



737 NON-DESTRUCTIVE TEST MANUAL

PART 6 - EDDY CURRENT

WING LOWER SURFACE BBL 70.85 SPLICE (HFEC)

1. Purpose

- A. To detect cracks in the wing lower surface skin inboard and outboard of BBL 70.85 from rear spar to Stringer S-11 using high frequency eddy current.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: W-10

2. Equipment

- A. Any eddy current instrument and probe combination that satisfies the performance requirements of this procedure is suitable for this inspection. The following equipment was used in the development of this procedure.
 - (1) Instrument - Refer to Part 6, 51-00-00, Procedure 4.
 - (2) Probe - Shielded, right angle pencil probe per Part 6, 51-00-00, Procedure 4, with the following dimensions:
 - (a) A = 0.2 inch, B = 0.325 inch, C = 5.0 inches
 - (b) P/N MP 902-50B; NDT Product Engineering
- B. Reference Standard - Refer to Part 6, 51-00-00, Procedure 4.

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

3. Prepare for the Inspection

- A. Gain access by removing wing to body fairing.
- B. It may be necessary to remove corrosion inhibitor from the surface of the splice plate between the inboard and outboard skin panels if it appears to interfere with the inspection.
- C. Wipe all inspection areas clean.

4. Instrument Calibration

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

5. Inspection Procedure

- A. Inspect all fasteners identified in Figure 1. These fasteners are all common to the splice plate.
- B. The external splice plate is not found on all airplanes. If your airplane does not have it, disregard it on Figure 1.
- C. Perform scans around fasteners per Part 6, 51-00-00, Procedure 4.

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.

ALL

EFFECTIVITY

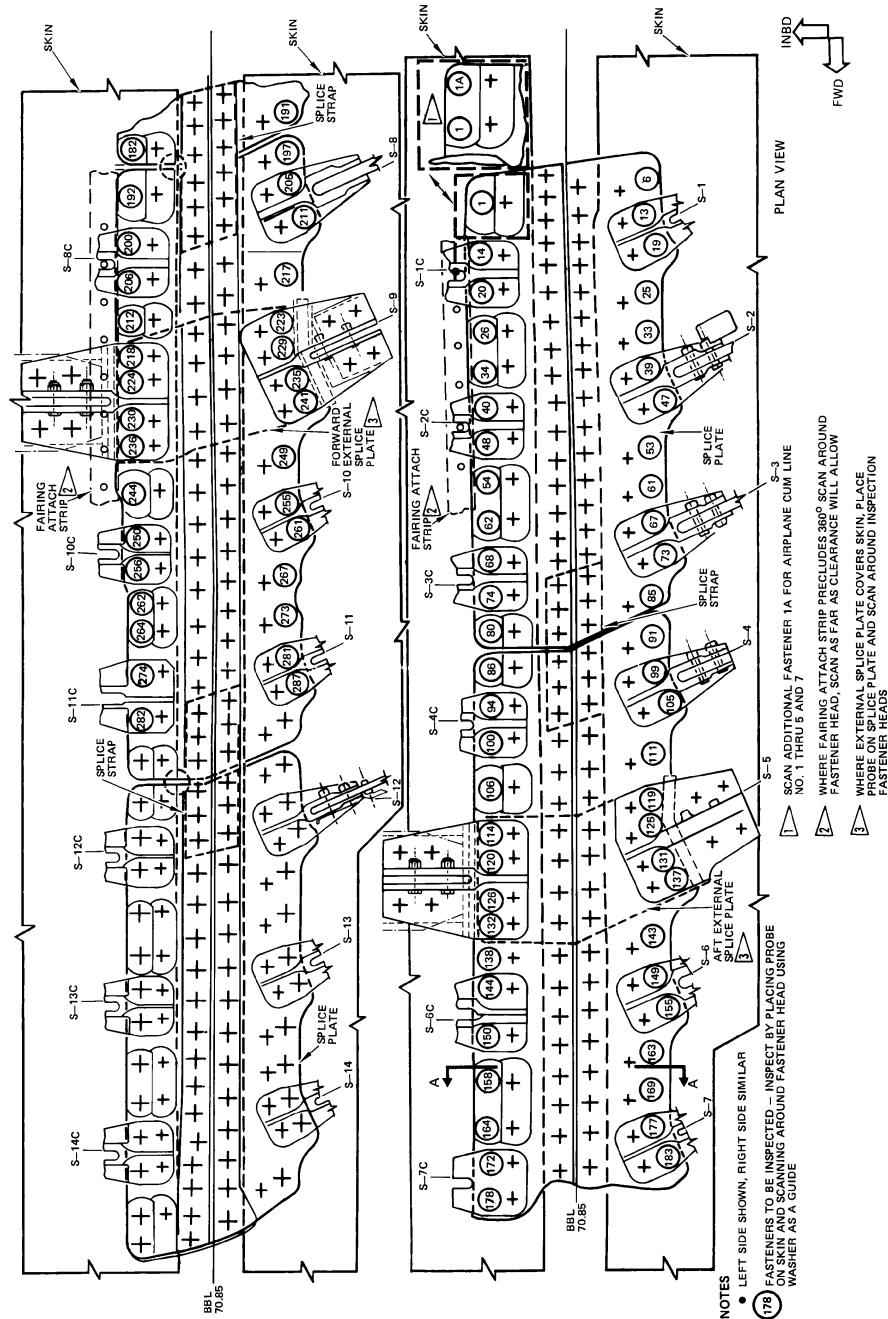
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Wing Lower Surface BBL 70.85 Splice
Figure 1 (Sheet 1 of 2)

2163077 S0000473944_V1

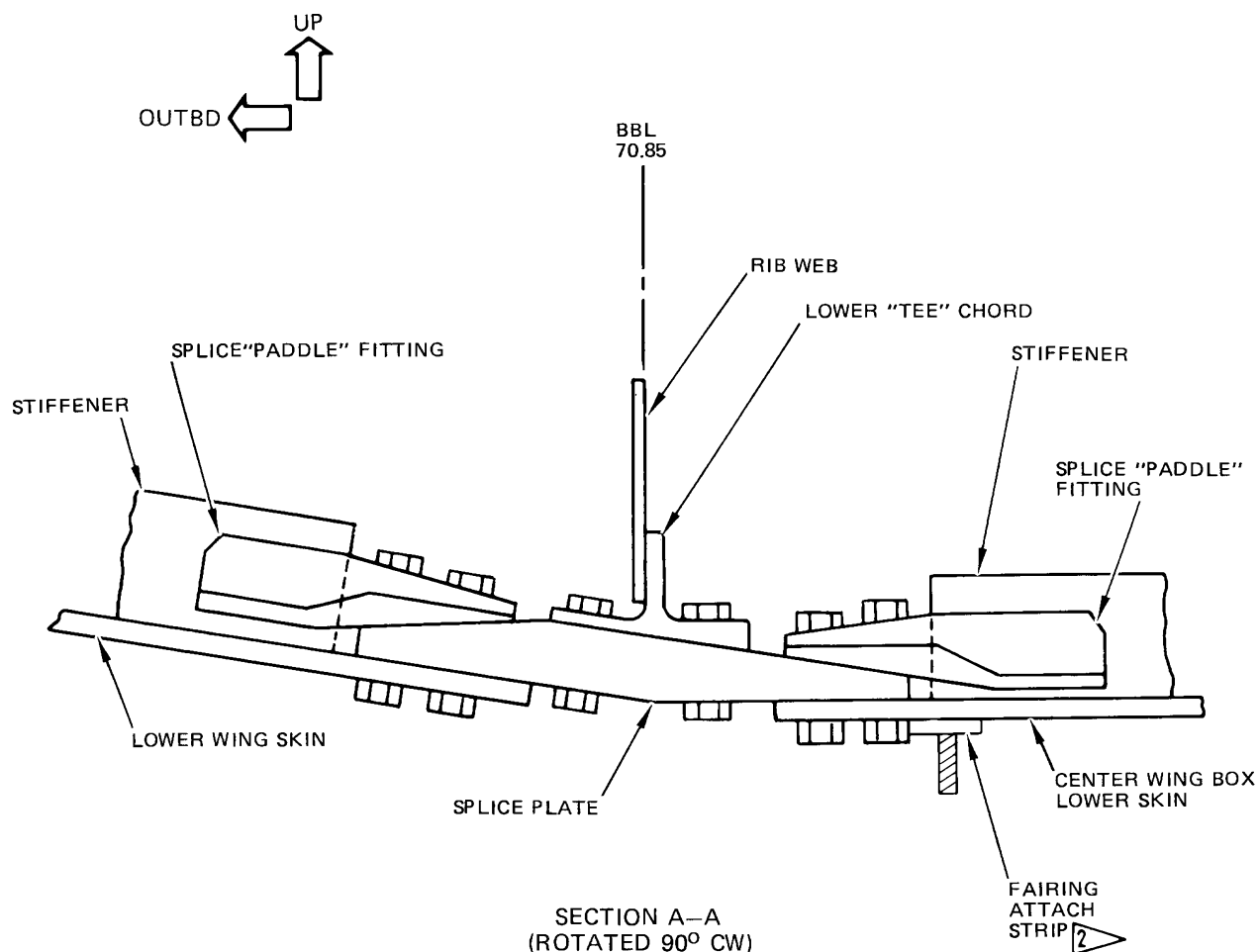
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NOTES

- THIS DETAIL SHOWS TYPICAL CONSTRUCTION OF SPLICE PLATE AND SPLICE FITTINGS

2 WHERE FAIRING ATTACH STRIP PRECLUDES 360° SCAN AROUND FASTENER HEAD, SCAN AS FAR AS CLEARANCE WILL ALLOW

2163078 S0000473945_V1

**Wing Lower Surface BBL 70.85 Splice
Figure 1 (Sheet 2 of 2)**

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PART 6 - EDDY CURRENT

WING UPPER SURFACE SKIN AT BBL 70.85 (LFEC)

1. Purpose

- A. To detect cracks in wing upper surface skin emanating from fastener holes common to the upper plus chord and stringer end fittings, using low frequency eddy current.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: W-11

2. Equipment

- A. Any eddy current instrument and probe combination that satisfies performance requirements of this procedure is suitable for this inspection. The following equipment was used in development of this procedure.
 - (1) Instrument - Eddy current instrument operable at 500 Hz.
 - (a) MIZ-10 or MIZ-10A; Zetec Inc.
 - (2) Probe - Spot probe, 0.6-inch (1.52 cm) maximum OD usable at 500 Hz.
 - (a) P/N SPO 565A; Nortec, Inc.
 - (3) Reference Standards - Manufacture Reference Standard 336A and 336B per Figure 2.

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

3. Prepare for the Inspection

- A. Remove upper wing to body fairings.
- B. Clean inspection area and identify inspection fasteners. See Figure 4.

4. Instrument Calibration

- A. Calibration for fastener hole crack inspection using low frequency eddy current spot probe.
 - (1) Connect probe and set instrument frequency to 500 Hz.
 - (2) Place probe on reference standard per Position 1 in Figure 3.
 - (3) Balance instrument per manufacturer's instructions.
 - (4) Adjust liftoff control per manufacturer's instructions to obtain the same response when the probe is on bare standard as when probe is lifted off part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: The probe is located at Position 1 during liftoff calibration.
 - (5) Keep probe at Position 1 and use meter position control to adjust meter response to indicate 20% full scale.
 - (6) Position or scan probe over notched portion of reference standard. Meter response should be upscale. Refer to Position 2 of Figure 3.
 - (7) Adjust instrument sensitivity to obtain 80% of full scale meter response, or 60% meter response difference between notched and unnotched locations (Positions 1 and 2).
 - (8) Reposition probe at Position 1 and recheck balance and liftoff. If readjustments are made, recheck sensitivity per Paragraph 4.A.(6) and Paragraph 4.A.(7).

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- (9) Cracks will be indicated by a higher meter response.

5. Inspection Procedure

A. Inspection of fastener hole for cracks using low frequency eddy current spot probe.

- (1) Calibrate instrument per Paragraph 4.A.
- (2) Establish airplane baseline response.
 - (a) Establish a baseline response for an acceptable crack free area by comparing a minimum of two locations on each side of aircraft.
 - (b) Select a representative location from this group and set its response to 20% full scale on meter.

NOTE: Do not change instrument sensitivity when establishing the aircraft baseline response.
 - (c) Refer back to this location periodically to ensure that instrument response is the same as originally recorded. (Changes in meter response may occur as a result of instrument drift or probe temperature change.)
- (3) Inspect per Figure 4.

6. Inspection Results

A. Any location which gives a meter deflection 30% of full scale above the baseline response is a potential crack which requires further investigation.

- (1) The following conditions may cause meter reading changes similar to crack indications.
 - (a) A decrease in fastener spacing - Compare with similarly spaced fasteners on airplane or on reference standard.
 - (b) Placing probe too close to edge of skin or subsurface structure - Check drawings in the specific inspection procedure and compare with a similar location on airplane.
 - (c) Difference in conductivity between skin panels - Compare only inspection locations common to the same skin panel.
 - (d) Placing or scanning probe too close to a magnetic steel fastener - Compare response obtained with probe near a similar fastener, or by scanning the probe around fastener at a constant distance away from it.
 - (e) Magnetic metal chips in paint - Remove paint and reinspect.
 - (f) Difference in fastener material (magnetic versus nonmagnetic) - confirm by using a permanent magnet to determine magnetic properties of the fasteners. If fastener material is different, complete recalibration is required. Remove and replace fasteners in reference standard with the same type of fastener as found in the aircraft and recalibrate. Contact the Boeing Commercial Airplane Company for further instructions.
- (2) When investigating crack-like indications, compare meter response obtained at same location on the opposite side of the airplane or on another airplane of same configuration.
- (3) A downscale (lower) meter reading is an indication of metal thickening which indicates probe is over a beam chord or stiffener flange.

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EFFECTIVITY	REFERENCE STANDARD	FASTENER/ COLLAR
1	336A	BACB30GW10-6/ BACC30K
2	336B	BACB30MY10-6/ BACC30M

NOTES

1 CUM LINE NO. 1 THROUGH 179

2 CUM LINE NO. 180 AND ON

2163080 S0000473948_V1

Effectivity Table for Reference Standards 336A and 336B
Figure 1

ALL	EFFECTIVITY
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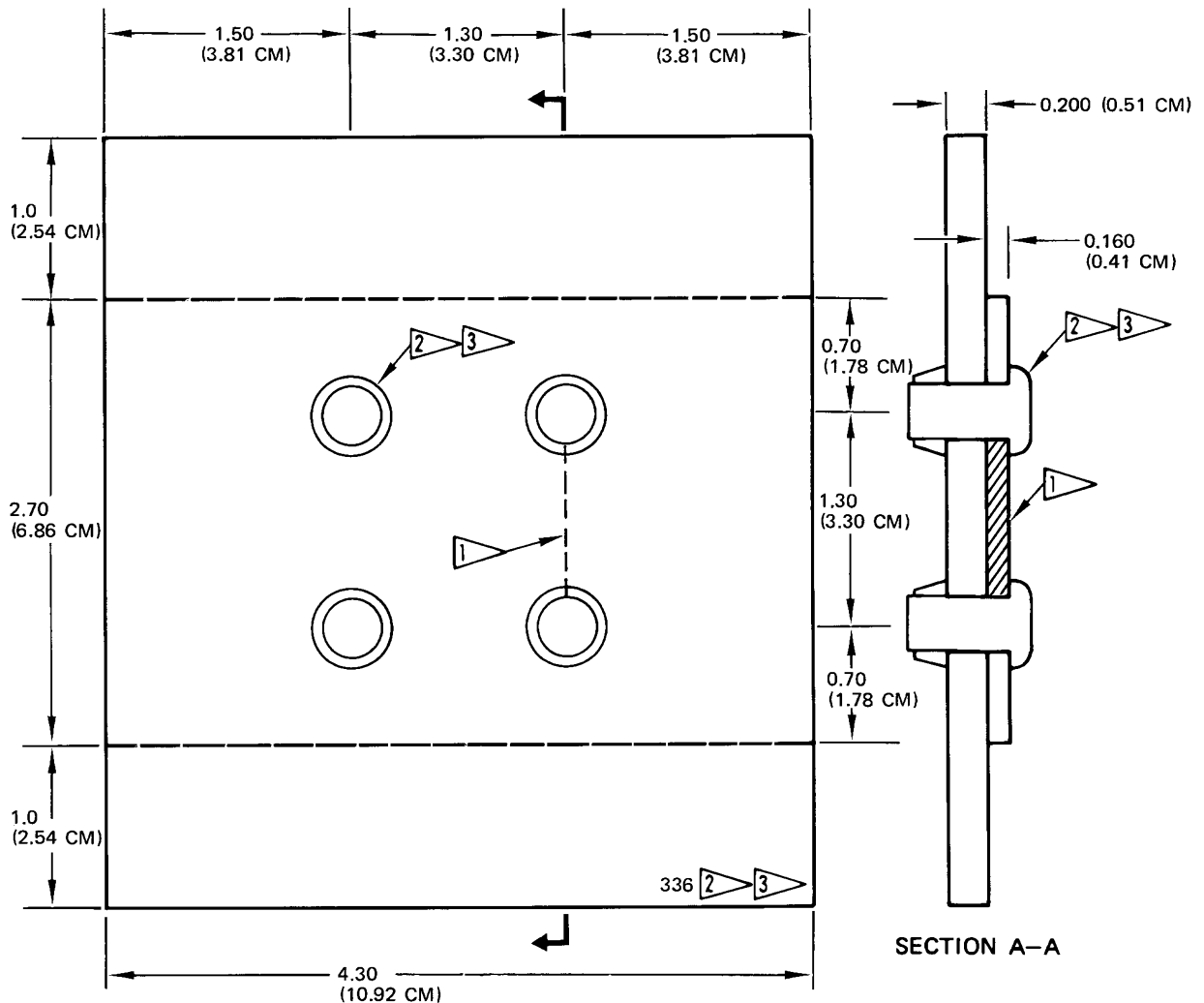
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NOTES

- ALL DIMENSIONS ARE IN INCHES (CENTIMETERS IN PARENTHESES)
- TOLERANCE: $X.X \pm 0.02$ (0.05 CM), $X.XX \pm 0.010$ (0.025 CM)
- MATERIAL: 7175-T6, 7075-T6, 2024-T3 ALUMINUM
- ETCH OR STEEL STAMP WITH 336A OR 336B
- P/N 6412-247 AVAILABLE FROM IDEAL SPECIALTY CO.

