



**SUPERFORGED**

**S60/S40 PERFORMANCE BRAKE KIT**

# **INSTALLATION GUIDE**

# PLEASE READ BEFORE INSTALLATION

## WHEEL INTEGRITY AND FITMENT

Check wheel fit BEFORE installing SuperForged braking system (hereinafter referred to as “the System”). Determine whether the rim needs spacers or needs to be replaced.

## RUN-IN OF BRAKE PADS AND ROTORS

Proper running-in of brake pad and brake disc, which is crucial to the performance of new braking system, must be carried out to avoid major influences on the braking effects and running-in period. Jitter of braking system, which is mainly caused by the unsmooth surface of brake disc, can be greatly reduced through proper running-in.

## VEHICLE SUSPENSION

The System is designed for the vehicles with original suspension and travel height. Please check if the System’s brake line has proper length if the vehicle is installed with lifted or lowered suspension kit

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## DISCLAIMER

### SPACING BETWEEN CALIPERS AND RIM

In general, 17" and 18" rims are fitted with brake discs with diameter of 330 mm and 355 mm respectively, while the 19" and 20" and larger rims should be respectively fitted with brake discs with diameter of 380 mm and 405 mm. The spacing between rim spoke and calipers, which is of the highest importance, should be verified to see if it satisfies the System’s spacing. You and your installer tech bear the responsibility for the final assembly of rims and the System. SuperForged is not responsible for damage, and we do not provide high-temperature paint kits.

### SPACING BETWEEN CALIPERS AND SPOKE

The spoke shape should be considered while determining the ET value for wheels. You and your installer should check, select, and install the correct sized wheel spacers if the caliper will not allow the wheel spoke to pass or if contact seems inevitable. SuperForged is not responsible for damage, and we do not provide high-temperature paint kits.

### BRAKING NOISE

High performance composite brake pads can generate higher noise than other brake pads, especially when cold. Anti-noise lubricant can help reduce both noise and squeal, however, the client will ultimately be responsible for any noise and squeal generated by brake pads. In most cases, re-bedding the brakes will help solve noise issues.

## BRAKING VIBRATION/SHAKING

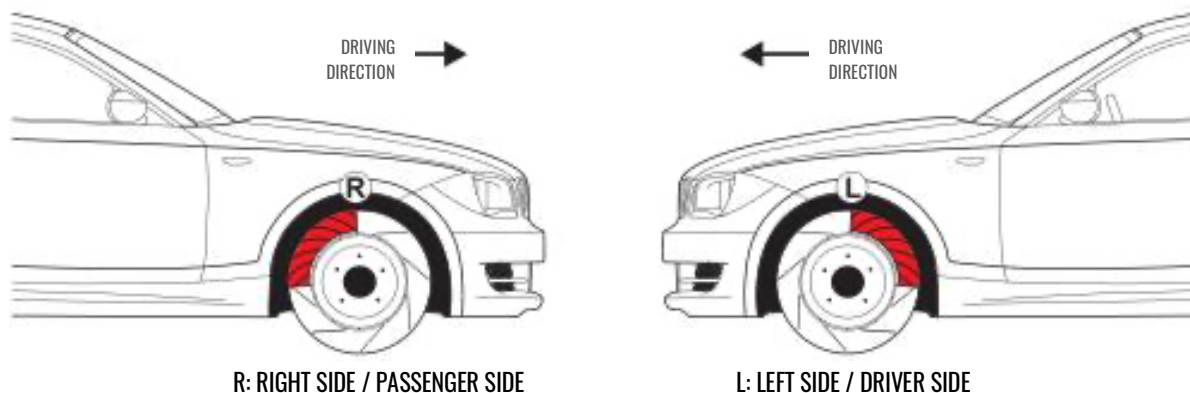
In general, the System will vibrate due to improper installation and running-in of brake pad and brake disc, or improper selection of brake pad in specific driving environment. The brake pads can be deformed or damaged under the extreme conditions, but brake disc deformation due to improper running-in is the typical reason for the vibration. Improper installation or running-in of the System will lead to unsmooth surface of brake pad and worsened vibration. What's worse, the brake disc will be permanently damaged if its unevenness/vibration fails to be solved in time. Please carefully read and master the installation and running-in steps in the Manual. For any query, please contact the technicians for help. SuperForged shall be exempted from the liabilities of brake disc vibration or deformation due to the extreme conditions or improper installation and running-in.

