

EFFECTIVITY
MODEL: ALL

NONDESTRUCTIVE TEST

PART 4 - ULTRASONIC

WINDOW - CABIN

1. Purpose

- A. To detect delaminations in or near the radius of the passenger cabin window outer pane (DETAIL I).

2. Equipment

- A. Any ultrasonic equipment which satisfies the requirement of this procedure may be used. The following equipment was used during the development of this procedure and found acceptable.

(1) Instrument

- (a) Nortec NDT-131, Nortec Corporation.

(2) Transducer

- (a) 10-MHz, 0.25-inch element in a 0.38-inch case (KB-Aerotech, Alpha Series, 10 MHz/0.25), or

- (b) 5-MHz, 0.25-inch element in a 0.38-inch case (KB-Aerotech, Alpha Series, 5 MHz/0.25) manufactured by KB-Aerotech, Transducer Technology Center, P.O. Box 350, Lewiston, PA 17044

B. Reference Standard 124

- (1) Fabricate a reference standard per DETAIL II.

C. Couplant

- (1) Light oil or water washable couplant

3. Preparation for Inspection

- A. This inspection can be performed with the part in place on the airplane. No removals are required.

- B. Clean inspection area thoroughly.

4. Instrument Calibration

- A. Apply a thin film of couplant to the inspection surface of the reference standard.

NONDESTRUCTIVE TEST

- B. Place the transducer in an area where there is no hole beneath it and adjust instrument controls to obtain a response from the opposite surface (DETAIL III). Position the response approximately 80 percent of the total screen away from the initial pulse.
- C. Move the transducer to the area above the hole which is 0.2-inch below the surface. Obtain a maximum response from the flat bottom of the hole and adjust instrument gain so that the response will have at least a 70 percent amplitude (DETAIL IV).
- D. The reference hole with the flat bottom 0.075-inch below the surface can be used to check the resolution of the instrument. Any instrument used in this inspection should be able to resolve a delamination 0.075 inch below the surface.

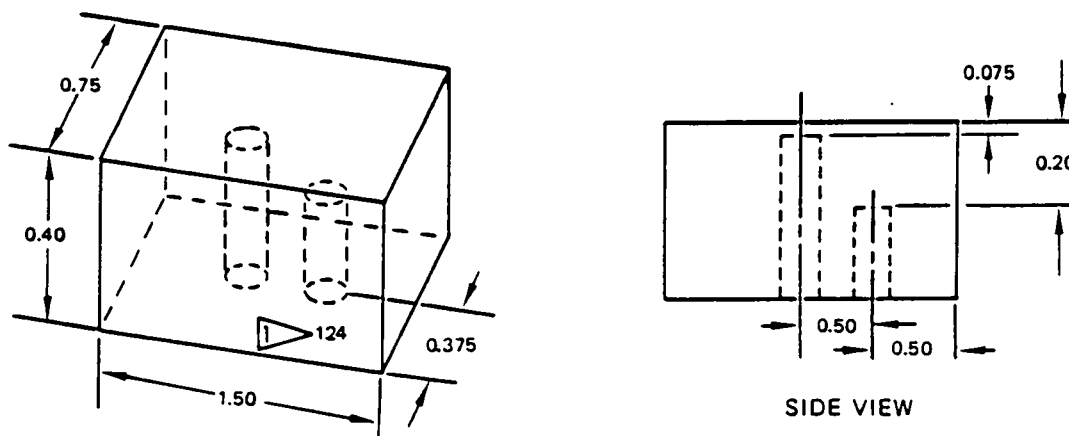
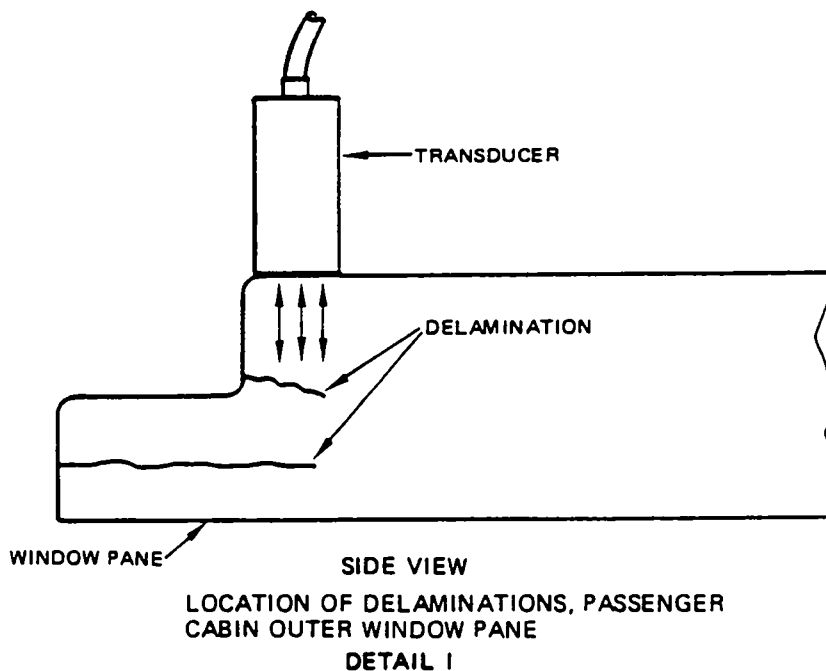
5. Inspection Procedure

