AIRCRAFT WHEEL & BRAKE DIVISION PARKER HANNIFIN CORPORATION AVON, OHIO

PARTS LIST 199-62A CONVERSION KIT

CESSNA AIRCRAFT MODEL SERIES 180, 185 & 206 6.00-6 EQUIPMENT

PART NUMBER	DRAWIN	IG REVISION	DESCRIPTION	<u>QUANTITY</u>
30-52N 40-75AA	Rev. F, Rev. A,	dated 10-14-1999 dated 03-07-2014	Brake Assembly Wheel Assembly	2 2
		Publication Packa	ge (P/N PP199-62A)	
IM199-62A	Rev. B,	dated 03-11-2014	Installation Manual	
50-36A	Rev. E,	dated 03-07-2014	Installation Drawing	
SA63GL			Supplemental Type Cer (180, 185,and 206 Serie	tificate es Aircraft)
PRM13A			Product Reference Men Procedure for Non-Asbe Lining"	no - "Conditioning estos Organic Brake
			Pilot Operating Manual	Inserts
			Product Registration Ca	ırd

NOTES:

NC	<u>DIES:</u>	R	R	R	R	R	ਸ਼	5
1.	This kit will convert one aircraft to Cleveland Wheels and Brakes.	ev. E	ev. D	€v. C	ev. B	ev. A	ev. N	99-62
2.	For use with MIL-H-5606 hydraulic fluid.		-			-	<u></u>	A
3.	Supplemental Type Certificate SA63GL is included in IM199-62A Installation Manual.	03-12-2014 (ECO-0031319)	10-31-2013 (ECO-0027796)	10-25-2006 (DCN 0371-90)	01-26-2004 (DCN 0359-13)	04-21-1994 (DCN 0311-11)	07-15-1993 (C/N 308-76)	



PD-D-GENL-PC-00

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1		REVISIONS				
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0359-13	С	REDRAWN ON CAD; REVISED PER C/N	РМН	RH	2004-01-26	R. HARTLAUB
0371-90	D	SEE C/N	GL	DB	10-24-2006	B. BARKER
0031319	E	SEE ECO	GL	PH	03-07-2014	N.ADAMS



Technical Publication

Conversion Kit Installation Manual With Illustrated Parts List

IM199-62A

Wheel & Brake Assembly

Main Wheel Assembly Part No. 40-75AA Main Brake Assembly Part No. 30-52N

Used On Cessna 180, 185, 206 Series Initial Issue January 26, 2004





Parker Hannifin CorporationAircraft Wheel & BrakeAvon, Ohio 44011 USACage Cod

Cage Code 33269

Page T-1 Rev B, March 11, 2014



STOP!

PLEASE COMPLETE AND RETURN THE ATTACHED REGISTRATION CARD. IT IS IMPORTANT THAT ALL INFORMATION IS LEGIBLY PRINTED. THIS DATA WILL ASSIST PARKER HANNIFIN, AIRCRAFT WHEEL & BRAKE TO NOTIFY END USERS OF SPECIFIC AIRWORTHINESS DOCUMENTS IF NECESSARY.

- IMPORTANT -

MODEL YEAR AND SERIAL NUMBER EFFECTIVITY OF AN AIRCRAFT CAN AFFECT CONVERSION KIT INSTALLATION. AIRFRAME MANUFACTURER UPGRADES, SERVICE BULLETINS AND SIMILAR DOCUMENTATION CAN ALSO AFFECT HOW A KIT IS EQUIPPED.

BECAUSE OF THE MANY POSSIBLE AIRCRAFT CONFIGURATIONS, SOME KITS WILL NOT INCLUDE THE HARDWARE NEEDED TO COMPLETE THE KIT INSTALLATION. THESE ITEMS MUST BE OBTAINED SEPARATELY.

SEE PARAGRAPH 4.1 FOR HARDWARE CONFIGURATION SPECIFIC TO CONVERSION KIT NO. 199-62A.

For technical assistance, contact the

TECHNICAL SERVICES HOTLINE:

techhelp@parker.com

Fax: 440-937-5409

1-800-BRAKING (272-5464) Tel.: 440-937-1315

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Revision NC, 01-26-2004 (DCN 0359-13)

Section/Page No. Description Of Change

All sections/All pages Production Release of Installation Instructions for Cleveland Wheels & Brakes Conversion Kit 199-62A



Revision A, 10-24-2006 (DCN 0371-90)