- 1 JEWELER'S SAWCUT 0.030 (0.080 CM) MAX WIDTH
- 2 REFERENCE STANDARD 336A USES FASTENER BACB30FM10-6 STEEL HI-LOK BOLT WITH BACC30M COLLAR (4 PLACES). SEE FIG. 1 FOR AIRPLANE EFFECTIVITY
- 3 REFERENCE STANDARD 336B USES FASTENER BACB30MY10-6 TITANIUM HI-LOK BOLT WITH BACC30M COLLAR (4 PLACES). SEE FIG. 1 FOR AIRPLANE EFFECTIVITY

2163082 S0000473949_V1

Reference Standard 336A and 336B
Figure 2

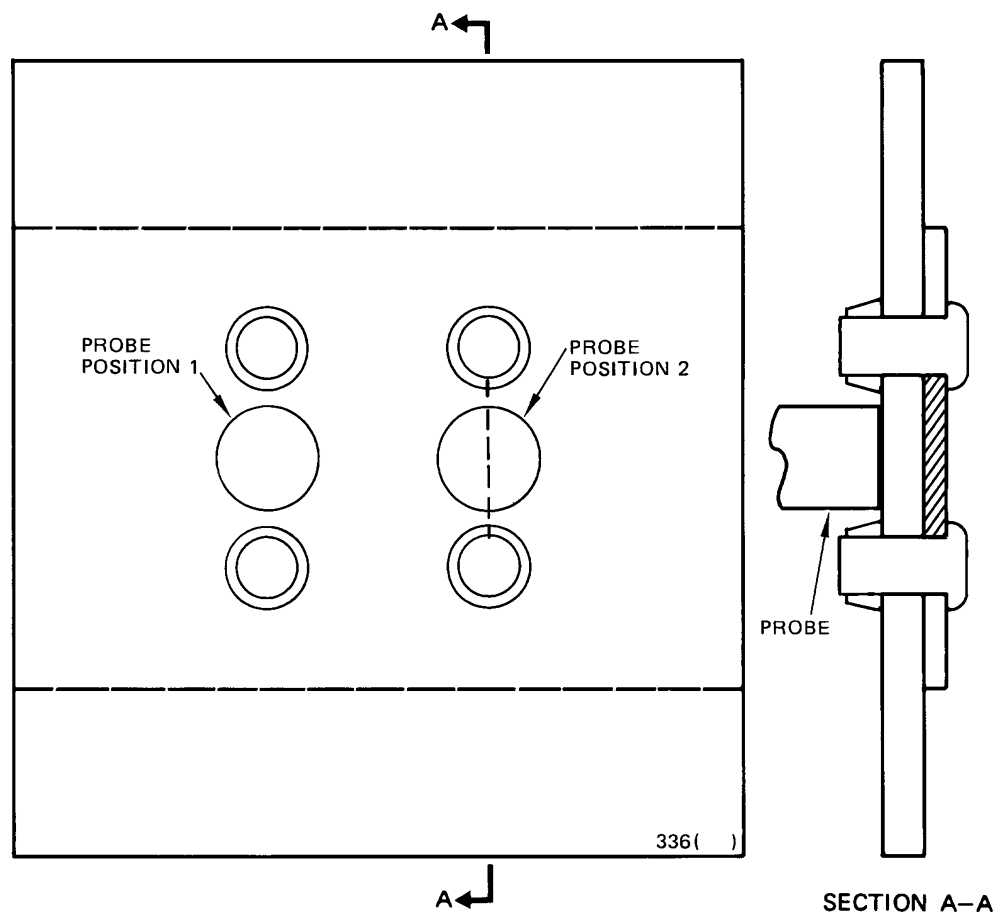
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2163083 S0000473950_V1

Calibration Positions for Reference Standard 336A and 336B
Figure 3

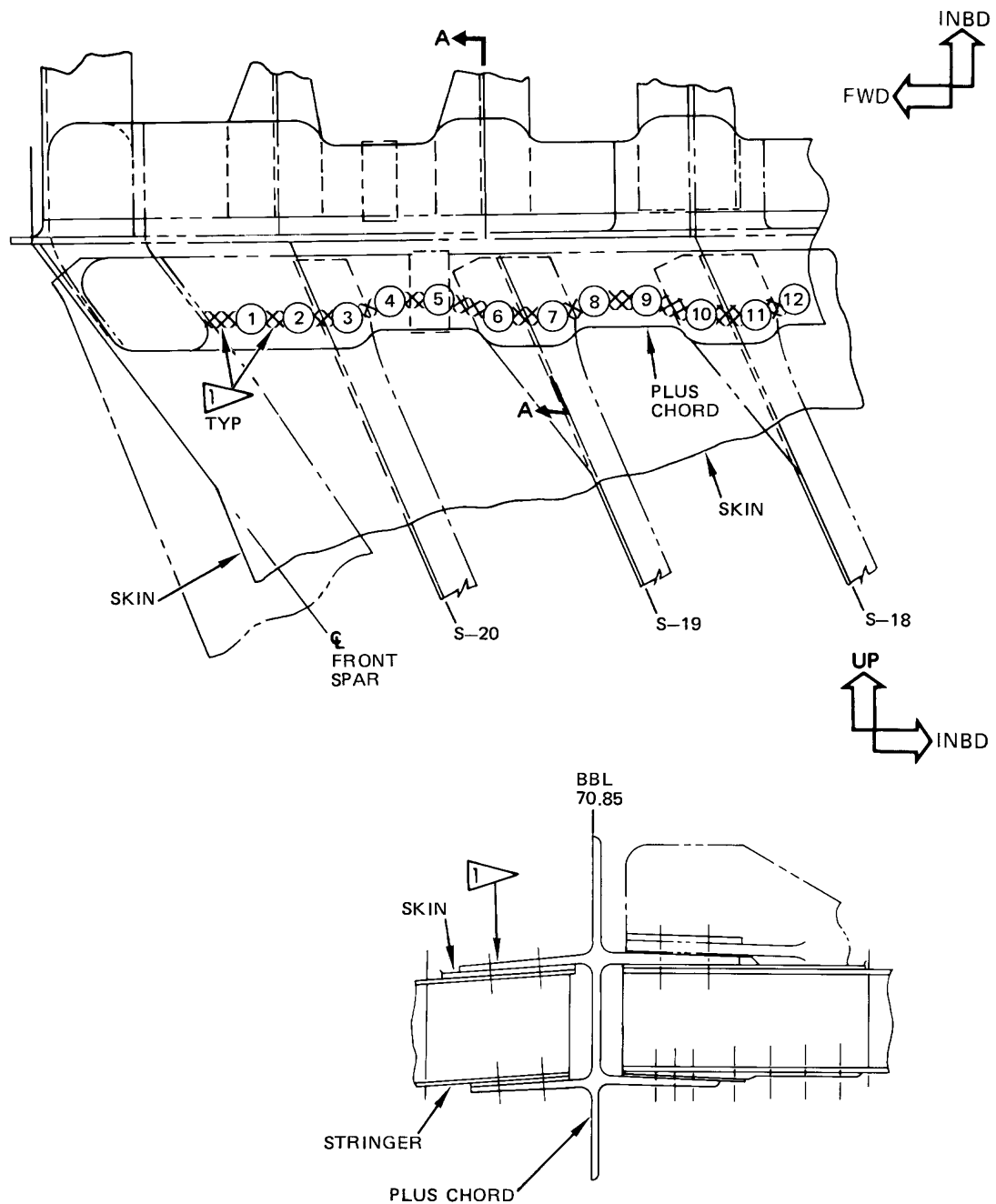
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NOTES

- ① FASTENERS TO BE INSPECTED
- ① PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER XXXX

SECTION A-A (TYPICAL)

2163086 S0000473952_V1

Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 1 of 6)

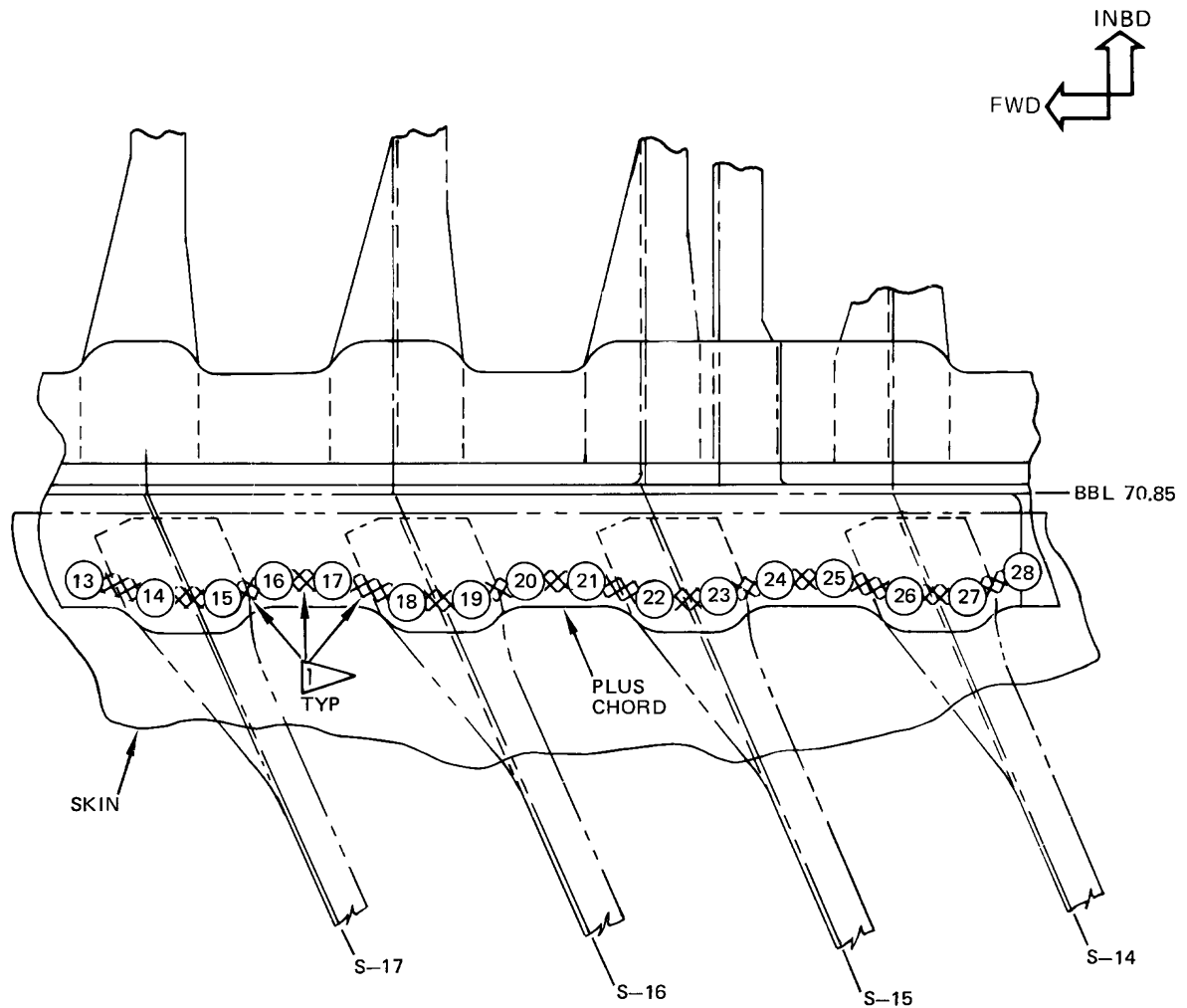
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NOTES

- ⑬ FASTENERS TO BE INSPECTED
- ① PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER XXXX

2163087 S0000473953_V1

**Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 2 of 6)**

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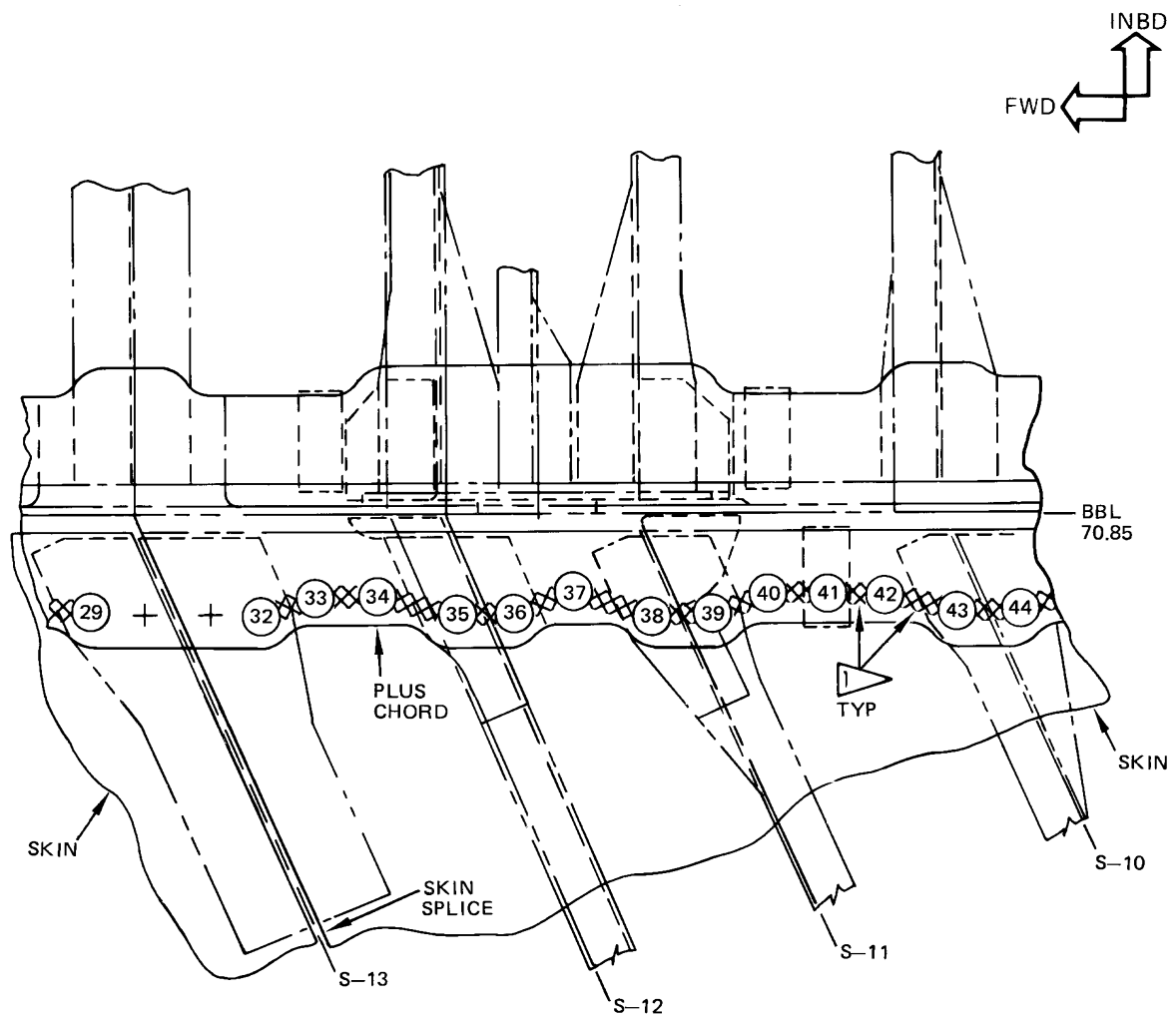
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NOTES

- ③ FASTENERS TO BE INSPECTED
- ① PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER XXXX

2163088 S0000473954_V1

Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 3 of 6)

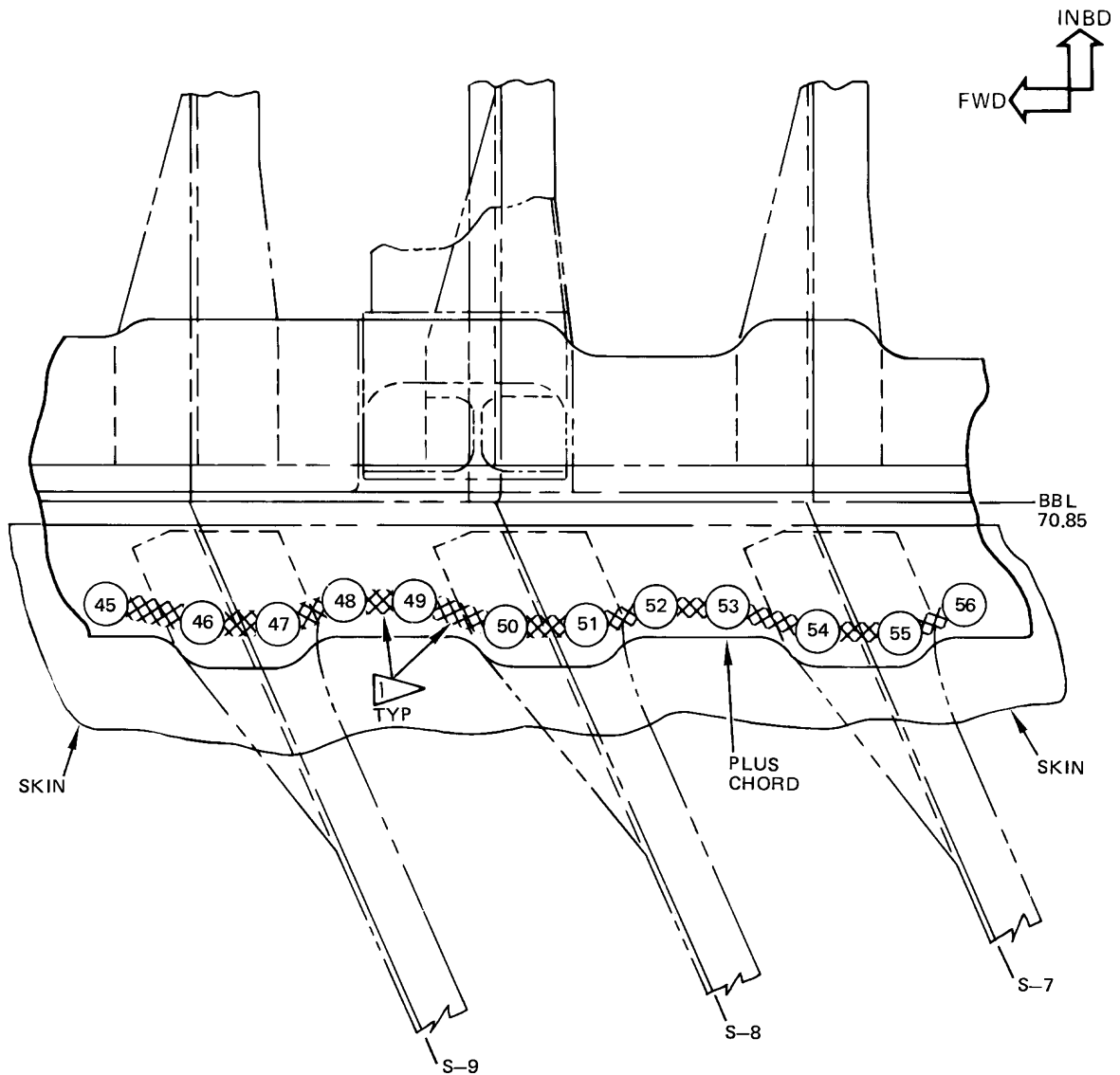
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
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NOTES

- ④ FASTENERS TO BE INSPECTED
- ▤ PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER 

2163095 S0000473955_V1

Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 4 of 6)

ALL EFFECTIVITY

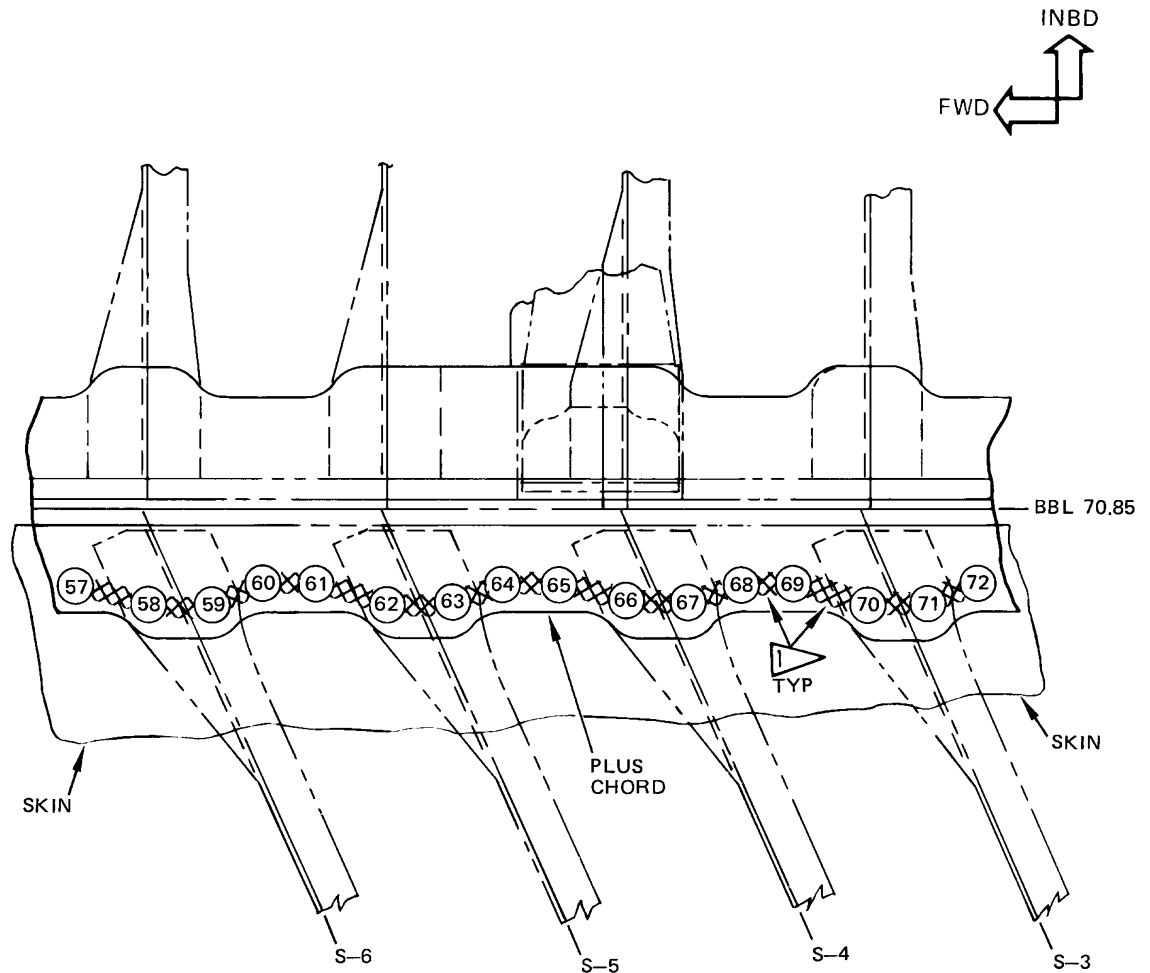
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NOTES

- ⑤7 FASTENERS TO BE INSPECTED
- ① PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER 

2163098 S0000473956_V1

Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 5 of 6)

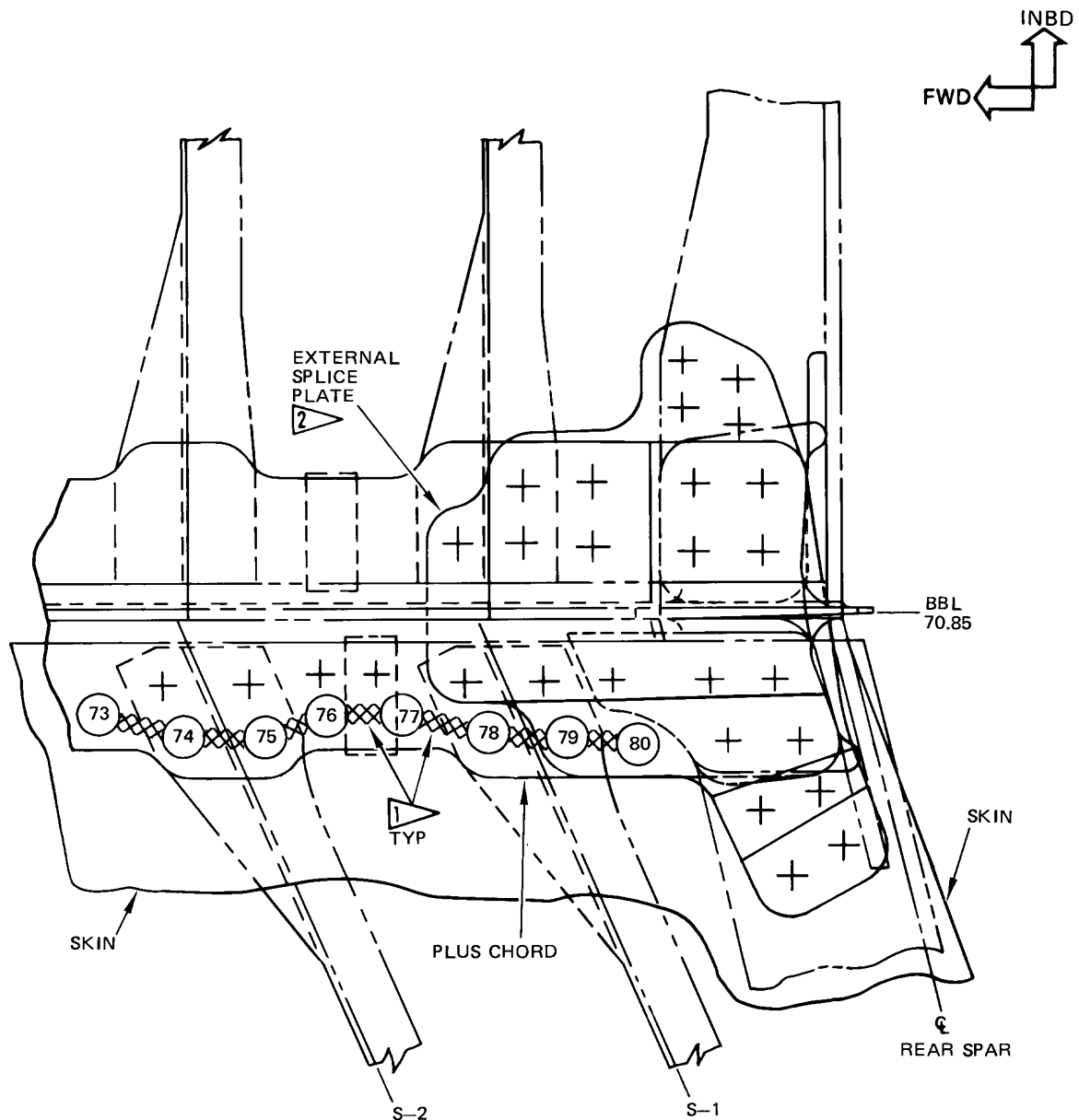
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NOTES

- ⑦③ FASTENER TO BE INSPECTED
- ① PLACE PROBE AT LOCATIONS BETWEEN FASTENERS PER
- ② EXTERNAL SPLICE PLATE FOR CUM LINE NO. 845 AND ON AND AIRPLANES INCORPORATING SERVICE BULLETIN 737-57-1087. IF SPLICE PLATE IS PRESENT, NO INSPECTION IS REQUIRED FOR FASTENERS NO. 79 AND 80

2163099 S0000473957_V1

Wing Upper Surface Skin at BBL 70.85
Figure 4 (Sheet 6 of 6)

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PART 6 - EDDY CURRENT

WING REAR SPAR LOWER CHORD - RSS 157 TO RSS 353 (LFEC)

1. Purpose

- A. To detect cracks in wing rear spar lower chord skin flange from RSS 157 to RSS 353 using low frequency eddy current.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: W-17

2. Equipment

NOTE: Refer to Part 1, 51-01-00, for data about the equipment manufacturers.

- A. Instrument - Any eddy current instrument that will satisfy the performance requirements of this procedure is suitable for this inspection. The following instrument was used for development of this procedure.
 - (1) MIZ-10A; Zetec Inc.
- B. Probe - This procedure uses one probe. Any probe of similar size that will satisfy the performance requirements of this procedure is acceptable. The following probe was used in development of this procedure.
 - (1) Low frequency encircling probe with 0.65-inch (1.6 cm) inside diameter; usable at 100 Hz; P/N SPO 1154; Nortec, Inc.

NOTE: Refer to Part 1, 51-06-00, for a general description of low frequency probe configuration.

- C. Reference Standards - Use reference standard A305. See Figure 1.

3. Prepare for the Inspection

- A. Remove engine, engine nacelle, flap tracks and any related hardware that obstructs the inspection areas.
- B. Remove 3 inch wide strip of paint from lower skin under rear spar from RSS 157 to RSS 353.

NOTE: Paint removal will reveal fastener heads. It is not necessary to remove the primer.

4. Instrument Calibration

- A. Connect probe and set instrument frequency to 100 Hz.
- B. Visually center probe over unnotched reference standard hole, Position 1, Figure 2.
- C. Balance instrument per manufacturer's instructions.
- D. Adjust liftoff control per manufacturer's instructions to obtain same response when probe is on bare standard as when probe is lifted off part by 0.006 inch (approximately the thickness of two sheets of paper).

NOTE: Probe is visually centered over unnotched hole during liftoff calibration. Once probe is calibrated for liftoff, centering is usually accomplished by manipulating probe to obtain a minimum meter response.

- E. Replace probe centered over unnotched hole and adjust meter response to read 20% of full scale with meter position control.
- F. Center probe over notched reference standard hole, Position 2. Response should be upscale.

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- G. Adjust instrument sensitivity to obtain a total instrument reading of 80%, or 60% of full scale meter response difference between notched and unnotched holes.
- H. Recheck balance and liftoff. If readjustments are made, recheck sensitivity per Paragraph 4.G.

5. Inspection Procedure

- A. Inspect per Figure 3.

NOTE: Because of baseline difference, it is recommended that each fastener code (A, B, and C) be inspected separately.

- B. Perform inspection per Part 6, 51-00-00, Procedure 9.

NOTE: It is suggested that a copy of Figure 3 be made and used to record instrument responses at each fastener location. This is helpful in maintaining continuity between groups of fasteners during inspection.

6. Inspection Results

- A. Indications 30% above baseline are potential crack indications where further investigation is required.
- B. Refer to Part 6, 51-00-00, Procedure 9, for additional information on interpreting the results.

ALL

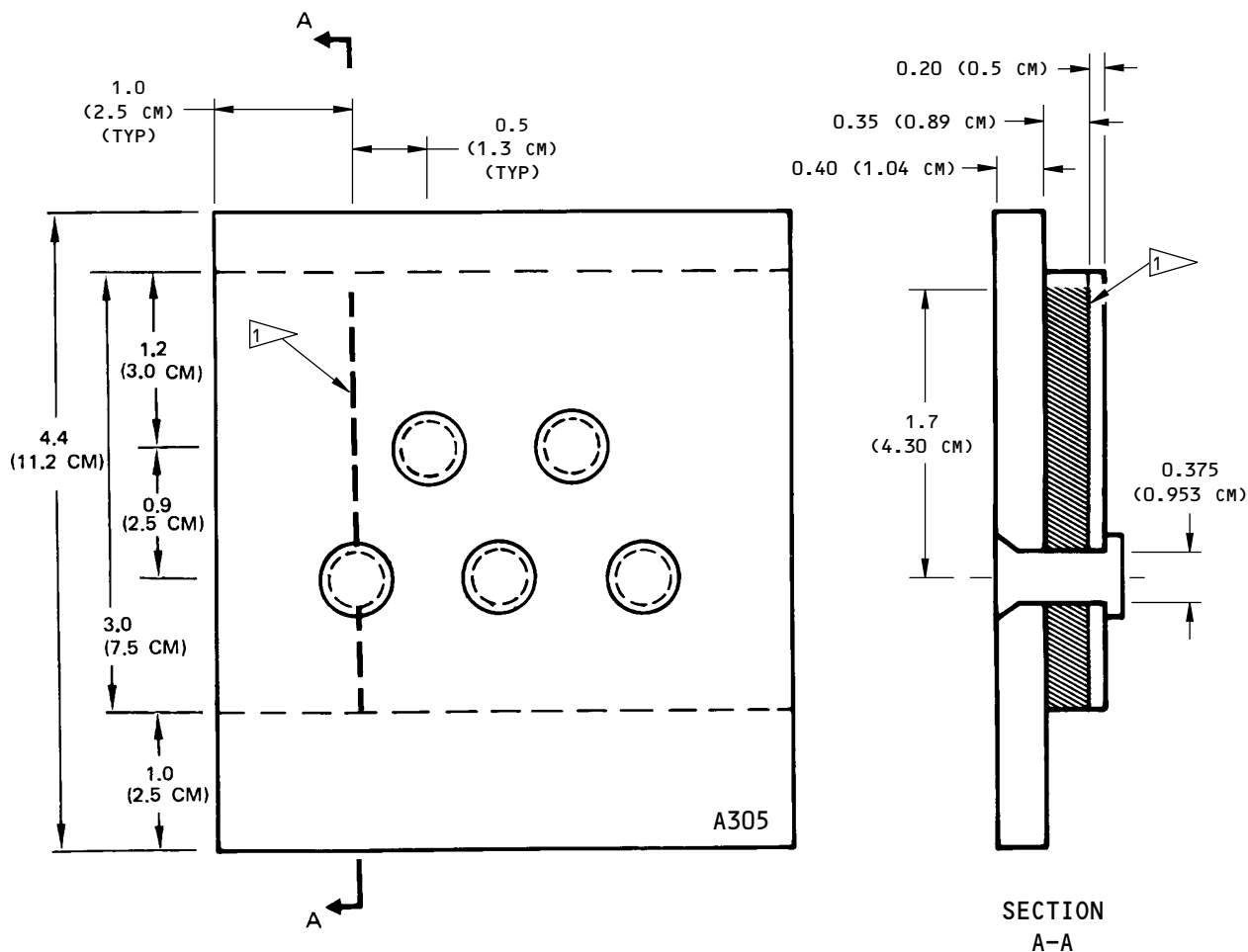
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NOTES

- ALL DIMENSIONS ARE IN INCHES (CENTIMETERS IN PARENTHESES)
- TOLERANCES: $X.X \pm 0.05$ (0.13 CM), $X.XX \pm 0.02$ (0.05 CM), $X.XXX \pm 0.005$ (0.013 CM)
- MATERIAL: 2024-T3 OR -T4 ALUMINUM
- FASTENERS: BACR15BA12B-20 RIVETS (5 LOCATIONS). THESE RIVETS MUST HAVE A CONVERSION COATED (ALODINED) FINISH. TO MAKE SURE THE FINISH IS ALODINE, REFER TO PART 1, 51-06-01. INSTALL THE RIVETS AS SPECIFIED IN PART 1, 51-01-04.
- ETCH OR STEEL STAMP WITH A305. PUT A LETTER "A" IN FRONT OF THE REFERENCE STANDARD NUMBER TO SHOW THAT IT HAS ALODINED RIVETS.

NOTE: REFERENCE STANDARD A305 ALSO USED BY PART 6, 57-10-18

1 JEWELER'S SAWCUT 0.030 (0.080 CM) MAXIMUM WIDTH

2163100 S0000473959_V1

Reference Standard A305
Figure 1

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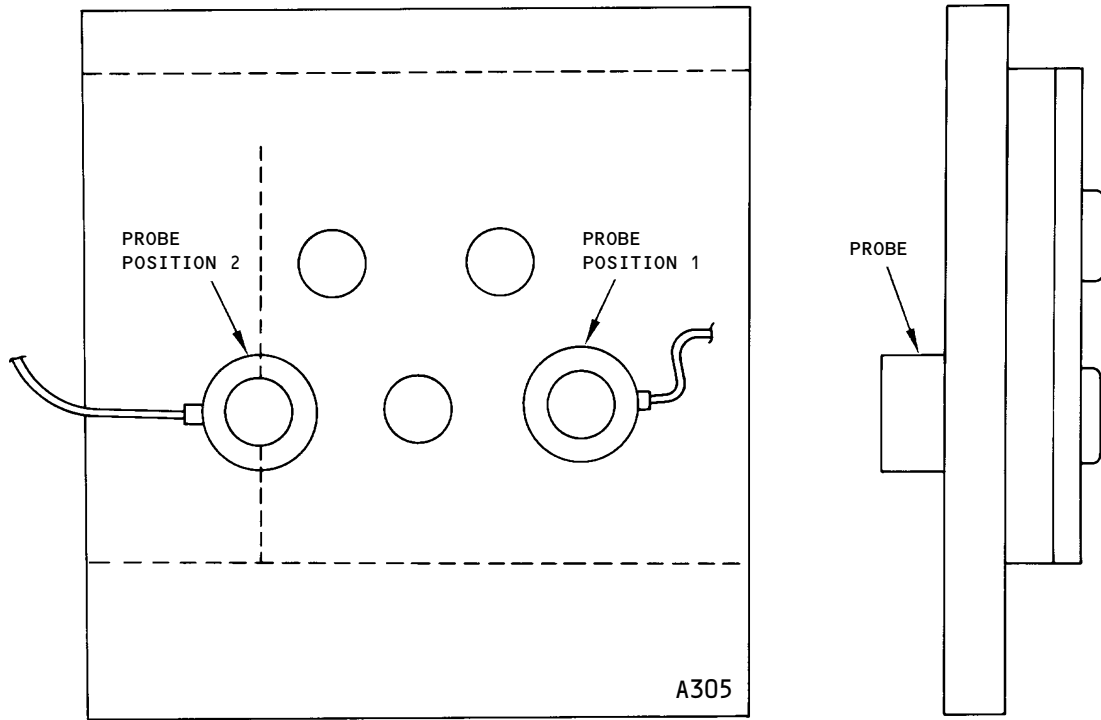
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Probe Calibration Positions on Reference Standard A305
Figure 2

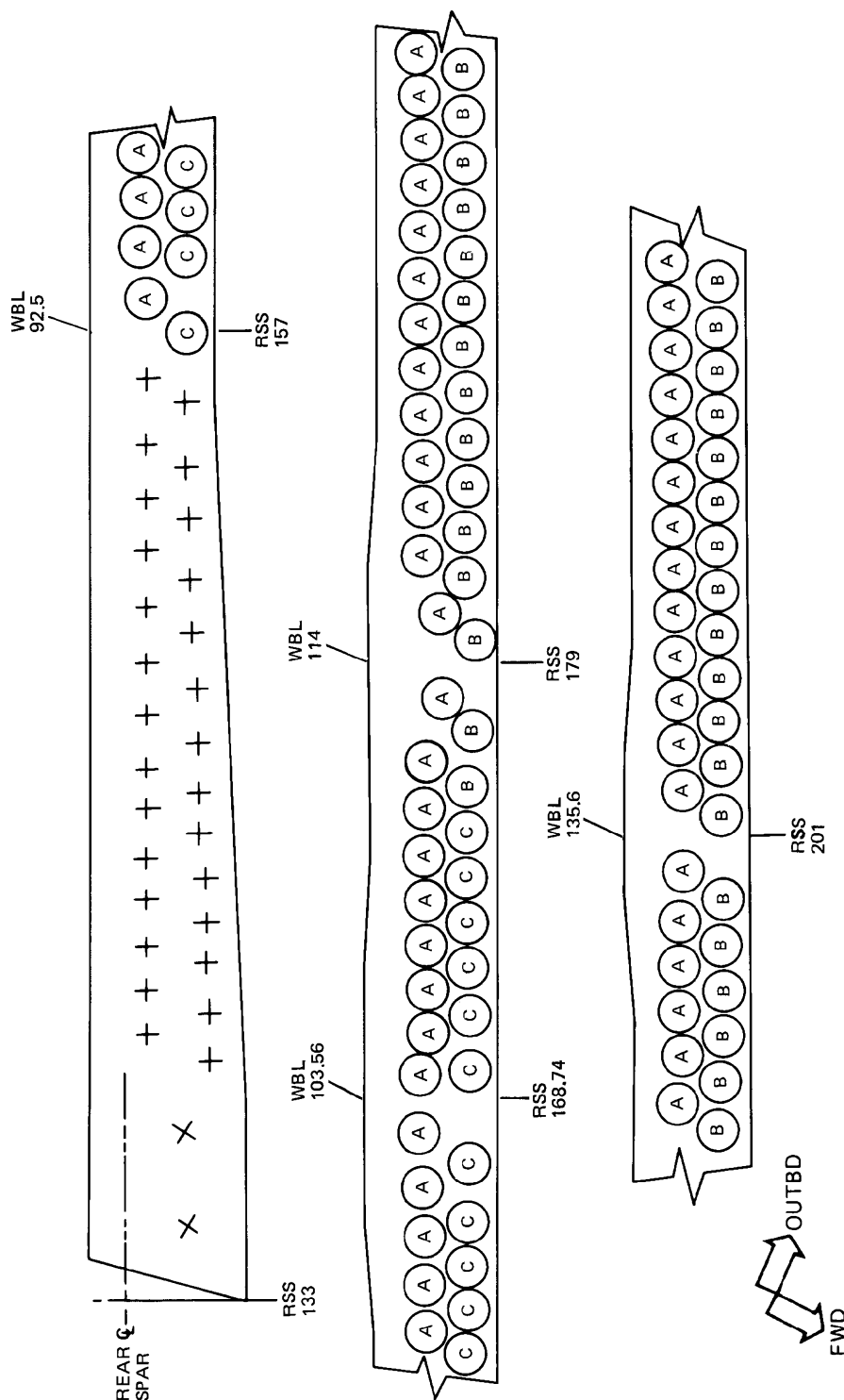
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- NOTES
- VIEW LOOKING UP
 - RIGHT WING SHOWN, LEFT WING SIMILAR

2163104 S0000473961_V1

Rear Spar Lower Chord Horizontal Flange
Figure 3 (Sheet 1 of 3)

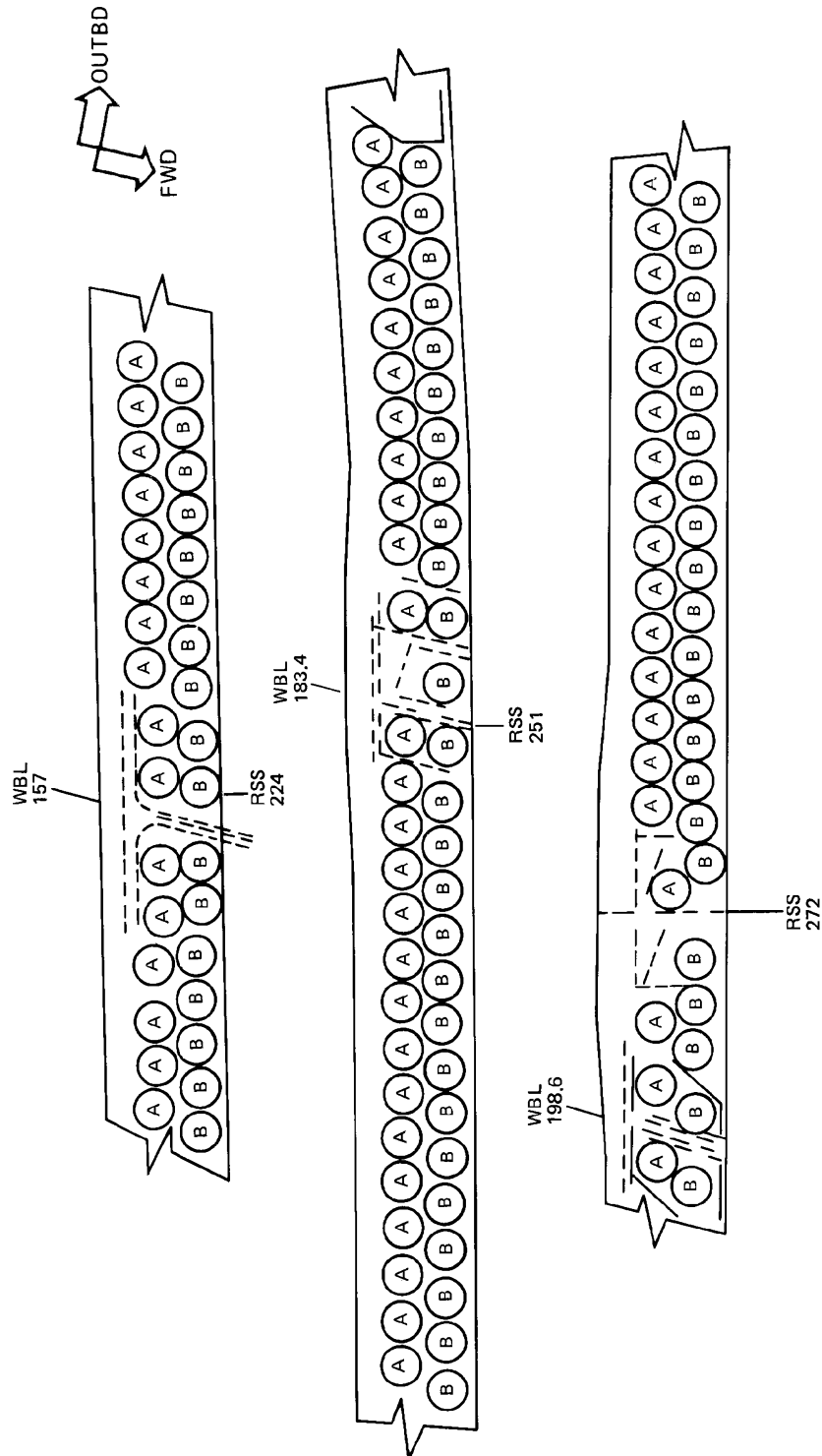
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- NOTES
- VIEW LOOKING UP
 - RIGHT WING SHOWN, LEFT WING SIMILAR

2163116 S0000473962_V1

Rear Spar Lower Chord Horizontal Flange
Figure 3 (Sheet 2 of 3)

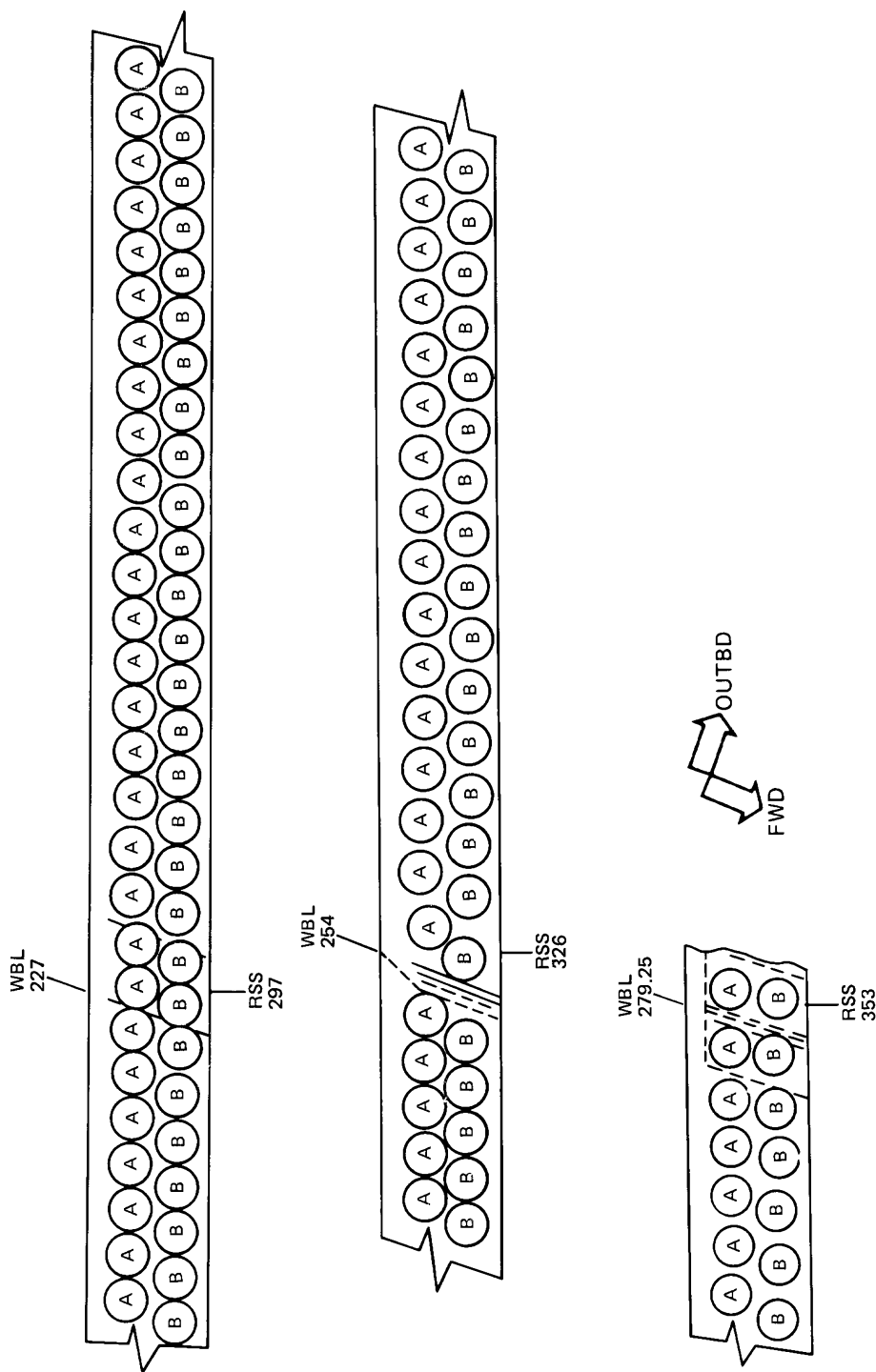
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NOTES

- VIEW LOOKING UP
- RIGHT WING SHOWN, LEFT WING SIMILAR

2163118 S0000473963_V1

Rear Spar Lower Chord Horizontal Flange
Figure 3 (Sheet 3 of 3)

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PART 6 - EDDY CURRENT

WING LOWER SURFACE BBL 70.85 SPLICE - INBOARD AND OUTBOARD

1. Purpose

- A. To detect cracks which propagate from fastener holes in the splice plate assembly at the lower BBL 70.85 side-of-body splice, inboard and outboard sides.
- B. 737 Supplemental Structural Inspection Document (D6-37089) Reference:
 - (1) Item: W-10

2. Equipment

- A. Any eddy current instrument and probe combination that satisfies the performance requirements of this procedure is suitable for this inspection. The following equipment was used to develop this procedure.
 - (1) Instrument -- MIZ-10B; Zetec Inc., Issaquah, WA
 - (2) Probe -- RR0115-3; NDT Product Engineering (Olympus). Low frequency driver-pickup encircling probe with 0.68 inch ID, 1.5 inch OD, useable at 100 Hz and capable of penetrating 0.43 inch of aluminum, to detect a 1.5 inch hole-to-hole crack in a 0.50-0.75 inch thick second layer.
 - (3) Reference Standard -- Manufacture reference standard per Figure 1.

3. Prepare for the Inspection

- A. Remove wing-to-body fairing and fairing attach angle where it interferes with inspection.
- B. Remove sealant, as required, to permit placing probe, around fastener head, flat on inspection surface.
- C. Remove two external steel nuts at stringer 2 (inboard) per Figure 3.

4. Instrument Calibration

- A. Calibrate for inspection of outboard side of splice.
 - (1) Select reference standard for outboard side inspection per Figure 1.
 - (2) Connect probe to instrument.
 - (3) Set instrument frequency to 100 Hz.
 - (4) Place probe on the unnotched area of reference standard (Position 3, Figure 2).
 - (5) Balance instrument per manufacturer's instructions.
 - (6) Adjust liftoff control per manufacturer's instructions to obtain the same response when probe is on bare standard as when probe is lifted off the part by 0.006 inch (approximately the thickness of two sheets of paper). The probe should be located at Position 3 (see Figure 2) during liftoff calibration.
 - (7) Keep the probe at Position 3 and use the meter position control to adjust meter response to read 20 percent of full scale.
 - (8) Position probe over notched portion of the reference standard (Position 2, Figure 2). Meter response should be upscale.
 - (9) Adjust meter sensitivity to obtain a 50 percent of full meter scale response difference between the notched and unnotched locations (Positions 2 and 3).
 - (10) Reposition probe at Position 3 and recheck balance and liftoff. If readjustments are made, recheck sensitivity per Paragraph 4.A.(8) and Paragraph 4.A.(9).



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- B. Calibrate for inspection of inboard side of splice.
 - (1) Select reference standard for inboard side inspection per Figure 1.
 - (2) Repeat Paragraph 4.A.(2) thru Paragraph 4.A.(10).

5. Inspection Procedure

- A. Inspect outboard side of splice.
 - (1) Calibrate instrument per Paragraph 4.A.
 - (2) Identify inspection locations per Figure 3.
 - (3) Establish airplane baseline response.
 - (a) Establish a baseline response for an acceptable crack free area by comparing several inspection locations.
 - (b) Select a representative location from this group and set its response to 20 percent of full meter scale.

NOTE: Do not change instrument sensitivity when establishing the aircraft baseline response.
 - (c) Refer back to this location periodically to ensure that instrument response is the same as originally recorded. Changes in meter response may occur as a result of instrument drift or probe temperature change.
 - (4) Inspect each location specified in Figure 3 and note the meter readings obtained.

NOTE: It is suggested that a copy of Figure 3 be made and used to record instrument responses at each location. This is helpful in maintaining continuity during the inspection.
 - (a) For all fasteners adjacent to edge of skin at stringers 5 and 9, recalibrate instrument per Paragraph 4.A.(1) thru Paragraph 4.A.(10) using Position 4 for balance, and Position 1 (notch location) for gain settings.

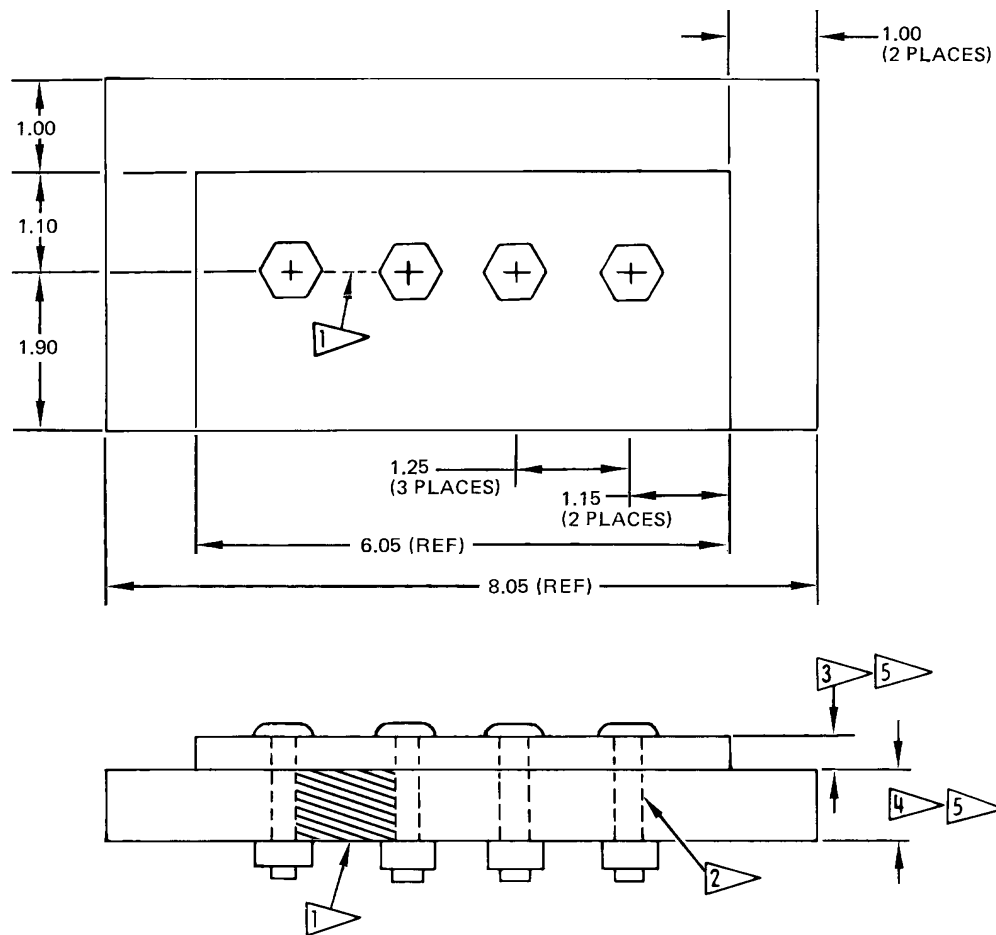
NOTE: Some repositioning of meter setting may be necessary due to edge margins less than or greater than that on the reference standard. Use the same fastener on the opposite wing to verify instrument readings.
 - (b) On airplanes with external splice plates at stringers 5 and 9, it will be necessary to perform an alternate X-ray inspection, as detailed in Part 2, 57-10-04, at these locations. The following variable configurations have external splice plates at stringers 5 and 9:
 - 1) PJ007-PJ029, PJ114-PJ119, PK288-PK290, PK356-PK360, PK502-PK510, PK556-PK560, PK564-PK580, PK607-PK610, PK614-PK620, PK628-PK640, PK625-PK690, PK801-PK820, PK831-PK840, PK862, PK880, PK971-PK991, PL023-PL060, PL401-PL699, PL745, PM051-PM080, PM091-PM180, PM201-PM250, PX751-PX760, PY134-PY140, PY153-PY155, PY241-PY270, PY441-PY450, PY461-PY480, PY591-PY599, PY891-PY899, PZ501-PZ650.
- B. Inspect inboard side of splice
 - (1) Calibrate instrument per Paragraph 4.B.
 - (2) Repeat Paragraph 5.A.(2) thru Paragraph 5.A.(4) using appropriate inspection locations.

6. Inspection Results

- A. Any location where the signal exceeds 20 percent of full scale above the established baseline response is a potential crack location and requires further investigation.

