Beech Aircraft Corporation

OVERHAUL SPECIFICATION

RADIO COMPASS AND RELATED EQUIPMENT

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

Overhaul Specification 3410

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TITLE RADIO COMPASS AND RELATED EQUIPMENT - MODEL C-45G, C-45H, AND SNB-5

ISSUED 5-20-53

WRITTEN BY M. D. Davis; Revised: T. R. Taylor REVISED 9-30-54

1. SCOPE

1.1 Purpose.- The purpose of this specification is to provide instructions for reconditioning and modifying radio compass and related equipment as listed in Paragraph 3.1.2 of this specification for use on Model C-45G, C-45H, and SNB-5 aircraft.

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*	9-30-54	Record Revision	Record Change
2	5-20-53		
3	5-20-53		
4	5-20-53		
5*	9-30-54	Change Para. 3.3.5 (b) to specify overhaul of I-81 indicators	Record Change
6	5-20-53		
7*	9-30-54	Add Para. 3.4.3	Record Change
8*	9-30-54	Added at this Revision	Record Change

2. APPLICABLE PUBLICATIONS

2.1 Beech.-

OS 7008 General Acceptable Quality Standards

2.2 Technical Orders.- Technical orders 16-30ARN7-3 Radio Compass AN/ARN-7, dated August 25, 1945 and revised May 19, 1952 and 16-35R5-21, Modification of Autosyn Rotor Power Supply Circuit, dated March 13, 1946, become a part of this specification by reference and a copy of each is maintained in the area where the overhaul work is to be accomplished.

NOTE: Compliance with this specification constitutes compliance with technical order 01-1-179, Reduction of Precipitation Static Effects, dated May 2, 1944.

3. REQUIREMENTS

3.1 Parts Involved:

3.1.1 Parts Not Used.- None.

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.

R-5/ARN-7	Compass receiver
R-5A/ARN-7	Compass receiver
C4/ARN-7	Control box
I-81-(A,L,N)	Indicator
LP-21-(A,AM,L,LM)	Loop
——	Loop dehydrator
——	Dehydrator hose

3.1.2 Parts to be Reconditioned.- (Continued)

CD-365	Cord
CD-365A	Cord
BK-22-K	Relay
Type SW-172-(A,B,C)	Relay

3.1.3 Parts to be Supplied New. - None

3.2 Cause for Rejection.- The following specific conditions as well as damage or wear which cannot be corrected by one or more of the methods described herein is cause for rejection.

3.2.1 Loops LP-21-L and LP-21-LM.-

(a) Cracks of any size in loop housing.

3.2.2 Dehydrator Hose.-

(a) If hose is collapsed or cracked, replace with new hose.

3.3 Reconditioning Operations:

3.3.1 Applicable to All Parts.-

(a) Inspect all nuts, bolts, and screws for looseness. Do not tighten or loosen glyptalled screws or nuts unless they are loose. If they are loose, remove screws or nuts, apply glyptal, replace and tighten.

(b) Remove loose solder, dirt, and metallic chips.

(c) Clean equipment thoroughly, and touch up scratched paint.

(d) Remove all traces of corrosion.

(e) Inspect soldered joints.

(f) Inspect wiring. If more than two strands are broken at a soldered joint, cut off lead and resolder. If wires seem to be breaking from vibration, clamp a soldering lug to the lead and resolder.

3.1.2 Parts to be Reconditioned.- (Continued)

CD-365	Cord
CD-365A	Cord
BK-22-K	Relay
Type SW-172-(A,B,C)	Relay

3.1.3 Parts to be Supplied New.- None

3.2 Cause for Rejection.- The following specific conditions as well as damage or wear which cannot be corrected by one or more of the methods described herein is cause for rejection.

3.2.1 Loops LP-21-L and LP-21-LM.-

(a) Cracks of any size in loop housing.

3.2.2 Dehydrator Hose.-

(a) If hose is collapsed or cracked, replace with new hose.

3.3 Reconditioning Operations:

3.3.1 Applicable to All Parts.-

(a) Inspect all nuts, bolts, and screws for looseness. Do not tighten or loosen glyptalled screws or nuts unless they are loose. If they are loose, remove screws or nuts, apply glyptal, replace and tighten.

(b) Remove loose solder, dirt, and metallic chips.

(c) Clean equipment thoroughly, and touch up scratched paint.

(d) Remove all traces of corrosion.

(e) Inspect soldered joints.

(f) Inspect wiring. If more than two strands are broken at a soldered joint, cut off lead and resolder. If wires seem to be breaking from vibration, clamp a soldering lug to the lead and resolder.

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3.3.2 Radio Compass Units R-5/ARN-7 and R-5A/ARN-7.- (Continued)

(g) If not already accomplished, modify as required in accordance with TO 16-35R5-21.

(h) Check for trouble, make necessary adjustments, and perform test operations as applicable as indicated in Section V, Paragraphs 3, 4, 7, 8, and 9 of TO 16-ARN7-3. Test sets and equipment as indicated or equivalent may be used.

