Beech Aircraft Corporation

OVERHAUL SPECIFICATION

CARBURETOR AIR SYSTEM - MODEL C-45G AND C-45H

Overhaul Specification 9710

ISSUED May 7, 1953

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E-3 6

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TITLE CARBURETOR AIR SYSTEM - MODEL C-45G AND C-45H

ISSUED 5-7-53

WRITTEN BY T. R. Taylor REVISED 3-4-54

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 1889270 carburetor hot air muff assembly, the 189174 and 189175 carburetor heater muff installations, the 84-189130, 189132, and 804-189131 carburetor air duct installations and the 1889150 carburetor air scoop assembly as installed in aircraft received for overhaul and modifications required to adapt them for installation in C-45G and C-45H aircraft in accordance with Drawings 189174, 189175, 804-189131 and 1889150.

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 the pages revised by the current revision.

Page	Date	Description of Revision	Serial Effectivity
* 1	3-4-54	To note revision	Record change
2	5-7-53		
3	11-17-53	Remove Carburetor Air Duct Installation 804-189131 from parts not used.	Record change
4	11-17-53	Add 804-189095, 404-189096, and 1889163 to Para. 3.1.2.4	Record change
5	5-7-53		
6	5-7-53		
7	11-17-53	Add 804-189095, 404-189096 and 1889163 to Para. 3.3.2	Record change
8	5-7-53		
9	11-17-53	Add 804-189095, 404-189096 and 1889163 to Para. 3.4.2	Record change
10	5-7-53		
11	5-7-53		
*12	3-4-54	Change .296 III, OS 9710-3 to .596, Figure 1	Record change
13	5-7-53		

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2. APPLICABLE PUBLICATIONS

2.1 Specifications:

2.1.1 Military.-

MIL-M-3171	Magnesium Alloy; Processes for Corrosion Protection of

2.1.2 Federal.-

QQ-P-416	Plating; Cadmium (Electro-deposited)

2.1.3 Beech.-

FS 370A	Finish Specification for Model C-45G and C-45H Aircraft
PS 1111	Acidizing Aluminum Welded Parts
OS 7002	Cleaning Procedures for Reconditioned Aircraft
OS 7008	General Acceptable Quality Standards
OS 7010	Removing Corrosion from Aluminum Parts

3. REQUIREMENTS

3.1 Parts Involved:

3.1.1 Parts Not Used.- The following parts will not be re-used on C-45G and C-45H aircraft and will be disposed of at the direction of the customer.

3.1.1.1 Carburetor Hot Air Muff Assembly 1S9270.- None of this assembly will be re-used.

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3.1.1.2 Left Engine Carburetor Heater Muff Installation 189174.-

105798	Clamp (Ref: Drawing 189171)
189221	Left engine small heater muff inlet (Ref: Drawing 189171)
189222	Left engine large heater muff inlet (Ref: Drawing 189171)

3.1.1.3 Right Engine Carburetor Heater Muff Installation 189175.-

105798	Clamp (Ref: Drawing 189186)
189223	Right engine small heater muff inlet (Ref: Drawing 189186)
189226	Right engine large heater muff inlet (Ref: Drawing 189186)

3.1.1.4 Carburetor Air Duct Installation 84-189130.- No parts except those listed in Paragraph 3.1.2.3 will be re-used.

3.1.1.5 Carburetor Air Filter and Duct Installation 189132.-

189123	Left hand carburetor air filter duct assembly
189124	Right hand carburetor air filter duct assembly
189228	Carburetor air filter link bushing

3.1.1.6 Carburetor Air Scoop Assembly 1889150.-

1889161	Carburetor air scoop gasket
1889164	Carburetor air scoop washer
No number	Gasket (two at carburetor shield location)
1889159	Bushing (Ref: Drawing 1889152)

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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, and modifications to incorporate changes in accordance with applicable engineering drawings to assure an operationally safe and serviceable aircraft.

3.1.2.1 Left Engine Carburetor Heater Muff Installation 189174.- All parts listed on Drawing 189174 will be reconditioned except those parts listed in Paragraph 3.1.1.2.

3.1.2.2 Right Engine Carburetor Heater Muff Installation 189175.- All parts listed on Drawing 189175 will be reconditioned except those parts listed in Paragraph 3.1.1.3.

