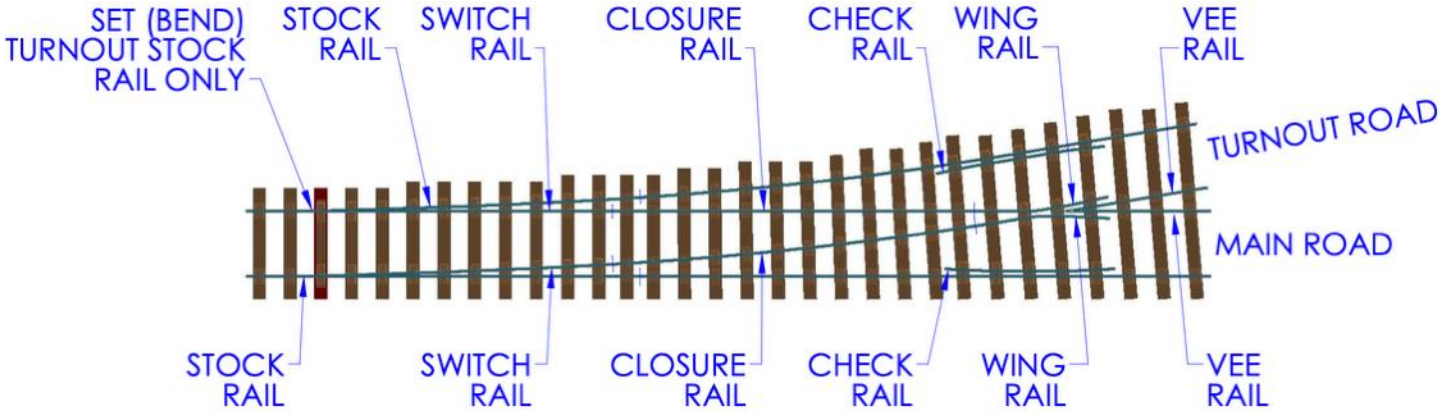
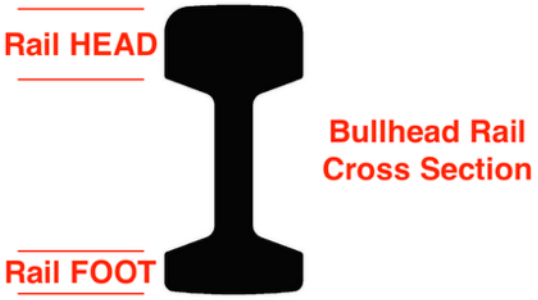
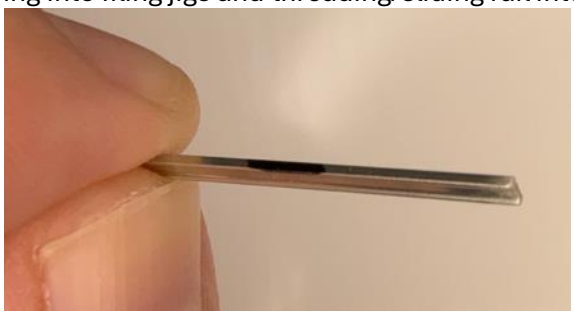
Turnout / Switch Terminology:



Prepare Rail Sections for filing:

- Ensure all rail ends are deburred
- Note: Bullhead Rail Head is thicker/higher than Rail Foot so, it's a good idea to mark the tops of rails with a marker pen to aid correct rail orientation when placing into filing jigs and threading/sliding rail into chairs





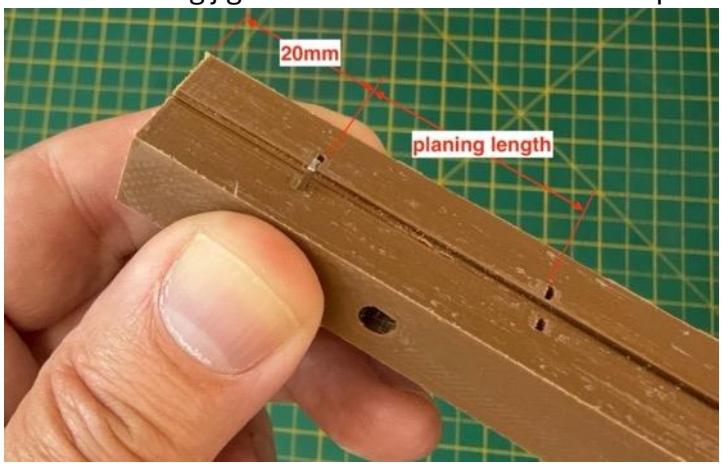
- Ensure all rail ends are deburred. It's a good idea to file a tiny lead in chamfer to both ends of rail to enable chairs to be easily threaded onto rail.

