AIRCRAFT WHEEL & BRAKE DIVISION

PARKER HANNIFIN CORPORATION

AVON, OHIO

PARTS LIST

199-60A CONVERSION KIT
THIS KIT USED ONLY ON CESSNA MODELS P210N (SERIAL P21000001 THROUGH P21000150)

	PART NUMBER	DESCRIPTION	QUANTITY
	40-75B	Wheel Assembly	2
	30-52U	Brake Assembly	2
	50-63	Installation Drawing	1
	SA52GL	Supplemental Type Certificate (210 Series)	1
(A)	**PRM13A**	**Non Asbestos Lining Conditioning Procedure.**	**1**

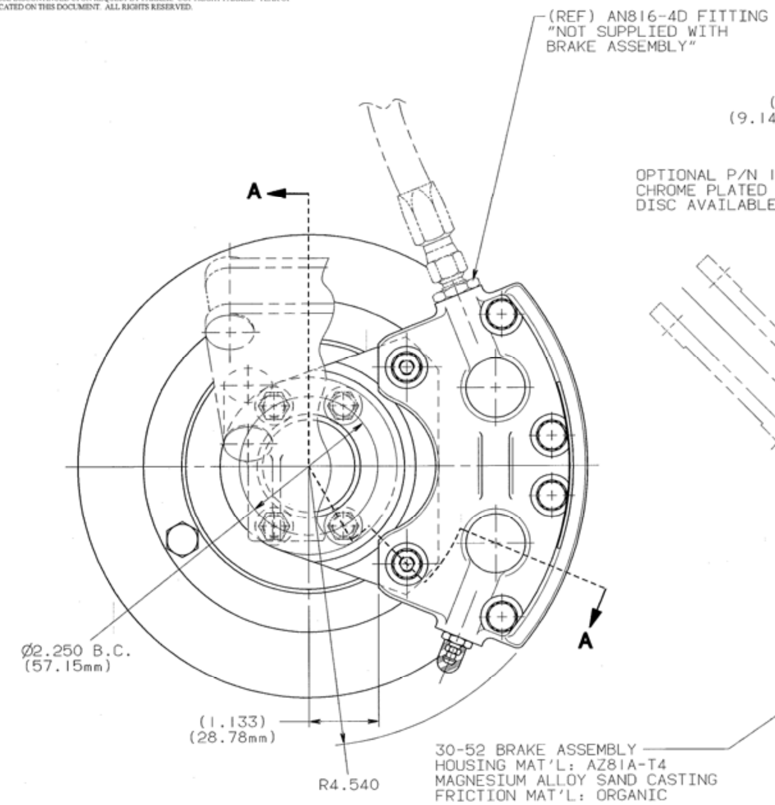
This kit will convert one aircraft to Cleveland wheels and brakes.