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NON-DESTRUCTIVE TEST MANUAL



NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCE: $X.XX \pm 0.010$
 $X.XXX \pm 0.005$
- MATERIAL: 2024-T3, -T4 ALUMINUM
- TITANIUM OR STAINLESS STEEL FASTENERS MAY BE USED. IF THESE FASTENERS ARE NOT AVAILABLE, THE PARTS MAY BE CLAMPED TOGETHER WITH AN ALUMINUM, STAINLESS STEEL, OR NON-METALLIC CLAMP
- ETCH OR STEEL STAMP WITH 354X OR 355X PER TABLE I

- 1 0.030 MAX WIDTH SAW CUT
- 2 7/16 (0.44) INCH DIAMETER HOLE - 4 PLACES
- 3 TOP LAYER THICKNESS - SEE TABLE I
- 4 BOTTOM LAYER THICKNESS - SEE TABLE I
- 5 MULTIPLE LAYERS MAY BE USED TO ACCOMPLISH TOTAL REQUIRED THICKNESS

2163119 S0000473966_V1

Reference Standard

Figure 1 (Sheet 1 of 2)

EFFECTIVITY
ALL; 737-100, -200 AND -200C AIRPLANES

PART 6 57-30-04

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	AIRPLANE EFFECTIVITY	THICKNESS		EFFECTIVE LOCATION	REFERENCE STANDARD NO.
		3 > 5	4 > 5		
O U T B O A R D	P0001-P0899, P2501-P3499, P7001-P7299, P8501-P8799	0.325	0.500	S-1 THRU S-11	354A
	P0901-P2499, P3501-P6999	0.400	0.600	S-1, S-7, S-10, S-11	354B
	P7301-P8499, P8801-P9995	0.322	0.700	S-2 THRU S-6, S-8, S-9	354C
I N B O A R D	P0001-P0006	0.332	0.600	S-1 THRU S-11	355A
	P0007-P0025, P2501-P2600, P2602-P2606	0.300	0.600	S-1 THRU S-11	355B
	P0026-P2499, P2601, P2607-P9995	0.316	0.750	S-1 THRU S-11	355C

PART THICKNESSES
TABLE I

2163122 S0000473967_V1

Reference Standard
Figure 1 (Sheet 2 of 2)

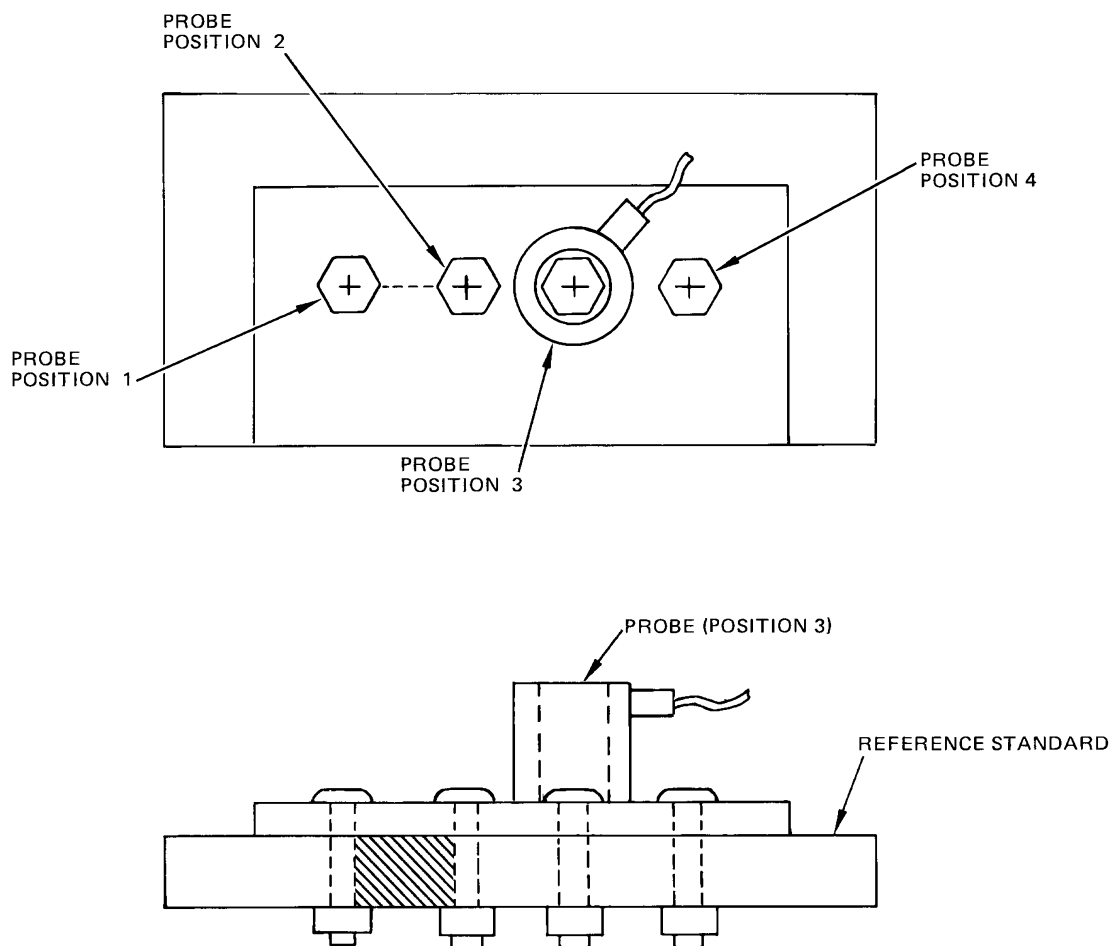
EFFECTIVITY
ALL; 737-100, -200 AND -200C AIRPLANES

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2163123 S0000473968_V1

**Calibration Positions
Figure 2**

EFFECTIVITY
ALL; 737-100, -200 AND -200C AIRPLANES

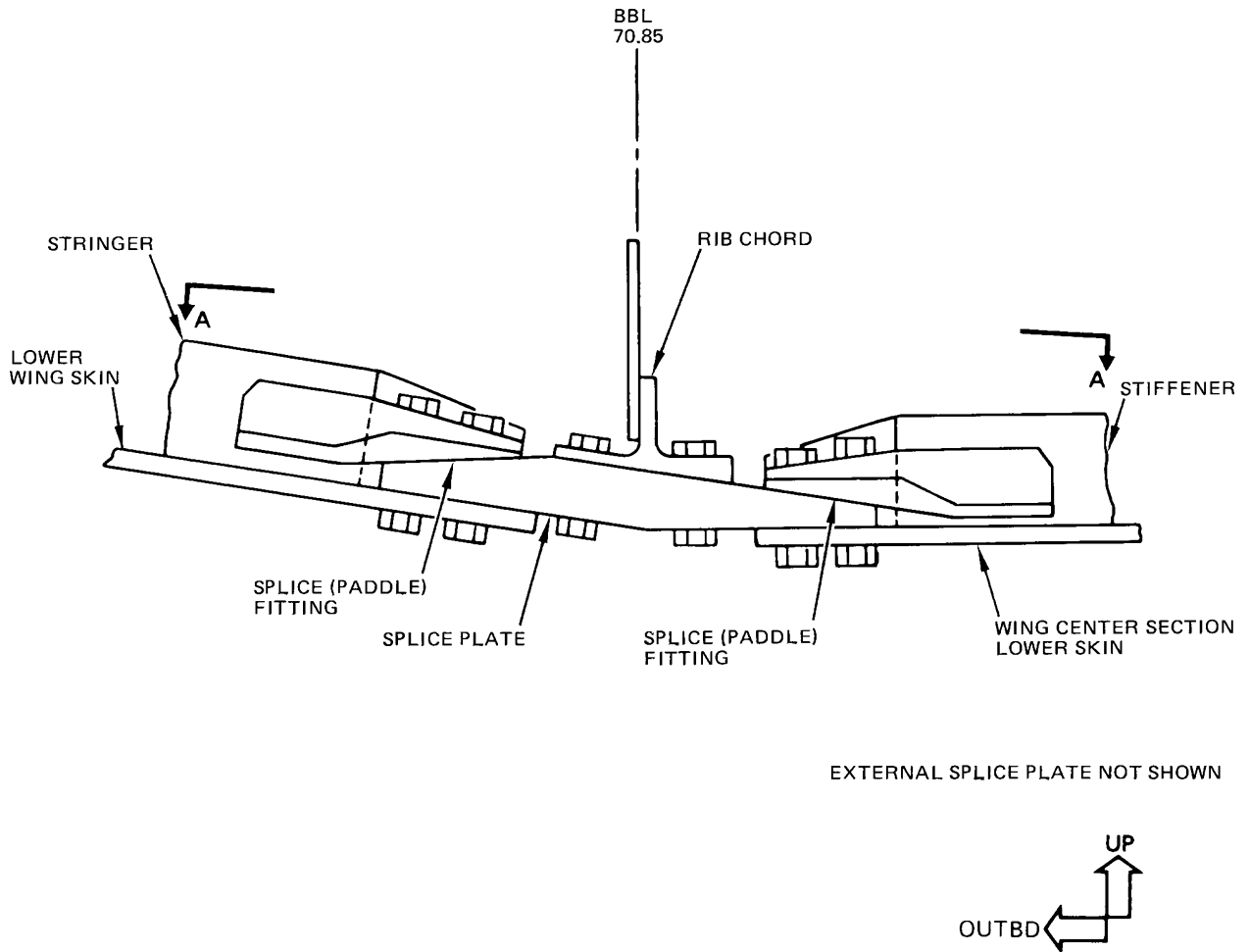
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NON-DESTRUCTIVE TEST MANUAL



2163124 S0000473969_V1

Wing Lower Surface BBL 70.85 Splice
Figure 3 (Sheet 1 of 3)

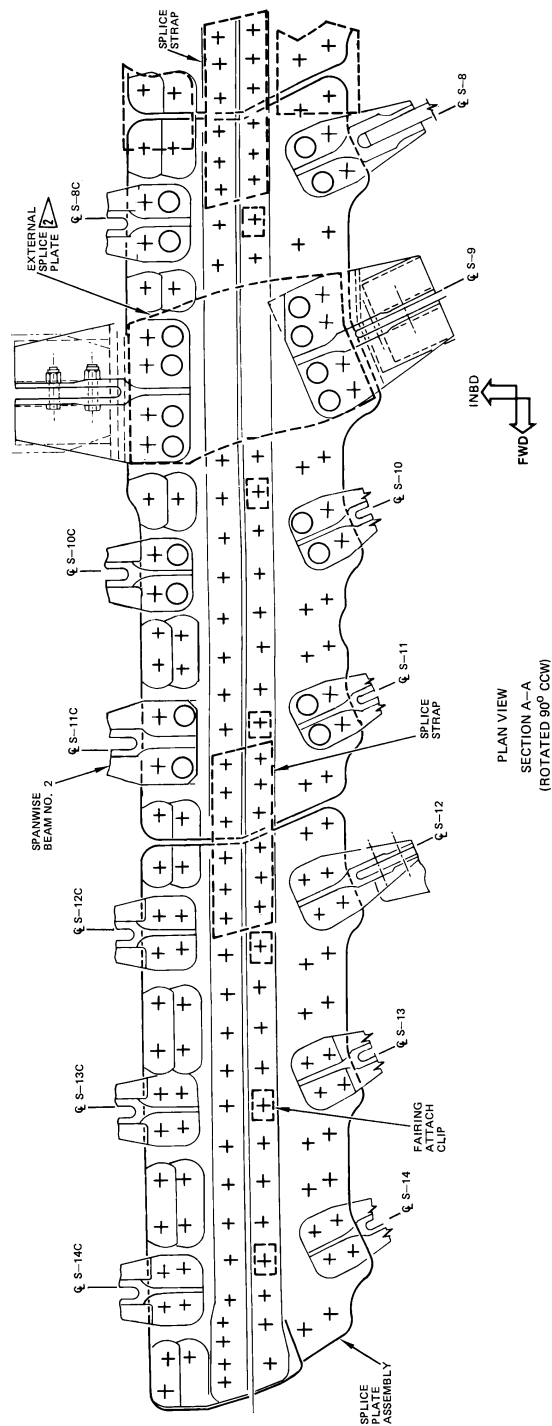
EFFECTIVITY
ALL; 737-100, -200 AND -200C AIRPLANES

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Wing Lower Surface BBL 70.85 Splice
Figure 3 (Sheet 2 of 3)

2163126 S0000473970_V1

EFFECTIVITY
ALL; 737-100, -200 AND -200C AIRPLANES

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PART 6 - EDDY CURRENT

WING LOWER SKIN INSPECTION AT THE INTERSECTION OF STRINGER 10 AND THE NACELLE FITTINGS AT WBL 183.4 AND 198.6

1. Purpose

- A. Use this surface eddy current inspection to find cracks in the lower skin of the wing at the intersection of stringer 10 and the nacelle support fittings at WBL 183.4 and 198.6.
- B. This procedure examines the skin from the forward and/or aft side of the stringer-to-skin fastener holes to 0.10 inches (2.5 mm) out from the edge of stringer 10's lower flange. See Figure 1 for the inspection area and typical cracks.
- C. This inspection is done on the upper surface of the lower skin from inside the wing fuel tank.
- D. This procedure uses a right angle pencil probe with an impedance plane display or a meter display instrument.
- E. 737 Supplemental Structural Inspection Document (D6-82669) Reference:
 - (1) Item: W-21

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 or a meter display.
 - (b) Operates from 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 2200, Phasec 2 (impedance plane display); Hocking Krautkramer
 - (b) Nortec 19e, 1000, 2000 (impedance plane display); Staveley Instruments
 - (c) Elotest B1 (impedance plane display); Rohman GmbH
 - (d) MIZ 10B (meter display); Zetec, Inc.
 - (e) Locator (meter display); Hocking
- C. Probes
 - (1) Use a shielded, right angle, 0.125 inch (3.17 mm) diameter pencil probe with a shaft length of 7 inches (178 mm) and a drop length of 0.030 inch (0.5 mm). Refer to Part 6, 51-00-00, Procedure 23, par. 3.C, for data about the probe selection.
 - (2) A probe with a flexible shaft is recommended.
 - (3) The probe that follows was used to help prepare this procedure.
 - (a) MTF9003-95FX; NDT Engineering Corp.
- D. Reference Standard



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- (1) Use reference standard 126 or an equivalent. Reference standard 126 is identified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.

3. Prepare for the Inspection

- A. Identify all the inspection areas. See Figure 1.

WARNING: IT IS NECESSARY TO GO INTO THE FUEL TANK TO DO THIS INSPECTION. FUEL TANKS MUST BE DRAINED AND PURGED TO A HEALTH SAFE CONDITION AS SPECIFIED IN CHAPTER 28 OF THE AIRCRAFT MAINTENANCE MANUAL BEFORE YOU GO INTO THEM WITH AN EDDY CURRENT INSTRUMENT. THE EDDY CURRENT INSTRUMENT MUST BE BATTERY OPERATED. DANGEROUS FUMES AND THE POSSIBILITY OF AN EXPLOSION EXIST IN THE FUEL TANKS.

- B. Get access into the wing fuel tank through access panels 7204L/7404R and 7205L/7405R.
- C. Remove the inspar rib access panel 7224L/7424R attached to the WBL 183.4 rib installation.
- D. Clean the inspection area.

CAUTION: USE AN APPROVED SCRAPER THAT WILL NOT DAMAGE THE STRUCTURE TO REMOVE SEALANT OR LOOSE MATERIAL.

- (1) Remove sealant from the inspection area.
 - (a) Remove the sealant that is along the edge of the lower flange of the stringer. Make sure the inspection surface is free of sealant.
- (2) Remove paint only if it is loose.

4. Instrument Calibration

- A. Calibrate a meter display instrument as specified in Part 6, 51-00-00, Procedure 4. Calibrate an impedance plane display instrument as specified in Part 6, 51-00-00, Procedure 23.

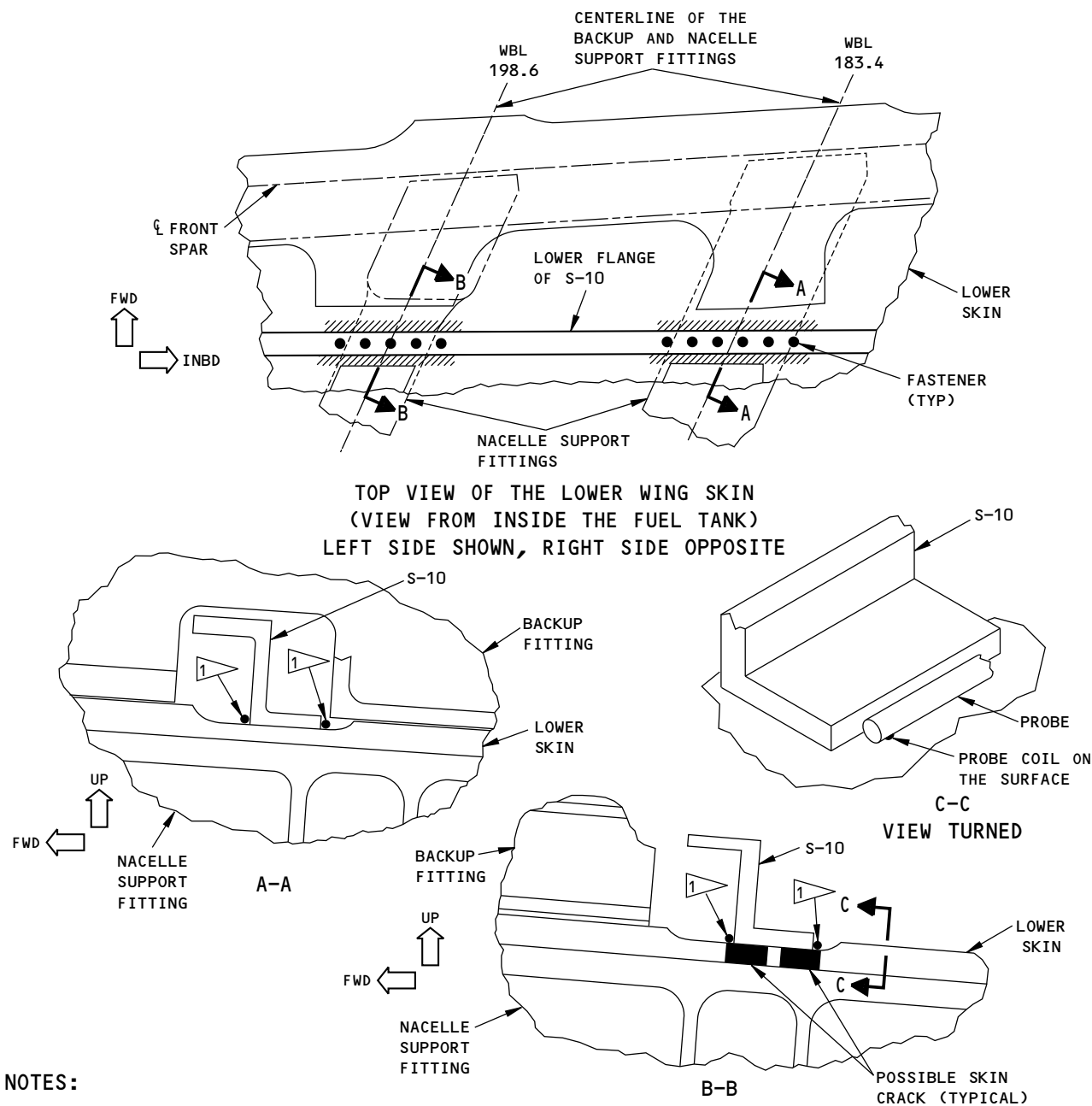
5. Inspection Procedure

- A. Calibrate the instrument as specified in Paragraph 4.
- B. Examine the inspection areas identified in Figure 1, on the left and right sides of the airplane, for cracks in the lower skin of the wing. Keep the side of the probe against the edge of the stringer's lower flange and the probe coil on the skin surface at all times during the scan.
 - (1) For instruments with a meter display, refer to Part 6, 51-00-00, Procedure 4, paragraph 6 for the inspection procedure.
 - (2) For instruments with an impedance plane display, refer to Part 6, 51-00-00, Procedure 23, paragraph 6 for the inspection procedure.

6. Inspection Results

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

737 NON-DESTRUCTIVE TEST MANUAL



NOTES:



INSPECTION AREA. THE LENGTH OF THE INSPECTION AREA IS AS FOLLOWS:
4 INCHES (102 MM) ON EACH SIDE OF THE CENTERLINE OF THE BACKUP AND NACELLE SUPPORT FITTINGS AT WBL 183.4.
3 INCHES (76 MM) ON EACH SIDE OF THE CENTERLINE OF THE BACKUP AND NACELLE SUPPORT FITTINGS AT WBL 198.6.



MAKE SURE THE PROBE IS AGAINST THE EDGE OF THE STRINGER'S LOWER FLANGE AND THE PROBE COIL IS ON THE INSPECTION SURFACE OF THE WING SKIN DURING THE SCAN INSPECTION. USE THE LOWER FLANGE OF THE STRINGER AS A PROBE GUIDE DURING THE SCAN.

