

AIRCRAFT WHEEL & BRAKE DIVISION
 PARKER HANNIFIN CORPORATION
 AVON, OHIO

PARTS LIST

199-48 CHROME CONVERSION KIT

GLOBE SWIFT
MODEL GC-1A & GC-1B

<u>PART NUMBER</u>	<u>CODE</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
30-79B	030-07902	Brake Assembly	2
40-113C CHROME	040-11303-3	Wheel Assembly	2
067-02400	067-02400	Axle Spacer	2

Publication Package (P/N PP199-48 CHROME)

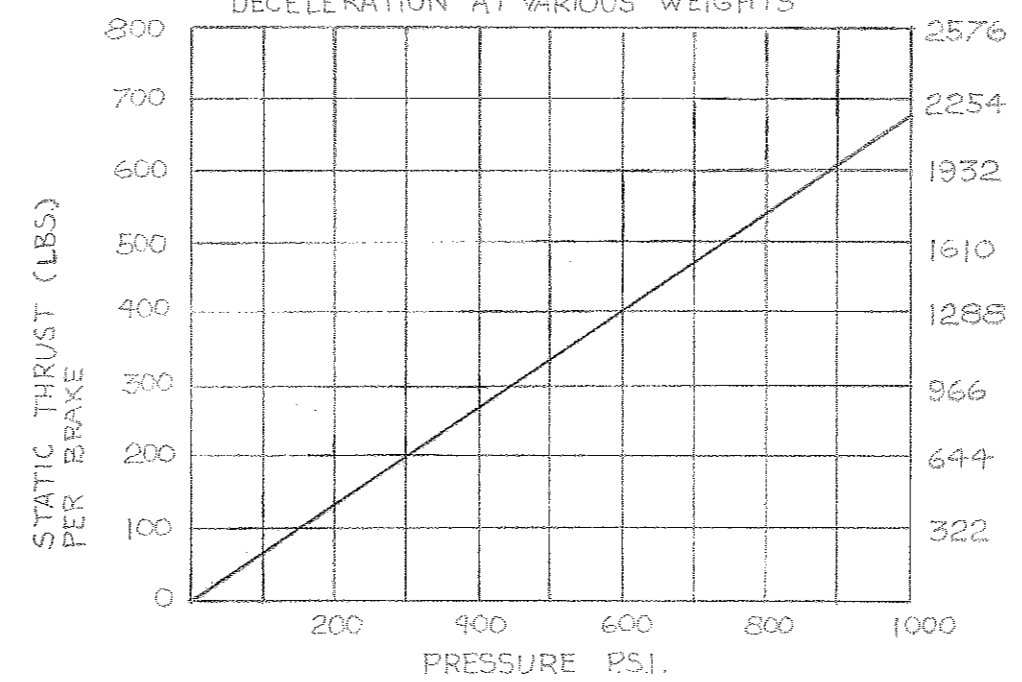
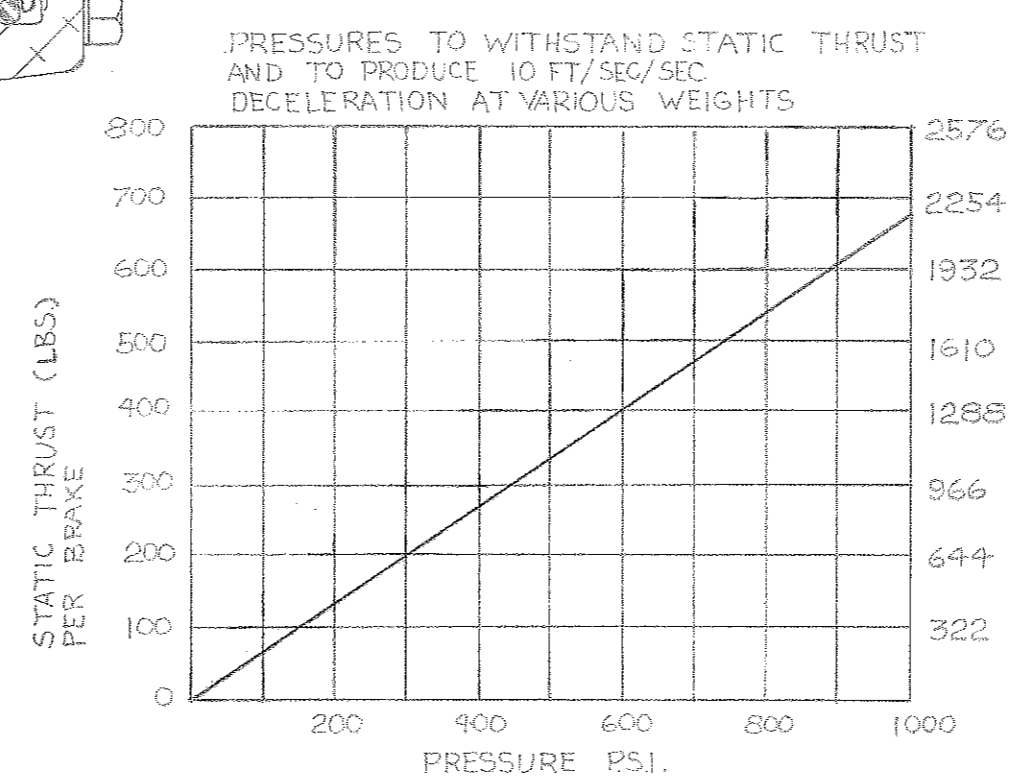
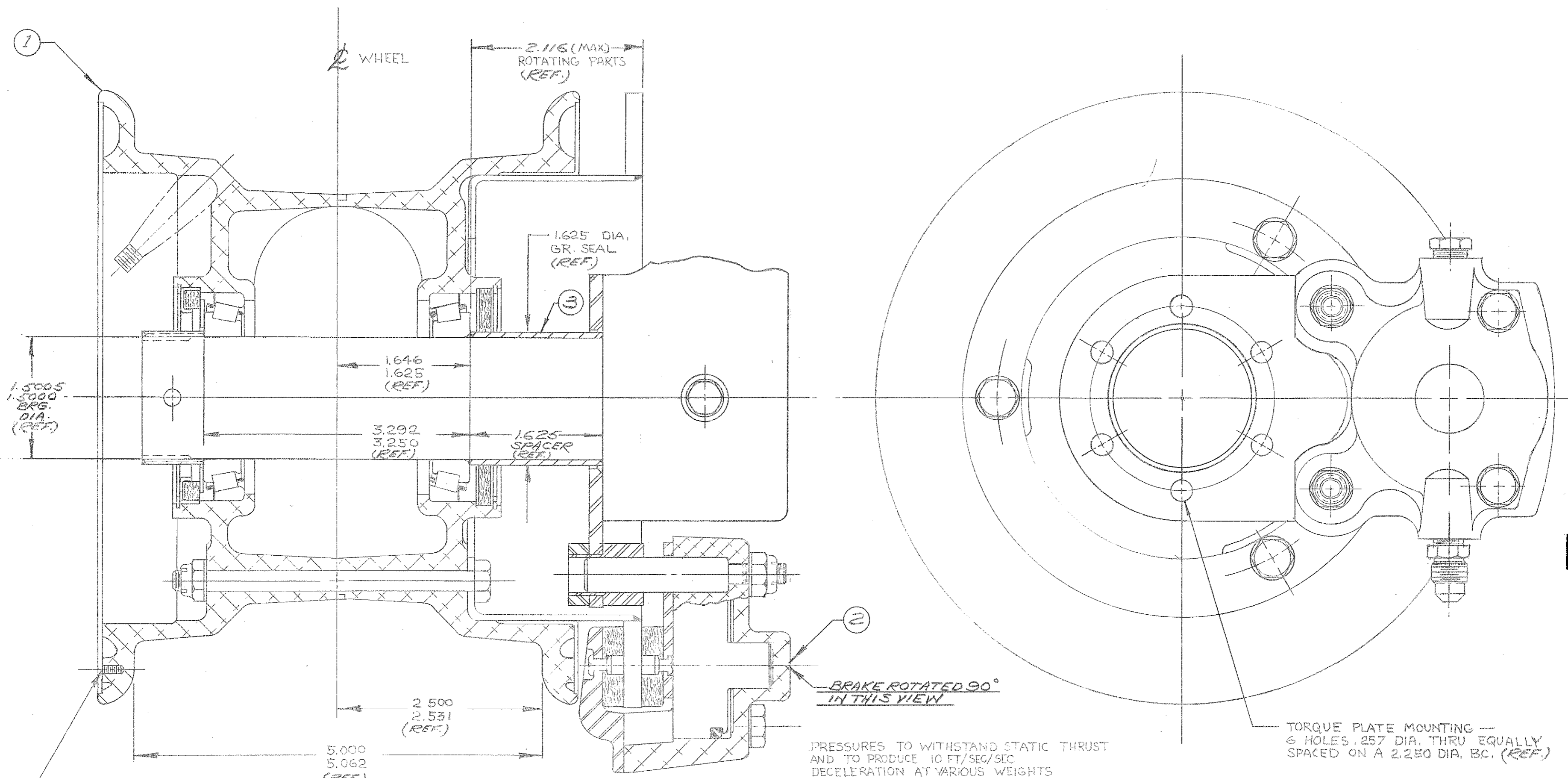
IM199-48	Rev. NC dated 09-15-2010	Installation Manual
50-23	Rev. NC dated 07-17-1972	Installation Drawing
20-130	Rev. A dated 08-17-1973	Wheel, Brake & Spacer Assembly Drawing
SA2GL	Amendment dated 04-01-1981	Supplemental Type Certificate
PRM62		Product Reference Memo – Conversion Kit / Chrome Disc Data Sheet
PRM13A	-----	Product Reference Memo – Conditioning Procedure for Non-Asbestos Organic Brake Lining
-----		Product Registration Card

NOTES:

1. This kit will convert one aircraft to Cleveland Wheels and Brakes.
2. 199-48 CHROME is identical to 199-48 except included wheels are equipped with chrome plated discs.
3. This parts list is for internal use only.

199-48 CHROME
 NC 03-09-1984 (273-63)
 Rev. A 12-23-1987 (287-22)
 Rev. B 06-12-2001 (0346-55)
 Rev. C 09-15-2010 (0390-92)

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5. AIRCRAFT WHEEL RATING PER FAA-TSO-C26& STATIC LOAD = 1500 LBS. LIMIT LOAD = 6000 LBS.

4. BRAKE KINETIC ENERGY CAPACITY: 181,000 FT. LBS., 100 STOPS FROM 67 MPH. AT 10 FT/SEC/SEC DECELERATION WITHOUT DISC OR LINING CHANGE

3. TR-20 VALVE SHOWN IN PHANTOM

2. BRAKE FLUID DISPLACEMENT
 MAXIMUM - NEW TO FULLY WORN = .82 CU. IN.
 NORMAL CLEARANCE TO 400 PSI. = .14 CU. IN.

1. WHEEL HALVES AND BRAKE CYLINDER ARE ALUMINUM DIE CASTINGS

NOTES:

CHANGE NOTICE	LET. TER	DESCRIPTION OF CHANGE	DATE	CHG. BY	CHK. BY

ITEM	PART NO.	PART NAME	QTY.
3	67-24	AXLE SPACER	1
2	30-79B	BRAKE ASSEMBLY	1
1	90-115C	WHEEL ASSEMBLY	1

WORK TO DIMENSIONS - DO NOT SCALE
 ALL DIMENSIONS IN INCHES
 UNLESS OTHERWISE SPECIFIED
 TOLERANCE FOR .XXX ± .010
 TOLERANCE FOR .XX ± .030
 TOLERANCE FOR ANGULAR DIMS. ± 1/2°
 TOLERANCE FOR FRACT. DIMS. ± 1/32"
 BREAK SHARP EDGES - REMOVE ALL BURRS

APPLICATION	QUANTITY REQ'D

DRAWN BY: *[Signature]* MATERIAL: *[Signature]* SURFACE TREATMENT: *[Signature]*
 CHECKED BY: *[Signature]* HEAT TREAT: *[Signature]* PATTERN, FORGING OR BLANK NO.: *[Signature]*

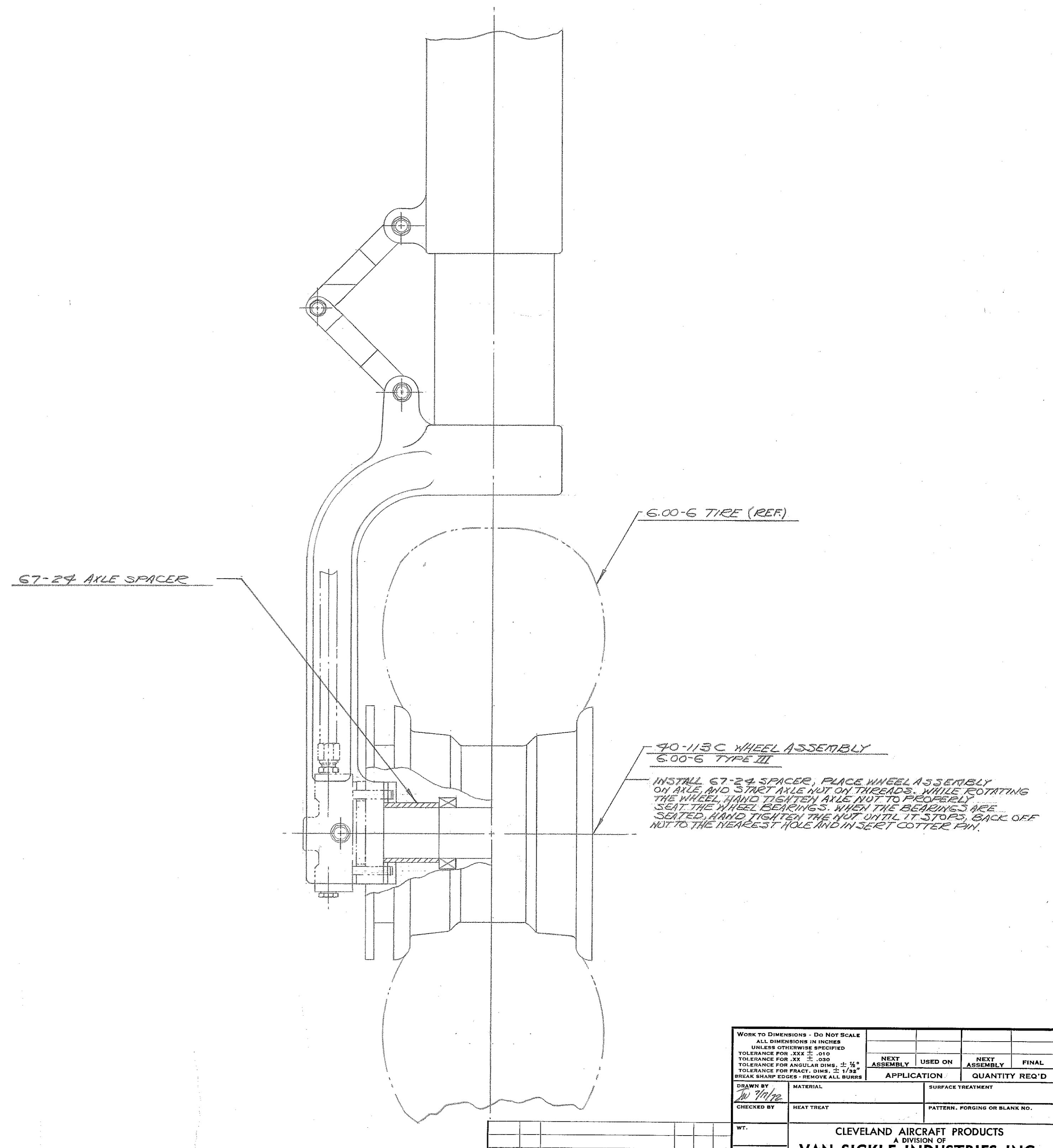
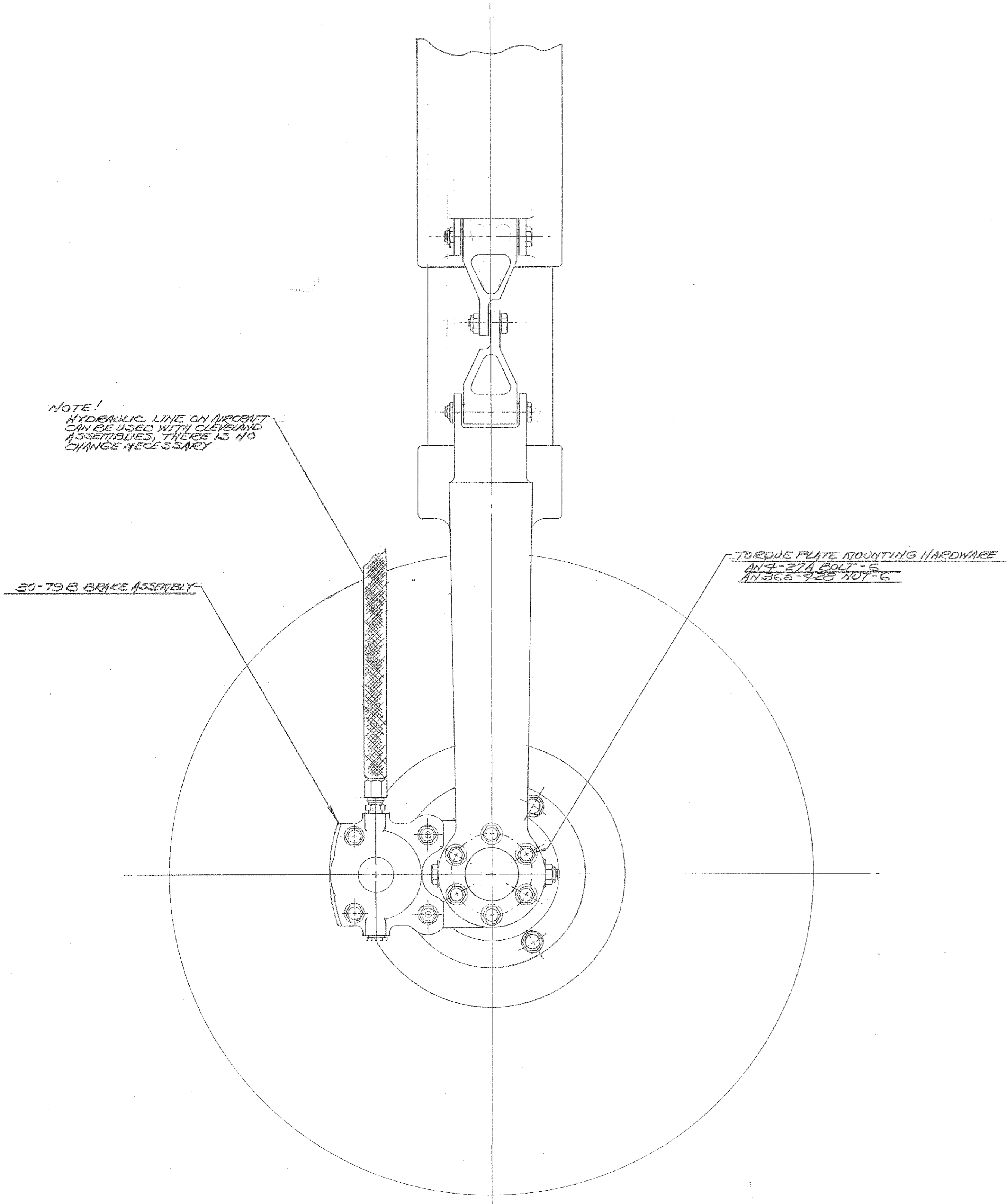
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 SCALE FULL

NAME: WHEEL, BRAKE & AXLE SPACER

20-130

020-13000

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WORK TO DIMENSIONS - DO NOT SCALE ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED					
TOLERANCE FOR .XXX ± .010		NEXT ASSEMBLY		USED ON	
TOLERANCE FOR .XX ± .000		APPLICATION		NEXT ASSEMBLY	
TOLERANCE FOR ANGULAR DIMS. ± 1/2°		QUANTITY		FINAL	
TOLERANCE FOR FRACT. DIMS. ± 1/32"		QUANTITY REQ'D			
BREAK SHARP EDGES - REMOVE ALL BURRS					
DRAWN BY <i>[Signature]</i>		MATERIAL		SURFACE TREATMENT	
CHECKED BY <i>[Signature]</i>		HEAT TREAT		PATTERN, FORGING OR BLANK NO.	
WT.		CLEVELAND AIRCRAFT PRODUCTS A DIVISION OF VAN SICKLE INDUSTRIES INC. AVON, OHIO			
SCALE 3:1		NAME CLEVELAND WHEEL BEARING INSTALLATION (GLOBE SWIFT)			
REF. DWGS NO. 20-150		50-23			
CHANGE NOTICE	LET. TER	DESCRIPTION OF CHANGE	DATE	CHK BY	DRG BY

Kit Installation Publication

Conversion Kit Parker Hannifin Part No. 199-48

IM199-48

Initial Issue, Revision NC

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Publication No.: IM199-48 Initial Issue, Revision NC

Manufacturer:



Parker Hannifin Corporation
Aircraft Wheel and Brake Division
1160 Center Road
Avon, Ohio 44011 U.S.A.

Cleveland
Wheels & Brakes



TO: HOLDERS OF IM199-48 INSTALLATION MANUAL WITH ILLUSTRATED PARTS LIST
FOR MAIN WHEEL ASSEMBLY P/N 40-113C AND MAIN BRAKE ASSEMBLY P/N 30-79B.

Attached to this transmittal letter is Revision NC of IM199-48 (dated September 15, 2010)

Revision NC, Dated September 15, 2010

REVISION NC CONTAINS ALL PAGES OF THE MANUAL. Pages that have been added or revised are outlined below together with the highlights of the revision.

Please retain all **REVISION HIGHLIGHTS** pages, inserting them into the manual for future reference.

REVISION HIGHLIGHTS

Section/Page No.

Description Of Change

All Sections/All Pages

Initial Release (DCN 0390-92)



STEP 1: VERIFY EQUIPMENT

VERIFY THAT THE WHEEL AND BRAKE ASSEMBLY NUMBERS AS LISTED ON THE KIT PARTS LIST MATCH THE MODEL NUMBERS AS INDICATED ON THE ASSEMBLY NAMEPLATES.

STEP 2: REVIEW USAGE RESTRICTIONS

REFER TO SECTION 3.0.

STEP 3: REVIEW AIRFRAME MODIFICATIONS

REFER TO SECTION 3.0.

STEP 4: REVIEW INSTALLATION HARDWARE

THIS KIT MAY NOT INCLUDE THE HARDWARE NEEDED TO COMPLETE THE INSTALLATION. THIS HARDWARE MUST BE OBTAINED SEPARATELY. IN ADDITION, SOME HARDWARE MAY NEED TO BE FABRICATED SUCH AS FLEXIBLE HYDRAULIC HOSES. READ THIS INSTALLATION MANUAL AND REVIEW THE INSTALLATION DRAWING BEFORE DOING ANY WORK. REFER TO SECTION 3.0 FOR ADDITIONAL INFORMATION.

STEP 5: RETURN REGISTRATION CARD

COMPLETE AND RETURN THE ATTACHED REGISTRATION CARD. PLEASE PRINT INFORMATION LEGIBLY. THIS DATA WILL ASSIST PARKER HANNIFIN, AIRCRAFT WHEEL & BRAKE TO NOTIFY END USERS OF SPECIFIC AIRWORTHINESS DOCUMENTS WHEN REQUIRED.

STEP 6: TECHNICAL ASSISTANCE

FOR TECHNICAL ASSISTANCE, CONTACT THE TECHNICAL SERVICES HOTLINE:

E-mail: clevelandwbhelp@parker.com

Fax: 440-937-5409

Tel: 1-800-BRAKING (272-5464)



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1.0 INTRODUCTION

This manual is published for the guidance of personnel responsible for the installation of the Parker Hannifin Conversion Kit covered in this publication.

Installation of this kit should be performed by a qualified, licensed Airframe and Powerplant mechanic (A & P).

1.1 Data Rights

This document contains information that is confidential and proprietary to Parker Hannifin Corporation. This document is furnished on the understanding that the document and the information it contains will not be copied or disclosed to others except with the written consent of Parker Hannifin, will not be used for any purpose other than conducting business with Parker Hannifin, and will be returned and all further use discontinued upon request by Parker Hannifin. Copyright Parker Hannifin. Year of copyright is first year indicated on this document. All rights reserved.

1.2 Export Statement


U.S. EXPORT CONTROLLED – Dissemination is restricted by the Export Administration Act of 1979 (50 U.S.C. App. 2401, et seq) and the Export Administration Regulations.

2.0 MANUAL USE

This publication covers instructions for various aircraft models. The installation section has been broken down when necessary to cover applicable models.

2.1 Warnings And Cautions And Notes

These adjuncts to the text shall be used to highlight or emphasize important points when necessary. Refer to the descriptions of these statements that follow:

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



3.0 KIT EQUIPMENT AND INSTRUCTION

CAUTION: READ THIS INSTALLATION MANUAL AND REVIEW THE INSTALLATION DRAWING BEFORE DOING ANY WORK.

All support hardware fabrication that is not covered by this publication should be done per Advisory Circular AC43.13-1, latest issue in effect.

Unless otherwise specified, all quantity callouts throughout the manual are per landing gear.

3.1 Usage Restrictions

There are no restrictions for this conversion kit.

3.2 Airframe Modifications

There are no modifications required for this conversion kit.

3.3 Installation Hardware

- The torque plate-to strut mounting bolts are not supplied in this conversion kit. Retain the existing mounting hardware for use with this conversion kit.
- It is recommended that new cotter pins be used. The axle cotter pins are not supplied in this conversion kit and must be obtained separately. Refer to the aircraft parts catalog for part identification.

3.4 Aircraft Model Applicability

The equipment supplied under Kit No. 199-48 is applicable to the following aircraft under STC SA2GL.

Table 1 Aircraft Model Applicability

MAKE	MODELS
Universal Aircraft Industries (Globe Swift)	GC1A
	GC1B



4.0 TSO NOTICE

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.

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

5.0 PRODUCT REGISTRATION

A product registration card is located at the front of this manual. The card is used to track the conversion kits and your guarantee of receiving any future airworthiness information applicable to Conversion Kit No. 199-48. Please fill out the registration card completely and return promptly. Postage is prepaid.

6.0 REFERENCE PUBLICATIONS

Refer to the following publications, published by Parker Hannifin - Aircraft Wheel and Brake, for service limits, maintenance, component overhaul and applicable related data. Always obtain the latest issue in effect.

- AWBCMM0001 Maintenance Manual, External Design Wheels & Brakes
- AWBTSG0001 Technician’s Service Guide (formerly PRM64)
- PRM13A Conditioning Procedure for Non-Asbestos Organic Brake Lining
(included in kit paperwork)
- PRM60 Chrome Disc Service
- PRM62 Conversion Kit/Chrome Disc Data Sheet (included in kit paperwork)
- PRM69 Availability of General Maintenance Information and Torquing Procedures
- PRM73 Wheels & Brakes – Preparation For Service – On-Aircraft Cleaning

7.0 ORDERING INFORMATION

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

Parker Hannifin Corporation
Aircraft Wheel & Brake Division
1160 Center Road
Avon, Ohio 44011 U.S.A.
Attn: Technical Services/Hotline

Web site: www.parker.com
E- mail: clevelandwbhelp@parker.com
Fax: (440) 937-5409
Tel: 1-800-BRAKING (272-5464)

8.0 EQUIPMENT DESCRIPTION

8.1 Brake Assembly

The brake assembly is shipped from the factory as a complete assembly. It is a cast aluminum single caliper, single piston external disc design, with organic lining. It is suitable for use with brake fluid conforming to MIL-H-5606. The cylinder contains the brake fluid which operates the piston and pressure plate. A back plate is secured to the cylinder with bolts and washers on the opposite side of the brake disc. The back plate and pressure plate each hold brake linings. Two anchor bolts, attached to the cylinder with nuts and washers, slide or float in torque plate bushings. The torque plate is mounted to the landing gear strut. The caliper (cylinder assembly) is the assembly which includes the cylinder, piston, back plate, pressure plate, linings and other related components.

8.2 Wheel Assembly

CAUTION: THE FELT GREASE SEALS (5-15, 5-18) ARE SHIPPED DRY. THEY MUST BE PROPERLY LUBRICATED TO PROVIDE PROTECTION AND LUBRICANT RETENTION FOR THE BEARINGS. IF THEY ARE NOT PROPERLY LUBRICATED THEN MOISTURE CAN SOAK PAST THE FELTS AND CONTACT THE BEARINGS WHICH CAN LEAD TO BEARING FAILURE.

The wheel assembly is shipped from the factory as a complete assembly with the bearing cones (5-13) packed with grease (Mobil Aviation Grease SHC 100) and installed in the wheel halves. The grease seal felts (5-15, 5-18) are shipped dry. Refer to paragraph 9.1 Lubricate the Seal Felts, for instructions on lubricating the seal felts. The wheel is cast aluminum and conforms to all tire and rim association standards for a 6.00-6 Type III, divided type wheel. It is a tube-type design only. The inboard and outboard wheel halves are fastened together with bolts, washers, and nuts. The brake disc is attached to the wheel by the bolts. The wheel rotates on two tapered roller bearings, which seat in bearing cups in the wheel half hubs. Grease seal felts provide protection and lubricant retention for the bearing.

8.3 Operation

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



9.0 GENERAL MAINTENANCE PROCEDURES

The following general procedures can also be found in AWBCMM0001, latest issue along with recommended sources of supply.

9.1 Lubricate the Seal Felts

Scheduled occurrence: This procedure must be done during installation of the Cleveland equipment.

CAUTION: THE FELT GREASE SEALS (5-15, 5-18) ARE SHIPPED DRY. THEY MUST BE PROPERLY LUBRICATED TO PROVIDE PROTECTION AND LUBRICANT RETENTION FOR THE BEARINGS. IF THEY ARE NOT PROPERLY LUBRICATED THEN MOISTURE CAN SOAK PAST THE FELTS AND CONTACT THE BEARINGS WHICH CAN LEAD TO BEARING FAILURE.

NOTE: Lubricate the seal felts just before installation to prevent contamination.

The felt grease seals (5-15, 5-18) are shipped dry and must be properly lubricated. Properly lubricate by lightly coating all surfaces of the felts with the wheel bearing grease (Mobil Aviation Grease SHC 100).

9.2 Install Pipe Thread Fittings

Scheduled occurrence: Every time the fitting (6-20) and/or bleeder seat (6-17) is removed. Clean component threads to remove existing lubricant and re-apply with fresh thread lubricant.

The brake cylinder is designed with NPT (National Pipe Thread) ports. The proper torque procedure for pipe thread fittings will help prevent galling between the threads, ensure a leak-proof seal and avoid excessive torque during the equipment installation.

CAUTION: NEVER BACK OFF (LOOSEN) PIPE THREADED FITTINGS TO ACHIEVE ALIGNMENT.

- a. Inspect and clean each fitting to remove any oil or surface contamination before installing.

CAUTION: AVOID COATING THE FIRST THREAD OF THE FITTING TO AVOID SYSTEM CONTAMINATION.

- b. Apply a light coat of Lubon #404 (or equivalent) thread lubricant and sealant to the threads of the fitting.
- c. Screw the fitting into the port to achieve a finger tight fit.
- d. Wrench tighten the fitting 1 to 1-1/2 turns from finger tight. Fittings that require a specific orientation to receive the incoming tube or hose assembly may be adjusted from 1 to 2 turns, beyond finger tight to achieve the desired alignment.
- e. Inspect the assembled joint and remove any excess thread lubricant from the assembly.

9.3 Pack the Bearing Cones with Grease

Scheduled occurrence: At every tire change or 12 months, whichever comes first. Always clean and re-pack the bearing cones with fresh grease.

CAUTIONS

- DO NOT MIX AVIATION WHEEL BEARING GREASES WITH EACH OTHER. IF USING OTHER APPROVED GREASE, COMPLETE REMOVAL OF CONTAINED GREASE AND BEARING CLEANING IS REQUIRED. REPLACEMENT OF PREVIOUSLY LUBRICATED FELT GREASE SEALS IS ALSO REQUIRED.
- HANDLE BEARING CONES WITH CARE TO PREVENT CONTAMINATION OR DAMAGE.

The wheel assembly is shipped from the factory as a complete assembly. The bearing cones (5-13) are packed with Mobil Aviation Grease SHC 100 bearing grease.

The correct 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.

NOTES

- Pack the bearing cones just before installation to prevent contamination.
 - Bearing cones can be packed by hand or by using a mechanical bearing greaser. The mechanical bearing greaser will do a more thorough job of packing the grease.
- a. Clean bearing cones carefully in a separate container of mineral spirits.

CAUTION: DO NOT SPIN BEARING CONES WITH COMPRESSED AIR.

- b. After cleaning, thoroughly dry with filtered dry compressed air.
- c. Push and force the grease up and out between the rollers, cone and cage.
- d. The bearing is properly greased when no voids or daylight can be observed between the rollers and inner and outer races.
- e. Disperse excess grease around each end and the roller surfaces of each cone.

NOTE: Shaded area indicates the recommended amount of grease.

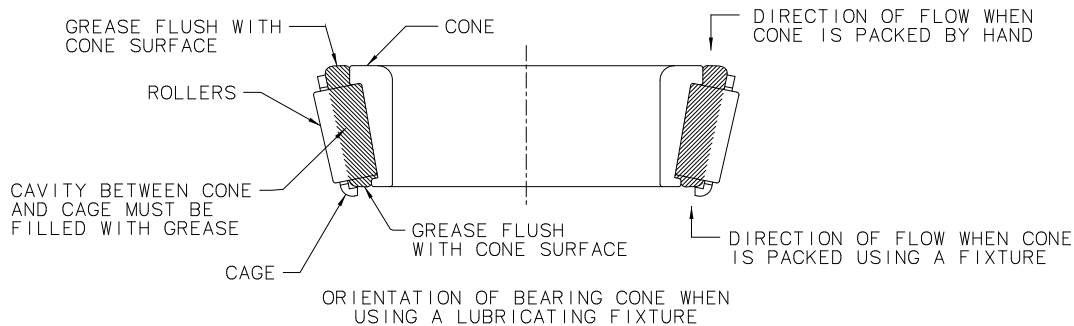




Figure 1, Pack the Bearing Cones

10.0 KIT INSTALLATION

Read this installation manual and review the installation drawing before removing and installing components.

SAFETY WARNING:  MAKE SURE THE AIRCRAFT IS SECURE AND STABLE BEFORE BEGINNING ANY WORK. WORKING UNDER AN AIRCRAFT THAT IS NOT SECURE AND STABLE CAN CAUSE INJURY OR DEATH.

SAFETY WARNING:  COMPLETELY DEFLATE THE TIRE BEFORE REMOVING THE VALVE CORE. VALVE CORES UNDER PRESSURE CAN BE EJECTED WITH GREAT FORCE AND CAN CAUSE INJURY OR DEATH.

10.1 Remove the 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. Refer to the aircraft maintenance manual instructions on jacking and supporting the aircraft.
- b. Block the brake pedals in the retracted position to prevent movement during conversion.
- c. Remove the cap from the tire inflation valve and slowly deflate the tire.
- d. Confirm that the tire is completely deflated.
- e. When all the tire pressure has been released remove the valve core from the inside of the valve stem.

NOTE: It is recommended that new cotter pins be used. The cotter pins are not supplied as part of the 199-48 kit and must be obtained separately. Refer to the aircraft parts catalog for part identification.

- f. Remove and retain the axle hardware. Discard the cotter pin.
- g. Remove the original equipment main landing gear wheel/tire from the strut axle.
- h. Disconnect the hydraulic line at the brake inlet fitting and cap the hydraulic line.
- i. Remove and retain the mounting hardware that secures the original equipment brake assembly to the axle mounting flange.
- j. Remove the original brake assembly from the axle. Repeat for the other side.

10.2 Install the Cleveland Equipment

Refer to Figure 4, wheel assembly IPL and Figure 5, brake assembly IPL for identification of the wheel and brake assembly components.

10.2.1 Mount the Tire

- a. Remove the following items from the wheel assembly and place the removed items on a clean surface to prevent contamination or damage.
 - from the inboard side: retaining ring (5-19), grease seal rings (5-14) and grease seal felt (5-15)
 - from the outboard side: retaining ring (5-19), grease seal rings (5-16, 5-17) and grease seal felt (5-18)

CAUTION: HANDLE BEARING CONES WITH CARE TO PREVENT CONTAMINATION OR DAMAGE.

- b. Next, remove the bearing cones (5-13) from each side. Place the bearing cones on a clean surface to prevent contamination or damage.

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.

- c. Remove all nuts (5-13), washers (5-11) and bolts (5-10).
- d. Remove the brake disc (5-9) and place to the side.
- e. Examine the bead seat area of the wheel halves. If necessary, remove any lubricant, grease or foreign material with a clean cloth dampened with soap and water or with denatured alcohol.
- f. Make sure that the tire is clean inside. If necessary, wipe the bead base with a clean cloth dampened with soap and water or a suitable rubber cleaner.

NOTE: A new tube should be used when installing a new tire.

- g. After the inside of the tire has been cleaned, lubricate lightly with tire talc.
- h. Inflate the tube with dry nitrogen to slightly round, and insert in the tire. The tube heavy spot is indicated by a painted yellow stripe about ½ inch wide by 2 inches long. 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.

- i. Position the tire on the outboard wheel half, inserting the valve stem through the valve hole in the wheel.
- j. Position the inboard wheel half inside the tire, aligning as necessary to clear the valve stem and align the bolt holes of both wheel halves.
- k. Continue to paragraph 10.2.2. Attach the Wheel Halves.

10.2.2 Attach the Wheel Halves

- a. Install a washer (5-11) onto each bolt (5-10).

NOTE: The nuts (5-12) must be located on the outboard wheel half side.

- b. Install the brake disc (5-9) in the inboard wheel half (5-3) aligning the bolt holes, then install bolts (5-10).
- c. Compress the wheel halves and install a washer (5-11) and nut (5-12) on each bolt. Tighten the nuts by hand as far as possible.

CAUTION: DO NOT USE IMPACT OR POWER WRENCHES TO TORQUE THE WHEEL NUTS AND BOLTS. THE USE OF IMPACT OR POWER WRENCHES CAN CAUSE OVER TIGHTENING.

NOTE: The fasteners must be tightened by applying the torque to the nut (5-12) while holding the bolt head.

- d. Dry torque the nuts to 90 lb-in (10,2 N-m).

10.2.3 Install the Remaining Wheel Assembly Components

CAUTION: THE FELT GREASE SEALS (5-15, 5-18) ARE SHIPPED DRY. THEY MUST BE LUBRICATED TO PROVIDE PROTECTION AND LUBRICANT RETENTION FOR THE BEARINGS. IF THEY ARE NOT PROPERLY LUBRICATED THEN MOISTURE CAN SOAK PAST THE FELTS AND CONTACT THE BEARINGS WHICH CAN LEAD TO BEARING FAILURE.

- a. Place the wheel/tire on a clean surface.
- b. Liberally swab the exposed surfaces of the bearing cup, bearing bore hub and the grease seal/snap ring areas with bearing grease (Mobil Aviation Grease SHC 100).
- c. Refer to Section 9.1 and lubricate the seal felts (5-15, 5-18).

- d. Refer to Figure 2 and install the following components in the outboard wheel half:
- 1 Install the bearing cone (5-13) and align in the bearing cup (5-4).
 - 2 Install the first grease seal ring (5-17).
 - 3 Insert the grease seal felt (5-18) in the pocket of the second grease seal ring (5-16) and install with the open face of the felt positioned against the first grease seal ring (5-17).
 - 4 Install the snap ring (5-19). Install the end of the snap ring into the groove in the hub of the wheel half and wind or spiral the ring into the groove.
 - 5 Excess grease will squeeze out. Remove the excess grease with an inward rotating movement against the bearing cone ID. Disperse any small amounts of grease on the exterior surface of the grease seal and snap ring and remove any grease from the hub outside surface.
- e. Refer to Figure 2 and install the following components in the inboard wheel half:
- 1 Install the bearing cone (5-13) and align in the bearing cup (5-4).
 - 2 Install the first grease seal ring (5-14).
 - 3 Install the grease seal felt (5-15).
 - 4 Install the second grease seal ring (5-14).
 - 5 Install the snap ring (5-19). Install the end of the snap ring into the groove in the hub of the wheel half and wind or spiral the ring into the groove.
 - 6 Excess grease will squeeze out. Remove the excess grease with an inward rotating movement against the bearing cone ID. Disperse any small amounts of grease on the exterior surface of the grease seal and snap ring and remove any grease from the hub outside surface.

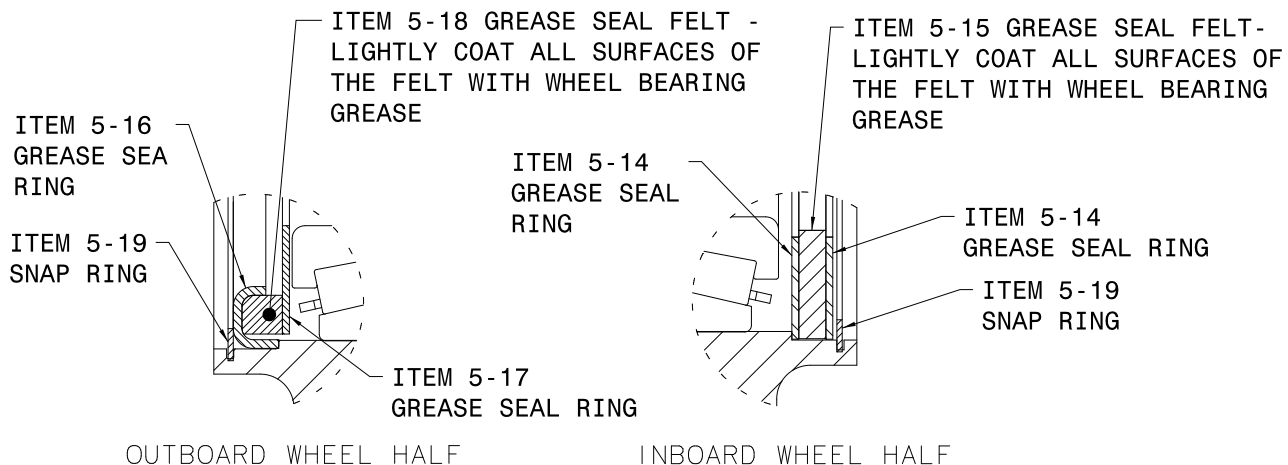



Figure 2, Installing the Grease Seal Components

SAFETY WARNING:  PLACE THE WHEEL/TIRE ASSEMBLY IN A SAFETY CAGE DURING INFLATION TO PREVENT INJURY TO PERSONNEL FROM POSSIBLE EXPLOSION.

NOTE: Refer to the aircraft maintenance manual for recommended tire operating pressure.

- f. Inflate the tire per the tire manufacturer's specifications to seat the beads on the wheel. Follow the aircraft maintenance manual to inflate the tire to the operating pressure. Set the wheel/tire assembly aside.

10.2.4 Mount the Torque Plate

Refer to Figure 3.

- a. Mount the torque plate assembly on the strut with the existing mounting hardware. When mounted on the strut, the longer side of the torque plate - the boss, (0.500 inch) dimension, will face the strut mounting surface. Tighten the mounting hardware in accordance to the torque specifications in the aircraft maintenance manual.

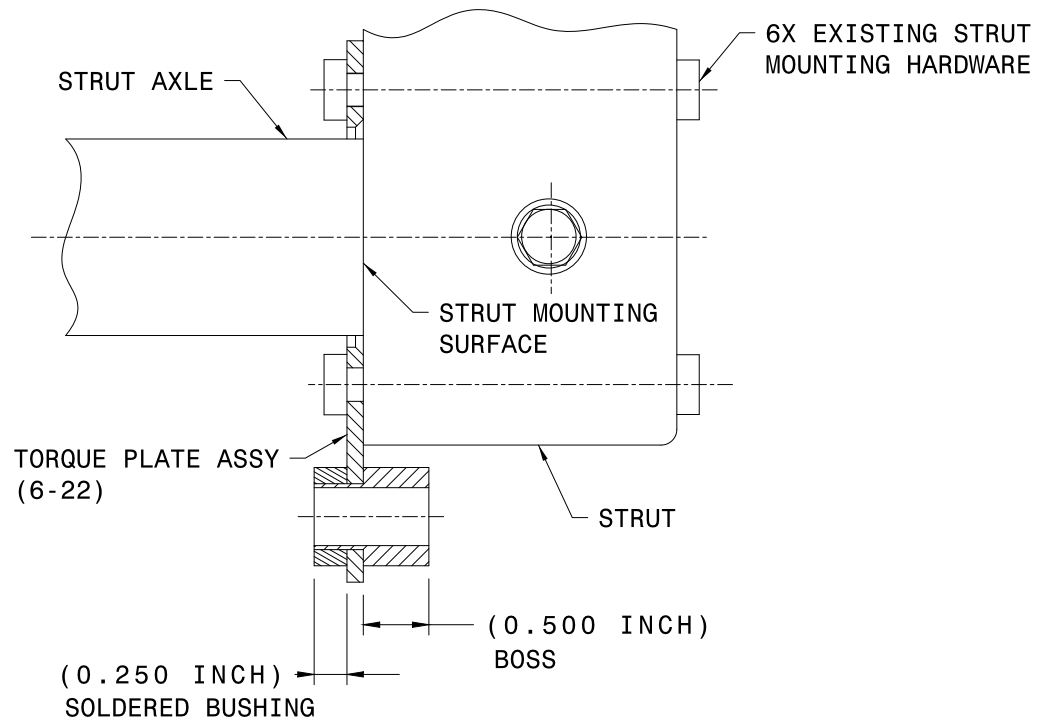


Figure 3, Mount the Torque Plate Assembly

10.2.5 Mount the Wheel Assembly

Refer to 20-130, Wheel, Brake, and Spacer Assembly drawing and 50-23, Installation Drawing.

- a. Slide the axle spacer, Parker Hannifin P/N 067-02400, onto the strut axle.
- b. Carefully slide the wheel/tire assembly onto the strut axle.
- c. Apply a thin coat of bearing grease to the threads of the axle and axle nut.
- d. Start the axle nut on the threads. While rotating the wheel, hand tighten the axle nut to properly seat the wheel bearings. When the bearings are seated, hand tighten the axle nut until it stops, then back off the axle nut to the nearest axle hole and insert the cotter pin.
- e. Repeat for the other side.

10.2.6 Mount the Brake Assembly

Refer to Figure 4.

- a. Loosen the two back plate attachment bolts (item 6-16) and remove the back plate assembly (6-11) from the cylinder (6-3).

CAUTIONS

- DO NOT FORCE THE CYLINDER ANCHOR BOLTS INTO THE TORQUE PLATE ENGAGEMENT HOLES.
 - DO NOT USE A LIQUID TYPE LUBRICANT ON THE ANCHOR BOLTS. LIQUID LUBRICANT WILL ALLOW DIRT AND MOISTURE TO COLLECT AND INCREASE THE RISK OF CORROSION, BINDING, AND WEAR.
- b. Apply a dry film lubricant to the anchor bolts and the I.D. of the torque plate bosses. This will help installation and give easier operation. Refer to AWBCMM0001 or AWBTSG0001 for a list of recommended lubricants.
 - c. Engage the brake assembly into the torque plate by sliding the anchor bolts (6-13) through the torque plate bosses.

CAUTION: DO NOT USE IMPACT OR POWER WRENCHES TO TORQUE THE BOLTS. THE USE OF IMPACT OR POWER WRENCHES CAN CAUSE OVER TIGHTENING.

- d. Position the back plate assembly (6-11) between the brake disc (5-9) and the inboard wheel flange. Align the back plate assembly with the cylinder bolt holes and tighten the bolts (6-16) into the back plate assembly. Dry torque the bolts to 90 lb-in (10,2 N-m).

