Aircraft Wheel & Brake
Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011

FAA-PMA

PARTS LIST

199-123 CONVERSION KIT

BEECH QUEEN AIR
MODELS: 65, A65, 70, 80, A80, B80 AND 88

PART NUMBER	DRAWING REVISION	DESCRIPTION	QUANTITY
30-144A	Rev. G dated 05-03-2010	Brake Assembly	2
40-170B	Rev. B dated 01-29-2014	Wheel Assembly	2
094-10400	----------	Nut (MS21044-N5)	24
095-02900	Rev. A dated 03-30-1998	Washer (Wheel Bearing Retaining)	2
095-10500	----------	Washer (AN960-516)	48
103-22100	----------	Bolt (AN5-10A)	24
105-00800	----------	Rivet (Cherrymax #CR3243-4-2)	32
110-05400	Rev. F dated 11-19-2002	Bracket (Right Side)	1
110-05500	Rev. F dated 11-19-2002	Bracket (Left Side)	1
110-05600	Rev. C dated 04-22-2002	End Tab	4
110-05700	Rev. A dated 11-09-1982	Filler	2
158-01400	Rev. C dated 09-13-1994	Hubcap (To be used on early models with extended axle)	2

Publication Package (P/N PP199-123)

IM199-123	Rev. C dated 08-23-1991	Installation Manual
50-80A	Rev. B dated 08-23-1991	Installation Drawing (Pages 1 & 2)
SA673GL	Issue date 6-22-1983	Supplemental Type Certificate
-------		Pilot Operating Manual Inserts
-------		Product Registration Card

NOTES:

This Kit will convert one aircraft to Cleveland Wheels & Brakes.

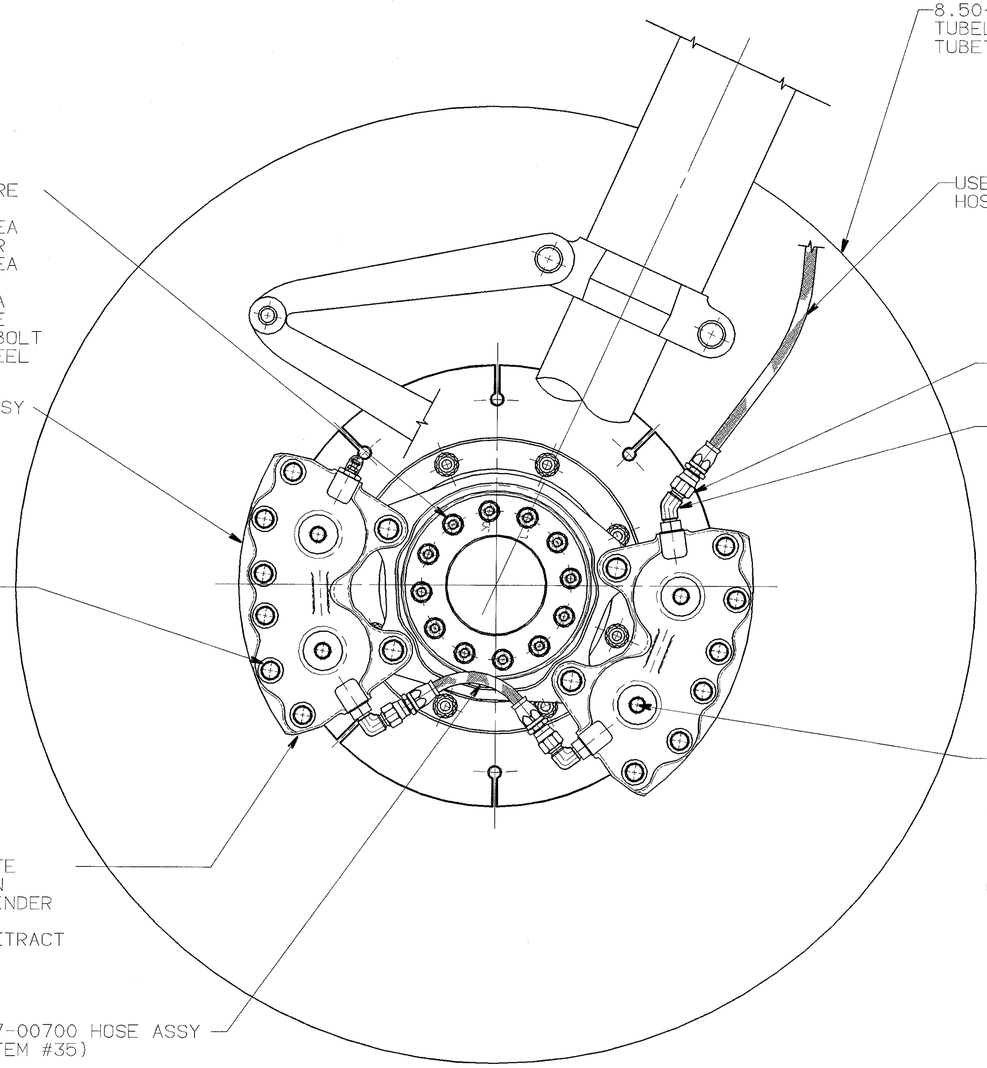
For use with MIL-H-5606 Brake Fluid

199-123

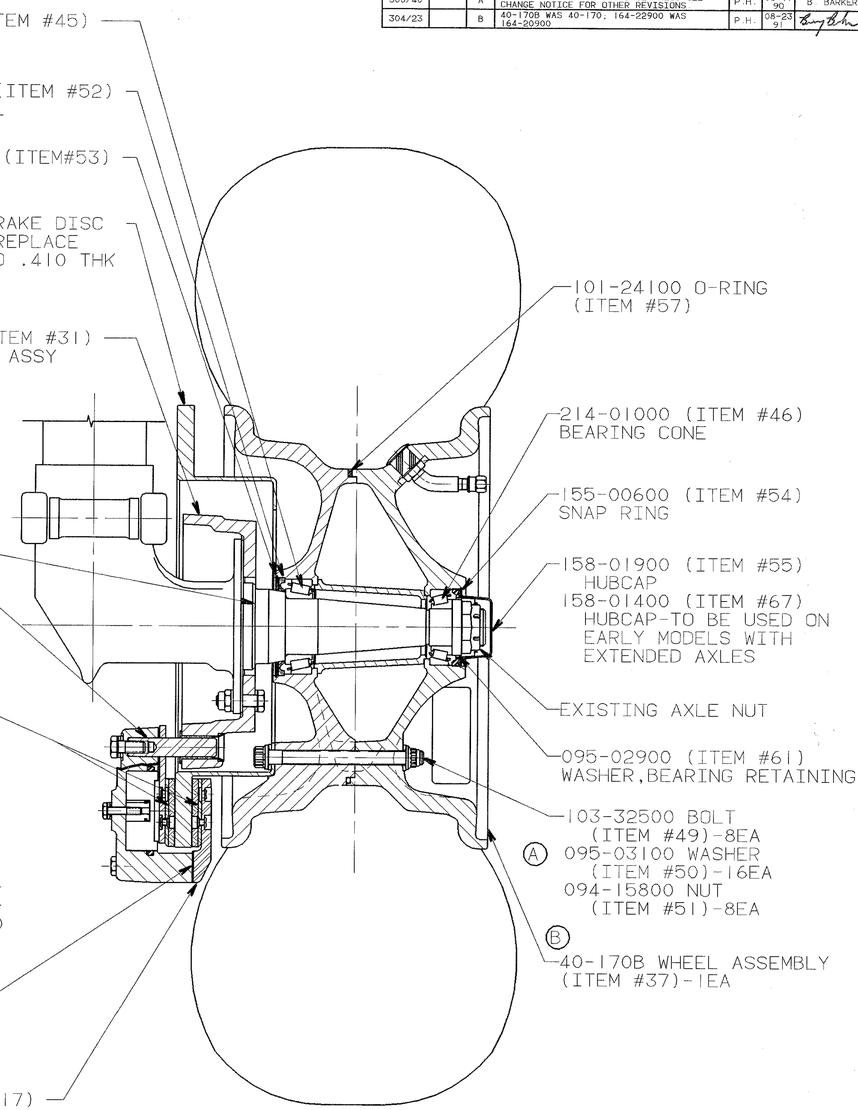
Rev. NC	06-23-1983 (C/N 272-43)
Rev. A	05-17-1990 (C/N 300-40)
Rev. B	08-23-1991 (C/N 304-23)
Rev. C	04-22-2002 (DCN 0345-69)
Rev. D	11-19-2002 (DCN 0353-52)
Rev. E	04-23-2007 (DCN 0374-56)
Rev. F	02-13-2014 (ECO-0031983)

REV STATUS	
SHEET	LTR

CHANGE NOTICE	ZONE	LTR	REVISIONS DESCRIPTION OF CHANGE	CHG BY	DATE	APPROVED
272/43		NC	INITIAL RELEASE	D.B.	06-23-83	
300/40		A	REDRAWIN ONTO CAD DATABASE. ALSO SEE CHANGE NOTICE FOR OTHER REVISIONS	P.H.	05-17-90	B. BARKER
304/23		B	40-170B WAS 40-170; 164-22900 WAS 164-20900	P.H.	08-23-91	



LEFT HAND GEAR
FORWARD
VIEW A



OUTBOARD
VIEW B

NOTES:

1. QUANTITY CALLOUTS ARE PER GEAR LEG
2. TORQUE PLATE LOCATION AND INFORMATION: TORQUE PLATE BOLT HOLES ARE TO BE ALIGNED ON AXLE FLANGE AS FOLLOWS:
   - A. LEFT MAIN GEAR: ALIGN THE TORQUE PLATE BOLT HOLE (IMPRESSION STAMPED WITH AN "L" ON INBOARD SIDE OF TORQUE PLATE) TO UPPERMOST BOLT HOLE ON FLANGE/STRUT CENTERLINE.
   - B. RIGHT MAIN GEAR: USE SAME PROCEDURE AS LEFT MAIN GEAR EXCEPT USE "R" STAMPED BOLT HOLE ON TORQUE PLATE.

