

**General Service Bulletin No. 1**

Date: July 1, 1943

Subject: Trailing Edge wing drainage

Models: All Speedsters, Sportsters, Cloudsters, and Skyrangers

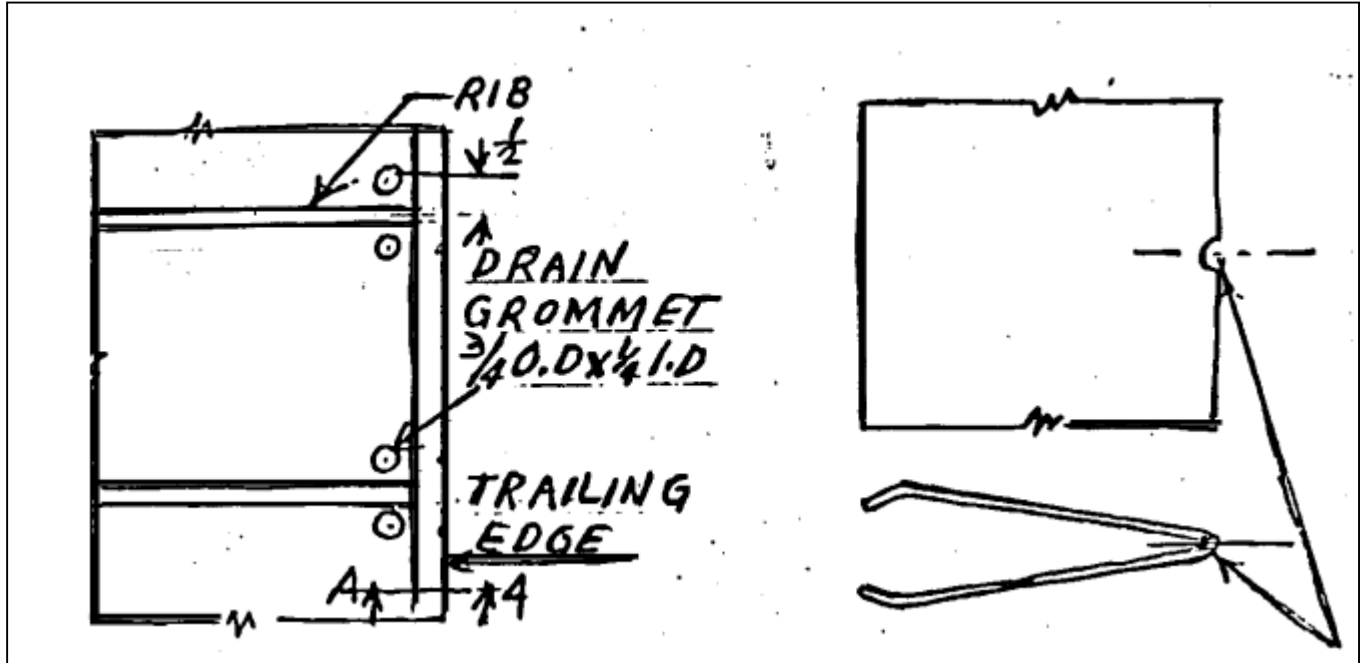
Serial Numbers Applicable : All

1. From time to time in the past, various service bulletins have been issued with regard to making provisions for satisfactory drainage of the trailing edge of wings and ailerons. Improper attention to this detail causes a rate of deterioration to the trailing edge considerably greater than that which should be experienced if proper drainage facilities are provided. Just recently we again had a report on a trailing edge failure which was primarily due to improper drainage. If your airplane has not already been provided with satisfactory drainage facilities for the trailing edge similar to that outlined below, we highly recommend that this be done as a precautionary measure.

2. Additional drain holes and grommets should be located in the trailing edge portion of the wing, including the trailing edge portion of the wing in the aileron cut-out region and the aileron itself. In addition to this, 1/8" holes should be drilled through the aluminum trailing edge horizontally in the bend of the trailing edge. Remove any fabric that may be pushed into the hole by the drill. See Sketch below.

3. The grommets may be attached to the fabric through the use of clear or pigmented dope. No less than two coats should be applied after the coat between the fabric and grommet is applied. The drain holes are, of course, out after the grommets are in place.

4. An appropriate entry should be made in your log book when action is taken per the above recommendation.



Detail of drain hole locations (view looking up at bottom side of wing)

Section A-A drill  $\frac{1}{8}$ " hole on each side of rib in trailing edge.

**Service Bulletin: 10,000-1**

Date: December 3, 1940

Subject: Fuel tank hold down straps on Rearwin Airplane Models 175.

Serial Numbers: 1501 to 1518

To all owners of Rearwin "Skyranger" Airplanes,

1. It has been found in certain instances that there is insufficient rigidity of the fuel tank hold down straps on the subject airplanes. As a result, fabric pull did not permit the wing trailing edge to remain in a perfectly straight line.

2. It is desirable to correct this situation as soon as possible on your airplane.

3. New type hold down straps are available at the Rearwin Factory, free of charge. These are the type straps that are now in current production and have been found to be satisfactory in this respect. It is recommended and urged that you change to the new type without delay.

4. The new type straps are installed merely by removing the old type straps and bolting the new ones in their place. The flanges on the new straps are to seat against the rear face of the front spar and the front face of the rear spar. If this is not possible, plywood shims should be used, so that a tight joint is realized at these points. Two straps on each tank are used on both the 18-gallon fuel tank installation and the 12 gallon fuel tank installation.

5. Upon changing straps, make an entry in your log book to that effect.

6. This change is in your interest: therefore, kindly take cognizance and replace straps immediately.

7. New straps will be sent immediately on request.

**Service Bulletin: 10,000-2**

Date: December 31, 1940

Subject: New Oil tank design

Model: 175

Serial number applicable: 1511 to 1515 incl.

Due to leaks experienced in some case in Skyranger, Model 175, with the oil tanks furnished by the Continental Motors Co., we have designed our own oil tank, which is of heavier material and, in our opinion, leakproof. Since 5-quart oil capacity is all that is necessary with 24-gallon fuel capacity, the new oil tanks have been reduced to 5 quart capacity.

If you have had any difficulty with your oil tank, please advise us and we will be glad to send you one of our newly designed tanks free of charge, except transportation costs.

Changing the capacity of the oil tank involves changing the weight and balance configuration to take into account the altered weight of the oil. New weight and balance diagrams will also be furnished free of charge. However, we must know whether or not any equipment has been added to the airplane since it has left the factory, and if so, the name, weight, and location of this equipment. The distance should be stated in inches aft or ahead of the wing leading edge, and should be to the center of gravity of the item, Kindly forward this information if and when you request an oil tank of the new design.

**Service Bulletin: 10,000-3**

Date: December 31, 1940

Subject: Oil tank supporting straps (2 gal. tank)

Model: 175

Serial numbers applicable: 1501 to 1510 inc.

In some cases leaks have been experienced in Skyrangers, Model 175, around the neck of oil tanks furnished by the Continental Motors Co.

In order to reduce the load of the filled tank , which the neck must bear, we have designed two supporting straps. These can be attached on each side of the engine to the lug which is intended for manifold support.

The straps will be furnished on request free of charge, except for transportation costs.

Installation details are obvious upon inspecting the straps. Be sure, however, to place a pad between the oil tanks and the strap to protect the tank from wear from the straps. These pads are furnished with the strap.

**Service Bulletin: 10,000-4**

Date: 12-18-40

Model: 175

Subject: Rudder Cable Installation

Serial Numbers Applicable, 1501 to 1530

1. Due to the proximity of the rudder cable to the fuel line on both sides of the airplane under the door sill, it is suggested that this point be inspected at regular intervals in order to make certain that adequate clearance exists.

2. Fuel lines in this vicinity should be thoroughly inspected for evidence of wear or chafing of the cable against the fuel lines.