3.3.3 Loop LP-21-(A,AM,L,LM).-

(a) Determine whether drive mechanism is operating satisfactorily.

(b) Inspect loop housing for cracks. Small cracks in loop housings, LP-21-A and LP-21-AM, may be repaired by sealing with EC-164 sealing compound. Cracks in loop housings LP-21-L and LP-21-LM may not be repaired. Reseal all loop housings in accordance with Section V, Paragraph 5.c.(1)(f)2, TO 16-ARN7-3.

(c) Refinish loop housings LP-21-A and LP-21-AM completely using graphite paint mixture of 3 parts flake graphite, 1 part flat black lacquer and 4 parts lacquer thinner. Stir thoroughly at all times. Print, paint or stencil on both sides of the aft end of the housing, "Paint only with conducting paint, stock No. 6GK1486-1" using letters approximately 3/8-inch high and yellow, orange or white paint. Print, paint or stencil on both sides of the base, as near the top as possible, "Loop LP-21-A (non-static)" or "Loop LP-21-AM (non-static)", as applicable, using letters approximately 3/8-inch high and yellow, orange or white paint.

(d) Check operation and test as described in Section V, Paragraph 7.b. and other applicable portions of TO 16-30ARN7-3. Use test equipment indicated or applicable.

3.3.4 Radio Control Box C4/ARN-7.-

(a) Inspect, clean and lubricate the dial drive mechanism and tuning shaft coupling. Visually inspect tuning meter. Do not open the case. If unserviceable, replace the meter.

3.3.5 Indicator I-81-(A,L,N).-

(a) Inspect visually for nonrepairable conditions and check pointer to see if it follows the loop rotation without sticking, jerking, or fluttering. Perform operations indicated on Beech Drawing 694-180817.

(b) Overhaul and test as outlined in TO 16-ARN/7-3.

3.3.6 Loop Dehydrator and Hose.-

(a) Inspect the dehydrator dessicant for indication of excessive moisture in the loop dehydrator unit. If the dessicant has a dark blue color, its condition is satisfactory. If light blue or pink in color, refill with dark blue dessicant. If no dessicant is available, other than that removed, proceed as described in Paragraph 3.4 of this specification.

(b) Form dehydrator clamps to a snug fit to the dessicant tube.

(c) Test connections by applying two pounds of air pressure with soapy water on the connections.

(d) If the dehydrator is not to be placed in service immediately, plug or tape the vent and the opening in the hose connector while it is in storage.

3.3.7 Relay BK-22-K.-

(a) Inspect as indicated in Section V, Paragraph 1.b.(1), TO 16-30ARN7-3.

(b) Clean all contacts, including the on-off relay, with carbon tetrachloride. Dress leads if necessary. Make sure that the armature pigtails of the on-off relay will not touch the side of the case when reinstalled in the case. If it is apparent that the relay is operating satisfactorily, nothing further should be done. However, should the relay not function properly, the following information will aid in servicing the relay mechanism:

(1) Operating voltage; nominal 28 volts DC, minimum 18 volts DC. The relay should be capable of positive operation at the minimum voltage. The operating voltage is the control system DC voltage and may be read in the manner described in Section V, Paragraph 1.b.(2)(d), TO 16-30ARN7-3.

(2) The coil resistance should be approximately 7.0 ohms.

(3) With no voltage applied to the coil, turn the shaft by hand, counterclockwise facing the ratchet assembly. It should be possible to turn the shaft in only one direction. The ratchet should click once for each 30 degrees rotation of the shaft.

(4) Check for correct operation of the relay and ratchet assembly by grasping the relay end of the shaft and turning 30 degrees to the stop. Repeat this several times. Each time, the switches should operate.

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3.3.7 Relay BK-22K.- (Continued)

(5) Check all short switch clips for correct switch operation. As each blade passes through a clip, the clip should move indicating that good contact is being made.

(6) The small spring operated detent at the ratchet side of the motor should operate once per step to prevent reverse stepping.

3.4 Authorized Repairs:

3.4.1 Loops LP-21-A and LP-21-AM.-

(a) Repair small cracks by sealing with EC-164 sealing compound.

3.4.2 Loop Dehydrator.-

(a) If no dessicant is available other than that removed, heat the particles in a flat pan, stirring occasionally, to a temperature of 177 degrees centigrade (350 degrees fahrenheit), until it resumes a dark blue color. Cool the dessicant and immediately pour it back into the tube and reassemble.

3.4.3 Indicator I-81- (A, L, N).- In addition to those parts listed in AN 16-30ARN7-3, the following parts shall be replaced when found to be unserviceable:

Part Number	Name	No. Req.
PB-21601	Rotor Assembly (BG-2)	1
PB-21402-1	Shield	1
PB-21402-2	Shield	1
Type A or B*	Pointer	1

*Pointers are identified only by style of hand. When ordering pointers specify type A (wide hand) or Type B (narrow hand) and specify the entire type number of the instrument on which the pointer is to be used.

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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 Standards.-

(a) The loop housings may be interchanged.
(b) Loop housings LP-21L and LP-21-1M may be painted if necessary to reduce the effect of precipitation static.