

AIRCRAFT WHEEL & BRAKE DIVISION  
PARKER HANNIFIN CORPORATION  
AVON, OHIO

FAA-PMA

PARTS LIST

199-50 CONVERSION KIT

BEECH AIRCRAFT  
MODELS 35, 45, 55 & 95  
7.00-8 EQUIPMENT

<u>PART NUMBER</u>	<u>DRAWING REVISION</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
30-66	Rev. G, dated 11-11-2002	Brake Assembly	2
40-98	Rev. E, dated 03-26-1993	Wheel Assembly	2
207-02700	Rev. C, dated 08-01-2013	Hose Assembly	2
067-02500	Rev. J, dated 06-25-2003	Inboard Spacer	2
067-02700	Rev. J, dated 06-25-2003	Outboard Spacer (Long Axle)	2
067-03200	Rev. J, dated 06-25-2003	Outboard Spacer (Short Axle)	8
103-22100		Bolt (AN5-10A)	8
095-10500		Washer (AN960-516)	16
094-10400		Nut (AN365-524)	8
104-02000		45° Bulkhead Fitting (AN837-4D)	2
094-90500		Nut, Bulkhead (AN924-4D)	4

Publication Package (P/N PP199-50)

IM199-50	Rev. A, dated 12-06-2002	Installation Manual
50-27	Rev. F, dated 01-19-1987	Installation Drawing
SA19GL	Amendment dated 07-24-1987	Supplemental Type Certificate
PRM03	-----	Product Reference Memo - "Master Cylinders for 199-49 and 199-50 Conversion Kits"
PRM14A	-----	Product Reference Memo - "Conditioning Procedure for Metallic Brake Lining"
-----		Pilot Operating Manual Inserts
-----		Product Registration Card

NOTES:

1. This kit will convert one aircraft to Cleveland Wheels and Brakes.
2. The 30-66 brake assembly is designed for use with MIL-H-5606 hydraulic fluid.

Rev. F	Rev. E	Rev. D	Rev. C	Rev. B	Rev. A	Rev. NC	199-50
08-26-2013 (ECO-0025568)	01-24-2008 (DCN 0378-45)	11-01-2004 (DCN 0363-52)	07-09-2003 (DCN 0356-95)	12-06-2002 (DCN 0353-99)	01-19-1976 (C/N 281-79)	10-06-1972 / 01-19-1976	

DO NOT SCALE

NOTES:

1. 199-50 KIT INSTALLED PER THIS DRAWING IS APPLICABLE TO THE FOLLOWING AIRCRAFT:  
35, A35, B35, C35, D35, E35, F35, G35, 35R, H35, J35, K35, M35, N35, P35, S35, D55, D55A, E55, E55A, 95, B95, B95A, D55A, E95, 95A5, 95A55, 95B55, 95B55A, 95B55B, 95C55, 95C55A, 45 (YT-34), A45 (T-34A, B-45), AND D45 (T-34B)

EXISTING HARDWARE TO BE RETAINED AND REUSED

PARTS SUPPLIED IN KIT 199-50.

4. REFER TO 199-50 INSTALLATION MANUAL FOR DETAILED INSTALLATION INSTRUCTIONS.

NOTE: AFTER INSTALLATION, PERFORM GEAR RETRACT TO ASSURE CLEARANCE OF INLET HOSE TO GEAR DOOR OPENING. CERTAIN MODELS MAY REQUIRE USE OF EXISTING HOSE SHORTENED AS NEEDED TO ASSURE THAT HOSE IS NOT TOO TIGHT (WITH GEAR EXTENDED & HANGING) AND THAT HOSE CLEARS GEAR DOOR OPENING (WITH GEAR RETRACTED).

OPEN HOLE PERMISSIBLE

075-0400 TORQUE PLATE (ITEM 42) REF.