- A. Apply a couplant around the exterior edge of the window.
- B. Scan the exterior periphery of the window and note the location of any indication with a 20 percent or higher signal height appearing between the initial pulse and the signal from the windows opposite surface.
- C. Any indication with a 20 percent or higher signal height is a potential delamination and should be further evaluated. With the recommended instrument calibration a 20 percent signal is obtained from a delamination which extends approximately 0.1-inch under the transducer.

6. Cleanup

- A. Remove couplant from windows with alkaline cleaner or detergents approved for airplane washing.

NONDESTRUCTIVE TEST



**NOTES**

- ALL DIMENSIONS ARE IN INCHES
- MATERIAL: LUCITE OR PLEXIGLAS
- TOLERANCE:  $\pm 0.01$
- HOLE SIZE: 3/32 INCH OR NO. 42 DRILL SIZE

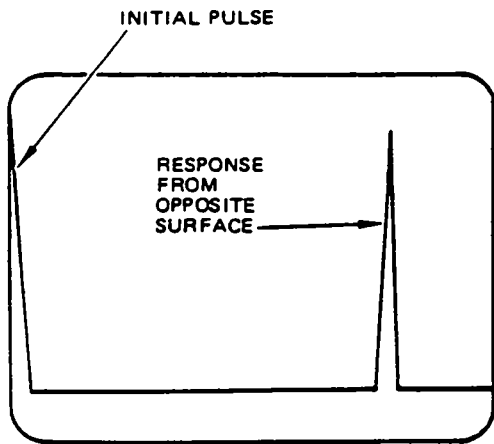
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 2531 E. INDEPENDENCE ST.  
 TULSA, OKLAHOMA 74110

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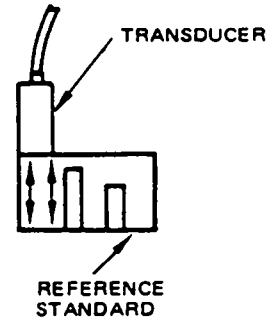
REFERENCE STANDARD FOR  
 PASSENGER CABIN WINDOW OUTER PANE  
**DETAIL II**

Passenger Cabin Window Outer Pane  
 Figure 1 (Sheet 3)

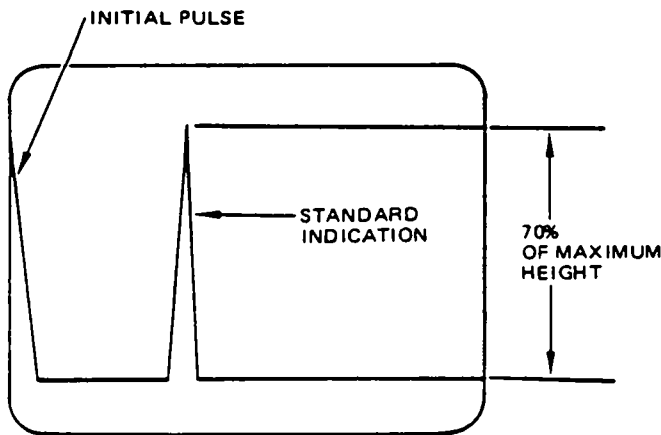
NONDESTRUCTIVE TEST



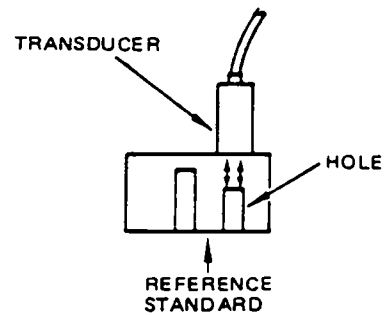
SCOPE PRESENTATION



INSTRUMENT CALIBRATION—  
SOUND TRAVEL DISTANCE  
DETAIL III



SCOPE PRESENTATION



INSTRUMENT CALIBRATION—  
SENSITIVITY SETTING  
DETAIL IV