

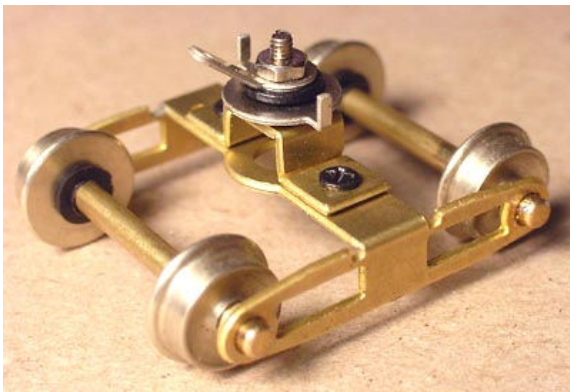
# Lightning

## Assembling The Kit

### Please read these instructions fully before attempting to assemble the Lightning kit.

The Lightning kit contains all the parts needed to assemble a fully working trailing truck. No soldering is necessary, all hardware is provided and the holes pre-tapped. Even if you find a hole we missed out on tapping, driving one of the steel screws into the hole will make the thread anyway.

This photograph shows a completed Lightning:



For the purposes of this set of instructions, all diagrams are prepared using 3D drawings of the Lightning in order to make the assembly sequence clearer. If you wish, a full color copy of these instructions can be downloaded from the Hollywood Foundry web site as a PDF file. With the PDF file, you are able to zoom in to see the drawings in a larger size than the printed version.

The PDF is available from:

<http://www.hollywoodfoundry.com/translations.shtm>

### Tools

You will need a small number of tools:

- Small flat and round files
- Small cross-head or Phillips Screwdriver, such as the Wiha Phillips #00.
- Pair long nose pliers, smooth jaw.

### Making Folds

Although it is possible to use a tool like a Hold N' Fold for folding the parts, it is not really necessary. Perfect folds can be made simply using a pair of long-nose pliers and your fingers.

Wherever a fold is required, there is a half-etch fold line in the part. There is one simple rule about folds, the metal is always

folded towards the fold line, or such that the fold line is on the inside, never on the outside.

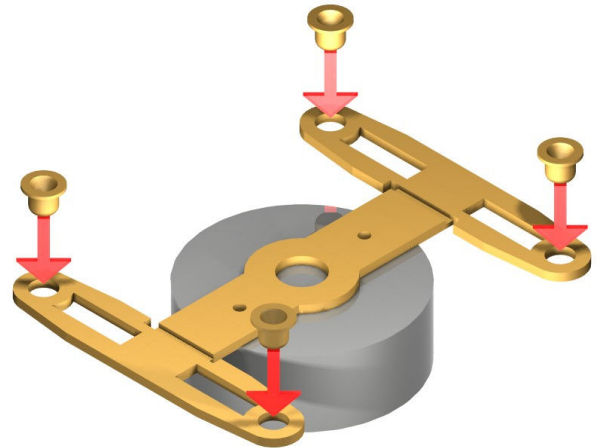
### Small Hardware & Spares

Many of the screws and other items of hardware used for assembling the Lightning are very tiny. For this reason, we have put in one spare for many of the items in case you lose them. There are spares for many, but not necessary all items. If you lose more than is required to assemble the kit, contact us for extras. Alternately, all screws used are obtainable from North West Short Line in their Metric screw range.

### Assembly

Locate the Main Frame etched part and clean up any remains of tags. Place the Main Frame assembly on a small object to raise it slightly. Make sure the frame is position so that the etched dimension is down, or the half-etched fold lines are up. This is very important.

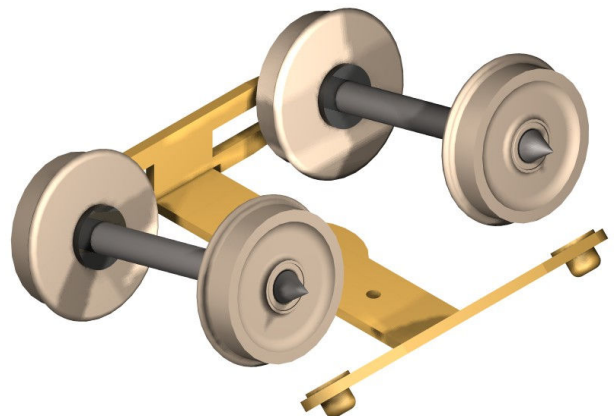
Then take the four brass pin-point bearings and drop them into the holes as shown:



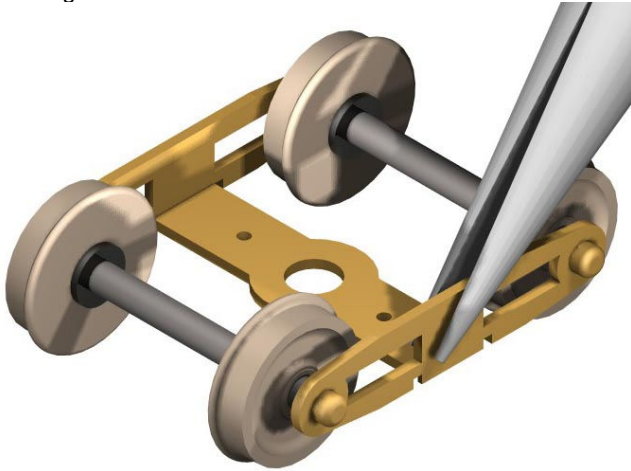
If you wish, you can then solder them in place, but be careful not to use much solder and keep it away from the cone shaped holes in the bearings.

Alternatively, the easiest method is to glue them in place using CA or Superglue. Use a fine pin to place a tiny amount of CA at the rim of the bearing where it touches the Main Frame. Leave to dry.

Bend one side of the Main Frame to exactly 90 degrees, and the other side to approximately 45 degrees. Insert the two wheel-sets into the bearings, making sure the black plastic hub insulated wheels are on the same side:

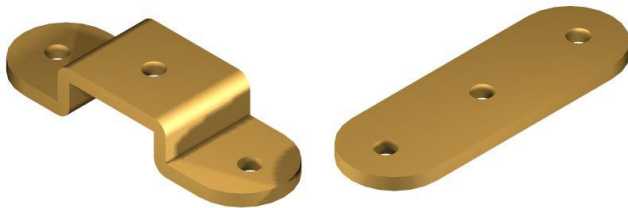


Now, using the long-nose pliers, bend the 45 degree side up to the full 90 degrees, trapping the wheel-sets in their bearings.



Check that the wheels spin freely. If not, bend the ends of the frame out very slightly to free them up. The wheels should spin when rolled by the fingers such that they keep spinning for many seconds.

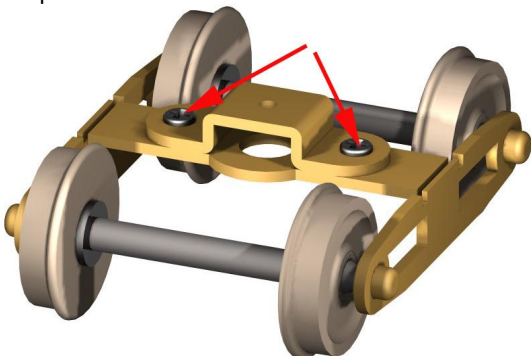
There are two alternate mounting bolsters provided, and you need to select the one best suited to your model. A low profile plain bolster is shown on the right, while a higher profile 'top hat' bolster is on the left:



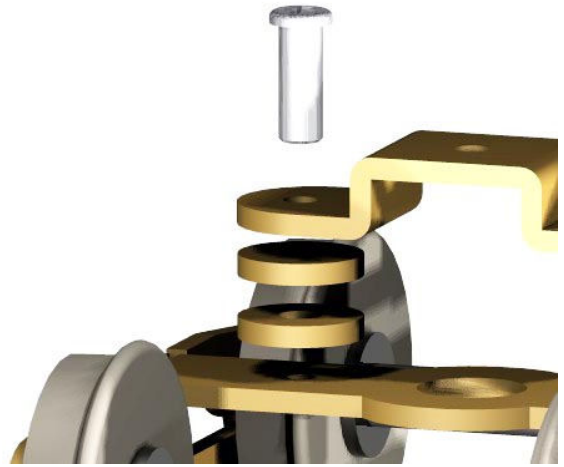
The plain bolster requires no work, other than cleaning up the remains of any tags. It is possibly the best one to use when you have small diameter wheels, as it allows the Lightning to mount up close to the floor.

The higher top hat bolster is best for larger diameter wheels, but needs to be bent into the shape shown. Because of the small spacing between the parts, you will find it perhaps easier to bend the two inside folds first, then the two outside folds. This folding operation can be a bit fiddly, so take your time with it.

Attach your choice of mounting bolster to the Main Frame using the two 4mm silver screws supplied, indicated by the arrows in the following diagram. The mounting bolster goes on the top of the Main Frame:

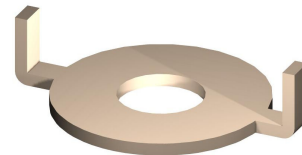


Four brass washers have been supplied in the kit to allow adjustment of the ride height of the truck, and these are inserted between the bolster and the top of the Main Frame, as shown below. This applies to either the top hat or flat bolster:

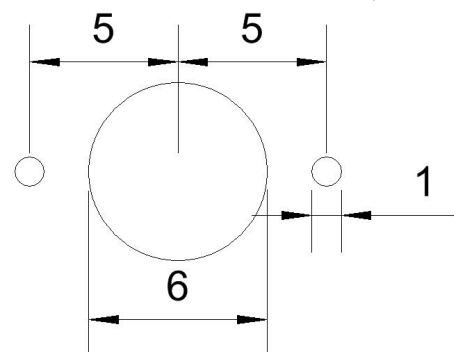


Two alternative methods of mounting are offered with the lightning. If the floor of your model is brass, and approximately 0.7mm or .027" thick, then the black Delrin plastic shoulder washers supplied with the kit will allow you to mount the Lightning directly to the floor by simply drilling a 3mm or .0118" diameter hole in the floor. This corresponds to a Number 31 or 9/16" drill.

