

Moving the Rear Axle on an HOn3 FED 2-6-0

by Stephen Hatch

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First problem is that the FED 2-6-0 comes with even driver spacing like the D&RGW 2-6-0's. So we need to move the rear axle back under the cab to approximate the California 2-6-0's.



After taking the drivers off and checking the frame, there is a natural place to put the rear axle. Right alongside the rear frame cross member. So I clamped the frame in a vice side ways so that the mill cutter would cut a round bottom in the groove using a .111 since that's what I had.



The axle is .118 so two passes made the groove the right size with a round bottom. It fit the axle first time so I just cleaned up the edges with a file. You can see the round bottom groove in the picture just behind the cross member. The original axle hole is just in front of the cross member.



We now have our new axle hole in back. The old axle hole will be covered by a thin piece of brass (or paper) with rivets and brake shoes and a brake cylinder attached. So no need to fill it in. We want to put the fire box details on anyway....so no extra work here.



I used my dial calipers to measure the exact distance between the last two drivers. I did this by putting one axle in and then butting the cliper from the front of the axle to the rear of the rear axle slot. That is the exact center to center distance for our side rod holes. The front side rod hole length, I took from the old side rods. These were 1.016 and .710. We'll use these dimensions in a minute but first I made the bottom plate.



The retainer plate doesn't extend back to cover the new axle position so rather than make a whole new plate, I simply extended the old plate with two pieces of .035 brass wire soldered into two grooves in the plate. I cut the grooves with a dremel and cut off disk. It made perfect grooves for the wire. Once soldered, it was very strong.



Since the drivers don't rest on here, there won't be much wear to speak of so the wire extensions will work just fine. Now the mounting holes for the screws and everything lines up because it's the original plate with an extension.



Using a piece of galvanized steel sheet .035 thick (found in the corner of the shop) You can use .030 to .040 brass if you prefer. I like the look of steel. I blackened the surface with a felt pen and then scratched a center line the length of the plate. Then I used the calipers to locate and scratch verticle lines dead on at the side rod hole dimensions. I used a #11 exacto for the scratching.



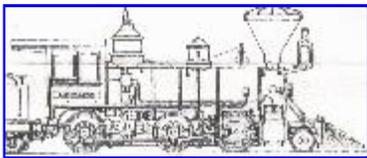
Once the holes were located and the scratches at 1.016 and .710. Then I used a .050 drill bit in a pin vice. Do it by hand because you can make sure the hole goes right on the cross made by the scratches. Then I drilled with a .065 bit. Then a third time with the .070 bit. The crank screw sholders are .067 so this will give us the right amount of play. Before you cut the side rods out, hold them up to the frame. The holes should fall exactly on the edge of each one of the slots. If it doesn't then figure out which way the one that is off has to go. Do a new set of holes in another piece of plate and drill it. The second set should fit perfectly since you could adjust the holes to line up perfectly.



I layed the old rod over the two front holes and scratched around the outside with my exacto. This put the pattern on the metal. I extend those scratches to the new front hole and that put the shape of the rods on the metal. I clamped the metal in a vice and used my jewelers saw to cut out the side rod. I stayed a bit wide and finished to the lines with files. Then I used a big file to clean up the faces (and remove the black)



Here are the finished rods installed on the loco. They came out very smooth and because of the accuracy of the rod holes, the mechanism is very smooth. No hitches. I checked the drivers for quarter but they were fine. I had earlier tweaked the frame to get it flat. (when I milled the slot). Let me know if you have any questions....I'll be happy to help if I can.

