

# TUNING UP YOUR ROLLING STOCK

Paul G. Deis

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## Wheels

Metal vs. Plastic

Metal wheels;

- Will add weight lowering center of gravity,
- Will stay cleaner,
- Most roll better,
- Most have RP25 contour,
- Add additional cost to model

Plastic Wheels;

Provided in most kits

## Inspection

Use NMRA gauge to check wheel spacing, flange depth and tire width. If wheel spacing is incorrect adjust by twisting wheel back and forth while forcing the wheel to move in the direction needed. If the flange is too deep discard wheel set. If tread is too narrow and you are not modeling to proto 87 standards, discard and replace wheel set.



Roll car back and forth on test track feeling for any wobble which may show an out of round wheel. If found remove wheel sets from truck and test by rolling on test track feeling for the wobble. Discard and replace bad wheel set.

Check face of wheels on accurail wheel sets for flashing. remove with exacto knife

## Trucks

Sprung or one piece

In my personal experience I found that if the trucks are mounted correctly, either type of truck will work fine. There are some older sprung trucks that are poorly made and tend to stick when flexed.

## Inspection

Sprung trucks; Insure free movement of sideframes without binding. Burnish any surfaces that are causing binding. All springs are present and in the proper location. If any are missing you will have to find spares that match the size and stiffness. Kadee and Precision Scale sell truck springs, or you can cannibalize other truck sets.

All trucks; Insure contact surface to top of truck is smooth. If there is any flashing, trim and then burnish the surface. Wheels do not have excessive free-play in the truck. If there is excessive free play there are several possible causes. End of axle is worn. Replace wheel set. Cone in side frame is out of round. Replace truck. Improper match between cone and axle tip. Try different brand of wheel sets.

Mounting; Trucks that are to loose will cause cars to wobble or lean. There are two methods to correct this. The most common method is to tighten one mounting screw so that wheel set can rotate back and forth only. Tighten the other truck so it can rotate freely and rock from side to side. When adjusting Athearn rolling stock you will have to shorten the protrusion that the truck slides over to allow you to tighten the screw properly.

## Couplers

Kaydee vs. Hornhooks vs. Kaydee look alikes?

Hornhooks;

look horrible, hard to couple and uncouple.

Kaydee look alikes;

Some look pretty good. In testing done by several modelers and myself found couples that rely on plastic components to provide spring action may develop memory when stored under load. I have had plastic couplers break under load. I prefer Kadee Metal couplers.

## Inspection

Coupler height must be consistent with all other rolling stock. Check with Kaydee Height Gauge. If coupler is low you have several choices. First insure Draft gear box is mounted correctly, if not adjust. Replace coupler with offset shank coupler. Add washers between truck and body bolster. If coupler is high you can lower wheel set by filing car bolster. You can shim down the draft gear. Use an offset shank coupler. I will use the method that looks more prototypical.

Trip Pin (Air hose) must be adjusted to the proper height. If too low it will hang up on crossing, turnouts and magnets. If it is too high you will not have reliable magnetic uncoupling. Check with a Kaydee gauge and if correction is needed bend the wire with trip pin pliers. Be careful not to use too much force which can cause you to slip damaging the car.

Knuckle spring. If you use a coupler that has a knuckle spring insure that it is in place. If it is missing replace with a new one. To install a new coupler on Kaydee couplers you can use a coupler pick or an exacto knife with a number 11 blade. The coupler pick is much easier to use and you will not lose as many springs. If you are going to use a number 11 blade, insert the tip of the blade between two turns of the spring near the end where they are tighter. Place the long end of the spring over the post on the knuckle then slide the short end over the other post, carefully hold the spring in place with your fingernail as you withdraw the knife blade. It is actually harder than it seems, buy a spring pick.

If you use a Kaydee copy and the knuckle is stuck open, discard and replace the coupler.

## Weight

The NMRA standard for car weights has been around for a long time. Some think that it adds to much weight to your rolling stock making your train too heavy. Most model locomotives will pull more NMRA weighted cars than the prototype can pull for the same locomotive.

