
Service Bulletin

April 29, 1994

SEB94-8

TITLE

HORIZONTAL STABILIZER FORWARD SPAR INSPECTION/MODIFICATION

EFFECTIVITY

<u>Model Series</u>	<u>Year</u>	<u>Serial Numbers</u>	
172	1956 thru 1960	28000	thru 47746
172	1961 thru 1986	17247747	thru 17276673
172 (T41A)	1965 thru 1969	17251947	thru 17259015
172RG	1980 thru 1985	172RG0001	thru 172RG1191
F172	1963 thru 1969	F172-0001	thru F172-0654
F172	1970 thru 1986	F17200655	thru F17202254
R172 (T41B,C,D)	1967 thru 1969	R172-0001	thru R172-0409
R172 (T41C,D)	1970 thru 1975	R1720410	thru R1720625
R172	1977 thru 1981	R1722000	thru R1723454
FR172	1968 thru 1981	FR17200001	thru FR17200675
P172	1963	P17257120	thru P17257188
FP172	1963	FP172-0001	thru FP172-0003
175	1958 thru 1960	55001	thru 56777
175	1961 thru 1962	17556778	thru 17557119

PURPOSE

Service experience indicates the possibility of cracks/buckles developing in the area of the center lightening hole in the horizontal stabilizer forward spar. An inspection for cracks/buckles in this area should be conducted. If a crack or buckle is found, the spar shall be repaired or replaced depending upon the extent of crack propagation. To assist in preventing this condition from occurring, a new strengthened one-piece forward spar reinforcement is available. Non-compliance with this service bulletin may result in failure of the horizontal stabilizer.

NOTE: Improper ground handling can cause cracking and deformation of the horizontal stabilizer structure. It is recommended that a tow/steering bar be used whenever the airplane is to be manually positioned on the ground. Do not steer the airplane by pushing down on the horizontal stabilizer.

COMPLIANCE

Mandatory:

A. Initial Inspection:

Shall be inspected within the next 100 hours of operation or 12 months, whichever occurs first.

B. Repetitive Inspections:

Accomplish every 100 hours of operation or 12 months after the initial inspection until installation of part number 0531037-1 horizontal spar reinforcement or 0532001-98 horizontal stabilizer forward spar.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

For Reims Aviation airplanes; DGAC approval has been obtained on technical data in this publication that affects airplane type design.

MAN-HOURS

Approximately 0.5 man-hours to inspect the horizontal stabilizer forward spar.

Approximately 14.0 man-hours per airplane to install a 0531037-1 forward spar reinforcement..

Forward spar assembly replacement, not determined.

MATERIAL

The following parts are available from Cessna Parts Distribution thru an appropriate Cessna Service Station for the suggested list price shown.

<u>Part Number</u>	<u>Description</u>	<u>Qty./Airplane</u>	<u>Price</u>
0531037-1	Reinforcement - Forward Spar	1 If Required	\$ 32.80 (S) ea.
0532001-23	Center Skin - Horizontal Stabilizer	1 If Required	\$ 80.10 (S) ea.
0532001-98 (See Note)	Forward Spar Assembly - Horizontal Stabilizer	1 If Required	\$ 271.00 (S) ea.
MS20426AD4-4	Rivet	10 If Required	\$ 23.00 (PS) lb.
MS20426AD4-6	Rivet	6 If Required	\$ 18.90 (PS) lb.
MS20470AD3-3	Rivet	As Required	\$ 30.70 (PS) lb.
MS20470AD3-4	Rivet	10 If Required	\$ 23.30 (PS) lb.
MS20470AD4-4	Rivet	8 If Required	\$ 16.50 (PS) lb.

NOTE: 0532001-98 horizontal stabilizer forward spar assemblies incorporate the 0531037-1 reinforcement.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE

CREDIT

Not applicable.

ACCOMPLISHMENT INSTRUCTIONS

Horizontal Stabilizer Forward Spar Inspection/Modification Accomplishment Instructions are attached.

OWNER NOTIFICATION

On April 29, 1994 the following Owner Advisory message will be sent to applicable owners of record in SEB94-8A.

