

# Kit Installation Publication

## Nose Wheel Conversion Kit Aircraft Wheel and Brake, LLC Part No. 199-126

### BEECH MODELS 65, 90, 99, 100, 200, AND 300

IM199-126

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Publication No.: IM199-126, Revision K

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**Manufacturer:**



Aircraft Wheel and Brake, LLC  
1160 Center Road  
Avon, Ohio 44011

**Cleveland**  
Wheels & Brakes



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision NC of IM199-126 (dated 1984-01-19)

**Revision NC, Dated 1984-01-19**

REVISION NC CONTAINS ALL PAGES OF THE MANUAL. Pages that have been added or revised are outlined below together with the highlights of the revision.

Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

All Sections/All Pages      Initial Release



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision A of IM199-126 (dated 1984-04-30)

**Revision A, Dated 1984-04-30**

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Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows

Section 5.1/Pg 1	(DELETE) Hubcap Call-out
Section 6.3/Pg 2	(ADD) Grease seal & Snap ring
Section 6.13/Pg 3	(ADD) Grease seal & snap ring (ADD) Add spacer (DELETE) paragraph 6.15
Section 11.1.1/Pg 4	(DELETE) hubcap Item #13 (DELETE) Tang was keyed (ADD) Add spacer (ADD) Add "and Item #7".
Section 11.6.7/Pg 8	(DELETE) "and outer hubcap Item #13."
Pg 9	Item 5 (NOW) Quantity 2 (WAS) 1 (DELETE) "Item #13, 158-3, 158-00300, hubcap, Quantity 1".
Pg 10	(NOW) Grease seal Item #5 (WAS) hubcap Item #13.



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision B of IM199-126 (dated 1985-03-18)

**Revision B, Dated 1985-03-18**

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Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows

Section 5.1/Pg 1

(NOW) Tubeless / tube-type  
(WAS) tubeless type only

Section 7.0/Pg 3

(NOW) 11.2  
(WAS) 9.65

Section 13.1/Pg 9

(NOW) TR716-03  
(WAS) TR762-03  
(NOW) 160-01200  
(WAS) 160-00700

Pg 10

(ADD) Pictorial revision to show new valve stem, Item 16





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**TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR  
NOSE WHEEL ASSEMBLY PART NO. 40-204.**

Attached to this transmittal letter is Revision C of IM199-126 (dated 1994-06-20)

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Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows

Title Page

(ADD) Beech Model: 300

Section 3.1/Pg 1

(ADD) Beech 300

Section 11.4.2/Pg 6

(NOW) one coat of Sherwin-Williams specification E61 G 510 primer followed by one coat of Sherwin-Williams specification F63 W 66. (Contact Sherwin-Williams at (216-) 271-6766 for detailed paint information).  
(WAS) two coats of Zinc-Chromate primer specification MIL-L-8585, and one coat of white lacquer.  
(NOW) of primer  
(WAS) Zinc Chromate Primer

Section 13/Pg 9

(DELETE) Old P/N column



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision D of IM199-126 (dated 2008-04-14)

**Revision D, Dated 2008-04-14**

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per DCN 0379-51
Section 3.1/Pg1	Model Applicability (DELETE) "90" (ADD) C90A, C90GT, H90



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision E of IM199-126 (dated 2009-02-03)

**Revision E, Dated 2009-02-03**

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Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per DCN 0383-52
Section 3.1/Pg 1	Model Applicability (DELETE) "A90" (REPLACED BY) "65-A90" (ADD) "65-90"



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision F of IM199-126 (dated 2009-12-04)

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per DCN 0387-26
Section 3.1/Pg1	Model Applicability (ADD) "C90GTi"





TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision G of IM199-126 (dated 2010-01-21)

**Revision G, Dated 2010-01-21**

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per DCN 0387-68
Section 3.1/Pg 1	Model Applicability (ADD) "B200GT, B200CGT"
Section 6.2/Pg 2	(NOW) Mobil Aviation Grease SHC100
Section 6.13/Pg 3	(NOW) Mobil Aviation Grease SHC100
Section 11.15.1/Pg 7	(NOW) Mobil Aviation Grease SHC100



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision H of IM199-126 (dated 2011-07-25)

**Revision H, Dated 2011-07-25**

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows

Per DCN 0393-79

Section 3.1/Pg 1

Model Applicability  
(ADD) "B300, B300C



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

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**Revision J, Dated 2016-01-25**

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per ECO-0062997
Section 5.0/Pg 1	Description (NOW) "22 x 6.75-10" (WAS) "22 x 7.75-10"



TO: HOLDERS OF IM199-126 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST FOR NOSE WHEEL ASSEMBLY PART NO. 40-204.

