

Powering the IHP HO Scale Kawasaki Single-End LRV Model

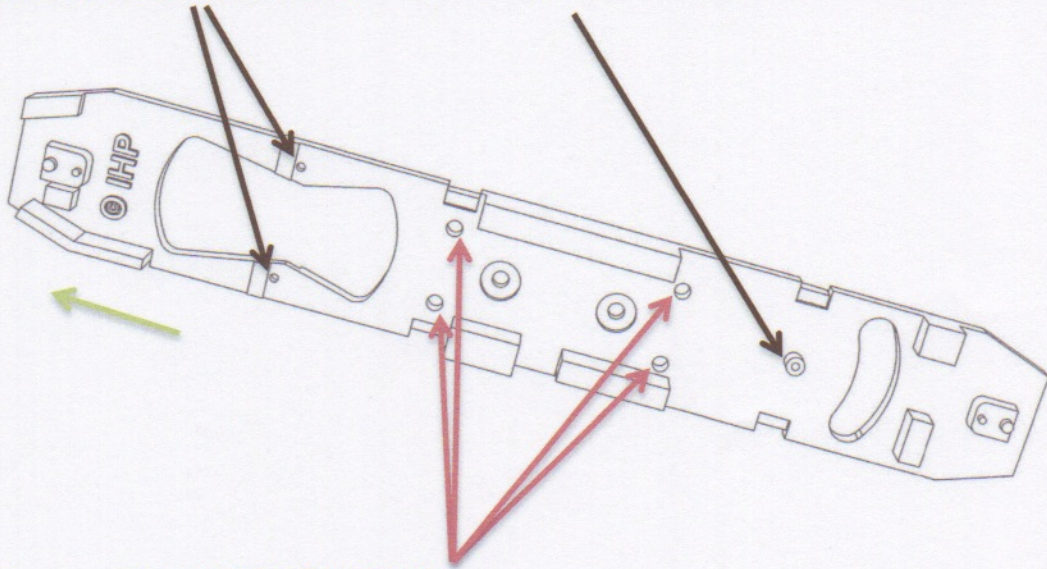
This model makes use of a 3D-printed frame, designed to accept the Bowser #125100 drive and snap into the Kawasaki model the same as the original frame. Minimal work is required, but it should be done by a more experienced modeler and experience with the Bowser drive and components will help. You will need a small handheld twist drill with small drill bits (a 1/32", a 1/16" and a 1/8" drill bit will all be required), and a tap for a 2-56 screw (this can also be used in the handheld twist drill). Also, you'll need a small flat file, a soldering iron and solder, some stranded hookup wire, and a small flat and Phillips head screwdriver set. NOTE: If you are unsure of your ability to power this model, find someone that can do it for you.

Firstly, order the frame from IHP's Shapeways page. It will take about 5-10 days to arrive from ordering.

Secondly, order the Bowser #125100 drive from Bowser. It may also be available through your local hobby shop or traction supplier (Custom Traxx and Berkshire Car Shop, as well as Cappelli Hobbies in Philadelphia, stock Bowser products). Follow the Bowser instructions for assembly or service of their components.

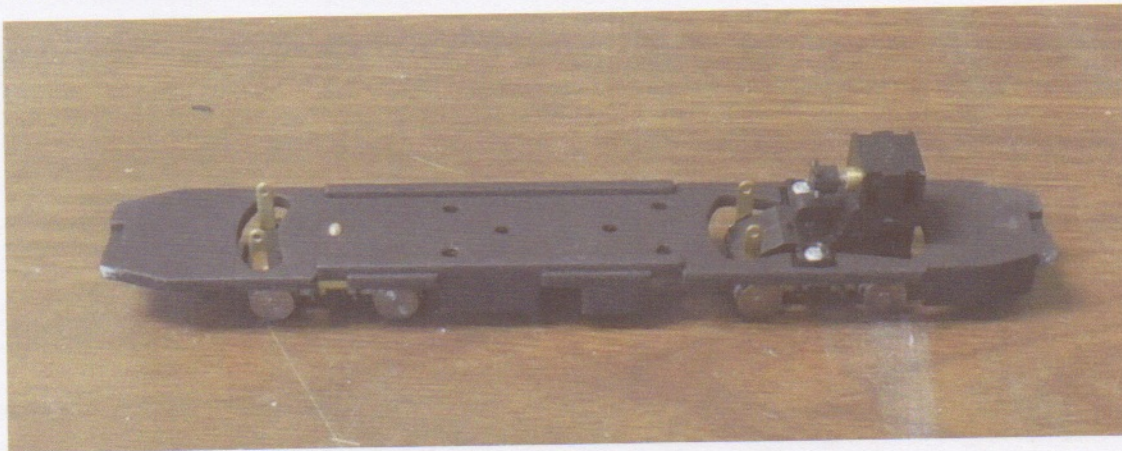
This is the 3D printed frame from Shapeways as you receive it.

Use the 1/16" drill and the 2-56 tap on these holes: For this hole, start from the topside. Make sure you drill straight and not skewed.



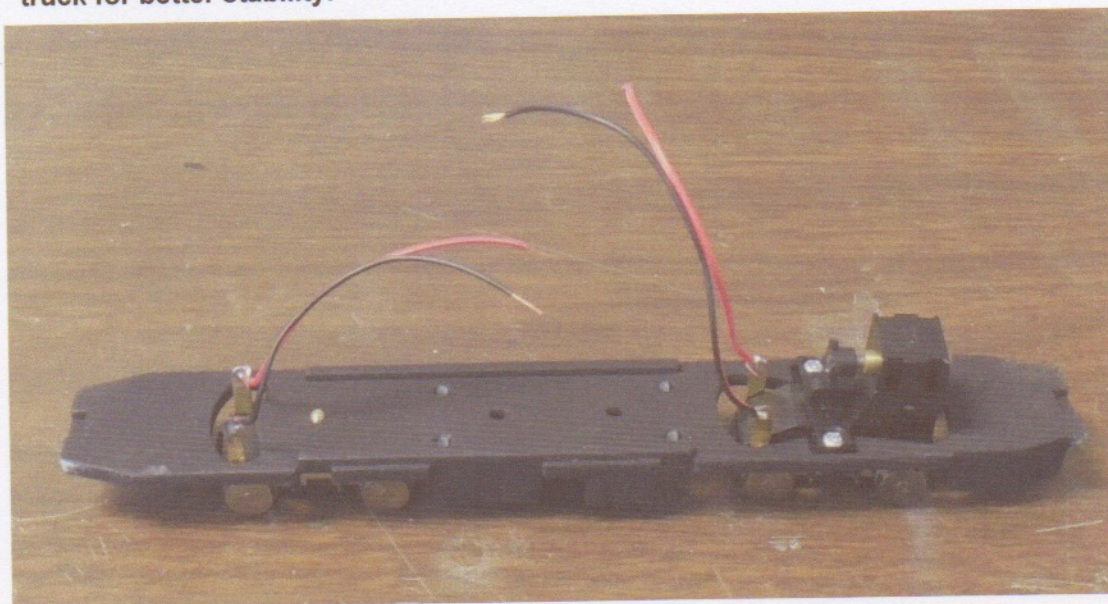
Use the 1/8" drill to open up these holes if necessary.

Use a small file to trim any burrs from the edges of the frame and make sure it fits in the shell without any binding or friction, and make sure it doesn't cause the body to bulge outward anywhere.



2. Install Gear and Trailer Trucks as per Bowser Instructions

NOTE: On trailer truck, you can use a spring between the brass bolster screw and truck for better stability.



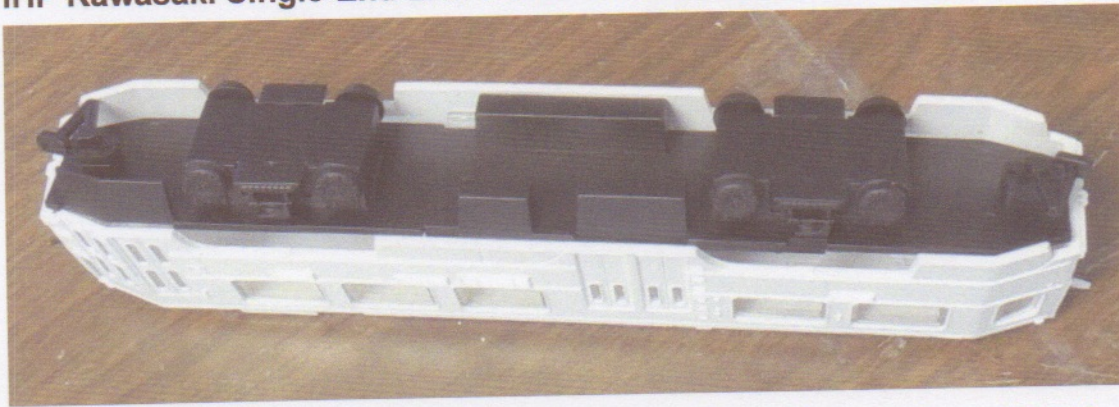
3. Solder pickup wires to brass contacts on trucks. Take care not to let the iron touch the plastic trucks or frame. Use flexible stranded wire. We used Model Power 2-conductor wire. Black on the right side, red on the left side.

Length of Front wires: 4.5" (90mm)

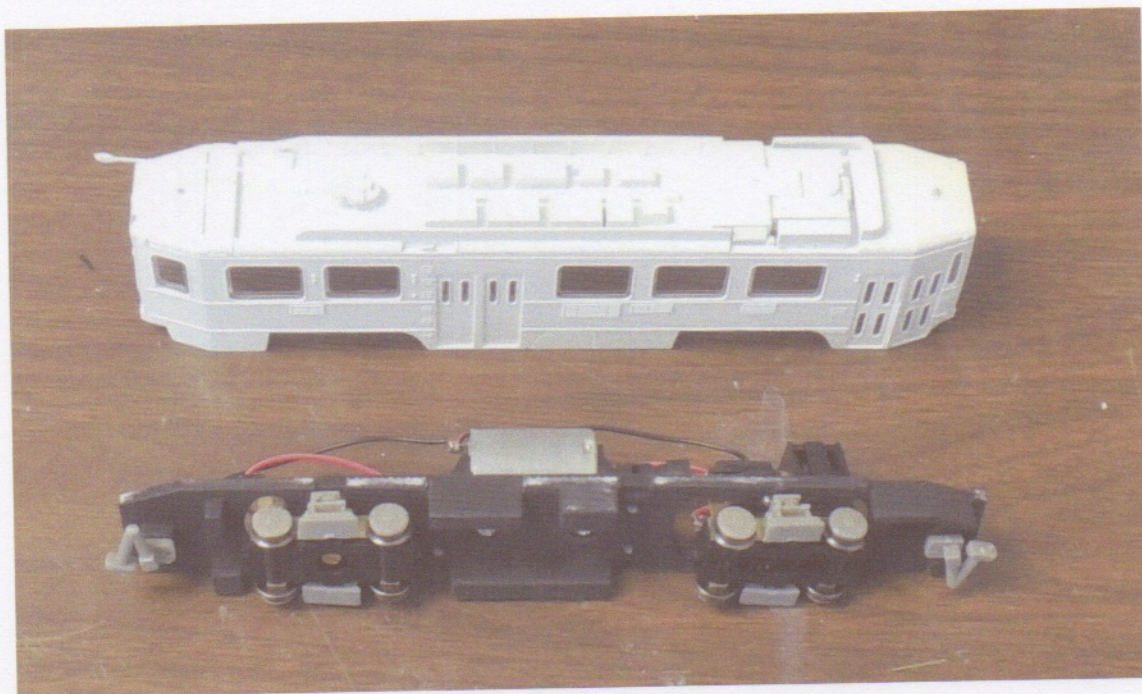
Length of Rear wires: 3" (75mm)



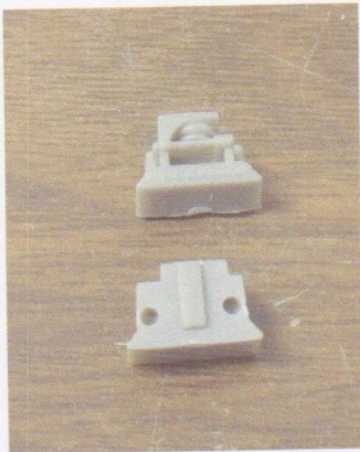
4. Install Motor on its brackets using 2-56 screws provided with the Bowser drive. Solder the wires to the motor (separate them first if they are 2-conductor, like we used) and fold down as shown to a low profile. Assemble (if necessary) and install the driveshaft. Cut the metal rod provided for it to about 11/16" (15mm) long. Lubricate bearings and gears and give it a test-run.



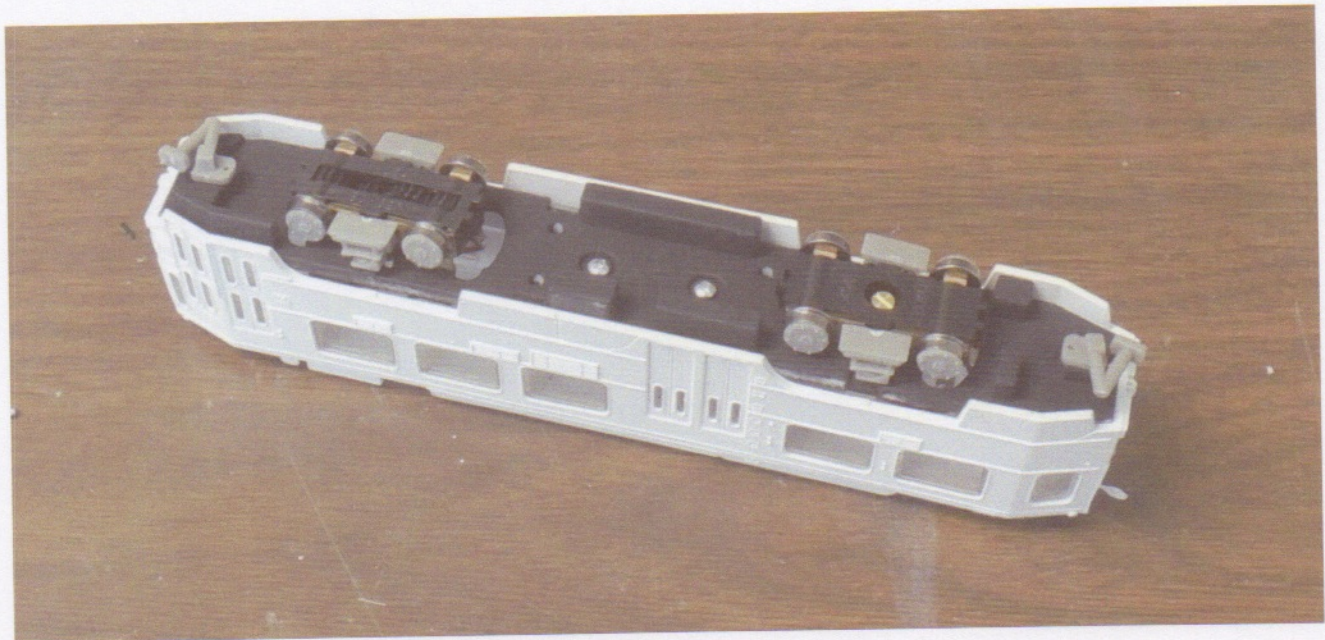
5. To remove the frame from the Kawasaki model, gently spread one side of the car outward to release the frame from the two side clips (which are part of the window castings) that hold the frame. Pull the frame upward on that side, then pull out to release it from the other side, and pull the entire frame out of the body. Next, carefully remove the dummy couplers and the track brake sideframes from the frame. They will be glued on, so use an X-Acto chisel blade, and work carefully. (If they will not come off in one piece, contact us for replacements.



6. Using super glue, install the couplers on the ends of the frame. Glue the wheel covers (included with the Kawasaki model) on the wheel faces. For the track brake parts, use a 1/32" drill in a handheld pin-vise to drill two holes in the back of the parts about 2.5mm (hole centers) from the bottom and spaced to the mounting pins on the Bowser truck. This is a tricky operation, as they need to be spaced correctly to fit and be lined up so the part does not go on crooked. Watch the top of the track brake part as well to make sure there is enough clearance between the top of the part and the screw holding in the bolster from the top, as it will be protruding a bit. Then, use a little super glue to aid in pressing on the track brake part to the Bowser trucks. Again, this operation is a little tricky and may require a little trial and error.



Track Brake Detail Parts. Drill holes as shown using a 1/32" drill bit. If they are a little close together, drill out a little with a slightly larger drill bit. Holes (centers) are about 2.5mm from bottom of part. Make sure they are drilled as aligned as possible so they are not crooked or skewed when installed. Also, make sure they do not sit too low that they touch the rails when the car is on the track (if so, they will act like a real track brake!). Fix with a little super glue on the Bowser truck pegs, but a little epoxy would work a little better. The Bowser parts are slippery plastic, so the parts can still be removed if necessary.



7. Install Completed and Tested Powered Frame as shown. It clips in as the original frame did. Make sure it is seated properly and the pickup wires do not interfere with the mechanics of the mounting system.



Our Completed Sample Model.

You can add a little extra weight to the car inside or on the underside as it fits, to help with traction.