Airforms LLC.

Installation Instructions
32-2735-24-01 Rev A
FAA-PMA Part Number MC67184-000 Main Landing Gear Axle

Revisions

Revision	Author	Date	Summary
A	AKH	03/05/2026	Original release

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INTRODUCTION

This document is intended to provide Installation Instructions for the Airforms LLC PMA replacement main landing gear axle eligible for installation on certain Piper aircraft. Part Number of the Airforms main landing gear axle is MC67184-000. This document supplements the Piper published service information for removal and installation of main landing gear axle.

SYSTEM DESCRIPTION

The main landing gear axle is a structural component of the aircraft main landing gear system that provides the mounting interface for the wheel assembly. The axle is rigidly attached to the landing gear strut assy and serves as the support shaft for the aircraft wheel bearings, allowing the wheel to rotate during taxi, takeoff, and landing operations.

Within the landing gear system, the axle functions as the primary load-carrying interface between the wheel assembly and the landing gear strut, transmitting landing and ground loads from the wheel and brake assembly into the landing gear structure and ultimately into the aircraft structure.

The following table specifies the aircraft model eligibility and the original equipment manufacturer (OEM) part(s) that are eligible to be replaced with the Airforms Main landing gear axle P/N MC67184-000.

Table 1: Aircraft Model Eligibility

Airforms P/N	OEM P/N	Description	Model Eligibility
MC67184-000	67184-000 (Sub-Component of P/N 67183-000 Axle Assy. The P/N 67183-000 Axle Assy is a sub-component of both P/N 67037-004* & P/N 67037-006* Strut Assy – Main Gear)	Axle	PA-44-180, PA-44-180T, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-32R-300, PA-32RT-300, PA-32RT-300T, PA-32R-301 (SP), PA-32R-301 (HP), PA-32R-301T, PA-34-200, PA-34-200T, PA-28R-180, PA-28R-200

***NOTE:** *PIPER LITERATURE SPECIFIES THAT A PART NUMBER WHICH INCLUDES A DASH NUMBER WITH A FEW LEADING ZEROS IS EQUIVALENT TO THE SAME PART NUMBER WITH A DASH NUMBER WHICH HAS ONE OR NO ZEROS.*

The Airforms LLC main landing gear axle differs from the OEM axle in that it contains a single 0.250-inch diameter hole that will fit the AN4 bolt to secure the axle in place with the main landing gear strut assy. This single hole is utilized as a guide for the axle installation (REF: PART REMOVAL, REPLACEMENT, AND SERVICE INFORMATION).

SPECIAL OPERATING INFORMATION

The control and operation of the main landing gear axle do not change with the installation of the new Airforms main landing gear axle; see applicable Piper published information for the operational control of this system.

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PART REMOVAL, REPLACEMENT, AND SERVICE INFORMATION
Refer to the applicable Piper Model Service Manuals for installation/maintenance instructions and the applicable Piper Illustrated Parts Catalog for component part numbers.

NOTE: *IN SOME CASES, THE MAIN LANDING GEAR AXLE PART NUMBER CANNOT BE POSITIVELY DETERMINED FROM THE AIRCRAFT MODEL/SERIAL NUMBER. IT IS THE RESPONSIBILITY OF THE INSTALLER TO VERIFY THAT THE CORRECT MAIN LANDING GEAR AXLE HAS BEEN OBTAINED. THIS MAY BE DONE BY VISUAL COMPARISON AND BY TAKING MEASUREMENTS OF THE OLD AND NEW PARTS AS NEEDED.*

The following instructions apply to replacement of the main landing gear axle:

NOTE: *IT IS RECOMMENDED THAT THE AXLE REPLACEMENT BE PERFORMED WITH THE MAIN LANDING GEAR STRUT ASSEMBLY REMOVED FROM THE AIRCRAFT. REFER TO THE APPLICABLE PIPER MODEL SERVICE MANUALS FOR REMOVAL/INSTALLATION INSTRUCTIONS FOR THE MAIN LANDING GEAR. THE FOLLOWING INSTRUCTIONS ASSUME THAT THE MAIN LANDING GEAR STRUT ASSY IS SEPARATED FROM THE AIRCRAFT WITH JUST THE AXLE SECURED TO THE STRUT ASSY WITH THE AN4-31A BOLT, NAS1149F0432P WASHER AND MS21042-4 NUT AS SHOWN IN* Figure 1 *(WHEEL ASSEMBLY REMOVED).*

1. Remove the bolt securing the axle to the strut assy by removing the nut and the washer. (Figure 2). Discard the hardware.

2. Remove the axle from the strut assy.
    a. Recommended to use a hydraulic press for the removal of the axle from the strut assy (Figure 3).

3. Inspect axle bore in strut assy for condition, signs of corrosion, or cracking. Clean up bore, if required, using scotch-bright pad or similar.

    CAUTION: *DO NOT REMOVE ANY MORE MATERIAL THAN NECESSARY DURING CLEAN-UP OF BORE. REMOVAL OF MATERIAL MAY INVALIDATE TOLERANCES REQUIRED FOR INSTALLATION OF AXLE IN LATER STEPS.*

4. Apply a layer of conversion coating to the inside of the strut assy axle bore per MIL-DTL-5541 (Alodine).

5. Procure the new Airforms Axle P/N MC67184-000 and attachment hardware as required.

6. Measure the ID of the MLG strut assy bore, which the new Airforms Axle will be inserted to. _____

7. Measure the OD of the new Airforms PMA axle P/N MC67184-000. _____
    a. The interference fit between the bore ID and the axle OD should be within 0.0010 – 0.0030 inches. If the interference fit is outside this tolerance limit, the MLG strut assy may have to be replaced or repaired prior to the axle installation.

