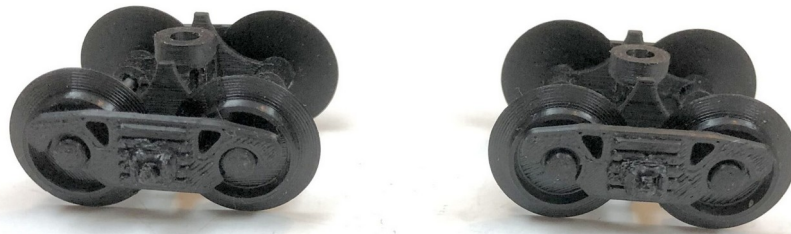




O Scale / L-Gauge Pop-On – Pop-Off Truck Kits

Description, Parts List & Assembly



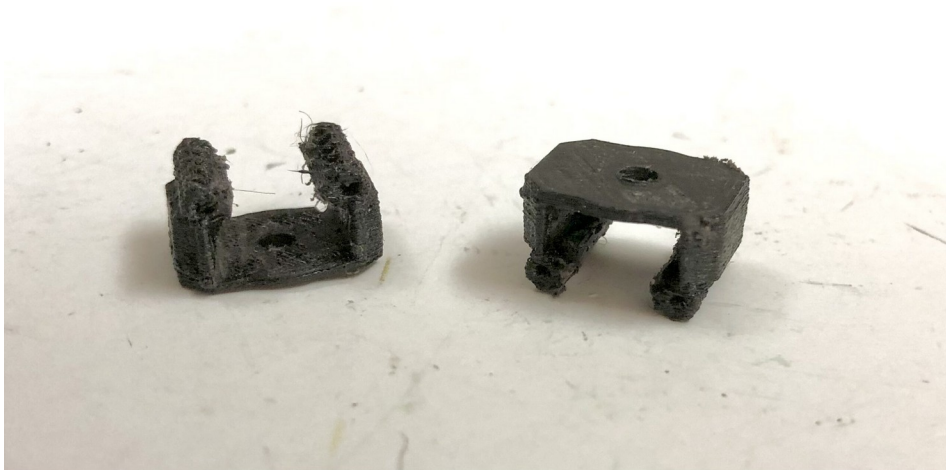
Manufacturer Of The Famous All-Nation "O" Scale Equipment



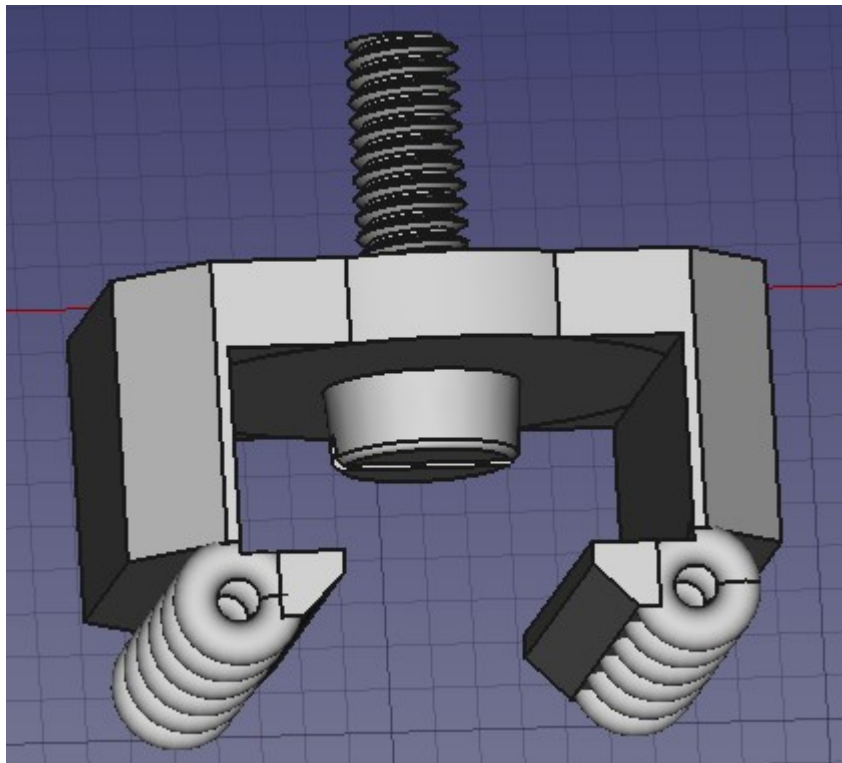
The Pop-on and Pop-off kit for O Scale and L-Gauge freight trucks purpose is to make it easy to interchange trucks depending if you wanted to run your freight cars on a L-Gauge model railroad layout or on an O Scale pike.