Dear Cessna Owner:

Service experience indicates the possibility of cracks/buckles developing in the area of the center lightening hole in the horizontal stabilizer forward spar. An inspection for cracks/buckles in this area should be conducted. If a crack or buckle is found, the spar shall be repaired or replaced depending upon the extent of crack propagation. To assist in preventing this condition from occurring, a new strengthened one-piece forward spar reinforcement is available. Non-compliance with this service bulletin may result in failure of the horizontal stabilizer.

NOTE: Improper ground handling can cause cracking and deformation of the horizontal stabilizer structure. It is recommended that a tow/steering bar be used whenever the airplane is to be manually positioned on the ground. Do not steer the airplane by pushing down on the horizontal stabilizer.

Compliance is mandatory:

A. Initial Inspection:

Shall be inspected within the next 100 hours of operation or 12 months, whichever occurs first.

B. Repetitive Inspections:

Accomplish every 100 hours of operation or 12 months after the initial inspection until installation of part number 0531037-1 horizontal spar reinforcement or 0532001-98 horizontal stabilizer forward spar.

Please contact a Cessna Single Engine Service Station for detailed information regarding the accomplishment of this Service Bulletin on your airplane.

* * * * *

TITLE HORIZONTAL STABILIZER FORWARD SPAR INSPECTION/MODIFICATION**EFFECTIVITY**

MODEL(S)	SERIAL NUMBERS
172	28000 thru 17276673
172 (T41A)	17251947 thru 17259015
R172 (T41B, C, D)	R172-0001 thru R1720625
R172	R1722000 thru R1723454
172RG	172RG0001 thru 172RG1191
F172	F172-0001 thru F17202254
FR172	FR17200001 thru FR17200675
FP172	FP172-0001 thru FP172-0003
P172	P17257120 thru P17257188
175	55001 thru 17557119

DESCRIPTION

To inspect the horizontal stabilizer forward spar for cracks at the center lightening hole and install a one-piece reinforcement in the stabilizer forward spar.

APPROVAL

FAA approval has been obtained on technical data in this publication that affects airplane type design.

For Reims Aviation airplanes: DGAC approval has been obtained on technical data in this publication that affects airplane type design.

REFERENCE

SEB94-8

CHANGE IN WEIGHT AND BALANCE

MODEL	All Models
WEIGHT INCREASE	0.1 Pounds
ARM	210.0 Inches
RESULTANT MOMENT	21.0 Inch-Pounds
MOMENT/1000	0.021

April 29, 1994

Page 1 of 8

To obtain satisfactory results, procedures specified in this publication must be accomplished in accordance with accepted methods and prevailing government regulations. The Cessna Aircraft Company cannot be responsible for the quality of work performed in accomplishing the requirements of this publication.

The Cessna Aircraft Company, Product Support, P.O. Box 7706, Wichita, Kansas 67277, U.S.A. (316) 941-7550, Facsimile (316) 942-9006

COPYRIGHT © 1994

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

MATERIAL INFORMATION

NOTE: The following parts will be required to modify the horizontal stabilizer forward spar:

PART NUMBER	QUANTITY	DESCRIPTION
0531037-1	1	Reinforcement- Forward Spar
MS20426AD4-4	10	Rivet-Reinforcement attach
MS20426AD4-6	6	Rivet-Rib to Spar attach
MS20470AD3-3	As Required	Rivet-Skin Attach
MS20470AD3-4	10	Rivet-Reinforcement attach
MS20470AD4-4	8	Rivet-Reinforcement attach

NOTE: In addition to the parts listed above, the following components may be required to complete this modification:

PART NUMBER	QUANTITY	DESCRIPTION
0532001-98	1 (If Required)	Spar Assembly- Forward Horizontal Stabilizer
0523001-23	1 (If Required)	Skin-Center Horizontal Stabilizer

ACCOMPLISHMENT INSTRUCTIONS

1. (Refer to Figure 1,) Inspection of the horizontal stabilizer forward spar:

A. Display a maintenance tag in the cabin in full view stating:

WARNING: DO NOT OPERATE AIRPLANE - MAINTENANCE IN PROGRESS

B. Remove the fuselage-to-stabilizer aerodynamic fairings. Retain fairings and attaching hardware for reinstallation.

C. Using a flashlight and an inspection mirror, locate the center lightening hole of the forward spar in the horizontal stabilizer.