Attached to this transmittal letter is Revision K of IM199-126 (dated 2023-10-25)

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**REVISION HIGHLIGHTS**

**Section/Page No.**

**Description Of Change**

As follows	Per CA-00000063
All Sections/All Pages	Page Header (NOW) Aircraft Wheel and Brake, By Kaman logo (WAS) Parker Logo
Title Page/T-1	(NOW) Aircraft Wheel and Brake proprietary rights statement (WAS) Parker proprietary rights statement
Record of Revisions/RR-1	(ADD) Page RR-1
Notice/N-1	(ADD) Page N-1
Section 2.3 & 4.1/Pg 1	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin, Aircraft Wheel and Brake Division
Section 11.4.1/Pg 6	(NOW) MIL-DTL-5541 (WAS) MIL-C-5541
Section 13.1/Pg 9	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
	Item 11 (NOW) Washer, NAS1149F0663P (WAS) Washer, AN365-624 Item 12 (NOW) Nut, MS21045-6S (WAS) Nut, AN365-624
Page 10	(NOW) 40-204 (WAS) 040-20400
Section 13.2/Pg 11	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin





Check in the following record that all earlier changes have been incorporated.

[illegible]



## **STEP 1: VERIFY EQUIPMENT**

**VERIFY THAT THE ASSEMBLY PART NUMBERS AS LISTED ON THE KIT PARTS LIST MATCH THE PART NUMBERS AS INDICATED ON THE ASSEMBLY NAMEPLATES.**

## **STEP 2: REVIEW KIT HIGHLIGHTS**

**REVIEW AIRCRAFT MODIFICATIONS (IF ANY), INSTALLATION HARDWARE, AND AIRCRAFT MODEL APPLICABILITY.**

## **STEP 3: TECHNICAL ASSISTANCE**

**FOR TECHNICAL ASSISTANCE, CONTACT THE TECHNICAL SERVICES HOTLINE:**

Aircraft Wheel and Brake, LLC  
1160 Center Road  
Avon, Ohio 44011 U.S.A.  
Attn: Technical Services/Hotline

E-mail: [clevelandwbhelp@kaman.com](mailto:clevelandwbhelp@kaman.com)  
Fax: (440) 937-5409  
Tel: 1-800-BRAKING (1-800-272-5464)  
Websites: [www.kaman.com](http://www.kaman.com)  
[www.kaman.com/cleveland](http://www.kaman.com/cleveland)  
[www.clevelandwheelsandbrakes.com](http://www.clevelandwheelsandbrakes.com)



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## 1.0 INTRODUCTION

- 1.1 This manual is published for the guidance of personnel responsible for the installation of Cleveland Nose Wheel Conversion Kit 199-126.
- 1.2 Each kit contains all materials and instructions needed to replace existing equipment over to a Cleveland wheel. Kit 199-126 applies to complete retrofit of the aircraft to Cleveland nose wheel.

## 2.0 TSO NOTICE

- 2.1 The wheel assembly used in this conversion kit carries a "TSO" marking which identifies it having been fully laboratory tested and qualified to meet the applicable Federal Aviation Agency (FAA) specifications and requirements.
- 2.2 After final certification, substitution of critical parts or changes of processes or materials are not permitted without requalification of the assemblies and resubmittal of the test data to the FAA for approval.
- 2.3 FAA regulations subject both Aircraft Wheel and Brake, LLC and the user to constant surveillance to assure that uncompromising Quality Assurance material and processing controls are maintained in order to provide replacement parts that are the same as the parts originally certified in the assembly.