3.1.2.3 Carburetor Air Duct Installation 84-189130.-

1889132-1	Elbow
1889132-2	Elbow

3.1.2.4 Carburetor Air Filter and Duct Installation 189132 and Carburetor Air Duct Installation 804-189131.-

804-189140	Carburetor air intake duct assembly
1889132-1	Elbow
1889132-2	Elbow
804-189095	Scoop Assembly
404-189096	Bracket
1889163	Bracket

3.1.2.5 Carburetor Air Scoop Assembly 1889150.-

1889162	Carburetor air scoop cover plate
1889151	Carburetor air scoop body assembly
1889152	Carburetor air scoop side
1889152-1	Carburetor air scoop side
188915-	Carburetor air scoop valve assembly
1889156A	Carburetor air scoop control arm assembly

3.1.2.5 Carburetor Air Scoop Assembly 18S9150.- (Continued)

18S9238	Carburetor air scoop side support
189155	Shaft (Ref: Drawing 18S9154)
18S9155	Shaft (Ref: Drawing 18S9154)

3.1.3 Parts to be Supplied New:

3.1.3.1 Carburetor Heater Muff Installation 189174.- All parts listed in Paragraph 3.1.1.2 will be supplied new.

3.1.3.2 Carburetor Heater Muff Installation 189175.- All parts listed in Paragraph 3.1.1.3 will be supplied new.

3.1.3.3 Carburetor Air Duct Installation 804-189130.- All parts listed on Drawing 804-189131 carburetor air duct installation will be supplied new except those parts listed in Paragraph 3.1.2.3.

3.1.3.4 Carburetor Air Filter and Duct Installation 189132 and Carburetor Air Duct Installation 804-189131.- All parts listed on Drawing 804-189131 carburetor air duct installation will be supplied new except those parts listed in Paragraph 3.1.2.4.

3.1.3.5 Carburetor Air Scoop Assembly 18S9150.- All parts called out on Drawing 18S9150 carburetor air scoop assembly will be supplied new except those parts listed in Paragraph 3.1.2.5.

3.2 Cause for Rejection.- The specific 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 are cause for rejection.

(a) Carburetor heater muff air duct assemblies that have ragged edges at joints or that have a total area of 9 square inches or more requiring welding repairs will be rejected.

3.2 Cause for Rejection.- (Continued)

(b) All 1889155 and 189155 shafts in the 1889154 valve assembly that measure less than .497-inch diameter will be rejected.

3.3 Reconditioning Operations:

3.3.1 Carburetor Heater Muff Installations 189174 and 189175:

3.3.1.1 Inlet 189224 and Duct Assemblies 189121, 189140, 189142, 189159, 189159-1, 189160, 189161, 189162, 189166, 189176, 189178 and 189179.-

(a) Inspect for nonrepairable conditions.

(b) Steam clean in accordance with OS 7002.

(c) Remove corrosion in accordance with OS 7010.

(d) Make repairs as necessary as authorized herein.

(e) Finish in accordance with FS 370A.

3.3.1.2 Clamps 189169, 189170, 189172, 189173, 189183 and 189184.-

(a) Inspect for nonrepairable conditions.

(b) Clean in accordance with OS 7002.

(c) Redrill the $\frac{.800}{.193}$ holes in all clamps except 189169 to $\frac{.330}{.316}$ in accordance with latest applicable drawings.

(d) Make repairs as necessary as authorized herein.

(e) Cadmium plate in accordance with Specification QQ-P-416.

3.3.1.3 Left and Right Hand Muff Assemblies 189171 and 189186.-

(a) Inspect for nonrepairable conditions.

(b) Disassemble and remove parts not to be used.

(c) Steam clean in accordance with OS 7002.

(d) Make repairs as necessary as authorized herein.

(e) Reassemble, using new parts as needed, conforming to latest applicable drawings.

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3.3.2 Elbows 1889182 and 1889182-1; Carburetor Air Intake Duct Assembly 804-189140; Scoop Assembly 804-189095; Bracket 404-189096; and Bracket 1889163.-

(a) Inspect for nonrepairable conditions.

(b) Remove 804-189061 and 804-189062 brackets from 804-189139 duct.

(c) Remove corrosion in accordance with OS 7010.

(d) Make repairs as authorized herein.

(e) Finish in accordance with FS 370A.

(f) Reassemble.

3.3.3 Carburetor Air Scoop Assembly 1889150.-

(a) Clean in accordance with OS 7002.

(b) Disassemble and remove parts not to be used.

(c) Inspect for nonrepairable conditions.

(d) Make repairs as necessary as authorized herein.

(e) Bore the .5625 ±.0005 holes in the 1889152 and 1889152-1 castings to $^{.6870}_{.6860}$ diameter in accordance with latest print to accommodate R-88 bearing.

(f) Cadmium plate the 1889162 cover and the 1889156A-2 tube in accordance with Specification QQ-P-416.

(g) Dow treat the 1889154 valve assembly and paint with one coat of primer after Dow treating.

(h) Reassemble, using new parts as needed, conforming to latest drawings.

(i) Finish in accordance with FS 370 or FS 302 as applicable.