APPLICABILITY OF AIRCRAFT INSTALLATION
CLEVELAND KIT 199-123

MODEL	TIRE SIZE	PLY	TYPE	PRESSURE
BEECH MODELS: 65 S/N LC-1 THRU LC-239 A65 S/N LC-240 THRU LC-335 70 S/N LB-1 THRU LB-35 80, A80 S/N LD-1 THRU LD-269 B80 S/N LD-270 THRU LD-511 88 S/N LP-1 THRU LP-26, LP-28 LP-30 THRU LP-47	8.50-10 TYPE III	8 PLY	TUBELESS OR TUBETYPE	PER MANUAL

QTY	QTY	ITEM	FSCM NO.	PART NO.	DESCRIPTION	MATERIAL/SPEC.	ACT WGT LB	CALC

USED ON	QTY	FINAL ASSY	QTY	NEXT ASSY	QTY	RAW STOCK NO
		199-123				

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES:
DECIMALS XX ±.030 ANGULAR DIMS: ±1/2
DECIMALS XXX ±.010 FRACTIONAL DIMS: ±.030

DO NOT SCALE DRAWING

GENERAL MACHINED SURFACES TO BE .125 FINISH UNLESS NOTED

THIS PLOT IS COMPLETELY DEFINED BY THE COMPUTER DATASET WHICH IS THE SOLE AUTHORITY FOR THE INFORMATION PROVIDED. DIMENSIONALLY STABLE COPY MUST BE OBTAINED FROM THE DATASET. ALL REVISIONS TO THIS PLOT MUST BE BY DATASET REVISION ONLY-- NO REVISIONS MAY BE MADE BY HAND.

WTS	DATE	DWN	DATE
		B. BARKER	06-03-83
STRESS		CHK	
MFG ENGR		ENGR	
QUAL ASSUR		PROJ APPROVAL	

CLEVELAND WHEELS & BRAKES
Aircraft Wheel And Brake Division
Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011

DWG. TITLE
INSTALLATION DRAWING

SIZE	FSCM NO.	DWG. NO.
D	33269	50-80A

SCALE 1/2:1

RELEASE DATE: 06-23-83 (272/43) REV: B SHEET: 1 OF 2

DO NOT SCALE

50-80A SH 2 OF 2 B

CHANGE NOTICE	LETTER	DESCRIPTION OF CHANGE	CHG. BY	DATE	APPD BY
277/43	-	INITIAL RELEASE	98	5-3-90	
300/46	A	REVISED TO SHT. 1 SEE SH. 1	RH	05-17-90	AB
304/23	B	NO CHANGE TO SHT. 2; SEE SHT. 1	RH	08-23-91	AB

NOTE:

SHEET 2 APPLIES ONLY TO THOSE MODELS WHICH DO NOT HAVE THE EXCALIBUR MODIFICATION.

FORWARD

"LEFT NACELLE"

OUTBOARD

110-05500 BRACKET (ITEM 61)

110-05600 END BRACKET (ITEM 63)

EXISTING RIVET LOCATION

(110-05700) BRACKET FILLER (ITEM 62)

TYPICAL RIVET LOCATIONS - EQUALLY SPACED (RIVET P/N 105-00800) (ITEM 64)

1.500

.312

EDGE OF BRACKET OR STIFFNER BEECH P/N 50-980029-2 (LEFT)

110-05600 END BRACKET (ITEM 63)

FORWARD

"RIGHT NACELLE"

TEMPLATE A

OUTBOARD

BRACKET FILLER (110-05700) (ITEM 62)

SKIN OF AIRCRAFT

EDGE OF BRACKET OR STIFFNER BEECH P/N 50-980029-3 RT.

STRESS RELIEVE SHARP CORNER BY USING .125 DIA. - (APPX.) ROUND FILE.

☐ PART TO BE CUT OFF

SKIN OF AIRCRAFT

ANGLE BRACKET

MATERIAL & SPEC	HEAT TREAT & SPEC	FINISH & SPEC.	WGT.

Cleveland Wheels & Brakes

Parker Hannifin Corporation

SCALE FULL

P615

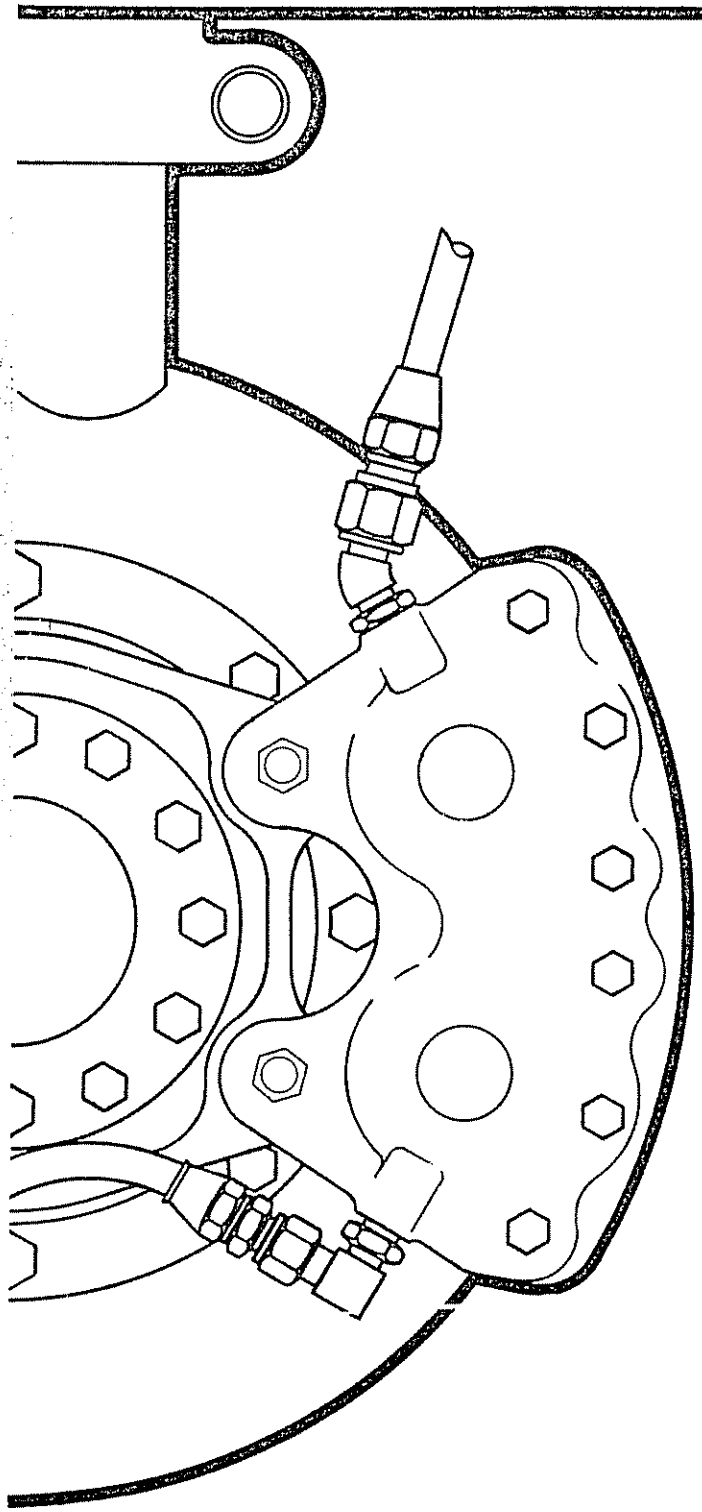
NAME CUTOUT & BRACKET LOCATION DRAWING

50-80A PG. 2 OF 2

050-08001

8½ x 11

Cleveland
Wheels & Brakes



Conversion Kit
Installation Manual

Kit Number 199-123

For

Beech Queen Air Models:

65, A65, 70, 80,

A80, B80, & 88

Parker
General Aviation

Parker Hannifin Corporation
Aircraft Wheel & Brake Division
1160 Center Road
Avon Ohio 44011 USA
(216) 934 5221 871 6424

INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-123

LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD
Initial Release	06/03/83	---	Installation Instructions Cleveland Wheels & Brakes Conversion Kit 199-123	BB
A	06-23-83	4	Add Footnote *	BB
		7	STC SA673GL was STC SA619GL	
		9	ABP5-5AM was AN5-5A	
B	05-17-90	ALL	Complete re-write to standardized format. Added wheel well mod. (300-40) photos and Maintenance Instructions.	BB
		3	Section 6.8 add "...Note! Countersunk side of washer to be towards bolt head or nut (as applicable)."	
		18	Wheel Parts List.... Item 49: "MS21250-06056 103-32500" was "AN6-40A 103-31000" Item 50: "MS20002C6 095-03100" was "AN960-616 095-10600" Item 51: "NAS1804-6N 094-15800" was "AN364-624 094-10100"	
C	08-23-91	6	Add New Section 6.23: "On aircraft with extended axles .... then reinstalled."	BB
		7	Section Listed moved to new page #7. Renumber Section 6.23 to become Section 6.24; and "After Modifications have been made per this Section," was "After the skin has been cut out and the Support Bracket Item #63 Left, Item #62 Right has been installed," Renumber Section 6.24 to become Section 6.25	
		ALL	All pages after new page 7 renumbered.	

INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-123

LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD
C (Cont'd.)	08-23-91	19	Section 13.1, Wheel Parts List "40-170B" was "40-170" Item 37: "40-170B 040-17002" was "40-170 040-17000" Item 48: "164-229 164-22900" was "164-209 164-22900"	RQ
		20	Figure 5: "40-170B" was "40-170"	
		23	Item 37: "40-170B" was "40-170" **NOTE: "40-170B" was "40-170"	

INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-123

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Cleveland Wheels & Brakes Conversion Kit 199-123

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INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-123

1. INTRODUCTION.

1.1 This manual is published for the guidance of personnel responsible for the installation of Cleveland Wheel & Brake Conversion Kits 199-123.

1.2 Each kit contains all materials and instructions needed to replace existing internal main wheels and brakes on Beech Queen Airs to Cleveland external main wheels and brakes. Kit 199-123 will completely retrofit the aircraft to Cleveland Wheels and Brakes.

2. TSO NOTICE.

2.1 The wheel and brake assemblies used in this Conversion Kit carry a "TSO" marking which identifies them as 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 Parker Hannifin, Aircraft Wheel and Brake Division and the user to constant surveillance to assure that uncompromising Quality Assurance materials and processing controls are maintained in order to provide replacement parts that are the same as the parts originally certified in the assembly.

