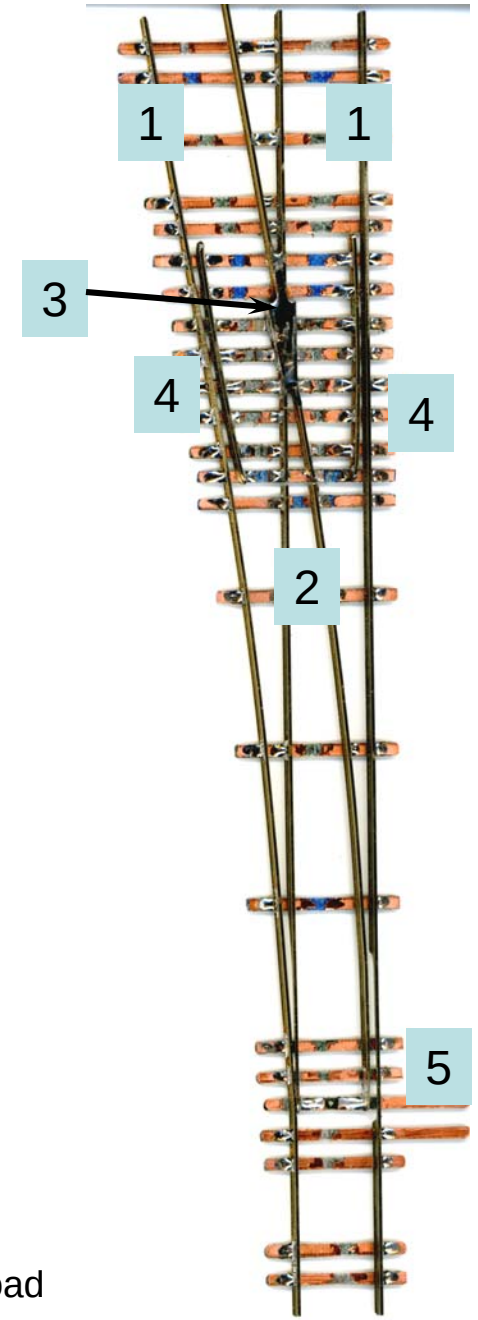
Switches

Installation & Wiring De-Mystified (hopefully)

Bones

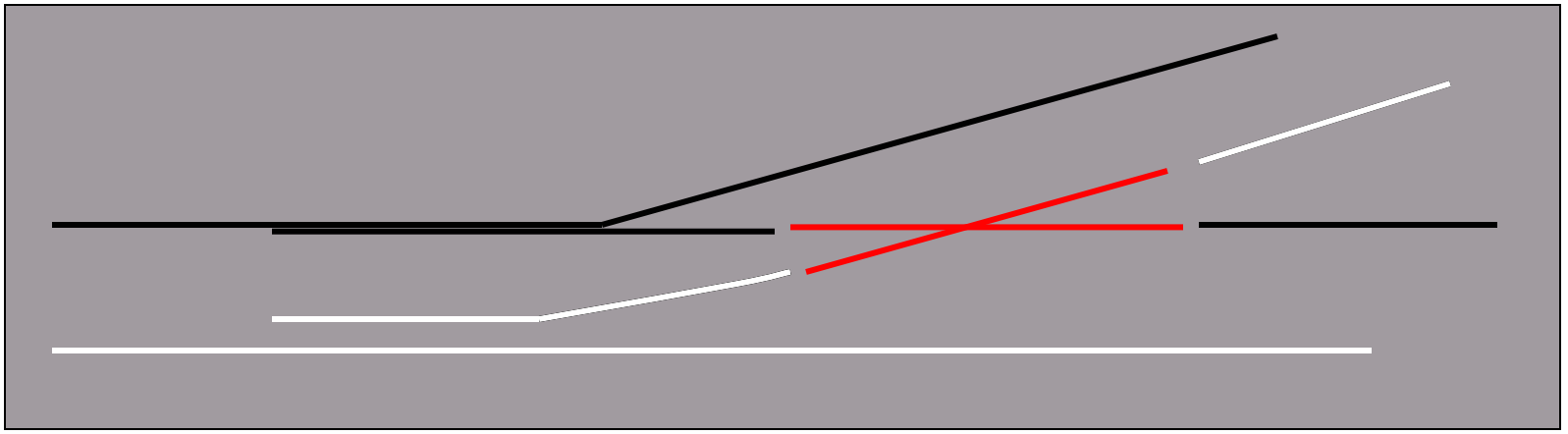
- 1. Stock rails
- 2. Point rails
- 3. Frog
- 4. Guard rails
- 5. Throw bar



Electrical

- Stock and Point rails
  - ‘left’ and ‘right’ rails are isolated, do not change polarity
  - Continuity check to verify isolation
- Frog rails
  - Both rails same polarity, isolated from stock rails
  - Polarity controlled by switch machine

Line Diagram



Black – Rail A DCC

White – Rail B DCC

Red – Frog, Rail A or B switched by switch machine

Objective – power frog to assume correct polarity same as route

- diverging – white (Rail B)
- normal – black (Rail A)

Installation Standards

- Holes drilled for
  - Throw bar linkage (cut a slot)
  - Stock rail wires (2) and frog wire (1)
- Solder
  - Power lead wires to underside of rail
    - Black #16 to one stock rail
    - White #16 to other stock rail
    - Red #16 to frog, long enough to reach switch machine
  - Rail joiners after glue has dried

Installation Standards

- Shim copper clad PC board ties
  - Objective-rail height to match Atlas code 83 flex
- Final steps
  - Check straight stock rail for alignment with track
  - Check cross-track level and shim as needed
  - Dilute white glue
    - DON’T GLUE EITHER SIDE OF THROW BAR!

Switch Machine

- SMRHS vs. Tortoise – same concept
  - Bring in Rail-A and Rail-B feed wires (#16)
  - Use logic instead of guess work to figure out which wire goes where! (Ohm meter time)
  - Connect frog feed wire (red #16)
  - Connect control wires
- Mount machine
  - Center mechanism, center switch points
  - Screws used to hold machine in position
  - Test w/power to machine for point closure on stock rail

Final Steps

- Dress rail tops and joints
  - Use large single cut file for tops
  - Use needle files for inside flangeway surfaces
  - Check with free rolling truck – no clicks as it transitions across rail joints
    - May hear click across frog gap
- Solder rail joints
- Gap run-out of frog rails beyond fouling point