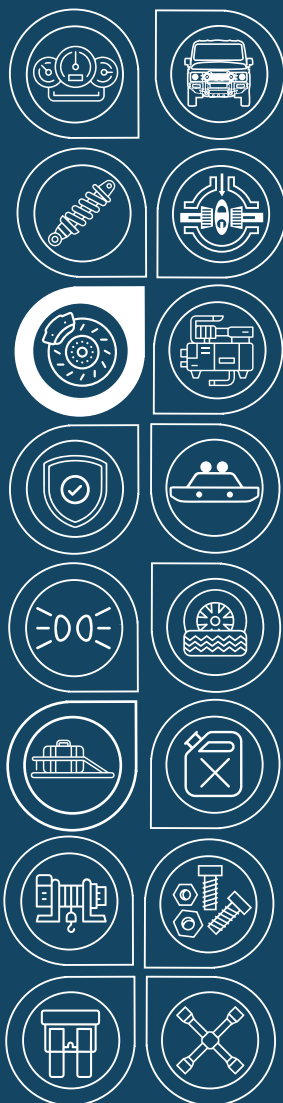




**AGILE
OFFROAD**
SMARTER THAN DIRT



INSTALLATION GUIDE

Alcon Front Brakes for INEOS Grenadier by
Agile Offroad

BKF5459AX35-ASM

INSTALLATION GUIDE

BIG BRAKE PERFORMANCE FOR THE INEOS GRENADIER

Alcon Front Brakes for INEOS Grenadier by Agile Offroad



Developed by Alcon and engineered for the INEOS Grenadier, this front brake kit is built to withstand the demands of heavy off-road use while improving on-road safety and control. The upgrade replaces the factory 12-5/8" rotor and 2-piston cast-iron caliper with a massive 13.5" diameter rotor and robust 4-piston cast iron caliper. A billet steel, zinc-plated caliper bracket ensures precise mounting and long-term strength. The kit also includes corrosion-treated rotors with directional cooling vanes for better heat management and a set of braided steel brake lines to complete installation. Designed to clear factory wheels as well as Agile's Overland HD and XT wheels, this system offers uncompromising performance without sacrificing fitment.

SKU

BKF5459AX35-ASM

PARTS INCLUDED

2 x CIR5459AX28: Front Brake Calipers

2 x BSK4454X067: Front Brake Caliper Brackets

DIA2175X256PL: Left Side Front Rotor

DIA2175X256PR: Right Side Front Rotor

MHA3430X1454WB: Front Brake Lines

TOOL NEEDED

T25 Torx bit

21mm Socket

Caliper Hanger Hooks

Wire Brush

Rubber Mallet

Brake Parts Cleaner

Blue Threadlocker

10mm Allen Wrench

11mm Open Wrench

14mm Open Wrench

17mm Open Wrench

Clip Removal Tool

Wire Cutters

INSTALLATION TIME

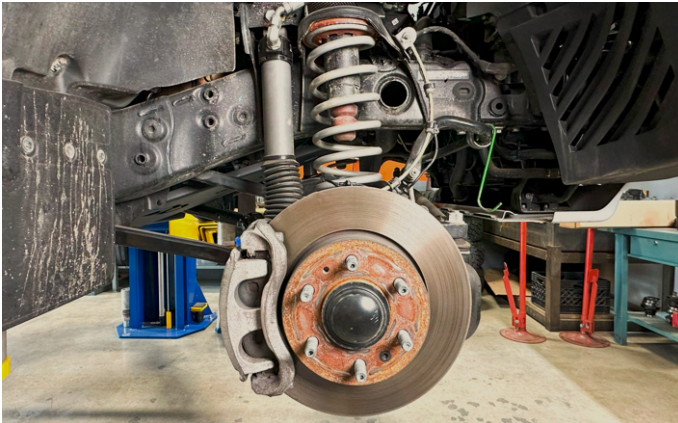
2-3 Hours

NOTES:

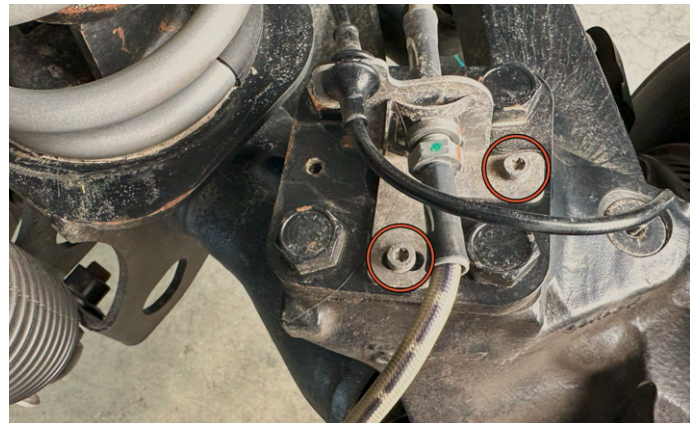
Refer to the Owner's Manual for proper front wheel/tire removal.

Use jack stands to support the vehicle using standard safety procedures.

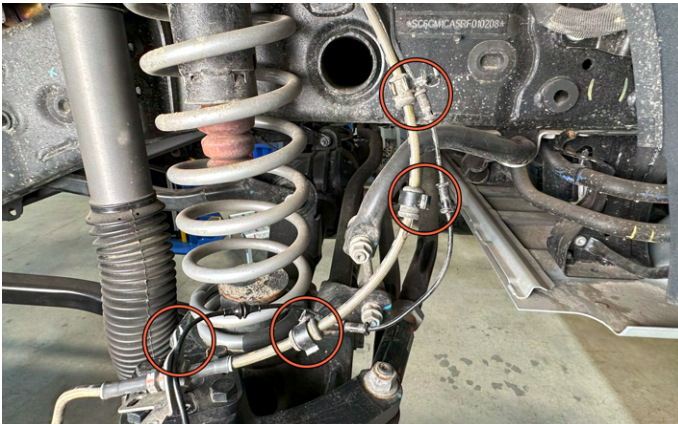
INSTALLATION GUIDE



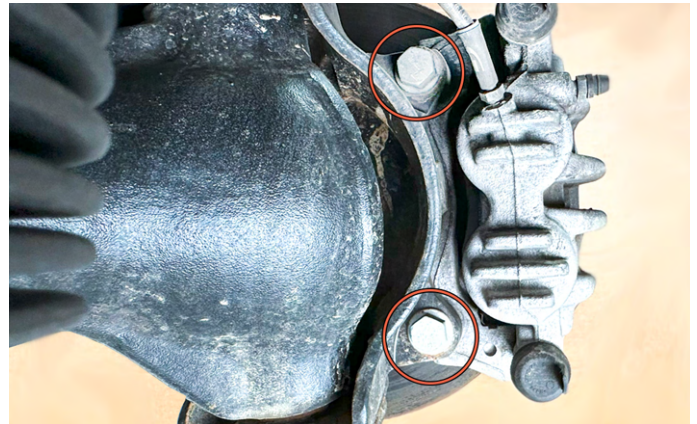
1. Remove both driver and passenger side wheels.



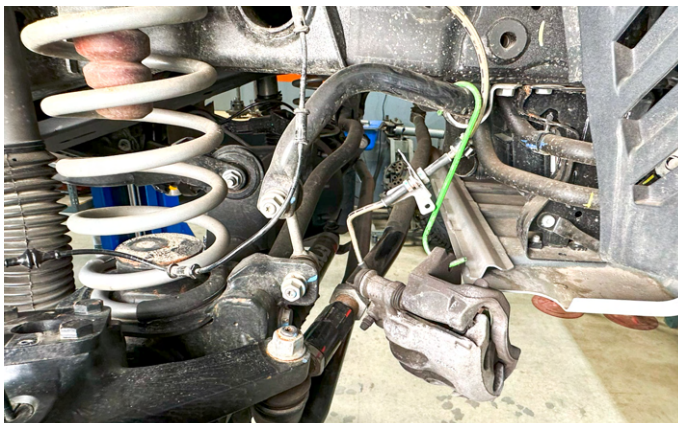
2. Use a T25 Torx bit to remove the two brake line bracket screws.



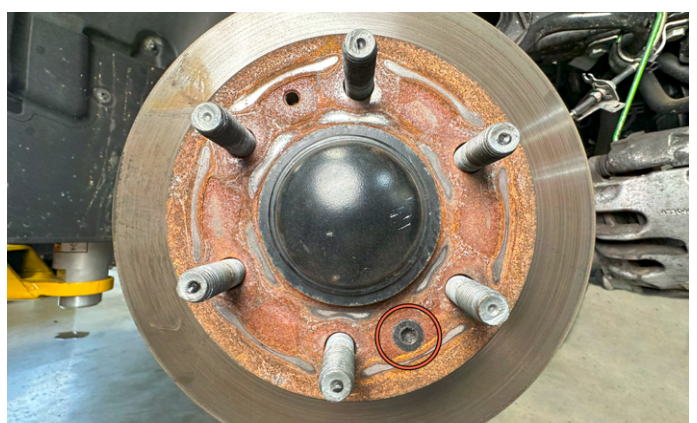
3. Unclip the wheel speed sensor harness from the three brake line clips and the brake line bracket.



4. Use a 21mm socket to remove the two caliper bolts.

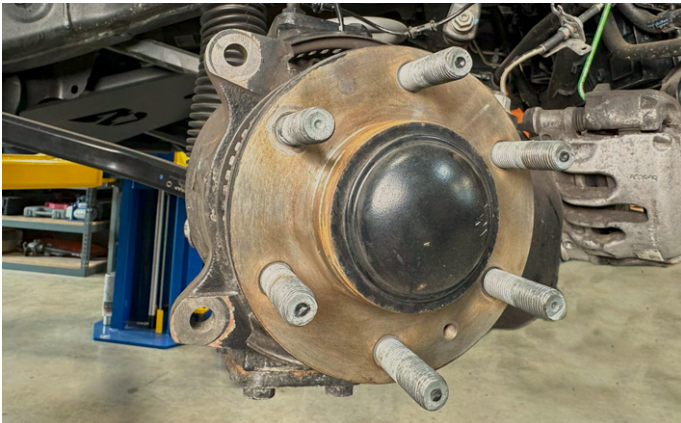


5. Hang the caliper forward of the axle using a caliper hanger hook.

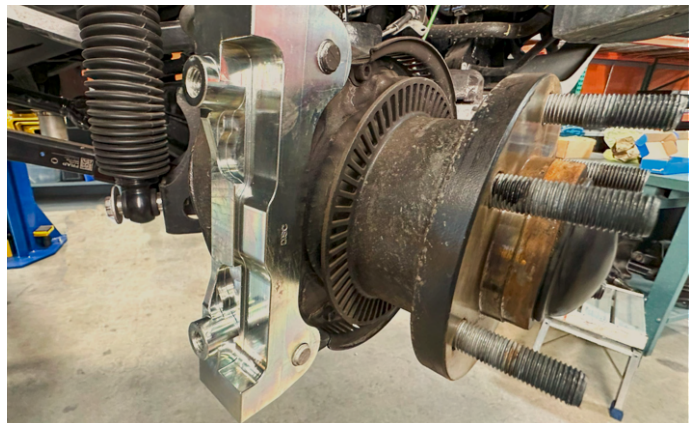


6. Use a T45 Torx bit to remove the rotor retaining screw. Remove factory rotor. Use a rubber mallet to remove rotor if necessary.

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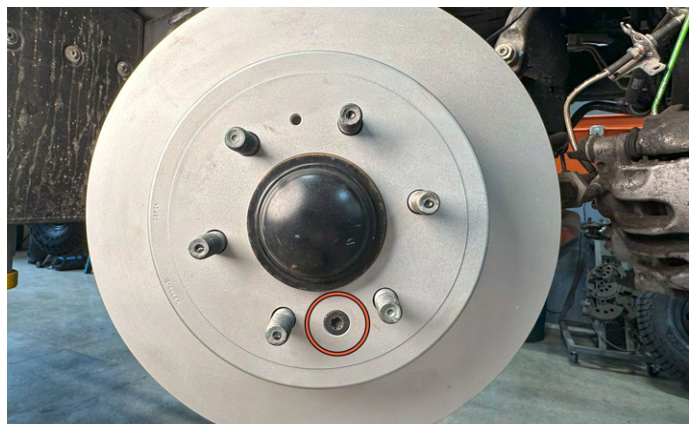
7. Clean hub using a wire brush and brake parts cleaner if necessary.



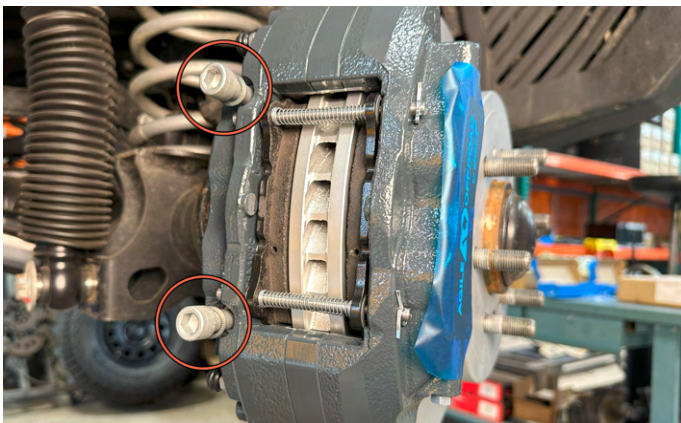
8. Install one of the supplied caliper brackets using the factory caliper bolts.



