Dated: April 22, 1975.

WILMER D. MIZELL,
Assistant Secretary
For Economic Development.

[FR Doc.75-11184 Filed 4-28-75;8:45 am]

Title 14—Aeronautics and Space

CHAPTER I—FEDERAL AVIATION ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

[Docket No. 75-CE-11-AD; Amdt. 39-2190]

PART 39—AIRWORTHINESS DIRECTIVES

Beech Model 18 Airplanes

AD 72-20-5 (Amendment 39-1526), as amended by Amendment 39-1632 and AD 73-18-4 (Amendment 39-1708) are Airworthiness Directives (AD) applicable to Beech Model 18 series airplanes which require repetitive inspections and modifications to the center section truss wing spar prior to May 1, 1975, and the outer wing panel prior to September 10, 1975. As a result of these inspections, service history, subsequent evaluations, analysis of X-rays and the aircraft structure, the FAA has determined that the airframe wing structure is life limited and is issuing a notice of proposed rule making (NPRM) that would establish a safe life limit for the basic wing structure of these aircraft. In the interim to assure the continued airworthiness of these aircraft pending development of a final rule under the NPRM, this AD is being issued applicable to all Beech Model 18 series airplanes. The AD includes those aircraft which have accumulated or subsequently accumulate 1,500 hours' time in service since the x-ray submissions required by ADs 72-20-5 and 73-18-4 as well as those aircraft not previously covered. It will require inspections of the elliptical front spar lower cap of the wing center section, outer wing panel and the upper spar cap at station 90 for the detection of cracks and the submission of X-rays to the manufacturer for evaluation.

AD 75-09-18 Published as Amendment 39-2190 to 14 CFR, Part 39

AD 75-09-18 was revised one time. The revision was published in the Federal Register as amendment 39-2241 to 14 CFR, Part 39 on June 18, 1975, pages 25672 and 25673.

Since a situation exists which requires expeditious adoption of the amendment, notice and public procedure hereon are impracticable and good cause exists for making the amendment effective in less than thirty (30) days.

In consideration of the foregoing and pursuant to the authority delegated to me by the Administrator, 14 CFR 11.89 (31 FR 13697), § 39.13 of Part 39 of the Federal Aviation Regulations is amended by adding the following new AD.

BEECH. Applies to all Beech 18 series airplanes including all military counterparts thereof and those Beech Model 18 airplanes modified in accordance with Supplemental Type Certificates.

To prevent possible wing failure, in order to detect cracks in the elliptical front spar lower cap of the wing center section, outer wing panel and upper spar cap at station 90:

(a) For those aircraft to which ADs 72-20-5 and 73-18-4 were applicable, within 1,550 hours' time in service since the last X-ray submission for evaluation or within 50 hours' time in service after the effective date of this AD, whichever occurs later, and

(b) On all other aircraft for which X-rays have not been submitted for evaluation, within 50 hours' time in service after the effective date of this AD, accomplish the following:

A. Unless previously modified, modify the lower wing skin in accordance with Figure (1) or Figure (2) of an FAA-approved equivalent to facilitate the inspections specified in Paragraph B.

B. (1) Inspect the front spar lower cap of the wing center section and outer wing panel on each side of the airplane by methods specified below, including inspection sites reinforced by Beech Aircraft Corporation Kits 18-4024, 791 or 792:

Wing station	Site (see fig. 3)	Method (see para. C)
90 (upper and lower spar cap).	Tips of welds at clevis tangs, upper and lower surfaces of cap.	Visual, X-ray and either magnetic particle or penetrant.
81, 73, 64, and 57.	Tips of welds at gussets, upper surface of cap.	Do.
46.....	Outboard ends of splice in cap, upper and lower surface of cap.	Do.
32.....	Tips of welds at wing splice plate, fore and aft surfaces of cap.	Do.
45 to 42.....	Tip of weld around cluster upper surface of cap.	Do.
61.....	Lower surface of spar cap below tube cluster, as seen from wheel well.	Do.
102 and 111....	Tips of the weld as shown in figs. 5 and 6.	Do.

(2) Temporarily move clamps and other equipment as necessary to eliminate interference with the above inspections. Removal of spar cap finish is not necessary.

(3) Flex the wing when specified by Paragraph C by applying and relieving a 75 to 100 pound upward force at or near the wing tip on the (left or right) side being inspected. This may be done by hand.

(4) Load the wing on the side being inspected when specified by Paragraph C by applying 75 to 100 pound upward force at the junction of wing rib number 10 and the front spar. Place material such as lumber under and along the number 10 rib so as to distribute the force.

C. (1) Accomplish visual inspection before and after cleaning, and while the wing is being flexed. Use a flashlight or other illumination and a low power magnifying device.

(2) When the magnetic particle method is chosen, conduct the inspection while the wing is either flexed or loaded. Conduct the inspection before magnetism is induced and again while magnetism across the inspection site is induced by a Magnaflux Corp. Model Y-5 or YM-5 yoke or when any equivalent is used in accordance with the manufacturer's instructions.

(3) When the penetrant method is chosen, perform the inspection while the wing is being flexed. Use either dye or fluorescent materials in accordance with the penetrant manufacturer's instructions.

(4) For each site where X-ray inspection is specified by Paragraph B, accomplish X-ray inspection while the wing is loaded. Figures 4, 5 and 6 are aids to the following instruction. Place fine grain film (such as GAF 800, Dupont NDT-65 or Kodak AA) sandwiched between lead screens of 0.005 inch thickness on the upper surface of the spar cap (over an inspection site) with identification symbols for at least the site (e.g. LWS 81, RWS 81, etc.), date, and airplane registration number. Proper identification of the inspection site is critical to the evaluation of the X-rays. The left side of the aircraft (left wing) is the side to the left of the pilot when facing forward. For upper wing station 90, the plate is to be placed on the lower surface of the upper spar cap with the X-ray source located approximately 36 inches above the wing. Secure a steel penetrameter of 0.005 inch thickness to the lower surface of the spar cap at a location clear of the inspection site. Position the X-ray source approximately 36 inches from and generally below the film so that the center of the X-ray beam will be perpendicular to the major axis of the elliptical spar cap and perpendicular to the spanwise centerline of the spar cap at each inspection site. Use a flashlight and a protractor level as necessary to see that aiming of the X-ray beam compensates for wing dihedral and nose up attitude. At those areas covered by aluminum skin, a locally fabricated jig may be used to position the X-ray source. Expose film so that density of the radiograph of the spar cap material near the inspection site is 1.5 to 2.8 on the densitometer or National Bureau of Standards density scale. View film to see that the inspection site, the 0.010 inch diameter hole in the penetrameter, and its entire outline are plainly shown. Using a low power magnifying device, examine the inspection site portion of each radiograph for faint indications of cracks in spar cap material transverse to the spanwise centerline.

D. On those aircraft modified by incorporating STC SA895SW, SA962EA, SA1192WE, SA1533WE, SA832SW, SA643CE, SA3009WE, SA3010WE, SA814SO, SA1582SW, SA2000WE, or any other such modification approved by the Chief, Engineering and Manufacturing Branch/Division, FAA, prior to performing the inspections required by Paragraphs B and C, remove the strap assemblies in accordance with procedures specified by the manufacturer or STC holders as applicable and inspect all components of the strap assembly for defects such as cracks, corrosion, fretting, etc. If defects are found in these components as a result of any such inspections, prior to further flight, replace the defective components with new airworthy parts.

E. Upon completion of the above inspections within 48 hours transmit, by most rapid means, copies of all the X-rays to Beech Aircraft Corporation, Wichita, Kansas 67201. Evaluation of the inspection facility findings will be transmitted to the sender by Beech Aircraft Corporation.

F. If a crack is found as a result of inspections required by Paragraphs B and C of this AD, the aircraft shall not be returned to service until authorized in writing by the Chief, Engineering and Manufacturing Branch, FAA, Central Region. In addition, written notification must be sent to the Chief, Engineering and Manufacturing Branch, FAA, Central Region, stating the location and length of any cracks discovered during inspections required by this AD, and the total operating time of the airplane at the time of the discovery. (Reporting approved by the Office of the Management and Budget under OMB No. 04-R0174.)

