



"TAKE YOUR CESSNA HOME FOR SERVICE AT THE SIGN OF THE CESSNA SHIELD"

multi-engine SERVICE LETTER

MARKETING DIVISION • CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS 67201 • CABLE ADDRESS / CESSCO WICHITA

July 17, 1978

ME78-2
(Supplement #1)

SUBJECT: FRONT AND REAR WING SPAR INSPECTION

Multiengine Service Letter ME78-2 was released in February, 1978 calling for an inspection of the front and rear wing spar cap as well as an inspection of the front spar web.

The following revisions have been made to ME78-2 since it was issued:

- 1) Revised Serialization - Shown below is a revised serialization chart for the Spar Web inspection which reduces the total number of aircraft affected and adds the Reims manufactured FTB337 series aircraft.

SPAR WEB (Front Spar Only)

<u>MODEL</u>	<u>SERIAL NUMBER</u>
336	336-0001 thru 336-0195
337	33700001 thru 33701852
T337G	P3370001 thru P3370313
F337, FT337	F337-0001 thru F337-0086
FT337GP	FP337-0001 thru FP337-0023
FTB337	FTB337-0001 thru FTB337-0066

The attached page 4 of the Front Spar Cap Inspection Instructions has been revised to reflect this change in serialization.

- 2) To coordinate the Front Spar Web inspection intervals with the inspection requirements of the Front Spar Cap inspection, procedures for the Front Spar Web inspection have been revised as follows:
 - a) If flown predominately below 1500 ft. AGL, inspect at 3000 hours and each 300 hours thereafter.
 - b) If flown predominately above 1500 ft. AGL, inspect at 5000 hours (10,000 hours for pressurized Skymasters) and each 500 hours thereafter.

continued

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- c) If past history is unknown, inspect at 3000 hours and each 300 hours thereafter.

In the event that cracks are found in the spar web and web doubler, these parts must be replaced.

- 3) Figure 9 of the inspection instructions has been revised to include more detail of the front spar inboard end (attached).

The changes outlined in this supplement should be incorporated in future inspection procedures.

* * * * *

(Owner Notification System - No. 1)

CESSNA AIRCRAFT COMPANY

FRONT & REAR SPAR CAP INSPECTION INSTRUCTIONS

AIRCRAFT APPLICABILITY:

<u>MODELS AFFECTED</u>	<u>SERIALS AFFECTED</u>
336	336-0001 thru 336-0195
337, T337	33700001 thru 33701548
T337G	P3370001 thru P3370138
F337, FT337	F337-0001 thru F337-0063
FT337GP	FP337-0001 thru FP337-0008

FRONT SPAR CAP INSPECTION

I. PREPARATION OF AIRCRAFT.

METHOD A - Standard.

1. Turn fuel selector to AUX. FUEL or OFF.
2. Drain auxiliary fuel tank in each wing at drain near wing root.
3. Remove rectangular inspection plate from lower wing surface between wing root and auxiliary fuel tank drain.
4. Disconnect fuel line on inboard side of auxiliary fuel tank and remove strainer from tank.
5. Remove auxiliary tank fuel gage transmitter cover from upper wing surface.
6. Remove auxiliary fuel tank bay cover from upper surface between boom and wing root.
7. Disconnect fuel vent on outboard side of auxiliary fuel tank.
8. Disconnect scupper drain line on outboard side of auxiliary fuel tank.
9. Disconnect auxiliary tank fuel gage transmitter wiring.
10. Disconnect the two auxiliary fuel tank retaining straps and remove the tank.
11. Remove wing strut fairing.
12. Remove upper wing strut cuff.
13. Repeat steps 3 through 12 for the other wing.

NOTES

- If the aircraft does not have auxiliary fuel tanks installed, only items 6, 11 and 12 apply for both wings.
- Individuals not familiar with the Models 336 and 337 series aircraft should refer to the appropriate Service Manual and/or Parts Catalog for the locations of the items listed above.
- Some late Model 337's do not have fuel drain valves in the auxiliary fuel tank and this tank must be drained through the sump tank. Refer to the appropriate Service Manual for the proper procedure for defueling and removing the auxiliary fuel tank on these aircraft.

METHOD B - Alternate

1. Remove wing strut fairings.
2. Remove upper wing strut cuffs.
3. Drill a .625 inch hole in the upper wing skins outboard of the booms as shown in Figure 4. Before drilling, make certain that the hole location is centered as far away from stringers, rib flanges and spar flanges as possible. The hole must not be drilled through any of these. After drilling, the edge of the hole must be polished to remove any defects from which cracks could initiate.

NOTES

- After the inspection has been completed, a .625 inch plug button must be installed in the hole and sealer added around the hole to prevent moisture from entering the wing through this hole.
- The area around the hole should be carefully inspected (visually) at each 100 hour and/or annual inspection period to assure that if any skin cracking occurs, it will be caught at an early stage.

II. SPAR CAP INSPECTION

A. Introduction

"Eddy Current" is the technique to be used for inspecting the horizontal flanges of the lower cap of the front wing spar in the area in which the crack mentioned in Service Letter ME72-26 had started, and at the Jack Point. A method of accomplishing this is outlined below.

The area to be inspected is immediately outboard of the wing-strut attachment. Figure 1 shows this area, two fasteners (NAS 221 screws located at Wing Station 64.41) and the Jack Point screw that must be removed for the inspection. The NAS 221 screws secure the outboard edge of the boom, the lower wing skins, a doubler plate, the horizontal flanges of the lower spar cap and angles on top of the lower spar cap. A cross section of Wing Station 64.41 with the screws removed is shown in Figure 2. A cross section of the Jack Point location (Wing Station 68.45) is shown in Figure 5.