If the floor of the model is plastic, or thicker than 0.7mm, then the best method of mounting is to use the supplied nickel silver mounting disk:



To accommodate this mounting disk, a single 6mm hole plus two 1mm holes need to be drilled into the floor, as shown:

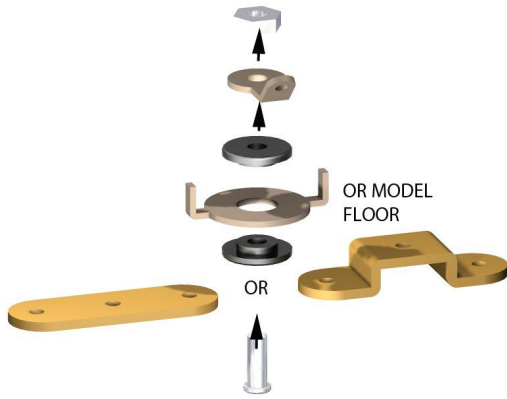


### Dimensions in Millimetres

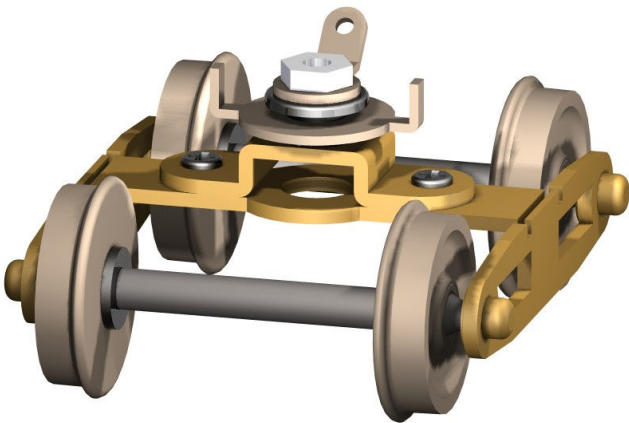
Bend up the two tabs on the mounting disk at 90 degrees to the main section, then insert the disc into the pre-drilled holes in the floor, from the bottom of the floor. A small dab of CA or Superglue to the mounting tabs will hold the disk securely in place.

Solder the supplied black wire to the nickel silver solder tag. Assemble the mountings by inserting the silver 6mm screw from the bottom of the bolster, whichever type you choose, through a Delrin Shoulder washer with the shoulder uppermost, then either the mounting disk or the model floor.

Finish with another Delrin shoulder washer, shoulder down, then the nickel silver solder tag and finally the 1.4mm nut. Tighten moderately.



The assembly of the Lightning is now complete, it should look something like this:



Cosmetic side frames can be attached to the Lightning Main Frame, preferably using an adhesive.

However, because the brass pin-point bearings protrude through the outside of the Main Frame, it will be necessary to drill shallow holes on the back of the side frames to accept the bearings.

This is not normally a problem, as many side frames already have holes in them to accommodate the ends of axles. We recommend drilling a 2mm diameter hole about 1.5mm deep. There is often a tiny pip of brass on the end of the bearings, this can be easily filed off.

The Lightning frame design has been created as skeletal as possible so as not to obscure viewing through the side frames. The best method of gluing the cosmetic side frames to the Lightning is to use a tiny amount of CA or Superglue to tack the frames in place, then use a high-strength two-part epoxy adhesive to permanently bond the side frames in place. Do not use the 5 minute fast setting epoxy or any type that is mixed with metal.

## Electrical Connections

The Lightning collects power from one rail only. The wheels on the opposite side are insulated at the wheel hub for compatibility with two-rail systems. Therefore the frame of the Lightning is alive for one side of the track. Unless you are exclusively using overhead power, the frame of the Lightning must be insulated from the rest of the model. This is the reason the two Delrin shoulder washers are employed.

For two-rail, or overhead trolley pole operation, this arrangement will work satisfactorily, and has been the normal method employed by most brass trolley models, with the Lightning fitted to the model rotated such that it's insulated wheels are on the opposite track to the driving truck.

Assembly is complete. We hope your Lightning gives you many years of trouble-free performance.

