

## INSTRUCTIONS

ALL-NATION DOUBLE POWERED CONVERSION DRIVE  
FOR A.H.M. FAIRBANKS-MORSE DIESEL  
KIT #5100 or 5100C

Read thru carefully and study photos before starting.

1. Completely disassemble the locomotive and trucks.

2. Trucks:

Using a pocket knife blade or similar tool, carefully insert blade between sideframe and black inner casting at top of truck at bolster center. Work blade sideways along length of sideframe, prying gently outward until cemented joints break apart. Repeat in opposite direction and then repeat on opposite sideframe. Hold end crossbrace in both hands with thumbs together at cemented joint in center. Bend up and down gently until joint breaks. Keep the sideframes in pairs so that the broken joints match up in later assembly. DO NOT USE A SAW TO CUT THE END BRACES APART!!!

Drill out original axle holes with a #39 drill, 5/32" deep. Make sure that sideframe is laying flat while drilling to ensure the holes being at right angles to the sideframes. Cement plastic sideframe filler pieces, #5103, into recess behind leaf spring with the cutout overlapping at the bottom of the sideframe. Use clamps or weights to hold parts together as cements sets. (At least 1/2 hour.) We recommend using Holgate & Reynolds Styrene cement.

Attach bolster #5102 to first sideframe using #4020 shouldered nut and #C-1303, 3-48 X 1/4" Fil. Hd. screw. Run screw thru shouldered nut with head of screw on knurled side of nut. Insert into bolster and screw into sideframe. Place power truck into first side frame and then assemble second sideframe onto truck and bolster. Coat broken ends of truck crossbraces with cement and press together. Check alignment of crossbraces carefully. Place a rubber band across ends of sideframes in back of brake levers to apply pressure to the joints.

3. Chassis:

Remove weight mounting post ahead of rear truck mounting box. Remove flange around top of rear box flush with top of the box. Remove the center 3/4" of the vertical wall at the inner end of each box to the floor using the contact opening as a guide. Remove all of the top and the rear wall of the box and all of the floor behind the box to a point just behind the weight mounting post. This will provide an opening approximately 1-5/16" X 2-1/2". Remove all of the top of the front box to a point 2" from the rear wall. Drill a #30 hole in the right rear wall of the front box and the left front wall of the rear box. Turn frame over and cut off the four 5/32" high X 2" long flanges that extend down from the floor opposite the truck centers. File the edges smooth and flush with the floor.

Place ball joints on motor shafts and crossdrill thru both with a #60 drill. Insert #712 cotterpins, cutoff excess length and bend remainder around shaft. Fasten #4045 motor brackets to motor end plates using #C-1601, 6-32 X 3/16" round head screws and #C-2038, #6 split lockwashers. The tabs on the brackets should be below the motor shaft. Put this assembly aside for the moment

Place main frame brackets #5101R & 5101L into plastic frame with 3/8" flanges against floor and 7/8" flanges against truck boxes. Drill eight #33 holes into the floor thru the holes in the 3/8" flanges.

Insert rubber grommets into the 1/4" holes in main brackets. Large flange of grommet should be on the inside of the frame. Removing the sharp corners on the holes and applying a small amount of vasaline to the hole will facilitate this operation.

Place motor assembly into frame brackets with tabs inserted into holes in rubber grommets. Assemble the #5107 body bolsters under the plastic frame with the notches facing the outer ends of the frame. Fasten with #C-2044, 4-40 X 5/16" flat head screws, #C-2045, #4 internal lockwashers, and #C-1400, 4-40 nuts. Heads of screws should be below the bolsters, lockwashers and nuts on the inside of the frame. Place drive tubes on the motor ball joints, bring power truck assembly up thru the bottom of the frame inserting the king pin into body bolster and ball joint into the drive tube at the same time. Place #C-2037, #8 washerover king pin and secure king pin with #C-2036, "C" washer inserted into groove at top of king pin.

4. Wiring:

Turn frame upside down. Slip collector springs #5106 over the hubs of the axle bearings on each side of the transmission between the front and rear axles. Strip off 5/8" of insulation from each end of hookup wire supplied. Cut this piece in half and strip off 1/8" of insulation from these ends. Pass the 5/8" bare wire thru the small holes at the center of the collectors and solder in place. Using a pair of pointed pliers, gently put an "S" bend in the wire between the collectors to bring the ends up snug against the transmission side plates. Do this carefully so as not to distort the collectors. Feed the wires thru the holes in the bolsters and the walls of the boxes leaving a small amount of slack in the wire inside of the truck and box to facilitate movement when trucks swivel. Make sure the wire is clear of the gears, shafts and wheels. Solder the wires to the motor brushes. Lubricate transmission, truck and motor bearings and test run. Check direction of motion against polarity and if incorrect reverse brush connections.

5. Weights:

File large end of tapered sides of weights until they fit snugly between the frame brackets. File off 5/16" X 45 degrees from the two legs of the front weight to clear windshields. Place weights centrally over the truck centers with wide end of taper down, flat surfaces together and legs facing outward. Centermark thru holes in frame at eight places. Drill 5/16" deep with a #40 drill. Fasten weights in place with eight #C-2040 sheet metal screws. Tighten screws only enough to hold the weights firmly. Carefully lay a bead of solder across the gap between the weights at top.

If you wish to use the original headlight system this can now be re-installed, soldering one lead to each brush.

6. Coupler mounting, rear:

Using 1/16" styrene supplied, cut two pieces 1-13/32" X 3/8" and cement together and across bottom of frame flush with the rear. Clamp or use weights and allow to set. Meanwhile cut four pieces 5/16" X 3/8", cement together and allow to set. Cement this assembly to the piece on the floor, centrally located between the sides and with the 3/8" dimensions matching. Clamp and allow to set.

Front:

Cut six pieces 7/16" X 1-13/32", cement together into a block and allow to set. File to shape of nose curve of frame making sure that back edges do not interfere with truck swivel. Cement to floor and allow to set.

Due to the variation in coupler preference by the individual modeler, the coupler mounting method is left up to you. The mounting blocks as described will accommodate a coupler with a 1/8" thick shank resulting in the correct NMRA coupler center height of 11/16".

The remainder of the 1/16" styrene can be used by those who wish to close in the pilot opening. Cut and fit to shape of opening and cement in place. After the joint has set small pieces of styrene should be cemented across the joint for reenforcement.