Beech Aircraft Corporation

OVERHAUL SPECIFICATION

WING INSTALLATION - MODEL C-45G, C-45H, AND SNB-5

Overhaul Specification 1001

ISSUED March 9, 1953

REVISED October 29, 1954

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AHS

Beech Aircraft Corporation

OVERHAUL SPECIFICATION 1001

TITLE WING INSTALLATION - MODEL C-45G, C-45H AND SNB-5

ISSUED 3-9-53

WRITTEN BY T. R. Taylor REVISED 10-29-54

1. SCOPE

1.1 Purpose.- The purpose of this specification is to authorize the use of reconditioned parts and provide reconditioning instructions for component parts of the outboard wing installation H181000 as installed on aircraft received for overhaul and instructions for modifications required to adapt them for use on C-45G aircraft in accordance with Drawing 894-181000, C-45H aircraft in accordance with Drawing 894-181000-1 and SNB-5 aircraft in accordance with Drawing 894-181001.

1.2 Application.- All reconditioning operations and repairs covered by this specification may be accomplished where required without further authorization. Repairs not authorized by this specification cannot be performed without further authorization.

1.3 List of Pages and Revisions.- This specification consists of the pages listed below. An asterisk (*) denotes pages revised at the current revision.

Page	Date	Description of Revision	Serial Effectivity
* 1	10-29-54	Record Revision	Record Change
2	11-19-53	Incorporate C-45H and SNB-5	Record Change
3	11-19-53	Incorporate C-45H and SNB-5	Record Change
4	3-9-53		
5	5-5-54	Change width of OS 1001-10 and -12 from 3/8 to 3/4	Record Change
* 6	10-29-54	Add step (p), Para. 3.3.3	Record Change
7	3-9-53		
8	3-9-53		
9	8-26-53	Provide for acceptance of previous coats of cement in certain areas	AF 469 & After
10	3-9-53		
11	3-9-53		
12	3-9-53		
13	3-9-53		
14	3-9-53		
15	3-9-53		

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3.1.2 Parts to be Reconditioned.- The following parts are to be reconditioned in accordance with the instructions contained herein. "Reconditioned" means the disassembly, cleaning, inspection and correction of discrepancies, repair and/or replacement of components to assure an operationally safe and serviceable aircraft, and modifications to incorporate changes in accordance with applicable engineering drawings.

B18120	Outboard Wing Assembly, Left and Right Hand
18206-2	Wing Front Spar Hinge Nut
18207-1	Wing Rear Spar Hinge Bolt (C-45G and C-45H only)
18207-2	Wing Rear Spar Hinge Nut
18207-3	Wing Rear Spar Hinge Washer
181350	Aileron Assembly, Left and Right Hand
181650	Flap Assembly, Left and Right Hand

3.1.3 Parts to be Supplied New.- The special parts listed below and all parts called out on Drawings 894-181000, 894-181001 and 894-181000-1 which are not listed in Paragraph 3.1.2 of this specification will be supplied new.

B18120-8	Skin
OS 1001-2	Cover Assembly
OS 1001-4	Strap, same as CB A22601-4. Make of AN-QQ-S-685 chrome-moly steel, 1 by 1-1/2 by .063.
OS 1001-6	Doubler, No. 10 rib, same as CB A22601-6 and similar to CO 79417-2. Make from .032 24S-T alclad. Form top and bottom flanges to match inside contour of rib web.
OS 1001-8	Chafing patch, nacelle fillet. Make from 6 by 24 by .032 24S-T alclad.
OS 1001-10	Doubler, upper gap strip. Same as CB A22601-10 and similar to MRB 73197-2. Make from 3/8 by 88 by .051 24S-T3 alclad.
OS 1001-12	Doubler, lower gap strip. Same as CB A22601-12 and similar to MRB 73197-4. Make from 3/8 by 88 x .051 24S-T3 alclad.
OS 1001-14	Clip, rear spar. Same as CB A22601-14. Make from 1/2 by 6 by .040 24S-T3 alclad.
OS 1001-16	Doubler, wing tip. Same as CB A22601-16. Make from 1-1/8 by 49 by .032 24S-T3 alclad.

