KIT BASHING THE AMERICAN FLYER SWITCH

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I have always been interested in making my track work as efficient as possible. For me, that meant being able to place more track work down on the layout in the same amount of space.

The normal track spacing for AF switches is 5" from centerline-to-centerline. A long known trick has been to reduce the normal 5" track centerline-to-track centerline to 2.5" centerline-to-centerline by cutting the curved section of the switch at the tip of the frog and reversing the curve.

This simple act of reducing the centerlines can be achieved because we are not changing any of the geometry of the AF switch. Let me explain a little bit further. It takes three pieces of AF curved track to complete a 90-degree circle. Therefore each piece of AF track completes 1/3rd of curve or 30-degrees of arc (3 x 30-degrees = 90-degrees). If we were to cut the curve section of the AF switch at the point just past the frog of the switch, we will reduced the arc of the curve in half or 15-degrees of arc. When we reverse the curve back 15-degrees, we have reduced the centerlines from 5.0" to 2.5". This is a great thing to do.

Other features: When I reverse the curve, I route and re-solder the power feed wires to the same rails. This preserves the two-train switch control of the AF switch. I also, clean the outside of the track rail and solder the mechanical crimps of the switch to the rail. I have found that this contributes to flawless electrical operation through the switch.

Two very nice things have occurred. They are as follows:

- The track centerlines have been reduced in half from 5.0" to 2.5". This will allow us to double the amount of track work within the same layout space.
- We have not change the radius of arc. The radius of arc remains the same as before. This means that any and all engines and rolling stock that were able to negotiate an AF switch before will be able to do so after the modifications. The reason this happens is the geometry of the track work has not changed.

I was able to change an engine/rolling stock yard from a 6 ladder yard to an 11 ladder yard. All my engines including my 4-8-4 Northern's work flawlessly both in the forward and reverse direction. It is a beautiful thing to watch. Please look at my photo of Switch #1 (Figures 1, 2, and 3) to illustrate the reverse curve at the frog.

Once I started to work with the switches, I began to let my thoughts expand on what else can be done with the switch. The key element of the switch that can not be changed is the moving switch element.

Everything else can be modified. The photos will illustrate the following:

- Switch #9 (Figures 4 and 5): I took a manual switch and completely removed the motor house and the broad board areas beside the motor house where the terminal are located. Notice that I was able to locate another switch back-to-back without having to use a small section of straight track. This saved a lot of space. I then mounted Tortoise Switch machines under the layout and drove them with a dedicated DC power pack. For Switch #9, I placed the Tortoise Switch machine under the center hole of the AF switch.

- Switch #10 (Figure 6): In an earlier generation, I left the slide arm in place and mounted the Tortoise Switch machine under the layout off to the side. I like the clean look of Switch #9 better.
- Switch #11 and 13A (Figure 7): Switch #11 again is similar to Switch #9. Switch #13A shows how a crossover can be made by cutting the crossover section as tight as you need it to be. In this photo, the centerlines are about 3.0”. I have used two under-the-table switch machines and they were wired together; with one throw, they both switch.
- Switch #16&#17 (Figure 8): You can see by being willing to use the cut-off wheel, I was able to place two switches within the 5.0” centerline-to-centerline. For Switch #17, I reduced the centerline to 2.5”. Please note the beginning end of Switch #18.
- Switch #18 (Figure 9): Switch #18 has the standard 30-degree of arc for the curve, but I cut the motor housing off. You can see between the Switches #16, #17 and #18 there is a lot of track work and switch work going on in a very tight space. All three switches are powered by using an under the table Tortoise Switch machine.
- Switch #14A (Figures 10 & 11): In this application, I have taken a completely different approach than American Flyer. For the crossover section of track, I have used one piece of straight track rails. The crossover track is soldered and the switch bases are glued together to form one ridge switch track element. There are two photos; one wide angle and one close up.

The primary reason for kit bashing the AF switch was to squeeze as much track work into as small of layout space as possible. As I got into the kit bash process, I began to realize, I could improve my track work operation. There is no limit to what we can accomplish with a cut off wheel and a little imagination.

I want to say sorry for all the math and geometry talk. I trust I was able to explain technical terms in lay English. If you have any questions, are would like more information, please feel free to call or em me. I would be happy to help.

If you give it a try, you will find that it is not very difficult to have a lot fun with what can be achieved by using an AF switches and under-the-table switch machine.

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Figures

Figure 1 - Switch #1

Figure 2 - Switch #1

Figure 3 - Switch #1

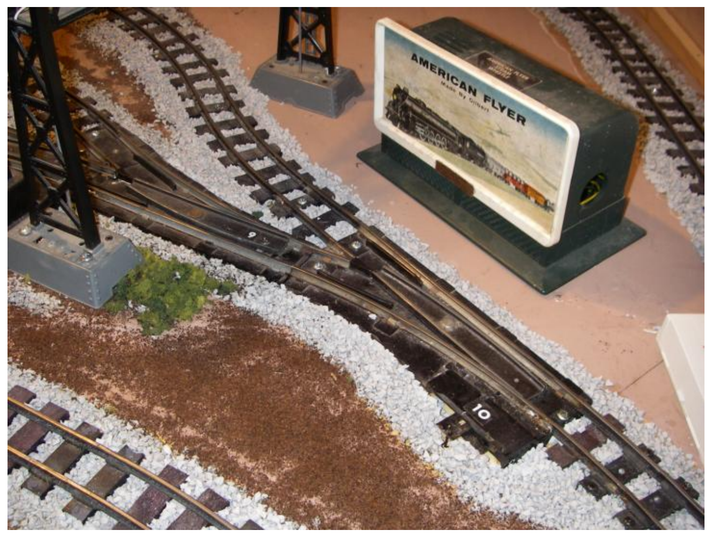

Figure 4 - Switch #9 and #10

Figure 5 - Switch #9

Figure 6 - Switch #10

Figure 7 - Switches #11 and 13A

Figure 8 - Switches #16 and 17

Figure 9 - Switch #18

Figure 10 - Switch #14A

Figure 11- Switch #14A