AIRCRAFT WHEEL & BRAKE DIVISION
PARKER HANNIFIN CORPORATION
AVON, OHIO

PARTS LIST

199-150 CONVERSION KIT

SWEARINGEN AIRCRAFT MODELS

MERLIN II A & B

PART NUMBER	DRAWING REVISION	DESCRIPTION	QUANTITY
30-144A	Rev. G dated 05-03-2010	Brake Assembly	2
40-170	Rev. G dated 01-29-2014	Wheel Assembly	2
103-22100	----------	Bolt (AN5-10A)	24
095-10500	----------	Washer (AN960-516)	48
094-10400	----------	Nut (MS21044-N5)	24
095-02900	Rev. A dated 03-30-1998	Tanged Washer	2
158-01400	Rev. C dated 09-13-1994	Hubcap (Extended Axle)	2

Publication Package (P/N PP199-15000)

IM199-150	Rev. A dated 05-23-1990	Installation Manual
50-105	Rev. A dated 05-23-1990	Installation Drawing
SA1009GL	Issue date 04-07-1986	Supplemental Type Certificate
PRM69	----------	General Maintenance Information
-------		Pilot Operating Manual Inserts
-------		Product Registration Card

NOTES:

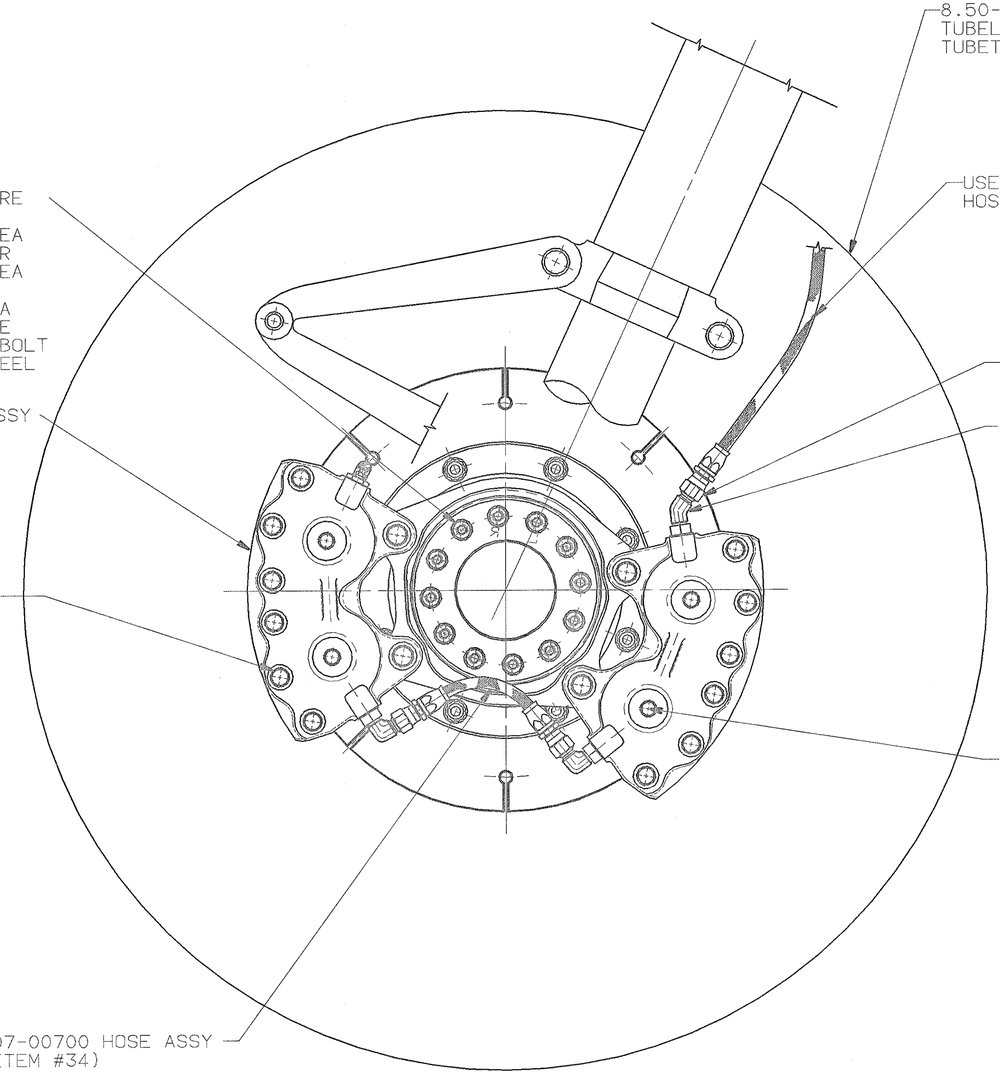
1. This kit will convert one aircraft to Cleveland Wheels and Brakes.
2. For use with MIL-H-5606 (Red Fluid).
3. Applicable Aircraft is also known as “Fairchild Aircraft Corporation, Models SA26-T and SA26-AT”.

