

NorthWest Short Line

REPOWERING the: DELTON Doosie #1 gauge 'G' railcar power truck

This motor replacement using NWSL 29351-9 motor plus NWSL gearing provides performance improvement for this fine model - smoother, quieter, slower operation with improved power. We here describe the general method we used which can be accomplished in about 60 minutes (plus overnight bond set time) if proper materials and tools are on hand.

- Tools required:** Miniature screwdrivers
Gear puller (NWSL's THE PULLER #45-4 tool will not fit)
Soldering iron
- Skill required:** This job assumes you have reasonable proficiency in soldering and disassembly/assembly of mechanical devices. If not, your learning experience here will be valuable despite problems you may encounter in achieving quick and satisfactory completion.
- Time required:** About 60 minutes (plus cure time for bonding agent and sealant)
- Parts required:** NWSL 29x35mm can motor - #29351-9
NWSL kit #2119-6 consisting of:
NWSL worm #270600-6 (2)
NWSL (axle) wormgear #2263-7(2)
NWSL #106-4 shim washers
Silicon sealant (sold at hardware stores as bathtub caulk, window caulk, etc.)
Super glue bonding material (gap filing type) such as Loctite, Crazy glue, etc.

1. Remove power truck from model chassis.
2. Remove 4 screws, lift off truck top (truck bolster) with kingpin.
3. Lift motor assembly out of truck motor well, unsolder wiring connections.
4. Pull one wheel from axle (can usually be done by hand without tool - a slight twist helps. If plastic gear, press (Caution - keep pickup wiper and spring from "running away" upon release as wheel is removed) axle out of gear (not easy job with this "trapped axle" design) or if metal axle gear, use cutoff disk in hand motor tool (Dremel, Mototool, et al) with appropriate eye protection to cut gear from axle - cut 1/2 way through gear being careful to minimize cutting into axle, then cut from opposite side and split gear. Pull axle out enough to place gear at end of axle and press axle into new delrin 20 tooth #2263-7 gear. Center gear on axle.
5. Reassemble (press) wheel (don't forget to put pickup wiper parts back in place before installing wheel) onto axle to proper gauge. Test mount motor with worms slipped onto shaft in motor well with terminal end against crossframe. Center worms over axle gear and bond to motor shaft. Shim motor as necessary to achieve proper gear mesh (minimal gear lash)-
7. Solder motor terminal wires to motor terminals. Check polarity (travel direction) and if 'backwards', reverse the wires. Insert motor assembly for final fit and operation check. When satisfied, remove and place bead of silicon sealant or "hot glue" (make SURE that silicon sealant does NOT get inside motor mounting holes - side or end holes) along bottom of motor cavity. Insert motor assembly into cavity seating in silicon sealant bead.
9. Install Kingpin/truck bolster making sure bolster does NOT press against motor - may have to shim or tweak (bend) bolster. Test operate (if drawing high amp - over 0.25 amp - or overheating, bolster is probably pressing against motor causing binding), adjust as necessary, add shim washers #106-4 on assembly screws where top and bottom join as necessary to take pressure off motor.
10. Reassemble model and test operate the model on powered track. Check operating direction (polarity) against another locomotive; if wrong, reverse the terminal wiring connections at motor as per 7 above.
11. Lubricate motor and wormshaft bearings with light lubricant such as LaBelle #108. Lubricate worm and gears with gearoil such as LaBelle #102. Enjoy!

Installation 7-96 by F R Martin

NOTES on what I learned on this project that will be helpful on future projects: