



AIRCRAFT MAINTENANCE MANUAL

RUDDER II - REMOVAL/INSTALLATION

EFFECTIVITY: ALL

1. General

- A. This section gives the procedures to remove and install rudder II.
- 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
27-20-02-000-801-A	RUDDER II - REMOVAL	ALL
27-20-02-400-801-A	RUDDER II - INSTALLATION	ALL



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TASK 27-20-02-000-801-A

EFFECTIVITY: ALL

2. RUDDER II - REMOVAL

A. General

(1) This procedure gives the instructions to remove rudder II.

B. References

REFERENCE	DESIGNATION
AMM MPP 06-42-00/100	-
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
S.B.145-55-0034	-
S.B.145-55-0038	-

C. Zones and Accesses

ZONE	PANEL/DOOR	LOCATION
327	327ER	Rudder II
327	327FR	Rudder II
327	327GR	Rudder II
327	327HR	Rudder II

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	Rudder
1	Helps the other technician	Rudder

I. Preparation

SUBTASK 841-002-A

WARNING: MAKE SURE THAT THE RUDDER CANNOT BE OPERATED ACCIDENTALLY.
AN ACCIDENTAL OPERATION OF THE RUDDER CAN CAUSE INJURY TO PERSONS.

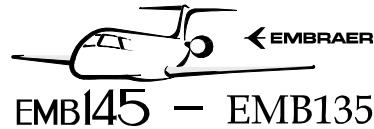
- (1) Move the rudder fully to the left.
 - (2) Make sure that the pressure in hydraulic systems 1 and 2 is fully released ([AMM TASK 29-10-00-860-802-A/200](#)).
 - (3) On the circuit breaker panel, open the RUDDER 1 and RUDDER 2 circuit breakers and attach a DO-NOT-CLOSE tag to them.
NOTE: The EICAS display shows Rudder Sys 1-2 INOP caution message.
 - (4) Remove access panels 327ER, 327FR, 327GR, and 327HR (AMM MPP 06-42-00/100).
- J. Removal ([Figure 401](#)) ([Figure 402](#)) ([Figure 403](#)) ([Figure 404](#)) ([Figure 405](#)) ([Figure 406](#)) ([Figure 407](#)) ([Figure 408](#))

SUBTASK 020-002-A

WARNING: MAKE SURE THAT THE RUDDER CANNOT BE OPERATED ACCIDENTALLY. AN ACCIDENTAL OPERATION OF THE RUDDER CAN CAUSE INJURY TO PERSONS.

- (1) For aircraft PRE-MOD. S.B 15-55-0034, do as follows:
 - (a) Remove the nut (28), washers (27), (26), (25) and (24), and bolt (23) to disconnect the ends of the bonding straps (15) (2 positions) from rudder II (1). Refer to [Figure 401](#), DET. D.
- (2) For aircraft POST-MOD. [S.B.145-55-0034](#) and PRE-MOD. S.B 15-55-0038, do as follows:
 - (a) Remove the nut (28), washers (27), (26), (25) and (24), and bolt (23) to disconnect the ends of the bonding straps (15) (2 positions) from rudder II (1). Refer to [Figure 402](#), DET. F.
- (3) For aircraft POST-MOD. [S.B.145-55-0038](#), do as follows:
 - (a) Remove the nut (26), washers (27), (25) and (31), lock washer (30) and screw (29) to disconnect the ends of the bonding straps (28) (2 positions) from rudder II (1). Refer to [Figure 403](#), DET. F.
- (4) For aircraft PRE-MOD. S.B 15-55-0035, do as follows:
 - (a) Remove the bolt (37), washers (38), (39), and (40) to disconnect the ends of the bonding straps (29) (2 positions) from rudder II (1). Refer to [Figure 404](#), DET. F.
 - (b) Remove the cotter pins (30) and discard them. Refer to [Figure 404](#), DET. E and DET. G.
 - (c) Remove the nuts (31), washers (32) and (35), bushings (36), and bolts (34) to disconnect the ends of the rods (33) (2 positions) from the supports at rudder II (1) structure. Refer to [Figure 404](#), DET. E and DET. G.
- (5) For aircraft POST-MOD. S.B 15-55-0035, do as follows:

- (a) Remove the screw (24), lock washer (23), washers (22), (21), (20) and (19) to disconnect the ends of the bonding straps (25) (2 positions) from rudder II (1). Refer to [Figure 405](#), DET. D.
 - (b) Remove the cotter pins (5) and (10) and discard them. Refer to [Figure 405](#), DET. B and DET. C.
 - (c) Remove the nut (6), washer (7) and (2), washers (3) and (4) (if applicable), bushing (9), and bolt (1) to disconnect the end of the rod (8) from the supports at rudder II (1) structure. Refer to [Figure 405](#), DET. B.
 - (d) Remove the nut (11), washer (18) and (14), washers (12) and (13) (if applicable), bushing (17), and bolt (15) to disconnect the end of the rod (16) from the supports at rudder II (1) structure. Refer to [Figure 405](#), DET. C.
- (6) For aircraft PRE-MOD. S.B 15-55-0034, do as follows:
- (a) Remove the cotter pins (2), (8) and (18) and discard them. Refer to [Figure 401](#).
 - (b) Remove the nuts (3) and (9), washers (4), (6), (10) and (13), bushings (5), (11) and (12), and bolts (7) and (14) to disconnect the rudder II (1) upper center hinge and lower center hinge from the supports at the rudder I structure (2 positions). Refer to [Figure 401](#), DET. C.
 - (c) Hold rudder II (1). Refer to [Figure 401](#).
 - (d) Remove the nuts (17), washers (16) and (21), bushings (19) and (20), and bolts (22) (2 positions) to disconnect the rudder II (1) upper and lower hinges from the supports at the rudder I structure. Refer to [Figure 401](#), DET. B.
 - (e) Remove the rudder II (1). Refer to [Figure 401](#).
- (7) For aircraft POST-MOD. [S.B.145-55-0034](#) and PRE-MOD. S.B 15-55-0038, do as follows:
- (a) Remove the cotter pins (2), (8) and (18) and discard them. Refer to [Figure 402](#).
 - (b) Remove the nuts (3) and (9), washers (4), (6), (10) and (13), bushings (5), (11) and (12), and bolts (7) and (14) to disconnect the rudder II (1) upper center hinge (DET. C) and lower center hinge (DET. D) from the supports at the rudder I structure (2 positions). Refer to [Figure 402](#).
 - (c) Hold rudder II (1). Refer to [Figure 402](#).
 - (d) Remove the nuts (17), washers (16) and (21), bushings (19) and (20), and bolts (22) (2 positions) to disconnect the rudder II (1) upper and lower hinges from the supports at the rudder I structure. Refer to [Figure 402](#), DET. B.
 - (e) Remove the rudder II (1). Refer to [Figure 402](#).
- (8) For aircraft POST-MOD. [S.B.145-55-0038](#), do as follows:
- (a) Remove the cotter pins (2), (10) and (24) and discard them. Refer to [Figure 403](#).
 - (b) Remove the nuts (3) and (11), washers (4), (8), (12), (14) and (19), washers (6), (7), (17) and (18) (if applicable), spring (13), bushings (5), (15) and (16), and bolts



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(9) and (20) to disconnect the rudder II (1) upper center hinge (DET. C) and lower center hinge (DET. D) from the supports at the rudder I structure (2 positions). Refer to [Figure 403](#).

- (c) Hold rudder II (1). Refer to [Figure 403](#).
- (d) Remove the nuts (23), washers (22) and (36), washers (34) and (35) (if applicable), springs (21), bushings (32) and (33), and bolts (37) (2 positions) to disconnect the rudder II (1) upper and lower hinges from the supports at the rudder I structure. Refer to [Figure 403](#), DET. B.
- (e) Remove the rudder II (1). Refer to [Figure 403](#).



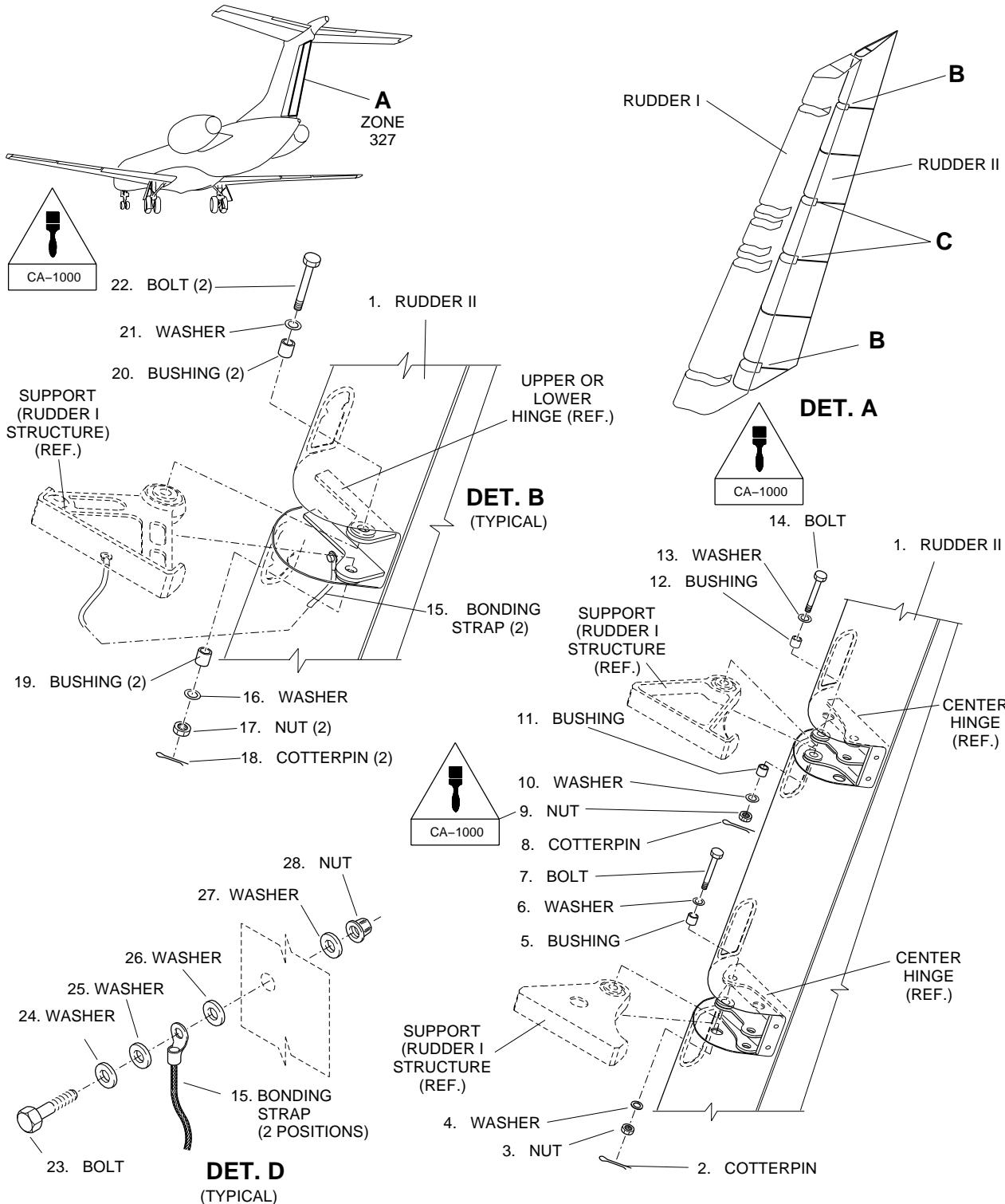
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EFFECTIVITY: PRE-MOD. S.B. 145-55-0034

Rudder II - Removal/Installation

Figure 401



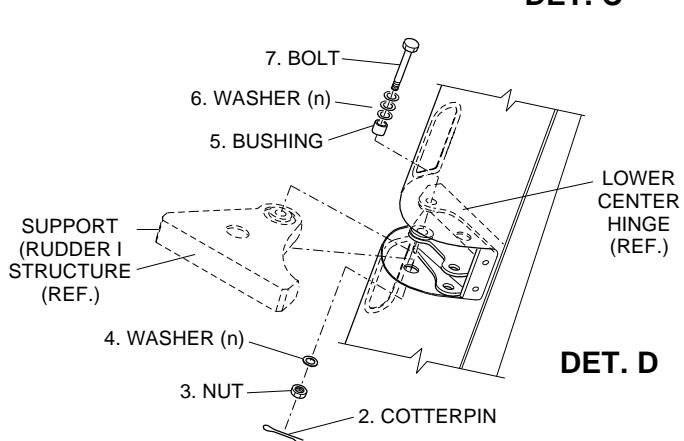
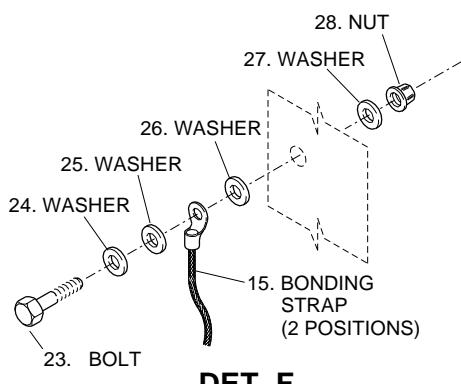
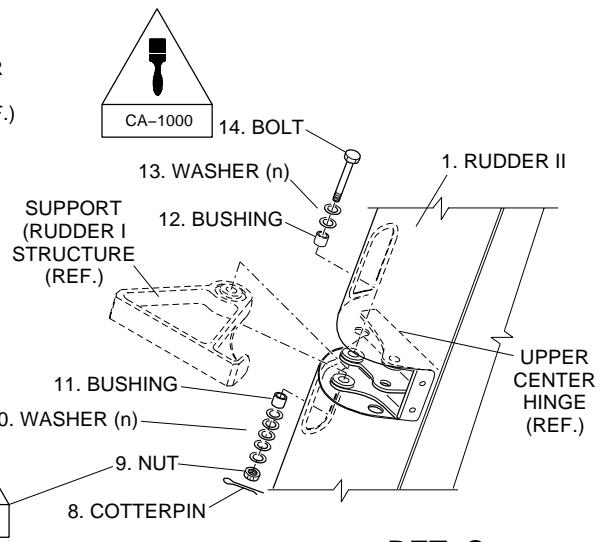
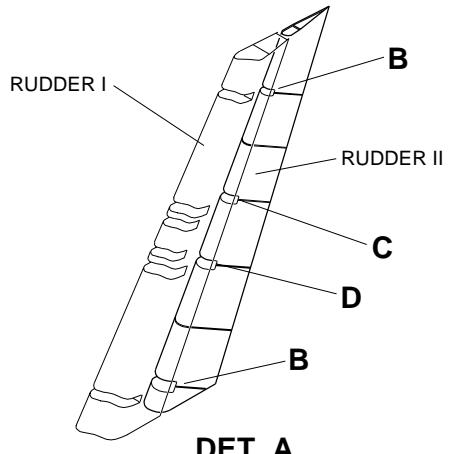
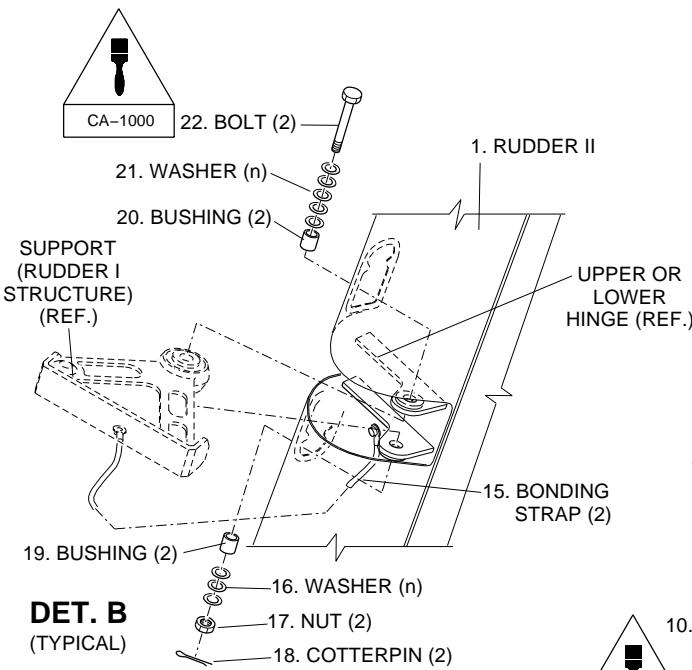
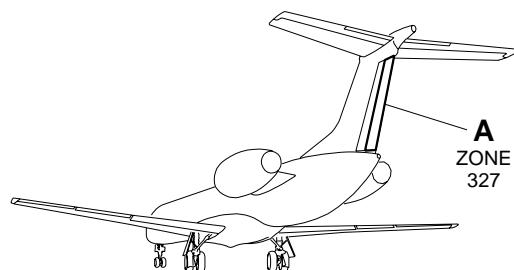
DET. C

EM145AMM270662C.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0034 AND PRE-MOD. S.B. 145-55-0038

Rudder II - Removal/Installation

Figure 402

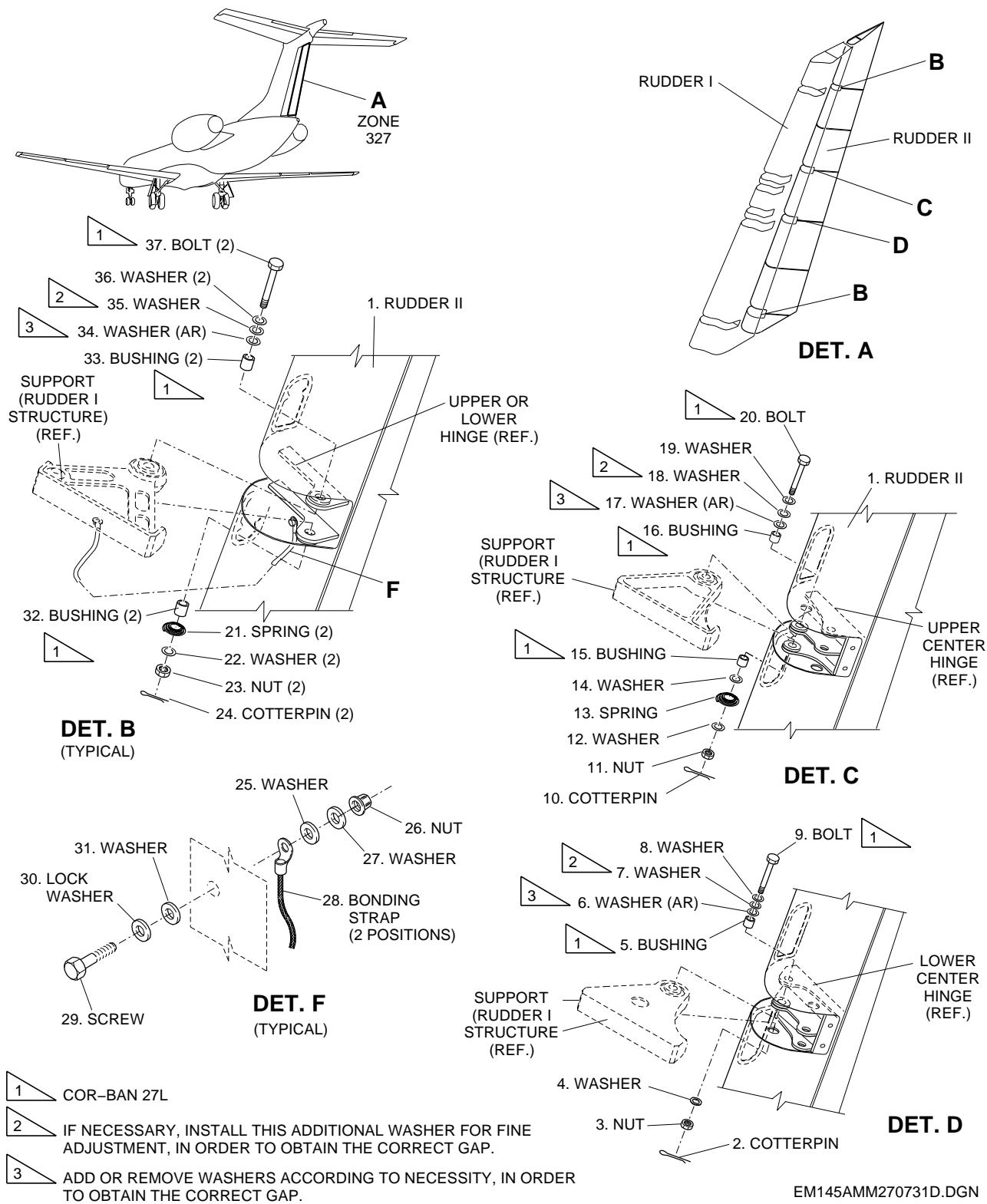


EM145AMM270194I.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0038

Rudder II - Removal/Installation

Figure 403

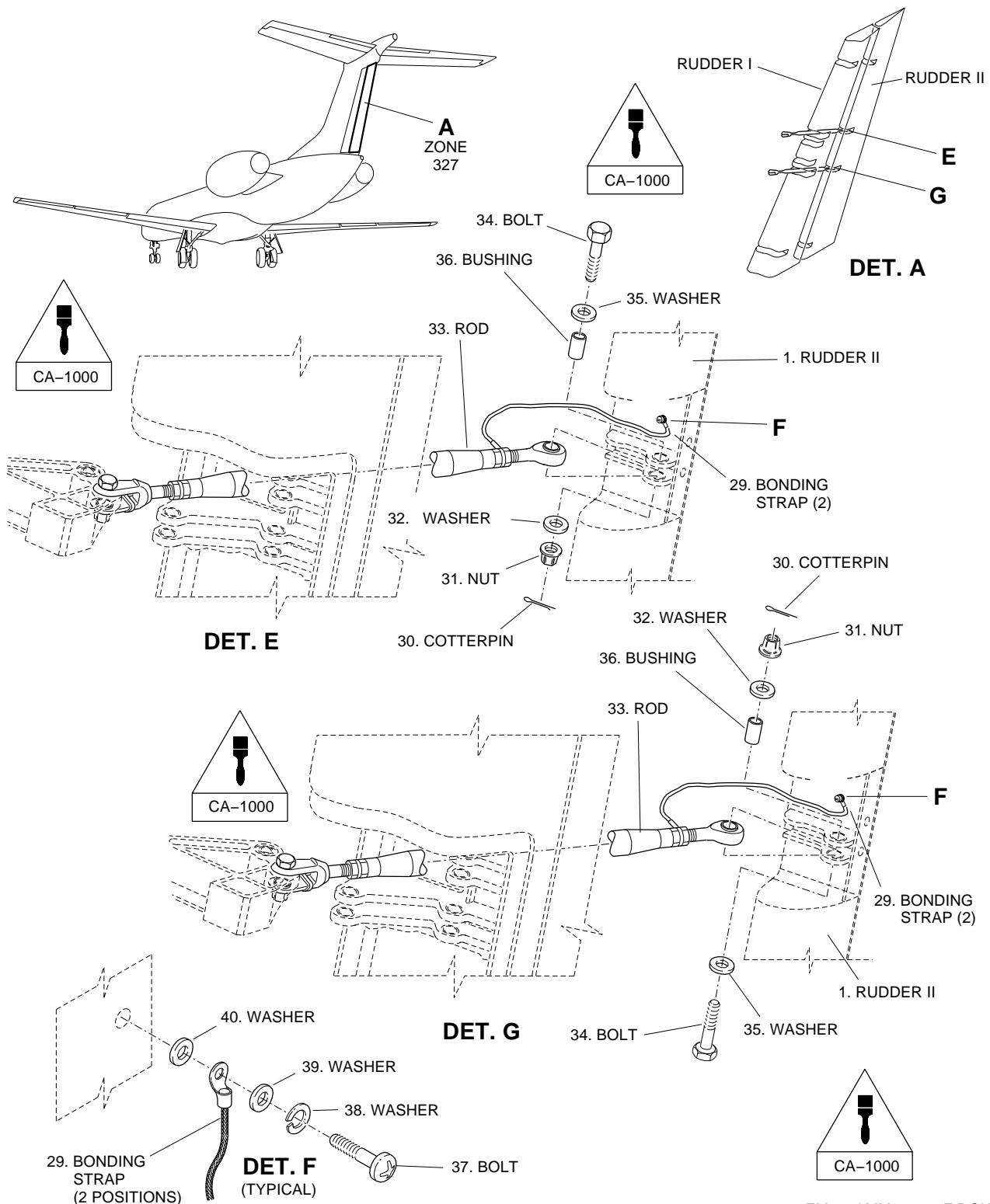


EM145AMM270731D.DGN

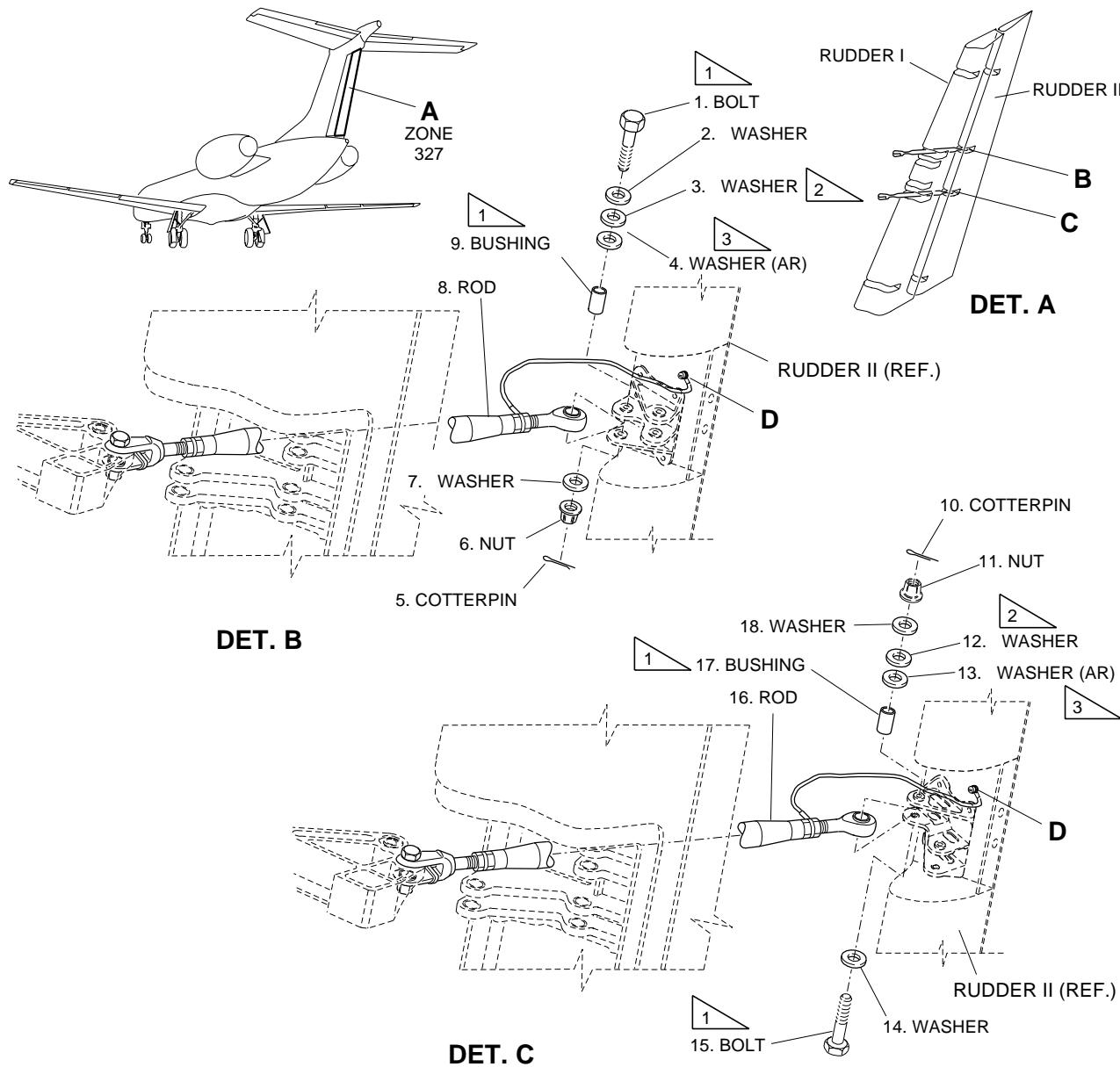
EFFECTIVITY: PRE-MOD. S.B. 145-55-0035

Rudder II - Removal/Installation

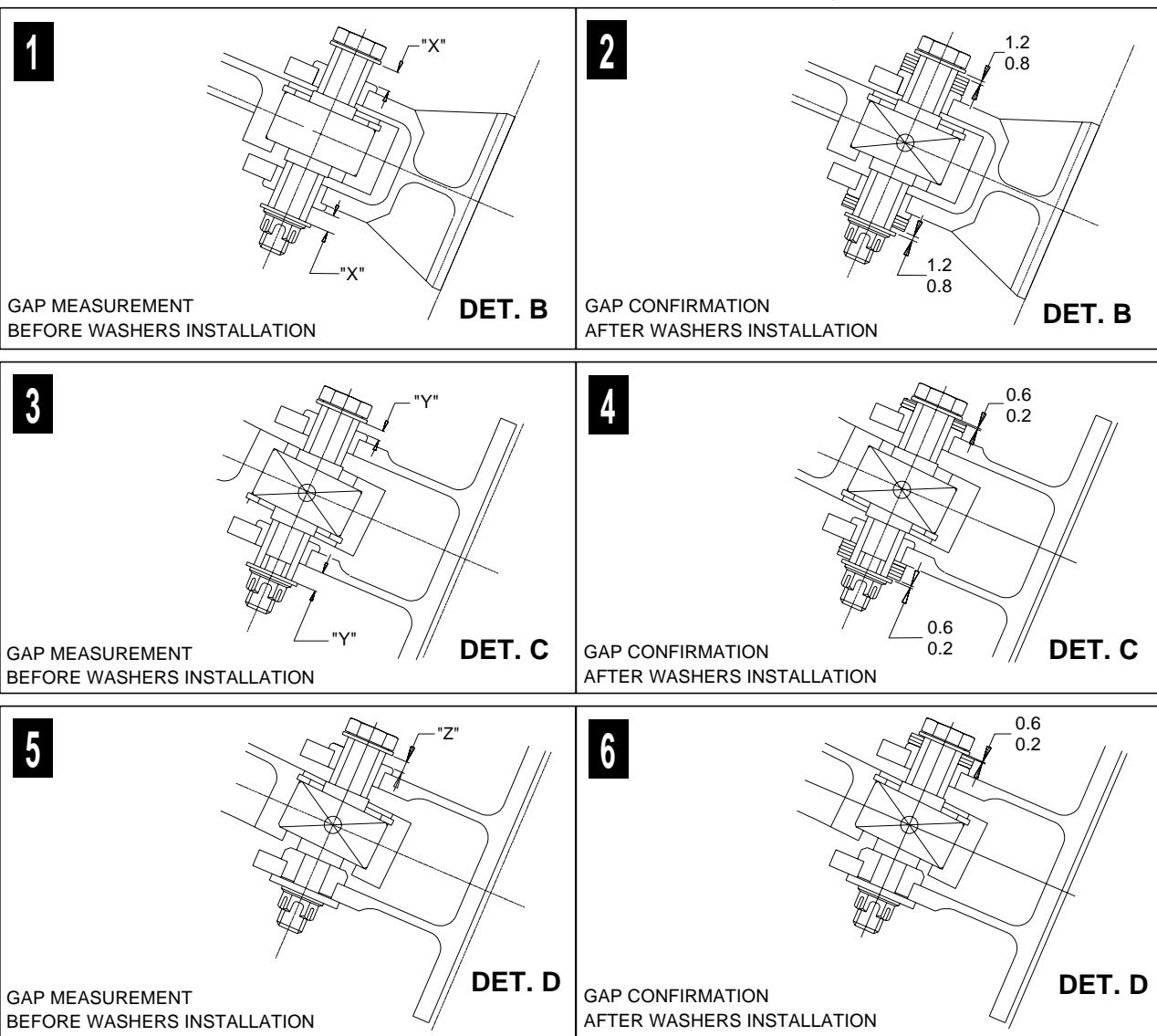
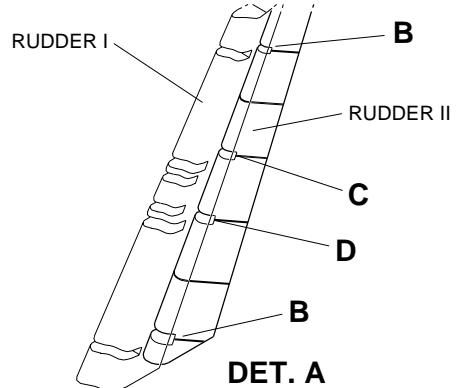
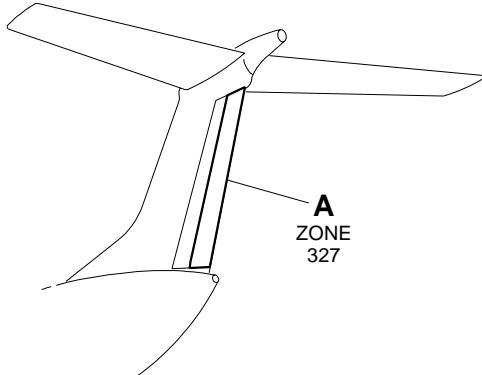
Figure 404



EM145AMM270195F.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0035
Rudder II - Removal/Installation
Figure 405

1 COR-BAN 27L
2 IF NECESSARY, INSTALL THIS ADDITIONAL WASHER FOR FINE ADJUSTMENT, IN ORDER TO OBTAIN THE CORRECT GAP.
3 ADD OR REMOVE WASHERS ACCORDING TO NECESSITY, IN ORDER TO OBTAIN THE CORRECT GAP.
EM145AMM270712D.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0034 AND PRE-MOD. S.B 145-55-0038
Rudder II Hinge Fittings - Gap Indication
Figure 406

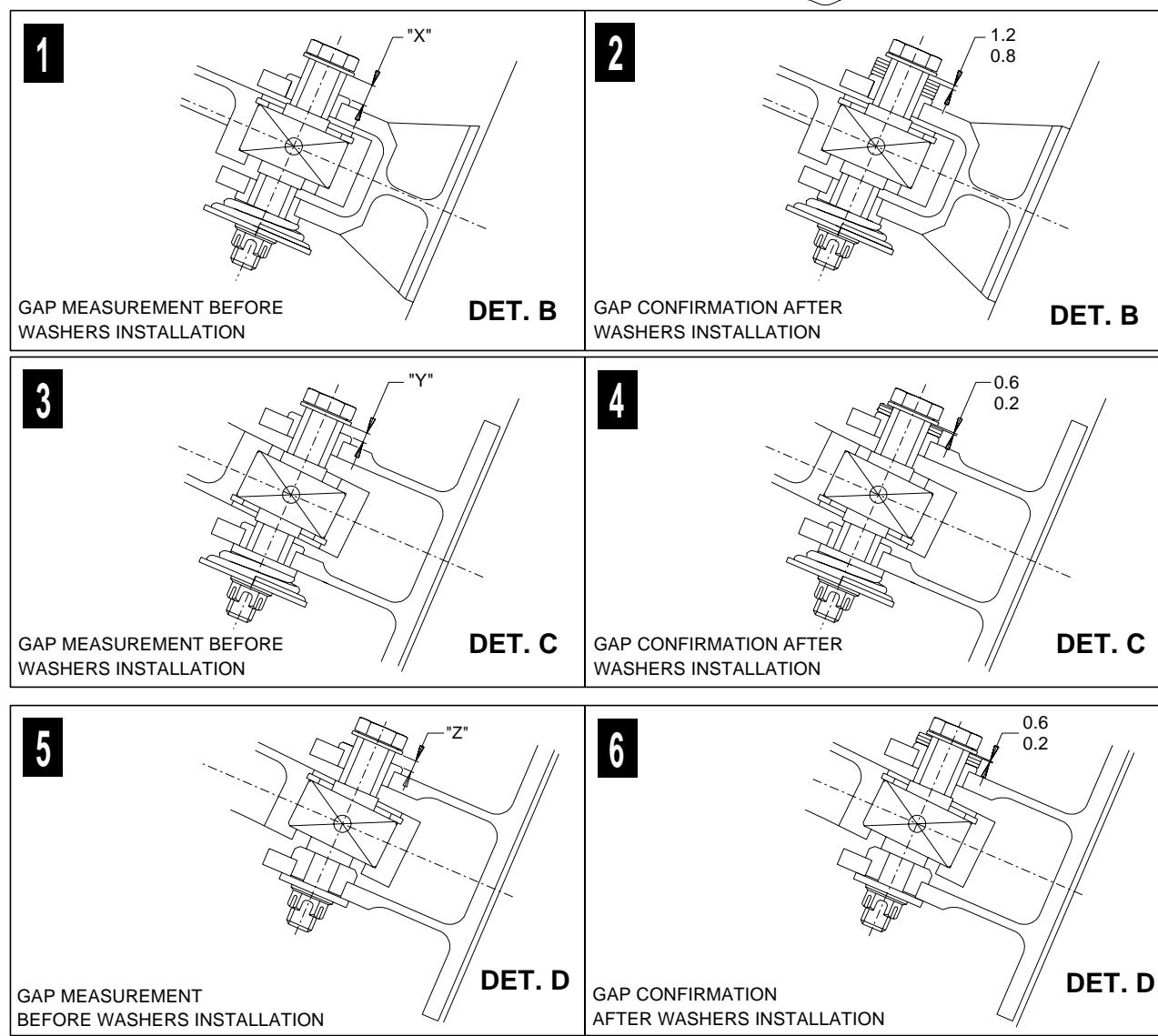
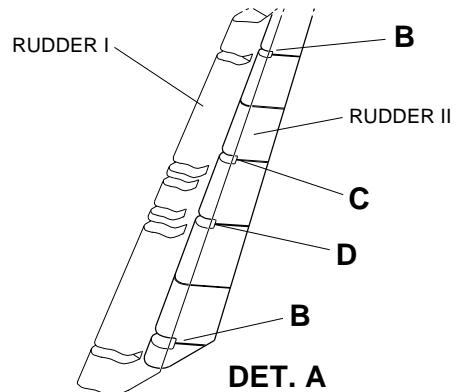
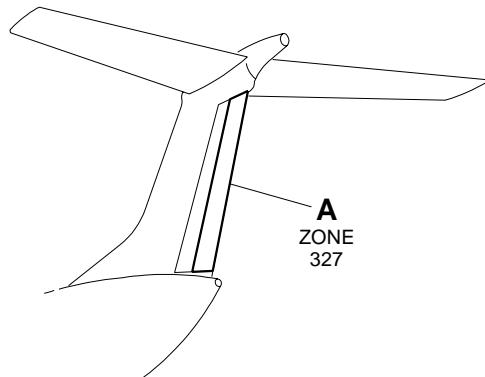


EM145AMM270663D.DGN

EFFECTIVITY: POST-MOD. S.B 145-55-0038

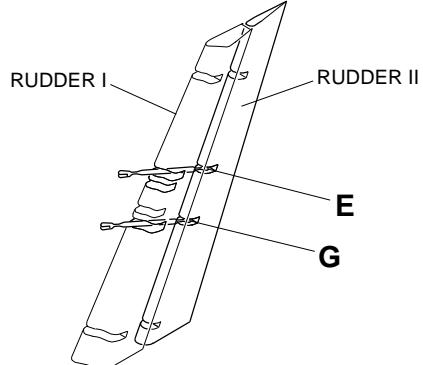
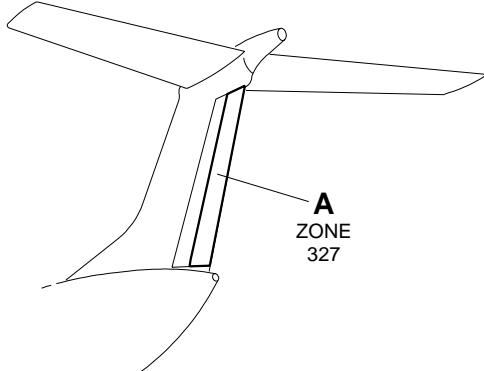
Rudder II Hinge Fittings - Gap Indication

Figure 407

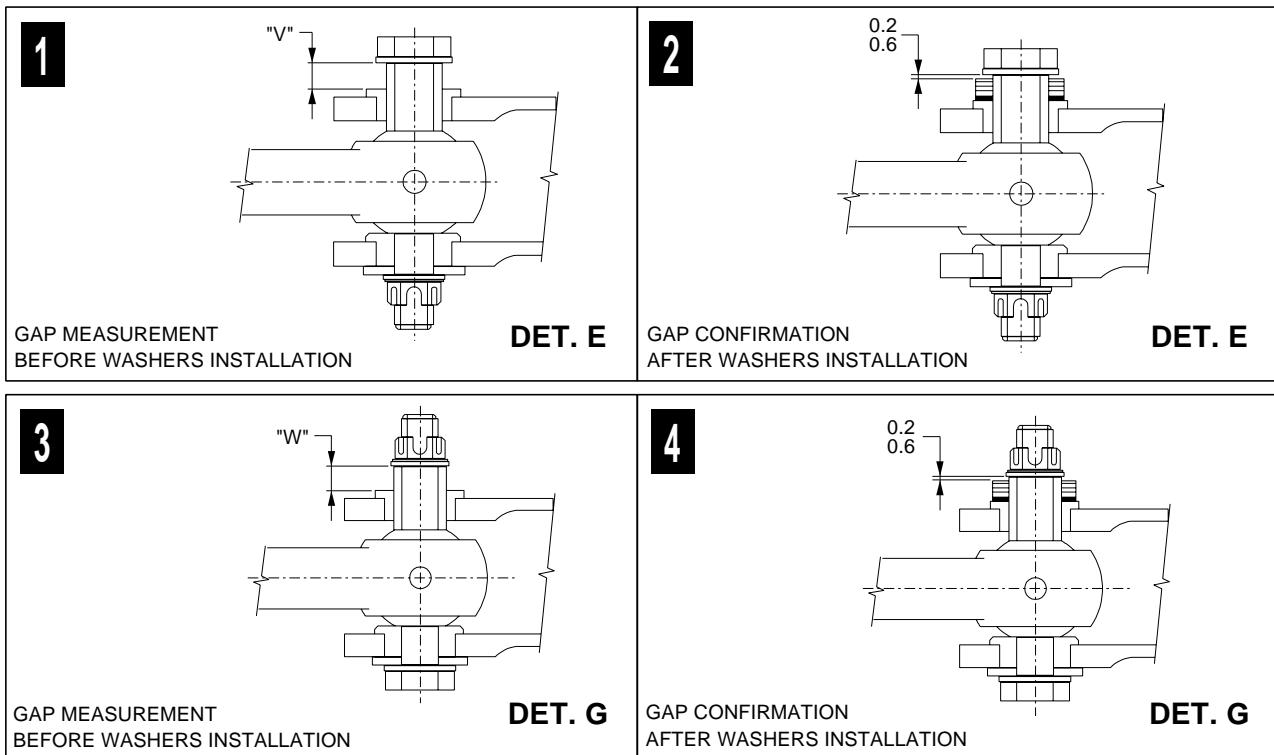


EM145AMM270793C.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0035
Rudder II Control Rod - Gap Indication
Figure 408



DET. A



EM145AMM270715D.DGN

TASK 27-20-02-400-801-A
EFFECTIVITY: ALL
3. RUDDER II - INSTALLATION
A. General

- (1) This procedure gives the instructions to install rudder II.

B. References

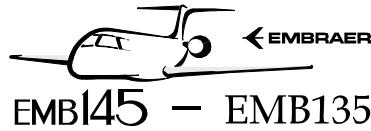
<i>REFERENCE</i>	<i>DESIGNATION</i>
AMM MPP 06-42-00/100	-
AMM MPP 20-10-01/200	- MAINTENANCE PRACTICES
AMM TASK 20-13-21-700-801-A/200	ELECTRICAL BONDING TEST - STANDARD PROCEDURES
AMM TASK 20-13-21-910-801-A/200	TYPES OF ELECTRICAL BONDING AND SURFACE PREPARATION - STANDARD PROCEDURES
AMM TASK 20-13-21-910-802-A/200	ELECTRICAL BONDING PROTECTION - STANDARD PROCEDURES
AMM TASK 27-20-00-700-801-A/500	ADJUSTMENT OF THE RUDDER NEUTRAL POSITION AND DEFLECTIONS OF RUDDER I AND RUDDER II
AMM TASK 27-20-00-700-803-A/500	RUDDER SECONDARY BACKSTOP - ADJUSTMENT
AMM TASK 27-22-00-700-801-A/500	-
AMM TASK 29-10-00-860-802-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH EMDP
IPC 27-21-02	RUDDER II
S.B.145-55-0034	-
S.B.145-55-0035	-
S.B.145-55-0038	-

C. Zones and Accesses

<i>ZONE</i>	<i>PANEL/DOOR</i>	<i>LOCATION</i>
327	327ER	Rudder II
327	327FR	Rudder II
327	327GR	Rudder II
327	327HR	Rudder II

D. Tools and Equipment

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>PURPOSE</i>	<i>QTY</i>
GSE 058	Kit, rig pin, flight controls	To lock the aileron control system in the neutral position	



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E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves	Skin Protection	1

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MEP 09-075 or MEP 09-060	Corrosion-Inhibiting Compound	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-21-02	6

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Rudder
1	Helps the other technician	Rudder

I. Installation (Figure 401) (Figure 402) (Figure 403) (Figure 404) (Figure 405) (Figure 406) (Figure 407) (Figure 408)

SUBTASK 420-002-A

WARNING: MAKE SURE THAT THE RUDDER CANNOT BE OPERATED ACCIDENTALLY. AN ACCIDENTAL OPERATION OF THE RUDDER CAN CAUSE INJURY TO PERSONS.

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

- (1) Do the bonding procedure, method 7 ([AMM TASK 20-13-21-910-801-A/200](#)).
- (2) For aircraft PRE-MOD. S.B 15-55-0034, do as follows:
 - (a) Apply corrosion-inhibiting compound CA-1000 to the bolts (7), (14), and (22). Use gloves and a brush for it. Refer to (Figure 401).
 - (b) Put rudder II (1) on the rudder I structure. Refer to (Figure 401).
NOTE: Start the rudder II installation with Lower Center Hinge Fitting. Refer to (Figure 401), DET. C.
 - (c) Install the bolt (7), washers (6) and (4), bushing (5), nut (3) to connect the rudder II (1) lower center hinge to the support at the rudder I structure. Refer to (Figure 401), DET. C.

- (d) Install a new cotter pin (2). Refer to (Figure 401), DET. C.
 - (e) Install the bolt (14), washers (13), (10), bushing (11) and (12), nut (9) to connect the rudder II (1) upper center hinge to the support at the rudder I structure. Refer to (Figure 401), DET. C.
 - (f) Install a new cotter pin (8). Refer to (Figure 401), DET. C.
 - (g) Install the bolts (22), washers (21) and (16), bushings (20) and (19), nuts (17) to connect the rudder II (1) upper and lower hinges to the supports at the rudder I structure. Refer to (Figure 401), DET. B.
 - (h) Install new cotter pins (18). Refer to (Figure 401), DET. B.
 - (i) Connect the ends of the bonding straps (15) (2 positions) with the bolts (23), washers (24), (25), (26), and (27), and nuts (28) ([AMM TASK 20-13-21-910-801-A/200](#)). Refer to (Figure 401), DET. D.
- (3) For aircraft POST-MOD. [S.B.145-55-0034](#) and PRE-MOD. S.B 15-55-0038, do as follows:
- (a) Apply corrosion-inhibiting compound CA-1000 to the bolts (7), (14), and (22). Use gloves and a brush for it. Refer to (Figure 402).
 - (b) Put rudder II (1) on the rudder I structure. Refer to (Figure 402).
- NOTE: Start the rudder II installation with Lower Center Hinge Fitting. Refer to (Figure 402), DET. D.
- (c) Install the bolt (7), washers (6) and (4), bushing (5), nut (3) to connect the rudder II (1) lower center hinge to the support at the rudder I structure. Refer to (Figure 402), DET. D.
 - (d) Measure the gap between the bushing and washer (6), refer to gap "Z" in (Figure 406), DET. D and make sure that the gap is between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:
 - 1 Remove the nut (3), washer (4), washer (6) and bolt (7). Refer to (Figure 402), DET. D.
 - 2 Install the bolt (7), washer (6), and insert new washers (6) (Refer to IPC 27-21-02), washer (4) and nut (3) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 402) and (Figure 406), DET. D.
 - 3 Tighten the nut (3) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 402), DET. D.
 - (e) Install a new cotter pin (2). Refer to (Figure 402), DET. D.
 - (f) Install the bolt (14), washers (13) and (10), bushing (11) and (12), nut (9) to connect the rudder II (1) upper center hinge to the support at the rudder I structure. Refer to (Figure 402), DET. C.
 - (g) Measure the gap between the bushing and washer (13) and the gap between the bushing and washer (10), refer to gap "Y" in (Figure 406), DET. C and make sure

that the gap is between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:

- 1 Remove the nut (9), washer (13), washer (10) and bolt (14). Refer to (Figure 402), DET. C.
 - 2 Install the bolt (14), washer (13), and insert new washers (13) (Refer to IPC 27-21-02), washer (10), and insert new washers (10), and nut (9) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 402) and (Figure 406), DET. C.
 - 3 Tighten the nut (9) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 402), DET. C.
 - (h) Install a new cotter pin (8). Refer to (Figure 402), DET. C.
 - (i) Install the bolts (22), washers (21) and (16), bushings (20) and (19), nuts (17) to connect the rudder II (1) upper and lower hinges to the supports at the rudder I structure. Refer to (Figure 402), DET. B.
 - (j) Measure the gap between the bushing and washer (21) and the gap between the bushing and washer (16), refer to gap "X" in (Figure 406), DET. B and make sure that the gap is between 0.8 mm (0.031 in) and 1.2 mm (0.047 in). If the gap is greater than 1.2 mm (0.047 in), do as follows:
 - 1 Remove the nut (17), washer (16), washer (21) and bolt (22). Refer to (Figure 402), DET. B.
 - 2 Install the bolt (22), washer (21), and insert new washers (21) (Refer to IPC 27-21-02), washer (16), and insert new washers (16), and nut (17) to reduce the gap to value between 0.8 mm (0.031 in) and 1.2 mm (0.047 in). Refer to (Figure 402) and (Figure 406), DET. B.
 - 3 Tighten the nut (17) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 402), DET. B.
 - (k) Install new cotter pins (18). Refer to (Figure 402), DET. B.
 - (l) Connect the ends of the bonding straps (15) (2 positions) with the bolts (23), washers (24), (25), (26), and (27), and nuts (28) ([AMM TASK 20-13-21-910-801-A/200](#)). Refer to (Figure 402), DET. D.
- (4) For aircraft POST-MOD. [S.B.145-55-0038](#), do as follows:
- WARNING: BE CAREFUL WHEN YOU USE THE COR-BAN 27L CORROSION-INHIBITING COMPOUND. PUT ON SAFETY GOGGLES AND PROTECTIVE CLOTHING. DO NOT BREATHE THE GAS OR DUST. DO THE WORK IN AN AREA WHICH HAS A GOOD FLOW OF AIR. COR-BAN 27L IS POISONOUS AND HIGHLY FLAMMABLE.**
- (a) Apply corrosion-inhibiting compound COR-BAN 27L to the bolts (9), (20) and (37) and bushings (5), (15), (16), (32) and (33). Use gloves and a brush for it. Refer to (Figure 403).
 - (b) Put rudder II (1) on the rudder I structure. Refer to (Figure 403).

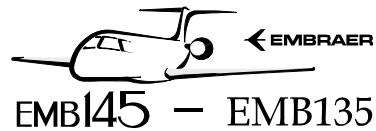
NOTE: Start the rudder II installation with Lower Center Hinge Fitting. Refer to (Figure 403), DET. D.

- (c) Install the bolt (9), washer (8), bushing (5), washer (4) and nut (3) to connect the rudder II (1) lower center hinge to the support at the rudder I structure. Refer to (Figure 403), DET. D.
- (d) Tighten the nut (3) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 403), DET. D.
- (e) Measure the gap between the bushing and washer (8), refer to gap "Z" in (Figure 407), DET. D and make sure that the gap is between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:
 - 1 Remove the nut (3), washer (4), washer (8) and bolt (9). Refer to (Figure 403), DET. D.
 - 2 Install the bolt (9), washer (8), and insert new washers (6) (Refer to IPC 27-21-02), washer (4) and nut (3) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 403) and (Figure 407), DET. D.
- NOTE:** If necessary, install a washer (7) (Refer to IPC 27-21-02) for fine adjustment, in order to obtain the correct gap.
- (f) Install the bolt (20), washers (19), bushings (16) and (15), washer (14), spring (13), washer (12) and nut (11) to connect the rudder II (1) upper center hinge to the support at the rudder I structure. Refer to (Figure 403), DET. C.
- (g) Tighten the nut (11) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 403), DET. C.
- (h) Measure the gap between the bushing and washer (19), refer to gap "Y" in (Figure 407), DET. C and make sure that the gap is between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:
 - 1 Remove the nut (11), washer (12), spring (13), washer (14), washer (19) and bolt (20). Refer to (Figure 403), DET. C.
 - 2 Install the bolt (20), washer (19), and insert new washers (17) (Refer to IPC 27-21-02), washer (14), spring (13), washer (12) and nut (11) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 403) and (Figure 407), DET. D.
- NOTE:** If necessary, install a washer (18) (Refer to IPC 27-21-02) for fine adjustment, in order to obtain the correct gap.
- (i) Install the bolts (37), washers (36), bushings (33) and (32), springs (21), washers (22) and nuts (23) to connect the rudder II (1) upper and lower hinges to the supports at the rudder I structure. Refer to (Figure 403), DET. B.

- (j) Tighten the nuts (23) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 403), DET. B.
 - (k) Measure the gap between the bushing and washer (36), refer to gap "X" in (Figure 407), DET. B and make sure that the gap is between 0.8 mm (0.031 in) and 1.2 mm (0.047 in). If the gap is greater than 1.2 mm (0.047 in), do as follows:
 - 1 Remove the nuts (23), washers (22), springs (21), washers (36) and bolts (37). Refer to (Figure 403), DET. B.
 - 2 Install the bolts (37), washers (36), and insert new washers (34) (Refer to IPC 27-21-02), springs (21), washers (22) and nuts (23) to reduce the gap to value between 0.8 mm (0.031 in) and 1.2 mm (0.047 in). Refer to (Figure 403) and (Figure 407), DET. B.

NOTE: If necessary, install a washer (35) (Refer to IPC 27-21-02) for fine adjustment, in order to obtain the correct gap.
 - 3 Tighten the nuts (23) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 403), DET. B.
 - (l) Install a new cotter pin (2). Refer to (Figure 403), DET. D.
 - (m) Install a new cotter pin (10). Refer to (Figure 403), DET. C.
 - (n) Install new cotter pins (24). Refer to (Figure 403), DET. B.
 - (o) Connect the ends of the bonding straps (28) (2 positions) with the screw (29), lock washer (30), washers (31), (25) and (27), and nut (26) ([AMM TASK 20-13-21-910-801-A/200](#)). Refer to (Figure 403), DET. F.
- (5) For aircraft PRE-MOD. [S.B.145-55-0035](#), do as follows:
- (a) Apply corrosion-inhibiting compound CA-1000 to the bolts (34). Use gloves and a brush for it. Refer to (Figure 404).
 - (b) Install the bolts (34), washers (35) and (32), bushings (36) and nuts (31) to connect the ends of the rods (33) (2 positions) to the supports at the rudder II (1) structure. Refer to (Figure 404), DET. E and DET. G.
 - (c) Install new cotter pins (30). Refer to (Figure 404), DET. E and DET. G.
 - (d) Connect the ends of the bonding straps (29) (2 positions) with the bolt (37), washers (38), (39) and (40) ([AMM TASK 20-13-21-910-801-A/200](#)). Refer to (Figure 404), DET. F.
- (6) For aircraft POST-MOD. [S.B.145-55-0035](#), do as follows:
- (a) Apply corrosion-inhibiting compound COR-BAN 27L to the bolts (1) and (15) and bushings (9) and (17). Use gloves and a brush for it. Refer to (Figure 405).
 - (b) Install the bolt (1), washers (2) and (7), bushing (9) and nut (6) to connect the end of the rod (8) to the supports at the rudder II (1) structure. Refer to (Figure 405), DET. B.
 - (c) Tighten the nut (6) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 405), DET. B.

- (d) Measure the gaps between the bushing and washer (2) (Refer to gap "V" in (Figure 408), DET. E) and make sure that the gaps are between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:
- 1 Remove the nut (6), washers (2) and (7) and bolt (1). Refer to (Figure 405), DET. B.
 - 2 Install the bolt (1), washers (2), and insert new washers (4) (Refer to IPC 27-21-02), washer (7) and nut (6) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 405), DET. B and (Figure 408), DET. E.
- NOTE:** If necessary, install a washer (3) (Refer to IPC 27-21-02) for fine adjustment, in order to obtain the correct gap.
- 3 Tighten the nut (6) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 405), DET. B.
- (e) Install the bolt (15), washers (14) and (18), bushing (17) and nut (11) to connect the end of the rod (16) to the supports at the rudder II (1) structure. Refer to (Figure 405), DET. C.
- (f) Tighten the nut (11) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 405), DET. C.
- (g) Measure the gaps between the bushing and washer (18) (Refer to gap "W" in (Figure 408), DET. G) and make sure that the gaps are between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). If the gap is greater than 0.6 mm (0.0236 in), do as follows:
- 1 Remove the nut (11), washers (14) and (18) and bolt (15). Refer to (Figure 405), DET. C.
 - 2 Install the bolt (15), washers (14), and insert new washers (13) (Refer to IPC 27-21-02), washer (18) and nut (11) to reduce the gap to value between 0.2 mm (0.0079 in) and 0.6 mm (0.0236 in). Refer to (Figure 405), DET. C and (Figure 408), DET. G.
- NOTE:** If necessary, install a washer (12) (Refer to IPC 27-21-02) for fine adjustment, in order to obtain the correct gap.
- 3 Tighten the nut (11) ([AMM MPP 20-10-01/200](#)). Refer to (Figure 405), DET. C.
- (h) Install new cotter pins (5) and (10). Refer to (Figure 405).
- (i) Connect the ends of the bonding straps (25) (2 positions) with the screw (24), lock washer (23), washers (22), (21), (20) and (19) ([AMM TASK 20-13-21-910-801-A/200](#)). Refer to (Figure 405), DET. D.
- (7) Do the bonding test on the bonding straps ([AMM TASK 20-13-21-700-801-A/200](#)).
- (8) Do the bonding protection on the bonding straps ([AMM TASK 20-13-21-910-802-A/200](#)).



EMB145 – EMB135

AIRCRAFT
MAINTENANCE MANUAL

J. Follow-on

SUBTASK 842-002-A

- (1) On the circuit breaker panel, close the RUDDER 1 and RUDDER 2 circuit breakers and remove the DO-NOT-CLOSE tag from them.

NOTE: The Rudder Sys 1-2 INOP caution message goes out of view.

- (2) Pressurize hydraulic systems 1 and 2 ([AMM TASK 29-10-00-860-802-A/200](#)).

- (3) Do a check of the rudder II backlashes (AMM TASK 27-22-00-700-801-A/500).

NOTE: Do this step only if you replaced the rudder II with a new one or if you replaced it with a rudder II used on other aircraft.

- (4) Do a check of the rudder II deflections ([AMM TASK 27-20-00-700-801-A/500](#)) or ([AMM TASK 27-20-00-700-803-A/500](#)) as applicable.

- (5) Install the rig pins to the rudder control system to lock it in the neutral position.

- (6) Make sure that the clearance between the rudder II and Tail boom fairing is 7.00 to 12.50 mm (0.27 to 0.47 in) on the leading edge and 7.00 to 10.50 mm (0.27 to 0.39 in) on the trailing edge.

- (7) Make sure that the clearance between the rudder II and Tail cone fairing is 4.80 to 13.50 mm (0.15 to 0.51 in).

- (8) Remove the rig pins from the rudder control system

- (9) Install access panels 327ER, 327FR, 327GR, and 327HR (AMM MPP 06-42-00/100).