## PART REPLACEMENT/MAINTENANCE

As replacement/maintenance parts of SuperForged are exclusively designed for the System, other brands of product or independent replacement/processing/maintenance should be undertaken by a qualified installer. SuperForged shall be exempted from the liabilities of damages caused by improper material specification, surface treatment or assembly.

## DIRECTION OF BRAKE ROTOR

Designed as pilot vent (as shown in red part of diagram below), the SuperForged brake disc is marked with “L” or “R” for easy identification. Make sure to install the new brake disc at the correct side of vehicle; otherwise, it will weaken the cooling capability of brake system. Do not judge the installation direction of brake disc by the patterns on surface on brake pad.



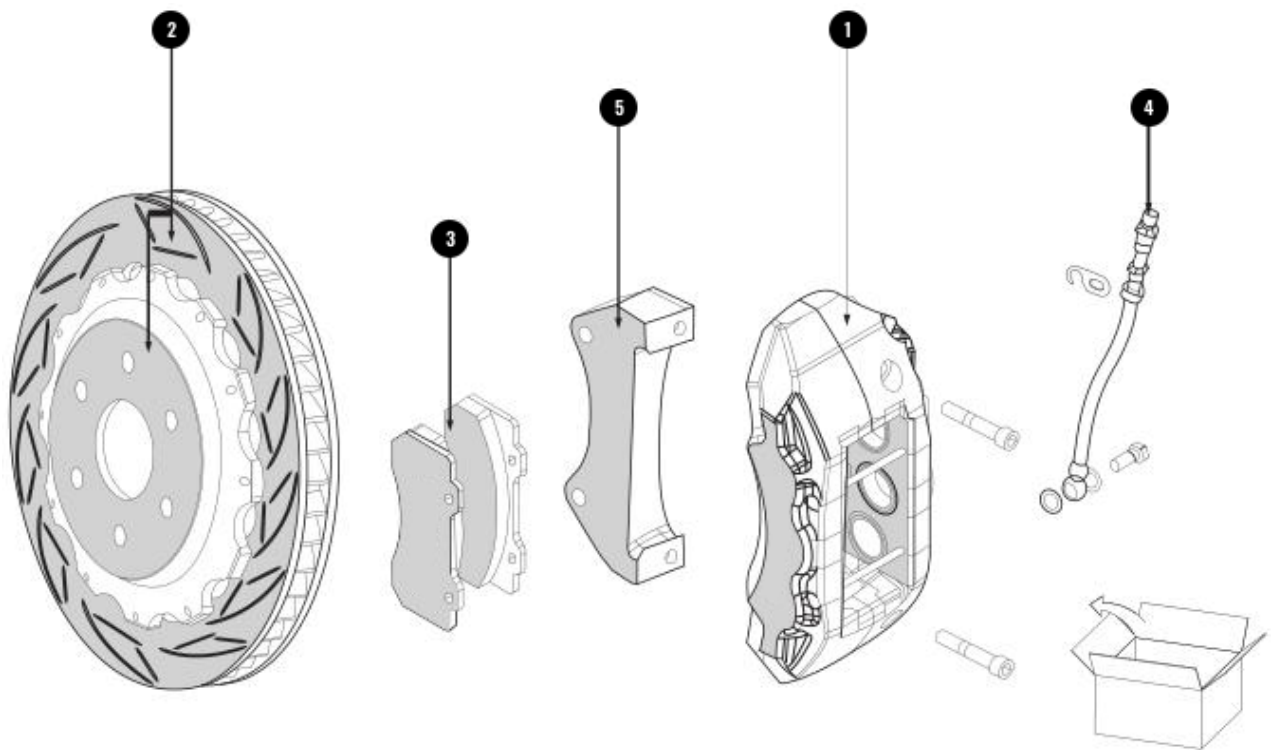
## EXPOSURE TO CHEMICAL AND BRAKE FLUID

Make sure to spray the cleaning solvents and brake fluid appropriately and clean them immediately after spraying, for they are corrosive and may damage the spray coating or anodic oxidation coating of aluminum. SuperForged shall be exempted from the liabilities for the surface damages of calipers, center hub and adapter due to long-term contact with chemicals and brake fluids.

## PACKAGE CONTENTS

- Multi-piston aviation aluminum forged calipers.
- Drilled, slotted, or drilled and slotted vented brake rotors with thermal treatment
- Forged center hats (preinstalled on brake rotor)
- Brake pads (ceramic composite) which are preinstalled in calipers.
- Stainless-steel brake lines (commonly referred to as “brake line”)
- Copper gaskets
- Steel buckles
- Aviation aluminum adapter brackets (also referred to as “adapter” or “bridge fitting”)

*Note: All pictures are used for recognition of components only and may differ from actual components.*



# INSTALLATION STEPS

## STEP 1

*Note: The pictures are for reference only and may be slightly different from the actual system/model, brake line and assembly. The installation steps of the Manual apply to the installation of the System. If you have questions, please consult a professional.*

### **Jack up the vehicle & remove the wheels**

Determine the correct position of jack by referring to the vehicle owner's manual to jack up the vehicle to access and remove the existing wheel and tire.



## STEP 2

### **If a brake pad wear sensor component is attached directly to the existing brake pads**

- Disconnect the brake pad's wear sensor component and put it aside.