3.4 Authorized Repairs:

3.4.1 Carburetor Heater Muff Installations 189174 and 189175:

3.4.1.1 Inlet 189224 and Duct Assemblies 189121, 189140, 189142, 189159, 189159-1, 189160, 189161, 189162, 189166, 189176, 189178 and 189179.-

(a) Bent and dented parts will be straightened by best shop methods.

(b) Worn areas and deep scratches more than .010-inch deep will be repaired by filling with weld metal. Use welding rod conforming to Specification QQ-R-566. Smooth rough surfaces after welding. Acidize after welding in accordance with PS 1111.

(c) Elongated, misaligned, or extra holes will be welded closed, smoothed, and redrilled to latest print. Use welding rod as stated above. Acidize after welding in accordance with PS 1111.

(d) Cracks in aluminum assemblies will be welded closed and smoothed down for proper fit with mating parts or assemblies. Use welding rod as stated above. Acidize after welding in accordance with PS 1111.

(e) Broken spotwelds will be replaced with AN470AD4 rivets.

(f) Duct assemblies with minor scratches over a major portion of the area will be smoothed to an acceptable finish by wet-sanding with No. 320 or No. 400 wet or dry sandpaper. (See OS 7008)

3.4.1.2 Clamps 189169, 189170, 189172, 189173, 189183 and 189184.-

(a) Slightly rough edges will be smoothed to best shop procedures.

3.4.1.3 Left and Right Hand Muff Assemblies 189171 and 189186.-

(a) Small accessible cracks up to one inch in length will be repaired by spotwelding a patch of the same material and thickness over the crack providing the patch does not interfere with adjacent or mating parts. The patch will extend 1/2-inch beyond all limits of the crack. The spots will be spaced approximately the same as those in adjacent structure.

(b) Collars around exhaust outlets will be replaced if worn to a rugged edge.

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3.4.2 Kibgs 1889132 and 1889132-1; Carburetor Air Intake Duct Assembly 804-189140; Scoop Assembly 804-189095; and Brackets 404-189096 and 1889163.-

(a) Bent and dented parts will be straightened to best shop methods.

(b) Elongated, misaligned or extra holes will be welded closed and then redrilled to latest print. Use welding rod conforming to Specification QQ-R-566. Smooth down the welded areas so that no interference with mating parts will result. Acidize in accordance with PS 1111 after welding.

(c) Worn areas and deep scratches more than .010-inch deep will be repaired by filling with weld metal. Use welding rod and smooth after welding as stated above. Acidize in accordance with PS 1111 after welding.

3.4.3 Carburetor Air Scoop Assembly 1889150.-

(a) Worn or elongated duct attaching holes in the 1889152 and 1889152-1 side castings will be heli-arc welded closed and then redrilled to detail drawing callout.

(b) Cracks, extra holes, stripped holes, elongated holes and surface wear of all magnesium castings will be repaired by heli-arc welding and then reworked in accordance with applicable print.

(c) Welding of machined surfaces will be permissable providing the part can be restored to print tolerances and the acceptable standards listed in Paragraph 4.1 of this specification.

(d) All magnesium castings that have been welded will be stress relieved as soon as possible after welding at 500° F ± 10° F in an atmospheric controlled furnace for 30 minutes and corrosion-proofed in accordance with Specification MIL-M-3171, Type III.

(e) Oversized .5620±.0005 holes in the 1889154 valve casting will be repaired by reaming to .5937±.0005 diameter and installing OS 9710-1 shaft in place of the 1889155 shaft and OS 9710-3 shaft in place of the 189155 shaft. See Figure 1 of this specification for detail of OS 9710-1 and -3 shafts. Turn ends of shaft, after assembly, to .500 $^{+.000}_{-.002}$ in accordance with print.

3.4.3 Carburetor Air Scoop Assembly 1889150.- (Continued)

(f) Oversized taper holes in the 1889154 valve assembly will be reworked by taper-reaming the holes in the valve casting and the holes in the 1889155 and/or 189155 shafts to receive OS 9710-5 or OS 9710-7 taper pins as detailed in Figure 2 of this specification. Taper-ream 1/4-inch per foot so that taper pins can be installed to conform to print.

NOTE: OS 9710-5 taper pin shall be used in preference to OS 9710-7 if the smaller pin will satisfactorily fill the oversized hole in the casting.

4. INSPECTION

4.1 General.- The parts will be inspected to the general acceptable quality standards of OS 7008 and the specific quality standards listed below.

4.2 Specific Quality Standards:

4.2.1 Duct Assemblies 189121, 189140, 189142, 189159, 189159-1, 189160, 189161, 189162, 189166, 189176, 189178 and 189179.-

(a) Carburetor heater muff air ducts with worn areas or scratches less than .010-inch deep over a minor portion of the duct outside surface will be acceptable.