The lower spar cap is a T-section and the material is 2014-T6 or 2014-T6511, depending on the year the aircraft was manufactured. An exploded view of the spar assembly (less boom and wing skins) shows the relationship of the lower cap to the other parts at the strut attachment in Figure 3. Also shown in this figure is the initiation point for the crack mentioned in Service Letter ME72-26.

The two NAS 221 screws and the Jack Point screw in each wing must be removed one at a time and the inspection procedure shown below should be followed carefully. Access may be gained (from under the wing) to the nut and washer on the forward screw (No. 2) by reaching through the opening in the boom (obtained by removal of the strut cuff) and the inspection hole in the wing skin on the forward side of the strut attachment.

B. Inspection Equipment

1. Crack detector, eddy current unit, Model ED-520 (Magnaflux) or equivalent.
2. Probe, bolt hole, 3/16 inch diameter (with stem split for close fit), probe collar - 3/4 inch maximum diameter.

NOTE

If holes are found to be out of round, it may be necessary to insert rubber shim into split stem for closer fit.

C. Inspection Procedure

1. Standardize the eddy current instrument for balance and lift-off in accordance with the Manufacturer's Operator Handbook or see Item 2.
2. Adjustment for lift-off may be made by pushing coil away from side of fastener hole. Meter should read the same when coil is in contact or away from side of hole.
3. Adjust probe collar .21 inch from collar to center of coil for inspection of the aft fastener hole (No. 1).
4. Adjust probe collar .18 inch from collar to center of coil for inspection of the forward fastener hole (No. 2).

CAUTION

Boom fairing should be held firmly against inner thicknesses of material to insure proper probe depth settings during the inspection.

5. Adjust probe collar .18 inch from collar to center of coil for inspection of the Jack Point hole.

CAUTION

This setting is critical and may have to be adjusted slightly to minimize edge effects, since the hole in the spar cap is countersunk.

6. Rotate probe coil slowly through 360° of the fastener hole while observing the meter readings. The forward and aft areas of the holes are considered the most critical.

NOTE

If probe passes over a crack, the meter needle will deflect rapidly and return to approximately the original reading. Deflections can be as little as three to four meter scale divisions. Carefully repeat the inspection in the opposite direction to verify the crack indication. Gradual meter needle movement up or down scale may occur due to slightly out of round holes or minor changes in the conductivity of the material. This should be disregarded.

7. Any cracks detected while using the above probe depth settings will be in the horizontal flange of the spar cap.

REAR SPAR CAP INSPECTION

I. PREPARATION OF AIRCRAFT

1. Support outer wing panel and tail boom with cradle supports.
2. Remove tank cover from top of wing by removing screws around outer edge of cover and around filler opening.

II. SPAR CAP INSPECTION

1. Dye penetrant inspect lower spar cap over an area ranging from 2 to 3 inches outboard of the Wing Station 66.00 rib. (Refer to figures 6, 7 and 8)

FRONT SPAR WEB INSPECTION INSTRUCTIONS

AIRCRAFT APPLICABILITY

<u>MODELS AFFECTED</u>	<u>SERIALS AFFECTED</u>
336	336-0001 thru 336-0195
337	3370001 thru 33701852
T337G	P3370001 thru P3370313
F337, FT337	F337-0001 thru F337-0086
FT337GP	FP337-0001 thru FP337-0023
FTB337	FTB337-0001 thru FTB337-0066

FRONT SPAR WEB INSPECTION

I. PREPARATION OF AIRCRAFT

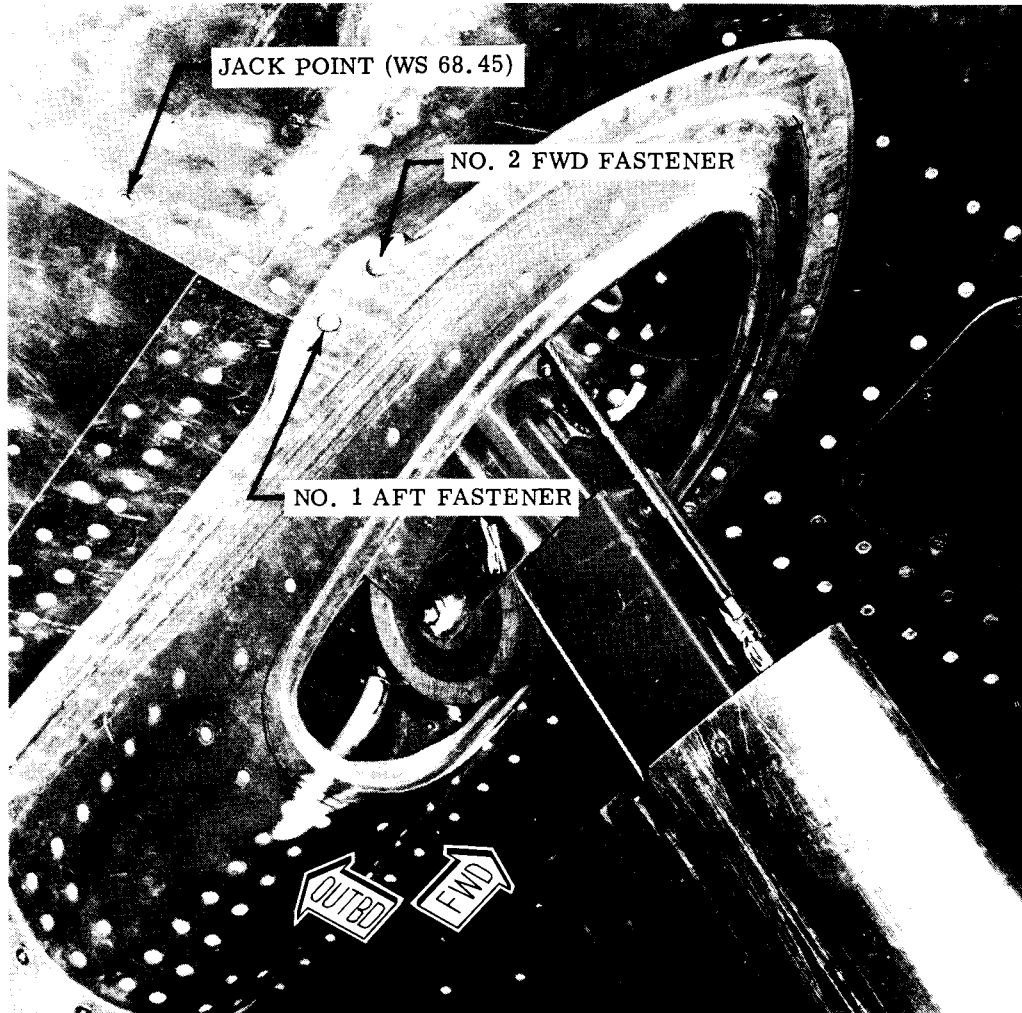
1. Remove wing root access panels and wing root fairing.