199-150	REV. NC	REV. A	REV. B	REV. C	REV. D	REV. E	REV. F
	02-04-1986 (C/N 277-66)	10-07-1988 (C/N 292-91)	03-23-1989 (C/N 295-56)	05-23-1990 (C/N 300-41)	08-18-2005 (DCN 0366-68)	05-13-2010 (DCN 0389-38)	02-12-2014 (ECO-031936)

DWG. NO. 50-105 | SHEET 1/1 | REV. A

REV STATUS	
SHEET	LTR

CHANGE NOTICE	ZONE	LTR	REVISIONS DESCRIPTION OF CHANGE	CHG BY	DATE	APPROVED
277/66		NC	INITIAL RELEASE	N.A.	86-02-04	B. BARKER
300-41		A	REDRAWN ONTO CAD DATABASE. ALSO SEE CHANGE NOTICE FOR OTHER REVISIONS.	P.H.	05-27-93	



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 199-150

MODEL	TIRE SIZE	PLY	TYPE	PRESSURE
SWEARINGEN MERLIN II A & B MODELS: SA26-T, SA26-AT	8.50-10 TYPE III	10 PLY	TUBELESS OR TUBETYPE	PER MANUAL

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

USED ON	QTY	FINAL ASSY	QTY	NEXT ASSY	QTY	RAW STOCK NO
		199-150				

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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

	DATE		DATE
WTS		DWN N.A.	
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

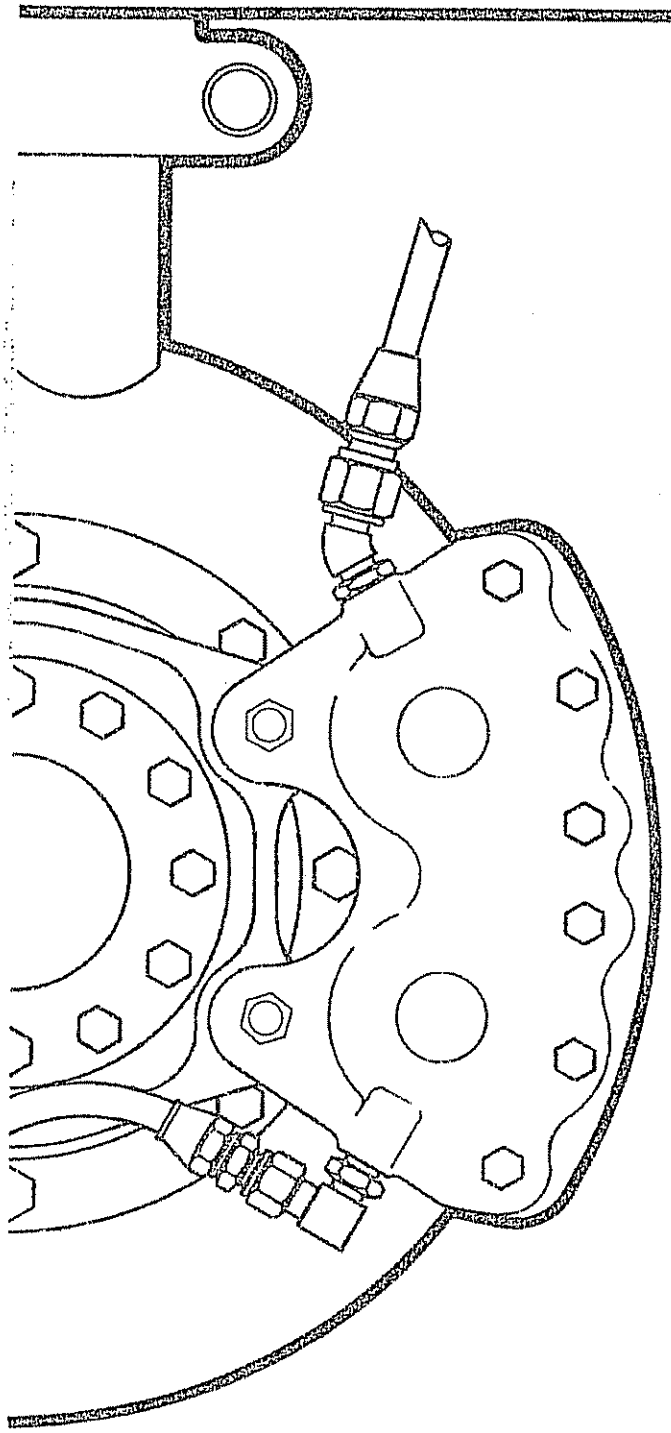
DWG. TITLE
INSTALLATION DRAWING

SIZE	FSCM NO.	DWG. NO.
D	33269	50-105

SCALE 1/2:1 | RELEASE DATE: 86-02-04 (277/66) | REV: A | SHEET: 1 OF 1

050-10500 1

Cleveland
Wheels & Brakes



Conversion Kit
Installation Manual

Kit Number 199-150

For

Swearingen Aircraft

Merlin II A & B

Parker
General Aviation

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

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INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-150