2163129 S0000473973_V1

**Inspection Areas
Figure 1**

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

PART 6 57-30-05

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PART 6 - EDDY CURRENT

LOWER WING SKIN PANEL AT THE AFT NACELLE SUPPORT AT WBL 191.00

1. Purpose

- A. Use this procedure to do a surface eddy current inspection to find cracks in the wing skin from inside the wing tank. The inspection areas are at Stringers 6 and 8. See Figure 1 for the inspection areas.
- B. This procedure uses an instrument with an impedance plane display or a meter display.
NOTE: It is necessary to go into the wing tank to do this procedure. See the Warning in Paragraph 3.
- C. 737 Supplemental Structural Inspection Document (D6-82669) Reference:
 - (1) Item: W-25F

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 and Probes
 - (1) Refer to Part 6, 51-00-00, Procedure 4, if a meter display instrument is used, and Part 6, 51-00-00, Procedure 23, if an impedance plane display instrument is used.
- C. Reference Standard
 - (1) Use Reference Standard 126. Refer to Part 6, 51-00-00, Procedure 23, for reference standard data.

3. Prepare for the Inspection

WARNING: IT IS NECESSARY TO GO INTO THE FUEL TANK TO DO THIS INSPECTION. FUEL TANKS MUST BE DRAINED AND PURGED TO A HEALTH SAFE CONDITION AS SPECIFIED IN CHAPTER 28 OF THE AIRCRAFT MAINTENANCE MANUAL BEFORE YOU GO INTO THEM WITH AN EDDY CURRENT INSTRUMENT. THE EDDY CURRENT INSTRUMENT MUST BE BATTERY OPERATED. DANGEROUS FUMES AND THE POSSIBILITY OF AN EXPLOSION EXIST IN THE FUEL TANKS.

NOTE: You must get approval from your local airline/airport fire department before you operate the eddy current equipment in a fuel tank with the conditions stated above.

- A. Identify the inspection areas. See Figure 1.
- B. Clean the inspection area and remove sealant as necessary. See Detail A in Figure 1 for the maximum sealant bead. Remove paint only if it is loose.

4. Instrument Calibration

- A. Calibrate the instrument as specified in Part 6, 51-00-00, Procedure 4 (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. Calibrate the instrument as specified in Paragraph 4.



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NON-DESTRUCTIVE TEST MANUAL

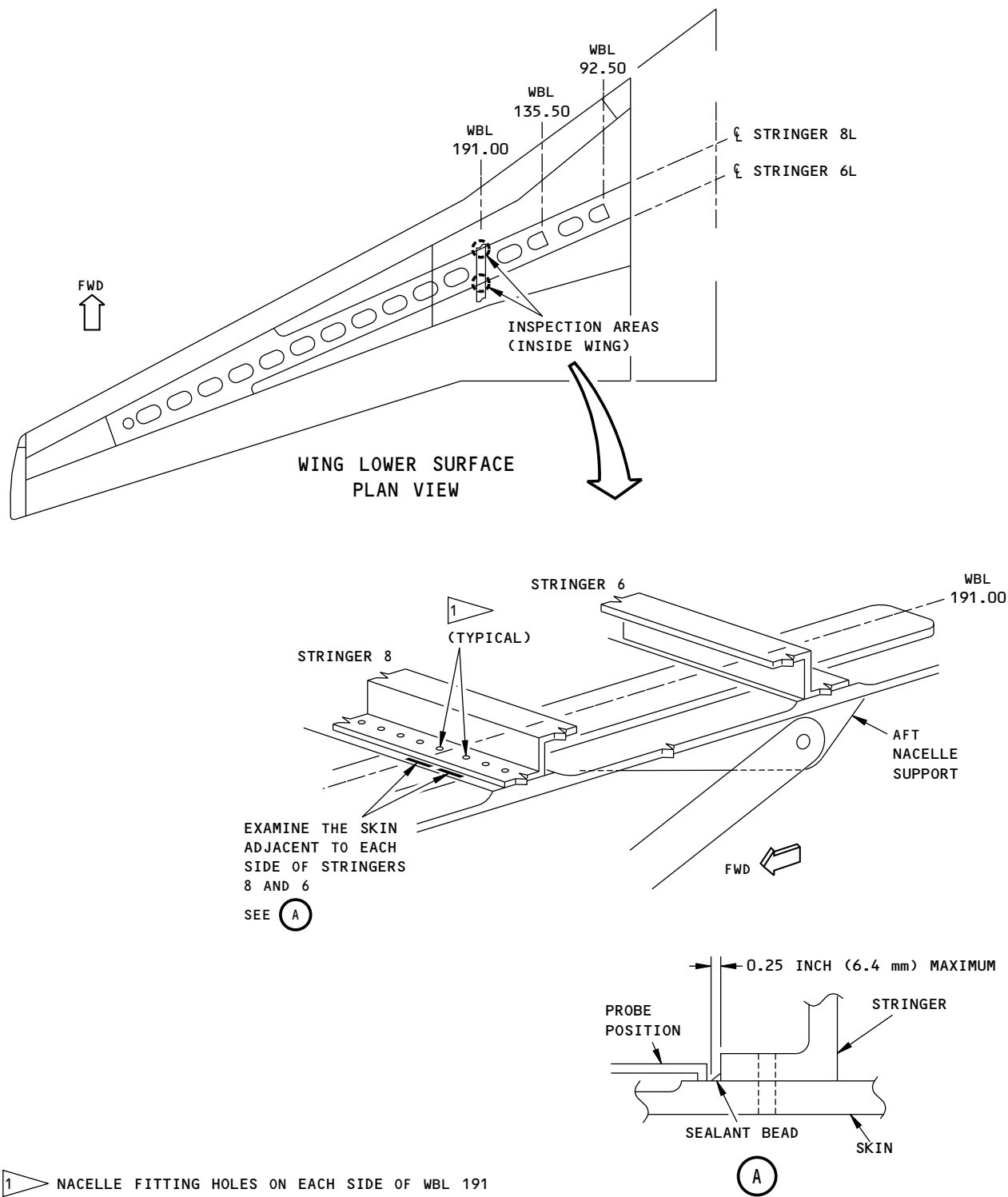
- B. Make a scan along the edges of Stringers 6 and 8 for a distance of 1.0 inch (25 mm) from the nacelle fitting holes on each side of WBL 191 to examine the wing skin for cracks. Do this for each wing. See Figure 1 for the inspection areas.
- (1) For instruments with a meter display, refer to Part 6, 51-00-00, Procedure 4, par. 6, for the inspection procedure. Refer to par. 6.D.(5) to examine near the edges. Do the scan as near to the sealant bead as possible.
 - (2) For instruments with an impedance plane display, refer to Part 6, 51-00-00, Procedure 23, par. 6, for the inspection procedure. Refer to par. 6.E.(3)(e) to examine near the edges. Do the scan as near to the sealant bead as possible.

6. Inspection Results

- A. Refer to Part 6, 51-00-00, Procedure 4, or Part 6, 51-00-00, Procedure 23, as applicable, to help make an analysis of the inspection results.



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2163130 S0000473976_V1

Inspection Areas
Figure 1

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

PART 6 57-30-06

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PART 6 - EDDY CURRENT

SURFACE INSPECTION OF WING SPLICE STRINGERS 5 AND 9

1. Purpose

- A. Use this procedure to examine the radii of splice stringer 5 of the lower wing skin between WBL 150.0 and WBL 261.0. This procedure is also used to examine the radii of splice stringer 9 of the lower wing skin between WBL 170.0 and 194.0. For all areas but the stub beam fitting area of stringer 5, the forward and aft radii of splice stringers 5 and 9 are examined for cracks as shown in Figure 1 (see Section View A-A). In the area of the stub beam fitting at WBL 191 on stringer 5, only the forward radius is examined as shown in Figure 1, Section Views B-B and C-C.
- B. This procedure uses an impedance plane display instrument or a meter display instrument to find surface cracks in the radius of splice stringers 5 and 9. The possible cracks are in a transverse direction that intersects the radius. The scan is done in an inboard to outboard direction to find these types of cracks. See Figure 1 for crack and scan data. Refer to Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, for more surface inspection data.
- C. 737 Supplemental Structural Inspection Document (D6-82669) Reference:
 - (1) Item: W-27B
 - (2) Item: W-27C
 - (3) Item: W-27D

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 or a meter display.
 - (b) Operates at a frequency between 50 kHz and 200 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Phasec 1.1; Hocking Krautkramer
 - (b) NDT 19; Staveley Instruments
 - (c) Locator UHB; Hocking Inc.
- C. Probes
 - (1) It is necessary to use one angled probe or one straight probe to do this procedure. The probe must:
 - (a) Operate at a frequency between 50 kHz and 200 kHz.
 - (b) Have a maximum external diameter of 0.13 inch (3.3 mm).
 - (c) Be shielded.
 - (d) Operate as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23.
 - (2) The probes that follow were used to help prepare this procedure.



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- (a) MTF905-50B/50k-300k; NDT Engineering
- (b) PAB90C505, 50-500k; EC-NDT
- (c) MTF-60FX 50-300kHz; NDT Engineering

D. Reference Standards

- (1) Use reference standard 126 to do a calibration for this inspection. Refer to Figure 4 in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23 to make this reference standard.

3. Prepare for the Inspection

WARNING: ALL OF THE CONDITIONS THAT FOLLOW MUST BE DONE BEFORE YOU CAN GO INTO A FUEL TANK WITH AN EDDY CURRENT INSTRUMENT:

- 1. ALL REMAINING FUEL MUST BE REMOVED FROM THE TANK TO BE EXAMINED.
- 2. AN AIR PURGE SYSTEM AS SPECIFIED IN CHAPTER 28 OF THE AIRPLANE MAINTENANCE MANUAL (AMM) MUST BE USED TO REMOVE FUEL FUMES FROM THE TANK. THE AIR PURGE SYSTEM MUST REMAIN ON DURING THE INSPECTION. PRECAUTIONS MUST BE DONE TO MAKE SURE FUEL FUMES DO NOT TRAVEL FROM ADJACENT FUEL TANKS THROUGH THE VENT SYSTEM AND INTO THE TANK TO BE EXAMINED. PLUG THE VENTS OR KEEP A POSITIVE PRESSURE IN THE TANK TO BE EXAMINED TO KEEP FUEL FUMES OUT OF THE TANK.
- 3. FUEL FUME LEVELS IN THE TANK MUST BE DECREASED TO A VAPOR CONCENTRATION OF 160 PARTS PER MILLION OR LESS (OR LESS THAN 2.6 PERCENT OF THE LOWER EXPLOSIVE LIMIT (LEL)). THESE VALUES AGREE WITH THE HEALTH-SAFE CONDITION VALUES IDENTIFIED IN CHAPTER 28 OF THE AMM.
- 4. THE EDDY CURRENT INSTRUMENT MUST BE ENERGIZED BY BATTERIES.
- 5. YOU MUST GET APPROVAL TO OPERATE AN EDDY CURRENT INSTRUMENT IN A FUEL TANK THAT IS PREPARED AS SPECIFIED IN STEPS 1 THRU 4 FROM THE LOCAL AIRLINE (OR AIRPORT) SAFETY OFFICER OR FIRE DEPARTMENT.

- A. Defuel the wing fuel tanks on the left and right sides of the airplane.
- B. Remove the access panels from the lower wing skins at WBL 170 and WBL 217 (left and right sides of the airplane). See Figure 1.
- C. Go up through the access panel of the lower wing skin at WBL 170 to get access to the rib web panel at WBL 183. See Figure 1.
- D. Remove the access panel on the rib at WBL 183 that is shown in Section View B-B in Figure 1.
- E. Go through the access panel of the rib at WBL 183 to get access to the stringer 5 and 9 inspection areas that are between the ribs at WBL 183 and WBL 198. See Figure 1.
- F. Make sure the inspection area is clean in the radius on the forward side of stringer 5 at the stub beam fitting. Make sure the forward and aft sides of the stringer radii are clean on the remaining inspection areas that are shown in Figure 1.

4. Instrument Calibration

- A. Calibrate the instrument as specified in Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, to examine the stringer radii that are shown in the Figure 1 inspection areas. Do the calibration on reference standard 126.



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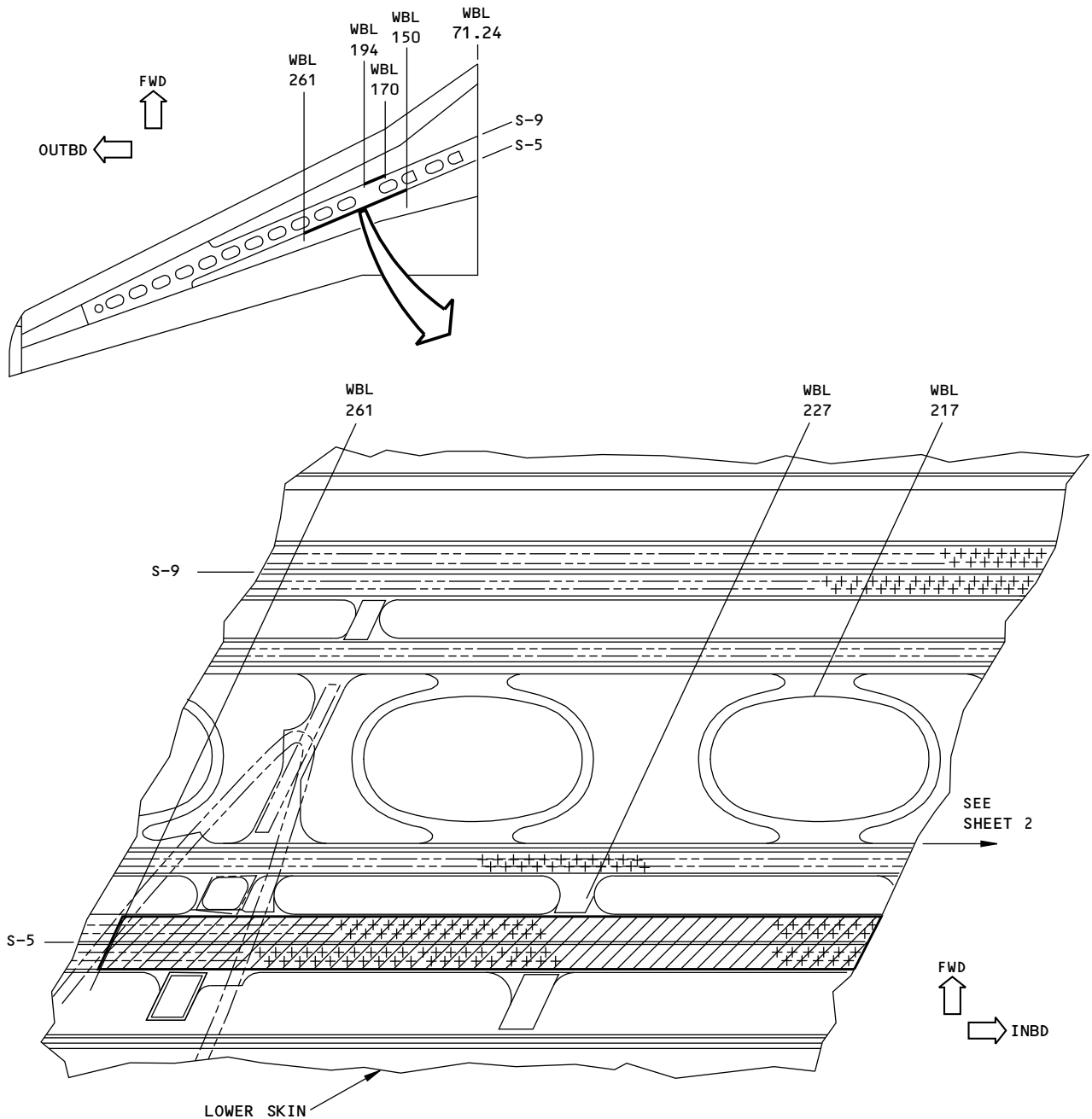
5. Inspection Procedure

- A. Examine stringers 5 and 9 for cracks as follows:
 - (1) Do parallel scans (in an inboard to outboard direction) in the radii of stringers 5 and 9. These inspection areas are shown in Figure 1. Refer to Figure 11 in Part 6, 51-00-00, Procedure 4, or Figure 13 in Part 6, 51-00-00, Procedure 23, for the instructions that tell how to do a parallel scan in a radius.
 - (2) Do the scans on the forward and aft sides of stringers 5 and 9 for all inspection areas but that of the stub beam fitting area on stringer 5.
 - (3) At the stub beam fitting on stringer 5, only the forward side of the stringer can be examined.
 - (4) See Figure 1 for the inspection areas.
- B. Do the same inspection on the other wing.

6. Inspection Results

- A. Refer to Part 6, 51-00-00, Procedure 4 or Part 6, 51-00-00, Procedure 23, par. 7 to make an analysis of possible crack signals.

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2163131 S0000473978_V1

Inspection Areas
Figure 1 (Sheet 1 of 3)

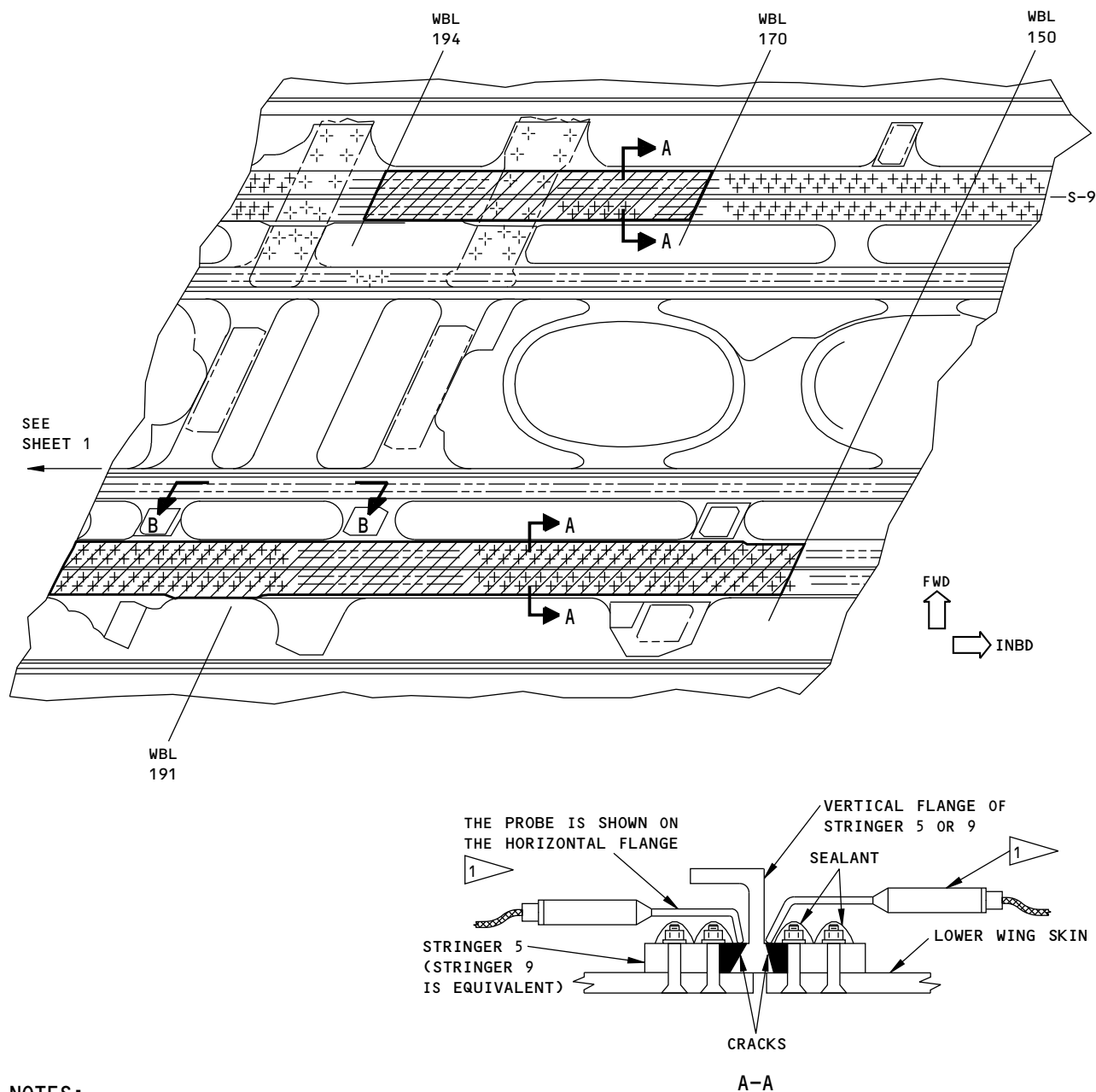
EFFECTIVITY
ALL; 737-300, -400 AND -500 AIRPLANES

PART 6 57-30-07

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NOTES:

 INSPECTION AREAS

 DO A SCAN, IN AN INBOARD-OUTBOARD DIRECTION, OF THE HORIZONTAL FLANGES OF STRINGERS 5 AND 9.

