AIRCRAFT WHEEL & BRAKE DIVISION
PARKER HANNIFIN CORPORATION
AVON, OHIO

LIST OF PARTS

WHEEL & BRAKE SHIP SET

ORDER CODE: 199-10200

FOR GENERAL USAGE

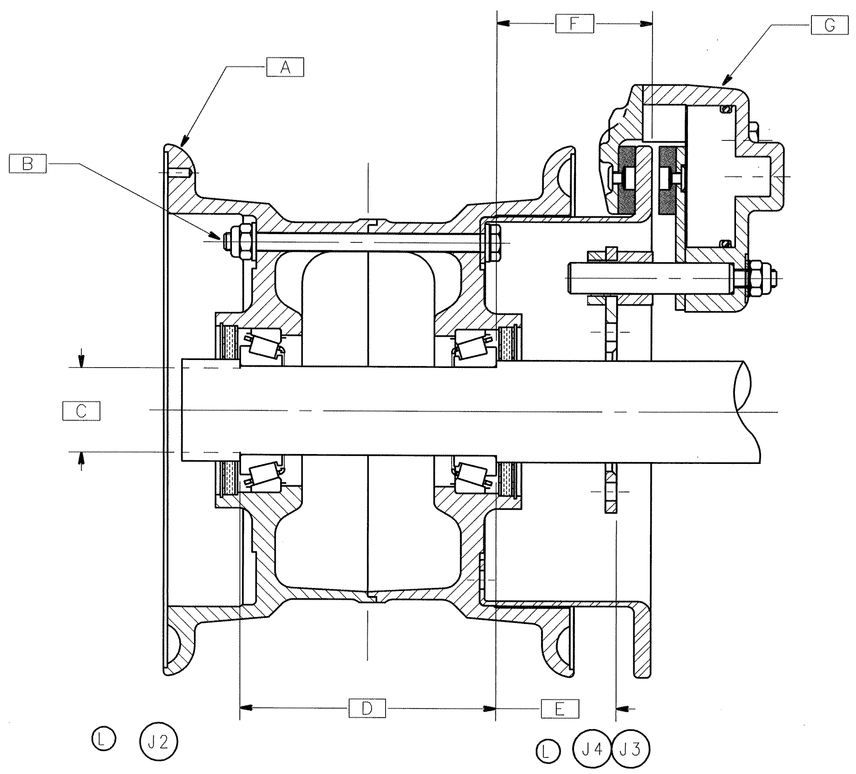
PART NUMBER	DESCRIPTION	QUANTITY
30-9	Main Brake Assembly (FAA Approved per TSO C26a)	2
40-78B	Main Wheel Assembly (FAA Approved per TSO C26a)	2
102-00600	Screw, Dust Shield (FAA TSO Detail Component for 40-78B)	6
157-00800	Dust Shield (FAA TSO Detail Component for 40-78B)	2
	Publication Package (P/N PP199-10200) Consists of the following	
199-10200 P/L	Parts List for Order Code: 199-10200 (This document)	1
50-76	Installation Drawing	1
PRM13A	Non Asbestos Lining Conditioning Procedure	1

NOTES:

