RUDDER MAIN CONTROL FEEDBACK PATH - INSPECTION/CHECK

EFFECTIVITY: ALL

1. General

A. This section gives the procedures for the inspection of the main control feedback path of the rudder in the vertical stabilizer.

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*
27-21-02-200-801-A ♦	RUDDER MAIN CONTROL FEEDBACK PATH PCU LINKAGE AND MOUNTING POINTS RUDDER ACTUATOR ATTACHMENTS HINGES AND CONNECTING RODS - DETAILED INSPECTION	ALL

TASK 27-21-02-200-801-A
EFFECTIVITY: ALL

2. RUDDER MAIN CONTROL FEEDBACK PATH PCU LINKAGE AND MOUNTING POINTS RUDDER ACTUATOR ATTACHMENTS HINGES AND CONNECTING RODS - DETAILED INSPECTION

A. General

(1) This procedure gives the instruction to inspect the equipment for general condition.

B. References

REFERENCE	*DESIGNATION*
AMM MPP 06-42-00/100	-
AMM MPP 20-10-01/200	- MAINTENANCE PRACTICES
AMM MPP 20-10-08/400	- REMOVAL/INSTALLATION
AMM MPP 52-40-04/400	- REMOVAL/INSTALLATION
AMM TASK 20-40-01-860-801-A/200	ENERGIZATION OF THE AIRCRAFT WITH AN EXTERNAL POWER SOURCE
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 27-20-02-000-801-A/400	RUDDER II - REMOVAL
AMM TASK 27-20-02-400-801-A/400	RUDDER II - INSTALLATION
AMM TASK 27-21-08-000-801-A/400	RUDDER-II CONTROL RODS - REMOVAL
AMM TASK 27-23-00-700-804-A/500	RUDDER SYSTEM - OPERATIONAL CHECK
AMM TASK 29-10-00-860-801-A/200	HYDRAULIC SYSTEM - PRESSURIZATION WITH HTS
IPC 27-24-00	YAW TRIM ACTUATOR
S.B.145-55-0034	-
S.B.145-55-0035	-
S.B.145-55-0038	-
SRM 55-40-02	-
TASK 27-21-08-420-001-A	-

C. Zones and Accesses

ZONE	*PANEL/DOOR*	*LOCATION*
325	325AL	Vertical stabilizer
325	325CL	Vertical stabilizer
325	325DL	Vertical stabilizer
325	325LR	Vertical stabilizer
325	325JR	Vertical stabilizer
326	326AL	Rudder I Leading Edge
326	326BL	Rudder I Leading Edge
326	326DL	Rudder I Leading Edge

(Continued)

ZONE	PANEL/DOOR	LOCATION
326	326EL	Rudder I Leading Edge
326	326GL	Rudder I Leading Edge
326	326HL	Rudder I Leading Edge
327	327HR	Rudder II Leading Edge
327	327GR	Rudder II Leading Edge
327	327FR	Rudder II Leading Edge
327	327ER	Rudder II Leading Edge

D. Tools and Equipment

ITEM	DESCRIPTION	PURPOSE	QTY
GSE 036	Hydraulic platform	To get access to the vertical stabilizer	
GSE 058	Kit, Rig Pins	To lock the rudder control in the neutral position	
Commercially available	Torque wrench	To apply the torques	

E. Auxiliary Items

ITEM	DESCRIPTION	PURPOSE	QTY
Commercially available	Rubber Gloves	Protection for the hands	1
Commercially available	Goggles	Protection for the eyes	1

F. Consumable Materials

SPECIFICATION (BRAND)	DESCRIPTION	QTY
MEP 09-075	Corrosion Inhibitive Compound COR-BAN 27L	AR
Fed. Spec. ASTM-D-740	Methyl-ethyl-ketone (MEK)	AR

G. Expendable Parts

ITEM	IPC REFERENCE (VENDOR REFERENCE)	QTY
Cotter pin	IPC 27-24-00	6

H. Persons Recommended

QTY	FUNCTION	PLACE
1	Does the task	Vertical stabilizer

I. Preparation

SUBTASK 841-002-A

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

(2) Make sure that hydraulic systems 1 and 2 are pressurized AMM TASK 29-10-00-860-801-A/200.

(3) Get access to the vertical stabilizer (GSE 036).

(4) Open access panels 325AL, 325CL, 326AL, 326GL, 326HL, 327HR, 327ER, and 327FR, (AMM MPP 06-42-00/100, AMM MPP 52-40-04/400).

J. Inspect (Detailed Inspection) Rudder Main Control Feedback Path, PCU Linkage and Mounting Points, Rudder Actuator Attachments, Rudder I/II Hinges and Connecting Rods (Figure 601) (Figure 602) (Figure 603) (Figure 604) (Figure 605) (Figure 606) (Figure 607) (Figure 608) (Figure 609) (Figure 610)

SUBTASK 220-002-A

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

(1) Do an inspection on the rudder PCU connections and bearings for integrity, interference, and abnormal friction. Do this check while the rudder is commanded.

(2) Release the pressure on hydraulic systems 1 and 2 (AMM TASK 29-10-00-860-801-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.

(4) Install the rig pins to the pedal assemblies, rear torque tube, and PCU. Refer to Figure 601.

(5) Remove the control rod. Refer to AMM TASK 27-21-08-000-801-A/400.

(a) Visually examine the control rod for integrity.

(b) Hold the control rod in both ends (3) and (4) and pull, twist and flex it. Refer to Sheet 2, Figure 603.

NOTE: If you find any relative movement between the rod body (2) and its rod ends (3) and (4), replace the control rod (1).

(6) Do the step (5) for both rods.

CAUTION:
- DO NOT TIGHTEN OR LOOSEN THE ECCENTRIC PIN BY THE SCREW HEAD TO PREVENT DAMAGE TO IT.
- USE A WRENCH TO LOOSEN THE ECCENTRIC PIN ON THE NUT ONLY TO PREVENT DAMAGE TO IT.

(7) Remove concentric pins (7), (8), (9) and (14) and the eccentric pin (1). Refer to Figure 602, Sheet 2.

NOTE: Mark the assembly position of each pin and related fasteners in the feedback rods.

(8) Remove the feedback rods (15) and (20) and bellcranck (16).

(9) Remove the inner shaft from the outer shaft at the eccentric pin and concentric pins. Refer to Figure 602, Sheet 3.

NOTE: After this step, look and identify each pair of outer and inner shafts which include the eccentric and concentric pins sets to permit the correct assembly.

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

(10) Clean area before you examine the parts, removing dust, grease, oil, sealants, and other contaminations from them.

(11) Do a visual inspection on the rudder actuator attachment, PCU linkages and mounting points, Rudder-I Hinges, feedback rods, the eccentric pin, concentric pins and bellcrank for general condition and integrity.

NOTE:
- Use an inspection mirror to examine the parts, if necessary.
- If you find defects, replace the defective parts.

CAUTION: WHEN YOU ASSEMBLE EACH SET OF ECCENTRIC OR CONCENTRIC PINS, MAKE SURE THAT EACH PAIR OF INNER AND OUTER PINS AGREES WITH THE PAIR USED BEFORE AND THAT THE HOLES ALIGN CORRECTLY.

(12) Assemble the set of the concentric pins and eccentric pin.

WARNING: COR-BAN 27L IS TOXIC TO SKIN, EYES AND RESPIRATORY TRACT. USE PVC GLOVES AND EYE PROTECTION. USE ONLY IN WELL VENTILATED AREAS. OBEY THE MANUFACTURERS' HEALTH AND SAFETY INSTRUCTIONS.

(a) Apply COR-BAN 27L to the inner shaft. Use gloves and a brush.

(b) Put the inner shafts into the outer shaft and attach them with a cotter pin. Refer to Figure 602, Sheet 3.

(c) Apply COR-BAN 27L to the outer shaft. Use gloves and a brush.

(13) Install the concentric pins (7), (8), (9) and (14) and eccentric pin (1) together with the feedback rods (15) and (20) and the bellcrank (16). Refer to Figure 602, Sheet 2.

NOTE: To prevent damage to the eccentric pin, use a wrench to tighten the nut only.

CAUTION: MAKE SURE THAT THE PINS ARE IN THEIR CORRECT POSITIONS TOGETHER WITH THEIR RELATED FASTENERS.

(a) Install the eccentric pin (1) to the hinge with beveled washer (21), bushing (2), locking nut (3), washer (4), nut (5), and cotter pin (6), refer to DET G Figure 602, Sheet 3.

NOTE: Make sure that the beveled washer faces the bolt shoulder.

(b) Install the concentric pins (7), (8) and (9) in the bellcrank (16) with washers, nuts, and cotter pins.

NOTE: Be careful not to damage the fillet of the concentric pin (8). Refer to DET F, Figure 602, Sheet 3.

(c) Install the concentric pin (14) on the summing lever with washer (10), nut (11), and cotter pin (12).

(d) Torque the nut (11) (AMM MPP 20-10-01/200).

(14) Make sure that the pins are in their correct positions together with their related fasteners.

(15) Do an Inspection on Upper Hinge Fitting as indicated in DETAIL B. Refer to Figure 604, Figure 605 and Figure 606.

(a) For aircraft PRE-MOD. S.B.145-55-0034, remove the bolt (22) and plain bushings (19) and (20). For this, remove and discard the cotter-pin (18), remove the nut (17) and washers (16) and (21). Refer to Figure 604.

(b) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, remove the bolt (22) and plain bushings (19) and (20). For this, remove and discard the cotter-pin (18), remove the nut (17) and washers (16) and (21). Refer to Figure 605.

