS

1 SEALANT P/S 870−C12.

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TASK 57-10-01-400-801-A
EFFECTIVITY: ALL

3. WING-TO-STUB ATTACHMENT BOLTS - INSTALLATION

A. General

(1) This procedure gives the instructions to install the Wing-To-Stub Attachment Bolts.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-41-01/100	-
AMM MPP 06-44-00/100	- COMPONENT LOCATION
AMM TASK 12-11-01-600-801-A/300	FUEL-TANK PRESSURE REFUELING - SERVICING
AMM TASK 20-40-02-910-801-A/200	STATIC GROUNDING - STANDARD PRACTICES
AMM TASK 53-04-01-400-801-A/400	FWD WING-TO-FUSELAGE FAIRING - INSTALLATION
AMM TASK 53-04-10-400-801-A/400	CENTER WING-TO-FUSELAGE FAIRING - INSTALLATION
SRM 51-20-01	-
TASK 28–11–00–300–801–A	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
155	155BZ/155NZ	Wing Stub, LH wing
156	156BZ/156NZ	Wing Stub, RH wing
531	531AB/531EZ	LH wing
631	631AB/631EZ	RH wing

D. Tools and Equipment

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Torque Wrench, 0-300 lbf x in	To measure the drag torque	
Commercially available	Torque Wrench, 300-2500 lbf x in (fixed head)	To torque the bolts that attach the wing to the stub	
Commercially available	Torque Wrench, 500-2500 lbf x in (ratchet)	To torque the bolts that attach the wing to the stub	
GSE 148	Adapter - Torque, Wing/Fuselage Bolt	To apply torque to the A42 and A43 bolts	
GSE 383	Spline Torque Adapter	To apply torque to the A27, A35, A41, A29, A39, A31, A37, and A33 bolts	
Commercially available	Adapter, hex to square, 9/16 in x 1/2 in	To apply torque with GSE 383 or commercially available tool accordantly	
Commercially available	Wrench, ratchet, 1/2 in drive	To install the bolts	

(Continued)

ITEM	*DESCRIPTION*	*PURPOSE*	*QTY*
Commercially available	Wrench, socket, long, 15/16 in, 7/8 in, 3/4 in, 11/16 in, 5/8 in drives	To install the bolts and to measure the drag torque	
Commercially available	Wrench, socket, short, 11/16 in, 5/8 in drives	To install the bolts	
Commercially available	Wrench, spline, small, 11/16 in, 15/16 in, 3/4 in, 5/8 in drives	To install the bolts	
Commercially available	Wrench, spline, small, 11/16 in x 15/16 in drive	To install the bolts	
Commercially available	Ratchet Adaptor, big and small, 1/2 in	To install the bolts	

E. Auxiliary Items

Not Applicable

F. Consumable Materials

SPECIFICATION (BRAND)	*DESCRIPTION*	*QTY*
MIL-PRF-81733 Type IV-12	Sealant, P/S 870 - C12	AR
NE 07-022	F925 - Yellow - Inspection Torque Paint	AR
AMS-C-27725 TYPE II	Antibiological compound (Integral fuel tank coating), base - 825/309, activator - 910/702, and reducer - 020/707 (DE SOTO) or other approved compound	AR

G. Expandable Parts

Not Applicable

H. Persons Recommended

QTY	*FUNCTION*	*PLACE*
2	Do the task	Wing-to-stub attachment area

I. Preparation

SUBTASK 841-003-A

CAUTION: DO NOT USE NUTS AGAIN THAT HAVE SIGNS OF DAMAGE TO THE SELF-LOCKING ELEMENT OR THE DRAG TORQUE VALUE IS OUT OF THE SPECIFIED VALUE.

(1) Measure and record the drag torque of the assembly. It must obey the values given in Table 401:

Table 401 - DRAG TORQUE OF THE NUTS

Bolt Thread	Drag Torque (lbf x in)	
	minimum	maximum
1/2 in - 20 UNJF-3A	18	150
9/16 in - 20 UNJF-3A	24	200

Table 401 - DRAG TORQUE OF THE NUTS (Continued)

5/8 in - 20 UNJF-3A	32	300
3/4 in - 20 UNJF-3A	50	400

NOTE: If the value of drag torque found is out of specified value, the nut must be replaced.

