

# TECH FILES

## Bulletin

## LUBRICATION: CALIPER ASSEMBLY

December 2011

### Applications:

All

### Symptoms:

- Brake noise - squeal and other noises
- Premature, uneven or tapered pad wear
- Higher than normal brake temperatures

### Causes:

- Bare metal-to-metal contact of components rubbing against each other
- Inability of the caliper to move freely (non-fixed styles)
- Inability of the disc pads to move freely in the caliper, bracket or against the anchor plate

### Solution:

- **Proper lubrication allows the pads and caliper to move and function as designed. As an added benefit, it has proven to reduce brake noise, a critical customer metric.**

Not all lubricants are created equally, some can cause rubber components in the caliper to swell and resist movement. Other compounds do not provide much protection of metal-to-metal contact points. And since brake systems experience a wide heat range, it's important to select a product that will do the job under those conditions.

This is why we recommend a high quality synthetic product, such as Permatex® Ultra Slick® Ceramic Extreme Brake Lubricant (24126). It will not affect the rubber components, and will perform well regardless of the contact surface materials. It has a temperature range of -65°F (-54°C) to 2800°F (1538°C). Finally, it resists washout while protecting against water and salts.

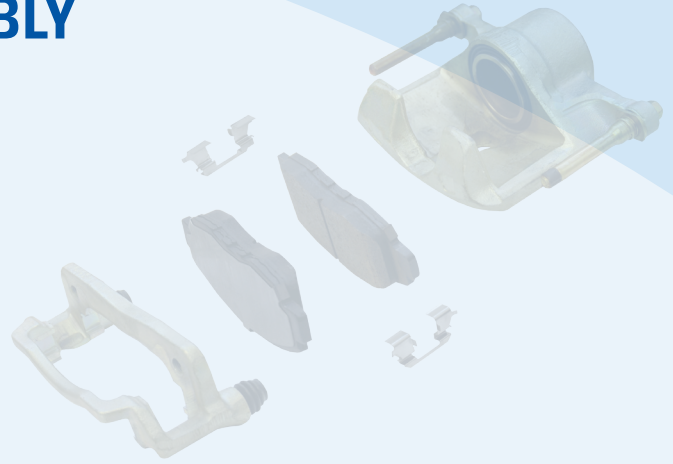
**DO LUBRICATE** all metal-to-metal surfaces that rub against each other. A film should also be applied to the backside of each disc pad even if an insulator is used. See the pictures featured on the back side for common lubrication points.

**DON'T over lubricate!** A little goes a long way, more isn't better especially around brake friction material. Excess lube can find its way onto areas that should not have any lubrication applied.

**NEVER** allow the lube to contact the friction material or the disc pad rubbing surface of the rotor. If any should accidentally contact either area, remove with brake cleaner and a clean shop towel.

### Benefits:

- **Brake noise reduced/eliminated** – No metal-to-metal sounds from contact
- **Improved pad life** – Caliper will float as designed, enabling retraction after pedal release
- **Less brake drag** – Pads move freely preventing continuous rubbing against rotor in off brake condition



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## WHY PERMATEX® ULTRA SLICK® CERAMIC EXTREME BRAKE LUBRICANT AND NOT...

**Petroleum based products** - Petroleum products can cause rubber components (seals) to swell and fail, leading to potential brake failure and system contamination.

**Molybdenum Disulfide (Moly)** - Moly products are excellent when applied to metal surfaces but do not work well with rubber. Depending upon the carrier (petroleum), they can react with rubber the same as petroleum products.

**Silicon** - Silicon greases are generally good for non metal components because they do not react with them (resist swelling). They are not the best choice for metal surfaces due to their lower pressure capabilities.

**Anti-seize compounds** - These can be excellent for preventing galling, seizing and corrosion. Widely used on fasteners to prevent galvanic reaction. They are not designed to be a lubricant, especially a brake lubricant.

**Grease** - Low quality greases do not have a wide temperature range, cannot withstand washout and lose their lubricity over time. High pressure and anti-corrosive properties are also lacking.

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## COMMON LUBRICATION POINTS

**CAUTION:** Apply a thin film of lubricant.  
Excessive amounts can cause brake performance issues.

Keep pad friction surface and rotors free from all lubricants.



**24126** – Permatex® Ultra Slick® Ceramic Extreme Brake Lubricant is the recommended product for all your brake lubrication requirements.