3. APPLICABILITY.

3.1	MAKE	MODELS
"KIT 199-123":	Beech	65 (LC-1 thru LC-239) A65 (LC-240 thru LC-335) 70 (LB-1 thru LB-35) 80 & 80A (LD-1 thru LD-269) B80 (LD-270 thru LD-511) 88 (LP-1 thru LP-26; LP-28; LP-30 thru LP-47)

May, 1990

4. ORDER INFORMATION.

4.1 To order spare parts, contact the nearest Parker Hannifin, Aircraft Wheel & Brake distributor in your area, or call Parker Hannifin, Aircraft Wheel & Brake Division, Customer Service at 1-800-BRAKING for assistance.

5. DESCRIPTION.

5.1 The brake is a dual caliper, 2 piston external disc design, with sintered metallic lining. It is suitable for use with MIL-H-5606 brake fluid, and is composed of the following parts listed on page 20.

5.2 The wheel is cast magnesium and conforms to all Tire and Rim Association standards for a 24 x 7.7 Type VII divided type wheel, suitable for use with all 24 x 7.7 and 8.50-10 tires. The wheel is a tubeless/tube-type only. A rubber lip seal on the inner wheel half and a sealed hubcap on the outer wheel half protects the bearings. It is composed of the following parts listed on page 18.

6. INSTALLATION.

SECTION I
WHEEL & BRAKE INSTALLATION

6.1 Jack aircraft as outlined in accordance with Beech Service Manual. Remove existing Main Gear Wheels. Retain axle nut.

6.2 Disconnect lower hydraulic line from existing brake housing fitting at A as shown in View A on 50-80A drawing (page 1 of 2), and cap tightly.

6.3 Next, remove existing brakes. Discard all brake mounting hardware (new hardware included in kit).

6.4 Install torque plate assembly Item #31, as outlined in the Torque Plate Location and Information Section on Drawing 50-80A. Next, install as typical per View A using new bolts Item #58, washers Item #59, and nuts Item #60, and torque at 130-150 inch-pounds.

6.5 Remove the snap ring Item #54, sealed hub cap Item #55, and bearing cone Item #46 from the outboard side of wheel assembly Item #37 and place on a clean surface to avoid contamination.

6.6 Disassemble new wheel assembly Item #37 in preparation for tire installation.

-NOTE-

Prior to wheel assembling, coat O-ring Item #57, with Dow Corning Molykote 55M.

6.7 Install wheel seal (O-ring) Item #57, on inner wheel half Item #39.

-CAUTION-

Seal should not be twisted, but fully aligned in groove.

6.8 Install serviceable tire on wheel assembly Item #37. Reassemble wheel halves using bolts Item #49, washers Item #50, and nuts Item #51....NOTE! Countersunk side of washer to be towards bolt head or nut (as applicable). Lubtork nuts to 300 inch-pounds and then inflate tire to appropriate pressure indicated on 50-80A drawing, page 1.

-NOTE-

Inflate tire in safety cage

May, 1990

SECTION I
WHEEL & BRAKE INSTALLATION

6.9 Check the axle and nut for burrs or rough threads. Apply grease to axle threads and all bearing surfaces of washers and nuts. Mount the wheel and tire on the axle. Install the outer bearing cone Item #46, new washer Item #61 and axle nut. Tighten the axle nut to 150-200 inch-pounds while rotating the wheel to insure proper seating of the bearings. Back off the axle nut to zero torque, then torque the nut to 40 inch-pounds while rotating the wheel. Install the cotter pin. If the holes do not align, tighten the nut to the next available keying position. Install hubcap Item #55, in wheel with snap ring Item #54.

- NOTE -

Aircraft with extended axles to use hubcap Item #67, included in kit.

6.10 Remove the twelve (12) tie bolts Item #20, and Insulators Item #19, from the Brake Assembly Item #1, and remove all four Back Plates Item #17. Apply dry graphite or silicone lubricant spray to Brake Assembly anchor bolts Item #28. See View B, 50-80A drawing. Slide new Brake Assembly Item #1, into the Torque Plate Assembly Item #31, as shown in View A.

6.11 Reinstall Insulator Shims Item #19, over the twelve (12) tie bolts Item #20, in both housings. Then position Back Plates Item #17, between the Brake Disc and the wheel flange as shown in View B. Align Back Plates Item #17, with bolts and torque at 85-90 inch-pounds.

6.12 Reconnect existing hose assembly to the inlet fitting assembly Item #27, on Brake Assembly Item #1, and tighten. Prior to bleeding the brake system, check reservoir for adequate fluid level. Pressure bleeding is preferred and recommended for best results.

6.13 After accomplishing system bleeding, depress and release toe pedal several times, checking for brake drag by rotating the wheel by hand. A slight amount of drag is normal; however, a tight bound wheel should be investigated and corrected prior to aircraft release to service.

- CAUTION -

Excessive drag can be caused by an improperly seated lining.

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SECTION II
WHEEL WELL MODIFICATION

NOTE: Modification Template A will be found in back of booklet.

Due to the location of the leading Brake Cylinder, the forward outboard lower wheel well skin will need to be trimmed to provide the proper clearance for the Brake Cylinder during wheel retraction into the wheel well. The modification to the lower skin is outlined as follows for both left and right wheel wells.

6.14 Using Template A, locate and mark skin as shown in Drawing 50-80A (page 2 of 2) and Photo 1.

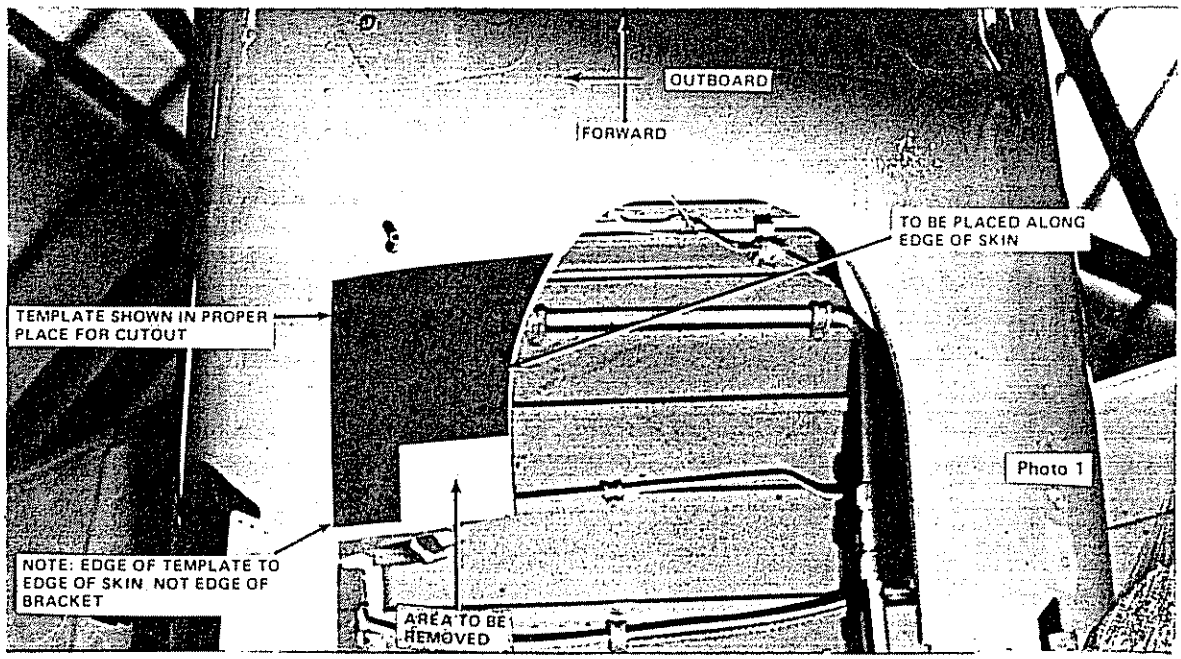
6.15 Cut and remove bracket, Beech Part No. 50-980029-2 left, 50-980029-3 right section and lower skin. See Photo 2 for Beech bracket, Part No. 50-980029-2 left, 50-980029-3 right, identification.

6.16 Remove all sharp edges and burrs.

6.17 Place bracket Item #63, left side and Item #62, right side along cutout.

6.18 Locate by drilling from the top down.

6.19 Place filler plate Item #65, along cutout area and drill to match location of bracket Item #63 left side and Item #62 right side.



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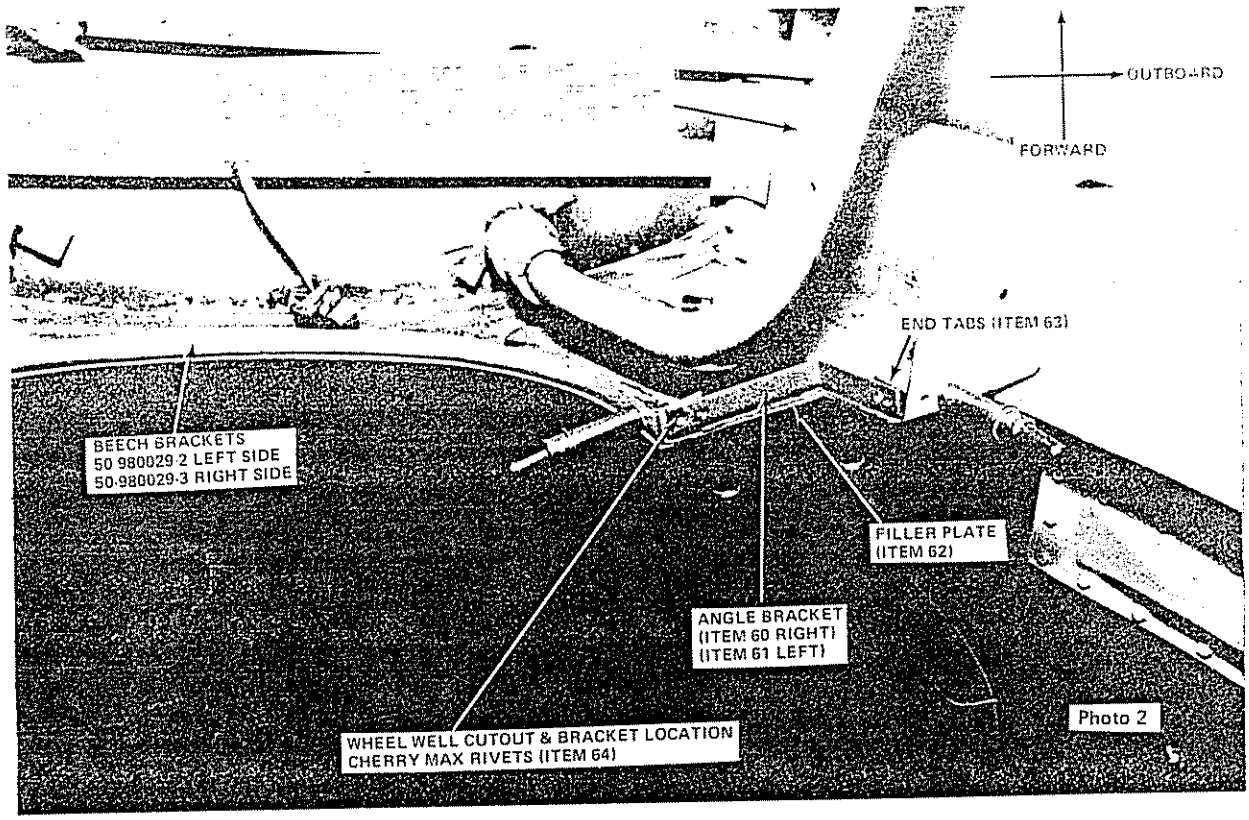
SECTION II
WHEEL WELL MODIFICATION

6.20 Cleco Bracket Item #63, left side and Item #62 right side, and filler Item #65, into place.

6.21 Secure bracket Item #63, left and Item #62 right, and filler Item #65, with sixteen (16) rivets Item #66 as shown in 50-80A drawing.

6.22 Secure end tabs Item #64 to bracket Item #63 left and Item #62 right and Beech bracket Part. No. 50-980029-2 left, Part No. 50-980029-3 right with rivets Item #66 as shown in Photo 2 and Drawing 50-80A.

6.23 On aircraft with extended axle, the gear upstop Beech P/N 50-980032 must be reworked to provide additional clearance to the brake calipers. Each upstop should be removed, reworked per Drawing 1, Page 7, then reinstalled.



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SECTION II
WHEEL WELL MODIFICATION

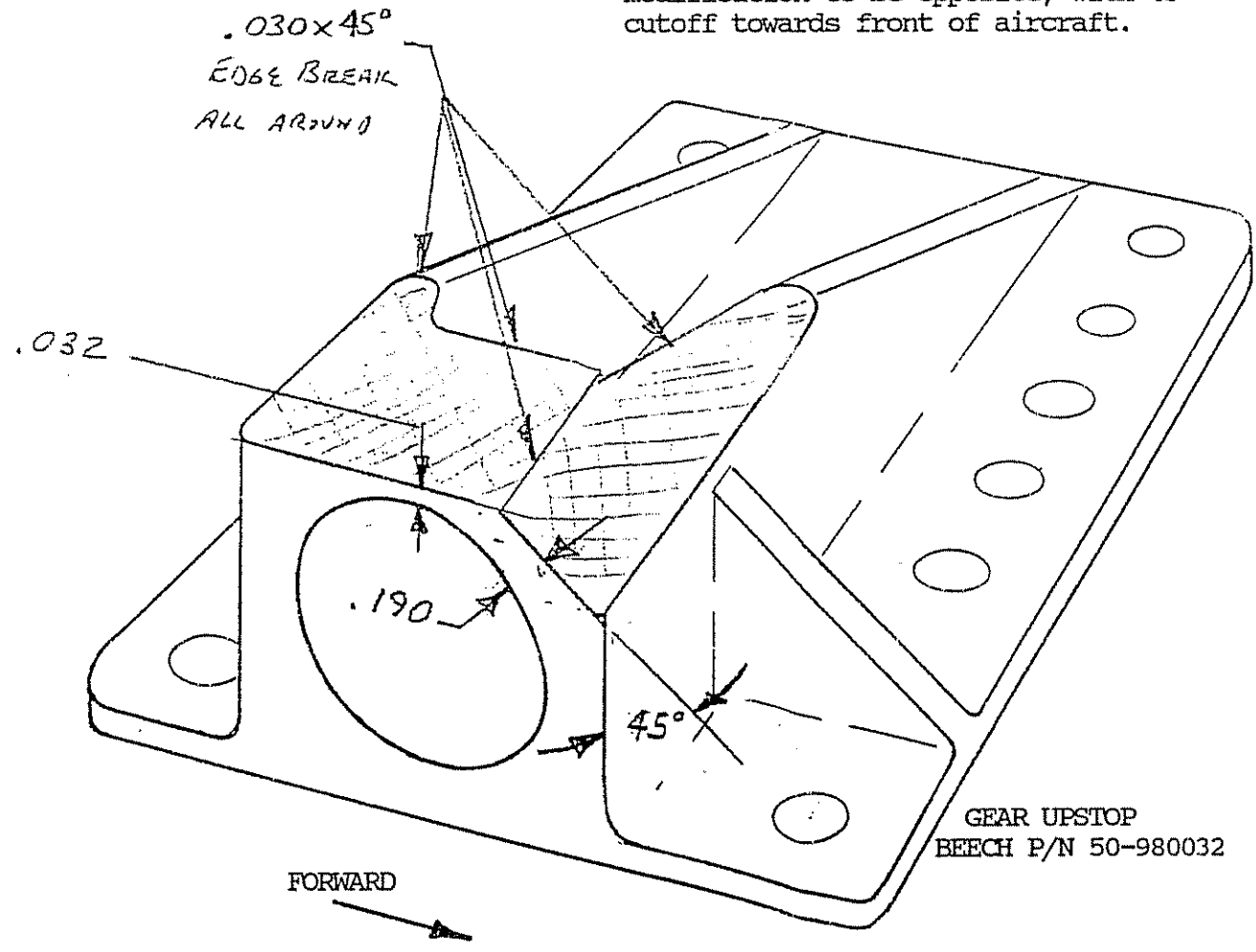
6.24 After modifications have been made per this section, the aircraft will require a gear retraction test prior to release back into service.

- CAUTION -

Maintain adequate clearance between leading brake caliper (lower edge) and fuel line in nacelle during retraction test (see View A on 50-80A drawing, page 1 of 2).

6.25 Remove aircraft from jacks.

NOTE: Left Side shown. Right Side modification to be opposite, with 45° cutoff towards front of aircraft.



DRAWING 1
GEAR UPSTOP MODIFICATION

May, 1990
August 1991, Rev. B

7. WEIGHT AND BALANCE COMPUTATIONS

Weight: 37.4 lbs. per wheel and brake assembly.

Complete Form 337 and make appropriate log book entries.

8. FLIGHT MANUAL INSERTS (Located at front of booklet)

8.1 Attach "Item Installed Labels" into (or copy into) Flight Manual as close as possible to the original section titled "Main Wheel and Brake Assembly". Enter the correct arm and moment in blocks provided. Zero items out for the original main wheel and brake assemblies that have been removed.

8.2 Attach "Description Label" into (or copy into) Pilot's Operating Manual, as close as possible to the section titled "Brake System".

9. METALLIC BRAKE LINING CONDITIONING PROCEDURE

9.1 The brake lining material used in this brake assembly is an iron based metallic composition. This material must be properly conditioned (glazed) in order to provide optimum service life.

9.2 Dynamometer tests have shown that at low braking energies, unglazed linings experience greater wear and the brake discs become severely scored.

9.3 Conditioning may be accomplished as follows:

9.3.1 Perform two (2) full stop braking applications from 30 to 35 knots, allowing the brake discs to cool between each stop.

9.3.2 This conditioning procedure will wear off high spots and generate sufficient heat to glaze the lining. Once the lining is glazed, the braking system will provide many hours of maintenance free service.

9.3.3 Avoid light use, such as taxiing, which will cause the glaze to be worn rapidly.

10. WARRANTY REGISTRATION

10.1 Completely fill out enclosed warranty card and return promptly. Postage is prepaid.

May, 1990

11. MAINTENANCE

11.1 Wheel Maintenance

11.1.1 Inspect wheel half flanges for cracks and corrosion.

11.1.2 Inspect brake disc assembly for cracks, excessive wear or scoring, rust and corrosion. Disc should be replaced when worn to a thickness of .410 in. See Figure 4.

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

-NOTE-

No repair or replacement is recommended while equipment is on aircraft.

11.2 Brake Maintenance

11.2.1 Visually check the brake for hydraulic leakage.

11.2.2 If brake pedal is not firm, bleed brakes again.

11.2.3 Check for loose bolts and nuts and retighten or replace as necessary.

11.2.4 Visually check lining for excessive wear or edge chipping. Linings should be replaced when worn to a thickness of .100 in. See Figure 4.

11.2.5 Recommended wear limits for discs and linings - See Section 12.2.5.

12. OVERHAUL

12.1 Wheel Overhaul

-NOTE-

Should be accomplished only while wheel is removed from aircraft.

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12.1.1 Dismounting

12.1.1.1 Deflate tire. Back plates must be removed from brake before wheel removal. Remove hubcap, axle nut and tanged washer. Remove wheel and tire assembly from axle as a unit. Remove snap ring Item #53, grease seal Item #52 and bearing cones Items #45 and #46 from both wheel halves Items #39 and #42.

12.1.1.2 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.

12.1.1.3 Remove eight (8) nuts Item #51, sixteen (16) washers Item #50, and eight (8) bolts Item #49 from the wheel assembly and remove brake disc.

12.1.1.4 Separate the wheel halves and remove the tire and tube.

-NOTE-

Bearing cups Items #40 and #43 are shrunk fit into the wheel halves and should not be removed unless replacement is necessary. If a bearing cup 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 the following Figure 1.

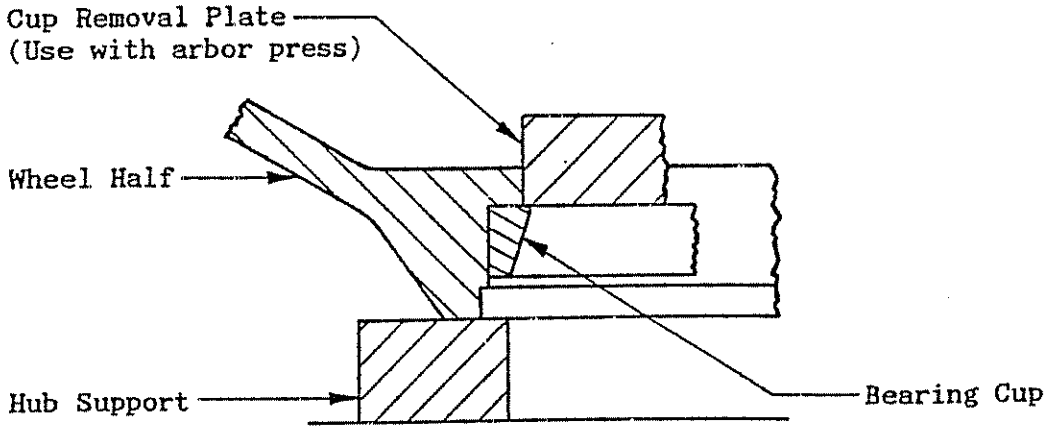

Figure 1 Supporting Wheel Hub

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12.1.2 Cleaning

12.1.2.1 Clean all metal parts by immersing in a clean degreasing solution. An Alkaline based solution is recommended for aluminum and magnesium parts. Do not use Isopropyl Alcohol as a cleaning agent. Dry with a lint free cloth.

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

12.1.2.3 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.

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

12.1.3 Inspection

-NOTE-

Inspect bolts Item #49 and wheel halves Item #39 & Item #42 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.

12.1.3.1 Magnaflux bolts Item #49 for cracks and breaks.

12.1.3.2 With dye penetrant, inspect wheel halves Item #39 and Item #42 for cracks and breaks. Note in particular the bead seat, tube well, and web junction areas.

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

12.1.3.4 Inspect bearing grease seal Item #52 and sealed hubcap Item #55 for pits, cuts, and other defects. Replace as necessary.

12.1.3.5 Remove and replace O-ring Item #57.

12.1.4 Repair and Replacement

12.1.4.1 Repair scratches, nicks, corrosion, and other surface blemishes on wheel halves Item #39 and Item #42 by sanding with emery cloth, removing as little material as possible. Polish repaired surfaces with 400 grit emery cloth.

12.1.4.2 Paint repaired areas with one coat of zinc chromate primer, and one coat of aluminum (color) polyurethane.

-CAUTION-

NEVER PAINT WORKING SURFACES OF BEARING CUPS.

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

12.1.4.4 To replace bearing cups, proceed as follows:

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

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

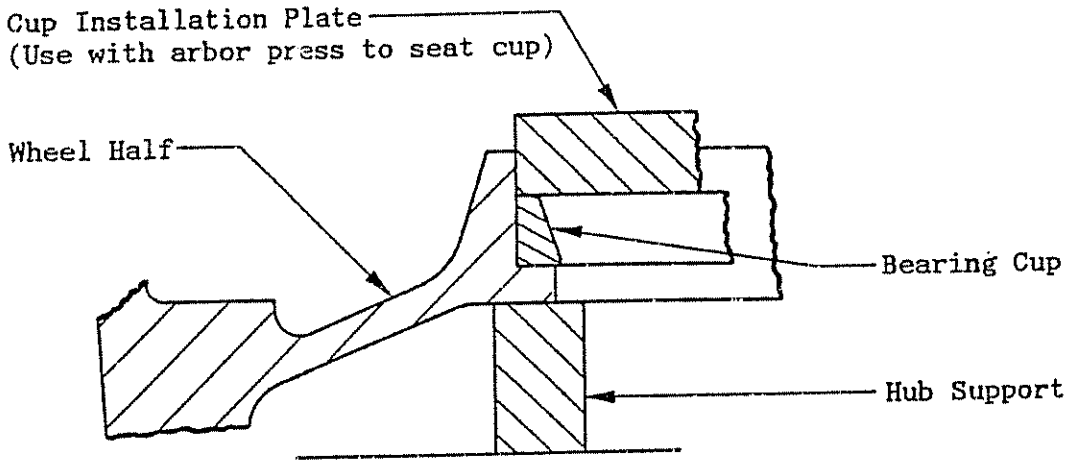

Figure 2 Supporting Wheel Hub

12.1.5 Lubrication

12.1.5.1 Pack Mobilux EP2 or equivalent 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.

12.1.5.2 Lubricate threads of bolts and nuts and face of washers with thread compound.

12.1.6 Reassembly

12.1.6.1 Position disc Item #48 and inner wheel half Item #39 on a flat surface with register side up. Coat O-ring Item #57 with Dow Corning Molycoat 55M and install on inner wheel half.

-CAUTION-

Seal should not be twisted, but
Fully aligned in groove.

12.1.6.2 Place a serviceable tire & tube over inner wheel half Item #39 and then place outer wheel half Item #42 in the tire, making sure to properly align inner and outer wheel registers.

12.1.6.3 Slide tie bolts Item #49 through wheel assembly. Install washers Item #50 and nuts Item #51 on tie bolts and lubtork to 300 in-lbs. NOTE! Countersunk side of washer to be towards bolt head or nut (as applicable).

12.1.6.4 Inflate tire to proper pressure in a safety cage.

12.1.6.5 Install bearing cone Item #45, grease seal Item #52 and snap ring Item #53 into inner wheel half. Install bearing cone Item #46, sealed hubcap Item #55 and snap ring Item #54 into outer wheel half.

12.2 Brake Overhaul

12.2.1 Dismounting

-NOTE-

It is not necessary to remove the wheel from the aircraft
to disassemble and service brake assembly

12.2.1.1 Remove and cap hydraulic line.

12.2.1.2 Remove the cylinder tie bolts Item #20 and remove back plates Item #17. Slide cylinder housings from torque plate.(the torque plate will remain mounted to the axle).

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12.2.1.3 Remove the pressure plate assemblies, hydraulic fittings, bleeder fitting, and linking hose.

12.2.1.4 The pistons may be removed by applying a slight amount of air pressure to the inlet or outlet ports of the cylinder.

12.2.1.5 Remove the O-rings from cylinder.

12.2.1.6 If necessary, the anchor bolts may be removed by using a holding fixture and arbor press. If possible, place the anchor bolts into the holding fixture so that the anchor bolt is piloted while being removed. Thread an AN5-15A bolt into the anchor bolt. Press out anchor bolt and remove AN5-15A bolt.

-CAUTION-

CYLINDER MUST BE SQUARE WITH ARBOR IN STEPS A AND B
SO THAT THE ANCHOR BOLTS DO NOT COCK.

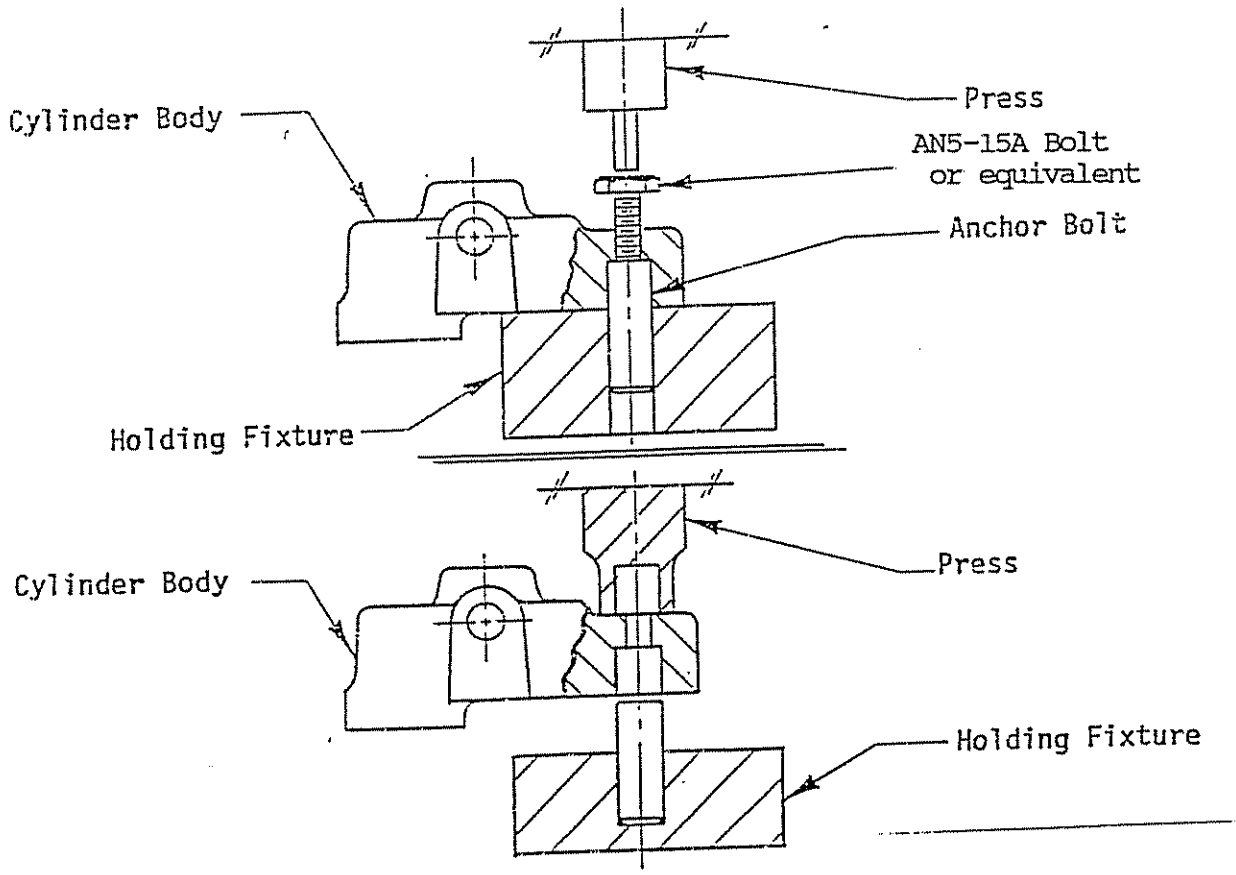

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Figure 4 Anchor Bolt Removal

12.2.1.7 Remove piston guide Item #8, bolt Item #10, stato-seal Item #9 and washer Item #9A from each piston bore.

12.2.2 Cleaning

12.2.2.1 Clean all metal parts by immersing in a clean degreasing solution. An Alkaline based solution is recommended for aluminum and magnesium parts. Do not use Isopropyl Alcohol as a cleaning agent. Dry with a lint free cloth.

12.2.2.2 Discard and replace all O-ring seals and stato-seals.

12.2.3 Inspection

12.2.3.1 Inspect brake cylinder Item #3 for cracks, especially in the lug area around the anchor bolts. Cracks in this area necessitate cylinder replacement.