II. SPAR WEB INSPECTION

1. Visually inspect the radii of both the spar web and the web doubler in the shaded area as shown in Figure 9.

WING STRUT ATTACHMENT AREA

WITH STRUT CUFF REMOVED

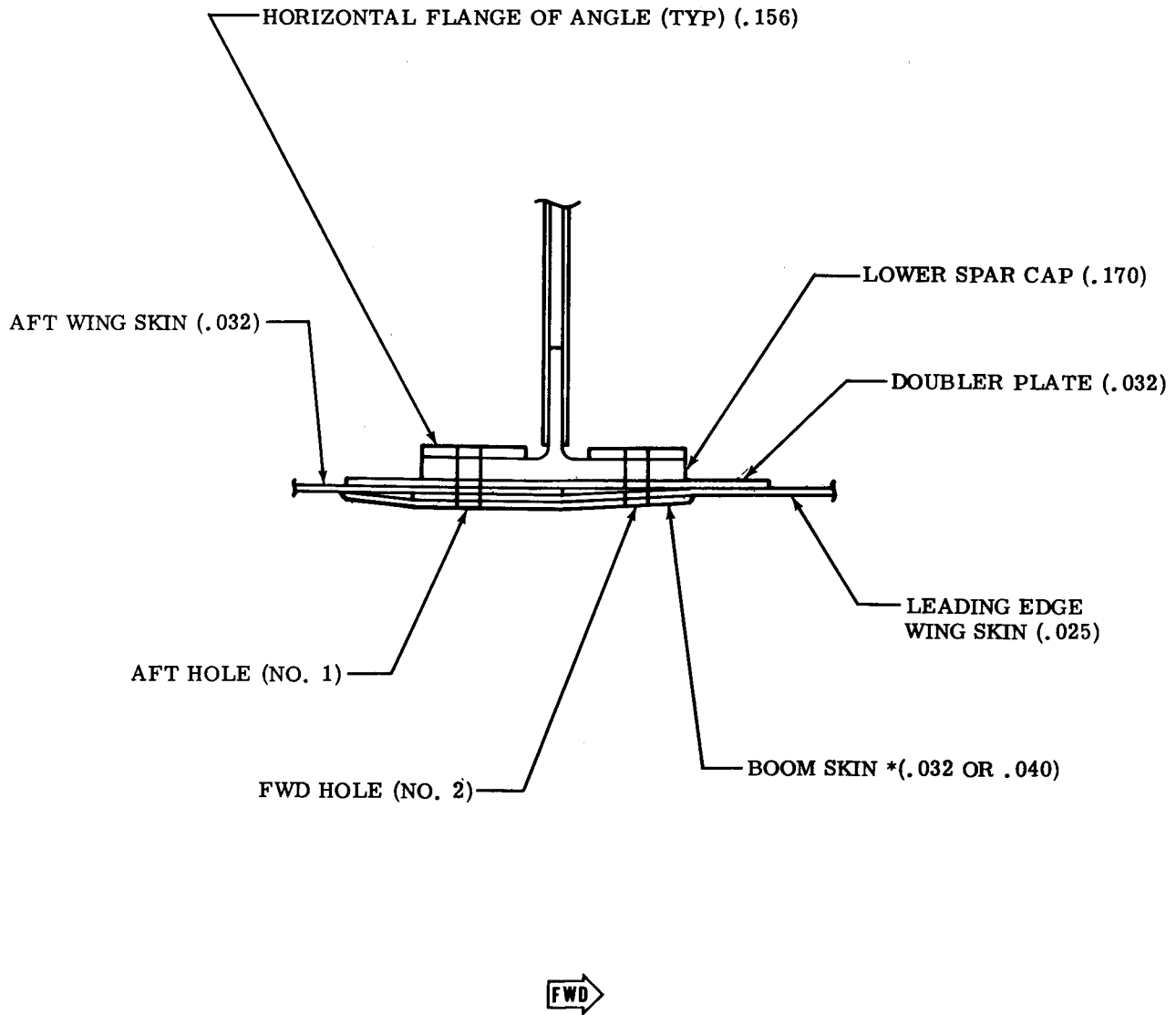


VIEW LOOKING UP AT R.H. WING - L.H. TYPICAL

Figure 1.

