

Airforms LLC, 3650 W. Aviation Ave, Wasilla, Alaska 99654		
Title: INSTALLATION INSTRUCTIONS AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS (ICA) FOR CESSNA MODEL 208 AND 208B HIGH STRENGTH MAIN WHEEL BOLTS	By: R. Ray	Page 1 of 12
	Ck: K. Schachle	Doc. No. 32-601-36-01
	App:K. Schachle	Rev/Date: B/27-Jul-22

By employing these installation instructions, the technician and aircraft owner consent that this document shall be considered confidential and proprietary to Airforms LLC and may not be copied, distributed, or employed for use on an aircraft without the written permission of Airforms LLC.

It is intended that these instructions be employed as Federal Aviation Administration (FAA) approved data for installation of STC SA02410AK on aircraft registration _____ S/N_____ in accordance 14 CFR Part 43. These installation instructions apply only to this aircraft and may not be extended to other aircraft without written permission from Airforms LLC. An STC permission statement is required from Airforms LLC in order to install the STC approved design on to an airframe; this statement is provided separately from these instructions.

This document is both an installation instruction and ICA. These instructions include FAA approved Airworthiness Limitations and particular maintenance practices that are changed from the original aircraft.

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1. GENERAL

These instructions specify installation of high strength bolts on the main landing gear wheels of Cessna Aircraft, Co. models 208 and 208B aircraft. Bolts retaining the brake disc and wheel halves are changed from standard AN5 type bolts to high-strength MS21250 bolts. Each modified wheel is assembled with 9 each bolts and associated high strength nuts and washers. The replacement MS bolts are of increased strength compared to the original AN bolts, and should help prevent fastener failure during aircraft operation.

This document specifies replacement wheel hardware, general instructions and inspection procedures. Existing procedures in the Cessna 208/208B maintenance manual for removal and installation are unchanged.

This document is controlled by revision level. If the document is revised, the revision level of all pages shall be raised.

Current revisions of this document may be obtained from Airforms LLC at the address listed above. For additional contact information and technical support, see the website www.airforms.biz.

2. UNIT SYSTEM

All units are inch, lbs, or seconds unless noted.

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3. ATTACHMENTS

(None)

4. ELIGIBILITY

1. The replacement hardware is eligible for installation only on the main wheels of Cessna models 208 and 208B aircraft with any of the Cessna approved tire sizes.
2. The replacement hardware is eligible for installation only on the 10 inch diameter Cleveland wheel and brake assembly P/N 20-244.
3. The replacement hardware is eligible for installation on aircraft equipped with any of the Aeroacoustics Aircraft Systems, Inc. STCs applicable to models 208/208B.
4. The replacement hardware is eligible for installation on aircraft equipped with or without the Aero Twin, Inc. brake disc spacer STC SA02126AK-D.

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5. REPLACEMENT HARDWARE

The replacement hardware is as follows. Hardware located at 9 places for each wheel, LH and RH. This hardware retains the wheel halves and brake disc together.

FOR MODEL 208 OR 208B WITH BRAKE DISC SPACER - SEE FIGURE 1:

Bolt: MS21250-05060, 12-point, high strength, high temperature

Nut: 22FH524, high strength, high temperature

Washers: Option 1
MS20002C5, countersunk, 2 per bolt, under head and nut

Option 2 - MS20002C5, countersunk under bolt,
MS20002-5 plain under nut

Replaces AN5-41A and associated hardware

FOR MODEL 208 OR 208B WITHOUT BRAKE DISC SPACER - SEE FIGURE 2:

Bolt: MS21250-05058, 12-point, high strength, high temperature

Nut: 22FH524, high strength, high temperature

Washers: Option 1 - MS20002C5, countersunk, 2 per bolt, under head and nut

Option 2 - MS20002C5, countersunk under bolt,
MS20002-5 plain under nut

Replaces AN5-40A and associated hardware

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6. INSTALLATION INSTRUCTIONS

To replace the existing wheel bolts with high strength bolts, complete the following tasks. All detailed procedures in the Cessna 208/208B maintenance manual must be followed to accomplish these tasks - all detailed Cessna procedures are unchanged, less the difference in bolt part numbers and inspection procedures in Section 7.