LIST OF REVISIONS

REVISION	DATE	PAGE	DESCRIPTION	APVD
Initial Release	02/03/86	----	Installation Instructions Cleveland Wheels & Brakes Conversion Kit 199-150	BB
A	05/23/90	3	Sec. 6.9 "lubtork" was "torque" Add: "NOTE! Countersunk side of washer to be towards bolt head or nut (as applicable)"	BB (300-41)
		10	Sec. 12.1.6.3 "lubtork" was "torque" Add: "NOTE! Countersunk side of washer to be towards bolt head or nut (as applicable)"	
		16	Item 50: "MS21250-06056 103-32500" was "AN6-40A 103-31000" Item 51: "MS20002C6 095-03100" was "AN960-616 095-10600" Item 52: "NAS1804-6N 094-15800" was "AN364-624 094-10100" Item 56: "158-19 158-01900" was "158-8 158-00800"	

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INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-150

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INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-150

Notes

INSTALLATION INSTRUCTIONS
Cleveland Wheels & Brakes Conversion Kit 199-150

1. INTRODUCTION.

1.1 This manual is published for the guidance of personnel responsible for the installation of Cleveland Conversion Kit 199-150.

1.2 Each kit contains all materials and instructions needed to replace existing equipment with Cleveland wheels and brakes. Kit 199-150 will completely retrofit the aircraft to Cleveland wheels and brakes.

2. TSO NOTICE.

2.1 The wheels and brakes 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 "KIT 199-150":

MAKE	MODELS
Swearingen	Merlin II A (SA26-T)
Swearingen	Merlin II B (SA26-AT)

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.

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5 DESCRIPTION.

5.1 The brake is a daul 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 18.

5.2 The wheel is cast magnesium and conforms to all Tire and Rim Association standards for a 24 x 7.7 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 protects the bearings. It is composed of the following parts listed on page 16.

6. INSTALLATION.

6.1 Jack aircraft in accordance with Swearingen Service Manual, deflate main wheels completely, and remove and retain axle nut and inboard and outboard spacers. Remove existing main gear wheels.

6.2 Disconnect lower hydraulic line at brake and cap. Next, disconnect existing brake assemblies from axle and remove.

6.3 The brakes are shipped from the factory as a complete assembly.

6.4 The wheel assemblies are shipped from the factory as a complete assembly. The bearings are packed with grease and installed in the wheel halves.

-NOTE-

Extended storage of lubricated bearings
may require relubrication.

6.5 Remove snap ring Item #55, hub cap Item #56, and bearing cone Item #47 from the outboard side of wheel assembly Item #38 and place on a clean surface to avoid contamination.

6.6 Remove all eight (8) nuts Item #52, sixteen (16) washers Item #51 and eight (8) tie bolts Item #50 to separate wheel halves.

6.7 Position disc Item #49 and inner wheel half Item #40 on a flat surface with the register side up.

6.8 Place serviceable tire & tube (if used) over inner wheel half Item #40 and then place outer wheel half Item #43 in tire making sure to properly align inner and outer registers.

6.9 Slide tie bolts Item #50 through wheel assembly. Install washers Item #51 and nuts Item #52 on to tie bolts Item #50 and Lubtork to 300 in-lbs. NOTE! Countersunk side of washer to be towards bolt head or nut (as applicable).

6.10 Inflate tire to proper pressure in safety cage.

6.11 Inspect bearing cone Item #47 for contamination and/or solidification at every periodic inspection. Repack wheel bearings with Mobilgrease 77, Mobilux EP2 or equivalent if required.

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6.12 Check for burrs or rough threads on axle and axle nut.

6.13 Mount torque plate Item #30 to axle flange using new bolts Item #35, nuts Item #37 and washers Item #36. Torque at 150 in-lbs.

-NOTE-

Bolt head to be towards the wheel. Orientation as shown on view A and torque plate location & information section of Installation Drawing 50-105

6.14 Mount wheel and tire assembly on axle using existing inboard spacers as shown in Installation Drawing 50-105, View B.

6.15 Apply a thin coat of bearing grease on axle nut and threads. Install bearing cone Item #47, in wheel. Install new tang washer, Item #59 and axle nut on axle. Tighten axle nut to 150 to 200 in-lbs of torque while rotating the wheel to insure proper seating of the bearings. Back off the axle nut to zero torque, then retorque the nut to 40 in-lbs while rotating the wheel. If the holes do not align, tighten the nut to the next available key position. Install a cotter pin. Install hubcap, Item #56 and snap ring, Item #55.