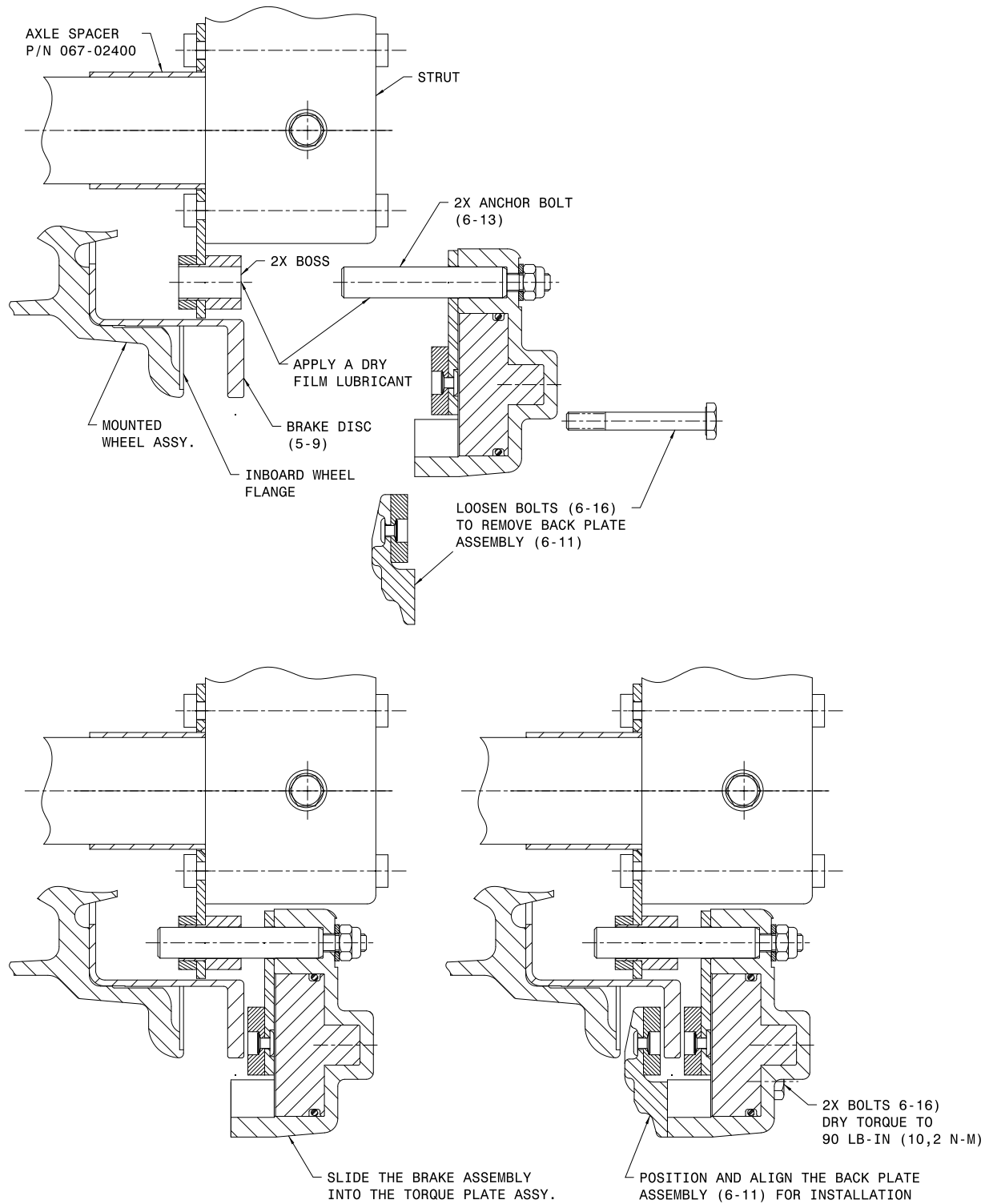


Figure 4, Mount the Brake Assembly



10.2.7 Complete the Hydraulic Connections

- a. Connect the hydraulic line to the brake inlet fitting and tighten in accordance with the aircraft maintenance manual. Repeat for the remaining brake.

11.0 BLEED THE SYSTEM

Upon completion of the installation, bleed the system in accordance with the aircraft maintenance manual and follow paragraph 12.0 SYSTEM CHECKS.

12.0 SYSTEM CHECKS

After bleeding the system, the wheel assemblies should rotate freely. There should be no evidence of binding or excessive brake drag. Check for possible interference particular to each aircraft.

13.0 CONDITION THE BRAKE LINING

When new linings are installed, it is important to condition them properly to obtain the service life designed into them. Condition linings in accordance with Parker Hannifin product reference memo PRM13A (included with kit paperwork).

14.0 WEIGHT AND BALANCE COMPUTATIONS

Weigh the original equipment wheels and brakes. Subtract from the new weights to obtain the 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.

14.1 Weight and Balance Data

All weights are per gear leg.

Wheel Assembly 7.31 lbs
Brake Assembly 1.90 lbs
Total 9.21 lbs

Complete form 337 and make appropriate log book entries.

15.0 WHEEL ASSEMBLY ILLUSTRATED PARTS LIST

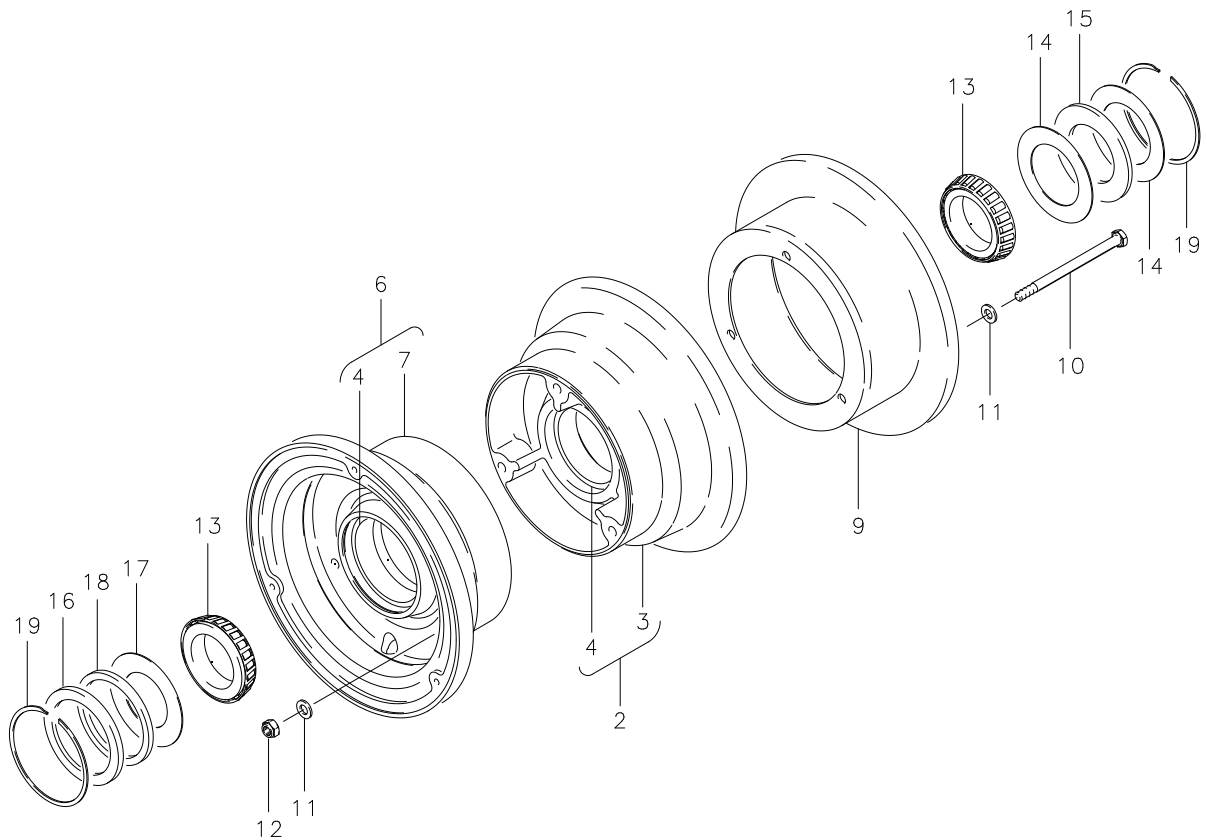


Figure 5, 40-113C Wheel Assembly

ITEM	PART NO.	DESCRIPTION	QTY		ITEM	PART NO.	DESCRIPTION	QTY	
5-1	40-113C	Wheel Assembly - standard disc	RF	-	10	103-11000	. Bolt (AN4-36A)	3	3
	40-113C CHROME	Wheel Assembly - chrome disc	-	RF	11	095-10400	. Washer (AN960-416)	6	6
2	161-04900	. Inboard Wheel Half Assy.	1	1	12	094-10300	. Nut (MS21044-N4)	3	3
3	151-15900	. . Inboard Wheel Half	1	1	13	214-00200	. Cone, Bearing	2	2
4	214-00100	. . Cup, Bearing	1	1	14	153-00400	. Ring, Grease Seal	2	2
-5	166-19700	. . Nameplate	1	1	15	154-00300	. Felt, Grease Seal	1	1
6	162-04700	. Outboard Wheel Half Assy.	1	1	16	153-01500	. Ring, Grease Seal	1	1
7	152-15900	. . Outboard Wheel Half	1	1	17	153-00300	. Ring, Grease Seal	1	1
4	214-00100	. . Cup, Bearing	1	1	18	154-01300	. Felt, Grease Seal	1	1
-5	166-19700	. . Nameplate	1	1	19	155-00100	. Ring, Retaining	2	2
-8	166-20000	. . Nameplate, Warning	2	2	LEGEND: - Item Not Illustrated				
9	164-04300	. Brake Disc - standard	1	-					
	164-14300	. Brake Disc - chrome	-	1					

