

NWV EDUCATION SERIES



TORTOISE SWITCH MOTOR INSTALLATION

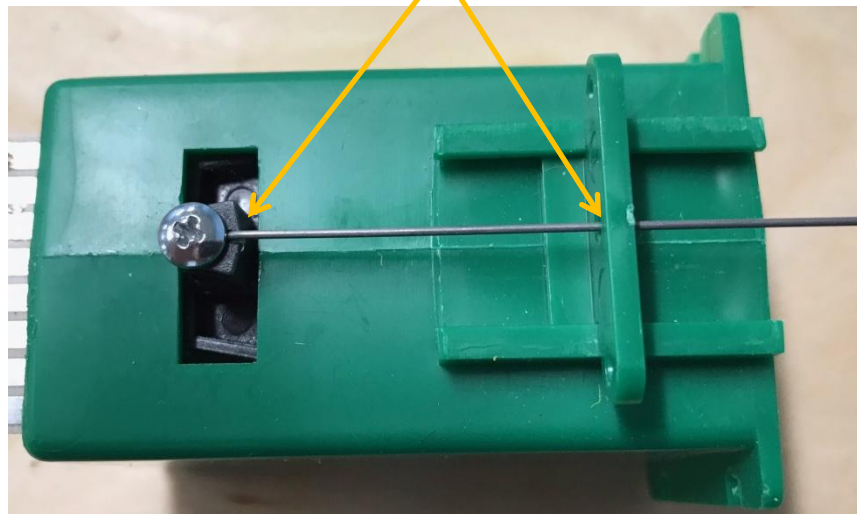
Step 0 Tortoise Back Ground

- **Standard Tortoise Supplied Actuator Wire**
 - 0.025 Inch Music Wire
 - Works on Turnouts with No Internal Springs
- **Can Not Throw Turnouts W/ Point Springs**
 - Peco Turnouts
 - Needs 0.032 Wire
 - Walther's DCC Friendly Turnouts
 - Needs 0.047 Wire

Step 1 Tortoise Preparation

- Project Uses Peco Turnouts
- Replace Actuator Wire
 - Use 0.032 Inch Music Wire
 - Bend Wire To Match Standard Shape
- Enlarge Wire Holes in Tortoise

0.032 Wire Holes



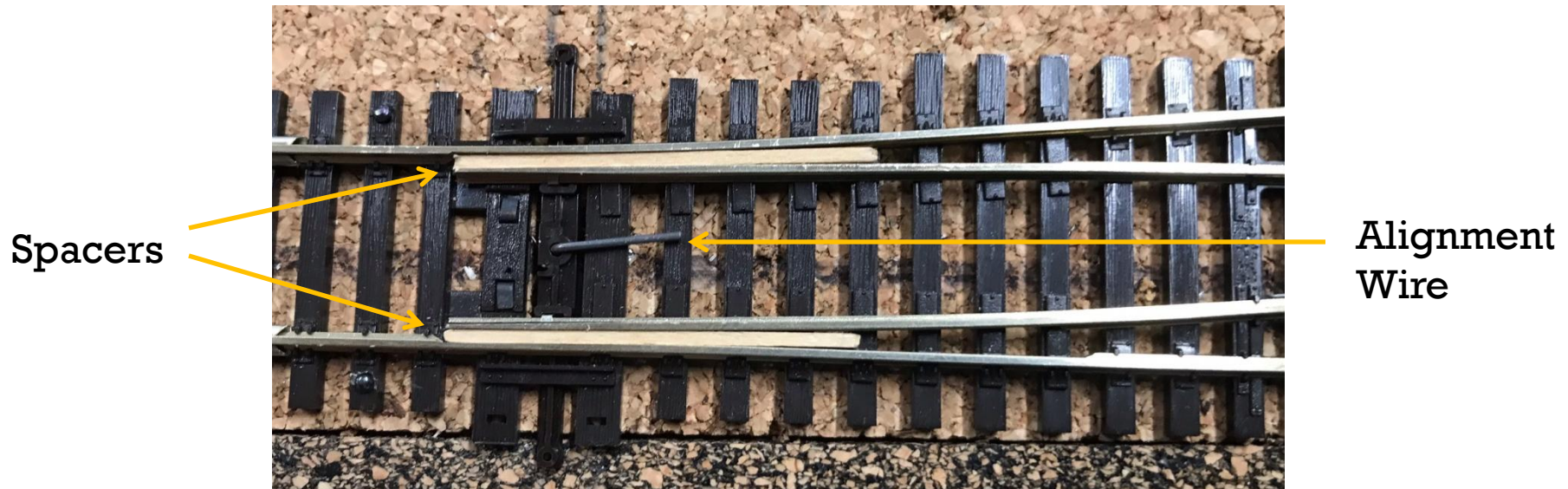
Step 2 Table Top Preparation

- Temporarily Place Turnout In Place
 - Mark the Throw Bar Location
- Drill 1/8" Starter Holes at Slot Ends
 - Cut a Open Slot w/ Roto Zip Bit in a Dremel