-NOTE-

Axle nut torque to be 40 in-lbs minimum of torque

6.16 Loosen twelve (12) tie bolts Item #20 on 30-144A brake assembly, and remove all four (4) back plates Item #18.

6.17 Slide new brake cylinder, Item #2 into torque plate Item #30.

6.18 Install insulator shims, Item #19 over tie bolts in both housings.

6.19 Install back plates Item #18 between brake disc and inner wheel flange. Align back plate with bolts, and torque at 85-90 in-lbs.

6.20 Reconnect hydraulic line. Check reservoir fluid level and bleed system.

6.21 Depress and release toe pedals several times. Rotate wheels by hand to check for excessive drag. A slight amount of drag is acceptable, however a severely bound-up system should be investigated and corrected. Drag could be caused by cocked lining, or air in hydraulic system.

6.22 Remove aircraft from jacks and condition linings per Section 9

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 in front cover pocket)

8.1 Attach label listed "Item installed in airplane" in flight manual as close as possible to the original section labeled Main Wheel 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.

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.

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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.

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 Item #59. Remove wheel and tire assembly from axle as a unit. Remove snap ring Item #54, grease seal Item #53 and bearing cones Items #46 and #47 from both wheel halves Items #40 and #43.

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 #52, sixteen (16) washers Item #51, and eight (8) bolts Item #50 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 #41 and #44 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.

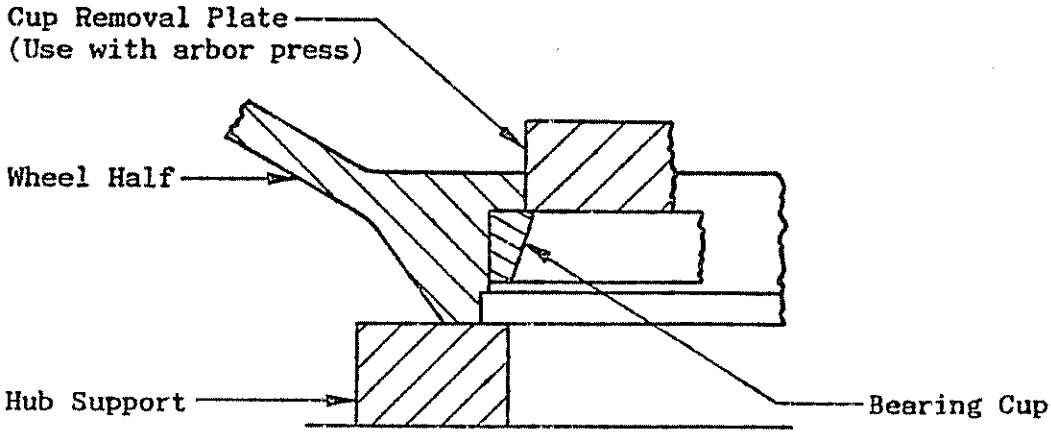

Figure 1 Supporting Wheel Hub

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12.1.2 Cleaning

12.1.2.1 Clean all metal parts in a suitable solvent and 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 #50 and wheel halves Item #40 & Item #43 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 #50 for cracks and breaks.

12.1.3.2 With dye penetrant, inspect wheel halves Item #40 and Item #43 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 #53 for pits, cuts, and other defects. Replace as necessary.

12.1.3.5 Remove and replace O-ring Item #58.

12.1.4 Repair and Replacement

12.1.4.1 Repair scratches, nicks, corrosion, and other surface blemishes on wheel halves Item #40 and Item #43 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.

