AIRPLANE MAINTENANCE MANUAL SUPPLEMENT
WITH
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

FOR

PIAGGIO AERO INDUSTRIES S.p.A.
AIRCRAFT MODEL
PIAGGIO P.180

THOSE AIRCRAFT MODIFIED IN
ACCORDANCE WITH
STC SA04348CH

This supplement, which includes the Component Maintenance Manuals for Cleveland Wheels & Brakes Main Wheel Model 40-480 and Main Brake Model 30-289, must be attached to the Airplane Maintenance Manuals when the aircraft is modified per the above listed STC. In addition, an aircraft logbook entry referring to this document must be made to ensure that maintenance personnel have available a record of this inspection requirement. The information in this document supplements or supersedes the basic airplane maintenance manual only where covered in the items contained herein. For limitations and procedures not contained in this supplement, consult the basic Airplane Maintenance Manuals.
It is intended that these instructions be employed as Federal Aviation Administration (FAA) approved data for installation of STC SA04348CH on aircraft Serial No. _____ in accordance with 14 CFR Part 43. These instructions for continued airworthiness apply only to this aircraft and may not be extended to other aircraft without written permission from Aircraft Wheel and Brake, LLC ("AWB"). An STC permission statement is required from AWB in order to install the STC approved design on to an aircraft; this statement is provided separately from these instructions.

Aircraft: Registration Number _____

Serial Number _____

Publication No. AMMS199-283, Revision C

Manufacturer:

AIRCRAFT WHEEL & BRAKE BY KAMAN

Aircraft Wheel and Brake, LLC
1160 Center Road
Avon, Ohio 44011

Cleveland Wheels & Brakes

LOG OF REVISIONS

Rev	Date YYYY-MM-DD	Description of Change	Affected Pages	Prepared by	Approved by
N/C	2018-06-11	Original Issue		E. Marks	
A	2018-11-09	Revision A is a Minor STC Data Change as described below: Added Export Warning stamp to document footer. Updated spacing between sections as required based on size of updated document headers and footers and refreshed Table of Contents. Added Proprietary Stamp to indicated pages. Added STC number (2 places). Added word “brake” to end of first sentence of Section 2.1 to improve sentence clarity. Added Note 1 to bottom of Parker Hannifin Publications table (pg. 5) and Industry table (pg. 6) and remove information identifying document revision and date, to be consistent with Piaggio Aircraft Publications table on Page 5. Added reference to brake CMM in Section 5.2 to help clarify definition of heavy braking event. Added reference to installation manual in Sections 6.1 and 6.2 to clarify installation documentation. Correct typo in Sections 7.1 and 7.2. IS: “maintain,” WAS: “main.” Add document number for Parker conditioning procedure to Section 7.3.	All 2, 4, 6, 8 1 4 5-6 7 7 8 8	E. Marks	D. Basch
B	2019-06-24	Correct typo in installation drawing number. IS: 50-166, WAS: 50-165.	5	E. Marks	D. Basch
C	2023-08-21	Reformatted to Aircraft Wheel and Brake, LLC format. Removed Parker References. Updated AWB contact and tech service information. Revised inspection frequency in Section 5.1. IS: “… inspected at all annual inspection, and at 200 Hour inspections per existing aircraft maintenance manual.” WAS: “…inspected at all Annual and 100 Hour (if required) inspections.”	All 6 6	A. Satayathum	E. Marks

TABLE OF CONTENTS

1.0 INTRODUCTION

The Aircraft Wheel and Brake ("AWB") Main Wheel & Brake Conversion Kit, P/N 199-283, includes wheel assemblies, as well as brake assemblies, for replacement of the wheel and brake at each main wheel on the Piaggio P.180. The instructions for continued airworthiness contained within this document address the modification of the Piaggio P.180 aircraft through installation of the AWB wheels and brakes.

2.0 DESCRIPTION

2.1 GENERAL

The brake assembly is a single fixed cylinder, six piston, hydraulically actuated brake. The brake is designed to operate with MIL-PRF-5606 hydraulic fluid.

The main wheel assembly is the primary interface between the main landing-gear strut and the tire during ground operation. The divided type design facilitates tire installation and removal. The wheel provides partial support of the weight of the aircraft and a means of steering control.

Braking action begins to occur when hydraulic pressure is applied to the brake, via the pilot's or co-pilot's braking input. As the hydraulic pressure reaches the brake it forces the pistons outward against the pressure plate assembly which compresses the brake stack against the torque tube assembly. This generated frictional force is transferred to the wheel/tire through the three rotor discs which have drive slots that engage the main wheel.

2.2 APPLICABILITY

The instructions for continued airworthiness specified in this document apply only to the Piaggio P.180 aircraft.

2.3 MAJOR COMPONENTS

The conversion kit, P/N 199-283 includes the following major components:

Description	Part Number
Wheel Assembly	40-480
Brake Assembly	30-289

Also required for installation of the wheels and brakes, but not included in the conversion kit, are the following:

Description	Part Number
Tire, 6.50-10 12 PR Tubeless Tire	028-357-0 (Michelin)

2.4 RECORD RETENTION

The instructions for continued airworthiness will be included in the aircraft's permanent records.

2.5 REFERENCE DOCUMENTATION

The following publications, or later approved revisions, may be referenced during continued maintenance of the AWB wheels and brakes:

AWB Publications

Document Number (Note 1)	Document Title
50-166	Installation, Wheel & Brake
199-283	Parts List, 199-283 Conversion Kit, Piaggio Aircraft – Model P.180
CM30-289	Component Maintenance Manual, Main Brake Assembly, AWB Part No. 30-289
CM40-480	Component Maintenance Manual, Main Wheel Assembly, AWB Part No. 40-480
IM199-283	Kit Installation Publication, Main Wheel & Brake Conversion Kit, AWB Part No. 199-283

Notes:
1. Latest approved revision

Piaggio Aircraft Publications

Document Number (Note 1)	Document Title
6591	Piaggio P.180 Pilot Operating Handbook and Aircraft Maintenance Manual (S/N 1004 through 1025 incorporating SB 80-0023 or 1026 through 1104)
180-MAN-0010-01100	Piaggio P.180 Airplane Flight Manual (S/N 1002 and 1105 to subsequent)
180-MAN-0200-01105	P.180 AVANTI II Maintenance Manual

Notes:
1. Latest approved revision

Industry Publications

Document Number (Note 1)	Document Title
AC 43.13-1	Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair

Notes:
1. Latest approved revision

2.6 ORDERING INFORMATION

Aircraft Wheel and Brake, LLC
1160 Center Road
Avon, Ohio 44011 U.S.A.
Attn: Technical Services/Hotline

E-mail: clevelandwbhelp@kaman.com
Fax: (440) 937-5409
Tel: 1-800-BRAKING (1-800-272-5464)
Websites: www.kaman.com
www.kaman.com/cleveland
www.clevelandwheelsandbrakes.com

3.0 OPERATION

There is no change in operation between the original wheels and brakes and the AWB wheels and brakes.

4.0 AIRWORTHINESS LIMITATIONS

NOTE: The airworthiness limitations section is FAA approved and describes maintenance required under 14 CFR Part §43.16 and §91.403 of the Federal Aviation Regulations, unless an alternate FAA approved program has been identified.

There are no airworthiness limitations associated with the wheels and brakes or their installation on the Piaggio P.180 aircraft.

5.0 INSPECTIONS

5.1 SCHEDULED

The wheel and brake assemblies must be inspected at all Annual and 200 Hour inspections per existing aircraft maintenance manual.