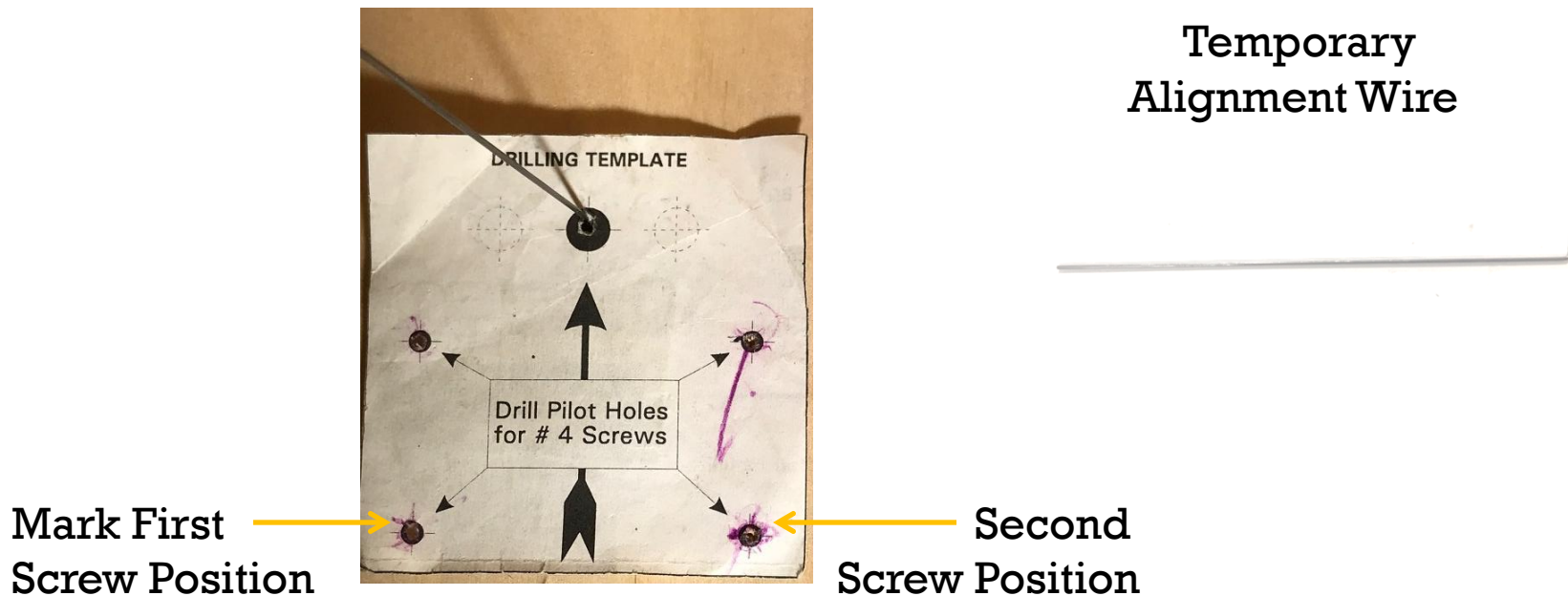
Step 3 Replace Turnout

- Re-Connect Turnout to Track
- Center Points w/ Spacers
- Place L Shaped Music Wire in Throw Bar



Step 4 Align Tortoise

- With Temporary Wire in Throw Bar Hole
- Tape Tortoise Paper Template Under Layout
 - Align Template so Wire is Vertical / Straight



Step 5 Install Tortoise

- Remove Wooden Spacers in Turnout Points
- Drill Starter Holes w/ # 52 Drill Bit
- Start Screw to Temporary Hold Tortoise
 - # 6 x $\frac{1}{2}$ inch Pan Head Phillips Screw
- Add a Second Screw To Secure Tortoise

Step 6 Complete Tortoise Installation

- Hand Throw the Tortoise
 - Check Its Position
 - Adjust Until Points Throw in Both Directions
- Drill Pilot Holes For Additional Screws
- Install Last Two Screws

Step 7 Electrically Test Tortoise

- Secure a 12 V DC Power Supply
- Apply Power with Alligator Clips
- Run Tortoise in Both Directions
- Verify Turnout Moves Completely
 - Adjust Tortoise Position if Necessary



12 Volt DC Supply



END

TORTOISE SWITCH MOTOR INSTALLATION