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3.1.3 Parts to be Supplied New.- (Continued)

OS 1001-18	Cover assembly, warning light. Same as I181000-12 cover assembly except OS 1001-20 frame is used.
OS 1001-20	Frame, warning light cover. Same as I181000-7 frame except the slotted holes are omitted.

3.2 Cause for Rejection.- The conditions listed below and damage or wear which cannot be corrected by one or more of the authorized repairs listed in Paragraph 3.4 of this specification or in Overhaul Specifications referenced herein are cause for rejection.

(a) Wing assemblies which have cracks in the steel spar which cannot be repaired in accordance with the authorized repairs contained herein will be rejected and referred to the Material Review Board for disposition.

(b) Wing assemblies which must have the steel spar replaced due to insufficient area of the wing attaching forging will be rejected and referred to the Material Review Board for disposition.

3.3 Reconditioning Operations:

3.3.1 Wing Front Spar Hinge Bolt Nut, 18206-2.-

(a) Clean in accordance with OS 7002.

(b) Strip and cadmium plate in accordance with Specification QQ-P-416.

3.3.2 Wing Rear Spar Hinge Bolt, 18207-1; Nut 18207-2; and Washer 18207-3.-

(a) Clean in accordance with OS 7002.

(b) Inspect for nonrepairable conditions.

(c) Strip anodic coating from nut and bolt in accordance with MP 1122.

(d) Anodize nut and bolt in accordance with Specification QQ-A-696A.

3.3.3 Outboard Wing Assembly, B18120, Left and Right Hand.-

(a) Clean in accordance with OS 7002.

(b) Inspect for nonrepairable conditions.

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ISSUED March 9, 1953

WRITTEN BY T. R. Taylor REVISED May 5, 1954

3.3.3 Outboard Wing Assembly, 181820, Left and Right Hand.- (Continued)

(c) Remove corrosion in accordance with OS 7010.

(d) Magnetically inspect the upper and lower wing attaching fittings at the front spar. Give particular attention to the lower attaching fitting and adjacent welds. Starting at the forward end, remove the rivets from the lower gap strip to a point approximately 12 inches aft of the front spar to provide access to the lower fitting. Make a 1-inch wide cutout and cut a 2-inch diameter hole in the wing skin covering the lower fitting to facilitate inspection as shown in Figure 1. Repair cracks parallel to the weld in the joints where 181411-1, 181411-2, 181411-3, and 181411-4 brackets butt against the attaching fittings in accordance with instructions contained in Paragraph 3.4.3 of this specification if the cracks do not exceed 3/8 inch in length. All other cracks will be referred to the Material Review Board for disposition. If no cracks are found or after repairs have been accomplished, replace gap strip and install OS 1001-2 cover assembly in the 2-inch diameter hole.

(e) Modify all 187304 and 187304-1 aileron bellcrank brackets which do not conform to the B or later revisions as follows: Remove the aileron bellcrank from the wing. To facilitate removal, cut an access hole in the lower wing skin as shown in Figure 2, of a size to permit the use of a 181280-4 cover and 181280-5 reinforcement. Grind off the present weld on the end of the bracket to a smooth contour. Fabricate OS 1001-4 reinforcement strap by forming a strip of AN-QQ-S-685 chrome-moly steel 1 by 1-1/2 by .063 to match the contour of the bracket as shown in Figure 2. Weld the reinforcement to the bracket using MIL-R-6843 Class A welding rod. Remove all welding flux and scale and clean scale from the bellcrank attaching hole by reaming with a 3/8-inch drill. Magnetically inspect the part after welding. Prime the bracket with zinc chromate primer and install it in the wing. Install the 181280-5 and 181280-4 reinforcement and cover on the access hole in the lower wing skin in accordance with Drawing 181280.