(c) For aircraft POST-MOD. S.B.145-55-0038, remove the bolt (37) and plain bushings (33) and (32). For this, remove and discard the cotter-pin (24), remove the nut (23), washers (22) and (36), washers (34) and (35) (if applicable), and spring (21). Refer to Figure 606.

(d) Do a dimensional diameter inspection on bolt according to Table 601. Refer to (1), Figure 609.

Table 601 - BOLT DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with	Remarks
DET. B Upper hinge fitting	Bolt		DIAMETER ≥ 6.30 mm	Use again
			DIAMETER < 6.30 mm	Replace it and do step 1 below

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(e) Do a dimensional diameter inspection on plain bushings according to Table 602. Refer to (2), Figure 609.

Table 602 - PLAIN BUSHING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with	Remarks
DET. B Upper hinge fitting	Plain bushing (D → Ex-ternal di-ameter) (d → In-ternal di-ameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1[1] below and Discard and Replace the plain bushing
			D < 9.40	Do steps 1[1] and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 601.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(f) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(16) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table 603. Refer to Figure 610.

Table 603 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with		Remarks
DET. B Upper hinge fitting	Flanged bushing (D1 → Ex-ternal Di-ameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Re-place
	Flanged bushing (d2 → In-ternal Di-ameter)		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Re-place

(c) Do a dimensional diameter inspection on fitting according to Table 604. Refer to (3) Figure 609.

Table 604 - FITTING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with		Remarks
DET. B Upper hinge fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bushing
			D2 > 12.7	+0.018	Do step 1 below

1 Replace the fitting. Refer to (SRM 55-40-02).

(17) For aircraft PRE-MOD. S.B.145-55-0034, install back to the assembly the bolt (22) and plain bushings (19) and (20) with a new cotter-pin (18), nut (17) and washers (16) and (21) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 604.

(18) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, install back to the assembly the bolt (22) and plain bushings (19) and (20) with a new cotter-pin (18), nut (17) and washers (16) and (21) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

(19) For aircraft POST-MOD. S.B.145-55-0038, install back to the assembly the bolt (37) and plain bushings (32) and (33) with a new cotter-pin (24), nut (23), washers (22) and (36), and washers (34) and (35) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (34) and (35) in order to obtain the correct gap.

(20) Do an Inspection on Upper Center Hinge Fitting as indicated in DETAIL C. Refer to Figure 604, Figure 605 and Figure 606.

(a) For aircraft PRE-MOD. S.B.145-55-0034, remove the bolt (14) and plain bushings (11) and (12). For this, remove and discard the cotter-pin (8), remove the nut (9) and washers (10) and (13). Refer to Figure 604.

(b) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, remove the bolt (14) and plain bushings (11) and (12). For this, remove and discard the cotter-pin (8), remove the nut (9) and washers (10) and (13). Refer to Figure 605.

(c) For aircraft POST-MOD. S.B.145-55-0038, remove the bolt (20) and plain bushings (15) and (16). For this, remove and discard the cotter-pin (10), remove the nut (11) and washers (12), (14) and (19), washers (17) and (18) (if applicable), and spring (13). Refer to Figure 606.

(d) Do a dimensional diameter inspection on bolt according to Table 605. Refer to (1), Figure 609.

Table 605 - BOLT DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with	Remarks
DET. C Upper center hinge fit-ting	Bolt		DIAMETER ≥ 6.30 mm	Use again
			DIAMETER < 6.30 mm	Replace it and do step 1 below

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(e) Do a dimensional diameter inspection on plain bushings according to Table 606. Refer to (2), Figure 609.

Table 606 - PLAIN BUSHING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in in-spection [mm]	Compare with	Remarks
DET. C Upper center hinge fit-ting	Plain bushing (D → Ex-ternal di-ameter) (d → In-ternal di-ameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1 [1] below and Discard and Replace the plain bushing
			D < 9.40	Do steps 1FT602-1 and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 605.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(f) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(21) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table. Refer to Figure 610

Table 607 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in inspection [mm]	Compare with		Remarks
DET. C Upper center hinge fit-ting	Flanged bushing (D1 → External Diameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Replace
	Flanged bushing (d2 → Internal Diameter.		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Replace

(c) Do a dimensional diameter inspection on fitting according to Table 608. Refer to (3) Figure 609.

Table 608 - FITTING DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in inspection [mm]	Compare with		Remarks
DET. C Upper center hinge fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bush-ing
			D2 > 12.7	+0.018	Do step 1 be-low

1 Replace the fitting. Refer to (SRM 55-40-02).

(22) For aircraft PRE-MOD. S.B.145-55-0034, install back to the assembly the bolt (14) and plain bushings (11) and (12) with a new cotter-pin (8), nut (9) and washers (10) and (13) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 604.

(23) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, install back to the assembly the bolt (14) and plain bushings (11) and (12) with a new cotter-pin (8), nut (9) and washers (10) and (13) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

(24) For aircraft POST-MOD. S.B.145-55-0038, install back to the assembly the bolt (20) and plain bushings (15) and (16) with a new cotter-pin (10), nut (11), washers (12), (14) and (19), and washers (17) and (18) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 606.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (17) and (18) in order to obtain the correct gap.

(25) Do an Inspection on Lower Center Hinge Fitting as indicated in DETAIL D. Refer to Figure 604, Figure 605 and Figure 606.

(a) For aircraft PRE-MOD. S.B.145-55-0034, remove the bolt (7) and plain bushing (5). For this, remove and discard the cotter-pin (2), remove the nut (3) and washers (4) and (6). Refer to Figure 604.

(b) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, remove the bolt (7) and plain bushing (5). For this, remove and discard the cotter-pin (2), remove the nut (3) and washers (4) and (6). Refer to Figure 605.

(c) For aircraft POST-MOD. S.B.145-55-0038, remove the bolt (9) and plain bushing (5). For this, remove and discard the cotter-pin (2), remove the nut (3), washers (4) and (8) and washers (6) and (7) (if applicable). Refer to Figure 606.

(d) Do a dimensional diameter inspection on bolt according to Table 609. Refer to (1), Figure 609.

Table 609 - BOLT DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with	Remarks
DET. D Lower center hinge fitting	Bolt		DIAMETER ≥ 6.30 mm	Use again
			DIAMETER < 6.30 mm	Replace it and do step 1 below

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(e) Do a dimensional diameter inspection on plain bushings according to Table 610. Refer to (2), Figure 609.

Table 610 - PLAIN BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with	Remarks
DET. D Lower center hinge fitting	Plain bushing (D → External diameter) (d → Internal diameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1 [1] below and Discard and Replace the plain bushing
			D < 9.40	Do steps 1[1] and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 609.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(f) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(26) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table 611. Refer to Figure 610.

Table 611 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. D Lower center hinge fitting	Flanged bushing (D1 → External Diameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Replace
	Flanged bushing (d1 → Internal Diameter)		d1 = 6.35	+ 0.005 -0.010	Reuse
			d1 > 6.35	+0.005	Discard and Replace
	Flanged bushing (d2 → Internal Diameter.		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Replace

(c) Do a dimensional diameter inspection on fitting according to Table 612. Refer to (3) Figure 609.

Table 612 - FITTING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. D Lower center hinge fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bushing
			D2 > 12.7	+0.018	Do step 1 below

1 Replace the fitting. Refer to (SRM 55-40-02).

(27) For aircraft PRE-MOD. S.B.145-55-0034, install back to the assembly the bolt (7) and plain bushing (5) with a new cotter-pin (2), nut (3) and washers (4) and (6) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 604.

(28) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, install back to the assembly the bolt (7) and plain bushing (5) with a new cotter-pin (2), nut (3) and washers (4) and (6) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

(29) For aircraft POST-MOD. S.B.145-55-0038, install back to the assembly the bolt (9) and plain bushing (5) with a new cotter-pin (2), nut (3), washers (4) and (8) and washers (6) and (7) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 606.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (6) and (7) in order to obtain the correct gap.

(30) Do an Inspection on Lower Hinge Fitting as indicated in DETAIL B. Refer to Figure 604, Figure 605 and Figure 606

(a) For aircraft PRE-MOD. S.B.145-55-0034, remove the bolt (22) and plain bushings (19) and (20). For this, remove and discard the cotter-pin (18), remove the nut (17) and washers (16) and (21). Refer to Figure 604.

(b) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, remove the bolt (22) and plain bushings (19) and (20). For this, remove and discard the cotter-pin (18), remove the nut (17) and washers (16) and (21). Refer to Figure 605.

(c) For aircraft POST-MOD. S.B.145-55-0038, remove the bolt (37) and plain bushings (33) and (32). For this, remove and discard the cotter-pin (24), remove the nut (23), washers (22) and (36), washers (34) and (35) (if applicable), and spring (21). Refer to Figure 606.

(d) Do a dimensional diameter inspection on bolt according to Table 613. Refer to (1), Figure 609.

Table 613 - BOLT DIAMETER INSPECTION

DETAIL	Compo-nent	Diameter found in inspection [mm]	Compare with	Remarks
DET. B Lower hinge fitting	Bolt		DIAME-TER ≥ 6.30 mm	Use again
			DIAME-TER < 6.30 mm	Replace it and do step 1 be-low

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(e) Do a dimensional diameter inspection on plain bushings according to Table 614. Refer to (2), Figure 609.

Table 614 - PLAIN BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspec-tion [mm]	Compare with	Remarks
DET. B Lower hinge fit-ting	Plain bushing (D → External diameter) (d → Internal di-ameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1 [1] below and Discard and Re-place the plain bushing
			D < 9.40	Do steps 1[1] and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 613.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(f) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(31) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table 615. Refer to Figure 610

Table 615 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. B Lower hinge fitting	Flanged bushing (D1 → External Diameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Replace
	Flanged bushing (d2 → Internal Diameter)		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Replace

(c) Do a dimensional diameter inspection on fitting according to Table 616. Refer to (3) Figure 609.

Table 616 - FITTING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. B Lower hinge fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bushing
			D2 > 12.7	+0.018	Do step 1 below

1 Replace the fitting. Refer to (SRM 55-40-02).

(32) For aircraft PRE-MOD. S.B.145-55-0034, install back to the assembly the bolt (22) and plain bushings (19) and (20) with a new cotter-pin (18), nut (17) and washers (16) and (21) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 604.

(33) For aircraft POST-MOD. S.B.145-55-0034 AND PRE-MOD. S.B. 145-55-0038, install back to the assembly the bolt (22) and plain bushings (19) and (20) with a new cotter-pin (18), nut (17) and washers (16) and (21) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

(34) For aircraft POST-MOD. S.B.145-55-0038, install back to the assembly the bolt (37) and plain bushings (32) and (33) with a new cotter-pin (24), nut (23), washers (22) and (36), and washers (34) and (35) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 605.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (34) and (35) in order to obtain the correct gap.

(35) Do an Inspection on Upper Rod Fitting as indicated in DETAIL E (Figure 607) or DETAIL B (Figure 608).

(a) For aircraft PRE-MOD. S.B.145-55-0035, remove the bolt (34) and plain bushing (36). For this, remove and discard the cotter-pin (30), remove the nut (31) and washers (32) and (35). Refer to Figure 607.

(b) For aircraft POST-MOD. S.B.145-55-0035, remove the bolt (1) and plain bushing (9). For this, remove and discard the cotter-pin (5), remove the nut (6), washers (2) and (7) and washers (3) and (4) (if applicable). Refer to Figure 608.

(c) Do a dimensional diameter inspection on bolt according to Table 617. Refer to (1), Figure 609.

Table 617 - BOLT DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with	Remarks
DET. E Upper Rod fitting	Bolt		DIAMETER ≥ 6.30 mm	Use again
			DIAMETER < 6.30 mm	Replace it and do step 1 below

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(d) Do a dimensional diameter inspection on plain bushings according to Table 618. Refer to (2), Figure 609.

Table 618 - PLAIN BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in in-spection [mm]	Compare with	Remarks
DET. E Upper Rod fitting	Plain bushing (D → External diameter) (d → Internal diameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1 [1] below and Discard and Replace the plain bushing
			D < 9.40	Do steps 1[1] and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 617.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(e) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(36) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table 619. Refer to Figure 610.

Table 619 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. E Upper Rod fitting	Flanged bushing (D1 → External Diameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Replace
	Flanged bushing (d1 → Internal Diameter)		d1 = 6.35	+ 0.005 -0.010	Reuse
			d1 > 6.35	+0.005	Discard and Replace
	Flanged bushing (d2 → Internal Diameter.		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Replace

(c) Do a dimensional diameter inspection on fitting according to Table 620. Refer to (3) Figure 609.

Table 620 - FITTING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. E Upper Rod fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bushing
			D2 > 12.7	+0.018	Do step 1 below

1 Replace the fitting. Refer to (SRM 55-40-02).

(37) For aircraft PRE-MOD. S.B.145-55-0035, install back to the assembly the bolt (34) and plain bushing (36) with a new cotter-pin (30), nut (31) and washers (32) and (35). Refer to Figure 607.

(38) For aircraft POST-MOD. S.B.145-55-0035, install back to the assembly the bolt (1) and plain bushing (9) with a new cotter-pin (5), nut (6), washers (2) and (7) and washers (3) and (4) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 608.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (3) and (4) in order to obtain the correct gap.

(39) Do an Inspection on Lower Rod Fitting as indicated in DETAIL G (Figure 607) or DETAIL C (Figure 608).

(a) For aircraft PRE-MOD. S.B.145-55-0035, remove the bolt (34) and plain bushing (36). For this, remove and discard the cotter-pin (30), remove the nut (31) and washers (32) and (35). Refer to Figure 607.

(b) For aircraft POST-MOD. S.B.145-55-0035, remove the bolt (15) and plain bushing (17). For this, remove and discard the cotter-pin (10), remove the nut (11), washers (14) and (18) and washers (12) and (13) (if applicable). Refer to Figure 608.

(c) Do a dimensional diameter inspection on bolt according to Table 621. Refer to (1), Figure 609.

Table 621 - BOLT DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with	Remarks
DET. G Lower Rod fitting	Bolt		DIAMETER ≥ 6.30 mm	Use again
			DIAMETER < 6.30 mm	Replace it and do step 1 below

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

(d) Do a dimensional diameter inspection on plain bushings according to Table 622. Refer to (2), Figure 609.

Table 622 - PLAIN BUSHING DIAMETER INSPECTION

DETAILS	Component	Diameter found in inspection [mm]	Compare with	Remarks
DET. G Lower Rod fitting	Plain bushing (D → External diameter) (d → Internal diameter)		D > 9.50 AND d ≤ 6.35	Reuse
			D 9.40 UP to D 9.50 OR d > 6.35	Do step 1 [1] below and Discard and Replace the plain bushing
			D < 9.40	Do steps 1[1] and 2 below

[1] If you didn't replace the ball bearing in the dimensional diameter inspection on bolt according to Table 621.

1 Replace ball bearing of the attachment hinge point as in rudder I as follows:

a Remove the Rudder II. Refer to AMM TASK 27-20-02-000-801-A/400.

b Replace the ball bearing. Refer to AMM MPP 20-10-08/400.

c Reinstall the Rudder II. Refer to AMM TASK 27-20-02-400-801-A/400.

2 Do a check for signs of wear around the flanged bushings.

NOTE: Use an inspection mirror and a spotlight to examine the parts.

CAUTION: TAKE CARE NOT TO CAUSE DAMAGE TO HINGE FITTING WHEN YOU TRY TO MOVE BUSHINGS WITH A PLASTIC SPATULA.

(e) If flanged bushings are not out of position, carefully use a plastic spatula to check for migration. If it is possible and using a spotlight and a mirror, check if there is apparent signs of wear hinge fitting.

(40) (Applicable only if it is found signs of wear on plain and/or flanged bushings and if there is migration of the flanged bushings).

(a) Remove the flanged bushings.

(b) Do a dimensional inspection on flanged bushings according to Table 623. Refer Figure 610.

Table 623 - FLANGED BUSHING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. G Lower Rod fitting	Flanged bushing (D1 → External Diameter)		D1 = 12.7	+0.023 +0.012	Reuse
			D1 < 12.7	+0.012	Discard and Replace
	Flanged bushing (d1 → Internal Diameter)		d1 = 6.35	+ 0.005 -0.010	Reuse
			d1 > 6.35	+0.005	Discard and Replace
	Flanged bushing (d2 → Internal Diameter).		d2 = 9.525	+0.015 0	Reuse
			d2 > 9.525	+0.015	Discard and Replace

(c) Do a dimensional diameter inspection on fitting according to Table 624. Refer to (3),Figure 609.

Table 624 - FITTING DIAMETER INSPECTION

DETAIL	Component	Diameter found in inspection [mm]	Compare with		Remarks
DET. G Lower Rod fitting	Fitting		D2 = 12.7	+0.000 +0.018	Replace only flanged bushing
			D2 > 12.7	+0.018	Do step 1 below

1 Replace the fitting. Refer to (SRM 55-40-02).

(41) For aircraft PRE-MOD. S.B.145-55-0035, install back to the assembly the bolt (34) and plain bushing (36) with a new cotter-pin (30), nut (31) and washers (32) and (35). Refer to Figure 607.

(42) For aircraft POST-MOD. S.B.145-55-0035, install back to the assembly the bolt (15) and plain bushing (17) with a new cotter-pin (10), nut (11), washers (14) and (18) and washers (12) and (13) (if applicable) (AMM TASK 27-20-02-400-801-A/400). Refer to Figure 608.

NOTE: Refer to AMM TASK 27-20-02-400-801-A/400 for the correct installation of washers (12) and (13) in order to obtain the correct gap.

(43) Install the control rods. Refer to TASK 27-21-08-420-001-A.

K. Follow-on

SUBTASK 842-002-A

(1) Adjust the rudder neutral position and deflections of rudder I and rudder II (AMM TASK 27-20-00-700-801-A/500), as applicable.

(2) Close access panels 325AL, 325CL, 326AL, 326GL, 326HL, 327HR, 327ER, and 327FR (AMM MPP 06-42-00/100).

(3) Remove platform GSE 036.

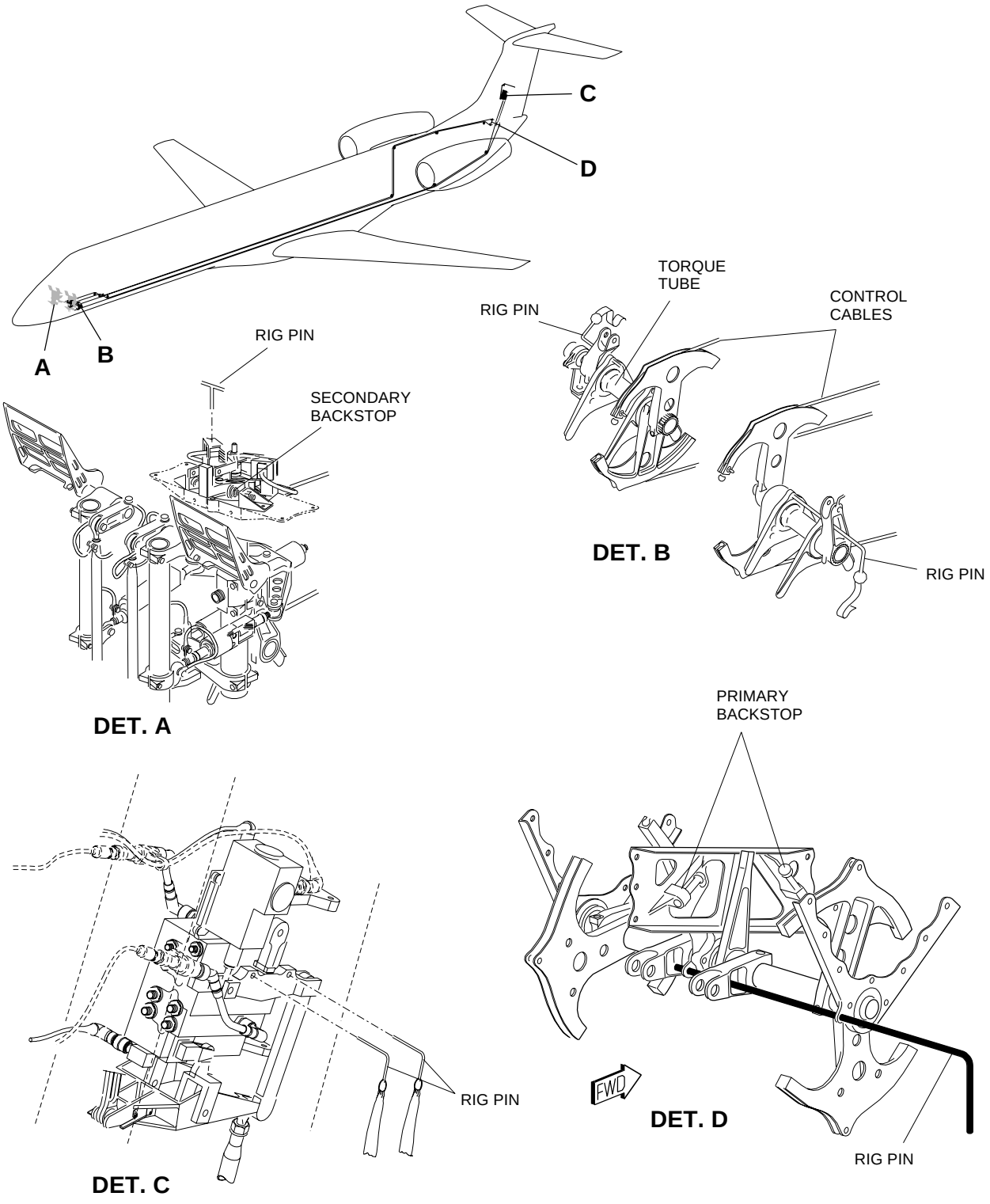
(4) Remove the rig pins to the pedal assemblies, rear torque tube, and PCU. Refer to Figure 601

(5) Do the rudder system operational check (AMM TASK 27-23-00-700-804-A/500).

(6) Deenergize the aircraft with the External DC Power Supply (AMM TASK 20-40-01-860-801-A/200).

EFFECTIVITY: ALL

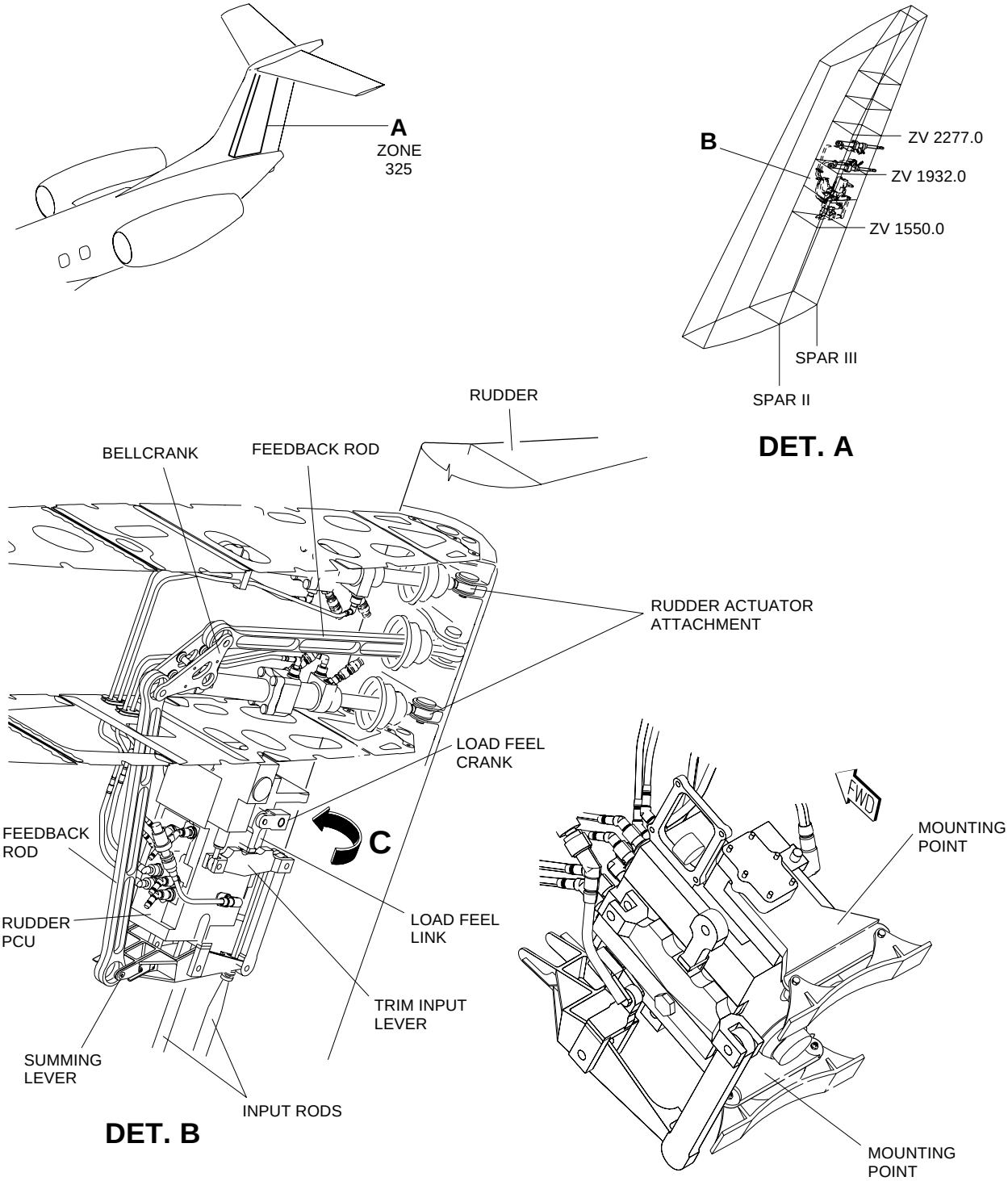
Rudder Primary Mechanical Control - Rudder Rig Pins
Figure 601



EM145AMM270707E.DGN

EFFECTIVITY: ALL

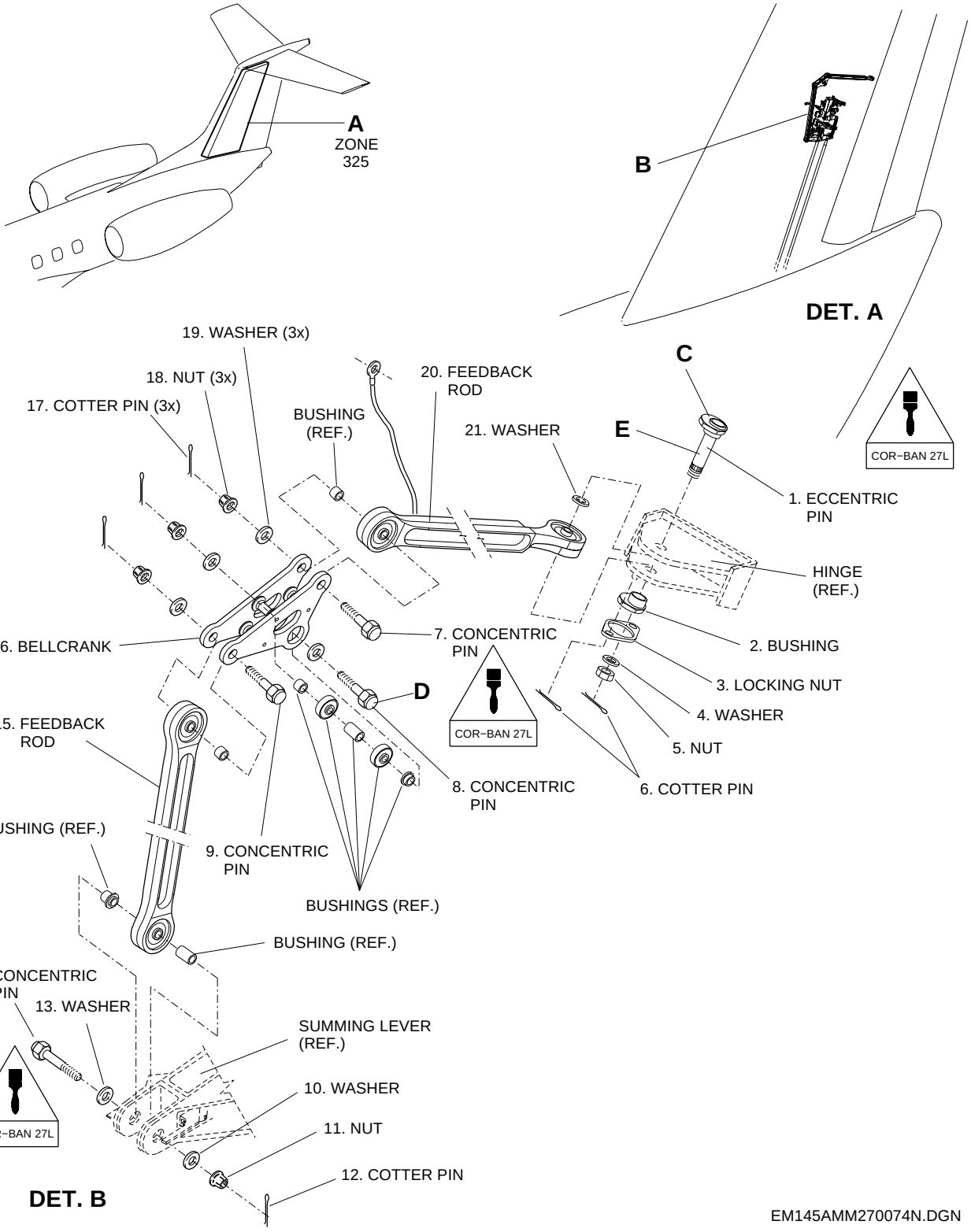
Main Control Feedback Path - Detailed Inspection
Figure 602 - Sheet 1



EM145AMM270071D.DGN

EFFECTIVITY: ALL

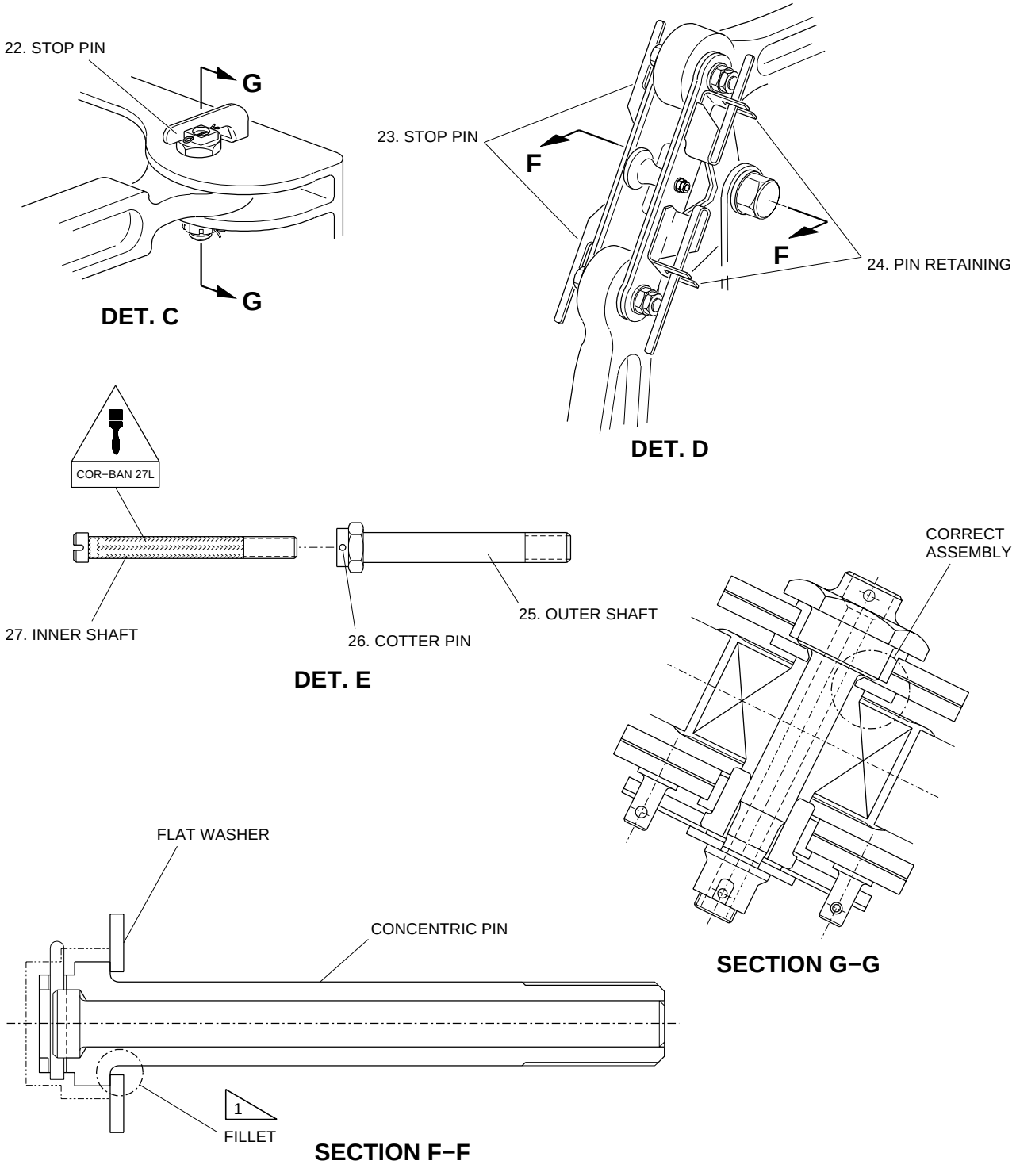
Main Control Feedback Path - Detailed Inspection
Figure 602 - Sheet 2