Section 8.1/Pg 4	(NOW) <u>CAUTION</u> :	WHEEL BEARINGS IN THIS KIT ARE PACKED WITH MOBILE AVIATION GREASE SHC 100 BEARING GREASE. IT IS ALSO PERMISSIBLE TO USE AN ALTERNATE GREASE CONFORMING TO MIL-PRF-81322 GRADE 2 OR DOD-G-24508A. DO NOT MIX ANY OF THESE GREASES WITH EACH OTHER. MIXING THE GREASE CAN DECREASE GREASE PERFORMANCE AND MAY CAUSE PREMATURE FAILURE OF THE DEADNOSE THE USE OF ALTERNATE BEADING. CREASE IN THESE WHEELS WILL
		REQUIRE THE DISASSEMBLY OF THE WHEEL SO THAT THE BEARINGS CAN BE REMOVED, CLEANED, AND RE-PACKED.
	(WAS)	
	CAUTION:	USE GREASE CONFORMING TO MIL-PRF-81322 GRADE 2 OR DOD-G-24508A; OR USE MOBILE AVIATION GREASE SHC 100. DO NOT MIX THE GREASES WITH EACH OTHER. MIXING THE GREASE CAN DECREASE GREASE PERFORMANCE AND CAUSE FAILURE OF THE BEARING.
Section 9.2.1, k./Pg 8	(NOW) k. Lighth greas (WAS)	y coat all surfaces of the inboard and outboard grease seal felts with bearing e.
Section 12.0/Pg 12	Wheel A (DELET) "40-75T "164-483	ssembly Parts List GOLD Wheel Assembly" 300 Brake Disc (gold)
Section 14.0/Pg 14	Kit Parts (DELET) "(4) 199-6 Figure 2;	E List, Delete Note (4), Re-number Original Note (5) to (4) E) 2A GOLD is identical to 199-62A except for performance gold brake disc: see 40-75T IPL "



Revision B, 03-11-2014 (ECO-0031319)

Section/Page No.	Description Of Change
Cover/pg T-1	(NOW) Main Wheel Assembly Part No. 40-75AA (WAS) Main Wheel Assembly Part No. 40-75T
4.1/pg 2	(ADD) bullet to include 'Dust cover P/N 157-00900' as hardware not included in the 199-62A conversion kit.
7.2/pg 3	(NOW) 'Molded grease seals (2-11 and 2-12) provide protection' (WAS) 'Felt grease seals (2-11 and 2-13) provide protections'
	(ADD) 'The wheel is designed to accommodate wheel covers.'
9.2.1/pg 6	 (NOW) a. Remove the following items from both the inboard and outboard side of wheel assembly: snap rings (2-13), grease seal ring (2-10)-outboard only; and molded grease seals (2-11, 2-12). Place the removed items on a clean surface to prevent contamination' (WAS) a. Remove the following items from both the inboard and outboard side side of wheel assembly: snap rings (2-15), grease seal rings (2-10, 2-12, 2-14) and grease seal felts (2-11, 2-13). Place the removed items on a clean surface to prevent contamination.
9.2.1/pg 8	 (NOW) k. Lightly coat the outer and inner diameter of the molded grease seals with bearing grease. (WAS) CAUTION: IF YOU DO NOT OBEY THE FOLLOWING STEP, THE FELTS CANNOT PROVIDE THE NECESSARY MOISTURE BARRIER TO PROTECT THE BEARINGS. THE MOISTURE CAN SOAK PAST THE FELTS AND CONTACT THE BEARINGS. THIS CAN LEAD TO BEARING FAILURE. k. Lightly coat all surfaces of the inboard and outboard grease seal felts with bearing grease. (NOW) n. Re-assemble the grease seal ring (2-10)-outboard only, molded grease seals and snap rings. (WAS) n. Re-assemble the grease seals (rings and felts) and snap rings.



Revision B, 03-11-2014 (ECO-0031319) continued

Section/Page No.	Description Of Change
10.1/pg 10 Weight & Balance	(NOW) Wheel assy8.70 lb. (WAS) Wheel assy8.20 lb. (NOW) Total11.70 lb (WAS) Total11.20 lb.
11.0/pg 11 Inserts	(NOW) Cleveland P/N 40-75AA (weight = 8.70 ea.) (WAS) Cleveland P/N 40-75T (weight = 8.20 ea.)
12.0/pg 12	Figure 2 (NOW) 40-75AA (WAS) 40-75T (REVISED) graphics to show molded seals replacing felt seals and rings. Wheel Assembly Illustrated Parts List (NOW) 40-75AA 40-75AA CHROME 162-25100 153-00300 (qty 1) 154-12400 (qty 1) 154-12000 (qty 1) (WAS) 40-75T 40-75T CHROME 162-08100 153-00400 (qty 2) 154-00300 (qty 1) 153-00300 (qty 1) 153-00300 (qty 1)
14.0/pg 14	Kit Parts List (NOW) 40-75AA (WAS) 40-75T Notes (1) and (3) (NOW) 40-75AA (WAS) 40-75T



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1.0 INTRODUCTION

The information herein addresses the installation of a Cleveland Conversion Kit. It is published for the guidance of qualified maintenance personnel responsible for the installation of a Cleveland Conversion Kit, manufactured by Parker Hannifin Corporation, Aircraft Wheel and Brake.

1.1 PURPOSE

This manual provides the necessary procedures to accomplish the installation of an STC'd Cleveland Conversion Kit. For information regarding service limits, maintenance and component overhaul, consult the publications listed under 1.2 References. For wheel and tire preparation, use AWBCMM0001.

1.2 **REFERENCES**

Parker Hannifin, Cleveland Wheels & Brakes publications, latest revision:

AWBCMM0001 Component Maintenance Manual, External Design Wheels & Brakes AWBPC0001 Product Catalog PRM64 Technician's Service Guide

2.0 TSO NOTICE

The wheels and brakes used in this STC'd 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.