In this writeup, we will describe the parts in the kits, provide a parts list and at the end of the document a step-by-step assembly process.

Before getting into the assembly of these kits, it should be noted the interface feature that makes the action so easy to change trucks without any tools is the installation of a 3D Printed TPU clip mounted on the body of the freight car body bolster. This part is a flexible clip that holds the truck to the freight car body and functions not unlike those on the prototype.



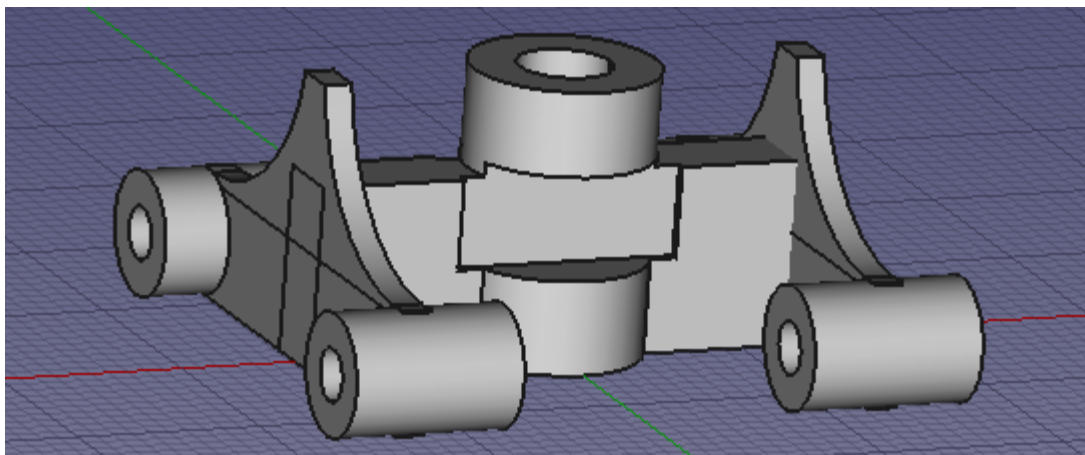
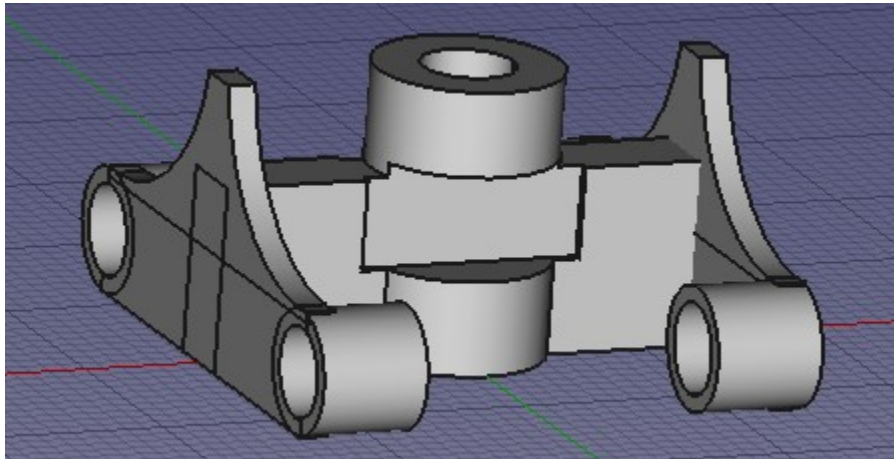
Using a filister head 4-40 machine screw, the head of the screw inserts into the truck bolster when clipped on together and stays centered and pivots.



