1. SCOPE

1.1 Purpose.- The purpose of this specification is to provide reconditioning instructions for aircraft antifriction bearings. Information on the repair or replacement of specific bearings in an assembly or separate unit are included in the overhaul specification pertaining to that unit or assembly.

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 pages revised at the current revision.

Page	Date	Description of Revision	Serial Effectivity
1	2-3-53		
2	2-3-53		
3	2-3-53		
4	2-3-53		

APPROVED:

USAF Quality Control

WRITTEN BY — DATE ISSUED 2-3-53
PROJECT ENGINEER
APPROVAL — DATE REVISED
APPROVAL

OVERHAUL SPECIFICATION
AIR FRAME AND CONTROL
ANTIFRICTION BEARINGS

Beech Aircraft Corporation — OVERHAUL SPECIFICATION — PAGE

F-338A

2. APPLICABLE PUBLICATIONS

2.1 Specifications:

2.1.1 Air Force - Navy.-

AN-G-25	Grease; Aircraft and Instrument (For Low and High Temperature)
AN-P-12b, Grade A	Oil Paper

2.1.2 Federal.-

P-S-661	Solvent; Dry Cleaning

2.2 Technical Orders.- Compliance with this specification constitutes compliance with the following technical orders.

04-20-4	Handbook of Instructions - Antifriction Bearings, dated February 1, 1949, revised July 21, 1948
04-20A-1	Inspection and Maintenance of Air Frame and Control Antifriction Bearings, dated July 12, 1945
04-20A-1B	Inspection and Maintenance of Air Frame and Control Antifriction Bearings (Supplement to 04-20A-1), dated February 6, 1950

3. REQUIREMENTS

3.1 Parts Involved:

3.1.1 Parts to be Scrapped.- Only those parts damaged or worn to such an extent as to be unserviceable will be scrapped.

3.1.2 Parts to be Reconditioned.- All serviceable antifriction bearings will be reconditioned in accordance with the instructions contained herein. "Reconditioned" means the disassembly, cleaning, inspection and correction of discrepancies, repair and/or replacement of components, and modifications to incorporate changes in accordance with applicable engineering drawings to assure an operationally safe and serviceable aircraft.

3.1.3 Parts to be Supplied New.- Parts required as replacements for unserviceable parts will be supplied new.

3.2 Cause for Rejection.- The following conditions are cause for rejection of antifriction bearings:

a. Roughness of bearing rollers and balls.

b. Pitted or flaked raceways.

c. Sluggish and rough turning bearings.

d. Evidence of housing or shaft slippage resulting in out-of-tolerance conditions.

3.3 Reconditioning Operations:

3.3.1 Degreasing and Cleaning.- Bearings may be received wrapped in wax paper, tape, or just covered with grease and grime. All dirt and foreign matter must be removed.

3.3.1.1 Cleaning Solution and Equipment.- Use Specification P-S-661 (Stanosol) or its equivalent for the degreasing and cleaning operation. Approximately 5 gallons should be used to clean 400 bearings. If the bearings are extremely dirty, decrease the number of bearings washed per gallon of solvent. The washing and soaking container should have a screen located about 3 inches from the bottom of the container to keep the bearings suspended in clean solvent, allowing the dirt and foreign matter to settle to the bottom.

3.3.1.2 Sequence of Operations.- Accomplish the degreasing and cleaning as follows:

a. Remove paper, tape, and large amounts of grease with a knife, making certain that all the adhesive substance from the tape is removed.

b. Soak and wash the bearings in the solvent. Move each bearing vigorously through the solvent to wash away the particles of foreign matter lodged on the bearing surface. Where facilities are available, wash by flushing the solvent through the bearing under pressure.

c. Remove the shield on Fafnir, M-S-C SF, and Federal SIK-5 bearings to facilitate washing the balls or rollers. Do not remove a shield unless it is possible to reinstall it or a replacement is available.

d. Rotate bearings slowly in the final stages of cleaning to help dislodge particles of foreign matter. Dry the bearings mechanically with dry, filtered air with 20 to 30 pounds pressure.

CAUTION: Do not spin a bearing when drying it with compressed air.

3.3.2 Demagnetizing.- All bearings which have been in service are subject to the electrical forces which are established in the rotation of the machinery and therefore become magnetized. Demagnetize the bearings by passing them through the demagnetizing machine at least once in a forward direction and once in a reverse direction, rotating the bearings slightly at the same time.

3.3.3 Recleaning.- The demagnetizing process releases minute metal particles that adhere to the bearing surfaces due to the magnetic forces set up in the bearing during operation. These particles of foreign matter must be washed from the bearing before it can be inspected. Wash by agitating vigorously in clean solvent and dry mechanically with dry, filtered air.

3.3.4 Inspection.- After the second washing, inspect the bearings for roughness of balls and pitted or flaked raceways. Reject sluggish and rough-turning bearings. Defects that are not directly on the ball tracks or rolling elements, and that have no effect on the functional operation of the bearing are not cause for rejection. The inspection area should be kept clean and free from drafts and air currents that would blow dust and foreign matter into the bearings.

3.3.5 Lubrication.- Bearings that have passed inspection and are thoroughly clean are ready for lubrication. If the bearings have been exposed to dirty conditions, they must be rewashed and dryed before they are lubricated. Lubricate as follows:

a. Use grease conforming to Specification AN-G-25.

b. Force the lubricant into the bearing under pressure. A hand operated grease gun will provide sufficient pressure. A lubricating tool that will hold the bearing and force grease in through the inner race hole and allow it to circulate back through the bearing rollers or balls is recommended.

c. When lubricating Fafnir and M-R-C KP bearings, remove the shield on the side on which the lubricant is entering the bearing. Avoid forcing the rubber-like shield in between the bearings as this ruins the shield and makes it necessary to reclean the bearing and replace the shield.

d. Force sufficient grease through the bearing to remove any dust, moisture, and air from the inside of the bearing. Air and moisture inside a bearing will contaminate it if the bearing is stored for a considerable time.

3.3.6 Wrapping.- Wrap bearings in oil paper conforming to Grade A of Specification AN-P-12b, or equivalent, as soon as they are lubricated. Mark the wrapped bearings with the type and part number for identification.

3.3.7 Storage.- Store the properly wrapped bearings where they cannot become contaminated or be exposed to excessive moisture or heat. Moisture increases the possibility of corrosion and heat accelerates deterioration and aging of the lubricant.

4. INSPECTION

The parts will be inspected to the general acceptable quality standards of Overhaul Specification 7008.