FORWARD

103-22100 BOLT (ITEM 47)  
094-10400 NUT (ITEM 48)  
095-10500 WASHER (ITEM 49)  
INSTALL BOLT IN DIRECTION SHOWN  
NOTE: IF HOLES IN LANDING GEAR FLANGE ARE .250, IT IS PERMISSIBLE TO DRILL THEM OUT TO .315 / .328 DIA (TYP) 4 HOLES

104-02000 FITTING (ITEM 50)  
094-90500 NUT (ITEM 51)

067-02500 INBOARD SPACER (ITEM 53)

207-02700 HOSE ASSEMBLY (ITEM 52)

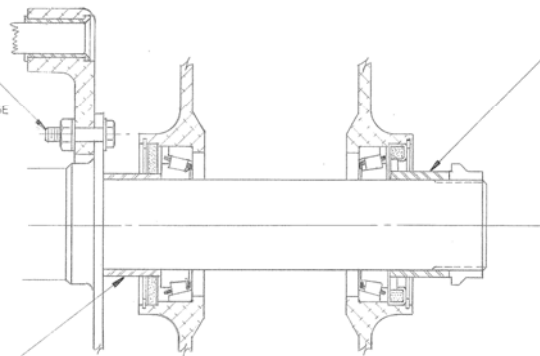
104-00200 INLET FITTING (ITEM 41) REF.

103-11700 BOLT (ITEM 35) REF.  
095-10200 WASHER (ITEM 36) REF.

074-01200 BACK PLATE (ITEM 29) REF.

069-01700 SHIM (ITEM 31) REF.

30-66 BRAKE ASSY (ITEM 15)



AXLE DETAIL A-A

067-02700 OUTBOARD SPACER (ITEM 54) LONG AXLE ONLY  
OR  
067-03200 OUTBOARD SPACER (ITEM 55)  
QUANTITY AS NEEDED FOR PROPER COTTER PIN TO NUT ALIGNMENT. NOTE: OPTION TO USE EXISTING TANGLED WASHER BEECH P/N 00951-X100-WL

TIRE 6.50-8 8PLY

40-98 WHEEL ASSY 7.00-8 TYPE III (ITEM 11)

AN 7502-4 NUT AN 360-4-8 COTTER

103-20400 BOLT (ITEM 7) REF.  
094-10400 NUT (ITEM 9) REF.  
095-10500 WASHER (ITEM 8) REF.

WEIGHT AND BALANCE DATA

NEW INSTALLED	
WHEEL	11.22 LBS
BRAKE	3.42 LBS
TOTAL/SIDE	14.64 LBS
OLD REMOVED	
TOTAL/SIDE	

WEIGH EXISTING WHEELS & BRAKES, SUBTRACT FROM NEW WEIGHTS TO DERIVE WEIGHT INCREASE CREATED BY 199-50 KIT INSTALLATION. MULTIPLY WEIGHT INCREASE BY APPLICABLE AIRCRAFT MOMENT; REVISE WEIGHT & BALANCE INFORMATION IN LOG BOOK.

50-27		F
CHANGE NO.	DESCRIPTION OF CHANGE	DATE
101-75	REVISED DRAWING	1-28-58

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QTY	ITEM	PART NO.	DESCRIPTION	MATERIAL & SPEC.	HEAT TREAT & SPEC.	FINISH & SPEC.	WGT.
			THIS DESIGN IS THE PROPERTY OF CLEVELAND WHEELS & BRAKES AND IS NOT TO BE COPIED, REPRODUCED, OR USED AS THE BASIS FOR ANY OTHER EQUIPMENT WITHOUT WRITTEN PERMISSION.				
			2700 PER MIL 1.0000 STAMP IN ON PART				
			MAXIMUM LUX PER MIL 1.0000 STAMP IN ON PART				
			UNLESS NOTED ALL THREADS PER MIL S 722				
			WORK TO DIMENSIONS - TO NOT SCALE				
			FINISHED FOR PRODUCTION USE				
			BRAKE SHARP EDGES TO UNLESS NOTED				
			NOTE: REMOVE ALL SHARP EDGES PLATING SHALL BE IN ACCORDANCE WITH MIL S 114				
			DESIGNED BY N.A.A.				
			CHECKED BY W.F.				
			SCALE 1/2				
			NAME				
			CLEVELAND WHEEL, BRAKE AND AXLE SPACER INSTALL				

050-02700

Cleveland Wheel & Brake  
1100 Avon Center Road, Avon, Ohio 44011  
a division of VanStickle Industries, Inc.  
"the brake people"

50-27

**CLEVELAND WHEELS & BRAKES  
IM199-50  
INSTALLATION MANUAL  
FOR  
CONVERSION KIT  
199-50  
FOR  
BEECH AIRCRAFT  
MODELS 35, 45, 55 & 95**

**Cleveland**  
Wheels & Brakes



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**PARKER HANNIFIN CORPORATION - AIRCRAFT WHEEL & BRAKE**  
1160 Center Road - Avon, Ohio 44011 - Customer Service 1-800-Braking

# ***STOP!***

***PLEASE TAKE A FEW MOMENTS TO COMPLETE AND RETURN THE ATTACHED REGISTRATION CARD. IT IS IMPORTANT THAT ALL INFORMATION IS LEGIBLY PRINTED. THIS DATA WILL ASSIST PARKER HANNIFIN, AIRCRAFT WHEEL & BRAKE IN THE EVENT THAT NOTIFICATION TO END USERS OF SPECIFIC AIRWORTHINESS DOCUMENTS IS NECESSARY.***

## **NOTE**

**SOME CONVERSION KITS SUPPORT NUMEROUS MODELS OF AIRCRAFT TOGETHER WITH THE VARIOUS MOUNTING AND ROUTING CONFIGURATIONS OF EQUIPMENT BEING REPLACED. THEREFORE, SOME KITS WILL NOT INCLUDE THE HARDWARE NEEDED TO COMPLETE THE INSTALLATION. THIS HARDWARE MUST BE PURCHASED SEPARATELY. THE INSTALLER SHOULD CONSULT WITH THE APPROPRIATE AIRCRAFT PARTS CATALOG TO IDENTIFY THE REQUIRED HARDWARE TO COMPLETE THE INSTALLATION.**

**MODIFICATION TO A LANDING GEAR COMPONENT IS REQUIRED PRIOR TO INSTALLATION OF CLEVELAND EQUIPMENT. SEE INSTALLATION MANUAL FOR DETAILS.**

Prior to installing kits, please verify that the wheel and brake assembly numbers as listed on the Kit Parts List (section 13.0) match the model numbers as indicated on the assembly nameplates.

For technical assistance, contact the

**TECHNICAL SERVICES HOTLINE:**

techhelp@parker.com

1-800-BRAKING (272-5464)

Fax: 440-937-5409 Tel.: 440-937-1315



TABLE OF CONTENTS

<u>SECTION</u>	<u>SUBJECT</u>	<u>PAGE NO.</u>
1.0	Introduction	1
1.1	Kit Equipment	1
2.0	TSO Notice	1
3.0	Applicability	1
3.1	Kit 199-50	1
3.2	Master Cylinder	2
3.2.1	Product Reference Memo PRM03	2
3.3	Brake Mounting Bolts	2
4.0	Safety	2
5.0	Product Registration	3
6.0	Order Information	3
7.0	Equipment Description	3
7.1	Brake Assembly	3
7.2	Wheel Assembly	3
8.0	Kit Installation	4
8.1	Master Cylinder Verification	4
8.2	Remove Existing Equipment	4
8.3	Install Cleveland Equipment	4
8.4	Gear Retract Check	6
8.5	Bleed Brakes	6
8.6	Brake Lining Conditioning	6
9.0	Weight and Balance Computations	6
9.1	Weight and Balance Data	7
10.0	Pilot Operating Manual Inserts	7
11.0	Illustrated Parts List - 40-98 Wheel Assembly	8
12.0	Illustrated Parts List - 30-66 Brake Assembly	9
13.0	Kit Parts List	10



IM199-50 INSTALLATION MANUAL FOR  
CONVERSION KIT 199-50

LIST OF REVISIONS

<u>REVISION</u> <u>APVD</u>	<u>DATE</u>	<u>PAGE</u>	<u>DESCRIPTION</u>	
NC	01/19/1987	---	Production Release Installation Instructions Cleveland Wheels & Brakes Conversion Kit 199-50	BB (281-79)
A	12/06/2002	ALL PAGES	Reformatted	BB (0353-99)



**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. For information regarding service limits, maintenance and component overhaul, consult the Cleveland Wheels and Brakes Component Maintenance Manual (AWBCMM-0001), and the Technician's Service Guide (PRM 64), both published by Parker Hannifin, Aircraft Wheel and Brake. The manual and guide should be passed on to the owner or retained by the maintenance facility for future reference.

**1.1 KIT EQUIPMENT**

Each kit contains all materials needed to replace existing equipment with Cleveland Wheels and Brakes. Kit 199-50 will completely retrofit one aircraft to Cleveland equipment. Refer to Kit Parts List.

**2.0 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.

After final certification, substitution of critical parts or changes of processes or materials are not permitted without requalification of the assemblies and resubmittal of the test data to the FAA for approval.