12.2.3.2 Small nicks and light corrosion may be blended and removed with emery or sand paper. Any area from which the protective coating is removed should be thoroughly cleaned, and repainted with one coat of zinc chromate primer, and one coat of aluminum (color) polyurethane.

12.2.3.3 Inspect the fitting ports and piston bores for contamination. Light scratches or nicks in the piston bores or on the chamfered surfaces within these bores may be polished out with #600 grit emery.

12.2.3.4 Thoroughly clean out any residue upon completion of step 12.2.3.3. Any external surfaces around the piston bores from which the protective coating has been removed should be cleaned, and painted with one coat of zinc chromate primer and one coat of aluminum (color) polyurethane.

-NOTE-

Do not paint internal surfaces of piston bores.

12.2.3.5 Inspect pistons Item #5 and piston guides Item #8 for nicks or burrs. Remove nicks or burrs by polishing with #600 grit emery. Thoroughly clean before reinstallation.

12.2.3.6 Inspect brake lining for edge chipping and surface deterioration. See section 12.2.5 for wear limits.

12.2.3.7 Lining replacement can be accomplished by using a center punch to remove the center rivet Item #16. Then pry the old segments off of the carrier with a screwdriver. To install new pads, snap the new pad onto the carrier pins, and then attach with new center rivet Item #16.

-NOTE-

If the linings are changed, but the pistons are not removed from the cylinder, clean the exposed surfaces of the pistons before displacing the pistons back into the cylinder.

12.2.3.8 Inspect pressure plate Item #13 and back plates Item #18 for cracks or warpage. Replace if cracked or severely deformed. Inspect pins Item #14 and rivet Item #16 for looseness. If loose, tighten with rivet set and anvil, part number 199-1A and 199-1B.

-NOTE-

Slightly warped pressure plates with relief slots can be fixtured in a vise and straightened when laid on a flat surface, flatness should be within .015 TIR. Warped pressure plates can cause brake drag.

12.2.3.9 Inspect anchor bolt holes in torque plate for internal corrosion or contamination. If present, clean with emery and apply a light coat of dry lube.

-NOTE-

For best service life, the cylinders must slide freely in the torque plate.

Check the anchor bolt hole and mounting bolt hole areas for elongation or cracks. Badly elongated or cracked parts should be replaced with new parts of corresponding part number. Minor corrosion on the torque plates may be removed with #600 grit emery.

-NOTE-

Surfaces from which the protective coating is removed should be painted with one coat of zinc chromate primer, and one coat of aluminum (color) polyurethane.

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12.2.3.10 Inspect bolts Items #10, #20 and #30 for cracks, thread damage, or corrosion and replace if necessary.

12.2.4 Reassembly

12.2.4.1 If removed, press anchor bolts Item #28 (ref. Figure 3) into brake and install washers Item #29 and bolts Item #30. Torque at 130-150 in-lbs.

12.2.4.2 Install inlet and bleeder fitting. Install piston guide Item #8, bolt Item #10, stato-seal Item #9 and washer Item #9A into each cylinder bore. Torque bolt Item #10 at 25-30 in-lbs.

12.2.4.3 For piston installation, lubricate the piston, O-ring, piston guide and piston bore with a small amount of MIL-H-5606 hydraulic fluid. Place piston in bore and rotate to seat drag ring and insure that piston and seal are in proper alignment. Tap the piston with a wooden or plastic mallet while alternately rotating. If considerable effort is required, remove piston and inspect pilot bore area for damage. If the bore is damaged, check the corresponding area of the piston guide for damage. Repair, if necessary, and repeat the above procedure.

12.2.4.4 Install pressure plate assembly by aligning anchor bolt holes with anchor bolts and slide onto cylinder. The pressure plate must float freely on the anchor bolts.

12.2.4.5 Install linking hose Item #35 between the two brake cylinders. Slide the brake assembly into the torque plate Item #31, aligning the anchor bolts to the torque plate holes (cylinders must slide freely in torque plate).

12.2.4.6 Install washers Item #21, tie bolts Item #20, and insulator shim Item #19. Install back plate assemblies Item #17 between brake disc and wheel flange, and align with tie bolts. Torque bolts to 85-90 in-lbs.

12.2.4.7 Reconnect hydraulic lines and bleed system. Check pedal for proper feel and travel.

12.2.5 Wear Limits

12.2.5.1 Maximum wear limits for brake linings and discs are shown in the following sketch. Disc warpage should not exceed .015 in.

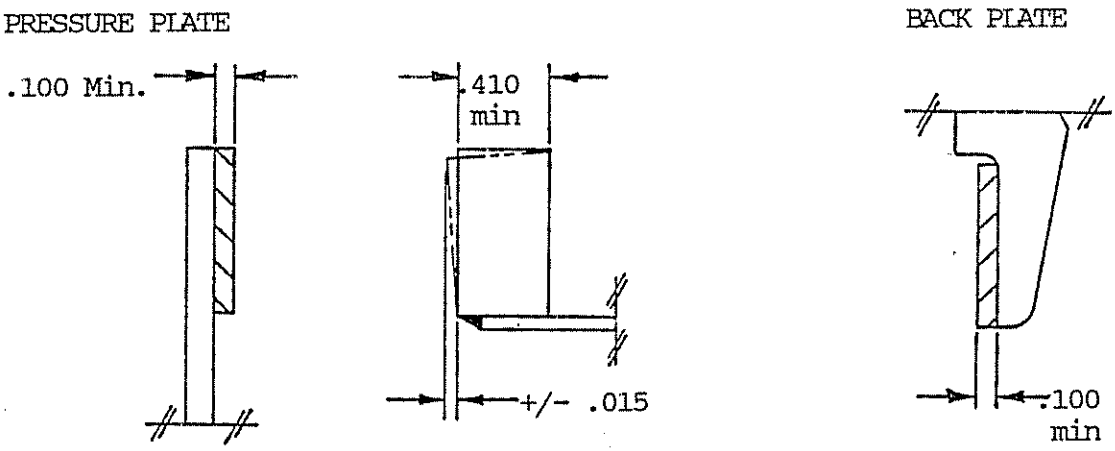

Figure 4
Lining and Disc Wear Limits

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13. PARTS LIST

13.1 Wheel Parts List

AIRCRAFT WHEEL AND BRAKE DIVISION

PARKER HANNIFIN CORPORATION

AVON, OHIO

PARTS LIST

40-170B WHEEL ASSEMBLY 24 x 7.7 TYPE VII

ITEM	OLD P/N	CODE NO.	DESCRIPTION	QUANTITY
37	40-170B	040-17002	Wheel Assembly	1
38	161-76	161-07600	Inner Wheel Half Assembly	1
39	151-72	151-07200	Wheel Half - Inner	1
40	IM29710	214-01300	Cup - Bearing (Timken)	1
41	162-91	162-09100	Outer Wheel Half Assembly	1
42	152-94	152-09400	Wheel Half - Outer	1
43	07204	214-03400	Cup - Bearing (Timken)	1
44	TR716-5	160-01100	Inflation Valve Assembly	1
45	IM29749	214-01400	Cone - Bearing (Timken)	1
46	07100	214-01000	Cone - Bearing (Timken)	1
47	67-41	067-04100	Spacer	1
48	164-229	164-22900	Brake Disc Assembly	1
49	MS21250-06056	103-32500	Bolt	8
50	MS20002C6	095-03100	Washer	16
51	NAS1804-6N	094-15800	Nut	8
52	154-36	154-03600	Molded Grease Seal Assembly	1
53	3023	155-00100	Snap Ring	1
54	155-6	155-00600	Snap Ring	1
55	158-19	158-01900	Hubcap	1
56	166-157	166-15700	Nameplate	1
57	AN6230B-44	101-24100	O-Ring	1

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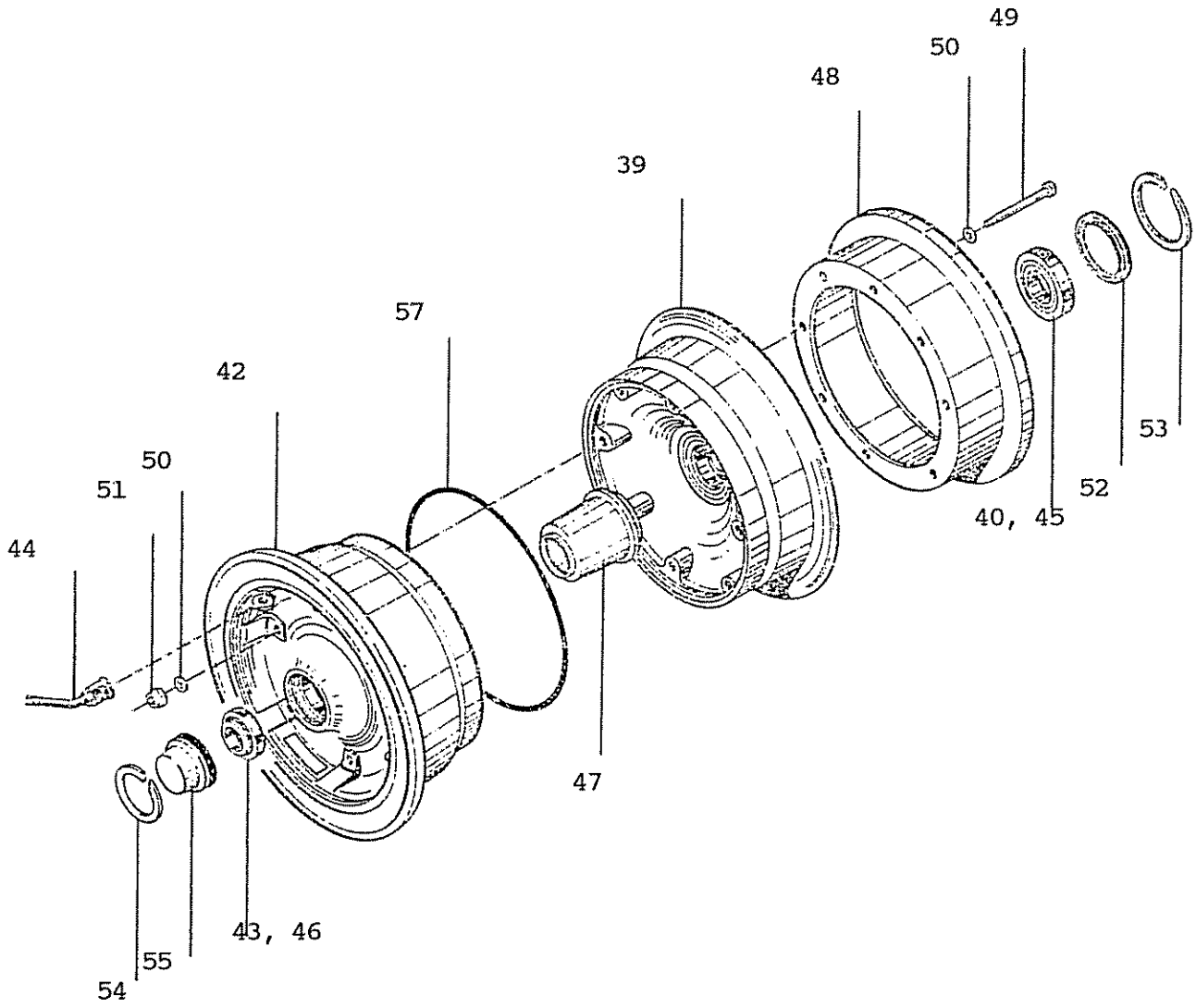

Figure 5
40-170B Wheel Assembly

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13.2 Brake Parts List

PARTS LIST

30-144A BRAKE ASSEMBLY

ITEM	OLD P/N	CODE NO.	DESCRIPTION	QUANTITY
1	30-144A	030-14401	Brake Assembly	1
2	91-139A	091-13901	Cylinder Assembly	1
3	61-106	061-10600	Cylinder	2
4	92-41	092-04100	Piston Assembly	4
5	62-41	062-04100	Piston	4
6	82-20	082-02000	Friction Ring	4
7	88-1	088-00100	Insulator	4
8	139-81	139-08100	Piston Guide	4
9	95-26	095-02600	Stato-seal	4
9A	AN960-10	095-10300	Washer	4
10	AN3-7A	103-00200	Bolt	4
11	MS28775-227	101-24200	O-Ring	4
12	73-63	073-06300	Pressure Plate Assembly	2
13	63-54	063-05400	Pressure Plate	2
14	177-16	177-01600	Pin	12
15	66-90	066-09000	Lining	4
16	561	105-00200	Rivet	4
17	74-48	074-04800	Back Plate Assembly	4
18	64-32	064-03200	Back Plate	4
14	177-16	177-01600	Pin	12
15	66-90	066-09000	Lining	4
16	561	105-00200	Rivet	4
19	68-33	068-03300	Insulator Shim	4
20	ABP4-23AM	103-14200	Bolt	12
21	AN960-416L	095-10200	Washer	12
22	81-2	081-00200	Seat - Bleeder	1
23	FC-6446	079-00300	Screw - Bleeder	1
24	183-1	183-00100	Cap - Bleeder	1
25	101-246	101-24600	O-Ring (2-012 N756-75)	1
26	4-C50X	104-03100	Fitting Ass'y (Parker)	2
27	4-V50X	104-04700	Fitting Ass'y (Parker)	1
28	69-21	069-02100	Bolt - Anchor	4
29	AN960-516	095-10500	Washer	8
30	ABP5-5AM	103-20100	Bolt	4
31	75-155	075-15500	Torque Plate Assembly	1
34	166-86	166-08600	Nameplate	1
35	207-7	207-00700	Hose Assembly - Linking	1

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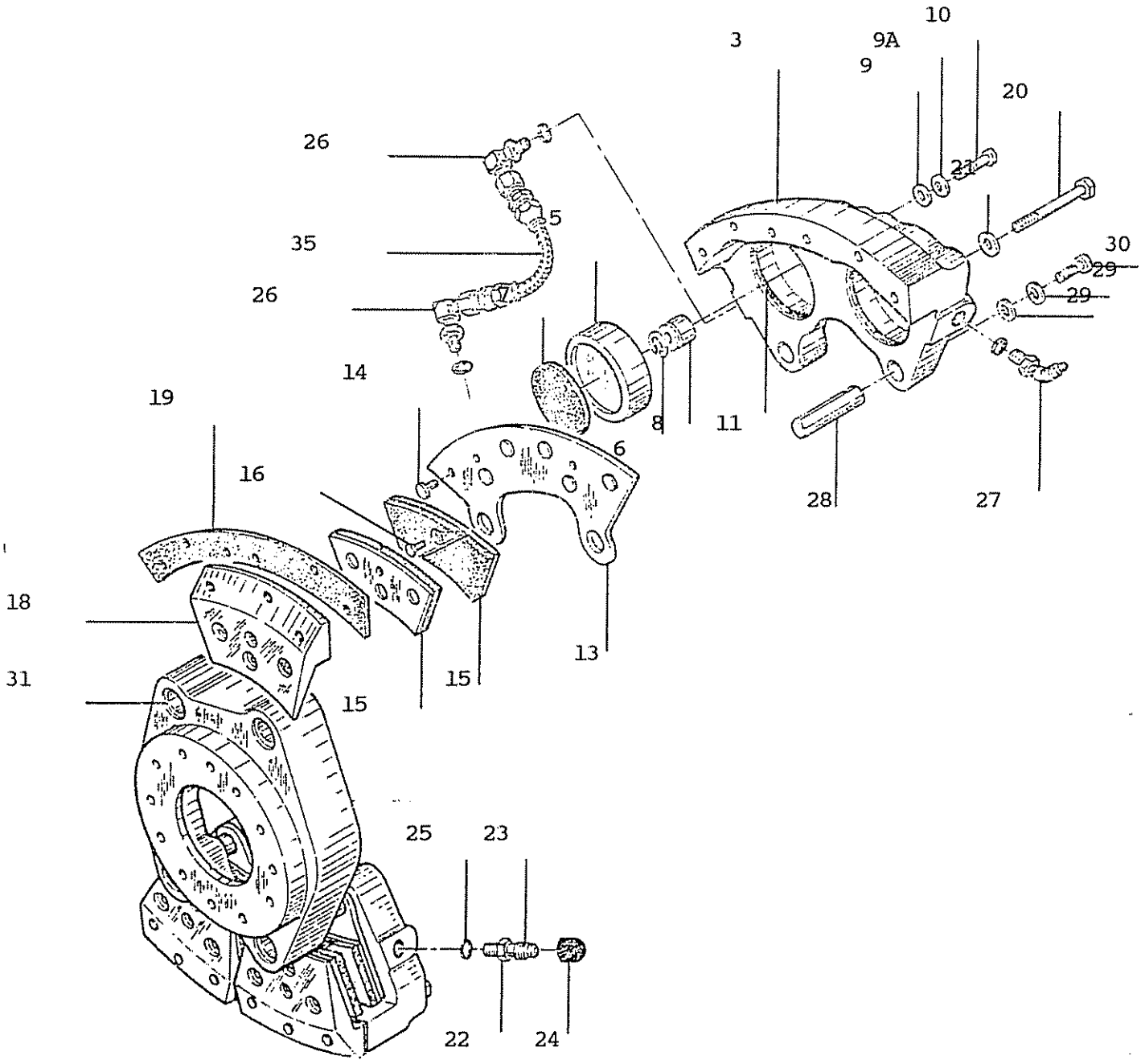

Figure 6
30-144A Brake Assembly

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13.3 Kit Parts List

PARTS LIST

199-123 CONVERSION KIT
BEECH QUEEN AIR

ITEM	PART NUMBER	DESCRIPTION	QUANTITY
1	30-144A	Brake Assembly*	2
37	40-170B	Wheel Assembly**	2
58	103-22100	Bolts (AN5-10A)	24
59	095-10500	Washers (AN960-516)	48
60	094-10400	Nuts (AN365-524) (MS21045-5)	24
61	095-02900	Washers (Wheel Bearing Retaining)	2
62	110-05400	Bracket (Right Side)	1
63	110-05500	Bracket (Left Side)	1
64	110-05600	End Tab	4
65	110-05700	Filler	2
66	105-00800	Rivets (Cherrymax CR3243-4-2)	32
67	158-01400	Hubcap (use on extended axle)	2
	199-123	Installation Booklet	1
	50-80A	Drawing (Pages 1 & 2)	1
		Warranty Registration Card	1
		STC SA619GL	1
		Flight Manual & POM Revisions	1

* For Subassembly and Parts Identification: See 30-144A Parts List
** For Subassembly and Parts Identification: See 40-170B Parts List

