



# EXTERIOR COMPONENTS

SYNTHETIC LUBRICANTS FOR THE LONG HAUL

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## DOORS & WINDOWS

### Windshield

When a car hits a bump, the high frictional characteristics of rubber window seals - particularly when they come in contact with painted sheet-metal surfaces - can cause a light, squeaky, distracting noise called "itching." Fluorinated oils, chemically compatible with elastomers, will stop the itching.

- Rheolube® 462** - Wiper motor gears
- UniFlor™ 8170** - Windshield seal

### Sunroof

Sunroof systems are controlled by a motor and cable. Unlike window regulators, these components are often not exposed to the elements. A transparent synthetic grease with low oil separation that resists water, withstands temperatures of -40°C, and offers vibration and noise reduction is recommended.

- NyoGel® 774L** - Sunroof mechanisms
- UniFlor™ 8170** - Sunroof seal
- UniFlor™ 8470** - EPDM BSR itching

### Electrical

Contact lubricants are used to prevent wear, environmental corrosion and "fretting corrosion," micro-motion caused by vibration and thermal changes within the connector housing. By reducing the formation of metal oxide at the mated interface, synthetic lubricants extend contact life and keep resistance low.

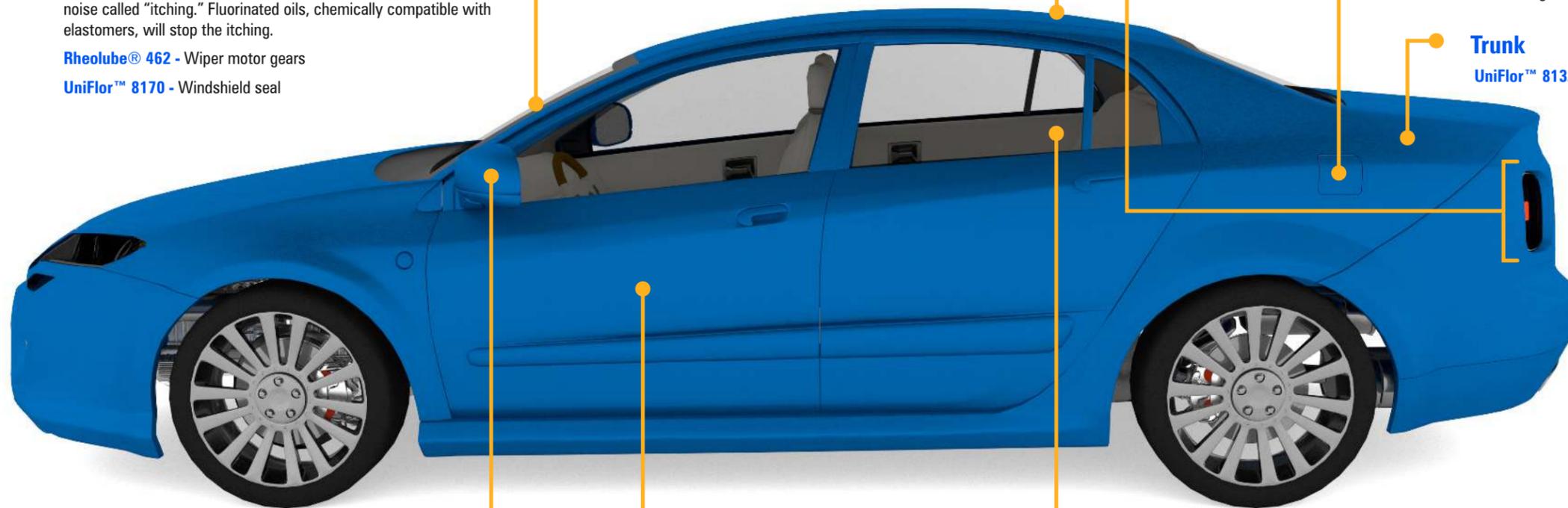
- NyoGel® 760G** - Head & taillight connectors
- NyoGel® 760G** - Trailer tow connector

### Gas Door

- UniFlor™ 8472** - Hinge area

### Trunk

- UniFlor™ 8132** - Trunk latch



### Mirrors

Increasingly, side mirrors are electrically controlled. Their small motors and gears must operate flawlessly at temperatures to -40°C, even when exposed to rain, saltwater, and car washes. Compounding the lubrication challenge, the plastic exterior housing acts like an acoustic amplifier that can create an annoying buzzing noise. A light viscosity, synthetic hydrocarbon damping grease withstands the cold, offers vibration and noise reduction, and resists the elements.

- NyoGel® 774VLF** - Power folding mirrors
- Rheolube® 362HB** - Power mirror gears

### Doors

- NyoGel® 760G** - Connectors
- Instrument Grease 732C** - Switches
- Rheolube® 362HB** - Latch mechanisms
- UniFlor™ 8172** - Door handles
- UniFlor™ 8470** - EPDM BSR itching
- UniFlor™ 8512** - Key cylinder

### Windows

- Fluorocarbon Gel 880** - Window regulator assembly
- NyoGel® 774 Series** - Switches
- UniFlor™ 8170** - Window rails
- UniFlor™ 8170** - Window seal

## Door Lock Actuators

Door lock actuators are essentially plastic gearboxes with small motors. They are often expected to survive 50,000 cycles, operate at temperatures as low as -40°C and resist rain, car wash detergents and other environmental stressors. A synthetic hydrocarbon, lithium-soap grease is a cost-effective solution for this application.

Some OEMs require door actuators to operate in virtual silence; others want audible feedback when the door is locked or unlocked. Synthetic damping greases offer economical sound control.

## Key Cylinders

Key cylinders are installed after cars are painted. If any defects are found in the paint job, a Xenon light is used to cure paint touch-ups rapidly. The light also radiates sufficient heat to cause some cylinder greases to leach, discoloring the paint. Perfluoropolyether lubricants can "take the heat," to prevent these grease-based paint blemishes.

## Window Regulator Assembly

The one or two-track assembly that raises and lowers the window glass must withstand extreme temperatures, as well as dust, dirt, water and car wash fluids that infiltrate the door cavity. A high-viscosity, silicone-based, PTFE-thickened grease has proven successful in these assemblies. It resists water-washout, operates at temperatures to -40°C, and easily passes the "Arizona Dust Test."