



737
NON-DESTRUCTIVE TEST MANUAL
PART 6 - EDDY CURRENT

VERTICAL STABILIZER - PRIMARY AND FAIL-SAFE TERMINAL FITTINGS AT THE REAR SPAR
(HFEC)

1. Purpose

- A. Use this procedure to do an inspection for cracks on the outer surface of the primary and fail-safe terminal fittings. The primary and fail-safe terminal fittings are at the rear spar of the vertical stabilizer. See Figure 1 for the inspection areas.
- B. This procedure identifies the inspection of the primary and fail-safe terminal fittings for two groups of airplane line numbers as follows:
 - (1) Group (A) - Line numbers 1 thru 314, and 316 have primary and fail-safe fittings that are aluminum.
 - (2) Group (B) - Line numbers 315, 317 and on, have primary fittings that are steel (4330, HT 180-200 ksi) and fail-safe fittings that are aluminum.
- C. This procedure uses an instrument with an impedance plane or meter display.
- D. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: E-3

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument, Probes and Reference Standard
 - (1) Refer to Part 6, 51-00-00, Procedure 4, if a meter display instrument is used and refer to Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used to examine the aluminum fittings.
 - (2) Refer to Part 6, 51-00-00, Procedure 13, to examine the steel fittings with a meter display instrument.
 - (3) Use a shielded, zero drop or blade type probe with a flexible shaft.

3. Prepare for the Inspection

- A. Get access to the inspection areas as follows:
 - (1) Remove access panels 9505 thru 9511 on the vertical stabilizer.
- B. Remove loose paint, dirt, and grease from the surface of the inspection area.

4. Instrument Calibration

- A. To examine the Group (A) primary and fail-safe fittings or the Group (B) fail-safe fittings, refer to Part 6, 51-00-00, Procedure 4, if a meter display instrument is used or refer to Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used.
- B. To examine the Group (B) primary fittings, refer to Part 6, 51-00-00, Procedure 13.



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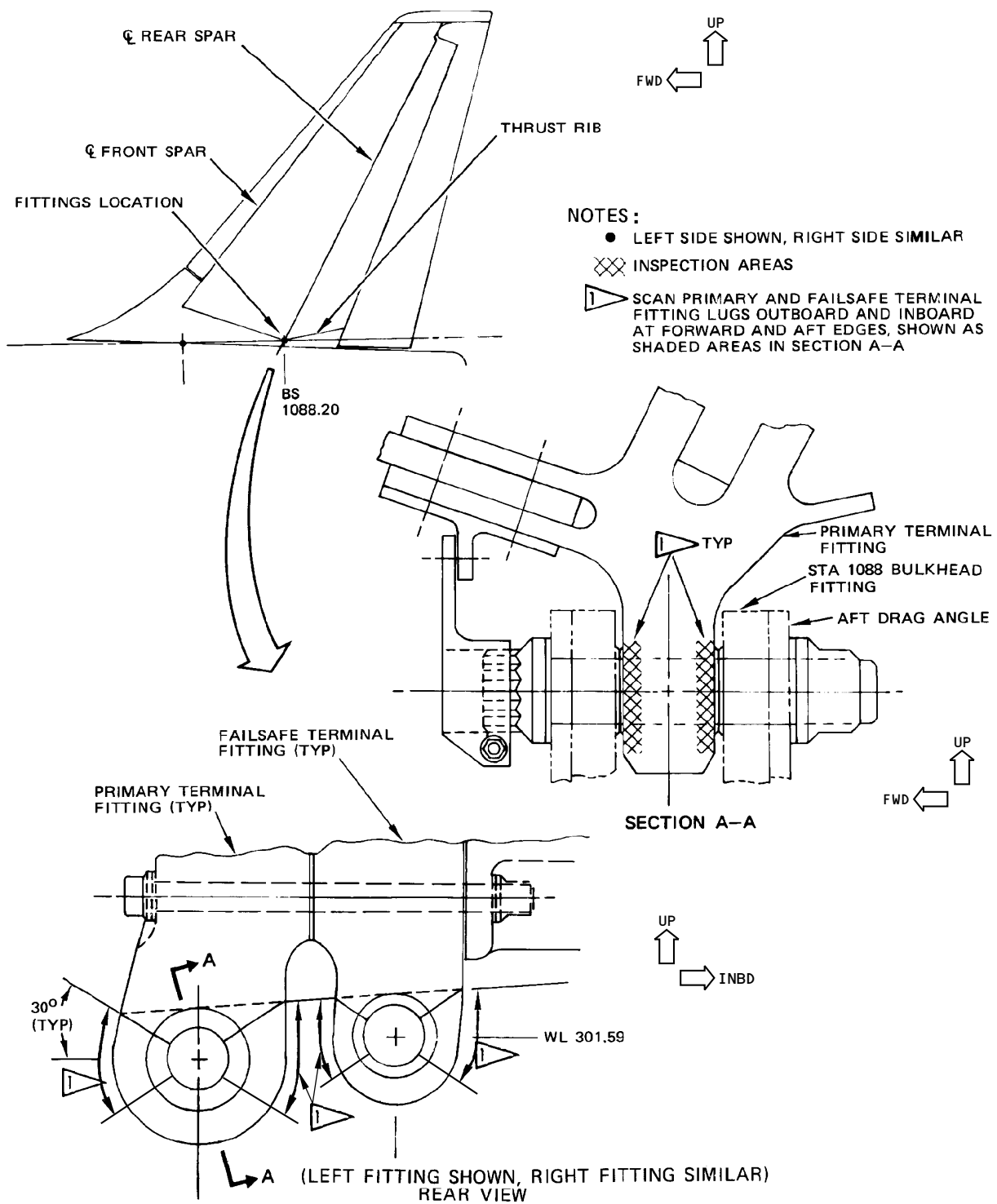
5. Inspection Procedure

- A. Examine the Group (A) primary and fail-safe fittings or the Group (B) fail-safe fittings as follows:
 - (1) Calibrate the instrument as specified in Paragraph 4.A.
 - (2) Examine the inspection areas on the outer surface of the fitting lug as shown in Figure 1. Refer to the instructions in Part 6, 51-00-00, Procedure 4, or Part 6, 51-00-00, Procedure 23.
- B. Examine the Group (B) primary fittings as follows:
 - (1) Calibrate the instrument as specified in Paragraph 4.B.
 - (2) Examine the inspection areas on the outer surface of the fitting lug as shown in Figure 1. Refer to the instructions in Part 6, 51-00-00, Procedure 13.

6. Inspection Results

- A. Refer to the applicable inspection procedure for data to help make an analysis of the inspection results.

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2162483 S0000473350_V1

Vertical Stabilizer - Primary and Failsafe Terminal Fittings at the Rear Spar
Figure 1

EFFECTIVITY
ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

PART 6 55-50-01

D6-37239

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VERTICAL STABILIZER - PRIMARY AND FAIL-SAFE TERMINAL FITTINGS AT THE REAR SPAR (HFEC)

1. Purpose

- A. Use this procedure to do an inspection for cracks on the outer surface of the primary and fail-safe terminal fittings. The primary and fail-safe terminal fittings are at the rear spar of the vertical stabilizer. See Figure 1 for the inspection areas around the fastener heads and collars where the fittings attach to the spar chords.
- B. This procedure identifies the inspection of the primary and fail-safe terminal fittings for two groups of airplane line numbers as follows:
 - (1) Group (A) - Line numbers 1 thru 314, and 316 have primary and fail-safe fittings that are aluminum.
 - (2) Group (B) - Line numbers 315, 317 and on, have primary fittings that are steel (4330, HT180-200 ksi) and fail-safe fittings that are aluminum.
- C. This procedure uses an instrument with an impedance plane or meter display.
- D. 737 Supplemental Structural Inspection Document (D6-37089; D6-82669) Reference:
 - (1) Item: E-5

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument, Probes and Reference Standard
 - (1) Refer to Part 6, 51-00-00, Procedure 4, if a meter display instrument is used, and refer to Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used to examine the aluminum fittings.
 - (2) Refer to Part 6, 51-00-00, Procedure 13, if a meter display instrument is used, and refer to Part 6, 51-00-00, Procedure 24, if an impedance plane display instrument is used to examine the steel fittings.

3. Prepare for the Inspection

- A. Get access to the inspection areas as follows:
 - (1) Remove access panels 9505 thru 9511, 9523 and 9524 on the vertical stabilizer.
 - (2) Remove a sufficient amount of sealant from around the fastener head, collar and washer to allow the probe to make a scan on the fitting surface.
 - (3) Remove the fairing attach clip (65-54823-()) (see Figure 1).
- B. Clean the inspection area.



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4. Instrument Calibration

- A. To examine the Group (A) primary and fail-safe fittings or the Group (B) fail-safe fittings, refer to Part 6, 51-00-00, Procedure 4, if a meter display instrument is used or refer to Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used.
- B. To examine the Group (B) primary fittings, refer to Part 6, 51-00-00, Procedure 13, if a meter display instrument is used or refer to Part 6, 51-00-00, Procedure 24, if an impedance plane display instrument is used.

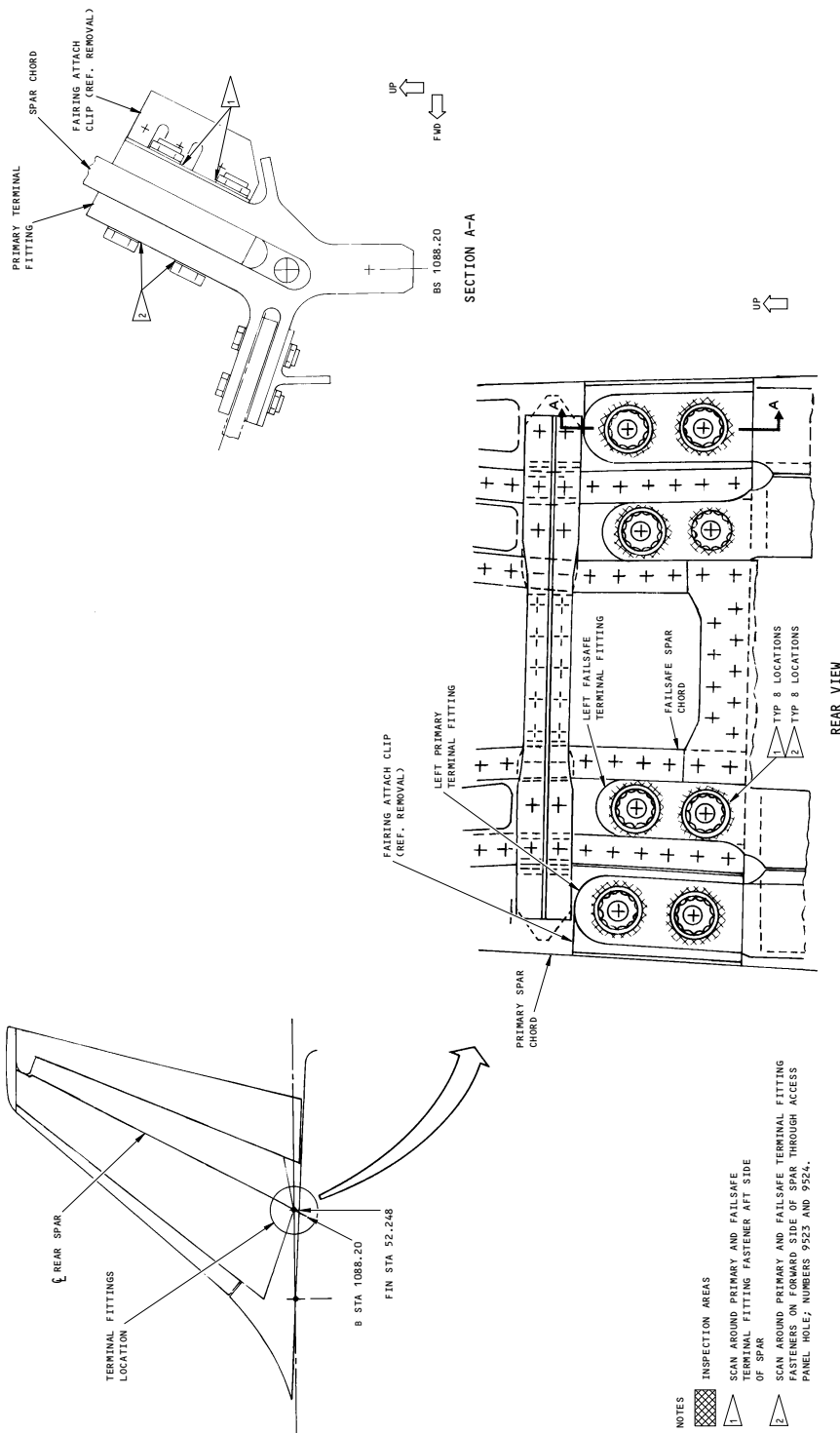
5. Inspection Procedure

- A. Examine the Group (A) primary and fail-safe fittings or the Group (B) fail-safe fittings as follows:
 - (1) Calibrate the instrument as specified in Paragraph 4.A.
 - (2) Examine the inspection areas on the outer surface of the fitting lug as shown in Figure 1. Use the washer under the head and collar of the fastener as a guide. Refer to the instructions in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.
- B. Examine the Group (B) primary fittings as follows:
 - (1) Calibrate the instrument as specified in Paragraph 4.B.
 - (2) Examine the inspection areas on the outer surface of the fitting lug as shown in Figure 1. Use the washer under the head and collar of the fastener as a guide. Refer to the instructions in Part 6, 51-00-00, Procedure 13 or Part 6, 51-00-00, Procedure 24.

6. Inspection Results

- A. Refer to the applicable inspection procedure for data to help make an analysis of the inspection results.

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Vertical Stabilizer - Primary and Failsafe Terminal Fittings at the Rear Spar
Figure 1

2162485 S0000473352_V1

EFFECTIVITY
ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

PART 6 55-50-02

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PART 6 - EDDY CURRENT

HORIZONTAL STABILIZER HINGE HOUSING SUPPORT BEARING ATTACH LUGS, ATTACH FITTINGS AND THRUST BRACES

1. Purpose

- A. To detect cracks in the right and left hand horizontal stabilizer center section hinge housing support bearing lugs, attach fittings, thrust braces, and rear spar attach lugs using high frequency eddy current.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: E-20

2. Equipment

NOTE: Refer to Part 1, 51-01-00, for information on equipment manufacturers.

- A. Any eddy current instrument and probe combination that satisfy the performance requirements of this procedure is suitable for this inspection. The following equipment was used in the development of this procedure.
 - (1) Instrument - ED 520; Magnaflux Corp. - Refer to Part 6, 51-00-00, Procedure 4.
 - (2) Probe - P/N MP-902-50FX and MP-9003-70FX; NDT Product Engineering - Shielded, right-angle pencil probe per Part 6, 51-00-00, Procedure 4.
- B. Reference Standard - Refer to Part 6, 51-00-00, Procedure 4.

3. Prepare for the Inspection

- A. Access for inspection of attach fittings, thrust braces, rear spar attach lugs and upper surface of hinge housing support bearing lugs.
 - (1) Place horizontal stabilizer in full down position and lock controls.
 - (2) Gain access through access door P-25 and over top of horizontal stabilizer star truss.
- B. Access for inspection of lower surface of hinge housing support bearing lugs.
 - (1) Place horizontal stabilizer in full up position and lock controls.
 - (2) Gain access through access door P-25 and underneath horizontal stabilizer star truss.
- C. Wipe inspection surfaces clean and remove loose paint.
- D. Remove horizontal stabilizer hinge housing thrust brace at one of four locations. See Figure 1.

NOTE: Three thrust braces must remain attached at all times. Upon completion of inspection of one thrust brace member and location, brace must be replaced before another location may be inspected. See CAUTION of flagnote 1 in Figure 2.

4. Instrument Calibration

- A. Refer to Part 6, 51-00-00, Procedure 4.

5. Inspection Procedure

- A. Inspect per Figure 1 and Figure 2.
- B. Perform inspection scans per Part 6, 51-00-00, Procedure 4.

NOTE: Bend probe to maintain 90 degrees between inspection surface and probe coil.



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6. Inspection Results

- A. A rapid meter movement occurring as probe is moved over a short distance is a potential crack indication and further investigation is required.
- B. Refer to Part 6, 51-00-00, Procedure 4.

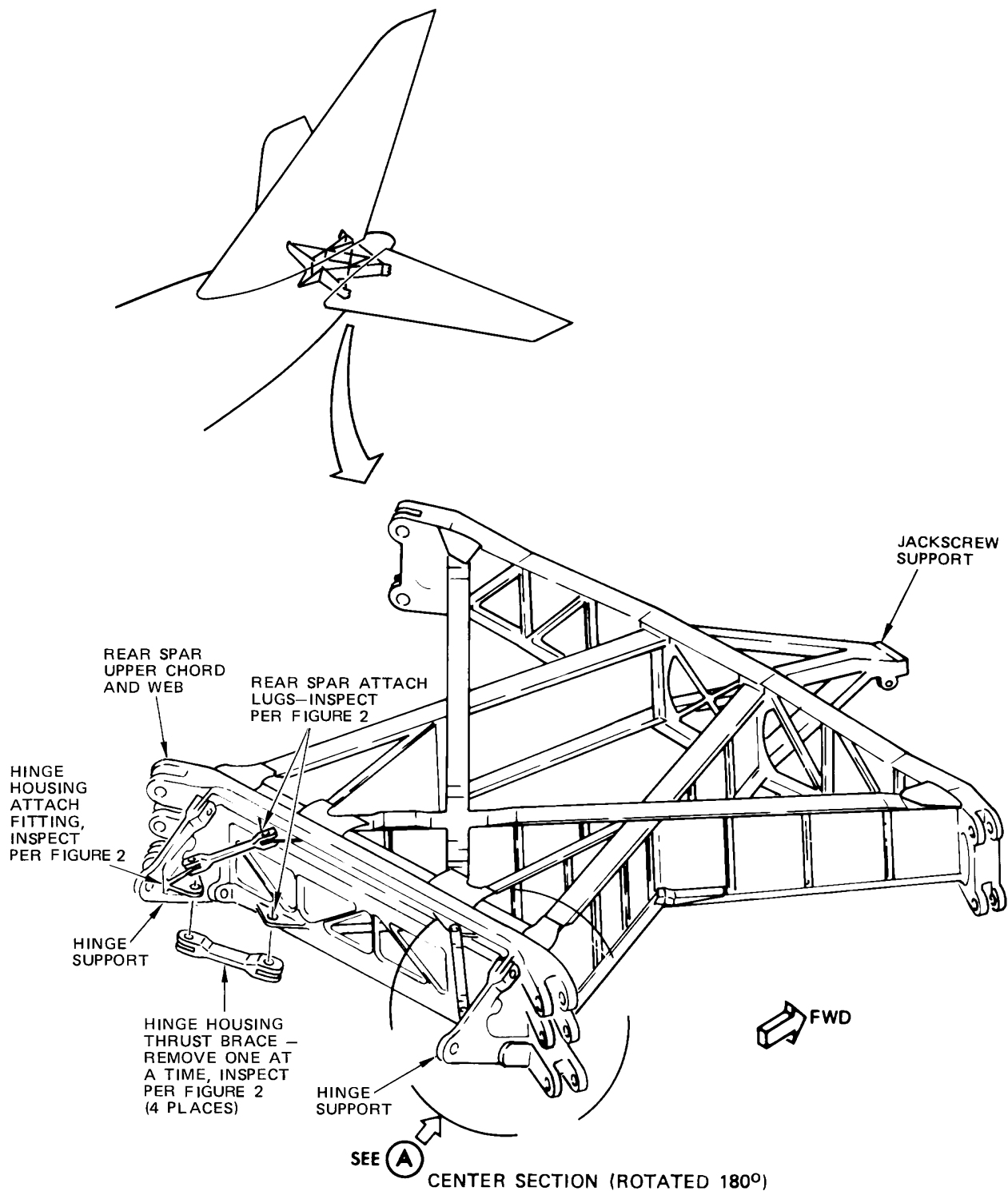
EFFECTIVITY
ALL; 737-100 AND -200 AIRPLANES

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2162488 S0000473354_V2

Horizontal Stabilizer Hinge Housing Support Bearing Lugs, Rear Spar Attach Lugs, Attach Fittings and Thrust Braces
Figure 1 (Sheet 1 of 2)

EFFECTIVITY
ALL; 737-100 AND -200 AIRPLANES

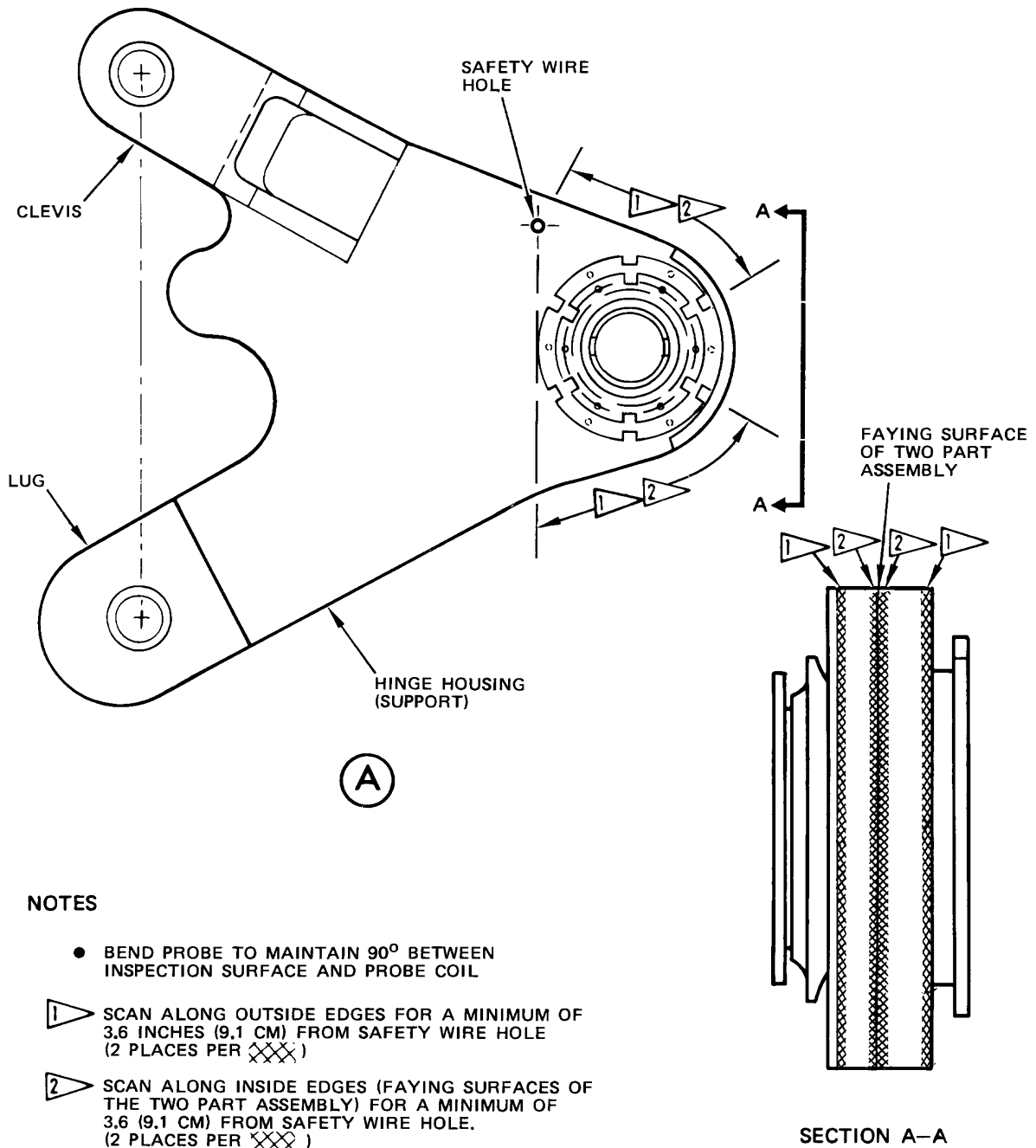
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

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NOTES

- BEND PROBE TO MAINTAIN 90° BETWEEN INSPECTION SURFACE AND PROBE COIL
- 1 SCAN ALONG OUTSIDE EDGES FOR A MINIMUM OF 3.6 INCHES (9.1 CM) FROM SAFETY WIRE HOLE (2 PLACES PER )
- 2 SCAN ALONG INSIDE EDGES (FAYING SURFACES OF THE TWO PART ASSEMBLY) FOR A MINIMUM OF 3.6 (9.1 CM) FROM SAFETY WIRE HOLE. (2 PLACES PER )

2162493 S0000473355_V1

Horizontal Stabilizer Hinge Housing Support Bearing Lugs, Rear Spar Attach Lugs, Attach Fittings and Thrust Braces
Figure 1 (Sheet 2 of 2)

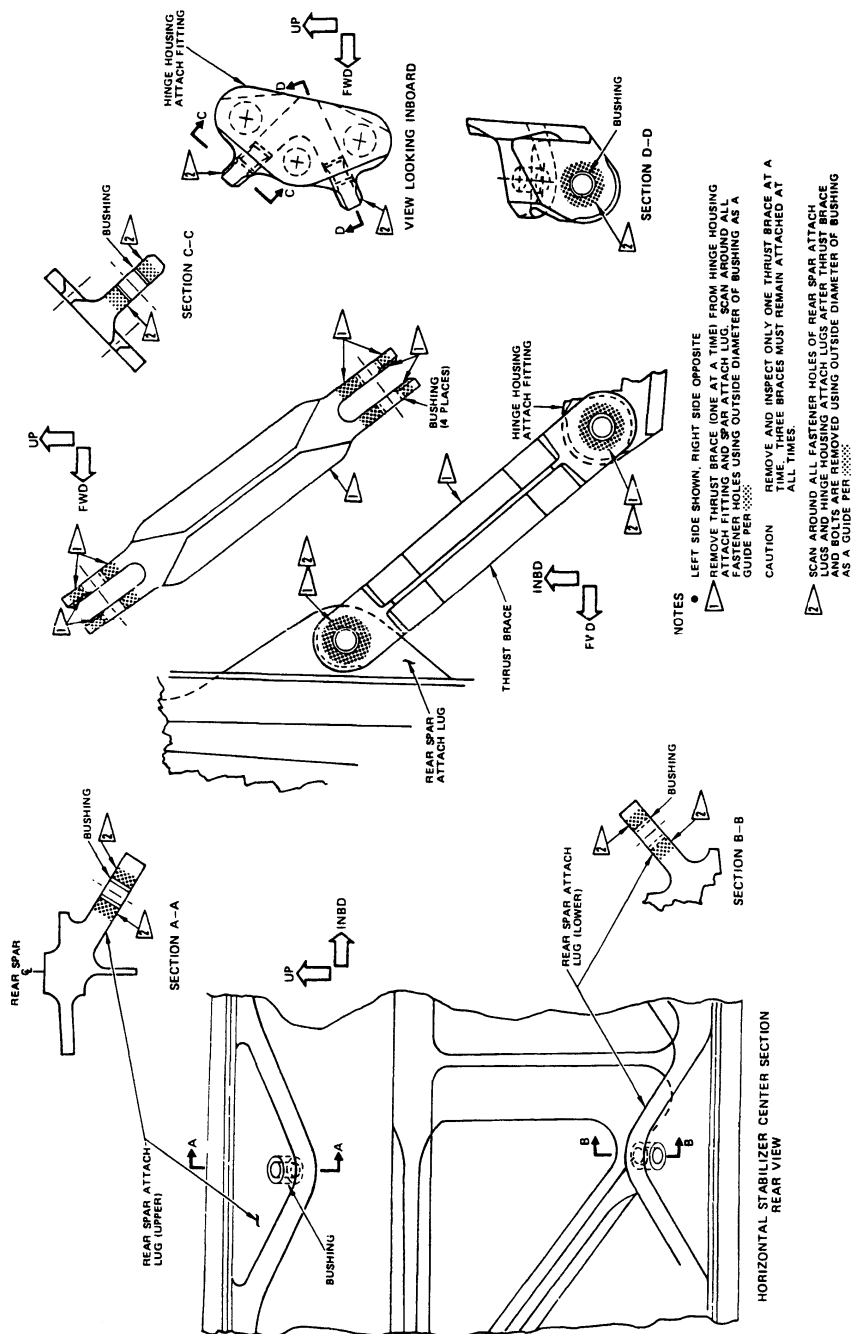
EFFECTIVITY
ALL; 737-100 AND -200 AIRPLANES

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Horizontal Stabilizer Center Section Hinge Housing Attach Fittings, Rear Spar Attach Lugs and Thrust Braces
Figure 2

EFFECTIVITY
ALL; 737-100 AND -200 AIRPLANES

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PART 6 - EDDY CURRENT

HORIZONTAL STABILIZER FRONT SPAR UPPER CLEVIS AND LUG AT BS 1093.5 (HFEC)

1. Purpose

- A. This procedure uses high frequency eddy current to find cracks in the upper clevis and lug at BS 1093.5 that is at the front spar of the horizontal stabilizer.
- B. This procedure uses an instrument with an impedance plane or a meter display.
- C. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: E-21

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4. The equipment that follows was used to help prepare this procedure.
 - (a) Instrument - ED 520; made by Magnaflux Corp. Refer to Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.
 - (b) Probe - MP90.090-60BL; made by NDT Product Engineering. This probe is a shielded, right angle, blade probe with a maximum thickness of 0.090 inch (2.3 mm) and a maximum width of 0.16 (4.1 mm).
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument, Probes and Reference Standard
 - (1) Refer to Part 6, 51-00-00, Procedure 4, for the equipment to use to examine the clevis and lug if a meter display instrument is used, and Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used.
 - (2) Use a shielded, right angle, blade probe with a maximum thickness of 0.090 inch (2.3 mm) and a maximum width of 0.16 inch (4.1 mm).

3. Prepare for the Inspection

- A. Put the horizontal stabilizer in the full down position and lock the controls.
- B. Remove access panels 9117L, 9118L, 9119L, 9120L, 9217R, 9218R, 9219R and 9220R.
- C. Clean the inspection surfaces and remove loose paint.

4. Instrument Calibration

- A. Refer to Part 6, 51-00-00, Procedure 4, for the calibration instructions if a meter display instrument is used, or Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used.

5. Inspection Procedure

- A. Examine the upper clevis and lug at BS 1093.5 for cracks as specified in Figure 1 and Figure 2.
- B. Do the inspection scans as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.

NOTE: Bend the probe to keep a 90 degree angle between the inspection surface and the probe coil.

6. Inspection Results

- A. Refer to the applicable inspection procedure for data to help make an analysis of the inspection results.

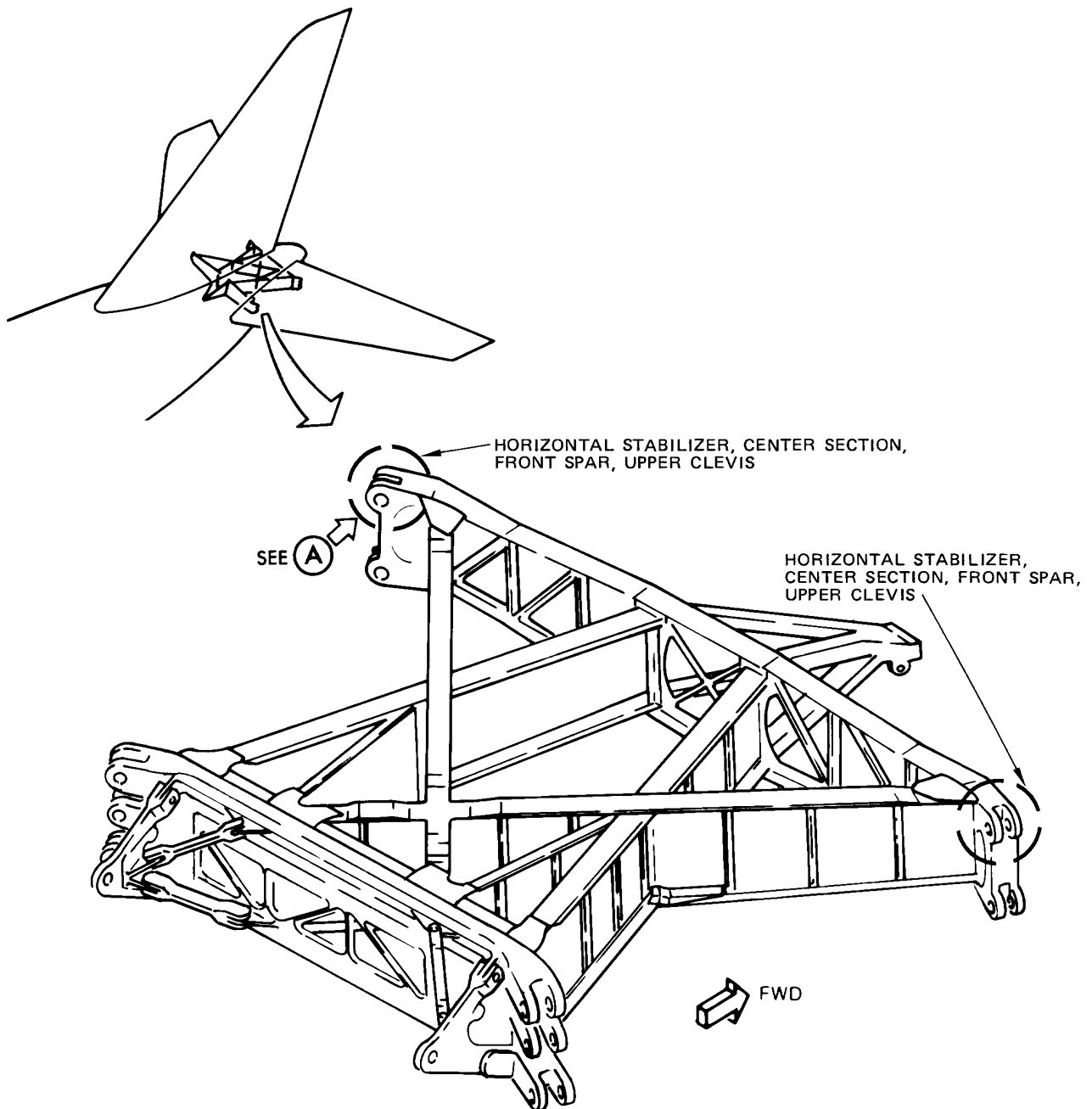
EFFECTIVITY
ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

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NOTE

- FRONT SPAR LUGS NOT SHOWN FOR CLARITY, SEE FIGURE 1 AND FIGURE 2

2162499 S0000473359_V2

Horizontal Stabilizer, Center Section, Front Spar Upper Clevis - BS 1093.5
Figure 1 (Sheet 1 of 2)

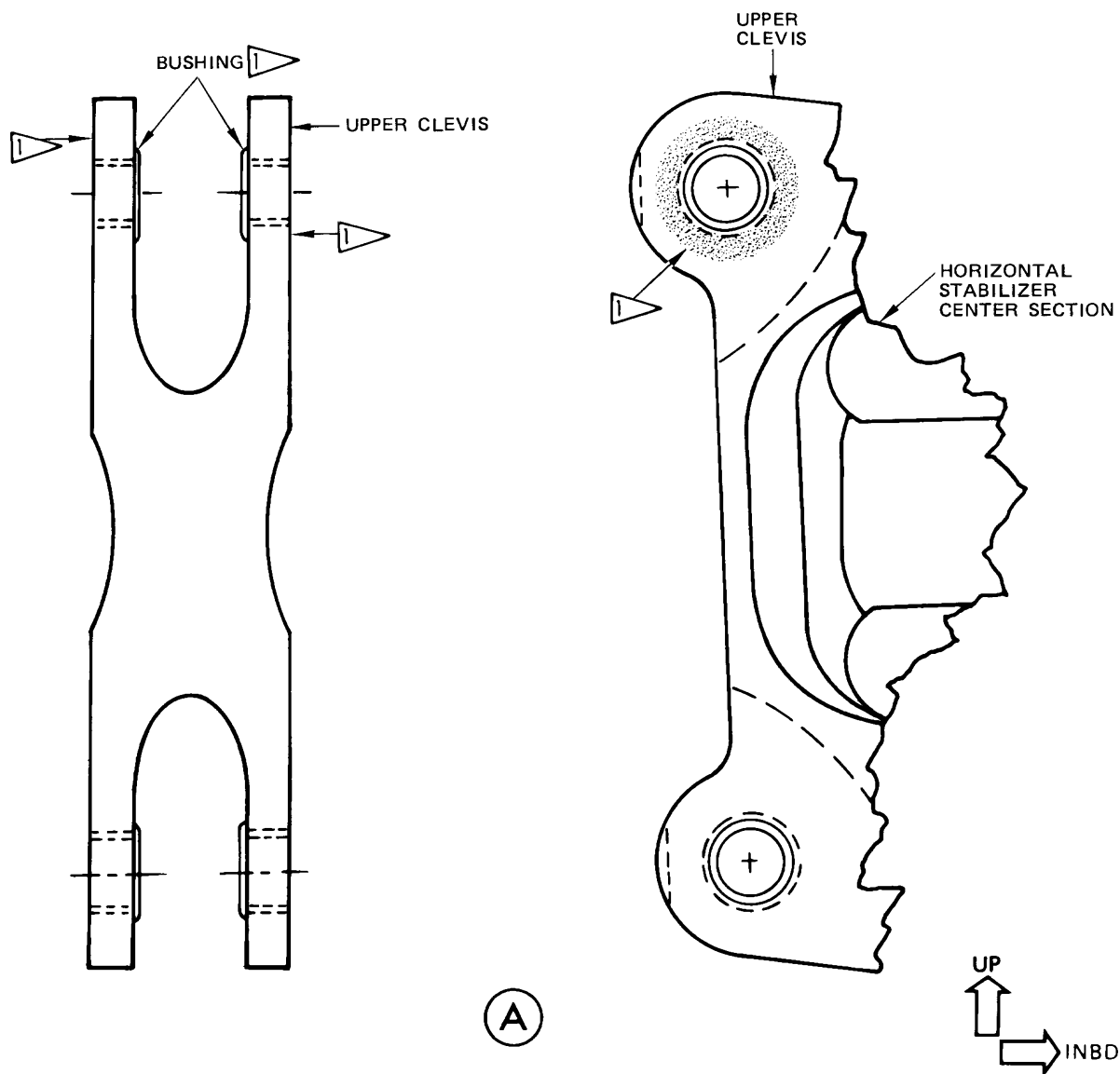
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ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

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NOTE



INSPECT INSIDE AND OUTSIDE OF CLEVIS BY SCANNING AROUND THE FASTENER HOLE USING THE BUSHINGS, SHIMS OR WASHERS AS GUIDES. THIS VIEW IS SHOWN FOR CLARITY, DO NOT REMOVE BOLTS

2162501 S0000473360_V1

Horizontal Stabilizer, Center Section, Front Spar Upper Clevis - BS 1093.5
Figure 1 (Sheet 2 of 2)

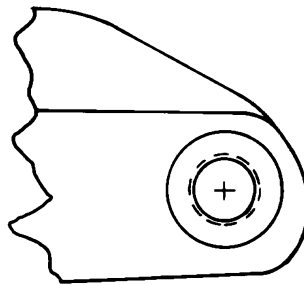
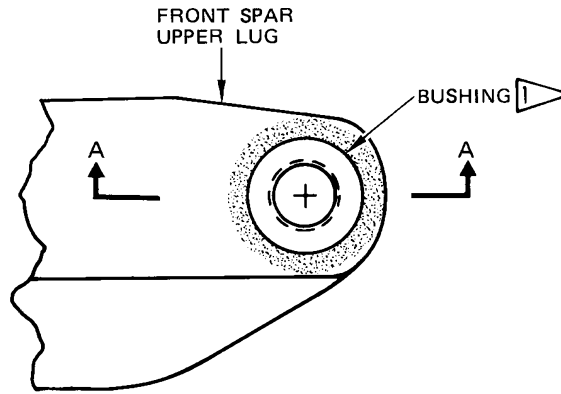
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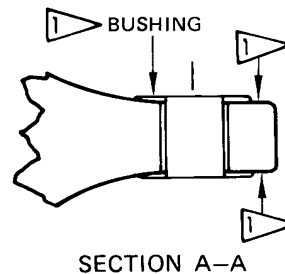
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HORIZONTAL STABILIZER FRONT SPAR LUGS

NOTE

1 INSPECT EACH SIDE OF LUG BY SCANNING AROUND THE FASTENER HOLE USING THE BUSHINGS AS GUIDES. THIS VIEW SHOWN FOR CLARITY, DO NOT REMOVE BOLTS



SECTION A-A

2162503 S0000473362_V1

Horizontal Stabilizer, Center Section, Front Spar Upper Lug - BS 1093.5
Figure 2

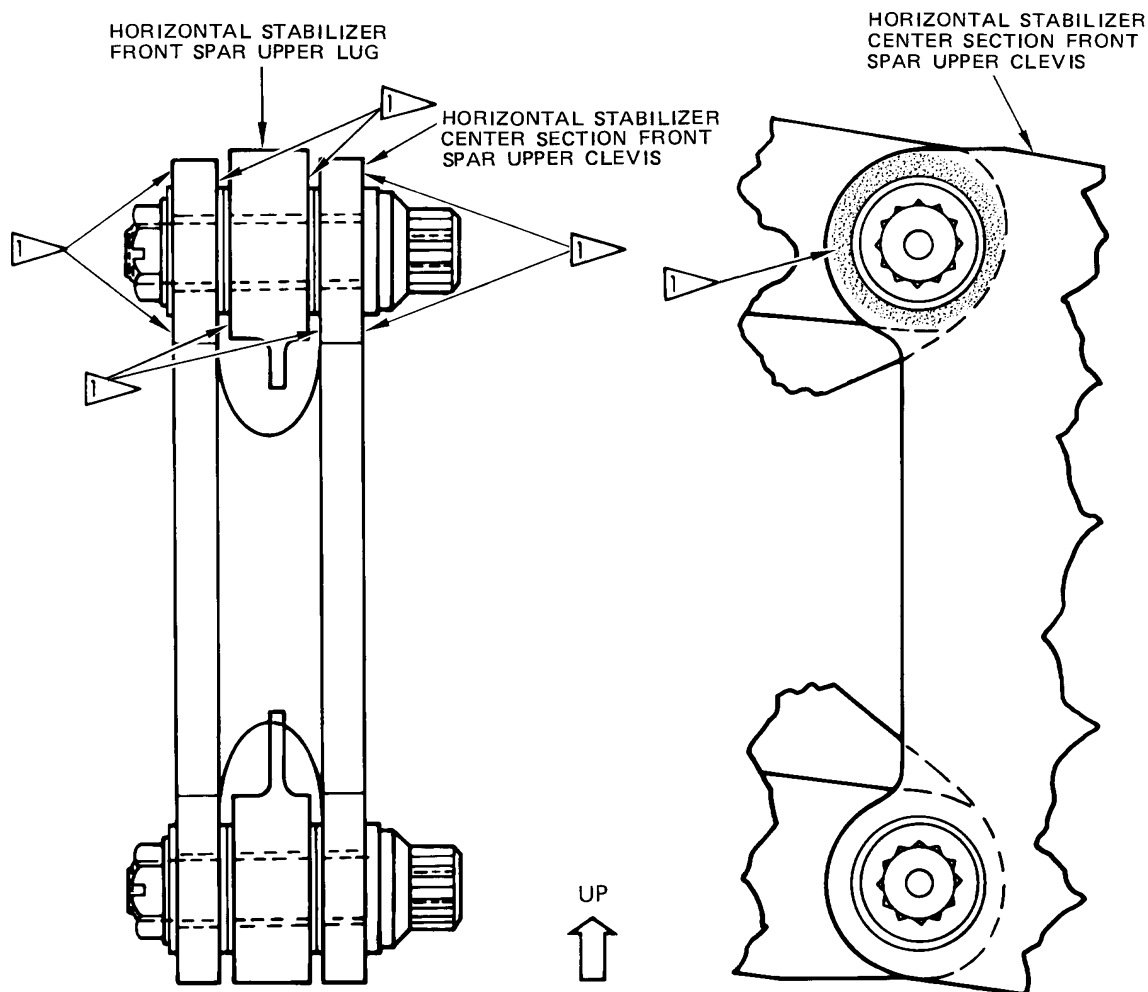
EFFECTIVITY
ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

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NOTES

- LEFT SIDE SHOWN, RIGHT SIDE OPPOSITE
- ▶ INSPECT INSIDE AND OUTSIDE OF CLEVIS AND LUG BY SCANNING AROUND THE FASTENER HOLE USING THE BUSHINGS, SHIMS OR WASHERS AS GUIDES. DO NOT REMOVE BOLT

2162506 S0000473363_V1

Horizontal Stabilizer, Center Section, Front Spar Upper Clevis and Lug - BS 1093.5
Figure 3

EFFECTIVITY
ALL; 737-100/-200/-200C/-300/-400/-500 AIRPLANES

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PART 6 - EDDY CURRENT

HORIZONTAL STABILIZER COMPONENT INSPECTION - ATTACH LUGS OF THE HINGE HOUSINGS, ATTACH FITTINGS, ATTACH CLEVISES AND LUGS OF THE REAR SPAR AND THE THRUST BRACES

1. Purpose

- A. This procedure uses High Frequency Eddy Current (HFEC) to examine these components on each side of the horizontal stabilizer for cracks (see Figure 1):
 - (1) The attach lugs of the hinge housings.
 - (2) The lugs of the attach fittings.
 - (3) The attach clevises and lugs of the rear spar.
 - (4) The thrust braces.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: E-20B

2. Equipment

- A. General
 - (1) All eddy current instruments and probes can be used that can be calibrated on the reference standard as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, par. 5, or Part 6, 51-00-00, Procedure 14, par. 5.
- B. Instrument
 - (1) Use an instrument that:
 - (a) Has a meter display or an impedance plane display.
 - (b) Operates at a frequency between 50 kHz and 2 MHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 1.1; Hocking Inc.
 - (b) Locator UHB; Hocking Inc.
- C. Probes
 - (1) Two probes are necessary to do this procedure:
 - (a) One probe must:
 - 1) Operate at a frequency between 50 kHz and 500 kHz.
 - 2) Have a 90° angle with a minimum drop of 0.20 inches (5.1 mm).
 - 3) Have a minimum length of 4.0 inches (102 mm).
 - 4) Be shielded.
 - 5) The probe used to help prepare this procedure was an MP905-50 probe and is made by NDT Product Engineering.
 - (b) The other probe must:
 - 1) Operate at a frequency between 990 kHz and 2 MHz.
 - 2) Be a straight or a 90° probe with a minimum drop of 0.20 inches (5.1 mm).
 - 3) Be shielded.



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- 4) The probe used to help prepare this procedure was an MP 905-50 1-3 MHz probe and is made by NDT Product Engineering.

3. Prepare for the Inspection

- A. Get access to the attach fittings, thrust braces, attach lugs and clevises of the rear spar, and the hinge housings as follows:
 - (1) Set the leading edge of the horizontal stabilizer to the maximum down position, set the cutout controls of the horizontal stabilizer to cutout, and open the applicable circuit breakers.
 - (2) Remove the upper and lower rear spar covers and the gap covers on the upper and lower surfaces of the horizontal stabilizer.
- B. Clean the inspection surfaces of loose paint and dirt. See Part 6, 51-00-00, Procedure 4, Part 6, 51-00-00, Procedure 14, or Part 6, 51-00-00, Procedure 23 for preparation instructions.
- C. Remove sealant from the inner faces of the upper and lower attach clevises of the rear spar. The sealant is around the flanges of the bushings. See Figure 1.

CAUTION: THREE OUT OF THE FOUR THRUST BRACES MUST STAY ATTACHED AT ALL TIMES. WHEN ONE THRUST BRACE AND ATTACH POINT HAS BEEN EXAMINED, INSTALL THAT THRUST BRACE BEFORE A DIFFERENT ONE IS REMOVED.

- D. Remove only one of the four thrust braces from the horizontal stabilizer.

4. Instrument Calibration

- A. Calibrate the equipment as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, to examine the thrust braces, and the attach lugs and clevises of the rear spar.
- B. Calibrate the equipment as specified in Part 6, 51-00-00, Procedure 14, to examine the hinge housing.
- C. Identify the material and calibration procedure for each attach fitting as follows:

NOTE: Some attach fittings are made from titanium and some are made from aluminum.

- (1) Do a conductivity check of the attach fitting.
- (2) Do a conductivity check of the hinge housing.
- (3) Compare the conductivity check results of each attach fitting and the hinge housing.
 - (a) If the attach fitting conductivity is equivalent to the hinge housing conductivity, the attach fitting is titanium. Calibrate the equipment for a titanium attach fitting as specified in Part 6, 51-00-00, Procedure 14.
 - (b) If the attach fitting conductivity is not equivalent to the hinge housing conductivity, the attach fitting is aluminum. Calibrate the equipment for an aluminum attach fitting as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.

5. Inspection Procedure

- A. Examine the thrust braces and the attach lugs and clevises of the rear spar for cracks as follows (see Figure 1).
 - (1) Do the scans as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.
 - (2) For the clevises, do a 360 degree scan around the diameter of the clevis hole on the inboard and the outboard sides of each lug face as shown in Figure 1. You can use the outer diameter of the bushing as a probe guide.

EFFECTIVITY
ALL; 737-300, -400 AND -500 AIRPLANES

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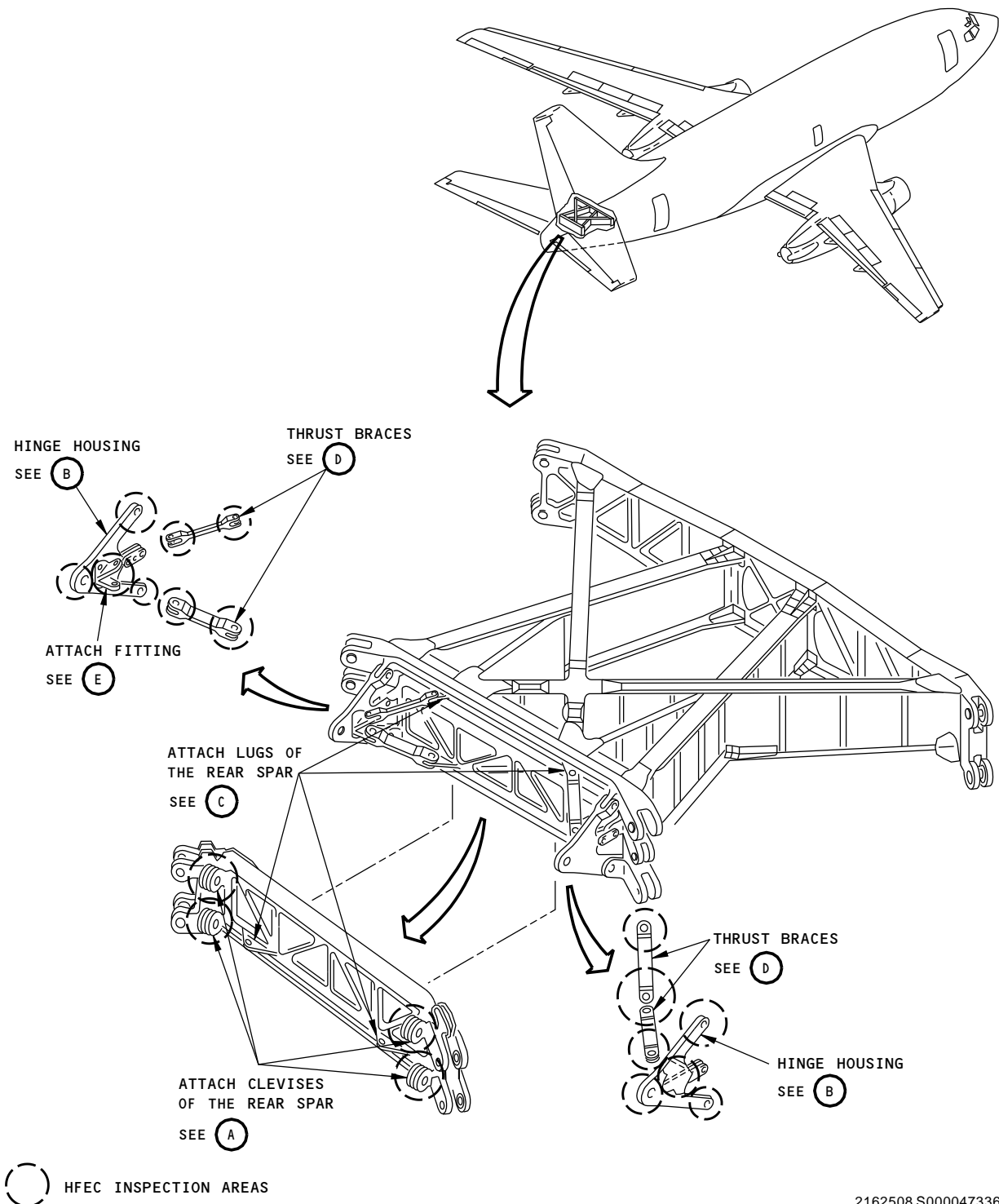
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- (3) For the lugs, do a 360 degree scan around the diameter of the lug hole on each lug face as shown in Figure 1. You can use the outer diameter of the bushing as a probe guide.
- B. Examine the hinge housing lugs for cracks as follows (see Figure 1).
 - (1) Do the scans as specified in Part 6, 51-00-00, Procedure 14.
 - (2) Do a 360 degree scan around the diameter of the lug hole on each lug face as shown in Figure 1. You can use the outer diameter of the bushing as a probe guide.
- C. Examine the lugs of the attach fittings for cracks as follows (see Figure 1).
 - (1) Identify the type of material that the attach fitting is made from and calibrate the equipment as specified in Paragraph 4.C.
 - (2) Do a 360 degree scan around the diameter of the lug hole on each lug face as shown in Figure 1. You can use the outer diameter of the bushing as a probe guide.
 - (a) Do the scans as specified in Part 6, 51-00-00, Procedure 14, if the attach fitting is titanium.
 - (b) Do the scans as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, if the attach fitting is aluminum.

6. Inspection Results

- A. Refer to the Inspection Results paragraph of the applicable procedure as follows:
 - (1) For inspections of aluminum parts with a metered instrument, refer to Part 6, 51-00-00, Procedure 4.
 - (2) For inspections of aluminum parts with an impedance plane display instrument, refer to Part 6, 51-00-00, Procedure 23.
 - (3) For inspections of titanium parts, refer to Part 6, 51-00-00, Procedure 14.

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Horizontal Stabilizer Inspection Areas
Figure 1 (Sheet 1 of 4)

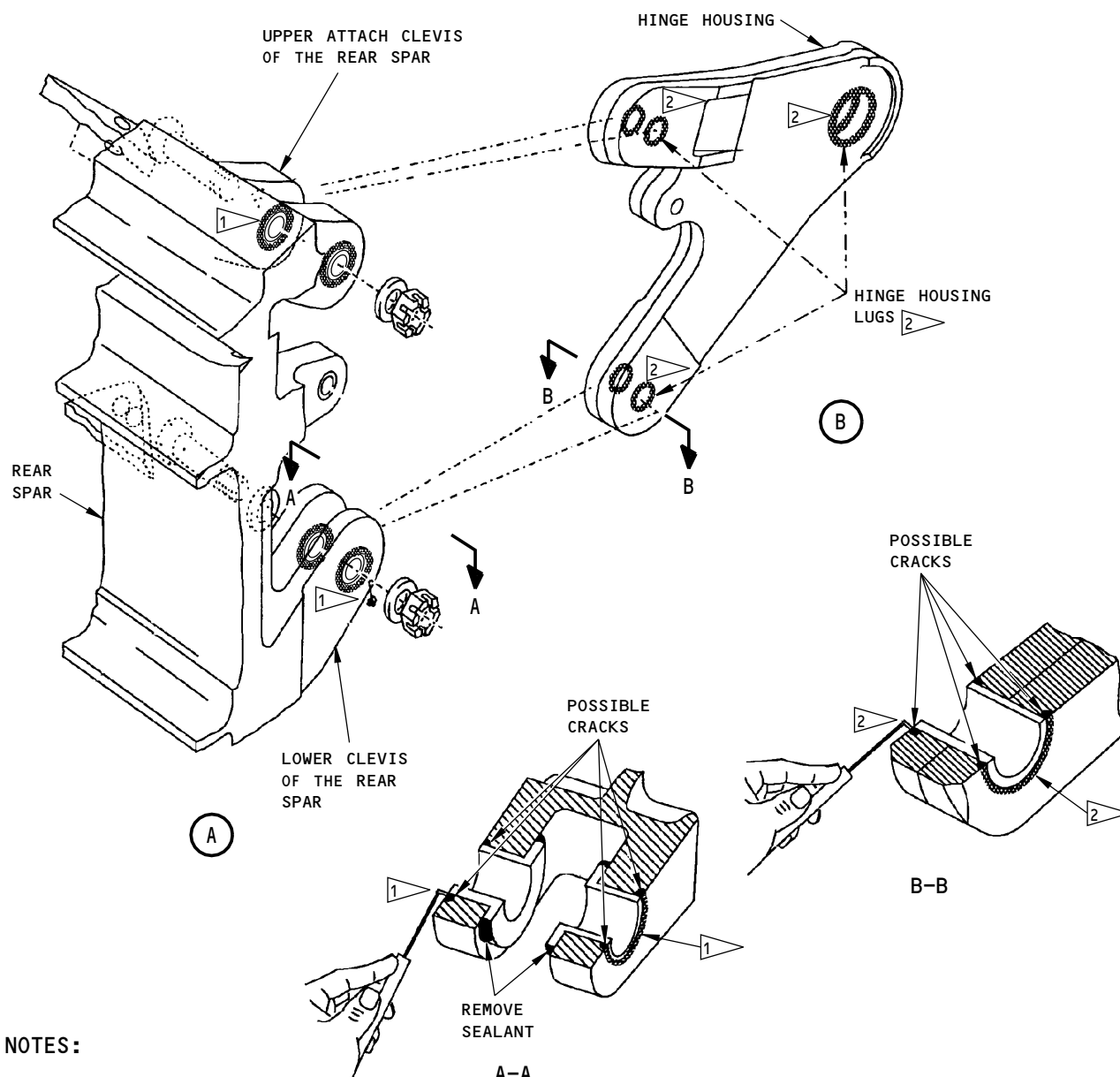
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NOTES:

- THE LEFT SIDE IS SHOWN;
THE RIGHT SIDE IS OPPOSITE

1 DO A HFEC SCAN OF EACH FACE OF EACH LUG OF THE CLEVIS. USE THE OUTER DIAMETER OF THE BUSHING (IF INSTALLED) AS A GUIDE. REMOVE THE SEALANT THAT IS AROUND EACH BUSHING ON THE INNER FACES OF THE CLEVIS.

NOTE: USE AN ALUMINUM SURFACE CRACK REFERENCE STANDARD FOR THIS INSPECTION.

2 DO A HFEC SCAN OF EACH FACE OF THE HINGE HOUSING LUGS. USE THE OUTER DIAMETER OF THE BUSHING (IF INSTALLED) AS A GUIDE.

NOTE: THE HINGE HOUSING IS MADE OF TITANIUM. USE A TITANIUM SURFACE CRACK REFERENCE STANDARD FOR THIS INSPECTION.

2162509 S0000473367_V1

Horizontal Stabilizer Inspection Areas
Figure 1 (Sheet 2 of 4)

EFFECTIVITY
ALL; 737-300, -400 AND -500 AIRPLANES

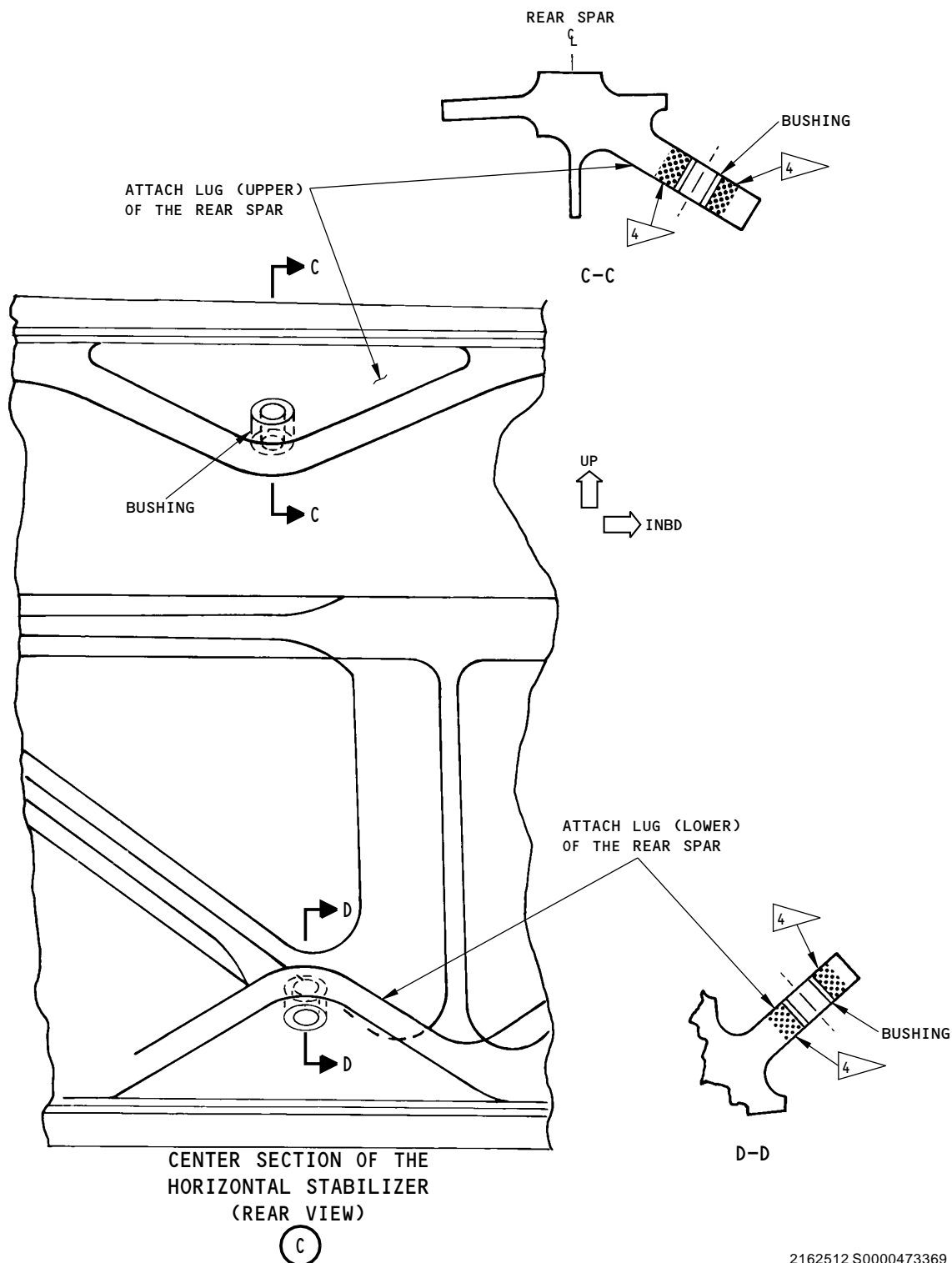
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2162512 S0000473369_V1

Horizontal Stabilizer Inspection Areas
Figure 1 (Sheet 3 of 4)

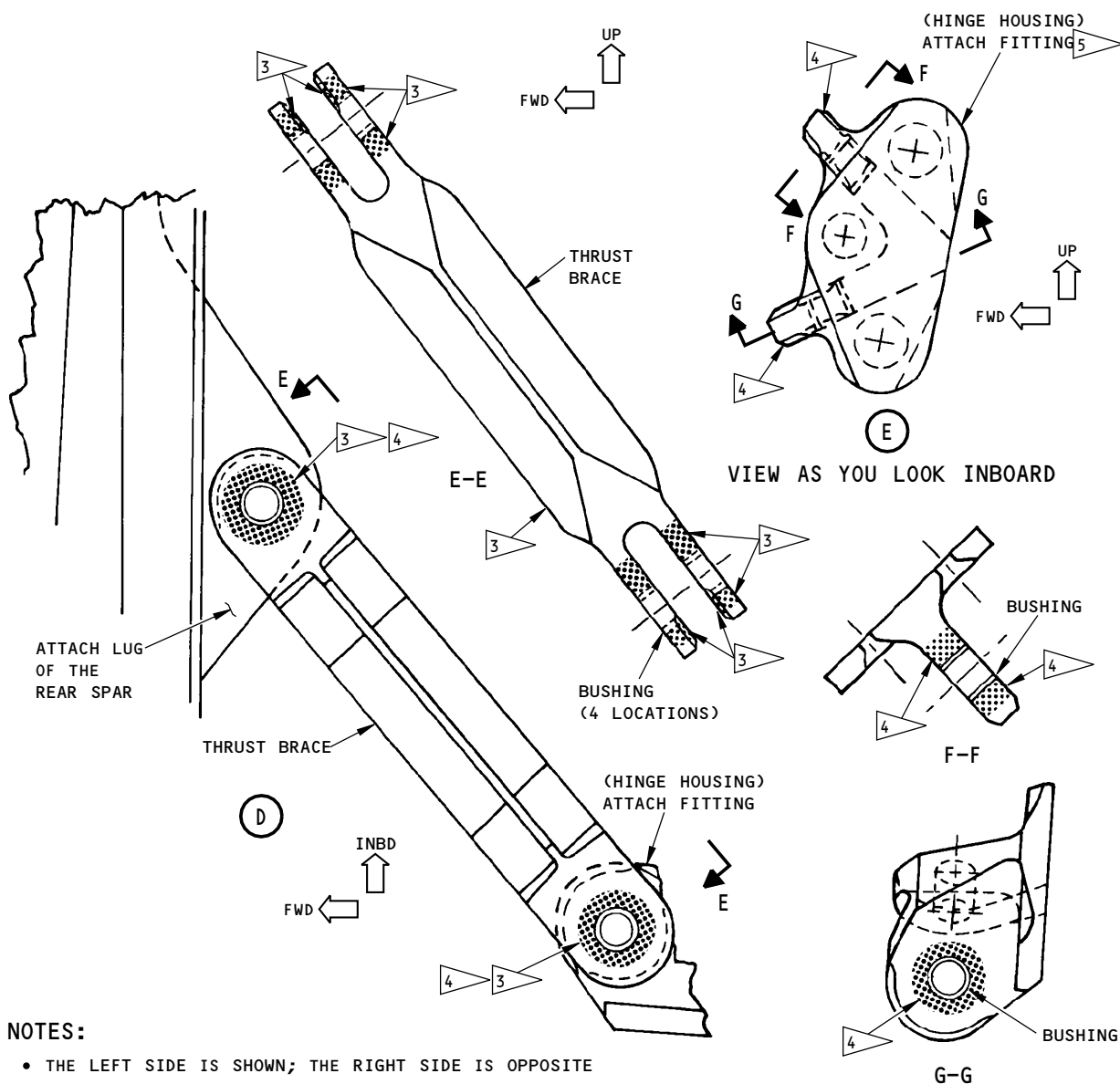
EFFECTIVITY
ALL; 737-300, -400 AND -500 AIRPLANES

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NOTES:

- THE LEFT SIDE IS SHOWN; THE RIGHT SIDE IS OPPOSITE

INSPECTION AREA

CAUTION: REMOVE AND EXAMINE ONLY ONE THRUST BRACE AT A TIME. THREE THRUST BRACES MUST STAY ATTACHED AT ALL TIMES.

- 3 REMOVE ONE THRUST BRACE FROM THE (HINGE HOUSING) ATTACH FITTING AND SPAR ATTACH LUG. MAKE A HFEC SCAN OF EACH FACE OF EACH LUG OF THE CLEVIS. USE THE OUTER DIAMETER OF THE BUSHING (IF INSTALLED) AS A PROBE GUIDE .
- 4 DO A HFEC SCAN AROUND THE HOLE ON EACH SIDE OF THE ATTACH LUGS ON THE REAR SPAR AND THE ATTACH FITTINGS AFTER THE THRUST BRACE AND BOLTS ARE REMOVED. USE THE OUTER DIAMETER OF THE BUSHING (IF INSTALLED) AS A PROBE GUIDE .
- 5 IT IS POSSIBLE THE (HINGE HOUSING) ATTACH FITTING IS MADE FROM TITANIUM. A CONDUCTIVITY TEST MUST BE DONE BEFORE THE HFEC INSPECTION IS DONE.

2162513 S0000473370_V1

Horizontal Stabilizer Inspection Areas
Figure 1 (Sheet 4 of 4)

EFFECTIVITY
ALL; 737-300, -400 AND -500 AIRPLANES

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PART 6 - EDDY CURRENT

SURFACE INSPECTION OF THE TAB CONTROL MECHANISM BRACKETS ON THE ELEVATOR FRONT SPAR (HFEC)

1. Purpose

- A. Use this procedure to examine the tab control mechanism brackets on the elevator front spar for cracks. The areas to examine are shown in Figure 1.
- B. The brackets are made of aluminum.
- C. 737 Damage Tolerance Rating (D626A001-DTR):
 - (1) Item: 55-20-12

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument
 - (1) Use an eddy current instrument that:
 - (a) Has an impedance plane display.
 - (b) Operates at a frequency range of 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Nortec 1000; Staveley (Olympus)
 - (b) Locator 2d; Hocking (General Electric)
- C. Probes
 - (1) A shielded, right-angle probe with a maximum drop of 0.25 inch (6.4 mm) is necessary to do this inspection.
 - (2) Refer to Part 6, 51-00-00, Procedure 23, paragraph 3.C, for data about probe selection.
 - (3) The probe that follows was used to help prepare this procedure.
 - (a) TPEN925-5; Techna NDT
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, as given in Part 6, 51-00-00, Procedure 23, paragraph 3.D.

3. Prepare for the Inspection

- A. Identify the inspection areas shown in Figure 1.
NOTE: Bushing removal is not necessary to examine the brackets.
- B. Remove the tab control mechanism assembly to get access to the inspection locations.
- C. Remove the fillet seal from around the inspection areas shown in Figure 1.
- D. Lightly smooth rough surfaces and sharp edges of chipped paint.



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E. Fully clean the inspection area.

4. Instrument Calibration

A. Calibrate the equipment as specified in Part 6, 51-00-00, Procedure 23, paragraph 5. Use reference standard 126, or an equivalent, to do the calibration.

5. Inspection Procedure

A. Examine the inboard and outboard tab mechanism control brackets on the front spar of the elevator for cracks as follows:

(1) Refer to Part 6, 51-00-00, Procedure 23, paragraph 6, for the inspection procedure.

(2) Examine the brackets as shown in Figure 1.

(a) Use the bushings in each hole as a probe guide.

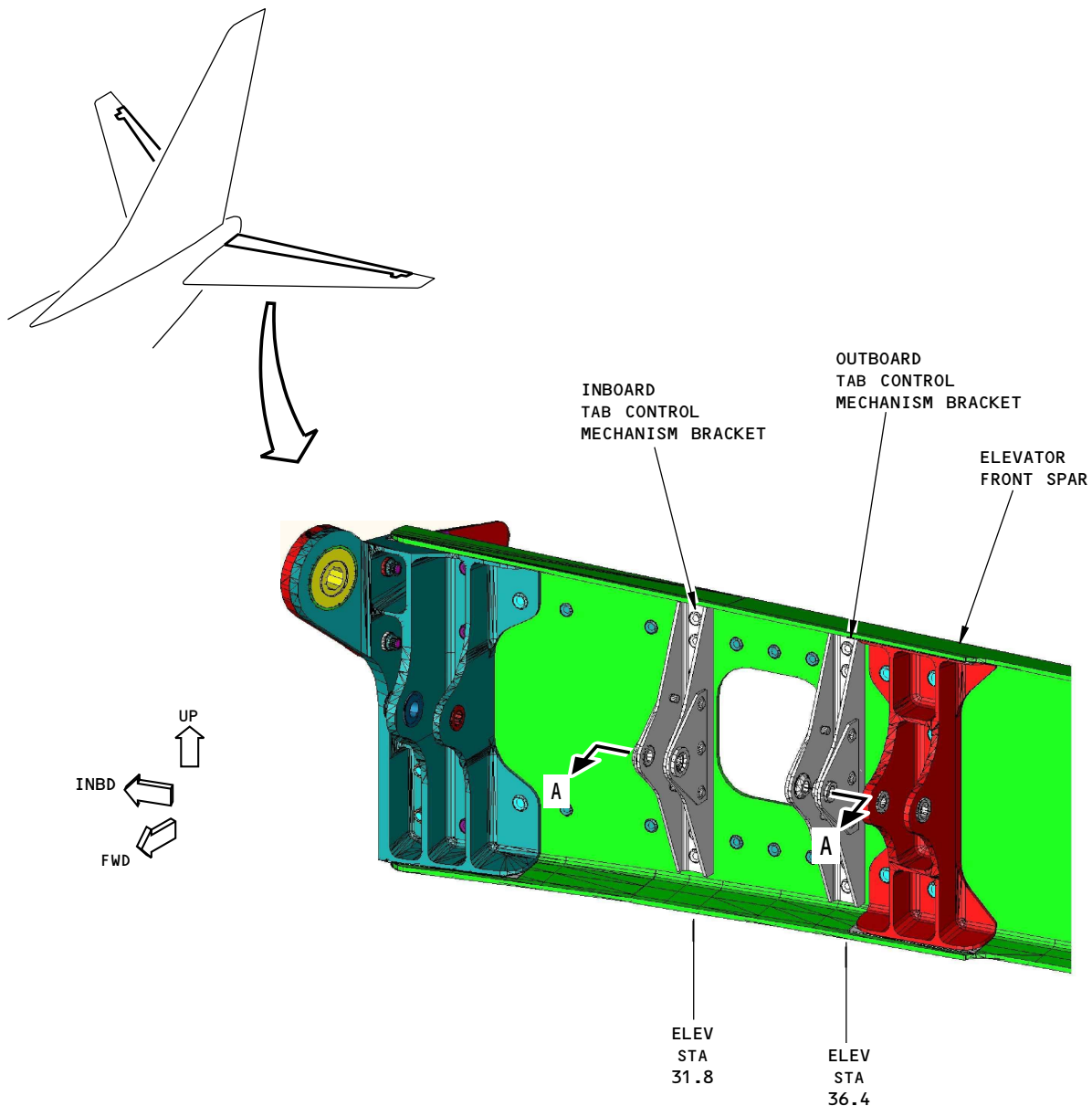
(b) A total of four surfaces must be examined on each inboard and outboard tab control mechanism bracket.

B. Do Paragraph 5.A. again to examine the brackets on the opposite side of the airplane.

6. Inspection Results

A. Refer to Part 6, 51-00-00, Procedure 23, paragraph 7, to make an analysis of indications that occur during the inspection.

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NOTES:

- THE FRONT SPAR BRACKETS ON THE LEFT ELEVATOR ARE SHOWN;
THE BRACKETS ON THE RIGHT ELEVATOR ARE OPPOSITE

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Inspection Areas
Figure 1 (Sheet 1 of 2)

EFFECTIVITY
ALL; 737-600/700/800/900 AIRPLANES

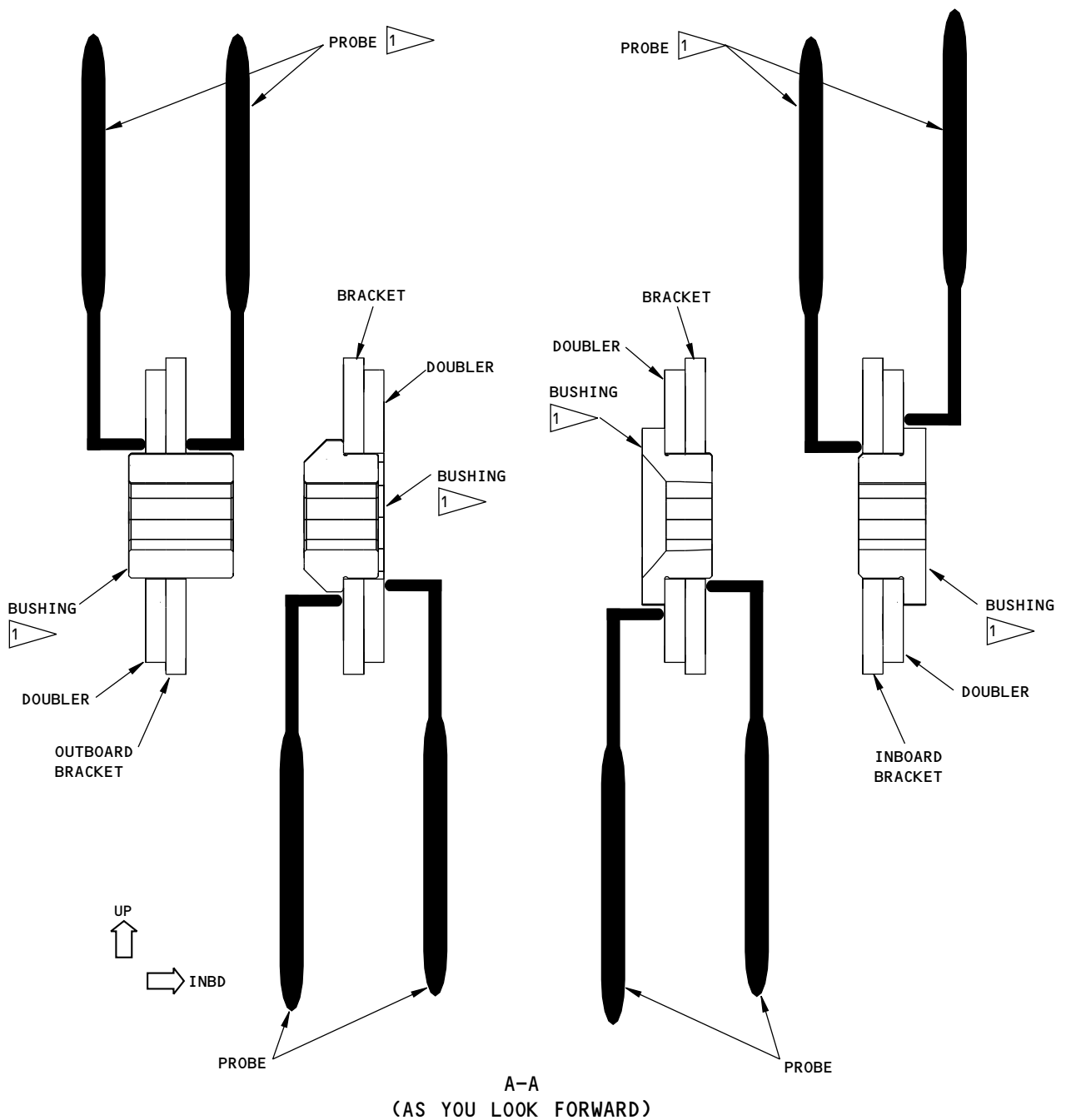
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NOTES:

- 1 USE THE BUSHING AS A PROBE GUIDE TO LOOK FOR SURFACE CRACKS AROUND THE HOLES OF THE TAB CONTROL MECHANISM BRACKETS.

2162516 S0000473374_V1

Inspection Areas
Figure 1 (Sheet 2 of 2)

EFFECTIVITY
ALL; 737-600/700/800/900 AIRPLANES

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PART 6 - EDDY CURRENT

ELEVATOR HINGE FITTINGS (HFEC)

1. Purpose

- A. Use this procedure to examine the clevis lugs of elevator hinge fittings 1 thru 8 (ELEV STA 24.90 to ELEV STA 265.45). See Figure 1 for the inspection area.
- B. This procedure uses an impedance plane display instrument.
- C. 737 Maintenance Planning Document (MPD) Damage Tolerance Record (DTR) Check Form
Reference:
 - (1) Item: 55-20-05

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument
 - (1) Use an eddy current instrument that:
 - (a) Has an impedance plane display.
 - (b) Operates from 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 2D; GE Inspection Technologies
 - (b) Phasec 3D; GE Inspection Technologies
- C. Probes
 - (1) Use a probe that:
 - (a) Operates from 50 to 500 kHz.
 - (b) Has a maximum diameter of 0.13 inch (3.3 mm).
 - (2) The probes that follow were used to help prepare this procedure.
NOTE: Shielded probes are recommended.
 - (a) MP907-60; NDT Engineering
 - (b) TSPEN95-6; Techna NDT
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, to help calibrate the instrument. See Part 6, 51-00-00, Procedure 23, for data about reference standard 126.

3. Prepare for the Inspection

- A. Get access to the inspection areas.
- B. Remove all dirt, loose paint, and sealant from the inspection areas, if necessary.

ALL

EFFECTIVITY

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4. Instrument Calibration

- A. Calibrate the instrument to examine the lug face around the circumference of the bushing as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (1) Use reference standard 126, or an equivalent, to help calibrate the instrument.

5. Inspection Procedure

- A. Examine the clevis lugs of elevator hinge fittings 1 thru 8 for cracks as follows:
 - (1) Refer to Part 6, 51-00-00, Procedure 23, paragraph 6, for general instructions about surface eddy current inspections.
 - (2) Use the bushing as a probe guide to examine the outer surface of each clevis lug in the inspection area. See Figure 1 for the inspection areas.
 - (3) Examine the clevis lugs at the 8 hinge fittings on one side of the airplane.
- B. Do Paragraph 5.A. again to examine the clevis lugs for cracks at the 8 hinge fittings on the opposite side of the airplane.

6. Inspection Results

- A. Refer to Part 6, 51-00-00, Procedure 23, paragraph 7, for instructions to help make an analysis of the indications that occur during the inspection.

ALL

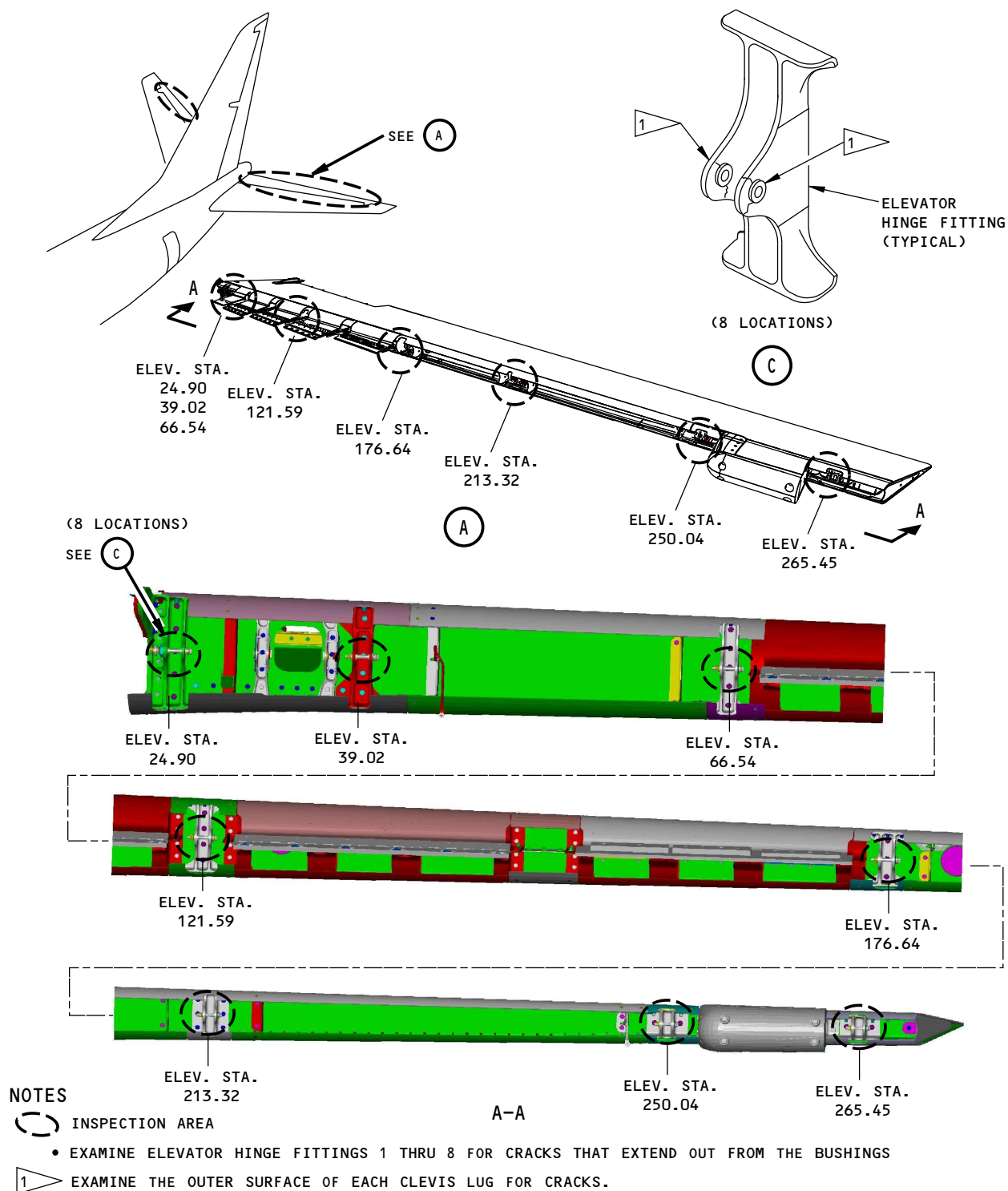
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Inspection Areas
Figure 1

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PART 6 - EDDY CURRENT

RUDDER ATTACH FITTINGS (HFEC)

1. Purpose

- A. Use this procedure to examine the clevis lugs of the primary (RS 60.85) and secondary (RS 70.65) actuator fittings for the rudder. See Figure 1 for the inspection areas.
- B. This procedure uses an impedance plane display instrument.
- C. 737 Maintenance Planning Document (MPD) Damage Tolerance Record (DTR) Check Form
Reference:
 - (1) Item: 55-40-06

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument
 - (1) Use an eddy current instrument that:
 - (a) Has an impedance plane display.
 - (b) Operates from 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 2D; GE Inspection Technologies
 - (b) Phasec 3D; GE Inspection Technologies
- C. Probes
 - (1) Use a probe that:
 - (a) Operates from 50 to 500 kHz.
 - (b) Has a maximum diameter of 0.13 inch (3.3 mm).
 - (2) The probes that follow were used to help prepare this procedure.
NOTE: Shielded probes are recommended.
 - (a) MP907-60; NDT Engineering
 - (b) TSPEN95-6; Techna NDT
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, to help calibrate the instrument. Refer to Part 6, 51-00-00, Procedure 23, for data about reference standard 126.

3. Prepare for the Inspection

- A. Remove the actuator rod to get access to the inspection areas.
- B. Remove all dirt, loose paint, and sealant from the inspection areas, if necessary.

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4. Instrument Calibration

A. Calibrate the instrument to examine the actuator fitting lugs for cracks around the bushings as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.

- (1) Use reference standard 126, or an equivalent, to help calibrate the instrument.

5. Inspection Procedure

A. Examine the primary and secondary actuator fittings of the rudder for cracks as follows:

- (1) Refer to Part 6, 51-00-00, Procedure 23, paragraph 6, for general instructions about surface eddy current inspections.
- (2) Examine the clevis lugs of the primary actuator fitting for cracks.
 - (a) Examine the inner and outer surfaces of each lug shown in Figure 1.
 - (b) Use the bushing as a probe guide to examine the area around all four of the bushings.
- (3) Examine the clevis lugs of the secondary actuator fitting for cracks.
 - (a) Examine the outer surfaces of each lug shown in Figure 1.
 - (b) Use the bushing as a probe guide to examine the area around the bushings.

6. Inspection Results

A. Refer to Part 6, 51-00-00, Procedure 23, paragraph 7, for instructions to help make an analysis of the indications that occur during the inspection.

ALL

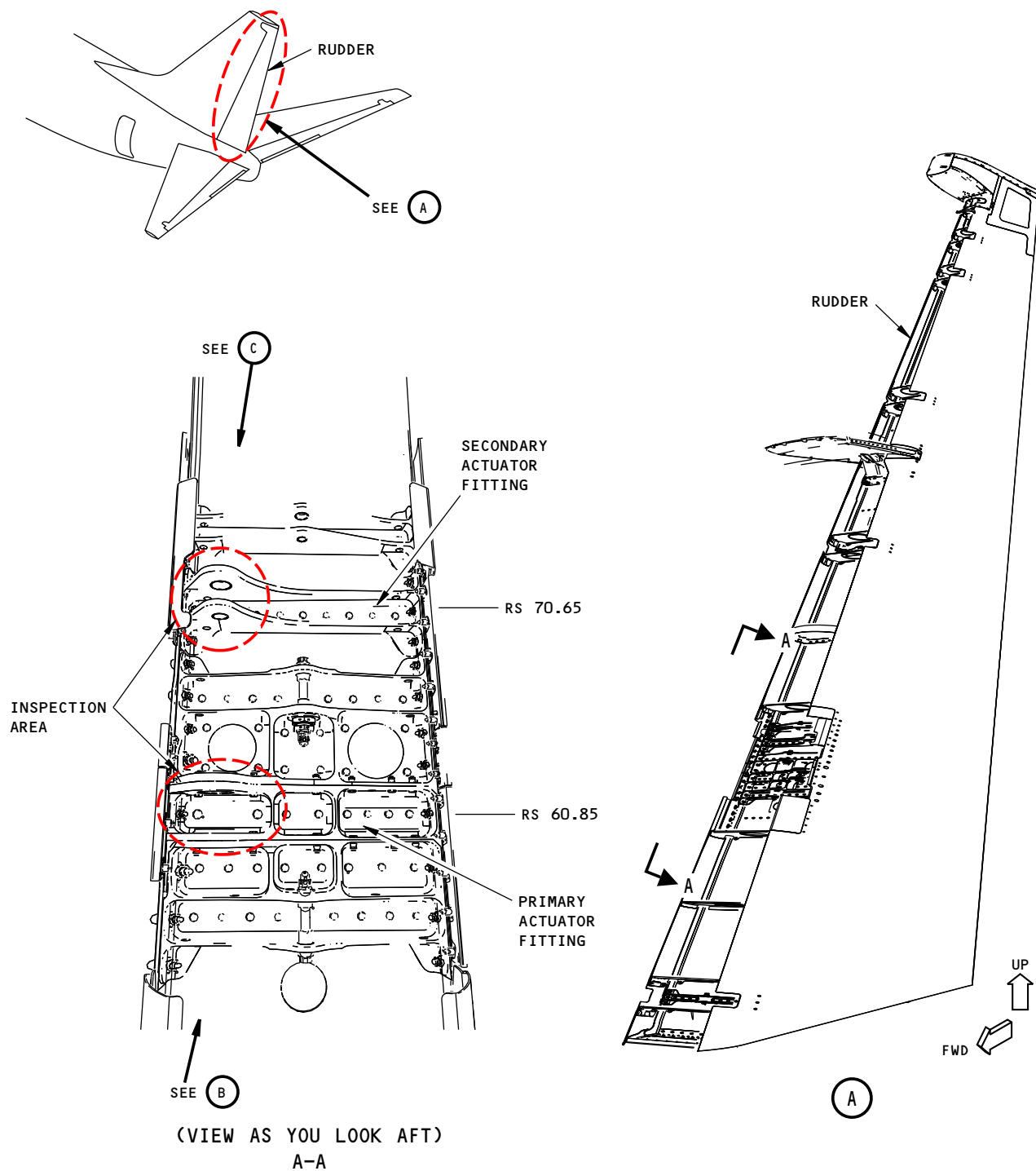
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**Inspection Area
Figure 1 (Sheet 1 of 2)**

ALL EFFECTIVITY

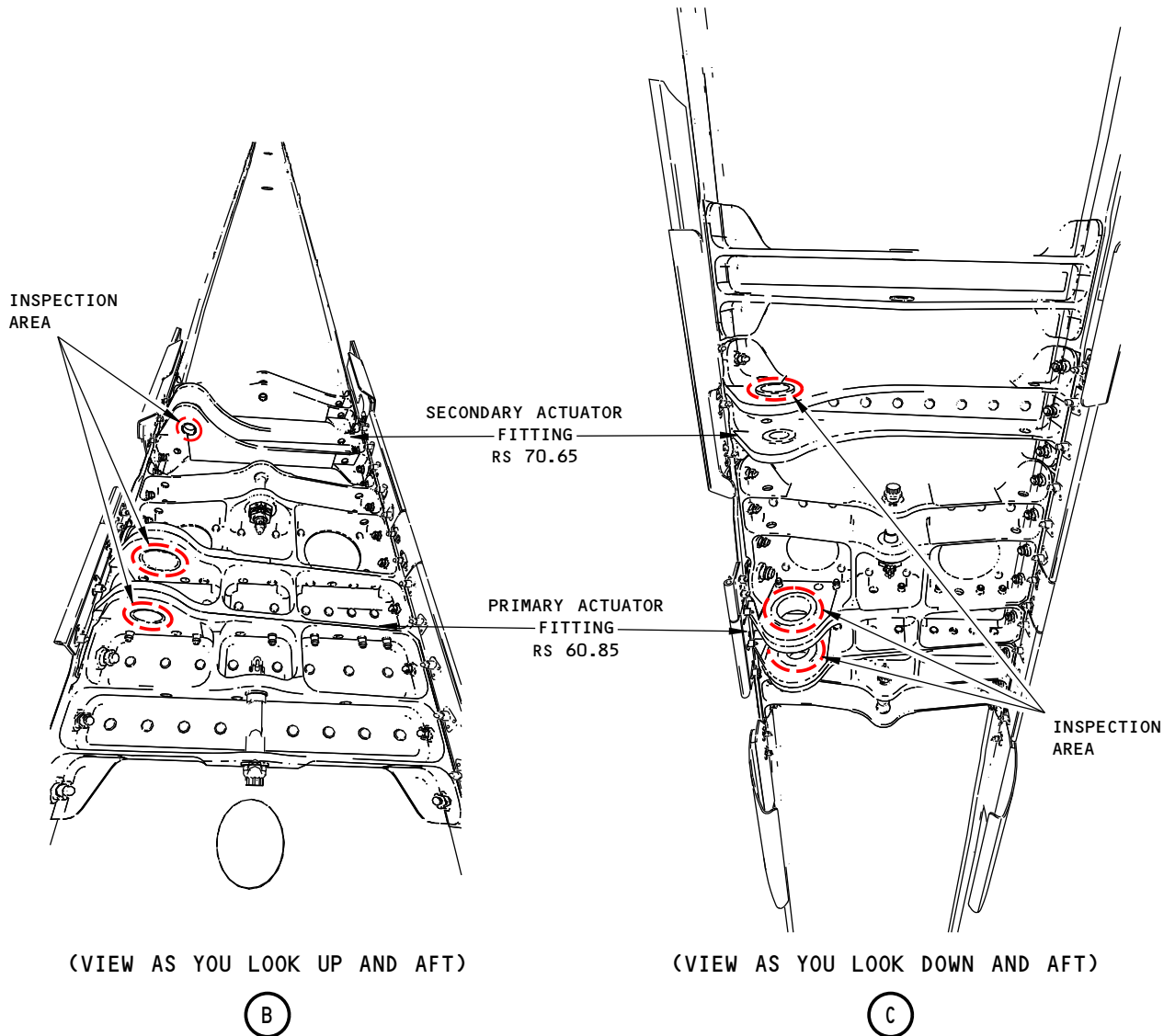
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NOTES

 INSPECTION AREA

- EXAMINE THE CLEVIS LUGS OF THE ACTUATOR FITTINGS AT THE INSPECTION AREAS SHOWN FOR CRACKS THAT EXTEND OUT FROM THE CENTER OF THE LUGS.

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Inspection Area
Figure 1 (Sheet 2 of 2)

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PART 6 - EDDY CURRENT

ELEVATOR MAST ARM ASSEMBLY (HFEC)

1. Purpose

- A. Use this procedure to examine the lug faces of the elevator mast arm assembly at ELEV STA 24.90 for cracks. See Figure 1 for the inspection area.
- B. This procedure uses an impedance plane display instrument.
- C. 737 Maintenance Planning Document (MPD) Damage Tolerance Record (DTR) Check Form
Reference:
 - (1) Item: 55-20-06

2. Equipment

- A. General
 - (1) Use inspection equipment that can be calibrated on the reference standard as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (2) Refer to Part 1, 51-01-00, for data about the equipment manufacturers.
- B. Instrument
 - (1) Use an eddy current instrument that:
 - (a) Has an impedance plane display.
 - (b) Operates from 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 2D; GE Inspection Technologies
 - (b) Phasec 3D; GE Inspection Technologies
- C. Probes
 - (1) Use a probe that:
 - (a) Operates from 50 to 500 kHz.
 - (b) Has a maximum diameter of 0.13 inch (3.3 mm).
 - (2) The probes that follow were used to help prepare this procedure.
NOTE: Shielded probes are recommended.
 - (a) MP907-60; NDT Engineering
 - (b) TSPEN95-6; Techna NDT
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, to help calibrate the instrument. Refer to Part 6, 51-00-00, Procedure 23, for data about reference standard 126.

3. Prepare for the Inspection

- A. Get access to the inspection areas.
NOTE: It can be necessary to remove the actuator rod assembly to get access to the inspection area.
- B. Remove all dirt, loose paint, and sealant from the inspection areas, if necessary.



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4. Instrument Calibration

- A. Calibrate the instrument to examine the lug faces of the elevator mast arm assembly in the areas around the circumference of the bushing as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (1) Use reference standard 126, or an equivalent, to help calibrate the instrument.

5. Inspection Procedure

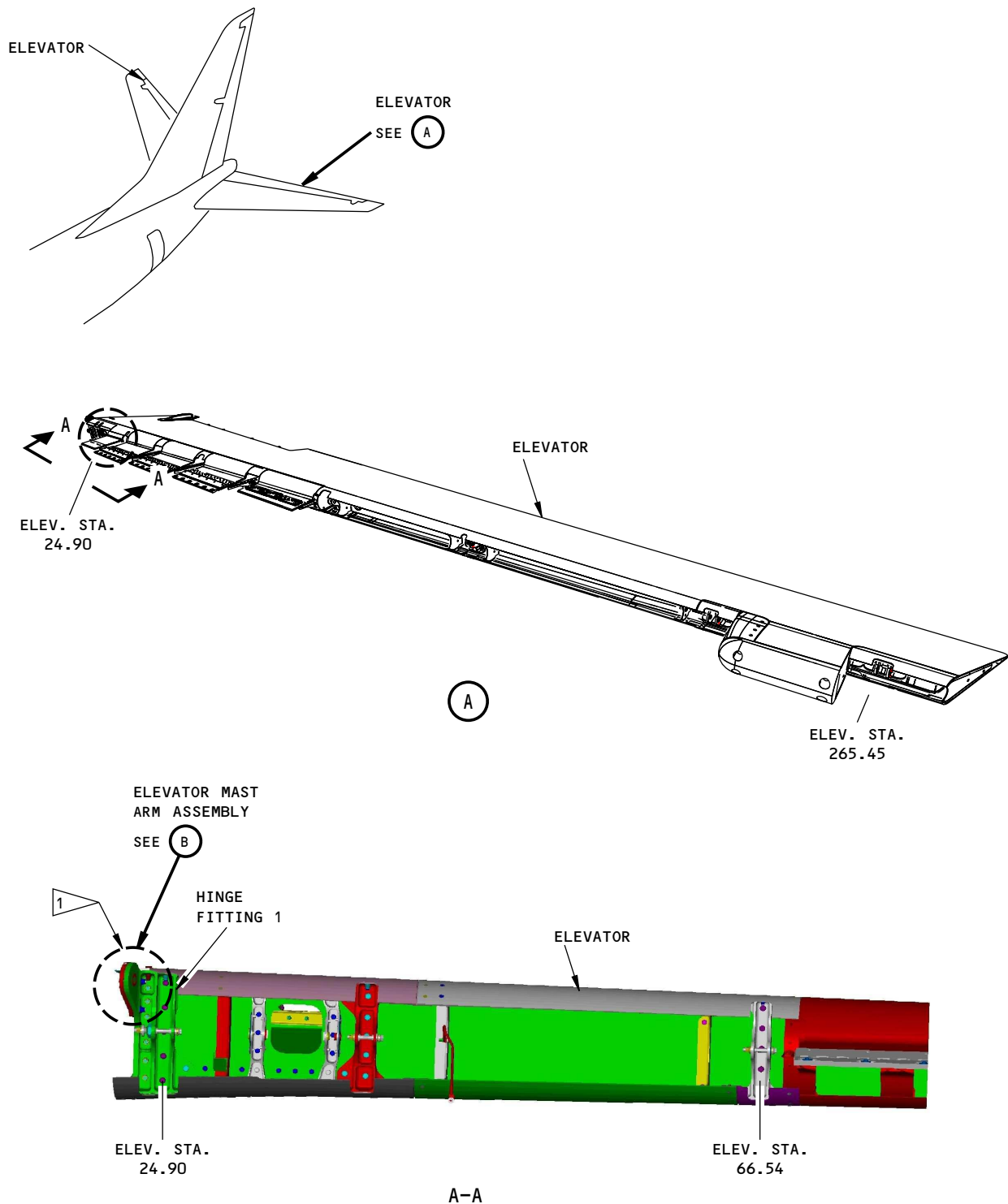
- A. Examine the elevator mast arm assembly for cracks as follows:
 - (1) Refer to Part 6, 51-00-00, Procedure 23, paragraph 6, for general instructions about surface eddy current inspections.
 - (2) Use the bushing as a probe guide to examine the inboard and outboard sides of the elevator mast arm assembly. See Figure 1.
- B. Do Paragraph 5.A. again to examine the elevator mast arm assembly for cracks on the opposite side of the airplane.

6. Inspection Results

- A. Refer to Part 6, 51-00-00, Procedure 23, paragraph 7, for instructions to help make an analysis of the indications that occur during the inspection.



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Inspection Area
Figure 1 (Sheet 1 of 2)

EFFECTIVITY
ALL; 737-600/700/800/900 AIRPLANES

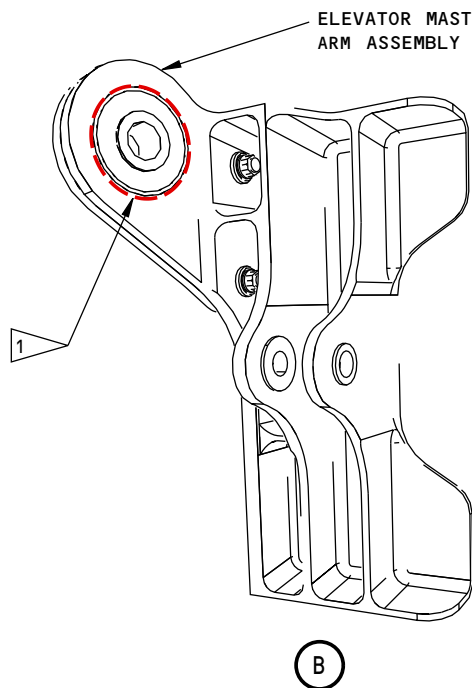
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NOTES

- THE LEFT ELEVATOR IS SHOWN; THE RIGHT ELEVATOR IS ALMOST THE SAME
- IT CAN BE NECESSARY TO REMOVE THE ACTUATOR ROD ASSEMBLY TO GET ACCESS TO THE INSPECTION AREA

1 EXAMINE THE ELEVATOR MAST ARM ASSEMBLY FOR CRACKS AT THE INBOARD AND OUTBOARD LUG FACES IN THE AREA AROUND THE BUSHING.

2285121 S0000516814_V1

Inspection Area
Figure 1 (Sheet 2 of 2)

EFFECTIVITY
ALL; 737-600/700/800/900 AIRPLANES

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