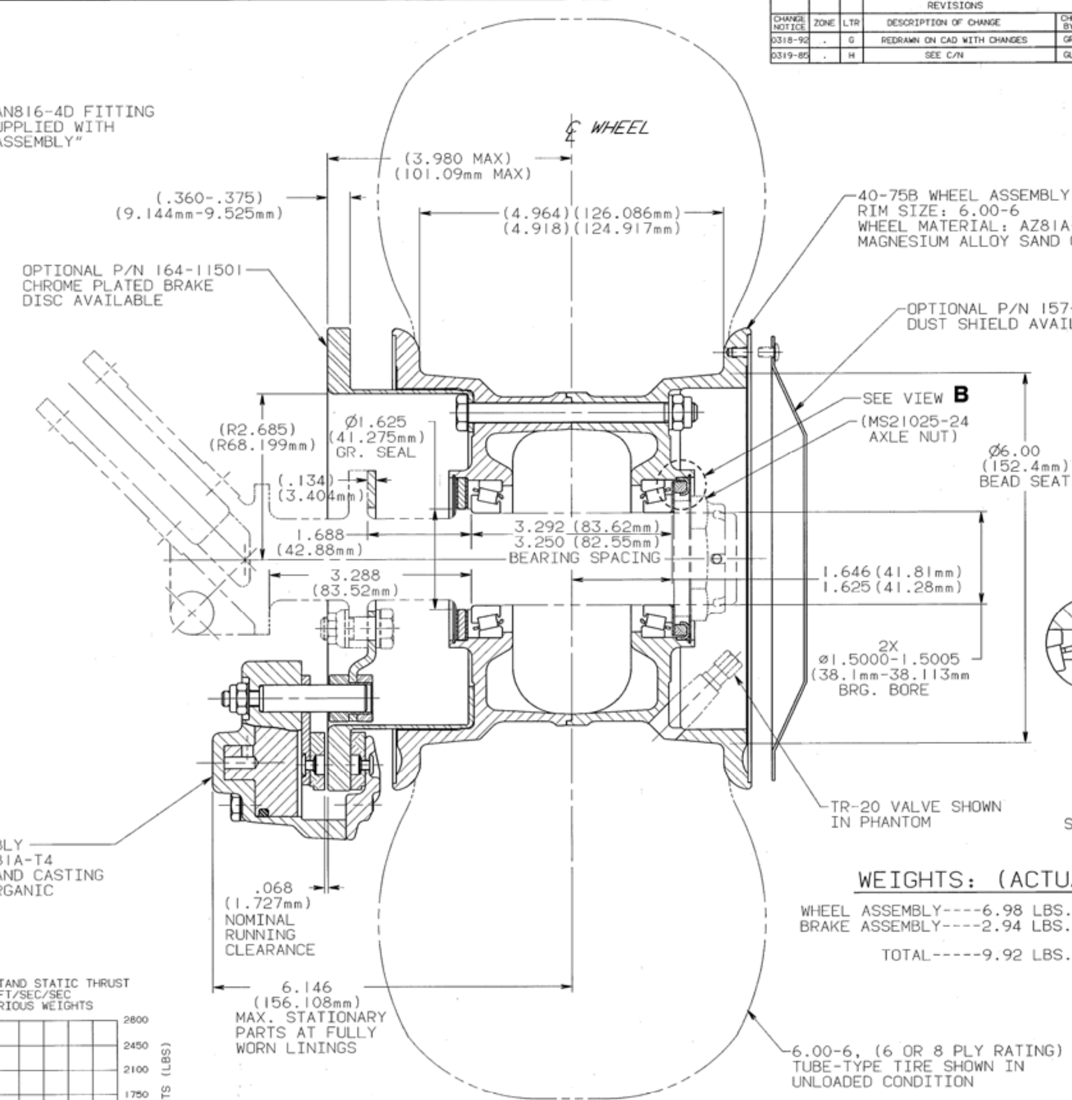
199-60A
08-22-80
12-23-87 REV A (287-22)

DWG. NO. 20-64 SHEET 1/1 REV. H

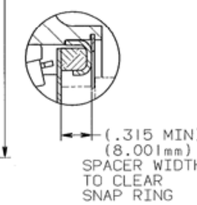
REVISIONS

CHANGE NOTICE	ZONE	LTR	DESCRIPTION OF CHANGE	CHG BY	CHK BY	DATE	APPROVED
0318-92	.	G	REDRAWN ON CAD WITH CHANGES	GR	DAB	95-10-20	T.MARCHANT
0319-85	.	H	SEE C/N	GL	[illegible]	96-01-04	[illegible]





SECTION **A-A**



VIEW **B**
SCALE:2/1

WEIGHTS: (ACTUAL)

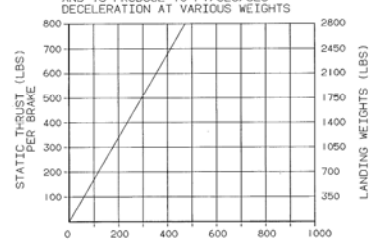
WHEEL ASSEMBLY----6.98 LBS. (3.17 KGS.)
BRAKE ASSEMBLY----2.94 LBS. (1.33 KGS.)

TOTAL-----9.92 LBS. (4.5 KGS.)

NOTES:

1. WHEEL RATINGS PER FAA-TSO-C26a:
   STATIC LOAD = 2,500 LBS. (1,134 KGS.)
   LIMIT LOAD = 8,975 LBS. (4,071 KGS.)
2. BRAKE ASSEMBLY KINETIC ENERGY CAPACITY:
   NORMAL ENERGY = 395,000 FT-LBS. 100 STOPS FROM 72 MPH (62.52 KTS) AT 10 FT/SEC² AT 10 FT/SEC² DECELERATION WITHOUT DISC OR LINING CHANGE.
3. BRAKE ASSEMBLY SEALS DESIGNED TO OPERATE WITH MIL-H-5606 HYDRAULIC FLUID.
4. BRAKE FLUID DISPLACEMENT:
   MAXIMUM- NEW TO FULLY WORN LININGS = 1.78 CU.IN.
   NORMAL RUNNING CLEARANCE TO 400 PSI WORKING PRESSURE = .23 CU. IN.

