

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 power plant installations 84-189000, 814-189000, 824-189000, and 804-189000 as installed in aircraft received for overhaul, and instructions for modifications required to adapt them for installation in Model C-45G and C-45H aircraft in accordance with Drawings 694-189000 and 694-189008 respectively.

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.

<u>Page</u>	<u>Date</u>	<u>Description of Revision</u>	<u>Serial Effectivity</u>
1	4-24-53		
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APPROVED:

*Samuel O. Ope*  
USAF Quality Control

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2. APPLICABLE PUBLICATIONS

2.1 Specifications:

2.1.1 Military.-

MIL-I-6868 Inspection Process, Magnetic Particle,

2.1.2 Federal.-

QQ-P-416 Plating, Cadmium

2.1.3 Beech.-

PS 370A Finish Specification - Model C-45G and C-45H Aircraft  
 OS 7002 Cleaning Procedures for Overhauled Aircraft  
 OS 7006 Preservation, Mooring and Handling of Aircraft  
 OS 7007 General Sheet Metal Repairs  
 OS 7008 General Acceptable Quality Standards  
 OS 9102 Preservation and Shipping of Engines  
 OS 9103 Preoiling and Ground Operation of Reciprocating Engines  
 OS 9104 Preservation and Shipping of Propellers  
 OS 9110 Basic Engine - Model C-45G and C-45H Aircraft  
 OS 9111 Engine Starter  
 OS 9112 Engine Fuel Pump  
 OS 9113 Engine Vacuum Pump  
 OS 9114 Generator  
 OS 9115 Tachometer Generator  
 OS 9501 Exhaust System  
 OS 9710 Carburetor Air System  
 OS 9810 Engine Cowling  
 OS 9811 Inner Cowl, Baffles and Seals

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3. REQUIREMENTS

3.1 Parts Involved - For parts involved in addition to those covered by this specification, refer to the overhaul specifications listed below.

- OS 9110 Basic Engine - Model C-45G
- OS 9111 Engine Starter
- OS 9112 Engine Fuel Pump
- OS 9113 Engine Vacuum Pump
- OS 9114 Generator
- OS 9115 Tachometer Generator
- OS 9501 Exhaust System
- OS 9710 Carburetor Air System
- OS 9810 Engine Cowling
- OS 9811 Inlet Cowl, Baffles and Seals

3.1.1 Parts Not Used - The parts listed in Paragraphs 3.1.1.1 through 3.1.1.5 and all parts and assemblies listed on power plant installation Drawings 84-189000, 804-189000, 814-189000 and 824-189000 will be disposed of at the direction of the customer except those parts listed in Paragraph 3.1.2 of this overhaul specification.

3.1.1.1 Mount Assembly 1859100.-

- 189106 Bushing
- 189105 Bushing

3.1.1.2 Ring Assembly 185940.-

- 185943-1 Support assembly
- 185943-2 Support assembly
- 185943-3 Support assembly
- 185943-4 Support assembly
- 185943-7 Leather strip

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- 3.1.1.3 Ring Assembly 804-185940.-  
 804-185940-7 Hood lacing  
 804-185942 Cushion  
 804-185946 Bracket assembly

- 3.1.1.4 Channel Assembly 185853.-  
 86-250 Dzus springs

- 3.1.1.5 Shield Assembly 774-185919.-  
 AC366F832 Nut plate  
 22A182BC100 Nut plate  
 22A1782BC100 Nut plate  
 84-185917 Seal  
 84-185920 Seal

3.1.2 Parts to be Reconditioned.- The following parts are to be reconditioned in accordance with the instructions contained herein and in overhaul specifications listed in Paragraph 3.1 of this specification. "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.