FAA regulations subject both Parker Hannifin, Aircraft Wheel and Brake and the user to constant surveillance to assure that uncompromising Quality Assurance materials and processing controls are maintained in order to provide replacement parts that are the same as the parts originally certified in the assembly.

**3.0 APPLICABILITY**

**3.1 KIT 199-50**

The equipment supplied under Kit No. 199-50 is applicable to the following aircraft provided aircraft are equipped with compatible master cylinders as noted in paragraph 3.2.

**TABLE I, APPLICABILITY**

MAKE	MODELS
BEECH	35, A35, B35, C35, D35, E35, F35, G35, 35R, H35, J35, K35, M35, N35, P35, S35
BEECH	45(YT-34), A45(T-34A, B-45) & D45(T-34B)
BEECH	D55, D55A, E55, E55A
BEECH	95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, 95-C55A

- (1) 199-50 kit apply to aircraft currently equipped with 8 inch wheels and brakes. Beech Bonanzas equipped with 6 inch wheels and brakes may be converted to Cleveland equipment with kit no. 199-49.



### 3.2 MASTER CYLINDER SPECIFICATION

Prior to installation of kit, check master cylinder bore and stroke. If present system has a bore of no less than 0.625 in., and a stroke of at least 1.50 in., no master cylinder change is required.

#### 3.2.1 PRODUCT REFERENCE MEMO PRM03

If present master cylinders do not meet this specification, new Beech master cylinders must be installed to assure proper brake pedal travel. For order information, refer to attached product reference memo PRM03.


### 3.3 BRAKE MOUNTING BOLTS

On Models with ¼ inch brake mounting bolts, it will be necessary to drill out the landing gear flange holes for 5/16 inch bolt usage. Since the flange is made of hardened steel, it is advisable to use a cobalt, long shanked, drill bit for this operation.

## 4.0 SAFETY

### A. 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.





## 5.0 **PRODUCT REGISTRATION**

The product registration card is located at the front of this manual. The card is our way of tracking the conversion kits and your guarantee of receiving any future airworthiness information applicable to Conversion Kit No. 199-50. Please fill out the registration card completely and return promptly. Postage is prepaid.

## 6.0 **ORDER 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/cleveland](http://www.parker.com/cleveland)  
E- mail: [techhelp@parker.com](mailto:techhelp@parker.com)  
1-800-BRAKING (272-5464)  
Fax: (440) 937-5409  
Tel.: (440) 937-1315

**NOTE:** To order the Wheel and Brake Assemblies Component Maintenance Manual, contact Aircraft Wheel and Brake.

## 7.0 **EQUIPMENT DESCRIPTION**

### 7.1 **BRAKE ASSEMBLY**

The brake is a single caliper, 2 piston external disc design, with sintered metallic lining. It is suitable for use with brake fluid conforming to MIL-H-5606.

The cylinder contains the brake fluid which operates the pistons and pressure plate. Back plates are secured to the cylinder with bolts and washers on the opposite side of the brake disc. The back plates 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 axle. The caliper (cylinder assembly) is the assembly which includes the cylinder, pistons, back and pressure plates, linings and other related components.


### 7.2 **WHEEL ASSEMBLY**


The wheel is cast magnesium and conforms to all tire and rim association standards for a 7.00-8 divided type wheel. It is a tube-type design only.

The wheel incorporates inboard and outboard halves which 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. Felt grease seals provide protection and lubricant retention for the bearing.



## 8.0 KIT INSTALLATION

**SAFETY WARNING:**  INSURE AIRCRAFT IS SECURE AND STABLE BEFORE BEGINNING ANY WORK. WORKING UNDER AN IMPROPERLY STABILIZED AIRCRAFT COULD CAUSE INJURY OR DEATH.

**SAFETY WARNING:**  COMPLETELY DEFLATE THE TIRE BEFORE REMOVING THE VALVE CORE. VALVE CORES UNDER PRESSURE CAN BE EJECTED LIKE A BULLET.

### 8.1 MASTER CYLINDER VERIFICATION

Verify or install proper Beech master cylinder per paragraph 3.2 and PRM03.