### **If a line from the brake pad wear sensor is connected to the brake pads**

- Disconnect the sensor line from the brake pad's wear sensor interface only after installation of the new brake system is complete. If you disconnect the sensor early, the system will send a false error to the brake pad wear sensor interface indicating a problem.

*How wear sensor's work: An induction line for the brake pad's wear sensor is arranged below the brake pad. When the brake pad wear reaches a preset limit, the exposed induction line will trigger a short circuit causing a warning indicator to illuminate on the dash until a new pad replaces the worn-out pad.*



### STEP 3

Dismantle the original calipers; do not dismantle the original brake line in advance. Keep the brake line and the original calipers connected and handle them properly.



### STEP 4

#### **Dismantling the original brake discs**

Some brake discs are fixed with screws, and they need to be removed using the matched impact screwdriver.

*Note: If brake disc cannot be dismantled due to rust, use a rubber hammer to knock the outer edge or center hub of brake disc to remove it.*

## Brake shoes

Brake shoe needs to be adjusted to remove the original brake disc or install new brake disc. For any wear of rear drum, adjust the brake shoe to larger diameter and form “stairs” on the center hub of the original brake disc; in such case, readjust the brake shoe to smaller diameter to take out the drum.



*Note: Re-adjust the brake shoe to smaller diameter before installing the new brake disc for the inner diameter of center hub of improved brake disc is the same with the size of original drum. Adjust the parking brake according to manufacturer’s suggestions. Please determine the correct adjustment technique by referring to the manufacturer service manual or similar publications.*

## STEP 5



*Note: As the fender (dust shield) on the back of improved brake disc may have contact and friction with brake disc, first test it by installing the brake disc onto the spindle head, rotating it and checking if the fender comes into contact with it. If there’s contact, knock the fender with hammer and slightly bend it to avoid collision.*

If you cannot eliminate any collision/friction through the methods above, unscrew the fender of some vehicles to remove it if possible; if spindle nose of some vehicles needs to be dismantled to remove the fender, the fender must be permanently cut off using grinding wheel to install the

brake system correctly. Do not remove the fender by dismantling the spindle nose; otherwise, the system will be installed improperly. Instead, cut it to remove the fender part that may collide with the brake disc.



**WARNING:**

THE REMAINING INSTALLATION STEPS REQUIRE WEARING OF EYE PROTECTION AND GLOVES TO AVOID EXPOSURE TO HAZARDS. GO AHEAD AND PUT THEM ON NOW. WE'LL WAIT.

## STEP 6

### Rust Removal

Remove the rust on spindle nose using a wire brush to avoid any shimmying or shaking due to improper fitment between brake rotor and spindle nose.



## STEP 7

### Install the new adaptors

Install the adapter onto the knuckle (claw) in the proper position using the provided adaptor screws. Ensuring correct adapter positioning





The adapter can be installed onto the claw in several different ways that may seem correct. However, only one specific position is correct and will avoid collision between brake components. Avoid improper adaptor installation by following the schematic diagram included with your adaptor. Failure to install the adaptor correctly at this point could likely lead to the destruction of your new brake kit.

### Adapter torque specs

Please refer to your vehicle owner’s manual for any manufacturer specific torque specs. If no specs are provided use the screw and torque specifications we’ve provided below.

SCREW SPECIFICATION	RECOMMENDED TORQUE	SCREW SPECIFICATION	RECOMMENDED TORQUE	SCREW SPECIFICATION	RECOMMENDED TORQUE
M10	95Nm	M12	115Nm	M14	170Nm

### Difficulty installing adaptor onto the claw

Although unlikely, sometimes adaptors may not seem to fit due to imperfections on the claw. If you are having difficulty due to casting seams or other imperfections, you can use a grinder to smooth the imperfections.



## STEP 8

### Install the new brake rotors

If the brake disc has fixed screw holes, fix the fixed screws using impact screwdriver and lock the brake disc diagonally using hub screws and make sure brake disc is firmly fixed on the surface of spindle nose.

*Note: Make sure to install the brake disc at the correct side of vehicle; otherwise, it may weaken the cooling capability and lead to squeal in the braking process. Please determine the correct installation direction by referring to the pictures earlier in this document.*



## STEP 9

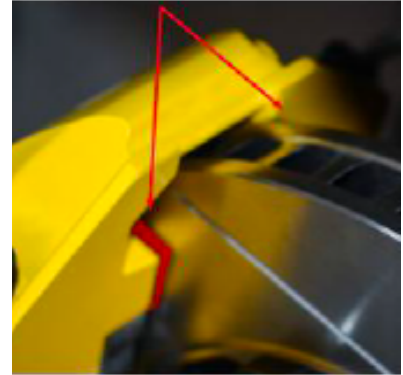
### Install the new calipers

Install the calipers onto the adapter. The draining nozzle should be located at the top of calipers. Fasten the screws one by one using torque wrench. For calipers that have pads pre-installed, you can lightly knock the calipers using rubber hammer to insert calipers into brake disc.



## Check the caliper clearances

Once the calipers are installed, check if the clearance and spacing at front/rear side of calipers and brake disc are equal; otherwise, recheck if the brake disc and adapter are installed properly and reinstall them to make sure the calipers and brake disc are centered.



## STEP 10

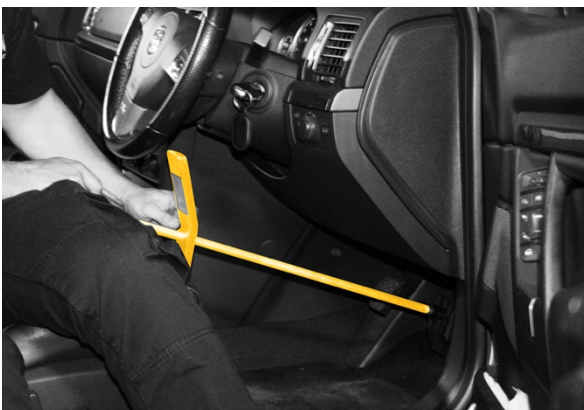
### Install the new brake lines

Install the male end interface of brake line onto the brake line interface at back of calipers using brake line screws and copper gaskets, and fasten them at the **torque of 20Nm**, as shown on the right.



We recommended only slightly tightening the screws at first so you can adjust the line laterally and ensure a good connection. Don't over-tighten the screws or it may strip the threads and permanently damage your SuperForged calipers.

*Note: Once brake line is installed, turn the wheel repeatedly to make sure brake line has no excessive pulling or interferes with suspension components.*

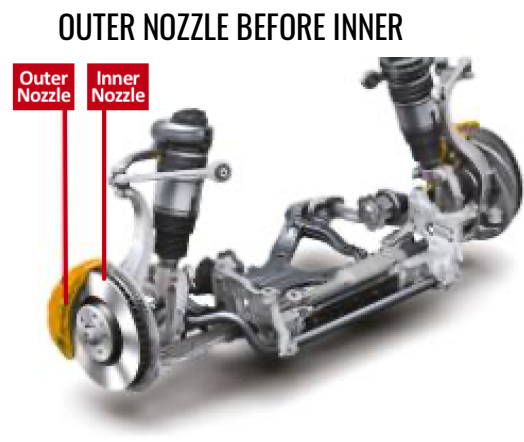
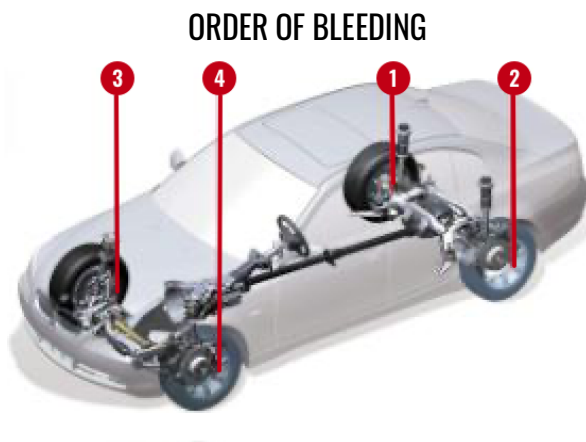


## STEP 11

### Bleeding your new brake system

Bleeding should be started at the farthest caliper from the brake's master cylinder (please refer to your owner's manual for the master cylinder location). Use the following order to properly perform the 4-wheel bleeding procedure. At each caliper you will begin with the outer nozzle first on each caliper before moving to the inner nozzle. Follow the process on the right.

- A. Right (Passenger) Rear caliper – outer nozzle
- B. Right (Passenger) Rear caliper – inner nozzle
- C. Left (Driver) Rear calipers – outer nozzle
- D. Left (Driver) Rear calipers – inner nozzle
- E. Right (Passenger) Front calipers – outer nozzle
- F. Right (Passenger) Front calipers – inner nozzle
- G. Left (Driver) Front calipers – outer nozzle
- H. Left (Driver) Front calipers – inner nozzle



Keep an eye on the brake fluid levels in the storage tank. It is important that you do not introduce air into the brake pump, oil lines, or calipers. To prevent this, you need to make sure you are continuously ensuring the brake fluid reservoir is filled.

Remove the dust covers on the bleed screw on the caliper. Starting with the vehicle's right rear caliper, connect a transparent tube to the outer bleed screw and the other end to a plastic container where excess fluid will safely overflow. Have a friend continuously step on the brake pedal while the other person loosens the bleeding screw on the calipers outside the vehicle in

the order provided above. Air will come out along with brake fluid – when the air and bubbles stop, and only fluid comes out, fasten the nozzle screws. Repeat this procedure to the nozzles of each caliper according to the order above. When complete. Top off the brake fluid and **confirm** that nozzle screws are at the torque of 14Nm.



