

SERVICE BULLETIN #1

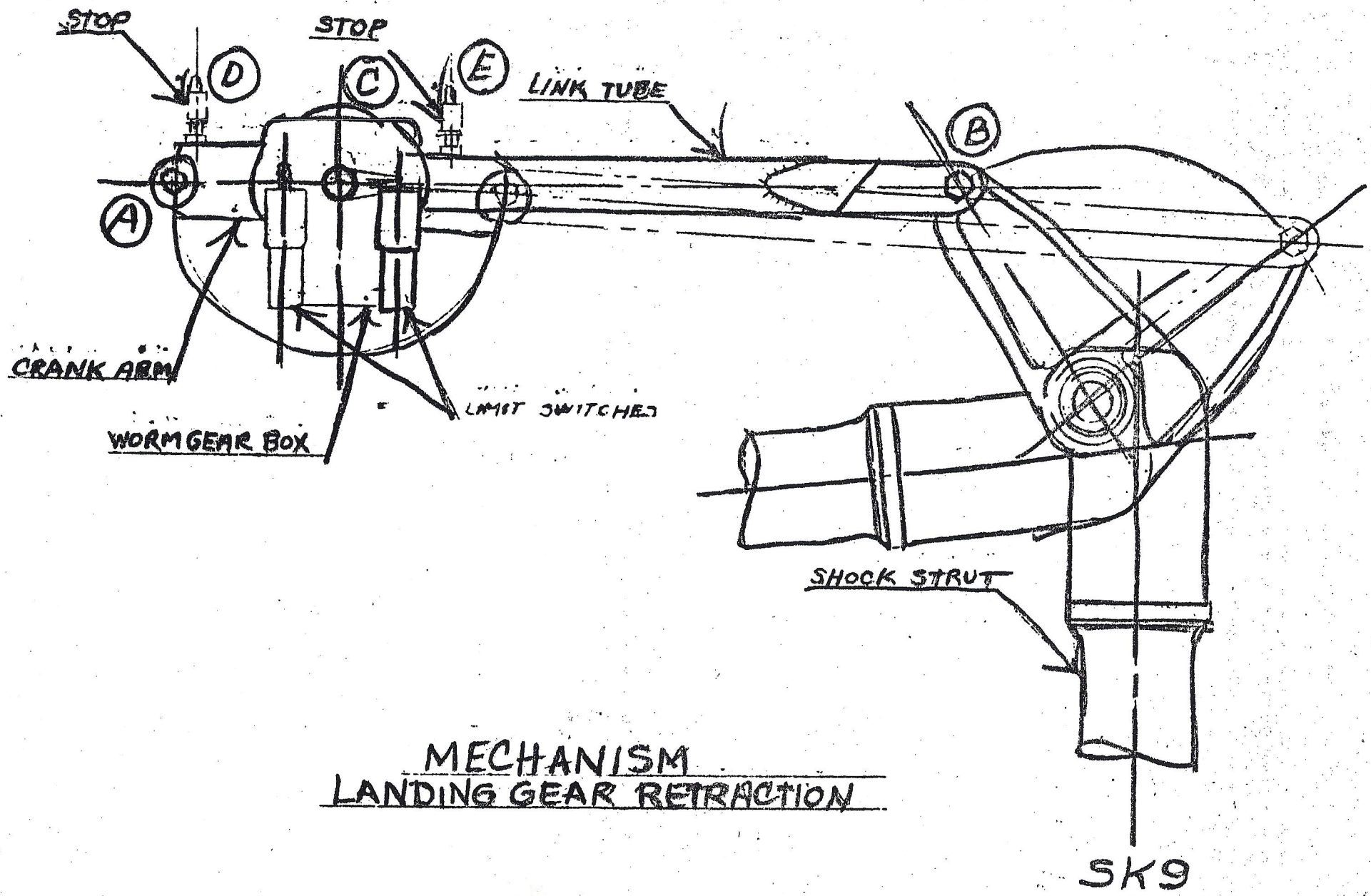
LANDING GEAR ALIGNMENT

Place approximately 200 pounds of weight on stabilizer. Remove the small plates located below the bottom wing fittings and directly behind struts. Place wing jacks under uncovered lower wing fittings and raise them until the wheels clear floor. Level the airplane laterally by placing a level upon the lugs located on the top of #5 bulkhead and raising or lowering the jacks under the wings until ship is absolutely level. With the gear in the Down position, make absolutely sure that the shock strut is in a vertical position, that is, striking a 90 angle, with a horizontal line. If the strut is found not to strike a 90 angle, it may be adjusted with the eccentric bushing located at "A" end of link tube. Always be sure that the eccentric bushing is locked securely with the Allen plug embedded in that end of the link tube.

