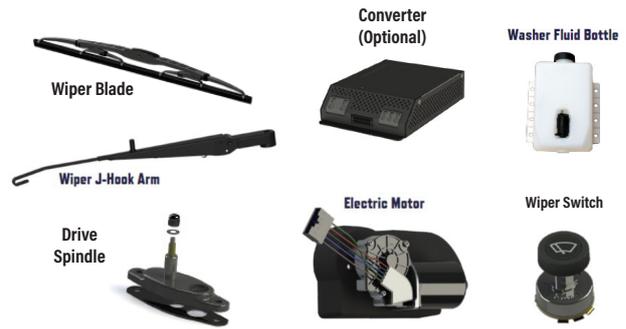




Electric Wiper Kit

Electric wipers offer a superior approach to traditional pneumatic systems by combining cost savings through reduced maintenance and improved operational performance



Achieve Tangible Cost Savings

- ✓ Eliminates need to replace air hoses (dry rot) or connectors
- ✓ Electric motor replacement cycles of 10 years vs. 2 - 4 for pneumatic motors¹
- ✓ Eliminates potential air leaks that can reduce locomotive air pressure and contribute to premature AESS restarts
- ✓ Off the shelf automotive blade replacement reduces cost vs. custom pneumatic blades and increased supplier base can lead to improved quality and more options (Silicone vs. Rubber)
- ✓ Electric actuators provide smoother Accel/Decel than Linear, extending actuator and linkage life

¹ Based on demonstration data on locomotive models GP38 and SD40-2

Eliminate Performance Degradation Associated with Vacuum Pumps

- ✓ Air-Leaks and cold conditions can cause wiper to flutter across windshield
- ✓ When not in use, strong wind can blow the wiper and obscure the locomotive operators vision
- ✓ Pantograph arm can become misaligned and cause blade to run off the windshield area

Enhance Crew Comfort

- ✓ Cut in-cab noise levels in half (60 db to 30 db²)
- ✓ Eliminate the discharge of odorous exhaust fumes into the cab

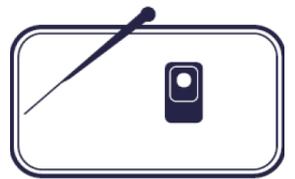
² Test conducted on a GP38 locomotive with only the wiper systems in operation

Improve Locomotive Operation & Safety

- ✓ Electric wipers always return to home position that will not obscure forward facing camera

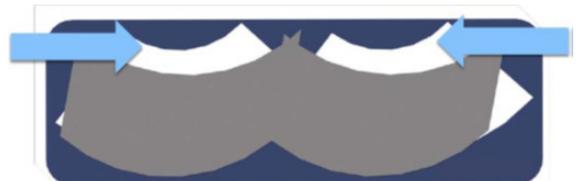


When locomotive power is cut, pneumatic wipers often come to rest in a position that blocks the forward facing camera



Electric Wipers include a capacitor that allows the wiper to always return to a home position that does not block the camera

- ✓ An additional 30 sq. inches of coverage above the center line significantly improves forward visibility



Electric wipers operate off a higher pivot point, increasing windshield coverage from 39% to 52%³

³ Based on BNSF cab committee study

Easy to order and install

- ✓ Orderable as a wet or dry system and for Road or Yard units
- ✓ Delivered as a kit (unlike pneumatic systems), all the components you'll need are included to complete the straightforward installation process
- ✓ Typically 10 - 15% lower acquisition price than pneumatic systems