Modifications or use of unapproved parts will void the TSO qualification and warranty for the wheel and brake assemblies.

3.0 PRODUCT REGISTRATION

The product registration card is located at the front of this manual. The card is our way of tracking the conversion kits and your guarantee of receiving any future airworthiness information applicable to Conversion Kit No. 199-62A. Please fill out the registration card completely and return promptly. Postage is prepaid.

4.0 KIT APPLICABILITY

NOTE: Service bulletins, service letters and similar documentation issued by the airframe manufacturer can affect the installation of Conversion Kit No. 199-62A. Contact the airframe manufacturer for documentation applicable to your model aircraft before installing Conversion Kit No. 199-62A.



The equipment supplied as Kit No. 199-62A is applicable to the following aircraft under the listed STC.

TABLE 1 Kit Applicability

STC	MAKE	MODELS
SA63GL	Cessna	180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K, 185, 185A, 185B, 185C, 185D, 185E, A185E, A185F, 206, P206, U206, U206F, U206G, TU206E, TU206F, TU206G

4.1 KIT EQUIPMENT

Refer to paragraph 14.0 for the kit parts list.

- **CAUTION:** THE USE OF 8.00-6 TIRES IS NOT COMPATIBLE WITH WHEEL FAIRINGS. THE USE OF 8.00-6 TIRES REQUIRES THE REMOVAL OF THE WHEEL FAIRINGS.
- **NOTE:** Review this installation manual and the installation drawing, number 50-36A, completely before removal of existing original equipment and installation of 199-62A kit equipment.

The following hardware is not included in the 199-62A Conversion Kit:

- Brake hydraulic lines/hoses and fittings.
- Brake / axle attachment bolts, washers and nuts.
- Axle nut cotter pins.
- Dust cover P/N 157-00900

Different brake hydraulic fittings, brake hydraulic supply lines and brake/axle attachment hardware configurations are used on the Cessna aircraft models listed in Table 1. The installer must consult with the appropriate aircraft parts catalog to identify the required hardware to complete the installation of the conversion kit.

5.0 <u>SAFETY</u>

Follow proper safety precautions when servicing aircraft braking systems.

- A "<u>SAFETY WARNING</u>" flagged by this symbol . , calls attention to possible serious or life threatening situations if procedures are not followed.
- A "<u>WARNING</u>" calls attention to use of materials, processes, methods, procedures, or limits which must be followed precisely to avoid injury to persons.
- A "<u>CAUTION</u>" calls attention to methods and procedures which must be followed to avoid damage to equipment.
- A "<u>NOTE</u>" calls attention to an essential operating or maintenance procedure, condition, or statement, which must be highlighted.



6.0 ORDER INFORMATION

To order spare parts, contact the nearest Parker Hannifin, Aircraft Wheel and Brake distributor in your area, or contact Aircraft Wheel and Brake at the following address or numbers:

Parker Hannifin Corporation Aircraft Wheel & Brake Division 1160 Center Road Avon, Ohio 44011 U.S.A. Attn: Technical Services/Hotline Website: www.parker.com/cleveland E-mail: techhelp@parker.com Fax: (440) 937-5409 Tel: 1-800-BRAKING (1-800-272-5464) (440) 937-1315

7.0 EQUIPMENT DESCRIPTION

7.1 BRAKE ASSEMBLY

Refer to Figure 3 for identification of brake assembly components.

The brake is a single caliper, two piston external disc design, with non asbestos organic lining. It is suitable for use with brake fluid conforming to MIL-H-5606.

The cylinder (3-2) contains the brake fluid which operates the pistons (3-4) and pressure plate (3-7). Back plates (3-11) are secured to the cylinder with bolts and washers (3-15 and 3-16) on the opposite side of the brake disc. The back plates and pressure plate each hold brake linings (3-9). Two anchor bolts (3-12), attached to the cylinder with nuts and washers (3-14 and 3-13), slide or float in torque plate bushings. The torque plate assembly (3-20) is mounted to the landing gear axle.

7.2 WHEEL ASSEMBLY

Refer to Figure 2 for identification of wheel assembly components.

The wheel is cast magnesium and conforms to all tire and rim association standards for a 6.00-6 divided type wheel. It is a tube-type design only.

The wheel has inboard and outboard wheel half assemblies (2-2 and 2-4) which are fastened together with bolts (2-6), washers (2-7), and nuts (2-8). The brake disc (2-5) is attached to the wheel with the bolts. The wheel rotates on two tapered roller bearing cones (2-9), which seat in the bearing cups (2-3). Molded grease seals (2-11 and 2-12) provide protection and lubricant retention for the bearing.

The wheel is designed to accommodate wheel covers.

7.3 OPERATION

Actuation of the toe pedals engages the master cylinder and delivers hydraulic pressure to the brake cylinder. The pressure flows through the cylinder and forces the pistons outward against the pressure plate. The anchor bolts slide freely in the torque plate assembly bushings and allows the pressure plate and back plate linings to squeeze the brake disc at the same time.



8.0 GENERAL INFORMATION

- a. The brakes are shipped from the factory as a complete assembly.
- b. The wheels are shipped from the factory as a complete assembly. The bearing cones are packed with grease and installed in the wheel halves.