(1) (Refer to Figure 1, Sheet 3, View C-C.) From the aft side of the horizontal forward spar, examine the centerline lightening hole for cracks. Cracks will generally radiate diagonally from the lightening hole.

(2) If cracks are present:

(a) Cracks that have not progressed past the centerline lightening hole flange may be blended out.

(b) Cracks that have progressed past the centerline lightening hole flange but do not extend to the spar flange radius, stop drill using a Number 30 (0.128 inch diameter) drill. Proceed to step 2.

(c) Cracks that have progressed to the spar flange radius, replace the spar with a 0532001-98 forward spar assembly. Refer to step 2 of these instructions and the applicable airplane service manual.

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

- (3) If no cracks are present:
 - (a) If the 0531037-1 forward spar reinforcement is to be installed, proceed to step 2.
 - (b) If the 0531037-1 forward spar reinforcement is not to be installed, proceed to step 3.
2. (Refer to Figure 1.) Installation of the horizontal stabilizer forward spar reinforcement:
 - A. Block elevator trim tab actuator and cables to retain rigging. Do not remove the actuator, pulleys, or cables from the stabilizer. Label the cables for convenience of reinstallation.
 - B. Remove the horizontal stabilizer from the airplane. This procedure will include removing the rudder and the vertical fin. (Refer to Service Manual, Section 4, Wings and Empennage.)
 - C. Remove the fasteners securing the 0532001-23 stabilizer center skin, and remove the skin by sliding it forward. When drilling out fasteners, note the type of fastener and location for reinstallation of the skin.
 - D. Inspect the 0532001-23 skin for cracks:
 - (1) Check the skin centerline lightening hole for cracks. If cracks are present and extend beyond the centerline lightening hole, repair or replace the skin. Repair can be accomplished by trimming the damaged part at the forward bend radii and splicing in a like section of the web portion with upper and lower flanges overlapping the existing skin at the trim lines.
 - (2) Skins that have minor cracking that does not extend beyond the flange of the centerline lightening hole may be repaired by blending out such cracking in the flange.
 - (3) Any buckled areas of the skin should be straightened and inspected for cracking.
 - (4) If cracking extends beyond the flange, replace the skin.
 - E. (Refer to Figure 1, Detail B.) Drill out 6 rivets securing the leading edge skins to the spar on either the left and right upper or lower surfaces (not both), removing fasteners to pull the leading edge skins back for tool access.
 - F. Drill out the rivets from the trailing edge of the horizontal stabilizer between the inboard and second rib outboard at BL 17.25. Also remove the rivets attaching the pulley bracket doublers to the top and bottom skins in this area. This will permit the skins to be pulled back for tool access.
 - G. From inside the right side of stabilizer, drill out the rivets securing the trim cable pulley bracket to the inboard rib. Leave the cables routed through the lightening holes and pulleys. Pull the ribs and cables out of the way and secure them while working to ensure proper routing and rigging upon reassembly.
 - H. Remove the fasteners securing the existing 0532001-11 reinforcements to the aft face of the forward spar. Remove and discard these reinforcements.
 - I. Replace the forward spar if cracks are present that extend to the spar flange. Blend out any cracking limited to the lightening hole flange. Straighten any buckling found in the spar web.
 - J. (Refer to Figure 1, Sheet 3, View C-C, and Sheet 4, Detail D) Locate the new 0531037-1 one-piece reinforcement (which replaces the two reinforcements removed in step G.) Install the spar web rivets on the left side only in existing rivet locations. Deburr all holes. Providing edge distance is maintained, fasteners one size larger may be used as required to obtain good holes and fit.
 - K. (Refer to Figure 1, Sheet 4, Detail D) Using a Number 30 (0.128 inch diameter) drill, add equally spaced holes for new fasteners between the rivets securing the reinforcement to the spar flanges and skins. All rivets in the spar web can be driven from inside the stabilizer and bucked on the front side. Leave the rivet holes in the flange open where the center skin will attach.
 - L. Reattach the leading edge skin using MS20470AD3-3 rivets.
 - M. Locate and position the inboard ribs. Working through the loose stabilizer skin (along the aft spar), reattach the trim cable pulley bracket ensuring the cables are properly routed.