3. In the event that wear on the fuel line has occurred, it is recommended that the fuel line be immediately replaced. Be certain when replacing the fuel line that it is installed in a manner very similar to the original installation. 3/8 O.D. x .032 Alcoa 2S0 fuel lines are satisfactory. Be sure that no humps occur in the line and that the line is protected from the primary structure by means of rubber tubing and friction tape cemented in place.

4. Replaced fuel lines should clear the rudder cables at least 1/8", but should clear by 1/4". This point should be carefully checked.

5. Rudder cables should be inspected for signs of wear. If indications of this type are apparent, the faulty cable should be replaced immediately.

6. This bulletin has been promulgated for your protection. We earnestly recommend that you inspect this point immediately on your airplane, and that periodic inspections follow.

7. If fuel lines or cables are replaced, make an appropriate entry in your log book.

**Service Bulletin: 10,000-5**

Date: 3/19/41

Models 175

Subject: Fuel System Shut off valve

Serial numbers applicable: 1501 to 1529, 1531 to 1540, 1542, 1543, 1545, 1546, 1549

It has been brought to our attention that the fuel system shut off valve as installed in the subject model airplane may not withstand abusive service usage in regard to positive stop action. In one case the stopping pin has been reported sheared off.

Positive stops to limit the "on" and "off" position of the valve are built into the valve itself, but these stops apparently are not of sufficient strength to withstand continuous severe usage, as evidenced by the one case reported.

In event the stop pin is sheared off, it is possible for the valve to turn to an "off" or a "Restricted flow" position, which does not permit enough fuel to flow to the carburetor for proper engine functioning, particularly during the take-off period.

In view of the possible hazard involved, we desire to bring this matter to your attention as a preventive measure. To preclude the possibilities of valve stop difficulty, operate fuel shut off lever smoothly and lightly, stopping push or pulling action when the stop is felt through the feel of the handle. Do not jerk lever against the stop.

A bracket to act in addition to the built-in stop in the valve is being designed at the present time. This will provide positive protection in this regard and will be available within the next few days and will be sent to you. It is urged that this bracket be installed as soon as possible in your airplane, otherwise it is probable that the C.A.A. will take action. Furthermore, it is highly important that this added protection be installed on your airplane as soon as possible.

A return postal card is enclosed. Please fill in and return at Your earliest convenience, as it is necessary to complete the records in this connection.

**Service Bulletin: 10,000-6**

Date: 3/22/41

Model: 175

Subject: Fuel Valve Stop bracket installation

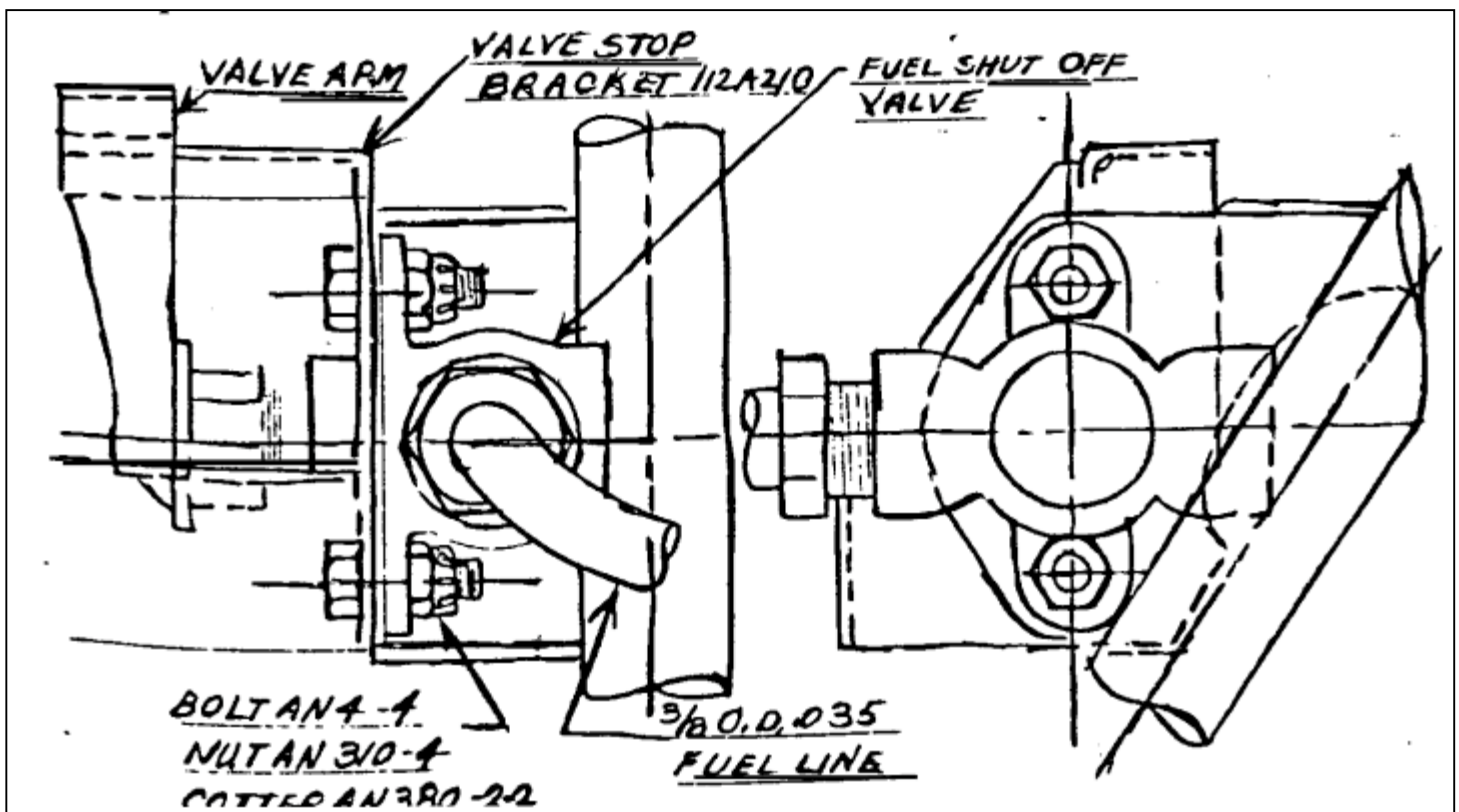
Serial numbers applicable: 1501 to 1529, 1531 to 1540, 1542, 1543, 1545, 1546, 1549

In line with Service Bulletin 10,000-5 a fuel pump stop bracket is being forwarded to you.

When properly installed, the-bracket will offer added protection in regard to on and off fuel valve limits and is being sent to you so that it may be promptly installed as shown below. It is highly important that this bracket be installed in your airplane as soon as possible due to the added protection that it offers.

It is not necessary to disconnect any fuel lines to install the bracket (Part 112A210) and this should not be done. Caution should be exercised in installing the bracket, however, so as not to cause fuel system leaks.

The following sketch is self-explanatory in regard to mounting bracket 112A210. It is necessary, however, to disconnect the fuel valve actuating handle, valve arm and valve retaining bolts to mount bracket. These parts are readily accessible by removing the right hand side panel kick pad. Be certain to properly safety all parts before replacing the kick pad.