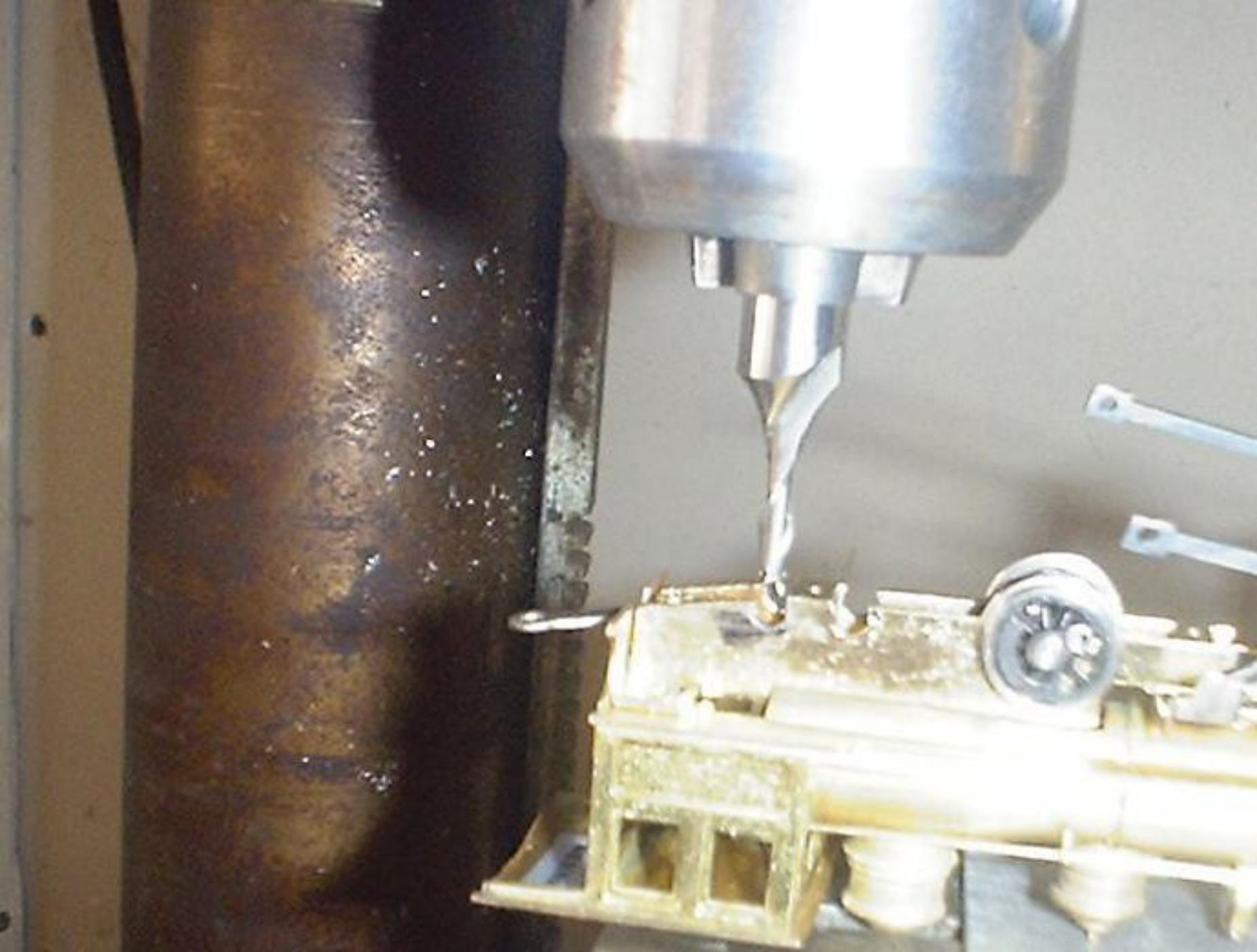


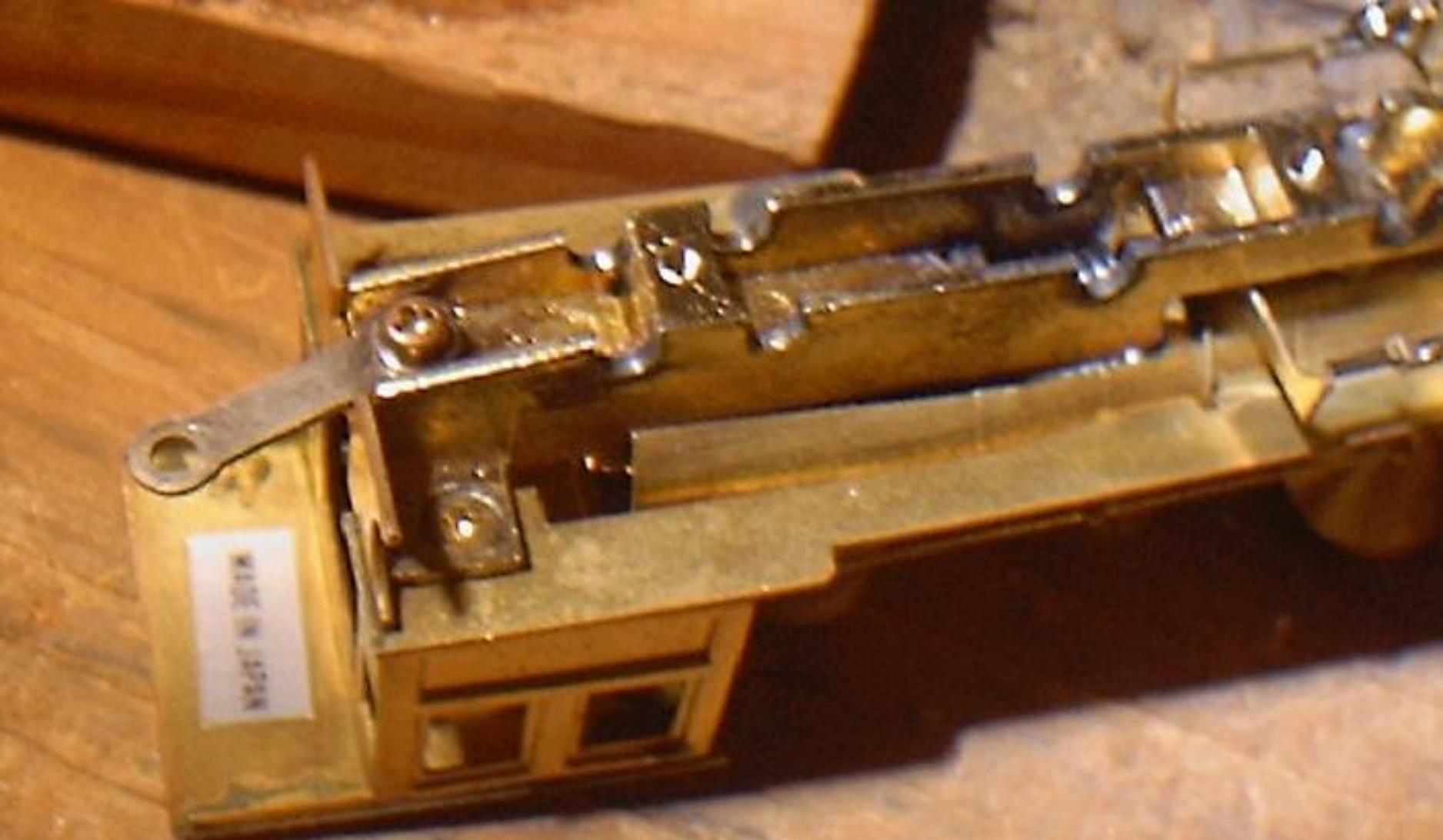
Heres a drawing of the loco that this model will eventually be. You can see that the drivers came out pretty close to where they needed to be. You can also see that the details on the side of the firebox between the drivers will cover up the old axle hole. All in all a very satisfying project.

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