**WARNING – CLEAN BRAKE FLUID OVERFLOW:**

CLEAN ANY OVERFLOW OF BRAKE FLUID FROM ALL PAINTED SURFACES IMMEDIATELY TO PROTECT THE CALIPER SURFACES FROM BEING CORRODED BY THE BRAKE FLUID. IT IS RECOMMENDED TO SPRAY WATER OVER ALL NOZZLE SCREWS AFTER FINISHING EXCAVATION AND CLEAN IT USING AN AIR GUN.

## STEP 12

### Safety and Functionality Check

Check that all screws/bolts are fastened, and brake lights are normal. Make sure inner spoke of wheel does not collide with the calipers. Check the position of spokes on the rear side of the rim avoid interference to the calipers. If there's no issues, install the wheel and test the vehicle carefully in safe area to make sure all components are normal.





## CONGRATULATIONS

YOU HAVE INSTALLED YOUR NEW SUPERFORGED PREMIUM PERFORMANCE BRAKE KIT

**BUT YOU'RE NOT DONE YET. YOU NEED TO BED YOUR BRAKE PADS!**

## APPENDIX A - BRAKE PAD BEDDING PROCESS

### **You must perform this process to ensure proper stopping performance**

1. The brake disc must be cleared of coatings before entering the running-in process. Drive the vehicle at 40km/h and slowly apply brake, until the vehicle is stopped. Repeat this process 10-15 times making sure to pause for 1 min between every 2<sup>nd</sup> or 3<sup>rd</sup> time to cool the brake disc. Visually check that the brake disc has an even metal luster before continuing the next steps.
2. *Note: Failure to cool discs between steps 2/3 can generate excessive heat increasing the possibility of brake vibration/shaking of vehicle.*
3. Apply brakes several times at the speed of 40-45 mph to heat up the pad and discs to a working temperature.
4. *Note: Overspeed driving at public roads is not supported. Please do overspeed test in the safety area far away from public traffic.*
5. Do the following 10 times. Accelerate to the speed of 55 mph and brake firmly (without triggering ABS) to decelerate the vehicle to the speed of about 5 mph. Do not stop the vehicle completely or brake material will not properly transfer to the brake disc evenly (which could lead to vibration/shaking).
6. The color of brake disc will deepen after 8 or 9 cycles, and it will not disappear completely until the brake system is completely cooled. Smoke will be generated, and a burning smell will exist as the anti-rust oil on the brake disc and surface of brake pad is worn down. This is all normal.
7. After the 10<sup>th</sup> time braking firmly, accelerate and keep cruising for about a mile and try not to brake as much as possible. In this step, we want to cool the system to an ambient temperature before further use.
8. If the System fails to reach optimal performance after finishing the first running-in period above, you can repeat the process.

## AVOIDING PROBLEMS

- Do NOT assume that your calipers fit within your OEM or aftermarket wheels just because that is what you heard or that you didn't see it spelled out for you.
  - Caliper contact with wheels WILL cause damage that you could have prevented by CAREFULLY checking fitment.
  - Damaged paint can be touched up using high temperature touchup paint from a local auto parts store.
  - SuperForged does not provide color matched touch-up paint.
  - SuperForged is not responsible for any damage. You are responsible for the installation process so hire someone you can trust.
- Install your new brake kit correctly and keep up with maintenance to
  - improve the feel of the brake pedal
  - reduce brake noise and squeal
  - increase the service life of brake disc and brake pad
  - sustain optimal performance of the kit.
- The brake pad bedding process should be handled carefully to avoid vibration/shaking due to deformation and unevenness of brake disc.
- It is not recommended to do brake pad bedding process in humid weather or on hot pavement.