## 3.0 APPLICABILITY

### 3.1 KIT 199-126

**TABLE 1, APPLICABILITY**

<b>MAKE</b>	<b>MODELS</b>
Beech	300, B300, B300C
Beech	200, 200C, 200CT, 200T, B200
Beech	B200C, B200CT, B200T, B200GT, B200CGT
Beech	100, A100, B100
Beech	99, A99, A99A, B99, C99
Beech	65-90, 65-A90, B90, C90, C90A, C90GT, C90GTi, E90, E90, F90, H90
Beech	70, 65, A65, 65-80, 65-A80
Beech	65-B80, 65-88

## 4.0 ORDER INFORMATION

- 4.1 To order spare parts, contact the nearest Aircraft Wheel and Brake, LLC distributor in your area.

## 5.0 DESCRIPTION

- 5.1 The wheel is forged aluminum and conforms to all Tire and Rim Association Standards for a 22 x 6.75-10 and a 6.50-10 divided type wheel. The wheel is a tubeless/tube-type and incorporates an O-ring seal. Rubber lip seals on both wheel halves protect the bearings. It is composed of the following parts listed on page 9.

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## 6.0 INSTALLATION

- 6.1 Jack aircraft in accordance with Beech Service Manual and remove the old wheel and retain the original axle nut, washer and spacer.
- 6.2 The wheel assembly Item #1 is shipped from the factory completely assembled. The bearings are packed with Mobil Aviation Grease SHC-100 and may be installed as received.

**NOTE:** Extended storage of lubricated bearings may require relubrication.

- 6.3 Remove snap rings Item #14, grease seals Item #5 and bearing cones Item #8 from the wheel assembly Item #1 and place on a clean surface to avoid contamination.
- 6.4 Remove nuts Item #12, washers Item #11, washers Item #10 and tie bolts Item #9 to separate wheel halves.
- 6.5 Position inner wheel half Item #3 on a flat surface with register side up.
- 6.6 Place O-ring Item #17 on register portion of wheel half.

**CAUTION:** SEAL SHOULD NOT BE TWISTED, BUT FULLY ALIGNED IN GROOVE.

- 6.7 Place serviceable tire over inner wheel half item #3 and then place outer wheel half Item #7 in tire, making sure to properly align inner and outer registers. Slide tie bolts Item #9 and washers Item #10 thru wheel assembly.

**CAUTION:** COUNTER-SUNK SIDE OF WASHER ITEM #10 SHOULD BE TOWARD THE BOLT HEAD.

- 6.8 Install washers Item #11, and nuts Item #12 on tie bolts Item #9 and torque to 300 in-lbs. When all nuts have been torqued, retorque a second time to make sure that the required value has been achieved. Sometimes O-Ring compression will give false initial readings.
- 6.9 Inflate tire to proper pressure in a safety cage.
- 6.10 Reinstall bearing cone Item #8 into inner wheel half Item #3 and install inner grease seal Item #5 using a snap ring Item #14.
- 6.11 Check for burrs or rough threads on axle nut.
- 6.12 Mount wheel and tire assembly on axle.



- 6.13** Apply a thin coat of bearing grease Mobil Aviation Grease SHC-100 on axle nut threads. Install outer bearing cone Item #8 and grease seal Item #5 and snap ring Item #14, and apply a layer of bearing grease on threads of the axle. Install original spacer, washer and axle nut.
- 6.14** Tighten axle nut to 150 to 200 in-lbs of torque while rotating the wheel. Back off the axle nut to zero torque then retorque to 40 in-lbs while rotating the tire. If holes do not align with axle nut, continue tightening to first locking hole and secure by prescribed methods.

**NOTE:** Axle nut torque to be 40 in-lb minimum of torque.

## **7.0 WEIGHT AND BALANCE COMPUTATIONS**

Weight: 11.2 lbs.

Complete Form 337 and make appropriate log book entries.

## **8.0 FLIGHT MANUAL INSERTS (LOCATED IN FRONT COVER POCKET)**

- 8.1** Attach label "Item installed in airplane" in flight manual as close to the original item nose wheel assembly. Enter the correct arm and moment in block provided. Zero items out for the original nose wheel assembly which was removed.

