

AIRCRAFT WHEEL & BRAKE DIVISION
 PARKER HANNIFIN CORPORATION
 AVON, OHIO

PARTS LIST

199-72 CONVERSION KIT

CESSNA MODELS

340, 340A, 401, 401A, 401B, 402, 402A, 402B, 411, 411A, 414

<u>PART NUMBER</u>	<u>DRAWING REVISION</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
30-100	Rev. D dated 06-21-2006	Brake Assembly	2
067-04300	Rev. A dated 09-15-1978	Spacer (* Refer to Note 3.)	2
164-06406	Rev. B dated 05-14-1998	Brake Disc	2
166-07800	Rev. D dated 10-14-2008	Nameplate (*Refer to Note 4.)	2
104-00200	-----	Fitting (AN815-4D)	2
101-00700	-----	O-Ring (MS28775-012)	2

Publication Package (P/N PP199-07200)

50-44	Rev. C dated 10-27-1988	Installation Drawing
SA167GL	Last amend date 4-1-81	Supplemental Type Certificate (Cessna Models 401, 401A, 401B, 402, 402A, 402B, 411, 411A, 414)
SA281GL	Issue date 10-28-80	Supplemental Type Certificate (Cessna Models 340, 340A)
PRM14A	-----	Metallic Brake Lining Conditioning Procedure
PRM69	-----	General Maintenance Information
-----		Product Registration Card

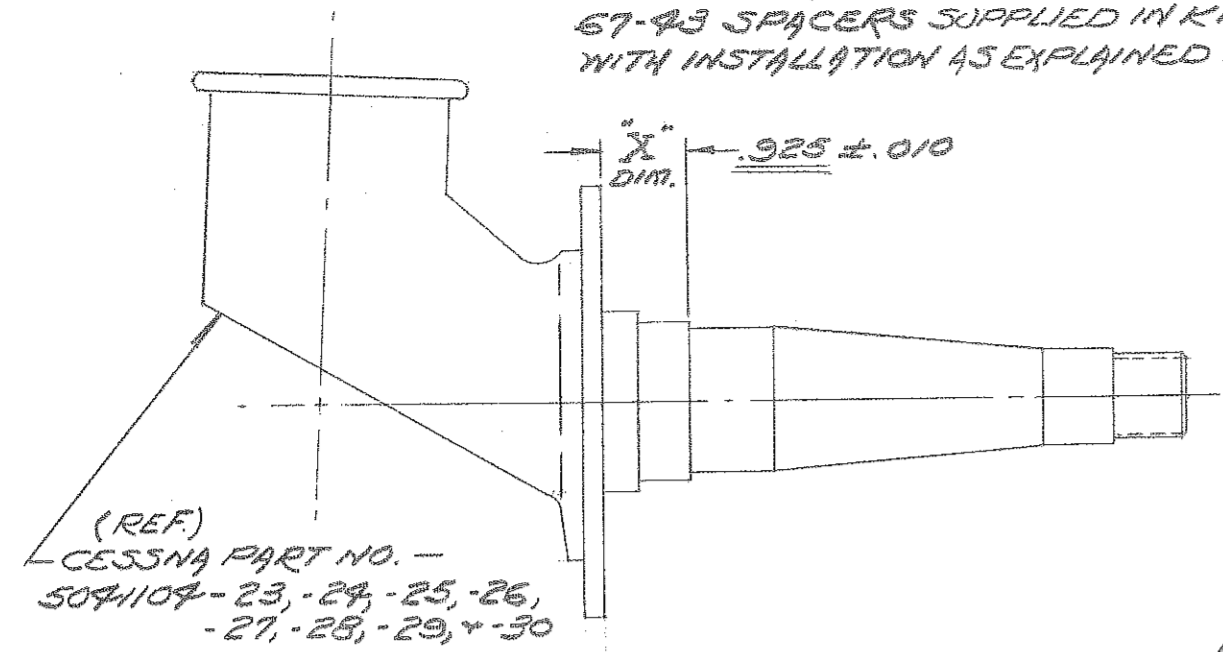
NOTES:

- This kit will upgrade one aircraft currently equipped with standard Cleveland Wheels (P/N 40-40A) and Brakes (P/N 30-28B) to heavy-duty Cleveland Wheels (P/N 40-135) and Brakes (P/N 30-100).
- For use with MIL-H-5606 (Red Fluid).
- See specific instructions on 50-44 drawing for 067-04300 spacer usage.
- Apply one 166-07800 nameplate to each outer wheel half assembly, next to existing nameplate.

REV. G	REV. F	REV. E	REV. D	REV. C	REV. B	REV. A	REV. NC	199-72
05-27-2009 (0384-97)	05-09-2007 (0374-73)	10-27-1988 (293-17)	11-20-1978	08-08-1978	02-27-1978	11-29-1976	11-10-1976	

VIEW "A-A" NORMAL INSTALLATION

IF "X" DIMENSION (INBOARD BEARING STOP SHOULDER TO MOUNTING FLANGE) MEASURES .925, DISCARD THE TWO 67-43 SPACERS SUPPLIED IN KIT AND PROCEED WITH INSTALLATION AS EXPLAINED IN INSTRUCTIONS



(REF)
CESSNA PART NO. —
504104-23, -24, -25, -26,
-27, -28, -29, +30

NOTICE!

199-72 CONVERSION KIT INSTALLED PER THIS DRAWING, APPLICABLE TO THE FOLLOWING AIRCRAFT MODELS AND SERIAL NUMBERS CURRENTLY USING CLEVELAND WHEEL & BRAKE ASSEMBLIES 40-40A + 30-25B

901-0001 THRU 901B0300
902-0001 THRU 902B0500
902B0501 AND ON

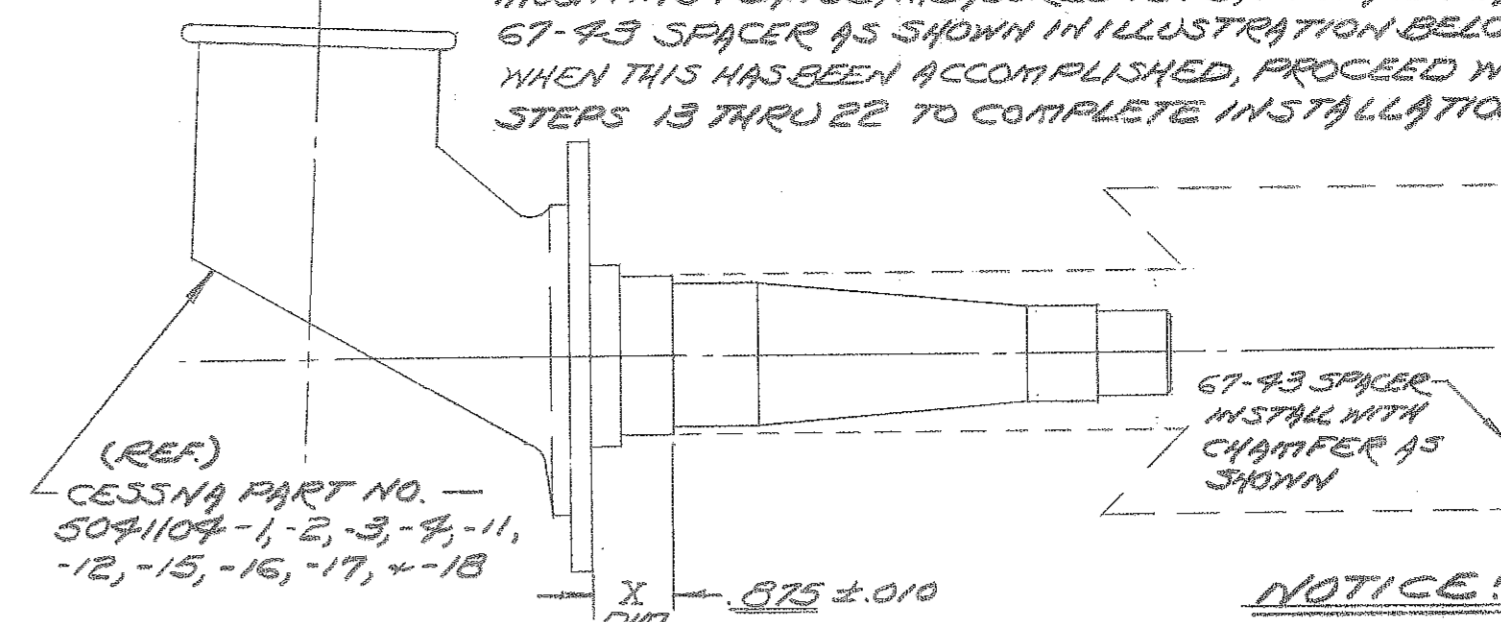
941-0001 THRU 941-0101
941-0102 AND ON

949-0001 THRU 949-0450
949-0451 AND ON

② 940-0001 AND ON - SEE NOTE 23

VIEW "B-B" MODIFIED ALTERNATE INSTALLATION

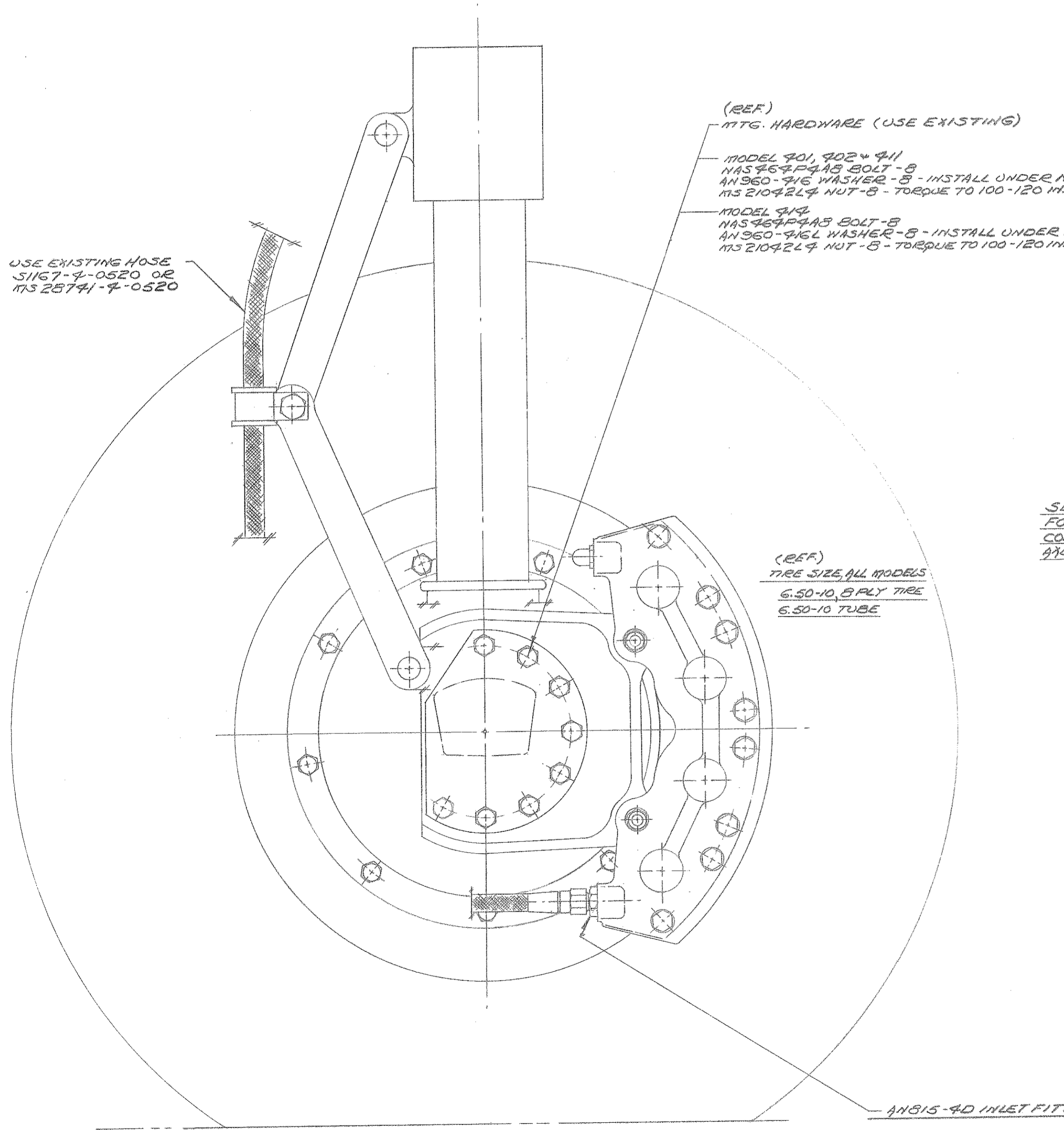
IF "X" DIMENSION (INBOARD BEARING STOP SHOULDER TO MOUNTING FLANGE) MEASURES .875, INSTALL 164-67-43 SPACER AS SHOWN IN ILLUSTRATION BELOW WHEN THIS HAS BEEN ACCOMPLISHED, PROCEED WITH STEPS 13 THRU 22 TO COMPLETE INSTALLATION



(REF)
CESSNA PART NO. —
504104-1, -2, -3, -4, -11,
-12, -15, -16, -17, +13

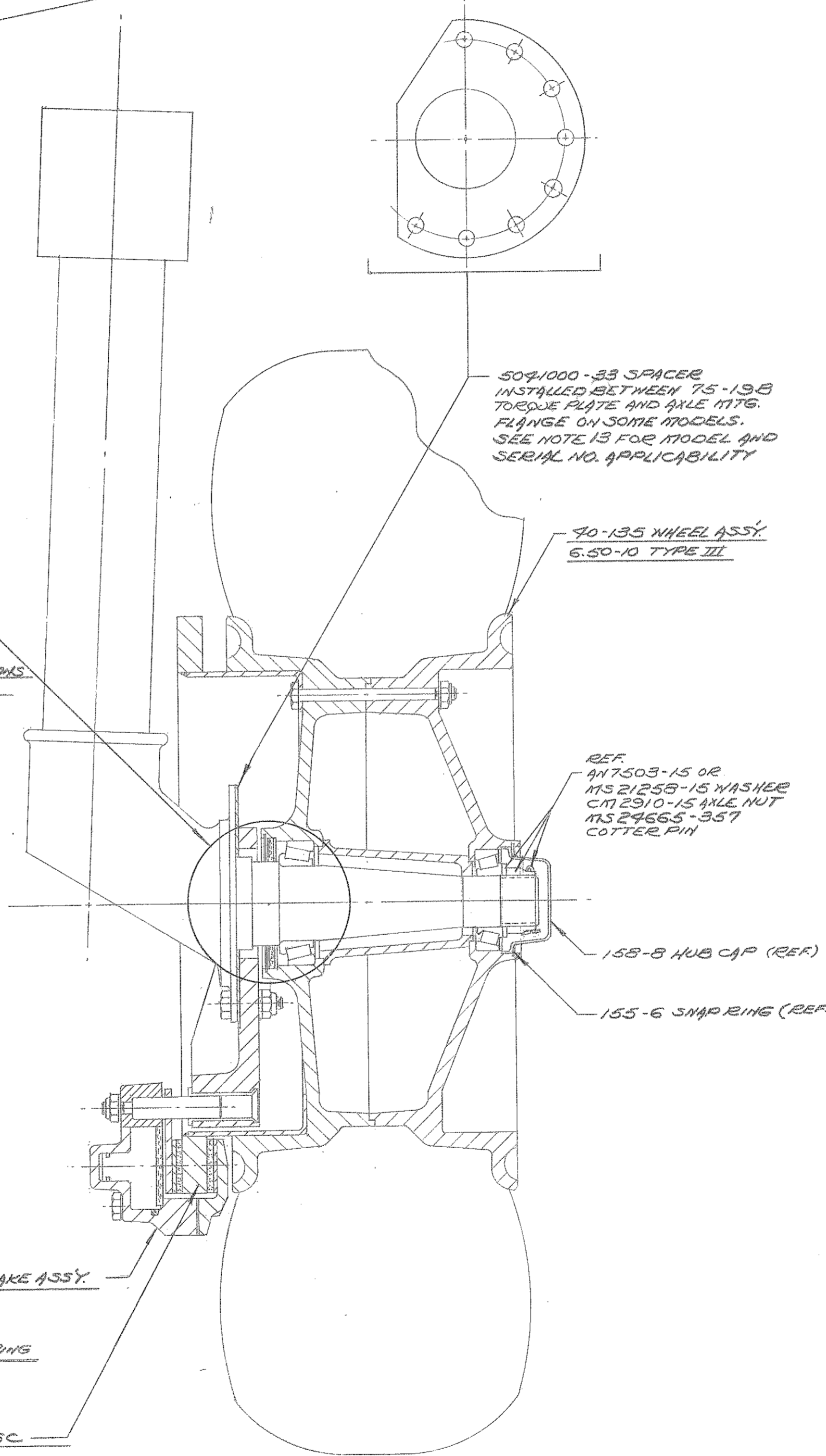
NOTICE!