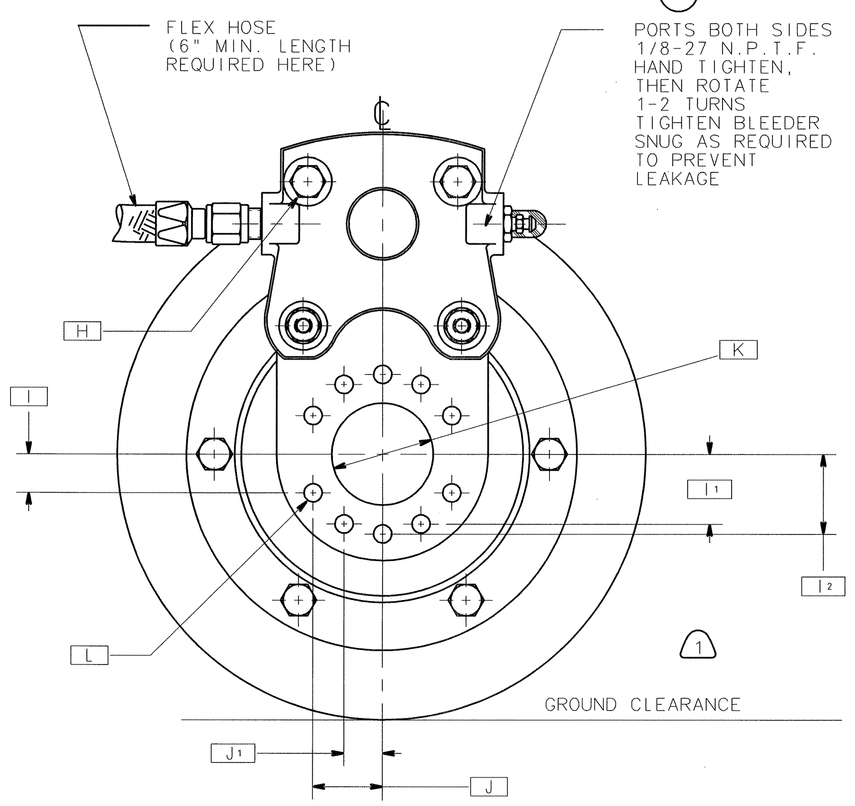
1. The Cleveland Wheels & Brakes as listed are FAA TSO-C26 approved, quantity are furnished in pairs for replacement of existing equipment on FAA Type Certificated Aircraft (Original Equipment TC Approved or per TC holder Service Bulletin) or initial installation on an experimental non FAA Type Certificated Aircraft.
2. **Note! For a product to be TSO qualified, it has to have successfully demonstrated its ability to meet minimum performance standards in accordance with FAA recognized rating methods. The TSO approval of a product does not constitute installation approval or applicability on an FAA Type Certificated Aircraft.** It is the responsibility of those installing these products to determine that the aircraft installation and its wheel and brake performance requirements are compatible for the TSO ratings of the wheel and brake. TSO approved products must have separate approval for installation in a FAA type certificated aircraft. TSO Approved Products may be installed only if performed under Title 14 CFR Part 43 or the applicable airworthiness requirements.
3. Be advised that number “199-10200” is an Order Code Number only, to identify the grouping of a pre-packaged ship set of TSO Approved wheels and brakes for customer ordering and shipping convenience. At time of installation of parts contained within, the installer is to refer only to the Part Number of each listed wheel and brake assembly to indicate what parts have been installed on the aircraft. Do not refer to the 199-10200 order code number for installation purposes, as it is not an FAA recognized part number.
4. Bearings are packed with MIL-G-81322 bearing grease. Prior to installing on aircraft, lightly coat the I.D. and exposed face of grease seal felts with MIL-G-81322 bearing grease in the inboard and outboard wheel hubs.

Order Code Number: 199-10200 P/L
NC 06-08-1981 (267-78)
Rev. A 02-08-1985 (275-68)
Rev. B 12-23-1987 (287-22)
Rev. C 06-12-2001 (0342-62)
Rev. D 08-01-2006 (0370-75)

REVISIONS						
CHANGE NOTICE	REV	DESCRIPTION OF CHANGE	CHG BY	CHK BY	DATE	APPROVED
0342-62	J	REVISED AND REDRAWN, SEE C/N	NH	GL	06-12-2001	B. BARKER
0366-81	K	PRODUCTION CHANGE, SEE C/N	RPR	VR	09/09/2005	O. MILLER
0370-75	L	PRODUCTION CHANGE, SEE C/N	GL	GR	08-01-2006	B.BARKER



(L) (J2)



(L) (J4) (J3)

USER INFORMATION

THE INFORMATION LISTED ON THIS DRAWING IS FOR REFERENCE PURPOSES ONLY. DIMENSIONAL LIMITS WHERE SHOWN MUST BE MAINTAINED TO OBTAIN PROPER OPERATIONAL CHARACTERISTICS. EQUIPMENT SELECTION AND AIRCRAFT COMPATIBILITY IS THE RESPONSIBILITY OF THE INSTALLER.

ALL WHEELS AND BRAKES SHOWN ARE TSO APPROVED. THEY HAVE BEEN PACKAGED TO OFFER VARIOUS CONFIGURATIONS ACCORDING TO BRAKE KINETIC ENERGY (KE) AND WHEEL STATIC LOAD CAPACITIES. SELECT EQUIPMENT PER THE AIRCRAFT MANUFACTURER'S RECOMMENDATIONS OR CALCULATE THE KINETIC ENERGY LEVEL THAT EACH WHEEL & BRAKE ASSEMBLY WILL BE REQUIRED TO ABSORB. USE THIS CALCULATED (KE) VALUE TO SELECT EQUIPMENT OF PROPER CAPACITY. KINETIC ENERGY REQUIREMENTS FOR THE AIRCRAFT MAY BE CALCULATED AS FOLLOWS (REFERENCE FAR PART 23.735):

$$KE = .0443 \times \frac{W \times V \times V}{N}$$

WHERE: KE = KINETIC ENERGY PER WHEEL-BRAKE ASSEMBLY (FT-LBS)
W = DESIGN LANDING WEIGHT (LBS)
V = AIRCRAFT SPEED IN KNOTS. V MUST BE NOT LESS THAN VSO, THE POWEROFF STALLING SPEED OF THE AIRCRAFT AT SEA LEVEL, AT THE DESIGN LANDING CONFIGURATION.
N = NUMBER OF WHEELS WITH BRAKES.

ANY UNAUTHORIZED MODIFICATIONS OF EQUIPMENT WITHOUT THE EXPRESS WRITTEN CONSENT OF PARKER HANNIFIN CORP., AIRCRAFT WHEEL & BRAKE WILL VOID ALL WARRANTIES AND TSO APPROVALS.

(J7) FOR ADDITIONAL INFORMATION CONTACT CUSTOMER SUPPORT,
440-937-1272 OR FAX 440-937-5409.
WEBSITE: WWW.PARKER.COM/CLEVELAND
TECHNICAL SERVICES HOTLINE: 1-800-BRAKING (272-5464).

