TENSION BOLTS AT THE REAR SPAR SUPPORT FITTINGS OF THE OUTBOARD FLAP

1. Purpose

A. Use this ultrasonic procedure to find broken or cracked tension bolts. The tension bolts are at the rear spar support fittings of the outboard flaps at flap supports No. 1, No. 2, No. 7, and No. 8.

B. Four bolts are to be examined on each outboard flap. See Figure 1 for the tension bolt locations.

C. MPD DTR Check Form Reference:

(1) ITEM 57-53-I02B

2. Equipment

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

A. General

(1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.

(2) Refer to Part 1, 51-04-00, for more data about ultrasonic inspection.

B. Instrument

(1) Use a pulse echo ultrasonic instrument.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 521; Krautkramer-Branson, Inc.

(b) Masterscan 340; Sonatest, Inc.

(c) Sonic 1200; Staveley, Inc.

C. Transducers

(1) Use a longitudinal wave transducer that:

(a) Operates at 10 MHz.

(b) Has a maximum crystal diameter of 0.250 inch (6.35 mm).

(c) Has a top or side mounted microdot connector.

(2) The transducers that follow were used to help prepare this procedure.

(a) SUC 168, 0.250 inch diameter, side-mounted microdot connector; NDT Engineering Corporation.

(b) SUC 726T, 0.250 inch diameter, top-mounted microdot connector; NDT Engineering Corporation.

D. Reference Standard

(1) Calibration Bolt - Use a BACB30US10K47 bolt.

NOTE: Some bolts to be examined will have a larger diameter and/or be longer than the calibration bolt.

E. Couplant

(1) Use an ultrasonic couplant that will not cause corrosion or other damage to the airplane.

3. Preparation for Inspection

A. Make sure all of the safety precautions are done to prevent accidental operation of the outboard flaps.

B. Identify the inspection areas shown in Figure 1.

C. Make sure that the threaded end of the tension bolt is clean and free of sealant in the areas where the transducer will touch.

4. Instrument Calibration

A. Set the instrument frequency to 10 MHz.

B. Do the initial instrument adjustments that are specified in the instrument instruction manual.

NOTE: Do not use reject or signal suppression during calibration or inspection.

C. Put the transducer against the flat surface at the threaded end of the calibration bolt.

D. Move the transducer to get a maximum signal from the end of the bolt.

(1) Adjust the instrument gain to get a back surface signal that is 80% of full screen height (FSH) as shown in Figure 2.

E. Adjust the instrument delay and range controls so that the initial pulse is at 0% of full screen width (FSW) and the signal from the far end of the bolt is at 80% of FSW as shown in Figure 2.

NOTE: Two or more signals will occur that are from the far end of the calibration bolt as shown in Figure 2. These signals are from the far end of the bolt head (annulus).

5. Inspection Procedure

A. Identify the inspection areas shown in Figure 1.

B. Calibrate the instrument as specified in Paragraph 4.

C. Apply couplant to the flat surface at the threaded end of the tension bolt.

D. Move the transducer against the flat surface at the threaded end of the tension bolt to get a maximum signal from the opposite end of the tension bolt.

(1) The screen display must look almost the same as the screen display that occurred during calibration (see Figure 2).

NOTE: The signal from the end of the bolt can be to the right of the signal shown in Figure 2 if the bolt is longer than the calibration bolt.

E. Increase the gain 6 db.

F. Make a scan to examine the tension bolt for cracks. During the scan:

(1) Make sure the transducer transmits sound into the bolt and do a 360 degree scan around the outside diameter (OD) of the bolt as shown in Figure 3. Examine this area (OD) carefully; cracks will occur more frequently in this area.

(2) Do a full scan at the threaded end of the tension bolt.

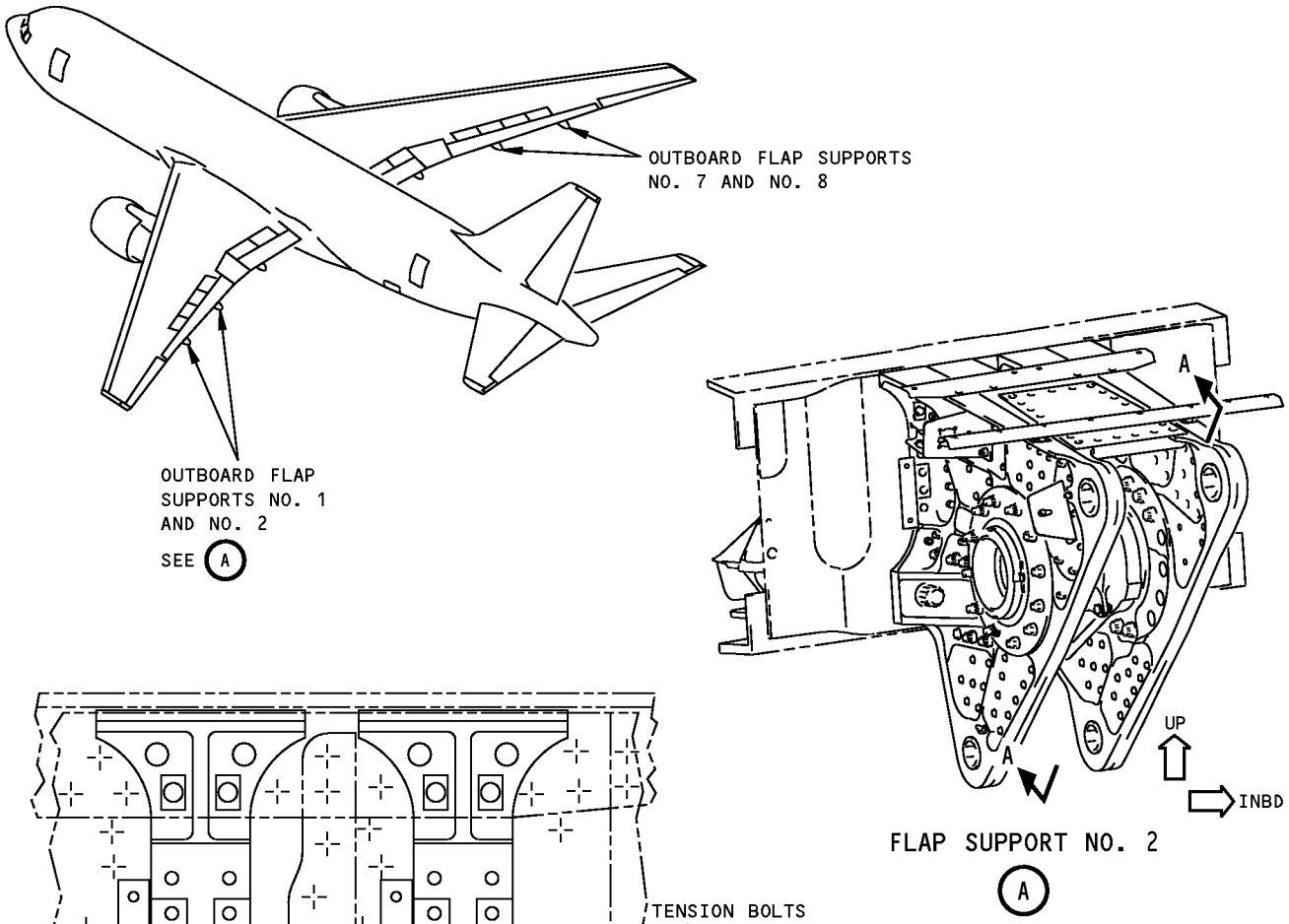
NOTE: It is not necessary to get a back surface reflection at all transducer locations while you do this scan.

6. Inspection Results

A. Ultrasonic signals that are between 10 and 80% of FSW and are 40% (or more) of FSH are indications of possible cracks.

B. Compare the crack signals that occur during the inspection to the signals you got from the calibration bolt during calibration.

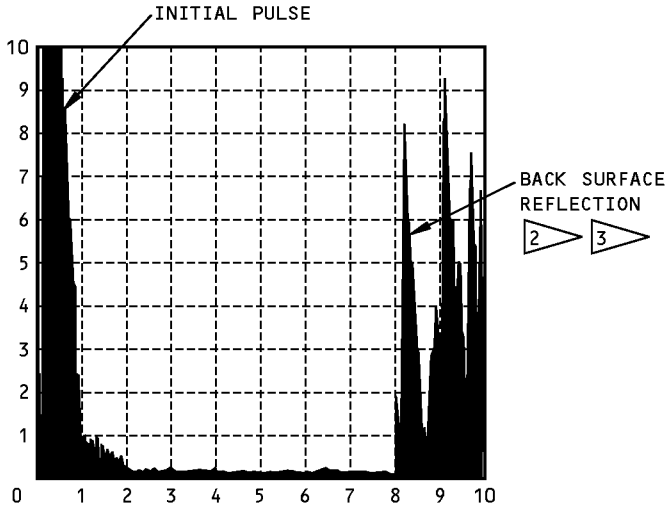
C. To make sure a crack signal is from a crack, remove the bolt and do a fluorescent penetrant inspection. Refer to SOPM 20-20-02.



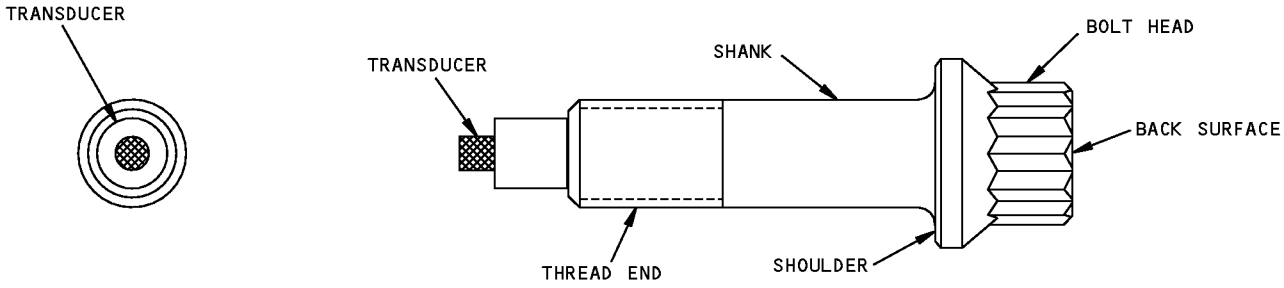
NOTES:

- FLAP SUPPORT FITTING NO. 7 IS THE SAME AS FLAP SUPPORT FITTING NO. 1
- FLAP SUPPORT FITTINGS NO. 1 AND 8 ARE ALMOST THE SAME
- EXAMINE 4 BOLTS AT EACH FLAP SUPPORT FITTING

Tension Bolts at the Rear Spar Support Fittings of the Outboard Flaps
Figure 1



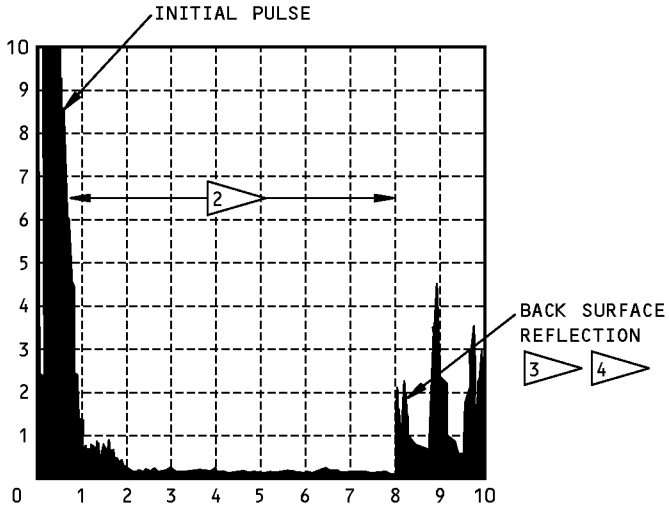
SCREEN DISPLAY 1
(TYPICAL)



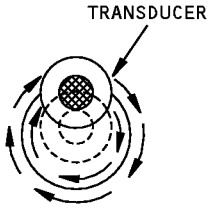
NOTES

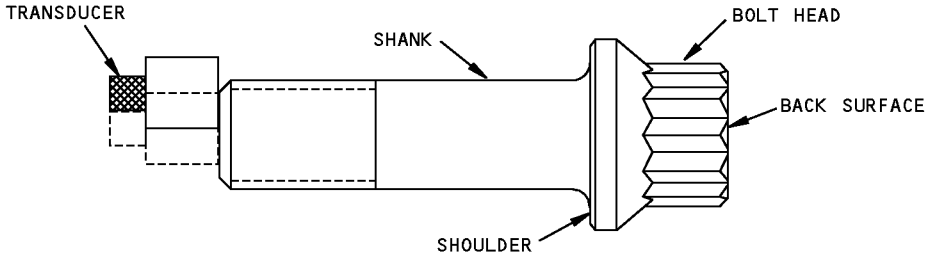
1. TYPICAL SCREEN DISPLAY DURING CALIBRATION WITH THE TRANSDUCER AT THE THREADED END OF THE BOLT
2. THE BACK SURFACE REFLECTION IS THE FIRST SIGNAL. THE SIGNAL HEIGHT IS A FUNCTION OF THE BOLT DIAMETER AND THE TRANSDUCER POSITION. SET THE SIGNAL SO THAT IT IS 80% OF FULL SCREEN HEIGHT AND 80% OF FULL SCREEN WIDTH.
3. ALL SIGNALS TO THE RIGHT OF THE BACK SURFACE REFLECTION ARE TO BE IGNORED.

Tension Bolt Inspection Calibration
Figure 2



SCREEN DISPLAY 1
(TYPICAL)





NOTES

1. TYPICAL SCREEN DISPLAY FOR THE EXAMINATION OF THE TENSION BOLT FROM THE THREADED END.
2. TYPICAL FRACTURE OR CRACK INDICATIONS WILL OCCUR BETWEEN THE INITIAL PULSE AND THE BACK SURFACE REFLECTION
3. THE BACK SURFACE REFLECTION IS THE FIRST SIGNAL THE OF RECEIVED BACK SURFACE REFLECTIONS. THE SIGNAL HEIGHT IS A FUNCTION OF THE BOLT DIAMETER AND TRANSDUCER POSITION.
4. ALL SIGNALS TO THE RIGHT OF THE BACK SURFACE REFLECTION ARE TO BE IGNORED.

Tension Bolt Inspection
Figure 3

FASTENER HOLES OF THE 6-9 BEAM OF THE OUTBOARD FLAP SUPPORTS

1. Purpose

A. Use this procedure to find cracks that occur at the free surface or mating surface of the outboard flap 6-9 beam fastener holes at support 1, 2, 7 and 8.

B. Each beam has two halves; you must examine the fastener head side and the collar side of the 6-9 beam.

C. This procedure uses ultrasonic and HFEC eddy current procedures to examine the 6-9 beam. See Figure 1 for the location of the 6-9 beam.

D. MPD DTR Check Form Reference:

(1) ITEM 57-53-I02G.3

2. Equipment

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

A. General

(1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.

(2) Refer to Part 1, 51-04-00, for more data about ultrasonic inspection.

(3) Refer to Part 6, 51-00-19, for more data about eddy current inspection.

B. Instruments

(1) Ultrasonic inspection

(a) Use a pulse echo ultrasonic instrument.

(b) The instruments that follow were used to help prepare this procedure.

1) USN 60; Krautkramer-Branson, Inc.

2) Masterscan 340; Sonatest, Inc.

3) Sonic 1200; Staveley, Inc.

(2) Eddy Current inspection

(a) Use an impedance plane display instrument that operates at a frequency of 50 kHz to 500 kHz.

(b) The instruments that follow were used to help prepare this procedure.

1) Phasec 2200, Phasec 2; Hocking Krautkramer

2) Nortec 19e, 1000, 2000; Staveley Instruments

C. Transducers/Probes

(1) Ultrasonic inspection

(a) This procedure uses a test kit that contains the necessary transducers, guides, and sleeves.

(b) The test kit that follows was used to help prepare this procedure.

1) TEKKIT-5017; Techna NDT

(2) Eddy Current inspection

(a) Use a small diameter eddy current probe that can find a crack that extends 0.04 inch (1.0 mm) or more out from the fastener head.

(b) The eddy current probe that follows was used to help prepare this procedure.

1) TSPEN95-6; Techna NDT

D. Reference Standard

(1) Use reference standards NDT700X which are shown in Figure 3.

E. Couplant

(1) Use an ultrasonic couplant that will not cause corrosion or other damage to the airplane.

3. Preparation for Inspection

A. Extend the outboard flaps.

B. Make sure all of the safety precautions are done to prevent accidental operation of the outboard flaps.

C. Identify the inspection areas shown in Figure 2.

D. Fully clean the inspection surface of all loose paint, dirt and grease.

4. Calibration

A. Ultrasonic inspection

(1) Get the necessary reference standard, transducer and transducer positioner as specified in the table in Figure 2.

(2) Put the transducer in the transducer positioner and adjust the set screw to keep the transducer in the necessary position (forward or aft position). See the table in Figure 2 and Figure 4. This is now your transducer assembly.

(3) Set the instrument to a frequency that is between 4 and 6 Mhz.

(4) Apply a sufficient quantity of couplant on the reference standard.

(5) Put the transducer assembly on the reference standard as shown in Figure 5, Detail 1 or 2, and move the transducer assembly from side to side to get the maximum signal from the EDM notch. Make sure the transducer assembly touches the fastener or collar at all times.

(a) Move the TEK5017-8 transducer assembly around the fastener or collar to get the maximum signal from the EDM notch. See Figure 4.

(b) The TEK5017-9 will not move around the fastener. This positioner assembly has two transducers in it. Use the transducer that relates to the area (the side around the fastener or collar) of inspection. You must calibrate each transducer independently to examine around each side of the fastener (see Figure 5, Detail 4).

(6) Put the initial pulse at 0% of full screen width (FSW) and adjust the instrument gain, delay and range controls as necessary to get a signal from the EDM notch of the reference standard that is 50% Screen Width of FSW and 80% Full Screen Height (FSH), as shown in Figure 4.

(7) Add 6 db of gain.

B. Eddy Current inspection

(1) Calibrate the instrument as specified in Part 6, 51-00-19, par. 4.

(a) Use one of the NDT700X reference standards and calibrate the instrument to find one of the notches on the fastener head side of the reference standard. The notch extends approximately 0.04 inch (1.0 mm) out from the fastener head.

5. Inspection Procedure

A. Ultrasonic inspection

(1) Identify all the inspection areas for the 6-9 beam at flap support No. 1. See Figure 2.

(2) Put a sufficient quality of couplant on the inspection surfaces. See Figure 2.

(3) Calibrate the instrument as specified in Paragraph 4.A., for the inspection fastener to be examined.

(4) Put the transducer assembly on the inspection surface and fully scan the inspection area. See Figure 5.

(a) It is recommended that you do two scans of each inspection area if there is access. The steps that follow are recommended:

1) Remove the transducer from the transducer assembly, turn the transducer positioner over, and do the inspection again. See Figure 5, Details 1 and 2.

2) For the TEK5017-8 transducer, turn the positioner in the opposite direction and do a scan in the opposite direction. See Figure 5, Detail 3.

3) For the TEK5017-9 transducer there is no second inspection.

(5) Make sure to examine all the inspection areas on the 6-9 beam at flap support No. 1. See Figure 2.

(6) Do Paragraph 5.A.(1) thru Paragraph 5.A.(5) on the 6-9 beam at flap supports 2, 7 and 8. See Figure 2.

B. Eddy Current inspection

(1) Calibrate the instrument as specified in Paragraph 4.B.

(2) Make a scan of all the inspection areas identified in Figure 2.

(a) Refer to the inspection instructions in Part 6, 51-00-19, par. 5.

(b) For the flagnote 1 inspection areas, the inspection is done around the threaded end of the fastener with the collar removed.

(c) For the flagnote 2 inspection areas, the inspection is done around the fastener head.

6. Inspection Results

A. Ultrasonic inspection

(1) Areas that cause ultrasonic signals to occur that are equal to, or more than 40% of FSH and are at approximately the same screen location as the notch signal from the reference standard are indications of possible cracks and must be examined more fully.

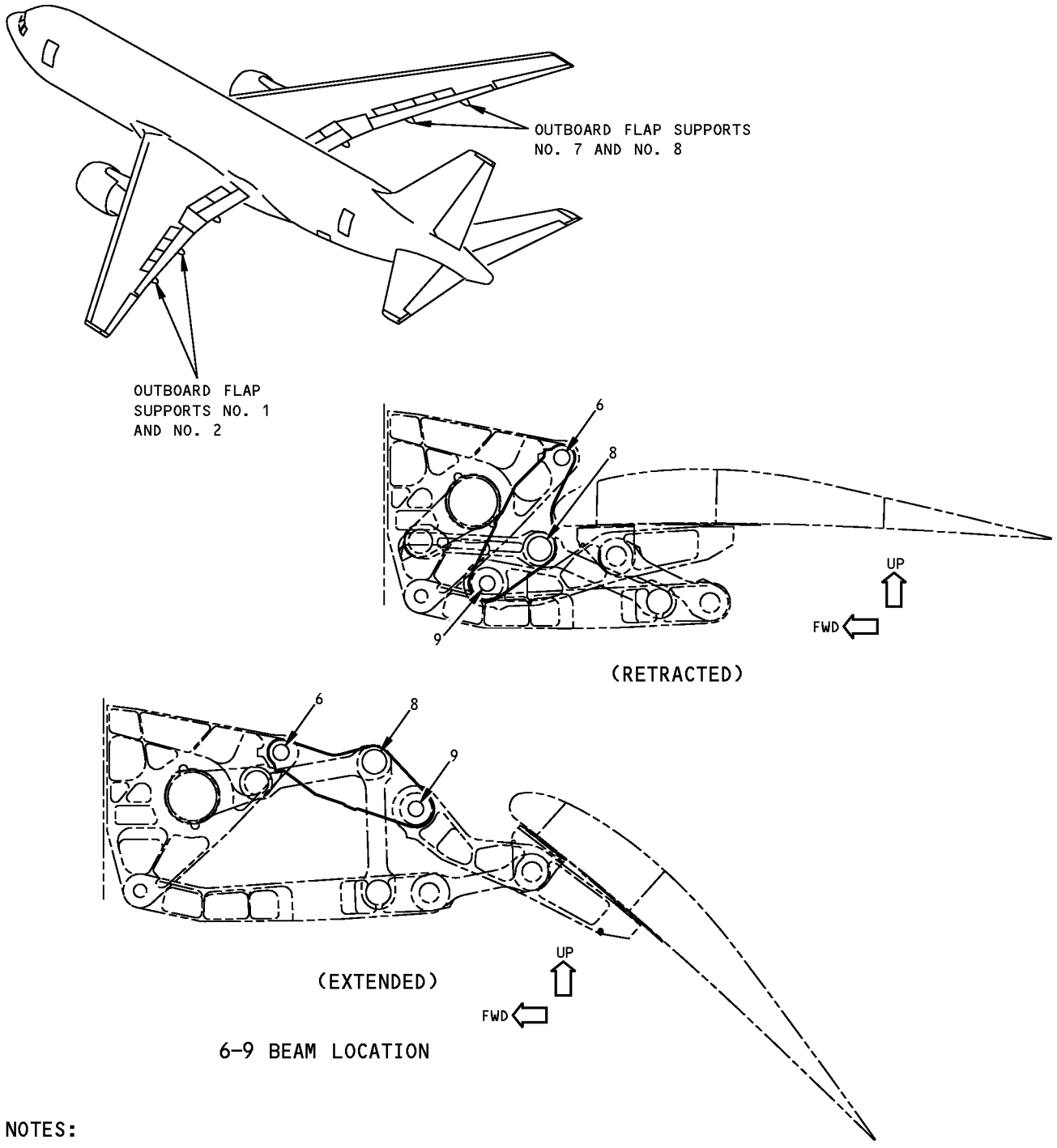
(2) Do a check of the instrument calibration and examine the area again.

(3) To make sure a crack signal is from a crack, remove the fastener and do an open hole eddy current inspection as specified in Part 6, 51-00-16.

B. Eddy Current inspection

(1) Refer to Part 6, 51-00-19, to make an analysis of the eddy current surface inspection results.

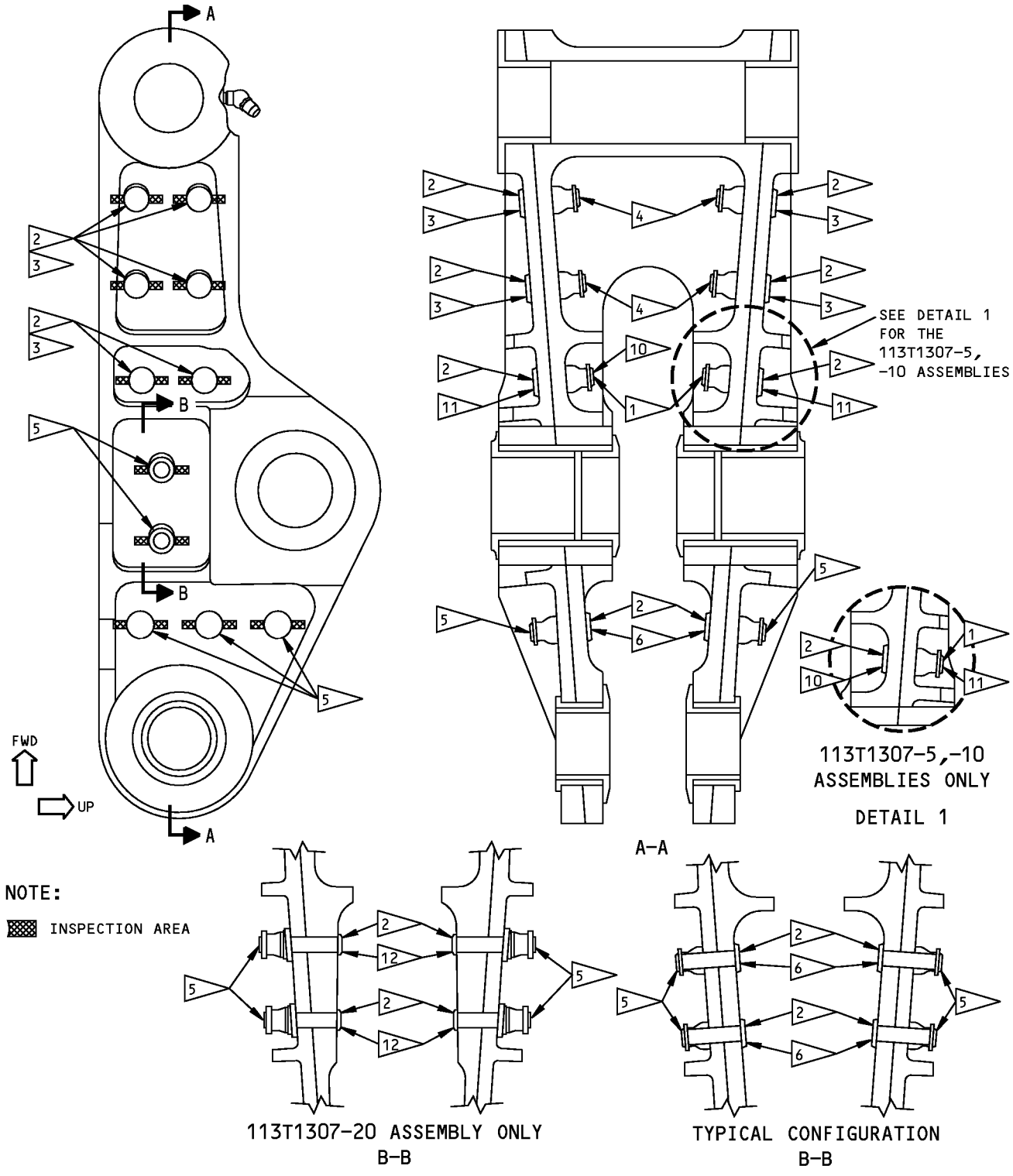
(2) To make sure a crack signal is from a crack, remove the fastener and do an open hole eddy current inspection as specified in Part 6, 51-00-16.



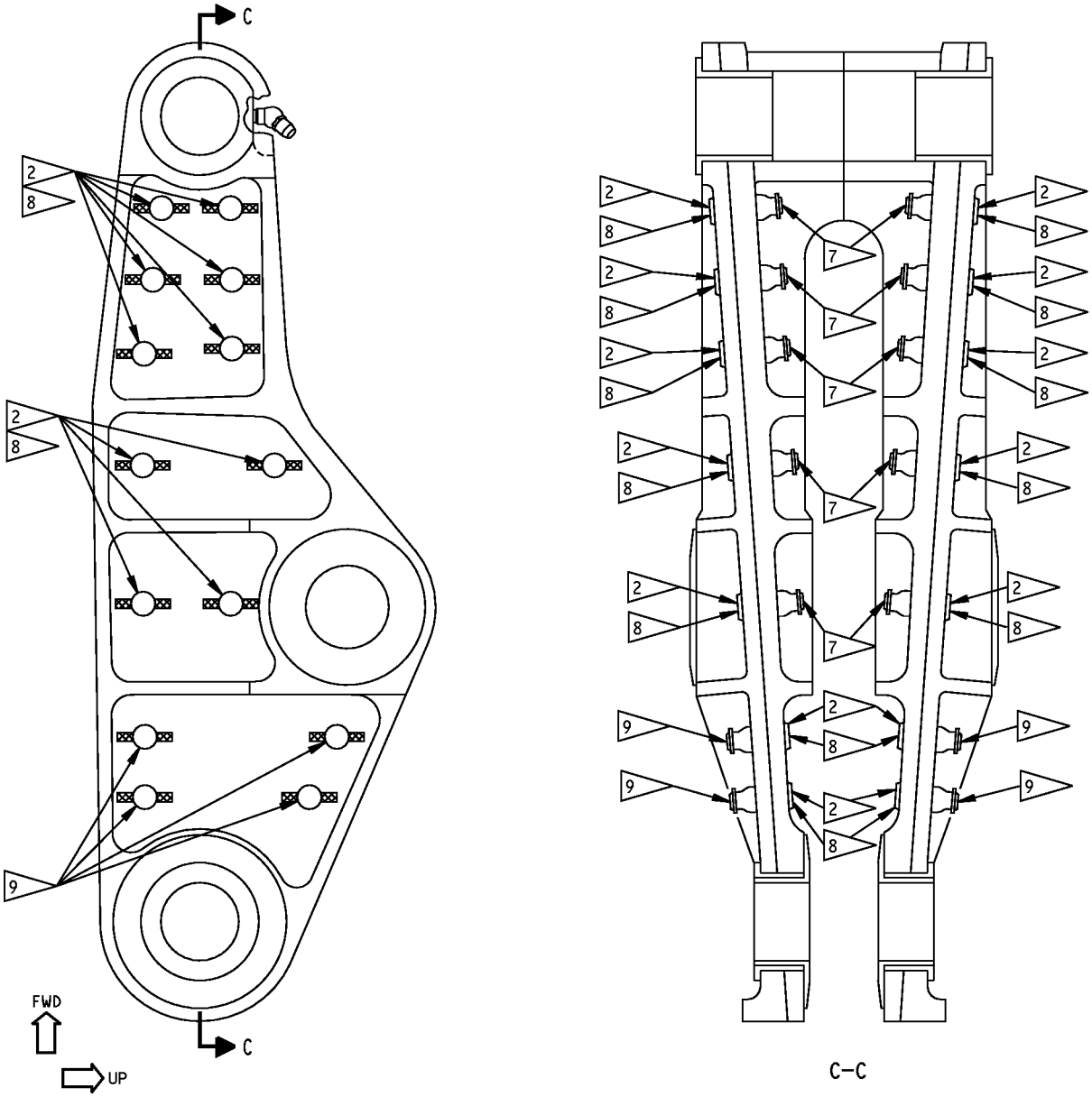
NOTES:

- THE 6-9 BEAM AT FLAP SUPPORT NO. 7 IS THE SAME AS THE 6-9 BEAM AT SUPPORT NO. 2.
- THE 6-9 BEAMS AT FLAP SUPPORT NO. 1 AND NO. 8 ARE ALMOST THE SAME.

Inspection Locations
Figure 1



Inspection Details
Figure 2 (Sheet 1 of 3)



NOTE:

INSPECTION AREA

6-9 BEAM AT FLAP SUPPORTS 2 AND 7

Inspection Details
Figure 2 (Sheet 2 of 3)

1 REMOVE THE COLLAR AND DO A SURFACE EDDY CURRENT INSPECTION AROUND THE THREADED END OF THE FASTENER. SEE PAR. 5.B.

2 DO A SURFACE EDDY CURRENT INSPECTION AROUND THE FASTENER HEAD. SEE PAR. 5.B.

FLAG NOTE	TRANSDUCER TEK5017-X	POSITIONER POSITION (SEE FIG. 4)	CALIBRATION EDM NOTCH (SEE FIG. 4)	REFERENCE STANDARD NDT700X (SEE FIG. 3)	INSPECTION PROCEDURE
3	-1	B/FORWARD	1st LEG	A	FIGURE 5, DETAIL 1 (a)
4	-1	A/FORWARD	1st LEG	B	FIGURE 5, DETAIL 1 (a)
	-2	A/AFT	FULL V PATH	B	FIGURE 5, DETAIL 2 (a)
5	-1	B/FORWARD	1st LEG	A	FIGURE 5, DETAIL 1 (a)
	-3	B/AFT	FULL V PATH	A	FIGURE 5, DETAIL 2 (a)
6	-7	E/FORWARD	1st LEG	B	FIGURE 5, DETAIL 1 (a)
7	-4	C/FORWARD	1st LEG	C	FIGURE 5, DETAIL 1 (a)
	-5	C/AFT	FULL V PATH	C	FIGURE 5, DETAIL 2 (a)
8	-1	D/FORWARD	1st LEG	D	FIGURE 5, DETAIL 1 (a)
9	-1	D/FORWARD	1st LEG	D	FIGURE 5, DETAIL 1 (a)
	-6	D/AFT	FULL V PATH	D	FIGURE 5, DETAIL 2 (a)
10	-8	1 PIECE	1st LEG	B	FIGURE 5, DETAIL 3 (a)(b)
11	-9	1 PIECE	1st LEG	A	FIGURE 5, DETAIL 4 (a)(b)
12	-4	C/FORWARD	1st LEG	E	FIGURE 5, DETAIL 1 (a)

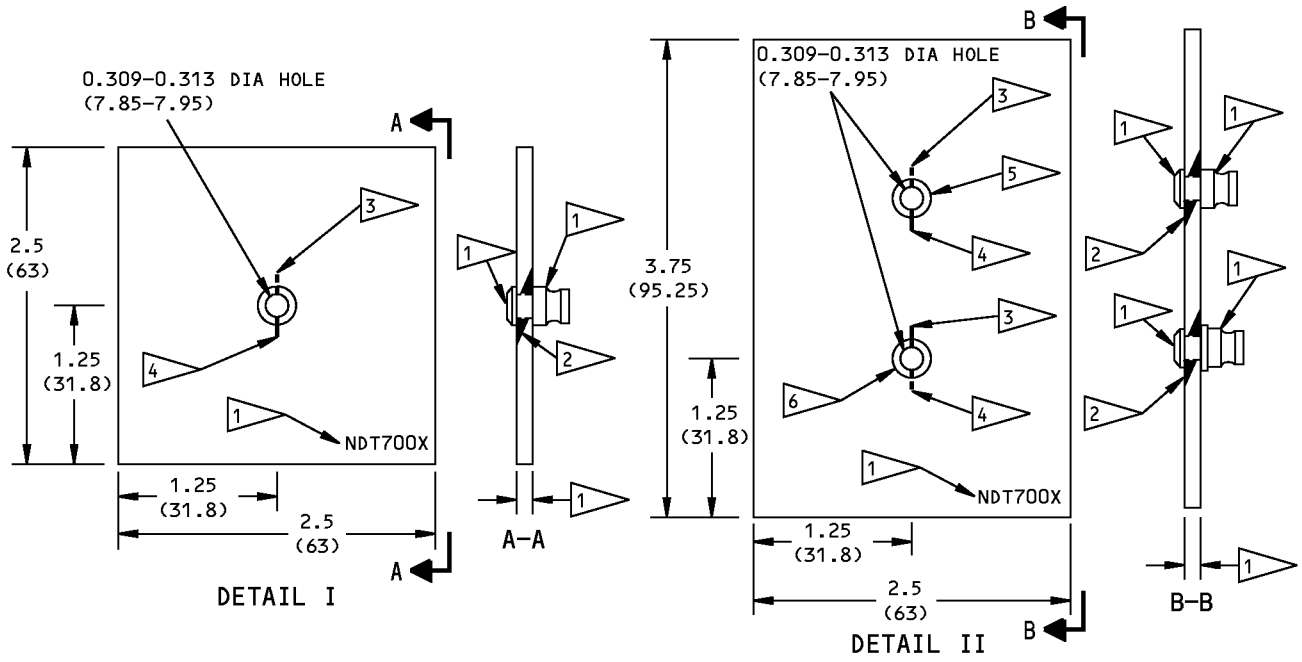
NOTES:

(a) USE THE FASTENER OR COLLAR SIDE OF THE REFERENCE STANDARD AS NECESSARY TO CALIBRATE FOR THE AREA TO BE EXAMINED.

(b) SINGLE PIECE TRANSDUCER ASSEMBLY.

(c) SINGLE PIECE TRANSDUCER ASSEMBLY. INDEPENDENT TRANSDUCERS ARE USED TO EXAMINE EACH SIDE OF A FASTENER BECAUSE OF ACCESS CONDITIONS. THE TRANSDUCER ASSEMBLY WILL NOT TURN COMPLETELY AROUND THE FASTENER.

Inspection Details
Figure 2 (Sheet 3 of 3)



REFERENCE STANDARD IDENTIFICATION	THICKNESS	FASTENER	COLLAR	DETAIL
NDT700A	0.260 (6.60)	5	BACB30M10	II
	0.260 (6.60)	6	BACB30AG10	
NDT700B	0.350 (8.89)	BACB30MY10K6	BACB30M10	I
NDT700C	0.500 (12.70)	BACB30MY10K8	BACB30M10	I
NDT700D	0.300 (7.62)	5	BACB30M10	II
	0.300 (7.62)	6	BACB30AG10	
NDT700E	0.600 (15.24)	BACB30MY10K9	BACB30M10	II

TABLE 1

NOTES

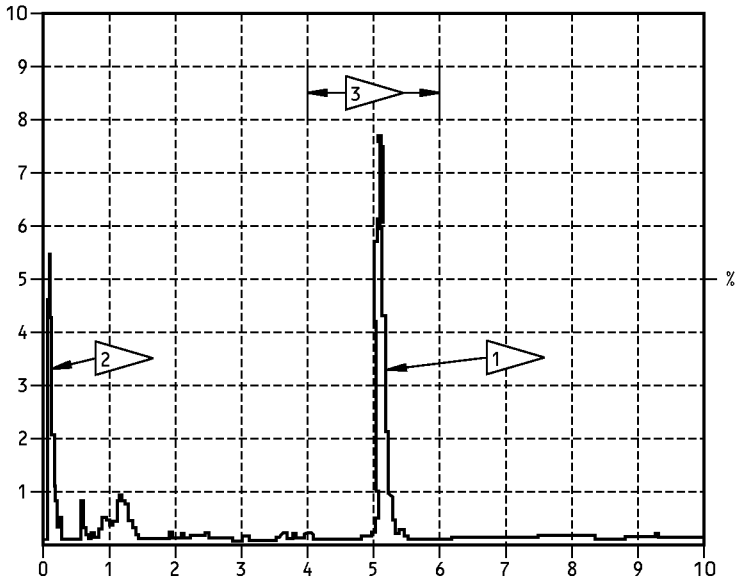
- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY:

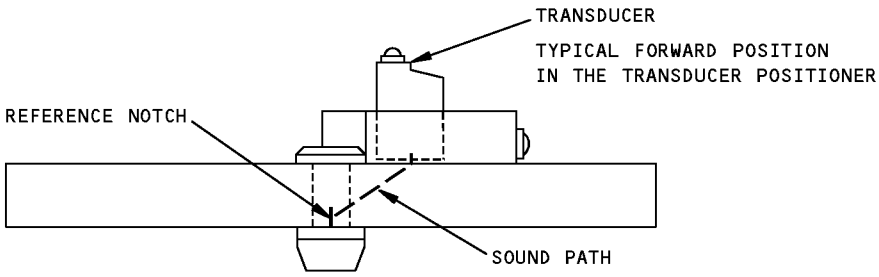
INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.05	X = ±1

- MATERIAL: 7075 ALUMINUM
- ETCH OR STAMP NDT700X WHERE SHOWN
- SURFACE FINISH:
  63 ALL MACHINED SURFACES UNLESS SHOWN DIFFERENTLY
- FASTENERS: SEE TABLE 1 FOR THE FASTENERS TO USE. REFERENCE STANDARDS NDT700A AND NDT700D USE 2 FASTENERS. SEE FLAG NOTES 5 AND 6.

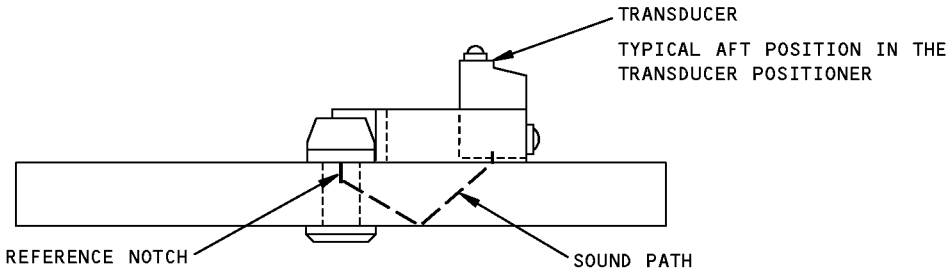
1. MAKE THESE REFERENCE STANDARDS AS SPECIFIED IN TABLE 1.
2. EDM NOTCH: 0.10 X 0.10 (2.5 X 2.5) CORNER CRACK.
   THE MAXIMUM WIDTH OF THE EDM NOTCH IS 0.005 (0.12); THE DEPTH IS 0.100 (2.50). THE NOTCH WILL SIMULATE A 0.100 X 0.100 (2.50 X 2.50) CORNER CRACK.
3. THE EDM NOTCH LOCATION, FAR SIDE.
4. THE EDM NOTCH LOCATION, NEAR SIDE.
5. BACB30MY10K5
6. BACB30MY10K6

Reference Standard NDT700X
Figure 3





FIRST LEG SOUND PATH



FULL V SOUND PATH

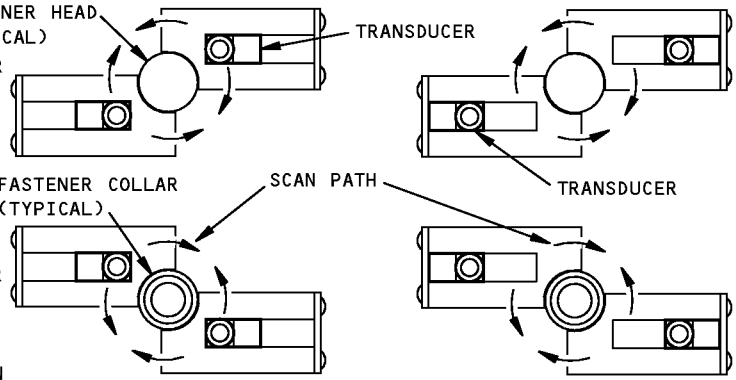
NOTES:

1. NOTCH SIGNAL
2. INITIAL PULSE
3. LOCATIONS WHERE SIGNALS FROM CRACKS CAN OCCUR

Calibration Details
Figure 4

NOTE:

- WITH THE TRANSDUCER IN THE FORWARD POSITION, MAKE A SCAN AT EACH FASTENER/COLLAR FROM EACH DIRECTION IF THERE IS ACCESS.
- TURN THE POSITIONER OVER AND MAKE A SCAN AT EACH FASTENER/COLLAR FROM EACH DIRECTION IF THERE IS ACCESS.



NOTE:

- WITH THE TRANSDUCER IN THE AFT POSITION, MAKE A SCAN AT EACH FASTENER/COLLAR FROM EACH DIRECTION IF THERE IS ACCESS.
- TURN THE POSITIONER OVER AND MAKE A SCAN AT EACH FASTENER/COLLAR FROM EACH DIRECTION IF THERE IS ACCESS.

TRANSDUCER IN THE FORWARD POSITION FIRST LEG SOUND PATH

DETAIL 1

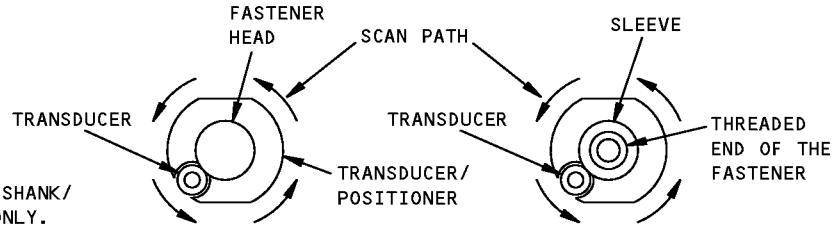
TRANSDUCER IN THE AFT POSITION FULL V SOUND PATH

DETAIL 2

TYPICAL SCAN PLAN AT EACH FASTENER/COLLAR

NOTE:

- THE TRANSDUCER AND POSITIONER ARE ONE UNIT.
- REMOVE THE COLLAR BEFORE INSPECTION.
- THE SLEEVE IS NECESSARY ON THE SHANK/ THREADED SIDE OF THE FASTENER ONLY.
- TURN THE POSITIONER IN THE INSPECTION AREAS.
- TURN THE POSITIONER IN THE OPPOSITE DIRECTION TO DO THE RECOMMENDED SECOND INSPECTION



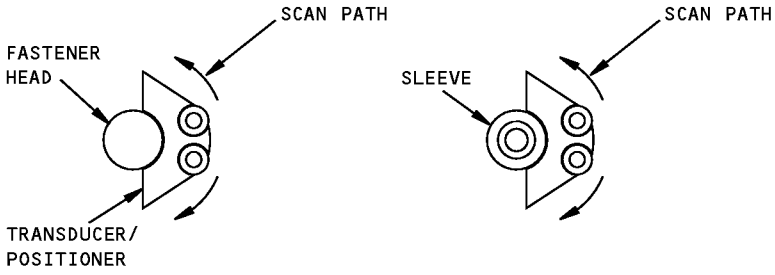
TYPICAL SCAN PLAN - TRANSDUCER TEK-5017-8

DETAIL 3

TYPICAL SCAN PLAN AT EACH FASTENER/COLLAR - FULL V SOUND PATH

NOTE:

- THE TRANSDUCER AND POSITIONER ARE ONE UNIT.
- THIS POSITIONER MAKES IT NECESSARY TO DO A SEPARATE CALIBRATION FOR EACH TRANSDUCER. MAKE A SCAN OF EACH SIDE OF THE FASTENER/COLLAR WITH THE RELATED SIDE OF THE TRANSDUCER/POSITIONER.
- REMOVE THE COLLAR BEFORE INSPECTION.
- THE SLEEVE IS NECESSARY ON THE SHANK/ THREADED SIDE OF THE FASTENER ONLY.
- SLIGHTLY TURN THE POSITIONER THROUGH THE INSPECTION AREAS IF POSSIBLE.
- A SECOND INSPECTION IS NOT RECOMMENDED WHEN THIS POSITIONER IS USED.



TYPICAL SCAN PLAN - TRANSDUCER TEK-5017-9
FULL V SOUND PATH

DETAIL 4

Transducer Assembly Scan Plans
Figure 5

1-2-3 BEAM OF THE OUTBOARD FLAP SUPPORTS

1. Purpose

A. Use this procedure to find cracks that start at fastener holes in the 1-2-3 beams and straps at the outboard flap supports. See Figure 1.

B. This inspection is done at Flap Supports 1, 2, 7, and 8.

C. Use a separate open hole eddy current procedure to examine Code C fastener holes. The instructions for this inspection are given in this procedure.

D. Use a separate surface eddy current procedure to examine around all the flush head fasteners. The instructions for this inspection are given in this procedure.

E. MPD DTR Check Form Reference:

(1) ITEM 57-53-I02L.1

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 ultrasonic instrument that:

(a) Can do pulse echo inspection.

(b) Operates at a frequency range of 4 to 6 MHz.

(2) The instrument that follows was used to help prepare this procedure.

(a) USN 60; Krautkramer, Inc.

C. Transducers - This procedure uses four specially designed transducers and four transducer positioners. The transducers and transducer positioners can be purchased in a kit from Techna NDT. The Techna kit part number is TEKIT -5008.

(1) Transducers TEK-5008-1F and TEK-5008-1N are to be used with positioner TEK-5008-1P. Use these transducers and positioner to examine Code A fastener holes.

(2) Transducers TEK-5008-2F and TEK-5008-2N are to be used with positioner TEK-5008-2P. Use these transducers and positioner to examine Code B fastener holes.

(3) Transducers TEK-5008-1F is used without a positioner to examine Code D fastener holes. These fastener holes have flush head fasteners installed.

D. Ultrasonic Transducer Cable - A cable with a microdot connector for the transducer is necessary.

E. Eddy Current

(1) Open hole probes

(a) Use probes that can examine 0.312 inch (7.92 mm) and 0.375 inch (9.53 mm) diameter holes. Refer to Part 6, 51-00-16.

(2) Surface Probe

(a) TSPEN95-6; Techna NDT

1) This is a special, small diameter probe that can find a crack that extends 0.04 inch (1 mm) (or more) out from the fastener head.

2) If you order this probe, make sure you tell the probe manufacturer the eddy current instrument you will use. The TSPEN95-6 probe has a Triax Fisher connector. A probe cable must be ordered separately.

F. Reference Standard

(1) Make or buy reference standards NDT688 and NDT698. See Figure 2 and Figure 3.

(2) For eddy current inspections, refer to Part 6, 51-00-16 and Part 6, 51-00-19 for the reference standard instructions.

G. Couplant

(1) Use an ultrasonic couplant that will not damage the structure.

3. Preparation for Inspection

A. Find the inspection areas. See Figure 1.

(1) Extend the outboard flaps.

(2) Get access to the 1-2-3 Beams at each outboard flap support.

(3) Remove loose paint, dirt and grease from the inspection areas that the probe will touch.

(4) Remove the fasteners to the brace attach fitting on the inboard sides of the beams. See Figure 10.

4. Instrument Calibration

A. General calibration instructions.

(1) Refer to Figure 11 for the reference standard, transducer, transducer positioner, calibration instructions and inspection figure for the fastener holes on the straps and beams that you will examine.

(2) Figure 6 thru Figure 8 identify the fastener Code of the fasteners that you will examine. See Figure 6 thru Figure 8.

(a) Use the fastener Code and Figure 11 to identify the necessary transducer and transducer positioner to use for the fastener hole to be examined.

NOTE: It is necessary to adjust the transducer and transducer positioner differently to examine the different sides of the fastener hole. When the clockwise (CW) letters of the transducer positioner face up, the transducer and sound will be moved clockwise around the hole. When the counter clockwise (CCW) letters of the transducer positioner face up, the transducer and sound will be moved counter clockwise around the hole. See Figure 11.

(b) The words that follow are used to identify the area of the hole that you will examine for cracks. Refer to Figure 11.

1) ''Near'' refers to an examination of the beam or strap for cracks that are on the same side of the beam or strap that the transducer is on.

2) ''Far'' refers to an examination of the beam or strap for cracks that are on the opposite side of the beam or strap that the transducer is on.

3) ''CW'' or ''CCW'' refers to the transducer positioner you will put a transducer in and the direction you will move the transducer positioner and transducer.

4) ''Left'' or ''right'' refers to the side of the reference standard hole you will examine for a crack during calibration. When you do the inspection on the airplane, you must move the transducer positioner as much as possible to look for cracks that are in an up or down direction.

(3) Make sure you put the correct transducer in the transducer positioner specified in Figure 11.

(4) Make sure that the sound beam points to the fastener hole.

(5) Make sure that the transducer surface that puts out the sound is aligned with the transducer positioner surface that touches the reference standard.

(6) Attach the transducer to the transducer positioner with the set screw.

(7) Choose the correct reference standard from Figure 11 for the fastener Code that you will examine.

(8) Set the instrument frequency between 4 and 6 MHz.

B. Calibrate the instrument to examine Code A and B fastener locations as follows:

NOTE: Refer to the general calibration instructions in Paragraph 4.A. as necessary.

(1) Put couplant on the reference standard at the transducer position identified in Figure 4 or Figure 5, as applicable.

(2) Move the transducer around the fastener collar or head to get a maximum signal from the notch. Make sure that the transducer positioner lightly touches the fastener collar. See Figure 4 or Figure 5, as applicable.

(3) Adjust the instrument controls to put the left edge of the initial pulse at 0% of full screen width (FSW) and the left edge of the signal from the notch at 80% of FSW. See Figure 4 or Figure 5, as applicable.

NOTE: Make sure the notch signal is at its maximum height when these adjustments are made.

NOTE: Keep the reject set to minimum and the damping set to off, or the value that has a minimum effect on the signal height.

(4) Adjust the gain to put the maximum signal from the notch at 80% of full screen height (FSH). See the screen display in Figure 4 or Figure 5, as applicable.

(5) Increase the gain by 6 dB.

C. Calibrate the instrument to examine Code D fastener locations as follows:

NOTE: Refer to the general calibration instructions in Paragraph 4.A. as necessary.

(1) Set the instrument to a frequency between 4 and 6 MHz and connect the TEK-5008-1F transducer.

(2) Put the transducer on reference standard NDT688 so that the sound exit point is approximately 0.35 inch (9 mm) from the fastener hole. See Figure 4, Transducer Position 5, Detail 3.

(3) Move the front of the transducer to the EDM notch and stop when you get the maximum signal from the notch.

(4) Adjust the gain to put the maximum signal from the notch at 80% of FSH and 80% of FSW. See the screen display in Figure 4.

(5) Increase the gain by 6 dB.

5. Inspection Procedure

A. Examine the 1-2-3 beam straps on flap supports 1, 2, 7 and 8 for cracks around Code A fastener holes as follows:

(1) Calibrate the instrument to examine the near CW side of the fastener holes as specified in Paragraph 4.A. and Paragraph 4.B. See Figure 11, fastener Code A, near CW side and Figure 6.

NOTE: The side of the transducer positioner with the letters ''CW'' must face up.

(2) Put a sufficient quantity of couplant on the inspection surface that the transducer will touch.

(3) Start your examination of the Code A fastener holes on the left wing at flap support No. 1. Put the transducer positioner (with the transducer attached) adjacent to a Code A inspection fastener collar on the outboard strap. During the inspection:

(a) Move the positioner to examine the near CW side of as many Code A fasteners as possible on the outboard strap. Make sure that the transducer positioner touches the fastener collar when it is moved. See Figure 6.

NOTE: Move the transducer positioner as much as possible to examine for cracks in an up and down direction from the fastener holes.

(b) Make a record of all fastener hole locations that cause signals that are almost the same as the signal you got from the notch fastener hole in the reference standard that are 40% FSH or more and at 60 to 90% FSW.

(4) Do Paragraph 5.A.(2) and Paragraph 5.A.(3) again on all Code A fastener holes on the inboard strap of the No. 1 flap support. See Figure 6.

NOTE: View B-B of Figure 6 shows the outboard strap; the inboard strap and fastener hole locations are almost the same.

(5) To examine the near CCW side of the Code A fastener holes, do Paragraph 5.A.(1) thru Paragraph 5.A.(4) again but make sure that the side of the transducer positioner with the letters ''CCW'' is on top. Do the inspection on the outboard and inboard straps at flap support No. 1. See Figure 11, Code A, near CCW.

NOTE: View B-B of Figure 6 shows the outboard strap; the inboard strap and fastener hole locations are almost the same.

NOTE: Make sure that the near side of all Code A fastener holes on the outboard and inboard straps at flap support No. 1 have been examined after this step is completed.

(6) To examine the far CW side of the Code A fastener holes, do Paragraph 5.A.(1) thru Paragraph 5.A.(4) again but use the details in Figure 11, Code A, far CW. Examine the far side of as many Code A fasteners as possible on the outboard and inboard straps at flap support No. 1.

(7) To examine the far CCW side of the Code A fastener holes, do Paragraph 5.A.(1) thru Paragraph 5.A.(4) again but use the details in Figure 11, Code A, far CCW. Examine the far side of as many Code A fasteners as possible on the outboard and inboard straps at flap support No. 1. See Figure 6.

NOTE: Make sure that the far side of all Code A fastener holes on the outboard and inboard straps at flap support No. 1 have been examined after this step is completed.

(8) Examine the straps at flap supports 2, 7, and 8 as specified in Paragraph 5.A.(1) thru Paragraph 5.A.(7). Refer to Figure 7 for the flap support 2 and 7 inspection locations and Figure 6 for the flap support 8 inspection locations.

NOTE: The No. 7 flap support is almost the same as the No. 2 flap support and the No. 8 flap support is almost the same as the No. 1 flap support.

B. Examine the 1-2-3 beam on flap supports 1, 2, 7 and 8 for cracks around Code B fastener holes as follows:

(1) Do Paragraph 5.A.(1) thru Paragraph 5.A.(8) but examine Code B fastener locations. See Figure 11, Code B fastener instructions and Figure 6 and Figure 7.

C. Examine the 1-2-3 beam on flap supports 2 and 7 for cracks from the internal walls of the beam at the Code D flush head fastener locations.

NOTE: These steps examine the far side of the hole in the beam. The near side of the hole is examined with eddy current as specified in Paragraph 5.D.

(1) Calibrate your instrument as specified in Paragraph 4.C.

(2) Go to the inspection fasteners on the No. 2 support beam. There are two flush head fasteners on the No. 2 support beam. See Figure 8.

(3) Put the sound exit point of the transducer so that it is approximately 0.35 inch (9 mm) from the fastener hole to examine the top of the hole on the inboard side of the beam. See Figure 8.

(4) Move the front of the transducer to examine the top side of the hole. See Figure 8.

(a) Make a record of all fastener hole locations that cause signals to occur that are 40% of FSH (or more) and are almost the same as the signal you got from the notch in the reference standard.

(5) Do Paragraph 5.C.(3) and Paragraph 5.C.(4) again but to examine the bottom side of the hole. See Figure 8.

(6) Do Paragraph 5.C.(3) thru Paragraph 5.C.(5) again to examine the outboard side of the beam.

(7) Do Paragraph 5.C.(2) thru Paragraph 5.C.(6) again to examine the No. 7 support beam.

D. Examine the Code D flush head fasteners with a surface eddy current probe as specified in Part 6, 51-00-19, Fig. 9.

(1) Calibrate your instrument as specified in Part 6, 51-00-19. Use probe TSPEN95-6, reference standard NDT688, and a circle template to calibrate your instrument to find a crack that extends 0.040 inch (1.0 mm) (or more) out from the flush fastener head. See Figure 2, Flag note 4.

(2) Go to the inspection fasteners on the No. 2 support beam. There are two flush head fasteners on the support No. 2 beam. See Figure 9.

(3) Put the probe adjacent to the edge of the flush head fastener on the inboard side of the No. 2 support beam. Use a circle template to keep the probe at the same distance from the edge of the hole. See Figure 9.

(4) Slowly make a scan around the flush head fastener.

(a) Make a record of all fastener hole locations that cause signals to occur that are 40% of FSH (or more) and are almost the same as the signal you got from the notch fastener hole in the reference standard.

(5) Do Paragraph 5.D.(3) and Paragraph 5.D.(4) again around the flush fastener head on the outboard side of the support beam.

(6) Do Paragraph 5.D.(2) thru Paragraph 5.D.(5) again on the No. 7 support beam.

E. Examine the Code C fasteners with open hole eddy current.

(1) Calibrate your instrument as specified in Part 6, 51-00-16.

(2) Examine the open fastener holes as specified in Part 6, 51-00-16. See Figure 6, Figure 7, and Figure 10.

6. Inspection Results

A. Make an analysis of the ultrasonic inspection results as follows:

(1) Areas that cause ultrasonic signals to occur that are 40% (or more) of FSH and are approximately 60 to 90% of FSW are areas of possible cracks and must be examined more fully.

(a) Calibrate the instrument and do the inspection again.

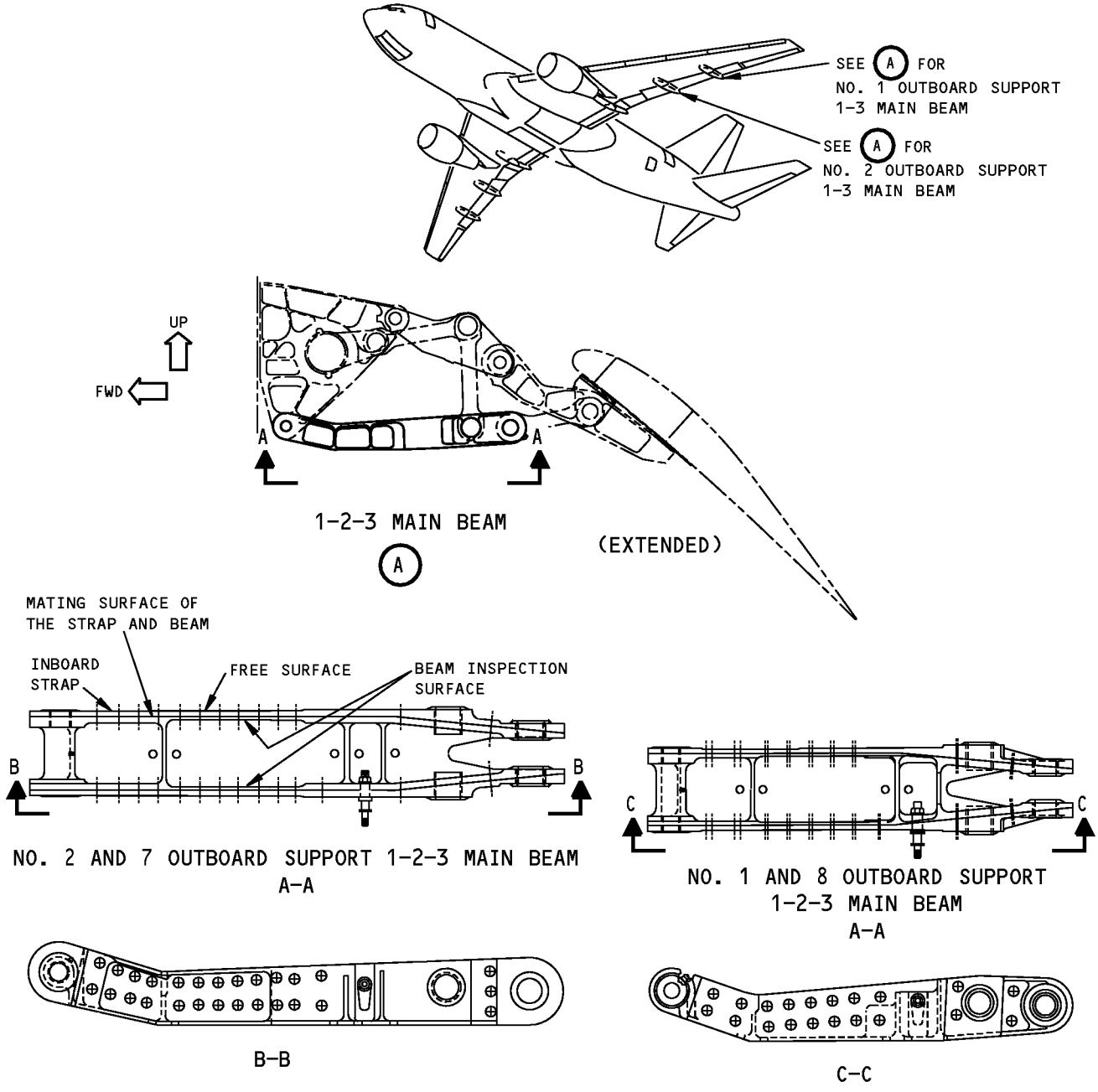
(b) Compare the signals that occurred during the inspection to the signals you got from the reference standard notch during calibration.

(2) To make sure that a fastener hole is cracked, remove the fastener and do an open hole eddy current inspection. Refer to Part 6, 51-00-04, Part 6, 51-00-11, or Part 6, 51-00-16.

B. Make an analysis of the eddy current inspection results as follows:

(1) For the open hole eddy current inspections, refer to Part 6, 51-00-16.

(2) For the surface eddy current inspections, refer to Part 6, 51-00-19.

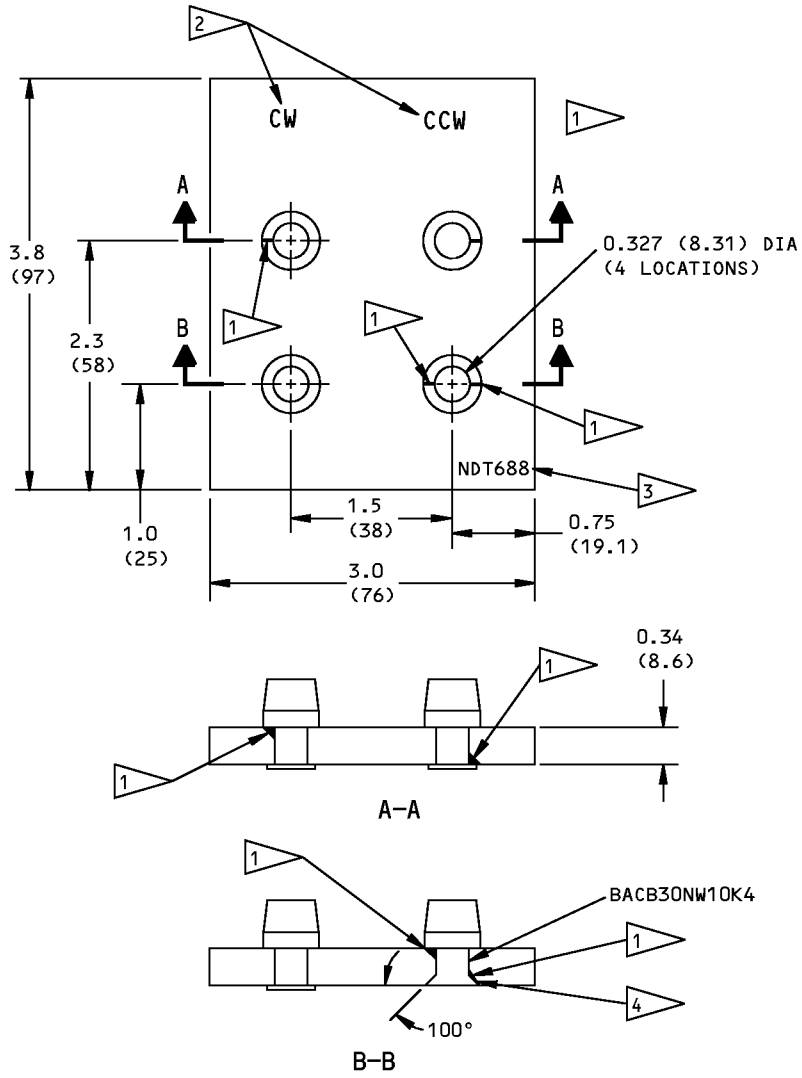


NOTES

- THE OUTBOARD SIDE OF THE SUPPORT BEAM IS SHOWN; THE INBOARD SIDE IS ALMOST THE SAME.
- THE LEFT WING IS SHOWN; THE RIGHT WING IS ALMOST THE SAME.
- THERE IS A TOTAL OF TWO BEAMS AND FOUR STRAPS ON EACH WING.

⊕ INSPECTION FASTENERS - EXAMINE THE FASTENER HOLES IN THE INBOARD AND OUTBOARD STRAPS AND THE INBOARD AND OUTBOARD SIDES OF THE BEAM.