While remaining installed on the aircraft, the brake assembly shall be inspected as follows:

- Visually inspect all components for corrosion, cracks, or other visible damage.
- Check brake lines and brake line fittings for signs of damage or leakage.
- Check for proper torque and proper safetying on all visible bolts.
- Check wear pin per AWB Publication No. *CM30-289, Component Maintenance Manual, Main Brake Assembly.*

The brake assembly shall be maintained in accordance with AWB Publication No. CM30-289, *Component Maintenance Manual, Main Brake Assembly*.

While remaining installed on the aircraft, the wheel assembly shall be inspected as follows:

- Visually inspect the wheel for corrosion, cracks, nicks, or other visible damage.
- Check the condition of the axle attaching hardware.

The wheel assembly shall be maintained in accordance with AWB Publication No. CM40-480, *Component Maintenance Manual, Main Wheel Assembly.*

5.2 UNSCHEDULED

Conduct an inspection when there is indication of a problem with the wheel and brake system. Reference Section 8 for troubleshooting information.

Conduct an inspection after a rejected take off, or heavy braking event as defined in *CM30-289, Component Maintenance Manual, Main Brake Assembly*.

6.0 REMOVAL AND REPLACEMENT

6.1 BRAKE ASSEMBLY

Lift and support the aircraft per *Piaggio P.180 Aircraft Maintenance Manual* (reference Piaggio Aircraft Publications listed in Section 2.5 for document number).

Remove and install all axle hardware per *Piaggio P.180 Aircraft Maintenance Manual* (reference Piaggio Aircraft Publications listed in Section 2.5 for document number).

Remove, disassemble, assemble, and install the brake assembly in accordance with *CM30-289, Component Maintenance Manual, Main Brake Assembly* and *IM199-283, Kit Installation Publication*.

6.2 WHEEL ASSEMBLY

Lift and support the aircraft per *Piaggio P.180 Aircraft Maintenance Manual* (reference Piaggio Aircraft Publications listed in Section 2.5 for document number).

Remove and install all axle hardware per *Piaggio P.180 Aircraft Maintenance Manual* (reference Piaggio Aircraft Publications listed in Section 2.5 for document number).

Remove, disassemble, assemble, and install the wheel assembly in accordance with *CM40-480, Component Maintenance Manual, Main Wheel Assembly* and *IM199-283, Kit Installation Publication*.

7.0 MAINTENANCE

7.1 BRAKE ASSEMBLY

Maintenance schedule and tasks shall be completed in accordance with CM30-289, *Component Maintenance Manual, Main Brake Assembly*.

The maintenance schedule is intended to be a guideline based on laboratory testing environments that simulate normal braking conditions. Field operating conditions can vary from aircraft to aircraft. These variations will directly affect the wear rate of the brake assembly components. Operating conditions must be evaluated to determine a suitable schedule to maintain the equipment.

7.2 WHEEL ASSEMBLY

Maintenance schedule and tasks shall be completed in accordance with AWB Publication No. CM40-480, Component Maintenance Manual, Main Wheel Assembly.

The maintenance schedule is intended to be a guideline based on laboratory testing environments that simulate normal conditions. Field operating conditions can vary from aircraft to aircraft. These variations will directly affect the wear rate of the wheel assembly components. Operating conditions must be evaluated to determine a suitable schedule to maintain the equipment.

7.3 CONDITIONING

When new brake lining segments have been installed, brake lining conditioning must be accomplished per *AWB Product Reference Memo PRM14A, Metallic Brake Lining Conditioning Procedure*, Rev A, July 1, 1995, or later AWB approved revision.

8.0 TROUBLESHOOTING INFORMATION

For troubleshooting a problem with the brake assembly refer to the TESTING AND FAULT ISOLATION section of CM30-289, *Component Maintenance Manual, Main Brake Assembly*.

For troubleshooting a problem with the main wheel assembly refer to the TESTING AND FAULT ISOLATION section of CM40-480, Component Maintenance Manual, Main Wheel Assembly.