LANDING GEAR RETRACTION MECHANISM ADJUSTMENT

Crank the gear up by hand until the centers of "A", "B" and "C" are in perfect alignment with each other. When these three points are in alignment with each other. When these three points are in alignment, run Stop "E" down until it contacts crank arm. Crank gear down by hand until "A", "B" and "C" are again in perfect alignment with the gear down and run Stop "D" down to crank arm. Now operate gear by electric motor adjusting the limit switches by sliding them up or down in the brackets that support them so that the crank arms will come to rest against the stop without a jarring force of any kind, both in the Up and Down positions. Recheck the struts to see if they are still in the proper vertical position with gear down.

Fred J. Tolley



SPARTAN AIRCRAFT COMPANYMODEL 7W EXECUTIVE

Applicable to Airplanes Serial #1 to 27 inclusive.

On one of the earlier Executives it was found that the bronze (oilite) bushing which carries the landing gear hand crank assembly had worked outboard of its proper position sufficiently to cause difficulty in meshing the hand crank with the drive sprocket (for emergency hand operation of the landing gear only).

We recommend that a careful check be made to determine whether this bushing has shifted its position in the bracket and that the simple bushing locking bolt shown be installed at the first opportunity.

Any competent mechanic with access to a welding outfit should be able to make this change.

Parts required are one $\frac{1}{4}$ " AN drilled head bolt at least 9/16" long and two plain nuts for same.

To Install:

1. Remove bushing from bracket.
2. Drill $\frac{1}{4}$ " hole in bracket as shown.
3. Weld one $\frac{1}{4}$ " nut over hole as shown.
4. Assemble unit, pressing in bushing to proper position. (Sprocket should turn freely but have no appreciable side play.) De sure and grease sprocket.
5. Drill indentation in bushing through hole in bracket as shown. (Do not drill quite through the bushing wall.)
6. Rework end of bolt to same angle as that of drill used. (Use lathe, grinder, or file.)
7. Assemble bolt and lock nut, (bolt threads should run all the way up to head), and tighten.
8. Tighten bolt until hand crank shaft starts to bind.
9. Back off enough to allow hand crank to turn freely and tighten lock nut.
10. Safety bolt through drilled head into hole drilled in bracket gusset as shown.

1-11-40

11. Grease hand crank shaft and assemble rest of parts.

if desired we will furnish the bolt and nuts at cost and install them at cost if the ship is returned to the factory.

We recommend that a new bronze bushing be installed at the time this change is made.

This bushing Part No. 7W 438-11 will be furnished at factory cost, also.

Order for complete rework.

One special bolt 7W 483

One nut AN 316-4R

One nut AN 315-4R

One bushing 7W 438-11

We recommend that the sprocket be oiled every fifty hours.

SPARTAN AIRCRAFT COMPANY

Ralph W. Kenyon
Factory Manager

1-15-40

SPARTAN AIRCRAFT COMPANY

SERVICE BULLETIN NO. 3

MODEL 7W EXECUTIVE

When operating Spartan Executive airplanes out of very dusty fields it is possible to reduce the amount of dust entering the engine by relocating the carburetor air intake duct and outlet.

This is accomplished by doing away with the outside duct underneath the engine cowl, and placing the carburetor air intake duct opening between #4 and #5 cylinder heads. This is inside the N.A.C.A. front cowl and so located, after extensive flight tests, that it results in approximately the same ram pressure as before, but with much less dust. (Due to the increased height; protection afforded by the cowl, etc.)

Disadvantage is the possible loss of some power at high altitudes (over approximately 9600 feet) with the throttle wide open, assuming carburetor icing conditions are not present.

This would be caused by the carburetor air being heated slightly by its proximity to the hot engine cylinders.

The expanded air reduces the total thermal volumetric efficiency of the engine, resulting in decreased maximum powerpower output compared with that obtained using cold air. Full power output cannot be used at sea level or ordinary cruising altitudes without exceeding allowable manifold pressures, hence a slight recudtion in total power would not ordinarily be noticed.

