

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 complete radio system as installed in T-7, T-7C, UC-45B, C-45F, and T-11 aircraft and instructions for modifications required to adapt them for installation in Model C-45G and C-45H aircraft in accordance with Drawing 694-180670.

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>
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APPROVED:

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USAF Quality Control

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PROJECT ENGINEER <i>[Signature]</i>		RADIO SYSTEM - MODEL C-45G AND C-45H	
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2. APPLICABLE PUBLICATIONS

2.1 Specifications:

2.1.1 Military.-

MIL-I-6868 Magnetic Inspection
 MIL-P-4871 Plating; Chromium

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
 OS 3410 Radio Compass and Related Equipment
 OS 3411 Interphone Jack Box Assembly
 OS 3412 Inverters
 OS 7002 Cleaning Procedures for Reconditioned Aircraft
 OS 7008 General Acceptable Quality Standards
 OS 7010 Removing Corrosion from Aluminum Parts

2.2 Technical Orders.- Compliance with this specification constitutes compliance with the portions of the technical orders listed below that are applicable to overhaul and reconditioning of those parts and assemblies covered by this specification.

16-1-29 Headsets and Microphones, dated August 15, 1950
 16-35R122-3 Radio Receiver R122/ARN-12, dated September 15, 1951
 16-4ORC193-3 Marker Beacon Receiving Equipment, dated May 13, 1952
 16-4OSCR274-5 Radio Set, dated February 15, 1943
 16-3OARN7-3 Radio Compass AN/ARN-7, dated August 25, 1945

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2.2 Technical Orders.- (Continued)

16-1-46 Changes from High to Low Impedance Output, dated June 30, 1945

16-30A1C2-3 Interphone Equipment, dated September 21, 1951

16-4ORC175-2 Interphone Equipment, dated November 25, 1944

16-30AEN12-7 Marker Beacon Receiver AM/ARN12, dated February 25, 1951

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 3410 Radio Compass and Related Equipment

OS 3411 Interphone Jack Box Assembly

OS 3412 Inverters

3.1.1 Parts Not Used.- All parts listed on Drawings 804-180604, 84-180670, 804-180670, 814-180670, 824-180670, 814-180671, 824-180671, and 824-180760 radio installation will be disposed of at the direction of the customer, except those parts listed in Paragraph 3.1.2 of this specification.

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.

FE-86-(any letter A thru Z) Dynamotor

824-180682 ? Dynamotor

BC-347-A Amplifier

BC-347-C Amplifier

804-180674 Amplifier

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3.1.2 Parts to be Reconditioned. - (Continued)

804-180939	Amplifier
84-180622	Bracket assembly
84-180624	Clip assembly
Type SW-172-(A,B,C)	Relay
180634P	Holder
BC-453-A	Receiver (less dynamotor)
BC-453-B	Receiver (less dynamotor)
MG-149F	Inverter
MG-149H	Inverter
94-3227GA	Inverter
FT-161	Mounting
FT-213-A	Mounting
R-5/ARN-7	Compass receiver
R-5A/ARN-7	Compass receiver
CD-365,	Cord
CD-365A	Cord
—	Dehydrator loop
—	Dehydrator hose
HS-33	Headset
T-17	Microphone
IP-21-(A,AM,L,IM,)	Loop
R-122/ARN-12	Receiver
BC-1333	Receiver
MC-136	Coupling
MC-211-A	Coupling
DM-32-A	Dynamotor
All	Radio plugs
AM-142/A10	Amplifier
FL-30	Filter
DY-21/ARC-3	Dynamotor

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3.1.2 Parts to be Reconditioned.- (Continued)