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

- N. Reattach the stabilizer skin along the trailing edge using MS20470AD3-3 rivets.
 - O. Working through the lightening holes in the inboard ribs, buck the fasteners that attach the pulley bracket doublers to the stabilizer skin.
 - P. Install the 0532001-23 stabilizer center skin using MS20470AD3-3 rivets in the same locations recorded in the removal process.
 - Q. Reinstall the stabilizer, vertical stabilizer, rudder, and elevators. Check the control riggings in accordance with the appropriate service manual.
3. Make an entry in the airplane logbook stating this service bulletin has been accomplished and method of compliance, if applicable, note in the logbook when the next inspection is due.

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

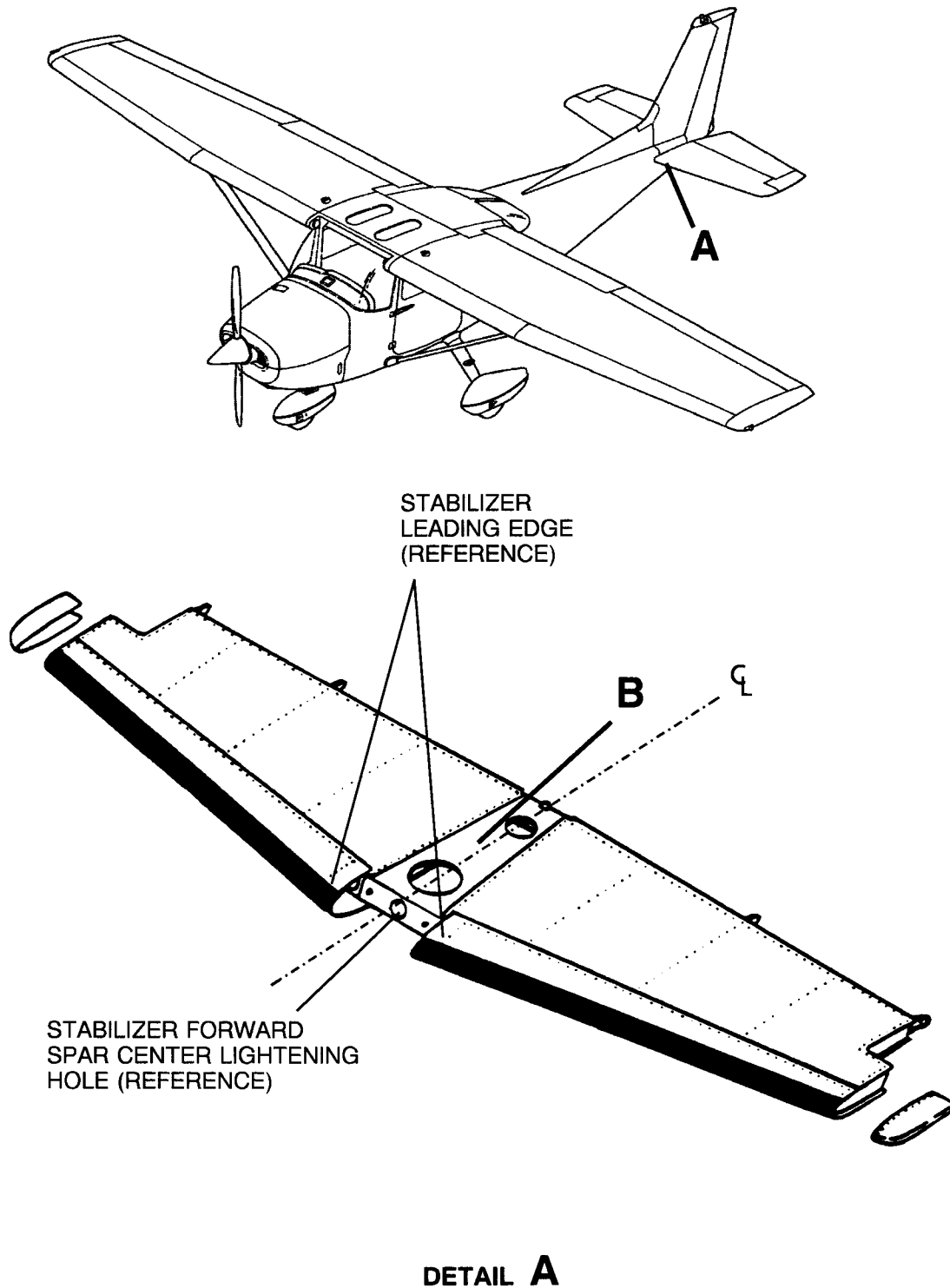


Figure 1. Horizontal Stabilizer Forward Spar Inspection/Modification (Sheet 1 of 4)