PRESSURES TO WITHSTAND STATIC THRUST AND TO PRODUCE 10 FT/SEC/SEC DECELERATION AT VARIOUS WEIGHTS



30-52 6:00-6
(H)

QTY	FINAL ASSY	QTY	NEXT ASSY
.	.	.	.

APPLICATION (NOT MAINTAINED)

DO NOT SCALE DRAWING

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

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
TOLERANCES: 2 PLACE (.XX ±.03) 3 PLACE (.XXX ±.010)
DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982
GENERAL MACHINED SURFACES 125 PER ANSI B46.1
REMOVE ALL BURRS
BREAK CORNERS .005-.010
INTERNAL RADII .005-.010

		DATE
WTS/STRESS	.	.
MFG ENGRG	.	.
QUAL ASSUR	.	.

PROGRAM/CONTRACT NO. 7981

		DATE
DRAWN	E.K.	63-08-04
CHECKED	D.BARNES	95-10-20
ENGINEER	OTTO MILLER	95-10-20
DESIGN APPROVAL	T.MARCHANT	95-10-20
PROJ APPROVAL	.	.
RELEASE DATE:	.	.

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

Parker

DWG. TITLE
WHEEL AND BRAKE ASSEMBLY

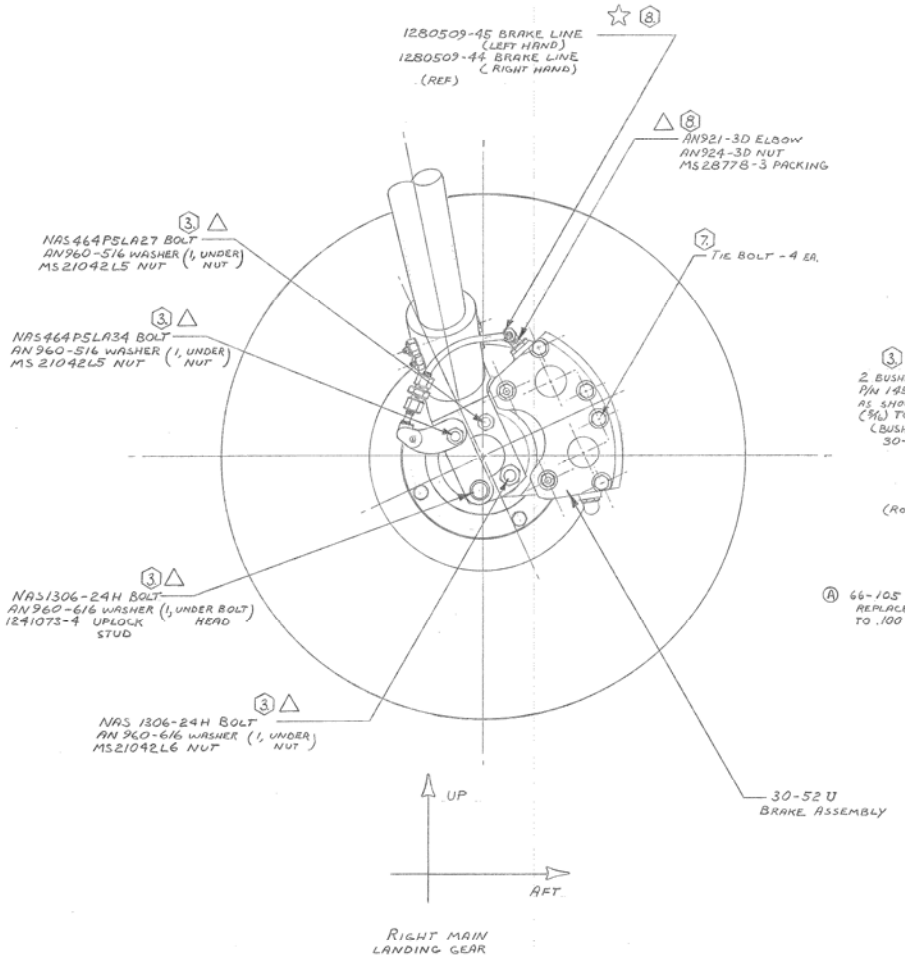
SIZE D | CAGE CODE 33269 | DWG. NO. 20-64 | REV. H