EM145AMM270074N.DGN

EFFECTIVITY: ALL

Main Control Feedback Path - Detailed Inspection
Figure 602 - Sheet 3

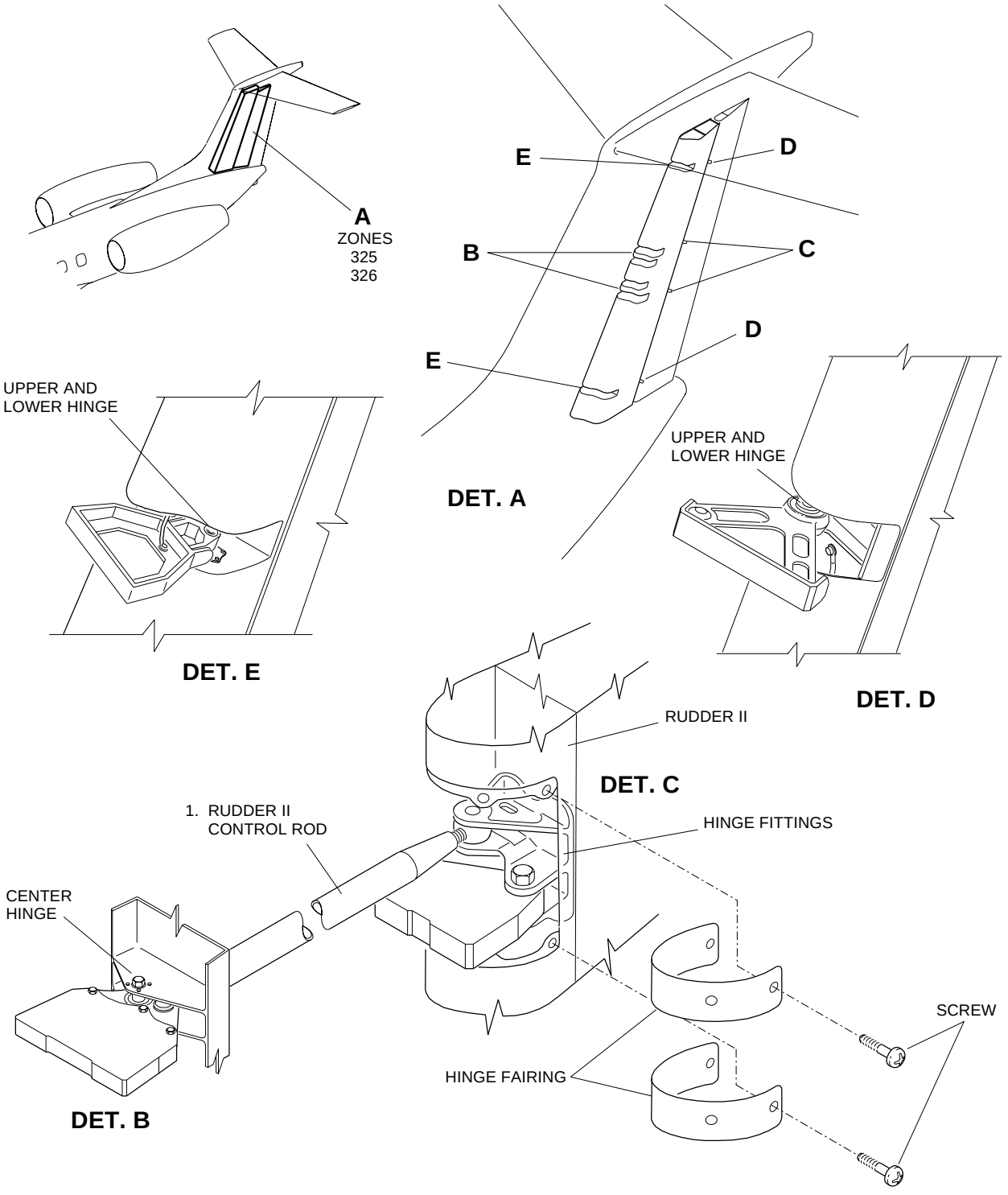


1 BE CAREFUL NO TO DAMAGE THE FILLET OF THE CONCENTRIC PIN.

EM145AMM270076F.DGN

EFFECTIVITY: ALL

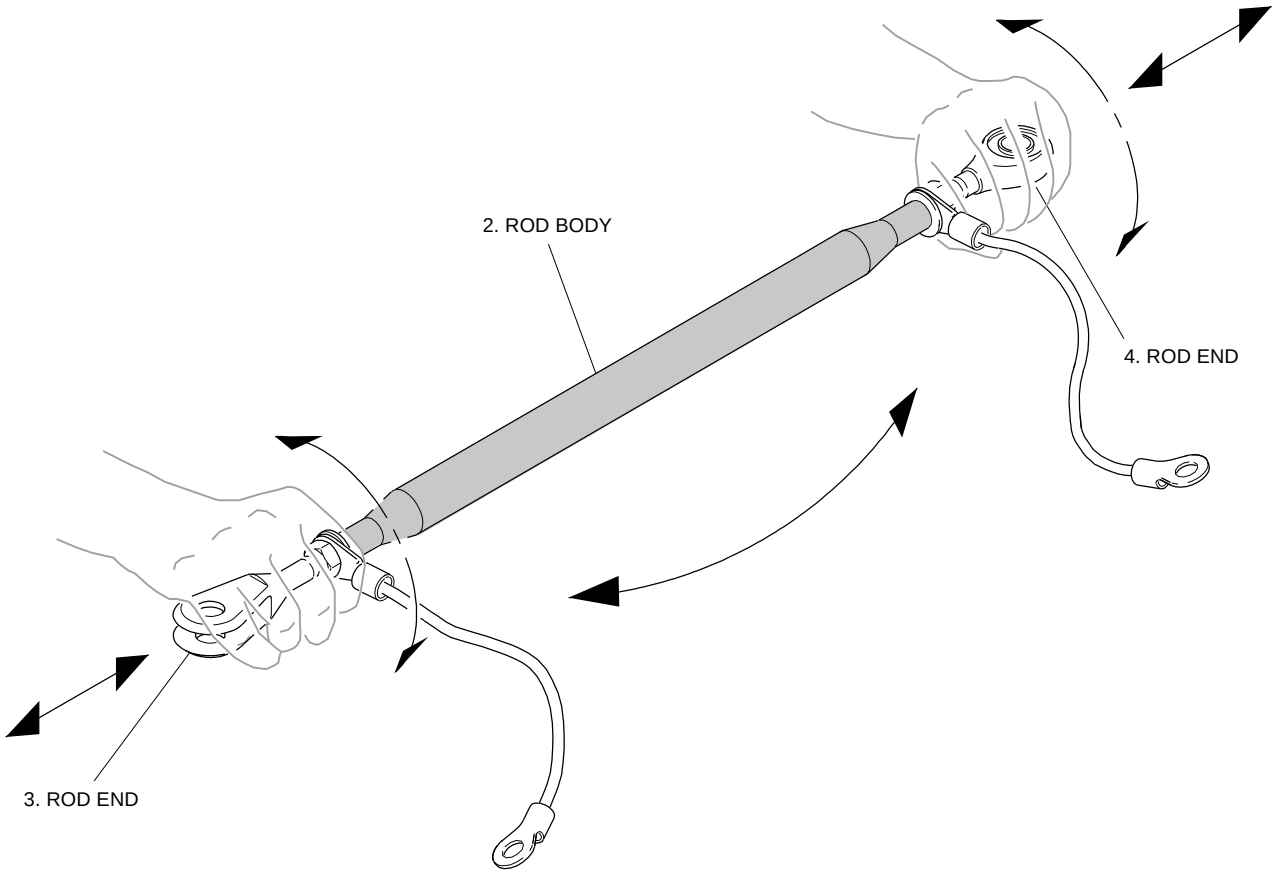
Rudder Control Rods - Inspection
Figure 603 - Sheet 1



EM145AMM270015E.DGN

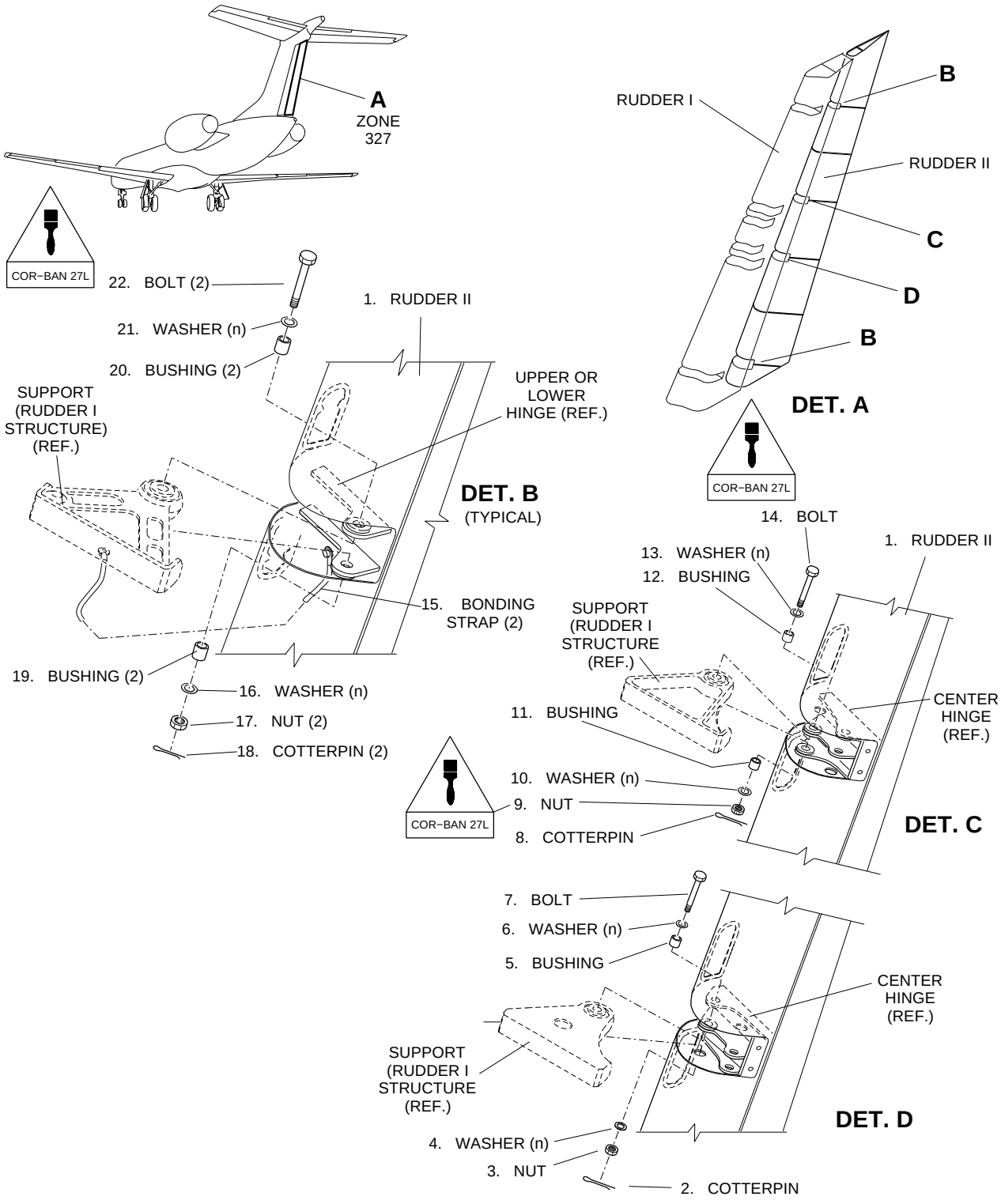
EFFECTIVITY: ALL

Rudder Control Rods - Inspection
Figure 603 - Sheet 2



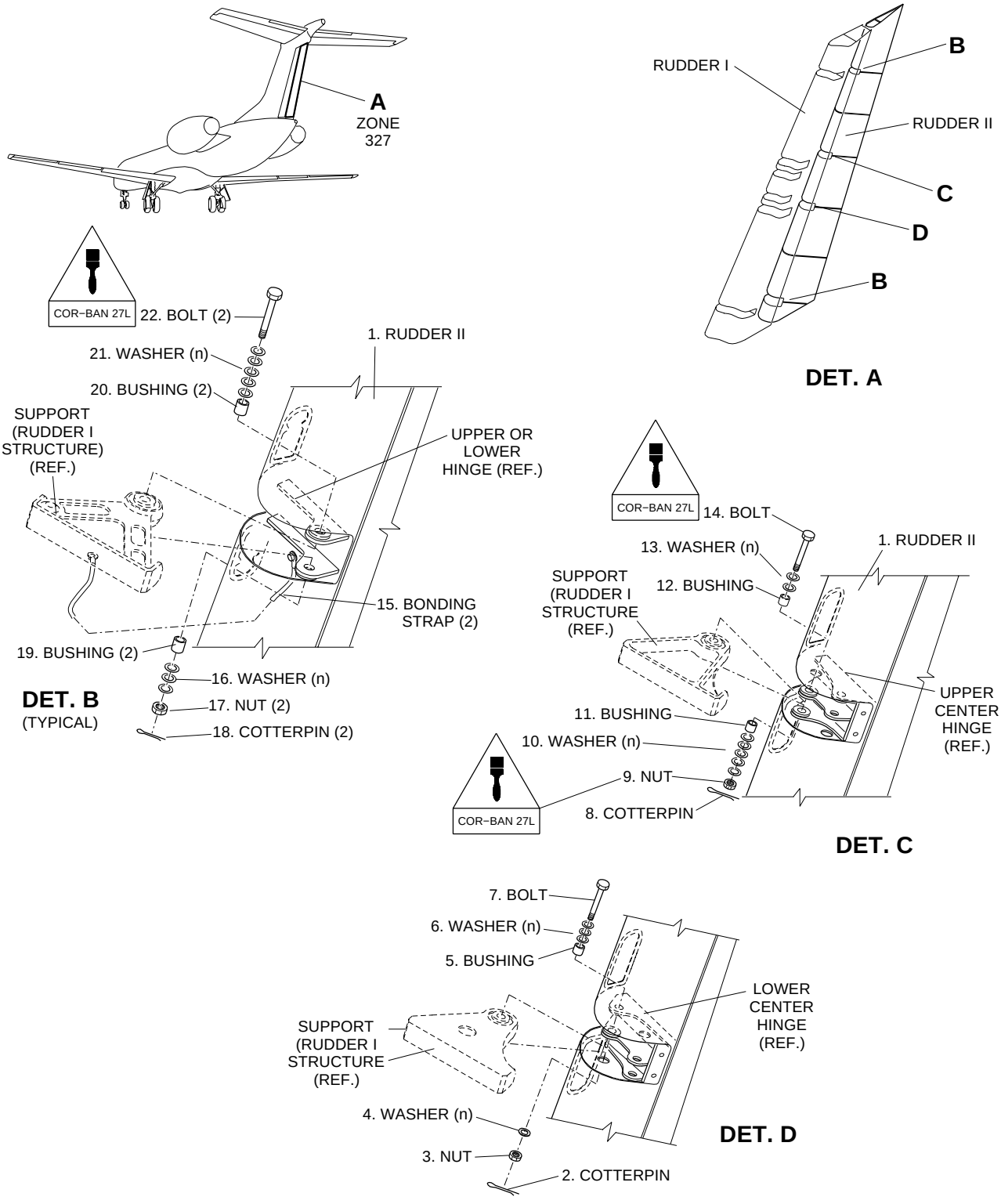
EM145AMM270706D.DGN

EFFECTIVITY: PRE-MOD. S.B. 145-55-0034
Rudder-II Hinges - Inspection
Figure 604



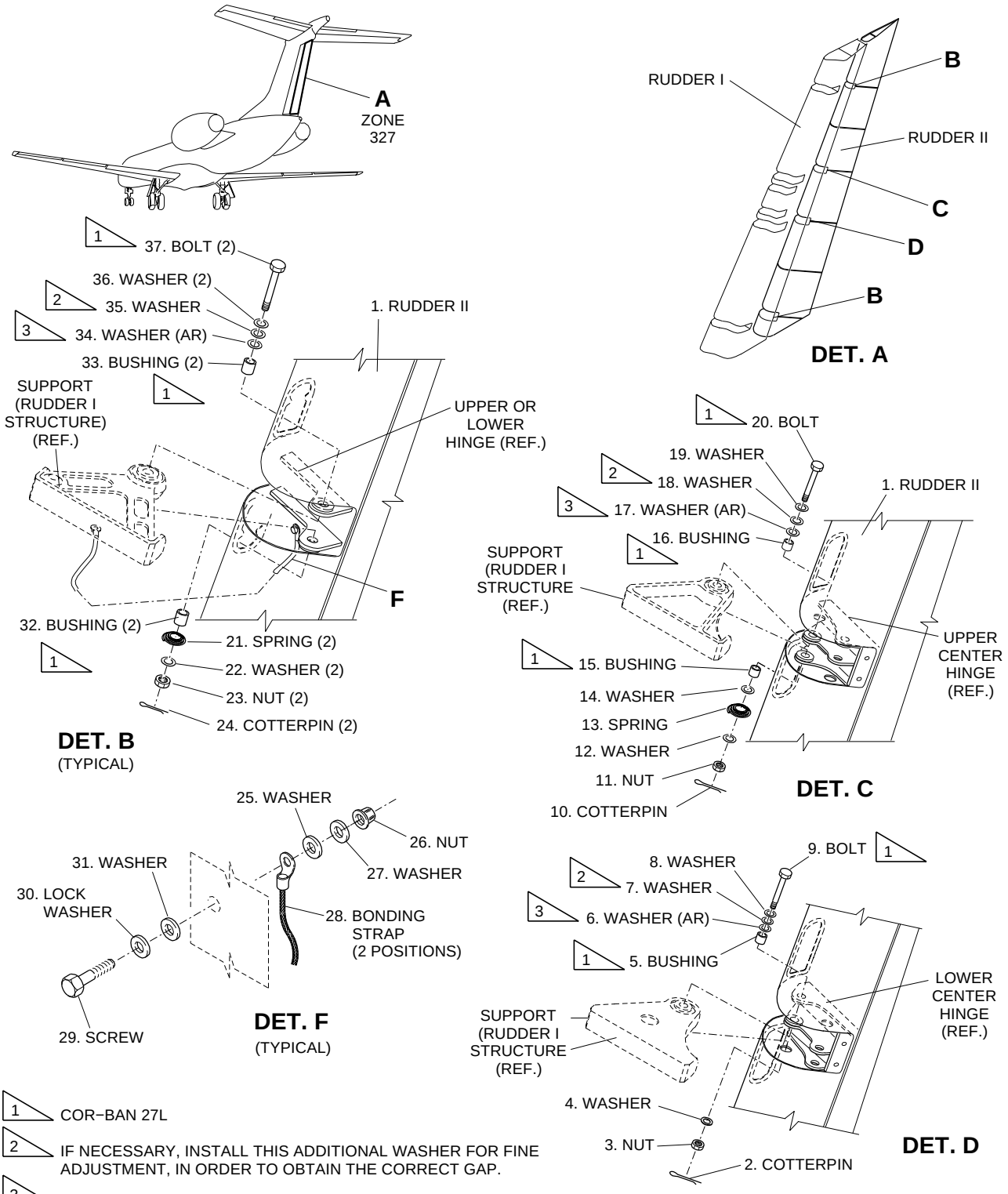
EM145AMM270702E.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0034 AND PRE-MOD. S.B. 145-55-0038
Rudder-II Hinges - Inspection
Figure 605



EM145AMM270705D.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0038
Rudder-II Hinges - Inspection
Figure 606



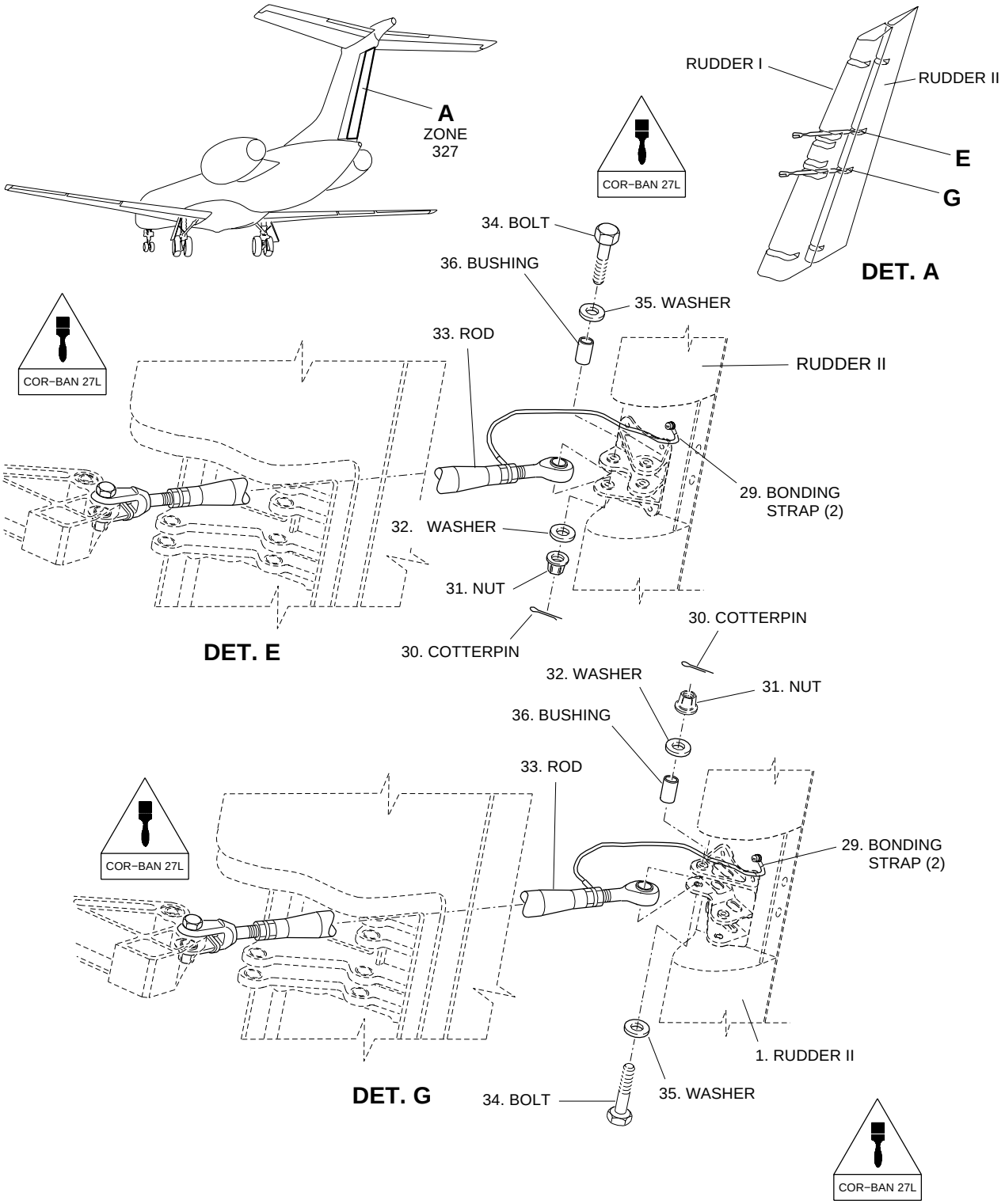
1 COR–BAN 27L

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.