(2) Apply a fillet of sealant P/S 870 - C12 around all washers of the bolts and nuts (SRM 51-20-01) as shown in Figure 402.

J. Installation (Figure 401)

SUBTASK 420-002-A

(1) Install the bolt, washers, and nut.

NOTE: Install the assembly in the same position as it was when it was removed.

(2) Refer to Table 402 and apply tightening torque to the nut or bolt:

NOTE:
- The tightening torque values are different for the nuts to which the torque is applied with the aid of adapters. For these bolts, the Table 403 must be used.
- Do not remove the excess sealant from the edges of the washers.

(3) Refer to Table 402 and apply final tightening torque to the nut or bolt from 6 to 12 hours after the sealant was applied.

NOTE:
- It is not necessary to wait for sealant cure time and final torque in order to start with the next bolt removal.
- The final tightening torque values are different for the nuts to which the torque is applied with the aid of adapters. For these bolts, the Table 403 must be used.

Table 402 - TORQUE VALUES

Bolts Position - Diameter (in)	Tightening Torque (lbf x in)	Final Tightening Torque (lbf x in)
A26 - 9/16	1600	1600[2]
A34 - 9/16	1400	1400[2]
A40 - 5/8	1850[1]	1900[1]
A28 - 9/16	1600	1600[2]
A38 - 9/16	1400	1400[2]
A30 - 9/16	1400	1400[2]
A36 - 9/16	1400	1400[2]
A32 - 9/16	1400	1400[2]
A44 - 5/8	2000[1]	2050[1]
A25 - 1/2	1100	1100[2]

[1] For these bolts, add the drag torque previously measured to the tightening torque.

[2] For these bolts, add the drag torque previously measured to the tightening torque (must be consider 50 lbf x in as minimum value of drag torque).

Table 402 - TORQUE VALUES (Continued)

Bolts Position - Diameter (in)	Tightening Torque (lbf x in)	Final Tightening Torque (lbf x in)
A45 - 9/16	1400	1400[2]
A24 - 1/2	1100	1100[2]
A46 - 9/16	1400	1400[2]
A23 - 1/2	1100	1100[2]
A47 - 9/16	1400	1400[2]
A22 - 1/2	1100	1100[2]
A48 - 9/16	1400	1400[2]
A21 - 1/2	1100	1100[2]
A49 - 9/16	1400	1400[2]
A20 - 1/2	1100	1100[2]
A50 - 9/16	1400	1400[2]
A19 - 1/2	1100	1100[2]
A51 - 9/16	1400	1400[2]
A18 - 1/2	1100	1100[2]
A52 - 9/16	1400	1400[2]
A53 - 9/16	1400	1400[2]
A17 - 1/2	1100	1100[2]
A54 - 1/2	1100	1100[2]
A16 - 1/2	1100	1100[2]
A55 - 1/2	1100	1100[2]
A15 - 1/2	1100	1100[2]
A56 - 1/2	1100	1100[2]
A14 - 1/2	1100	1100[2]
A57 - 1/2	1100	1100[2]
A13 - 1/2	1100	1100[2]
A58 - 1/2	1100	1100[2]
A12 - 1/2	1100	1100[2]
A59 - 1/2	1100	1100[2]
A11 - 1/2	1100	1100[2]
A60 - 1/2	1100	1100[2]
A10 - 1/2	1100	1100[2]
A61 - 1/2	1100	1100[2]
A9 - 1/2	1100	1100[2]
A62 - 1/2	1100	1100[2]
A8 - 1/2	1100	1100[2]
A63 - 1/2	1100	1100[2]

[2] For these bolts, add the drag torque previously measured to the tightening torque (must be consider 50 lbf x in as minimum value of drag torque).

Table 402 - TORQUE VALUES (Continued)

Bolts Position - Diameter (in)	Tightening Torque (lbf x in)	Final Tightening Torque (lbf x in)
A7 - 1/2	1100	1100[2]
A64 - 1/2	1100	1100[2]
A6 - 1/2	1100	1100[2]
A65 - 1/2	1100	1100[2]
A5 - 1/2	1100	1100[2]
A66 - 1/2	1100	1100[2]
A67 - 1/2	1100	1100[2]
A4 - 1/2	1100	1100[2]
A68 - 1/2	1100	1100[2]
A3 - 1/2	1100	1100[2]
A69 - 9/16	1600	1600[2]
A70 - 9/16	1600	1600[2]
A2 - 9/16	1600	1600[2]
A1 - 9/16	1600	1600[2]
A77 - 1/2	1100	1100[2]
A78 - 1/2	1100	1100[2]
A71 - 9/16	1600	1600[2]
A72 - 9/16	1600	1600[2]
A83 - 9/16	1600	1600[2]
A84 - 9/16	1600	1600[2]
A73 - 1/2	1100	1100[2]
A74 - 1/2	1100	1100[2]
A81 - 1/2	1100	1100[2]
A82 - 1/2	1100	1100[2]
A75 - 1/2	1100	1100[2]
A76 - 1/2	1100	1100[2]
A79 - 1/2	1100	1100[2]
A80 - 1/2	1100	1100[2]

[2] For these bolts, add the drag torque previously measured to the tightening torque (must be consider 50 lbf x in as minimum value of drag torque).

Table 403 - TORQUE VALUES - ADAPTERS ARE USED

Bolts Position - Diameter (in)	Adapters	Tightening Torque (lbf x in)	Final Tightening Torque (lbf x in)
A27 - 9/16	GSE 383 or commercially available tool accordantly	1387	1387[2]

[2] For these bolts, add the drag torque previously measured to the tightening torque (must be consider 50 lbf x in as minimum value of drag torque).

Table 403 - TORQUE VALUES - ADAPTERS ARE USED (Continued)

Bolts Position - Diameter (in)	Adapters	Tightening Torque (lbf x in)	Final Tightening Torque (lbf x in)
A29 - 9/16	GSE 383 or commercially available tool accordantly	1387	1387[2]
A31 - 9/16	GSE 383 or commercially available tool accordantly	1214	1214[2]
A33 - 9/16	GSE 383 or commercially available tool accordantly	1214	1214[2]
A35 - 9/16	GSE 383 or commercially available tool accordantly	1214	1214[2]
A37 - 9/16	GSE 383 or commercially available tool accordantly	1214	1214[2]
A39 - 9/16	GSE 383 or commercially available tool accordantly	1214	1214[2]
A41 - 5/8	GSE 383 or commercially available tool accordantly	1604[1]	1654[1]
A42 - 3/4	GSE 148	1939[1]	1989[1]
A43 - 3/4	GSE 148	1939[1]	1989[1]

[1] For these bolts, add the drag torque previously measured to the tightening torque.

[2] For these bolts, add the drag torque previously measured to the tightening torque (must be consider 50 lbf x in as minimum value of drag torque).

(4) Apply yellow torque paint to the nut after the final tightening torque is applied.

(5) After the sealant application and cure, sealant in contact with fuel must be painted with antibiological compound coating (TASK 28–11–00–300–801–A).

K. Follow-on

SUBTASK 842-002-A

(1) Install access panels 531AB/631AB, and 531EZ/631EZ (AMM MPP 06-44-00/100).

(2) Install access panels 155BZ/156BZ, and 155NZ/156NZ (AMM MPP 06-41-01/100).

(3) Install the center wing-to-fuselage fairing (AMM TASK 53-04-10-400-801-A/400).

(4) Install the forward wing-to-fuselage fairing (AMM TASK 53-04-01-400-801-A/400).

(5) Refuel the tanks (AMM TASK 12-11-01-600-801-A/300).

(6) Remove the grounding cable from the aircraft (AMM TASK 20-40-02-910-801-A/200).

(7) Restore the aircraft to normal condition.