1-2-3 Beam Inspection Areas
Figure 1



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCES (UNLESS SPECIFIED DIFFERENTLY):

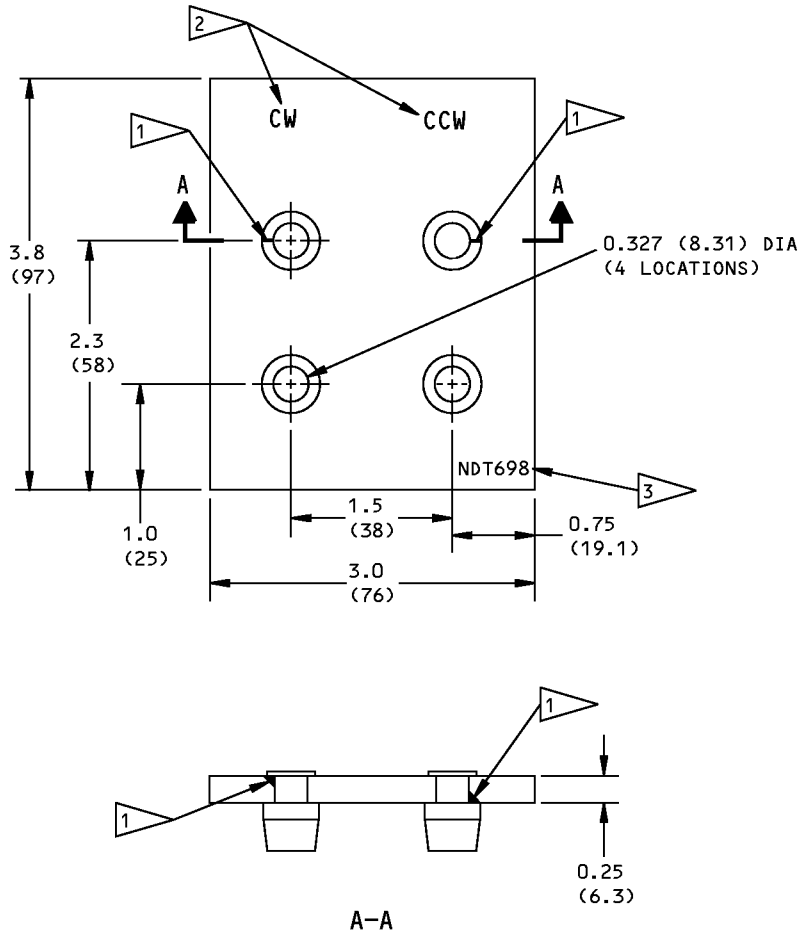
INCHES	MILLIMETERS
X.XXX = ± 0.005	X.XX = ± 0.10
X.XX = ± 0.025	X.X = ± 0.5
X.X = ± 0.050	X = ± 1
ANGULAR = ±1°	

- MATERIAL: 7075-T6 (OPTIONAL: 2024-T3,-T4)
- SURFACE ROUGHNESS: 63 Ra OR BETTER
- FASTENERS: BACB30MY10K4 (3); BACB30NW10K4 (1); COLLARS: BACC30M10 (4)

1. EDM NOTCH: 0.10 (2.5) X 0.10 (2.5) CORNER NOTCH; 0.015 (0.38) MAXIMUM WIDTH
2. ETCH OR STEEL STAMP CW AND CCW WHERE SHOWN
3. ETCH OR STAMP THE REFERENCE STANDARD NUMBER NDT688 WHERE SHOWN
4. CALIBRATE THE EDDY CURRENT INSTRUMENT TO FIND THIS EDM NOTCH

1311979 S0000224974_V2

Reference Standard NDT688
Figure 2



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCES (UNLESS SPECIFIED DIFFERENTLY):

INCHES	MILLIMETERS
X.XXX = ± 0.005	X.XX = ± 0.10
X.XX = ± 0.025	X.X = ± 0.5
X.X = ± 0.050	X = ± 1

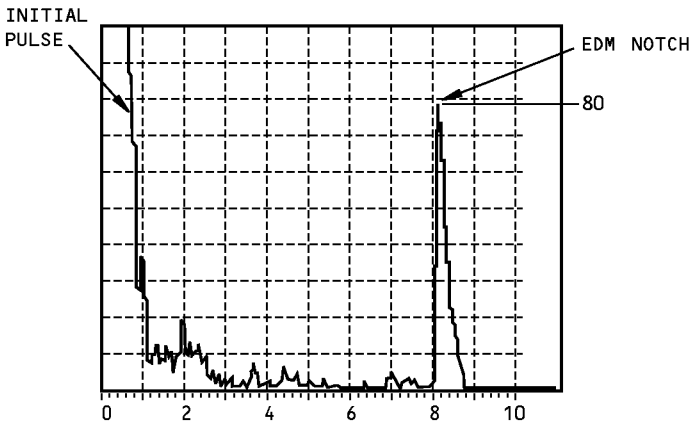
- MATERIAL: 7075-T6 (OPTIONAL: 2024-T3,-T4)
- SURFACE ROUGHNESS: 63 Ra OR BETTER
- FASTENERS: BACB30MY10K4; COLLARS: BACC30M10

1 EDM NOTCH: 0.10 (2.5) X 0.10 (2.5) CORNER NOTCH; 0.015 (0.38) MAXIMUM WIDTH

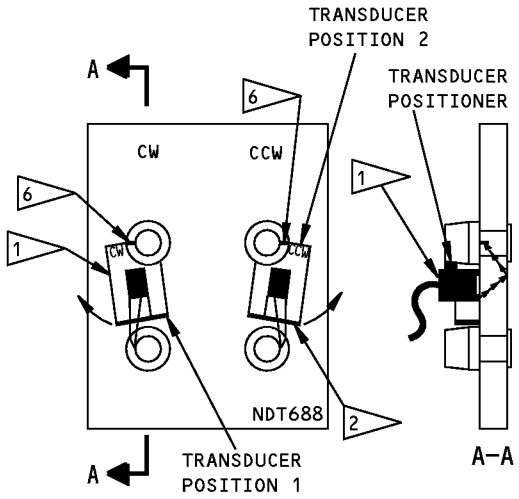
2 ETCH OR STEEL STAMP CW AND CCW WHERE SHOWN

3 ETCH OR STAMP THE REFERENCE STANDARD NUMBER NDT698 WHERE SHOWN

Reference Standard NDT698
Figure 3



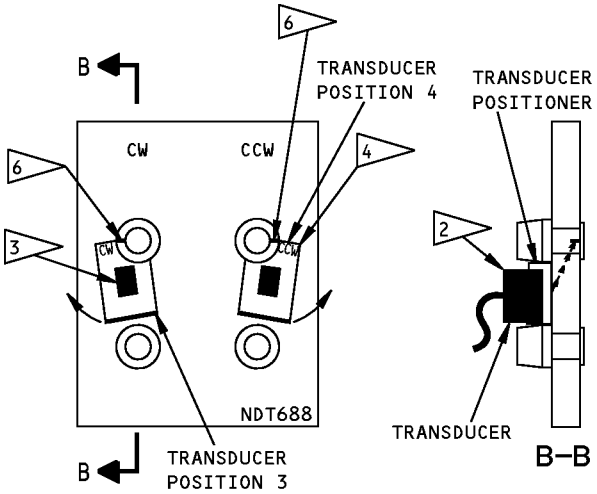
SCREEN DISPLAY



TRANSDUCER POSITIONS TO EXAMINE THE NEAR SIDES OF THE FASTENER HOLE

DETAIL 1

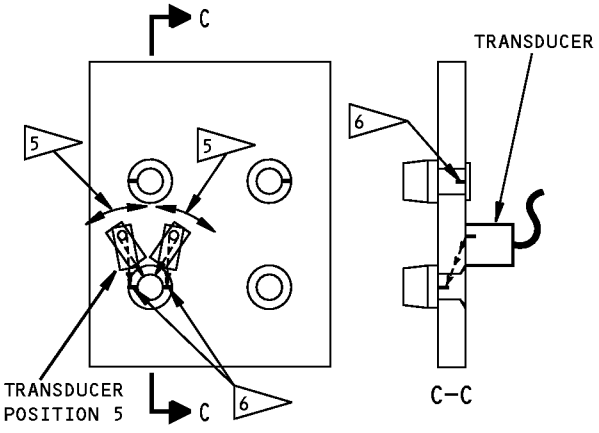
CODE A FASTENER EXAMINATION



TRANSDUCER POSITIONS TO EXAMINE THE FAR SIDES OF THE FASTENER HOLE

DETAIL 2

CODE A FASTENER EXAMINATION



TRANSDUCER POSITIONS TO EXAMINE THE FAR SIDES OF THE FLUSH HEADFASTENER HOLE

DETAIL 3

CODE D FASTENER EXAMINATION

Instrument Calibration on Reference Standard NDT688 for Code A and D Fasteners
Figure 4 (Sheet 1 of 2)

NOTES:

- CALIBRATION PROCEDURE TO FIND CRACKS AT THE NEAR SIDE OF CODE A FASTENER HOLES. USE TRANSDUCER TEK-5008-1N AND POSITIONER TEK-5008-1P.

  1 PUT TRANSDUCER TEK-5008-1N IN THE TRANSDUCER POSITIONER WITH THE CW SIDE UP. MAKE SURE THE TRANSDUCER IS PUT AT THE NEAREST POSITION TO THE FASTENER HOLE IN THE POSITIONER.

  - TRANSDUCER POSITION 1 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 1. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE LEFT SIDE OF THE FASTENER HOLE AS SHOWN.

  2 REMOVE THE TRANSDUCER FROM THE POSITIONER. PUT THE TRANSDUCER IN THE OPPOSITE SIDE OF THE POSITIONER WITH THE CCW SIDE UP TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

  - TRANSDUCER POSITION 2 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 2. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

- CALIBRATION PROCEDURE TO FIND CRACKS AT THE FAR SIDE OF CODE A FASTENER HOLES. USE TRANSDUCER TEK-5008-1F AND POSITIONER TEK-5008-1P.

  3 PUT THE TRANSDUCER IN THE TRANSDUCER POSITIONER WITH THE CW SIDE UP. THE TRANSDUCER WILL FIT TIGHTLY IN THE POSITIONER.

  - TRANSDUCER POSITION 3 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 3. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE LEFT SIDE OF THE FASTENER HOLE.

  4 REMOVE THE TRANSDUCER FROM THE POSITIONER AND PUT THE TRANSDUCER IN THE OPPOSITE SIDE OF THE POSITIONER WITH THE CCW SIDE UP TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

  - TRANSDUCER POSITION 4 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 4. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

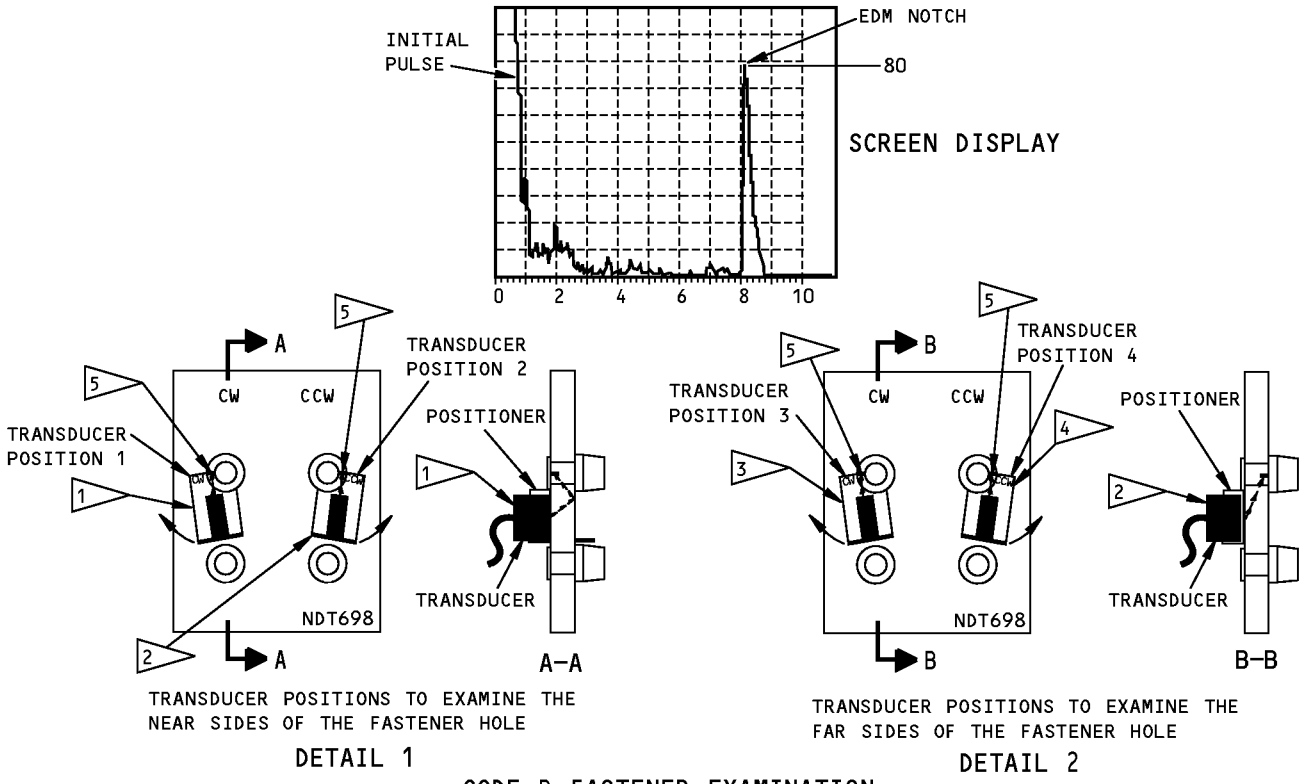
- CALIBRATION PROCEDURE TO FIND CRACKS AT THE FAR SIDE OF CODE D FLUSH FASTENER HOLES.

  5 PUT THE SOUND EXIT POINT OF THE TRANSDUCER APPROXIMATELY 0.35 INCH (0 MM) FROM THE FASTENER HOLE.

  6 EDM NOTCH

  - SOUND BEAM
  - TURN THE TRANSDUCER A SHORT DISTANCE IN THE DIRECTION OF THE ARROW 

Instrument Calibration on Reference Standard NDT688 for Code A and D Fasteners
Figure 4 (Sheet 2 of 2)



CODE B FASTENER EXAMINATION

NOTES:

- CALIBRATION PROCEDURE TO FIND CRACKS AT THE NEAR SIDE OF CODE B FASTENER HOLES. USE TRANSDUCER TEK-5008-2N AND POSITIONER TEK-5008-2P.

  (1) PUT TRANSDUCER TEK-5008-2N IN THE TRANSDUCER POSITIONER WITH THE CW SIDE UP. THE TRANSDUCER WILL FIT TIGHTLY.

  - TRANSDUCER POSITION 1 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 1. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE LEFT SIDE OF THE FASTENER HOLE AS SHOWN.

  (2) REMOVE THE TRANSDUCER FROM THE POSITIONER. PUT THE TRANSDUCER IN THE OPPOSITE SIDE OF THE TRANSDUCER WITH THE CCW SIDE UP TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

  - TRANSDUCER POSITION 2 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 2. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

- CALIBRATION PROCEDURE TO FIND CRACKS AT THE FAR SIDE OF CODE B FASTENER HOLES. USE TRANSDUCER TEK-5008-2F AND POSITIONER TEK-5008-2P.

  (3) PUT THE TRANSDUCER IN THE TRANSDUCER POSITIONER WITH THE CW SIDE UP. THE TRANSDUCER WILL FIT TIGHTLY IN THE POSITIONER.

  - TRANSDUCER POSITION 3 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 3. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE LEFT SIDE OF THE FASTENER HOLE.

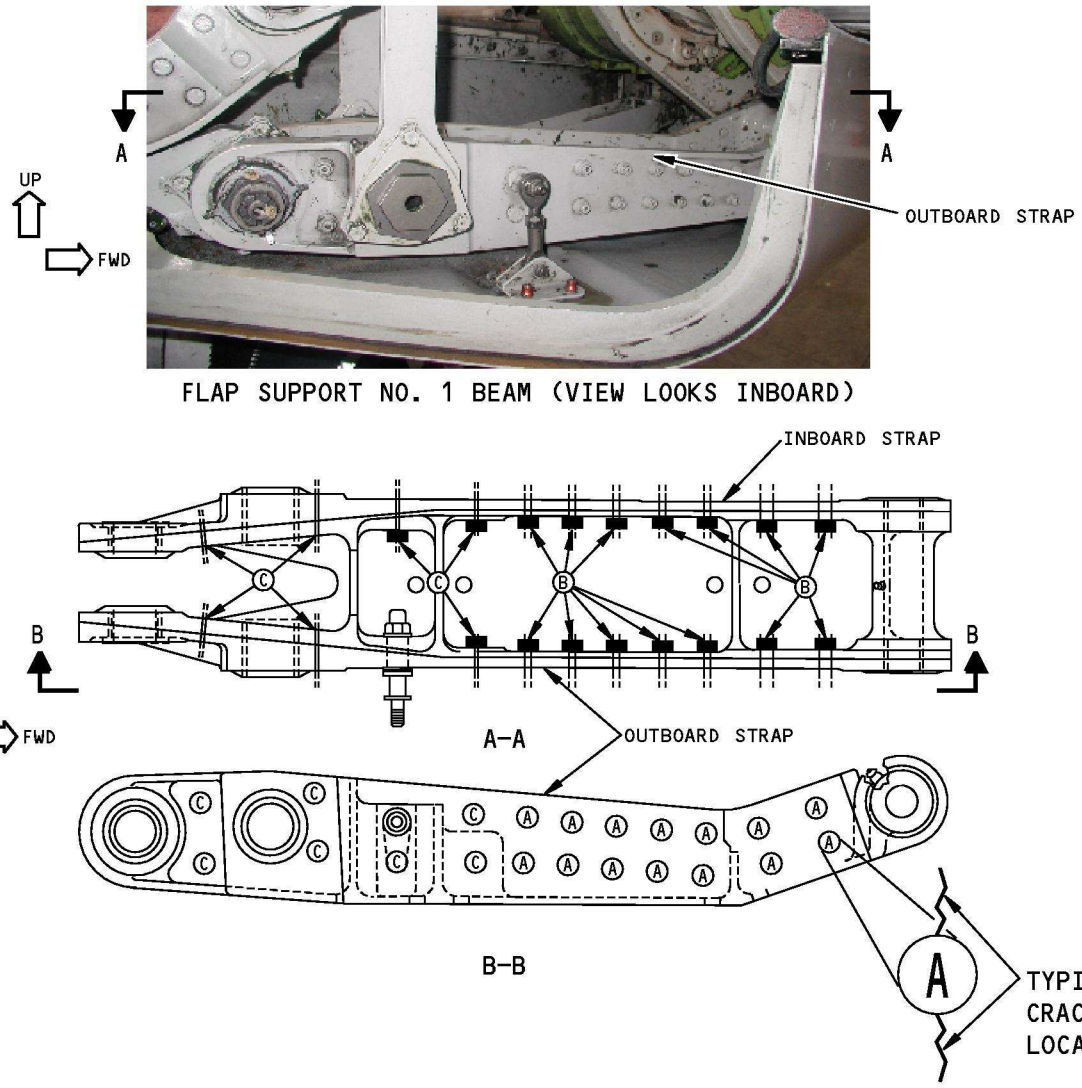
  (4) REMOVE THE TRANSDUCER FROM THE POSITIONER AND PUT THE TRANSDUCER IN THE OPPOSITE SIDE OF THE TRANSDUCER WITH THE CCW SIDE UP TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

  - TRANSDUCER POSITION 4 - PUT THE TRANSDUCER POSITIONER AT TRANSDUCER POSITION 4. MOVE THE POSITIONER TO THE EDM NOTCH TO EXAMINE THE RIGHT SIDE OF THE FASTENER HOLE.

  (5) EDM NOTCH

  - SOUND BEAM
  - TURN THE TRANSDUCER A SHORT DISTANCE IN THE DIRECTION OF THE ARROW

Instrument Calibration on Reference Standard NDT698 for Code B Fasteners
Figure 5



FLAP SUPPORT NO. 1 BEAM (VIEW LOOKS INBOARD)

NOTES:

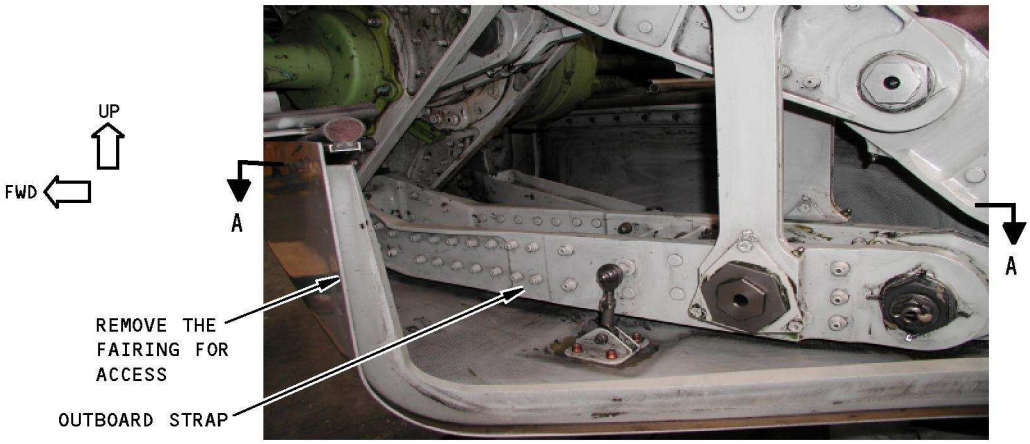
- THE OUTBOARD SIDE OF THE SUPPORT BEAM IS SHOWN; THE INBOARD SIDE IS ALMOST THE SAME.
- FLAP SUPPORT NO. 1 IS SHOWN; FLAP SUPPORT NO. 8 IS ALMOST THE SAME.
- DO THE STEPS THAT FOLLOW TO EXAMINE THE FASTENER HOLES IN THE INBOARD AND OUTBOARD STRAPS AND THE BEAM.

Ⓐ USE POSITIONER TEK-5008-1P TO EXAMINE A TOTAL OF 15 FASTENER HOLES IN EACH STRAP.

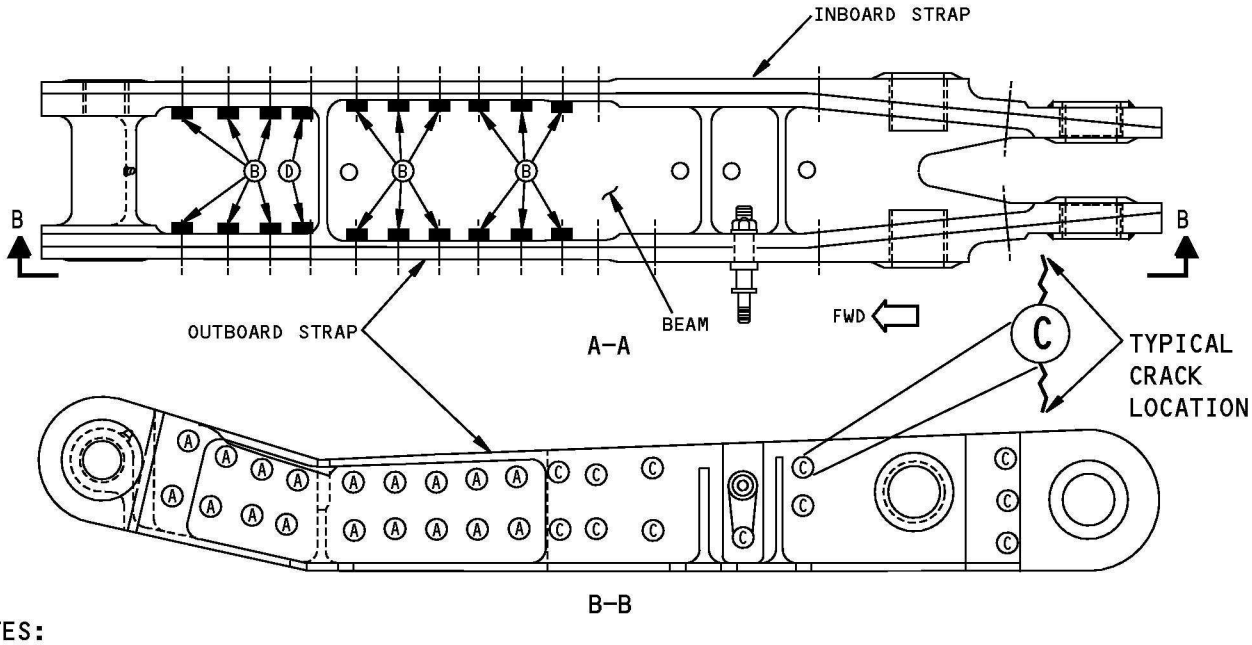
Ⓑ USE POSITIONER TEK-5008-P2P TO EXAMINE A TOTAL OF 14 CODE B FASTENER HOLES IN THE OUTBOARD AND INBOARD SIDES OF THE BEAM. PUT THE POSITIONER ADJACENT TO THE FASTENER HEAD.

Ⓒ IT IS NECESSARY TO DO AN OPEN HOLE EDDY CURRENT INSPECTION AT THESE LOCATIONS. REFER TO PART 6, 51-00-14 FOR THE INSPECTION PROCEDURE.

Flap Supports No. 1 and No. 8 Inspection Details
Figure 6



FLAP SUPPORT NO. 2 BEAM (VIEW LOOKS INBOARD)



B-B

NOTES:

- THE OUTBOARD SIDE OF THE SUPPORT BEAM IS SHOWN; THE INBOARD SIDE IS ALMOST THE SAME.
- FLAP SUPPORT NO. 2 IS SHOWN; FLAP SUPPORT NO. 7 IS ALMOST THE SAME.
- DO THE STEPS THAT FOLLOW TO EXAMINE THE UPPER AND LOWER ENDS OF THE FASTENER HOLES IN THE INBOARD AND OUTBOARD STRAPS.
- EXAMINE ONLY THE UPPER AND LOWER SIDES OF EACH FASTENER HOLE.

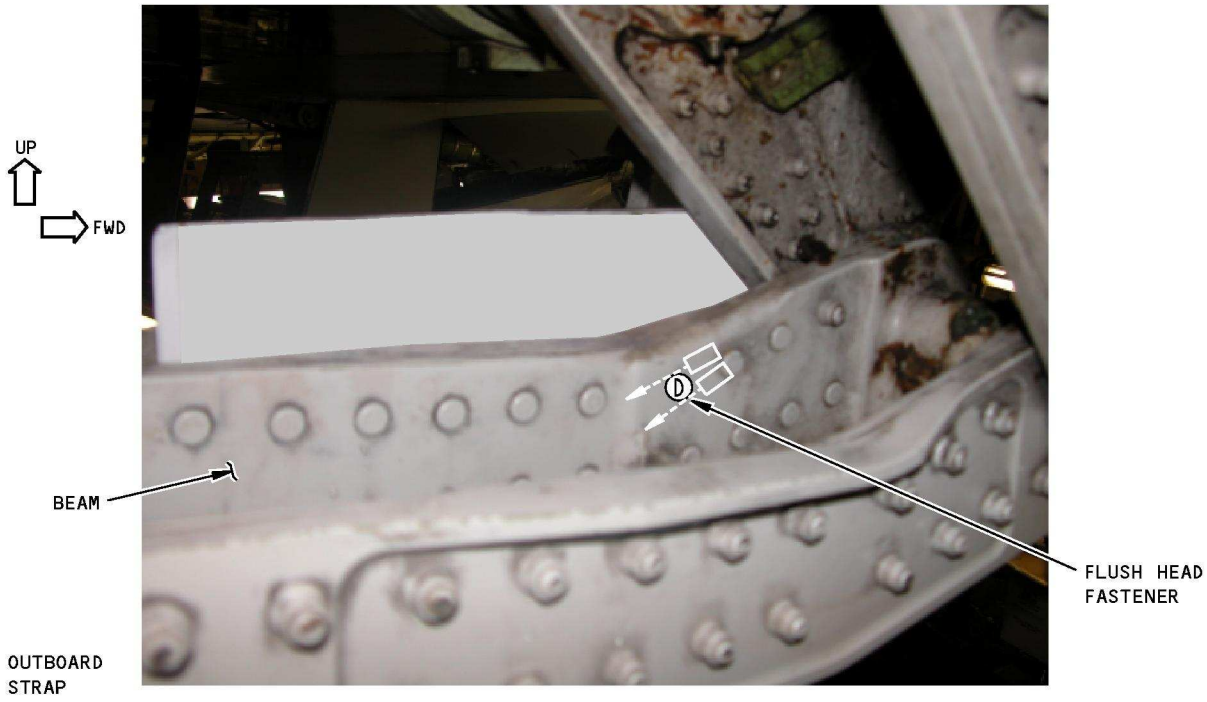
(A) USE POSITIONER TEK-5008-1P TO EXAMINE 18 CODE A FASTENER HOLES IN THE OUTBOARD AND INBOARD STRAPS. PUT THE POSITIONER ADJACENT TO THE FASTENER COLLAR.

(B) USE POSITIONER TEK-5008-P2P TO EXAMINE 18 CODE B FASTENER HOLES IN THE INTERNAL (OUTBOARD AND INBOARD) SIDES OF THE BEAM. PUT THE POSITIONER ADJACENT TO THE FASTENER HEAD.

(C) IT IS NECESSARY TO DO AN OPEN HOLE EDDY CURRENT INSPECTION AT THESE FASTENER HOLES LOCATIONS. REFER TO PART 6, 51-00-14, FOR THE INSPECTION PROCEDURE.

(D) FLUSH HEAD FASTENER - SEE FIGURE 8 TO EXAMINE THESE FASTENER HOLES.

Flap Supports No. 2 and No. 7 Inspection Details
Figure 7



NO. 2 SUPPORT BEAM ULTRASONIC INSPECTION
VIEW LOOKS INBOARD

NOTES:

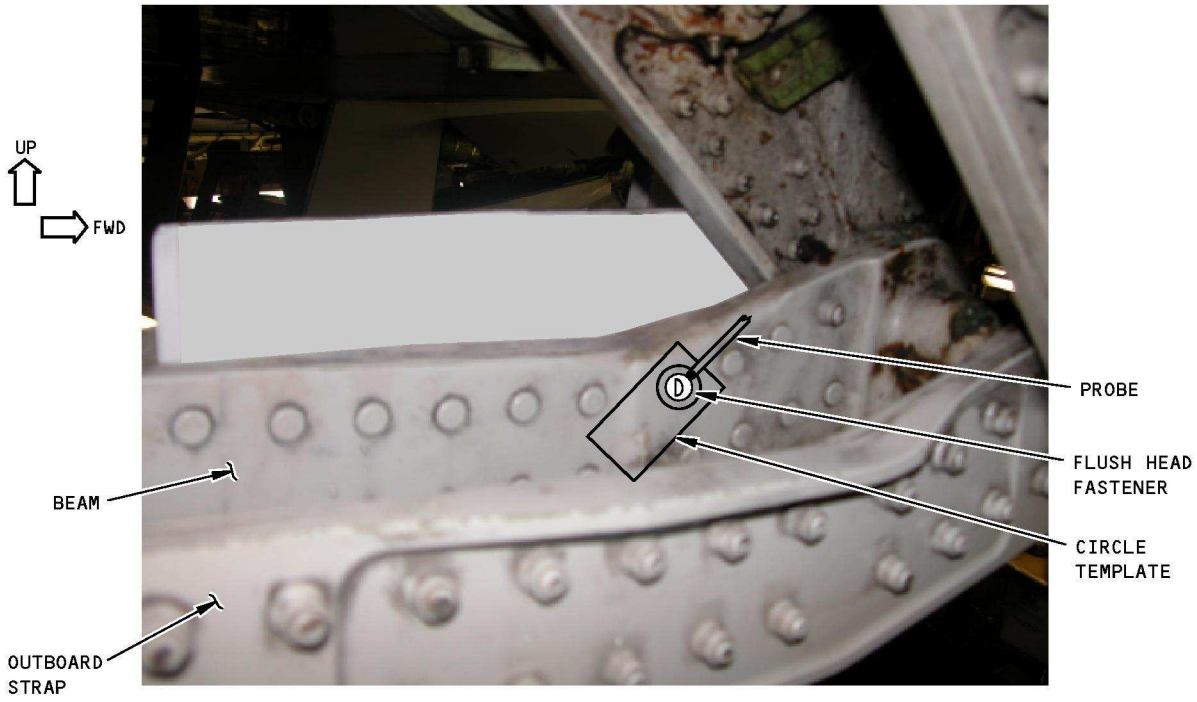
- FLAP SUPPORT NO. 2 IS SHOWN; FLAP SUPPORT NO. 7 IS ALMOST THE SAME.
- THE INBOARD SIDE OF THE BEAM IS SHOWN; THE OUTBOARD SIDE IS ALMOST THE SAME.
- EXAMINE THE FAR SIDE OF THE FLUSH HEAD FASTENER HOLE IN THE BEAM WITH AN ANGLE BEAM TRANSDUCER. USE THE TEK-5008-1F TRANSDUCER TO EXAMINE THE TOP AND BOTTOM OF THE HOLE FOR CRACKS.

(D) FLUSH HEAD FASTENER - THERE ARE TWO FASTENER HOLES ON THE NO. 2 AND NO. 7 SUPPORT BEAMS.

TRANSDUCER

SOUND BEAM

Flap Support No. 2 and No. 7 Code D Ultrasonic Inspection
Figure 8



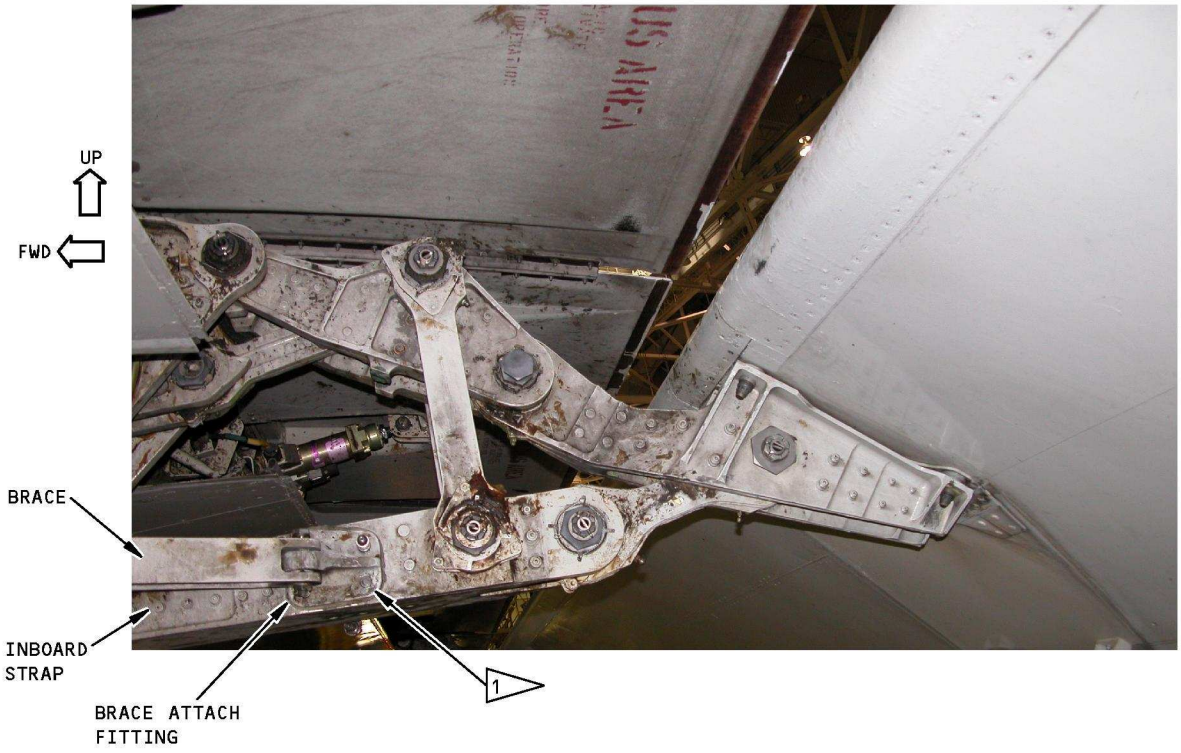
NO. 2 SUPPORT BEAM SURFACE EDDY CURRENT INSPECTION
VIEW LOOKS INBOARD

NOTES:

- FLAP SUPPORT NO. 2 IS SHOWN; FLAP SUPPORT NO. 7 IS ALMOST THE SAME.
- THE INBOARD SIDE OF THE BEAM IS SHOWN; THE OUTBOARD SIDE IS ALMOST THE SAME.
- EXAMINE THE BEAM AROUND THE FLUSH HEAD FASTENER WITH A SURFACE EDDY CURRENT PROBE. USE A CIRCLE TEMPLATE TO KEEP THE PROBE AT THE SAME DISTANCE FROM THE FASTENER HEAD.

(D) FLUSH HEAD FASTENER - THERE ARE TWO FASTENER HOLES ON THE NO. 2 AND NO. 7 SUPPORT BEAMS.

Flap Support No. 2 and No. 7 Code D Eddy Current Inspection
Figure 9



FLAP SUPPORT NO. 2
VIEW LOOKS OUTBOARD

NOTES:

- FLAP SUPPORT NO. 2 IS SHOWN; OTHER FLAP SUPPORTS ARE ALMOST THE SAME.
- THE INBOARD STRAP IS SHOWN; OTHER INBOARD STRAPS ARE ALMOST THE SAME.

1 REMOVE THE BRACE ATTACH FITTING AND DO AN OPEN HOLE EDDY CURRENT INSPECTION OF THE FOUR HOLES IN THE INBOARD STRAP AND BEAM

Brace Removal Locations
Figure 10

FASTENER CODE/ AREA OF HOLE TO BE EXAMINED	CALIBRATION FIGURE AND DETAIL	PUT THE TRANSDUCER POSITIONER ADJACENT TO THE FASTENER _____.	TRANSDUCER POSITIONER FACE UP CW/CCW	TRANSDUCER NUMBER	TRANSDUCER POSITIONER NUMBER	REFERENCE STANDARD THICKNESS	MOVE THE TRANSDUCER TO THE____ SIDE OF THE FASTENER ON THE REFERENCE STANDARD	INSPECTION FIGURE/ NUMBER OF FASTENER HOLES
A/NEAR "CW"	FIG. 4/ DETAIL 1	COLLAR	CW	TEK-5008-1N	TEK-5008-1P	NDT688/ 0.34 INCH (8.6 mm)	LEFT	FIG. 6/15 FIG. 7/18
A/NEAR "CCW"	FIG. 4/ DETAIL 1	COLLAR	CCW	TEK-5008-1N	TEK-5008-1P	NDT688/ 0.34 INCH (8.6 mm)	RIGHT	FIG. 6/15 FIG. 7/18
A/FAR "CW"	FIG. 4/ DETAIL 2	COLLAR	CW	TEK-5008-1F	TEK-5008-1P	NDT688/ 0.34 INCH (8.6 mm)	LEFT	FIG. 6/15 FIG. 7/18
A/FAR "CCW"	FIG. 4/ DETAIL 2	COLLAR	CCW	TEK-5008-1F	TEK-5008-1P	NDT688/ 0.34 INCH (8.6 mm)	RIGHT	FIG. 6/15 FIG. 7/18
B/NEAR "CW"	FIG. 5/ DETAIL 1	HEAD	CW	TEK-5008-2N	TEK-5008-2P	NDT698/ 0.25 INCH (6.3 mm)	LEFT	FIG. 6/14 FIG. 7/18
B/NEAR "CCW"	FIG. 5/ DETAIL 1	HEAD	CCW	TEK-5008-2N	TEK-5008-2P	NDT698/ 0.25 INCH (6.3 mm)	RIGHT	FIG. 6/14 FIG. 7/18
B/FAR "CW"	FIG. 5/ DETAIL 2	HEAD	CW	TEK-5008-2F	TEK-5008-2P	NDT698/ 0.25 INCH (6.3 mm)	LEFT	FIG. 6/14 FIG. 7/18
B/FAR "CCW"	FIG. 5/ DETAIL 2	HEAD	CCW	TEK-5008-2F	TEK-5008-2P	NDT698/ 0.25 INCH (6.3 mm)	RIGHT	FIG. 6/14 FIG. 7/18
C OPEN HOLE	PART6 51-00-16	____	____	____	____	____	____	FIG. 6/6 FIG. 7/12
D FAR FLUSH HEAD	FIG. 4/ DETAIL 3	____	____	TEK-5008-1F	____	NDT688	LEFT AND RIGHT	FIG. 7 AND 8/2
D NEAR SURFACE HFEC	PART6 51-00-19	____	____		____	NDT688		

TABLE 1

Inspection and Calibration Data
Figure 11

FUSE PINS AT FLAP SUPPORTS 1 THRU 8

1. Purpose

A. Use this procedure to examine the 113T1263 fuse pins that are approximately 7 inches or less for cracks.

B. These pins are installed at inboard and outboard trailing edge flap supports 1 thru 8 at the joint locations identified in Figure 10 (flag note 1) and Figure 1 and Figure 2.

C. Cracks can occur circumferentially on the outside diameter of the fuse pin. The minimum crack that can be found with this procedure is 0.050 inch deep by 0.100 inch long (1.29 by 2.58 mm).

D. This inspection is done from the head end of the pin. See Figure 1 and Figure 9.

E. Three MPD items are examined with this procedure:

(1) MPD DTR Check Form Item 57-53-I02M.6 examines the pins at flap supports 1, 2, 7, and 8. Part 4, 57-50-05 is also necessary to complete this DTR Check Form Item.

(2) MPD DTR Check Form Item 57-53-I04N.3 examines the pins at flap supports 3 and 6. Part 4, 57-50-05 is also necessary to complete this DTR Check Form Item.

(3) MPD DTR Check Form Item 57-53-I04AA examines the pins at flap supports 4 and 5. Part 4, 57-50-08 is also necessary to complete this DTR Check Form Item.

2. Equipment

A. General

(1) Use inspection equipment that can 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 ultrasonic instrument that can operate at 10 MHz. Broadband instruments can also be used if they can do the calibration instructions of this procedure.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 60; Krautkramer Branson

(b) MASTER SCAN 340; Sonatest

C. Transducer

(1) Use a zero degree, longitudinal wave transducer with a crystal diameter of 0.125 inch (3.18 mm) for fuse pins that are examined with a transducer positioner. Use a zero degree, longitudinal wave transducer with a crystal diameter that is not larger than 0.188 inch (4.77 mm) for all other fuse pins. Figure 10 identifies the transducer to use for each fuse pin.

(2) A 10 MHz transducer is recommended, but other frequencies can be used if the instrument can be calibrated as specified in Paragraph 4.

(3) The transducers that follow were used to help prepare this procedure.

(a) 10 MHz, 0.125 inch (3.18 mm) diameter, 0 degree transducer. Case dimensions: 0.188 inch (4.77 mm) diameter by 0.62 inch (15.7 mm) long. The part number is 389-002-190 Gamma and it is made by KB-Aerotech.

(b) 10 MHz, 0.188 inch (4.77 mm) diameter, 0 degree transducer. Case dimensions: 0.313 inch (7.95 mm) diameter by 0.75 inch (19.1 mm) long. The part number is SPO 6283 and it is made by Nortec.

D. Reference Standards

(1) Make reference standard NDT690 as specified in Figure 3.

E. Transducer Positioners

(1) Make three transducer positioners NDT690-P1, NDT690-P2, and NDT690-P3 as specified in Figure 4.

F. Couplant

(1) All ultrasonic couplants that will not damage the airplane structure can be used. Commercial grease or oil can be used if the sensitivity conditions of Paragraph 4. are satisfactory.

3. Preparation for Inspection

A. Identify the support and the joint for the location of the fuse pin to be examined. Refer to Figure 10 (flag note 1) and Figure 1 and Figure 2.

NOTE: Some pins are at more than one support or joint within the support.

B. Identify the inspection surface area. The inspection surface is the head end of the fuse pin. This area is shown in Figure 1 and Figure 9.

C. Get access to the hex head inspection surface of the fuse pin. It is necessary to remove the retainer caps (if they are there) and inner pins to get access to the inspection surface.

D. Remove all dirt, sealant and loose paint from the inspection surface areas of the fuse pin (the areas that the transducer will touch) and clean the area fully.

4. Instrument Calibration

NOTE: The reference standard has three sensitivity calibration positions identified as ''transducer position 2'', ''transducer position 3'', and ''transducer position 4''. Table 1 identifies what calibration position to use for each fuse pin. See Figure 6 and Figure 7.

NOTE: A transducer positioner is necessary to examine some of the fuse pins. There are three different positioners used for this procedure. See Figure 10.

NOTE: Because a transducer positioner is used to examine some, but not all, fuse pins, when the word ''transducer'' is used in this procedure, it can be that the transducer is used alone or that the transducer is in the positioner.

A. Connect the transducer to the instrument with a coaxial cable and do the initial adjustments of the instrument.

B. Set the instrument frequency to 10 MHz.

C. Identify the part number of the pin to be examined.

D. If it is necessary to use a transducer positioner to examine the fuse pin, identify the applicable positioner as specified in Figure 10.

(1) Put the transducer into the positioner made for the pin to be examined. Align the bottom of the transducer with the bottom of the positioner. See Figure 9.

E. Calibrate the screen range of the instrument as follows:

NOTE: It is not necessary to use the transducer positioner to calibrate the screen range.

(1) For the 113T1263-5 fuse pin:

(a) Put couplant at position 1 on reference standard NDT690. Put the transducer at position 1 as shown in Figure 5.

(b) Adjust the instrument delay and range controls to get the back surface signals at approximately 33%, 66%, and 99% of full screen width (FSW). The instrument is now calibrated for a 6.0 inch (152 mm) screen range. See Figure 5, Detail 2.

(2) For all other fuse pins:

(a) Put couplant at position 1 on reference standard NDT690. Put the transducer at position 1 as shown in Figure 5.

(b) Adjust the instrument delay and range controls to get the back surface signals at approximately 40% and 80% of FSW. The instrument is now calibrated for a 5.0 inch (127 mm) screen range. See Figure 5, Detail 1.

F. Calibrate the instrument for sensitivity as follows:

NOTE: If the positioner is necessary to examine the fuse pin, then the positioner must be used for the sensitivity calibration of the instrument.

(1) Refer to Figure 10 (flag note 4) to identify the transducer calibration position on the reference standard for the fuse pin to be examined.

NOTE: Two separate sensitivity calibrations are necessary to fully examine the fuse pin. A calibration of the near notch is used to examine the inspection area of the fuse pin that is nearest to the transducer. The calibration of the far notch is used to examine the inspection area of the fuse pin that is farther from the transducer.

(a) For the near notch calibration, the instrument is calibrated at transducer position 2 to identify cracks that can occur between 0 and 40% of FSW. Refer to Figure 6.

(b) For the far notch calibration, the instrument is calibrated at transducer position 3 or transducer position 4 as identified in Figure 10 (flag note 4) to identify cracks that can occur between 40 and 100% of FSW. Refer to Figure 7.

(2) Put couplant on the surface of the reference standard at the applicable transducer position.

(3) Put the transducer on the reference standard so it is above the applicable notch.

(4) Move and turn the transducer above the notch to get the maximum signal height from the notch.

(a) There will be multiple signals from the reference notch. Refer to Figure 6 (flag notes 2 and 4) for the near notch calibration and Figure 7 (flag notes 3, 6, 7) for the far notch calibration to identify the correct signal to use.

Table 1 Screen Display Signal Locations

POSITION	5 INCH SCREEN	6 INCH SCREEN
2	40% FSW	33% FSW
3	60% FSW	50% FSW
4	80% FSW	66% FSW

(5) Adjust the instrument gain controls to put the maximum notch signal at 80% of full screen height (FSH).

G. Examine all noise signals to make sure the signal-to-noise ratio is larger than 3:1 for the applicable areas.

(1) It is acceptable to have high noise if it is not in your area of interest; Detail 2 (flag note 9) of Figure 7 shows high noise and low noise with the area of interest at 40 to 100% of FSW. If the signal to noise ratio is less than 3:1, try a different transducer.

5. Inspection Procedure

A. Prepare for the inspection as specified in Paragraph 3.

B. Examine the fuse pin for cracks that can occur between 0 and 40% of FSW (near notch area).

(1) Calibrate the instrument as specified in Paragraph 4.F.(1)(a).

(2) Put couplant on the inspection surface of the fuse pin. See Figure 1 and Figure 9 for the inspection surface area.

(3) Put the transducer on the fuse pin inspection area and monitor the first signal from the back surface of the fuse pin. Refer to Figure 10 (flag note 2) to identify the approximate location of the back surface signal for the fuse pin to be examined.

(4) If you examine a pin without the transducer positioner, be careful not to go outside of the inspection area. If you go outside of the inspection area, the back surface signal from the fuse pin will go out of view and the back surface signal of the flange of the fuse pin and its multiples will occur as shown in Figure 9.

NOTE: If you do not get a back surface signal, do a check to make sure there is a good transducer contact.

NOTE: Fuse pins 113T1263-7 and -23 have a key way and a step that cause type signals to occur. See Figure 8 for details.

(5) Look for signals that are between the initial pulse and 40% of FSW that are 40% or more of FSH.

C. Examine the fuse pin for cracks that can occur between 40 and 100% of FSW (far notch area).

(1) Do Paragraph 5.B.(1) thru Paragraph 5.B.(5) again except calibrate the instrument as specified in Paragraph 4.F.(1)(b) and look for signals that are between 40% and 100% of FSW and 40% or more of FSH.

6. Inspection Results

A. A fuse pin that does not have a crack indication and does not show a loss of the back surface signal is acceptable.

B. A loss of the back surface signal can be caused by a crack in the fuse pin.

C. Do more analysis on the fuse pin when an ultrasonic signal occurs in the inspection range that is 40% or more of FSH.

(1) Make sure that the signal is not caused by too much couplant.

(2) Clean the inspection area and examine the area again with a small quantity of couplant.

(3) It is possible that a surface condition on the inner surface of the fuse pin bore has caused the signal. Look at the inner diameter of the fuse pin at the approximate location that causes the ultrasonic signal to occur. Try to dampen the ultrasonic signal. Put a small quantity of couplant on the tip of a cotton swab and rub the inner surface of the pin at the location that causes the ultrasonic signal to occur. The signal will move up and down if a surface condition has caused the ultrasonic signal.

(4) Take the weight off of the fuse pin and move the fuse pin out a short distance. Do a check again to see if the ultrasonic signal moved to a different location on the screen display or went away.

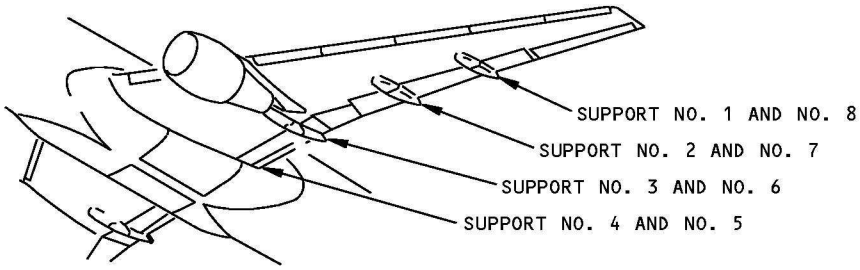
(a) If the ultrasonic signal has not changed, reject the pin.

D. Do other nondestructive examinations on the fuse pin to identify the cause of the ultrasonic signal. Remove the fuse pin and do one or more of the procedures that follow:

(1) Visual inspection of the outside diameter.

(2) Magnetic particle inspection. Refer to the Standard Overhaul Practices manual, Subject 20-20-01.

(3) High frequency eddy current inspection. Refer to Part 6, 51-00-21.

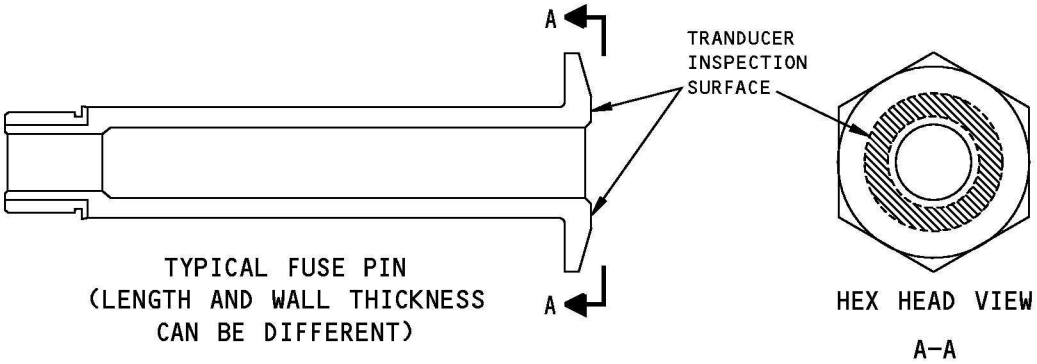


SUPPORTS NO. 1 THRU NO. 4 ON THE LEFT WING ARE SHOWN;
SUPPORTS NO. 5 THRU NO. 8 ON THE RIGHT WING ARE OPPOSITE.

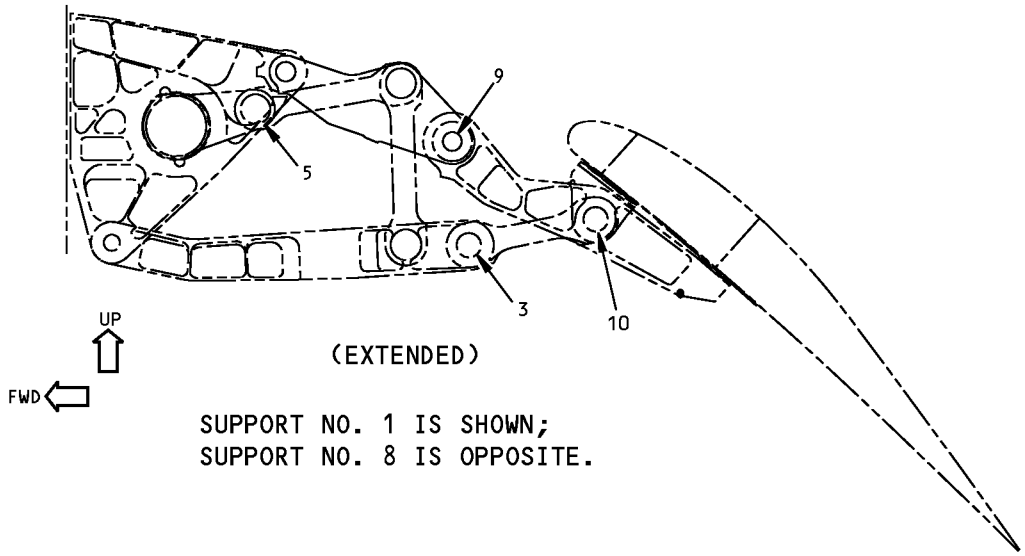
SUPPORT NO. 1 IN THE EXTENDED POSITION

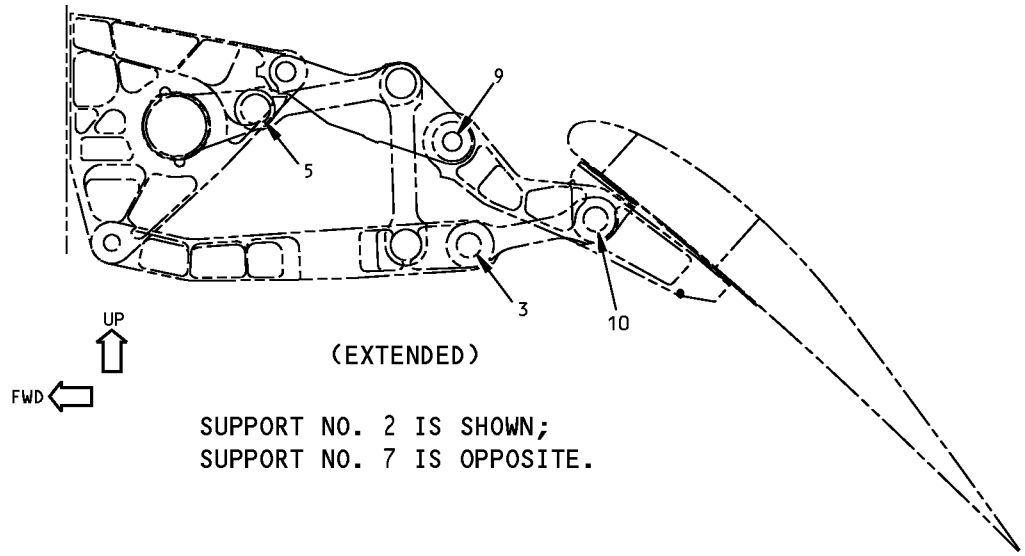
TYPICAL JOINT WHERE THE FUSE PIN IS USED

NOTE: THIS IMAGE OF SUPPORT NO. 1 IS SHOWN AS AN EXAMPLE. OTHER SUPPORTS CAN LOOK DIFFERENT. SEE FIGURE 2 FOR OTHER SUPPORT DETAILS AND JOINT LOCATIONS.

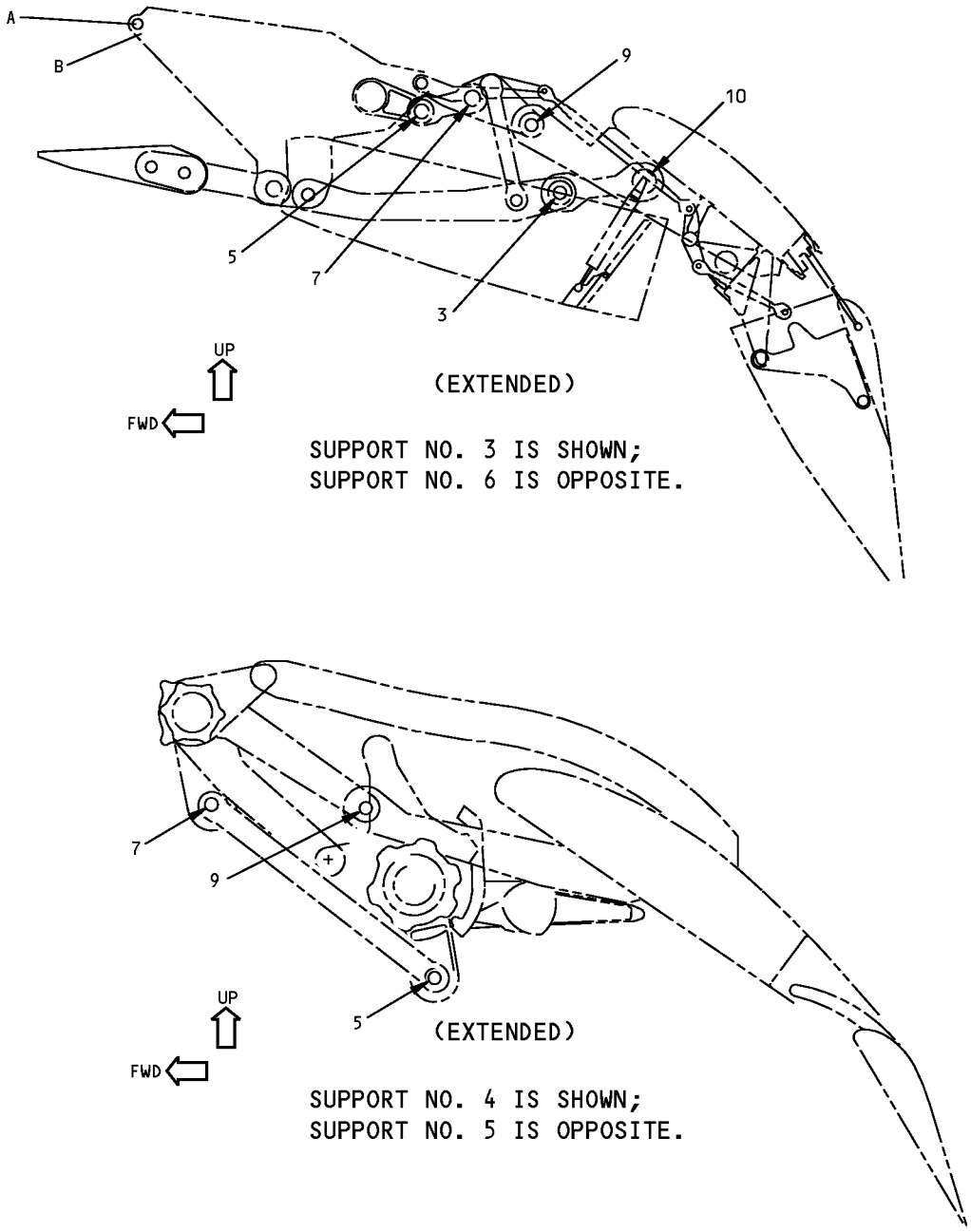


Flap Support Assembly
Figure 1

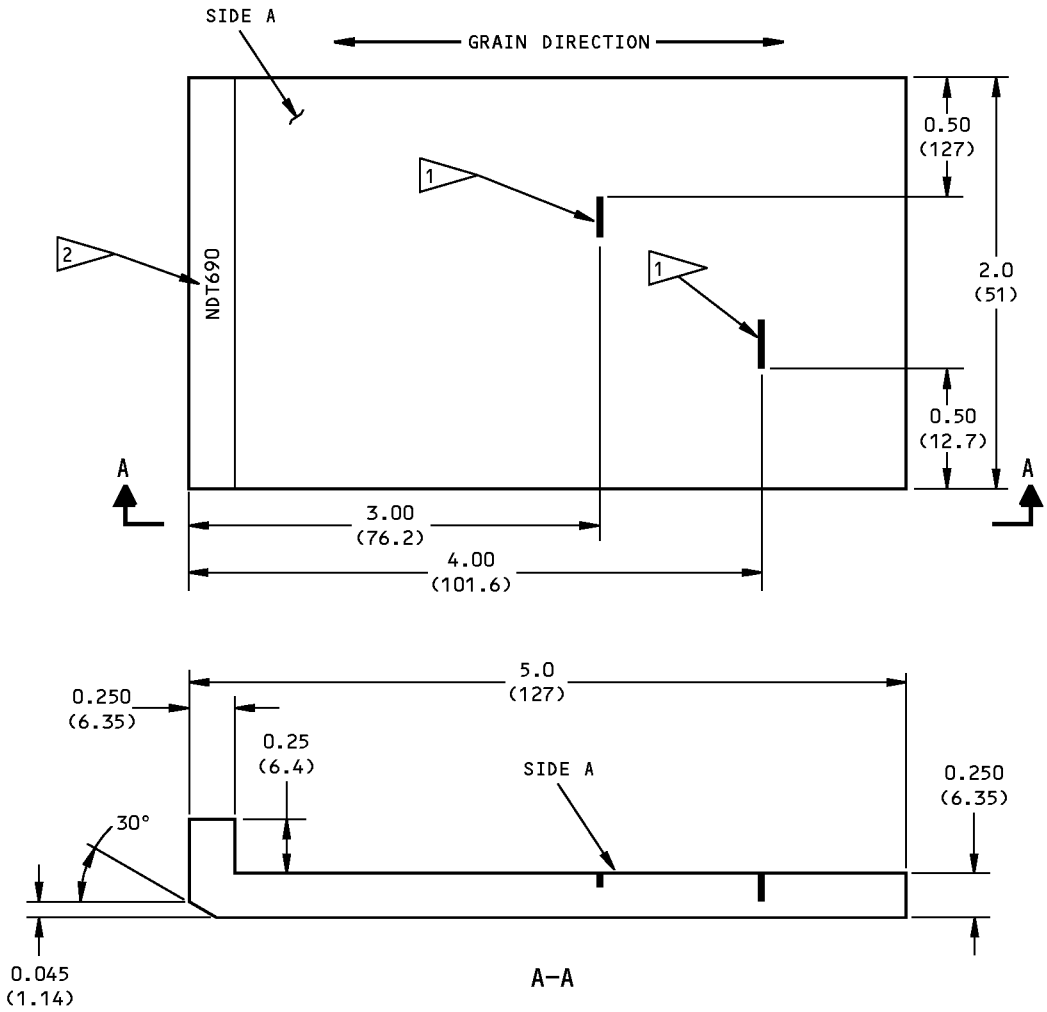




Joint Locations
Figure 2 (Sheet 1 of 2)



Joint Locations
Figure 2 (Sheet 2 of 2)



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY):

INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.05	X = ±1

ANGULAR ±1°

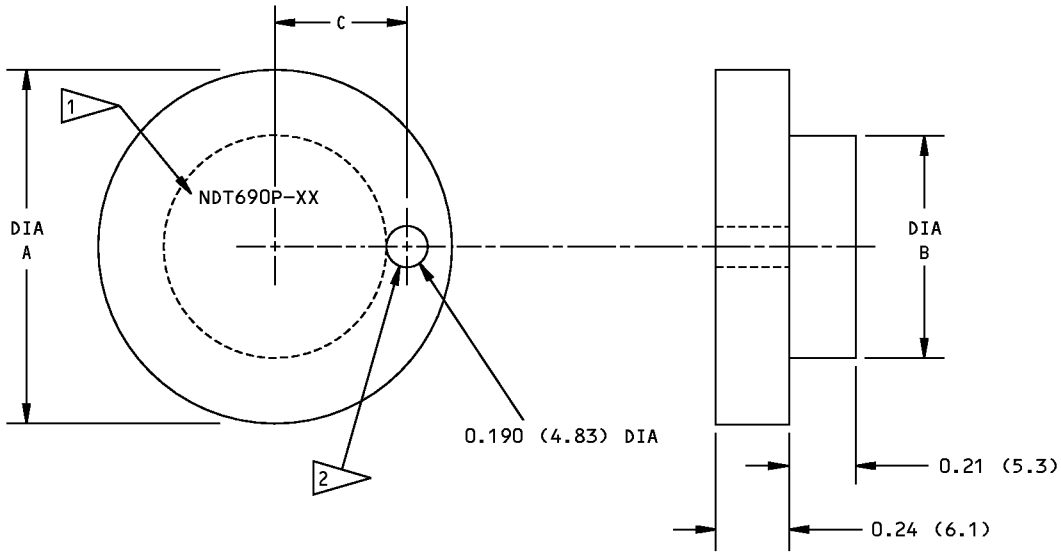
- MATERIAL: 15-5PH CRES. THIS MATERIAL MUST BE NORMALIZED. REFER TO PART 1, 51-01-00, PAR. 7.C.
- SURFACE FINISH: 16 Ra ON SIDE A, 63 Ra ON ALL OTHER SIDES.

1 EDM NOTCHES: 0.050 (1.27) DEEP; 0.100 (2.54) LONG; 0.010 (0.25) WIDE (MAXIMUM)

NOTCH ORIENTATION: THE LENGTH OF THE NOTCH MUST BE PARALLEL TO THE WIDTH OF THE REFERENCE STANDARD AND PERPENDICULAR TO THE LENGTH OF THE REFERENCE STANDARD.

2 ETCH OR STEEL STAMP REFERENCE STANDARD NUMBER NDT690 AT APPROXIMATELY THIS LOCATION.

Reference Standard NDT690
Figure 3



TRANSDUCER POSITIONER	DIMENSIONS		
	A	B	C
NDT690-P1	1.2 (30)	0.623 (15.82)	0.383 (9.73)
NDT690-P2	1.5 (38)	0.644 (16.36)	0.539 (13.69)
NDT690-P3	1.5 (38)	0.880 (22.35)	0.580 (14.73)

NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY):

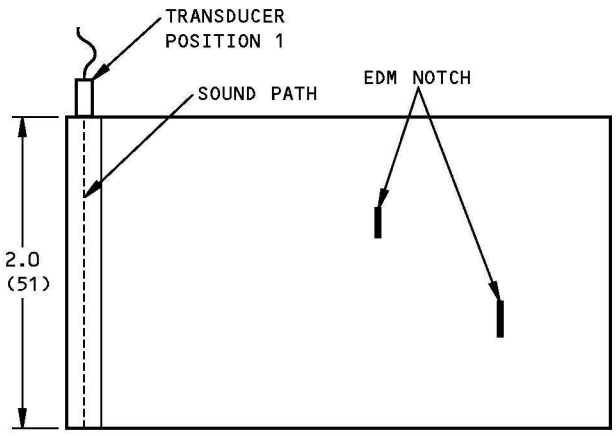
INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.05	X = ±1

- MATERIAL: BLACK ULTEM 1000, DELRIN OR EQUIVALENT

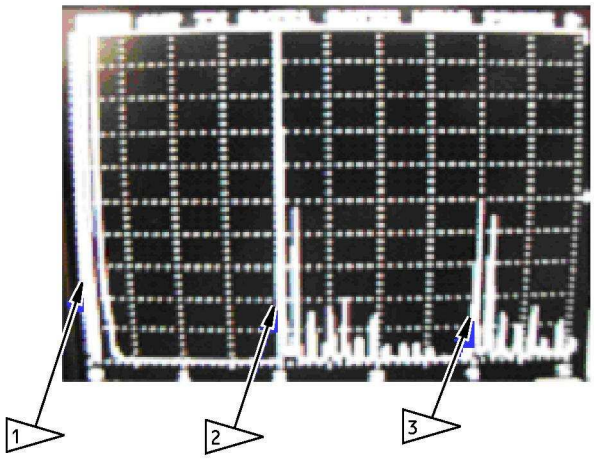
1 ETCH OR STAMP THE REFERENCE STANDARD POSITIONER PART NUMBER AS SPECIFIED IN THE TABLE ABOVE.

2 MAKE THE INSIDE DIAMETER OF THIS HOLE 0.002 (0.05) MORE THAN THE OUTSIDE DIAMETER OF THE TRANSDUCER CASE. A TRANSDUCER WITH A CASE DIAMETER OF 0.188 (4.78) IS USED WITH ALL POSITIONERS IN THIS PROCEDURE.