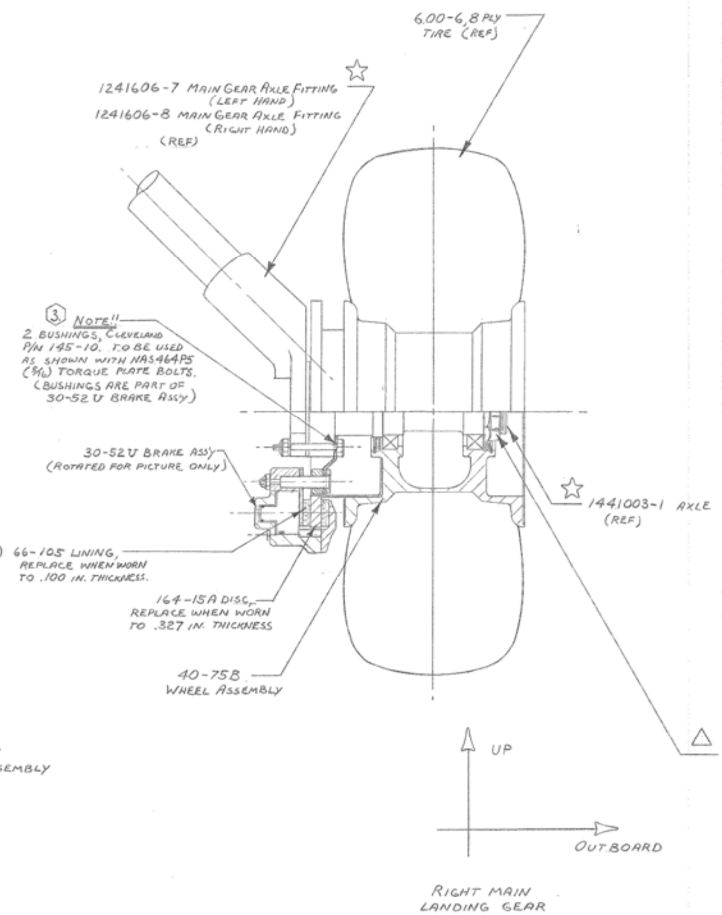
SCALE: 1/1 | UNIT WGT.: . | SHEET: 1 OF 1

020-06400

DO NOT SCALE

50-63						A
CHANGE NOTICE	LETTER	DESCRIPTION OF CHANGE	CHG. BY	DATE	CHK'D. BY	
265-80	INT	INITIAL RELEASE	RB	9-22-80	RB	
287-82	A	"66-105" WAS "66-55"	RB	12-21-87	RB	





INSTALLATION INSTRUCTIONS

1. PROPERLY JACK UP AIRCRAFT
2. REMOVE EXISTING MAIN LANDING GEAR WHEELS & BRAKES. RETAIN EXISTING HARDWARE AS NOTED BY △.
3. (3) INSTALL CLEVELAND TORQUE PLATE USING EXISTING HARDWARE AND 2 BUSHINGS, CLEVELAND P/N 145-10.
4. INSTALL 40-75B WHEEL ASS'Y ON AXLE. WHILE ROTATING WHEEL, TIGHTEN AXLE NUT S1117-24 TO 40 IN-LB., THEN BACK OFF TO "0". THEN WHILE ROTATING WHEEL, TIGHTEN AXLE NUT TO 20 IN-LB. IF SLOT IN NUT AND HOLE IN AXLE DO NOT ALIGN, ROTATE NUT (TIGHTENING OR LOOSENING) UNTIL NEAREST POSSIBLE ALIGNMENT IS REACHED AND INSERT COTTER PIN.
5. LOOSEN 4 TIE BOLTS ON NEW BRAKE ASS'Y. AND REMOVE 2 BACK PLATE ASS'YS.
6. SLIDE NEW BRAKE ASS'Y INTO TORQUE PLATE.
7. (7) PLACE BACK PLATES BETWEEN THE BRAKE DISC AND WHEEL FLANGE. ALIGN BACK PLATES WITH TIE BOLTS, AND TIGHTEN. TORQUE TIE BOLTS AT 80 TO 90 IN-LBS.
8. (8) INSTALL EXISTING HYDRAULIC FITTING (ELBOW, NUT, AND PACKING) ON BRAKE ASS'Y. CONNECT 1280509-45 OR -44 BRAKE LINE TO FITTING.
9. CHECK RESERVOIR LEVEL AND BLEED SYSTEM.
10. DEPRESS AND RELEASE PEDALS SEVERAL TIMES. ROTATE WHEELS BY HAND, CHECKING FOR DRAG. A SLIGHT AMOUNT OF DRAG IS NOT DETRIMENTAL; HOWEVER, A SEVERLY BOUND UNIT SHOULD BE INVESTIGATED AND CORRECTED. EXCESSIVE DRAG CAN BE CAUSED BY IMPROPERLY SEATED LININGS.

