

**Beech Aircraft Corporation**  
Wichita, Kansas

SPEC. NO. BS 375A

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**PRESERVATION PROCEDURE FOR MODEL C-45G**

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3-7-52	6-23-52	SLAYMAKER	<i>H. K. Foxworth</i>	<i>Newman</i> 8-3-52	<i>Edman</i> 8-18-52

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### PRESERVATION PROCEDURE FOR MODEL C-45G

#### 1. SCOPE

1.1 Purpose.-- This specification furnishes the requirements for the preservation, representation, and derepresentation of Model 18 aircraft and equipment received from the Air Force scheduled for overhaul and conversion to Model C-45G's.

1.2 Application.-- This specification applies to all aircraft, replacement engines, and propellers flown or shipped in by the Air Force for use on the C-45G overhaul program. The procedures set forth herein are applicable to any such aircraft and equipment from the time it is first received into Beech custody until the Air Force takes delivery of the completed article.

This specification contains two basic procedures for preservation of the aircraft prior to tear down, the choice of which depends on the arrival rate of the aircraft compared to the tear down schedule. For example if tear down will be accomplished within two weeks after arrival, the procedure given in Section 3.2 is applicable. If tear down will not be accomplished within two weeks, the procedure given in Section 3.3 is applicable. The requirements of Section 3.1 are applicable to all aircraft immediately upon arrival regardless of the anticipated tear down date.

1.3 Precedence.-- Should any conflict exist between the requirements of the Beech specifications listed in Section 2 or any Beech drawings and this specification, the requirements of the Beech drawing or specification listed in Section 2 shall take precedence.

1.4 Workmanship.-- Workmanship shall be in accordance with high-grade commercial practice.

1.5 Materials.-- All materials and compounds shall be equivalent in quality to specification standards. All substitutions or equivalents shall be approved by the Engineering Department. All air required for spraying engine preservative compounds and for pressurizing steel shipping containers for engines shall be dry. Air from the factory air lines provided with both water traps and a Silica-Gel cylinder is satisfactory.

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#### 1.6 Definitions:

1.6.1 Grade A Paper.-- Material referred to in this specification as "Grade A paper" shall be Specification JAN-B-121, Barrier-Materials, Greaseproof; Grade A (Greaseproof, Acid-Free and Noncorrosive).

1.6.2 Grade C Paper.-- Material referred to in this specification as "Grade C paper" shall be Specification JAN-B-121, Barrier-Materials, Greaseproof; Grade C (Greaseproof, Acid-Free, Noncorrosive, Moldable and Self-Adhering).

1.6.3 Engine Compound.-- Material referred to in this specification as "engine compound" shall be Specification AN-VV-C-576, Compound; Corrosion-Preventive, Aircraft Engine; Type II.

1.6.4 Moisture Resistant Tape.-- Material referred to in this specification as "moisture resistant tape" shall be Specification JAN-P-127 Tape; Adhesive, Pressure-Sensitive, Water Resistant.

1.6.5 Dehydrating Agent.-- Material referred to in this specification as "dehydrating agent" shall be Specification AN-D-6, Dehydrating Agent (Activated); Grade A, Type V.

1.6.6 Soft-Film Compound.-- Material referred to in this specification as "soft-film compound" shall be Specification AN-C-124, Compound; Soft-Film Corrosion-Preventive, Type I.

1.6.7 Cleaning Solvent.-- Material referred to in this specification as "cleaning solvent" shall be Specification P-S-661, Solvent; Dry Cleaning, or Equivalent.

1.6.8 Check Valve Plugs.-- Items referred to in this specification as "check valve plugs" shall be BGM-654 check valve plugs manufactured by The B-G Corporation, 136 West 52nd Street, New York 19, N. Y.

#### 2. APPLICABLE SPECIFICATIONS AND DRAWINGS

##### 2.1 Specifications:

##### 2.1.1 Military:

JAN-B-121  
JAN-P-127

Barrier-Materials, Greaseproof  
Tape, Adhesive, Pressure-Sensitive,  
Water Resistant

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#### 2.1.1 Military: (Continued)

MIL-L-6082 Oil; Lubricating, Aircraft Engine  
 MIL-C-6708 Compound; Exterior-Surface, Hard-Film Corrosion-Preventive  
 MIL-R-6855 Rubber-Synthetic, Sheet, Moulded and Extruded, for Aircraft Application  
 MIL-L-7711 Lubricating Grease (General Purpose, Aircraft)

#### 2.1.2 Air Force-Navy Aeronautical:

AN-B-20 Barrier; Flexible Sheet Moisture Vapor  
 AN-C-124 Compound; Soft-Film Corrosion-Preventive  
 AN-C-128 Compound; Insulating and Sealing Electrical Connections  
 AN-C-137 Container; Engine Shipping, Wood  
 AN-D-6 Dehydrating Agent  
 AN-VV-C-576 Compound; Corrosion-Preventive; Aircraft Engine

#### 2.1.3 Federal:

P-S-661 Solvent; Dry Cleaning

#### 2.2 Drawings:

##### Air Force-Navy Standard:

AN737 Hose Clamp  
 AN4060 Protectors; Ignition Cable  
 AN4061 Engine Crankcase Dehydrator Plug  
 AN4062 Cylinder Dehydrator Plug  
 AN4071 Engine Protective Envelope  
 AN7511 Humidity Indicator  
 AN7514 Color Comparison Indicator Card  
 AN8015-2 Mooring Kit

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**2.3 Publication:**

Technical Instruction Compliance Record, AF Form 60B

**3. REQUIREMENTS**

**3.1 All Aircraft Upon Arrival:**

**3.1.1 Mooring:**

**3.1.1.1 Tie Down.-** If either the Beech screw type or AN8015-2 mooring anchors are used, perform the tie-down as shown in Figure 1 using eight anchors. If "dead men" or concrete embedded anchors are used, the tie-down may differ from that shown in Figure 1 by using but one anchor at each ging mooring point. In order to control the load in the wing mooring fitting do not use a rope longer than 6-1/2 feet. Use 3/8-inch or larger Manila rope.