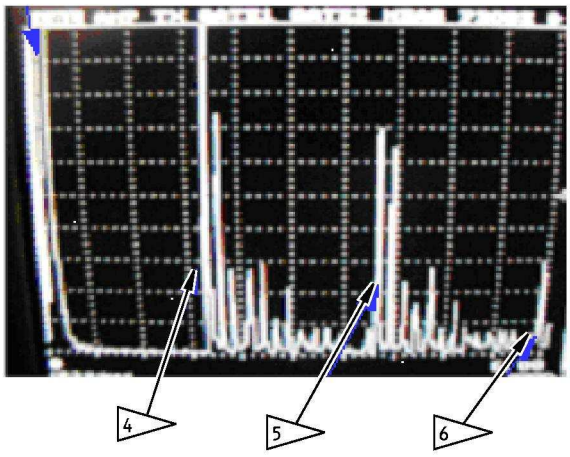
Transducer Positioners NDT690 (P1, P2, P3)
Figure 4



REFERENCE STANDARD NDT690



DETAIL 1
(5 INCH (127 mm) SCREEN RANGE)



DETAIL 2
(6 INCH (152 mm) SCREEN RANGE)

NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- ALL SCREEN CALIBRATIONS IN THIS PROCEDURE ARE DONE WITH REFERENCE STANDARD NDT690.
- DETAIL 1 SHOWS A 5.0 (127) SCREEN RANGE
- DETAIL 2 SHOWS A 6.0 (152) SCREEN RANGE
- ALL SIGNALS IN THIS FIGURE ARE FROM THE TRANSDUCER AT POSITION 1 AS SHOWN ABOVE
- FSW= FULL SCREEN WIDTH

1 INITIAL PULSE

2 REFERENCE STANDARD 1ST BACK SURFACE SIGNAL (40% OF FSW APPROXIMATELY)

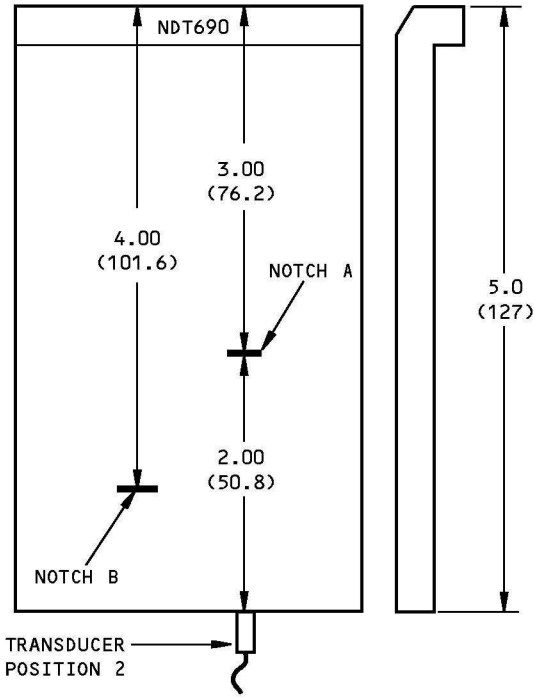
3 REFERENCE STANDARD 2ND BACK SURFACE SIGNAL (80% OF FSW APPROXIMATELY)

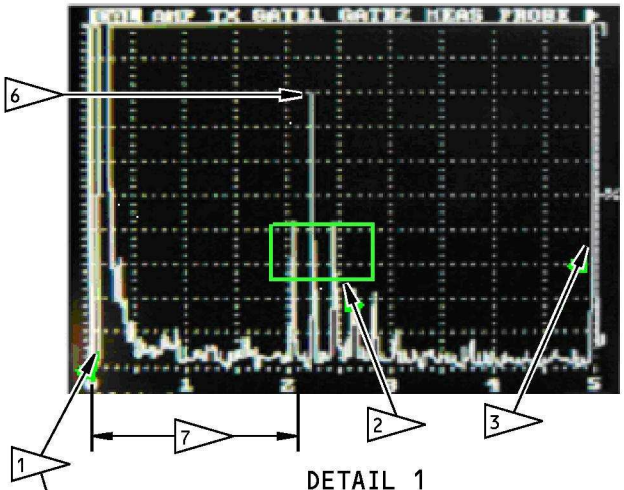
4 REFERENCE STANDARD 1ST BACK SURFACE SIGNAL (33% OF FSW APPROXIMATELY)

5 REFERENCE STANDARD 2ND BACK SURFACE SIGNAL (66% OF FSW APPROXIMATELY)

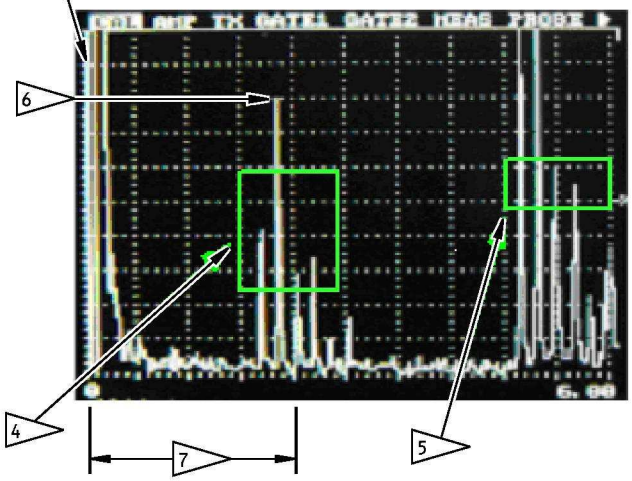
6 REFERENCE STANDARD 3RD BACK SURFACE SIGNAL (99% OF FSW APPROXIMATELY)

Instrument Screen Range Calibration
Figure 5





DETAIL 1
(5 INCH (127 mm) SCREEN RANGE)



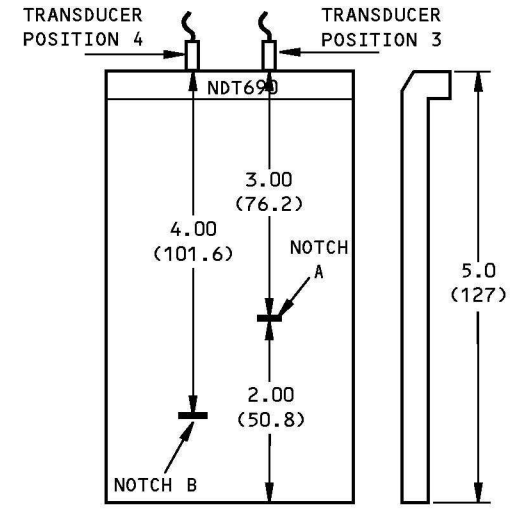
DETAIL 2
(6 INCH (152 mm) SCREEN RANGE)

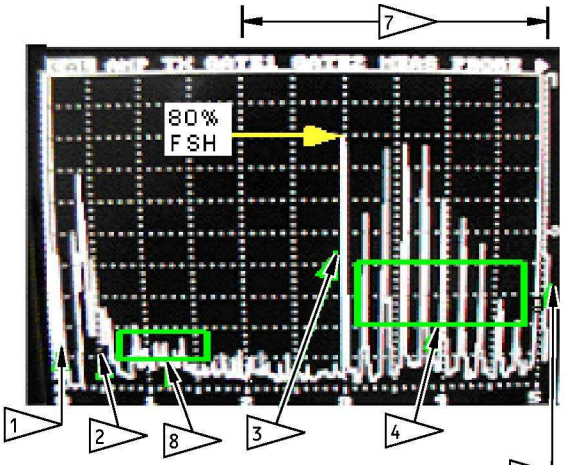
NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- THESE SCREEN DISPLAYS SHOW SIGNALS FROM EDM NOTCH A IN REFERENCE STANDARD NDT690 WITH THE TRANSDUCER AT POSITION 2.
- THE SCREEN DISPLAYS IN DETAILS 1 AND 2 ARE EXAMPLES. THE SIGNALS CAN LOOK DIFFERENT WITH OTHER INSTRUMENT/TRANSDUCER COMBINATIONS.
- FSW= FULL SCREEN WIDTH
- FSW= FULL SCREEN HEIGHT

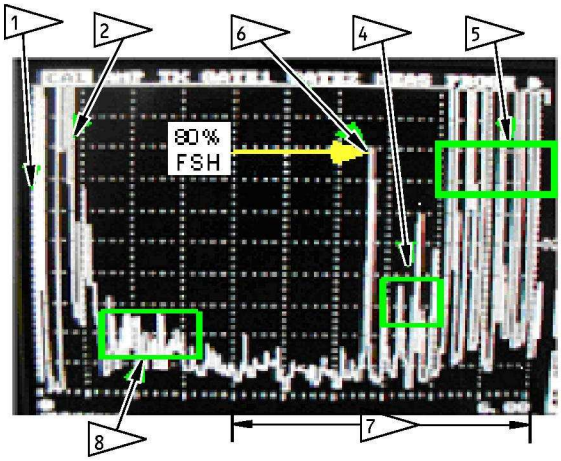
1. INITIAL PULSE
2. SIGNALS CAUSED BY THE EDM NOTCH - USE THE HIGHEST SIGNAL (2ND SIGNAL FROM THE LEFT) AS SHOWN, TO SET THE SIGNAL HEIGHT (THE 1ST SIGNAL IS AT APPROXIMATELY 40% OF FSW)
3. BACK SURFACE SIGNAL (100% OF FSW APPROXIMATELY)
4. SIGNALS CAUSED BY THE EDM NOTCH - USE THE HIGHEST SIGNAL (2ND SIGNAL FROM THE LEFT) AS SHOWN, TO SET THE SIGNAL HEIGHT AT 80% OF FSH (THE 1ST SIGNAL IS AT APPROXIMATELY 33% OF FSW)
5. BACK SURFACE AND MODE CONVERSION SIGNAL (83% OF FSW APPROXIMATELY)
6. 80% OF FSH
7. 0 TO 40% OF FSW

Instrument Sensitivity Calibration (For Near Notch Area Between 0 to 40% of FSW)
Figure 6

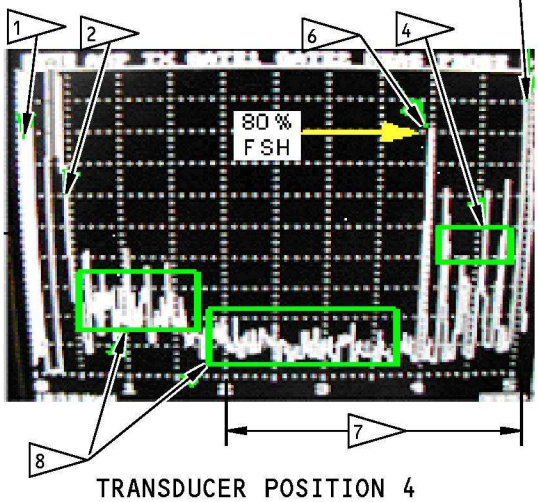




TRANSDUCER POSITION 3
(5 INCH (127 mm) SCREEN RANGE)
DETAIL 1



TRANSDUCER POSITION 4
(6 INCH (152 mm) SCREEN RANGE)
DETAIL 3



TRANSDUCER POSITION 4
(5 INCH (127 mm) SCREEN RANGE)
DETAIL 2

NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- THE SIGNALS CAN LOOK DIFFERENT WITH OTHER INSTRUMENT/TRANSDUCER COMBINATIONS.
- FSW= FULL SCREEN WIDTH
- FSH= FULL SCREEN HEIGHT

NOTE: THESE SCREEN DISPLAYS SHOW SIGNALS FROM TRANSDUCER POSITIONS 3 AND 4 THAT OCCUR FROM EDM NOTCHES A AND B IN REFERENCE STANDARD NDT690. THE SCREEN DISPLAYS ABOVE ARE EXAMPLES.

1 INITIAL PULSE SIGNAL

2 SIGNAL FROM THE FLANGE - TRY TO MINIMIZE THIS SIGNAL

3 SIGNALS CAUSED BY THE EDM NOTCH "A" WITH THE TRANSDUCER AT POSITION 3 - USE THIS SIGNAL AS SHOWN TO SET THE HEIGHT.

4 THESE SIGNALS ARE CAUSED BY EDM NOTCHES A OR B. THESE SIGNALS OCCUR WITH THE SIGNALS IN FLAG NOTES 3, 6 AND 7.

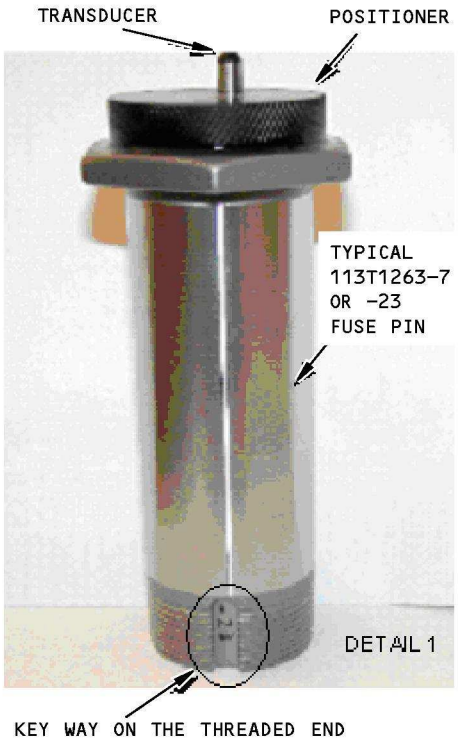
5 BACK SURFACE (AND MODE CONVERSION SHOWN IN DETAIL 3) SIGNALS FROM POSITION 3 OR 4.

6 SIGNAL CAUSED BY EDM NOTCH "B" WITH THE TRANSDUCER AT POSITION 4 - USE THIS SIGNAL AS SHOWN TO SET THE HEIGHT.

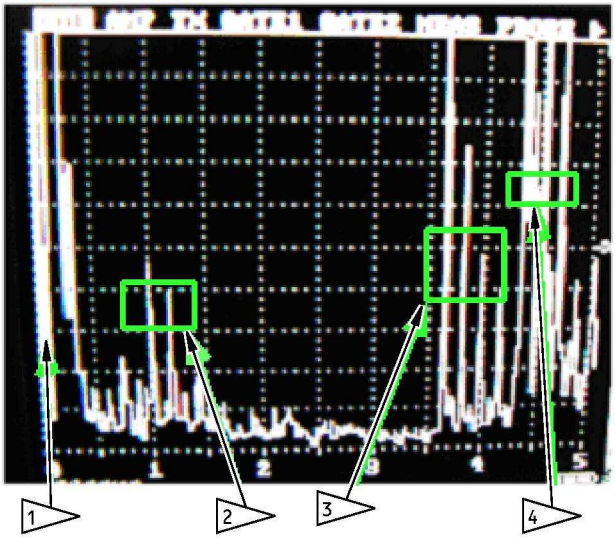
7 40 TO 100% OF FSW

8 NOISE.

Instrument Sensitivity Calibration (For Far Notch Area Between 40 to 100% FSW)
Figure 7



DETAIL 1



(THIS SCREEN DISPLAY IS SHOWN WITH THE 5 INCH SCREEN WIDTH)

NOTES:

- FUSE PINS 113T1263-7 AND -23 HAVE DIFFERENT PART GEOMETRIES WHICH WILL CAUSE SIGNALS TO OCCUR THAT LOOK ALMOST THE SAME AS CRACK SIGNALS.

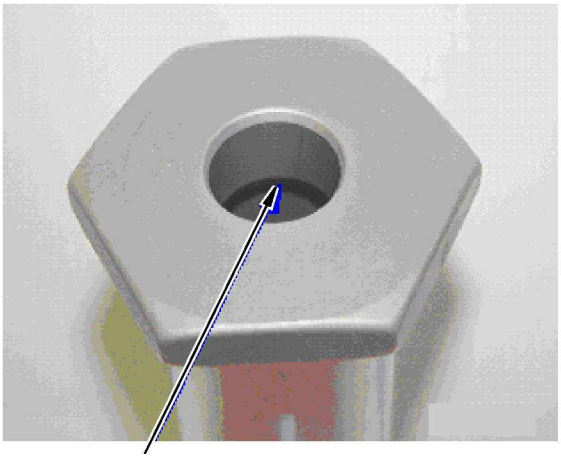
1 INITIAL PULSE

2 SIGNAL FROM A STEP ON THE ID OF THE FUSE PIN (THE STEP IS SHOWN IN DETAIL 2)

3 SIGNAL FROM A KEY WAY ON THE THREADED END OF THE FUSE PIN (THE KEY WAY IS SHOWN IN DETAIL 1)

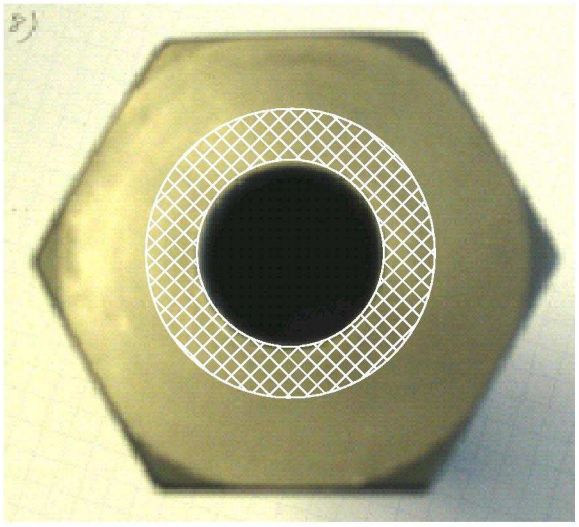
4 SIGNAL FROM THE BACK SURFACE OF THE FUSE PIN.

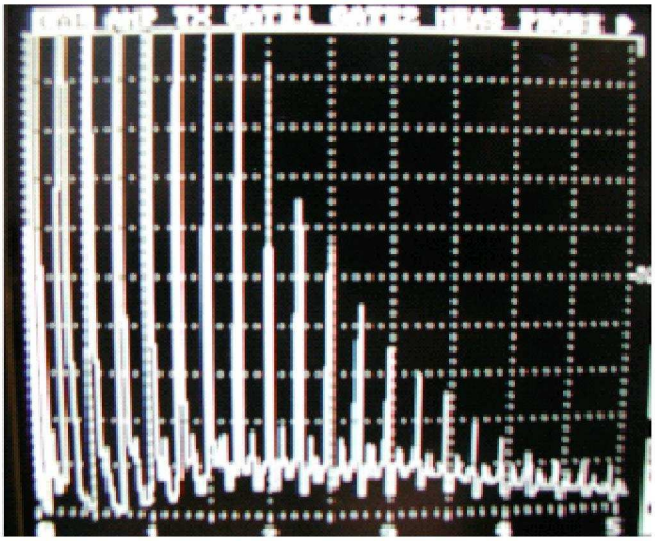
- SIGNALS FROM THE CONDITIONS IDENTIFIED IN FLAG NOTES 2 AND 3 MUST BE ANALYZED CAREFULLY AND NOT BE IDENTIFIED AS CRACK SIGNALS.
- THE SCREEN DISPLAY ABOVE IS AN EXAMPLE OF THE SIGNALS FROM THE DIFFERENT PART GEOMETRIES. THE SIGNALS CAN LOOK DIFFERENT WITH OTHER INSTRUMENT/TRANSDUCER COMBINATIONS.



DETAIL 2

Signals Caused by Part Geometry of the 113T1263-7 and -23 Fuse Pins
Figure 8





NOTES:

- THE BOTTOM OF THE TRANSDUCER IS FLUSH WITH THE BOTTOM OF THE POSITIONER. THIS HELPS THE TRANSDUCER TO FULLY TOUCH THE INSPECTION SURFACE.

1 TRANSDUCER AT POSITION 1 IS INSIDE THE INSPECTION AREA

2 TRANSDUCER AT POSITION 2 IS OUTSIDE THE INSPECTION AREA

Inspection Surface Area
Figure 9

PART NUMBER	FUSE PIN LOCATION SUPPORTS 1				BACK SURFACE SIGNAL LOCATION (% OF FSW) 2		IMPORTANT SCREEN WIDTH LOCATIONS (% OF FSW) 3	TRANSDUCER POSITION ON THE REFERENCE STANDARD 4	CRYSTAL AND CASE DIA-METERS 5	TRANSDUCER POSITIONER
113T1263	1 and 8	2 and 7	3 and 6	4 and 5	5 INCH	6 INCH				
-3			JT 5		88%		32%, 60%	2 AND 3	A	-
-5			JT 7			100%	40%, 64%	2 AND 4	A	-
-7		JT 10	JT 9		99%		28%, 60%	2 AND 3	B	690-P3
-8			JT 3,10		94%		30%, 68%	2 AND 4	A	-
-9			JT A,B		58%		16%, 47%	2 AND 3	A	-
-12	JT 3,10				88%		30%, 62%	2 AND 3	A	-
-13	JT 5	JT 5			70%		27%, 50%	2 AND 3	A	-
-20		JT 3			88%		30%, 64%	2 AND 4	A	-
-21				JT 9	49%		15%, 38%	2 AND 3	B	690-P1
-22				JT 5,7	58%		20%, 42%	2 AND 3	B	690-P1
-23	JT 9				89%		30%, 45%	2 AND 4	B	690-P2
-25		JT 9			78%		25%, 56%	2 AND 3	A	-

NOTES:

1. THERE ARE EIGHT FLAP SUPPORTS (1 THRU 8). FOR EACH SUPPORT, THE FUSE PIN LOCATIONS ARE IDENTIFIED BY JOINT NUMBERS (JT = JOINT) (SEE FIGURE 2).
2. LOCATION OF THE BACK SURFACE SIGNAL OF EACH FUSE PIN IN % FSW (APPROXIMATE PERCENTAGE OF THE FULL SCREEN WIDTH). THE 113T1263-5 FUSE PIN IS EXAMINED WITH THE 6 INCH SCREEN WIDTH RANGE; ALL OTHER FUSE PINS ARE EXAMINED WITH THE 5 INCH SCREEN WIDTH RANGE.
3. THE IMPORTANT SCREEN WIDTH LOCATIONS ARE THE SCREEN WIDTH LOCATIONS WHERE IT IS TYPICAL FOR CRACK SIGNALS TO OCCUR. THE LOCATIONS ARE BASED ON THE 6 INCH SCREEN WIDTH FOR THE 113T1263-5 FUSE PIN AND THE 5 INCH SCREEN WIDTH FOR ALL OTHER FUSE PINS.
4. TRANSDUCER POSITION LOCATIONS USED FOR INSTRUMENT SENSITIVITY CALIBRATION WITH REFERENCE STANDARD NDT690. SEE FIGURES 6 AND 7 FOR TRANSDUCER POSITION LOCATIONS 2, 3, AND 4.
5. A = 0.188 INCH (4.78 mm) DIA. CRYSTAL AND 0.313 INCH (7.95 mm) DIA. CASE OR EQUIVALENT.
   B = MUST USE THE 0.125 INCH (3.18 mm) DIA. CRYSTAL AND 0.188 INCH (4.78 mm) DIA CASE.

Flap Support Fuse Pins
Figure 10

FUSE PINS AT FLAP SUPPORTS 1 THRU 3 AND 6 THRU 8

1. Purpose

A. Use this procedure to examine the 113T1263 fuse pins that are more than 6 inches (177.8 mm) long for cracks. These fuse pins are installed at flap supports 1 thru 3 and 6 thru 8 as identified in Table 1 and Figure 2.

B. This procedure examines the outer diameter of the fuse pins for circumferential cracks. The smallest crack that can be found with this procedure is 0.05 inch (1.27 mm) deep by 0.10 inch (2.5 mm) long.

C. This inspection is done from the inner diameter of the fuse pin.

D. Two MPD items are examined with this procedure:

(1) MPD DTR Check Form Item 57-53-I02M.6 examines the fuse pins that are at flap supports 1, 2, 7 and 8. Part 4, 57-50-04 is also necessary to complete this DTR Check Form Item.

(2) MPD DTR Check Form Item 57-53-I04N.3 examines the fuse pins that are at flap supports 3 and 6. Part 4, 57-50-04 is also necessary to complete this DTR Check Form Item.

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 ultrasonic instrument that can operate at 10 MHz. Broadband instruments can be used if they can do the calibration instructions of this procedure.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 60; Krautkramer Branson

(b) MASTER SCAN 340; Sonatest

C. Transducer

(1) Two 10 MHz, longitudinal wave transducers, each one inside a different transducer housing, are necessary to do this inspection. Transducer assemblies TEK-5006 and TEK-5007, made by Techna NDT, Inc., were used to help prepare this procedure.

NOTE: These transducers are specially made for this procedure from Techna NDT Inc.

D. Reference Standards

(1) Make reference standards NDT694 and NDT695 as specified in Figure 3.

E. Transducer Assembly and Manipulating Fixture

(1) Get the transducer assembly and manipulating fixture set from Techna NDT, Inc. See Figure 4.

NOTE: The transducer assembly is designed to transmit a 45 degree shear wave in the reference standard and fuse pin.

F. Couplant

(1) All ultrasonic couplants that will not damage the airplane structure can be used. Commercial grease or oil can be used if the instrument can be calibrated with it as specified in Paragraph 4.

3. Preparation for Inspection

A. Identify the inspection locations. See Table 1 (flag note 1) and Figure 2.

B. Remove the end caps (if applicable) and inner pins to get access to the inner diameter of the fuse pin.

C. Make sure that the inner diameter of the fuse pin is clean and smooth. If the inner diameter is rough, it will not be easy to turn the transducer assembly and you will get noise signals.

4. Instrument Calibration

A. Identify the reference standard to use for the fuse pin to be examined from Table 1.

B. Identify the transducer assembly to use for the fuse pin to be examined from Table 1.

C. Identify the manipulating rod positioner to use for the fuse pin to be examined from Table 1 and assemble it onto the rod. Manipulating rod positioners are shown in Figure 5 (Details 1, 3 and 5).

D. Assemble the transducer assembly rings onto the transducer assembly if Table 1 (flag note 6) identifies that they are used. See Figure 4 (flag note 15) and Figure 5 (Detail 4).

NOTE: For the 113T1263-15 fuse pin inspection, the transducer assembly rings are used during calibration but are not to be used during the inspection.

E. Prepare the transducer assembly for calibration as follows:

(1) Refer to Table 1 to identify the applicable transducer assembly position (A or B) for each fuse pin inspection area to be examined. Transducer assembly position ''A'' is shown in Figure 5 (Detail 1).

(2) Connect the transducer cable, couplant supply line and the manipulating rod to the transducer assembly.

(3) Align the yellow index line on the manipulating rod handle so it points to the transducer location in the transducer assembly. Then tighten the set screw on the manipulating rod handle. See Figure 4.

NOTE: Use a 1/16 inch hex Allen wrench shown in Figure 4 (flag note 5) to tighten all set screws in this procedure.

F. Put the transducer assembly into the reference standard to get a signal from the notch as follows:

(1) Move the transducer assembly into the reference standard so that it is near the reference notch.

(2) Compress the couplant syringe slowly to supply couplant into this area.

(3) Turn and move the manipulating rod until you get a notch signal. If you can't find the notch signal, apply more couplant and turn and move the manipulating rod until you see it.

G. Move and turn the manipulating rod to get a maximum signal from the reference notch. This signal must be from the first leg (see Figure 6) of the shear wave. Adjust the instrument controls so that the notch signal (for the first leg of the shear wave) occurs at approximately 50% of full screen width. See Figure 6.

(1) To examine the far areas of fuse pins 113T1263-2, -15 and -16, it is necessary to get the notch signal from the third leg of the shear wave. To get the reference notch signal from the third leg (see Figure 6) of the shear wave, do the steps that follow:

(a) Slowly move the transducer assembly away from the notch until the first leg reference notch signal goes away completely and a different reference notch signal occurs farther out in time on the screen display. It can be necessary to change the setting to a larger screen range to see this.

(b) Push on the notch to make sure that the signal is from the notch.

(c) Adjust the instrument controls so that the notch signal (for the third leg of the shear wave) occurs at approximately 50% of full screen width. See Figure 6.

H. Adjust the instrument sensitivity so that the maximum signal from the reference notch is at 80% of full screen height. See Figure 6.

I. Add 6 dB.

5. Inspection Procedure

A. Prepare for the inspection as specified in Paragraph 3.

NOTE: The near area of the fuse pin is the area that is nearest to the hex end of the fuse pin The far area of the fuse pin is the area that is farther out from the hex end of the fuse pin. See Figure 1.

B. Calibrate the instrument to examine the near area of the fuse pin as specified in Paragraph 4.

C. Identify the start and stop distances on the fuse pin for the scan area to be examined from Table 2 (flag note 2). Use the ruler on the manipulating rod to move the manipulating rod positioner to the applicable start point and tighten the set screw. See Figure 5 (flag note 3).

D. Move the transducer assembly into the fuse pin until the manipulating rod positioner touches the hex end of the fuse pin. See Figure 5 (Detail 3).

E. Compress the couplant syringe slowly to supply couplant into this area. Turn and move the manipulating rod to fully apply the couplant to the applicable inspection area within the inner diameter of the fuse pin. Do this again as necessary during the scan.

F. Slowly turn the manipulating rod to make a complete scan of the circumference of the fuse pin. During the inspection:

(1) Monitor the instrument screen display for signals that occur between approximately 40% and 60% of full screen width. See Figure 6.

(2) Make a record of the fuse pin locations that cause crack type signals to occur.

G. Loosen the set screw on the rod positioner and increment the positioner 3/16 inch on the manipulating rod. Tighten the set screw on the manipulating rod positioner and do the scan again for the full circumference of the fuse pin. During the inspection:

(1) Monitor the instrument screen display for signals that occur between approximately 40% and 60% of full screen width. See Figure 6.

(2) Make a record of the fuse pin locations that cause crack type signals to occur.

H. Continue to do Paragraph 5.E. thru Paragraph 5.G. until the manipulating rod positioner is incremented to the scan stop dimension identified in Table 2.

I. Calibrate the instrument to examine the far area of the fuse pin as specified in Paragraph 4.

J. Do Paragraph 5.C. thru Paragraph 5.H. again but to examine the far area of the fuse pin.

6. Inspection Results

A. Signals that are 40% (or more) of full screen height when the transducer is in the inspection area of the fuse pin, are possible crack indications.

B. If you get a crack type signal, remove the 6 dB that was added in Paragraph 4.I. and examine the area that caused the crack signal again. Loosen the set screw on the manipulating rod positioner and move the transducer assembly to get the maximum signal from the possible crack. A fuse pin must be rejected if you get a crack signal that is between 40 and 60% of full screen width and is 40% (or more) of full screen height.

C. Do other nondestructive inspections on the fuse pin to identify the cause of the ultrasonic signal. Remove the fuse pin and do a high frequency eddy current inspection as specified in Part 6, 51-00-21. Or do a magnetic particle inspection as specified in SOPM 20-20-01.

Table 1 Flap Support Fuse Pins

PART NUMBER 113T1263	*[1] FUSE PIN LOCATION AT SUPPORTS			*[2] REFERENCE STANDARD	*[3] TRANSDUCER ASSEMBLY	*[4] TRANSDUCER ASSEMBLY POSITION		*[5] ROD POSITIONER	*[6] TRANSDUCER ASSEMBLY RING
	1 and 8	2 and 7	3 and 6			NEAR AREA	FAR AREA		
-2			JT 2	NDT 694	TEK-5006	A	B	TEK-5006-C1	YES
-6			JT 8	NDT694	TEK-5006	A	B	TEK-5006-C1	YES
-10			JT 0	NDT695	TEK-5007	A	B	TEK-5007-C1	NO
-15	JT 6			NDT694	TEK-5006	A	B	TEK-5006-C2	YES/NO *[6]
-16	JT 2, 8			NDT694	TEK-5006	A	B	TEK-5006-C1	YES
-19		JT 6		NDT694	TEK-5006	A	B	TEK-5006-C1	YES
-27			JT 6	NDT694	TEK-5006	A	B	TEK-5006-C1	YES

*[1] THERE ARE SIX FLAP SUPPORTS (1 THRU 3 AND 6 THRU 8). THE PIN LOCATIONS ARE IDENTIFIED BY THE JOINT NUMBERS (JT = JOINT). SEE Figure 2 FOR THE JOINT LOCATIONS.

*[2] SEE Figure 3 AND Figure 4 (FLAG NOTES 11 AND 14)

*[3] SEE Figure 4 (FLAG NOTES 1 AND 2)

*[4] TRANSDUCER ASSEMBLY POSITIONS A AND B ARE IDENTIFIED IN Figure 5 (FLAG NOTE 1)

*[5] SEE Figure 4 (FLAG NOTES 12 AND 13) AND Figure 5 (DETAIL 5)

*[6] TRANSDUCER ASSEMBLY RINGS ARE USED DURING CALIBRATION AND INSPECTION FOR ALL FUSE PINS BUT THE 113T1263-10 AND -15. THE TRANSDUCER ASSEMBLY RINGS ARE NOT USED TO EXAMINE THE 113T1263-10 FUSE PIN. FOR THE 113T1263-15 FUSE PIN, THE TRANSDUCER ASSEMBLY RINGS ARE USED ONLY DURING CALIBRATION . SEE Figure 4 (FLAG NOTE 15) AND Figure 5 (DETAIL 4).

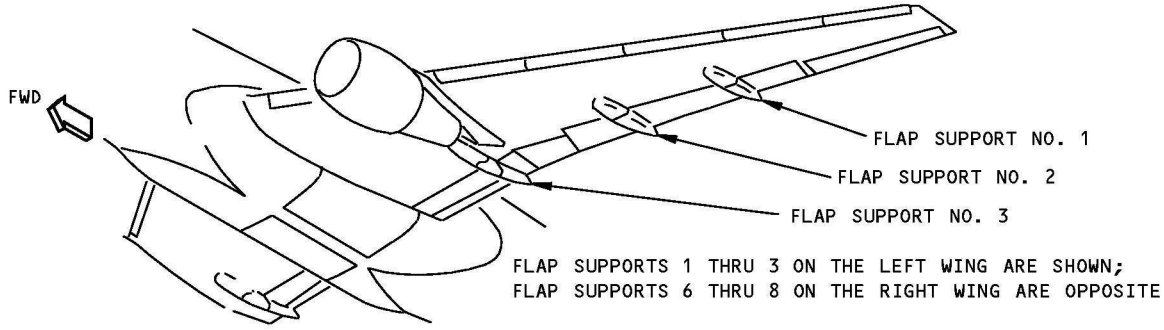
Table 2 Flap Support Fuse Pin Inspection Areas

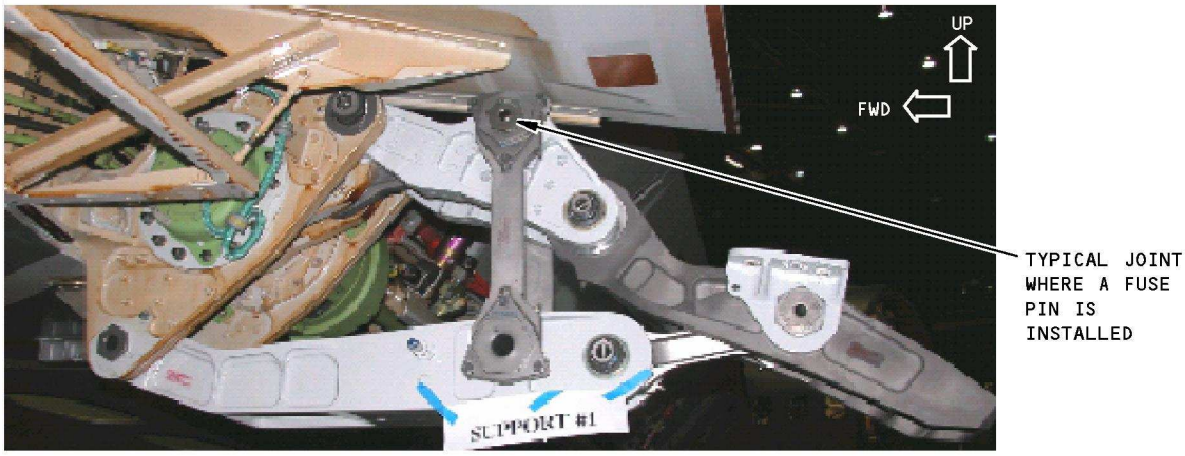
PART NUMBER 113T1263	*[1] NEAR AREA			*[2]	*[1] FAR AREA			*[2]
	IMPORTANT AREA ON THE FUSE PIN	SCAN AREA			IMPORTANT AREA ON THE FUSE PIN	SCAN AREA		
		START	STOP			START	STOP	
-2	1.1 (28.0)	0	1 2/16		7.7 (195.6)	5 12/16	6 14/16	
-6	1.1 (28.0)	0	1 2/16		7.7 (195.6)	6 4/16	8 5/16	
					8.6 (218.4)			
-10	1.9 (48.3)	1 4/16	2 6/16		7.3 (185.4)	4 5/16	5 17/16	

PART NUMBER 113T1263	*[1] NEAR AREA		*[2]	*[1] FAR AREA		*[2]
	IMPORTANT AREA ON THE FUSE PIN	SCAN AREA		IMPORTANT AREA ON THE FUSE PIN	SCAN AREA	
		START	STOP		START	STOP
-15	1.6 (40.6)	7/16	1 9/16	7.4 (188.0)	5 6/16	6 8/16
-16	1.1 (28.0)	0	1 2/16	7.2 (182.9)	5 4/16	6 6/16
-19	1.6 (40.6)	7/16	1 9/16	7.2 (182.9)	5 12/16	6 14/16
-27	1.7 (43.2)	9/16	1 11/16	7.3 (185.4)	5 14/16	7
ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)						

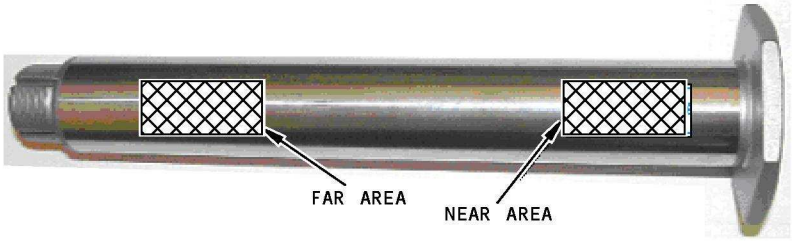
*[1] IMPORTANT INSPECTION AREAS ON THE FUSE PIN ARE WHERE IT IS TYPICAL FOR CRACKS TO OCCUR. THESE AREAS ARE MEASURED FROM THE HEX END OF THE PIN.

