



Alpha R35 GT-R Carbon Ceramic Brake Package



The goal of Alpha Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs Alpha Performance will never compromise the quality or performance of our products. In addition, Alpha Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. Alpha Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.

Carbon Brake Rotor Handling and Care

- Care needs to be taken when handling your new carbon rotors. These rotors are designed to take extreme pressure and heat under braking but are still fragile.
- Make sure not to hit or tap the edge of the rotor. The material will chip easily.
- Care needs to be taken when removing and installing wheels making sure you don't set the wheel on the rotor. This will damage the rotor.
- Always make sure there is a lug nut holding the rotor at all times to prevent it from sliding off while working on the vehicle.

These instructions will cover all variations of the Alpha carbon brake packages and options.

- Front rotor installation 2012+ 393mm Rotors
- Front rotor installation 2011 and prior 380mm Rotors
- Rear rotor installation in all years

There is an addendum at the end of the instructions. This covers milling guide lines for the modification and clearance of the calipers. The calipers will have to be modified for all years in the rear. The front calipers will only have to be modified for 2012+ years using the larger 393mm rotors.

Front 2009-2011 Front Rotor Installation 380mm Rotor

- For use of the smaller 380mm front rotors, installation is straight forward. No caliper machining or modifications are required.
- Simply remove the factory brakes and install the Alpha Carbon rotors and Pads following the factory service manual procedures.

Front 2012+ Front Rotor Installation 393mm Rotors

- The front calipers, knuckle, and backing plate will have to be modified to accept the larger 393mm rotor.
- Follow the factory service manual for disassembly and reassembly.
- Start by removing the caliper completely from the car for clearance.
- **(See the addendum at the end of the instructions for milling guide lines)**
- Remove the rotor.
- Remove the front wheel bearing and backing plate.

- Since the rotor is much larger, the backing plate needs to be modified.
- Cut the backing plate around the 4 mounting bolts for the wheel bearing. This will be reinstalled as a spacer to keep the ABS sensor gap correct. **(See photo reference 1)**

Note: Be careful of the wheel bearing face towards the axle, what appears to be a wheel bearing seal is the pickup ring for the ABS sensor. Make sure not to scratch this face otherwise it may cause an ABS code.

- Reinstall the wheel bearing and the trimmed backing plate.
- Use the supplied reflective heat wrap to cover the ABS sensor. This needs to be done to protect the ABS sensor from heat due to trimming the backing plate.
- Mount the caliper spacer to the knuckle. The area of the knuckle shown in the picture needs to be ground down. Depending on the casting, this area may contact the back side of the rotor.
- Use the caliper spacer as a guide and remove enough material until the surface is flush with the caliper spacer. **(See photo reference 2)**
- Install the rotors, use a lug nut to hold the rotor against the hub when installing the caliper.
- Install the milled caliper with the provided spacer. Pay attention when installing the caliper making sure there is proper clearance to avoid damaging the rotor.

Rear Rotor Installation All Years with Parking Brakes

- This installation will use the parking brake assemblies but the backing plate needs to be modified to clear the larger rotor.
- Follow the factory service manual to completely remove the following.
 - Caliper
 - Rotor
 - Parking Brake Shoe Assembly
 - Wheel Bearing
 - Backing plate
- The rear calipers will have to be clearance for the larger rotors.

- **(See the addendum at the end of the instructions for milling guide lines)**
- The backing plate will have to be modified.
- Use the picture as an example, there is a flared ridge on the backing plate at the outside of where the shoe material is that has to be removed.
- Completely remove this ridge, being cautious of the 6 pads where the shoes sit. **(See photo reference 3,4,5)**
- Follow the factory service manual to reinstall the backing plate, wheel bearing, parking brake assemblies, and rotor. Use a lug nut to hold the rotor in place. The parking brake assemblies may need to be adjusted for the new rotor. Set to factory clearance.
- Pay attention when installing the caliper making sure there is proper clearance to avoid damaging the rotor.

