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MRH has mapped the old familiar colors to readily-available acrylic paints.



Floquil / PollyScale Color Name	MRH Color	WMA Color	WMA Code	MRH Code
Amber Gray	MRH 4943	WMA 71.030	10-12	
Engine Black	MRH 4885	WMA 20.000 WMA 71.211	10-01	
Steam Power Black	MRH 4910	WMA 71.207	10-48	
City Black	MRH 4917	WMA 71.211	10-40*	
Weathered (Charcoal) Black	MRH 4916	WMA 20.002 WMA 71.204	10-05	
Roof Gray	MRH 4914*	WMA 71.041	10-04	
Roof White	MRH 4873	WMA 20.004 WMA 71.041	10-00	
Gring Black	MRH 4887	WMA 20.000 WMA 71.030	10-00	
Caboose Red	MRH 4887* MRH 4887*	WMA 71.000 WMA 71.100	10-00	

Floquil / PollyScale Color Name	MRH Color	WMA Color	WMA Code	MRH Code
Tan	MRH 4830*	WMA 71.036	10-10	
Roof Orange	MRH 4830*	WMA 71.003	10-09	
Roof Yellow	MRH 4819	WMA 71.010	10-10	
Roof Brown	MRH 4884	WMA 20.008 WMA 71.149	10-10	
Redhead To Black	MRH 4884	WMA 20.003 WMA 71.039	10-08† Clear wash... 1pt 10-04	
Rail Brown	MRH 4100*	WMA 20.000 WMA 71.030	10-05	
Flint	MRH 4815	WMA 20.005 WMA 71.047	10-10	
Concrete	MRH 4816	WMA 71.047* Clear wash... 1pt 10.00 71.030	10-10*	
Appl'd Concrete	MRH 4815	WMA 20.000* WMA 71.142	10-05† Clear wash... 1pt 10-01 1pt 10-02	

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SIGNALS

A beginner's walkthrough



Adding signals to your layout can take its looks and operation to a whole new level. Photo posted on the MRH forum by John Purbrick

Model Railroad Hobbyist | July 2022



JASON MILLER WALKS US THROUGH PLANNING FOR MODEL SIGNAL OPERATION ...

I ALWAYS WANTED TO INCLUDE A FORM OF SIGNALING ON my layout to control train movement. When I first investigated what this required, I was a little shocked and overwhelmed. There is a huge amount of information to assimilate.

What type of signal system do I want to use? Do I follow prototypical North American systems like CTC, APB, ABS? Do I use prototypical signal heads and aspects? The amount of information I had to digest disillusioned me even before I thought about the

hardware or software I was going to use, let alone type of signal head or brand.

Deciding on a signal system, mast type, hardware, and software could each make articles. Here I explain what kind of signaling I chose and why.

My system is not completely prototypical for the area or era I model, but then, my layout isn't prototypical, either. Mine is a proto-freelanced layout, with a prototypical railroad but freelanced era, towns, and history.

PLANNING THE SIGNALING SYSTEM

I decided to use a centralized traffic control (CTC) System as the main signaling for operating sessions on my JL&T Railroad. This involves a dispatcher to control the movement of trains through control points (interlockings), and an automatic block system between.

When I am operating on my own, or without enough operators to need a dedicated dispatcher, CTC is impractical. I decided to use a secondary automatic permissive block (APB) signaling system.

To permit this, I am designing two separate systems in JMRI. Effectively, this means I am creating two JMRI panels, one for APB and the other for CTC. I can then choose which panel to use when operating.

I will not delve into the complexities of JMRI here – I'm just helping you know a bit of the context behind my signal planning. You can find definitions and diagrams for CTC at: www.lundsten.dk/us_signaling/signalbasics and for APB at: www.lundsten.dk/us_signaling/abs_apb/index.html.

I have used these links to educate myself about the various signal systems, and recommend them to anyone wanting to add signaling to their layout. They explain the different systems very well and have good diagrams to illustrate operation.