(L) SHIP SET NUMBER	DESCRIPTION MAGNESIUM = MAG. ALUMINUM = ALUM.	WHEEL ASSEMBLY A	TIRE SIZE & PLY. RATING	TORQUE WHEEL NUTS (3) B	TIRE INFLATION PRESSURE (5)	STATIC LOAD CAPACITY (6)	KINETIC ENERGY CAPACITY (6)	BEARING DIA. C	BEARING SPACING D	AXLE SPACING E	MAX ROTATING PARTS F	BRAKE ASSEMBLY (7) G	DRY TORQUE TIE BOLTS H	BOLT HOLE LOCATION I	I1	BOLT HOLE LOCATION J	J1	TORQUE PLATE CENTER HOLE DIA. K	BOLT HOLE DIA. L	TOTAL KIT WGT. LESS TUBE & TIRE
199-10200 OR	5.00-5 MAG. WHEEL ALUM. BRAKE	40-78B	5.00-5 6 PLY.	90 IN-LBS.	31 PSI	1260 LBS.	117,500 FT-LB	1.2505 1.2500	3.034 2.992	.947	1.495	30-9 (8)	90 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	10.80 LBS.
(L) 199-10203		40-78B CHROME																		
199-10300 OR	5.00-5 ALUM. WHEEL ALUM. BRAKE	40-78J	5.00-5 6 PLY.	90 IN-LBS.	31 PSI	1260 LBS.	117,500 FT-LB	1.2505 1.2500	3.034 2.992	.947	1.495	30-9C (8)	90 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	12.40 LBS.
(10) (J5) (L) 199-10303		40-78A CHROME																		
199-10400 OR	6.00-6 MAG. WHEEL MAG. BRAKE	40-59A	6.00-6 6 PLY.	150 IN-LBS.	42 PSI	1750 LBS.	185,000 FT-LB	1.5005 1.5000	3.292 3.250	1.659	2.207	30-59A	90 IN-LBS.	.562	—	.974	—	1.675/1.685	.375-.382 4 PLACES	16.36 LBS.
(L) 199-10403		40-59A CHROME																		
199-10500 OR	6.00-6 ALUM. WHEEL ALUM. BRAKE	40-113X	6.00-6 6 PLY.	90 IN-LBS.	37 PSI	1500 LBS.	200,000 FT-LB	1.5005 1.5000	3.292 3.250	1.658	2.216	30-75X	90 IN-LBS.	.562	—	.974	—	1.675/1.685	.375-.382 4 PLACES	19.20 LBS.
(L) 199-10503		40-113X CHROME																		
(K) 199-15200	5.00-5 MAG. WHEEL MAG. BRAKE	40-151	5.00-5 6 PLY.	90 IN-LBS.	50 PSI	1260 LBS.	192,000 FT-LB	1.2505 1.2500	3.034 2.992	1.105	1.653	30-133 (8)	75-80 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	14.00 LBS.
199-15201	5.00-5 ALUM. WHEEL MAG. BRAKE	40-151A	5.00-5 6 PLY.	90 IN-LBS.	50 PSI	1260 LBS.	192,000 FT-LB	1.2505 1.2500	3.034 2.992	1.105	1.653	30-133 (8)	75-80 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	15.80 LBS.
199-15600	5.00-5 MAG. WHEEL ALUM. BRAKE	40-230	5.00-5 6 PLY.	90 IN-LBS.	50 PSI	1260 LBS.	155,000 FT-LB	1.2505 1.2500	3.034 2.992	1.060	1.608	30-181A (8)	75-80 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	12.50 LBS
199-19700	5.00-5 MAG. WHEEL MAG. BRAKE	40-151	5.00-5 6 PLY.	90 IN-LBS.	50 PSI	1260 LBS.	289,000 FT-LB	1.2505 1.2500	3.034 2.992	1.105	1.653	30-164 (8)	75-80 IN-LBS.	.470	.847	.847	.470	1.377/1.379	.255-.262 8 PLACES	14.10 LBS.
(4) (2) 199-20400	6.00-6 MAG. WHEEL MAG. BRAKE	40-281	7.00-6 6 PLY.	90 IN-LBS.	38 PSI	1200 LBS.	141,115 FT-LB	1.2505 1.2500	3.625 3.583	1.645	2.193	30-214	75-80 IN-LBS.	.562	I2 1.125	.974	℄	1.675/1.685	.255-.262 6 PLACES	16.18 LBS.
(L) (4) (9) (2) 199-22300	6.00-6 MAG. WHEEL MAG. BRAKE	40-281	7.00-6 6 PLY.	90 IN-LBS.	38 PSI	1200 LBS.	141,115 FT-LB	1.2505 1.2500	3.625 3.583	1.645	2.193	30-214B (8)	75-80 IN-LBS.	.470	.847	.847	.470	1.3790/1.3818	.255-.262 8 PLACES	17.63 LBS.

