



"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

December 12, 1972

ME72-26

SUBJECT: FRONT WING SPAR INSPECTION

AIRCRAFT AFFECTED: All Model 336 and 337 Series with more than 3000 Hours  
Time In-Service on the Airframe

REASON FOR LETTER:

As a part of a continuing program for improving safety, reliability, and utility of Cessna aircraft, Cessna is conducting an extensive series of structural fatigue investigations.

As a part of these investigations, some high time aircraft are being inspected. Two such aircraft inspected had accumulated over 4000 hours time in-service as pipeline patrollers flying consistently at 200 to 500 feet above ground level (AGL) where frequent and severe gust loadings can be encountered.

As a result of inspection of these aircraft, it was found that a fatigue crack had started in a bolt hole in the lower cap of the front wing spar at the strut attach point on both aircraft.

Because of the possibility of other high time Model 336 and 337 series aircraft having experienced the same type of loading conditions, they must be inspected as outlined below.

ACTION REQUIRED:

Within the next 25 hours of operation inspect the aircraft in the following categories in accordance with the attached inspection procedures:

1. Model 336 and 337 Series:

- A. If flown predominately below 1500 feet AGL, inspect at 3000 hours and each 300 hours thereafter.
- B. If flown predominately above 1500 feet AGL, inspect at 5000 hours and each 500 hours thereafter.
- C. If past aircraft history is not known, inspect at 3000 hours and each 300 hours thereafter.

Continued.....

THERE ARE MORE CESSNAS FLYING THAN ANY OTHER MAKE

ACTION REQUIRED: (Continued)

2. Pressurized Skymaster:

Analysis has shown that the Pressurized Skymaster does not have to be inspected until 10,000 hours time in-service.

If a crack is found, the lower spar caps in both wings must be replaced prior to further operation.

COST INFORMATION:

An inspection allowance will be paid for aircraft which, based on time and type of operation, are due for an inspection.

Inspection on aircraft at earlier than prescribed interval will be at the owner's expense.

REMARKS:

1. Cessna is in the process of developing a spar reinforcement which, when available, will be announced in a Service Letter.
2. Inspection availability --
  - A. Cessna has established an Inspection Station at the Cessna factory in Wichita and will provide, immediately, inspection service (on a scheduled basis) for owners of aircraft that are due for inspection. Inspection at Cessna must be scheduled through the Cessna Dealers and Zones.
  - B. Additional inspection facilities are being established throughout the country and as these become available the Cessna Dealer Organization will be notified. Therefore owners should contact their Cessna Dealers concerning further details on having their aircraft inspected in the field or at Cessna, Wichita.

(Owner Notification System - No. 2)

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THE CESSNA AIRCRAFT COMPANY

## SPAR CAP INSPECTION INSTRUCTIONS

### Preparation of Aircraft

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 line 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:

1. If the aircraft does not have auxiliary fuel tanks installed, only items 6, 11 and 12 apply for both wings.
2. 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.
3. 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.

## Spar Cap Inspection

### 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 abovementioned crack had started. 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 and two fasteners (NAS 221 screws located at Wing Station 64.41) that must be removed for the inspection. These 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 with the screws removed is shown in Figure 2.

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 abovementioned crack.

The two NAS 221 screws 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.

### 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.

### 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

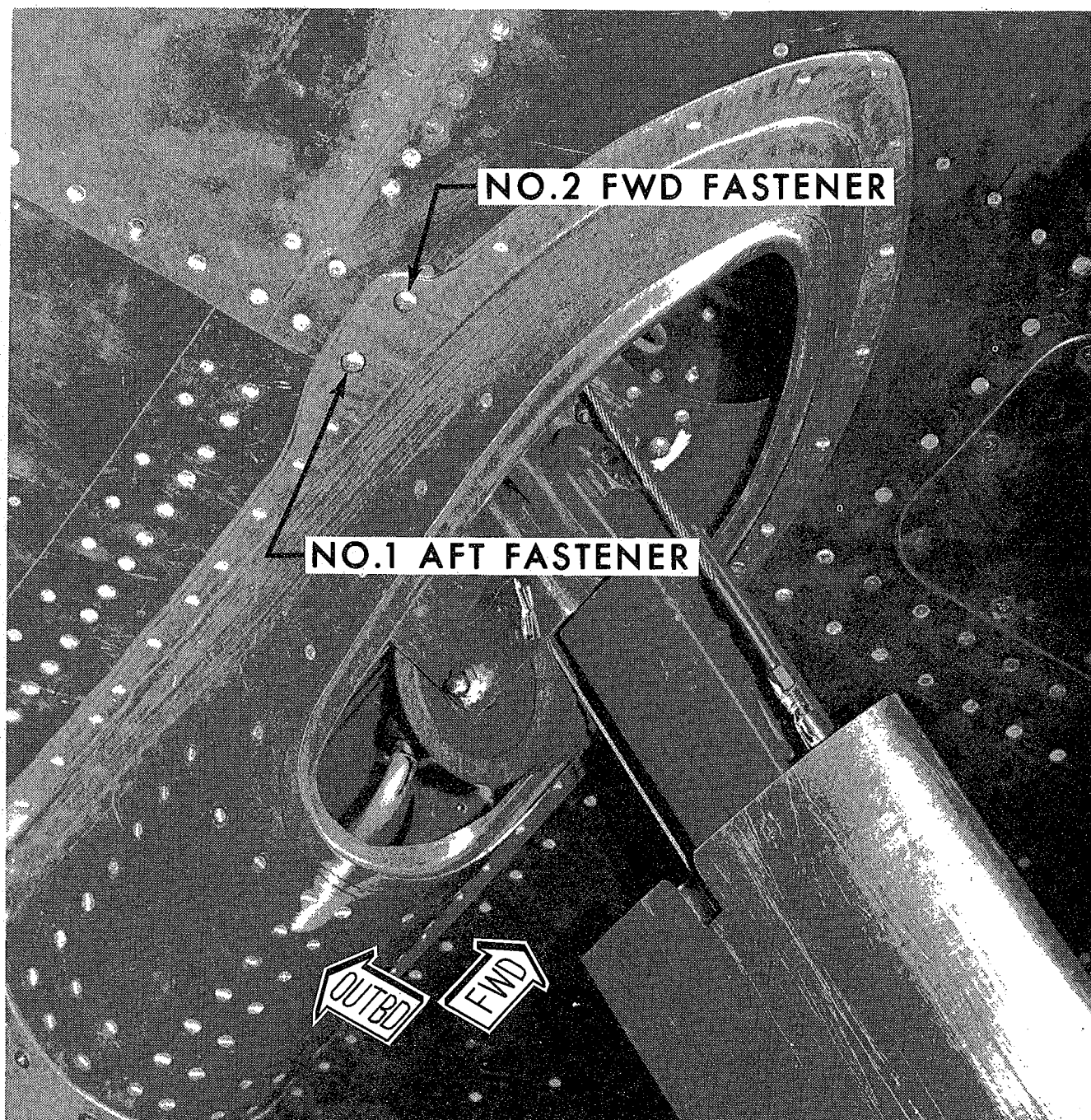
Boom fairing should be held firmly against inner thicknesses of material to insure proper probe depth settings during the inspection.

5. Rotate probe coil slowly through  $360^{\circ}$  of the fastener holes 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.

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

**WING STRUT ATTACHMENT AREA  
WITH STRUT CUFF REMOVED**

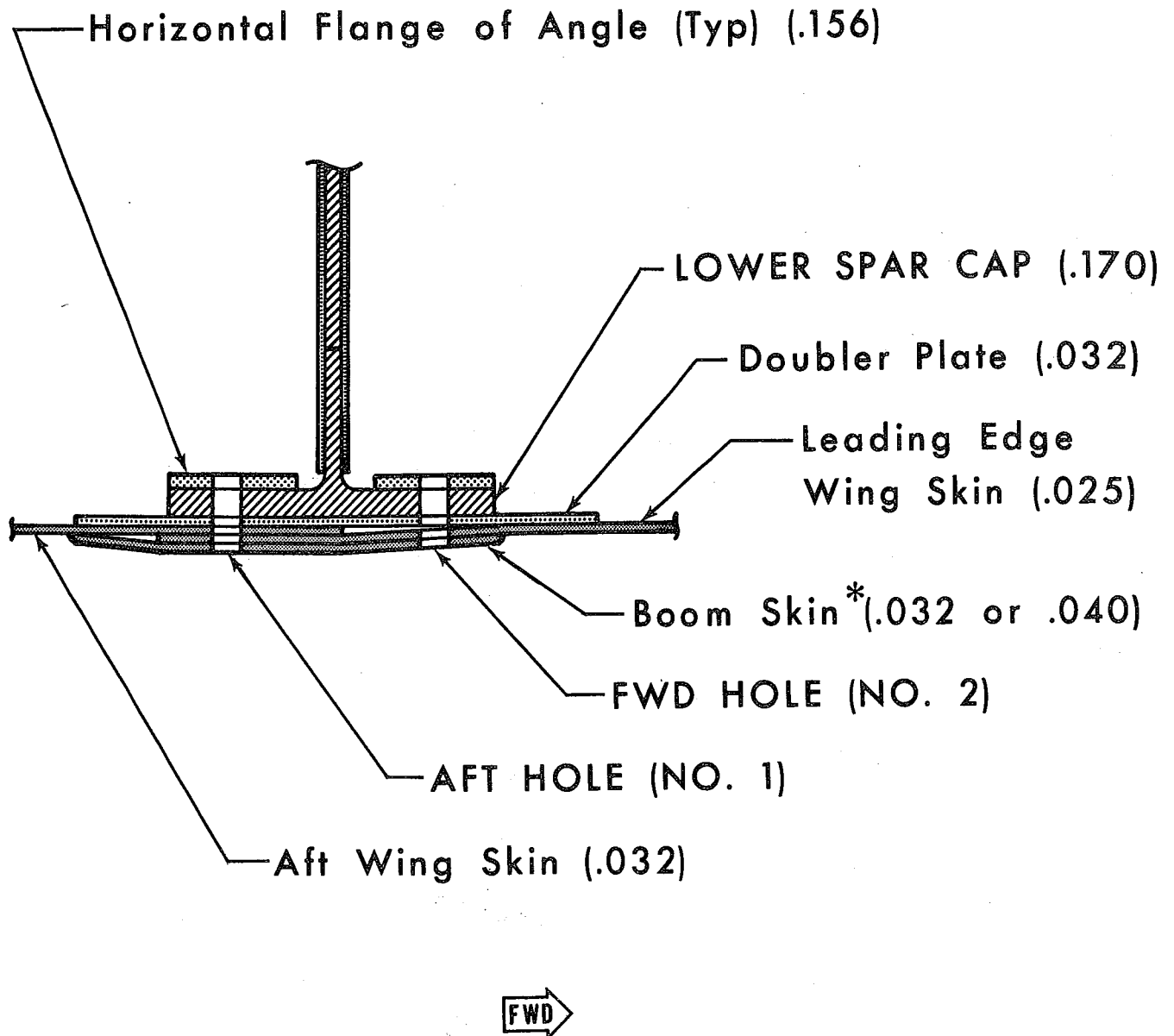


**View Looking Up at R.H. Wing - L.H. Typical**

**Fig. 1**

# LOWER SPAR CAP AT FASTENERS

Wing Station 64.41



\*.032 THRU SN 337-0756

.040 SN 337-0757 AND ON

Fig. 2

# FRONT WING SPAR-BOOM & STRUT ATTACHMENT AREA

L.H. Shown - R.H. Typical

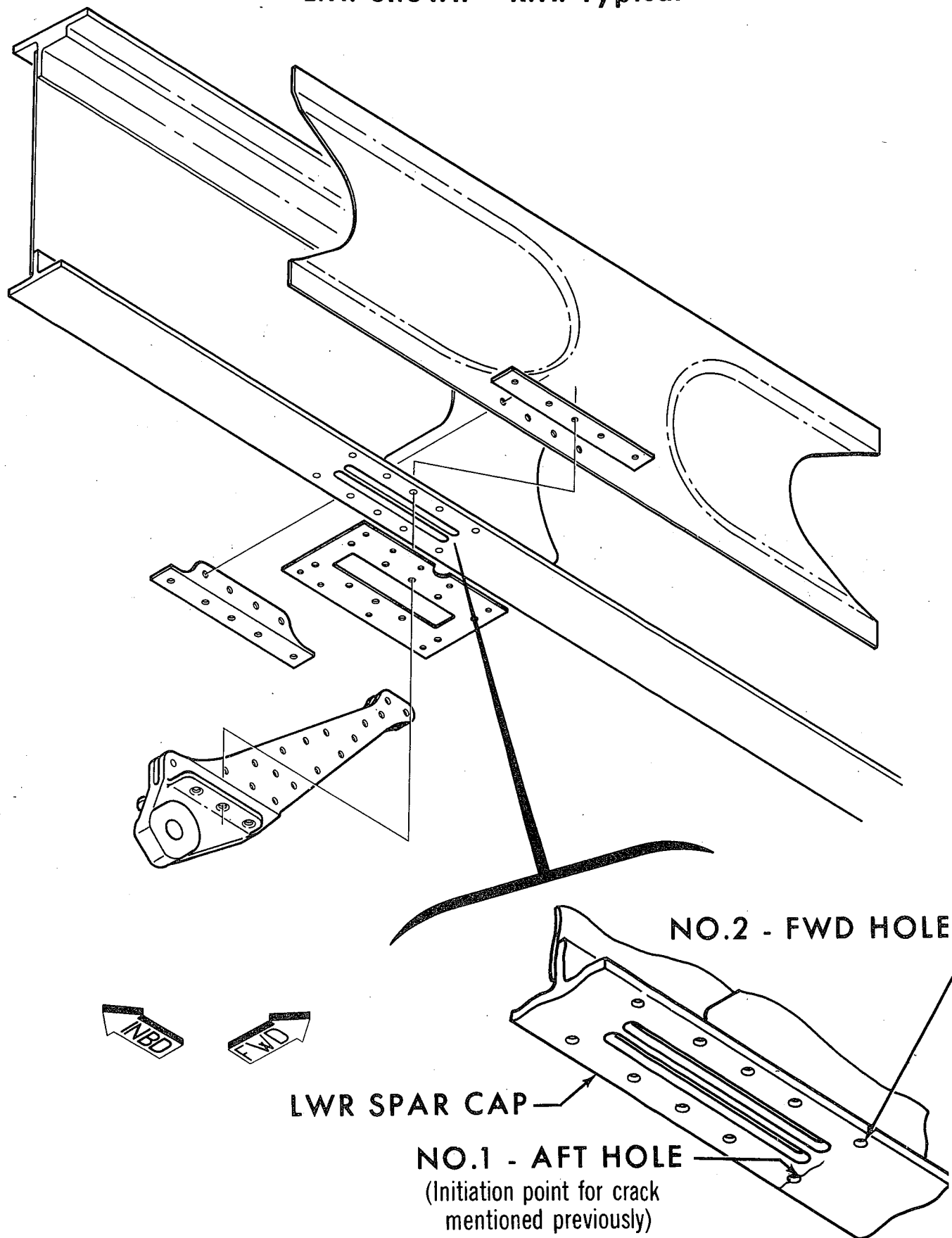


Fig. 3



# SPECIAL NOTE TO CESSNA ZONES AND DEALERS

December 12, 1972

ATTACHMENT  
TO  
ME72-26

## FIELD INSPECTION PROGRAM

1. Experience has shown that X-ray inspection of the spar cap is not satisfactory since X-ray does not in all cases reveal small cracks. Therefore the attached inspection procedure calls for the use of Eddy Current equipment.
2. If a crack is found, Zones are to contact Cessna Aircraft Company, Customer Services Department, Wichita, Kansas, for further instructions regarding repair. In contacting Cessna the following information is to be included ---
  - a. Aircraft serial number
  - b. Time in-service (airframe hours)
  - c. Average airspeed
  - d. Average duration of flight
  - e. Average altitude AGL flown

## NOTE TO DEALERS

Additional information has been provided Cessna Zones concerning availability of Eddy Current equipment and establishment of inspection facilities in the field. Therefore Cessna Dealers are to contact their Zones in assisting owners with this important inspection program.

## 3. Credit Information:

Upon receipt of a completed Credit Claim at Cessna, Wichita, the following inspection allowances will be paid in accordance with the Cessna Policy Information and Procedures Manual (Section F-32).

Continued.....

3. Credit Information: (Continued)

Disassembly and reassembly necessary to  
accomplish the inspection ..... 6.0 man-hours

Inspection equipment rental and operator's fee..... up to a maximum  
of \$100

NOTE: A copy of the invoice covering equipment rental and operator's  
fee must accompany the claim.

