ModelingBlast

60 + Modeling Tips in One Hour

Mick Moignard

With acknowledgements to my friends in the IBM Notes community for hijacking their title…

Who me?

- D&RGW & RGS in HOn3 since 1978
- UK prototypes, OO & OO9 before that
- DCC user since 2000
  - Digitrax Chief, etc
  - Tsunamis since 2005
- Small business in DCC & sound installs
  - Plus almost anything else that comes my way – weathering, remotoring….
- NMRA AP Certs: Cars, Author.

What this?

- Modeling tips worked out over the years
  - or borrowed from friends
- Roughly grouped together
- I find them useful
- YMMV

Lesson 1: Rule 1

- It's my train set!
  - try to make only new mistakes, rather than repeating old ones (Koester)
  - Learn from others, regardless of scale, prototype, era, or anything else
  - It's a hobby: try to enjoy it as such.

Layout Building

3 Essential Tools

- Electric Screwdriver
- Cordless drill
  - luxury: one for each drill size!
  - if you use Chipboard screws, you only need drill the clearance holes
- Xuron rail nippers
  - Always buy two and keep one spare
    - Because someone* will one day cut hard wire with them

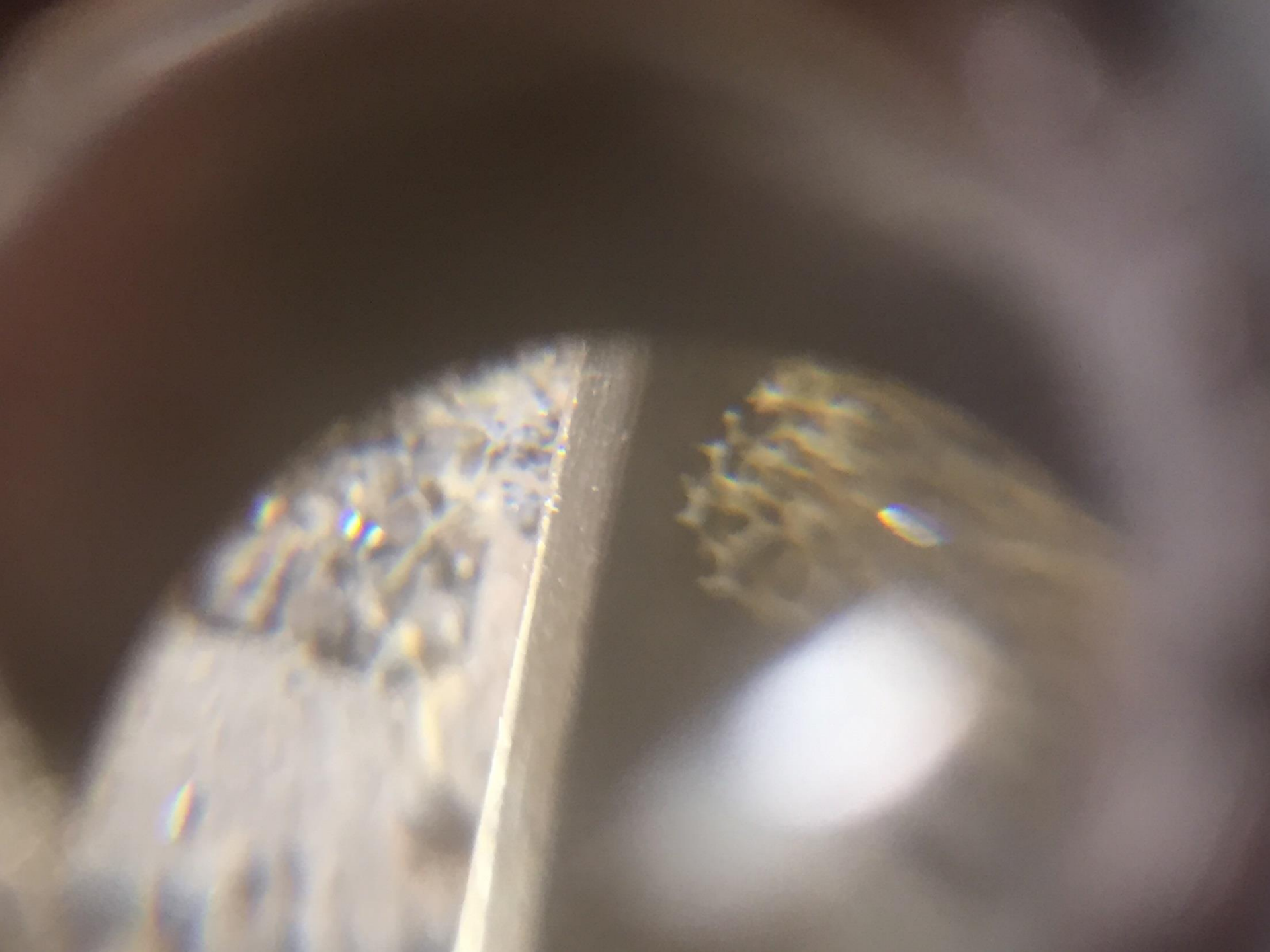
* you?

Test your track – Again and Again and Again

- An unreliable layout is just eye-candy
  - And you'll always hate it
- Get a Loco and 3-4 cars
  - Check wheel gauge and couplers first
- **Push** at medium speed, all over the layout
- Don't stop doing this until they stay on the rails, at all times
- Then increase the speed and the train length!
- In the future, anything that derails is probably the vehicle, not the track.

Track doesn't really get dirty, only dusty

- N/S doesn't oxidise much,
  - And the oxide is conductive
- Dust falls on the rails
  - and gets ground in by the trains
- Run trains often!
  - Or just remove the dust
- I avoid liquid cleaners that stay on the rails
  - They just make the dust stick to the rails
  - Which the trains churn into sludge
- Avoid anything that scratches the rails: scratches hold ground-in dirt!
  - Yep, really!



Try a Track Cleaning Stick

- Cheaper than buying one
- Gets to places that other cleaners can’t
- Balsa wood one side
- Peco rubber t’other
  - But avoid using the rubber unless you really have to!

General Modeling

Wash your hands frequently

- Especially after working with lead or solder
- Clean hands make for clean models

Gluing Ez-Line

- Don’t use ACC, it makes it go wrinkly and wiggly
- Try:
  - White glue
  - Pressure sensitive glue

Don’t install lead with White Glue

- Over time, reaction forms lead acetate
- Which swells and breaks the model up from the inside
  - After some years
- Use instead:
  - Contact adhesive (EvoStik, Goo)
  - ACC
  - Double-sided tape

Buy in Bulk

- Scalpel/modelling knife blades
  - Buy from an art shop or tool supplier
  - Avoid model shops! Expensive!
- Drills
  - The last one always breaks on Saturday afternoon!
- Sugar Cube Speakers
  - We'll come back to this later

Drilling small holes

- Use a piece of masking tape with pencil dot to center the drill
  - Stops it wandering
  - May be easier than making a center-punch mark
- Place small cube of eraser on drill bit
  - Prevents pinvise jaws crushing detail when the drill breaks through

Locomotive Static Rollers

- Great way to find binds in mechanisms
  - Use mirror to see what's going on the other side
  - Run in DC locos
- Great for DCC Programming
  - on the Main, without an actual layout.

Paint Chips on Brass Loco Wheels?

- File rebates on rear of coupling rods
  - Leave a boss at the crankpins
- Smooth off and polish rear edges

Take Photos of Models

- Camera or iPad is fine
- Reveals issues that you might not spot by eye
  - Great progress marker
- Dismantling sequences
- Useful reference for later
  - How the heck did I do that…..
- And may help towards AP Author!

Smartphone Camera?

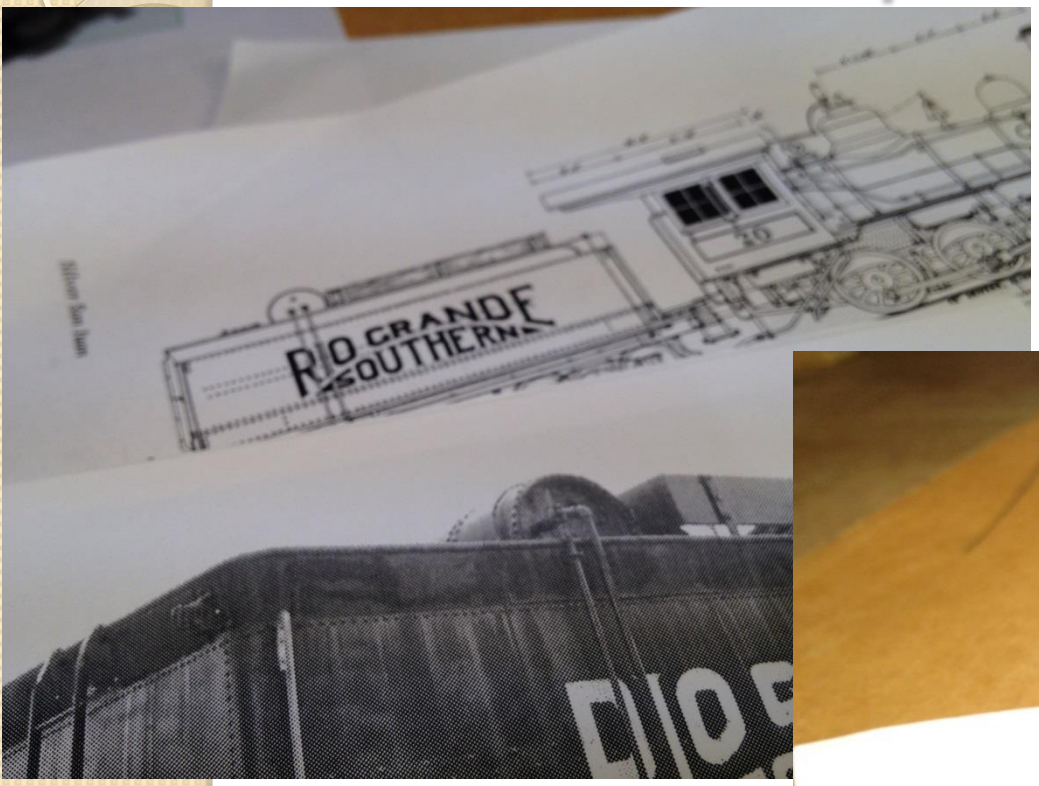
Save eggcrates and pate dishes

- When dismantling anything, place small parts in a bowl
  - Especially screws
- Keep stuff together
- Prevents loss of parts

Stare long and often at photos

- Only photos show the prototype
- Drawings are useful, essential
- But
  - Don’t tell the whole story
  - May well be inaccurate or even wishful thinking
  - The draftsman may also not have understood the photos you’re looking at.

Don’t trust plans on their own!



Photos: QuickPics
RGS 20

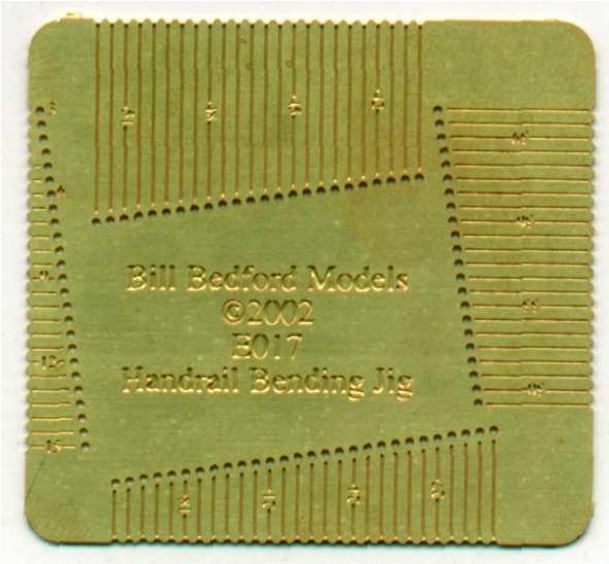
Have a small Vacuum cleaner handy

- Install charger above workstation
- keep it charged up
- No more dusty models after filing and sanding operations

Get a Hand Mirror

- Great aid to tracklaying
  - Eye down the track from different angles
- Tracing derailments
  - when the model derails away from you
- Check different views of a model
  - Be amazed what you see in a mirror!

Instant Grab Iron bender



- Serrated jaw pliers
- Bill Bedford bending jig
  - From Eileens Emporium in the UK
- Make grabs from 10-thou wire (HO)
  - Don’t forget to allow for thickness of paint film

Instant partholder idea

Keep a set of files just for Plastic

- Free of metal or solder contamination
  - Avoid scratches on plastic surfaces
- Will stay sharp almost for ever
- Easy to keep clean
- Can be relatively cheap files
- Label carefully

Foolproof glazing install

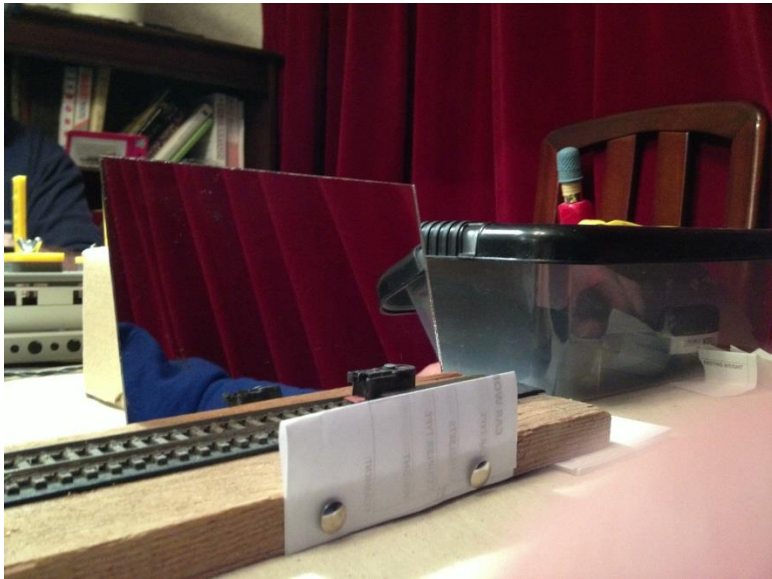
- Micro-Mark Liquid PSA
  - Pressure Sensitive Adhesive
- Small blobs with cocktail stick top/bottom or side to side
  - Or both
  - Wait until dry: important!
- Cut glazing to overlap
- Press in place – don’t move sideways

Double-sided tape

- Hold wires in place
- Attach speakers
- Layered siding for walls
  - Better than solvent between the layers
- Attach roofing material to subroof
- Installing weight in models
- Track-laying!
  - Foam stuff useful here.

Checking Coupler Heights Easily

- Tilted mirror behind work track
  - Paper in front
- Avoids stooping/crouching/dropping the model
- Shows couplers against white background



Tip from Bob Perrat

Square bottle for Solvents

- Too easy to knock over solvent bottles
- Too hard to make up a wood holding block
- So: save old Humbrol square bottles and refill them.

Baking Soda as gap filler

- Structures especially
- Fill gap with baking soda
  - sodium bicarb works well too
- Add small drop of runny ACC

Baking soda for Mortar

- Rub baking soda into brickwork
  - Helps to paint it first with matt paints
- **Spray** with Dullcote or equivalent to fix.
- Actually works with almost any fine powder
  - Talc is a bit too fine, though.

Computers in Modelling

- The Internet as a research tool
- CAD:
  - 3d printing
    - Can even make a mesh from iPhone movies!
  - Laser cutting
    - Not only model parts: track sweeps, speaker boxes, layout labels……
- Make your own decals
  - Ink or laser printer
- Model parts from photos
  - Wallpaper, floor coverings, pictures, even whole model surfaces.

Soldering

Buy a **big** soldering iron

- Big in wattage: 50watts minimum
  - Temperature control is valuable extra
- Why?
  - Brass is 50%(ish) Copper
  - Copper is the second best conductor of heat
  - Small irons require you to heat up the whole model to make a joint
  - Big ones heat the joint fast
- Get in there hot and fast, and get out again

Solder Paste for etched kits

- And for scratchbuilding in metal
- Buy in bulk @ plumbers merchant
  - Cheap: 1lb may well cost < £20.
  - Nealetin is what I currently use
  - Qualitex 818 is also useful: electronic stuff
- Self-fluxing: no need for extra flux
- Almost impossible to apply too much
  - No fillets, no mess all over the model.
- Strong, quick
- Wash up model with hot water after each session
- No lasting impact on paint

Use electrical solder for wiring

- Fluxes for structural soldering will damage wiring in the end
- Always use Rosin cored solder
- No need for extra flux
  - NEVER use Tix or any other structural soldering flux
- If it doesn’t work, either
  - Not hot enough
  - Not clean.

Get an RSU?

- Invaluable for reattaching bits that fall off brass locos
  - Which they do, often!
- Gets the heat in even faster than 50W iron
  - Even less chance of bits falling off
- Works great with solder paint too
- If you take the plunge, take care to learn how to use it properly
  - It can do quite a lot of damage quite quickly!

Painting and Finishing Models

Removing Tampo Pad Printing

- Model/Manufacturer dependant
  - Some come off with enamel thinners
  - Some with Isopropyl Alcochol
  - Some with denatured alcohol (meths)
  - Some with nothing at all!
- Dampen a Q-tip
- Rub, with moderate pressure
- Be careful not to rub off the base paint!

Masking headlights for weathering

- Use a hole punch on masking tape
  - Pick the piece off the die with tip of scalpel.
  - Apply to headlight
- Also:
  - Use Compass Cutters to make windshield wiper masks for diesels and road vehicles

Quick masking of Windows

- Cut 4 squares of tape, each smaller than the window
- Place one in each corner.
- Check from inside
- Spray

Avoid car spray paint

- Propane often used for propellant,
  - Expectation of outdoors use
  - **Significant** Explosion risk!

- Pigment particles too large for models
  - Designed to fill small surface blemishes

Buy a Compressor

- In the long run, it's a lot cheaper than aerosol cans of propellant
- Will encourage you to use your airbrush more
- And it's more practical than either cans or stored compressed gas - car tyres, bottles, etc
  - Because it can't run out!
- Do fit a water trap and pressure gauge

If you must use Propellant cans

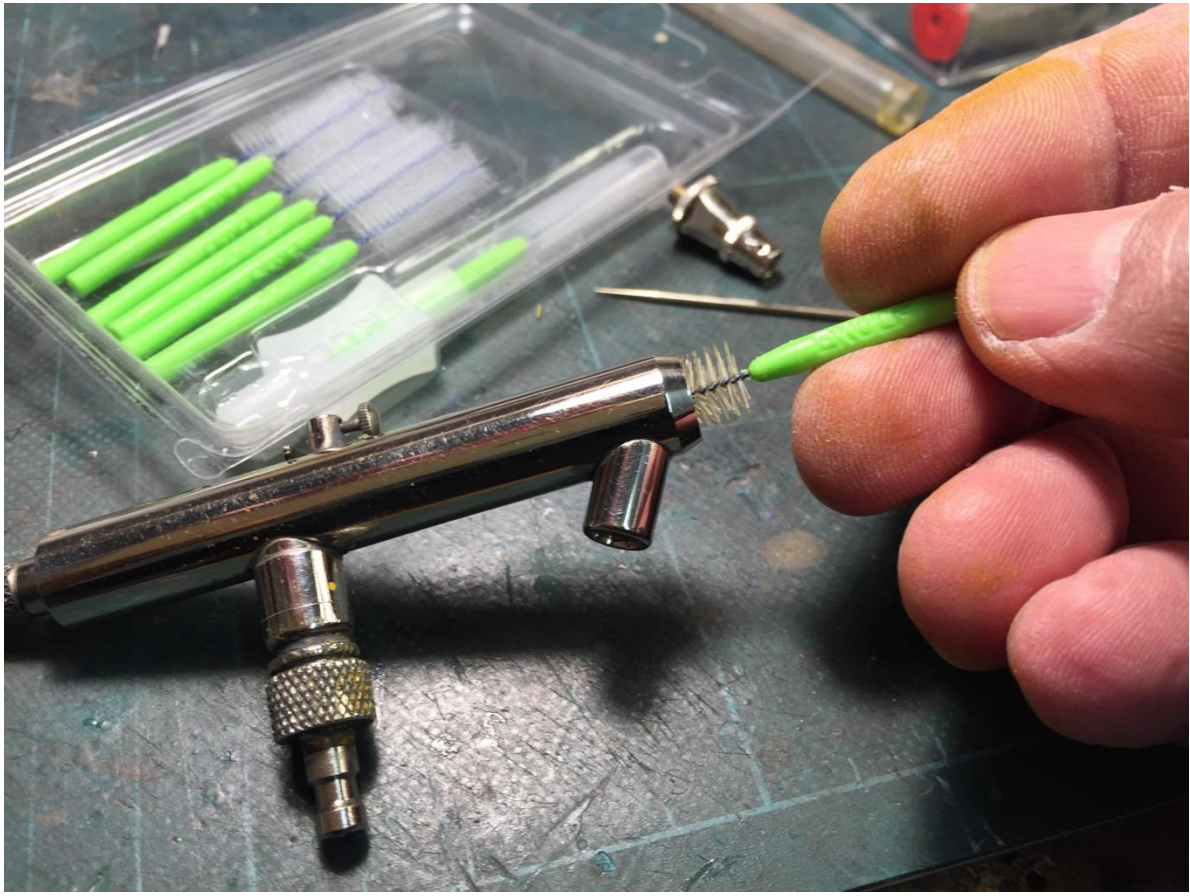
- Buy two at all times
- Keep in a bucket of warm water when in use
  - Reduces the issue of pressure loss as it cools
- Swap over cans frequently to minimise pressure loss as it cools

Buy a Spray booth

- Beats doing it outdoors in the cold
- Beats breathing paint fumes and killing yourself
- Vent to outside if you can
- Cheap foldups available…
  - ModelExpo (no relationship)
  - There are others

InterDental brushes

- Great airbrush cleaning tool
  - Can’t get pipecleaners in the UK



Painting Wheels the Easy Way

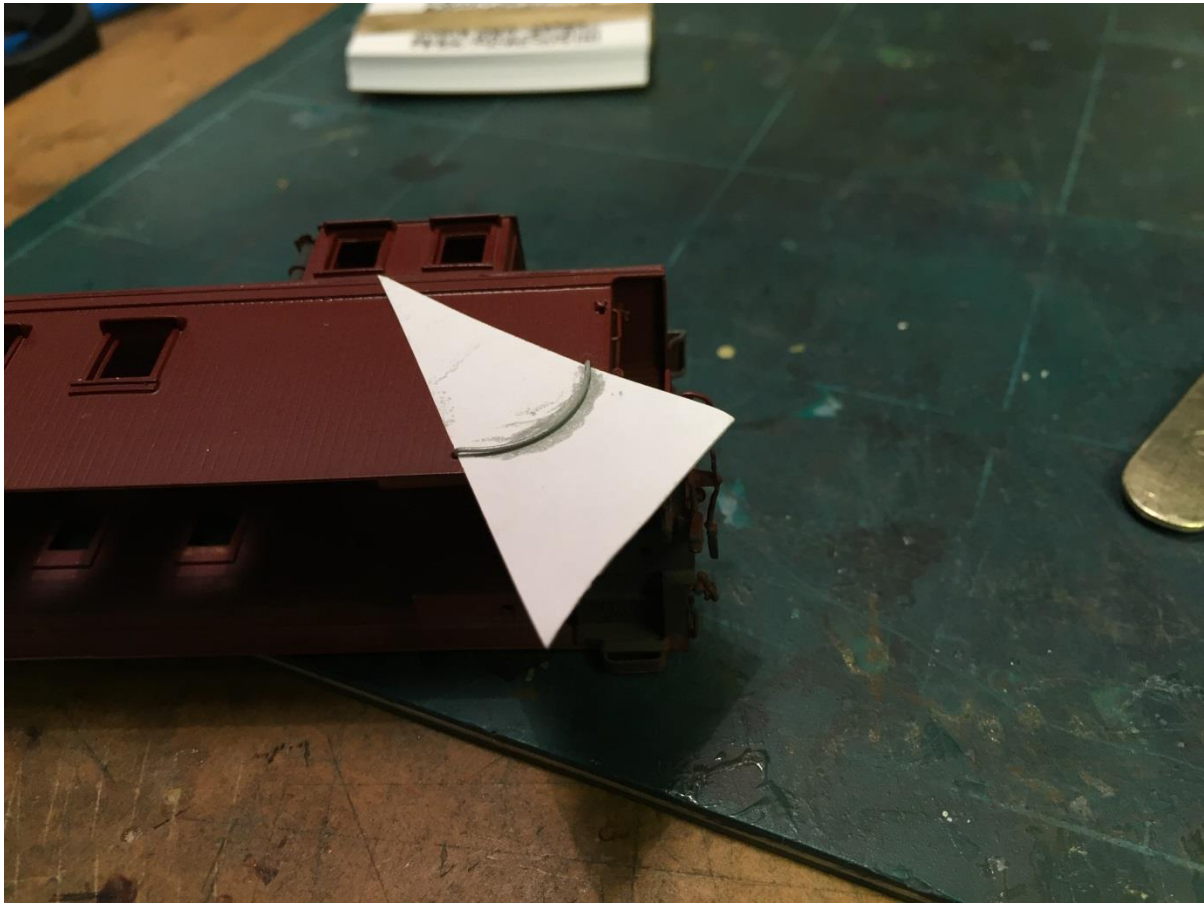
- Hold in tweezers by the axle centre
- Paint the wheel face-on
  - Grey/black
  - Light spray of rust (or heavier for new wheels
- Use a piece of stripwood pressed against axle end to clean pinpoint
  - Press against axle end & rotate
  - Don’t press so hard it splits.
- Reassemble truck & run up and down a piece of track to clean the treads

Drying Paint Fast

- Fan oven
  - **Must** be a fan oven
- 100 C
  - Dries enamel rock-hard in 20 minutes, ready for second coat
- 75 C is OK for most plastic
  - YMMV here of course
- Beware
  - cerrobend,
  - whitemetal,
  - low-melting point solder!

Painting Grab Irons

- Cut triangle of paper
- Push under grabiron
- Paint!



Decals - If all else fails

- Wick styrene cement under the decal with a small brush
  - Check first that the paint will be OK!
- **Do Not:**
  - Brush over the decal
  - Touch it while it dries/sets
- Just touch the brush-tip to the decal edge and let capillary action do the rest.

Artists pastels

- Cheaper than model weathering powders
  - But may not contain “adhesive”
- Huge range of colours
- Scrape with modelling knife
- Apply with brush
- Set with matt spray varnish
  - Which will reduce colour intensity, too

“Running” Lettering

- Trace over decal with white pastel
- Drag downwards with soft brush

Use an Onion to absorb paint smells

- Peel and quarter
- Place near paint
- Wait
- And don’t eat it afterwards!!

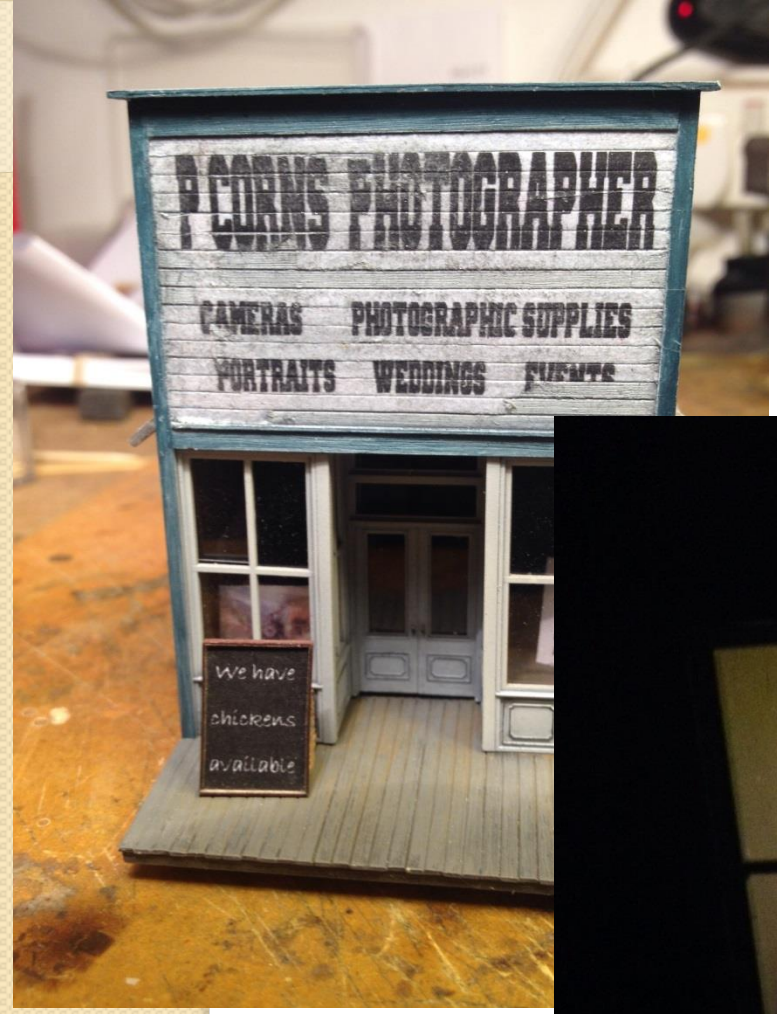
Thanks to Mark Kasprowicz for this tip.

Paint structures black first

- Old theatre set trick
- Works best for Plastic and Resin
- Use airbrush to apply just enough black
- Then apply final colours
  - Drybrush or airbrush
- Helps keep paint layer thin
  - Avoid obscuring surface detail
- Also works on rolling stock!

Pictures on the wall of structures

- Photo pics on your own wall
  - Phone camera is fine
- Browse the web for pictures
  - Download them
- Insert photos into a Word doc
  - Reduce to taste – need to be quite small
- Print, cut out and stick to wall
  - May already include frames!


PEORNS PHOTOGRAPHER
CAMERAS PHOTOGRAPHIC SUPPLIES
PORTRAITS WEDDINGS
We have
chickens
available

DCC & Sound Installs

Finding Space inside Models

- How do you know that speaker or decoder will fit?
  - Use a chunk of Blu-Tak
  - Place on chassis
  - Install Body, press down
  - Remove body
  - Inspect squashed Blu-Tak for size
- Repeat as required

Conductive epoxy made easy

- Just add brass filings to regular epoxy before you mix
  - Not much required
- Great for installing GME chuff cams
  - Smear a little inside the cam
  - Press on to axle
  - Turn to line up with crankpins
  - Add the filler piece with a little more epoxy
  - Test with a meter when hard.

Wires the right way round?

- Simple check on program track
- Read address
- Wheels should turn “Forward”
  - Exceptions: ESU Loksound, some Zimo
- Model will then run correctly on DC

- Correct connections:
  - Red to right rail
  - Orange to motor connector that was connected to right rail for DC

Use LEDs rather than bulbs

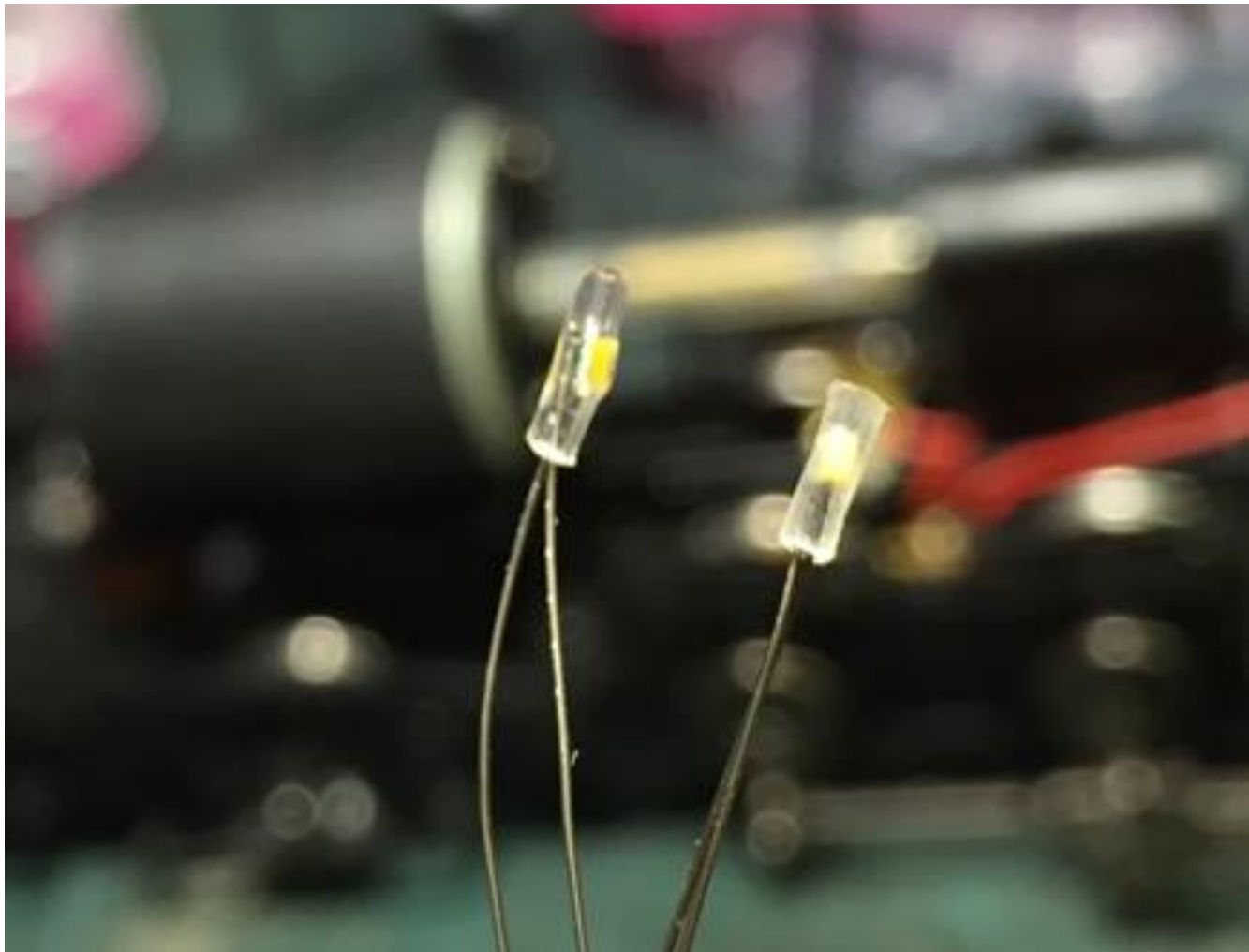
- Lower current draw
- No heat output
- Far longer life
- Smaller
  - Ever seen an 0401?
- Less sensitive to resistor values
- Properly resistored, are impervious to track voltage

LEDs

- Buy in bulk
  - Way cheaper
- I use LEDBaron on eBay
- Huge range
  - ready wired SMD, down to 0401!
  - Dunk in Superglue to insulate before installing
- Also sells fine wire in NMRA DCC decoder colours.

LED replacement for 1.5v microbulbs:

- 0603 wired LED inside clear 1.2mm HeatShrink tube



What size resistor for LEDS

- LEDs need between 2.7 and 3.5V to fire
  - Some 3mm LEDS are 12V ready
- Most model LED lights are way too bright
  - I use 9000 ohm (9k) for Diesel lights
  - 15000 (15k) for Steam
  - 50K for marker lights, etc.

What colour LEDs?

- Avoid pure white – usually have unrealistic blue tinge
- Sunny white good for modern lights
  - Sealed beam, halogens for Diesels
- Golden white for Steam
- Use appropriate resistors
- You can always paint them with yellowish paint.
  - Do that while they’re lit!

Soldering leads to SMD LEDs

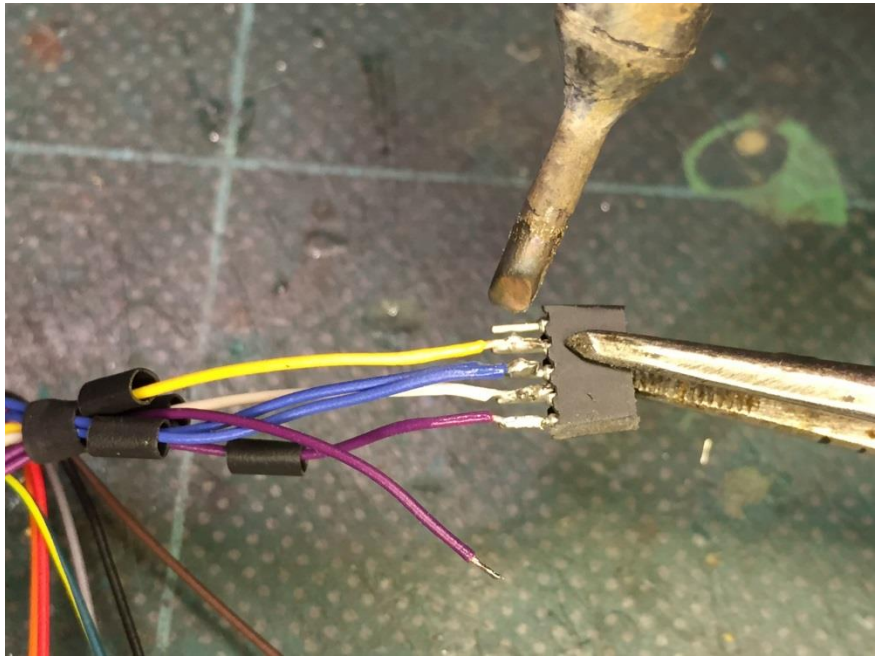
- Pre-tinned wire
- Hot soldering iron
- Hold LED in self-closing tweezers
- Hold wire in fingers
- One-second touch to solder
- Test when both leads are connected.
- Dunk in SuperGlue and let set to insulate

Internal plugs and sockets

- Socket side to Power, pins to accessory
  - No damage if it comes apart
- Wire so that if assembled wrong way round, no damage results
  - 6-pin between loco and tender:
    - Outer two: motor
    - Inner two: headlight wires
    - Middle set: track power
  - Plugged in the wrong way: loco goes backwards and light doesn’t work
  - But no damage done.

Soldering Plugs & Sockets

- Hold socket in self-closing tweezers
- Work from front to back
  - Then you won't unsolder previous work
- Wires oriented for safety
- Don't forget the heatshrink!



Buy connectors in bulk

- Mouser SKU in 50s:
  - Plugs
  - Mouser #: 575-500101
    Mfr. #: 850-10-050-10-001000
    Desc.: Single Row Headers .05 50 POS
  - Sockets
  - Mouser #: 575-501101
    Mfr. #: 851-93-050-10-001000
    Desc.: SIP Sockets 50P SIP SOCKET
  - Same as the TCS mid-size ones.
- Cut off what you need with rail nippers

Buy Speakers in Bulk

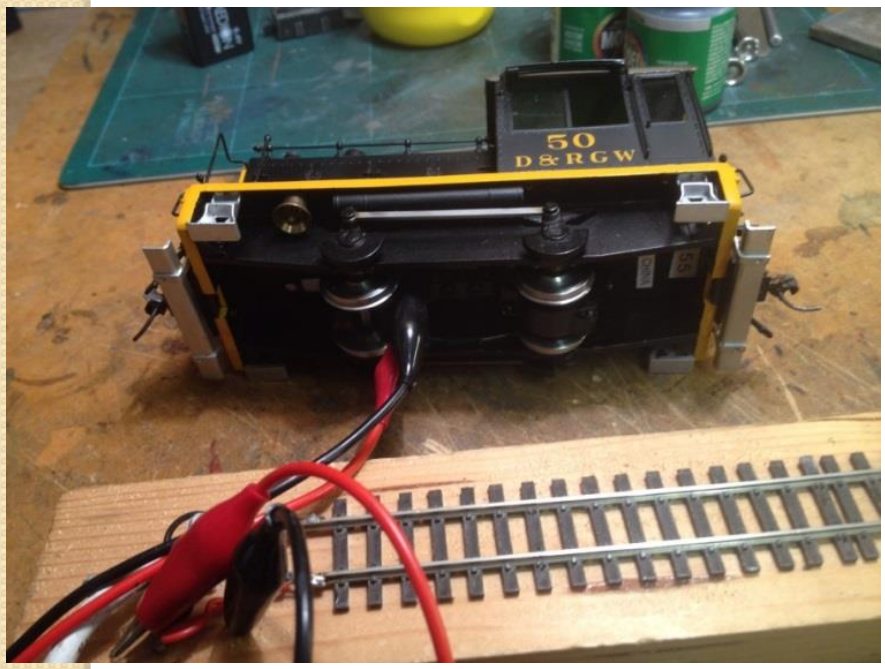
- Mouser SKUs for popular “Sugar Cubes”
  - Made by Knowles
  - 15mm * 11mm
    - 721-240326000107
  - 18mm * 13mm
    - 721-240326000071
- There are others available
  - Including a neat oval that goes down to 200Hz!

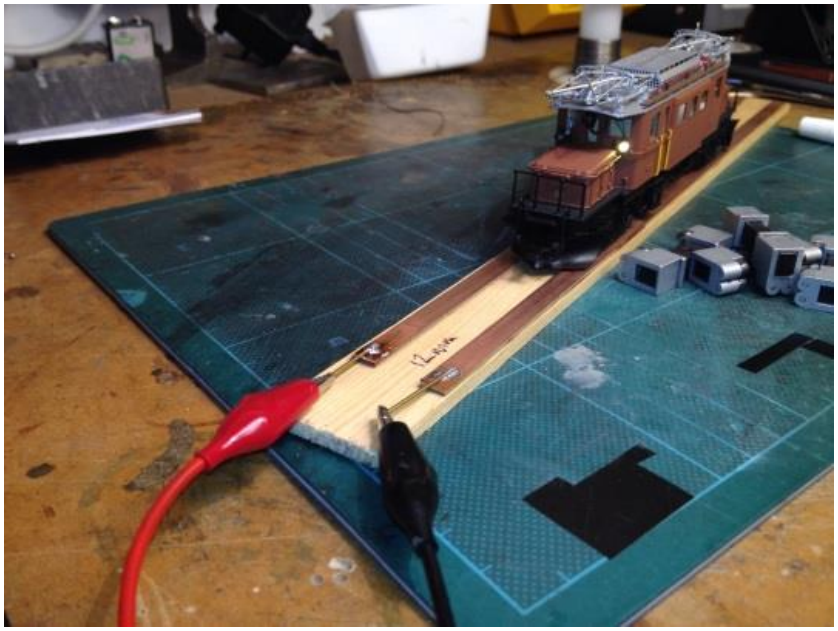
Setting Heatshrink tubing

- Side of soldering iron element
- Distance 1-2mm
- No need for heat gun!

Program track need not be track

- Croc clips work just as well
  - As do strips of PCB
  - Or even a programming “Plate”





The DCC layout

Buying a DCC System

- Always test out the throttle/handset
  - Preferably more than one system
  - Don’t buy unseen or untried
  - Try all operations:
    - run trains
    - move switches
    - programming
- Buy the system for the layout you aspire to
  - Which may not be the layout you have now
  - It will, in the long run, be cheaper

Consider using DCC to control switches (points)

- Get the layout running quicker
- No control panel build required just to get it working
  - And easier to make changes
- Does it really cost that much more anyway?
  - When spread over the life of the layout
- Tip: try accessory decoders that accept local inputs.

Laying Flex Track for DCC

- Lay and wire with track power ON
- Find faults and shorts instantly
- Quarter test
- Run loco straight on to it.

Sound and the 6-foot rule

- Set sound volumes so that at 6 feet (HO) you hear what you'd hear at 500 feet from the prototype
  - Whistle
  - Bell
  - Chuff
  - And not much else
- Most people have the sound **way** too loud
  - And horribly unbalanced

Stop decoders getting too hot

- Especially Sound decoders
- Keep track voltage to 12-13v max
  - Consult your system's documentation
- Turn the volume down
  - see 6-foot rule tip
- Use LEDs for lights
  - Reduces load on decoder
  - Brightness unaffected by track voltage

Getting Stale? Need a change?

Try another scale

- Camp 93
  - On30 freelance logging
    - Still DCC And Sound
  - Seven years on the show circuit
    - 50+ shows
  - Different set of experiences to a home layout
  - Lots of learnable lessons

Try another prototype

- I volunteer at Pendon Museum
- 4mm scale GWR theme in 1930s
- Another, different, set of learning opportunities

Photos: Pendon Museum

Share what you've learned

- We all have stories to tell, so
- Look at what you learned along the journey
- Write a magazine article…
  - Editors are always looking for new material and new authors
  - Talk to them about the story and your angle on it
    - Several here in Portland now!
- Write a clinic…
  - Offer it to the clinic chair at a regional or National conference

Questions?

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- Web: www.mickmoignard.com
- Also find me on various Yahoo lists (US NG or DCC oriented)