*[2] PUT A RULER WITH 1/16 INCH INCREMENTS ON THE MANIPULATING ROD TO IDENTIFY THE SCAN START AND STOP POSITIONS. SEE Figure 5 (DETAIL 3) FOR AN EXAMPLE.

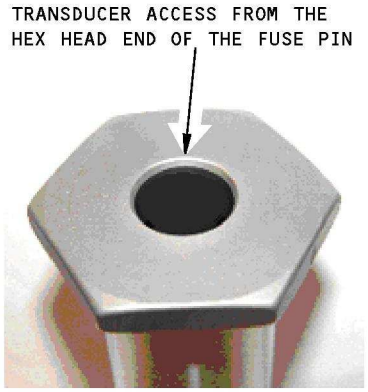




VIEW OF FLAP SUPPORT NO. 1 IN THE EXTENDED POSITION



TYPICAL FUSE PIN

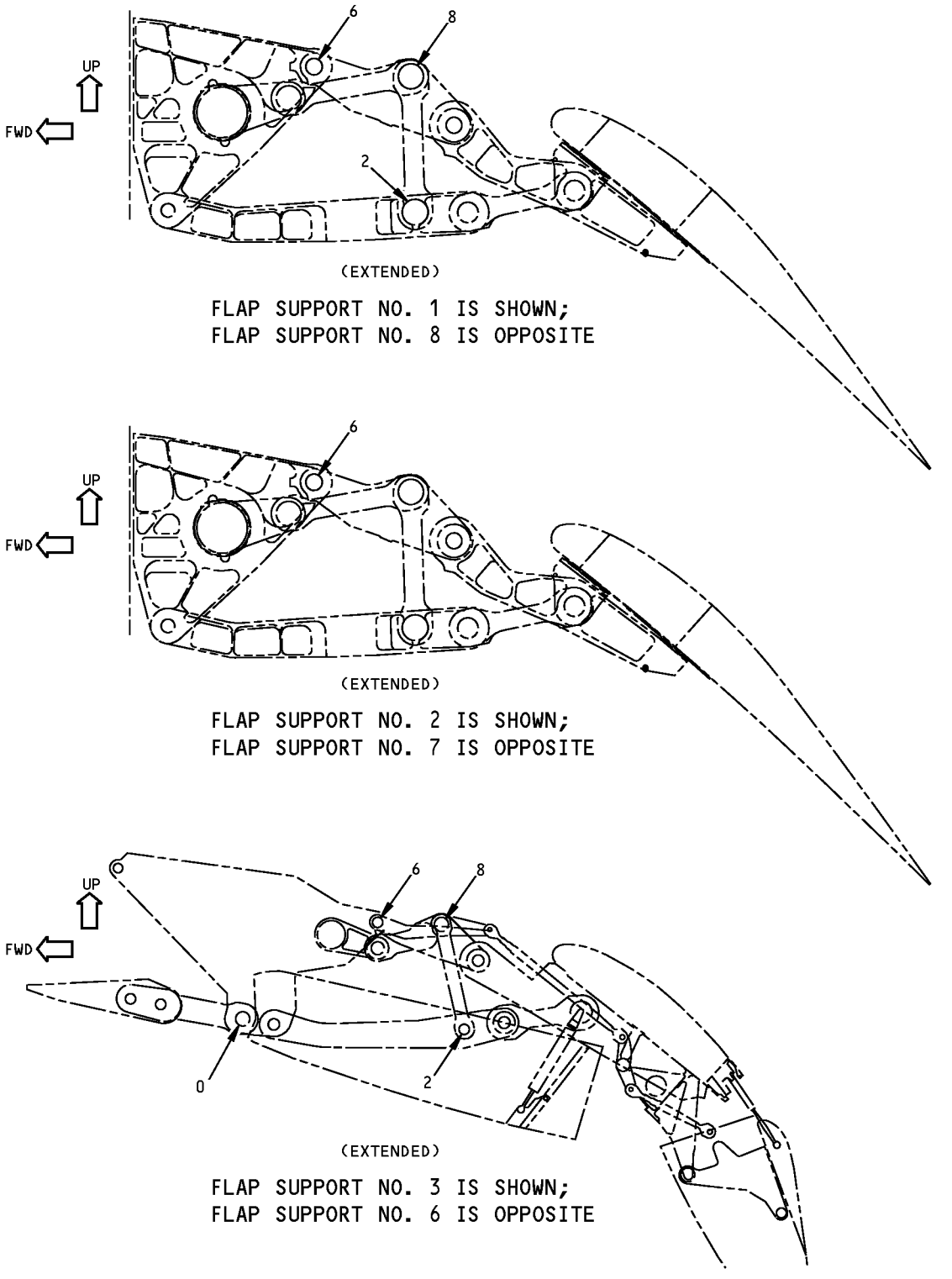


NOTES:

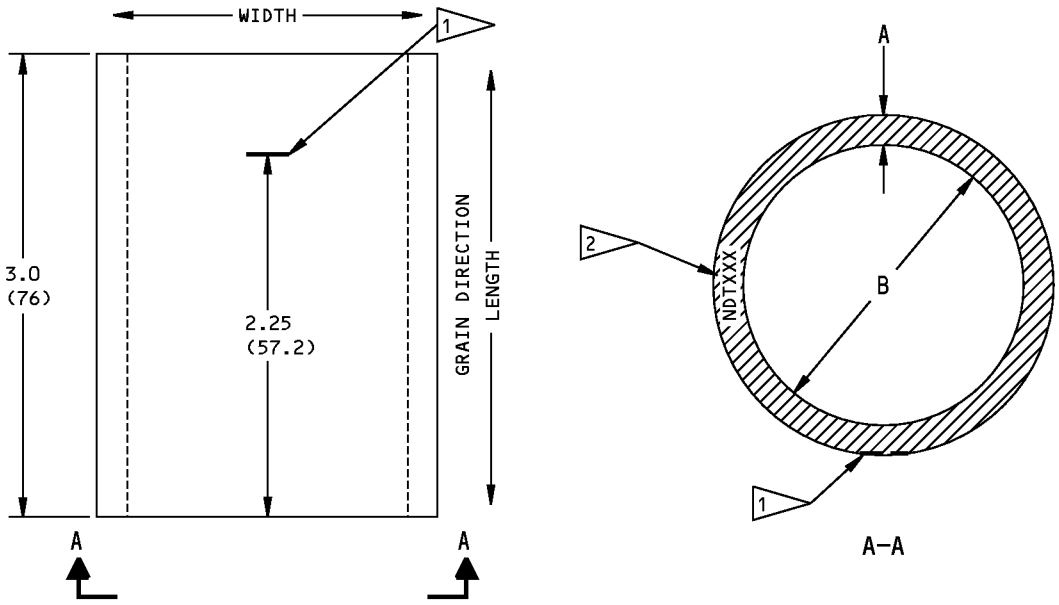
ULTRASONIC INSPECTION AREAS

- MAKE A SCAN OF THE FULL CIRCUMFERENCE OF THE BORE IN THE INSPECTION AREAS IDENTIFIED.

Flap Support Assembly
Figure 1



Joint Locations
Figure 2



REFERENCE STANDARD	DIMENSION A	DIMENSION B
NDT694	0.249 (6.32)	1.002 (25.45)
NDT695	0.375 (9.53)	1.499 (38.07)

NOTES

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCES (UNLESS SPECIFIED DIFFERENTLY):

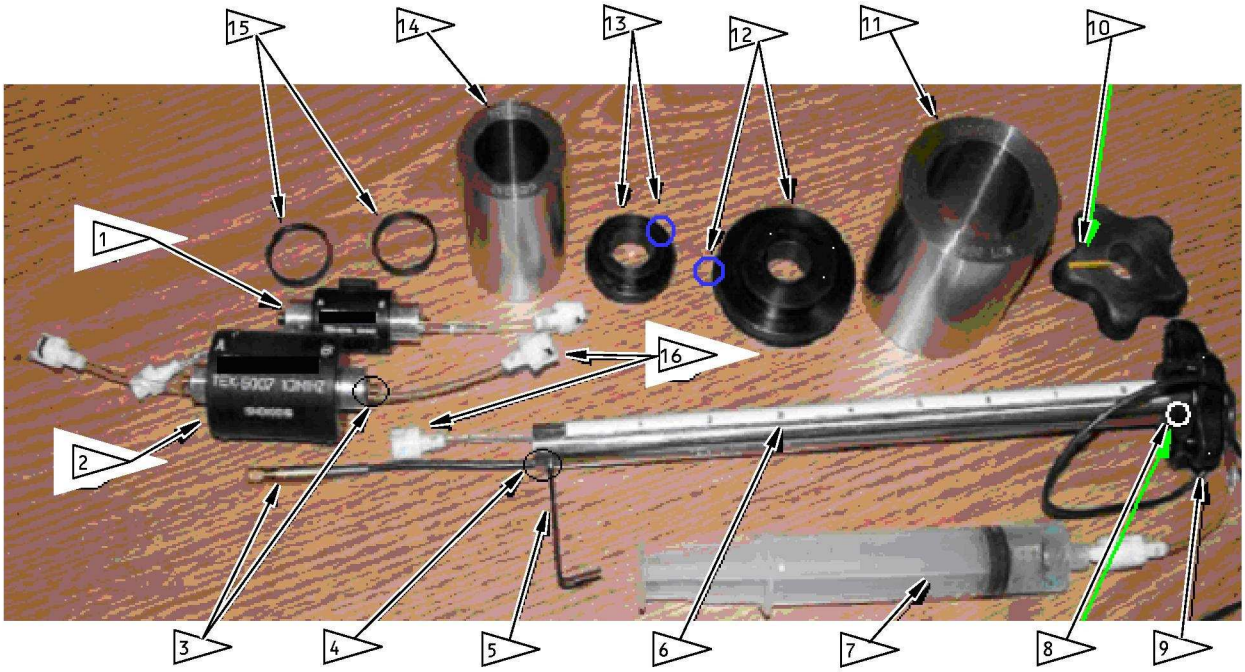
INCHES	MILLIMETERS
X.XXX = ± 0.005	X.XX = ± 0.10
X.XX = ± 0.025	X.X = ± 0.5
X.X = ± 0.050	X = ± 1

- MATERIAL: 15-5PH CRES. THIS MATERIAL MUST BE NORMALIZED. REFER TO PART 1, 51-01-00, PAR. 7.C.
- SURFACE FINISH: 16 Ra ON THE OUTER DIAMETER; 63 Ra ON ALL OTHER SURFACES

1 EDM NOTCH: 0.050 (1.27) DEEP; 0.100 (2.54) LONG; 0.010 (0.25) WIDE (MAXIMUM). NOTCH ORIENTATION: THE LENGTH OF THE NOTCH MUST BE PARALLEL TO THE WIDTH OF THE REFERENCE STANDARD AND PERPENDICULAR TO THE LENGTH OF THE REFERENCE STANDARD.

2 ETCH OR STEEL STAMP THE REFERENCE STANDARD NUMBER NDT694 OR NDT695 AT THIS APPROXIMATE LOCATION.

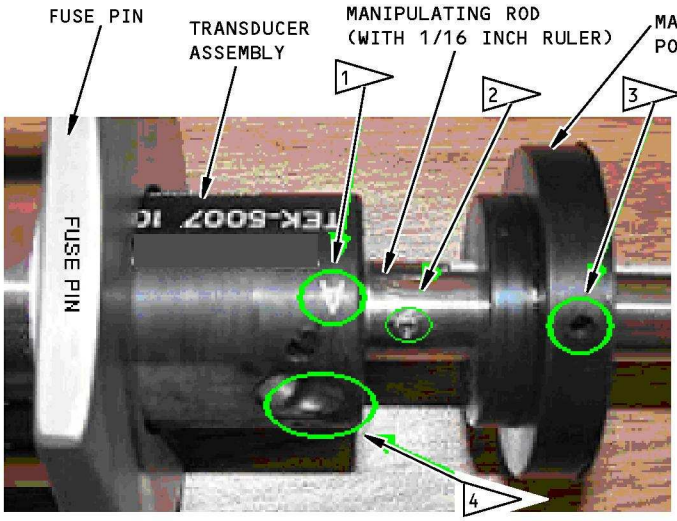
Reference Standards NDT694 and NDT695
Figure 3



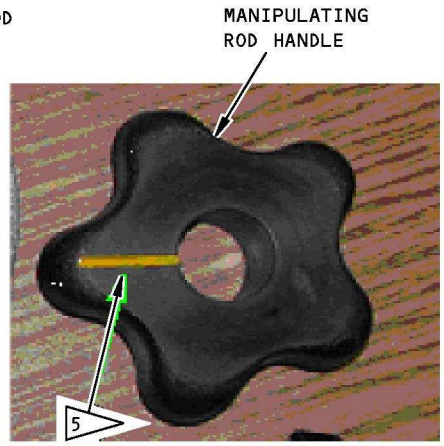
NOTES:

1. TRANSDUCER ASSEMBLY (TEK-5006)
2. TRANSDUCER ASSEMBLY (TEK-5007)
3. TRANSDUCER CABLE AND THE CONNECTION POINT
4. SET SCREW ON THE MANIPULATOR ROD
5. 1/16 INCH HEX ALLEN WRENCH
6. MANIPULATING ROD WITH THE 1/16 INCH INCREMENT RULER
7. COUPLANT SYRINGE
8. SET SCREW ON THE MANIPULATING ROD HANDLE
9. MANIPULATING ROD HANDLE
10. YELLOW INDEX LINE ON THE MANIPULATING ROD HANDLE
11. REFERENCE STANDARD NDT695
12. MANIPULATING ROD POSITIONER WITH THE SET SCREW ON THE SIDE (TEK-5007-C1)
13. MANIPULATING ROD POSITIONER WITH THE SET SCREW ON THE SIDE (TEK-5006-C1) (TEK-5006-C2) IS NOT SHOWN IN THIS FIGURE BUT IS SHOWN IN FIGURE 5 (DETAIL 5)
14. REFERENCE STANDARD NDT694
15. TRANSDUCER ASSEMBLY RINGS
16. COUPLANT SUPPLY LINE AND SNAP ON CONNECTOR

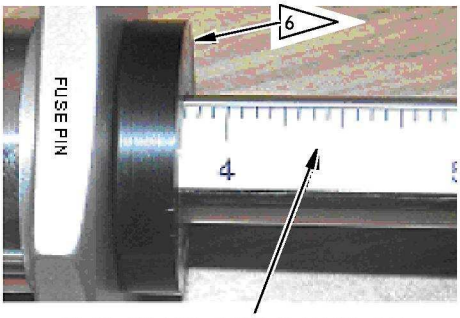
Transducer Assembly and the Manipulating Fixture Set
Figure 4



DETAIL 1

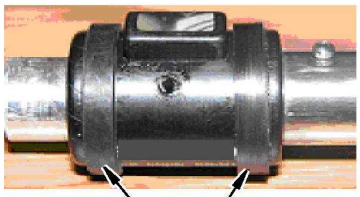


DETAIL 2



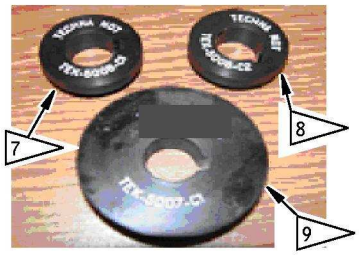
RULER ON THE MANIPULATING ROD.
EACH INCREMENT IS 1/16 INCH

DETAIL 3



TRANSDUCER ASSEMBLY RINGS

DETAIL 4



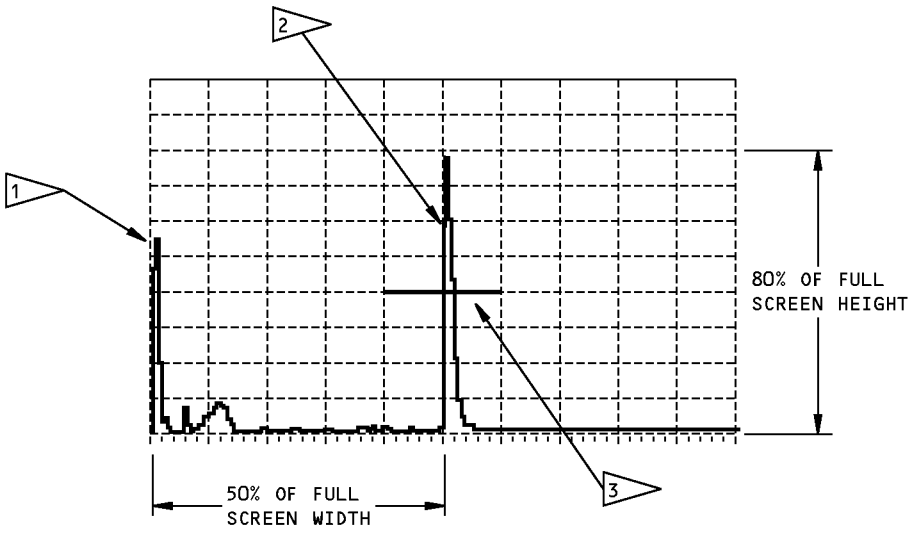
(MANIPULATING ROD POSITIONERS)

DETAIL 5

NOTES:

1. THE TRANSDUCER ASSEMBLY IS CONNECTED TO THE MANIPULATING ROD WITH SIDE "A" AS SHOWN. THIS IS TRANSDUCER ASSEMBLY POSITION A. TRANSDUCER ASSEMBLY POSITION B IS THE OPPOSITE OF POSITION A.
2. BEFORE YOU TIGHTEN THE SET SCREW ON THE MANIPULATING ROD, ALIGN THE YELLOW INDEX LINE MARK ON THE HANDLE OF THE MANIPULATING ROD WITH THE TRANSDUCER SO IT IDENTIFIES THE TRANSDUCER LOCATION DURING THE INSPECTION.
3. THE SET SCREW IN THE MANIPULATING ROD POSITIONER HOLDS THE TRANDUCER ASSEMBLY AT THE CORRECT LOCATION DURING THE SCAN.
4. TRANSDUCER
5. YELLOW INDEX LINE MARK ON THE HANDLE OF THE MANIPULATING ROD
6. MANIPULATING ROD POSITIONER IN TOUCH WITH THE HEX END OF THE FUSE PIN
7. TEK-5006-C1
8. TEK-5006-C2
9. TEK-5007-C1

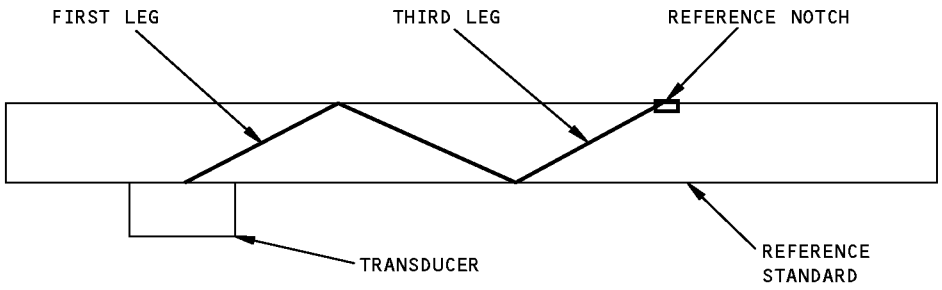
Transducer Assembly Set Up Details
Figure 5



NOTE: THIS SCREEN DISPLAY IS AN EXAMPLE.
THE SIGNALS CAN LOOK DIFFERENT WITH
DIFFERENT INSTRUMENTS.

NOTES:

1. INITIAL PULSE
2. REFERENCE NOTCH SIGNAL
3. MONITOR THE SCREEN DISPLAY FOR SIGNALS THAT OCCUR BETWEEN 40 AND 60 PERCENT OF FULL SCREEN WIDTH.



Instrument Sensitivity Calibration
Figure 6

FUSE PIN AT THE UNDERWING FITTING TO FORWARD TENSION LINK JOINT AT FLAP SUPPORTS 3 AND 6

1. Purpose

A. Use this procedure to examine the 113T1266-1 and -2 fuse pins for cracks.

B. These fuse pins are installed on the trailing edge of inboard flap supports 3 and 6 and are used to attach the underwing fitting to the forward tension link. See Figure 1.

C. Cracks can occur circumferentially on the outside diameter of the fuse pin. The minimum crack that can be found with this procedure is 0.100 inch deep by 0.200 inch long (2.54 by 5.08 mm).

D. Two inspections are necessary to examine each fuse pin; one inspection from the inboard end and one inspection from the outboard end.

E. MPD DTR Check Form Reference:

(1) ITEM 57-53-I04C

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 ultrasonic instrument that can operate at 10 MHz. Broadband instruments can also be used if they can do the calibration instructions of this procedure.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 60; Krautkramer Branson

(b) MASTER SCAN 340; Sonatest

C. Transducer

(1) Use a zero degree longitudinal wave transducer with a crystal diameter not larger than 0.125 inch (3.18 mm).

(2) A 10 MHz transducer is recommended but other frequencies can be used if the instrument can be calibrated as specified in Paragraph 4.

(3) The transducer that follows was used to help prepare this procedure.

(a) 389-002-190 Gamma; KB-Aerotech

1) This transducer has the properties that follow:

a) Operates at 10 MHz

b) Has a 0.125 inch (3.18 mm) diameter

c) Is a 0 degree transducer

d) Has these case dimensions: 0.188 inch (4.78 mm) diameter by 0.62 inch (15.7 mm) long.

D. Reference Standard

(1) Make reference standard NDT689 as specified in Figure 2.

E. Transducer Positioner

(1) Make transducer positioner NDT689-P as specified in Figure 3.

NOTE: The inside diameter of the hole in the positioner that is used to mount the transducer must be 0.002 inch (0.05 mm) larger than the outside diameter of the transducer case as specified in Figure 3 (flag note 2). The transducer will fit tightly in the positioner but it will be easy to install and remove the transducer from the positioner.

F. Couplant

(1) All ultrasonic couplants that will not damage the airplane structure can be used. Commercial grease or oil can be used if the sensitivity conditions of Paragraph 4. are satisfactory.

3. Preparation for Inspection

A. Identify the inspection locations. See Figure 1 and Figure 5.

B. Get access to the inspection surfaces (each end) of the fuse pin. It is necessary to remove the end caps and retaining bolt to get access to the inspection surfaces.

C. Remove all dirt, sealant and loose paint from the inspection areas of the fuse pin that the transducer will touch and clean the area fully.

4. Instrument Calibration

NOTE: Because the transducer is small, it is optional to use a transducer positioner. If the fuse pin is examined with the transducer in the positioner, the calibration also must be done with the transducer in the positioner. See Figure 5 (Details 3 and 4). The calibration and inspection without the transducer positioner is shown in Figure 5 (Details 1 and 2).

The word ''transducer'', as used in this procedure, includes the transducer and the transducer in the positioner, as applicable. If you install the transducer in the transducer positioner, make sure the bottom of the transducer is flush with the bottom of the transducer positioner. Then the transducer will fully touch the surfaces during calibration and when you examine the pin. See Figure 4 and Figure 5 (Details 3 and 4).

A. Connect the transducer to the instrument and do the initial adjustments of the instrument.

B. Set the instrument frequency to 10 MHz.

C. Put couplant at positions 1 thru 4 on the surface of the reference standard (see Figure 4).

D. Put the transducer at position 1 on the reference standard. See Figure 4.

E. Adjust the instrument controls to get the first back surface signal at approximately 50% of full screen width (FSW) and the second back surface signal at approximately 100% of FSW. The instrument is now calibrated for a 5 inch (127 mm) instrument screen range. See Figure 4 (flag notes 2 and 3).

NOTE: Typical screen signals with the transducer at position 2 are shown in Figure 4, Detail 2. Because of the geometry of the reference standard and the mode conversion, reflection signals that are not important can occur on the instrument screen display. Figure 4, flag notes 4 thru 7 identify the causes of typical reflection signals.

F. Move the transducer to position 3 as shown in Figure 4 and do the steps that follow:

(1) Make sure the notch signal occurs at approximately 65% of FSW.

(a) The notch causes more than one signal to occur at approximately 65% of FSW. Use the signal that is nearest to the initial pulse as the notch signal (see Figure 4, flag note 9).

(2) Move the transducer to make sure the signal from the notch is at its maximum height.

NOTE: It is important that the notch signal is at its maximum height.

(3) Adjust the instrument gain so that the notch signal is 80% of full screen height (FSH).

G. Move the transducer to position 4 as shown in Figure 4 to see the notch signal, but do not change the gain that was set in Paragraph 4.F. The notch signal (the very first signal to the right of the initial pulse signal) must occur at approximately 20% of FSW as shown in Figure 4, flag note 8.

H. Add 6 dB.

I. Examine all noise signals between the initial pulse and the notch signal to make sure the signal to noise ratio is larger than 3:1. If the signal to noise ratio is less than 3:1, try a different transducer.

J. Adjust the instrument controls to set the alarm to alarm for signals that occur that are 40% (or more) of FSH and between 15 and 70% of FSW. See Figure 4, flag note 13.

5. Inspection Procedure

A. Prepare for the inspection as specified in Paragraph 3.

B. Do the instrument calibration as specified in Paragraph 4.

NOTE: If the inspection of the fuse pin will be done with the transducer in the positioner, the calibration also must be done with the transducer in the positioner. See Figure 5 (Details 3 and 4).

C. Put couplant on the inspection surface area of the fuse pin.

D. Put the transducer on the inspection surface of the fuse pin (see Figure 1 and Figure 5).

(1) The signal from the far step occurs at approximately 78% of FSW.

(2) The signal from the back surface occurs at approximately 84% of FSW, but with the mode conversion signals and the sensitivity gain set as specified in Paragraph 4., you will see a large group of signals that start at approximately 78% of FSW.

E. Make a complete scan of the end of the fuse pin. As you make a scan, do the steps that follow:

(1) Monitor the instrument screen display for ultrasonic signals that are between 15 and 70% of FSW. See Figure 4, flag note 13.

(a) Carefully monitor this area of the screen display for crack signals at approximately 28 and 56% of FSW. See Figure 4, flag notes 14 and 15.

(2) Monitor the signals from the back surface and far step of the fuse pin to make sure the transducer fully touches the fuse pin.

F. Do Paragraph 5.C. thru Paragraph 5.E. for the opposite end of the fuse pin.

G. Do Paragraph 5.C. thru Paragraph 5.F. on the opposite flap support.

6. Inspection Results

A. A fuse pin is acceptable if a crack signal does not occur during the inspection and you can see the far step and back surface signals.

B. A crack in the fuse pin can cause the far step and back surface signals not to show on the screen display.

C. Do more analysis of a fuse pin if a signal that is 40% or more of FSH and between 15 and 70% of FSW occurs on the screen display:

(1) Remove the 6 dB that was added in Paragraph 4.H.

(2) Clean the inspection area and examine the area with a small quantity of couplant to make sure that the signal is not caused by too much couplant.

(3) Do a check to see if a surface condition on the bore of the fuse pin has caused the crack type signal as follows:

(a) Look at the bore of the fuse pin at the approximate location where the signal occurs.

(b) Put a small quantity of couplant on the tip of a cotton swab and rub the bore of the pin at the location where the signal occurred to try to dampen the ultrasonic signal.

1) The signal will move up and down if a surface condition has caused the ultrasonic signal.

(4) Take the weight off of the fuse pin and move the pin out a short distance. Do a check again to see if the ultrasonic signal moved to a different location on the screen display or went away.

(5) If the ultrasonic signal has not changed, reject the fuse pin.

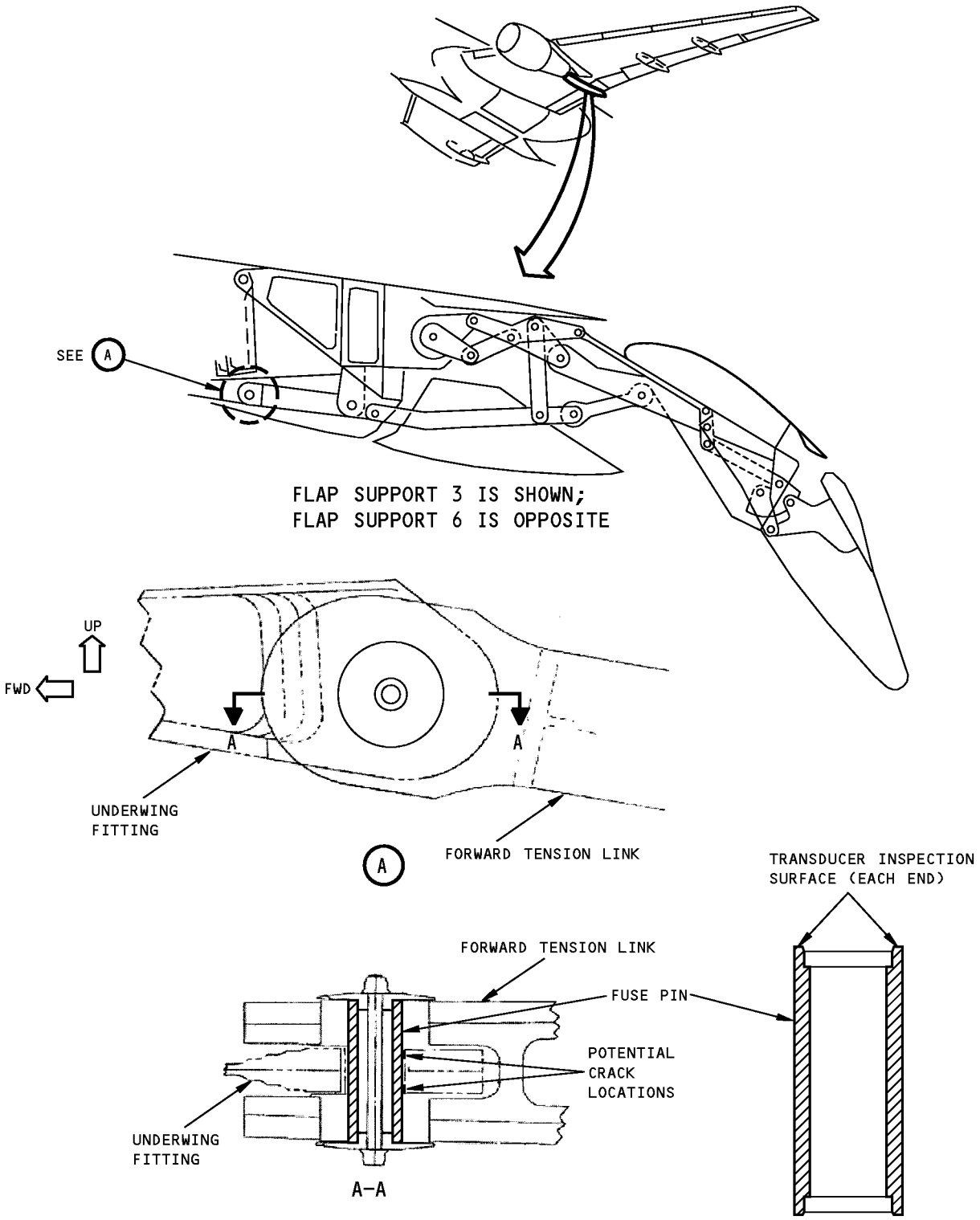
D. Record all ultrasonic signals that are less than 40% of FSH so this record can be used as a reference during future inspections.

E. Do other nondestructive examinations on the fuse pin to identify the cause of the ultrasonic signal. Remove the fuse pin and do one or more of the procedures that follow:

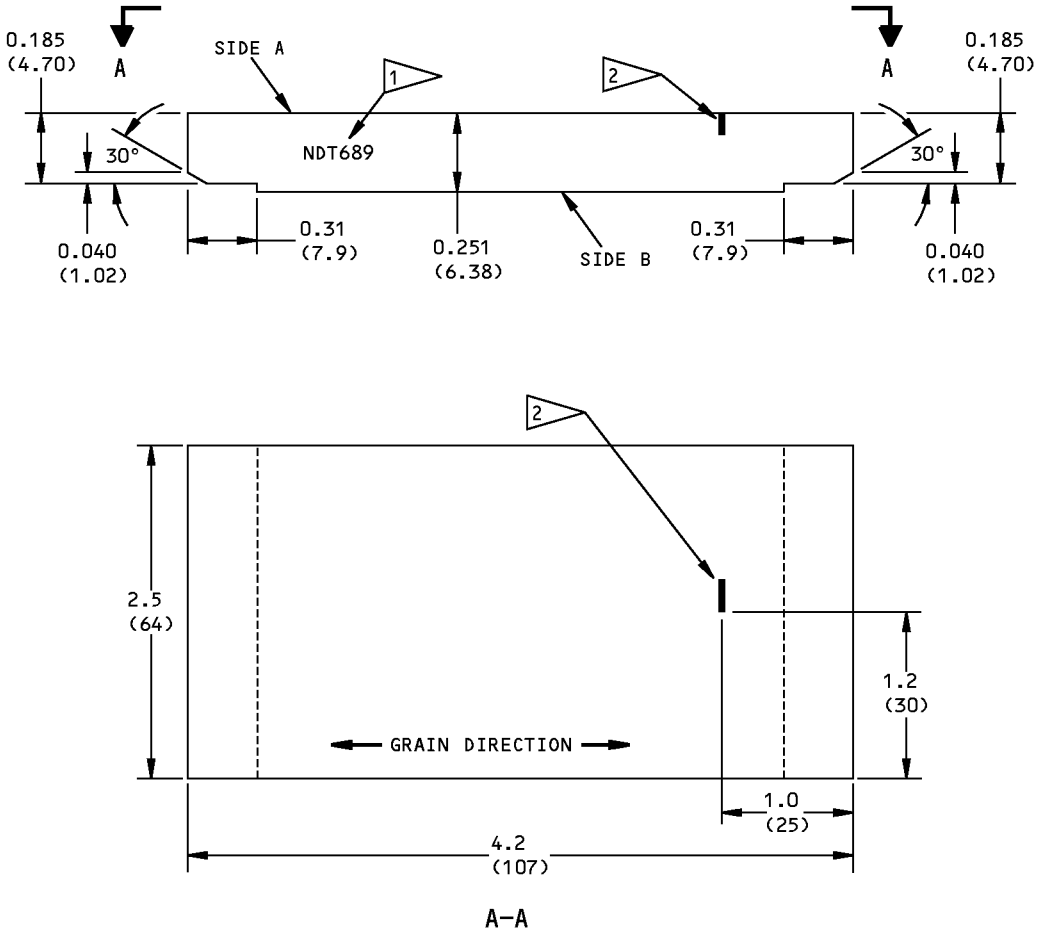
(1) Visual inspection of the outside diameter.