1. Support the aircraft and remove one or both main wheel assemblies.
2. Deflate the tire(s) and disassemble the wheel halves, spacer, and disc.
3. Discard the 9 each (per wheel) AN5-40A or -41A bolts, and associated nuts and washers that fastened the two wheel halves, brake disc, and spacer together.
4. Reassemble the wheels using the replacement hardware, see figure 1 for aircraft with brake spacer, see figure 2 for aircraft without brake disc spacer.
 - a. If reinstalling the MS bolts after the initial STC installation, ensure the bolts are new or inspected in accordance with Section 7.
 - b. If reinstalling the MS bolts, use a new metal locknut each time. Washers may be reused.

CAUTION

When installing countersunk washers under bolt heads:
Double check that the countersink faces the bolt head and clears the radius of the bolt shank

CAUTION

When installing countersunk washers under nuts:
Double check that the countersink faces the nut

5. Torque the replacement hardware identically to the original hardware, as specified in the Cessna MM and complete the wheel assembly.

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6. Mark the wheel as modified using one of the following methods:

Marking method I: Install Airforms placard P/N AF326013601. This laser printed aluminum placard has a permanent self adhesive backing. Clean an area on the inside of the wheel rim adjacent to the wheel TSO tag and adhere the Airforms placard. Once adhered, press firmly. Additional placards may be ordered from Airforms if needed.

Marking method II: Fabricate and install a modification tag as follows:

- a. Text height shall be 0.1 to 0.25 inches
 - b. Print letters on 0.025 in. thick aluminum using a metal stamp, maximum tag size is 1 X 3 in.
 - c. Tag wording "WHEEL MODIFIED WITH HIGH STRENGTH BOLTS PER STC SA02410AK."
 - d. Bond tag to inside of wheel rim adjacent to TSO tag using 3M P/N DP-190 or P/N EC2216B/A adhesive.
7. Reinstall wheels on aircraft and perform any necessary safety or check procedures for return to service.
8. In accordance with 14 CFR Part 43: make an entry in the aircraft records via FAA form 337 as to installation of STC SA02410AK with a brief description of the alteration. The original copy of these installation instructions *must* be included in the aircraft logbooks for future reference.

NOTE

If is desired to remove the altered wheels from the aircraft for transfer as individual serviceable TSO approved items, then the high strength wheel bolts *must* be removed and replaced with the original hardware specified in the Cessna 208/208B maintenance manual. The modification placard must also be removed. This does not include prepositioned spare wheel assemblies for specific aircraft that have been altered in accordance with the bolt replacement STC.

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CAUTION

Failure to install countersunk washers properly could lead to premature fastener failure and loss of control of the aircraft on the ground.

WARNING

Never attempt to change wheel bolts with the tire inflated. This could lead to injury or death. Follow all safety precautions in the aircraft maintenance manual.

7. MAINTENANCE PRACTICES

This section prescribes specific maintenance practices for the modified wheels where those practices differ from the original Cessna maintenance instructions.

Maintenance practices for removing, cleaning and replacing the wheel bolts are unchanged, except that the Airforms LLC bolts shall be inspected as follows before reinstallation:

1. Clean each bolt with a suitable solvent and wipe dry and clean with a clean shop rag or cloth.
2. Visually inspect each bolt for corrosion, deformation, pitting, thread damage or abnormal wear. Each bolt must be free from any wear and corrosion. There are no limits on bolt damage - any damage will be considered grounds for rejection. Any bolt that exhibits any indications of cracking, deformation, or loss of material aside from plating, must be discarded without exception. Bolts with worn plating (only) may be treated as specified below after inspection.

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3. Perform one or both of the following inspections on the removed wheel bolts:

a. A visual dye-penetrant inspection for cracking in the following areas of each bolt using a min. 8X magnifying glass:

- i. Under the head of the bolt and down the shank 0.5 inches, paying special attention to the radius under the bolt head.
- ii. Around the circumference of the bolt where the threads intersect the shank, 0.5 inches in each direction along the shank from that point. Pay special attention at the thread to shank intersection.

The dye penetrant material shall conform to MIL-I-25135E, Type II, Method A, such as Sherwin DP-51 or similar.