LOWER SPAR CAP AT FASTENERS

WING STATION 64.41



*.032 THRU SERIAL 337-0755
.040 SERIAL 337-0756 & ON

Figure 2.

FRONT WING SPAR-BOOM & STRUT ATTACHMENT AREA

L.H. SHOWN - R.H. TYPICAL

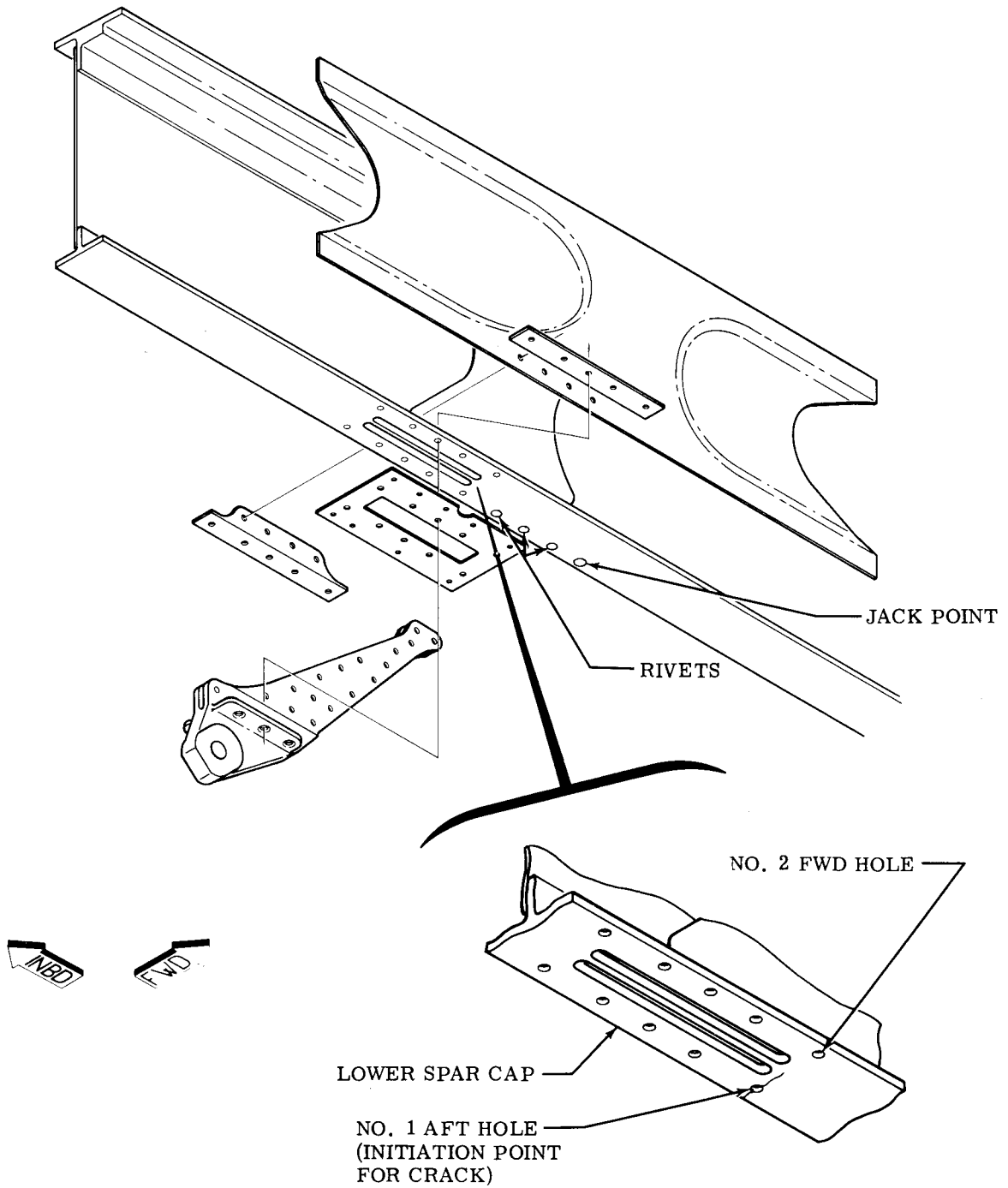
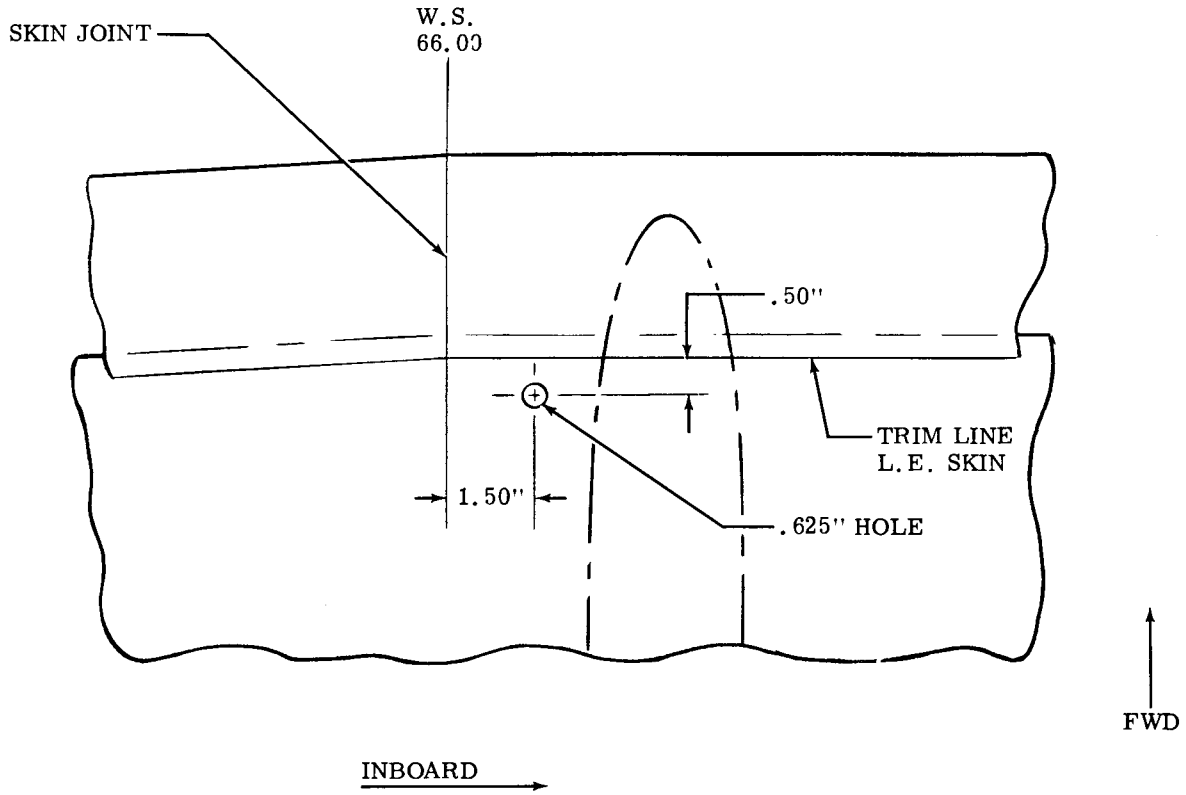