**3.1.1.1.1 AN8015-2 Mooring Kit.-** Screw 36A4468 anchor rod into 36A4467 arrow and place 36B4466 driving rod over the anchor rod and into the socket of the arrow. Turn the cam on the driving rod so that the prongs of the arrow will not be spread by driving. If the ground is hard, break the hard surface with 36B3323 ground breaking pin. Be sure to align the rod with the attachment point on the airplane. Drive the arrow into the ground until the anchor rod mooring ring is within approximately 3 inches of the ground. Rotate the driving rod handle 90 degrees and then give the driving rod a sharp blow to spread the prongs of the arrow. Return the driving rod to the "driving" position and withdraw it from the ground. Align the squared socket of 36A4469 eye assembly with the squared end of the anchor rod, fit into place and screw down the knurled nut until a minimum length of 1/8-inch of the squared end of the anchor rod is protruding into the inside diameter of the eye assembly. To withdraw the anchor rods, free the anchor rods from the arrows by turning the ring of the eye assemblies counterclockwise and remove the rods from the ground.

**3.1.1.2 Spoiler Installation.-** Install a spoiler on each wing. Use a 16-foot 2 by 4 and locate approximately 10 to 15 percent of the average chord aft of a parallel to the leading edge of the wing, with the 2-inch dimension lying flat against the wing surface. Use Grade A paper

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#### 3.1.1.2 Spoiler Installation.- (Continued)

to separate the wood spoiler from the wing. Tie the spoilers securely in place, preferably with flat twill tape.

3.1.1.3 Blocking.- Chock the main landing gear wheels. Place aircraft with nylon tires on blocks.

3.1.2 Cylinder Inspection.- Inspect the top three cylinders of each engine through the front spark plug opening for corrosion. If present, refer the matter to Engineering.

#### 3.1.3 Removal of Equipment:

3.1.3.1 Ammunition and Destructors.- Remove ammunition and radio destructors and send to Air Force Overhaul Stores. Do not remove pyrotechnics in life rafts and emergency equipment.

3.1.3.2 Loose Gear.- Remove all loose gear from the aircraft and send to Air Force Overhaul Stores.

3.1.3.3 Deicer Boots.- Remove deicer boots, clean with mild soap and water, thoroughly dry, and dust with soap stone. Tape the metal air connections remaining on the boot in Grade-A paper, wrap, and store in a cool dark place. Wrap the rubber parts in paper in such a manner that the layers or folds of rubber are separated by layers of paper, and take care to turn in the edges of the paper to keep out the light. Deicers may be rolled in a coil, starting with a 4-inch to 6-inch diameter. Wing deicers are rolled from the connection end; tail deicers from the tip end. Be certain that the deicer is not wrinkled when it is wrapped. Pack deicer boots in suitable containers, label with packing date, and send to Air Force Overhaul Stores.

3.1.3.4 Ordnance Gear.- Remove major units of ordnance gear and send to Air Force Overhaul Stores.

3.1.3.5 Gun Cameras.- Remove gun cameras and send to Air Force Overhaul Stores.

3.1.3.6 Curtiss Type C-2 Vertical View Finder.- Install an activated engine crankcase AN4061 dehydrator plug in the view finder

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#### 3.1.3.6 Curtiss Type C-2 Vertical View Finder.- (Continued)

through the opening provided in the collar on the side of the view finder mirror box. Remove the view finder and send to Air Force Overhaul Stores.

3.1.3.7 Secret or Confidential Gear.- Remove secret and confidential gear such as that in the radio, radar and ordnance (bombsight) installations and send to Air Force Overhaul Stores.

3.1.3.8 Control Surface Lock.- Install the control surface locking device.

3.1.3.9 Pitot Tubes.- Install pitot tube covers.

#### 3.1.4 Instruments:

3.1.4.1 Gyros.- Cage the gyro horizon, directional gyro, and automatic pilot control units.

3.1.4.2 Clock.- Remove the clock and send to Air Force Overhaul Stores.

3.1.4.3 Oxygen Regulator.- Tape the opening with moisture resistant tape.

3.1.5 Tires.- Inflate tires to 30 pound psi. Every 30 days thereafter rotate tires sufficiently to change the supporting point. Cover tires with a suitable oil-proof cover. A board with a clean surface next to the tire is satisfactory.

3.1.6 Drain Holes.- Clear all drain holes.

3.1.7 Unpainted Metal Parts.- Clean unpainted metal parts of the aircraft such as hydraulic cylinders and oleo struts with cleaning solvent and brush coat or wipe down these parts with Specification MIL-L-7711 grease or soft-film compound.

3.1.8 Propellers.- Leave the propellers installed. Preserve the unpainted metal parts of the propeller blades, hub, and dome with soft-film compound or with Specification MIL-L-7711 grease.

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3.1.9 Record Forms. - Figure 2 pictures the preservation procedure check-off form which provides spaces for the date each particular phase of preservation is accomplished and the signature of the workman responsible.

### 3.2 Aircraft That Can Be Overhauled Within Two Weeks:

#### 3.2.1 Engines:

##### 3.2.1.1 Preservation Run-Up:

##### 3.2.1.1.1 Preliminary.

- (1) Drain the oil tank and engine sump.
- (2) Replace drain plugs.
- (3) Fill the oil tank with engine compound to the oil level necessary to provide adequate lubrication during the preservation run-up.
- (4) Place a tag (Figure 3) on the instrument panel stating that engine compound Specification AN-VV-C-576, is in the engine lubricating system.

##### 3.2.1.1.2 Run-Up.

- (1) Blank off or by-pass oil coolers.
- (2) Warm up engine after checking the oil level (usually 50 percent full) to insure lubrication during the running period.
- (3) Run engine for at least 15 minutes on service leaded fuel with an oil inlet temperature of 95° C (203° F) to 102° C (216° F).
- (4) Operate both propellers throughout their entire pitch range at least three times during the last run-up of the engine prior to idleness.

**CAUTION:** Measures such as closing the cowl flaps which restrict the flowing of cooling air over the engine shall not be used to obtain desired oil inlet temperatures as serious damage to the ignition harness may result.

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3.2.1.1.3 Time Limitation.-- Repeat the run-up procedure in Paragraph 3.2.1.1.2 every three days but do not exceed five times. If overhaul has not commenced after 15 days, represerve in accordance with Paragraph 3.3.

3.3 Aircraft That Cannot Be Overhauled Within Two Weeks:

3.3.1 Engines:

3.3.1.1 Preservation Run-Up:

3.3.1.1.1 Preliminary.--

- (1) Drain the oil tank and engine sump.
- (2) Replace drain plugs.
- (3) Fill the oil tank with engine compound to the oil level necessary to provide adequate lubrication during the preservation run-up.
- (4) Place a tag (Figure 3) on the instrument panel stating that engine compound, Specification AN-VV-C-576, is in the engine lubricating system.

3.3.1.1.2 Run-Up.--

- (1) Blank off or by-pass oil coolers.
- (2) Warm up engine after checking the oil level (usually 50 percent full) to insure lubrication during the running period.
- (3) Run engine for at least five minutes on service leaded fuel with an oil inlet temperature of 95° C (203° F) to 102° C (216° F).
- (4) Operate both propellers throughout their entire pitch range at least three times during the last run-up of the engine prior to idleness.

**CAUTION:** Measures such as closing the cowl flaps which restrict the flow of cooling air over the engine shall not be used to obtain desired oil inlet temperatures as serious damage to the ignition harness may result.

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3-7-51	6-23-52	SLAYMAKER	<i>[Signature]</i>	<i>[Signature]</i> 8-3-52	<i>[Signature]</i> 8-18-52

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3.3.1.2 Shut Down.- Inject engine compound into the induction system. Advance throttle sufficiently to insure propeller rotation for approximately 30 revolutions after the mixture control is moved to idle cutoff. When this speed has been attained open the valve on a supplementary tank of engine compound maintained at 95° to 121° C (203° to 250° F) to permit injection of the compound into the induction system. Continue induction until the engine smokes from the cylinder exhausts. Put the mixture control into the idle-cutoff position. When the engine stops, close the injection tank valve immediately. When the shut down procedure is completed and the engine is off, reinject compound into the system through the mixture thermometer opening above the carburetor to fill the fuel lines.

3.3.1.3 Disassembly.- Remove the cowl and the front bank of spark plugs while the engine is still warm from the preceding run. When baffles must be removed to remove spark plugs, reinstall the baffles.

NOTE: Do not drain the corrosion-preventive compound in the engine, oil tank, and sump at the completion of the preservation run-up at the elevated temperatures.

3.3.1.4 Rocker Boxes.- Under cold weather conditions inspect an occasional engine to make sure the rocker boxes are dry. If the rocker boxes are wet, remove the covers and spray each rocker box with engine compound thoroughly coating the valve, rocker arms, valve stems, springs, push rods and interior of the boxes. Reinstall the covers with new gaskets.

3.3.1.5 Preserving, Sealing, and Dehydrating:

3.3.1.5.1 Cylinder Spray:

3.3.1.5.1.1 Initial.- Thoroughly spray engine compound into the engine cylinders through the spark plug holes while the crankshaft is being rotated. Spray each cylinder during at least two strokes of the piston. Use a hand pressure gun for this operation.

3.3.1.5.1.2 Final.- Following the mechanical checks and other operations which require operation of the propeller shaft, spray each cylinder again. Use a hand pressure gun for this operation. Accomplish this with propellers in horizontal position.

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3.3.1.5.1.2 Final. - (Continued)

**CAUTION:** If the crankshaft is rotated, repeat this spraying procedure.

3.3.1.5.2 Propeller Tag. - Upon completion of the spraying operation, tape the caution card placard shown in Figure 5 on the propeller blade.

3.3.1.5.3 Cylinder Dehydrator Plugs. - Install AN-4062 dehydrator plugs to a tight seal in the cylinders.

3.3.1.5.4 Crankcase Openings. - Seal all breather openings against oil and moisture with suitable covers, such as flexible sheet moisture vapor barrier, Specification AN-B-20, secured with moisture resistant tape. Install an AN-4061-4 dehydrator plug in the timing inspection holes.

3.3.1.5.5 Dehydration of Engine Intake and Exhaust Ports. - Place and anchor a 1-pound bag of dehydrating agent together with an AN-7511 humidity indicator of appropriate size in each exhaust manifold opening and in each carburetor air intake. Seal the openings with a double thickness of Type I or a single thickness of Type II flexible sheet moisture vapor barrier, Specification AN-B-20, and hold in place with moisture resistant tape. Take care that the induction system is completely sealed. Install the dehydrating agent so it will be removed with the cover of observed when the cover is removed. Place a tag (Figure 6) on the covering of each sealed opening that contains dehydrating agent stating the exact number of bags of dehydrating agent enclosed in the sealed openings.

**NOTE:** Extreme care must be exercised in handling activated dehydrating agent to prevent impairment of its useful absorptive capacity by premature exposure to the atmosphere. The dehydrating agent begins to absorb moisture immediately upon exposure to the atmosphere. It must, therefore, be kept in its moisture-proof shipping can until immediately before use. The can should be resealed carefully after each use to protect any unused bags remaining in the can.

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3.3.1.5.6 Fuel Pumps.- Disconnect the fuel line of fuel pumps attached to the engine and inject engine lubricating oil, Grade 1065, Specification MIL-L-6082 while the shaft of the engine is being rotated to insure complete coverage of the fuel pump parts. Drain auxiliary fuel pumps and similarly lubricate while being operated. Close the fuel selector valve.

3.3.1.5.7 Ignition Cable Protectors.- Install ignition cable protectors conforming to Drawing AN-4060 on spark plug leads. When spark plugs are removed, clean the terminals and contact sleeves with a rag slightly dampened with cleaning solvent. Do not permit the solvent to run down inside the sleeves as it will damage the insulation. Prior to installation of the ignition cable protectors, waterproof the terminals by application of Specification AN-C-128 grease.

3.3.1.5.8 Spark Plugs.- Wipe individual plugs when removed with a rag wet with cleaning solvent. When dry, package each set of spark plugs together with 1/2-pound of dehydrating agent in a can with friction lid.

3.3.1.5.9 Carburetors.- Disconnect all fuel lines, install a suitable nipple in the carburetor fuel inlet connection only, and introduce by means of funnel and hose sufficient lubricating oil, Grade 1065, Specification MIL-L-6082, to flood the carburetor fuel passages completely. Remove drain plugs in the bottom of the carburetor. Flush the carburetor several times with lubricating oil, and actuate the throttle and mixture controls several times. After this procedure, drain the carburetor of lubricating oil and reinstall the connections and plugs.

3.3.1.5.10 Engine Exterior.- Preserve the unpainted parts of the soft-film compound.

3.3.2 Batteries.- Remove the battery and send to the battery shop.

3.3.3 Fuel Tanks:

3.3.3.1 Drain.- Drain tanks and lines through the lowest drain point in the system. If it is apparent that some gasoline will remain in the tanks due to the location of this drain point, attempt to drain off as much as possible by lifting the tail or otherwise altering the attitude of the airplane with relation to the horizontal. Leave vents open.