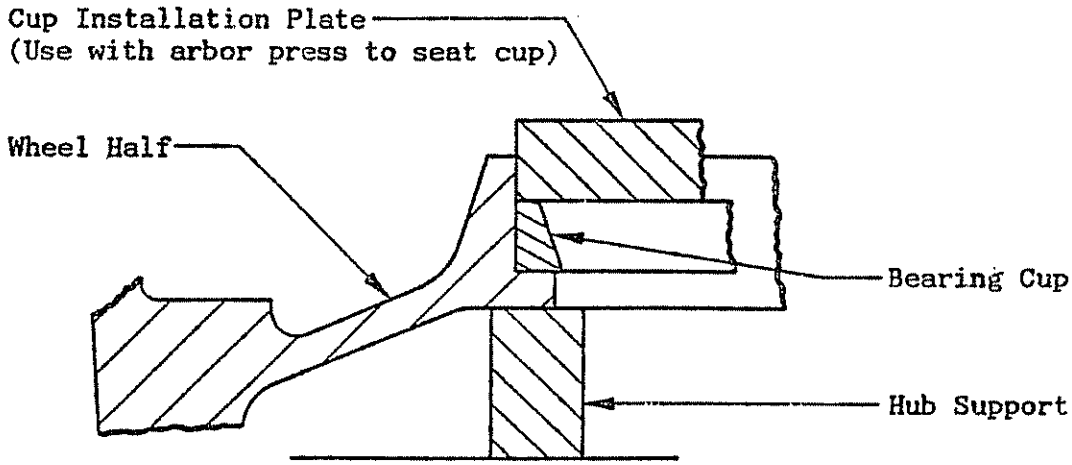

Figure 2 Supporting Wheel Hub

-NOTE-

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

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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 #49 and inner wheel half Item #40 on a flat surface with register side up. Coat O-ring Item #58 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 #40 and then place outer wheel half Item #43 in the tire, making sure to properly align inner and outer wheel registers.

12.1.6.3 Slide tie bolts Item #50 through wheel assembly. Install washers Item #51 and nuts Item #52 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 #46, grease seal Item #53 and snap ring Item #54 into inner wheel half. Install bearing cone Item #47 ,hubcap Item #56 and snap ring Item #55 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 #18. 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.

—CAUTION—

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

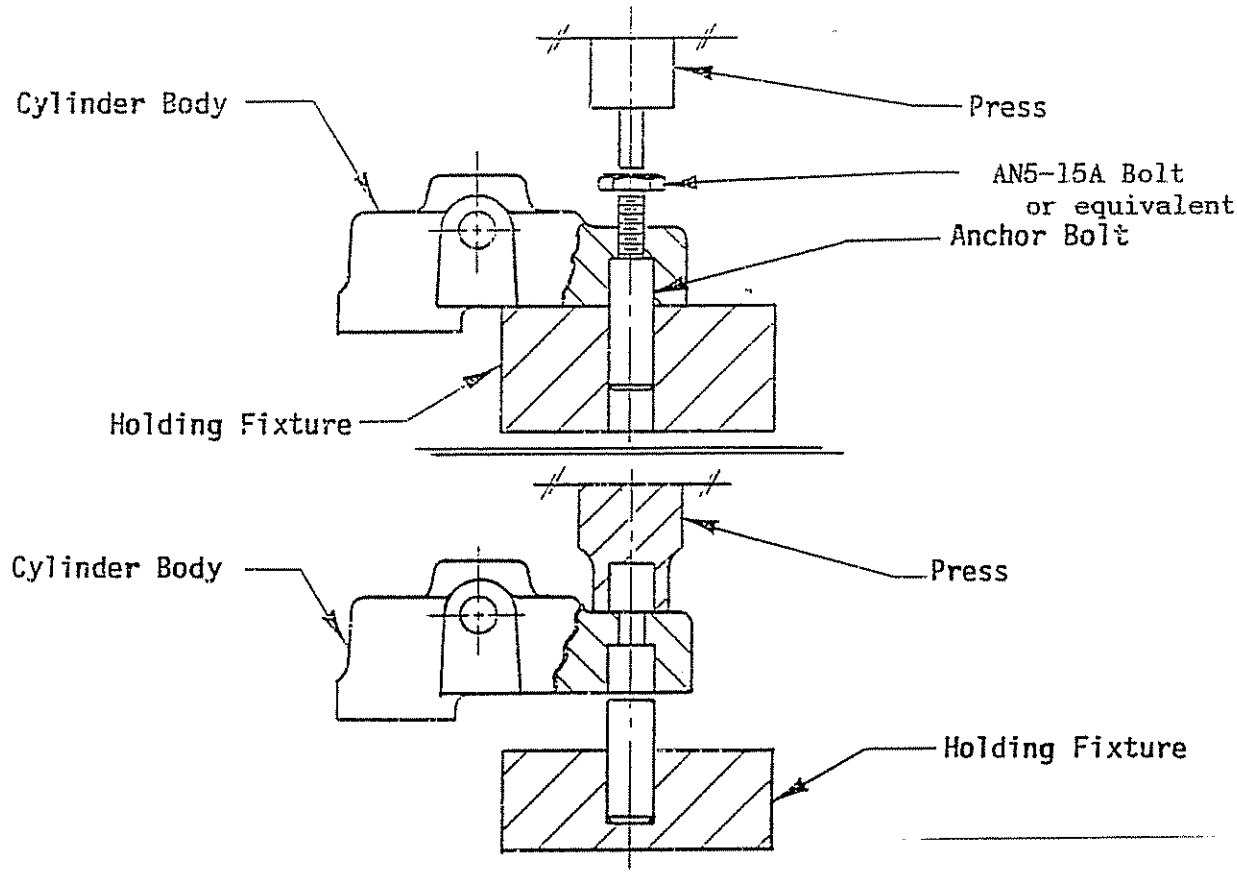

Figure 4 Anchor Bolt Removal

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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 in alcohol or suitable solvent.