16.0 BRAKE ASSEMBLY ILLUSTRATED PARTS LIST

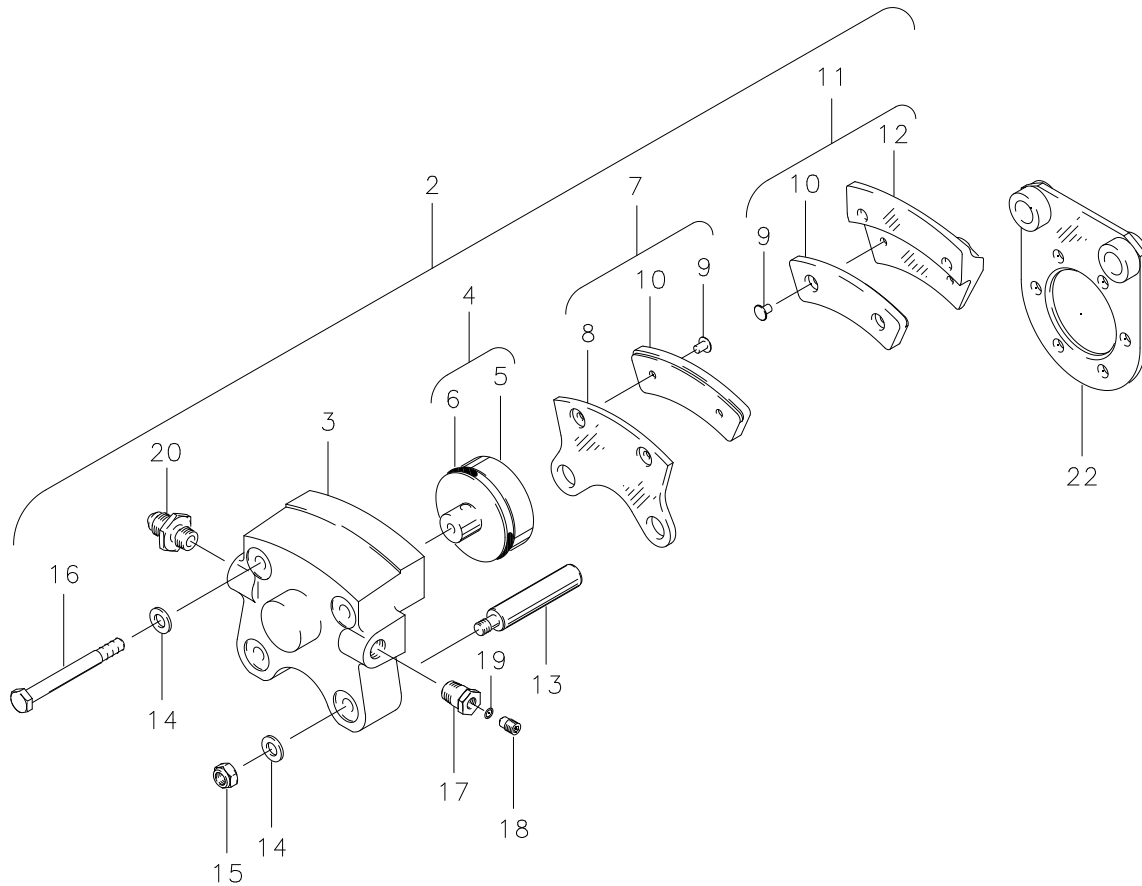


Figure 6, 30-79B Brake Assembly

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
6-1	30-79B	Brake Assembly	RF	13	069-00400	.. Anchor Bolt	2
2	091-07000	. Cylinder Assembly	1	14	095-10200	.. Washer (AN960-416L)	4
3	061-14200	.. Cylinder	1	15	094-10300	.. Nut (MS21044-N4)	2
4	092-01600	.. Piston Assembly	1	16	103-11600	.. Bolt	2
5	062-01500	... Piston	1	17	081-00300	.. Seat-Bleeder	1
6	101-02700	... Preformed Packing (AS28775-222)	1	18	079-00500	.. Screw-Bleeder	1
7	073-01100	.. Pressure Plate Assy.	1	19	101-00100	.. Preformed Packing	1
8	063-01200	... Pressure Plate	1	20	104-00300	.. Fitting	1
9	105-00200	... Rivet	2	- 21	166-01500	.. Nameplate	1
10	066-10500	... Lining	1	22	075-09100	. Torque Plate Assembly	1
11	074-01000	.. Back Plate Assymbly	1	LEGEND: - Item Not Illustrated			
12	064-01500	... Back Plate	1				
9	105-00200	... Rivet	2				
10	066-10500	... Lining	1				



17.0 KIT PARTS LIST

199-48 KIT (3)

<u>SEE NOTE</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
(1)	40-113C	Wheel Assembly	2
(2)	30-79B	Brake Assembly	2
	067-02400	Axle Spacer	2
	IM199-48	Installation Manual for Conversion Kit 199-48	1
	20-130	Wheel, Brake & Spacer Assembly Drawing	1
	50-23	Installation Drawing	1
	SA2GL (4)	Supplemental Type Certificate	1
	PRM13A	Conditioning Procedure for Non Asbestos Organic Brake Lining	1
	-----	Product Registration Card	1

- (1) For Subassembly and Parts identification: See Figure 5; 40-113C IPL.
- (2) For Subassembly and Parts identification: See Figure 6; 30-79B IPL.
- (3) 199-48 CHROME is identical to 199-48 except for chrome plated brake disc. See Figure 5, 40-113C IPL.
- (4) Supplemental Type Certificate is included in IM199-48 Installation Manual and covers the following Universal Aircraft Industries (Globe Swift) aircraft models:
GC1A, GC1B

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.

Cleveland

Wheels & Brakes

Parker Hannifin Corporation
Aircraft Wheel & Brake
1160 Center Road, P.O. Box 158
Avon, Ohio 44011 USA
1-800-BRAKING (272-5464)
216-937-1272 • FAX 216-937-5409

PRODUCT REFERENCE MEMO

CONVERSION KIT / CHROME DISC DATA SHEET

The designation "CHROME" after the part number of the following Wheel and Brake Conversion Kits means that they contain wheels equipped with Cleveland Chrome Brake Discs. Wheels with chrome brake discs are FAA-TSO approved under the original model number.

<u>STANDARD KIT</u>	<u>CHROME DISC KIT</u>	<u>*WHEEL ASSEMBLY</u>	<u>CHROME DISC</u>
199-46	199-46 CHROME	40-97A	164-12601
199-48	199-48 CHROME	40-113C	164-14300
199-49	199-49 CHROME	40-83	164-12504
199-60	199-60 CHROME	40-75B	164-11501
199-60A	199-60A CHROME	40-75B	164-11501
199-62	199-62 CHROME	40-75D	164-13601
199-62A	199-62A CHROME	40-75T	164-18300
199-71	199-71 CHROME	40-60	164-16700
199-71A	199-71A CHROME	40-60A	164-16700
199-79	199-79 CHROME	40-97D	164-12601
199-84	199-84 CHROME	40-113	164-14000
199-84A	199-84A CHROME	40-113	164-14000
199-87	199-87 CHROME	40-97D	164-12601
199-102	199-102 CHROME	40-78B	164-11700
199-103	199-103 CHROME	40-78A	164-11700
199-104	199-104 CHROME	40-59A	164-17500
199-105	199-105 CHROME	40-113X	164-14000
199-124	199-124 CHROME	40-113C	164-14300

* To order a Wheel Assembly equipped with a Cleveland Chrome Brake Disc, specify the Wheel Model Number followed by "CHROME".

EXAMPLE: 40-97A CHROME



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

Department of Transportation — Federal Aviation Administration

Supplemental Type Certificate

Number SA2GL

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 4A of the Civil Air

Regulations. (See Aircraft Specification A-766 for complete certification basis)

Original Product — Type Certificate Number A-766
Make Universal Aircraft Industries (Globe Swift)
Model GCL1, GCLB

Description of Type Design Change

Installation of Wheel and Brake Assemblies and Axle Spacer in accordance with Cleveland Aircraft Products Drawing Nos. 50-23 dated July 17, 1972, and 20-130, Revision A, dated August 17, 1973.

Limitations and Conditions

This 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 July 12, 1972

Date issued July 23, 1974; October 28, 1980

Date of issuance September 7, 1972

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