NOTES:

1. THE 199-60A CONVERSION KIT INSTALLED PER THIS DRAWING IS APPLICABLE TO THE FOLLOWING AIRCRAFT:
   A) 1978 PRESSURIZED CENTURION & PRESSURIZED CENTURION II. P210N SERIAL #'S P21000001 THRU P21000150, ONLY.
2. EXISTING AIRCRAFT PARTS —
   a. USED AS HARDWARE TO INSTALL KIT, ARE DENOTED BY △.
   b. USED AS INTERFACE OF AIRCRAFT TO KIT, ARE DENOTED BY ☆.

			50-63	INSTALL DRWG.				
QTY	QTY	ITEM	PART NO.	DESCRIPTION	MATERIAL & SPEC.	HEAT TREAT & SPEC.	FINISH & SPEC.	WGT.

NEXT ASSEMBLY	QTY	FINAL ASSEMBLY	QTY	PATTERN, CASTING OR BLANK NO.	DRAWN BY RB 8/13/80	Cleveland Wheels & Brakes Aircraft Wheel and Brake Division Parker Hannifin Corporation 1160 Center Road Avon, Ohio 44011
THIS DESIGN IS THE PROPERTY OF PARKER HANNIFIN CORP. AIRCRAFT WHEEL AND BRAKE DIVISION AND IS NOT TO BE COPIED, DUPLICATED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF EQUIPMENT WITHOUT OUR WRITTEN PERMISSION.		ZYGLO PER MIL-I-6866 STAMP M ON PART MAGNAFLUX PER MIL-I-6868 STAMP P ON PART √ MACHINED SURFACES PER MIL STD 10 UNLESS OTHERWISE NOTED UNLESS NOTED ALL THREADS PER MIL-S-7742		WORK TO DIMENSIONS – DO NOT SCALE TOLERANCE FOR .XXX ± .010 TOLERANCE FOR .XX ± .020 TOLERANCE FOR ANGULAR DIMS. ± 1/2° TOLERANCE FOR FRACTIONAL DIMS. ± .030 BREAK SHARP EDGES .010 UNLESS NOTED. REMOVE ALL BURRS BEFORE PLATING. DRILL PER INSP. PROCEDURE NO. 114.	CHECKED BY SCALE 1/2 SIZE NAME INSTALLATION DRAWING AND INSTRUCTIONS	50-63

050-06300

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

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.

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1160 Center Road
Avon, Ohio 44011 USA
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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 SA52GL

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 3A21 for complete certification basis.

Original Product — Type Certificate Number 3A21
Make Cessna
Model 210, 210A, 210B, 210C, 210K, 210L, 210M, T210K, T210L, T210M, and P210N

Description of Type Design Change

On all models listed above, except P210N, install Parker Hannifin Corporation (Cleveland) Wheel & Brake Conversion Kit P/N 199-60 in accordance with Cleveland Installation Drawings 50-34 dated April 26, 1974 and 20-64, Revision F dated March 11, 1981, or later FAA approved revisions. On all Model P210N (Serial Numbers P21000001 through P21000150) install Parker Hannifin Corporation Wheel & Brake Conversion Kit P/N 199-60A in accordance with Cleveland Installation Drawing 50-63 dated August 13, 1980, or later FAA approved revisions.

Limitations and Conditions

Compatibility of this modification with other 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 May 2, 1974 *Date reissued* September 11, 1980

Date of issuance June 6, 1974 *Date amended* August 29, 1980, May 20, 1985

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)

Cleveland
Wheels & Brakes

WEIGHT AND BALANCE

FOR

199-06001 KIT

Major components of this kit may differ in weight from existing equipment. Removed components as listed should be weighed. Subtract old installation weight from new installation weight to determine weight change created by installation of this kit. Multiply weight change by moment (applicable to aircraft) and revise weight and balance information in aircraft log book.

DATA

OLD INSTALLATION

Unit	Weight / Unit		# of Units		Weight	
Brake	_____	X	2	=	_____	LBS.
Wheel	_____	X	2	=	_____	LBS.
			TOTAL	=	_____	LBS.

NEW INSTALLATION

Unit	Weight / Unit		# of Units		Weight	
Brake	2.70	X	2	=	5.40	LBS.
Wheel	6.75	X	2	=	13.50	LBS.
			TOTAL	=	18.90	LBS.

Parker
General Aviation