SIGNAL INDICATIONS

Next, I needed to decide what type of signal head I wanted. The Reading Lines and eventually Conrail used a wide variety of signal heads across the system. They included searchlights, triangular color lights, position lights, and color position lights.

For the JL&T, I chose single-head searchlight signals, based on cost, installation, and ease of interpreting the indication. I chose signals from Tomar Industries because they are inexpensive, and include options for triple-, double-, and single-head signal masts. Tomar also makes single- and double-head dwarf signals.

I also considered the system I wanted to employ, and what signal aspects I wanted to show. I considered whether I wanted a prototypical system or my own based on a common theme so that it would be easy for crews to pick up. I found the following information useful in gaining an appreciation for signal heads, aspects, and indications: www.railroadsignals.us/signals/searchlights/index.htm.

I derived a signal system for the JL&T Railroad from the *Conrail Signal Aspects - Guide 1988*. The complete document can be found here: www.multimodalways.org/docs/railroads/companies/CR/CR%20Signal%20References/CR%20Signal%20Aspects%2010-1-1988.pdf. I opted to use only single- or double-headed signal masts and dwarf signals [1, 2].

In addition to controlling block occupancy, the signals also indicate maximum speed for passing trains:

- Limited Speed limits passenger trains to 45mph and freight trains to 40 mph.
- Medium Speed limits speed to 30 mph.
- Restricted Speed limits speed to half the sight distance, equating to 20 mph outside interlocking or 15 mph within interlocking.
- Slow Speed limits trains to 15 mph.

The below [1] indications are not the entire range available from the Conrail Signal Aspects - 1988 Chart. To implement all of them would be overkill, and would take a considerable amount of time for operators to learn.

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Aspect	Description	Name	Rule	Indication
	Green single-head or green over red double-head	Clear	281	Proceed at posted speed.
	Yellow over flashing green double-head	Approach Limited	281b	Proceed approaching the next signal at Limited Speed.
	Red over green double-head	Medium Clear	283	Proceed at Medium Speed within interlocking limits and through turnouts.
	Yellow over yellow double-head	Approach Slow	284	Proceed approaching next signal at Slow Speed. Train exceeding Medium Speed must begin reduction to Medium Speed as soon as locomotive passes Approach Slow signal.
	Yellow single-head or yellow over red double-head	Approach	285	Proceed at medium speed, prepared for stop at next signal.
	Red over yellow double-head	Restricting	290	Proceed at restricted speed until the entire train has passed a signal displaying more favorable aspect.
	Red single-head or red over red double-head	Stop	292	Stop.

1. Aspects and indications table for single- and double-headed signal masts.

The range shown below [2] illustrates a good subset of signal indications for a model railroad that should allow for good flow of traffic, without being difficult to implement or for operators to learn. ✓

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Aspect	Description	Name	Rule	Indication
	Green over green double-head	Clear	281	Proceed at posted speed.
	Green over flashing red double-head	Medium Clear	283	Proceed at Medium Speed within interlocking limits and through turnouts.
	Green single-head or green over red double-head	Slow Clear	287	Proceed approaching the next signal at Limited Speed.
	Yellow single-head or red over yellow double-head	Restricting	290	Proceed at Restricted Speed until the entire train has passed a signal displaying more favorable aspect.
	Red single-head or red over red double-head	Stop	292	Stop.

2. Aspects and indications table for single- and double-headed dwarf signals.

JASON MILLER



Jason lives in Diamond Creek, Victoria in Australia. Jason has been working on his HO JL&T layout for the past eight years. It's based on the Reading Railroad from the early 70s into the Conrail merger era (1976).

Jason has been a professional firefighter for 19 years. When not at work, he enjoys spending time with his family, coaching Toby's Australian Rules Football team.

Jason is married to Linden and has two sons. ■

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