Dye penetrant application and inspection procedures shall be per ASTM E1417, section 7 for a Type II, Method A process.

b. A magnetic particle inspection in accordance with the Cessna Maintenance Manual NDT procedures. The mag-particle inspection may replace, or be in addition to, the dye penetrant inspection.

4. After inspection, clean the inspection media (penetrant or particles) from the bolts and protect them with a light coat of corrosion resistant oil such as Corrosion X or LPS-3 to prevent corrosion during storage before reassembly. Do not apply corrosion preventative compound to bolts that will be touched up in the next step.

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5. In areas where CAD plating has worn from the bolts, the thoroughly cleaned bolt surface may be touched up with an epoxy primer - this applies only in cases where there is no indication of wear or any other damage on the bolt material as verified with caliper measurement, visual inspection, and inspection(s) per paragraph 3. Refer to the Cessna maintenance manual for a list of approved epoxy primers. Ensure the bolts are cleaned and dried thoroughly before applying the touch up primer. Apply a light coat of corrosion preventative compound specified in paragraph 4 after the epoxy primer has dried completely. The bolts are now ready for reinstallation per Section 6.

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8. AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations Section is FAA approved and specifies maintenance required under 14 CFR §§ 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

There are no new (or additional) airworthiness limitations associated with this installation.

FAA Approved _____

Date _____

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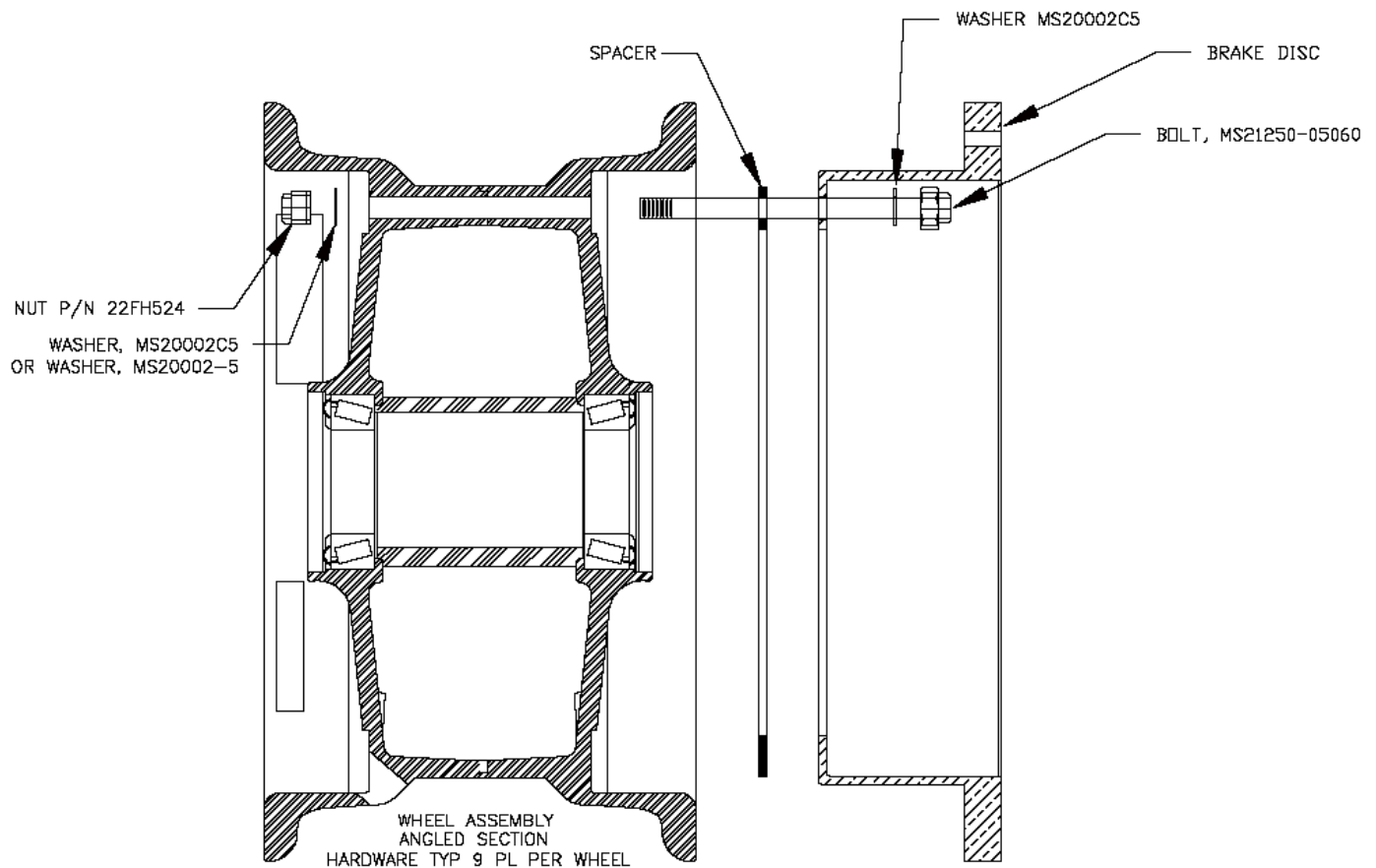
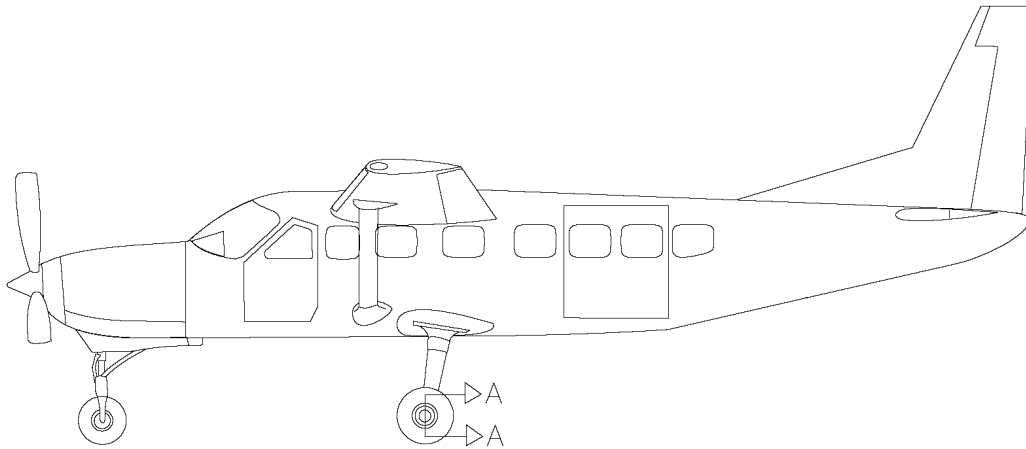