CHANGE NO.	LETTER	DESCRIPTION OF CHANGE	CHG. BY	DATE	CHKD. BY
261	A	ADDED VIEW A-A + B-B AND INSTRUCTIONS FOR SPACER USAGE	TW	8/28/78	
262	B	ADDED 340-0001 MODEL AND ON	PH	8/29/78	
293/17	C	164-64F W/164-64 (REV)	RG	10/27/88	89



(REF)
MFG. HARDWARE (USE EXISTING)
MODEL 901, 902 + 941
MS 9694445 BOLT - B
AN 360-416 WASHER - B - INSTALL UNDER NUT
MS 21042L9 NUT - B - TORQUE TO 100-120 IN. LBS.
MODEL 949
MS 9694445 BOLT - B
AN 360-416L WASHER - B - INSTALL UNDER NUT
MS 21042L9 NUT - B - TORQUE TO 100-120 IN. LBS.

NOTICE!
SEE VIEW "A-A" OR "B-B" FOR SPECIFIC INSTRUCTIONS CONCERNING WHEEL TO AXLE INTERFACE



REF
AN 7503-15 OR
MS 21258-15 WASHER
CM 2910-15 AXLE NUT
MS 24665-357
COTTER PIN

NOTICE!
INSTALLATION INSTRUCTIONS: SEE VIEW "A-A" + VIEW "B-B" BEFORE PROCEEDING TO STEP 13

1. PROPERLY JACK UP AIRCRAFT
2. DEFLATE MAIN WHEEL TIRES
3. REMOVE 6 TIE BOLTS FROM BRAKE ASSY AND REMOVE 3 BACK PLATE ASSYS.
4. REMOVE HYDRAULIC LINE AND CAP TO PREVENT LEAKAGE
5. REMOVE BRAKE CYL. AND DISCARD ALONG WITH PREVIOUSLY REMOVED TIE BOLTS AND BACK PLATES
6. REMOVE 155-6 SNAP RING, 158-B HUB CAP, COTTER PIN, AXLE NUT, WASHER AND BEARING
7. REMOVE 40-40A WHEEL ASSY
8. REMOVE 3, MS 9694445 BOLTS, AN 360-416, (4) WEL WASHERS AND MS 21042L9 NUTS, TO REMOVE EXISTING 75-13B TORQUE PLATE. DISCARD REMOVED TORQUE PLATE
9. MAKE SURE THAT THE MAIN WHEEL TIRES ARE FULLY DEFLATED, AND REMOVE THE 3, AN 365-428 NUTS THAT SECURE THE AN 4-31A WHEEL BOLTS
10. REMOVE THE 164-B BRAKE DISC ASSY, AND DISCARD
11. INSTALL NEW 164-64F BRAKE DISC ASSY, AND REINSTALL 3, AN 4-31A TIE BOLTS, AN 360-416 WASHERS AND AN 365-428 NUTS. TORQUE NUTS TO 90 IN. LBS.
12. INSTALL 166-78 NAMEPLATE ON OUTER WHEEL HALF, NEXT TO EXISTING NAMEPLATE
13. INSTALL NEW 75-13B TORQUE PLATE, USE PREVIOUS MFG. HARDWARE. (NOTE: ON THE FOLLOWING MODELS, INSTALL CESSNA SPACER 5041000-33 BETWEEN AXLE MFG. FLANGE AND NEW TORQUE PLATE.)
