

## Trouble shooting for vibration after just finishing the installation

Solution to the vibration occurs during driving without braking:

**When you install the upgraded brake system, you may change the wheel or install spacers at the same time, the following steps should be carried out carefully:**

1. The balance between the tire and wheel is a must.
2. Check the outer diameter on the hub axle sleeve. The central point of the spacer and wheel should be matched. Please note the tolerance can not exceed 0.05mm.
3. Use leveling gauge to check if the tolerance of skewness on the top/bottom exceeds 0.15mm. ( see picture 1)
4. If the value is over 0.15mm, the tolerance of skewness on the hub should be less than 0.05mm. If it exceeds 0.05mm, change the original hub or bearing.
5. If the skewness on the hub is less than 0.05mm but the tolerance exceeds 0.15mm after fitting the rotor, use the pipe thread sealing tape around the hub. Put back the rotor and run step 3 again to check if the tolerance is less than 0.15mm. (see picture 2)
6. You should use a torque wrench while tightening the wheels but not a pneumatic tool. If the torque you use is too excessive, the aluminum central bells will be deformed.
7. Get a professional repair shop to examine the tire dynamic balance. (Check the tire balance while the tire is installed on the car.)
8. You need to measure the aluminum rim by leveling gauge for the cheap rims always come with rough roundness. Please measure skewness on the top/bottom and left/right when rotating it. Normally it can not exceed 0.05mm.



Picture 1

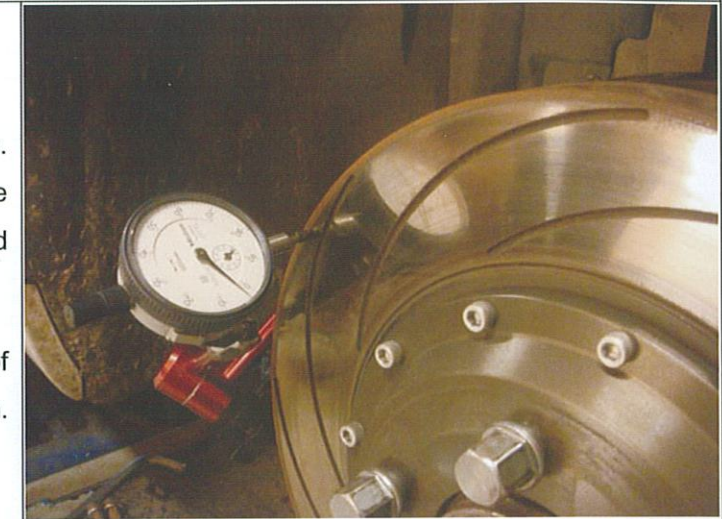


Picture 2

## Trouble shooting for the vibration occurs during driving but obviously vibration when braking

**When you install the upgraded brake system, you may change the wheel or install spacers at the same time, the following steps should be carried out carefully:**

1. The balance between the tire and wheel is a must.
2. Check the outer diameter on the hub axle sleeve. The central point of the spacer and wheel should be matched. Please note the tolerance can not exceed 0.05mm.
3. Use leveling gauge to check if the tolerance of skewness on the top/bottom exceeds 0.15mm. ( see picture 1)
4. If the tolerance is over 0.05mm, you have to use a particular tool (picture 2) to clean the disc mounting surface and make all surface clean. Then, install the rotor and screws. ( Do not use pneumatic tools)
5. Then, check if the skewness is less than 0.05mm. If it's still over 0.05mm, check if the skewness on the hub is less than 0.02mm (picture 3). If it's over 0.02mm, change the original hub or its bearing.
6. You should use a torque wrench while tightening the wheels but not a pneumatic tool. If the torque you use is too excessive, the aluminum central bells will be deformed.
7. You need to measure the aluminum rim by leveling gauge for the cheap rims always come with rough roundness. Please measure skewness on the top/bottom and left/right when rotating it. Normally it can not exceed 0.05mm.



Picture 1



Picture 2



Picture 3