Figure 1 - Section A-A, model 208 or 208B WITH BRAKE SPACER

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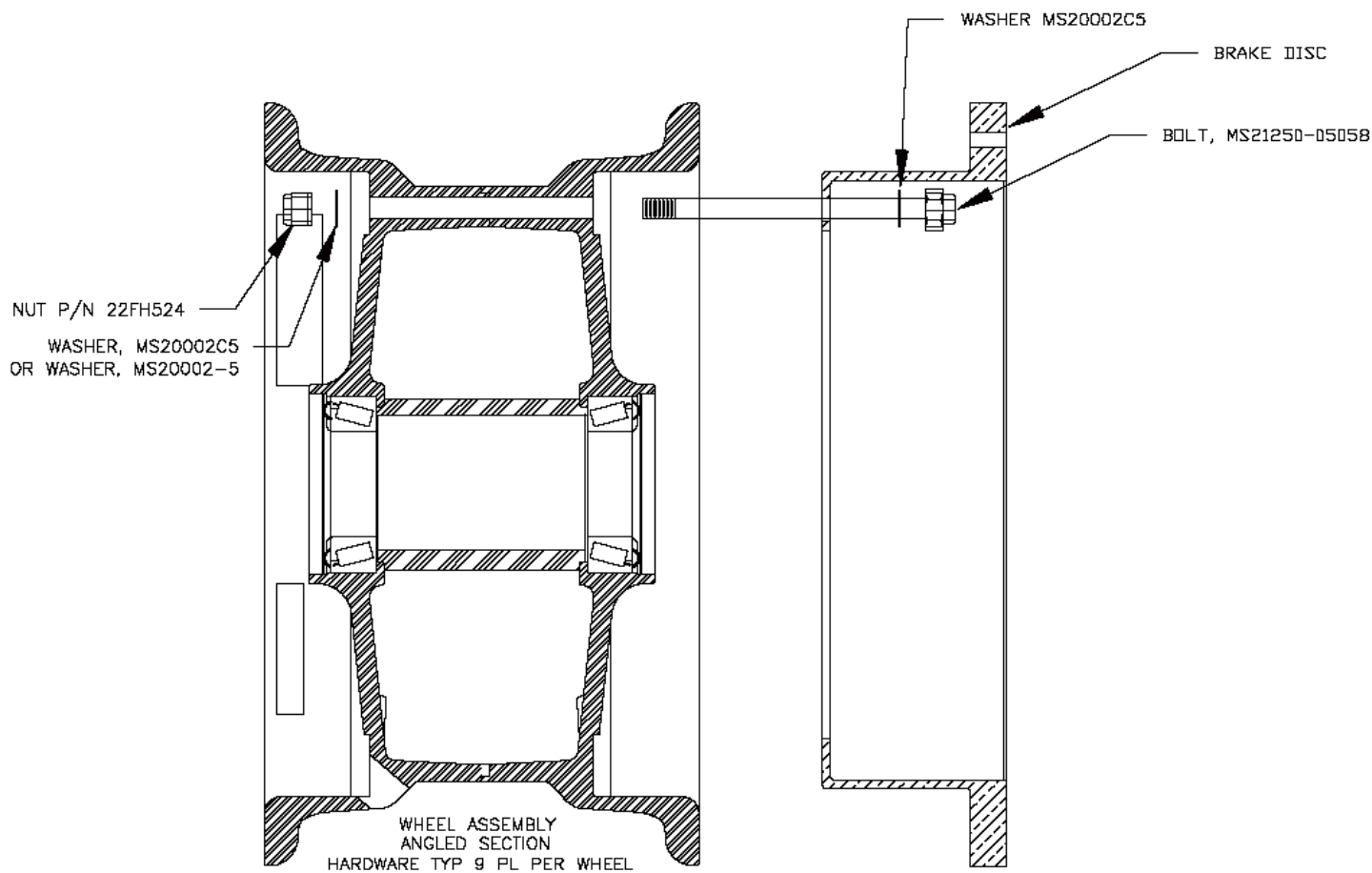
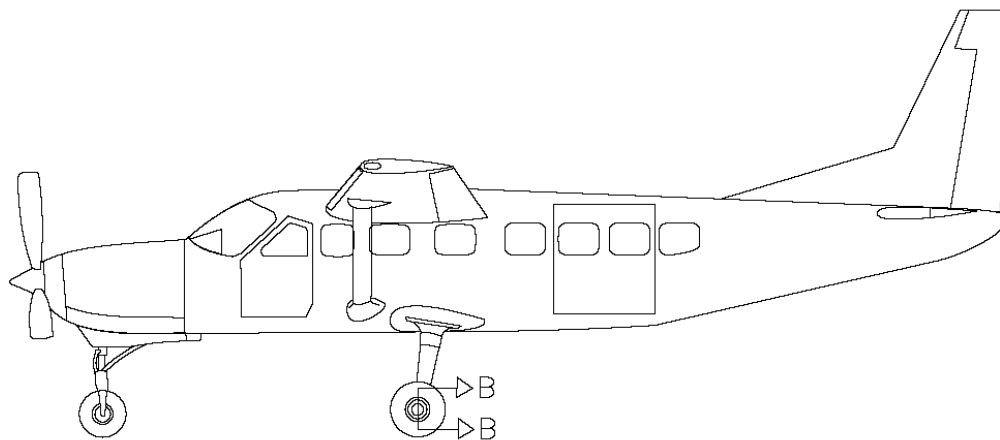


Figure 2 - Section B-B, model 208 or 208B WITHOUT BRAKE DISC SPACER

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