2163132 S0000473979_V1

Inspection Areas
Figure 1 (Sheet 2 of 3)

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

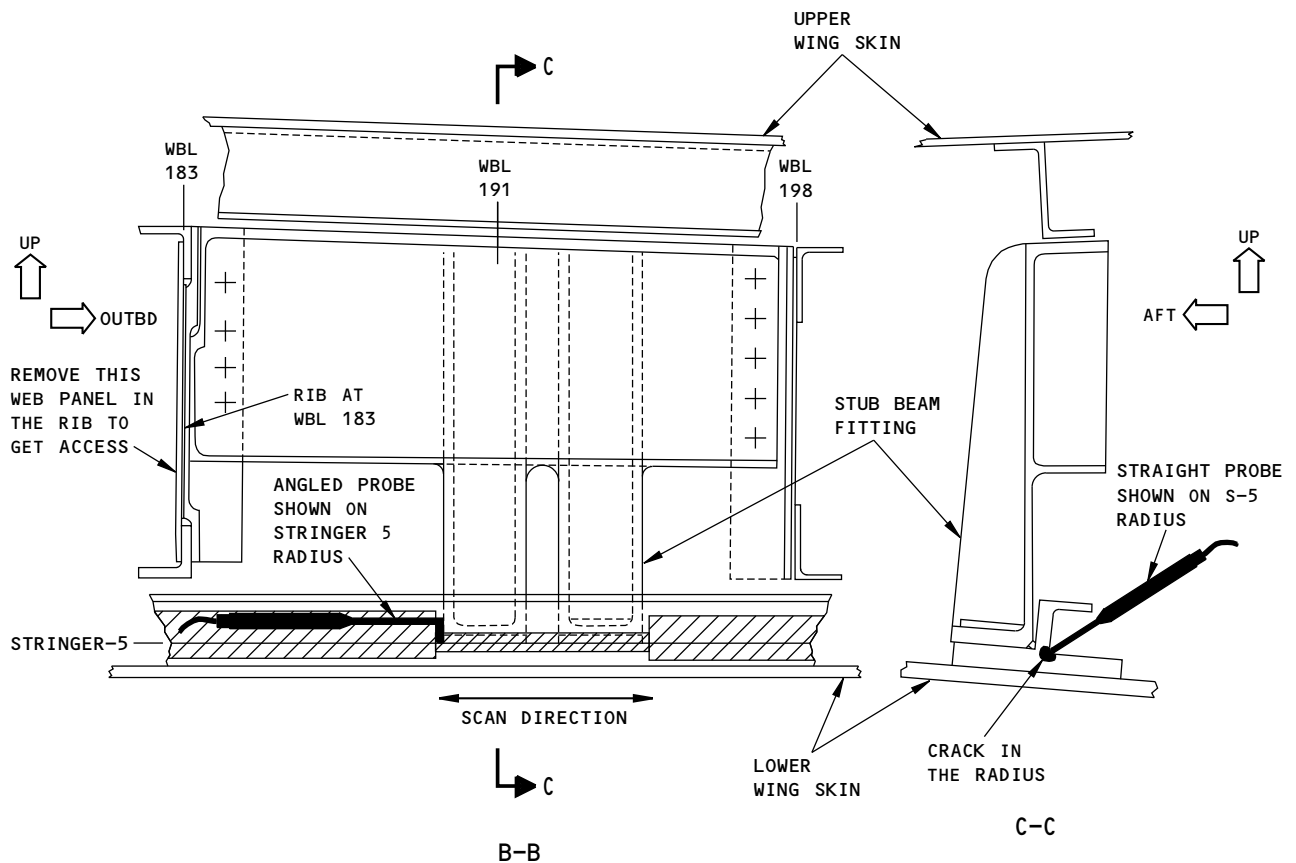
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NOTES:

 INSPECTION AREAS

- REMOVE THE ACCESS PANEL OF THE RIB AT WBL 183 THAT IS SHOWN ABOVE.
- THE INSPECTION AREA IS ONLY ON THE FORWARD SIDE OF STRINGER 5 WHERE THE SMALL CROSS HATCHED AREA IS SHOWN AT THE STUB BEAM FITTING. THE INSPECTION AREAS ARE ON THE FORWARD AND AFT SIDES OF STRINGER 5 WHERE THE LARGER CROSS HATCHED AREAS ARE SHOWN ABOVE.

2163133 S0000473983_V1

Inspection Areas
Figure 1 (Sheet 3 of 3)

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

PART 6 57-30-07

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PART 6 - EDDY CURRENT

NACELLE SUPPORT FITTING ATTACHMENTS (HFEC)

1. Purpose

- A. Use this high frequency eddy current (HFEC) procedure to examine the lower skin for cracks at the R-2 and R-4 nacelle support fitting attachments. See Figure 1 for the inspection areas.
- B. This procedure uses an impedance plane display instrument.
- C. The lower skin is aluminum.
- D. 737 Maintenance Planning Data (MPD) Damage Tolerance Rating (DTR) Check Form Reference:
 - (1) Item: 57-20-09

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/3D; GE Inspection Technologies
 - (b) Nortec 500/2000D; Staveley/Olympus
- C. Probes
 - (1) Use a probe that operates from 50 to 500 kHz.
 - (2) The probes that follow were used to help prepare this procedure.

NOTE: Shielded probes are recommended.

 - (a) MTF905-60FX 50-500 kHz; NDT Engineering/Olympus
 - (b) MTF-30/50-300 kHz; NDT Engineering/Olympus
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, as shown in Part 6, 51-00-00, Procedure 23, to help calibrate the instrument.

3. Prepare for the Inspection

- A. Identify and get access to all of the inspection areas shown in Figure 1.
- B. Remove the nacelle fairing.
- C. Clean the inspection surfaces.
 - (1) Remove paint only if it is loose.



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4. Instrument Calibration

A. Calibrate the instrument to examine the lower skin at the R-2 and R-4 nacelle support fittings 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

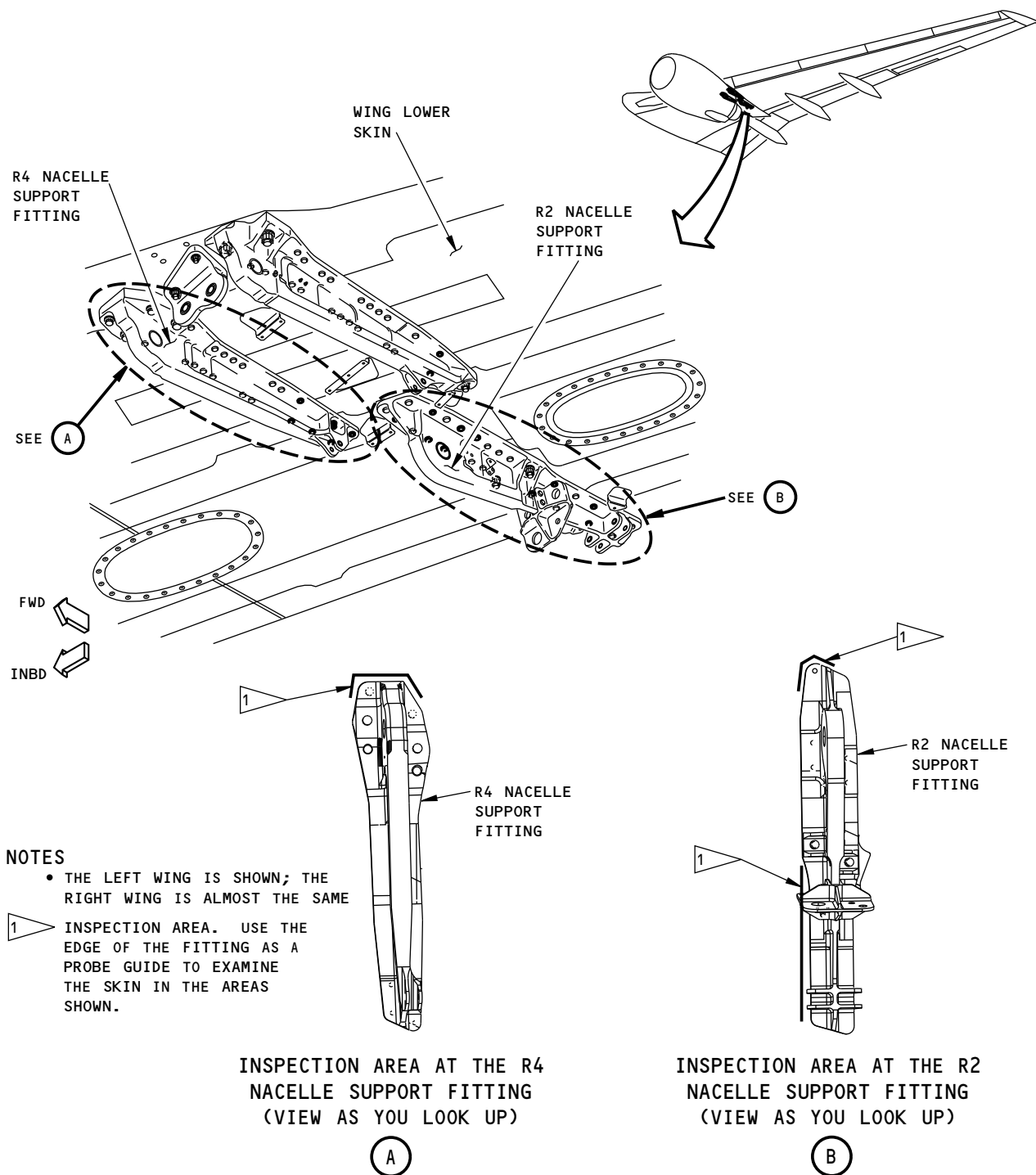
A. Examine the lower skin for cracks at the R-2 and R-4 nacelle support fittings as specified in Part 6, 51-00-00, Procedure 23, paragraph 6. Examine the areas that follow:

- (1) Examine the lower skin at the R-2 nacelle support fitting around the forward side of the inboard corner.
 - (a) Use the R-2 nacelle support fitting as a probe guide while you make a scan of the lower skin.
- (2) Examine the lower skin at the R-2 nacelle support fitting along the aft side of the inboard edge.
 - (a) Use the R-2 nacelle support fitting as a probe guide while you make a scan of the lower skin.
- (3) Examine the lower skin at the R-4 nacelle support fitting along the forward edge.
 - (a) Use the R-4 nacelle support fitting as a probe guide while you make a scan of the lower skin.

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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2163136 S0000474579_V2

**Inspection Area
Figure 1**

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

PART 6 57-30-08

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PART 6 - EDDY CURRENT

WING LOWER SKIN INSPECTION IN THE AREAS FORWARD OF THE ATTACH FITTINGS FOR THE FLAP TRACKS AND BETWEEN THE FAIRING RUB STRIPS AT FLAP TRACKS 1, 2, 7 AND 8 (HFEC)

1. Purpose

- A. Use this high frequency eddy current (HFEC) procedure to examine the lower skin of the wing for cracks. The lower skin is examined in areas that are below the flap track fairings and forward of, and between, the attach fittings at flap tracks 1 and 8 (WS 432.5, left and right) and flap tracks 2 and 7 (WS 326.0, left and right). See Figure 1 for the inspection areas.
- B. This procedure uses an impedance plane display instrument.
- C. The lower skin is aluminum.
- D. 737 Maintenance Planning Data (MPD) Damage Tolerance Rating (DTR) Check Form Reference:
 - (1) Item: 57-20-12

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/3D; GE Inspection Technologies
 - (b) Nortec 500/2000D; Staveley/Olympus
- C. Probes
 - (1) Use a probe that operates from 50 to 500 kHz.
 - (2) The probe that follows was used to help prepare this procedure.

NOTE: A shielded blade probe is recommended in areas with low clearance. It will not be necessary to remove the flap track to do this inspection if a shielded blade probe with a satisfactory thickness is used.

 - (a) TBLFC.030-6; AEROFAB NDT (Blade Probe)
- D. Reference Standards
 - (1) Use reference standard 126, or an equivalent, as shown in Part 6, 51-00-00, Procedure 23, to help calibrate the instrument.

3. Prepare for the Inspection

- A. Remove the flap track fairings for flap tracks 1, 2, 7 and 8.
- B. Identify and get access to all of the inspection areas shown in Figure 1.

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- C. Identify the clearance between the lower skin and the flap track at the outboard forward corner of the aft attach fitting as follows:
- (1) Measure the thickness of the blade probe you will use during the inspection.
 - (2) Measure the clearance between the lower skin and the flap track in the area shown by flagnote 4 in Figure 1.
 - (3) If the difference between the probe thickness and the clearance is more than 0.005 inch (0.127 mm), you can use the blade probe to fully examine the inspection area.
 - (4) If the difference between the probe thickness and the clearance is less than or equal to 0.005 inch (0.127 mm), it will be necessary to remove or lower the flap track to fully examine the inspection area. Refer to the applicable maintenance manual for instructions to do this.
- NOTE:** The blade probe, TBLFC.030-6, specified in Paragraph 2.C.(2)(a), is 0.030 inch (0.76 mm) thick. If the measured clearance between the lower skin and the flap track is 0.035 inch (0.89 mm) or more, this probe can be used without removal of the flap track.
- D. Clean the inspection surfaces.
- (1) Remove dirt or grease from the inspection surfaces.
 - (2) Remove paint only if it is loose.

4. Instrument Calibration

- A. Calibrate the instrument to examine the lower skin of the wing at flap tracks 1, 2, 7 and 8 as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
- (1) Use reference standard 126, or an equivalent, as shown in Part 6, 51-00-00, Procedure 23, to help calibrate the instrument.

5. Inspection Procedure

NOTE: It is not necessary to remove the fairing rub strips that are at the flap tracks to complete this inspection.

- A. Examine the lower skin of the wing for cracks at flap tracks 1 and 8 (WS 432.5, left and right) as specified in Part 6, 51-00-00, Procedure 23, paragraph 6. Examine the areas that follow for cracks that are in the forward and aft direction:
- (1) Examine the lower skin for cracks in the area that is forward of the forward attach fitting and between the edges of the fairing rub strips as follows:
 - (a) Do the scans of the lower skin between the fairing rub strips in the inboard and outboard directions.
 - (b) Make parallel scans in the inboard and outboard directions in increments that are not more than 0.2 inch (5 mm) apart.
 - (c) Examine the lower skin in the areas that are forward and aft of each fastener in the inspection area.
 - (2) Examine the lower skin for cracks in the area that is between the forward attach fitting and the aft attach fitting as follows:



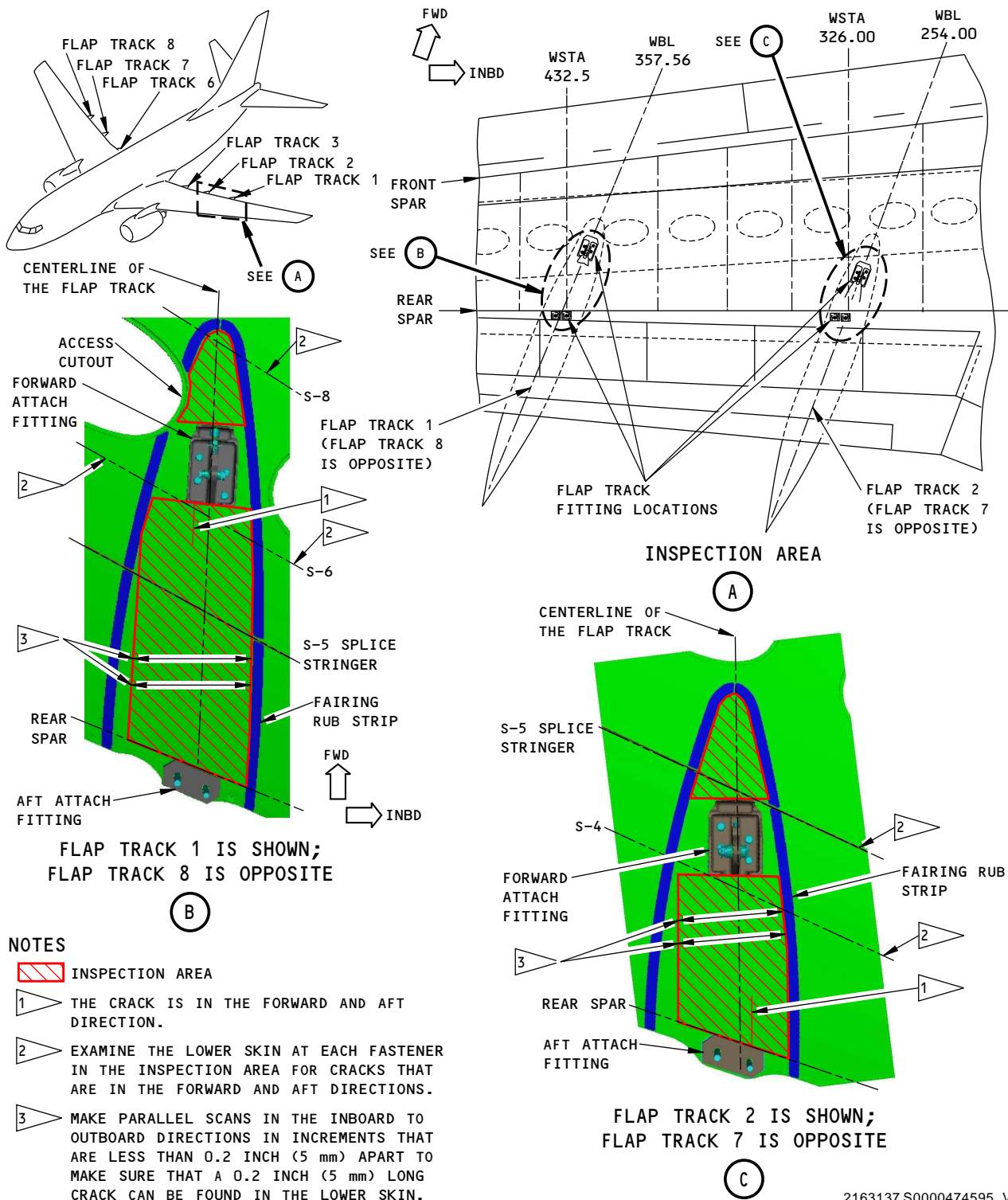
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- (a) Examine the lower skin for 6.0 inches (178 mm) (where possible) on each side of the flap track centerline.
NOTE: It is not necessary to examine the lower skin that is not in the same area as the flap track fairing. In the areas where the fairing rub strip is less than 6.0 inches (178 mm) from the flap track centerline, examine the lower skin only to the edges of the fairing rub strips.
 - (b) Make parallel scans in the inboard and outboard directions in increments that are not more than 0.2 inch (5 mm) apart.
 - (c) Examine the lower skin in the areas that are forward and aft of each fastener in the inspection area.
- B. Examine the lower skin of the wing for cracks at flap tracks 2 and 7 (WS 326.0, left and right) as specified in Part 6, 51-00-00, Procedure 23, paragraph 6. Examine the areas that follow for cracks that are in the forward and aft direction:
- (1) Examine of the lower skin for cracks in the area that is forward of the forward attach fitting and between the edges of the fairing rub strips as follows:
 - (a) Do the scans of the lower skin between the fairing rub strips in the inboard and outboard directions.
 - (b) Make parallel scans in the inboard and outboard directions in increments that are not more than 0.2 inch (5 mm) apart.
 - (c) Examine the lower skin in the areas that are forward and aft of each fastener in the inspection area.
 - (2) Examine the lower skin for cracks in the area that is between the forward attach fitting and the aft attach fitting as follows:
 - (a) Examine the lower skin for 6.0 inches (178 mm) (where possible) on each side of the flap track centerline.
NOTE: It is not necessary to examine the lower skin that is not in the same area as the flap track fairing. In the areas where the fairing rub strip is less than 6.0 inches (178 mm) from the flap track centerline, examine the lower skin only to the edges of the fairing rub strips.
 - (b) Make parallel scans in the inboard and outboard directions in increments that are not more than 0.2 inch (5 mm) apart.
 - (c) Examine the lower skin in the areas that are forward and aft of each fastener in the inspection area.