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

NOTE: LEADING EDGE
NOT SHOWN FOR
CLARITY ONLY.

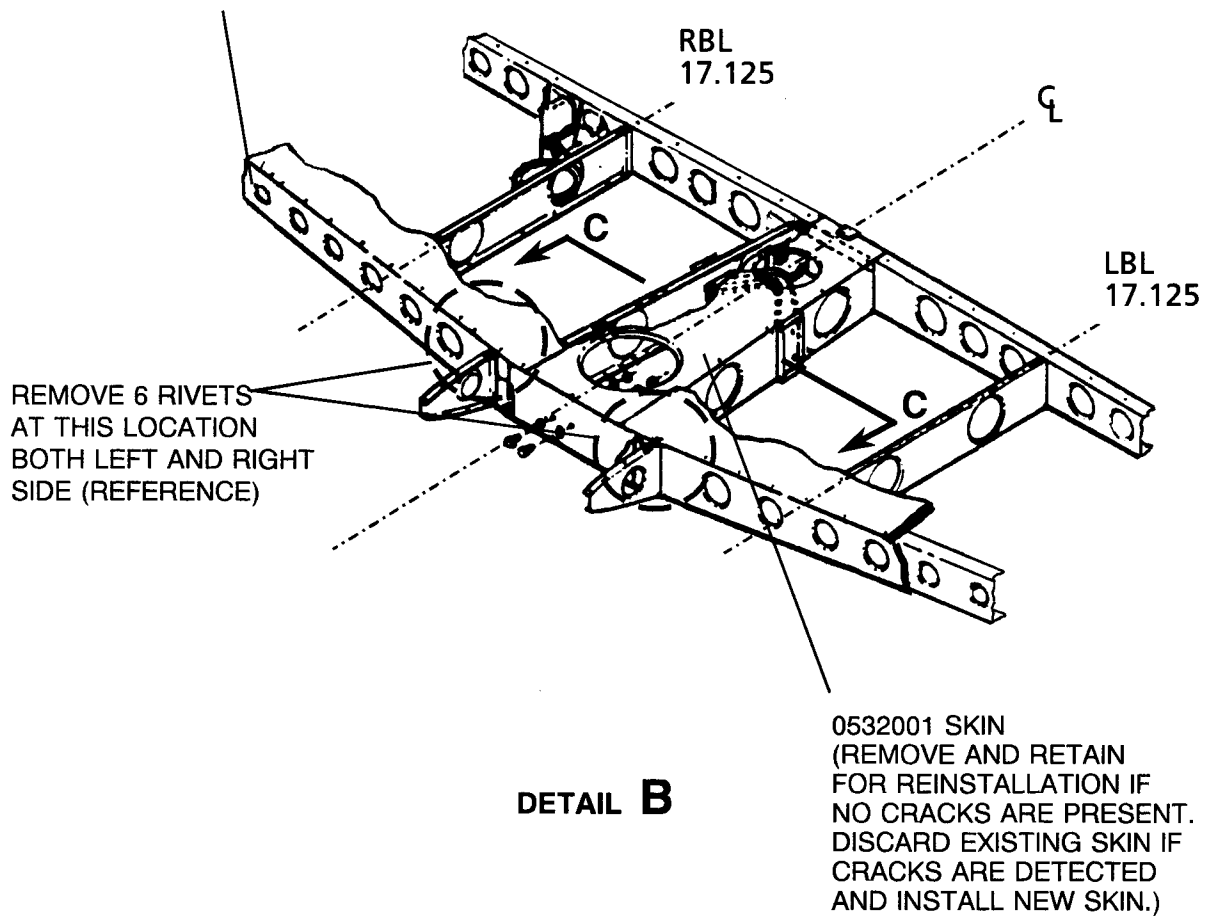


Figure 1. Horizontal Stabilizer Forward Spar Inspection/Modification (Sheet 2)

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8

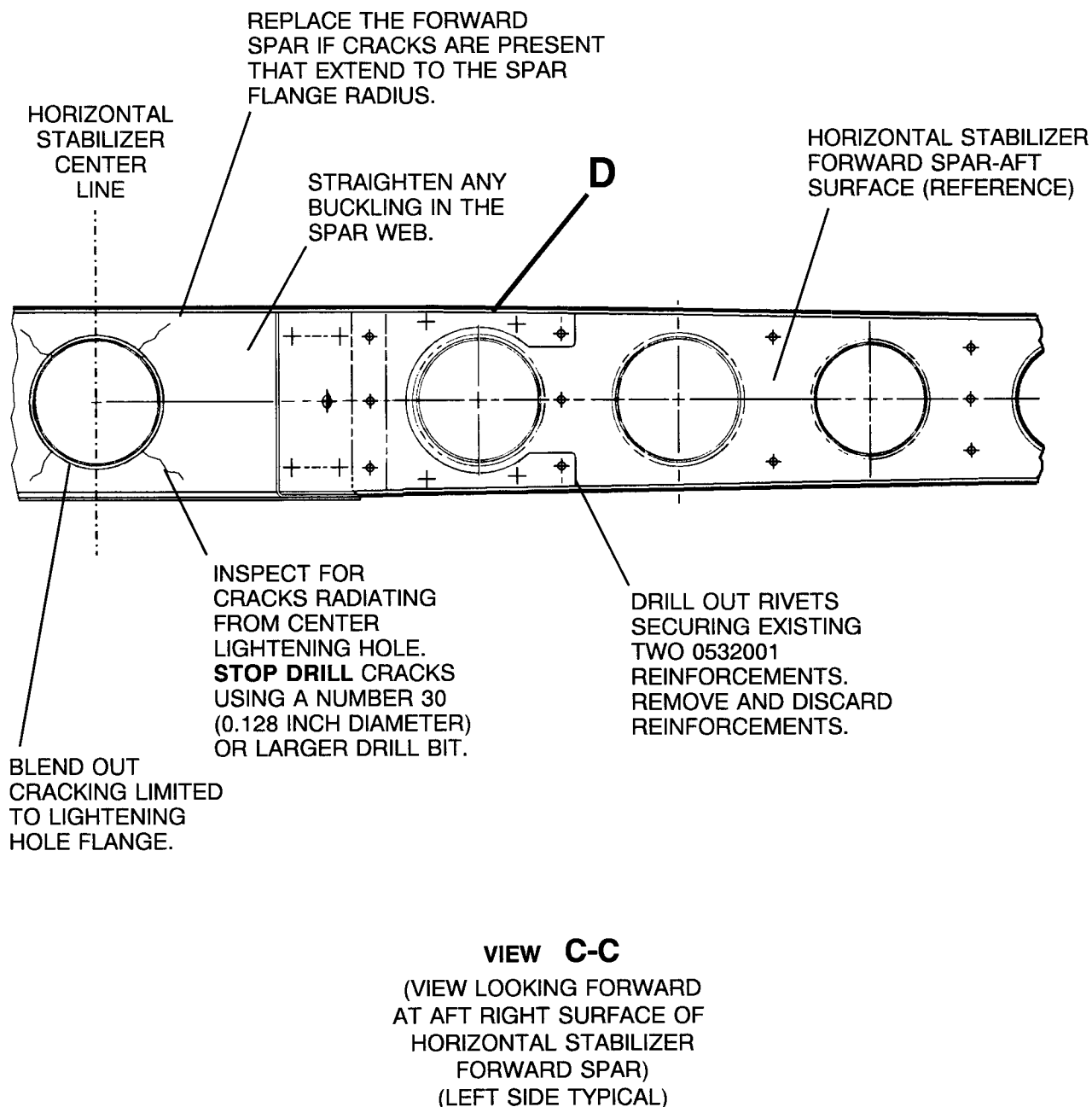
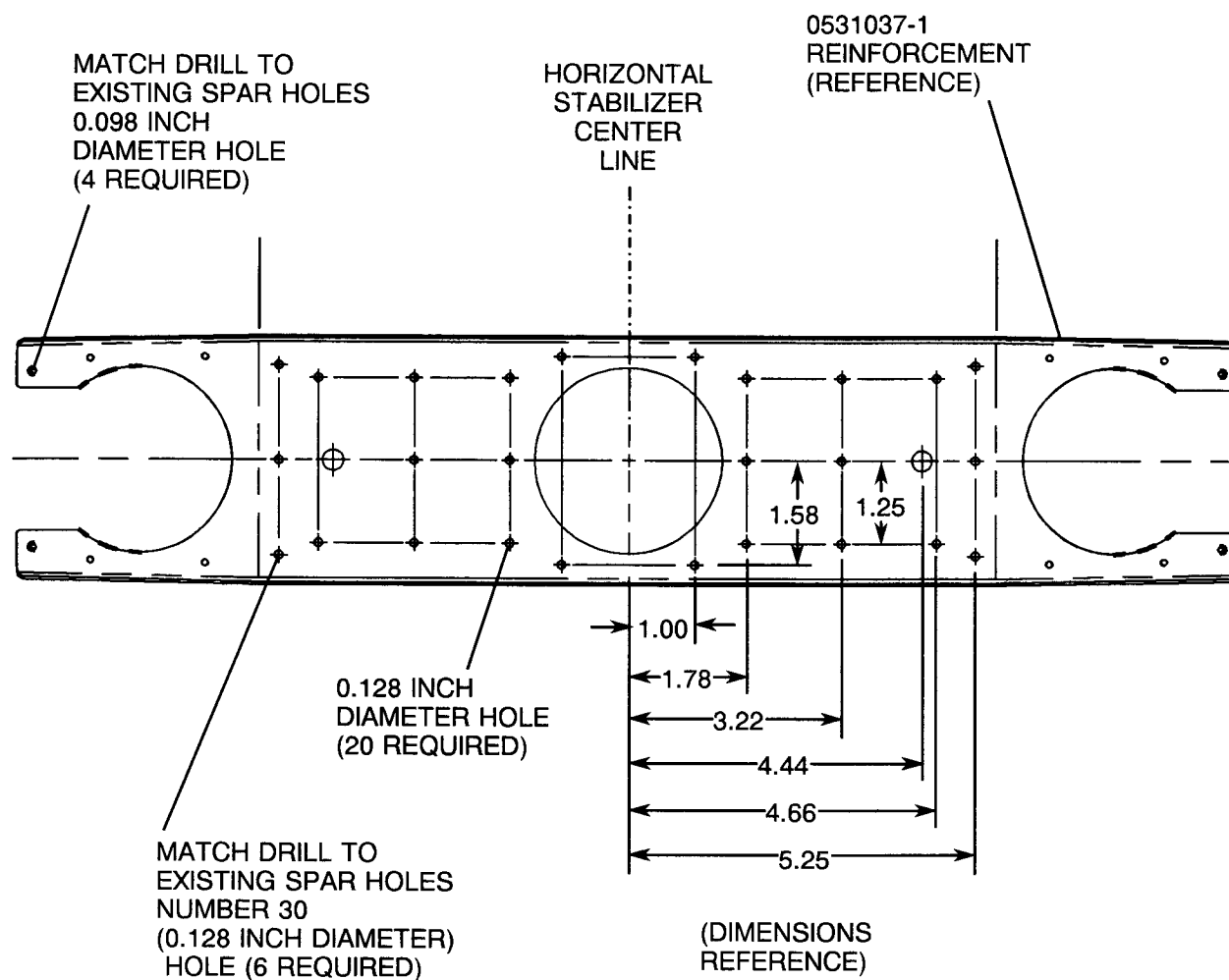


Figure 1. Horizontal Stabilizer Forward Spar Inspection/Modification (Sheet 3)

ACCOMPLISHMENT INSTRUCTIONS

SEB94-8



DETAIL D
VIEW LOOKING FORWARD

Figure 1. Horizontal Stabilizer Forward Spar Inspection/Modification (Sheet 4)