9. Apply a few drops of blue threadlocker and then torque to 120 ft lbs.



10. Install the supplied rotor using the factory retaining screw. Make sure new rotor is completely seated on hub. Torque screw to 18 ft lbs.
NOTE: Rotors are side specific. Refer to the part #.

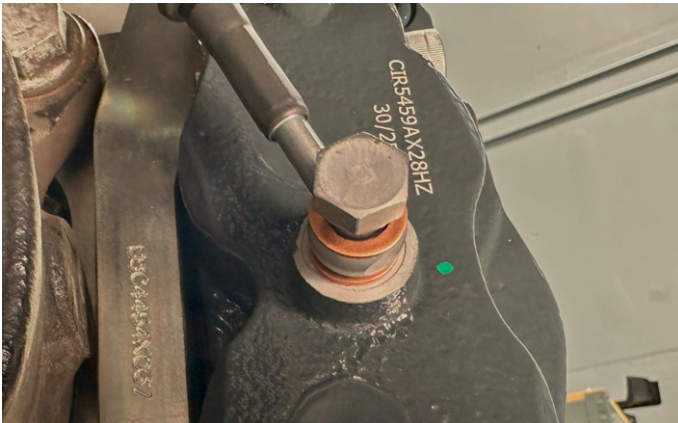


11. Install supplied caliper using two of the supplied caliper bolts. Use a 10mm Allen wrench to fully tighten caliper bolts. Torque to 75 ft lbs.



12. Remove the caliper brake line port cap.

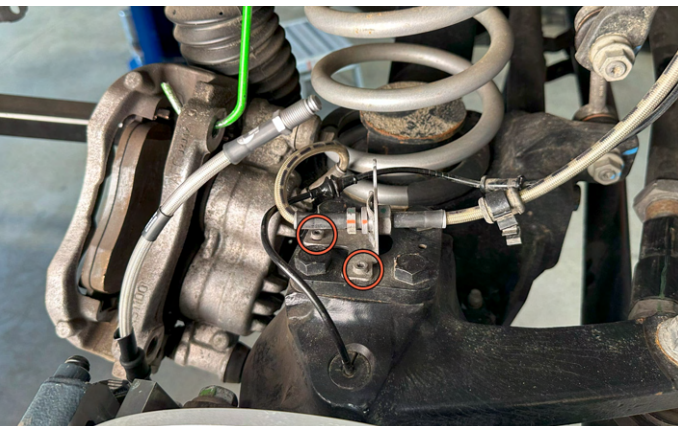
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13. Install one of the supplied brake lines using two supplied copper washers and banjo bolt as shown.



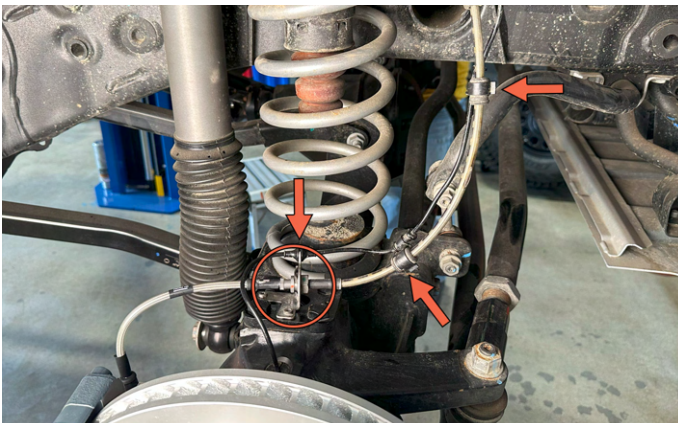
14. Point the brake line up and then use a 14mm wrench to fully tighten banjo. Torque to 15 ft lbs.



15. Re-position the factory caliper to the rear side of axle. Re-install the brake line bracket using the factory screws.



16. Use an 11mm open wrench to remove the factory brake line from the factory caliper. Use a 14mm and a 17mm open wrench to separate the brake lines at the brake line bracket.



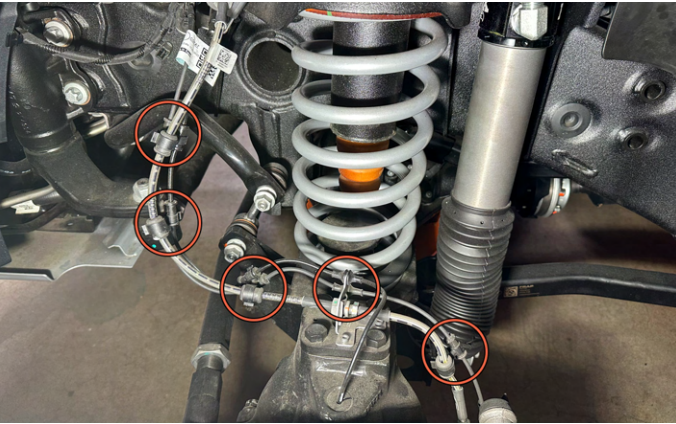
17. Use an 11mm open wrench and 17mm open wrench to install the new brake line to the brake line bracket. Clip in the wheel speed sensor to the factory brake line clips.

18. Repeat steps 2-17 to the opposite side.

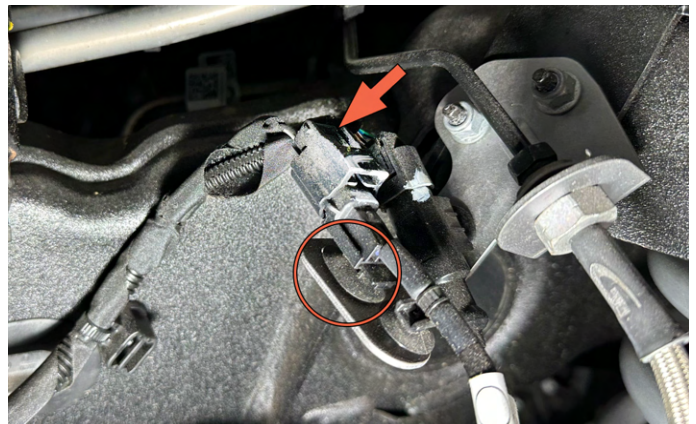
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BRAKE PAD WEAR SENSOR

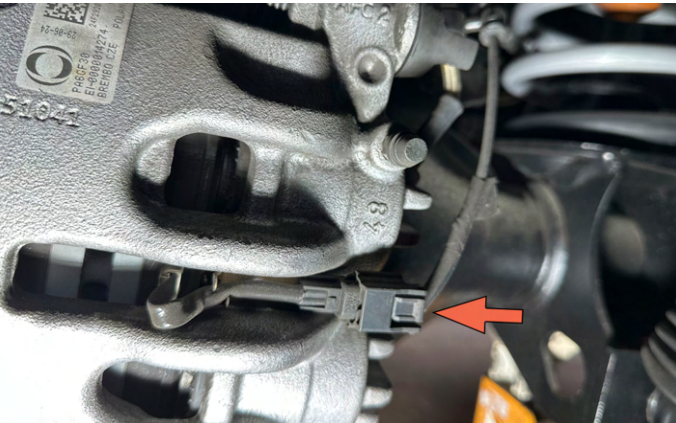
The US model Grenadiers come equipped with a brake pad wear sensor located on the driver's side caliper. The new Alcon calipers do not come equipped with a brake pad wear sensor. To avoid a brake sensor warning light, perform the following steps.



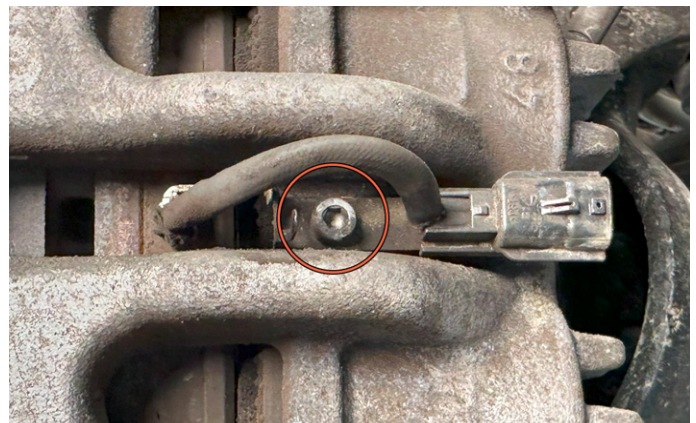
1. Locate the brake pad wear sensor harness going from the chassis bracket to the caliper. Unclip the harness from the five factory brake line clips.



2. Press and pull on the female brake pad wear sensor harness connector to disconnect from bracket. Use a clip removal tool to remove male sensor harness connector from bracket.



3. Press and pull on the female brake pad wear sensor harness connector to disconnect from caliper. Completely remove harness.

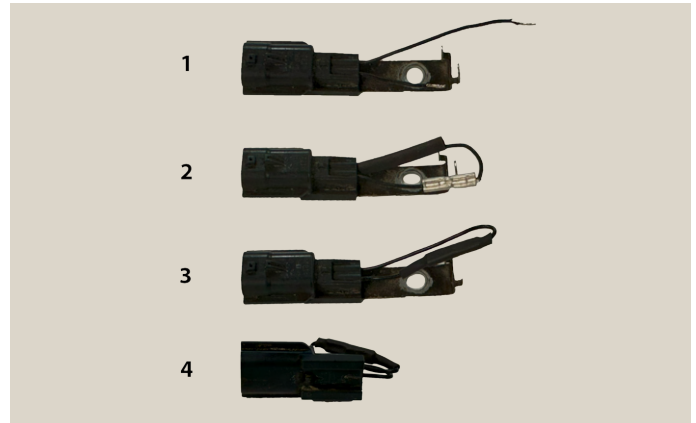


4. Use a 4mm Allen wrench to remove sensor connector from factory caliper.

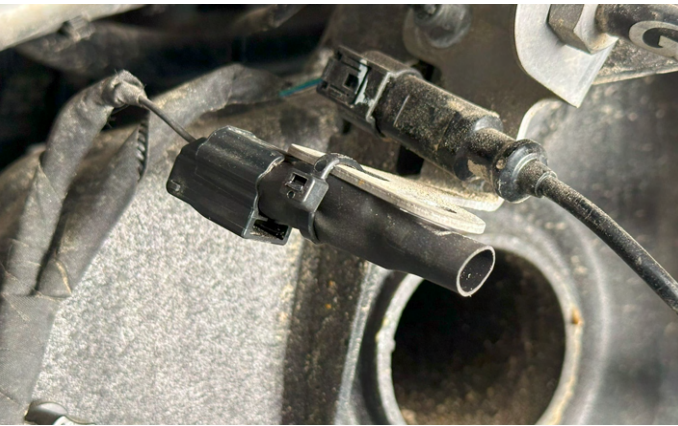
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5. Use a pair of wire cutters to remove the sensor connector from factory caliper.



6. 1. Remove the wire sleeve then trim and splice connector wires.
2. Use a butt connector to join both wires.
3. Shrink wrap butt connector.
4. Remove metal bracket from connector.



7. Use a zip tie to attach modified connector to chassis bracket. Connect both brake pad wear sensor harness connectors together.

BLEEDING BRAKE SYSTEM

- Bleed the brakes in accordance with the vehicle manufacturer's instructions.
- Only use DOT 4 brake fluid. The caliper bleed screws must be tightened to 18Nm (cold).
- To prevent damage to any painted surface, remove any spilled brake fluid immediately with clean cold water.
- Remove any fluid in the area around the bleed screw thread and in the end of each bleed screw.
- Check the complete hydraulic system for leaks before driving the vehicle.
- Make sure the brake system has been sufficiently bled and a firm brake pedal has been achieved

Agile Offroad Brake Kit



Alcon Front Brakes for INEOS Grenadier by Agile Offroad

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11036 Issue C

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BRAKE PRODUCTS LIMITED WARRANTY

Limited 12 Month/12,000 Mile Warranty

Alcon Components Ltd. ("Alcon") warrants that these brake products will be free from non-conformity in materials and workmanship for 12 months or 12,000 miles after installation, whichever comes first. In the event of a non-conformity, Alcon will repair or replace, at its sole discretion and option, the non-conforming product or part thereof free of charge. Simply contact Alcon using contact details to be found at www.alconusa.com and www.alcon.co.uk for instructions on obtaining repair or replacement. Any claims under this Limited Warranty must be made within 30 days of discovery of the non-conformity, or the claim will be null and void. Return of the non-conforming product or part thereof at the customer's expense, along with proof of purchase and/or mileage, may be required.

This Limited Warranty does not apply to brake products that have been damaged, misused, altered, or installed or used in a manner contrary to Alcon's instructions. Wear and tear on these brake products is normal, and is not an indication of a non-conformity. This Limited Warranty applies only to aftermarket brake products installed on passenger cars, vans and light trucks for on-road use. This Limited Warranty does not apply to any other use, including but not limited to racing, military (except for standard road vehicles armored for occupant protection), off-highway recreational, or off-highway competition.

DISCLAIMER: THIS WARRANTY IS LIMITED TO REPAIR OR REPLACEMENT ONLY. This Limited Warranty does not cover labor for removing or reinstalling the non-conforming brake product or part thereof, or for the labor or costs of other materials removed or reinstalled in order to repair or replace the Product or part thereof. TO THE EXTENT PERMITTED BY LAW, ALCON, AND ITS AFFILIATES, DISTRIBUTORS, RETAILERS OR AGENTS, DISCLAIMS ALL OTHER IMPLIED OR EXPRESS WARRANTIES INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, AND WARRANTY AGAINST INFRINGEMENT. TO THE EXTENT THAT ANY IMPLIED WARRANTIES MAY NONETHELESS EXIST BY OPERATION OF LAW, SUCH WARRANTIES ARE LIMITED TO THE DURATION PROVIDED BY LAW.

LIMITATION OF LIABILITY: This Limited Warranty is your sole and exclusive remedy and ALCON, and its affiliates, distributors, retailers or agents, shall not be liable for any damages, whether direct, indirect, incidental, special, consequential, exemplary, or otherwise, including property damage, lost revenues and lost profits, arising out of any theory of recovery, including statutory, contract or tort. Notwithstanding the term of any limited or implied warranty, or in the event that this Limited Warranty fails of its essential purpose, in no event will ALCON's, or its affiliates', distributors', retailers' or agent's, entire liability exceed the purchase price of this product. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitations or exclusions may not apply to you. Some states do not allow limitation on how long a limited warranty lasts, so the above limitation may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Alcon Components Ltd., Apollo, Tamworth, Staffordshire, B79 7TN, United Kingdom
Revised – July, 2016

INSTALLATION GUIDE

Notes and disclaimers concerning application

Important: Read these instructions carefully before fitment.

Alcon Components have engineered the brake calipers for Agile Offroad.



Caution:- This brake kit must be installed by a competent and suitably qualified person. It is the installer's responsibility to ensure that any brake products fitted to a vehicle are suitable for application.

Installation and clearance

Alcon have designed these components for use only for Agile Offroad. These parts have been designed and tested using information supplied by Agile Offroad.

The calipers and discs are designed to install only in wheels specified by Agile Offroad.

Pad and disc life

Alcon brake kits are designed to give increased pad area and disc thermal capacity. This will give improved disc and pad life when compared to the original brake system if used at the armoured weight. Depending upon the environment and use, brake pad and disc wear can vary considerably from one vehicle to another. Potential reasons for accelerated wear are as follows:-

1, Environment

Some driving environments generate an aggressive paste between disc and pad that continually grinds the pad and disc when the brakes are not being applied. Typical environments where this may occur include quarries and desert conditions.

2, Driving style

Brake pad life is not directly related to distance travelled. The number of brake applications and their severity vary significantly. If a driver is continually making heavy braking events then they are not only wearing the pads by the number of applications but accelerating the wear by running the brakes at a higher temperature. Brake pads wear more quickly at higher temperatures.

3, Brake drag

If, for any reason, the pad is continually in contact with the disc the pad and disc will wear more quickly due to friction and temperature. This could be from some sort of locked pressure, seized piston, seized pad, etc.

Alcon accepts no liability whatsoever for accelerated rate of pad or disc wear howsoever caused.

Brake noise

Alcon have made every effort to ensure a quiet brake. Brake noise is generated by vibrations in the whole vehicle corner. A brake kit may be quiet on one vehicle make and have noise present on another. To maintain good performance on higher performance vehicles, Alcon use higher than normal friction pad materials. These materials can be more prone to brake squeal.

Alcon accepts no liability whatsoever for any brake noise howsoever caused.

Vibration

Alcon brake discs are manufactured by a methods that keep run-out and thickness variation to a minimum. They are also balanced to strict tolerances. Where a two-piece disc is supplied, the disc is finish-machined and balanced as a full assembly.

Vibration can become present should pads and discs:-

Not be installed correctly

Not be correctly bedded-in

Be subject to extreme abuse

Alcon accepts no liability whatsoever for vibrations caused by incorrect installation, improper bedding –in or extreme use.

Notes and disclaimers concerning application (Cont'd)

Important: Read these instructions carefully before fitment.

Paint damage

Brake fluid will damage most painted surfaces. Always try to contain or catch brake fluid during removal or fitting of brake components.

Immediately clean any brake fluid spilled onto any painted surface with clean water.

Alcon accepts no liability whatsoever for any damage to paintwork resulting from spilled brake fluid.

Heat Soak

After heavy use, do not rest your foot on the brake pedal while the vehicle is stationary. This practice will cause heat to 'soak' from the disc to the caliper and so to the brake fluid.

In extreme cases the fluid may boil, leading to very poor braking performance.

In addition, maintaining contact between pads and discs when stationary can cause pad material to adhere to the disc face and give rise to vibration.

It is good practice to always use the handbrake rather than the footbrake when the vehicle is stationary.

General modifications

Do not make any modifications to the parts supplied in the brake kit.

Alcon accepts no liability whatsoever for the consequences of using brake products that have been modified without its express written approval.

Keep this document with your Owners Handbook for reference.

Every effort has been made during the preparation of this literature to ensure that the information provided is correct. However, Alcon reserves the right to change information without notice.

Installation instructions (Cont'd)

Re-fit the brake hoses

- Connect the hose to the caliper. Ensure copper gaskets are fitted either side of the banjo (between banjo and caliper housing; between banjo bolt head and banjo).
- Torque the banjo bolt to the manufacturer's recommended setting.
- Ensuring hose is not twisted, re-connect it to the vehicle, including the original fastenings to the original manufacturer's recommended torque settings.
- Check that the brake hose length allows for all combinations of steering lock and suspension movement and that the hose does not come into contact with any suspension component, the wheel or the tyre in any position.
- Do not apply any twist into the brake hose.

Bleed the brakes

- Bleed the brakes in accordance with the vehicle manufacturer's instructions.
- Only use DOT 4 brake fluid.
- The caliper bleed screws must be tightened to 18Nm (cold).
- To prevent damage to any painted surface, remove any spilled brake fluid immediately with clean cold water.
- Remove any fluid in the area around the bleed screw thread and in the end of each bleed screw.
- Check the complete hydraulic system for leaks before driving the vehicle.

Re-fit the road wheels

- When the brake system has been sufficiently bled and a firm brake pedal has been achieved, replace the road wheels.
- Torque the wheel nuts to the original manufacturer's specification.
- The brakes should now be checked for correct operation by driving the vehicle, making a few light brake applications from low speed in a safe location. Stopping performance of a newly fitted brake kit will be low initially, as all friction materials require a period of bedding in before optimum performance is achieved.

Bedding new pads and discs

Purpose: The two main reasons for bedding discs and pads in Alcon high performance brake kits are:-

- To thermally condition the discs by raising the temperature gradually, thus reducing thermal shock and preventing pad material from depositing unevenly on the disc surface.
- To wear material from the pad surfaces until there is full-face contact with the disc. This may take longer to achieve than the duration of the bedding procedure but pad area contact will increase during normal driving.

Procedure:

- Drive the vehicle to a road that allows the following procedure to be carried out safely and within the law.
- From any speed between 60 and 100 km/h, apply light to moderate pedal effort to reduce speed by about 50km/h. Avoid coming to a complete stop if possible and accelerate back to speed. After approximately ten applications, allow the brakes to cool by driving without further brake applications. It will take approximately 200 km of urban driving to complete bed-in of the pads.



Caution:- This kit must be serviced by a competent and suitably qualified person. It is the installer's responsibility to ensure that any brake products fitted to a vehicle are suitable for the application.

Servicing and maintenance instructions

- Pads should be examined regularly for wear and condition.
- Replace pads when less than 2mm of friction material remains anywhere over the surface.
- When fitting new pads, thoroughly clean the pad location faces in the caliper, removing any debris and brake dust with brake cleaner and a stiff brush.
- The protruding pistons must be wiped clean before they are pushed back into the bores.
- Discs must be replaced when the total thickness has worn below the minimum indicated on the disc or when any of the face grooves across either inner or outer face have worn away.
- If a disc shows any sign of cracking, which may occur after heavy usage, it must be replaced.
- Remember to bed-in new pads and discs as described on the previous page.

Servicing and maintenance instructions (Cont'd)

Routine Servicing

Vehicle braking system servicing must always be carried out strictly in accordance with the vehicle manufacturers instructions.

In order that vehicle braking systems remain in good working order and provide the essential safety and reliability, periodic checks and replacement of certain components is necessary.

Every month or 1500km

- 1, Check fluid levels in reservoirs and top up if necessary with DOT 4 brake fluid

Every 6 months or 10,000km

- 1, Check the brake pads for wear. Replace pads when less than 2mm of friction material remains anywhere over the surface.

- 2, Check the brake discs for wear and damage. Discs must be replaced before the total thickness has worn below 27mm. This figure is marked on the outside rim of the disc.

If a disc shows any sign of cracking, which may occur after heavy usage, it must be replaced.

Every 18 months or 30,000km

- 1, Completely drain the braking system and renew the hydraulic fluid (this period may be more frequent in high humidity territories).

- 2, Remove brake pads and check their condition particularly between the friction material and metal backing plate. If this is present, renew pads regardless of their state of wear.

- 3, Visually examine all hydraulic units for signs of fluid leakage. Replace or overhaul if necessary.

Every 3 years or 150,000km

- 1, All hydraulic assemblies should be replaced or overhauled.



**Caution:- This kit must be serviced by a competent and suitably qualified person.
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fitted to a vehicle are suitable for the application.**

INSTALLATION GUIDE



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