The condition obtained is similar to that obtained flying with the carburetor heat control slightly open and would, of course, assist in preventing carburetor icing.

The Spartan Aircraft Company is willing to make an C.A.A. approved changeover at factory cost. We do not recommend this work being doen away from the factory.

SPARTAN AIRCRAFT COMPANY

Ralph W. Kenyon
Factory Manager

Service Bulletin No. 4

Spartan Aircraft Co

Applicable to: Models Serial Nos. 1 to 28

Date 1-24-40

Subject: It has come to our attention that the chain sprockets in the dual and throw-over type control columns are not always being lubricated as frequently as is desirable.

Lack of lubrication here, as in other places, will eventually result either in galling and binding or excessive wear and clearances.

We recommend that the sprockets and control wheel shaft be oiled with light motor oil (about SAE 10 mixed with penetrating oil) every 50 hours.

Use penetrating oil alone at first if sprockets have not been lubricated for some time.

Ralph W. Kenyon
Factory Manager

Note: If desired new type bolts and bushings with zerk fittings can be installed. This involves removing the control column and is a relatively expensive job which should not be necessary if the sprockets are adequately oiled.

Service Bulletin # 5

Spartan Aircraft Co.

Models involved: All airplanes equipped with Wasp Jr. SB engine

Subject: Priming Technique

Most Spartan Executive airplanes have engines equipped with carburetors having an integral primer, the Primer line of which is connected from the carburetor to the blower section of the primer fitting.

This type of primer utilizes the acceleration pump of the carburetor for priming and the proper operation of which is not clearly understood by some pilots.

To properly prime the engine pull the mixture control lever to the full lean position.

This operates a valve which causes the discharge from the accelerating pump to flow into the priming line and prime the engine. Move the throttle lever back and forth slowly for three or four complete strokes at the same time maintaining adequate fuel pressure with the hand wobble pump.

Do not use more than normal fuel pressure as this will cause flooding of the carburetor which in turn creates a hazard in case of back-firing

Integral primer will not work unless the mixture control is in the full lean position. On engines having a separate primer pump, however, the mixture control lever should be set to the full rich position to prime the engine, and not less than six complete strokes of the priming pump is required with this type primer.

Always place the carburetor heat control in the full cold position regardless of which type primer is used, otherwise possible backfiring might injure the induction system.

Ralph Canyon
Factory manager

SPARTAN AIRCRAFT COMPANY
SETVICE BULLETIN

Bulletin: No.6

Contract: None

Airplane Model: 7W "Executive"

Purpose of Bulletin: to describe installation of Vent for radio compartment.

Reference: C.A.A. Letter to Spartan 1-6-42

Enclosure: (a) Spartan Drawing SK-78-"Vent Installation-Radio Compartment Model 7W "Executive".

Reason for Change: To provide additional ventilation around the radio installation to reduce explosion and fire hazard in case of fuel tank leakage.

Recommended Application: It is recommended that this change become effective on all airplanes having the standard factory radio installation. (Where the radio is located directly aft of the fuselage tanks)

When Change is to be made: At customer's convenience.

Description: (1) Remove Belly Panel 7W548 and install 7W573 Vent in accordance with drawing SK-78.(Enclosure (A)).

Weight of Change: Negligible.

Balance change: Not affected.

Performance: Not affected.

Source of Parts: Spartan Aircraft will furnish at customer's expense, the 7W573 Vent and AN430AD-3-4 rivets. A drawing of part 7W573 will be forwarded to customer upon his request. (Price of 7W573 Vent is approximately \$.71 each)

W. Fred Stewart
Chief Engineer

PREPARED BY _____
CHECKED BY _____
DATE June 23, 1952 _____

SPARTAN AIRCRAFT
COMPANY, INC.