### 8.2 REMOVE EXISTING EQUIPMENT

- a. Jack aircraft in accordance with Beech Service manual until tire is clear of ground. Fully deflate tire.
- b. Remove and retain axle nut and inboard and outboard spacers.
- c. Remove existing main gear wheels.
- d. Disconnect lower hydraulic line at brake and cap.
- e. Disconnect existing brake assemblies from axle and remove.

### 8.3 INSTALL CLEVELAND EQUIPMENT

- a. On Beech models with 1/4 in. brake mounting bolts, it will be necessary to drill out the landing gear flange holes for 5/16 in. bolt usage. Since the flange is made of hardened steel, it is advisable to use a cobalt, long shanked drill bit for this operation.
- b. The brakes are shipped from the factory as a complete assembly.
- c. The wheels are shipped from the factory as a complete assembly. The bearings are packed with grease and installed in the wheel halves.

**NOTE:** Extended storage of lubricated bearings may require relubrication. Use bearing grease conforming to MIL-G-81322.



IM199-50 INSTALLATION MANUAL FOR  
CONVERSION KIT 199-50

- d. Remove the following items from both the inboard and outboard side of wheel assembly: snap rings, grease seals (rings and felts) and bearing cones. Place items on a clean surface to avoid contamination.
- e. Lightly coat/dampen grease seal felts with SAE 10 engine oil.
- f. Re-assemble bearing cones, grease seals (rings and felts) and snap rings.

**CAUTION:** Do not use impact or power wrenches to remove wheel nuts and bolts.

- g. Remove all three nuts, washer and bolts to separate wheel halves.
- h. Position disc and inner wheel half sub-assembly on a flat surface with the register side up.
- i. Place serviceable tire and tube over inner wheel, half sub-assembly and then place outer wheel half sub-assembly in tire, making sure to properly align inner and outer registers.
- j. Slide bolts through the wheel assembly. Install washers and nuts onto bolts. Torque to 150 in-lbs (dry).
- k. Inflate tire to airframe manufacturers recommended pressure in a safety cage.

**SAFETY WARNING:**  PLACE THE WHEEL/TIRE IN AN INFLATION CAGE FOR INITIAL INFLATION, TO PREVENT INJURY TO PERSONNEL FROM POSSIBLE EXPLOSION.

- l. Mount torque plate assembly to axle flange using new bolts (103-22100), washers (095-10500), and nuts (094-10400) supplied in 199-50 Conversion Kit. Torque to 150 in-lbs (dry).

**NOTE:** Install bolts with the bolt head inboard or towards the wheel.

- m. Mount wheel/tire assembly on axle using new spacers as shown in Installation Drawing 50-27, Detail A-A.
- n. Apply a thin coat of bearing grease to axle nut and threads.
- o. Install axle nut and torque following airframe manufacturers recommended procedure.
- p. Loosen four bolts on 30-66 brake assembly and remove two back plate assemblies.
- q. Slide brake cylinder assembly into torque plate assembly.
- r. Install backplate assemblies between brake disc and inner wheel flange. Align back plate assemblies with bolts and torque bolts to 80-90 in-lbs (dry).
- s. Remove existing hydraulic inlet hose and upper fitting from gear.



- t. Replace with 45° bulkhead fitting (104-02000), nut (094-90500), and inlet hose (207-02700). Orientate bulkhead fitting to point directly aft.
- u. Attach inlet hose (207-02700) so that 45° fitting end attaches to the brake assembly fitting (104-00200).

#### **8.4 GEAR RETRACT CHECK**

Perform a progressive gear retraction to assure clearance of inlet hose to gear door opening.

Certain Beech models may require the use of existing hose shortened as needed to assure that:

- a. Hose is not too tight (e.g. gear fully extended and hanging).
- b. Hose clears gear door opening (e.g. gear fully retracted).

#### **8.5 BLEED BRAKES**

Check brake system reservoir fluid level and bleed brakes per Beech Maintenance Manual.

#### **8.6 BRAKE LINING CONDITIONING**

When new linings are installed, it is important to condition them properly to obtain the service life designed into them. Condition linings per attached product reference memo PRM14A.

#### **9.0 WEIGHT AND BALANCE COMPUTATIONS**

Weigh existing wheels and brakes. Subtract from new weights to derive weight increase created by the kit installation. Multiply weight increase by applicable aircraft moment and revise weight and balance information in log book.



**9.1 WEIGHT AND BALANCE DATA**

New installed (per gear leg)

Wheel assy..... 11.22 lbs.  
Brake assy ..... 3.42 lbs.  
Total..... 14.64 lbs.