4.2.2 Side Castings 1889152 and 1889152-1.-

(a) Carburetor air scoop side castings will be acceptable with a minimum wall thickness at the $\begin{matrix}.6870\\.6860\end{matrix}$ bored holes of .050.

(b) Carburetor air scoop side castings will be acceptable with a maximum of two cracked adapter plate (1889158) attaching holes and two cracked body (1889153) attaching holes, providing the cracks run from the hole to the edge of the casting.

4.2.2 Side Castings 1889152 and 1889152-1.- (Continued)

(c) Carburetor air scoop side castings will be acceptable with extra duct attaching holes providing the extra holes are spaced 1/2-inch minimum, center to center, away from the holes in accordance with detail drawing callout.

(d) Carburetor air scoop side castings will be acceptable that have been repaired by heli-arc welding providing the $3.500^{+.015}_{-.000}$ orifice has a minimum wall thickness of .060 except within 1/8-inch of the outside edge which may be .040 minimum.

(e) Carburetor air scoop side castings that have been heli-arc welded will be acceptable with a 500 finish on the inside surface of the $3.500^{+.015}_{-.000}$ orifice.

(f) Carburetor air scoop side castings that have been heli-arc welded will be acceptable with flat portions on the circumference of the $3.500^{+.015}_{-.000}$ hole providing the amount of distortion is not more than .040-inch.

4.2.3 Body Casting 1889153.-

(a) Carburetor air scoop body castings will be acceptable with four cracked cover (1889153) attaching holes providing the cracks run from the hole to the edge of the casting with a maximum of two consecutive cracked holes in any one location.

(b) Carburetor air scoop body castings will be acceptable with three cracked adapter plate (1889158) rivet holes providing the cracks run from the hole to the edge of the casting with a maximum of two consecutive cracked holes in any one location.

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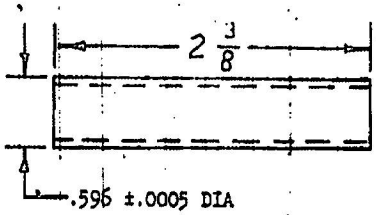

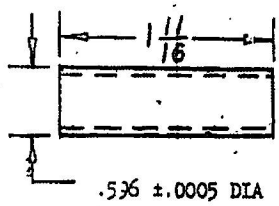

OS 9710-1

Make from 5/8 O.D. Tube x .120 wall x 2-3/8 long Chrome-Moly Steel, MIL-T-6736, Condition HT-150, Type 1. Cad. plate per Fed. QQ-P-416.

Similar to 1889155
Similar to 1889155-702
Similar to CB A27020-2

OS 9710-3

Make from 5/8 O.D. Tube x .120 wall x 1-11/16 long Chrome-Moly Steel, MIL-T-6736, Condition HT-150, Type I. Cad. plate per Fed. QQ-P-416.

Similar to 189155
Similar to 189155-702
Similar to OB A27020-4

FIGURE 1

WRITTEN BY K. Fitzpatrick	DATE ISSUED 5-7-53	OVERHAUL SPECIFICATION CARBURETOR AIR SYSTEM - MODEL C-45C AND C-45N		
PROJECT ENGINEER				
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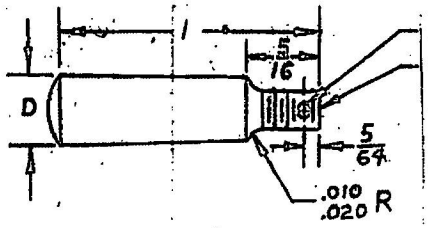
TAPER PIN



OS 9710-5 PIN

Make from AN385-4-12 taper pin.
Cad. plate per Federal QQ-P-416

Dimension "D" = .250 +.002 -.000

Similar to 189164 pin.
Similar to OB A27019-2 pin.

OS 9710-7 PIN

Make from AN385-5-14 pin.
Cad. plate per Federal QQ-P-416

Dimension "D" = .289 +.002 -.000

Similar to 189164 pin.
Similar to OB A27019-4 pin.

FIGURE 2

WRITTEN BY: R. Fitzpatrick	DATE ISSUED: 5-7-53	OVERHAUL SPECIFICATION CARBURETOR AIR SYSTEM - MODEL C-45G AND C-45H		
PROJECT ENGINEER: [illegible]				
APPROVAL: [illegible]	DATE REVISED	Bendix Aircraft CORPORATION Wichita 1, Kansas	OVERHAUL SPECIFICATION NO. 9710	PAGE 13
APPROVAL: [illegible]				

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