8. Insert the new Airforms Axle into the bore of the main landing gear strut assy by following the procedure below.

    NOTE: *THE OUTER DIAMETER OF THE PMA AIRFORMS AXLE AND THE INNER BORE OF THE OEM STRUT ASSY HAS A PRESS-FIT TOLERANCE. SEE STEPS 5 AND 6 ABOVE TO CONFIRM TOLERANCE PRIOR TO INSTALLATION.*

    a. Heat the main landing gear strut assy to a MAXIMUM of 300°F inside of a dedicated oven for 1.5 – 2 hours before the insertion of the axle into the strut assy.

    CAUTION: *DO NOT USE A TORCH TO LOCALLY HEAT THE STRUT ASSY.*

    b. While the landing gear strut assy is heating, simultaneously cool the axle using liquid nitrogen or a dry ice and alcohol bath, for at least 45 min.

c. Align the 0.250-inch diameter hole in the Axle with one of the holes in the strut assy using a tapered pin.

CAUTION: *COMPONENTS WILL BE DANGEROUS TO TOUCH WITH BARE HANDS AFTER REMOVAL FROM OVEN AND/OR COOLING AGENTS. ALWAYS USE SAFETY PRECAUTIONS DURING THE INSTALLATION PROCESS.*

d. After insertion, allow the assembly to reach room temperature naturally.

CAUTION: *DO NOT QUENCH THE HEATED/COOLED ASSEMBLY.*

9. Match drill second axle hole using strut assy as guide:
    a. Verify PMA axle is fully seated in the strut and the existing axle hole is properly aligned with the corresponding strut assy hole. Install temporary alignment bolt or pin in the aligned hole to prevent movement.
    b. Install an appropriate drill guide bushing in the open strut assy hole to ensure the drilled hole is normal (perpendicular) to the strut and axle bore axis.
    c. Using the drill bushing and strut bolt hole as a guide, drill a pilot hole through the PMA axle using a #40 drill. Ensure drill is lubricated and maintain steady feed to prevent hole wander.
    d. Enlarge the pilot hole by step drilling in increments up to 0.246–0.248 inch (recommended final drill size prior to reaming). Maintain alignment with the strut assy hole and pilot hole as guide.
    e. Ream the hole to 0.250 inch ± 0.001 inch using a sharp chucking reamer and suitable cutting fluid. Perform reaming in a single continuous pass without stopping to ensure proper hole finish and size control.
    f. Remove alignment pin/bolt.
    g. Deburr both sides of the hole and clean all chips and debris from the axle and strut assembly.

10. Apply corrosion preventative compound to the drilled area in the axle and strut assy per MIL-PRF-16173 (LPS 3 or Corrosion X).

11. Install new AN4-31A bolt, NAS1149F0432P washer and MS21042-4 nut to secure the new Airforms Axle to the OEM strut assy. Torque to 50-70 in-lbs in accordance with aircraft AMM Standard Practices.

12. Install the main landing gear axle strut assy to the main landing gear oleo assembly. Refer to applicable aircraft maintenance manuals.



Figure 1: Main Landing Gear Strut Assy and Axle Separated from the Aircraft



Figure 2: Removal of the bolt, washers and nut



Figure 3:: Removal of the Axle from the Strut Assy (Left: During Removal, Right: After Removal)

TROUBLESHOOTING
Axle malfunctions that may be indicative of defective, damaged, or overly worn main landing gear axles include:

- Visual clues of cracks or complete separation of the axle from the strut assy.
- Wheel tilted or not perpendicular to the gear leg
- Surface discoloration, rust streaks and hairline cracks

If any of the above malfunctions occur, inspect the main landing gear axle for cracks or other damage. Removal of the axle and magnetic particle inspections may be required. If the problem is attributed to the malfunctioning Axle, this document can be utilized to replace the OEM Axle with a new Airforms PMA P/N MC67184-000 Axle, otherwise the entire main landing gear strut assy must be replaced with an OEM assembly.

PLACARDS
None applicable.

DATA
All information to support the continued airworthiness of this replacement part is contained in:

- Relevant Piper Model Maintenance Manuals.
- Relevant Piper Model Service Manuals.
- Relevant Piper Model Illustrated Parts Catalog.

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INSPECTION
All inspection should continue to be performed as instructed in pertinent Piper service manuals. No additional inspections are required for the new Airforms Axle P/N MC67184-000.

RECOMMENDED OVERHAUL PERIODS
No additional overhaul time limitations exist with the use of this part.

AIRWORTHINESS LIMITATIONS
No additional airworthiness limitations exist for the PMA Axle. See *DATA* section of this document for continued airworthiness requirements.

ASSISTANCE & REVISIONS
Latest document revisions may be found available under the individual product information on the Airforms LLC website, www.airforms.biz. Navigate to the individual product information for the Axle to review the latest document. For questions, contact Airforms through the website or by phone at (907) 357-8244.