



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

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FAA-PMA

PARTS LIST

199-188 CONVERSION KIT

Aero Commander Aircraft – Lark Model 100-180

<u>PART NO.</u>	<u>CODE NO.</u>	<u>DRAWING REVISION</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
30-56F	030-05606	Rev. B dated 03-14-2003	Brake Assembly	2
40-86A	040-08601	Rev. E dated 10-11-2011	Wheel Assembly	2

Publication Package (P/N PP199-18800)

199-188			Kit Parts List (This Document)	
50-138	Rev. NC ,	dated 01-31-1991	Installation Drawing	
SA1635GL			Supplemental Type Certificate	
PRM13A			Conditioning Procedure for Non-Asbestos Brake Lining Warranty Registration Card	

NOTES:

1. This kit will convert one aircraft to Cleveland Wheels and Brakes.
2. The 30-56F brake assembly is designed for use with MIL-H-5606 Hydraulic Fluid.

199-188
 NC
 Rev. A
 01-31-91 (302-48)
 11-04-2011 (0394-71)

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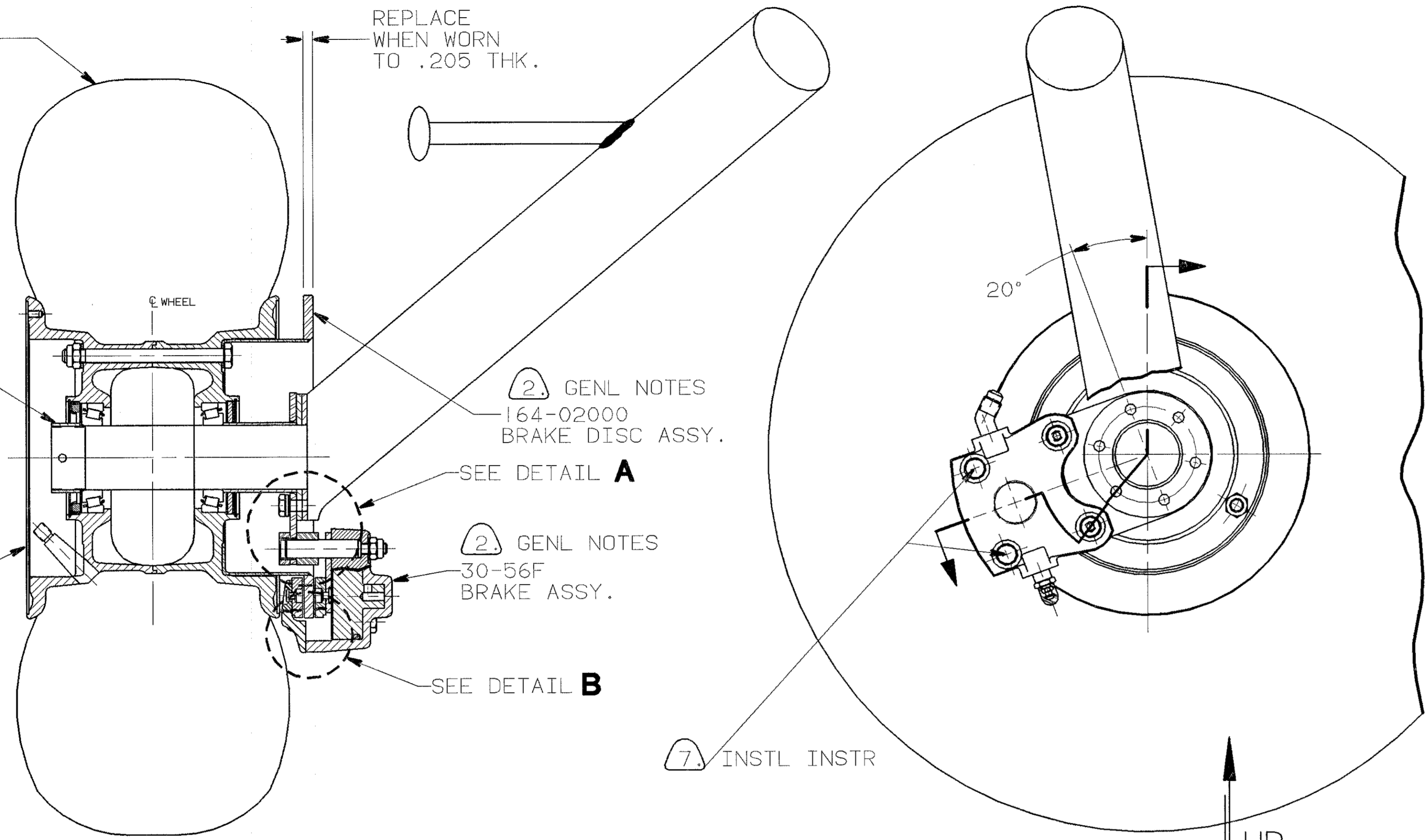
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REVISIONS							
CHANGE NOTICE	ZONE	LTR	DESCRIPTION OF CHANGE	CHG BY	CHK BY	DATE	APPROVED
302/48		NC	PRODUCTION RELEASE	PMH	BS	91-01-31	<i>Bang</i>

D

USE EXISTING TIRE OR APPLICABLE TIRE PER APPROVED AIRCRAFT EQUIPMENT LIST

REPLACE WHEN WORN TO .205 THK.



3 GENL NOTES AXLE NUT ASSY.

2 GENL NOTES 164-02000 BRAKE DISC ASSY.

2 GENL NOTES 40-86A WHEEL ASSY. 6.00-6 TYPE III

2 GENL NOTES 30-56F BRAKE ASSY.

7 INSTL INSTR

INSTALLATION INSTRUCTIONS:

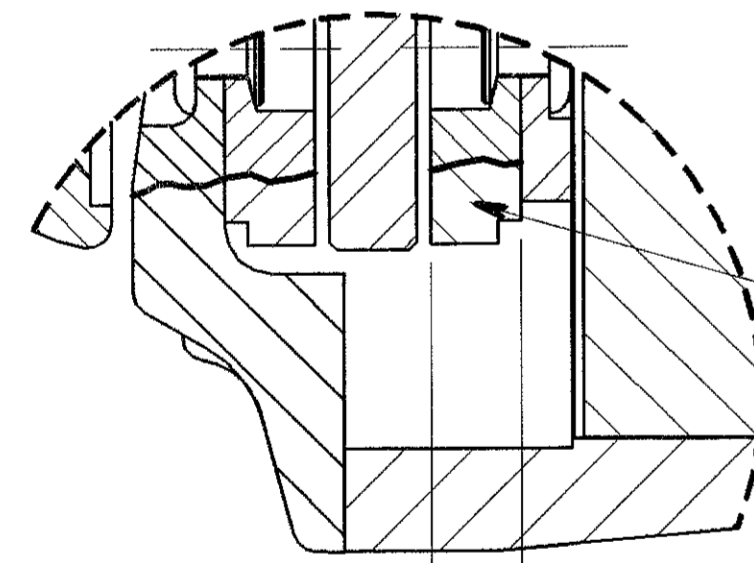
- JACK AIRCRAFT IN ACCORDANCE WITH AERO COMMANDER SERVICE MANUAL AND DEFLATE MAIN WHEEL TIRES COMPLETELY.
- DISCONNECT EXISTING HYDRAULIC LINE AT EXISTING BRAKE AND CAP. NEXT, REMOVE EXISTING M.L.G. WHEELS AND BRAKES.
- REMOVE EXISTING TORQUE PLATE (IF APPLICABLE) AND RETAIN EXISTING HARDWARE:
SPACER P/N 37152, QTY-1
SPACER P/N 37107, QTY-2
- INSTALL SPACER P/N 37107, QTY-2 AGAINST GEAR MOUNTING FACE AND, USING EXISTING MOUNTING HARDWARE, INSTALL 075-09100 TORQUE PLATE ASSY. AGAINST SPACERS AT 20° BELOW LEVEL POSITION AND AFT OF GEAR LEG (REFER TO THE FRONT VIEW AND DETAIL A OF THIS DRAWING). TORQUE MOUNTING HARDWARE TO AIRCRAFT SPECIFICATIONS.
- INSTALL SPACER P/N 37152 ON AXLE AND THEN INSTALL MOUNTED (USING SERVICEABLE TIRE AND TUBE) 40-86A WHEEL ASSEMBLY ON AXLE. INSTALL AXLE NUT ASSY.
- TO PROPERLY SEAT BEARINGS: WHILE ROTATING THE WHEEL, TIGHTEN AXLE NUT ASSY. TO 40 IN-LBS., THEN BACK OFF TO "0". NEXT, WHILE ROTATING WHEEL, TIGHTEN NUT ASSY. TO 20 IN-LBS. IF SLOT IN NUT ASSY. AND HOLE IN AXLE DO NOT ALIGN, ROTATE NUT ASSY. (TIGHTENING OR LOSSENING) UNTIL NEAREST POSSIBLE ALIGNMENT IS REACHED AND INSTALL COTTER PIN.
- REMOVE BACKPLATES FROM 30-56F BRAKE ASSEMBLY. INSTALL CYLINDER IN TORQUE PLATE. RE-INSTALL BACK PLATES AND TORQUE BOLTS TO 75-80 IN-LBS.
- RECONNECT EXISTING BRAKE LINE HOSE AND RE-POSITION FOR ALIGNMENT WITH BRAKE FITTING AND CLEAR OF LANDING GEAR LEG.
- TRIM BOTTOM OF GEAR FAIRING TO GIVE CLEARANCE ON BRAKE HOSE FITTING.
- TRIM WHEEL FAIRING, APPROXIMATE A 1/4 IN. NOTCH, FOR CLEARANCE ON BRAKE ASSEMBLY.
- UPON COMPLETION OF INSTALLATION, BLEED THE SYSTEM.
- PRESSURIZE BRAKE SEVERAL TIMES AND ROTATE WHEELS. WHEELS SHOULD ROTATE FREELY. THERE SHOULD BE NO EVIDENCE OF BINDING OR EXCESSIVE BRAKE DRAG.
- REMOVE AIRCRAFT FROM JACKS AND CONDITION LININGS PER ENCLOSED SHEET.
- WEIGHT AND BALANCE:
40-86A WHEEL ASSY. WEIGHS 6.05 LBS.
30-56F BRAKE ASSY. WEIGHS 1.90 LBS.
WEIGH ORIGINAL WHEELS AND BRAKES AND REVISE WEIGHT AND BALANCE DATA IN LOGBOOK.