The reason we use TPU filament is that the material is strong/tough

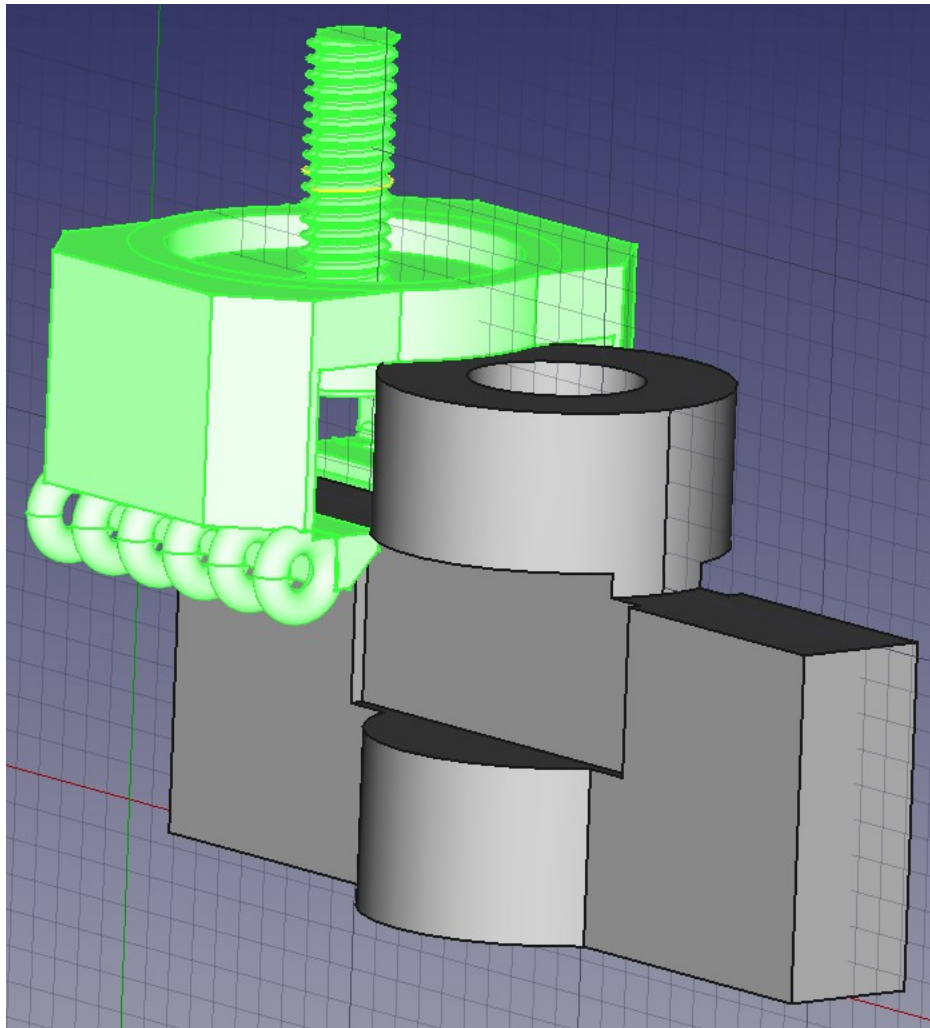
but allows for spreading the clip to secure the truck and then it returns back to its clamping state to hold the truck in place while allowing the truck to swivel on turns.