## **9.0 WARRANTY REGISTRATIONS**

- 9.1** Completely fill out enclosed warranty card and return promptly. Postage is prepaid.

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## 10.0 MAINTENANCE

10.1 Inspect wheel half flanges for cracks and corrosion.

10.2 Check for loose bolts and nuts and retighten or replace if necessary.

**NOTE:** No repair or replacement is recommended while equipment is on aircraft.

## 11.0 OVERHAUL

### 11.1 DISMOUNTING

11.1.1 Deflate tire. Remove valve stem to assure complete deflation. Remove axle nut, tang washer, spacer and bearing cone Item #8. Remove wheel and tire assembly from axle as a unit. Remove snap rings Item #14, grease seals Item #5 and bearing cones Item #8 from both wheel halves Item #3, and Item #7.

11.1.2 Break tire beads away from wheel flange with a bead breaker or pneumatic tire dismounter.

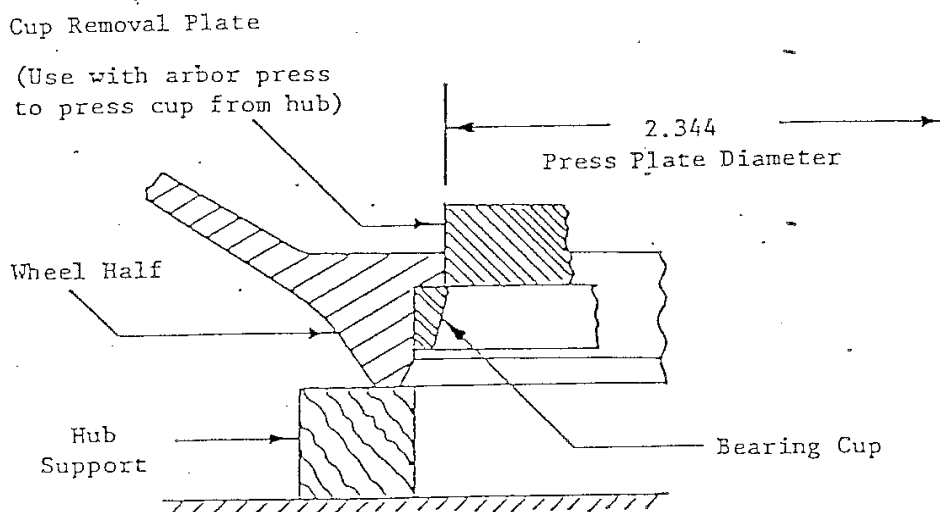
**CAUTION:** DO NOT USE TIRE IRONS. THEY MAY DAMAGE THE WHEEL FLANGES OR TIRE BEADS AND PREVENT PROPER AIR RETENTION.

**NOTE:** A soap solution around the bead seat will usually help in breaking the bead

11.1.3 Remove eight (8) nuts Item #12, washers Item #11, washers Item #10, and bolts Item #9 from the wheel assembly.

11.1.4 Separate the wheel halves and remove the tire.

**NOTE:** Bearing cups Item #4 are shrunk fit into the wheel halves and should not be removed unless replacement is necessary. If a bearing cup Item #4 is to be replaced, heat the wheel half to 149 degrees C (300 degrees F) maximum for 20 minutes before trying to remove the cup. Support the wheel hub while removing the bearing cup as shown in Figure #1.



Supporting Wheel Hub  
Figure 1

## 11.2 CLEANING

11.2.1 Clean all metal parts in a suitable solvent and dry with a lint free cloth.

11.2.2 Wipe bearing grease seal clean with dry cloth. Do not use cleaning solvents on rubber components used in this wheel assembly.

11.2.3 Wash bearing cones in uncontaminated cleaning solution, rotate the bearing cones by hand while submerged in the solution. Repack bearings with grease immediately after inspection to prevent corrosion and place in a clean, closed container.