DY-22/ARC-3	Dynamotor
AN104-B	Antenna mast
84-180805	Mast assembly
180806P	Anchor
I-81-(A,L,N)	Indicator
NOTE: Instl. per Dwg 694-183801	
84/Airfi-7	Control box
BK-22-K	Relay
CX-3/AR	Cord assembly
JK-26, JJ-026, PJ-055B, PI-55	Plugs
(from 202841 connector assembly)	
84-180621 (Type BC-366, Type BC-1366)	Jack box
804-180624 (Type BC-366)	Jack box
804-180637 (Type BC-366)	Jack box
804-180646 (Type BC-366)	Jack box
804-180647 (Type BC-366)	Jack box
804-180649 (Type BC-366)	Jack box
84-180705 (Type BC-366, Type BC-1366)	Jack box
804-180936 (Type BC-366)	Jack box
804-180950 (Type BC-366)	Jack box

3.1.3 Parts to be Supplied New.- All parts called out on Drawing 694-180670 radio equipment installation and Drawing 694-180671 radio antenna installation will be supplied new except those parts listed in Paragraph 3.1.2 of this specification.

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 authorized repairs listed in Paragraph 3.4 of this specification is cause for rejection.

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3.2.1 Filter FL-30.-

- (a) Filters with open, shorted, or other than normal amounts of resistance or impedance (inside the sealed units) are considered in a nonrepairable condition and should be scrapped.

3.2.2 Bracket 84-180622.-

- (a) Scrap brackets with cracks in radii of bends.

3.2.3 Microphone T-17/-

- (a) Scrap T-17 microphones if element is defective.
- (b) If resistances are not within limits specified in Paragraphs 3.3.9 (e) and (f) of this specification. Scrap the microphones.
- (c) Scrap and replace shorted capacitor across microphone element.

3.2.4 Headset HS-33.-

- (a) If resistances are not within limits specified in Paragraph 3.3.8 (c), replace headset and/or receiver.

3.2.5 Dynamotor PE-86 (); DM-32-A; 824-180682; DY-21/ARC-3; and DY-22/ARC-3.-

- (a) Scrap dynamotors having open-circuited armature or field-coil windings.
- (b) Scrap defective dynamotor bearings.
- (c) Scrap dynamotors having excessively worn or damaged commutators.

3.3 Reconditioning Operations:

3.3.1 Radio Plugs All; Plugs JK-26, JJ-026, PL-55, PJ-055B (from 202841 Connector Assembly).-

- (a) Inspect all plugs for nonrepairable conditions.
- (b) Remove any old wiring and solder from serviceable plugs.

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3.3.1 Radio Plugs All; Plugs JK-26, JJ-026, PL-55, PJ-055B
 (from 202841 Connector Assembly).- (Continued)

- (c) Inspect contacts for evidence of corrosion. If corrosion is present, clean the surfaces with a brush or rag. Finish cleaning with alcohol or other non-corrosive solvent as specified in OS 7002.
- (d) The serviceable plugs shall be used in the radio system as designated on applicable drawings.

3.3.2 Bracket Assembly 84-180622 and Clip Assembly 84-180624.-

- (a) Inspect for nonrepairable conditions.
- (b) Remove and replace nut plates.
- (c) Clean in accordance with OS 7002.
- (d) Remove corrosion in accordance with OS 7010.
- (e) Repair as necessary as authorized in Paragraph 3.4 of this specification.
- (f) Finish in accordance with FS 370A.

3.3.3 Holder 180634P.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean in accordance with OS 7002.
- (c) Strip and chromium plate in accordance with Specification MIL-P-6871.

3.3.4 Anchor 180806P.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean in accordance with OS 7002.
- (c) Magnetically inspect in accordance with MIL-I-6868.
- (d) Recadmium plate in accordance with Specification QQ-P-416.

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3.3.5 Mountings FT-161 and FT-213A.-

- (a) Inspect mounting for any obvious mechanical flaws and check each shock mount for serious flaws and cracks in the rubber.
- (b) Clean in accordance with OS 7002.
- (c) Repair as necessary as authorized in Paragraph 3.4 of this specification.
- (d) Replace any unserviceable parts.
- (e) Finish in accordance with FS 370A.