(f) Install OS 1001-10 and OS 1001-12 doublers on the upper and lower gap strips respectively as shown in Figure 3. Attach doublers over existing gap strips using AN470AD4 rivets driven flush on internal side. Space rivets evely, two rivets between each existing screw hole. Make OS 1001-10 and OS 1001-12 doublers from 3/4 by 88 by .051 24S-T3 alclad. Trim OS 1001-10 to 87-5/8-inches and OS 1001-12 to 85-3/8-inches at installation.

TITLE WING INSTALLATION - MODEL C-45G, C-45H AND SNB-5

ISSUED 3-9-53

WRITTEN BY F. M. Polk; Revised: T. R. Taylor REVISED 10-29-54

3.3.3 Outboard Wing Assembly 181820, Left and Right Hand.- (Continued)

(g) Ream wing attaching fittings which do not have the 181417 bushings installed to 1.250 $^{-.0000}_{-.0015}$ and install bushings in accordance with Drawing 181410. If one or more of the cross sectional areas shown in Figure 4 are not maintained after reaming, refer the wing assembly to the Material Review Board for disposition.

(h) Clean and varnish all phenolic control cable pulleys.

(i) Recondition all antifriction bearings in accordance with OS 7003.

(j) Install new flight control and tab cables.

(k) Install wing warning light in accordance with Drawing 181000. Recondition the light in accordance with OS 3601. If the existing hole pattern in the wing leading edge does not match the slotted screw hole pattern in the 181000-7 outer cover frame, install an OS 1001-18 cover assembly in place of the 181000-12 cover assembly. The OS 1001-18 cover assembly is the same as the 181000-12 cover assembly except the OS 1001-20 frame is used in place of the 181000-7 frame. The OS 1001-20 frame is the same as the 181000-7 frame except the slotted holes are omitted. Drill the screw holes in the OS 1001-20 frame to match the existing hole pattern in the wing using a No. 12 drill.

(l) Recondition the landing light in accordance with OS 3601.

(m) Install deicing boots in accordance with OS 3601.

(n) Install outboard wing electrical equipment in accordance with Drawing 69A-180668.

(o) Install static discharge wicks in accordance with Drawing 89A-180821.

(p) Install 181280 inspection door in all wings in which it is not already installed.

(q) Finish wing in accordance with FS 370A.

3.4.1 Wing Front Spar Hinge Pin Nut 18206-2.- No repairs are authorized.

3.4.2 Wing Rear Spar Hinge Bolt 18207-1; Nut 18207-2; and Washer 18207-3.- No repairs are authorized.

3.4.3 Outboard Wing Assembly, B18120, Left and Right Hand.-

(a) Repair cracks parallel to the weld in the joints where 181411-1, 181411-2, 181411-3, and 181411-4 brackets butt against the attaching fittings as follows, if the cracks do not exceed 3/8 inch in length. Remove rivets and bolts from the No. 1 rib as necessary to obtain access to the fitting. Pack adjacent aluminum parts with wet asbestos to protect them from heat. Radius out the crack and repair in accordance with PS 247 using MIL-E-6843 Class A welding rod. Magnetically inspect after welding. If repair is satisfactory, clean and prime the repaired area.

(b) Repair cracks in solder joints at attaching fittings by resoldering in accordance with Drawing 181410.

(c) Repair cracks in rear spar and 18124 reinforcement at the lower corners of the aileron link cutout by stop drilling the cracks with a No. 50 drill. See Figure 5. No further repair is necessary if the 5/16 minimum dimension from the centerline of the No. 50 hole to the centerline of the spar attaching rivets is maintained. When this dimension is less than 3/16, or when the cracks cannot be stop drilled, install OS 1001-14 clip of 1/2 by 6 by .040 24S-T3 alclad, on top of the 18124 reinforcement and rear spar, picking up six existing rivets as shown in Figure 5.