NOTE: Extended storage (longer than two years) of lubricated bearings will require relubrication. Refer to paragraph 8.1 for grease packing procedure.

c. The brakes are equipped with pipe thread ports (1/8-27 NPTF). The brakes are shipped with the bleeder fitting installed. Refer to paragraph 8.2 for installing pipe thread fittings.

8.1 BEARING CONE GREASE PACKING PROCEDURE

The proper application of grease to the tapered roller bearing will reduce friction, dissipate heat and maintain a rust and corrosion proof coating on the operating surfaces of the roller bearings.

- **CAUTION:** WHEEL BEARINGS IN THIS KIT ARE PACKED WITH MOBILE AVIATION GREASE SHC 100 BEARING GREASE. IT IS ALSO PERMISSIBLE TO USE AN ALTERNATE GREASE CONFORMING TO MIL-PRF-81322 GRADE 2 OR DOD-G-24508A. DO NOT MIX ANY OF THESE GREASES WITH EACH OTHER. MIXING THE GREASE CAN DECREASE GREASE PERFORMANCE AND MAY CAUSE PREMATURE FAILURE OF THE BEARINGS. THE USE OF ALTERNATE BEARING GREASE IN THESE WHEELS WILL REQUIRE THE DISASSEMBLY OF THE WHEEL SO THAT THE BEARINGS CAN BE REMOVED, CLEANED, AND RE-PACKED.
- **NOTE:** To prevent foreign matter contamination, pack bearing cones just before installing.
- **NOTE:** Packing bearing cones with grease is best performed by mechanical means such as a bearing greaser.
- a. Ensure bearings are completely dry before packing them with lubricant.
- b. Refer to Figure 1 and pack the bearing cone.
- c. Force the grease up between rollers, cone and cage, making sure that all voids inside the cone are filled (see Figure 1). Also, make sure that a generous amount of grease is applied to the roller surfaces on the outside of the cone.
 - **NOTE:** Shaded area indicates the recommended amount of grease.



Figure 1, Packing Bearing Cones



8.2 INSTALLING PIPE THREAD FITTINGS

The proper torque procedure for pipe thread fittings will prevent excessive galling between the threads, insure a leak-proof seal and avoid excessive torque during the equipment installation.

- **<u>NOTE</u>**: To prevent possible foreign matter contamination, inspect and clean each fitting before installing.
- a. Apply a light coat of Lubon #404 (or equivalent) thread lubricant and sealant to the first three threads of the fitting.
- b. Screw the fitting into the assembly to achieve a hand tight fit. Tighten the fitting an additional one to two turns to secure and achieve the desired fitting orientation.
- c. Inspect the assembled joint and remove any excess thread lubricant from the assembly.

9.0 KIT INSTALLATION

Read this installation manual and look at the installation drawings before removing and installing components.

SAFETY WARNING: A INSURE AIRCRAFT IS SECURE AND STABLE BEFORE BEGINNING ANY WORK. WORKING UNDER AN IMPROPERLY STABILIZED AIRCRAFT CAN CAUSE INJURY OR DEATH.

SAFETY WARNING: COMPLETELY DEFLATE THE TIRE BEFORE REMOVING THE VALVE CORE. VALVE CORES UNDER PRESSURE CAN BE EJECTED LIKE A BULLET AND CAUSE INJURY OR DEATH.

9.1 REMOVE ORIGINAL EQUIPMENT

- **CAUTION:** ALWAYS CHECK THE CONDITION OF ORIGINAL EQUIPMENT HARDWARE THAT WILL BE RETAINED SUCH AS FITTINGS, AXLE NUTS, ETC. REPLACE THESE ITEMS AS NEEDED.
- a. Properly raise and support the aircraft off the ground following the airframe manufacturer's instructions.



- b. Remove the cap from the tire inflation valve and slowly deflate the tire.
- c. Confirm that the tire is completely deflated.
- d. When all the tire pressure has been released, remove the valve core from the inside of the valve stem.
- **NOTE:** The cotter pin is not supplied as part of the 199-62A kit and must be obtained separately. Refer to the airframe parts catalog for the part number and the quantity.
- e. Remove and keep the axle hardware. Discard the cotter pin.
- f. Remove the original equipment main landing gear wheels from the axle.
- g. Disconnect the hydraulic line at the brake inlet fitting and cap the hydraulic line.
- h. Remove and keep the inlet fitting from the original equipment brake assemblies.
 - **NOTE:** If replacement of the original fitting is necessary, the installer must consult with the appropriate aircraft parts catalog to identify the required hardware to complete the installation of the conversion kit.
- i. Remove the original equipment brake assemblies from the axle.

9.2 INSTALL CLEVELAND EQUIPMENT

Refer to IPL Figure 2 and IPL Figure 3 for identification of wheel and brake assembly components.

Refer to installation drawing, number 50-36A, for additional installation instructions.

9.2.1 Mount Tube-Type Tire

a. Remove the following items from both the inboard and outboard side of wheel assembly: snap rings (2-13), grease seal ring (2-10)-outboard only; and molded grease seals (2-11, 2-12). Place the removed items on a clean surface to prevent contamination

NOTE: Be careful with the bearing cones to prevent contamination or damage.