3.3.6 Mast Assembly 84-180805 and Antenna Mast AN104-B.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean in accordance with OS 7002 and buff.
- (c) Replace any unserviceable parts.
- (d) Finish in accordance with FS 370A.

3.3.7 Coupling MC-136 and MC-211-A.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean in accordance with OS 7002.
- (c) Make sure that part operates freely but does not jump or slip cogs.
- (d) Repack with AN-G-6 grease.

3.3.8 Headset HS-33.-

- (a) Carefully inspect components and wiring for damaged or badly worn conditions. Replace damaged or badly worn parts.
- (b) Clean, using a suitable solvent as specified in OS 7002. Brush methyl alcohol on mildewed wires, let dry, and brush mildew off.
- (c) Test for shorts and continuity with an ohmmeter. Resistance of headset measured between tip and sleeve of plug PL-354 should be 220 ohms \pm 20 ohms and resistance of one receiver ANB-H-1 measured between receiver terminals should be 100 ohms \pm 10 ohms.
- (d) Recondition plugs as outlined in Paragraph 3.3.1 of this specification.

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3.3.9 Microphone T-17.-

- (a) Examine microphone for any defective parts. Replace defective parts. Pay particular attention to cover and replace if ragged or worn.
- (b) Check proper operation of switch and closing sequence of the switch contacts. The large contacts should close before the smaller contacts.
- (c) Check connections between the cord and the microphone switch.
- (d) Recondition plugs as outlined in Paragraph 3.3.1 of this specification.
- (e) Check the resistance between the tip and sleeve of plug PL-68 when microphone switch is closed, using a standard type service ohmmeter designed for measuring low values of resistance. The resistance should measure not more than 0.5 ohm.
- (f) Check resistance, using a standard type service ohmmeter, holding microphone in a vertical plane and tapping it gently. The resistance should measure between 50 and 150 ohms. The current flowing through the microphone when used with interphone amplifier BC-347-C or AM-26/A1C should be roughly between 50 and 75 milli-amperes.
- (g) Using a T-17 microphone known to be satisfactory as a standard of comparison, connect the microphone to an interphone amplifier set-up, and check the output level and speech quality while speaking into the microphone and listening on a headset.

3.3.10 Interphone Amplifiers BC-347-A, BC-347-C, 804-180674, and 804-180939.-

- (a) Remove amplifier from its case and examine each part for any effects of overheating, vibration or moisture, and for other damage. Replace all parts that are defective or that have an abnormal appearance.
- (b) Remove the tube from its socket and examine the elements closely for possible defects caused by vibration. Replace defective tubes.
- (c) Clean serviceable parts, using a suitable solvent as specified in OS 7002.

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3.3.10 Interphone Amplifiers EC-347-A, EC-347-C, 804-180674, and 804-180939.-

- (d) Functional test the amplifier.
- (e) Redrill all EC-347-C boxes to 694-180623 configuration.
- (f) Grommet holes in side of 804-180674 and 804-180939 boxes need not be relocated.
- (g) Install Carr plugs of appropriate size to patch holes in end, back, or side opposite location of grommet on 694-180623 for all EC-347-C boxes.
- (h) Install patch on slotted grommet hole of 804-180939 box as shown in Figure 1 of this specification.
- (i) Clean boxes in accordance with OS 7002.
- (j) Remove corrosion in accordance with OS 7010.
- (k) Finish boxes in accordance with FS 370A.
- (l) EC-347-A amplifier may be used when modified as follows: When a grid resistor network consisting of two 2 megohm resistors and two 750,000 ohm resistors are used in place of the 350,000 ohm resistors employed in amplifier EC-347-C.

3.3.11 Filter FL-30.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean, using a suitable solvent as specified in OS 7002.
- (c) Replace defective parts.
- (d) Functional test.