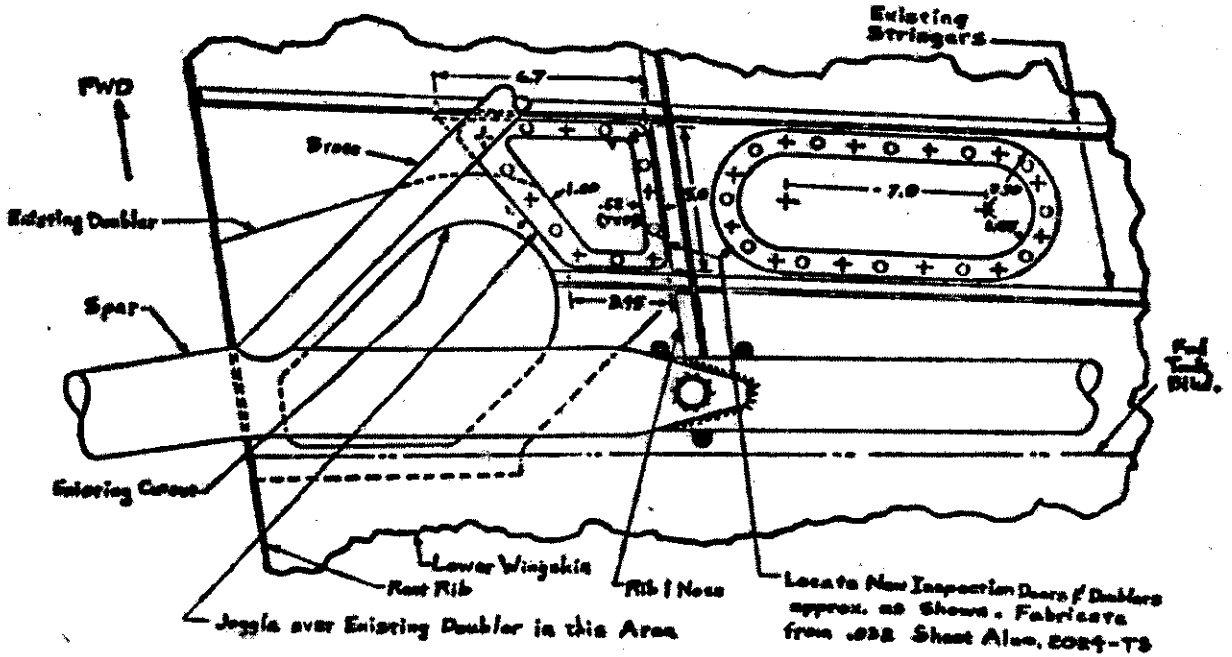
Currently effective Beech Aircraft Corporation's Service Bulletins 64-15, 64-16, 64-17, and 66-10 and MIL-STD-453 consider this subject, but this AD takes precedence in any conflicting detail.

This amendment becomes effective May 1, 1975.

(Secs. 313(a), 601 and 603 Federal Aviation Act of 1958 (49 U.S.C. 1354(a), 1421 and 1423), sec. 6(c) Department of Transportation Act (49 U.S.C. 1655(c)))

Issued in Kansas City, Missouri, on April 17, 1975.

C. R. MELUGIN, Jr.,
Director, Central Region.



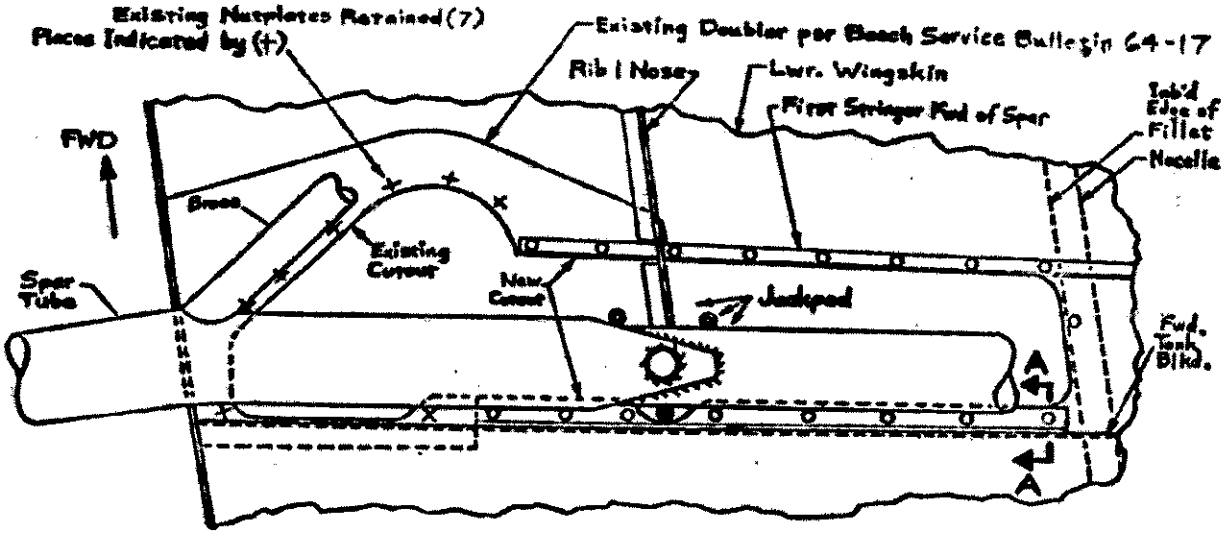
OPERATIONS:

Drill #10(.193) hole thru new doors, wingskin & doublers as shown by (O) 19 places (approx. 24" spacing).
Attach (19) nutplates to doublers with countersunk AD3 rivets. (MK1000-3 Nutplates Recommended).
Attach doublers to skin with AD4 rivets shown by (+) 19 places (approx. 2.4" spacing).
Install doors on lower side with #10 screws 19 places.

R.H. Wing Shown - L.H. Opposite

VIEW LOOKING DOWN ON LOWER WINGSKIN & SPAR
(Upper Wingskin Omitted for Clarity)

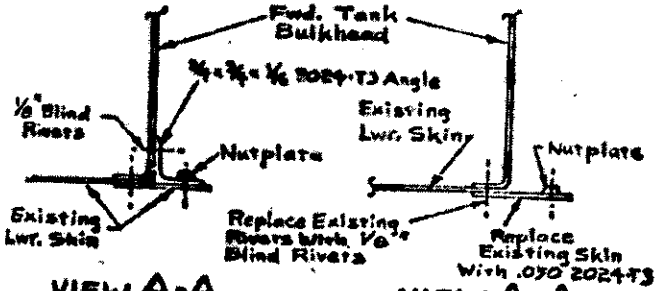
FIGURE 1



VIEW LOOKING DOWN ON LOWER WINGSKIN AND SPAR TUBE

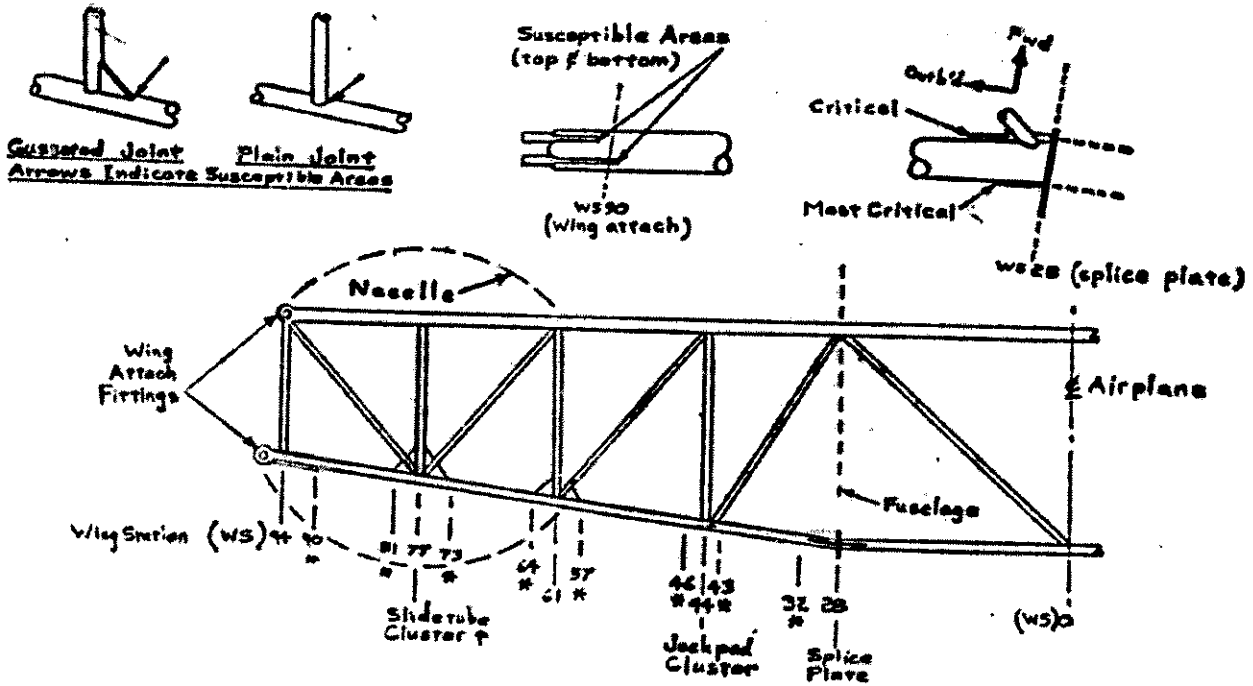
by Bob Graber

Attach MK1000-3 Nutplates (or equiv.) (17 places) as shown by (0). Cut inspection door from .032 2024-T3 Alum. Allow ½" edge margin around all screws (min). Install door on lower side with #10 screws (25 places); cut three holes for jackpad access. Inspection door not shown.



OPTIONAL MEANS OF ATTACHING INSPECTION PLATE AFT EDGE

FIGURE 2



Half of Main Spar Center Section Truss

* INDICATES AREAS TO BE INSPECTED PER THIS A.D.
† SEE AD 64-21-1, part (b) and AD 64-21-3, part (b).

FIGURE 3

Spar Tube

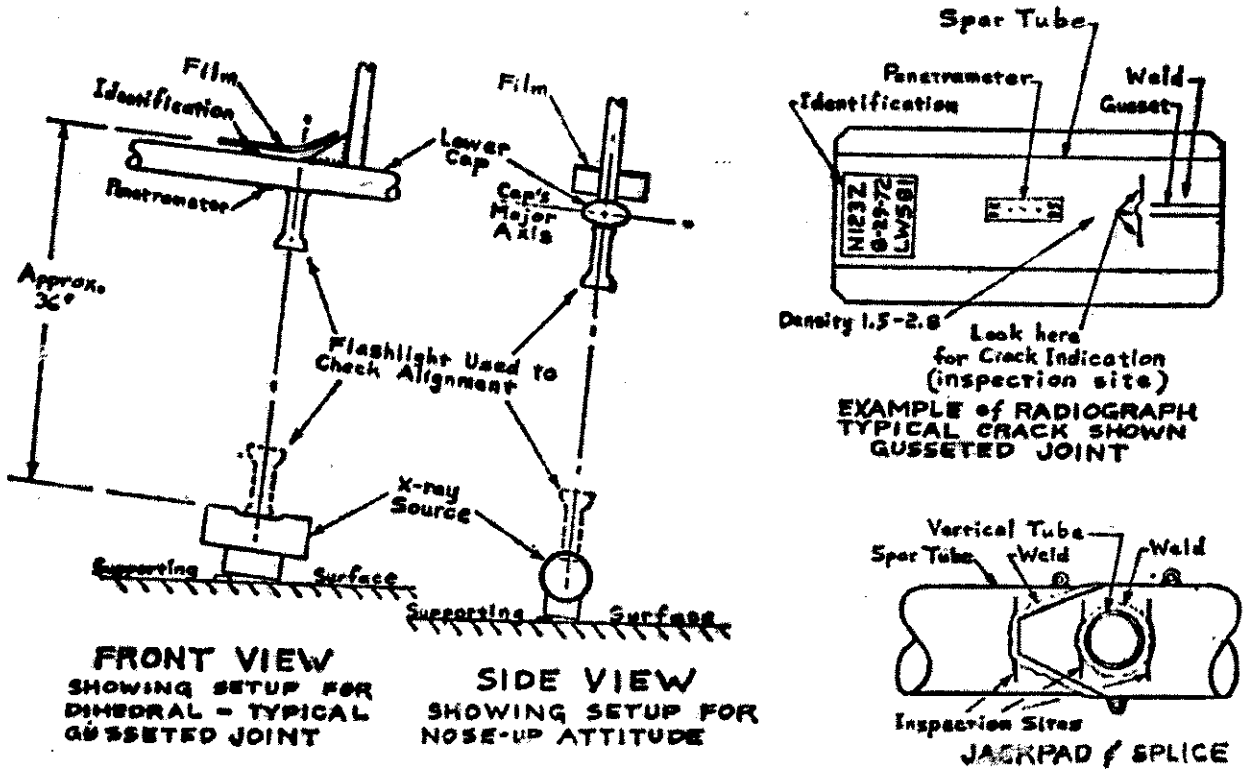
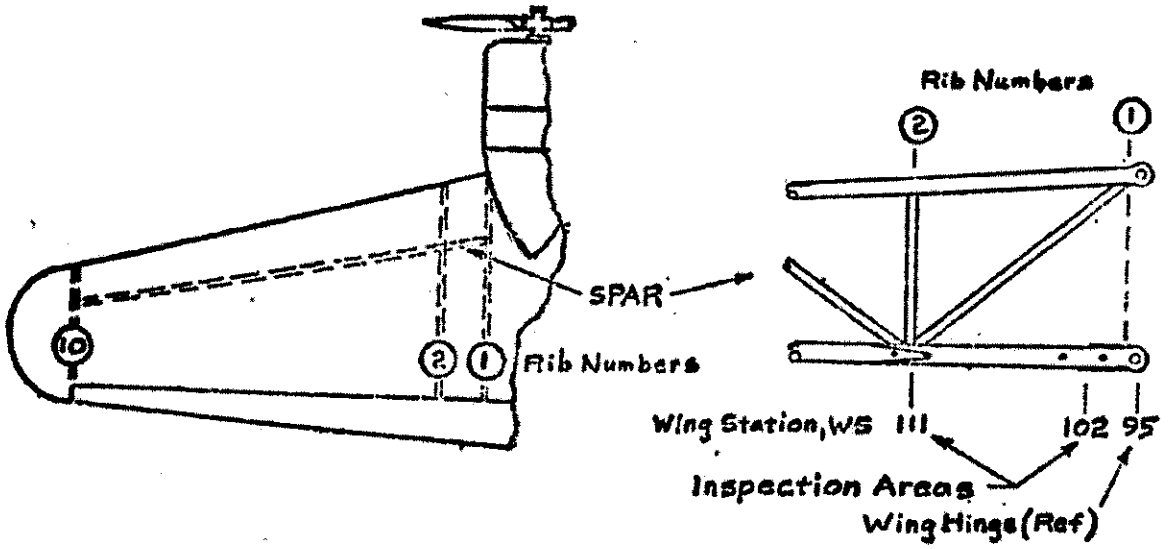
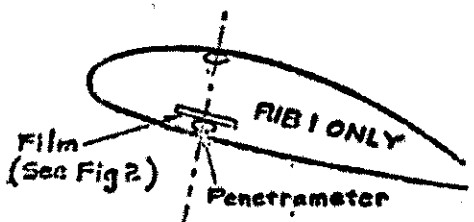

