

TOUGH JOBS

A **GROSCHOPP**® CASE STUDY

+ Bus Transmission Shifter +

A manufacturer of bus transmission shifters came to Groschopp with a unique challenge. They wanted Groschopp to engineer a two-commutator gearmotor that would allow a backup to kick in if the primary commutator failed. Without this second commutator, if the primary winding failed, it would cause the vehicle to be stuck in one gear.

Groschopp's team of engineers were excited to take on the challenge and immediately began brainstorming how to achieve this design for the customer. The final product was a PM6304 motor with a right angle reducer. The motor had two commutators, two sets of brushes, and a non-conductive brush card mounted onto a custom housing that was bolted directly to the transmission. Groschopp also implemented the use of a control to compensate for this design redundancy.

In order to make sure the gearmotor could withstand year-round road and weather conditions, Groschopp increased the motor protection to IP66 and performed a 25,000 cycle life testing.

CHALLENGES:

- ⊕ Backup winding inside armature in case of primary winding failure
- ⊗ Tight envelope for the application
- ⊕ Harsh environment and long life with continuous use

SOLUTION:

- ⊕ PM6034 right angle gearmotor with IP66 rating
- ⊗ Dual commutator design for emergency backup
- ⊕ Aluminum die-cast housing to bolt directly onto the transmission
- ⊗ 25,000 cycle performance testing