- b. Next, remove the bearing cones (2-9). Place bearing cones on a clean surface to prevent contamination.
- c. Inspect the bearing cones to make sure they are filled with grease. If they need grease, refer to paragraph 8.1, Bearing Cone Grease Packing Procedure to add grease to the bearing cones.

- **CAUTION:** DO NOT USE AN IMPACT WRENCH OR A POWER WRENCH TO REMOVE OR INSTALL THE WHEEL NUTS AND BOLTS. THESE TOOLS CAN DAMAGE THE EXTERNAL FEATURES OF THE NUTS AND BOLTS. THESE TOOLS CAN CREATE TOO MUCH FORCE AND CAN DAMAGE THE MATING COMPONENTS.
- d. Remove all six nuts (2-8), washers (2-7) and bolts (2-6) to separate wheel halves and place brake disc (2-5) to the side.
- **<u>NOTE</u>**: Tire slippage may occur with new tires and tubes. Wipe the tire and tube with denatured alcohol, followed by soap and water.
- e. Make sure the inside of the tire is clean and dry. Inspect the bead seat area and wipe it clean with denatured alcohol, followed by soap and water, then dry thoroughly.
- f. Inflate the inner tube just enough to round it out.
- **<u>NOTE</u>**: Refer to the airframe service manual for additional guidance on balancing the wheel and tire unit.
- g. The inner tube heavy spot is indicated by a painted yellow stripe. Align the stripe on the tube with the tire red balance dot. If the tube has no balance mark, align the tube valve with the tire red balance dot.
 - **NOTE:** This procedure is usually sufficient to prevent vibration during highspeed taxi. If excess vibration is encountered, check all fasteners for looseness and make sure that the components are correctly attached.
- h. Install the tire and inner tube on the outer wheel half, inserting the valve stem through the valve hole in the wheel. Place the inner wheel half inside the tire and align the bolt holes.
- i. Install the disc on the inner wheel half and align bolt holes with wheel half.
- **<u>CAUTION</u>**: FAILURE TO PROPERLY TORQUE THE WHEEL ASSEMBLY BOLTS MAY RESULT IN PREMATURE FAILURE OF THE MATING COMPONENTS OR HARDWARE.
- **NOTE:** Install bolts with the bolt head against the brake disc.
- j. Install the bolts through the brake disc bolt holes. Install the washers and nuts on the bolts. Dry torque the nuts to 150 lb-in. While using the dry torque procedure, observe the torque required to turn the nut (free running torque). This torque value must be added to the torque value of 150 lb-in (stated on the wheel assembly nameplate) to obtain a true torque value.
 - **NOTE:** Wheel assembly bolt torque values can also be referenced from the following Parker Hannifin publications: AWBCMM0001 Maintenance Manual and PRM64 Technician's Service Guide.



- k. Lightly coat the outer and inner diameter of the molded grease seals with bearing grease.
- **NOTE:** Be careful with the bearing cones to prevent contamination or damage. If the bearing cones have not been packed with grease, do so now. Refer to paragraph 8.1 for the bearing cone grease packing procedure.
- I. Place the bearing cones (2-9) in the bearing cups (2-3).
- m. Pack the cavity between the bearing cone and the grease seal with grease.

NOTE: Use the same grease that was used to pack the bearing cones.

- n. Re-assemble the grease seal ring (2-10)-outboard only, molded grease seals and snap rings.
- SAFETY WARNING: INFLATION OF TIRE CAN BE EXTREMELY DANGEROUS AND IT IS RECOMMENDED THAT INFLATION BE PERFORMED IN AN INFLATION CAGE TO PREVENT INJURY TO PERSONNEL FROM POSSIBLE EXPLOSION. TIRES AND WHEEL ASSEMBLIES MUST BE SERVICED WITH INFLATION EQUIPMENT THAT HAS BEEN SPECIFICALLY DESIGNED FOR THIS OPERATION.
- o. Inflate tire per tire manufacturer's specifications to seat beads on wheel. Adjust tire inflation to operating pressure per the airframe service manual. Set the wheel/tire unit aside.

9.2.2 Mount Torque Plate

The brake and axle attachment hardware is not included in the 199-62A Conversion Kit. Refer to the installation drawing, number 50-36A for details on brake/axle attachment hardware.

- a. Use one bushing (3-21) each in the upper torque plate/axle hole locations for the 0.3125 inch (5/16) diameter bolts.
- b. Refer to the 50-36A installation drawing for torque plate mounting orientation. Attach the torque plate assembly (3-20) to the axle using the axle mounting hardware (bolts, washers, and nuts). Torque nuts to value specified on Parker Hannifin installation drawing, number 50-36A.

9.2.3 Mount Wheel/Tire Assembly

- a. Check the tire inflation pressure and adjust if necessary.
- b. Carefully slide the wheel/tire unit onto axle.



c. Apply a thin coat of bearing grease to the axle nut and threads.

<u>NOTE</u>: Use the same grease that was used to pack the bearing cones.

d. Refer to the airframe service manual and install the axle nut.

9.2.4 Mount Brake Assembly

NOTE: The bolts (3-15) and washers (3-16) can remain in the cylinder bolt holes.

a. Loosen the four back plate attachment bolts (3-15) and remove the two back plate assemblies (3-10).

<u>CAUTION</u>: DO NOT FORCE THE CYLINDER ANCHOR BOLTS INTO THE TORQUE PLATE ENGAGEMENT HOLES.

- **NOTE:** A dry film lubricant, such as Dri-Slide (molybdenum disulfide) or silicon spray, can be applied to the anchor bolts and the torque plate engagement holes. This will help installation and give easier operation. A liquid type lubricant should not be used because it will allow dirt and moisture to collect and increase the risk of corrosion, binding and wear.
- b. Engage the cylinder assembly (3-1) into the torque plate by sliding the anchor bolts (3-12) into the torque plate engagement holes (noted by the welded bushings on torque plate).
- c. Position the back plate assemblies (3-10) between the brake disc (2-5) and the inner wheel flange. Align the back plate assemblies with the cylinder bolt holes and thread the bolts (3-15) [with installed washers (3-16)] into the back plate assemblies. Dry torque the bolts between 85 to 95 lb-in (stated on the brake assembly nameplate).
 - **NOTE:** Brake assembly bolt torque values can also be referenced from the following Parker Hannifin publications: AWBCMM0001 Maintenance Manual and PRM64 Technician's Service Guide.

9.2.5 Connect Brake Assembly

- a. Install the inlet fitting into the Cleveland brake assembly. Refer to installation drawing, number 50-36A, for additional fitting information. Refer to paragraph 8.2 for pipe thread fitting installation.
- b. Follow the installation drawing, number 50-36A, to route the hydraulic lines and connect the hydraulic lines to the brake assembly.
 - **NOTE:** If existing brakes were equipped with a rigid inlet line, refer to the 50-36A Installation Drawing for instructions to convert to an optional flexible inlet hose.



- c. Upon completion of the installation, bleed the system per the airframe service manual.
- d. Follow paragraph 9.3 System Checks prior to removing aircraft from jacks.

9.3 SYSTEM CHECKS

9.3.1 All Applicable Aircraft Models

- a. After bleeding the brakes, the wheel assemblies should rotate freely. There should be no evidence of binding or excessive brake drag.
- b. Check for possible interference applicable to individual aircraft.

9.4 BRAKE LINING CONDITIONING

When new linings are installed, it is important to condition them properly to obtain the service life designed into them. Condition linings per attached product reference memo PRM13A.

10.0 WEIGHT AND BALANCE COMPUTATIONS

Weigh the original equipment wheels and brakes. Subtract from the new weights to derive weight increase created by the kit installation. Multiply the weight increase by the applicable aircraft moment and revise the weight and balance information in the log book.

10.1 WEIGHT AND BALANCE DATA

New installed (per gear leg)

Wheel assy...... 8.70 lb. Brake assy <u>3.00 lb.</u>

Total11.70 lb.

Complete form 337 and make appropriate log book entries.



11.0 PILOT OPERATING MANUAL INSERTS

Inserts are located in front with conversion kit documentation.

Attach the label in the pilot operating manual as close as possible to the original section labeled <u>Main Wheel Assembly</u>. Enter the correct arm and moment in the blocks provided. Zero the items out for the original main wheel and brake assemblies that have been removed.

Inserts are reprinted below for reference:

х	Two dual piston, single disc Brake Assemblies,	3.00 ea.
	Cleveland P/N 30-52N	
х	Two 6.00-6 Type III Wheel Assemblies,	8.70 ea.
	Cleveland P/N 40-75AA	

Cleveland Brake Assembly P/N 30-52N is a single caliper, single fixed disc design, using two pistons per caliper which respond to fluid pressure from the master cylinders for brake application.



12.0 WHEEL ASSEMBLY ILLUSTRATED PARTS LIST



Figure 2, 40-75AA Wheel Assembly Exploded View

FIG	PART NUMBER	DESCRIPTION	QTY
2.1	40-75AA	Wheel Assembly (standard)	DE
2-1	40-75AA CHROME	Wheel Assembly	
2	161-08700	Inboard Wheel Half Assembly	1
3	214-00100	Cup-Bearing	1
4	162-25100	Outboard Wheel Half Assembly	1
3	214-00100	Cup-Bearing	1
5	164-08300	Brake Disc (standard)	1
5	164-18300	Brake Disc (chrome)	
6	103-20400	Bolt (AN5-35A)	6
7	095-10500	Washer (AN960-516)	6
8	094-10400	Nut (MS21044-N5)	6
9	214-00200	Cone-Bearing	2
10	153-00300	Ring-Grease Seal	1
11	154-12400	Grease Seal	1
12	154-12000	Grease Seal	1
13	155-00100	Snap Ring	2
- 14	166-21700	Nameplate	1

LEGEND:

- Item Not Illustrated



13.0 BRAKE ASSEMBLY ILLUSTRATED PARTS LIST



Figure 3, 30-52N Brake Assembly Exploded View

FIG	PART NUMBER	DESCRIPTION	QTY
3-1	30-52N	Brake Assembly	RF
- 1	091-02100	Cylinder Assembly	1
2	061-01800	Cylinder	1
- 3	092-01600	Piston Assembly	2
4	062-01500	Piston	1
5	101-02700	O-Ring (MS28775-222)	1
- 6	073-01000	Pressure Plate Assembly	1
7	063-01100	Pressure Plate	1
8	105-00200	Rivet	4
9	066-10500	Lining	2
-10	074-01000	Back Plate Assembly	2
11	064-01500	Back Plate	1
8	105-00200	Rivet	2
9	066-10500	Lining	1
12	069-00400	Anchor Bolt	2
13	095-10200	Washer (AN960-416L)	2
14	094-10300	Nut (MS21044-N4)	2
15	103-11800	Bolt	4
16	095-10400	Washer (AN960-416)	4
17	081-00100	Seat-Bleeder	1
18	079-00300	Screw-Bleeder	1
19	183-00100	Cap-Bleeder	1
20	075-05401	Torque Plate Assembly	1
21	145-01000	Bushing	2
- 22	166-20100	Nameplate	1
- 23	215-00200	Cap, Shipping	1

LEGEND: – Item Not Illustrated

14.0 KIT PARTS LIST

199-62A KIT (3) (4)

SEE	

NOTE	PART NUMBER	DESCRIPTION	<u>QUANTITY</u>
(1) (2)	40-75AA 30-52N	Wheel Assembly Brake Assembly	2 2
	IM199-62A	Installation Manual for Conversion Kit 199-62A	1
	50-36A	Installation Drawing	1
	SA63GL (5)	Supplemental Type Certificate (210 Series)	1
	PRM13A	Conditioning Procedure for Non Asbestos Organic Brake Lining	1
		Pilot Operating Manual Inserts	1
		Product Registration Card	1

- (1) For Subassembly and Parts identification: See Figure 2; 40-75AA IPL
- (2) For Subassembly and Parts identification: See Figure 3; 30-52N IPL
- (3) 199-62A CHROME is identical to 199-62A except for chrome plated brake disc: see Figure 2; 40-75AA IPL
- (4) Supplemental Type Certificate SA63GL is included in IM199-62A Installation Manual

Bepartment of Transportation—federal Aviation Administration Supplemental Type Certificate

This certificate, issued to

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

Number

certifies that the change in the type design for the following product with the limitations and conditions

therefor as specified herein muts the airworthiness requirements of Part * of the

Regulations.

Original Buduct — Type Certificate Number * Make * Mudul * *See attached FAA Approved Model List (AML) No SA63GL for list of approved airplane models and applicable airworthiness regulations

Description of Type Design Change

Installation of Cleveland Main Wheels and Brakes in accordance with Parker Hannifin Corporation Conversion Kit Parts Lists 199-62, Revision C, dated April 21, 1994, and P/N 199-62A, Revision A, dated April 21, 1994, or later FAA approved revisions.

Limitations and limitities 1. This kit is eligible only on Cessna axle P/N's 9541124 and 1441003-1. 2. This installation is not eligible for use on aircraft equipped with the optional crosswind (castering) landing gear. 3. Compatibility of this design change with previously approved modifications must be determined by the installer. 4. A copy of this certificate and FAA Approved Model List (AML) No. SA63GL amended January 5, 1995, or later FAA approved revision must be maintained as part of the permanent records for the modified aircraft.

This certificate and the supporting data which is the basis for approval shall remain in effect until sur-

rendered, suspended, reveked, or a termination date is otherwise established by the Administrator of the

Federal Aviation Idministration 5/22/74 10/28/80 Date of application Pate reissued 8/6/74 10/25/74, 4/1/81, 1/5/95 Pate amended Date of issuance By direction of the Administrator Thomas J. Richter, Managergature) Systems & Equipment Branch Chicago Aircraft Certification Office (Title) Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

FAA FORM 8110-2(10-68)

This certificate may be transferred in accordance with FAR 21 47

1974	AML	AMENDMENT DATE																	 			a	3
8 DATE: August 6.	AFM	SUPPLEMENT NUMBER/DATE	N/A					N/A					N/A						 	10 Y Ricks	iter, Manager	ipment Branch A Cartification Offi	
AKES	ALLATION	REVISION NO. & DATE				C, 4-21-94	A, 4-21-94				C, 4-21-94	A, 4-21-94				C, 4-21-94		A, 4-21-94		oved: Than	Thomas J. Rich	Systems & Equ Chicago Aircree	1/5/95
AND BK	INST/	NUMBER	Conver-	sion Kit Parts	List No.	70-661	199-62A	Conver-	Kit Parts	List No.	199-62	U 199-62A	Conver-	SION	Kit Parts	199-62	or	199-62A		FAA Appr			Amended:
EVELAND MAIN WHEEL	CERTIFICATION BASIS	FOR ALTERATION	CAR 3 and	Amendments listed in TCDS No. 5A6				CAR 3 and	Amendments listed in TCDS No. 3A24				CAR 3 and	Amendments listed	in TCDS No. A4CE								Page 1 of 1
INSTALLING CL	ORIGINAL TYPE	CERTIFICATE NUMBER	5A6					3A24					A4CE										I
		AIRCRAFT MODEL	180, 180A, 180B, 180C, 180D, 180E,	180F, 180G, 180H, 180J, 180K				185, 185A, 185B, 185C, 185D, 185E,	A185E, A185F				206, P206, U206, U206F, U206G,	TU206E, TU206F, TU206G									
		AIRCRAFT MAKE	Cessna					Cessna					Cessna										
		ITEM	-					6					ю										