Figure 3.

ADDITION OF ACCESS HOLE FOR NO. 1 AFT FASTENER

WING STATION 64.41



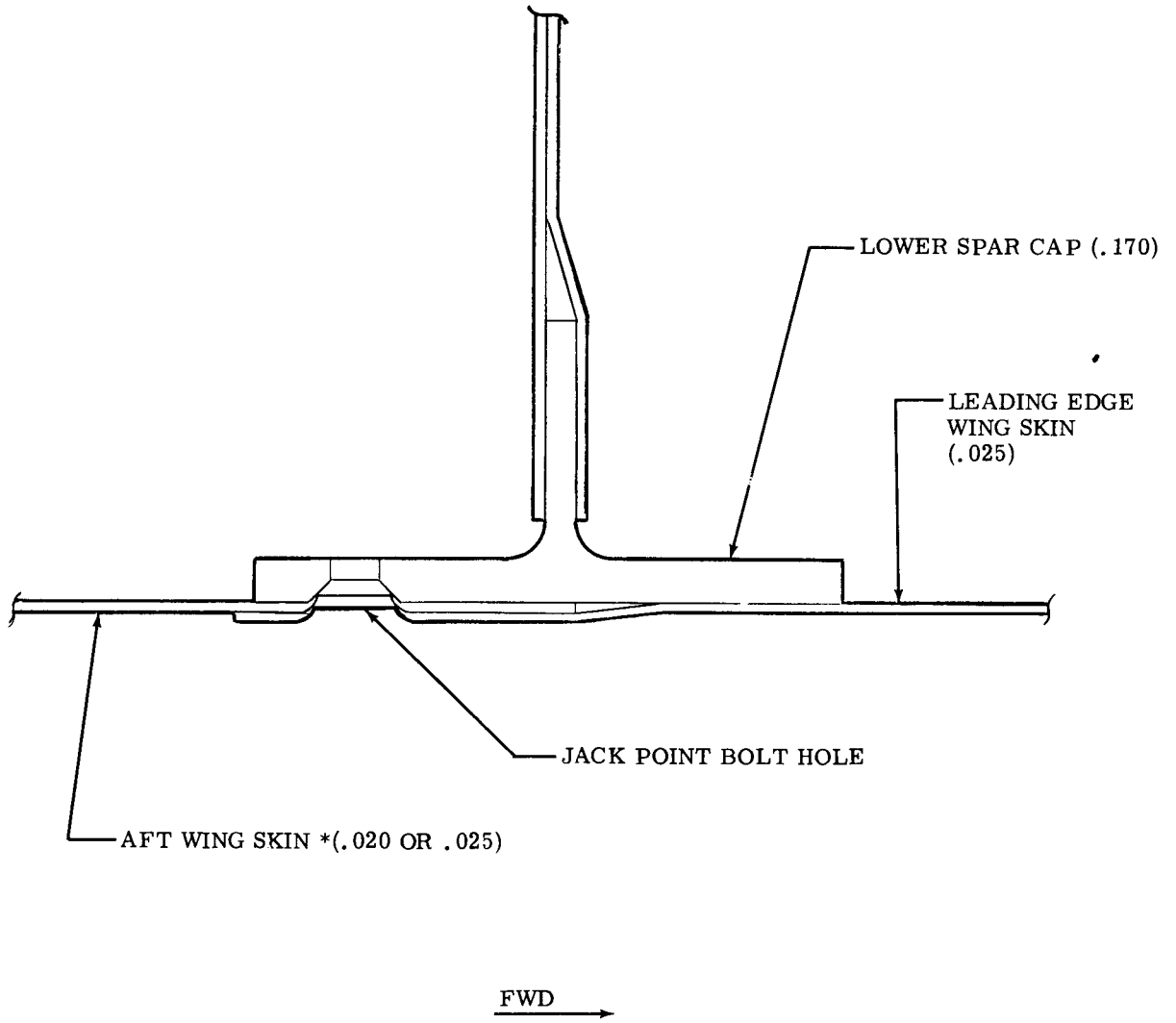
VIEW LOOKING DOWN

L.H. SHOWN - R.H. TYPICAL

Figure 4.