3.3.12 Receivers R-122/ARN-12 and EC-1333.-

- (a) Inspect receiver for deterioration from vibration or moisture.
- (b) Inspect tubes for cracked or broken base or socket prong, and discolored portion of glass above filament.
- (c) Check relay and tuning of receiver. Check audio.
- (d) Check resistors, condensers and coils for broken connections, shorts or open circuits.
- (e) Repair or replace defective parts as necessary.

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3.3.12 Receivers R-122/ARN-12 and BC-1333.- (Continued)

- (f) Clean by blowing with an air hose held about one foot away. All serviceable parts showing corrosion or rust shall be cleaned with suitable solvent as specified in OS 7002. Brush methyl alcohol on mildewed wires, let dry, and brush mildew off.
- (g) Smooth out scratches and repaint case if necessary. Use a brush and match the color as near as possible.
- (h) Functional test and make necessary adjustments.

3.3.13 Dynamotors DY-21/ARC-3 and DY-22/ARC-3; FE-86 (); DM-32-A; and 824-180682.-

- (a) Remove end covers and inspect the commutators, brushes, etc., for any signs of excessive wear or damage.
- (b) Blow accumulated dust and dirt from all parts of the filter box; clean accessible parts of the dynamotor with a clean, lint-free cloth.
- (c) Make certain that brushes are free in the brush holders. Replace brushes worn to 3/16-inch length or less.
- (d) Repack bearings with approximately 3/16-inch cube of AN-G-5 grease.
- (e) Functional test by connecting dynamotor to an input of voltage specified and noting whether the dynamotor runs smoothly without vibration or excessive sparking at the brushes. Measure output voltage at "No Load" and at "Rated Load".

3.3.14 Amplifier AM-1A2/A1C.-

- (a) Inspect for nonrepairable conditions.
- (b) Thoroughly clean all parts, using a suitable solvent as specified in OS 7002.
- (c) Replace any defective parts and check operation.

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3.3.15 Receivers (Less Dynamotor) BC-453-A and BC-453-B.-

- (a) Inspect for nonrepairable conditions.
- (b) Clean serviceable parts, using a suitable solvent as specified in OS 7002.
- (c) Functional test.
- (d) Repair or replace any defective parts as necessary.
- (e) BC-453-A receiver may be used only when modified by replacing present output transformer with transformer ES891027 and removing the two wires on terminal 3 and connecting them to terminal 6.

3.3.16 Cord Assembly CX-3/AR.-

- (a) Inspect for nonrepairable conditions.
- (b) Treat mildew by rubbing on methyl alcohol, drying, and wiping off mildew.
- (c) Replace cord if worn or damaged.
- (d) Recondition plugs in accordance with instructions contained in Paragraph 3.3.1 of this specification.

NOTE: Parts R-5/ARN-7 and R-5A/ARN-7 compass receiver; CD-365 and CD-365-A cord; dehydrator loop; dehydrator hose; LP-21-(A,AM,L,LM) loop; type SW-172-(A,B,C) relay; EK-22-K relay; C4/ARN-7 control box and I-81-A indicator listed in Paragraph 3.1.2 shall be reconditioned in accordance with OS 3410.

Parts 84-180621, 804-180624, 804-180637, 804-180646, 804-180647, 804-180649, 84-180705, 804-180936 and 804-180950 interphone jack boxes listed in Paragraph 3.1.2 shall be reconditioned in accordance with OS 3411.

Parts MG-149-F, MG-149-H, and 94-32270 inverters listed in Paragraph 3.1.2 shall be reconditioned in accordance with OS 3412.

3.4 Authorized Repairs:

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3.4.1 Bracket Assembly 84-180622; Clip Assembly 84-180624;
and Mountings FT-161 and FT-213-A.-

- (a) Smooth dents and straighten parts in accordance with best shop practice.

4. INSPECTION

4.1 General.- The parts will be inspected to the general acceptable quality standards of QS 7008. Installation on components and wiring shall be in accordance with radio and interphone wiring diagram 694-180669 unless otherwise specified herein.