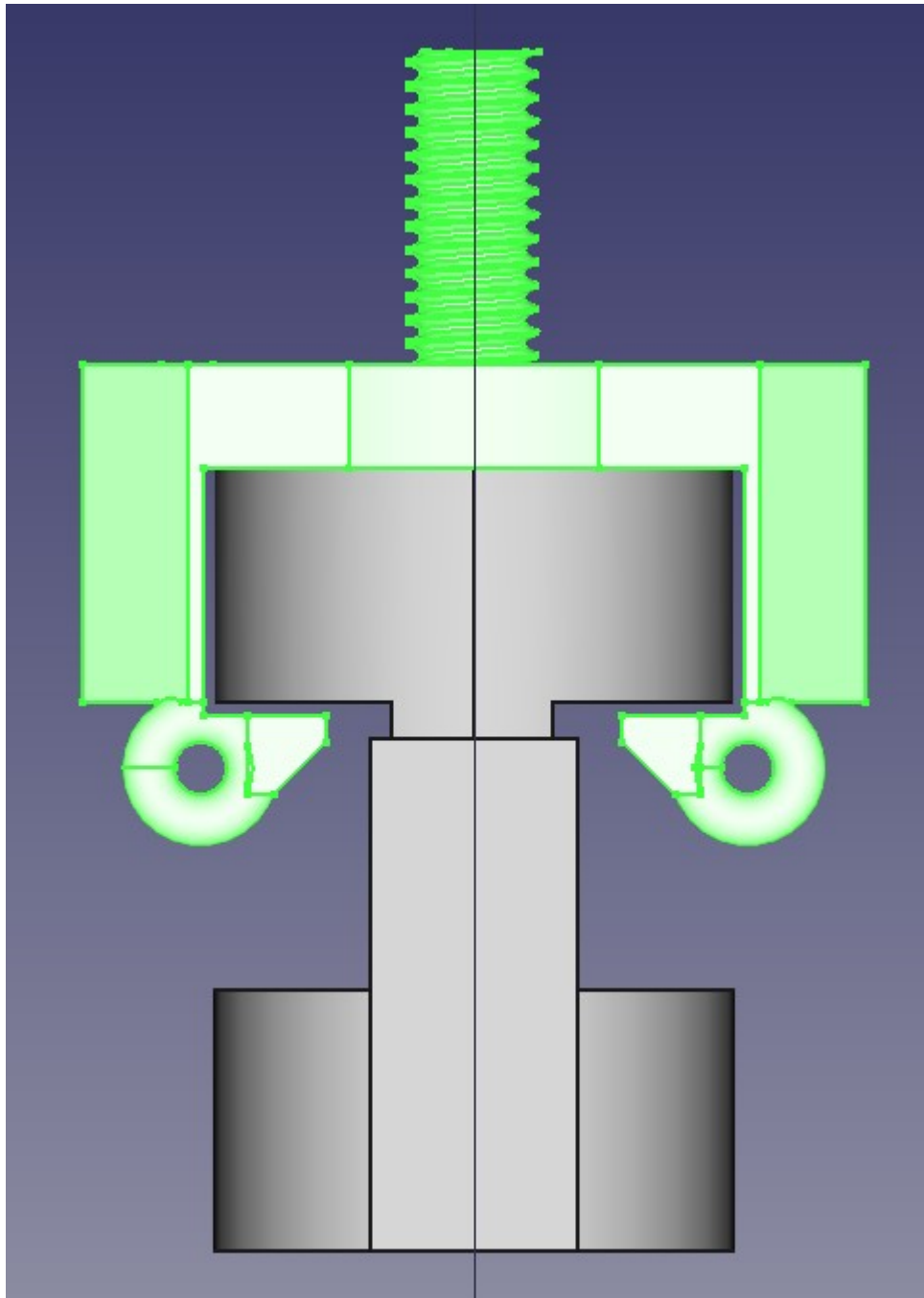
The Pop-on Pop-off product includes 2 kits with the main difference being the gauge of the wheels. To roll on L-Gauge track the wheels are spaced slightly wider apart than the kit designed for the O Scale truck. What the trucks have in common is the bolster that mates up to the car body bolster clip as shown above.



Before mounting the clip to the car body bolster, the truck bolster conforms to the clip in such a way that it will not come off without physically spreading the clip.

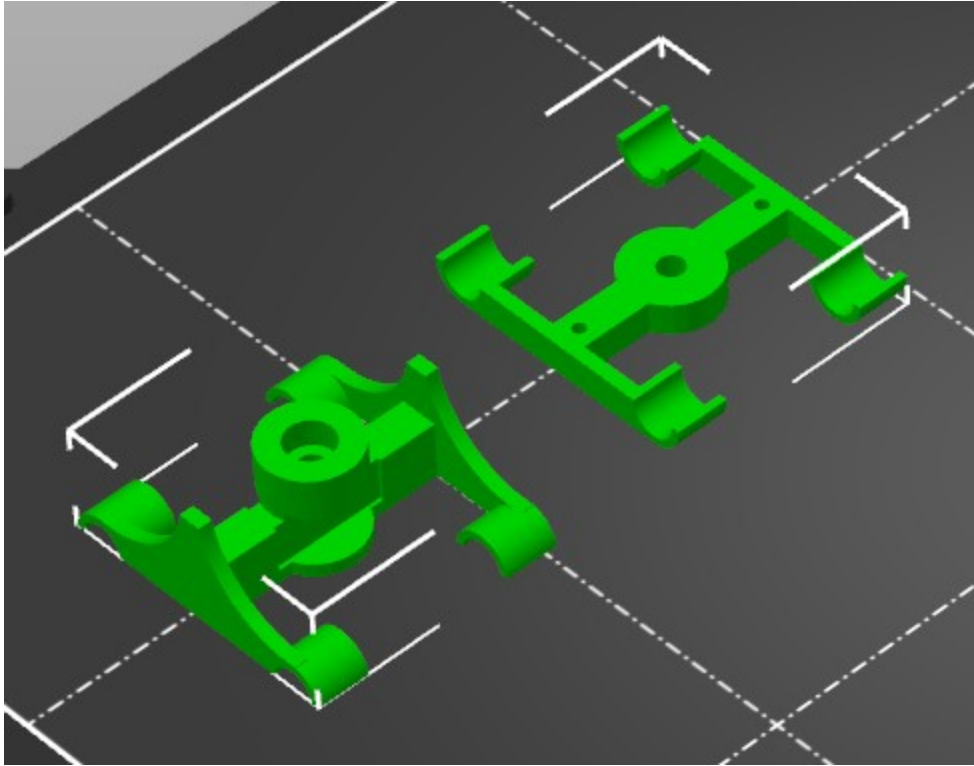
The following graphics illustrates this interface between the clip and the truck bolster.





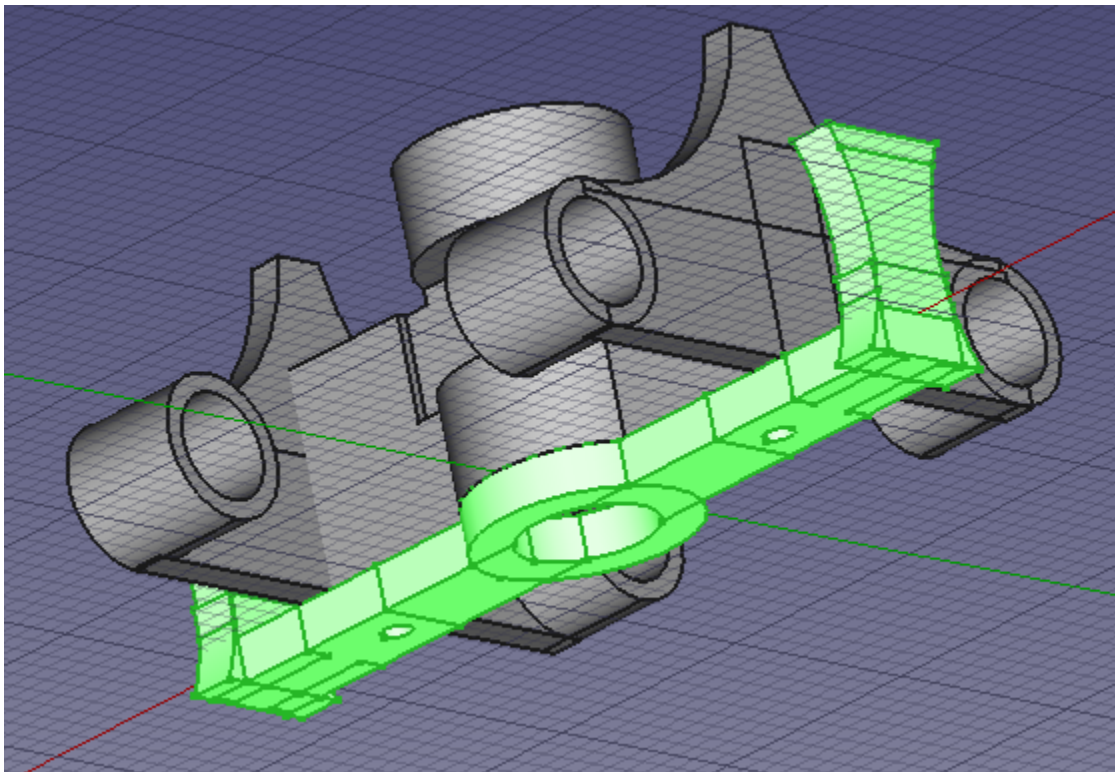
The Pop-on Pop-off of the trucks does not require any tools, but the initial installation or setup does require the several tools (see list/photo below). To mount the clip using the 4-40 screw, a tap hole will need to be drilled using a #43 bit and a 4-40 tap.

The truck bolster prints in 2 piece as shown below.



These accommodate 2mm axles for the L-Gauge truck kit and 3.92mm axles for the O Scale kit. Once the wheel sets are assembled i.e., pressed on the axles, the wheel sets are set in place and the bolster pieces are mounted with a 4-40 bind head screw from the bottom. Consequently, the hole for this screw only needs to be tapped since the diameter of the hole is correct for a tap and does not require a drilled tap hole.

Note, holes on either side of the center are for mounting the brake shoes using an 0-90 screw. These holes may be drilled with a #60 bit and tapped for the 0-90. The brake shoe bar follows.



Once the brake shoe bar is mounted, the last step in the assembly process is to glue the sideframes onto the brake shoe bar. The sideframes are slightly different for the L-Gauge verses the O Scale. The O Scale sideframes accommodate the ends of the axles whereby the axles are shorter compared to the L-Gauge axles that measure approximately 45mm in length.

In summary, you will need 1 screw driver to turn the 4-40 screws and a small screw driver for the 0-90. Given these parts are 3D printed, some cleanup of threads and brim build plate material will be required using a small file to touch up surfaces. The sideframes can be mounted using CA glue or any glue of your preference.

Parts List (for 1 Truck)

O Scale Trucks (for 1 Truck)

- 1 TPU Car Body Bolster Clips
- 2 Insulated Wheel Sets
- 2 Sideframes
- 1 Split Bolster Pairs
- 1 Brake Bars
- 1 4-40 x 7/16" Filister Head King Pin Screw
- 1 4-40 x 1/4" Pan/Bind Head Screw
- 2 0-90 x 5/16" Brake Bar Screws

L-Gauge Trucks (for 1 truck)

- 1 TPU Car Body Bolster Clips
- 2 2mm axles x 45mm
- 4 Wheels to be pressed onto the axles
- 2 Sideframes
- 1 Split Bolster Pairs
- 1 Brake Bars
- 1 4-40 x 7/16" Filister Head King Pin Screw
- 1 4-40 x 1/4" Pan/Bind Head Screw
- 2 0-90 x 5/16" Brake Bar Screws

How To Assemble the Pop-on – Pop-off kit

Step 1 – See Basic Tools List Below

Layout the parts to make sure they match the items from the parts list above.

Step 2

Do not mix up the parts that come in separate bags even though some parts look similar.

Step 3

Assemble 1 kit completely at a time.

Step 4

Carefully examine the 3D printed parts and remove any brim material from around the edges of the part. Clean off any threads and smooth the surfaces with a light file. Clean the inside cylinder surfaces that will hold the axles as these are bearing surfaces. Use a rat tail file to make sure the axles will rotate without binding.

Step 5

The O Scale wheel sets are pre-pressed on axles with insulators for OW5 track gauge.

The L-Gauge wheels will need to be squarely pressed on to the 2mm x 45mm axles supplied in the L-Gauge kit. Check the gauge of the wheel set against a piece of track to make sure they are not too wide which would cause the wheels to climb the head of the rail.

Step 6

The truck bolster is printed in 2 parts. Manually put the wheel sets into the lower part of the bolster and bring the upper bolster part together and check for clearances, any left over threads from printing. Hold the parts together and make sure the wheel sets turn freely. The axles on the O Scale kit are larger in diameter than the L-Gauge axles.

Step 7

The 2 piece bolster can be held together with the 4-40 x 1/4" pan head screw. In most cases the hole will not require using the #43 drill bit before tapping. You can simply run the tap through both piece and install the screw. Now you should have a bolster with the wheel sets ready to roll.

Step 8

In step 9 you will install the brake shoe bar to the bottom of the bolster. But before you do, take the #60 drill bit and drill out the pilot holes for the 5/16" 0-90 screws and tap each hole with an 0-90 tap on both the bar and the bolster.

Step 9

The brake shoe bar centers around the screw that was install in step 7 and the holes for the 0-90 screws should align. Using a small screw driver, mount the brake bar shoe using the 0-90 screws.

Step 10

The last step in this process is to mount the side frames to the ends of the brake shoe bar using some CA glue. You have heard the saying "measure twice cut once"? In this case double check twice that you have the side frames right side up before gluing on the part. It is very easy to glue these on upside down. If you are not sure, the truck is right side up for mounting

to the body bolster clip whereby the screw that holds the clip on, the screw head fits inside the centered cylinder of the bolster acting as your king pin. If you set it on the track upside down the bolster more than likely would drag across the ties.

The only difference with the side frames for the O Scale version of the kit is the fact that the ends of the axles actually center fit to the journals in the side frames. The L-Gauge axles do not although the appearance is similar.

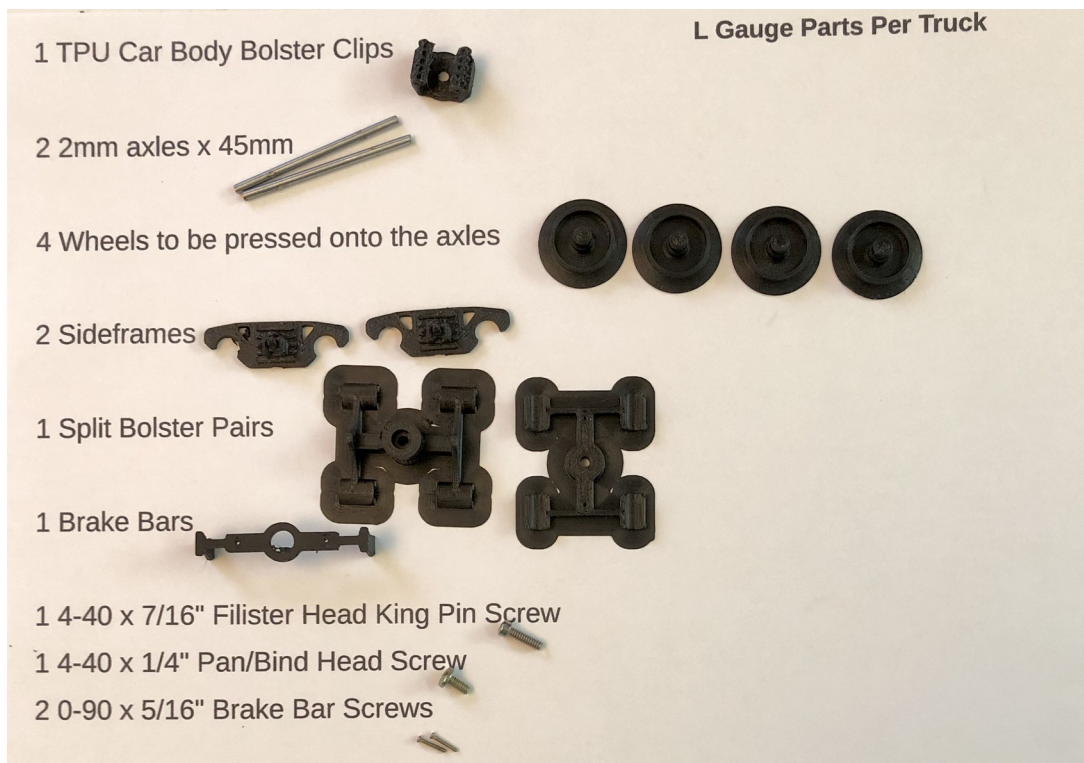
Step 11

Now you are ready to install the body bolster clip to the underside of the freight car body. By default we supply a 4-40 x 7/16" filister head screw. A longer screw could be used. At this point consideration must be given with regard to the car height off the head of the rail and a normal NMRA Kadee coupler height alignment. This can be done in several ways by removing material, shimming coupler pockets or even using washers.

Step 12

Time to test the functionality of the trucks and assess the performance. Depending on how free rolling the trucks are, some lubricant may need to be applied. Note that car weight or load factors might play a roll performance wise when inter-operating on an L-Gauge track verses an O Scale layout.

This concludes the assembly instructions for the Pop-on – Pop-off kits.





Basic tools required:

