

# NorthWest Short Line

## REPOWERING the: BACHMAN #1 gauge single truck TROLLEY

This motor truck replacement using NWSL #8690-4 provide dramatic performance improvement for this fine model - smoother, quieter operation with improved power. The #8690-4 truck size is remarkably similar to the original power truck for this beautiful large scale old time trolley model making the performance upgrade surprisingly simple...once one gets by the 'sticker shock' (relative to the 'knock down' price at which the trolley can often be obtained) for this fine quality, made in U.S.A. power truck. The #8690-4 can operate completely independent, but in this installation, the wiring will be integrated with the existing car wiring to retain the quaint lighting characteristics. The wheel diameter, though smaller, seems a more appropriate (visually) size. We here describe the general method we used which can be accomplished in about 30 minutes if proper materials and tools are on hand.

**Tools required:** Miniature screwdrivers; Soldering Iron; Razor saw or bandsaw; end (wire) cutter; Hand motor tool (Dremel, etc.) or drill press; #41 or 3/32" & #48 or 5/64" drill bits.

**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 30 minutes

**Parts required:** NWSL power truck #8690-4; . (for slow operating speed range, custom order slow speed option). #199-6 Quik-Mount or similar retainer material.

1. Hold the trolley upside down in your hand. Study the existing truck mount - 2 screws at each end. Remove the sideframes by gently "springing" them outward at center to disengage the mounting pins between the wheels, one side at a time. Then, using a small crosspoint ("phillips") screwdriver, remove the truck attaching screws to separate the truck (carefully) from the carbody. Save screws for attaching #8690-4 to carbody later.

2. Lay the trolley and truck on your work area. The existing wiring must be integrated to the #8690-4 to retain the original car lighting system. DO NOT disconnect wiring until paragraph 6!!.

3. Modifying the #8690-4. The kingpin and boss must be removed from the truck top frame and a wiring slot approximately 1/4" wide x 3/16" deep cut length-wise.

3a. Review how the sideframe assembly is mounted to the original truck. Our trolley truck has four pins to fit holes in the truck side approximately 3/4" apart centered between the wheels and 1/8" down the truck bottom frame side. We drilled #41 holes (careful - the motor is inside - just drill the plastic).

3b. Remove the top from the truck chassis by removing the four screws from the bottom of the #8690-4, then carefully separate the top from the chassis letting the wiring pull out of the kingpin. Set the chassis (truck bottom with wheels) down on the wheels carefully to avoid displacing components.

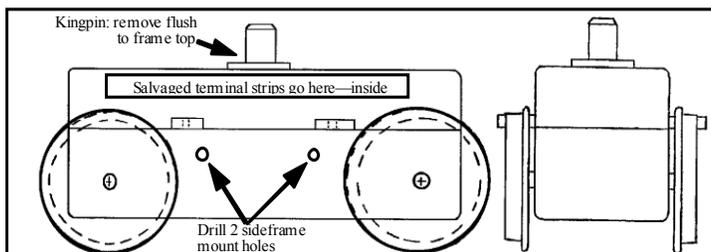
3c. Remove the kingpin and boss flush with the frame top - a band saw works well.

3d. The 1/4" wide slot can be cut on the bandsaw also (careful now!) centered on the kingpin hole and about 3/16" deep. The material can then be cut loose at 3/16" depth with an X-acto or similar sharp, pointed knife at the truck ends and bearing retainer crossmembers. Clean up swarf and burrs. Drill two (or 4 if you wish) #41 or 3/32" mounting holes in the top (dark spots on drawing - exact location not critical). Lay the top on the car (under)body in proper location and mark hole location - drill carbody floor #48 or 5/64" for mounting screws.

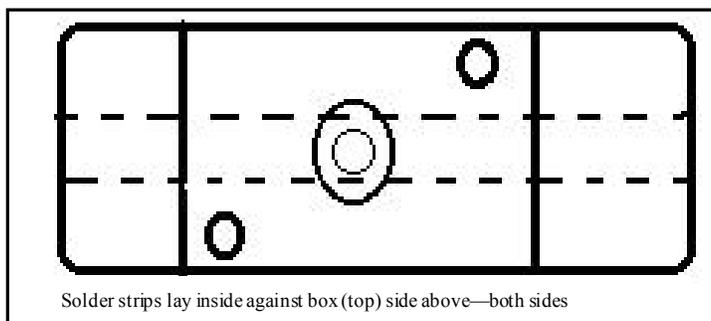
4. Secure truck top to carbody with screws saved when removing the original truck. CAUTION: Keep old truck (with wiring) clear so wires are not caught under new truck (top) frame.

5. Connect wiring.

5a. The original truck has two wiring solder (terminal) strips on top. Study the wiring path. Now select one and un-solder the wires and diode. These will be threaded through the slot ends and into the truck top. Remove the soldering strip (two tiny screws - at least one usually soldered), snip off the protruding 'V' piece, lay the strip inside top at side with soldering side exposed. A thin piece of #199-6 "Quik-Mount" will hold it in place while you work. Now route the wiring for this strip and solder to strip. Once satisfied, repeat the process with the other side (strip) wiring.



Above: side and end view of #8690-4 self powered truck  
Below: top view of #8690-4 showing mount hole locations, wire channel location



Solder strips lay inside against box (top) side above—both sides

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- 5b. The #8690-4 wiring consists of 3 wires. The black wire can be cut back to about 2"-3" length and soldered to tone terminal strip. The red and brown wires can now be cut back similarly and both soldered to the other strip - this can be tricky, handle slowly and carefully to avoid disassembly of parts from the truck chassis
6. Tuck wires into top (frame) and assemble chassis (bottom frame) to the top. Install two truck assembly screws loosely and track test car. Check lights and direction of travel. If travel direction is incorrect upon testing, it can be reversed by reversing the black and red/brown wires (attach to opposite terminal strip). If one or more lights fail to work, check all wiring for proper connections (I missed one headlight wire which had broken off the terminal strip). When satisfied, close up truck and secure screws. Test operate, if not satisfactory, loosen screws and adjust as necessary until satisfactory operation is achieved (in other words, fiddle...).
7. Drill the sideframe mount holes now if not already drilled. 'Thread' the sideframe mount pins into the appropriate holes and re-install sideframes. Enjoy!

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*Installation 9-92 by F R Martin*

*You can accomplish similar operation quality improvement in other mass manufacture models such as the following:*

## **ARISTO-CRAFT FA-1 1:29 #1 GAUGE DIESEL LOCO. (also RS1)**

This locomotive is very nice and is inexpensive. Now the bad news - the power trucks leave much to be desired, frequently leaving the operating modeler with heavy backshop requirements.

A number of operators have reported re-powering these locomotives with the NWSL #8690-4 power trucks. The basic size of the #8690-4 is essentially the same as the FA-1 power truck 'block' thus permitting relatively easy conversion to this premium quality, fine running NWSL power truck. The one negative is wheelbase discrepancy which means that the NWSL #8690-4 wheels (axles) do not line up exactly with the FA-1 sideframe journals.

To Install:

- Remove and save sideframes (2 screws each side of equalizer bar).
- Remove truck 'block' from kingpin (truck bolster) bracket,
- Remove #8690-4 kingpin (Zona or similar fine saw) carefully to avoid wiring damage,
- Determine and make wiring connections (see #8690-4 instructions for wiring function information),
- Center #8690-4 in kingpin bracket, determine location and drill attaching holes in the kingpin bracket and (undersize so they self-tap) in #8690-4, secure in place with screws (2.0mm size works well)
- Rehang sideframes to kingpin bracket. If wheelbase discrepancy bothers you, consider sectioning sideframes between coil and leaf spring to shorten sideframe journal wheelbase to match truck axle spacing

*See also the upgrade nickel-silver and stainless steel wheels choices (#2549-6, etc.)*