C

L.H. INBOARD

L.H. UP AFT

B



2 GENL NOTES 066-10500 LINING

REPLACE WHEN WORN TO .100 THK.

DETAIL B SCALE: 2:1

3 GENL NOTES SPACER-QTY 1 P/N 37152

TORQUE PLATE ASSY. CHAM FACES INBOARD

3 GENL NOTES MOUNTING HARDWARE

3 GENL NOTES SPACER-QTY 2 P/N 37107

2 GENL NOTES 075-09100 TORQUE PL. ASSY.

MOUNT TORQUE PLATE ASSY. WITH LONGER LENGTH BUSHING FACING INBOARD

DETAIL A SCALE: 1:1

A

GENERAL NOTES:

- INSTALLATION KIT 199-18800 APPLIES TO AERO COMMANDER MODEL: 100-180 LARK.
- COMPONENTS SUPPLIED BY PARKER HANNIFIN CORP., AIRCRAFT WHEEL & BRAKE DIV.
- EXISTING HARDWARE TO BE RETAINED AND REUSED.

QTY	FINAL ASSY	QTY	NEXT ASSY

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: 2 PLACE 1 XX 14.00 DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982 GENERAL MACHINED SURFACES 125 PER ANSI B46.1 REMOVE ALL BURRS BREAK CORNERS .005-.010 INTERNAL RADIUS .005-.010		PROGRAM/CONTRACT NO P767	DATE 91-01-28
DO NOT SCALE DRAWING THIS DRAWING IS COMPLETELY DEFINED BY THE COMPUTER DATA SET WHICH IS THE FILE AUTHORITY FOR THE INFORMATION PROVIDED. DIMENSIONALLY STABLE COPIES MUST BE OBTAINED FROM THE DATA SET. ALL REVISIONS TO THIS DRAWING MUST BE BY DATA SET REVISION ONLY. NO REVISIONS MAY BE MADE BY HAND.		DRAWN P. HUNYAD	CHECKED 91-01-31
WTS/STRESS		DATE	DESIGN APPROVAL
MFG ENGRG		DATE	PROJ APPROVAL
QUAL ASSUR		DATE	RELEASE DATE: (302/48) 91-01-31

CLEVELAND WHEELS & BRAKES Aircraft Wheel and Brake Division Parker Hannifin Corporation Avon, Ohio 44001			
DWG. TITLE INSTALLATION DRAWING FOR KIT 199-18800			
SIZE	CAGE CODE	DWG. NO	REV
D	33269	50-138	NC
SCALE: 1/2:1 UNIT WGT.			SHEET: 1 OF 1

D

C

B

A

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

Avon, Ohio 44011 USA

1-800-BRAKING (272-5464)

216-937-1272 • FAX 216-937-5409

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

Initial Release February 01, 1997



PRM69
Page 1 of 1



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 SA1635GL

This certificate, issued to Aircraft Wheel and Brake Division
Parker Hannifin Corporation
1160 Center Road
Avon, OH 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 1A21 for complete
certification basis.

Original Product — Type Certificate Number 1A21
Make Dynac Aerospace Corporation
Model Aero Commander Model 100-180

Description of Type Design Change

Installation of Cleveland Main Wheels 40-86A and Brakes 30-56F, in accordance with Parker Hannifin Conversion Kit Parts List 199-188, No Revision, dated January 31, 1991, or later FAA Approved revision.

Limitations and Conditions This approval should not be extended to other airplanes of this model 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 that 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 February 6, 1991 *Date issued*

Date of issuance August 14, 1991 *Date amended*



By direction of the Administrator
Charles L. Smalley
(Signature)
for Donald P. Michal, Manager
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.

This certificate may be transferred in accordance with FAR 21.47.