



BNMRR N DIVISION INFO BULLETIN



NOVEMBER 10, 2021

ROLLING STOCK

This is the first in a new series of offerings presented to explore formal operations. I have discussed module standards and now it is time to review how to increase rolling stock performance. By presenting this information, in this format, I hope we can all learn more about our hobby and ways to increase our enjoyment of it.

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With the exception of scenery and building structures, most everything used to build the layout is there so the trains can run.

So much effort is put into the track and wiring to make for good running, but do we put the same level of effort into our trains? It would seem not to be so...

Rolling Stock: In the July and August Flimsy Issues I explained the process I use to inspect and maintain my rolling stock.

Once we begin formal operations sessions, we will want to focus on the process of running the trains in a controlled manner and not having to deal with derailed cars and stalled locomotives.

Before looking at the material condition of the rolling stock consider the speed at which you run your train. Experience tells me that slower is better - remember the saying 'less is more'. Slower trains take longer to cover a distance, thus you get more run time. Slower trains seem to perform better than faster trains, thus they stay on the track better.

My rolling stock inspection and maintenance program checks three areas of concern on each car.

Trucks, couplers, and wheels:

Trucks need to swivel freely but not be too loose. The wheels need to be free to rotate but not fall out of the truck. The couplers need to be securely attached to the truck or car body as appropriate.

Wheels - condition: I recently found chipped wheels on five used cars. Give the wheels a good inspection. Check the gauge - we have an NMRA gauge in the black tool box. Check for free rolling wheels - I test the car for free rolling on a 2% slope but after ensuring the weight is correct. Metal wheels are an option, but expensive and difficult to find at this time for some reason.

I tend to buy older, used cars. Sometimes the wheels are not very good on these old cars. Thus I am slowly converting all of them to MicroTrain trucks with attached couplers. One item to note is that the N scale manufacturers have not standardized the axle length and thus there are perhaps seven different axle lengths out there - these various axles are NOT interchangeable. Another reason I convert to MicroTrain's trucks.

Couplers: check for freedom of movement and

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knuckle operation. Check the height - this is usually not an issue with truck mounted couplers but check it to be sure. Body mounted couplers especially need to be checked. Incorrect height can result in uncoupling when the cars roll over uneven track. Check the trip pin height. Trip pins hanging too low can catch on turnouts and grade crossings resulting in derailments. I clip the lower part of the trip pins off of my rolling stock and will do so on all club owned cars.

Weight: Refer to NMRA RP-20.1 for guidance. I have attached a copy. The RP uses ounces for weight, I prefer to use grams since that is a much smaller unit of measure for N Scale use. One ounce equals 28.35 grams. The club has an electronic scale capable of measuring these small weights. I prefer to over-weight my cars by a couple or three grams.

You might ask what to use to add weight to your cars... I use BBs, bird shot, or 5/16th inch nuts depending upon the type of car. I glue the weights to the cars with *Aleene's Quick Dry Tacky Glue* available at Michaels.

Here are the car lengths (in scale feet) to desired weight (in grams) I have been using:

up to 35' = 25	36' - 38' = 26
39' - 42' = 27	43' - 44' = 28
45' - 48' = 29	49' - 51' = 30
52' - 54' = 31	55' - 57' = 32
58' - 60' = 33	61' - 63' = 34
64' - 66' = 35	67' - 70' = 36

Please realize that new cars from the manufacturer most likely do not weigh enough for reliable operation.

Locomotives: The two items we need to focus on are the couplers and the wheels. The same checks required of the couplers on rolling stock should be carried out on your locos. Also note that short shank couplers on long length locos can

cause the car immediately connected to the loco to derail on small radius curves. I need to replace the Kato couplers with longer MicroTrain couplers on one of my SD locos. The club's two Kato RDC units came with short shank couplers installed but with longer shank couplers in the box as an option.

Locomotive wheel cleanliness is a continuous concern. Before each formal operations session we should clean the wheels on all locos that will be used. Additionally, the wheels on new locomotives need to be cleaned! You must assume there is manufacturing residue on the wheels that must be removed before the loco will operate reliably.

How to clean the loco's wheels? There are several different methods and I don't know which, if any, is the best. We need to address this issue, do some research, and purchase the tools or types and supplies needed to keep on top of this.

I have the Woodland Scenics wheel cleaner device and their cleaning fluid we can use. I will leave it at the club for all of use to use.

Track cleaning. Keeping the track clean is as much a requirement as cleaning the locomotive's wheels. Each Saturday I arrive with the intention of cleaning the track but I seem to get involved with other issues and forget to do it.

Woodland Scenics markets brushes that attach to a car's trucks to drag along the rails. Bruce has one of those. We have a rail cleaner car with an abrasive wheel. This car should be run on a train each day for a few laps on all the tracks.

I have placed the cleaning materials in a box so they are in one place for our use. It is on the shelf under the fiddle yard.

Next week we will hear what some accomplished operators have to say and how we might begin formal *practice* operations sessions even before the layout is complete.

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NMRA RECOMMENDED PRACTICES	
CAR WEIGHT	
RP-20.1	Revised : Jan. 1990

NMRA RECOMMENDED PRACTICES RP-20.1 Car Weight

Carefully documented tests, show a decided advantage in performance past obstructions in the track for cars weighted to an optimum weight. Since the radial forces tending to cause derailments are greater in longer cars, this optimum weight will vary with car length.

While cars of less than optimum weight will often perform satisfactorily on good track work, increasing weight to the optimum will improve the safety factor with which rougher track will be negotiated. Mixing light weight cars into a train of heavier cars is not recommended because of the possibility that the lighter weight cars may be pulled off the track in sharp curves.

Weight in excess of the optimum will seldom add to the ability of a car to roll down a given grade since the additional weight is almost exactly balanced by the increased friction of the axles in their journals. Extra weight simply adds to the drag of a train and adds more weight to be lifted to the summit of a grade.

Cars should be constructed to keep the lowest possible center of gravity. Supplementary weight added to bring the car to optimum weight should be kept as low as possible.

To find the optimum weight of a given car enter the Table below in the desired scale and find the "Initial Weight". Then find the "Additional Weight" and multiply this by the number of actual inches in the length of the particular car body. Add this weight to the "Initial Weight" for the total Optimum Weight of the car.

SCALE	INITIAL WEIGHT (ounces)	+	ADDITIONAL WEIGHT per inch of car body length (Ounces)
O	5	+	1
On3	1-1/2	+	3/4
S	2	+	1/2
Sn3	1	+	1/2
HO	1	+	1/2
HOn3	3/4	+	3/8
TT	3/4	+	3/8
N	1/2	+	.15

Note: Many factors besides car weight affect car performance:

Track Railhead should be smooth and without obstructions. and should conform to **STANDARD S-3** (Use the GAGE of **RP-2**).

Wheels should run freely and truly in free-swivelling trucks. should be of good contour (See **RP-25**) and conform to **STANDARD S-4** (See **RP-2**).

Weight on each wheel should be approximately equal - springing, if used, should permit free equalization of the trucks for the car weight used.

Coupler and diaphragm bind due to un eased and reverse curves should be eliminated.