(d) When the inboard edge of the wing tip skin is frayed or when the screw holes are cracked out, elongated, or have insufficient edge distance, install an OS 1001-16 doubler of 1-1/8 by 49 by .032 24S-T3 alclad as shown in Figure 6. Attach the doubler with AN470AD3 rivets spaced approximately 1-1/2 inches. Drill attaching screw holes at assembly.

(e) Repair ribs with stringer tabs cracked or broken as follows: File out or stop drill with a No. 30 drill cracks which do not exceed 1/8-inch in length. If the crack exceeds 1/8-inch in length, stop drill the crack with a No. 30 drill and install one of the following clips: 18121-17, 181852-1, 181853-1, or 181854-1. If the tab is cracked more than half way across, trim it off in lieu of stop drilling the crack. Install the clip with one AN470AD4 rivet through the stringer and two through the rib web as shown in Figure 7.

(f) Repair damage to the trailing edge of the No. 10 rib by installing an OS 1001-6 doubler as shown in Figure 8. Stop drill all cracks with a No. 50 drill. Straighten bent flanges. Remove nut plates and reinstall them after installation of the doubler.

3.4.3 Outboard Wing Assembly, 818120, Left and Right Hand.- (Continued)

(g) Patch and repair skin damage in accordance with OS 7007. When necessary, skins may be spliced at any rib provided no added skin panel covers less than a two-bay area. Skin laps shall be 1 inch wide. Pick up existing rivets in ribs and stringers. Add one staggered row of rivets at skin laps, using the same size and type of rivets as in adjacent rows and maintaining 1/4-inch edge distance. Added skins must be of the same type and gauge as replaced skins.

(h) Patch and repair damaged stringers in accordance with OS 7007. Stringers may be spliced at any point provided no adjacent stringers are spliced in the same bay. If existing rivet spacing is such that a minimum of 3 rivets cannot be picked up on each side of the stringer cut, add rivets of the same size and type as the existing rivets, approximately equally spaced between existing rivets. Maintain an edge distance of twice the rivet diameter.

(i) Repair leading edge skin which shows evidence of chafing in the areas in contact with the nacelle fillet by installing an OS 1001-8 chaffing patch. Fabricate the patch from .032 by 6 by 24 24S-T alclad. Trim the patch to fit over the leading edge skin, starting at the lap seam of 818120-7 on the lower surface of the wing and continuing around the leading edge to the 818120-38 strip on the upper surface. Extend the patch approximately three inches aft of the forward end of 818120-38 to nest inside the aft end of the patch. Allow approximately 1/32 inch clearance between the patch cutout and 818120-38 strip approximately 3 inches aft of the forward end of 818120-38. The patch should fit flush with the inboard edge of the wing skin. Pick up all existing rivets falling under the patch and add rivets spaced approximately 1 inch apart with 5/16-inch edge distance around the remaining edges of the patch. Add another row of rivets spaced approximately 1 inch apart 1-1/4 inches from the rivets on each edge of the patch. Add an additional row of rivets spaced approximately 1 inch apart between the two inside rows where the distance between the inside rows exceeds 1-5/8-inch. Pattern rivet locations over the extreme leading edge to match the remainder of the leading edge. Use AN456AD4 rivets and drill No. 30 holes for added rivets. Prime both sides of the patch and the surfaces of the wing falling under the patch with zinc chromate primer.

(j) Replace false ribs 18191-1, 18191-2, 18191-3, and 18191-4 if clad is worn through at point of contact with 818120-8 skin.

4. INSPECTION

4.1 General.- Inspect the wing in accordance with the general acceptable quality standards in OS 7006 and the specific conditions listed below.

4.2 Acceptable Quality Standards.-

(a) Skin creases at ribs, stringers, etc, which do not deform the skin contour more than 1/8 inch are acceptable without rework or rejection.

(b) Scratches which do not exceed 1/10 of the skin thickness are acceptable without rework or rejection.

(c) Small dents which do not exceed 1/4 inch in depth and have a bend radius of not less than 1/8 inch are acceptable without rework or rejection.