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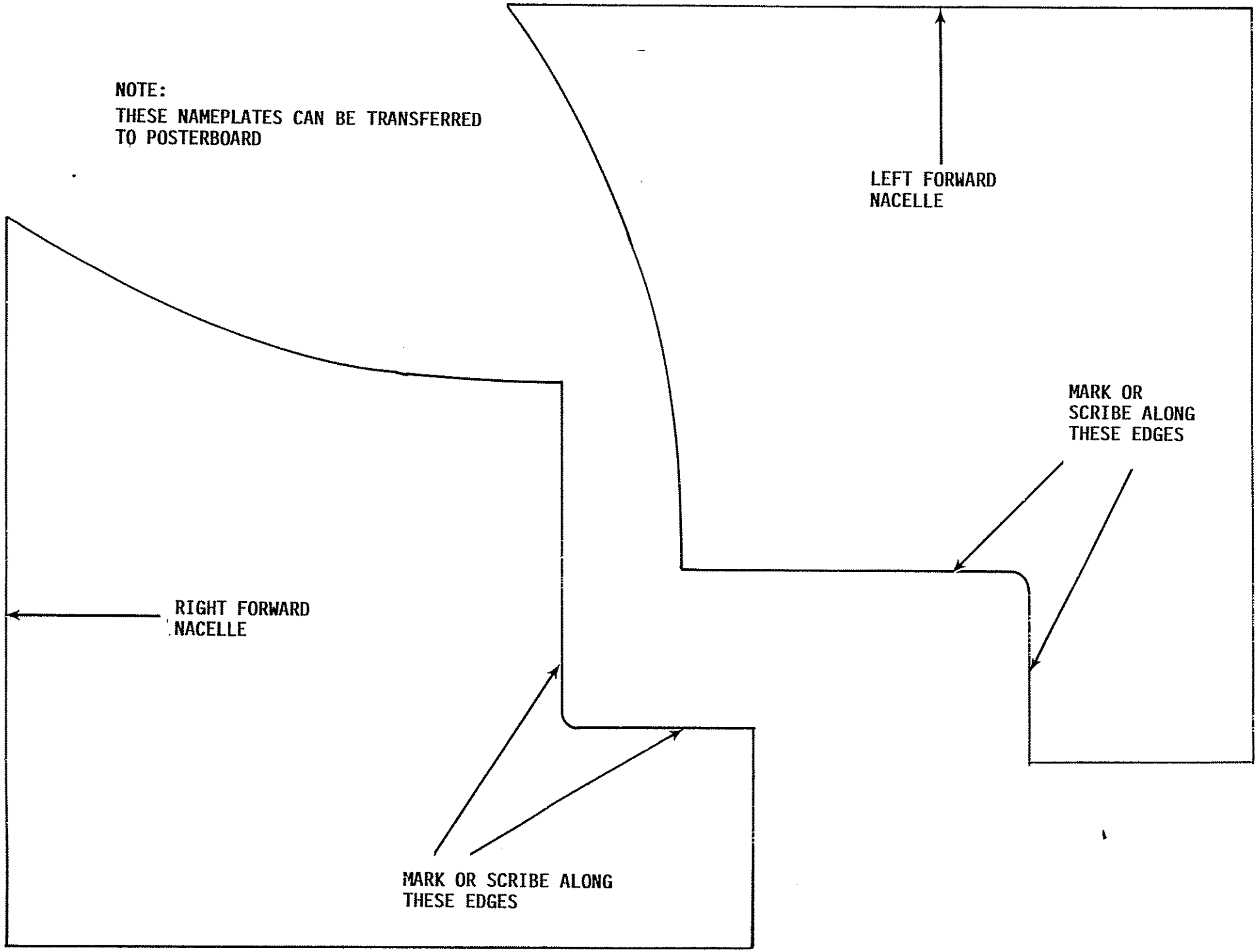
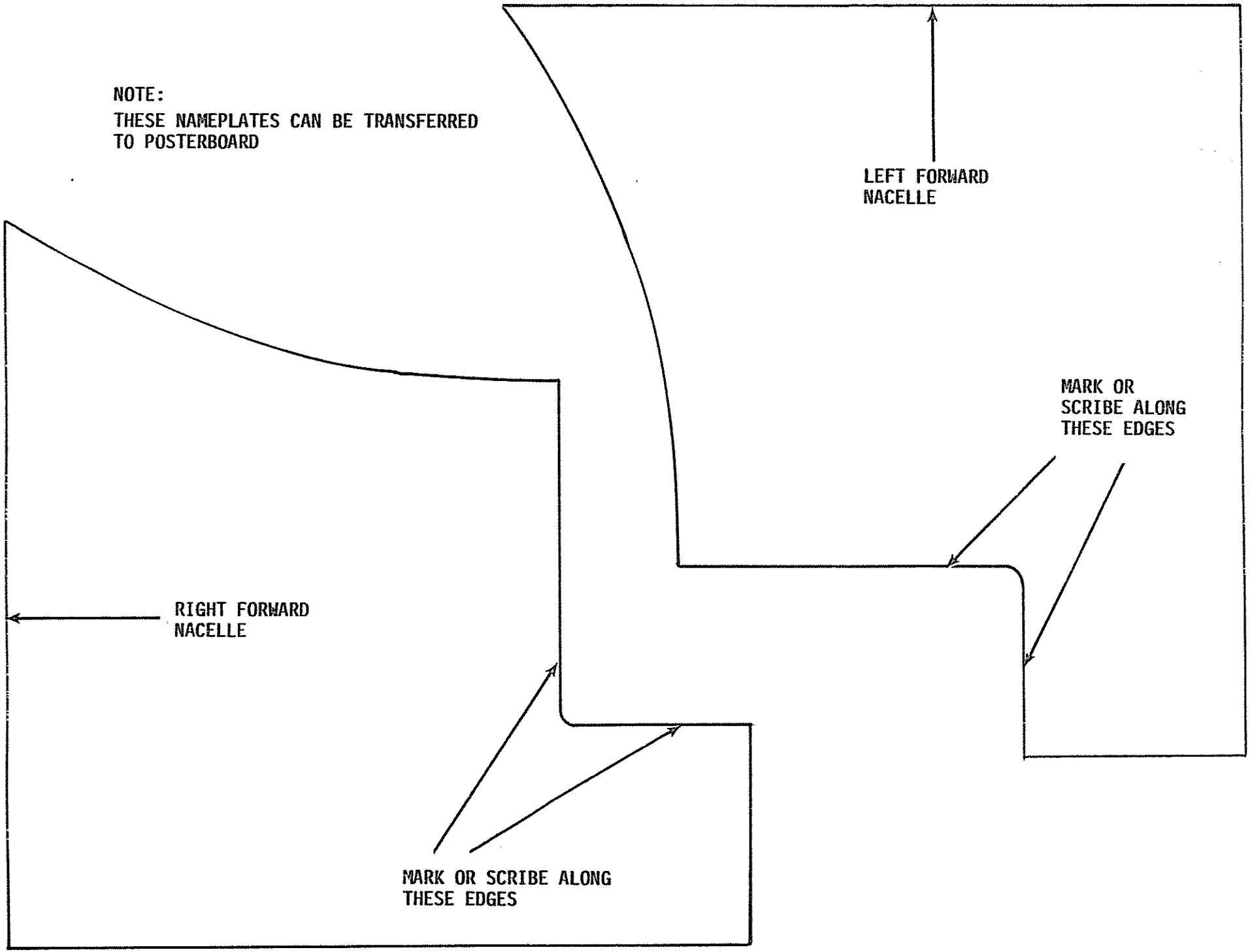

NOTE:
THESE NAMEPLATES CAN BE TRANSFERRED TO POSTERBOARD
LEFT FORWARD NACELLE
MARK OR SCRIBE ALONG THESE EDGES
RIGHT FORWARD NACELLE
MARK OR SCRIBE ALONG THESE EDGES
TEMPLATE A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RIGHT FORWARD NACELLE
MARK OR SCRIBE ALONG THESE EDGES
TEMPLATE A

Cleveland
Wheels & Brakes

Parker Hannifin Corporation
Aircraft Wheel & Brake
1160 Center Road
Avon, Ohio 44011 USA
1-800-BRAKING (272-5464)
216-937-1272 ● FAX 216-937-5409

PRODUCT REFERENCE MEMO

AVAILABILITY OF GENERAL MAINTENANCE INFORMATION AND TORQUING PROCEDURES

EFFECTIVITY: All Parker Hannifin (Cleveland Wheels & Brakes) External Disc Design wheel & brake assemblies.

APPLICABILITY: Aircraft converted per STC approved kits to use Cleveland External Disc Design wheel & brake assemblies.

REASON: This PRM is issued to inform Wheel & Brake Conversion Kit users and installers that information regarding general maintenance and proper bolt / nut torquing procedures is available. This information is contained in the Cleveland Wheels & Brakes Component Maintenance Manual (CMM) and in the Cleveland Technicians Service Guide, PRM64. Most Cleveland Conversion Kits were designed prior to creation of the CMM. Parker Hannifin is in process of upgrading kit paperwork to include a requirement to use the CMM and PRM64 as wheel & brake service information. This PRM serves the same purpose for kits whose paperwork has not yet been upgraded.

DESCRIPTION: The Cleveland Wheels & Brakes Component Maintenance Manual and PRM64, Technician's Service Guide shall be used as service information when performing general maintenance on Cleveland External Disc Design wheels & brakes. Particular attention should be paid to instructions regarding wheel bolt torquing procedures.

NOTE: Refer to the CMM or PRM64 to determine the required torque procedure (Dry or Lubtork). While using the required torque procedure, observe the torque required to turn the nut (free running torque). This value must be added to the value stated on the casting or nameplate (or in the CMM or PRM64) to obtain a true torque value. Proper torque is imperative to prevent premature bolt or mating component failure.

COMPLIANCE: Highly Recommended.

APPROVAL: The engineering contents of this Product Reference Memo are FAA DER approved.

WEIGHT & BALANCE: Not applicable.

PUBLICATIONS: Cleveland Wheels & Brakes Component Maintenance Manual and PRM64 are available from:

Customer Support
Parker Hannifin Corporation
Aircraft Wheel & Brake
1160 Center Road
Avon, Ohio

Phone: 1-800- BRAKING (272-5464)
FAX: 216-937-5409

Parker Hannifin Corporation
Aerospace/Aircraft Wheel & Brake
1160 Center Road
Avon, OH 44011

Date: _ _/_ _/20_ _

Subject: Letter of Authorization for Installation of STC'd Conversion Kits

To whom it may concern:

Parker Hannifin Corporation, Aircraft Wheel & Brake Division, hereby states that the following item(s):

KIT NUMBER: 199-_____

FAA APPROVAL: 1) STC # _____

NO OTHER APPROVALS NECESSARY

AUTHORIZATION TO INSTALL: With the sale of this STC KIT, OWNER of the Supplemental Type Certificate agrees to permit the buyer or buyer's agent or agency to use the certificate to alter the product under the terms and conditions of this STC.

A/C MAKE: _____

A/C MODEL_____

TAIL # _____

Regards,

Technical Support Team
Technical Hotline (800) 272-5464
Clevelandwbhelp@parker.com
Web-site: www.clevelandwheelandbrake.com
Manufacturer of Cleveland Wheels & Brakes

United States of America

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA673GL

This certificate, issued to Aircraft Wheel & Brake Division
Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011

certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part 3 *of the* Civil Air *Regulations.* (For complete certification basis, see Type Certificate Data Sheet 3A20.)

Original Product — Type Certificate Number 3A20
Make Beech
Model 65, A65, 70, 65-80, 65-A80, 65-B80, 65-88

Description of Type Design Change

Install wheels and brakes according to Parker Hannifin "Installation Instructions for 199-123 for Beech Queen Air Models: 65, A65, 70, 80, A80, B80, 88", Revision A, dated June 23, 1983, or later FAA approved revisions.

Limitations and Conditions

The compatability of this STC installation with previously approved modifications must be determined by the installer.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application June 3, 1983
Date of issuance June 22, 1983
Date reissued
Date amended

By direction of the Administrator

W. F. Horn *(Signature)*
Manager, Chicago Aircraft Certification Office, ACE-115C, Central Region
(Title)

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47

FAA Form 8110-2 (10-68)