Brake Line Install

- Install the Alpha SS Brake Lines.
- Make sure to use a high quality brake fluid when bleeding.
 - o Examples: Motul RBF 600 DOT 4
 - o : Castrol SRF
- Due to the reflective properties of Carbon Rotors, a high quality brake fluid is mandatory due to the possibility of increased heat the caliper may see.

Photo References

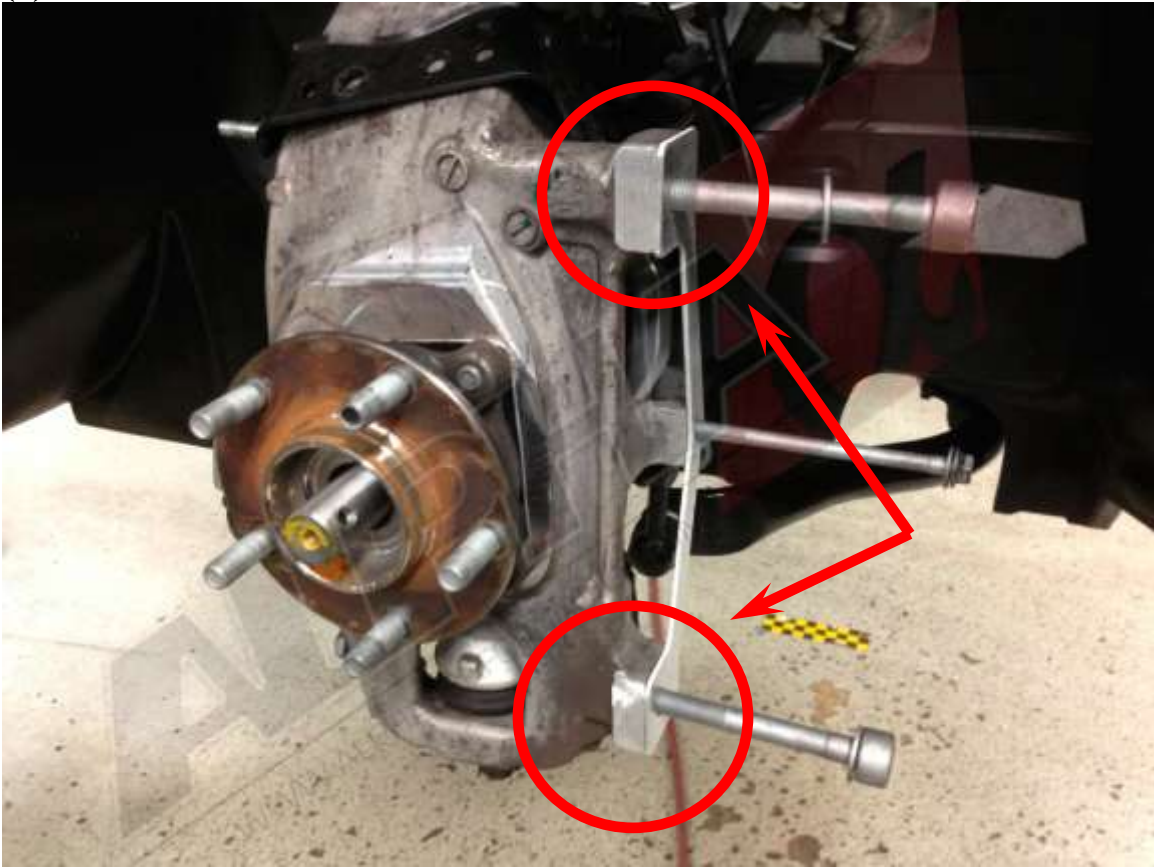
(1)



Cut the backing plate like in the example to be used as a spacer.