(2) Magnetic particle inspection. Refer to SOPM 20-20-01.

(3) High frequency eddy current inspection. Refer to Part 6, 51-00-21.



Fuse Pin Location at Flap Supports 3 and 6
Figure 1



A–A

NOTES

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY):

INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.050	X = ±1

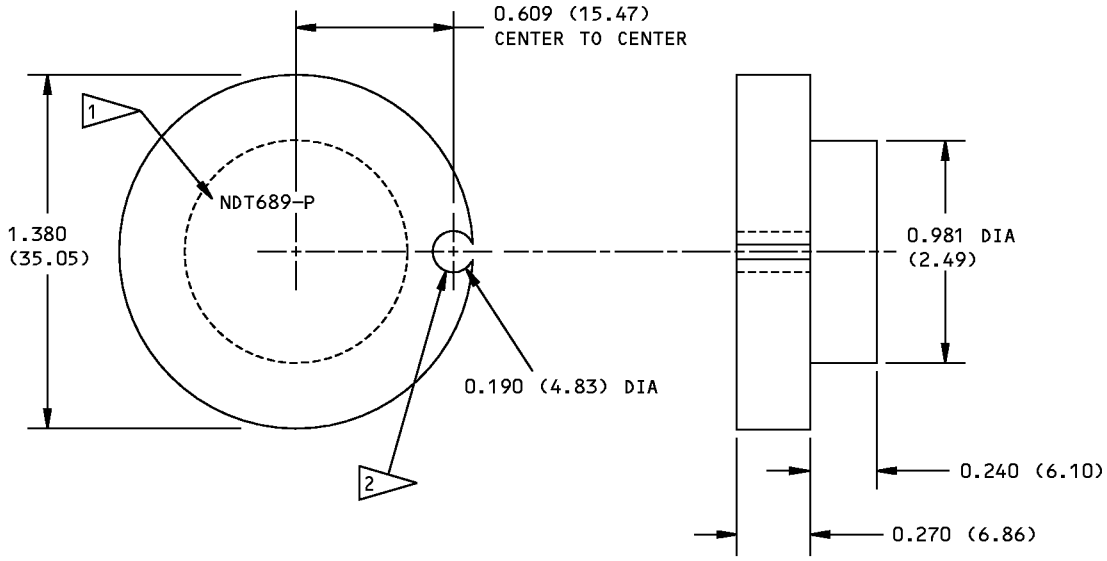
ANGULAR: ±1 DEGREE

- MATERIAL: 4330M OR 4340 STEEL. THIS MATERIAL MUST BE NORMALIZED. (REFER TO PART 1, 51-01-00, PAR. 7.C.)
- SURFACE FINISH: 32 Ra ON SIDE A, 63 Ra ON SIDE B AND ENDS.

1 ETCH OR STAMP THE REFERENCE STANDARD NUMBER NDT689 AS SHOWN

2 EDM (RECTANGULAR) NOTCH:
DEPTH: 0.100 (2.54)
LENGTH: 0.200 (5.08)
WIDTH: 0.020 (0.51) MAXIMUM

Reference Standard NDT689
Figure 2



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY):

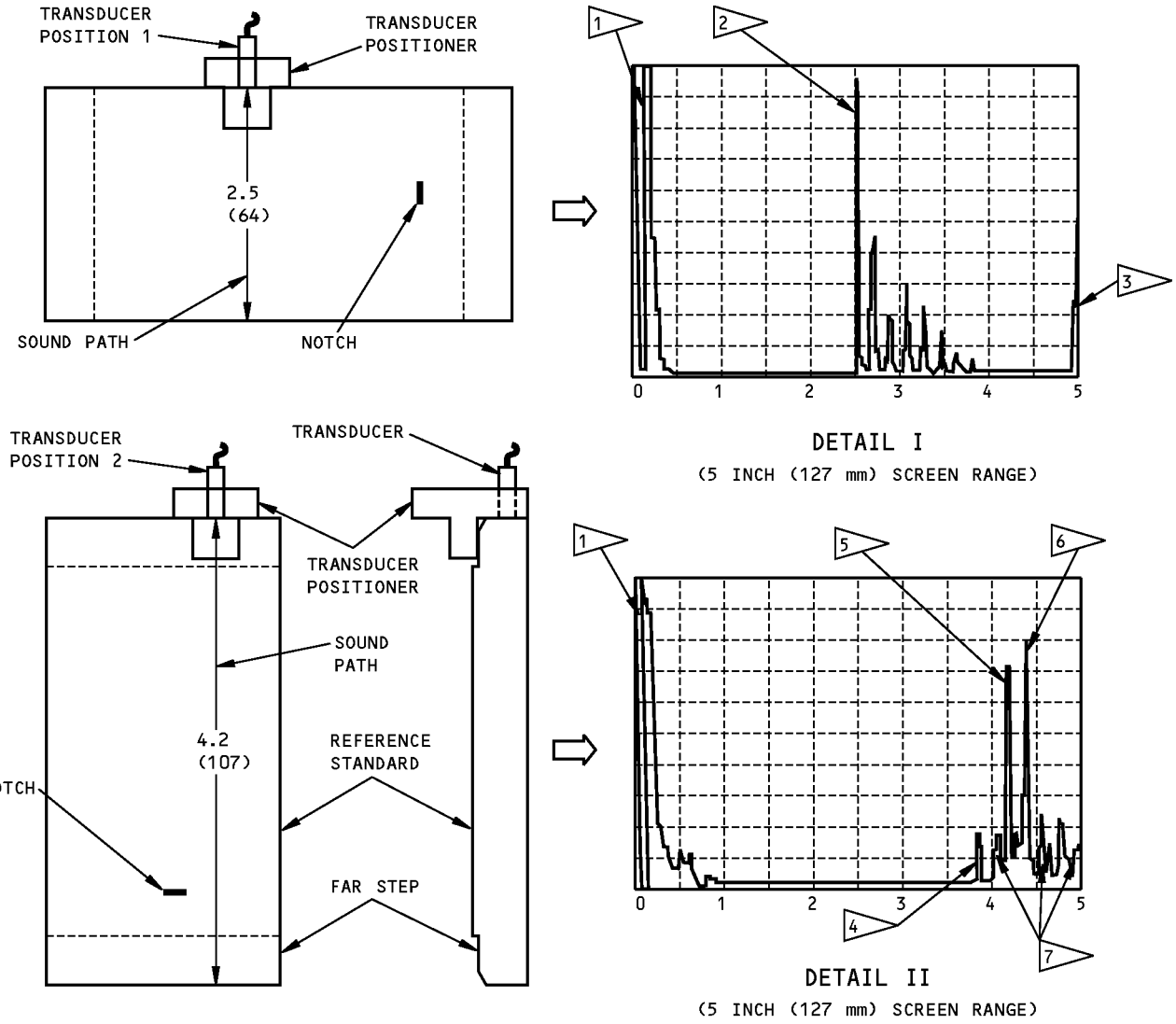
INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.050	X = ±1

- MATERIAL: BLACK ULTEM 1000, DELRIN OR EQUIVALENT

1 ETCH OR STAMP THE REFERENCE STANDARD POSITIONER NUMBER, NDT689-P, AS SHOWN.

2 MAKE THE INSIDE DIAMETER OF THIS HOLE 0.002 (0.05) LARGER THAN THE OUTSIDE DIAMETER OF THE TRANSDUCER CASE.

Transducer Positioner NDT689-P
Figure 3

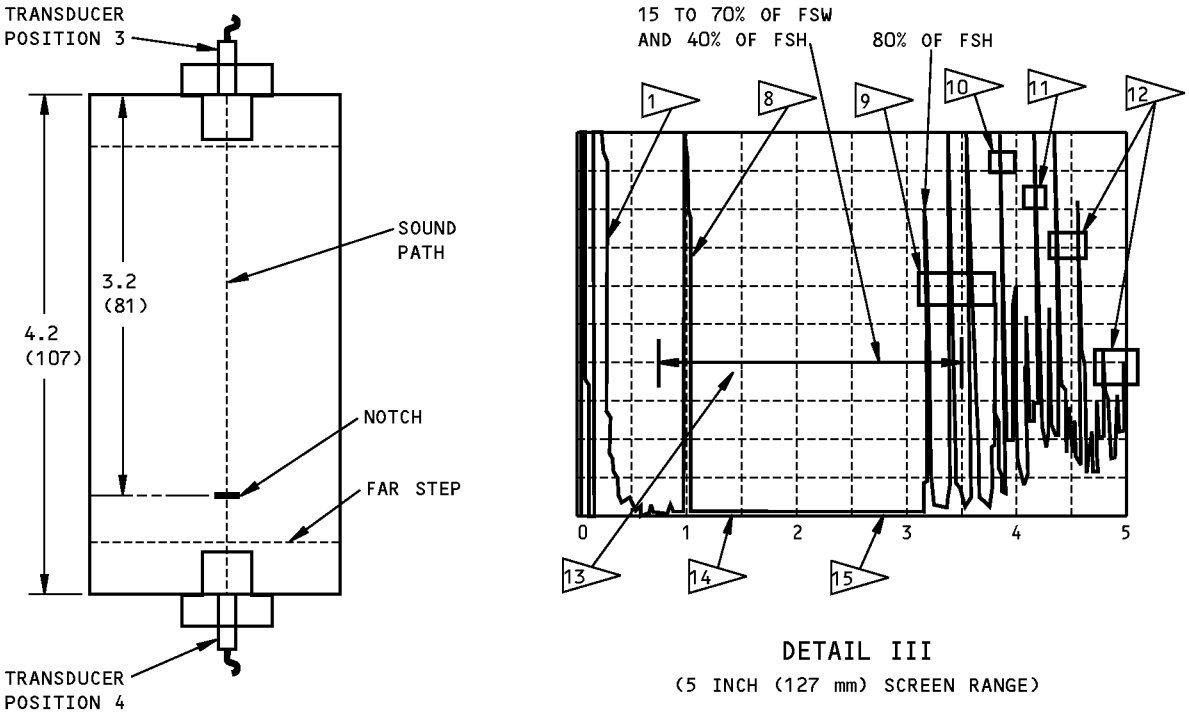


NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- THESE SCREEN DISPLAYS ARE EXAMPLES. THE SIGNALS CAN LOOK DIFFERENT WITH OTHER INSTRUMENT/TRANSDUCER MIXES.

1. INITIAL PULSE
2. FIRST BACK SURFACE SIGNAL FROM THE REFERENCE STANDARD AT 50% OF FSW (TRANSDUCER POSITION 1).
3. SECOND BACK SURFACE SIGNAL FROM THE REFERENCE STANDARD AT 100% OF FSW (TRANSDUCER POSITION 1).
4. SMALL SIGNAL AT 78% OF FSW CAUSED BY THE FAR STEP (TRANSDUCER POSITION 2).
5. BACK SURFACE SIGNAL FROM THE REFERENCE STANDARD AT 84% OF FSW (TRANSDUCER POSITION 2).
6. HIGH AMPLITUDE SIGNAL CAUSED BY THE CHAMFER AND MODE CONVERSION (TRANSDUCER POSITION 2).
7. GROUP OF SMALL SIGNALS CAUSED BY THE MODE CONVERSION (TRANSDUCER POSITION 2).

Instrument Calibration
Figure 4 (Sheet 1 of 2)



DETAIL III
(5 INCH (127 mm) SCREEN RANGE)

NOTES:

8 SIGNALS AT APPROXIMATELY 20% OF FSW THAT ARE CAUSED BY THE EDM NOTCH WITH THE TRANSDUCER AT POSITION 4.

9 SIGNALS AT APPROXIMATELY 65% OF FSW THAT ARE CAUSED BY THE EDM NOTCH WITH THE TRANSDUCER AT POSITION 3. USE THE SIGNAL NEAREST TO THE INITIAL PULSE TO SET THE SIGNAL AMPLITUDE.

10 SIGNAL AT APPROXIMATELY 78% OF FSW THAT IS CAUSED BY THE FAR STEP OF THE REFERENCE STANDARD.

11 SIGNAL AT APPROXIMATELY 84% OF FSW THAT IS CAUSED BY THE BACK SURFACE OF THE REFERENCE STANDARD.

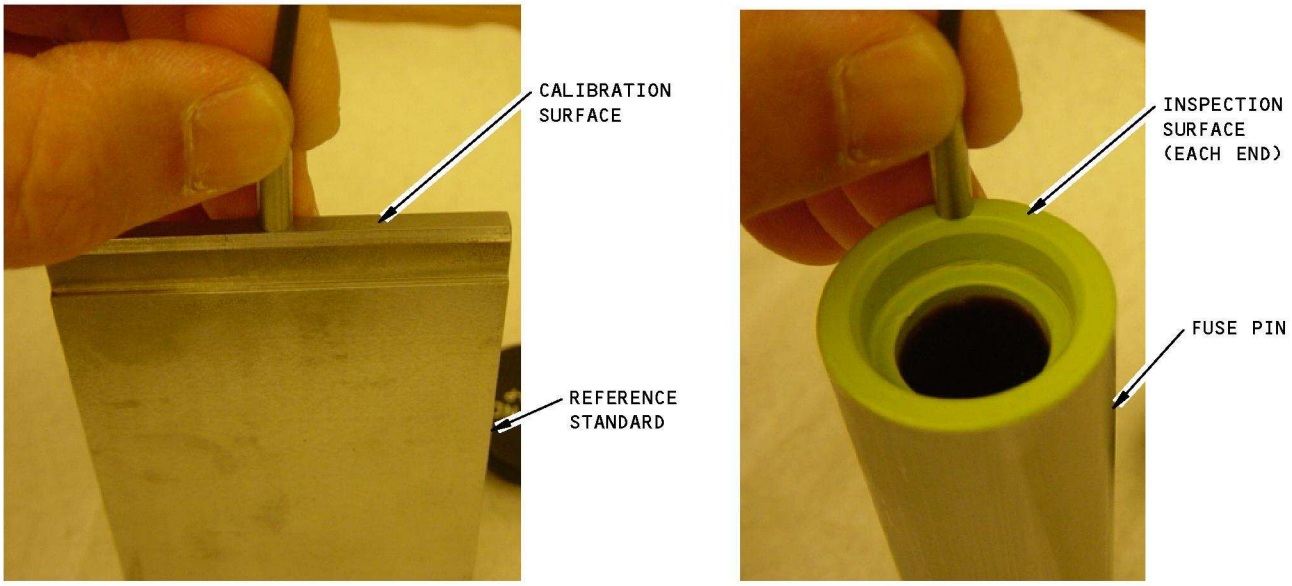
12 MODE CONVERSION SIGNALS CAUSED BY THE BACK SURFACE OF THE REFERENCE STANDARD.

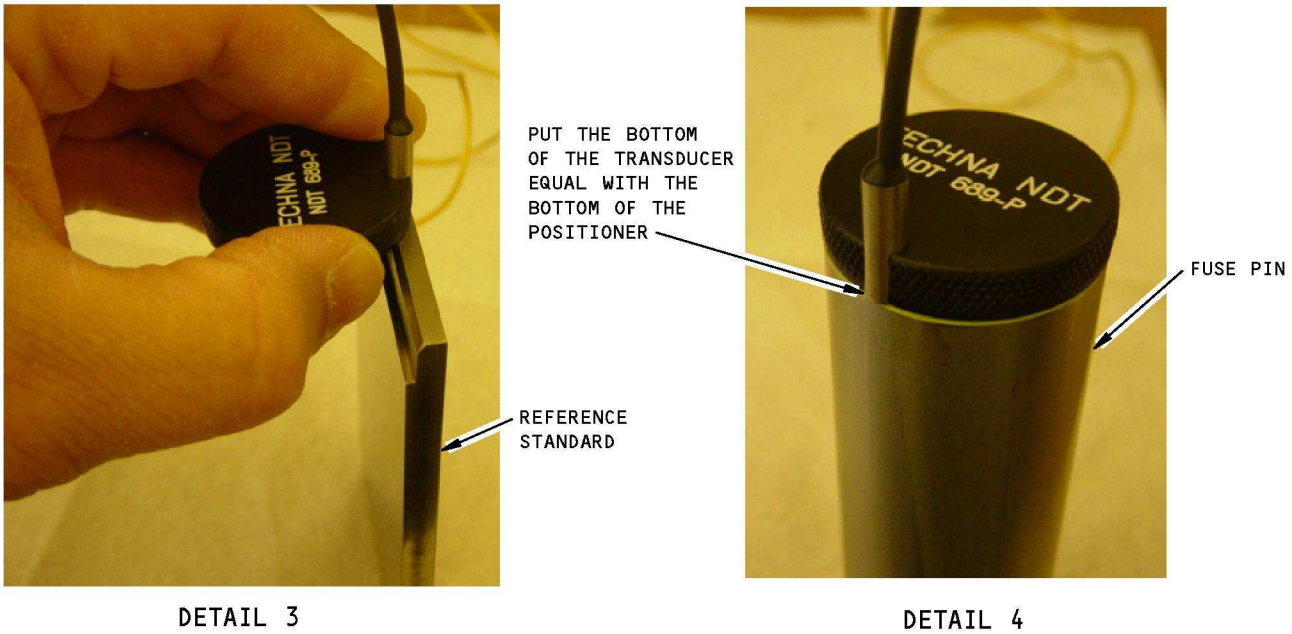
13 MONITOR THE SCREEN DISPLAY FOR THE ULTRASONIC SIGNAL THAT IS BETWEEN 15 AND 70% OF FSW. SET THE ALARM TO ALARM WHEN SIGNALS OCCUR THAT ARE 40% (OR MORE) OF FSH AT THIS LOCATION.

14 CAREFULLY MONITOR THE SCREEN DISPLAY AT THIS LOCATION FOR CRACK SIGNALS AT APPROXIMATELY 28% OF FSW.

15 CAREFULLY MONITOR THE SCREEN DISPLAY AT THIS LOCATION FOR CRACK SIGNALS AT APPROXIMATELY 56% OF FSW.

Instrument Calibration
Figure 4 (Sheet 2 of 2)





Fuse Pin Inspections
Figure 5

OUTER PIN AT JOINT 1 OF THE INBOARD FLAP AT FLAP SUPPORTS 3 AND 6

1. Purpose

A. Use this procedure to find circumferential cracks in the outer pins at joint 1 of inboard trailing edge flap supports 3 and 6. The cracks will start on the outside diameter of the pin.

B. See Figure 1 for the location of the outer pins.

NOTE: The inner pin must be removed to get access to the inner diameter of the outer pin.

C. MPD DTR Check Form Reference:

(1) ITEM 57-53-l04N.4

2. Equipment

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

A. General

(1) Use inspection equipment that can be calibrated on the reference standard as specified in Paragraph 4.

(2) Refer to Part 1, 51-04-00, for more data about ultrasonic inspection.

B. Instrument

(1) Use a pulse echo ultrasonic instrument.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 521; Krautkramer-Branson, Inc.

(b) Masterscan 340; Sonatest, Inc.

(c) Sonic 1200; Staveley, Inc.

C. Transducers

(1) Use a longitudinal wave transducer that:

(a) Operates at 10 MHz.

(b) Has a maximum crystal diameter of 0.250 inch (6.35 mm).

(c) Has a top mounted, hard wired, connector.

NOTE: The transducer must fit inside of the transducer positioning fixture.

(2) The transducer that follows was used to help prepare this procedure.

(a) TEK 5005, 0.250 inch diameter, top-wired connector; Techna NDT.

D. Reference Standard

(1) Make reference standard NDT697 as shown in Figure 2.

E. Couplant

(1) Use an ultrasonic couplant that will not cause corrosion or damage the airplane.

F. Transducer Positioning Fixture

(1) Make transducer positioning fixture NDT697P as shown in Figure 3.

(2) The transducer positioning fixture that follows was used to help prepare this procedure.

(a) TEK-5005F; Techna NDT.

3. Preparation for Inspection

A. Make sure all of the safety precautions are done to prevent accidental operation of the inboard flaps.

B. Identify the inspection areas shown in Figure 1.

C. Remove the inner pin from the outer pin.

D. Fully clean the inner diameter of the outer pin of all dirt and grease.

NOTE: Make sure the inner diameter of the outer pin is clean and smooth. The transducer positioning fixture will not move smoothly through the outer pin if the inner diameter is rough. A rough inner diameter can also cause noise signals to occur.

4. Instrument Calibration

A. Put the transducer cable through the handle of the transducer positioning fixture.

B. Apply couplant to the face of the transducer, and put the transducer in the transducer positioning fixture.

(1) Tighten the setscrew to keep the transducer in position.

C. Apply couplant to the inner diameter of the reference standard and to the transducer positioning fixture.

D. Put the transducer positioning fixture in the reference standard and move it to get a maximum signal from the notch. Adjust the instrument controls so that the initial pulse is at the left edge of the screen display, and the signal from the notch is at 50% of full screen width (FSW). See Figure 4, Detail 1 and transducer position 1.

E. Adjust the instrument sensitivity to get a signal from the reference standard notch that is 80% of full screen height (FSH). See Figure 4, Detail 1.

F. Increase the instrument sensitivity 6 decibels.

G. Slowly move the positioning fixture forward to get a signal from the reference notch at 25% of FSW. This signal must be clearly seen on the instrument display as shown in Figure 4, Detail 2 and transducer position 2. If the signal cannot be clearly seen, then some of the instrument controls must be adjusted to get a better signal, or the calibration was not done correctly and must be done again.

5. Inspection Procedure

A. Apply a sufficient quantity of couplant to the transducer positioning fixture and the inner diameter of the outer pin.

B. Put the transducer positioning fixture into the outer pin so that the first scribe mark is aligned with the end of the outer pin (see Figure 3). This is the first position to examine area 1 of the outer pin (see Figure 5).

(1) Do not use the support collar to examine area 1 of the outer pin (see Figure 5).

C. Slowly turn the transducer positioning fixture 360 degrees and monitor the instrument screen display for signals between 25 and 50% of FSW.

D. Move the transducer positioning fixture 3/16 inch (4.67 mm) to the adjacent scribe mark.

E. Continue to do Paragraph 5.C. and Paragraph 5.D. until the outer pin has been fully examined in area 1. See Figure 5.

F. Engage the support collar of the transducer positioning fixture with the outer pin. See Figure 5, flagnote 2.

G. Put the transducer positioning fixture into the outer pin so that the first scribe mark in the second set of scribe marks is aligned with the edge of the support collar. This is the first position to examine area 2 of the outer pin. See Figure 3 and Figure 5.

NOTE: The support collar is used while you examine area 2 of the outer pin to help keep the transducer positioning fixture stable. See Figure 3 and Figure 5.

H. Slowly turn the transducer positioning fixture 360 degrees and monitor the instrument screen display for signals between 25 and 50% of FSW.

I. Move the transducer positioning fixture 3/16 inch (4.67 mm) into the outer pin until the adjacent scribe mark is aligned with the edge of the support collar.

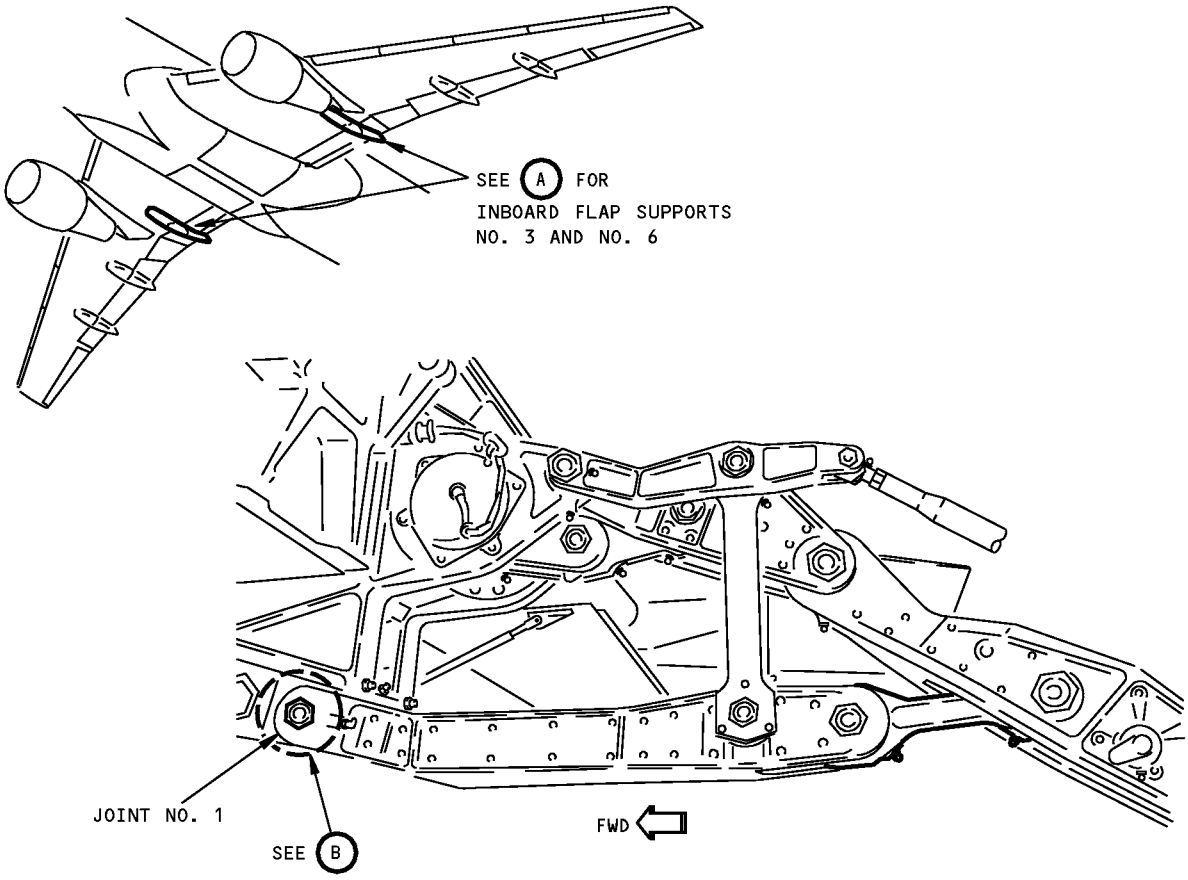
J. Continue to do Paragraph 5.H. and Paragraph 5.I. until the outer pin has been fully examined in area 2. See Figure 5.

6. Inspection Results

A. A signal that is 40% (or more) of FSH that occurs between 25 and 50% of FSW is a sign of a possible crack. The area that causes this type of signal to occur must be examined more fully.

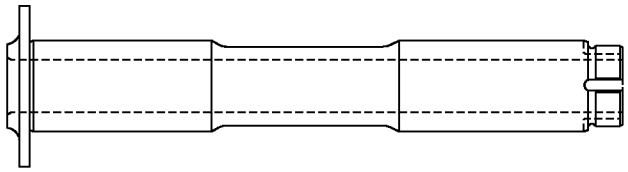
B. Remove the 6 db and compare the crack signals that occur during the inspection to the signals you got from the reference standard during calibration (Paragraph 4.).

C. To make sure that a crack signal is from a crack, remove the outer pin and do a magnetic particle inspection. Refer to SOPM 20-20-01.



INBOARD FLAP SUPPORT NO. 3 AND NO. 6

A



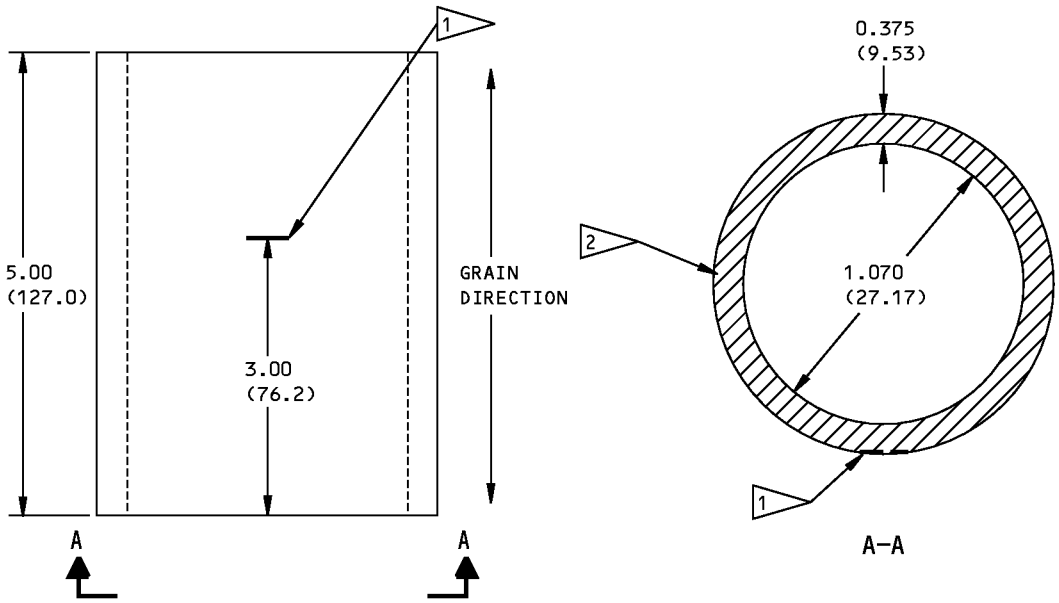
OUTER PIN AT JOINT NO. 1

B

NOTES

- THE INNER PIN MUST BE REMOVED TO GET ACCESS TO THE INNER BORE OF THE OUTER PIN.