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)

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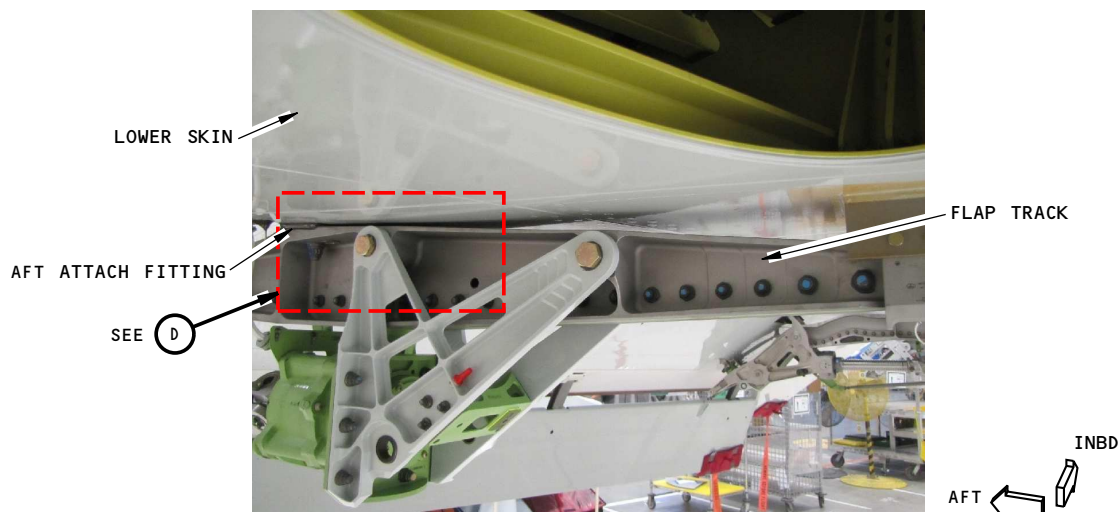
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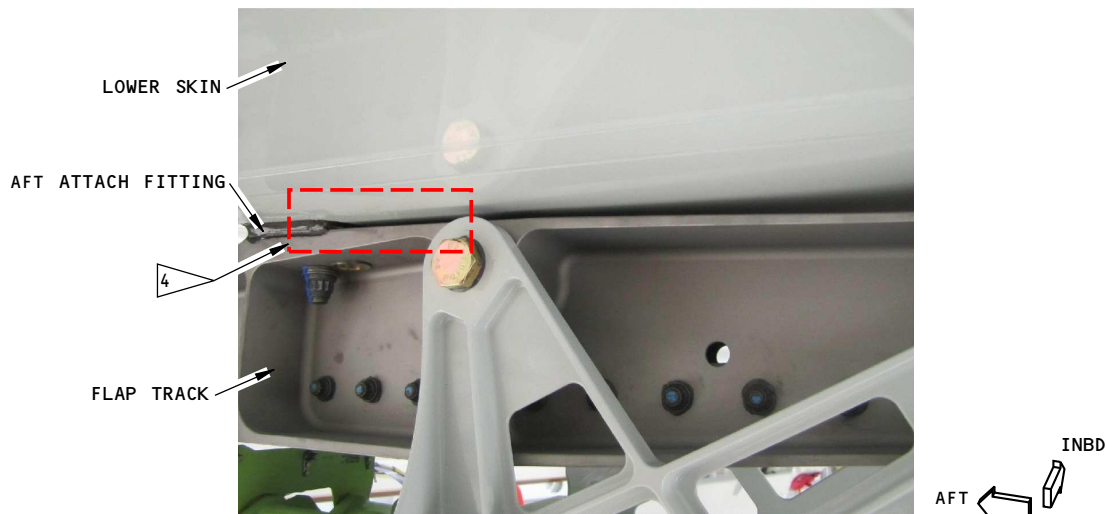
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FLAP TRACK
(VIEW LOOKS INBOARD AND AFT)



FLAP TRACK
(VIEW LOOKS INBOARD AND AFT)

NOTES

- 4 MEASURE THE CLEARANCE BETWEEN THE LOWER SKIN AND THE FLAP TRACK IN THE AREA THAT IS FORWARD OF THE AFT ATTACH FITTING. IF THE CLEARANCE IS MORE THAN 0.005 INCH (0.13 mm) THAN THE THICKNESS OF THE BLADE PROBE, CONTINUE WITH THE INSPECTION. IF THE DIFFERENCE BETWEEN THE PROBE THICKNESS AND THE CLEARANCE IS LESS THAN OR EQUAL TO 0.005 INCH (0.13 mm), REMOVE OR LOWER THE FLAP TRACK AS SPECIFIED IN THE APPLICABLE MAINTENANCE MANUAL.

(D)

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Inspection Area
Figure 1 (Sheet 2 of 2)

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UPPER SKIN AT THE R1 NACELLE SUPPORT FITTING (HFEC)

1. Purpose

- A. Use this procedure to help find surface cracks in the upper skin at the R1 nacelle support fitting. See Figure 1 for the inspection areas.
- B. Use an impedance plane display instrument to do this procedure.
- C. The upper skin is 7075-T7751 aluminum.
- D. 737 Maintenance Planning Document (MPD) Damage Tolerance Rating (DTR) Check Form Reference:
 - (1) Item: 57-20-19

2. Equipment

- A. General
 - (1) All eddy current instruments that have an impedance plane display are permitted for use if they 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 has an impedance plane display and can operate in the frequency range of 50 to 500 kHz.
 - (2) The instruments that follow were used to help prepare this procedure.
 - (a) Nortec 500; Olympus NDT
 - (b) Phasec 3D; GE Inspection Technology
- C. Probes
 - (1) Use a probe that operates from 50 to 500 kHz.
 - (2) The probe that follows was used to help prepare this procedure.
 - (a) MTF-30/50-500 kHz; NDT Engineering/Olympus

NOTE: Shielded probes are recommended.
- D. Reference Standards
 - (1) Use reference standard 126 or 188A, as necessary for the area to be examined, or an equivalent, to help calibrate the instrument. Refer to Part 6, 51-00-00, Procedure 23, paragraph 3, for data about these reference standards.

3. Prepare for the Inspection

- A. Identify the inspection areas shown in Figure 1.
- B. Get access to the inspection area.
- C. Clean the inspection area.

4. Instrument Calibration

- A. Calibrate the instrument as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.



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- (1) Use reference standard 126, or an equivalent, to help calibrate the instrument to examine the skin at the edges of the fairing support fitting.
- (2) Use reference standard 188A, or an equivalent, to help calibrate the instrument to examine the skin in the areas around the fastener locations.

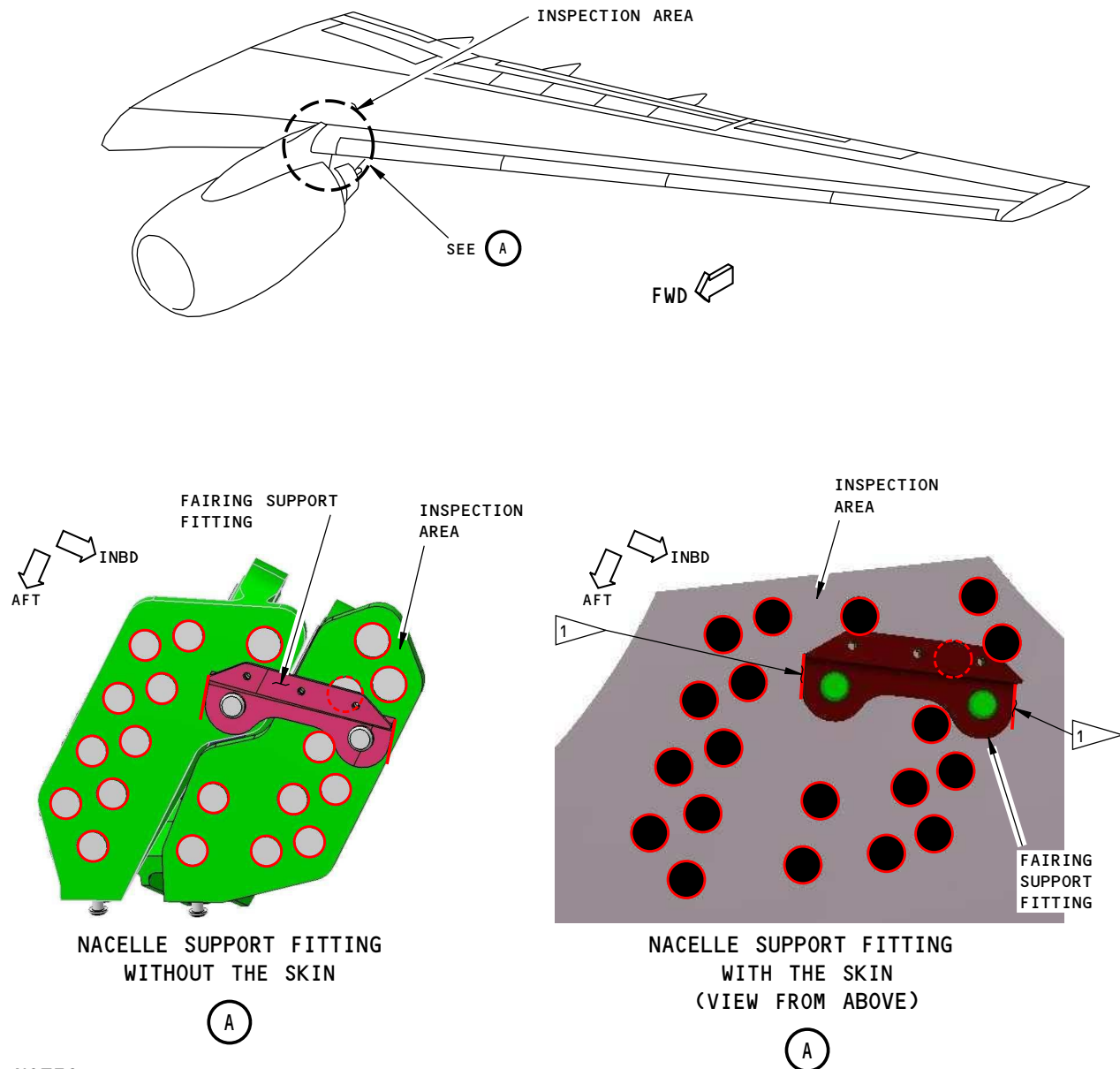
5. Inspection Procedure

- A. Examine the upper skin of the nacelle support fitting for cracks around all of the fasteners shown in Figure 1 as specified in Part 6, 51-00-00, Procedure 23, paragraph 6. Use a nonconductive circle template to help do the inspection around the flush head fasteners.
- B. Examine the upper skin of the nacelle support fitting for cracks at the edges of the fairing support fitting shown in Figure 1 as specified in Part 6, 51-00-00, Procedure 23, paragraph 6.
- C. Do Paragraph 5.A. and Paragraph 5.B. again to examine the upper skin for cracks at the nacelle support fitting on the other 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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NOTES

-  FASTENER LOCATIONS TO BE EXAMINED
-  INSPECTION AREA

- THE LEFT SIDE IS SHOWN;
THE RIGHT SIDE IS ALMOST THE SAME

-  EXAMINE THE SKIN AT THE INBOARD AND OUTBOARD
EDGES OF THE FAIRING SUPPORT FITTING AT THE
TWO LOCATIONS SHOWN.

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**Inspection Area
Figure 1**

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LOWER SKIN PANELS OF THE WING AT THE SUPPORT FITTINGS FOR THE MAIN LANDING GEAR (HFEC)

1. Purpose

- A. Use this procedure to examine the lower skin panels of the wing for cracks at the areas that follow (see Figure 1 for the inspection areas):
 - (1) Examine the lower skin panel for cracks around the 12 fasteners at WSTA 228 and WSTA 253 that attach the lower skin panel to the outboard support fittings on the beam for the main landing gear.
 - (2) Examine the lower skin panel for cracks around the four fasteners that attach the lower skin panel to the support fitting for the forward trunnion of the main landing gear.
- B. This procedure uses an impedance plane display instrument.
- C. 737 Maintenance Planning Document (MPD) Damage Tolerance Rating (DTR) Check Form Reference:
 - (1) Item: 57-20-06/-07-1
 - (2) Item: 57-20-06/-07-2

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 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 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



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- (1) Use reference standard NDT1048, or an equivalent, to help calibrate the instrument. Refer to Part 6, 51-00-00, Procedure 23, for data about reference standard NDT1048.

E. **Special Tools**

- (1) Use a nonconductive circle template as a probe guide.

3. **Prepare for the Inspection**

- A. Remove the fairing to get access to the inspection areas at WSTA 228.
- B. Remove all dirt, loose paint, and sealant from the inspection areas.

4. **Instrument Calibration**

- A. Calibrate the instrument to examine the lower skin panels of the wing around the fasteners as specified in Part 6, 51-00-00, Procedure 23, paragraph 5.
 - (1) Use reference standard NDT1048, or an equivalent, to help calibrate the instrument.

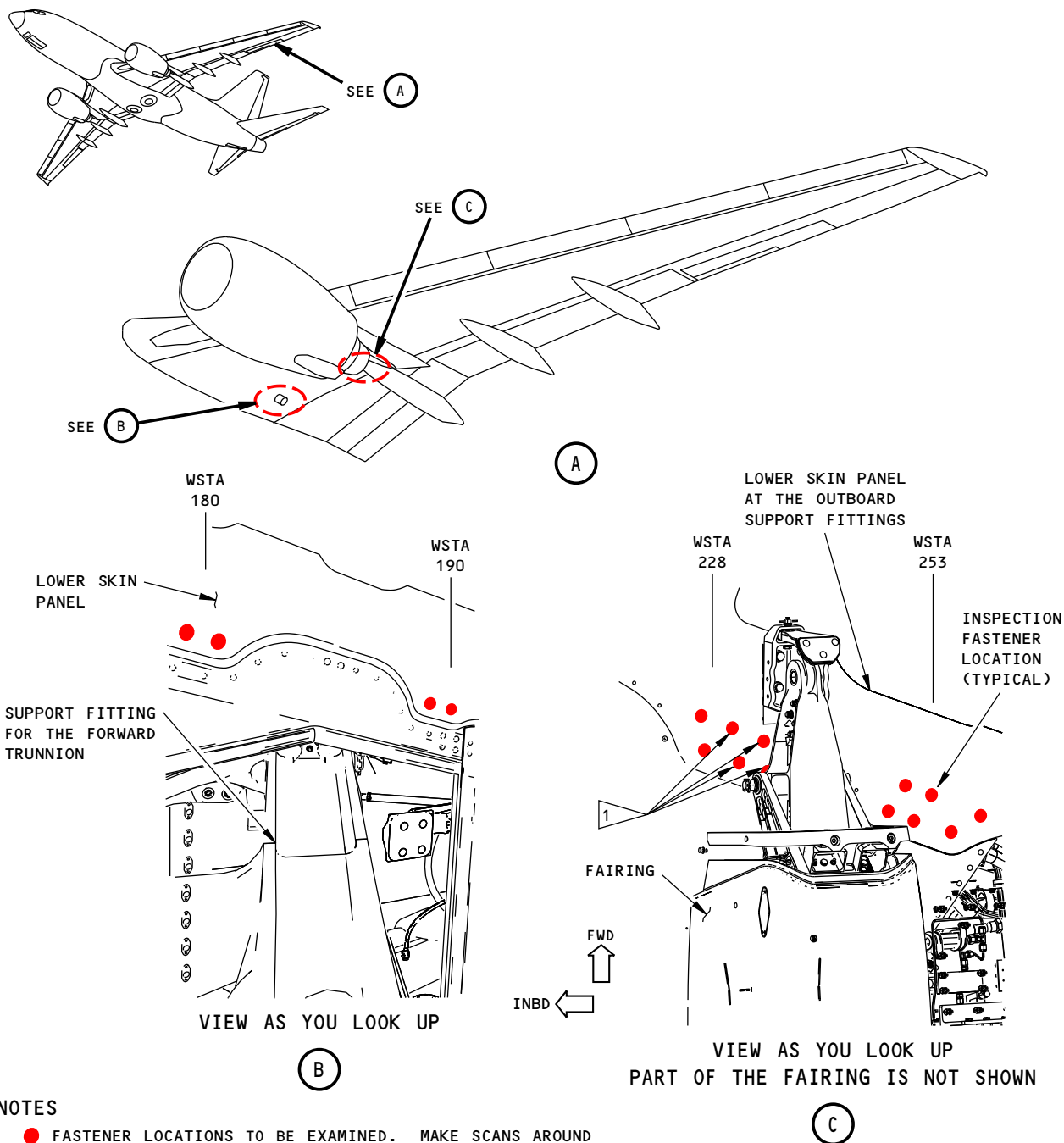
5. **Inspection Procedure**

- A. Examine the lower skin panels of the wing for cracks at the support fittings for the main landing gear as specified in Part 6, 51-00-00, Procedure 23, paragraph 6, and the steps that follow:
 - (1) Examine the lower skin panel for cracks around the 12 fasteners at WSTA 228 and WSTA 253 that attach the lower skin panel to the outboard support fittings attached to the support beam for the main landing gear. See Figure 1 for the fastener locations.
 - (2) Examine the lower skin panel for cracks around the four fasteners at WSTA 180 and WSTA 190 that attach the lower skin panel to the support fitting for the forward trunnion of the main landing gear. See Figure 1 for the fastener locations. Cracks in the lower skin panels will occur in an inboard to outboard direction.

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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NOTES

● FASTENER LOCATIONS TO BE EXAMINED. MAKE SCANS AROUND THESE FASTENERS TO IDENTIFY CRACKS IN THE LOWER SKIN PANELS

• THE LEFT WING IS SHOWN; THE RIGHT WING IS OPPOSITE

1 REMOVE THE FAIRING TO GET ACCESS TO EXAMINE THESE FOUR FASTENERS

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**Inspection Areas
Figure 1**

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