**Service Bulletin: 10,000-7**

Date: 5/12/43

Model: 175

Subject: Fuel valve stop bracket installation

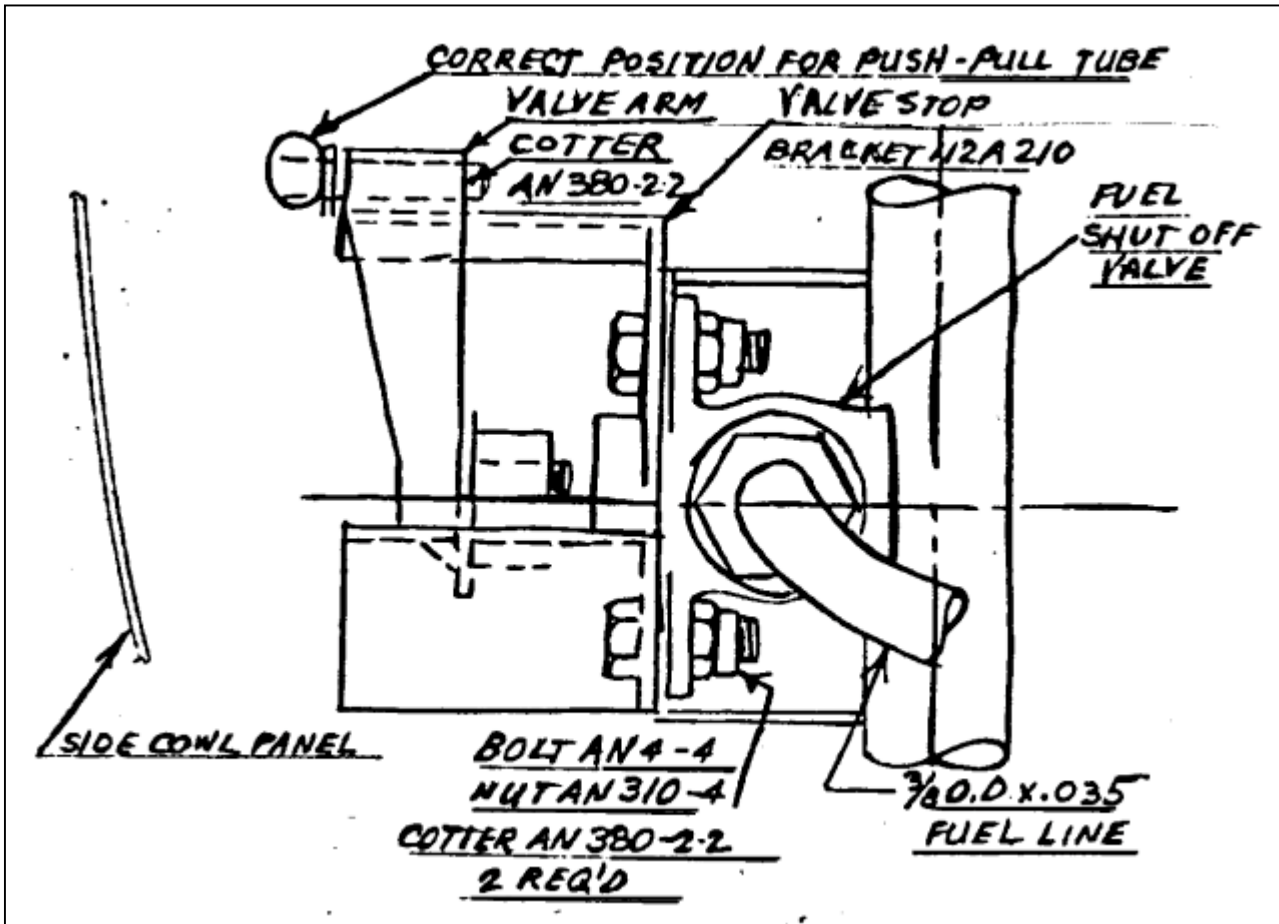
Serial numbers applicable: 1501 to 1529, 1531 to 1540, 1542, 1543, 1545, 1546, 1548

1. The following refers to Rearwin Aircraft & Engines, Inc. Service Bulletin 10,000-5 and 10,000-6 which pertained to the fuel valve stop bracket installation, which recently underwent revision in regard to design. Bulletin 10,000-5 pertained to the necessity for cautious operation of the fuel shut-off lever and advised that a bracket which was to act in addition to the built-in stop was being designed and, also, that this bracket would be forwarded to you for installation purposes at an early date. Bulletin 10,000-6 described in detail the method of installing the bracket.

2. In one case the fuel valve actuating lever was incorrectly installed, which did not permit the valve to be opened the full amount due to interference between the valve actuating handle and the new type stop bracket. This interference was due to the valve actuating (push-pull) handle being incorrectly installed. In order to function properly without interference, it is necessary for the push-pull tube to be inserted toward the fuel valve from the region between the valve and cowling. The sketch below will indicate the desired position for the push-pull tube.

3. It is suggested that your installation be checked to make certain that the push-pull tube is correctly installed in your airplane.

4. If the bracket, part 112A210, has not been installed in your airplane, it is requested that this be done at once, as the airworthiness of your airplane is involved. A return postal card is enclosed for your convenience in replying. If you have not already filled one of these cards in, please do so as soon as possible.



**Service Bulletin: 10,000-8**

Date: May 14, 1941

Model: 175

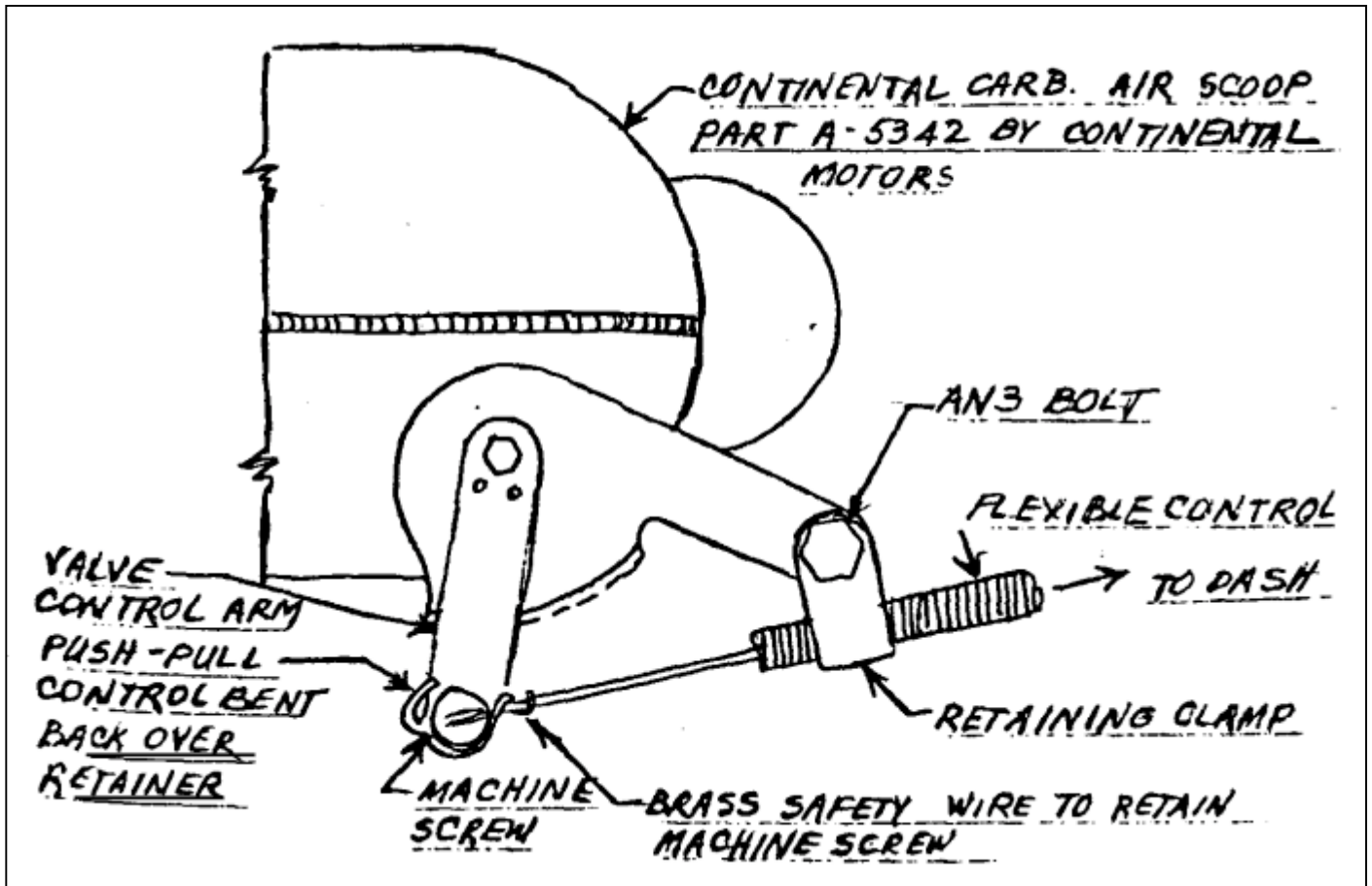
Subject: Carburetor heat valve control installation

Serial numbers applicable: 1501 to 1523

1. This bulletin is being promulgated to assist you in maintaining the airworthiness of your airplane. It is suggested that the attachment of the flexible control to the carburetor heat valve actuating arm be checked for conformity to the sketch below.