NOTES:

1. ROTATIONALLY ORIENTATE BRAKE CYLINDER TO PROVIDE GROUND CLEARANCE AND FLAT OR DEFLECTED TIRE SIDEWALL CLEARANCE.
2. WHEEL & BRAKE COMPATIBLE FOR USE WITH FOLLOWING TUBE TYPE TIRES:
   6.00-6 (4 OR 6 PLY.)
   8.00-6 (6 OR 8 PLY.)
3. TORQUE VALUES SHOWN ARE "FINAL DRY NUT TORQUES".
4. (L) DUST SHIELDS PROVIDED FOR ALL SHIP SETS EXCEPT 199-20400 AND 199-22300.
5. MAXIMUM TIRE INFLATION PRESSURE:
   OVER INFLATION MAY RESULT IN EXPLOSIVE FAILURE OR REDUCED WHEEL SERVICE LIFE. INFLATION PRESSURE MAY BE ADJUSTED DOWN TO OBTAIN DESIRED FLOTATION FOR SPECIFIC AIRCRAFT WEIGHT AND OPERATING ENVIRONMENT.
6. CAPACITIES SHOWN ARE FOR EACH WHEEL & BRAKE ASSEMBLY. AT A NORMAL DECELERATION RATE OF 10 FT/SEC-SEC.
7. SEAL IS COMPATIBLE WITH MIL-H-5606 OR MIL-H-83282 HYDRAULIC FLUID.
8. TORQUE PLATE MOUNTING HOLE LOCATIONS PROVIDE FOR SIMILAR ROTATIONAL ORIENTATION BETWEEN THE LEFT & RIGHT BRAKE ASSEMBLIES. TORQUE PLATE TO BE ATTACHED TO STRUCTURE USING A MINIMUM OF (4) .250 DIAMETER BOLTS.
9. (L) TORQUE PLATE HOLE MOUNTING CONFIGURATION MATCHES THE SAME HOLE PATTERN AS THE TORQUE PLATE USED IN THE 199-10200 AND 199-10300 KITS. THE 199-22300 KIT MAY BE USED TO UPGRADE AN AIRCRAFT EQUIPPED WITH 199-10200 AND 199-10300 KIT PROVIDED THE EQUIPMENT IS COMPATIBLE WITH THE AIRCRAFT AND THE AXLE IS CHANGED TO ACCOMODATE THE 6.00-6 WHEEL PER THE DIMENSIONAL REQUIREMENTS SHOWN.
10. (J5) HIGH CORROSION CONVERSION KIT: WHEEL ASSEMBLY CONTAINS CHROME CUPS & CONES AND CORROSION RESISTANT BRAKE DISC.

QTY	FINAL ASSY	QTY	NEXT ASSY

APPLICATION (NOT MAINTAINED)

DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994 UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS APPLY AFTER HEAT TREATING, PLATING, AND BEFORE PAINTING.

DO NOT SCALE DRAWING
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A CONTRACT ALTERED ITEM EXISTS FOR THIS PART NUMBER

GENERAL NOTES: UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
2 PLACE (.XX): ±.03
3 PLACE (.XXX): ±.010
ANGULAR DIMS. ±0.5°
REMOVE ALL BURRS
BREAK CORNERS .010 MAX.
INTERNAL RADII .005-.010
THIRD ANGLE PROJECTION
GENERAL MACHINED SURFACES 125 PER ANSI B46.1
RAW MATERIAL:

QTY	ITEM NO	CAGE CODE	PART NO.	DESCRIPTION	MATERIAL/SPECIFICATION	WGT.(LB)

PARTS LIST

STRESS	DATE
MFG ENGRG	
QUAL ASSUR	

PROGRAM/CONTRACT NO. 790E-74B
DRAWN R. SCHERRY DATE 5-28-81
CHECKED
ENGINEER
DESIGN APPROVAL
PROJ APPROVAL
RELEASE DATE:

CLEVELAND WHEELS & BRAKES
Aircraft Wheel And Brake Division
Parker Hannifin Corporation
Avon, Ohio 44011
Parker Aerospace

DWG. TITLE
KIT INFORMATION

SIZE E | CAGE CODE 33269 | DWG. NO. 50-76 | REV. L
SCALE: 1/1 | UNIT WGT.: | SHEET: 1 OF 1

050-07600

PD-E-GENL-PC-00

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.