ALL
Performance Pack

(2)



Grind down these areas using the spacer as a guide

ALL
Performance Pack

(3)



This lip needs to be cut off all the way around the backing plate

(4)



Cut the lip off as shown all the way around the backing plate

ALL
Performance Packa

(5)



Before on the left and after on the right. Make sure to paint any bare metal surface to prevent rust.



Addendum

GT-R Carbon/Ceramic Brake Kit

Caliper Milling Guidelines

The goal of Alpha Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs Alpha Performance will never compromise the quality or performance of our products. In addition, Alpha Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. Alpha Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your Alpha Performance product(s) please call us for technical assistance. The Alpha Performance tech line can be reached during business hours at 847-709-0530 for Alpha Performance products only.

INTRODUCTION:

The following guidelines describe the modifications of GT-R Brake Calipers, via milling, with respect to width clearance for the rotors included in the AMS GT-R Carbon/SiC Brake Rotor Kit.

AMS recommends customers use a qualified machine shop to perform these modifications.

SCOPE:

These guidelines apply to modification of the rear GT-R Brake Calipers for all models years as well as 2012 and up front GT-R Brake Calipers.

OBJECTIVE:

The goal is to remove $.070 \pm .005$ from each of the four (4) ribs on each caliper to provide adequate width clearance for the respective brake rotors.

NOTE: The same amount of material is removed for both front and rear caliper sets. Refer to Figure 1 below:

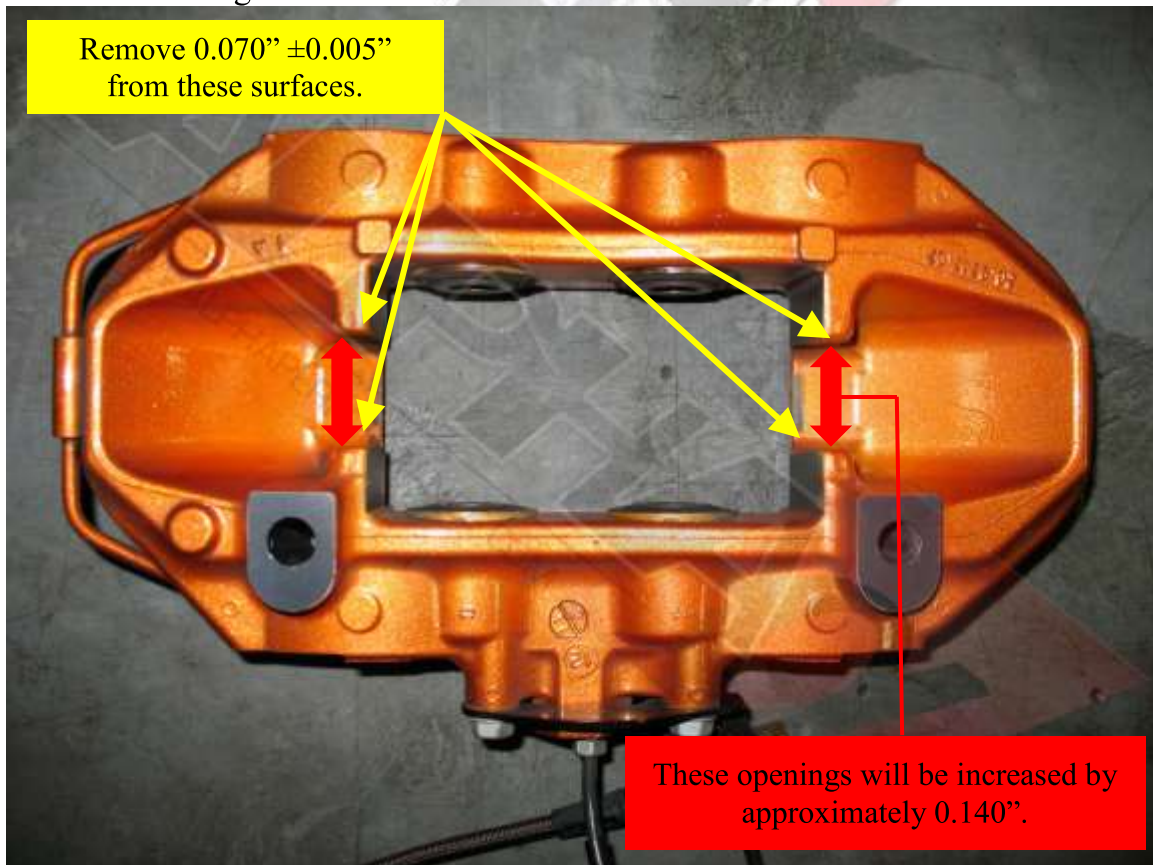
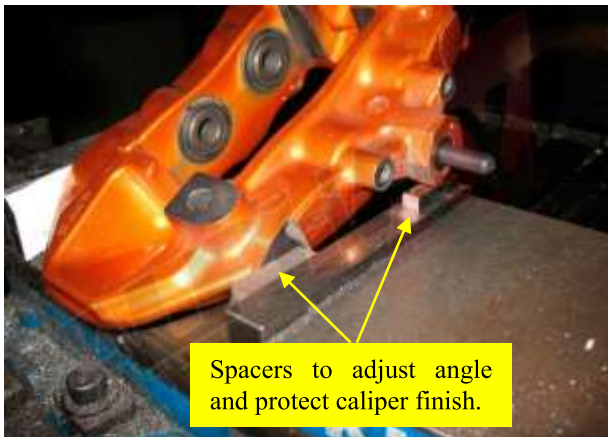