2. In the event that the attachment of the flexible casing is not in conformity to the sketch below, it should be altered to conform before again using your airplane as the possibility of it becoming loose in flight so that the heat valve could not be operated may exist.

3. If the attachment of the flexible control to the carburetor heat valve arm is revised an entry should be made in your log book to that effect.



**Service Bulletin: 10,000-9**

June 18, 1941

Subject: Protection Of Fuel Primer and Oil pressure lines from Chaffing

Models: 175, 180, 180F

Serial Numbers applicable: 1501 to 1529, 1531 to 1543, 1545, 1547, 1549 to 1561, 1563 to 1567

1. This bulletin is being promulgated to assist you in maintaining the airworthiness of your airplane. It is recommended that you comply with the recommendations outlined below as Soon as possible so as to preclude difficulty from the oil pressure primer, and fuel lines from wearing through due to chaffing.

2. On the aft side of the firewall the parking brake bowden casing passes at right angles to the 3/8 O.D. fuel line and passes between the firewall and the fuel line. There is a space between the firewall and the fuel line of approx. 7/8" at this point. In order to prevent the semi-loose bowden casing from vibrating against the fuel line and eventually wearing it through, it is recommended that a clip (Note figure 1) be placed around the bowden casing, retaining it firmly to the firewall at a point approx. 1/2" above the fuel line. This clip should be bolted through the firewall and safetied in place. This will prevent the bowden casing from wearing the fuel line at this point. Clips may be readily made by using .135 or .049 steel or even .051 aluminum sheet bent to the proper shape and then bolted in place. However, if desired, clips of the proper type are available upon request from Rearwin Aircraft & Engines, Inc.

3. On the subject airplanes the primer line from the fuel filter to the primer and the line from the primer to the engine, as well as the oil pressure line, pass through a firewall opening through which ignition wires; temperature casing, and flexible engine controls pass. In view Of the possibility of these units wearing through the primer and oil pressure lines, it is recommended that an additional hole be placed in the firewall approx. 5" to the right of the present hole, which is centrally located, and at the same height vertically. The hole should be 3/4" in diameter. A standard rubber or neoprene grommet is to be placed in this hole to protect the primer and oil pressure lines, which are to pass through this hole from wearing on the firewall The oil pressure line and the large primer line are to be encased in a rubber tube for a distance about three inches of its length at the point where it passes through the firewall. This tubing is to be cemented in place. (Refer Fig. 2 for further clarification.)

4)When the above changes are made in your airplane, an entry should be made in the log book to that effect.

5. A postcard is being enclosed, which you will please fill in end return as soon as your airplane has been corrected in regard to the matter outlined above.

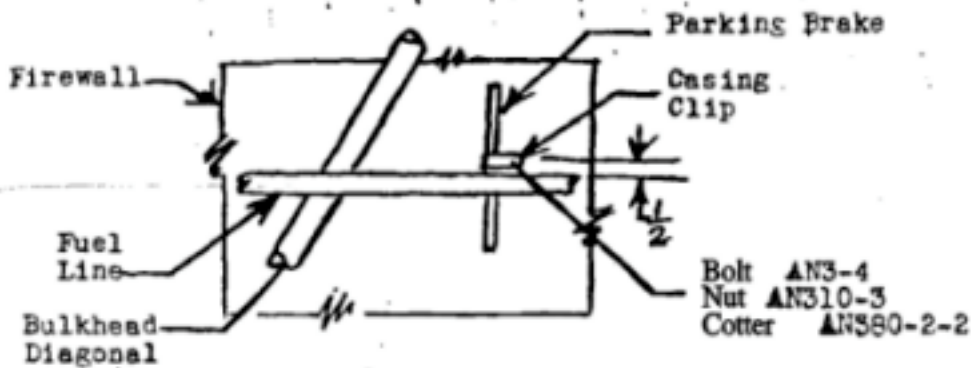


Fig. 1

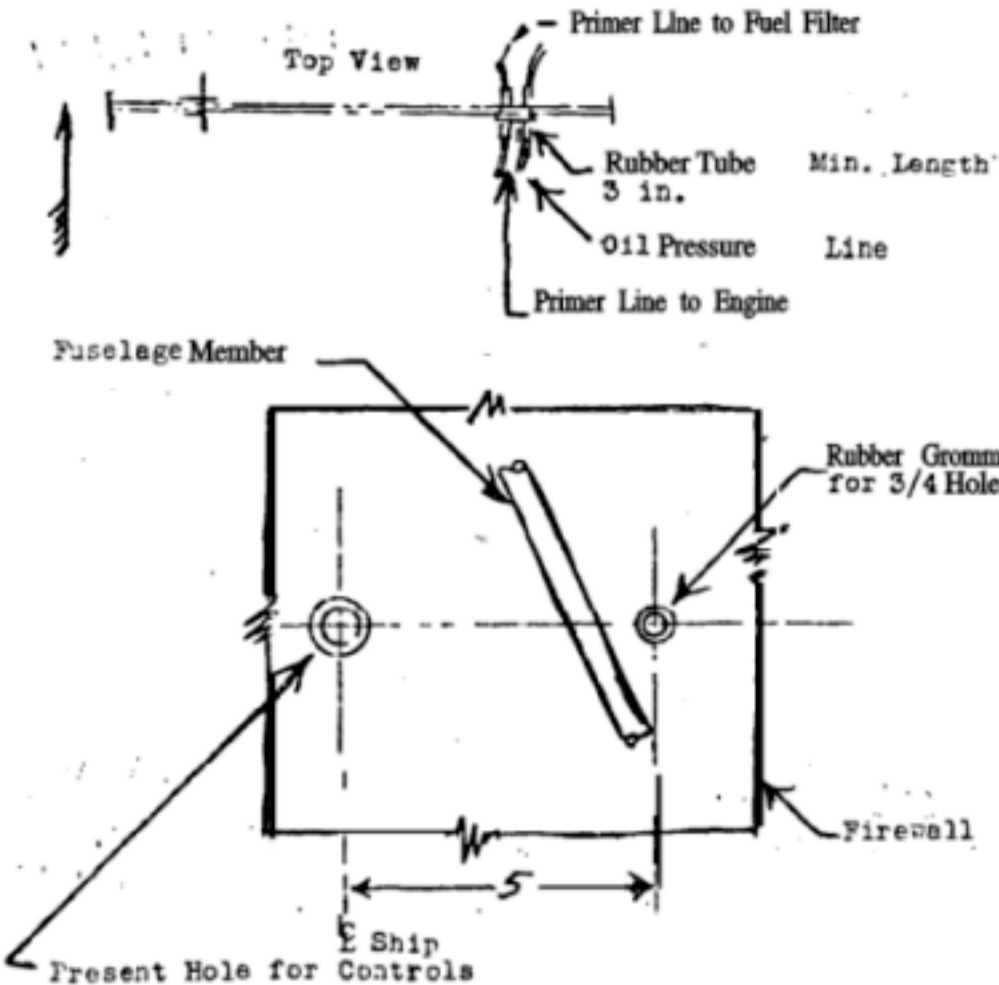


Fig. 2

**Service Bulletin: 10,000-10**

July 1, 1941

Subject: Control Column Plastic Knobs

Models: 175, 180, 180F

Serial Numbers Applicable: 1501 to 1574

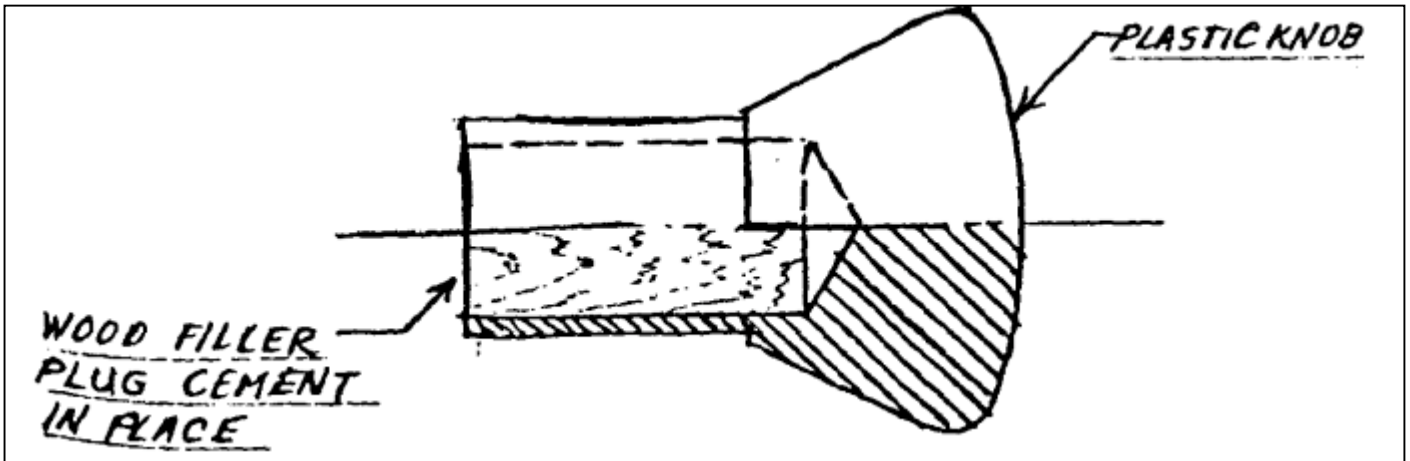
This service bulletin is being promulgated to call your attention to a condition that might exist in your airplane, which, if it does, should be corrected. It is recommended that your airplane be checked and that you comply with the recommendations outlined below as soon as possible.

The control column plastic knobs at the present time have a hole drilled on the inside about 1-1/4" deep. This results in weakening the section of the knob at the top of the control column, which in a few cases has resulted, after considerable usage, in the snapping off of the control knob at the critical section. In view of the fact that fractures of this type occur instantly and are not gradual, it is considered that a certain hazard may exist during some maneuvers, such as take-off and landing, if this difficulty is experienced during these maneuvers.

In order to remove the possibility of this occurring, it is recommended that a wood plug be fitted and cemented in place in the hole in the control stick knob. This will add greatly to the strength of the knob at the critical section, It is necessary for the plug to extend the full depth of the hole in order to obtain the desired results, Note the sketch below, After the knob is plugged, it should be re-cemented in the control column, using Plastic Cement.

When this change is made in your airplane, an entry should be made in the log book to that effect.

A post card is being enclosed which you will please fill in and return as soon as your airplane has been corrected in regard to the matter outlined above.



**Service Bulletin: 10,000-11**

Date: July 1, 1941

Subject: Wing Fabric Pull Reinforcements

Models: 175, 180, 180F

Serial Numbers Applicable: 1501 to 1574

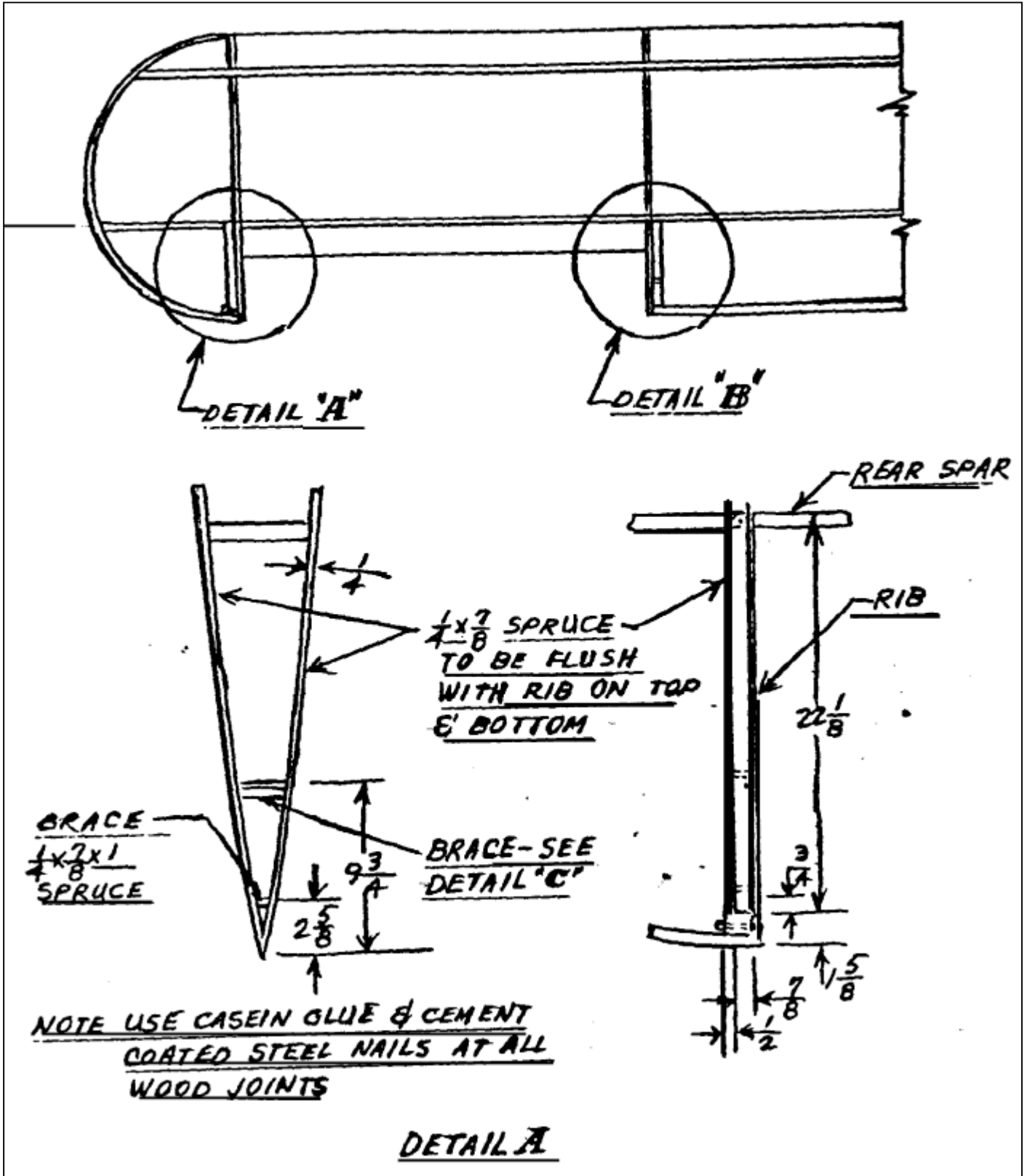
This bulletin is being formulated to assist you in maintaining the airworthiness of your airplane. It is recommended that you comply with the recommendations outlined below as soon as possible to preclude difficulty from fabric pull.

Present production calls for reinforcing strips extending along the inboard side of the top and bottom cap strip on wing rib at the inboard end of the aileron cut out. These strips run from the front face of the rear spar to the wing trailing edge and serve to restrain the rib laterally against fabric pull. On some of the earlier airplanes (see serial numbers applicable) the reinforcement strip stopped at the trailing edge of the wing in the aileron section. This resulted in a few cases of the wing rib rupturing just aft of the aileron cut out trailing edge. It is recommended that these strips be added to your airplane to prevent this from occurring. See attached sketch relative to detail of the pertinent strips and their attachment.

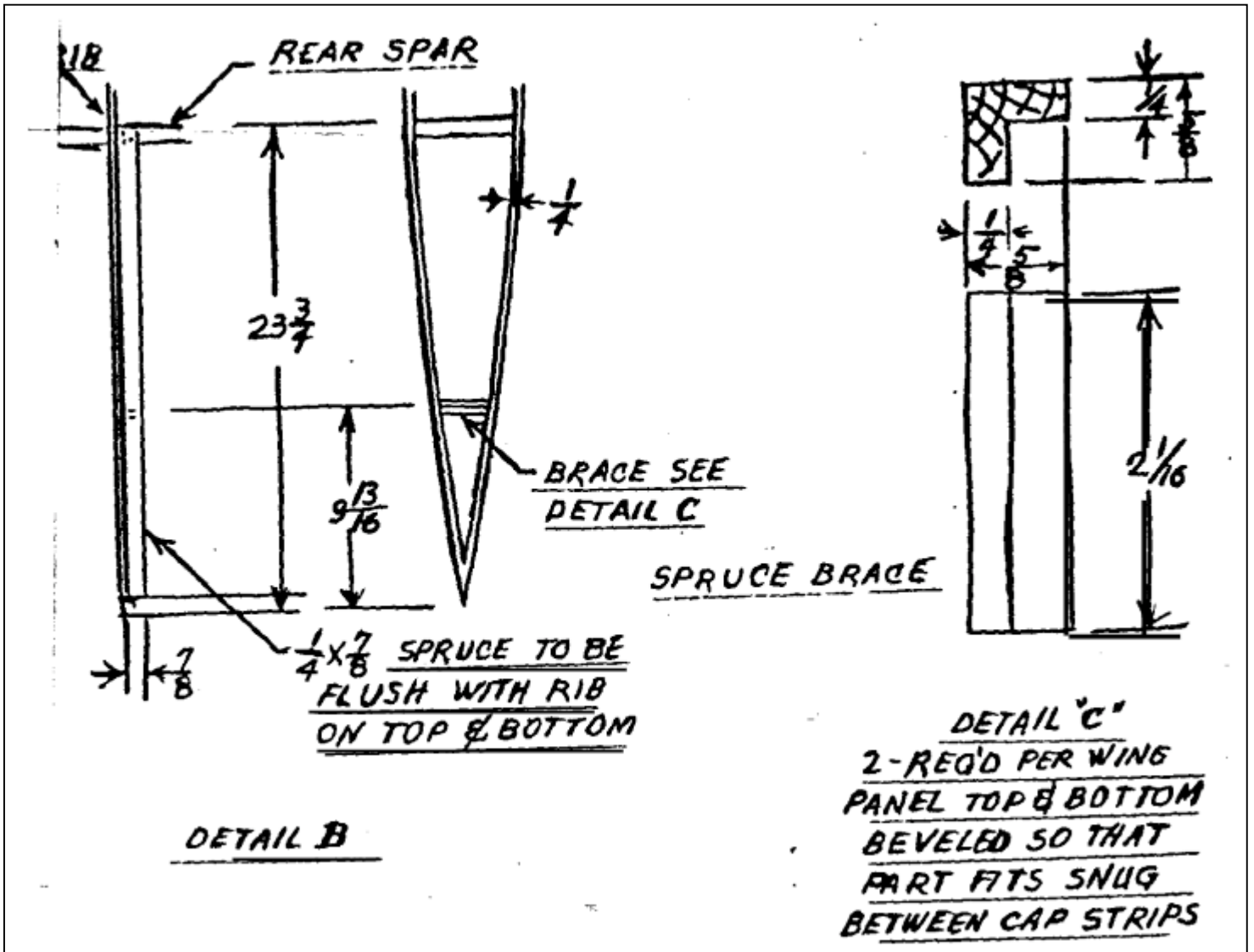
It is also desirable to add fabric pull strips to the rib at the outboard section of the aileron cut out section similar to those at the inboard section described in 2nd paragraph above. In this case, it is necessary to add a solids block at the trailing edge of the wing which hooks around the fabric pull strips to restrain them at the trailing edge against the lateral pull of the fabric. This block is bolted in place. For the details of this change refer to the attached sketch. It is recommended that your airplane be altered to comply with this suggestion at an early date.

Alterations to the fabric covering must comply with approved practices.

When your airplane is altered to conform with Items 1 and 2 above an entry to that effect should be made in your log book.



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**Service Bulletin: 10,000-12**

July 1, 1941

Subject: Fabric pull on wing trailing edge.

Models: 175, 180, 180F

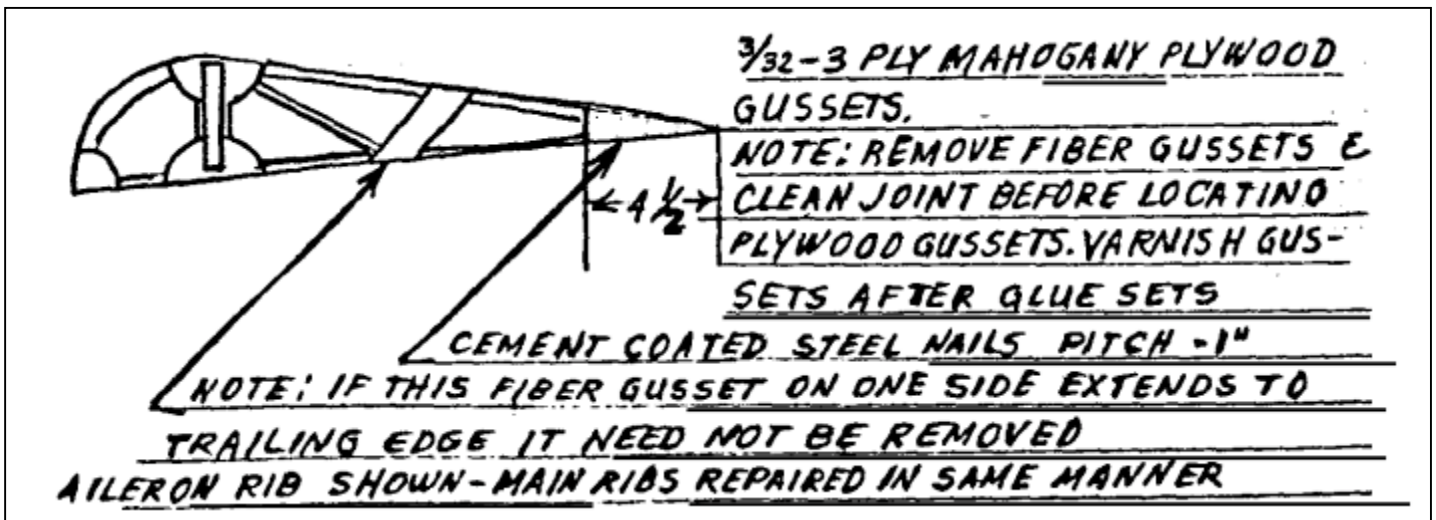
Serial numbers applicable: 1501 to 1538, 190 to 1547, 1549 to 1574

This bulletin is being formulated to assist you in maintaining the airworthiness of your airplane. It is recommended that you comply with the recommendations outlined below as soon as possible to preclude trailing edge difficulty.

In certain cases the wing trailing edge has been rotated due to fabric pull. In most cases reported, the trailing edge turned upward in the region between the aileron and the fuselage, and it is recommended that the following repairs be executed in your ship to preclude this difficulty, It would probably be well to effect this change on the ailerons, as well as at the trailing edge portion of the wing as a precautionary measure.

It is recommended that 3/32 mahogany 3-ply plywood, resin bonded, gussets be located on either side of the wing rib as outlined in the sketch below, Casein glue should be used and should be mixed and applied in accordance with approved practice. The plywood gussets should be retained by nailing as indicated in the sketch below. In the event that the rib cap strips are injured by the fabric pull, they should be repaired in accordance with approved methods outlined in C.A.R. 18 and A.C.M. 18 issued by the C.A.A.

The fabric may be slip along the trailing edge for this repair, and should be patched in accordance with approved practice. When this repair is executed, an appropriate entry should be made in your log book to that effect.



**Service Bulletin: 10,000-13**

July 1, 1941

Subject: Trailing edge wing drainage

Models: 175, 180, 180F

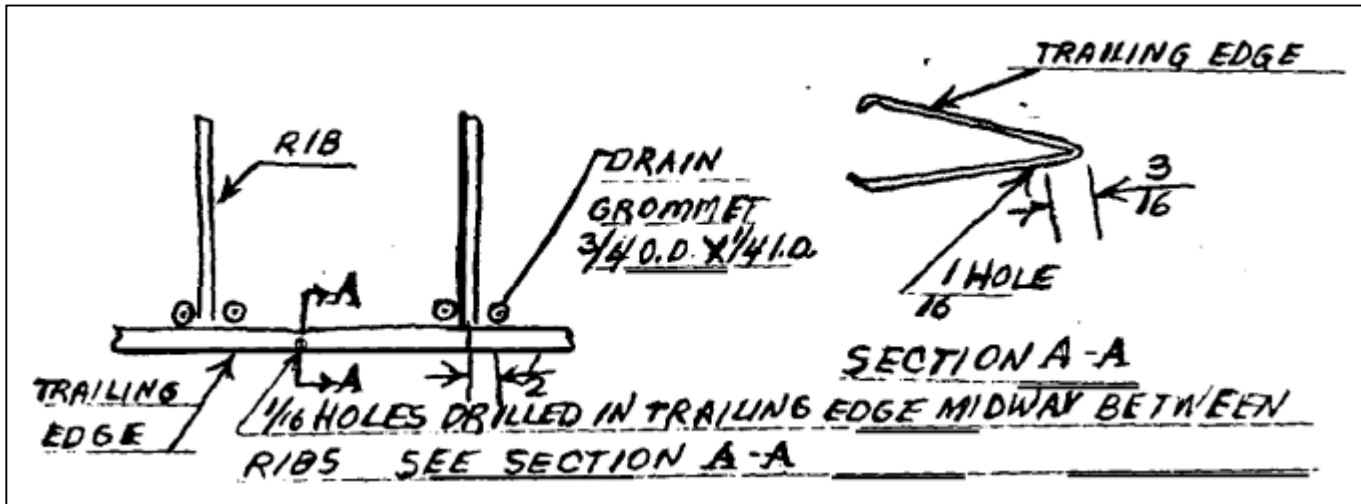
Serial numbers applicable 1501 to 1574

1. This service bulletin is being formulated as a measure to assist you in maintaining the airworthiness of your airplane. It is recommended that additional drainage facilities be added to your airplane as outlined below as a precautionary measure.

2. Additional drain holes and grommets should be located in the trailing edge portion of the wing and aileron on all of the subject model airplanes. This includes the trailing edge portion of the wing in the aileron cut out region. In addition to this, 1/16" holes should be drilled through the lower surface of the trailing edge approx. 3/16" from the rear edge of the trailing edge strip between all ribs. Note sketch below.

3. The grommets may be attached to the fabric through the use of clear or pigmented dope. No less than two coats should be applied after the coat between the fabric and grommet is applied. The drain holes are, of course, cut after the grommets are in place.

4. An appropriate entry should be made in your logbook when action is taken per the above recommendation.



**Service Bulletin: 10,000-14(a)**

July 11, 1941

Airplane models applicable: 180F

Serial numbers applicable: 1530 and up

An extensive development program was undertaken some time ago in regard to improving the general cooling characteristics of the Franklin engine installation in the subject model airplanes.

Final preliminary tests have been completed, and we are happy to advise that the cooling characteristics of this installation have been greatly improved in all cases, including the oil, head, barrel, and magneto temperatures. At the present time, we are preparing to conduct our final tests and official C.A.A. tests in this connection. While it is difficult to definitely predetermine the date of completion of a program such as this, we expect to be in a position to terminate this sequence of tests in approximately one week.

Upon completion of these tests , you will be contacted so that arrangements can be made, if desired, to improve the cooling of your engine installation.

The temperature limits as determined by the Aircooled Motors Corp. for the cylinder heads, barrels, and oil are respectively 550 deg. F 350 deg. F and 240 deg. F. These limits should never be exceeded while operating your airplane.

It is our policy to call to the attention of owners of our airplane models various improvements as they become available from time to time, hence this bulletin.

The original type tests on this model airplane conducted by both ourselves and the C.A.A. determined, of course, that the prototype came within the above cooling limits.

**Service Bulletin: 10,000-14(b)**

July 24, 1941

Subject: Drainage-landing gear vees

Models: 175, 180, 180F

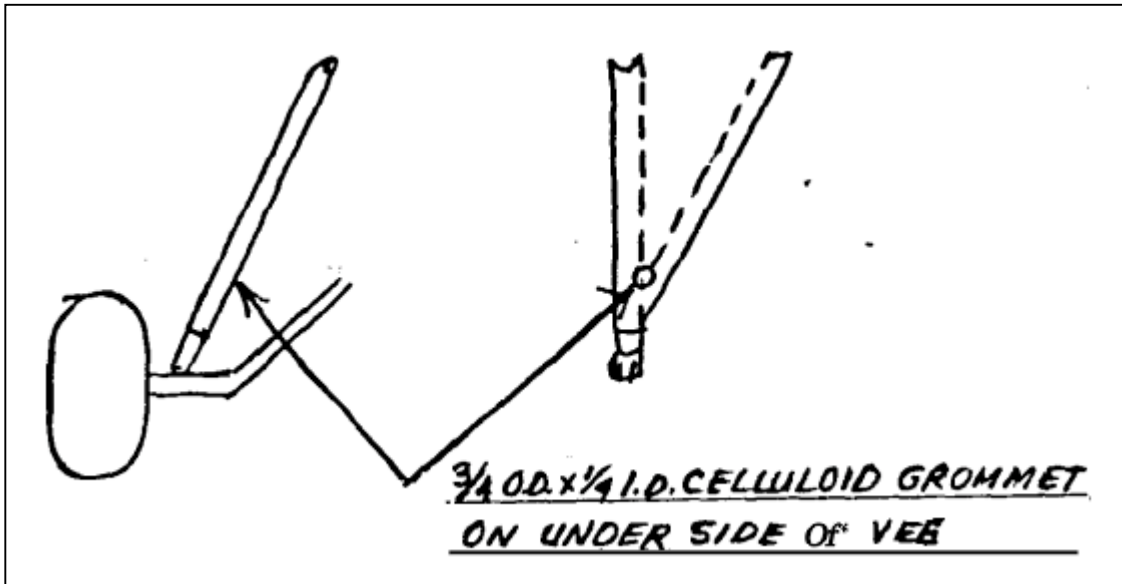
Serial numbers applicable: 1501 to 1575

This bulletin is being forwarded to call your attention to a condition that may exist in your airplane, which, if it does, should be remedied.

It may be possible for the landing gear vees to retain water between the structural members and the fabric covering at the apex of the vee. In order to remove this possibility, it is recommended that a drain grommet be placed at the apex of the vee on the fabric on the side of the vee nearest the center line of the airplane. This grommet should be applied to both the right hand and left hand vees.

Apply grommet by doping in place with either clear or pigmented dope after cleaning the fabric covering. Not less than two coats should be applied after the coat between the fabric and the grommet is applied.

The following sketch illustrates the proper location for the grommets.



**Service Bulletin: 10,000-15**

August 1, 1941

Airplane model applicable: 180F

Serial numbers applicable: 1530 and up.

An extensive development program was undertaken some time ago in regard to improving the general cooling characteristics of the Franklin engine installation in the subject model airplane. This matter was called to your attention by our Service bulletin 10,000-14.

Final tests have been complete, and we are happy to advise that the cooling characteristics of this installation have been greatly improved in all cases, including the oil, head, barrel, and magneto temperatures. This new installation has just been approved by the C.A.A.

A retroactive approval has been obtained, thus permitting the airplanes that have been licensed with the old style installation to be revised, if desired, to the extent of installing the new style cowling. We recommend this procedure, as it would appear that greater engine life would be enjoyed with the new style baffling, due to its exceptional cooling characteristics. We desire to point out, however, that the original type tests on the original baffle installation passed all tests satisfactorily as conducted by both ourselves and the C.A.A. Therefore, the cowling change is not mandatory,

Parts necessary to make this changeover, and installation blueprints, are available from Rearwin Aircraft & Engines, Inc. on a cost basis. When taking advantage of this offer, it will be necessary for you to return you old nose cowl and residual aluminum parts to our factory for disposition. The price for all necessary parts and an installation blueprint is \$30.00 net.

If you wish to take advantage of this arrangement, it will be to your advantage to do so as soon as possible, due to the material situation. For this reason, we are limiting this offer to Aug. 31, 1941. After this date it will probably be necessary to revise our price schedule.

As you know, it is our policy to call to the attention of owners of our airplane models various improvements as they become available from time to time, hence this bulletin.

**Service Bulletin: 10,000-16**

July 26, 1943

Subject: Inspection of spars at the fuselage attachment fittings

Models: 175, 180, 180F

Serial Numbers applicable: All

To assist you in maintaining the airworthiness of your airplane and simplify inspection of a vital point, it is recommended that inspection plates be installed in the right and left wings at both the front and rear spar attachment fittings near the root rib. One spar failure has been reported which may be directly attributed to improper inspection of the wing spars at the wing butt fittings.

The inspection plate for the front spar should be installed in the leading edge skin immediately in front of the spar as shown in Fig. 1 & 2. In doing this, the following steps should be followed:

- a) Place the cover plate in position approx. as shown in Fig, 2 and use a template in marking location of holes.
- b) Use holes thus marked to lay out opening to be cut in skin, which should be 2" x 4" and centrally located within the area of the holes marked.
- c) Drill 6-1/4" holes in the position previously marked. Care should be taken in drilling holes to avoid tearing of the thin aluminum skin.
- d) Place speed nut clips over edge of skin and push into holes as shown in Figures 3 & 4.
- e) Place cover plate over opening and insert screws. Work should be done with precision in order to get proper alignment of holes with speed nuts.

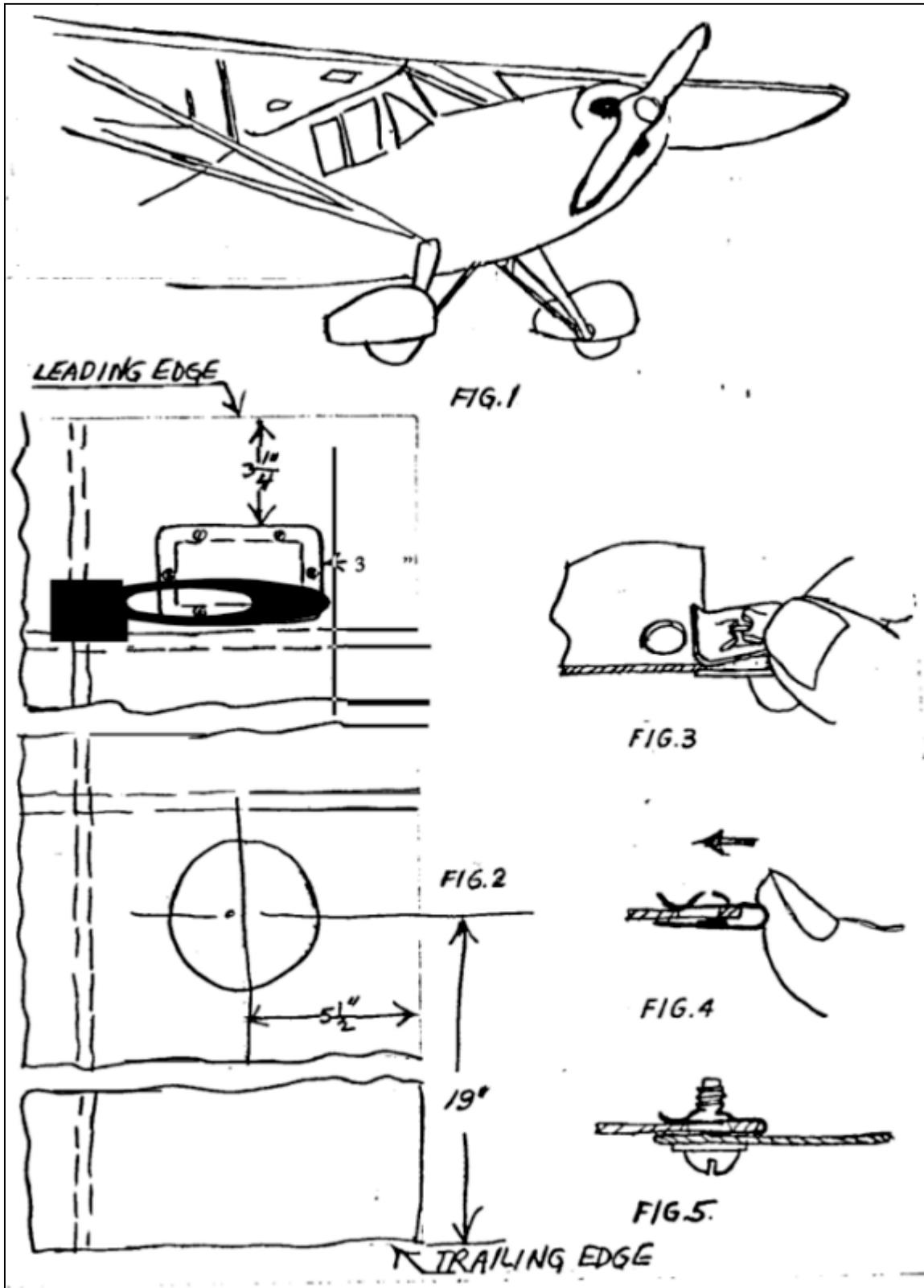
The inspection plate for the rear spar should be installed immediately behind the rear spar in the fabric as shown in Fig. 1 & 2. The inspection spate assembly consists of pyraline ring doped to the fabric surface with either clear or pigmented dope. After the ring has dried to the surface, an additional coat of dope should be applied to the exterior of the ring. After drying, the fabric is cut from the ring I.D. and the aluminum plate (retained by a spring clip) is inserted.

Upon request, Commonwealth Aircraft, Inc. will furnish a complete kit with all the necessary parts required to do this work, for a small nominal cost. For your convenience in ordering we are enclosing an order blank which should be completely filled and returned with your remittance.

Service Bulletin: 10,000-16

Page 3 of 3 pages

Date: July 26 , 1945



An appropriate entry should be made in your log book when action has been taken according to recommendations.