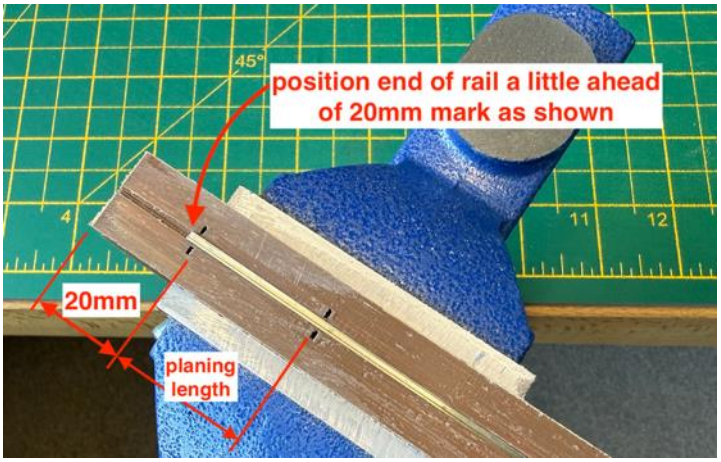
Tools required/suggested: Engineers vice, 2nd-cut engineer's flat file & Needle file/400 grit paper.

Filing BACK of Switch rails using Kosmik's back of blade filing jig:

Filing the back of the switch rails using filing jigs will produce a snug fit between the stock rail and switch blade.

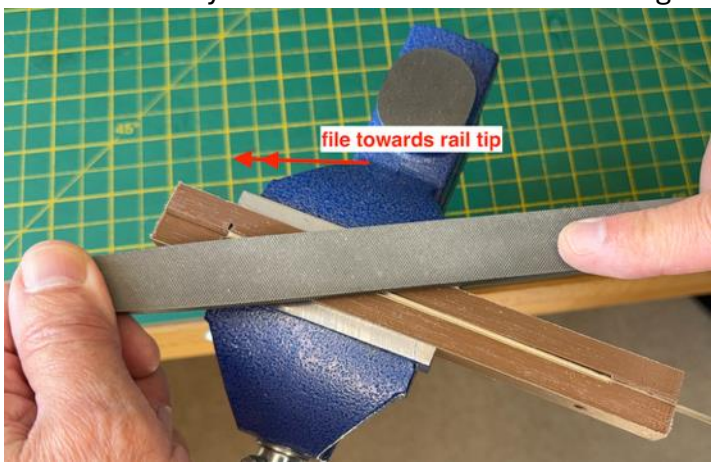
- The end of the rail(s) to be filed/worked should be squared off and cleaned/deburred. The cross holes of the filing jig can be used to file rail ends square/flat as shown below.



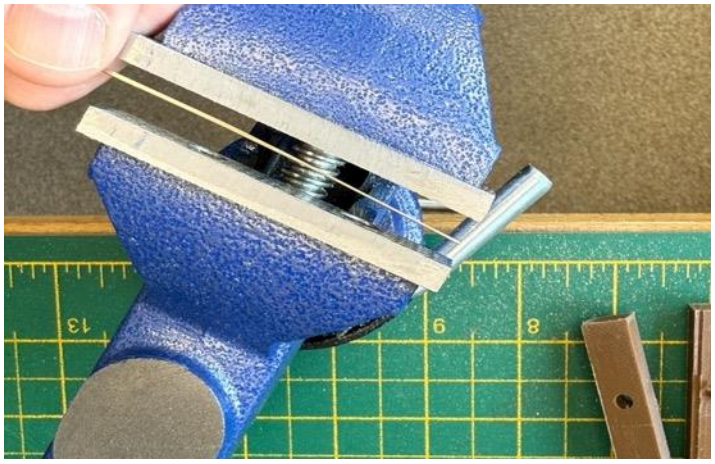


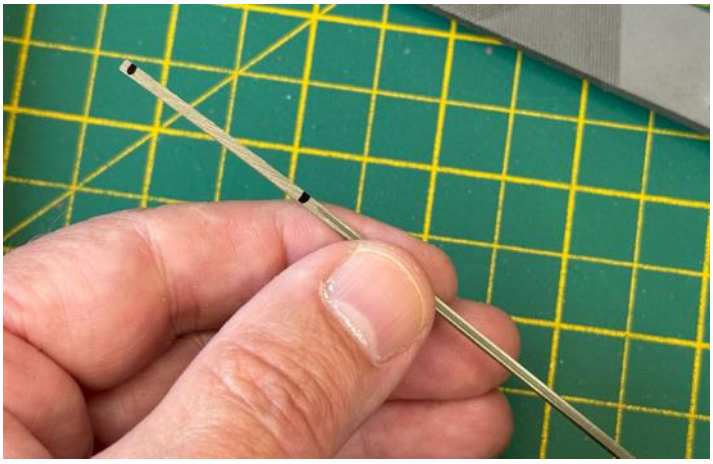
- The final tip of the blade will be at exactly 20mm from the end of the jig but, it's a good idea to set the rail end closer to the jig end as shown. This gives you options to achieve a thinner tip or trim as required.
- Tighten the vice sufficiently to clamp the rail but do not over tighten otherwise the rail will be forced up and out of the location slot resulting in an incorrect planning angle/length.
- begin filing the rail along the filing jig trying to keep the file as level as possible. It's a good idea to brush away the filings between every few strokes to avoid the rail debris ripping into the FDM printed filing jig.