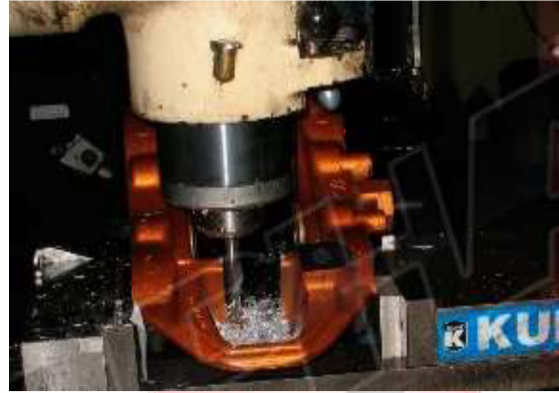
Figure 1: GTR Rear Brake Caliper showing areas to be relieved.

RECOMMENDED TOOLING:

1. Vertical Milling Machine
2. Standard 6" or larger Milling Vise with minimum jaw depth of 1 3/4"
3. End Mill: AMS recommends using an end mill with the following specifications:
 - a. Diameter: 0.500 - 0.625"
 - b. Length of Cut (LOC): 2.500"
 - c. Overall Length (OAL): 4.500"
 - d. Corner Radius: 0.125"

REFERENCE PHOTOS:





RECOMMENDED ON VEHICLE BEDDING IN PROCEDURE

1 *Breaking-in*

Creating a perfect contact-pattern between rotor and brake pad surface.

10 stops with low pressure and low temperature from 150 km/h (90 MPH) to approximately 80 km/h (50 MPH).

Distance between each brake stop approximately 600 – 800 meters (600 to 800 yards).

2 *Heating-up*

Warm up in order to initiate some core heat in the whole brake system.

A sequence of 5 stops with medium to high pressure from 180 km/h (112 MPH) to approximately 60 km/h (37 MPH) with maximum acceleration between the stops.

After the last stop cool down for 3 minutes with the speed preferably not higher than 100 km/h (62 MPH).

3 *Recovery Stops*

3 to 5 stops with low pressure from 150 km/h (90 MPH) to approximately 80 km/h (50 MPH).

Distance between each brake stop approximately 600 – 800 meters (600 to 800 yards).

End of Document.