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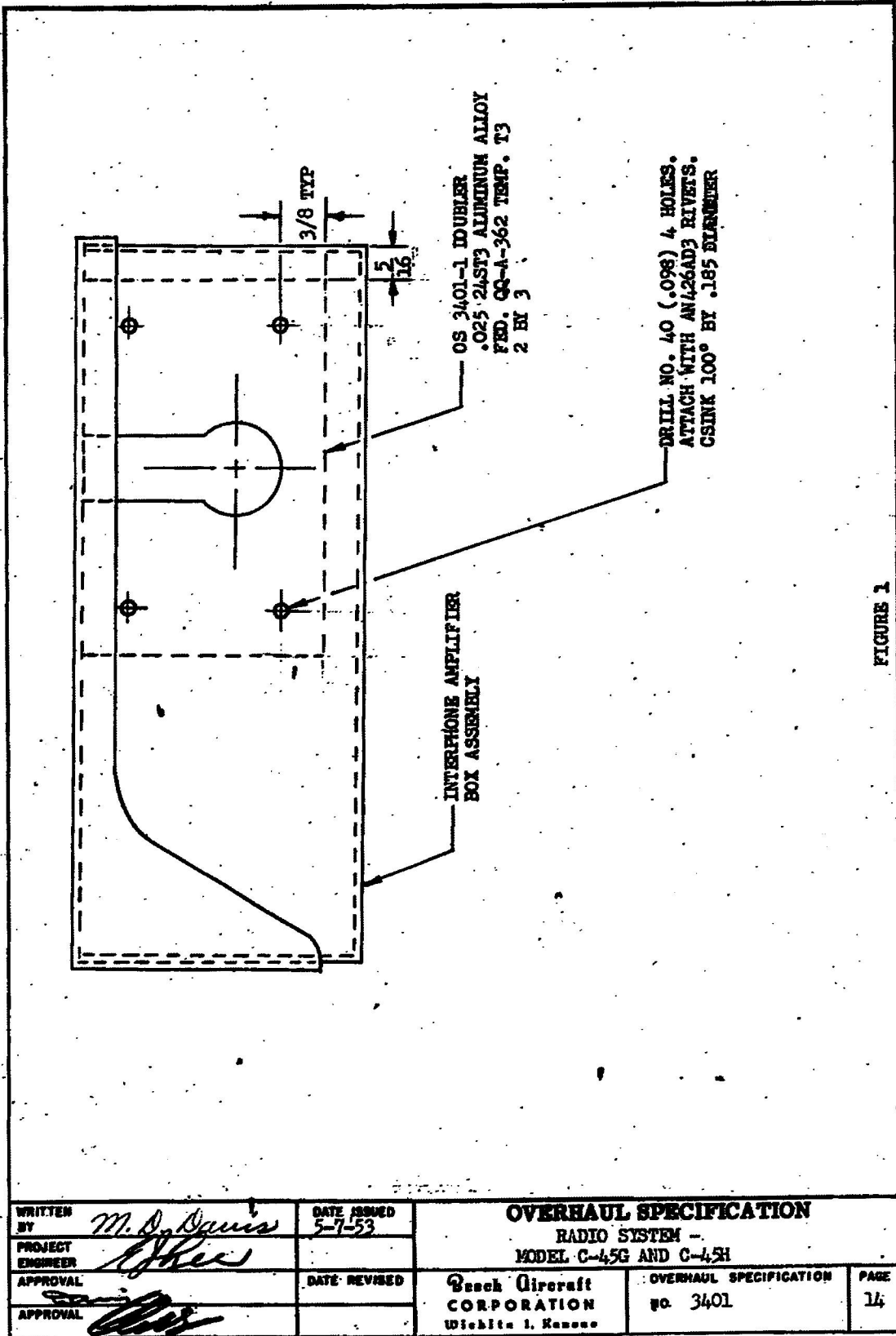


FIGURE 1

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