



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

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PARTS LIST

FAA-PMA

199-78 CONVERSION KIT

CESSNA MODEL 404

<u>PART NUMBER</u>	<u>DRAWING REVISION</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
30-97	Rev. C dated 05-26-1979	Brake Assembly	2
40-132	Rev. N dated 06-26-2006	Wheel Assembly	2
103-10200	-----	Bolt (AN4-6A)	16
094-10300	-----	Nut (MS21044-N4)	16
095-10200	-----	Washer (AN960-416L)	16

Publications Package (P/N PP199-07800)

199-78 P/L	Rev. C dated 08-21-2017	Parts List for 199-78 Kit (This Document)
50-54	Rev. C dated 05-31-1984	Installation Drawing (Two Sheets)
SA781GL	Issue date 05-31-1984	Supplemental Type Certificate
EASA 10062574	Issued date 07-10-2017	EASA Supplemental Type Certificate
PRM14A	-----	Metallic Brake Lining Conditioning Procedure
PRM69	-----	General Maintenance Information
-----		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).

199-78	NC	06-05-1979
REV. A	02-10-1984	(274-24)
REV. B	05-21-2007	(0374-92)
REV. C	08-21-2017	(ECO-0083392)

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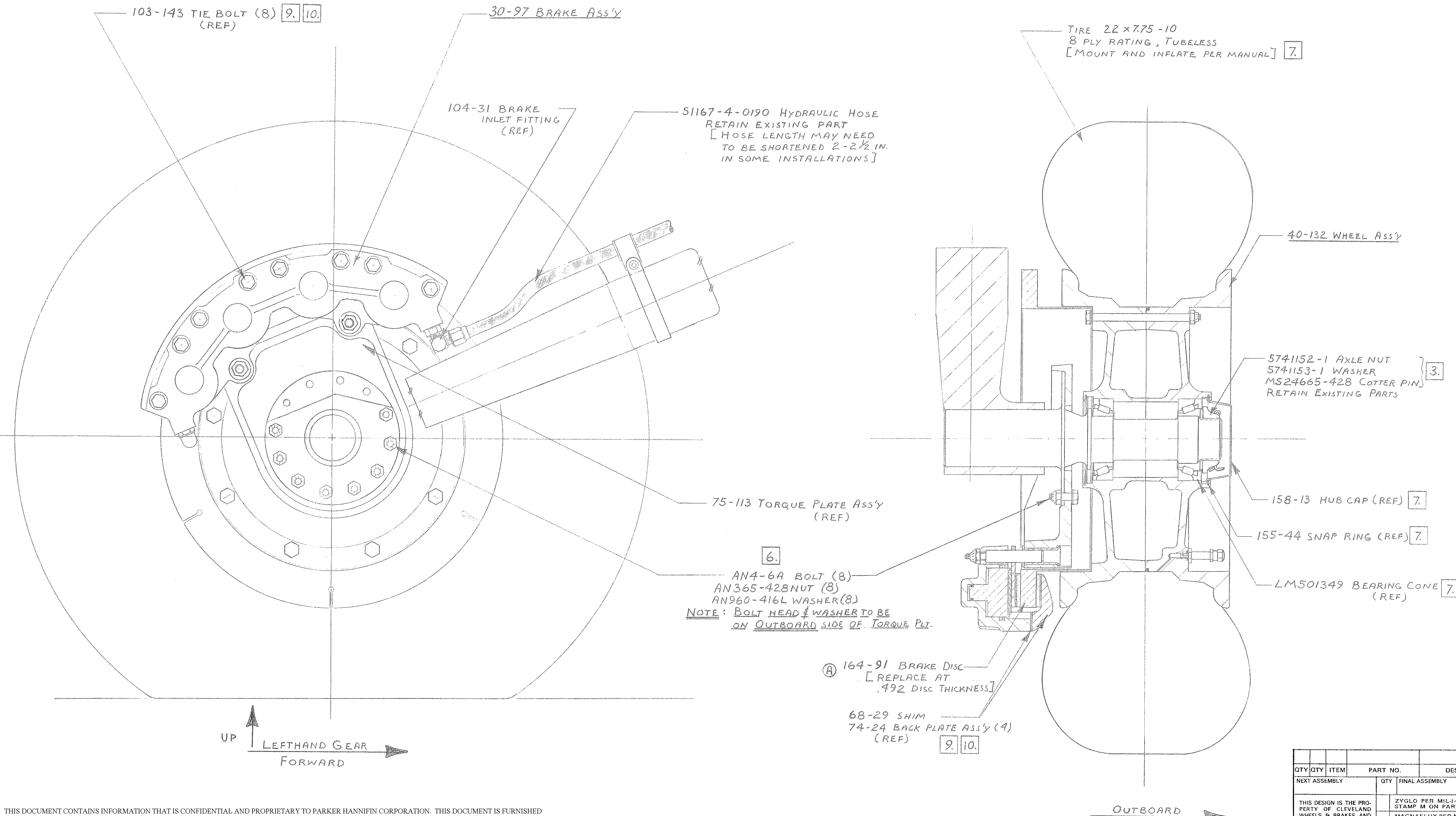
CHANGE NOTICE	LETTER	DESCRIPTION OF CHANGE	CHK. BY	DATE	CHK'D. BY
265/10	A	164-91 was 164-55	83	2/2	
265/11	B	was 20.85	RS	5/1	
274/24	C	21.2 was 20.33	48	5/2	

INSTALLATION IN ACCORDANCE WITH CESSNA DRAWING No.:
9910135, REV. K DATED 12-16-76
[REF EC.O.5209]

KIT 199-78 APPLICATION:
1. CESSNA 404 (TITAN)

INSTALLATION INSTRUCTIONS

1. PROPERLY JACK UP AIRCRAFT.
2. DEFLATE MLG TIRES.
3. REMOVE AND DISCARD EXISTING MLG WHEELS. RETAIN AXLE NUT AND WASHER.
4. DISCONNECT HYDRAULIC HOSE (S1167-4-0190) FROM O.E. BRAKE INLET BUSHING AND CAP TIGHTLY.
5. REMOVE AND DISCARD EXISTING MLG BRAKES. ALSO DISCARD TORQUE PLATE MOUNTING BOLTS (NAS464 P4A5), NUTS (MS 21042 L4), AND WASHERS (AN960-416) 8 EACH.
6. INSTALL 75-113 TORQUE PLATE ASS'Y USING NEW WASHERS NUTS, AND BOLTS AS SHOWN.
7. REMOVE OUTER SNAP RING, HUB CAP, AND BEARING FROM 40-132 WHEEL ASS'Y. MOUNT TIRE ON WHEEL.
8. INSTALL 40-132 WHEEL ON AXLE; INSTALL OUTER BEARING, WASHER, AND AXLE NUT. WHILE ROTATING WHEEL, TIGHTEN AXLE NUT TO 40 IN-LBS., THEN BACK OFF TO 0. WHILE ROTATING WHEEL, TIGHTEN AXLE NUT TO 20 IN-LBS. IF SLOT IN NUT AND HOLE IN AXLE DO NOT LINE UP, ROTATE NUT, TIGHTENING OR LOOSENING, UNTIL NEAREST POSSIBLE ALIGNMENT IS REACHED. INSERT COTTER PIN AND INSTALL HUB CAP & SNAP RING.
9. LOOSEN 8 TIE BOLTS ON 30-97 BRAKE ASS'Y AND REMOVE 4 BACK PLATE ASS'YS. SLIDE NEW BRAKE INTO TORQUE PLATE ASS'Y.
10. MAKE SURE INSULATOR SHIM IS IN POSITION ON THE TIE BOLTS AND PLACE BACK PLATE ASS'YS BETWEEN BRAKE DISC AND WHEEL FLANGE. ALIGN BACK PLATE ASS'YS WITH TIE BOLTS AND TORQUE BOLTS AT 80-90 IN-LBS.
11. CONNECT HYDRAULIC HOSE (S1167-4-0190) TO BRAKE INLET FITTING. CHECK RESERVOIR FLUID LEVEL AND BLEED SYSTEM.
12. DEPRESS AND RELEASE TOE PEDALS SEVERAL TIMES. ROTATE WHEELS BY HAND, CHECKING FOR BRAKE DRAG. A SLIGHT AMOUNT OF DRAG IS ACCEPTABLE AND NOT DETRIMENTAL. HOWEVER, A SEVERELY BOUND UP SYSTEM SHOULD BE INVESTIGATED AND CORRECTED. EXCESSIVE DRAG CAN BE CAUSED BY AN IMPROPERLY SEATED LINING.
13. REMOVE AIRCRAFT FROM JACKS AND CONDITION LININGS PER ENCLOSED INSTRUCTION SHEET.
14. WEIGHT AND BALANCE:
40-132 WHEEL ASS'Y WEIGHS 21.2 LBS. (B)(C)
30-97 BRAKE ASS'Y WEIGHS 8.29 LBS.
WEIGH ORIGINAL WHEELS & BRAKES AND REVISE WEIGHT AND BALANCE DATA IN LOG BOOK.



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NEXT ASSEMBLY	QTY	FINAL ASSEMBLY	QTY	PATTERN, CASTING OR BLANK NO.	DRAWN BY 23 8 6-4-79	CHECKED BY	SCALE FULL	NAME
THIS DESIGN IS THE PROPERTY OF CLEVELAND WHEEL & BRAKES AND IS NOT TO BE COPIED, DUPLICATED, OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF EQUIPMENT WITHOUT WRITTEN PERMISSION.				ZYGLO PER MIL-I-6866 STAMP M ON PART MAGNAPLUX 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 2.010 TOLERANCE FOR .XX 2.030 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.	INSTALLATION OF KIT 199-78 : CESSNA 404		
Cleveland Wheel & Brakes 1160 Avon Center Road, Avon, Ohio 44011 a division of VanSickle Industries, Inc. "the brake people"								50-54

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

METALLIC BRAKE LINING CONDITIONING PROCEDURE

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.

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

Conditioning may be accomplished as follows:

1. Perform two (2) consecutive full stop braking applications from 30 to 35 kts. Do not allow the brake discs to cool substantially between stops.
2. On aircraft with tail wheels, exercise caution during stopping to prevent tail lifting. Due to the efficiency of these brakes, extremely hard braking could result in lifting the tail from the ground.

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

Visual inspection of the brake disc will indicate the lining condition. A smooth surface, without grooves, indicates the linings are properly glazed. If the disc is rough (grooved), the linings must be reglazed. The conditioning procedure should be performed whenever the rough disc condition is evident.

Light use, such as in taxiing, will cause the glaze to be worn rapidly.

Use caution in performing this procedure, as higher speeds with successive stops could cause the brakes to overheat resulting in warped discs and/or pressure plates.

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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

SUPPLEMENTAL TYPE CERTIFICATE

10062574

This Supplemental Type Certificate is issued by EASA, acting in accordance with Regulation (EC) No. 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation and in accordance with Commission Regulation (EU) No. 748/2012 to:

PARKER HANNIFIN CORPORATION AIRCRAFT WHEEL AND BRAKE DIVISION

**1160 CENTER ROAD
AVON OH 44011
USA**

and certifies that the change in the type design for the product listed below with the limitations and conditions specified meets the applicable Type Certification Basis and environmental protection requirements when operated within the conditions and limitations specified below:

Original Type Certificate Number: US A25CE

Type Certificate Holder: TEXTRON AVIATION INC.

Type: 404/406

Model: 404

Original STC Number: FAA STC SA781GL

Description of Design Change:

Replace existing Main Wheel and Brakes by installing Parker Hannifin Conversion Kit 199-78.

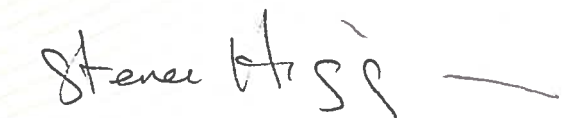
EASA Certification Basis:

The Certification Basis (CB) for the original product remains applicable to this certificate/ approval. The requirements for environmental protection and the associated certified noise and/ or emissions levels of the original product are unchanged and remain applicable to this certificate/ approval.

See Continuation Sheet(s)

For the European Aviation Safety Agency

Date of Issue: 10 July 2017



RP

Dominique ROLAND

Head of General Aviation and

Remotely Piloted Aircraft Systems (RPAS)

10050537

SUPPLEMENTAL TYPE CERTIFICATE - 10062574 - PARKER HANNIFIN CORPORATION - 303012



Associated Technical Documentation:

Installation Instructions and Installation Drawing 50-54 Rev. C dated 31 May 1984 or later FAA-approved revision.

Limitations/Conditions:

Prior to installation of this design change it must be determined that the interrelationship between this design change and any other previously installed design change and/ or repair will introduce no adverse effect upon the airworthiness of the product.

- End -

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

Number SA781GL

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 23 of the Federal Aviation Regulations. (See Type Certificate A25CE for Complete Certification Basis.)

Original Product — Type Certificate Number A25CE
Make Cessna
Model 404

Description of Type Design Change:

Replace existing Main Wheel and Brakes by installing Parker Hannifin Conversion Kit 199-78 per Installation Instructions and Installation Drawing 50-54 Rev. C dated May 31, 1984 or later FAA-approved revision.

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 February 10, 1984

Date received

Date of issuance May 31, 1984

Date amended



By direction of the Administrator

W. F. Horn

(Signature)

Manager, Chicago Aircraft Certification
Office, ACE-115C, FAA, 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