FAA APPROVED MODEL LIST (AML) NO. SA63GL PARKER HANNIFIN CORPORATION STATITING CI EVELAND MAN WUHER S AND PAAY CIVE A LEWISCON



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

CONDITIONING PROCEDURE FOR NON ASBESTOS ORGANIC BRAKE LINING

The brake lining material used in this brake assembly is a non asbestos organic composition. This material must be properly conditioned in order to provide maximum performance and service life.

Conditioning may be accomplished as follows:

- 1. Taxi aircraft for 1500 feet with engine at 1700 rpm applying brake pedal force as needed to develop a 5 10 mph taxi speed.
- 2. Allow brakes to cool for 10 15 minutes.
- 3. Apply brakes and check to see if a high throttle static run up may be held with normal pedal force. If so, conditioning is completed.
- 4. If static run up cannot be held, repeat steps 1 through 3 as needed to successfully hold.

This conditioning procedure will generate sufficient heat to create a thin layer of glazed material at the lining friction surface. Normal brake usage should generate enough heat to maintain the glaze throughout the life of the lining.

Light brake usage can cause the glaze to wear off, resulting in reduced brake performance. In such cases, the lining may be conditioned again following the instructions set forth in this PRM.





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 <u>Clevelandwbhelp@parker.com</u> Web-site: <u>www.clevelandwheelandbrake.com</u> Manufacturer of Cleveland Wheels & Brakes

United States of America Department of Transportation—federal Aviation Administration Supplemental Type Certificate

Number

This certificate, issued to

SA63GL Aircraft Wheel and 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 of the *

Regulations.

Original Product __ Type Certificate Number * Make * Model * *See attached FAA Approved Model List (AML) No SA63GL for list of approved airplane models and applicable airworthiness regulations

Description of Type Design Change Installation of Cleveland Main Wheels and Brakes in accordance with Parker Hannifin Corporation Conversion Kit Parts Lists 199-62, Revision C, dated April 21, 1994, and P/N 199-62A, Revision A, dated April 21, 1994, or later FAA approved revisions.

Similations and Genditions 1. This kit is eligible only on Cessna axle P/N's 9541124 and 1441003-1. 2. This installation is not eligible for use on aircraft equipped with the optional crosswind (castering) landing gear 3. Compatibility of this design change with previously approved modifications must be determined by the installer 4. A copy of this certificate and FAA Approved Model List (AML) No. SA63GL amended January 5, 1995, or later FAA approved revision must be maintained as part of the permanent records for the modified aircraft

This certificate and the supporting data which is the basis for approval shall remain in effect until sur-

rendered, suspended, reveked, or a termination date is otherwise established by the Administrator of the

Federal Aviation	Idministration		
Date of application	5/22/74	Date reissued	10/28/80
Date of issuance	8/6/74	Date amended	10/25/74, 4/1/81, 1/5/95
	AVIATION Z	By direction of Thome O Thomas J. Richter, 1	the Administrator Anager Manager
		Systems & Equipme	ent Branch
A.C.	WISTRATIO	Chicago Aircraft Ce	rtification Office
			21852T 1

(Tille)

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

5, 1974	AML	AMENDMENT									μ E
E DATE: August (AFM	SUPPLEMENT NUMBER/DATE	N/A			V/N		N/A			hter, Manager ipment Branch uft Certification Of
ISSU	ALLATION	REVISION	-	C, 4-21-94	A, 4-21-94	5	C, 4-21-94 A, 4-21-94		C, 4-21-94	A, 4-21-94	 Thomas J. Rich Thomas J. Rich Systems & Equ Chicago Aircra 1/5/95
	INST.	NUMBER	Conver-	sion Kit Parts List No. 199-62	or 199-62A	Conver- sion Kit Parts List No.	or 01 199-62A	Conver- ston Kit Parts	199-62	01 199-62A	 FAA Appi Amended:
	CERTIFICATION BASIS	FOR ALTERATION	CAR 3 and	Amendments listed in TCDS No. 5A6		CAR 3 and Amendments listed in TCDS No. 3A24		CAR 3 and Amendments listed in TCDS No. A4CE			Page 1 of 1
	ORIGINAL TYPE	CERTIFICATE NUMBER	5A6			3A24		A4CE			
		AIRCRAFT MODEL	180, 180A, 180B, 180C, 180D, 180E,	180F, 180G, 180H, 180J, 180K		185, 185A, 185B, 185C, 185D, 185E, A185E, A185F		206, P206, U206, U206F, U206G, TU206E, TU206F, TU206G			
		AIRCRAFT MAKE	Cessna			Cessna		Cessna			
		ITEM				0		ŝ			

FAA APPROVED MODEL LIST (AML) NO. SA63GL PARKER HANNIFIN CORPORATION INSTALLING CLEVELAND MAIN WHEELS AND BRAKES