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3-7-51	6-23-52	SLAYMAKER	<i>H. J. Forrest</i>	<i>Newman</i> 8-3-52	<i>Edwards</i> 8-18-52

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3.3.3.2 Purge-- Fill tanks slowly with CO<sub>2</sub> (carbon dioxide) by placing the hose nozzle near the bottom of the tank. Blank off the drain when CO<sub>2</sub> begins to come out the drain. Allow air to escape out vent and filler openings. Since CO<sub>2</sub> is heavier than air, air will be forced out the top of the tank.

3.3.3.3 Closure-- Put on filler cap, but DO NOT seal vent openings.

3.3.3.4 Inspection Tag-- Attach a white inspection tag (Figure 7) bearing date of purging and signature of inspector to the tanks.

3.3.4 Maintenance of Preservation-- Inspect all the humidity indicators twice each week. If the inspection reveals a relative humidity above 20 percent, replace with fresh activated dehydrating agent. Should inspection reveal a relative humidity above 30 percent, an unsafe condition, refer the matter to Engineering. If the dehydrator has changed color in one-half or more of the cylinders replace the dehydrating agent in the air intake and exhaust system.

3.3.4.1 Preservation Time Limitation-- If overhaul has not been started after 60 days, accomplish the preliminary operations of Paragraph 3.3.4.1.1 and represerve in accordance with Paragraphs 3.3.1.1.2 through 3.3.4.

NOTE: After run-up in accordance with Paragraph 3.3.1.1.2, inspect each cylinder through the spark plug holes for corrosion or pits. If pits or corrosion are present, the engine is to be rejected and referred to Engineering.

3.3.4.1.1 Preliminaries to Represervation:

- (1) Reinstall battery.
- (2) Remove cylinder dehydrator plugs and dehydrating agent, cover plates, nipples, tape, plugs, etc., which have been installed to close lines and other openings.
- (3) Before installing spark plugs, remove any excess corrosion-preventive mixture from the cylinders by means of a hand pump or by draining.

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3-7-51	6-23-52	SLAUGHTER	<i>H. H. Frost</i>	<i>Newman</i> 8-3-52	<i>Blanton</i> 8-18-52

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### 3.3.4.1.1 Preliminaries to Represervation.- (Continued)

- (4) Leave the corrosion preventive mixture in the lubricating system.
- (5) Remove the oil filter and oil screens and clean in solvent, dry, re-oil, and reinstall.
- (6) Spray the upper part of each cylinder with the same oil as that in the crankcase. Turn the engine through four revolutions by hand. If abnormal drag is experienced, the engine is to be rejected and referred to Engineering. If no abnormal drag is felt the engine is to be run up and represerved.
- (7) Fill fuel tank with sufficient gasoline to accomplish the preservation run-up.

### 3.4 Aircraft Entering Plant for Overhaul:

3.4.1 Engines.- The engines on aircraft entering the plant for overhaul are given a preservation run-up before they enter the plant. After the aircraft enters the plant the engines are removed and inspected to determine whether they are to be retained at Beech for minor reconditioning or returned to the Air Force for complete overhaul. All engines are removed, preserved, and crated after the inspection in accordance with the following paragraphs regardless of the disposition to be made after crating. Engines retained at Beech and those received as replacements for engines returned to the Air Force are stored in their crates until they are ready for reinstallation.

3.4.1.1 Preservation Run-Up.- Before the aircraft enters the plant give all engines a preservation run-up in accordance with Paragraphs 3.3.4.1.1, 3.2.1.1.2, 3.3.3.1 through 3.3.3.4.

3.4.1.2 Removal.- Remove engine from airplane and mount on suitable stand for inspection and later preservation and sealing. Then remove all accessories which are to be retained and overhauled. Remove carburetor for subsequent preservation and disposition, but leave the magneto and ignition harness on the engine.

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3-7-51	6-23-52	SLAMAKER	<i>[Signature]</i>	Newman 8-3-52	Adams 8-18-52



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3.4.1.2.1 Propeller Shaft.-- Remove propeller and coat the external portion of the propeller shaft liberally with soft-film compound. Wrap with Grade A paper and secure with moisture resistant tape.

3.4.1.2.2 Cylinder Bores.-- Remove spark plugs and spray all cylinders internally through the spark plug holes with engine compound giving each cylinder a generous coating with the piston at bottom dead center. Following the initial spraying, respray each cylinder through the spark plug openings without further rotation of the crankshaft. Use a compressed-air actuated oil spray gun for this operation.

**NOTE:** Do not remove seal from dehydrator plugs until they are to be installed. Compare all dehydrator plugs with AN-7514 Color Comparison Indicator Card to note condition of dehydrating agent. All plugs showing a relative humidity of over 20 percent are unfit for use.

3.4.1.2.3 Oil Intake and Outlet.-- Seal the oil inlet and outlet with suitable oil and moisture resistant covers or shields of appropriate size.

3.4.1.2.4 Breather Openings.-- Seal all breather openings with an oil and moisture resistant blank cap or dehydrator plug.

3.4.1.2.5 Crankcase.-- Install an AN-4061-4 dehydrator plug in the timing inspection hole.

3.4.1.2.6 Carburetor.-- Drain the carburetor and then thoroughly flush all fuel passages with Grade 1065 oil, Specification MIL-L-6082. Mount the carburetor on a shipping board if one is available. Otherwise pack the carburetor to which is attached a 1-pound bag of dehydrating agent in an appropriate sized carton which has a moisture proof protective lining. Remove excess air and seal liner. Attach the sealed carton securely to the engine case with steel straps.

3.4.1.2.7 Exhaust Manifold.-- Place at least one 1/2-pound bag of dehydrating agent in the exhaust opening of the exhaust manifold. Anchor bag in place and seal the opening with vapor proof barrier material, securing with Grade A, Type I, moisture resistant tape. See note in Paragraph 3.3.1.5.5.

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3-7-52	6-23-52	SLAYMAKER	<i>H. K. Frost</i>	<i>Newman</i> 8-3-52	<i>Edman</i> 8-18-52

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3.4.1.2.8 Intake Manifold.- Place either one 1-pound or two 1/2-pound bags of dehydrating agent in the intake, and close the openings with moisture resistant covers.