Complete form 337 and make appropriate log book entries.

**10. PILOT OPERATING INSERTS**

Inserts are located in front with conversion kit documentation.

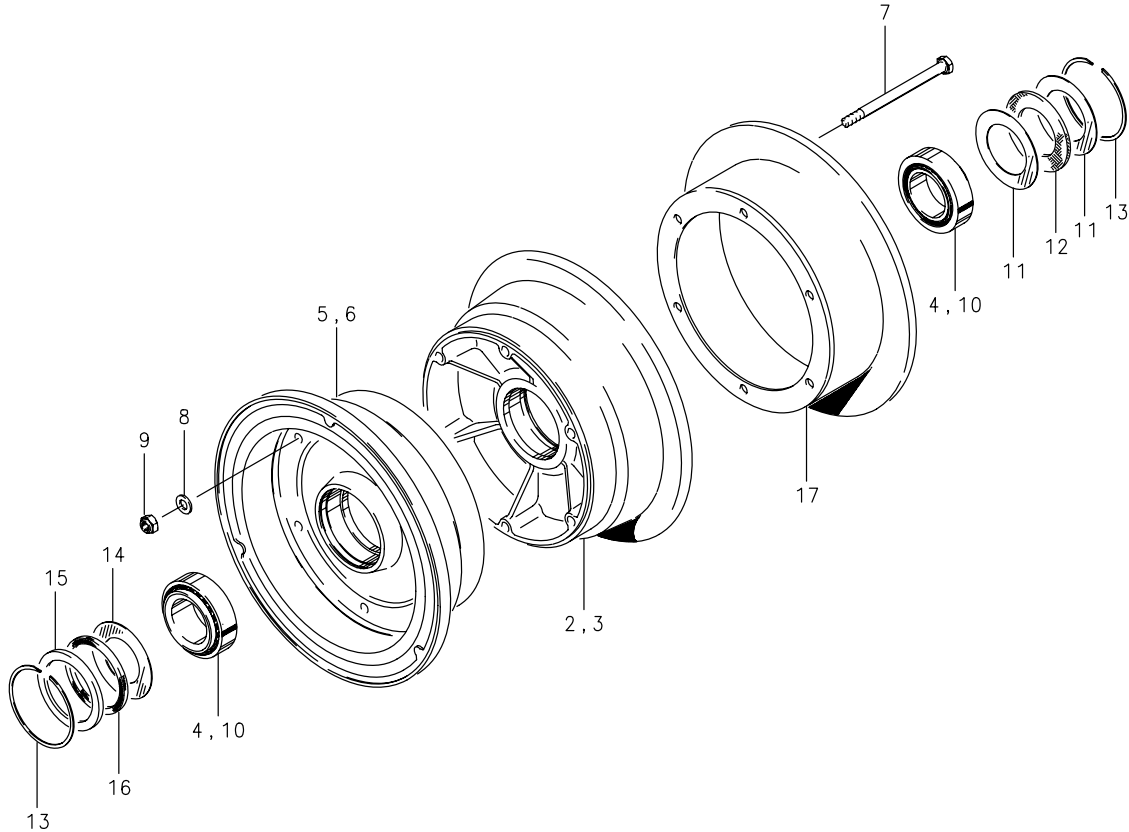
Attach label in pilot operating manual as close as possible to the original section labeled Main Wheel Assembly. Enter the correct arm and moment in blocks provided. Zero items out for the original main wheel and brake assemblies that have been removed.

Inserts are reprinted below for reference:

x	Two dual piston, single disc Brake Assemblies, Cleveland P/N 30-66	3.42 ea.
x	Two 7.00-8 Type III Wheel Assemblies, Cleveland P/N 40-98	11.2 ea.

Cleveland Brake Assembly P/N 30-66 is a single caliper, single fixed disc design, using two pistons per caliper which respond to fluid pressure from the master cylinders for brake application.