PAGE _____
MODEL _____
REPORT NO. _____

SPARTAN AIRCRAFT COMPANY
SERVICE BULLETIN #7

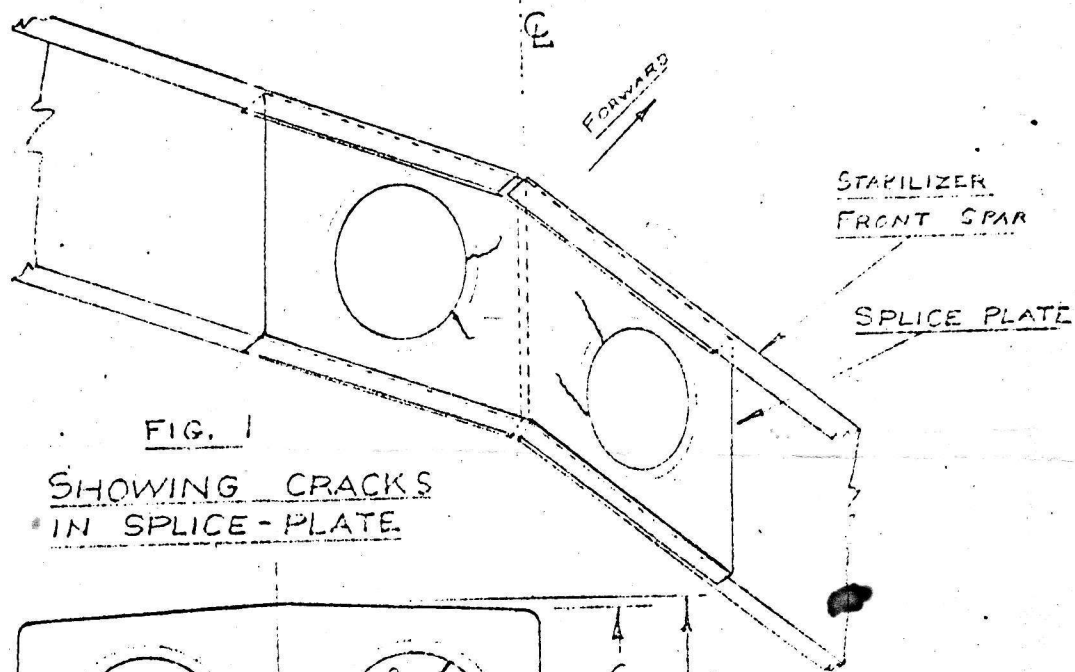
Model 7W "Executive" Airplane

Cracks have been found at the edge of the lightening holes of the splice-plate which joins the stabilizer front beams together at the center-line of the stabilizer.

It is suggested that the stabilizer front beam splice-plate be inspected for cracks at the next 100-hour periodic inspection. Inspection can be made by use of the inspection door located on the left side of the fuselage and above the tail wheel.

If cracks are found, drill stop-holes at end of cracks and add a reinforcing plate of 0.040 24 ST aluminum alloy with flanged lightening holes, (see sketch) to the forward side of the stabilizer spar, picking up the original rivet pattern and an extra row of rivets on each side of the center-line of the stabilizer using AN 456 AD 4 rivets. Repair can be made by removing tab drive mounting bracket plate at fuselage Bulkhead No. 9, and working through aft end of fuselage without removing stabilizer from the airplane.

W. Fred Stewart
W. Fred Stewart
Chief Engineer



SHOWING CRACKS
IN SPLICE-PLATE

.040
24 ST
AL. AL.

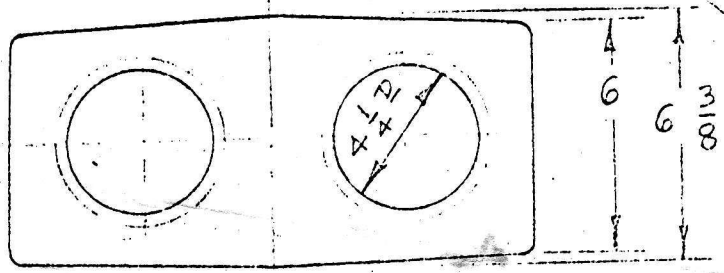


FIG. 2
SPLICE PLATE
TO BE ADDED.