3.4.1.2.9 Spark Plug Leads.- Support the spark plug leads using protectors and cable supports (AN4060, Protectors; Ignition Cable). Clean the spark plug terminal sleeves and flexible metal ignition harness with a clean rag wet with cleaning solvent and subsequently coat with a film of AN-C-128 insulating and sealing compound. Insert insulating and sealing compound into the terminal lead protectors to prevent moisture condensation.

3.4.1.2.10 Cylinder Dehydrator Plugs.- Install AN4062 cylinder dehydrator plugs, in each spark plug opening and screw to a tight seal.

3.4.1.2.11 Magnetos.- Seal all external openings in the magnetos with moisture resistant tape. Coat the cam breaker mechanism generously with MIL-L-6082, Grade 1100 oil.

3.4.1.2.12 Accessory Drives and Primer Lines.- Coat accessory drives and primer lines with soft-film compound.

3.4.1.2.13 Spark Plugs.- Wipe the plugs with a clean rag wet with cleaning solvent, allow time to dry, and then coat the threads and body with soft-film compound. Wrap plugs individually in Grade C paper, secure with tape, and pack in a carton of appropriate size suitable for shipment to overhaul depots. Spark plugs are considered repairable and are shipped to the overhaul depot in separate cartons for reconditioning. A new or reconditioned set of spark plugs is available for new or reconditioned engines from GFAE stocks.

3.4.1.2.14 Exhaust Ports.- Spray each exhaust port with engine compound to thoroughly coat the exhaust valve. Seal the individual exhaust ports with wood plates backed with an oil and moisture resistant gasket material. Use a compressed air actuated oil spray gun for this operation.

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3-7-51	6-23-52	SLAMAKER	<i>[Signature]</i>	<i>[Signature]</i> 9-3-52	<i>[Signature]</i> 5-18-52

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#### 3.4.1.3 Final Packaging:

3.4.1.3.1 Wood Container With Moisture-Vapor Proof Envelope.- Pack the engine and all accompanying accessories in an AN4871 engine protective envelope and then in a wooden shipping case. The wooden case shall conform to Specification AN-C-137 or be acceptable to the procuring service. Examine the engine box for any damaged areas and make necessary repairs, open drain holes, and remove all excess matter. Use 4 by 7/16-inch bolts with lock washers under all nuts to secure engine to mounting plate.

3.4.1.3.1.1 Fitting Envelope to Engine.- The procedure for fitting the envelope to the engine may be varied with discretion, but in all cases be sure that there is a tight seal between the engine and the anchor plate or saddle. Exercise care in fitting the envelope to the anchor plate and the engine so it is not damaged or torn. Locate inspection window in moisture-vapor proof barrier so the dehydrator indicator is clearly visible.

3.4.1.3.1.2 Protection of Envelope.- In order to protect the envelope from being damaged from abrasion or tearing on sharp protrusions, sharp edges, miscellaneous wires, or otherwise being punctured, place a band of single faced fiberboard or heavy creped paper directly around the engine. Make a cutout at a spot where the humidity indicator will be installed.

3.4.1.3.1.3 Placement of Dehydrating Agent.- Distribute a minimum of 25 pounds of dehydrating agent in bags evenly about the engine and secure the bags to the engine in appropriate manner. See NOTE in Paragraph 3.3.1.5.5.

3.4.1.3.1.4 Fastening of Humidity Indicator.- Fasten an AN7511 humidity indicator to the engine in such manner that it will easily be visible from the inspection port of the engine box after the box has been closed.

3.4.1.3.1.5 Closing and Sealing Envelope.- Raise the envelope over the engine and bring the ends together and seal in accordance with the instructions appearing on the envelope. Close nonheat-sealable envelopes by gathering the top, wrapping tightly with JAN-P-127 cloth tape, and clamping with an AN737 hose clamp. Before final sealing remove excess air from the envelope. Fold excess envelope material carefully around the propeller shaft and secure with tape.

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3-7-51	6-23-52	SLAYMAKER	<i>W. L. Forrest</i>	<i>Newman</i> 8-3-52	<i>Johnson</i> 8-18-52

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3.4.1.3.1.6 Final Closure in Wooden Engine Box.- Prior to lowering the engine case cover over the envelope-enclosed engine, check the envelope covering for leakage from holes or tears. As a final precaution against damage of the envelope from abrasion by the box lid, wrap a band of heavy creped paper or single faced corrugated fiberboard provided with a cutout around the engine. Be sure that the cutout is positioned so the humidity indicator will be visible through the inspection port of the box lid. When the lid is in place, secure it firmly to the base of the box in a suitable manner.

3.4.1.3.2 Steel Container Without Moisture-Vapor Proof Envelope:

3.4.1.3.2.1 Placement of Engine.- Lower engine into container and secure. Use 4 by 7/16-inch bolts with lock washers under all nuts.

3.4.1.3.2.2 Placement of Dehydrating Agent.- Distribute a minimum of 26 pounds of dehydrating agent in bags evenly about the engine and secure the bags to the engine in appropriate manner. See NOTE in Paragraph 3.3.1.5.5.

3.4.1.3.2.3 Placement of Humidity Indicator.- Secure an AN7511 humidity indicator to the engine.

3.4.1.3.2.4 Closing of Lid.- Insert sufficient flange bolts in the bolt flange and flange gasket to hold the gasket in place. The holes in the gasket will hold the bolts and act as guides for placing the top of the container in place. Lower the top of the container carefully over the engine and install the remainder of the bolts. Then place the nuts on the bolts and tighten to a torque of 600-800 inch-pounds around the flange.

**CAUTION:** Do not use synthetic gasket material, grease, or oil as an additional sealant as permanent damage to the rubber gasket will result. Dusting the rubber gasket with powdered graphite, or talcum, to facilitate re-opening is permitted. Vertical lines indicating the relative position of the top and bottom of the container shall be painted as close to the flange as practicable. This will permit re-use of the gasket which may otherwise leak if reassembled in a different position.

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3-7-51	6-23-52	SLAYBAKER	<i>H. H. Foster</i>	<i>Lawman</i> 8-3-52	<i>Lawman</i> 8-18-52

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3.4.1.3.2.5 Pressurization of Container.-- Fill the container to 5 pounds psi internal gage pressure through the filler valve. Use dehydrated air for this purpose.

3.4.1.3.2.6 Preservation of Flange Bolts.-- After assembly, coat the exposed threads on the bolts holding the top and bottom sections of the container together with MIL-C-6708 corrosion-preventive compound.

3.4.1.3.2.7 Testing of Container for Leaks.-- Test containers for air leaks around the flange and gasket.

3.4.1.3.3 Record Forms:

3.4.1.3.3.1 Technical Instruction Compliance Record (Form 60B).-- Make all entries on Form 60B. Wrap in waterproof barrier material and place in log book holder in the wooden containers. Place unwrapped in the log book receptacle in the side of the steel containers and close the receptacle opening.

3.4.1.3.3.2 Preservation Activity and Inspection Form.-- Attach "Storage Inspection Record" form (Figure 4) to the outside of the engine box. Locate the form adjacent to the inspection port on the wooden containers and adjacent to the spark plug hole on the steel containers. Transfer information accumulated on this form during the storage period to the Technical Instruction Compliance Record, Form 60B.

3.4.2 Propellers:

3.4.2.1 Propellers Retained at Beech.-- Retain all Aero-Products propellers with less than 300 hours that are in a serviceable condition for reinstallation. Remove and secure all loose components to the propeller so they will not become lost or damaged. Thoroughly clean the entire assembly with cleaning solvent and apply soft film compound to the entire assembly. Pack for storage in standard propeller boxes in which new assemblies have been received.

3.4.2.2 Propellers Returned to the Air Force.-- Return all propellers other than Aero-Products propellers meeting the above requirements to the Air Force for replacement. Prepare for shipment in accordance with the following paragraphs.

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3-7-51	6-23-52	SLAVINER	<i>H. H. Foster</i>	<i>Neuman</i> 8-2-52	<i>Adams</i> 8-7-52

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3.4.2.2.1 Preservation.- After removal from the airplane, treat as follows: Thoroughly clean the entire assembly with cleaning solvent. Pull snap ring and first clean, then grease, the piston, snap ring, front cone, cylinder, spline hub, and rear cone seat with MIL-L-7711 grease and reassemble. Fill slot in counterweights with Specification MIL-L-7711 grease. Apply soft-film compound to entire assembly. Cover hub at rear cone seat with Grade A paper and tape with moisture resistant tape. Cover counterweights with either Grade A or Grade C paper and tape with moisture resistant tape.

NOTE: The above procedure should be a continuous procedure with a minimum of elapsed time between any two steps.

3.4.2.2.2 Log Book.- Make appropriate entries in log book and attach to propeller.

3.4.2.2.3 Packaging.- Pack assemblies for shipment using the standard boxes in which new assemblies are received.

3.5 Maintenance of Preservation on Crated Engines and Propellers.- Inspect all the humidity indicators every two weeks. If the inspection reveals a relative humidity above 20 percent, replace with fresh activated dehydrating agent. Also inspect each cylinder through the front spark plug opening for corrosion. If corrosion is present, refer the matter to Engineering. If inspection reveals a relative humidity above 30 percent, an unsafe condition, refer the matter to Engineering.

### 3.6 Reinstallation of Engines and Propellers:

#### 3.6.1 Engines:

3.6.1.1 Removal from Container.- After the cover of the engine shipping box has been removed, carefully cut the seal at the top of the engine envelope in order to remove the least possible amount of material. Carefully roll the engine envelope down from the engine without damaging the envelope. Remove all bags of dehydrating agent and the humidity indicator card from the interior of the engine. After removing the shipping bolts and nuts, remove the engine from both the shipping box and the envelope. Remove the envelope, clean if necessary, and fold for subsequent use.

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**3.6.1.2 Represervation and Conditioning.**- Do not drain the corrosion-preventive compound from the engine nor turn the propeller shaft until one week prior to the initial ground run-up of the engine after installation. Remove the dehydrator plugs from the back row of cylinders and install the spark plugs. Do not remove the dehydrator plugs from the front row of cylinders unless they indicate a relative humidity above 20 percent. Do not remove the exhaust port covers and the air intake cover from the engine until the exhaust manifold or any part thereof, or the carburetor is to be installed on the engine. If the exhaust manifold or any part thereof, or the carburetor should be installed at a period of more than ten days before it is anticipated that the engine will be given the initial ground run-up, install in all such openings at least 1/2-pound of dehydrating agent and seal the opening with a double thickness of AN-B-20, Type I or a single thickness of AN-B-20, Type II barrier-material held in place with moisture resistant tape. Seal slip joints and drain holes of the manifold with moisture resistant tape. Install the dehydrating agent so it can be removed with the cover or observed when the cover is removed, and attach a tag (Figure 6), "Placard- Dehydrating Agent", indicating the number of bags of dehydrating agent in a conspicuous nearby location.

**3.6.1.3 Preparations for Ground Run-Up:**

**3.6.1.3.1 Carburetor.**- Slush the carburetor with gasoline thoroughly through the fuel inlet to remove the oil.

**3.6.1.3.2 Cuno Oil Strainer.**- Remove the Cuno oil strainer, immerse in gasoline several times without rotating the strainer and then blow out with compressed air. Repeat this operation until the strainer is thoroughly clean. After cleaning, lubricate the discs by immersing in clean engine oil and blowing with air prior to reinstallation on the engine. This is especially essential on the automatic type in order to insure immediate automatic operation when reinstalled on the engine.

**CAUTION:** Do not rotate the Cuno strainer when removed from the engine as damage may result to the strainer due to twisting of the strainer cartridge. However, after installation, rotate the cartridge several revolutions by means of an external handle or by turning the shaft nut.

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3-7-51		6-23-52	SUNNIKER	<i>[Signature]</i>	Newman 8-3-52	<i>[Signature]</i> 8-18-52

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3.6.1.3.3 Dehydrating Agents.- Remove all moisture-proof coverings on breathers, exhaust manifold, intake manifold, etc., and all dehydrating agents contained therein. Remove the dehydrating plugs from the front row of engine cylinders. Remove the plug from the oil sump and allow the corrosion-preventive mixture to drain from the engine, rotating the propeller shaft to facilitate adequate draining. Use a hand pump to insure proper removal of the corrosion-preventive mixture.

3.6.1.3.4 Propeller Shaft:

3.6.1.3.4.1 Inspection.- Visually inspect the cleaned areas of the propeller shaft for corrosion.

3.6.1.3.4.2 Corrosion Removal.- If corrosion is present, remove the thrust nut and repeat the cleaning process with care to prevent any of the solvent from entering the engine. Remove the corrosion by polishing the affected areas with crocus cloth or with a small hand buffing wheel, using jewelers rouge or suitable substitute.

**CAUTION:** Do not use any abrasive coarser than that specified.

3.6.1.3.4.3 Pitting.- If the propeller shaft is found to be pitted refer the matter to Engineering.

3.6.1.3.4.4 Reassembly of Thrust Nut.- Fill the cavity between the thrust nut and the propeller shaft with soft-film compound and apply a thin coat to the entire propeller shaft.

3.6.1.3.4.5 Installation of Rubber Sheet.- Install a piece of MIL-R-6855, Class 2, 1/8-inch rubber sheet in the slot of the rear cone. Use a razor blade or sharp knife to trim the rubber to the contour of the rear cone cross section, using care to prevent any rubber from protruding beyond the surface of the cone. Apply AN-C-124 compound liberally to the rear cone seat area.

3.6.1.3.4.6 Installation of Rear Cone.- Press the rear cone against the corrosion-preventive compound in the seat area. Then rotate the cone about the shaft and against the thrust nut to displace as much

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3-7-51	6-23-52	SLAYMAKER	<i>H. K. [Signature]</i>	Newman 8-3-52	<i>[Signature]</i> 8-18-52



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#### 3.6.1.3.4.6 Installation of Rear Cone.- (Continued)

of the compound as possible from the mating surfaces and force it into the space between the rear cone and the thrust nut. Wipe off the excess compound in such a manner as to leave a thin film of compound on the mating surfaces of the cone.

#### 3.6.1.4 Engines Retained at Beech But Found to Be Unserviceable.-

If engines that were retained at Beech are found to be unserviceable when they are uncrated and made ready for reinstallation, they should be re-assembled, any preservation that was destroyed restored, and prepared for shipment in accordance with Paragraphs 3.4.1.2 through 3.4.1.3.3.2 as applicable.

#### 3.6.2 Propellers:

3.6.2.1 Depreservation and Conditioning.- Thoroughly clean the entire assembly with cleaning solvent.

3.6.2.2 Installation.- Install the propeller and tighten to the proper torque.

#### 3.6.3 Initial Ground Run-Up:

3.6.3.1 Conditioning the Oil System.- Completely fill the oil system with engine compound, then:

- (1) Momentarily open "Y" drain valve to ascertain the flow of oil from the tanks.
- (2) Remove oil sump plugs.
- (3) Disconnect oil pressure line at firewall.
- (4) Install check valve plugs in the No. 3, 4, 5, 6, 7, and 8 front cylinders, leaving the No. 1, 2, and 9 cylinders open, to clear cylinders and intake pipe of preservative oil.
- (5) Turn engine over with external power source to ascertain that pressure is built up beyond the pump. This will be indicated by a steady flow of oil from the pressure line.

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3-7-51	6-23-52	SLAYBACK	H. K. [Signature]	Newman 8-3-52	[Signature] 8-18-52

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#### 3.6.3.1 Conditioning the Oil System-- (Continued)

- (6) Reconnect pressure line and turn engine over with external power source until oil flows from the sump plug opening.

**CAUTION:** If oil fails to flow from the pressure line within a period of 11 seconds of operation, stop the turning over and check for obstruction or air bubbles. Similarly, after this line has been reconnected, if oil fails to flow from the sump opening within 15 seconds, stop turning it over, allow it to stand for a minute or two, and repeat. If oil again fails to flow through within 15 seconds, check for obstruction.

- (7) Remove check valve plugs and reinstall sump plugs and spark plugs.
- (8) Connect to the ignition system.
- (9) Start the engine and complete ground run-up performance.

3.6.3.2 Retorquing the Propellers-- Warm up engine for 15 minutes, then retorquer propeller for tightness.

3.6.3.3 Instrument Panel Tag-- Place a tag (Figure 3) on the instrument panel stating that AN-VV-C-576, engine compound is in the engine lubricating system.

#### 3.6.4 Record Forms:

3.6.4.1 Technical Instruction Compliance Record - (Form 60B)-- Make all entries on Form 60B and wrap in waterproof barrier material before placement in log book holder.

3.6.4.2 Storage and Handling Check-Off Form-- Upon receipt of the engine, attach "Storage and Handling Check-Off Form for Aircraft Engines" as shown in Figure 8 to the exterior of the engine box on the side which has the inspection port. This form is to remain with the engine upon delivery

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#### 3.6.4.2 Storage and Handling Check-Off Form. - (Continued)

of the aircraft to the Flight Department. Completely fill out this form as applicable and sign or stamp the date on which the various inspection or operations are performed.

#### 3.7 Aircraft Awaiting Fly Away:

##### 3.7.1 Engine Run-Up:

- (1) Blank off or by-pass oil coolers.
- (2) Check to make certain that the oil system is filled before starting engine.
- (3) Run engine for at least 15 minutes on service leaded fuel with an oil inlet temperature of 95° C (203° F) to 102° C (216° F).
- (4) Operate both propellers throughout their entire pitch range at least three times during the last run-up of the engine prior to idleness.

**CAUTION:** Measures such as closing the cowl flaps which restrict the flow of cooling air over the engine shall not be used to obtain desired oil inlet temperatures as serious damage to the ignition harness may result.

3.7.1.1 Time Limitation. - Repeat this run-up procedure each seventh day until aircraft is delivered.

3.7.2 Tires. - Inflate tires to 30 pounds per square inch. Cover tires with a suitable oil-proof cover. A board with a clean surface next to the tire is satisfactory.

DATE	ISSUE	DATE REVISED	WRITTEN	APPROVED	CHIEF DRAFTERMAN	CHIEF ENGINEER
3-7-51		6-23-52	SLAYMAKER	<i>A. L. Powell</i>	<i>Neuman</i> 8-3-51	<i>D. Adamson</i> 8-18-52

# Beach Aircraft Corporation

Wichita, Kansas

SPEC. NO. BB 395A

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## SPECIFICATION

### PRESERVATION PROCEDURE FOR MODEL C-45G

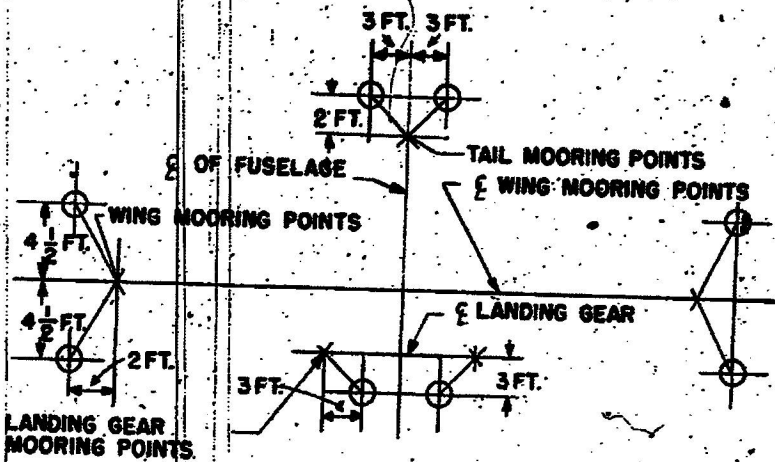


FIGURE 1  
MOORING DIAGRAM

REV. ISSUE	DATE REVISED	WRITTEN	APPROVED	CHIEF DRAFTSMAN	CHIEF ENGINEER
3-7-51	6-23-52	SLAYMAN KER	<i>H. H. Farnsworth</i>	Newman 8-3-52	<i>Oliver</i> 8-18-52

2

## PRESERVATION PROCEDURE CHECK-OFF FORM

SERIAL NO. \_\_\_\_\_ AIRCRAFT TYPE \_\_\_\_\_

DATE RECEIVED \_\_\_\_\_

Item	Accomplished	
	Date	Workman
<b>PRELIMINARY</b>		
1. Remove ammunition and destructors.		
2. Remove loose gear.		
3. Remove deicer boots and cap deicer tubing.		
4. Remove ordnance gear.		
5. Remove gun cameras.		
6. Preserve Curtiss C-2 view finder.		
7. Remove secret and confidential equipment.		
<b>ENGINE</b>		
1. Install Type II AN-VV-C-576.		
2. Run up engine at least 15 minutes on Type II compound at temperatures of 203 to 216° E. Operate propellers through pitch range several times. Operate all blowers.		
3. Inject compound into induction system during shut down of the engine.		
4. Remove spark plugs. Preserve, package and stow.		
5. Immediately spray cylinders while rotating crankshaft.		
6. Finally spray cylinders without rotating propeller shaft.		
7. Install cylinder dehydrator plugs.		
8. Seal breather and other openings into the engine.		
9. Dehydrate exhaust outlets and seal.		
10. Install ignition cable connectors. Insulate terminals with AN-C-128.		
11. Replace all baffles.		
12. Preserve propeller.		
13. Preserve unpainted bright metal parts of engine such as propeller hubs, flaying surfaces and exposed studs with a coating of Type II AN-VV-C-576.		
14. Cover air intake scoops.		
15. Coat all nuts, bolts, etc. obtained from disassembly with AN-C-124, place in cloth bag and attach securely to engine.		
16. Install placard on propeller.		
17. Make log book notation. (Navy responsibility)		
<b>ENGINE ACCESSORIES</b>		
1. Drain and purge fuel tanks for indoor storage.		
2. Preserve fuel pump.		
3. Preserve carburetor. Reconnect fuel lines.		
4. Replace all cowling.		
<b>LANDING AND ARRESTING GEAR</b>		
1. Inflate tires.		
2. Coat all unpainted metal parts with AN-C-124 or AN-G-15.		
<b>ELECTRONIC AND ELECTRICAL</b>		
1. Remove batteries.		
2. Waterproof electrical connectors left open by disassembly.		
<b>INSTRUMENTS</b>		
1. Install pitot tube covers.		
2. Cage gyro instruments.		
3. Remove clock.		
<b>FUSELAGE, WINGS AND EMPENNAGE</b>		
1. Preserve oxygen regulator.		
2. Clear all drain holes.		

**Beech Aircraft Corporation**  
Wichita, Kansas

spec. no. BB 375A  
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**SPECIFICATION**

**PRESERVATION PROCEDURE FOR MODEL C-45G**

TYPE II ENGINE CORROSION  
PREVENTIVE COMPOUND  
SPECIFICATION AN-VV-C-576  
IS IN THE  
ENGINE LUBRICATING SYSTEM

764-180043  
Placard - Engine  
Corrosion Preventive  
Compound

Figure 3

BEECH AIRCRAFT CORPORATION  
Wichita 1, Kansas

**STORAGE INSPECTION RECORD**

Engine preserved in accordance with T.O. O2A-1-1, Section VI, Operable Engines Destined for Overhaul. This engine is packaged in an engine envelope for preservation by use of dehydrating agent. The carburetor, spark plugs, etc., are included herewith. This shipping case contains an inspection door for viewing the humidity indicator. Do not break seals on envelope (s) within the case until ready for use unless inspection of the humidity indicator (s) within the envelope (s) has shown renewal of the dehydrating agent or internal inspection to be necessary.

Preserved by \_\_\_\_\_  
Preserving Activity

DATE \_\_\_\_\_

**INSPECTED BY**

- (1) \_\_\_\_\_ DATE \_\_\_\_\_  
(2) \_\_\_\_\_  
(3) \_\_\_\_\_  
(4) \_\_\_\_\_

**DEHYDRATING AGENT RENEWED BY**

- (1) \_\_\_\_\_ DATE \_\_\_\_\_  
(2) \_\_\_\_\_

Figure 4

DATE ISSUE	DATE REVISED	WRITTEN	APPROVED	CHIEF DRAFTSMAN	CHIEF ENGINEER
3-7-51	6-23-52		<i>H.K. French</i>	<i>Heinrich</i> 8-3-52	<i>Blair</i> 8-18-52

# Beech Aircraft Corporation

Wichita, Kansas

SPEC. NO. BS 375A

SPECIFICATION

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## PRESERVATION PROCEDURE FOR MODEL C-45G

ENGINE PRESERVED  
DO NOT ROTATE PROPELLER  
Date Preserved \_\_\_\_\_

694-180044  
Placard - Overhaul  
Preservation

Figure 5

DEHYDRATING  
AGENT  
WITHIN  
\_\_\_\_\_ BAGS

764-180046  
Placard - Dehydrating  
Agent

Figure 6

THIS TANK HAS BEEN PURGED  
DATE \_\_\_\_\_  
INSPECTOR \_\_\_\_\_

764-180045  
Placard - Purged Tank

Figure 7

DATE OF ISSUE	DATE REVISED	WRITTEN	APPROVED	CHIEF DRAFTSMAN	CHIEF ENGINEER
1-51	6-23-52		<i>H. K. Forest</i>	<i>Neuman</i> 8-3-52	<i>Edwin</i> 8-18-52