**11.0 WHEEL ASSEMBLY IPL**

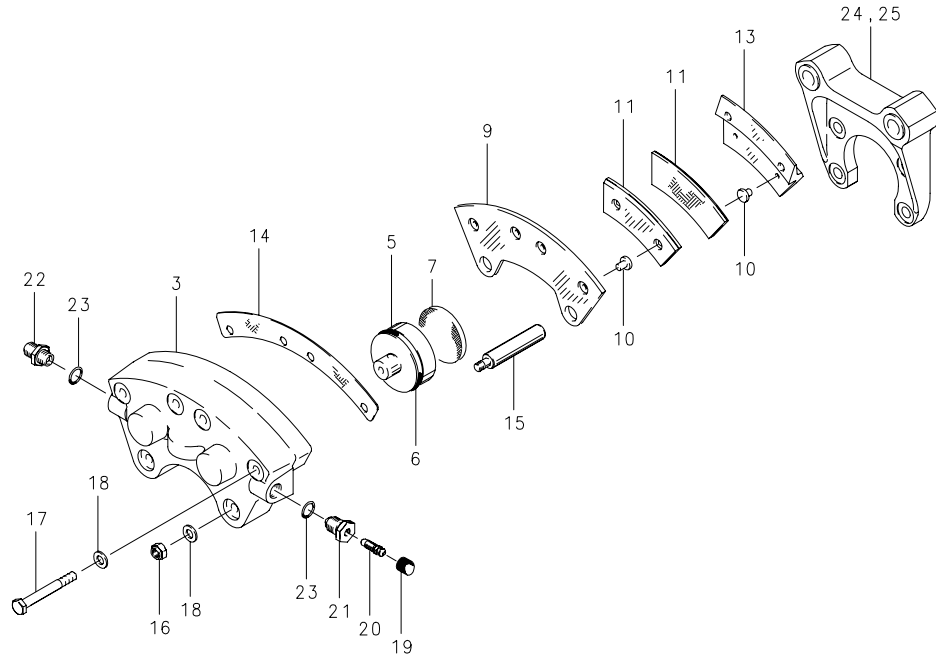


ITEM	PART NUMBER	DESCRIPTION	QTY
1	40-98	Wheel Assembly	
2	161-02300	Inner Wheel Half Assembly	1
3	151-01900	Inner Wheel Half	1
4	214-00100	Cup-Bearing	1
5	162-02100	Outer Wheel Half Assembly	1
6	152-01700	Outer Wheel Half	1
4	214-00100	Cup-Bearing	1
7	103-20400	Bolt AN5-35A	6
8	095-10500	Washer AN960-516	6
9	094-10400	Nut MS21044-N5	6
10	214-00200	Cone-Bearing	2
11	153-00900	Ring-Grease Seal	2
12	154-01400	Felt-Grease Seal	1
13	155-00100	Snap Ring	2
14	153-00300	Ring-Grease Seal	1
15	153-01500	Ring-Grease Seal	1
16	154-01300	Felt-Grease Seal	1
17	164-02706	Brake Disc	1
18	166-19700	Nameplate (1)	1
19	166-20000	Nameplate (1)	1

NOTES:  
(1) NOT ILLUSTRATED

**FIGURE 1  
ILLUSTRATED PARTS LIST (IPL) FOR 40-98 WHEEL ASSEMBLY**

**12.0 BRAKE ASSEMBLY IPL**



ITEM	PART NUMBER	DESCRIPTION	QTY
1	30-66	Brake Assembly	1
2	091-02700	Cylinder Assembly	1
3	061-02200	Cylinder	1
4	092-01800	Piston Assembly	2
5	062-01700	Piston	2
6	101-02700	O-Ring MS28775-222	2
7	088-00100	Insulator	2
8	073-01300	Pressure Plate Assembly	1
9	063-01400	Pressure Plate	1
10	177-00300	Pin	4
11	066-04400	Lining	2
12	074-01200	Back Plate Assembly	2
13	064-01700	Back Plate	2
10	177-00300	Pin	4
11	066-04400	Lining	2
14	068-01700	Shim	1
15	069-00400	Anchor Bolt	2
16	094-10300	Nut MS21044-N4	2
17	103-11700	Bolt	4
18	095-10200	Washer AN960-416L	6
19	183-00100	Cap-Bleeder	1
20	079-00300	Screw Bleeder	1
21	081-00200	Seat-Bleeder	1
22	104-00200	Tube Fitting AN815-4D	1
23	101-00700	O-Ring MS28775-012	2
24	075-04000	Torque Plate Assembly	1
25	065-03000	Torque Plate	1
26	166-20100	Nameplate (1)	1

NOTES:  
(1) NOT ILLUSTRATED

**FIGURE 2  
ILLUSTRATED PARTS LIST (IPL) FOR 30-66 BRAKE ASSEMBLY**



IM199-50 INSTALLATION MANUAL FOR  
CONVERSION KIT 199-50

**13.0 KIT PARTS LIST**

**199-50 KIT (4)**

<u>SEE NOTE</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
(1)	30-66	Brake Assembly	2
(2)	40-98	Wheel Assembly	2
(3)	207-02700	Inlet Hose	2
(3)	067-02500	Inboard Spacer	2
(3)	067-02700	Outboard Spacer (Long Axle)	2
(3)	067-03200	Outboard Spacer (Short Axle)	8
(3)	103-22100	Bolt (AN5-10A)	8
(3)	095-10500	Washer(AN960-516)	16
(3)	094-10400	Nut (AN365-524)	8
(3)	104-02000	45° Bulkhead Fitting(AN837-4D)	2
(3)	094-90500	Nut, Bulkhead(AN924-4D)	4
	IM199-50	Installation Manual for Conversion Kit 199-50	1
	50-27	Installation Drawing	1
	SA19GL	STC	1
	PRM03	Product Reference Memo – “Master Cylinders for 199-49 and 199-50 Conversion Kits”	1
	PRM14A	Product Reference Memo – “Conditioning Procedure for Metallic Brake Linings”	1
	-----	Pilot Operating Manual Inserts	1
	-----	Product Registration Card	1

- (1) For Subassembly and Parts identification: See Fig 2; 30-66 IPL
- (2) For Subassembly and Parts identification: See Fig 1; 40-98 IPL
- (3) For Part identification: See 50-27 Installation Drawing



# 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

## 199-49 and 199-50 CONVERSION KITS

Cleveland installation drawings 50-27 and 50-28 for kits 199-50 and 199-49, respectively, list three Beech master cylinders that are compatible with the particular wheel and brake assemblies (40-98/30-66) or (40-83/30-54) provided in these kits. Design data is listed below:

<u>Beech Part No.</u>	<u>Bore Diameter</u>	<u>Stroke</u>	<u>Installed Length</u>
96-3800034-1	.750 inch	1.50 inch	8.62 inches
96-3800034-3	.625 inch	1.50 inch	8.75 inches
96-3800034-7	.750 inch	1.50 inch	7.37 inches

These master cylinders may also carry a part number with "VV" prefix, which can be interpreted as follows:

VV-15-62 = Master Cylinder Stroke 1.5 inch Bore .625 inch

VV-15-75 = Master Cylinder Stroke 1.5 inch Bore .750 inch

Before ordering replacement master cylinders, check installed length of present system and replace with the same length.

If present system has master cylinders with at least 1.5 inch useable stroke, and a minimum bore of .625 inches, no change is necessary.

# 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.



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](mailto:Clevelandwbhelp@parker.com)  
Web-site: [www.clevelandwheelandbrake.com](http://www.clevelandwheelandbrake.com)  
Manufacturer of Cleveland Wheels & Brakes

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

*Number* SA19GL

*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 and of Part 3 of the Civil Air Regulations as amended May 15, 1956, and Part 03 of the Civil Air Regulations effective December 15, 1946, as amended by 1 thru 4.*

*Original Product — Type Certificate Number* A777, 3A15, 3A16, 5A3

*Make* Beechcraft

*Model*

35, A35, B35, C35, D35, E35, F35, G35 & 35R, H35, J35, K35, M35, N35, P35, S35, D55, D55A, E55, E55A, 95, B95, B95A, D95A, E95, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, & 95-C55A, 45 (YT-34), A45(T-34A, B-45) & D45(T-34B)

*Description of Type Design Change*

Install Cleveland 7.00-8 Wheels and Brakes in accordance with Cleveland Installation Conversion Kit #199-50, Rev. A, dated January 19, 1987 and 50-27, Rev. F, dated January 19, 1987 or subsequent FAA Approved revisions.

*Limitations and Conditions:* This approval should not be extended to other aircraft 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 determination should include consideration of significant changes in weight distribution such as an increase in the fixed disposable weight in the fuselage.

*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* October 4, 1972

*Date reissued* July 23, 1974; October 28, 1980

*Date of issuance* May 9, 1973

*Date amended* June 11, 1973; March 22, 1974;  
September 23, 1974; July 24, 1987



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

W. F. Horn  
Manager, Chicago Aircraft Certification Office  
ACE-115C, 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.*