(d) Skin abrasion resulting from contact with the leading edge nacelle fillet or the flap bumper pads is acceptable without rework or rejection, provided such abrasion does not exceed 1/10 of the skin thickness.

(e) Sheet metal repairs to the wing which have been made in service and which are structurally satisfactory are acceptable even though they do not conform to repair methods and procedures outlined in OS 7007 and this specification. Such repairs include skin patches which are not flush and those installed with cherry rivets.

(f) With the aileron controls and flap in the neutral position, the aileron should line up with the flap trailing edge and wing tip. A plus or minus tolerance of 1/4 inch will be allowed at the wing tip. A plus or minus tolerance of 3/16 inch will be allowed at the flap trailing edge. These measurements will be taken with the aileron contour jig in place.

(g) Tie-down lugs 814-180939 and 180940 will be acceptable if minimum thickness of ring is not less than .188.

(h) Rear spar and root rib areas of wing which have previous coats of cements, etc, used to secure fabric covering will be acceptable providing cements adhere to the metal. Loose cement is to be removed. Build up of cements at rivet butts, edges of metal laps and joints and rough surface from cements will be acceptable without rework or rejection.

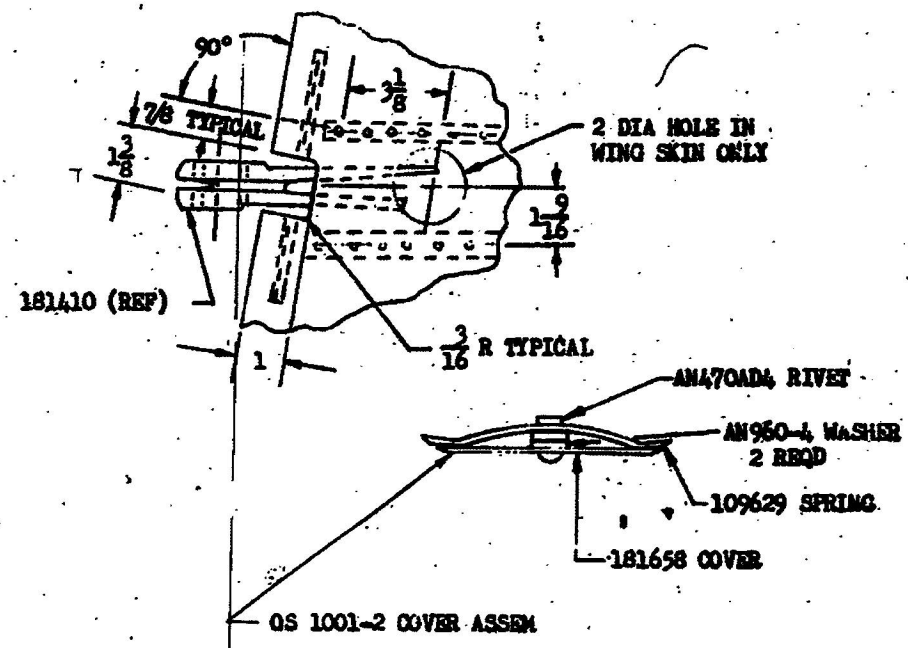

FIGURE 1

WRITTEN BY F. M. Cole	DATE ISSUED 3-9-53	OVERHAUL SPECIFICATION WING INSTALLATION - MODEL C-45G		
PROJECT ENGINEER				
APPROVAL	DATE REVISED	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 10
APPROVAL				

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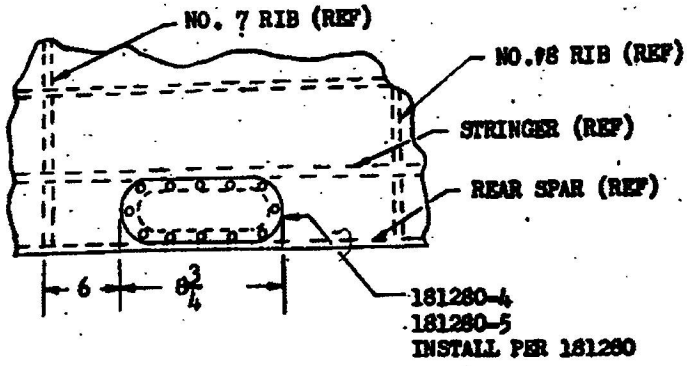

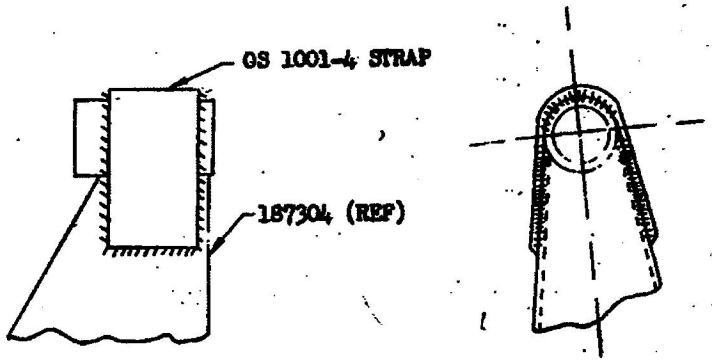

FIGURE 2

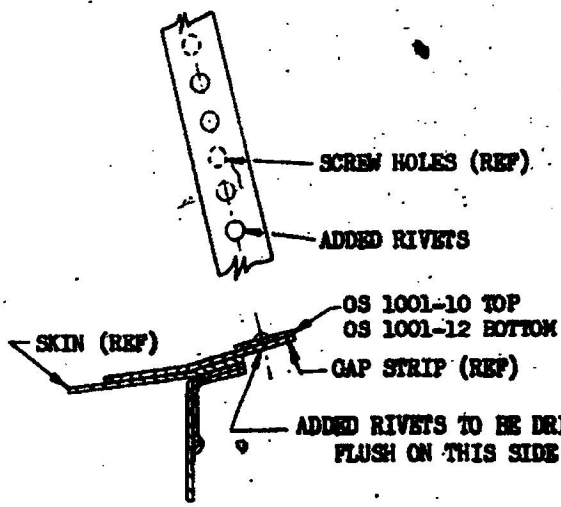

FIGURE 3

WRITTEN BY: F. M. Pabst	DATE ISSUED: 3-9-53	OVERHAUL SPECIFICATION WING INSTALLATION - MODEL C-450		
PROJECT ENGINEER:				
APPROVAL: OK	DATE REVISED:	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 11
APPROVAL:				

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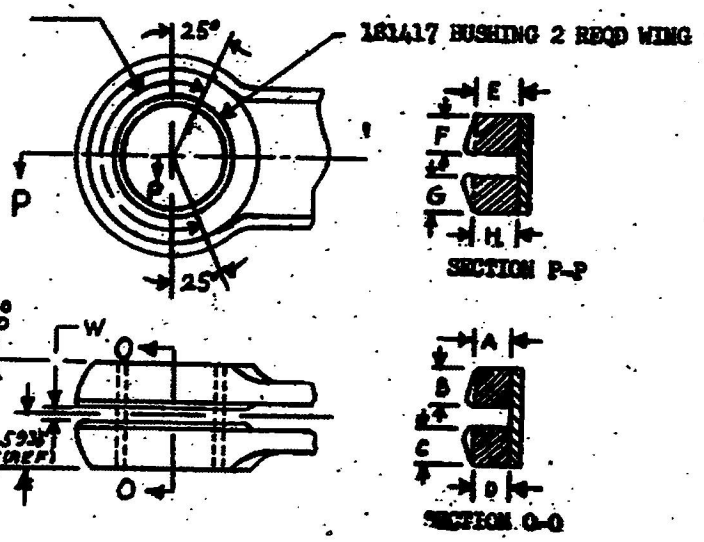
No weld to be on forgings thru this area when forgings gap exceeds 1/8 ("W" dim.) If weld is present refer to Materials Review Board.



When wings are received which have not been reamed for the 181417 bushings per latest revision of drawing 181410, ream holes to $1.250^{+.0000}_{-.0015}$ if the minimum area as noted can be maintained. (Refer to Materials Review Board if minimum area cannot be maintained.)

After machining forgings for bushings, cross sectional areas (Ref. Sections "O-O" and "P-P") must not be less than the following:

1. (A x B) + (C x D) = .328 sq. in. area (min)
2. (A x B) = .155 sq. in. area (min)
3. (C x D) = .155 sq. in. area (min)
4. (E x F) + (G x H) = .468 sq. in. area (min)
5. (E x F) = .227 sq. in. area (min)
6. (G x H) = .227 sq. in. area (min)
7. F = G ± 1/32
8. B = C ± 1/32

FIGURE 4

WRITTEN BY: K. W. Gale	DATE ISSUED 3-9-53	OVERHAUL SPECIFICATION WING INSTALLATION - MODEL C-45G		
PROJECT ENGINEER: K. W. Gale				
APPROVAL: [illegible]	DATE REVISED	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 12
APPROVAL: [illegible]				

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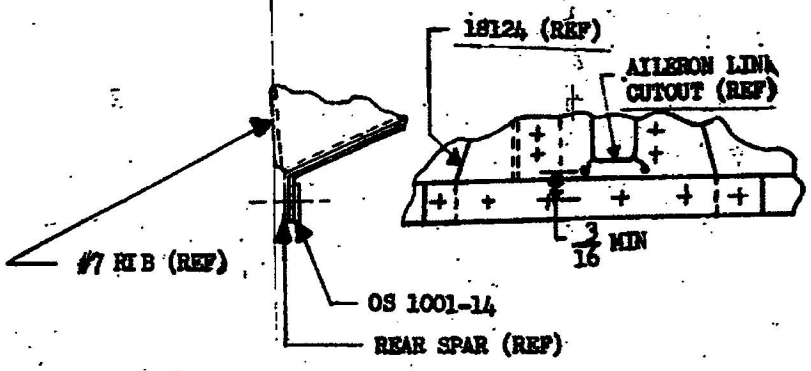

FIGURE 5

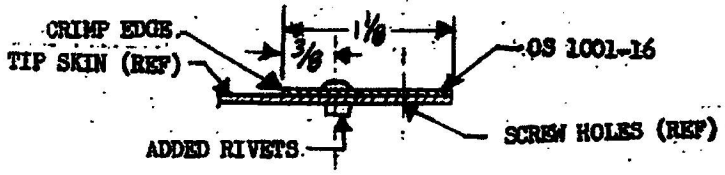

FIGURE 6

WRITTEN BY F. M. Polk	DATE ISSUED 3-9-53	OVERHAUL SPECIFICATION WING INSTALLATION – MODEL C-45G		
PROJECT ENGINEER				
APPROVAL	DATE REVISED	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 13
APPROVAL				

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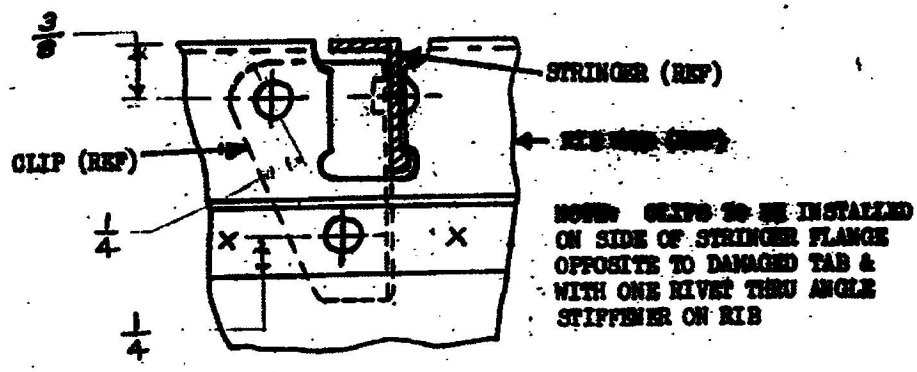

FIGURE 7

WRITTEN BY T. M. Polk	DATE ISSUED 3-9-53	OVERHAUL SPECIFICATION WING INSTALLATION - MODEL C-45G		
PROJECT ENGINEER R. E. Ramsey				
APPROVAL	DATE REVISED	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 14
APPROVAL				

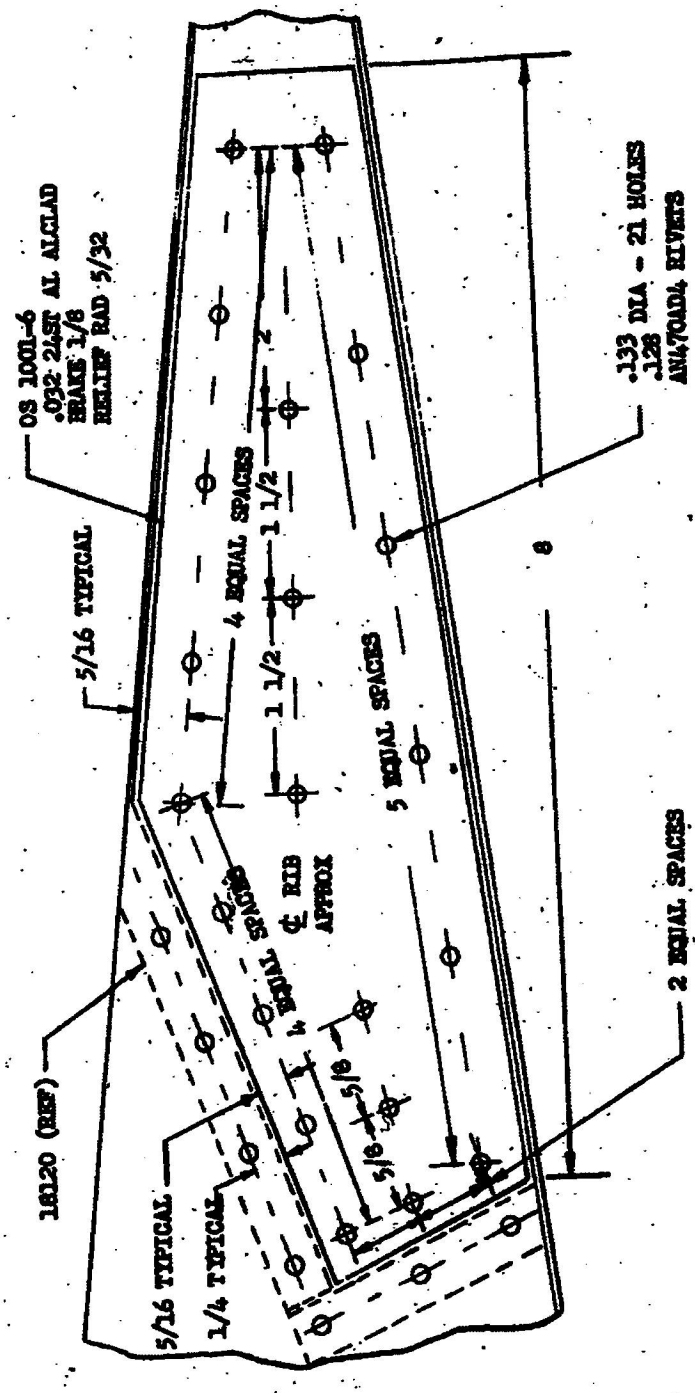

FIGURE 8

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PROJECT ENGINEER P. W. Hasbrouck Jr.		WING INSTALLATION - MODEL C-45G		
APPROVAL	DATE REVISED	Beech Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 1001	PAGE 15
APPROVAL				

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