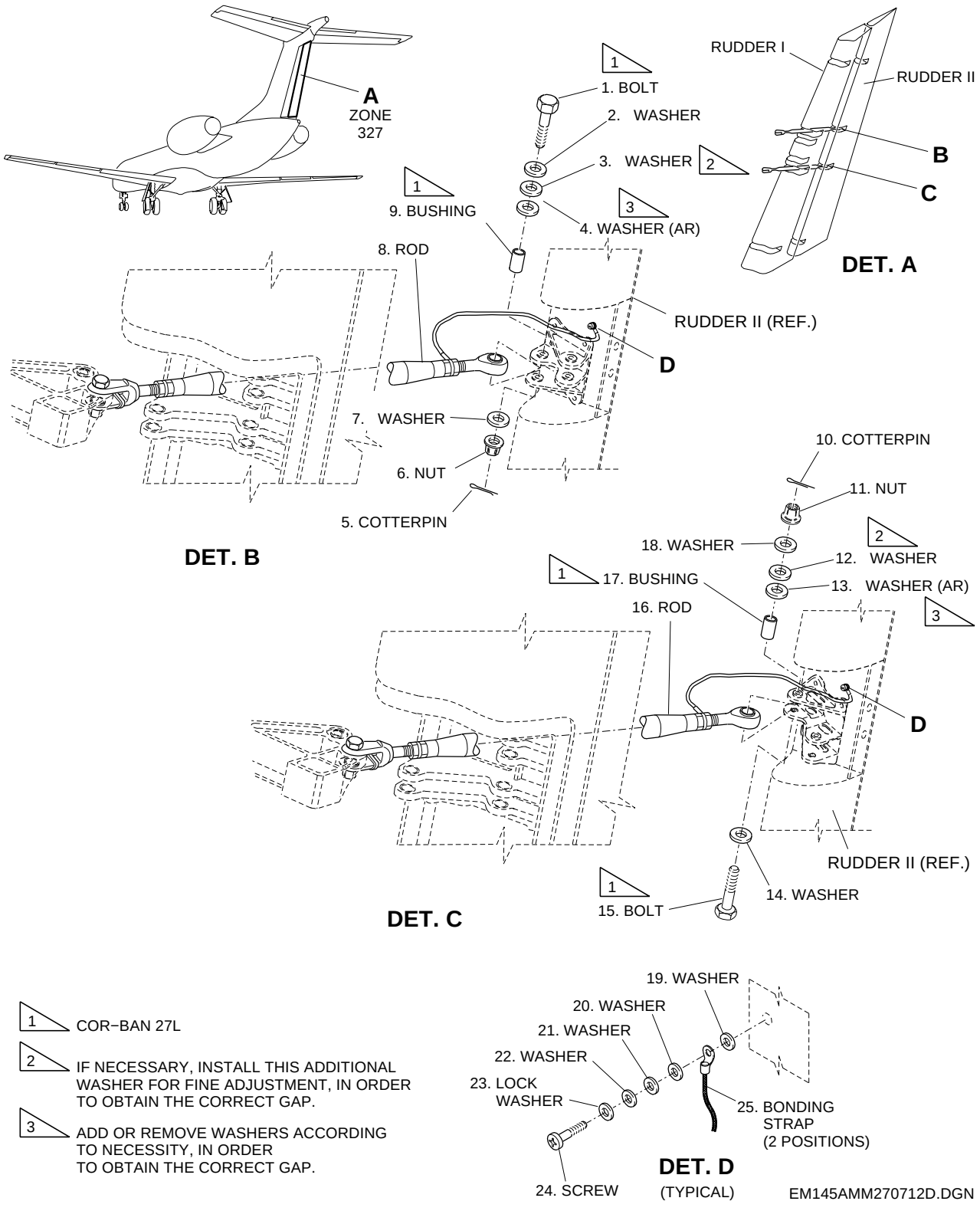
EM145AMM270731D.DGN

EFFECTIVITY: PRE-MOD. S.B. 145-55-0035
Rudder-II Hinges - Inspection
Figure 607



EM145AMM270703D.DGN

EFFECTIVITY: POST-MOD. S.B. 145-55-0035
Rudder-II Hinges - Inspection
Figure 608



1 COR−BAN 27L

2 IF NECESSARY, INSTALL THIS ADDITIONAL WASHER FOR FINE ADJUSTMENT, IN ORDER TO OBTAIN THE CORRECT GAP.

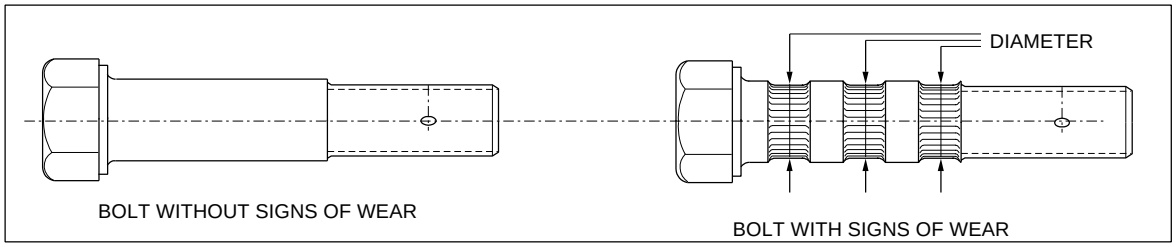
3 ADD OR REMOVE WASHERS ACCORDING TO NECESSITY, IN ORDER TO OBTAIN THE CORRECT GAP.

EM145AMM270712D.DGN

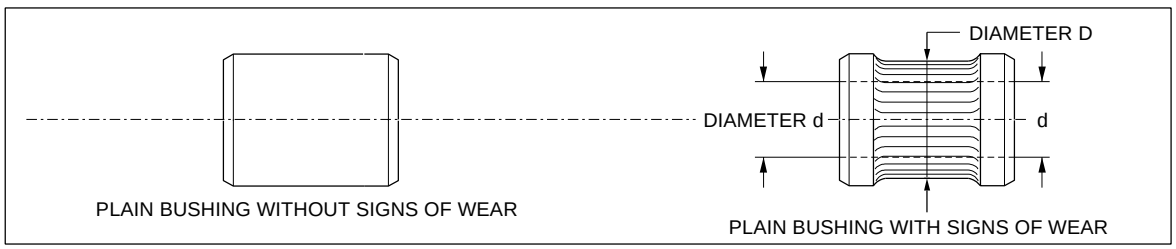
EFFECTIVITY: ALL

Inspection on bolts, plain bushings and fittings for wear
Figure 609

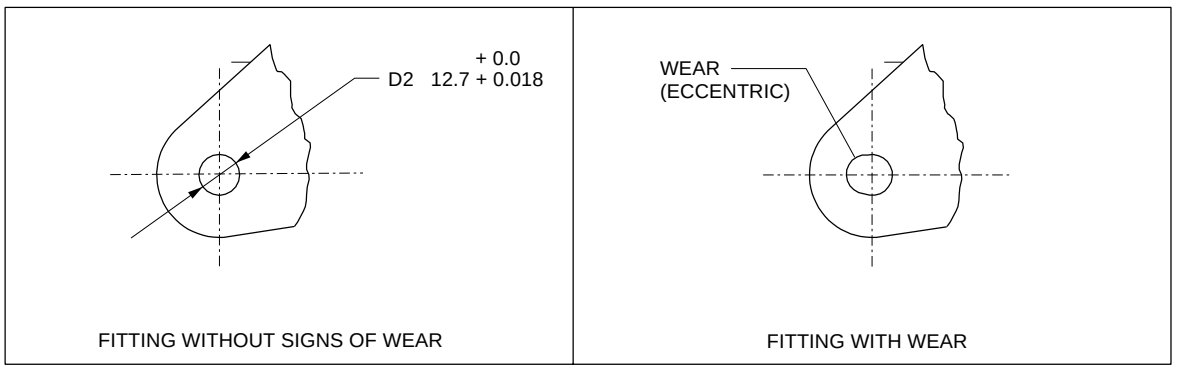
1. DIMENSIONAL INSPECTION ON BOLTS



2. DIMENSIONAL INSPECTION ON PLAIN BUSHINGS



3. DIMENSIONAL INSPECTION ON FITTINGS



EM145AMM270708D.DGN

EFFECTIVITY: ALL

Inspection on flanged bushings for wear
Figure 610