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.

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

12.2.4 Reassembly

12.2.4.1 If removed, press anchor bolts Item #27 (ref. Figure 3) into brake and install washers Item #28 and bolts Item #29. Torque bolts to 60-70 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 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 #34 between the two brake cylinders. Slide the brake assembly into the torque plate Item #30, 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 #18 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.

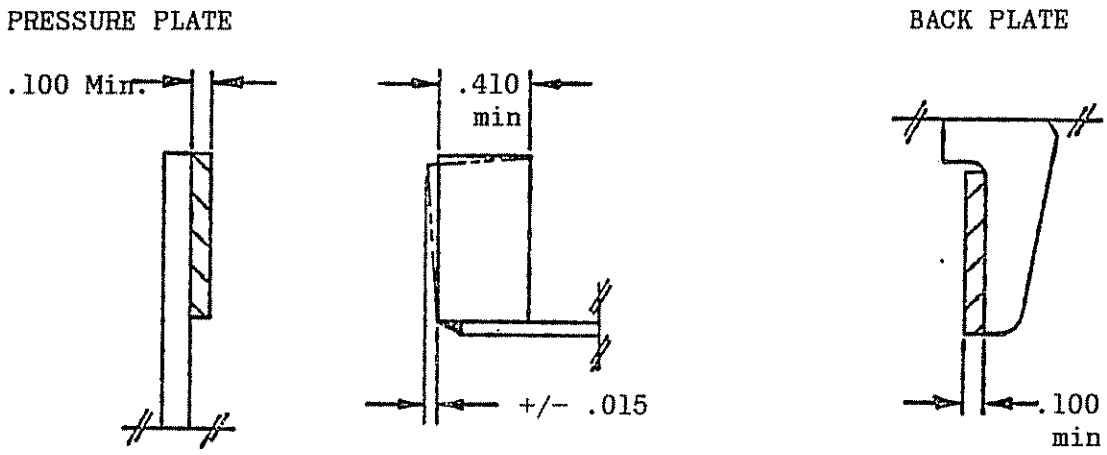

Figure 4
Lining and Disc Wear Limits

13. PARTS LIST

13.1 Wheel Parts List

AIRCRAFT WHEEL AND BRAKE DIVISION

PARKER HANNIFIN CORPORATION

AVON, OHIO

PARTS LIST

40-170 WHEEL ASSEMBLY 24 x 7.7 TYPE VII

ITEM	OLD P/N	CODE NO.	DESCRIPTION	QUANTITY
38	40-170	040-17000	Wheel Assembly	1
39	161-76	161-07600	Inner Wheel Half Assembly	1
40	151-72	151-07200	Wheel Half - Inner	1
41	LM29710	214-01300	Cup - Bearing (Timken)	1
42	162-91	162-09100	Outer Wheel Half Assembly	1
43	152-94	152-09400	Wheel Half - Outer	1
44	07204	214-03400	Cup - Bearing (Timken)	1
45	TR716-5	160-01100	Inflation Valve Assembly	1
46	LM29749	214-01400	Cone - Bearing (Timken)	1
47	07100	214-01000	Cone - Bearing (Timken)	1
48	67-41	067-04100	Spacer	1
49	164-209	164-20900	Brake Disc Assembly	1
50	MS21250-06056	103-32500	Bolt	8
51	MS20002C6	095-03100	Washer	16
52	NAS1804-6N	094-15800	Nut	8
53	154-36	154-03600	Molded Grease Seal Assembly	1
54	3023	155-00100	Snap Ring	1
55	155-6	155-00600	Snap Ring	1
56	158-19	158-01900	Hubcap	1
65	158-14	158-01400	Hubcap (Extended Axle)	1
57	166-94	166-09400	Nameplate	1
58	AN6230B-44	101-24100	O-Ring	1

Feb., 1986
May, 1990 Rev A

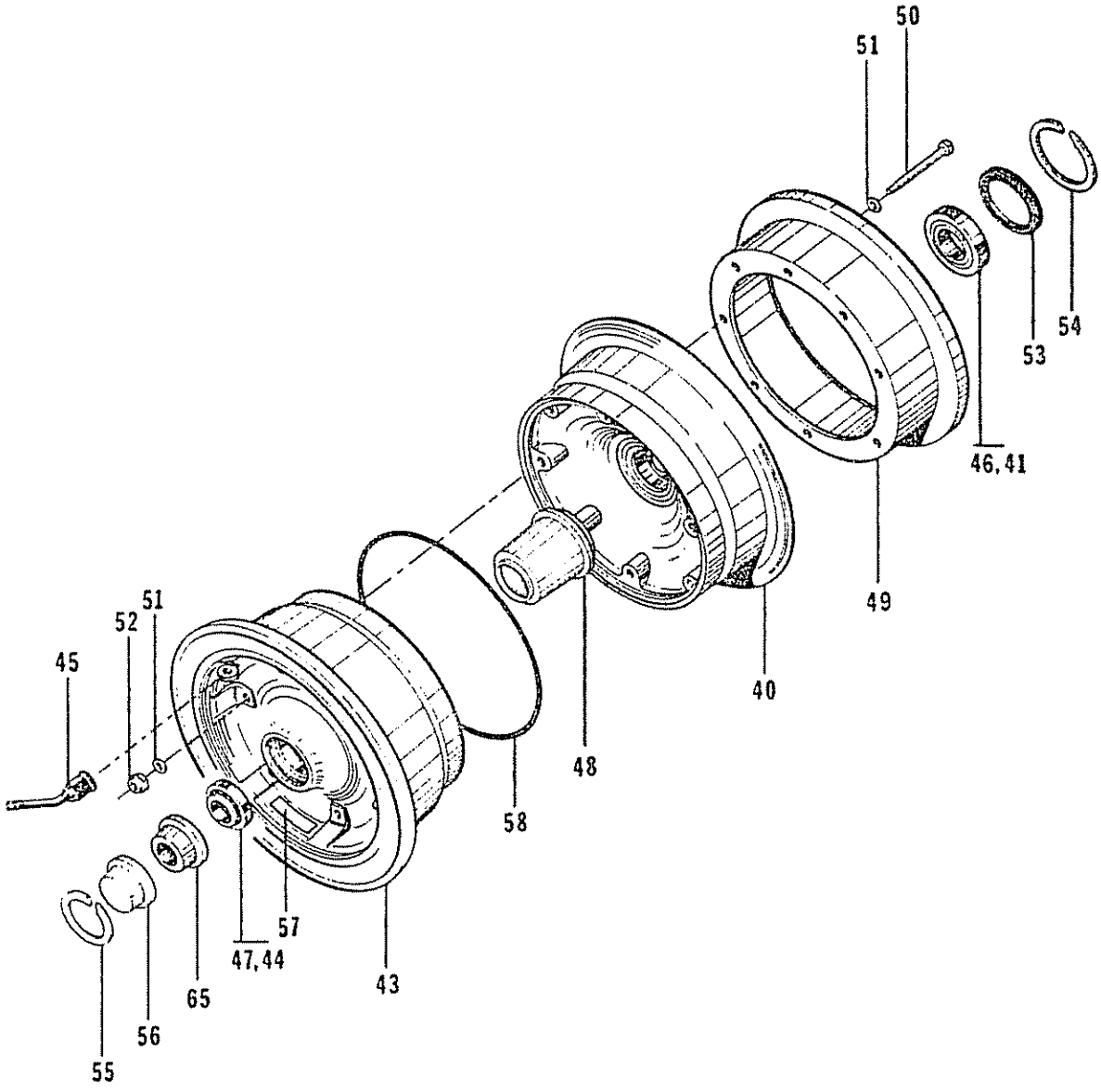

Figure 5
40-170 Wheel Assembly

Feb., 1986

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	8
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
26A	4-V50X	104-04700	Fitting Ass'y (Parker)	1
27	69-21	069-02100	Bolt - Anchor	4
28	AN960-516	095-10500	Washer	8
29	ABP5-5AM	103-20100	Bolt	4
30	75-155	075-15500	Torque Plate Assembly	1
33	166-86	166-08600	Nameplate	1
34	207-7	207-00700	Hose Assembly - Linking	1

Feb., 1986

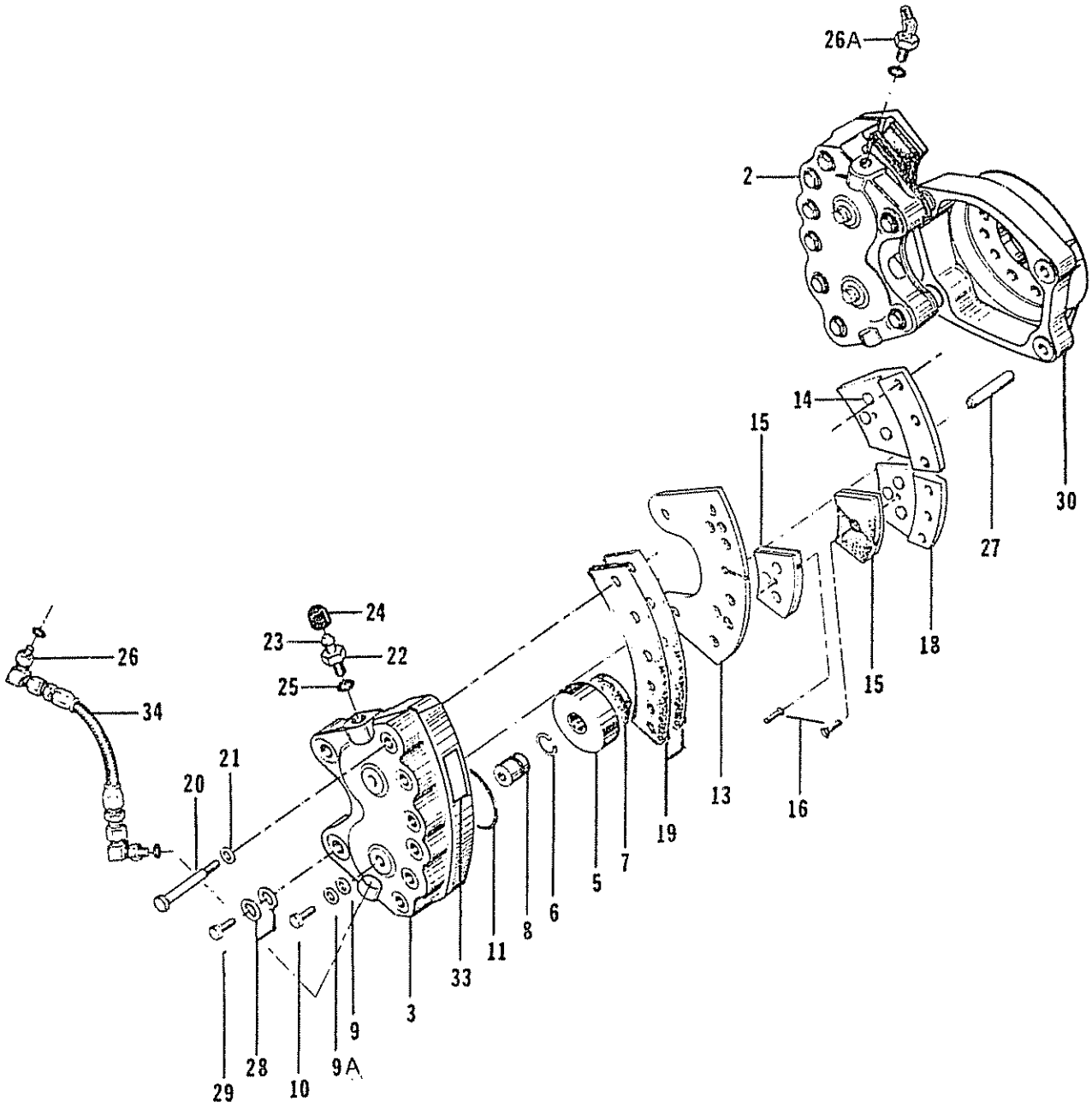

Figure 6
30-144A Brake Assembly

Feb., 1986

13.3 Kit Parts List

PARTS LIST

199-150 CONVERSION KIT

SWEARINGEN AIRCRAFT MODELS
MERLIN II A & B

ITEM	OLD P/N	CODE NO.	DESCRIPTION	QUANTITY
1	30-144A	030-14401	Brake Assembly*	2
38	40-170	040-17000	Wheel Assembly**	2
35	AN5-10A	103-22100	Bolt	24
36	AN960-516	095-10500	Washer	48
37	AN365-524	094-10400	Nut	24
59	95-29	095-02900	Tanged Washer	2
65	158-14	158-01400	Hubcap (Extended Axles)	2
	50-105		Installation Drawing	1
	199-150 Manual		Installation Manual	1
			STC	1
	SA1009GL		Warranty Registration Card	1
			Flight Manual Revisions	1
			POM Revision	1

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

Feb., 1986

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 SA1009GL

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.* See Type Certificate Data Sheet A5SW for complete certification basis.

Original Product — Type Certificate Number A5SW
Make Fairchild Aircraft Corporation
Model SA26-T, -AT

Description of Type Design Change

Install Aircraft Wheel & Brake Conversion Kit 199-150, N/C, dated February 1986, in accordance with Cleveland Wheels & Brakes Installation Instructions Drawing 50-105, N/C, dated February 4, 1986, and Cleveland Wheels & Brakes Conversion Kit Installation Manual for Kit Number 199-150, N/C, dated February 2, 1986, or other FAA approved revisions of Kits 199-150 and installation drawing 50-105.

Limitations and Conditions

This STC approval should not be incorporated in any aircraft of these specific models on which other approved modifications are incorporated, unless it is determined that the interrelationship between this change and any of those previously incorporated approved modifications will not introduce any adverse effect upon the airworthiness of the aircraft.

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 February 6, 1986 *Date issued*

Date of issuance April 7, 1986 *Date amended*

By direction of the Administrator

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