- Continue filing until a flat has been created for at least the planning length. The planing length is indicated by the section between the rectangular through holes in the jig. (see photo above).



- After filing, mark the beginning & end of the planing length with a permanent marker and remove the rail from the jig.





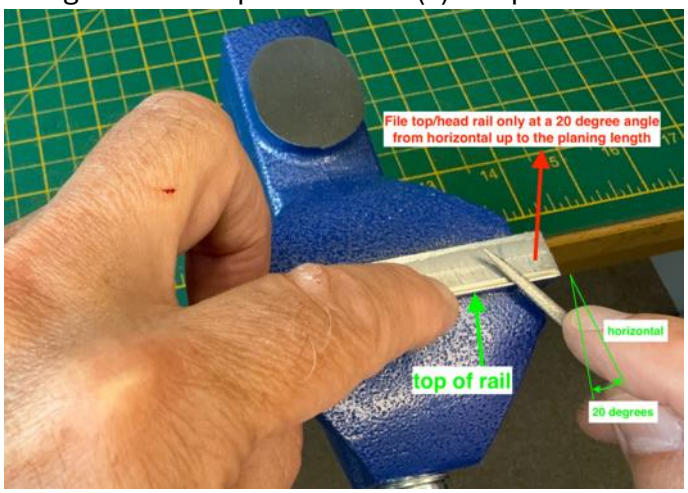
- The process of filing the back of the blade may have caused the rail to curve slightly where it is filed. If so, gently straighten it in your fingers.

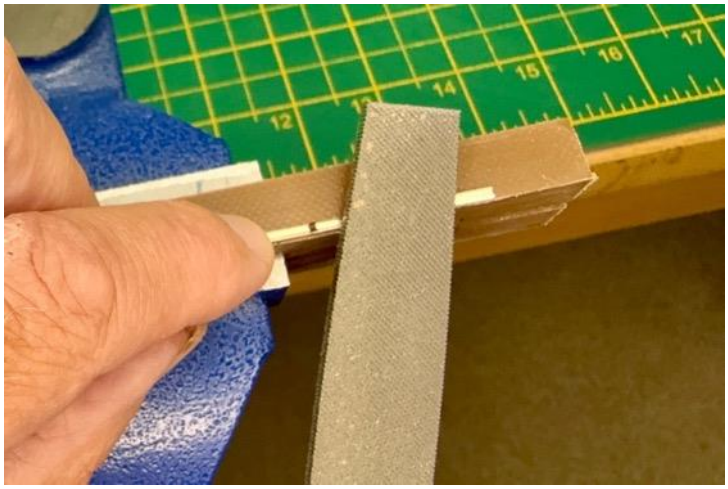
Depending upon your requirements and what gauge and wheels you are modelling, the filing of the switch blade backs maybe sufficient as shown in the photo below. Many modellers require a more accurate/detailed switch blade fit/interaction and would now file the front of the rail head as detailed in the next section, (filing front of switch blades).

Photo of 4mm 00-SF B7 switch blades filed using back of blade filing jig.

Filing FRONT of Switch rails Fronts freehand or with a front of blade set of filing jigs

Filing the front top or head rail(s) will produce a smooth wheel transition from stock rail to switch blade.





- Make sure you have the correct rail the correct way up.
- Mark the planing length on the inside/front, un-filed face of the switch rail.
- Whilst holding the filed/planed side of the rail on a flat surface carefully file up and across the head of the rail at 20 degrees tapering off over the planing length and producing a sharp tip. Try to avoid filing any of the bottom/foot rail hence, leaving most/all the rail foot intact. The filed end will be sharp.
- Make a very slight inwards bend in the switch blade at the planed length mark position, i.e. towards the centre of the track, until the filed top front running edge aligns in a straight line
- For the curved switch blade, do this first before curving the rail to match the template.
  There are likely to be some burrs on the filed edges which can be fettled with fine abrasive paper. Do this on the bottom of the blades before assembly, and after assembly for the running top of the blade so that it blends in nicely against the stock rail.

Photo of 4mm 00-SF B7 switch blades filed using back of blade filing jig & front head rail at 20 °

Filing FRONT of Switch rails Fronts using front of blade filing jig: