

How do I Keep my Layout Clean

By

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The Train Talk Guys



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Share your experience
Ask your questions

Any time



Why do my Track and Wheels get dirty

- Plastic wheels are the primary source of the gunk???. Probably not true
- Source is related to the dust content of the room???. Definitely
- Cleaning agents can leave contaminants behind. Not good
- Construction dust. Very bad
- Raccoons poop on your track. Sucks

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Engineering Issues

- **Issues**
 - Electrical Arcing
 - Chemical Reactions
 - Atmospheric Conditions

Electrical Arcing

- Microscopic arcing takes place between the wheel and the track
- Microscopic irregularities on wheels and track face and/or common dust on the track are the culprit
- Causes momentary loss of electrical contact
 - Nanosecond duration, nanometer long electrical arcs
- Likely to be intensified if either are not cleaned regularly

Chemical Reactions

- Chemical analysis of the crud is reported to be near 100% pure Nickel oxide, Nickel III Oxide (Ni_2O_3) to be specific
- Deposited in a manner on the wheels and track face, suggesting formation created during the electrical arcing.
- Interaction of the metal and the dust components of the air in the room triggered by the arcing create the gunk
- Foreign matter on the track
- Result is the crud found on seriously contaminated track and wheel sets

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Atmospheric Conditions

- Dust will eventually settle on the track surface
- How carefully do you protect the track when working on the layout
- Positive pressure in the room helps control some of the dust
- Humidity has an impact. High humidity is probably bad.
- Low humidity causes static. Low humidity is probably bad

Nickel Silver Track

- Nickel silver is composed of varying amounts of copper, nickel and zinc; in all cases, there is more copper than nickel and zinc.
- Despite having silver in its name, nickel silver does not have any silver in its composition.
- Nickel silver is typically a copper-nickel-zinc alloy, but in some instances the metal may also include traces of lead, tin and manganese.
- The concentration of the metals can change its characteristics. For example, the higher the amount of copper included, the more ductile this alloy becomes. Flex track????

What is the Oxide formed from the arcing

- Although there can be several different percentages of the track alloy mix, the most common alloy is 65-18, or NS106.
- This means....65% copper, 18% nickel, and 17% zinc.
- The Nickel Oxide in question has a higher resistance to electrical current than a "clean" surface, hence, it's necessary keep your tracks clean.
- Too much, and you have gunk.

What gets dirty

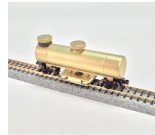
- Tracks
- Engine Wheels
- Rolling stock wheel sets
- Turnouts

How do you fix the problem

- **Track**

- Cleaning Cars

- Roller-like in Centerline Products, wet and dry
 - Pad/Tank like in Tony's CMX Clean Machine, wet
 - Rotating brush like in MNP Motorized Cleaning Car
 - Friction device-Masonite track cleaner, hand built and requires a lot of weight in a gondola or box car. Dry Do not buy one of these, make it yourself. Plenty of info on the internet



How do you fix the problem

- **Track-Continued**

- Good Cleaning Agents that are applied directly to rails
 - Goo Gon-Yellow liquid-**yellow only!**
 - 70% or 90% Isopropyl alcohol (Drug store)
 - Atlas Conducta Lube Cleaner
 - Shop Towels – Always wipe when done



How do you fix the problem

- **Track-Continued**

- Track Conditioning

- Automatic Transmission Fluid - one quart is a lifetime supply, or two lifetimes. Does it leave a conductive film? Maybe.
 - The bone dry electrical arcs cause the damage.
 - Mineral Spirits may work better than alcohol
 - Gives credence to the use of ATF
 - Compressed Graphite Sticks used sparingly like ATF may provide a coating to improve conductivity Hobby/Art store



How do you fix the problem

- **Track-Continued**

- Track Polishing
 - Bright Boy. Walthers sells the Standard Grit. More aggressive
 - Cratex Rubber Abrasives-Sticks and Dremel Tool elements Walthers sells the Extra Fine Block. Less aggressive



How do you fix the problem

- **Track-Continued**

- Track Polishing
 - Not generally recommended (unless you have no other choice)
 - Brasso Multipurpose Metal Polish-Liquid. Has Ammonia which will attack copper. Remember what is one of the major components of the track
 - Flitz BU-03515 Metal Polish-Tube, the best of the pigs
 - Commercial Brass Wire Brush Likely to scratch track



How do you fix the problem

- **Track-Continued**

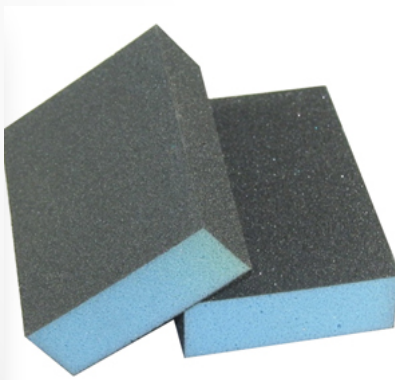
- Track Polishing
 - 3M Scotch-Brite Dobie Pads or Heavy Duty Scour Pads. Not generally recommended



How do you fix the problem

- **Track-Continued**

- Emergency Surgery
 - Start by using a very fine grit sandpaper, Sand carefully but not aggressively
 - Then use a medium grit stick like a Bright Boy
 - Finish with a Cratex fine grit stick
 - It's probably a good idea to wipe the track clean with a shop towel and alcohol



How do you fix the problem

- **Engines**

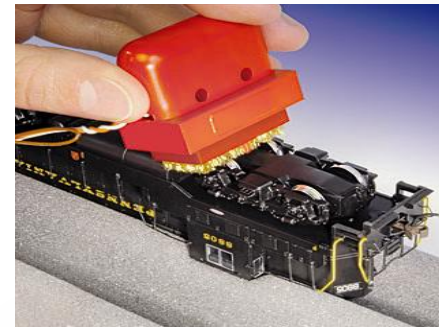
- Require hand work with a shop towel and cleaning fluid
 - Goo Gone Yellow Concerns about chemical residue
 - 70% or 90% Isopropyl alcohol (Drug store) Only residue is if any material is not removed.
 - Finish using a clean shop towel
 - Difficulty is rotating the wheels to access the cleaning space



How do you fix the problem

- **Engines-continued**

- Frick's Expensive Solution
 - Use a commercial, powered engine wheel cleaner like:
 - Roto Wheel/Tidy Track Cleaning tool from Woodland Scenics. Additional pads available, of course, at a highly inflated cost.
 - Trix /Minitrix Wheel Cleaning Brush
 - Kadee Speedi Driver Cleaner



How do you fix the problem

- **Engines-continued**

- When these systems fail to do the job or break your routine maintenance budget, use Frack's simple method.
 - Saturate a small piece of shop towel with cleaning fluid of choice and place on track.
 - One set of trucks on rail for power, the other on the towel.
 - Lightly apply downward pressure on the powered truck.
 - Speed up the engine with your throttle and let the engine clean its own wheels.
 - Reverse the engine and clean the other wheelset in the same manner.
 - Finish using a clean dry shop towel on both sets of trucks.

How do you fix the problem

- **Rolling Stock**

- First rule - keep the track and engines wheels spotlessly clean.
- Very important. If these are done in a regular maintenance program the rolling stock may never have to be cleaned.
- Inspect rolling stock car(s) very carefully to see how bad they they are gunked up.
- If necessary, and you have a lot of free time on your hands, clean as previously described by hand with shop towels, tooth brush and cleaning fluids.
- If very bad, and you're not living on social security, replace with new plastic wheels
- If very bad, and you're very rich, replace with metal wheels



How do you fix the problem

- **Rolling Stock-Continued**

- But, first let's remember the Science
- Remember the chemical analysis discussion earlier
- Plastic Wheels may have nothing to do with the problem
- Metal wheels are just more effective than plastic wheels at wearing away the oxide layer
- The wheels aren't responsible for the problem, they are the major removers of the oxide and plastic is just a very poor remover.

How do you fix the problem

- **Turnouts**

- Use a small electronics vacuum cleaner to clean all debris out from the turnout action
- Can also use an adapter for your shop vacuum
- Compressed air in a can can be very helpful. Found at Best Buy in the computer area or BGRMS.
- Make sure the turnout meets NMRA standards by using a track gage for track clearances
- If possible inspect the turnout with a magnifying glass
- Operate the switch manually to make sure the operation is smooth
- Use jewelers files to make fine adjustments to the track points
- Carefully clean the turnout rails by hand using earlier techniques

Wrap up the Clinic

- Develop a routine maintenance program for your engines and track and make it a scheduled event.
- Be religious about it. It will make a big difference in the way your layout operates.
- Use the internet for ideas.
- If your maintenance program is not working for you, ask others for help.
- Are there any wrap up questions.



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- Track Consultant - Rusty Steel
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