Film
Identification
Lower Cap
Penetrameter
Approx. 30°
Flashlight Used to Check Alignment
X-ray Source
Supporting Surface
Film
Cap's Major Axis
Supporting Surface
FRONT VIEW
SHOWING SETUP FOR DIHEDRAL - TYPICAL GUSSETED JOINT
SIDE VIEW
SHOWING SETUP FOR NOSE-UP ATTITUDE
Spar Tube
Penetrameter
Weld
Identification
Gusset
Density 1.5-2.8
Look here for Crack Indication (inspection site)
EXAMPLE of RADIOGRAPH TYPICAL CRACK SHOWN GUSSETED JOINT
Vertical Tube
Spar Tube
Weld
Weld
Inspection Sites
JACKPAD & SPLICE

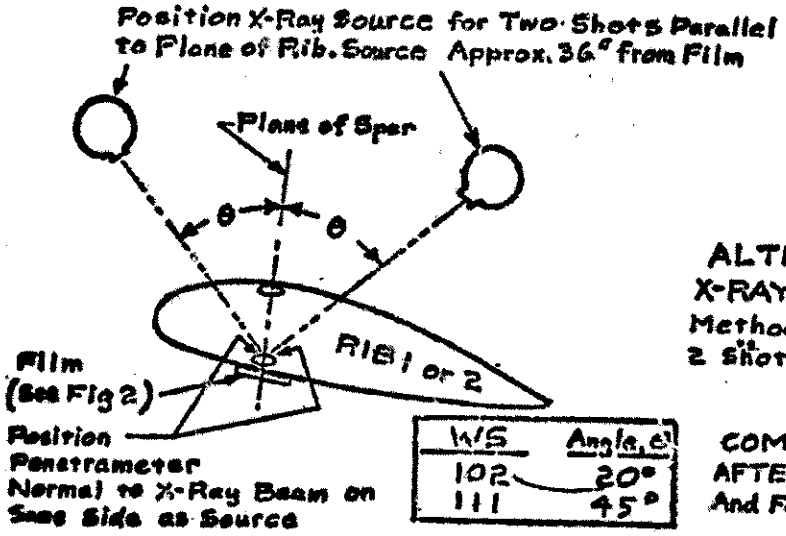
FIGURE 4

FIGURE 5



Apply 75 to 100 lbs as Shown at Tip of Wing Being X-Rayed





WS	Angle, θ
102	20°
111	45°

Position X-Ray Source Parallel to Plane of Rib. Source Approx. 36" from Film.

ALTERNATE METHOD for X-RAYING WS 102 ONLY

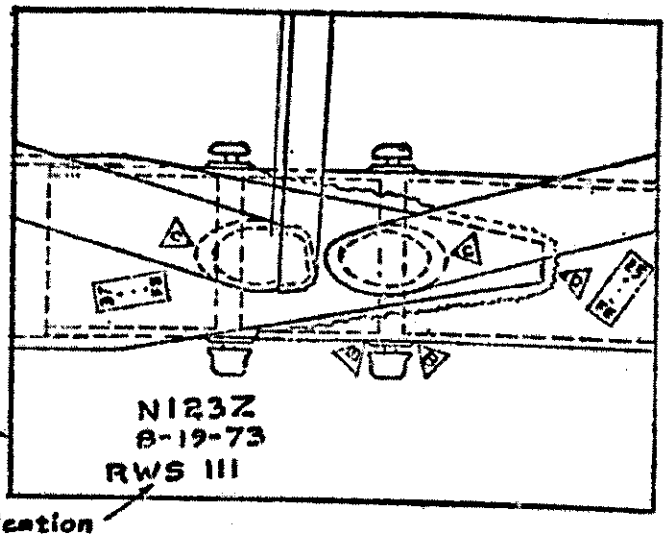
Method shown at left requires 2 shots - This Method only One.

COMPENSATE For DIHEDRAL AFTER WING LOAD is APPLIED, And For NOSE-UP ATTITUDE

FIGURE 6

EXAMPLE of X-RAY FILM at WS 111

Double Film to Accomodate 0.166" & 0.356" Thickness Spar Cap Material. KODAK AA & M or Equivalent.



Required Identification

Required Penetrometer

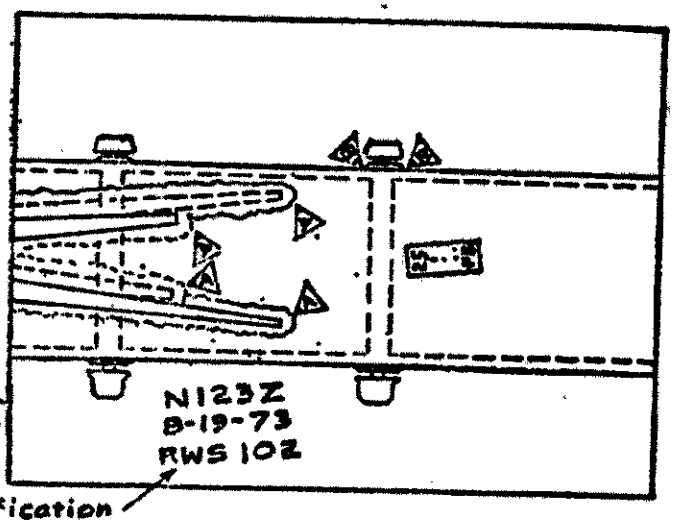
Size	Hole Dia.
25	.005
	.010
	.020
37	.007
	.014
	.028

LEGEND of INSPECTION SITES

SYMBOL	DESCRIPTION	NO. of SITES/WING
A	Tips of Tang Welds, Top & Bottom of Spar Tube	4
B	Edges of Thru-Bolt Tube Welds	16
C	Edges of Diagonal Brace Welds	2
D	Tips of 'Fishmouth' Splice Welds, Top & Bottom of Spar Tube	2

EXAMPLE of X-RAY FILM at WS 102

Single Film for 0.19" Thickness Spar Cap Material. KODAK AA or M or Equivalent



Required Identification

[FR Doc.75-10971 Filed 4-28-75;8:45 am]