LOWER SPAR CAP AT JACK POINT

WING STATION 68.45



*.020 THRU SERIAL 337-0755
.025 SERIAL 337-0756 & ON

Figure 5.

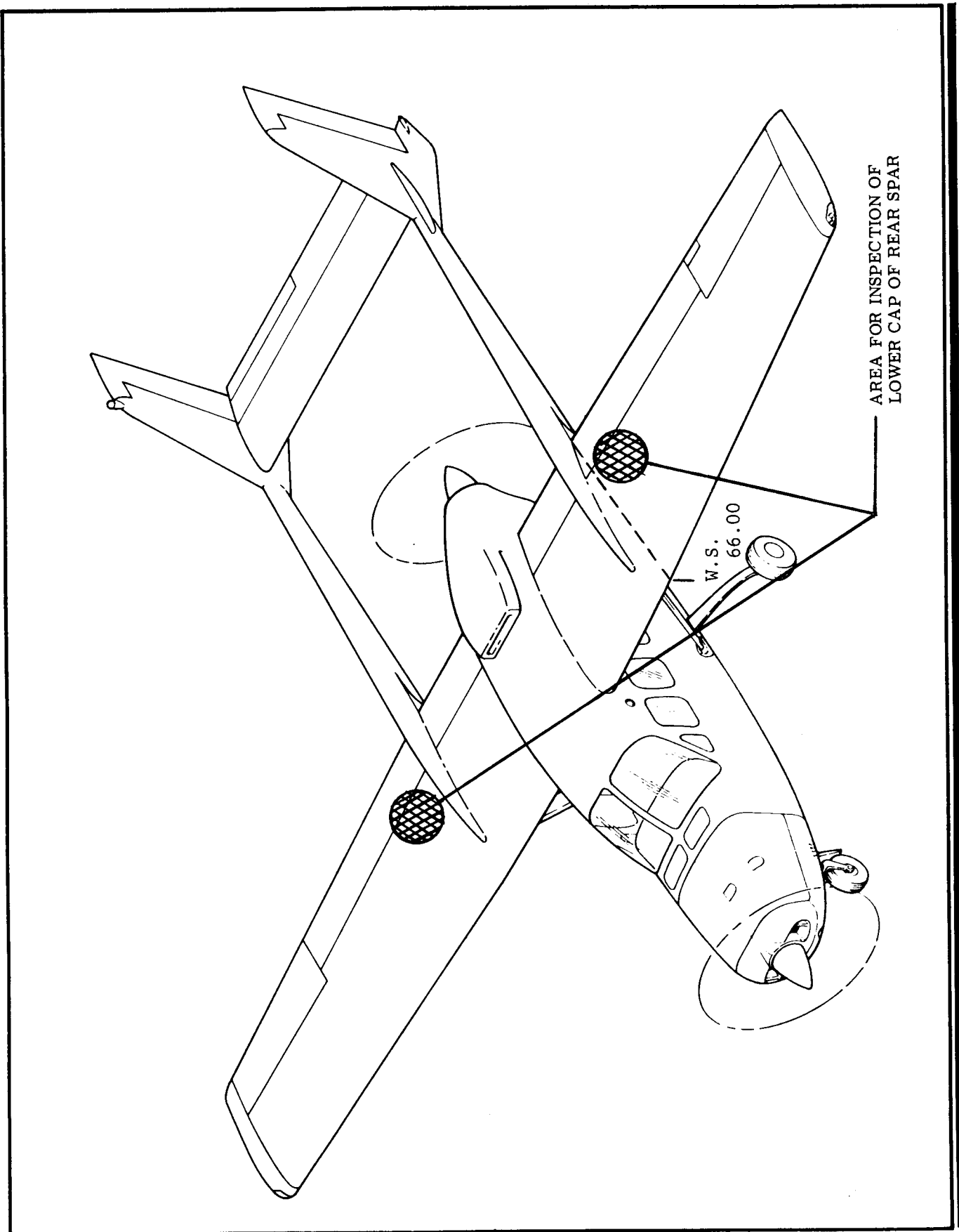


Figure 6. Rear Spar Lower Cap Inspection.



Figure 7. Left Rear Wing Spar. (fuel tank cover removed)

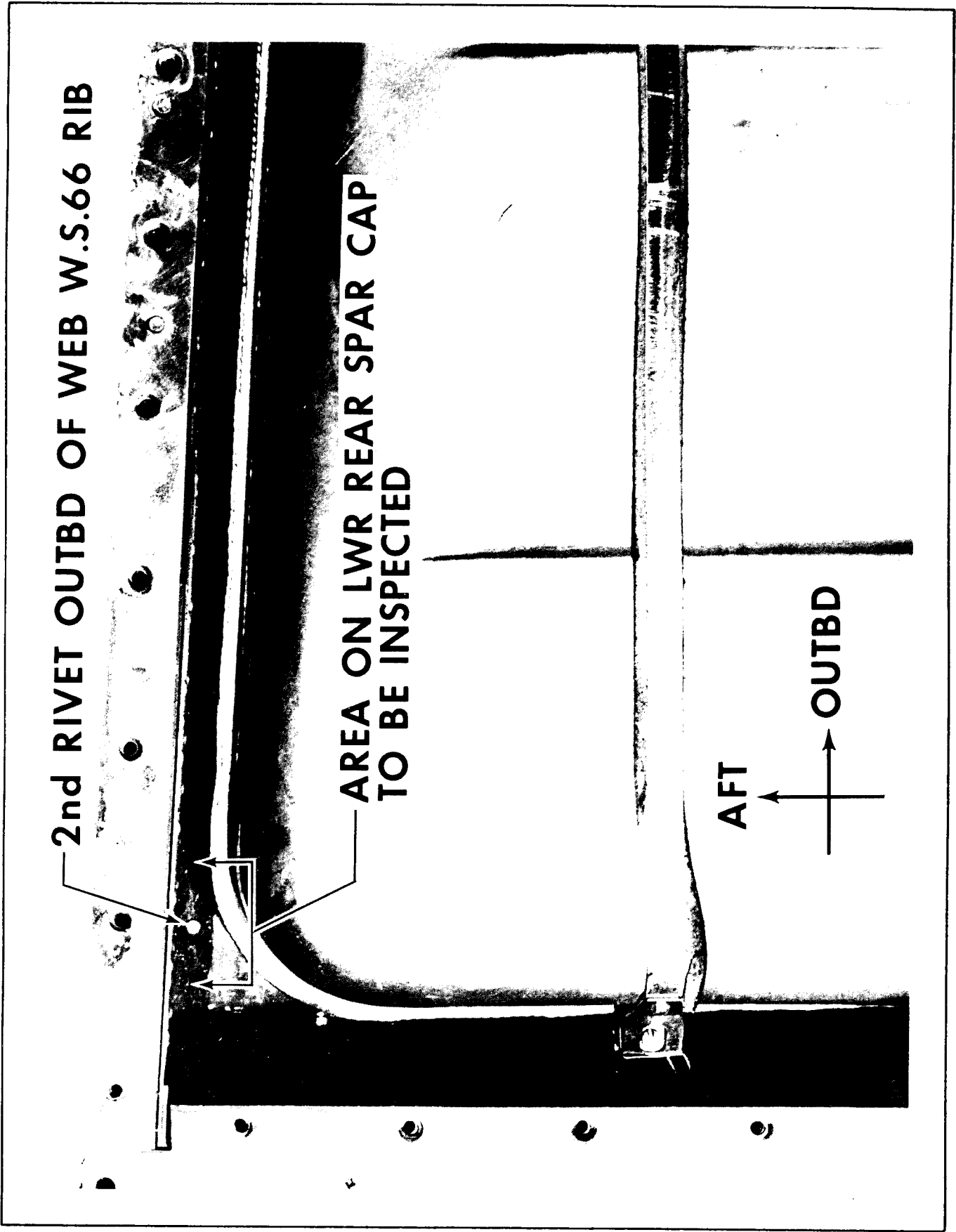
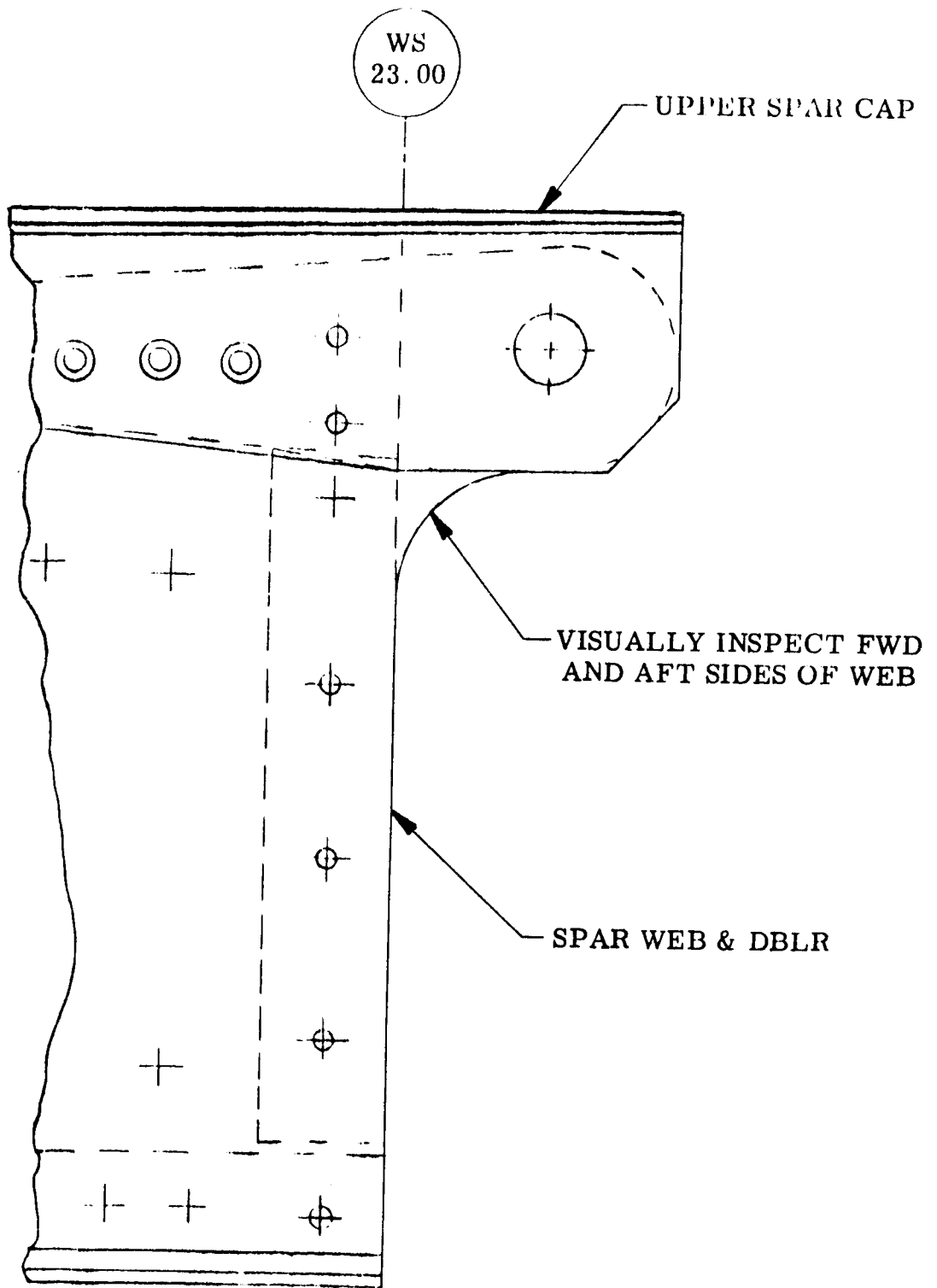


Figure 8. Inspection Area.



FRONT SPAR ASSY

FIGURE 9



"TAKE YOUR CESSNA HOME FOR SERVICE AT THE SIGN OF THE CESSNA SHIELD"

multi-engine SERVICE LETTER

MARKETING DIVISION • CESSNA AIRCRAFT COMPANY
WICHITA, KANSAS 67201 • CABLE ADDRESS / CESSCO WICHITA

February 13, 1978

ME78-2

SUBJECT: FRONT AND REAR WING SPAR INSPECTION

AIRCRAFT APPLICABILITY: Early Model 336 and 337 Skymaster and Pressurized Skymaster series aircraft with more than 3000 hours time-in-service on the airframe and the following serial numbers.

SPAR CAP (Front and Rear Spar)

336	336-0001 thru 336-0195
337, T337	33700001 thru 33701548
T337G	P3370001 thru P3370138
F337, FT337	F337-0001 thru F337-0063
FT337GP	FP337-0001 thru FP337-0008

SPAR WEB (Front Spar Only)

336	336-0001 thru 336-0195
337	33700001 thru 33701863
T337G	P3370001 thru P3370313
F337, FT337	F337-0001 thru F337-0097
FT337GP	FP337-0001 thru FP337-0028

Multi-Engine Service Letters ME72-26, ME72-26 (Supplement #1), ME76-3, and ME76-3 (Supplement #1) announced a special front and rear wing Spar Cap inspection program on early Skymaster series aircraft.

As a result of recent field experience, an inspection of the radius in the web of the front spar just below the attach fitting needs to be added to this total program. This inspection applies to all of the airplanes included in the previous inspection plus additional ones as indicated above under AIRCRAFT APPLICABILITY, Front Spar Web. This inspection is relatively simple, consisting of a visual inspection of the wing spar attachment web and web doubler.

Attached is a complete, up-to-date inspection program which incorporates the inspection procedures for both the Spar caps and Spar web.

continued

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ACTION REQUIRED:

A. Front and Rear Spar Caps

The front and rear Spar Caps shall continue to be inspected using the same procedures and intervals as previously specified in ME72-26, ME72-26 (Supplement #1), ME76-3, ME76-3 (Supplement #1). These inspection intervals are restated below.

1. If flown predominately below 1500 feet AGL, inspect at 3000 hours and each 300 hours thereafter.
2. If flown predominately above 1500 feet AGL, inspect at 5000 hours (10,000 hours for Pressurized Skymasters) and each 500 hours thereafter.
3. If past aircraft history is unknown, inspect at 3000 hours and each 300 hours thereafter.

In the event that cracks are found in either the front or rear spar caps, the respective spar caps in both the left and right wing must be replaced.

B. Front Spar Web

On aircraft with 3000 hours time in service, the front Spar Web is to be inspected within the next 25 hours of operation using the attached inspection procedures (page 4). After the initial (25 hour) inspection, additional inspections are to be conducted using the same inspection intervals as outlined above for the front and rear Spar caps.

If cracks are found in the spar web and web doubler, these parts must be replaced.

REMARKS:

This Service Letter (ME78-2) supersedes ME72-26, ME72-26 (Supplement #1), ME76-3, ME76-3 (Supplement #1), since the attached inspection procedure completely covers all requirements previously issued.

The Model 337 front wing spar web and web doubler were redesigned to provide a larger radius to lessen the likelihood of cracks initiating in this area. These improvements were incorporated on production aircraft in 1977 at the following serial numbers.

33701864 and on
P3370314 and on
F337-0098 and on
FP337-0029 and on

Aircraft incorporating the redesigned spar web and doubler are exempt from the inspection requirements established for the front spar web in this Service Letter.

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(Owner Notification System - No. 2)

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