- 1859100 Engine mount assembly  
 185940L Cowl support former ring assembly  
 185940R Cowl support former ring assembly  
 804-185940L Cowl support former ring assembly  
 804-185940R Cowl support former ring assembly  
 185853 Wrapper sheet support channel assembly  
 774-185919 Inner cowling carburetor complete shield assembly  
 4-1859125 Engine mount stud  
 1839181 Carburetor extension adapter  
 1839182 Carburetor brace  
 1839184 Carburetor adapter bushing

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3.1.2 Parts to be Reconditioned.- (Continued)

1839186 Carburetor adapter stud  
 S-242 Clamp  
 S-245 Clamp  
 Type E-9, Spec. 27950 Tachometer generator  
 P & W R985 AN-1 Engine (C-45G only)  
 P & W R985 AN-3 Engine (C-45G only)  
 Type M-3 Generator  
 Bendix NAR9B Carburetor (C-45G only)  
 Type G-6, Spec. 28332 Fuel pump  
 Type B-12, Spec. 28391 Vacuum pump  
 Type J-1, Spec. 32282 Starter  
 180009 Placard  
 84-185905 Engine upper cowling  
 84-185970 Engine lower cowling  
 185901 Engine upper cowling  
 185903 Engine lower cowling  
 84-189110 Engine baffles installation  
 189110 Engine baffles installation  
 189132 Carburetor air filter and ducts installation  
 804-189181 Carburetor air ducts installation  
 1839150 Carburetor air scoop assembly  
 54-189216 Intensifier air intake installation  
 18S9200L-500 Exhaust system  
 18S9200R-500 Exhaust system  
 18S5213 Shroud assembly  
 189174 Left heater muff installation  
 189175 Right heater muff installation  
 84-185910 Inner cowling assembly  
 84-185880 Segment assembly  
 84-185881 Segment assembly

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3.1.2 Parts to be Reconditioned. (Continued)

- 84-185882 Segment assembly
- 84-185883 Segment assembly
- 84-185884 Segment assembly
- 84-185885 Segment assembly
- 84-185886 Segment assembly
- #513 P & W Exhaust nut

3.1.3 Parts to be Supplied New. - All parts and assemblies that are called out on Drawings 694-189000 or 694-189002, power plant installation, for C-45G and C-45H aircraft respectively, will be supplied new except those parts listed in Paragraph 3.1.2 of this specification. The following parts will be used, as needed, in the repair of parts listed for reconditioning herein.

- OS 9101-1 Plate (Same as CO 79478-2)
- 804-185940-5 Reinforcement
- OS 9101-3 Bolt (Same as CO 78052-2)

3.2 Cause for Rejection. - The following conditions will be cause for rejection of the part or assembly specified.

- (a) Damage or wear to any part or assembly which cannot be corrected by one or more of the authorized repairs listed in Paragraph 3.4 of this specification.
- (b) Elongated rivet holes in the 804-185941 support assembly that are enlarged beyond the size that can be filled with a 5/32 rivet.
- (c) Damage, wear, or corrosion to any riveted assembly severe enough to require the replacement of a major portion of that assembly.

3.3 Reconditioning Operations:

3.3.1 Engine Mount Assembly 189100. -

- (a) Clean in accordance with OS 7002.
- (b) Remove 189105 and 189106 bushings.
- (c) Inspect for nonrepairable conditions.

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3.3.1 Engine Mount Assembly 18S9100.- (Continued)

- (d) Make repairs as authorized herein.
- (e) Install new 804-189101 lugs in accordance with the latest revision of 18S9100.
- (f) Fill <sup>.200</sup><sub>.193</sub> holes in the 18S9100-13 and -15 supports with weld metal and smooth to best shop practices.
- (g) Redrill <sup>.200</sup><sub>.193</sub> holes in supports per drawing information.
- (h) Engine mount tubes 18S9100-14, -16 and -18 that are not provided with drain holes will be drilled per current drawing callout. Tubes that have drain holes plugged with drive screws will have the drive screws removed.
- (i) Sandblast.
- (j) Magniflum in accordance with Specification MIL-1-6868.
- (k) Finish in accordance with FS 370A.
- (l) Install new 189106 bushings.
- (m) Install a new 189105 bushing.

3.3.2 Left and Right Hand Ring Assembly 185940 and 804-185940.-

- (a) Clean in accordance with OS 7002.
- (b) Remove parts that are not to be used as listed in Paragraph 3.1.1.2.
- (c) Inspect for nonrepairable conditions.
- (d) Install new 804-185941 support assemblies on the 185940 ring assembly in accordance with Drawing 804-185940. Line up as many of the rivet and 1/4-inch center holes of the AN366-428 nut plates as is possible, with the old rivet holes in the 185940-1 and -2 segments. The position of the support assembly may vary as much as 1/4-inch in either direction along the center-line of the segment flange to accomplish this purpose. Plug unused rivet holes that fall away from nut plates with AN470AD3 rivets or AN470ADA rivets if holes are elongated or oversize. Drill out holes in 0 segments to match center holes of nut plates with a 1/4-inch drill.
- (e) Install two new 804-185941 support assemblies on the 804-185940 ring assembly in accordance with the latest revision of Drawing 804-185940. Use as many of the old rivet holes in the 804-185940-1 and -2 segments, as is possible, for attaching the AN366-428 nut plates. Do not vary the position of the support assemblies more than 1/4-inch either direction along centerline of the segment flange.

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3.3.2 Left and Right Hand Ring Assembly 185940 and 804-185940.-  
(Continued)

- (f) Complete the assembly of each unit, using new parts as needed to conform to Drawing 804-185940.
- (g) To each 804-185941 wrapper support assembly, add one extra 804-185942 cushion making a total of two leather cushions for each support.
- (h) Finish in accordance with FS 370A.

3.3.3 Channel Assembly 185853; Adaptor 1859181 and Shield Assembly 774-185919.-

- (a) Clean in accordance with OS 7002.
- (b) Remove applicable parts that are not to be used as listed in Paragraph 3.1.1.2.
- (c) Inspect for nonrepairable conditions.
- (d) Repair as necessary as authorized herein.
- (e) Finish in accordance with FS 370A.

3.3.4 Stud 4-189125; Carburetor Brace 1859182; Bushing 1859184 and Stud 1859186.-

- (a) Clean in accordance with OS 7002.
- (b) Inspect for nonrepairable conditions.
- (c) Cadmium plate per Specification QQ-P-416.

3.4 Authorized Repairs:

3.4.1 Engine Mount Assembly 1859100.-

- (a) All 1859100-1, -2 or -3 assemblies that have sleeves exceeding the acceptable standards given in Paragraph 4.2.1 will be heated and shrunk to allowable tolerances. Heat the assemblies to a cherry red heat (1400° to 1500° Fahrenheit) and allow to cool in still air. Assemblies that have been shrunk will be identified so that a second shrinkage will not be attempted.

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3.4.1 Engine Mount Assembly 18S9100/- (Continued)

- (b) All 18S9100-1, -2 or -3 assemblies that have sleeves exceeding the acceptable standards given in Paragraph 4.2.1, after shrinkage, will be removed from the engine mount and replaced with new assemblies. Remove the assembly (cluster) by making the cut in the sleeves not more than 2 inches from the bushing location. Grind and file away the remaining portion of the sleeves and weld material from the truss tubes of the engine mount. Do not remove any material from the tubes. Weld on a new assembly conforming to print specifications.

3.4.2 Left and Right Hand Ring Assemblies 185940 and 804-185940.

- (a) Former rings that have cracks in the 185940-3 or -4 segment or the 804-185940-3 or -4 segments at the 185942 bracket location shall be repaired as shown in Figure 1 of this specification.
- (b) Former rings that have cracks or broken out portions in any part of the -3 or -4 segments that has a cross-section measuring approximately 1-1/2 by 5/8 will be repaired as shown in Figure 2 of this specification.
- (c) Former rings that have cracks or damage at any part of the -1 or -2 segments at the 804-185941 support assembly locations will be repaired as shown in Figure 3 of this specification.
- (d) In cases where the 804-185941 wrapper support will not draw down sufficiently snug to the wrapper sheet, the 804-185943 bolts will be replaced with QS 9101-3 bolts to give greater adjustment. The OS 9101-3 bolt will be used only on individual support assemblies that do not adjust correctly. Make OS 9101-3 bolt from an AN4-17 bolt or longer. Cut threads to 1-inch leaving a grip length of 13/32-inch. Stamp "spec" on head of bolt.

3.4.3 Shield Assembly 774-185919.-

- (a) Broken spot-welds may be replaced with AN426AD rivets. Install with the heads on the mating surfaces.
- (b) Small cracks of 1-inch maximum length will be patched providing the patch can be laid on an even surface and does not interfere with mating parts. Make patch from .016 corrosion resistant steel. Cut to extend 1/2-inch beyond all limits of the crack and form to the contour of the shield. Rivet with one row of AN425AD rivets along each edge of patch. Maintain 3 rivet diameters spacing and 2 rivet diameters edge distance. Stop drill crack before installing patch.

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3.4.4 Carburetor Extension Adapter 18S9181.-

- (a) If either flange of the adapter is warped more than .002-inch, as measured with a thickness gauge and surface-plate, hand lap until acceptable. Use #320 or #400 wet or dry sandpaper and solvent, Specification 18S9181.

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 Acceptable Quality Standards.-

- (a) The 18S9100 engine mounts may have tubes with a maximum corrosion of .004 deep except the -7 and -10 tubes which may have .002 maximum.
- (b) The 18S9100-18 sleeves, of the 18S9100-1 or -2 assemblies, that have an inside mean diameter measuring 1.752 will be acceptable without rework. 1.749
- (c) The 18S9100-11 sleeves, of the 18S9100-3 assembly, that have an inside mean diameter measuring 2.253 will be acceptable without rework. 2.249
- (d) Former rings 185940 and 334-185940, that have been reworked in accordance with Paragraph 3.2.2, will be acceptable with unused extra rivet holes in the lower flange providing the holes are not elongated more than 1/4-inch total length and the edges of the holes are 3/16-inch minimum from the flange radius and outer edge.

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FORMER RING REPAIR

OS 9101-1

Stop drill all cracks in -3 and -4 segments with No. 50 drill at 185942 bracket location. Add reinforcing plate made from 3-1/4- by 2-3/16- by .064-inch 24S-T3 AL, Specification QQ-A-362, fabricated as shown. Attach plate to segment with AN470AD4 rivets, 9 required. Space rivets approximately as shown, maintaining 1/4-inch edge distance. Locate plate flush with lower edge of -3 or -4 segment. Pick up existing rivets in 185942 bracket. Plate should not be pre-drilled, but drilled at assembly.

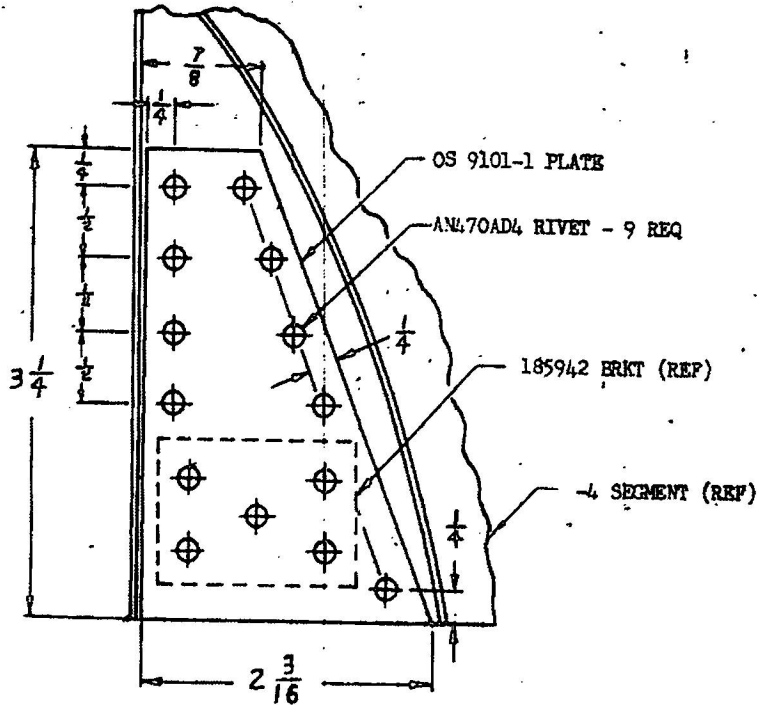


FIGURE 1

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FORMER RING REPAIR

Stop drill all cracks in -3 or -4 segments with a No. 50 drill. Smooth all rough surfaces to best shop practices. Add 804-185940-5 reinforcement. Place reinforcement so that pre-drilled holes in the reinforcement maintain 1/4-inch minimum edge distance from cracks or damage in segment. Add AN470AD4 rivets as shown - 14 required. Add AN426AD4 rivets to outside flange - 2 required. Countersink segment for AN426 rivets. Location of rivets in flange may vary as long as 1/4-inch minimum edge distance and 3/8-inch minimum rivet spacing is maintained.

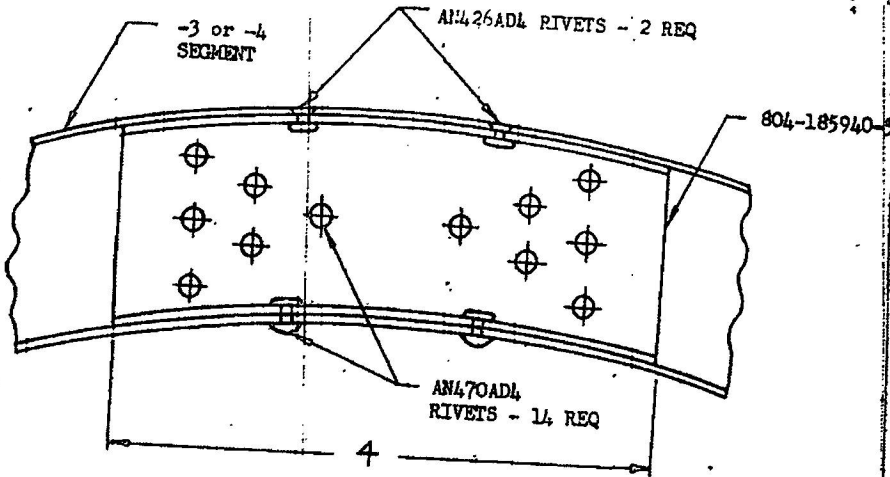


FIGURE 2

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FORMER RING REPAIR

Stop drill all cracks in -1 or -2 segment with No. 50 drill. Smooth all rough surfaces to best shop practices. Add 804-185940-5 reinforcement as shown, squarely over old nut plate center holes in segment. Add AN470AD4 rivets as shown - 14 required. Location of inner flange rivets may vary. Back drill nut plate rivet holes in segment thru reinforcing plate. Back drill center hole for support bolts with 1/4-inch drill. Attach AN366-428 nut plates with AN470AD3 rivets - 4 required. Sufficient metal must remain on segment flange to provide a good bearing surface for nut plates. Maintain 1/4-inch minimum edge distance on flange rivets.

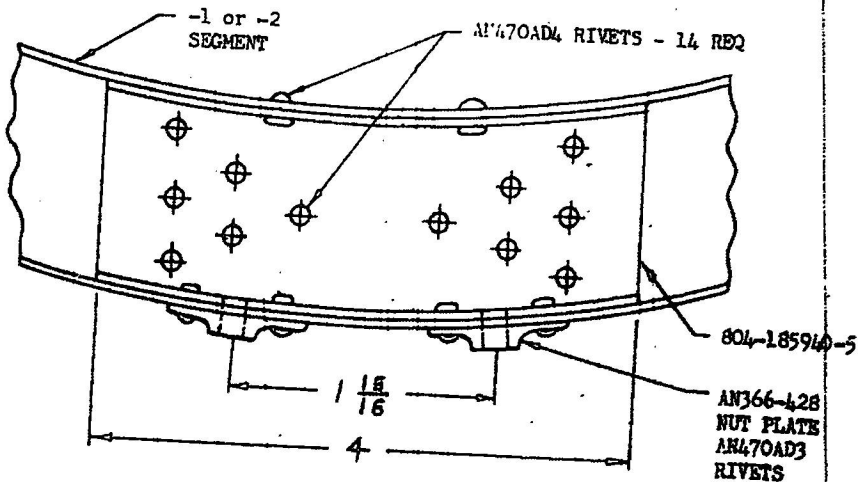


FIGURE 3

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