1 17/32

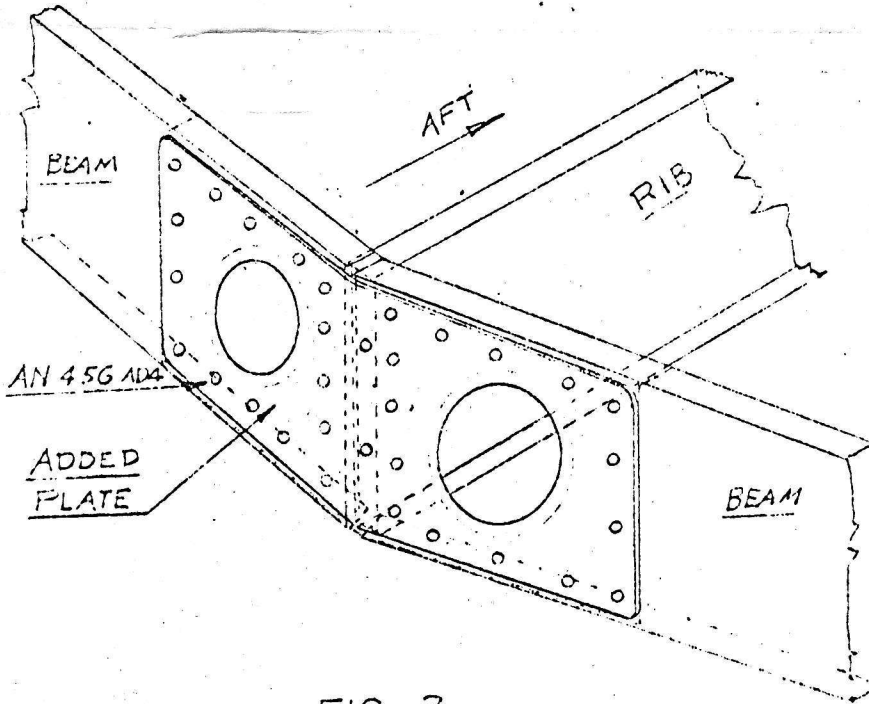
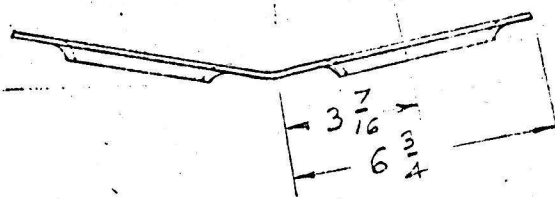
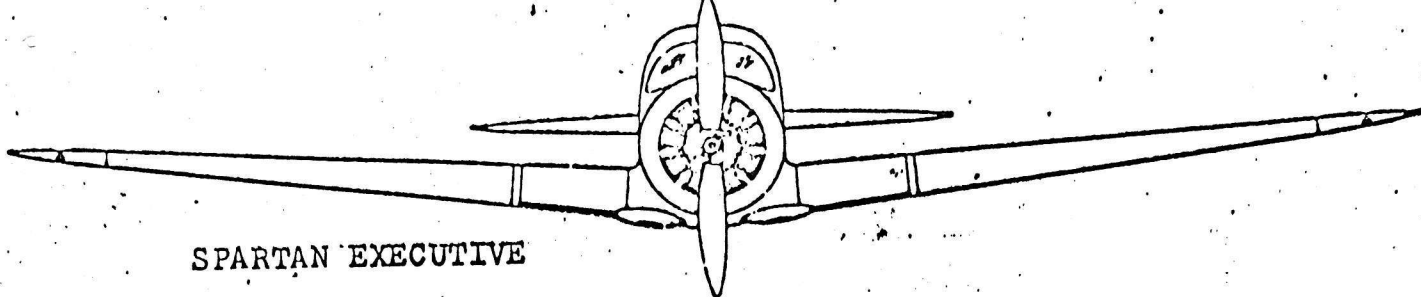


FIG. 3
SHOWING REINFORCING PLATE
ADDED TO FRONT OF BEAM



SPARTAN EXECUTIVE

Publisher Don Fairbanks

Cardinal Air Training Hangar 22 Lunken Airport Cincinnati, Ohio 45226

MAINTENANCE HINTS:

Attached is a Service Bulletin #7, dated 1952, concerning cracks in the horizontal stabilizer.

The Service Bulletin will give you an idea of the location of these cracks. In addition to the cracks shown on the bulletin, we have found cracks in the spar further outboard.

If the cracks are found further outboard, it is necessary to cut and install an access plate in the area where the crack exists. This access door or plate is usually installed on the top side, and is in the area where we make the repairs. Type of repairs, for cracks that may be found in the area further outboard than shown in the bulletin, is determined by the extent of the cracks.

In the early model landing gear casting, small cracks have been found in the upper terminal casting in the diagonal web which forms part of the casting. Usually the cracks are found in the radius area of the web and can sometimes be ground out. This is determined again by the depth and extent of the cracks. The amount of grinding and clean up allowable is also determined by the location of the cracks.

Since Spartan manufactured the aircraft, they have the information and experienced personnel to make any corrections that might be required. If your plane has been annualized at Spartan since this bulletin, it has been corrected if necessary. Best to check on this to be safe.

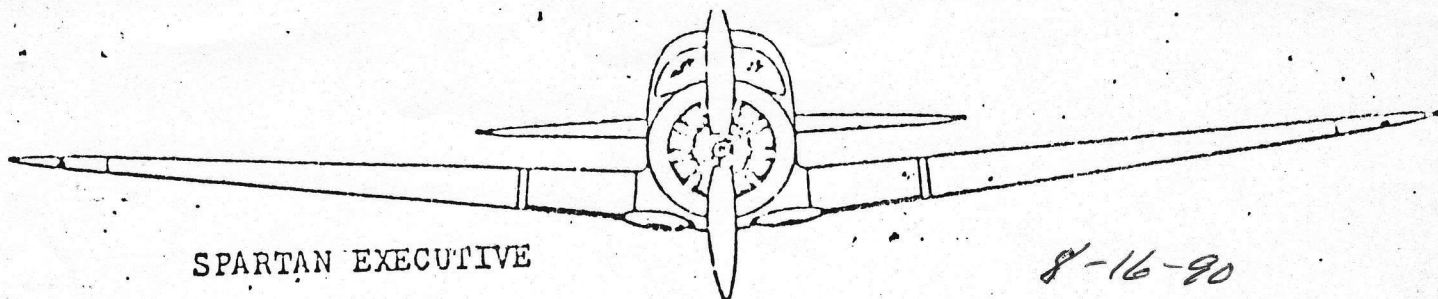
Ammendments to the owners list:

#10 Donald E. Dickenson	1617 Dickenson Drive	Santa Paula, Calif. 93060
#14 Campbell Machine Co.	935 26th Street	West Palm Beach, Florida

For those that may know of someone looking for a 7W, these may be for sale:

#14 Campbell Machine Co.	935 26th Street	West Palm Beach, Florida
#18 David B. Leeds	9238 Fermi Ave.	San Deigo, California
#25 Willet Flying Service	Box 548	Lemoore, California 93245
#30 Delaware Tool & Die Works	140 Powell Ave.	Darby, Pennsylvania

Walt Rye #16 and I are kicking around the idea of trying to fly around and visit all the 7W's and their owners, perhaps later this year. If so, I will bring all my information so we can compare notes.



SPARTAN EXECUTIVE

8-16-90

Dear John; Here are the Spar patterns I promised you. One of the patterns is for the front side of the Horizontal Stabilizer spar. It is made of .051 24 ST 3 material.

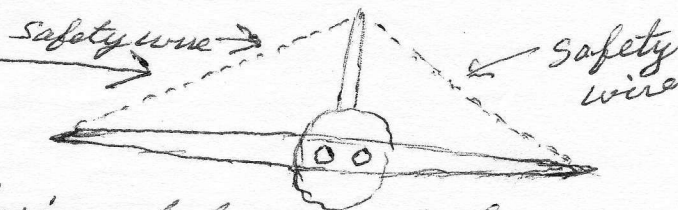
The other pattern is to made from .032 24 ST material. It goes on the back side of the front spar. You have to roll it up and push it through one of the lightning holes, then straighten it out after you get it through the hole.

The original rivets in the front spar are $\frac{1}{8}$ " in diameter. (AN 430-4) You should go to the next size, $\frac{5}{32}$ " diameter. (AN 430-5) Determine the length necessary. Of course, stop holes should be drilled at the end of any cracks before installing the reinforcement plates.

It will be necessary to remove the panel on the bulkhead that is just forward of the stabilizer spar, which is inside the fuselage. Be careful not to get the trim tab (elevator) cables twisted or tangled up removing the bulkhead panel. It will probably pay to tape the spool.

Before drilling out any rivets in the spar, the horizontal stabilizer should be tied up with safety wire or some other method. This is so the horizontal won't sag when you remove the rivets. There should be an equal distance from the horizontal stab tip area to the vertical fin tip area.

2. If one side or both sides are a little flexible, you may need to draw them up with the safety wire. Keep checking until they are the same.



The horizontals don't have any dihedral, so keep them as straight across as possible.
(See enclosed three-view drawing.)

You may need to get someone to lift one side or the other until the distance is equal on both sides.

This is not a simple repair due to the cramped area in which to work. Otherwise it would be relatively easy.

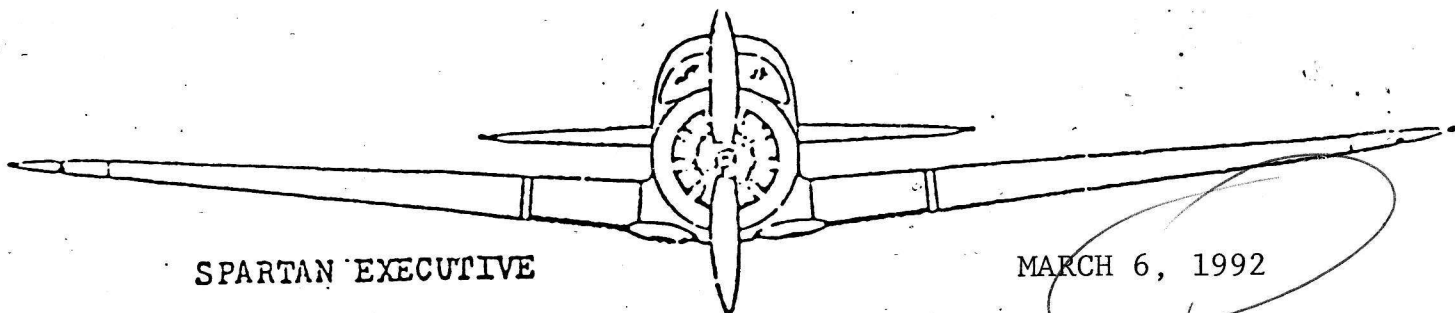
I am enclosing copies of the cracks we found on Pat Hartman's prior to repair, and also a shot showing the reinforcement after repair was accomplished. We could move the horizontal tip on the left side up & down 2" or 3" before repair. After repair it was real rigid.

Hope your back problem continues to improve. I have been there so I know what pain it can cause.

Hope you don't find any cracks. If I can be of any more help, let me know.

Sincerely

Walt Miller



SPARTAN EXECUTIVE

MARCH 6, 1992

TO OWNERS OF SPARTAN EXECUTIVE MODEL 7W

Enclosed is an updated list of Model 7W owners which I hope is correct as of this date.

Items that may be of interest to owners or Spartan enthusiasts:

1. A recent article in the February (92) "Private Pilot" magazine about the North Cannon Aviation Spartan 7W, Serial #25.
2. Bill Goldman has completed his #11 Spartan sufficiently to test fly it last year. Will install interior after he has installed various communication equipment.
3. We regret the passing of Don Dickenson last year. Don was a fine pilot and we will miss him. Our sympathy to Mrs. Dickenson and family. Don's #10 Spartan is "For Sale".
4. Dr. James Patterson's #14 still has some re-furbishing to be completed prior to its being returned to service.
5. Norman Kleman has removed the instrument panel on his #15 Spartan and accomplished some work in that area. He also replaced the panel shock mounts.
6. Unfortunately I have not been able to contact Leon Levitz by phone or do I receive a response from my letters. So if anyone knows the status of his #16, I would appreciate any information.
7. John Courneyer has been doing considerable work on his #18 Spartan.
8. Thomas Horne has installed a gray interior with burgandy trim to match the instrument panel on his #31. He put a small band of red around the cowl, extending two stripes down the side.
9. John Turgyan has been flying #34 considerably since he finished his restoration.

Structural Inspection Reminders

1. Have you checked the upper L/R landing gear trunnion castings for cracks? Visual and dye check for cracks in the casting webs. If cracks are found there is a maximum depth allowable the cracks may be ground out.
2. Cracks have also been found in the 4130 steel structure tubing in the vicinity of the landing gear hinge pin area.
3. Have you checked for cracks in the front spar of the Horizontal Stabilizer? Usually the cracks are found aft of bulkhead #9 inside the fuselage. Sometimes it can be determined if there are cracks in this area by first getting a hand hold on the tip of the horizontal and try to move it up and down. If the movement is 1½ inches or more, this is a good indication cracks may be in the spar. It is suggested that then the panel inside the fuselage bulkhead 9 be sufficiently removed for visual inspection. Cracks are usually found in the lightning hole areas of the spar.
Note: Patterns and instructions for the repair (in most cases) are available.
4. Cracks have also been found in the 4130 tubular structure at the tail wheel area.

Walt Willis

Walt Willis
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