A. MODEL 902B - 54 0329 AND ON.
B. MODEL 949 - 54 0363 AND ON.
TORQUE MS 21042L9 NUTS TO 100-120 IN. LBS.
14. PLACE CONVERTED WHEEL ASSY ON AXLE, INSTALL 07100 INBOARD BEARING, MS 21258-15 OR AN 7503-15 WASHER, AND CM 2910-15 AXLE NUT. WHILE ROTATING WHEEL, TIGHTEN AXLE NUT TO 90 IN. LBS., THEN BACK OFF NUT TO 0 AND WHILE ROTATING WHEEL, TIGHTEN TO 20 IN. LBS. IF SLOT IN NUT AND HOLE IN AXLE DO NOT LINE UP, CONTINUE TIGHTENING UNTIL FIRST POSSIBLE ALIGNMENT IS REACHED AND INSERT MS 24665-357 COTTER PIN. INSTALL 158-B HUB CAP AND 155-6 SNAP RING.
15. LOOSEN 8 TIE BOLTS ON NEW BRAKE ASSY AND REMOVE 4 BACK PLATE ASSY'S FROM CYL.
16. SLIDE NEW CYL. INTO TORQUE PLATE ON GEAR LEG
17. MAKE SURE THAT THE INSULATOR SHIM IS IN POSITION ON THE TIE BOLTS, AND PLACE THE BACK PLATE ASSY'S BETWEEN BRAKE DISC AND INNER WHEEL FLANGE. ALIGN BACK PLATE ASSY'S WITH TIE BOLTS AND TIGHTEN. TORQUE TIE BOLTS TO 75-80 IN. LBS.
18. INSTALL AN 315-9D INLET FITTING AND RECONNECT HYDRAULIC LINE. CHECK RESERVOIR FLUID LEVEL, AND BLEED SYSTEM.
19. REINFLATE TIRES PER AIRCRAFT SPEC.
20. DEPRESS AND RELEASE THE PEDALS SEVERAL TIMES, AND THEN ROTATE THE WHEELS BY HAND, TO CHECK FOR BRAKE DRAG. A SLIGHT AMOUNT OF DRAG IS ACCEPTABLE, AND NOT DETRIMENTAL, HOWEVER A SEVERELY BOUND UP SYSTEM SHOULD BE INVESTIGATED AND CORRECTED.
21. REMOVE AIRCRAFT FROM JACKS, AND CONDITION LININGS PER ENCLOSED INSTRUCTION SHEET
22. WEIGHT AND BALANCE INFORMATION:
WEIGHT INCREASE: + 5.0 LBS.
MOMENT INCREASE: (5.0 LBS. X MOMENT ARM, APPLICABLE ACFT.)
AFTER CALCULATING, REVISE WEIGHT AND BALANCE DATA IN LOG BOOK
23. IN SOME CASES, WHEN INSTALLING THIS KIT ON CESSNA 340 AIRCRAFT, IT IS NECESSARY TO ADJUST THE RUDDER PEDALS TO ATTAIN A MORE VERTICAL POSITION. IF THIS ADJUSTMENT IS NOT MADE, THE PEDALS MAY ROTATE PAST 25° FROM VERTICAL AT WHICH POINT MAX. BRAKE PRESSURE IS DIFFICULT TO OBTAIN

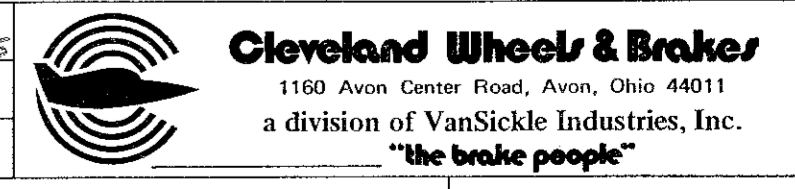
R.H.
FWD. →

OUTBOARD →

(REF)
164-64F BRAKE DISC

QTY	ITEM	PART NO.	DESCRIPTION	MATERIAL & SPEC.	HEAT TREAT & SPEC.	FINISH & SPEC.	WGT.
1	WHEEL ASSEMBLY	40-40A	WHEEL ASSEMBLY	STEEL			
1	BRAKE DISC	164-64F	BRAKE DISC	STEEL			
1	WHEEL ASSEMBLY	30-25B	WHEEL ASSEMBLY	STEEL			

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INSTALLATION DRAWING AND INSTRUCTIONS 50-44

050-04400

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

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

Number SA167GL

This certificate, issued to 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 3 of the Civil Air Regulations, dated May 15, 1956, as amended by 3-1 through 3-5 and 3-8.

Original Product — Type Certificate Number A7CE
Make Cessna
Model 401, 401A, 401B, 402, 402A, 402B, 411, 411A, 414

Description of Type Design Change

Install Cleveland Conversion Kit P/N 199-72 in accordance with installation drawing 50-44 Revision B dated August 9, 1978, or later FAA approved revisions. Kit 199-72 consists of: brake assembly 30-100 (2), brake disc 164-64 (2), nameplate 166-78 (2), fitting AN815-4D (2) and brake lining conditioning procedure.

Limitations and Conditions This approval is restricted to the above Models that presently use Cleveland main wheel assembly 40-40A and brake assembly 30-28B. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no 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 January 3, 1977

Date reissued October 28, 1980

Date of issuance April 15, 1977

Date amended April 1, 1981



By direction of the Administrator
W. F. Horn, Jr.

W. F. Horn, Jr. (Signature)
Chief, Engineering & Manufacturing Branch,
Great Lakes Region AGL-210
(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

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

Number SA281GL

This certificate, issued to 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 3 of the Civil Air

Regulations. See T.C. Data Sheet No. 3A25

Original Product — Type Certificate Number 3A25
Make Cessna
Model 340 and 340A

Description of Type Design Change

Install Cleveland Conversion Kit P/N 199-72 in accordance with installation drawing 50-44, Revision B dated August 9, 1978, or later FAA approved revisions.

Limitations and Conditions This approval is restricted to the above Models that presently use Cleveland main wheel assembly 40-40A and brake assembly 30-28B. This approval should not be extended to other aircraft of these models on which other previously approved modifications are incorporated unless it is determined by the installer that the interrelationship between this change and any of those other previously approved modifications will introduce no 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 September 4, 1978

Date issued October 28, 1980

Date of issuance November 8, 1978

Date amended



By direction of the Administrator
W. F. Horn, Jr. (Signature)

W. F. Horn, Jr. (Signature)
Chief, Engineering & Manufacturing Branch,
Great Lakes Region AGL-2102

(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

WEIGHT AND BALANCE

FOR

199-07200 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

<u>Unit</u>	<u>Weight / Unit</u>	<u># of Units</u>	<u>Weight</u>
Brake	_____ X	2	= _____ LBS.
Disc	_____ X	2	= _____ LBS.
		TOTAL	= _____ LBS.

NEW INSTALLATION

<u>Unit</u>	<u>Weight / Unit</u>	<u># of Units</u>	<u>Weight</u>
Brake	5.90 X	2	= 11.80 LBS.
Disc	7.00 X	2	= 14.00 LBS.
		TOTAL	= 25.80 LBS.