Trailing Edge Inboard Flap Supports No. 3 and No. 6
Figure 1



NOTES

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCES (UNLESS SPECIFIED DIFFERENTLY):

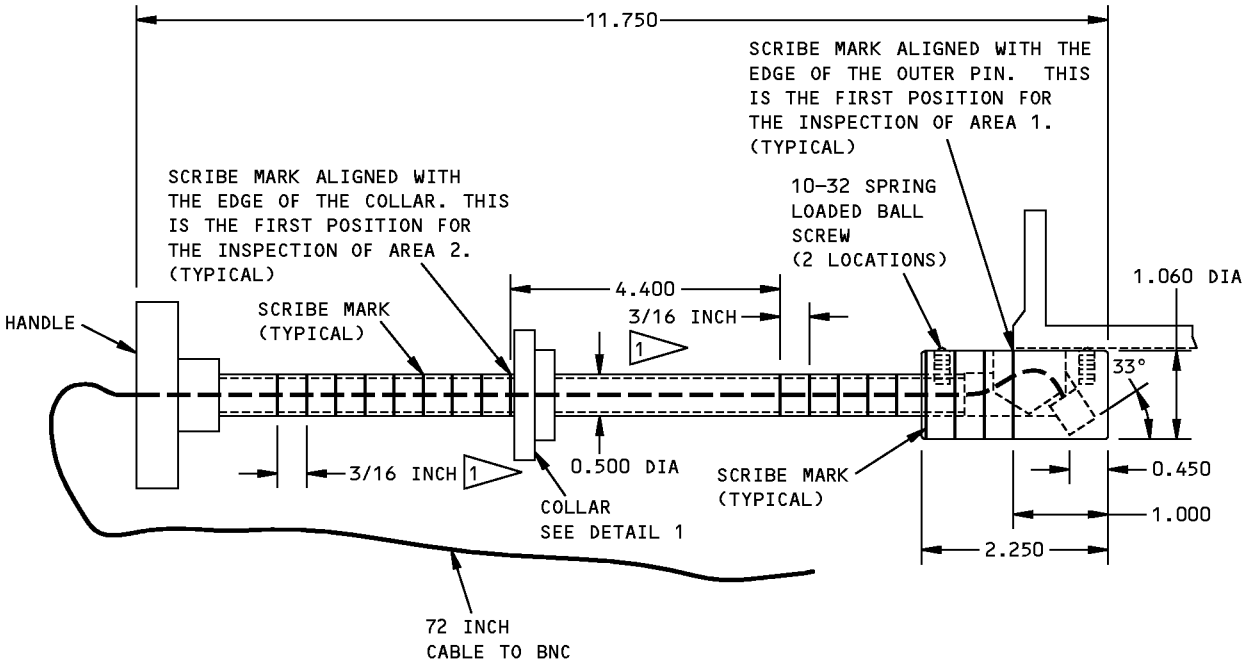
INCHES	MILLIMETERS
X.XXX = ± 0.005	X.XX = ± 0.10
X.XX = ± 0.025	X.X = ± 0.5
X.X = ± 0.050	X = ± 1

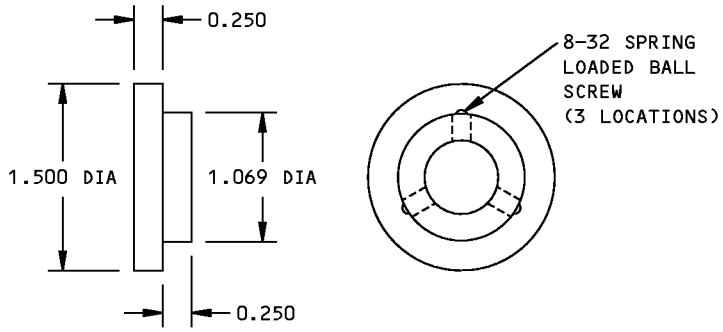
- MATERIAL: 15-5PH CRES. THIS MATERIAL MUST BE NORMALIZED. REFER TO PART 1, 51-01-00, PAR. 7.C.
- SURFACE FINISH: 16 Ra ON THE OUTER DIAMETER; 63 Ra ON ALL OTHER SURFACES

1 CIRCUMFERENTIAL EDM NOTCH: 0.050 (1.27) X 0.100 (2.54) X 0.010 (0.25) (MAXIMUM) WIDTH.

2 ETCH OR STEEL STAMP THE REFERENCE STANDARD NUMBER NDT697 AT APPROXIMATELY THIS LOCATION.

Reference Standard NDT697
Figure 2





DETAIL 1

NOTES

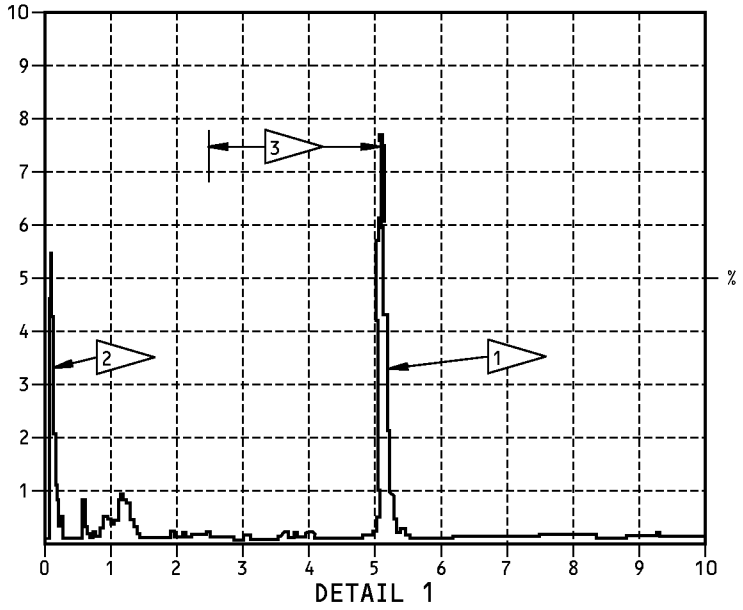
- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES)
- TOLERANCES (UNLESS SPECIFIED DIFFERENTLY):

INCHES	MILLIMETERS
X.XXX = ± 0.005	X.XX = ± 0.10
X.XX = ± 0.025	X.X = ± 0.5
X.X = ± 0.050	X = ± 1

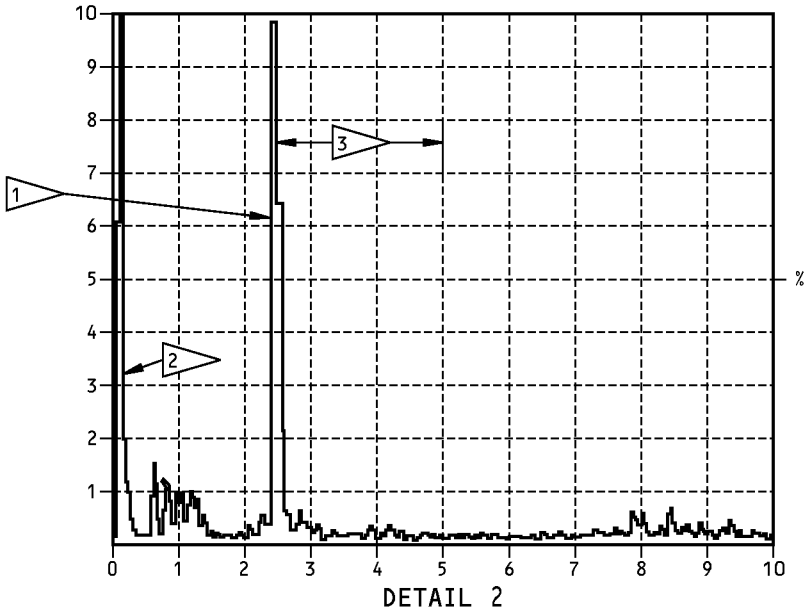
- TRANSDUCER: TEK-5005
  10 MHZ
  0.250 INCH DIAMETER
  40° STEEL
  HARD WIRED TO BNC
  STAINLESS STEEL HOUSING
  FIXTURE: TEK-5005F
  STAINLESS STEEL TUBING
  PLEXIGLASS BODY
  10-32 SPRING LOADED BALL SCREW
  COLLAR: BLACK ACETAL OR EQUIVALENT
  SEE DETAIL 1

1 3/16 INCH BETWEEN SCRIBE MARKS, 9 SCRIBE MARKS TOTAL

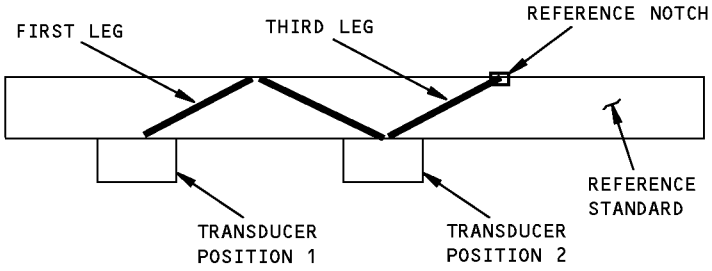
Transducer Positioning Fixture
Figure 3



DETAIL 1



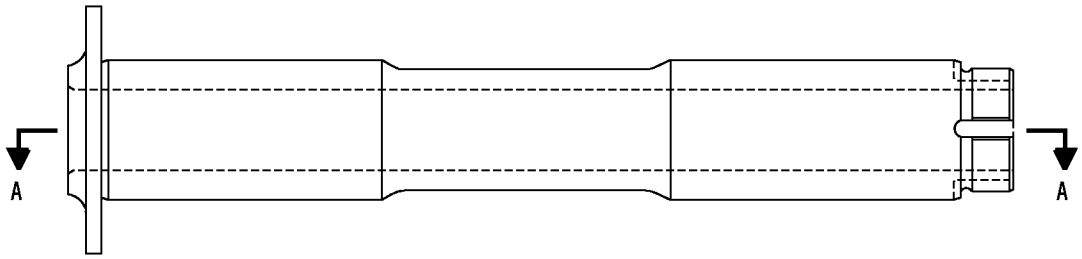
DETAIL 2

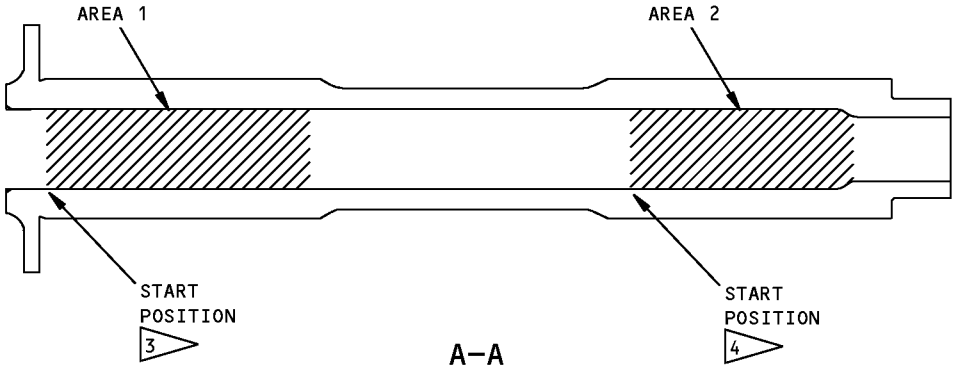


NOTES:

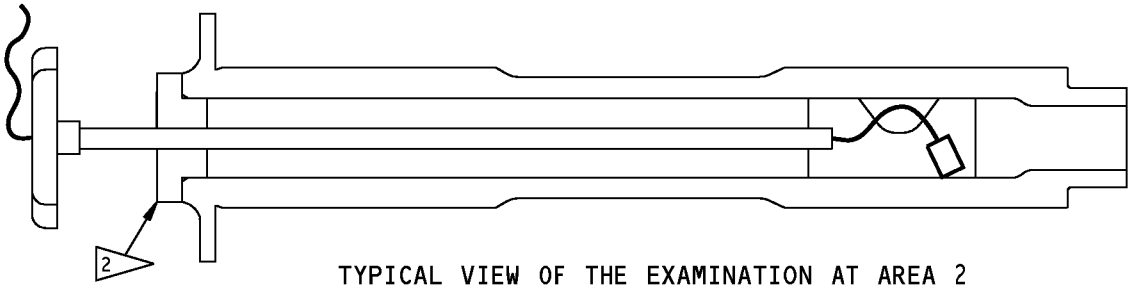
1. NOTCH SIGNAL
2. INITIAL PULSE
3. LOCATIONS WHERE SIGNALS FROM CRACKS CAN OCCUR

Instrument Calibration
Figure 4





A–A



TYPICAL VIEW OF THE EXAMINATION AT AREA 2

NOTES:

1. INSPECTION AREAS
2. THE SUPPORT COLLAR OF THE TRANSDUCER POSITIONING FIXTURE IS SHOWN ENGAGED WITH THE OUTER PIN.
3. DO NOT ENGAGE THE COLLAR OF THE TRANSDUCER POSITIONING FIXTURE WITH THE OUTER PIN WHILE YOU EXAMINE AREA 1.
4. ENGAGE THE COLLAR OF THE TRANSDUCER POSITIONING FIXTURE WITH THE OUTER PIN WHILE YOU EXAMINE AREA 2.

Inspection Procedure
Figure 5

PART 4 - ULTRASONIC

BOLT AT JOINT "RL" OF INBOARD FLAP SUPPORTS 4 AND 5

1. Purpose

A. Use this procedure to examine the BACB30NM18K98 bolts for cracks.

B. The BACB30NM18K98 bolt is installed at joint RL on flap supports 4 and 5. (See Figure 1 and Figure 2).

C. Cracks can occur circumferentially on the outside diameter of the bolt. The minimum crack that can be found with this procedure is 0.050 inch deep by 0.100 inch long (1.27 by 2.54 mm).

D. Two inspections are necessary to do to examine the bolt: one inspection from the hex head end and one inspection from the threaded end.

E. Part 4, 57-50-04 is also necessary to complete MPD DTR Check Form Item 57-53-I04AA.

F. MPD DTR Check Form Item 57-53-I04AA relates.

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 ultrasonic instrument that can operate at 10 MHz. Broadband instruments can also be used if they can be calibrated as specified in this procedure.

(2) The instruments that follow were used to help prepare this procedure.

(a) USN 60: Krautkramer Branson

(b) MASTER SCAN 340; Sonatest

(c) SONIC 1200S; Staveley

C. Transducer

(1) Use a zero degree longitudinal wave transducer with a crystal diameter not larger than 0.250 inch (6.4 mm).

(2) A 10 MHz transducer is recommended but other frequencies can be used if the instrument can be calibrated as specified in Paragraph 4.

(3) The transducers that follow were used to help prepare this procedure.

(a) 10 MHz, 0.250 inch (6.4 mm) diameter, 0 degree transducer. Case dimensions: 0.375 inch (9.5 mm) diameter by 0.50 inch long (12.7 mm). Part number: SUC 168. Manufacturer: NDT Engineering Corp.

(b) 10 MHz, 0.188 inch (4.8 mm) diameter, 0 degree transducer. Case dimensions: 0.313 inch (7.9 mm) diameter by 0.75 inch (19 mm) long. Part number: SPO 6283. Manufacturer: Nortec.

(c) 10 MHz, 0.125 inch (3.2 mm) diameter. 0 degree transducer. Case dimensions: 0.188 inch (4.8 mm) diameter by 0.62 inch (16 mm) long. Part number: 389-002-190 Gamma. Manufacturer: KB-Aerotech.

D. Reference Standard

(1) Make reference standard NDT687 as identified in Figure 3.

E. Couplant

(1) All ultrasonic couplants that will not damage the airplane structure can be used. Commercial grease or oil can be used if the instrument can be calibrated with it as specified in Paragraph 4.

3. Preparation for Inspection

A. Identify the inspection locations. See Figure 1, Figure 2 and Figure 5.

B. Get access to the inspection surfaces (hex head and threaded end) of the bolt.

C. Remove all dirt, sealant and loose paint from the inspection areas of the bolt that the transducer will touch. Fully clean the inspection areas of the bolt.

4. Instrument Calibration

A. Connect the transducer to the instrument and do the initial adjustments of the instrument.

B. Set the instrument frequency to 10 MHz.

C. Put couplant at position A on reference standard NDT687. Then put the transducer at this position. See Figure 4.

D. Adjust the instrument controls to get the first back surface signal at approximately 80% of full screen width. The instrument is now calibrated for a 10 inch (254 mm) screen range. See Figure 4, flag note 2.

E. Two separate calibrations are necessary to do this inspection from each end of the bolt:

(1) To set the calibration for the inspection from the hex head end of the bolt:

(a) Move the transducer above reference notch 1 at position B. See Figure 4.

(b) The signal from notch 1 must occur at approximately 20% of full screen width (FSW).

(c) Move the transducer to get a maximum signal from notch 1. Adjust the instrument gain to put the maximum signal at 80% of full screen height (FSH). See Figure 4 (flag note 3).

(2) To set the calibration for the inspection from the threaded end of the bolt:

(a) Move the transducer above reference notch 2 at position C. See Figure 4.

(b) The signal from reference notch 2 must occur at approximately 30% of FSW.

(c) Move the transducer to get a maximum signal from notch 2. Adjust the instrument gain to put the maximum signal at 80% of FSH. See Figure 4 (flag note 4).

NOTE: It is important that the amplitude of the notch signal is at its maximum. Move the transducer to make sure the signal is at a maximum height when the notch amplitude is set.

F. Examine all noise signals (from the hex end and threaded end of the bolt) to make sure the signal to noise ratio is larger than 3:1. If it is less than 3:1, try a different transducer.

5. Inspection Procedure

A. Prepare for the inspection as specified in Paragraph 3.

B. Calibrate the instrument as specified in Paragraph 4. Make sure to follow the instructions in Paragraph 4.E.(1) to examine the hex head end of the bolt and Paragraph 4.E.(2) to examine the threaded end of the bolt.

C. Add 6 db of gain.

NOTE: It is important to keep the baseline noise amplitude to a minimum. Therefore, if the baseline noise amplitude goes above 25% of FSH after you add the 6 dB of gain, try a different transducer with a smaller crystal diameter.

NOTE: The bolt must be examined from its hex head and threaded ends. When you examine the bolt from the hex head end, be careful not to move the transducer out of the inspection area. If the transducer moves away from the center of the bolt, multiple signals from the hex head of the bolt will begin to occur near 5% of FSW and the back surface signal will go away. See Figure 5.

D. Put couplant and the transducer on the inspection area at one end of the bolt.

NOTE: Since the calibration is different for each end of the bolt, make sure you have done the correct calibration for the end of the bolt you will examine.

E. Put the transducer on the bolt and make sure the signal from the back surface of the bolt is at the correct screen width identified in Paragraph 4.D.

F. Fully examine the inspection area identified in Figure 5 for cracks. While you make a scan of the bolt, monitor the ultrasonic signals between the initial pulse and the back surface signal. Carefully monitor the screen for signals between 10 and 40% of FSW. See Figure 4 (flag note 5). Monitor the signal from the back surface to make sure the transducer fully touches the inspection area.

G. Do Paragraph 5.B. thru Paragraph 5.F. for the opposite end of the bolt.

6. Inspection Results

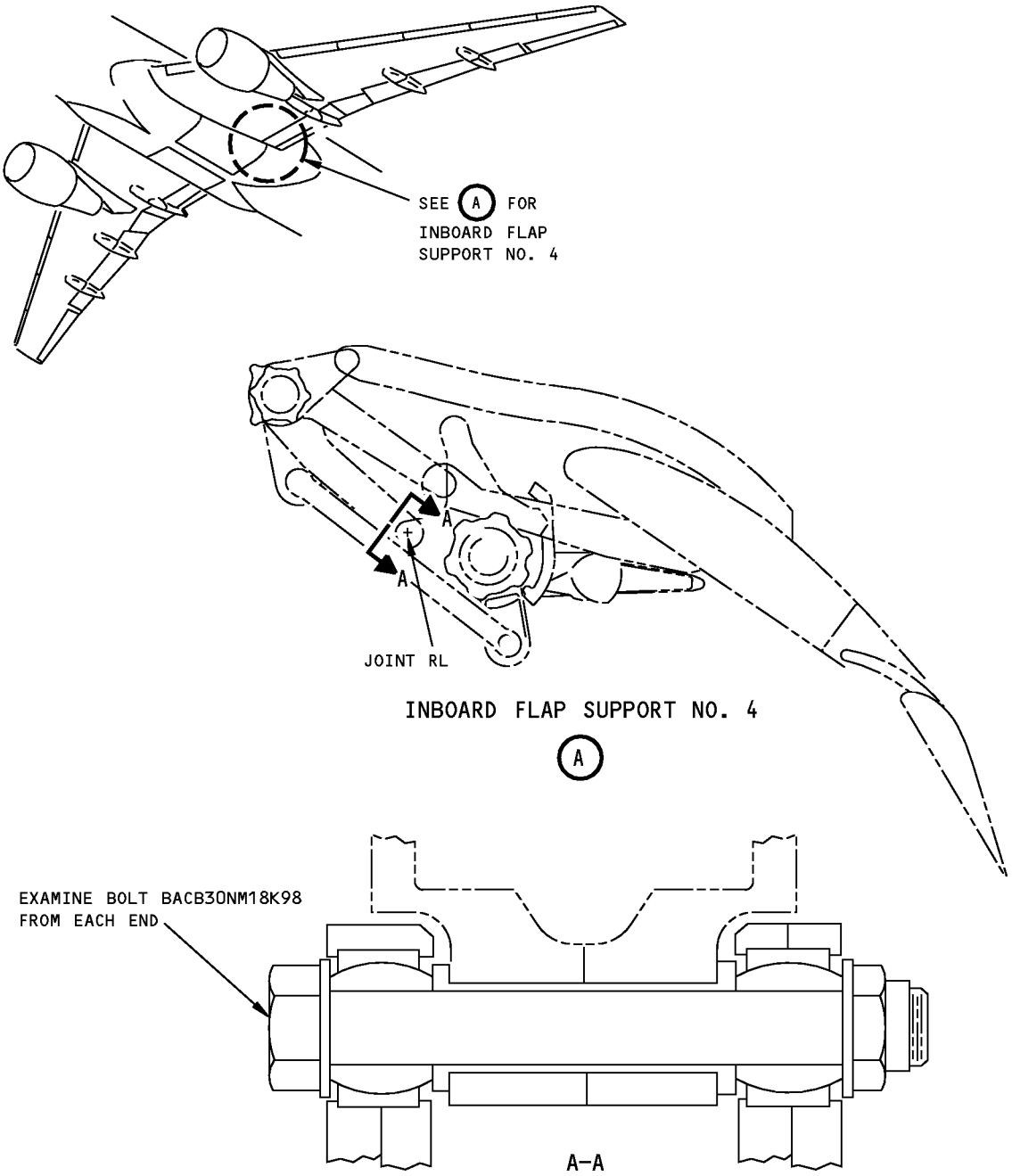
A. A crack can cause a signal to occur between the initial pulse and the back surface signal and can cause the signal from the back surface to decrease below 100% of FSH.

B. Do more analysis on a bolt with an ultrasonic signal between the initial pulse and the back surface signal that is 40% or more of FSH.

(1) Remove the 6 dB of gain that was added in Paragraph 5.C.

(2) Clean the inspection area and examine the area again with small quantity of couplant.

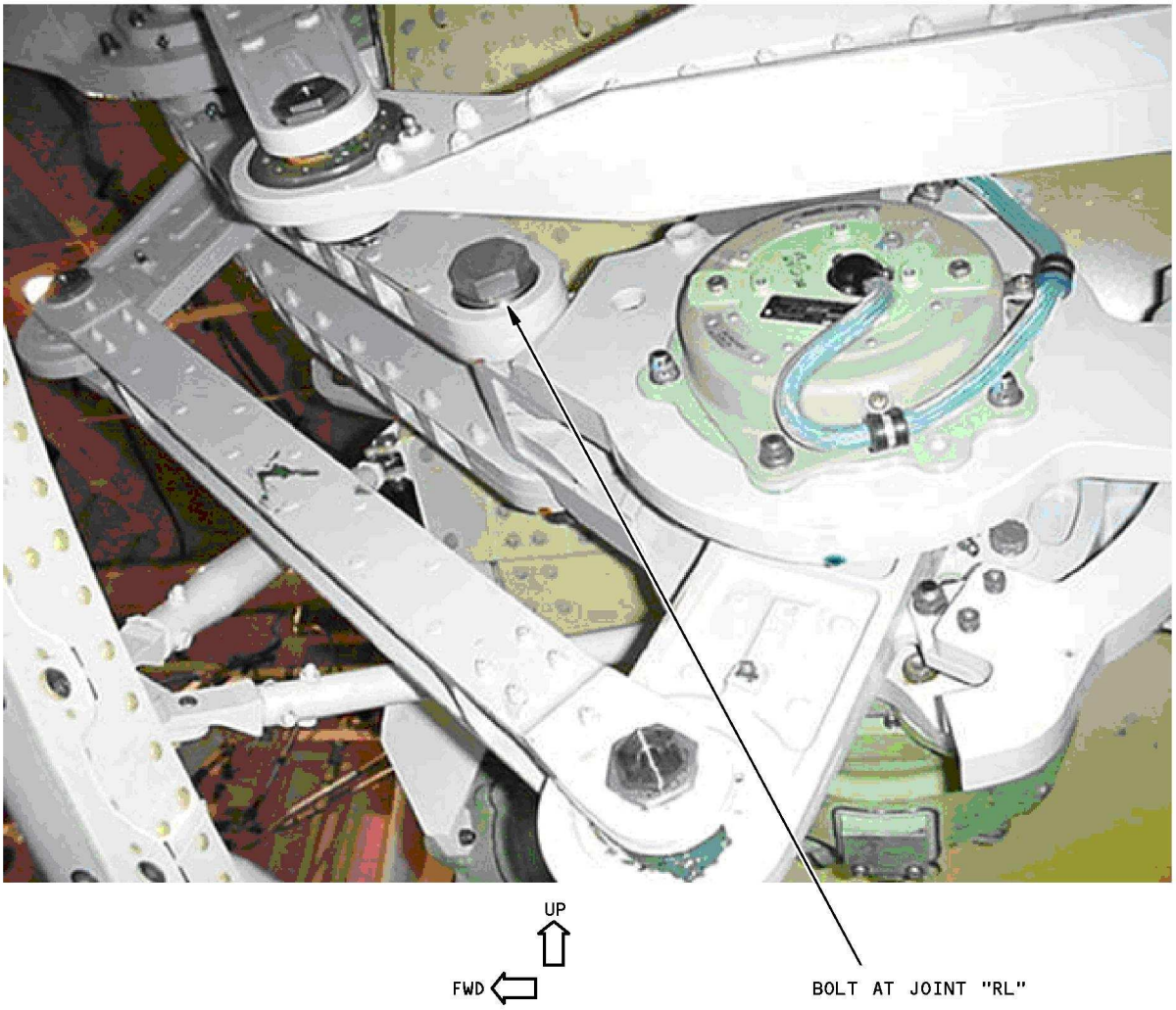
(3) If the ultrasonic signal is more than 40% of FSH, remove the bolt and do a fluorescent penetrant inspection. Refer to Standard Overhaul Practices Manual 20-20-02.



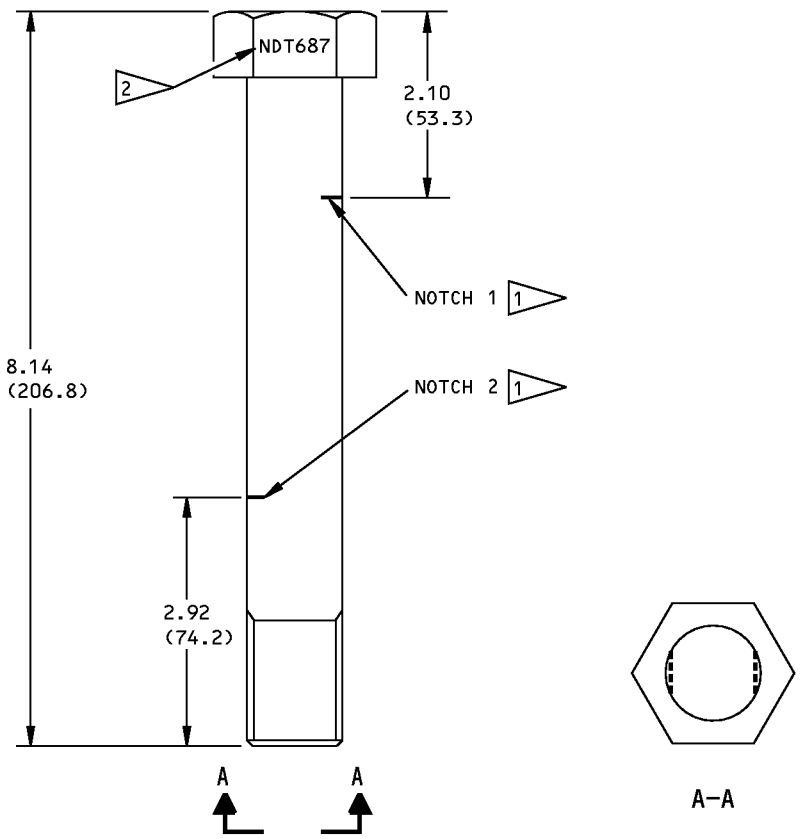
NOTES

- INBOARD FLAP SUPPORT NO. 4 IS SHOWN;
  INBOARD FLAP SUPPORT NO. 5 IS OPPOSITE

Bolt Location on the Inboard Flap
Figure 1



Inboard Flap Support 4 (Support 5 Opposite)
Figure 2



NOTES:

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS ARE IN PARENTHESES).
- TOLERANCE (UNLESS SPECIFIED DIFFERENTLY):

INCHES	MILLIMETERS
X.XXX = ±0.005	X.XX = ±0.10
X.XX = ±0.025	X.X = ±0.5
X.X = ±0.05	X = ±1

- MATERIAL: BOLT BACB30LM18K98 OR BACB30NM18K98, OR MAKE A BOLT OF THE SAME DIMENSIONS FROM A286 CRES OR 6AL–4V TITANIUM MATERIAL. MAKE SURE THE BOLT AND THE THREADS ARE MADE CORRECTLY. THIS BOLT DOES NOT HAVE A DRILLED HEAD OR SHANK.

  ADD 2 EDM NOTCHES AT LOCATIONS SHOWN ABOVE.

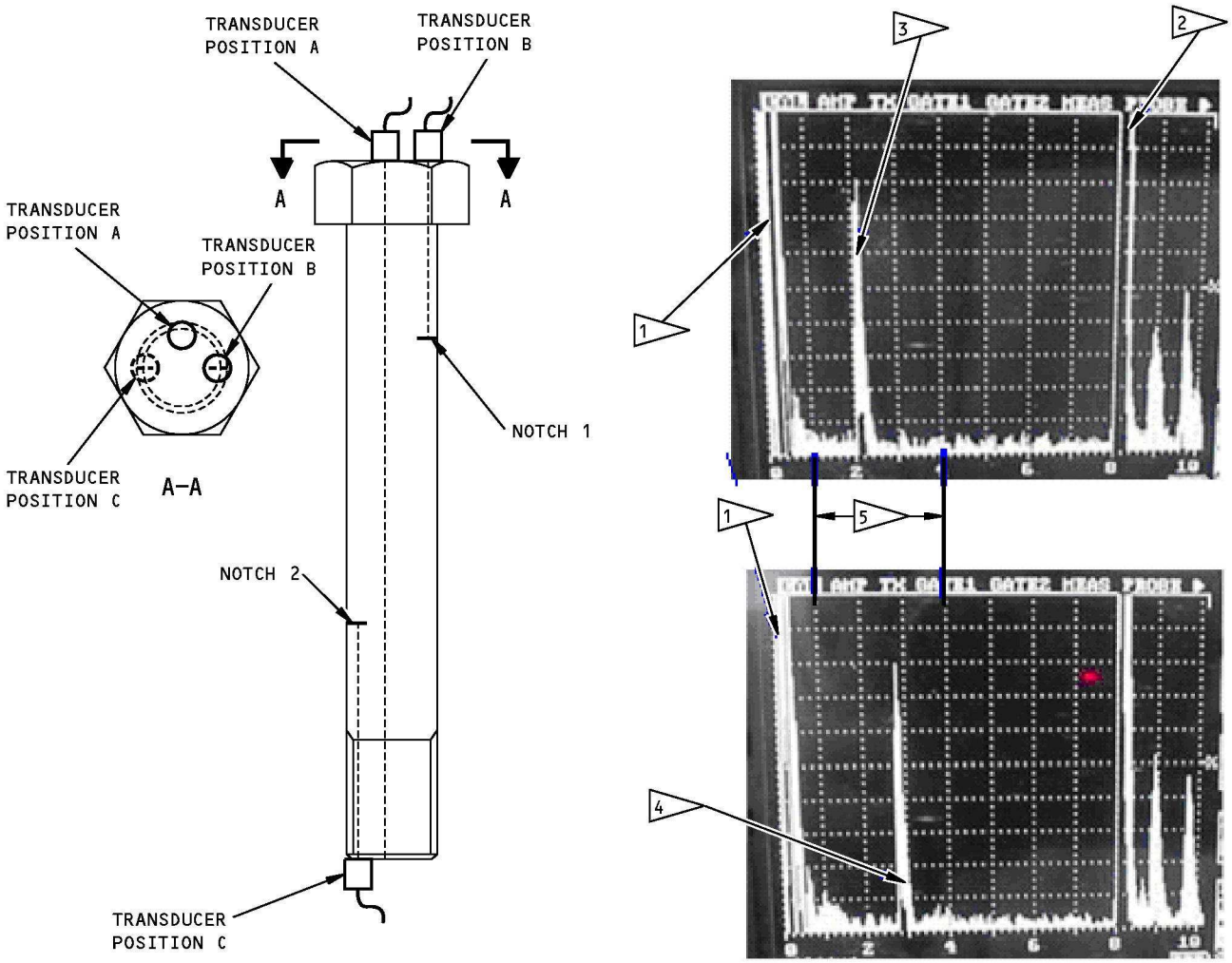
1 EDM (RECTANGULAR) NOTCH:
DEPTH 0.050 (1.27); LENGTH 0.100 (2.54)

NOTE: PUT NOTCH 1 AT 0 DEGREE AND NOTCH 2 AT 180 DEGREES.

2 ETCH OR STAMP THE REFERENCE STANDARD NUMBER NDT687 WHERE SHOWN

1312757 S0000227717_V2

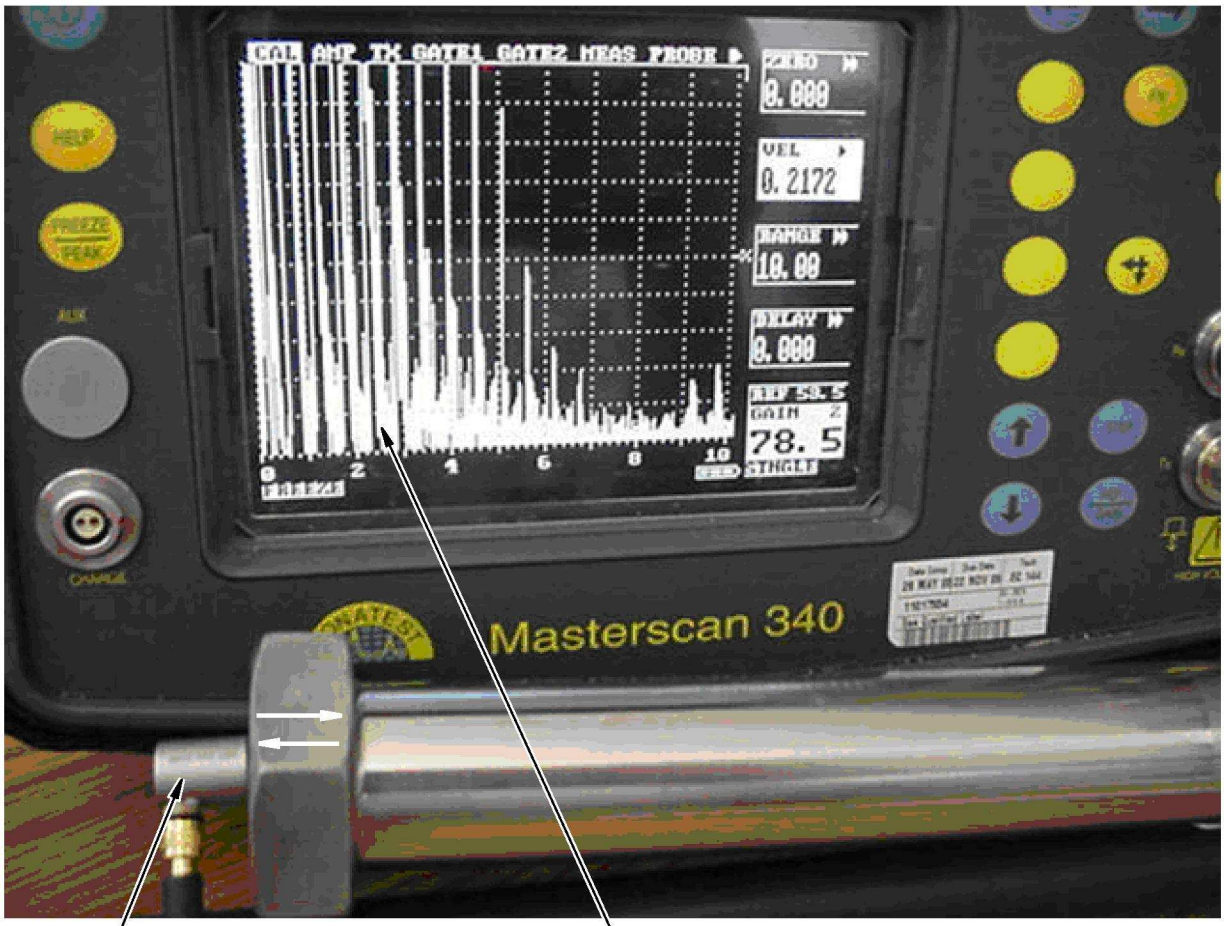
Reference Standard NDT687
Figure 3



NOTES:

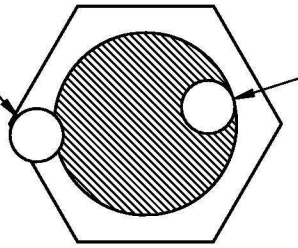
1. INITIAL PULSE
2. REFERENCE STANDARD BACK SURFACE SIGNAL AT POSITION A
3. NOTCH 1 SIGNAL WITH THE TRANSDUCER AT POSITION B
4. NOTCH 2 SIGNAL WITH THE TRANSDUCER AT POSITION C
5. MONITOR THIS SCREEN RANGE

Instrument Calibration
Figure 4



BACK SURFACE SIGNAL (AND MULTIPLES) THAT OCCUR FROM THE HEX HEAD END OF THE BOLT WHEN THE TRANSDUCER HEAD IS OUT OF THE INSPECTION AREA.

TRANSDUCER OUT OF THE INSPECTION AREA



TRANSDUCER IN THE INSPECTION AREA

HEX HEAD
(TOP VIEW)

NOTES:

ULTRASONIC INSPECTION AREA

Multiple Signals from the Hex Head
Figure 5