**CAUTION:** DO NOT SPIN DRY BEARINGS OR HANDLE BEARINGS WITH BARE HANDS.

11.2.4 Parts requiring fluorescent inspection are to be completely stripped using acetone or equivalent. Air dry parts after stripping is completed.

### 11.3 INSPECTION

**NOTE:** Inspect bolts Item #9 and wheel halves Item #3 and Item #7 after the fifth tire change, and then after the third subsequent tire change, for a total of twenty tire changes, and then at each and every tire change thereafter.

11.3.1 Magnaflux bolts Item #9 for cracks and breaks.

11.3.2 With dye penetrant inspect wheel halves Item #3 and Item #7 for cracks and breaks. Note in particular the bead seat, tubewell, and webbed junction areas.

11.3.3 Visually inspect all metal parts for pitting, corrosion, cracks, breaks, uneven wear, and other surface defects.

### 11.4 REPAIR AND REPLACEMENT

11.4.1 Repair scratches, nicks, corrosion, and other surface blemishes on wheel halves Item #3 and Item #7 by sanding with emery cloth, removing as little material as possible. Polish repaired surfaces with 400 grit emery cloth. Swab exposed aluminum areas with Iridite 14 or Alodine 1200 per MIL-DTL-5541.

11.4.2 Paint repaired areas with one coat of Sherwin-Williams specification E61 G 510 primer followed by one coat of Sherwin-Williams specification F63 W 66, topcoat. (Contact Sherwin-Williams at (216) 271-6766 for detailed paint information).

**CAUTION:** NEVER PAINT WORKING SURFACES OF BEARING CUPS.

**NOTE:** Use only one coat of primer and no finish coat on O-ring grooves and mating surfaces of wheel halves.

11.4.3 Replace all parts worn or damaged beyond limits of repair.

11.4.4 Replace O-rings Item #17 at each overhaul.

11.4.5 Clean reworked areas with solvent and/or emery cloth.

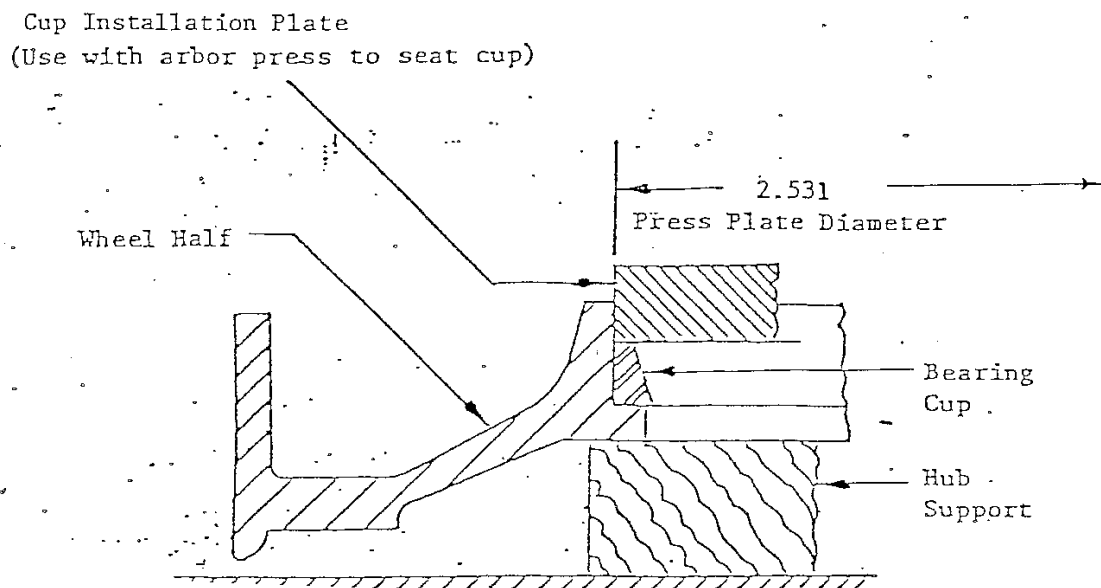
11.4.6 Surface treat bare aluminum with Alodine 1200 or Iridite 14.

11.4.7 Paint reworked areas with a minimum of two coats of zinc-chromate primer (MIL-P-8585).

11.4.8 To replace bearing cups, proceed as follows:

11.4.8.1 Heat wheel halves to 149° C (300° F.) maximum and cool cups to -18° C. (0° F).

- 11.4.8.2** Support wheel hub and paint the ID of the hub with zinc chromate primer. Then press cup into wheel half as in Figure 2.



Supporting Wheel Hub  
Figure 2

**NOTE:** The wet zinc chromate primer lubricates the parts to be pressed together and acts as protection against galvanic corrosion between the parts.

## 11.5 LUBRICATION

- 11.5.1** Pack Mobil Aviation Grease SHC-100 into bearing cones and smear grease on ends of rollers. Do not over lubricate. Spread a thin coat of grease on the surface of the bearing cups.
- 11.5.2** Lubricate threads of bolts and nuts and face of washers with thread compound.
- 11.5.3** Apply a thin layer of bearing grease to grease seal Item #5 before installing in wheel.

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## 11.6 REASSEMBLY

11.6.1 Prior to wheel assembling, coat O-Ring Item #17 liberally with Dow Corning Molykote 55M, or equivalent.

11.6.2 Position inner wheel half Item #3 on a flat surface with register side up.

11.6.3 Place O-Ring Item #17 on register portion of inner wheel half.

**CAUTION:** SEAL SHOULD NOT BE TWISTED, BUT FULLY ALIGNED IN GROOVE.

11.6.4 Place a serviceable tire over inner wheel half Item #3 and then place outer wheel half Item #7 in tire, making sure to properly align inner and outer wheel registers. Slide tie bolts Item #9 and washers Item #10 through wheel assembly.

**CAUTION:** COUNTER-SUNK SIDE OF WASHER ITEM #10 SHOULD BE TOWARD THE BOLT HEAD.

11.6.5 Install washers Item #11 and nuts Item #12 on tie bolts Item #9 and torque to 300 in-lbs. When all nuts have been torqued, retorque a second time to insure that the required value has been achieved. Sometimes O-Ring compression will give a false initial reading.

11.6.6 Inflate tire to proper pressure in a safety cage.

11.6.7 Reinstall bearing cones Item #8 into cups Item #4 and install inner grease seals Item #5 using snap rings Item #14.

## 12.0 TESTING

### 12.1 WHEEL TESTING

12.1.1 The wheel shall be required to hold the normal inflation pressure for 24 hours, with not more than four percent loss in pressure after tire growth has stabilized.

**13.0 PARTS LIST****13.1 WHEEL PARTS LIST**

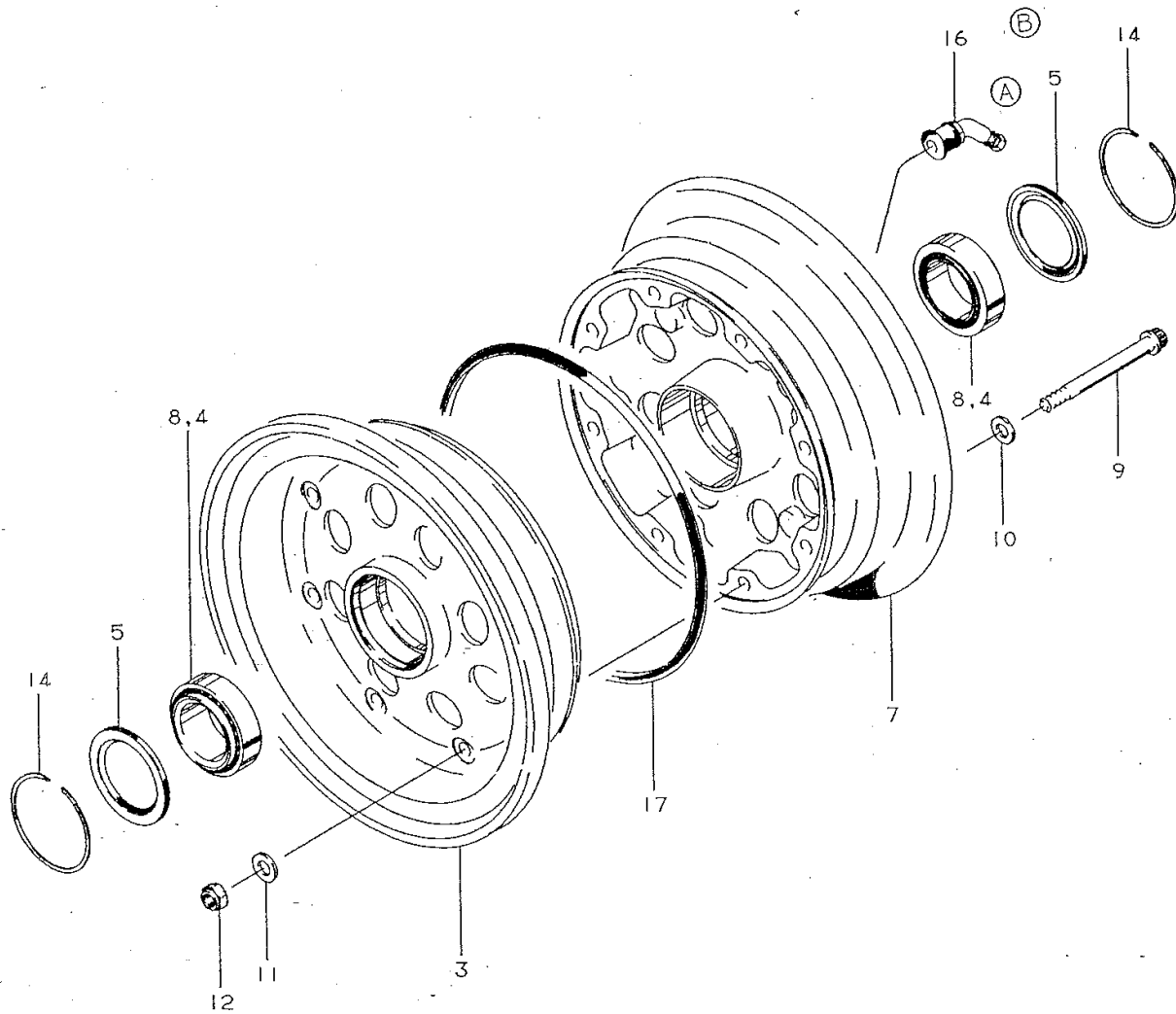
AIRCRAFT WHEEL AND BRAKE, LLC

AVON, OHIO

WHEEL PARTS LIST

40-204 WHEEL ASSEMBLY 6.50-10 TYPE III

<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	40-204	Wheel Assembly	1
2	161-12500	Inner Wheel Half Assembly	1
3	151-12000	Inner Wheel Half	1
4	214-00100	Cup - Bearing	1
5	154-03600	Grease Seal	2
6	162-11500	Outer Wheel Half Assembly	1
7	152-11900	Outer Wheel Half	1
4	214-00100	Cup - Bearing, 13836	1
8	214-00200	Cone - Bearing, 13889	2
9	103-31200	Bolt, MS21250H06034	8
10	095-03100	Washer, MS20002C6	8
11	095-10600	Washer, NAS1149F0663P	8
12	094-91500	Nut, MS21045-6S	8
14	155-00100	Snap Ring	2
15	166-09400	Nameplate	1
16	160-01200	Inflation Valve Assembly, TR716-03	1
17	101-25800	O-Ring (N304-75), MS28775-267	1



40-204 Nose Wheel Assembly



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**13.2 KIT PARTS LIST**

AIRCRAFT WHEEL AND BRAKE, LLC

AVON, OHIO

KIT PARTS LIST

199-126 CONVERSION KITBEECH SUPER KING AIR

<u>ITEM</u>	<u>OLD P/N</u>	<u>CODE NO.</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
1	40-204	040-20400	Nose Wheel Assembly*	1
--			Installation Booklet	1
		50-91	Drawing	1
			Warranty Registration Card	1
			STC	1

This kit will convert one aircraft to Cleveland Nose Wheel

\* For Subassembly and Parts Identification: See 40-204 Parts List