An inspection allowance will be paid for aircraft which, based on time and  
type of operation, are due for an inspection.

Inspection on aircraft at earlier than the prescribed interval will be at  
the owner's expense.

CESSNA INSPECTION STATION

1. Where Eddy Current is not locally available, Dealers may make arrangements  
(through their Zones) for having their aircraft returned to Wichita to have  
the wing spar inspection performed by Cessna.

Inspections at Cessna will be conducted on a scheduled basis; therefore,  
it is important that Zones contact the Cessna Customer Services Department  
to schedule the inspection prior to returning the aircraft to Wichita.

2. Inspection on aircraft, which based on time and type of operation are due  
for the inspection, will be performed at no charge to the owner.
3. If upon inspection a crack is found, both wings will be repaired by replace-  
ment of the lower spar caps. Repairs will be at the owner's expense. All  
charges (based on time and material) and estimated completion date will be  
quoted at the time of inspection.

# SPECIAL NOTE TO CESSNA ZONES AND DEALERS

January 5, 1973

ATTACHMENT  
TO  
ME72-26

## FIELD INSPECTION PROGRAM

Inspection Stations, capable of performing the Wing Spar Cap Inspection detailed in Service Letter ME72-26 dated December 12, 1972, have been established at the following locations:

Teterboro Aircraft Service  
Teterboro Airport  
Teterboro, New Jersey

Summit Aviation  
Summit Air - Park  
Middletown, Delaware

AirKaman of Jacksonville  
Jacksonville International Airport  
Jacksonville, Florida

Saint Aircraft  
St. Petersburg - Clearwater  
Airport  
St. Petersburg, Florida

Sunny South Aircraft Service  
Ft. Lauderdale - Hollywood  
International Airport  
Ft. Lauderdale, Florida

Peachtree Air Service  
Peachtree Dekalb Airport  
Atlanta, Georgia

Lane Aviation  
Port Columbus  
International Airport  
Columbus, Ohio

Mercury Aviation  
Cuyahoga County Airport  
Cleveland, Ohio

Sky Harbor  
Eagle Creek Airpark  
Indianapolis, Indiana

Lumanair  
Aurora Municipal Airport  
Aurora, Illinois

Walston Aviation  
Civic Memorial Airport  
East Alton, Illinois

Hi-Air  
Memphis International Airport  
Memphis, Tennessee

Northern Airmotive  
Minneapolis - St. Paul  
International Airport  
Minneapolis, Minnesota

Modern Aero Sales  
Redbird Airport  
Dallas, Texas

Cruse Aviation  
Hobby International Airport  
Houston, Texas

Ragsdale Aviation  
Mueller Municipal Airport  
Austin, Texas

Clinton Aviation  
Arapahoe County Airport  
Englewood, Colorado

Continued.....



Western Skyways  
Portland - Troutdale Airport  
Troutdale, Oregon

World Air Center  
Oakland International Airport  
Oakland, California

CessnAir Aviation  
Long Beach Municipal Airport  
Long Beach, California

Sabena  
Brussels National Airport  
Zaventem, Belgium

Rex Aviation  
Bankstown Aerodrome  
Bankstown Aerodrome  
Bankstown, N.S.W., Australia

Southwestern  
Laboratory testing Engineers  
2900 Cullen St. Box 1379.  
Fort Worth, Texas 76101  
FAA Repair Station 2255

This company is capable of  
go thru a reader  
~~test~~

From letter of January 16, 1973

# SPECIAL NOTE TO CESSNA ZONES AND DEALERS

March 6, 1973

ME72-26  
ATTACHMENT #3

FAA Airworthiness Directive 73-4-2 has been issued requiring inspection of wing spars on Skymaster Series aircraft at 5000 hours and 500 hour intervals thereafter. Additionally, this AD supports Cessna's recommendations for inspections at 3000 hours on aircraft involved in low level, contour flying (i.e. pipeline/powerline patrol, fish and game spotting, etc.). (Reference Service Letter ME72-26).

IT IS IMPORTANT THAT ZONES AND DEALERS CONTACT KNOWN LOW LEVEL OPERATORS AND EMPHASIZE THE NEED FOR STRICT COMPLIANCE WITH THE 3000 HOUR INSPECTION SET FORTH IN SERVICE LETTER ME72-26.