The weight standard has three benefits. The heavier the car the more forgiving it is of poor trackwork. If this is why you add weight to your cars you need to do more work on your track, not add weight to your cars.

A train made up of cars with wide differences in weight has a tendency to derail on curves. This is true for the prototype also. The railroad pays attention to the placement of light cars as heavier cars may pull the light ones over in a curve. To avoid this problem you need to balance the weight of the cars in relation to each other and the cars length. Here is where the standard is an excellent tool. For HO a car should weigh 1 ounce plus 1/2 ounce for each inch of length. This will balance the weight of all of your rolling stock. If you don't want your cars that heavy, modify the standard but still use a standard.

If everyone follows the same standard you will be able to interchange your cars with your friends model railroads and you will not experience the problem of balancing the weight of cars in a train.

**ANSWER:**

Whoa! ..... Boerries hold on a minute. Please hear me out. I have argued this point for forty years.

1. weight is your enemy ... not your friend (prototype or scale)
2. fix the wiggle instead of throwing lead at it.

Imagine the full size railroads putting more weight in a car because it didn't stay on the track. The NMRA is just plain wrong on this point. Idiotic at best. Treacherous at worst. If someone tells you the models are different than the real thing, you just laugh and move on.

Find a competent engineer to agree with adding weight as a "fix". Won't happen. Now to the problem.

On the prototype, the truck swivel (against body) is free floating not tight. The side bolster on the truck rides on the body bolster to keep the car upright. The springs allow equalization movement to keep all the wheels on the track. This is impractical on the model but we want to simulate this effect.

So on one truck screw, make it loose so it will flop in all directions. On the other end of the car, put two little shims on either side of the car bolster that will ride on the truck bolster. The truck can rock forward and back but not side to side. Leave this screw loose also. Now the two trucks are free to follow the track up-down-whatever and the car rides smooth and stable on the two side bolster shims. No weight needed at all.

If the car still wobbles, look for something (dirt, flashing) on one of the wheels.

I have used this principle for 35 years of HOn3 railroading. I can run plastic unweighted flats at the head end of a twenty car drag. Anywhere in the train I want to. WITH NO WEIGHT AT ALL.

When you get one of these Carter cars, you'll see this bolstering, since I'm milling it into the bottom of the cars.

Please, Please .... no additional weight. Fix the problem for once and for all.

At the very first NG convention in Denver many years ago, I set up a demonstrator railroad, HOn3, and ran 15-20-25 car trains with one or two c-16's for the entire convention with none of the cars weighted. I do the same in Sn3 with this bolstering.

If I've been a bit confusing here, please ask me and I'll try to explain it better. I really want to help you here .... as well as anyone else who's interested.

-Steve Hatch

**QUESTION: #9 What is the best weight for my rr-cars?**

**ANSWER:**

(Answered by Fred Dabney)

Thirty years of running on a club layout with track that ranges from superb to wretched, using trains of every conceivable source, of lengths from caboose hops to forty to fifty cars long, with cars from real shorties to modern piggy back and high cube boxes suggests that individual car weights are not really all that important- as a generalization!

What /is/ critical is the trucks, wheels, and that a given train be fairly consistent in its weight distribution.

Bad trucks will put a car on the ground faster than anything else. Trucks that are warped, or in which the wheels are a sloppy fit can derail on flat, straight track. Trucks that don't pivot freely about their center will derail when the track changes direction. Sprung trucks can be a devil if they aren't free to equalize, since (Murphy's Law) they always seem to bind when they are not level.

Then there are all the myriad of wheel problems. I have seen some nice cast wheels that had a casting gate on the edge of the flange. These little warts would catch switch points, even railhead on curves and derail. But they were almost imperceptible to the unaided eye.

Wheels that are not at right angles to the axle and parallel to each other don't track well. Wheels with straight, deep flanges and sharp flanges are more prone to find track flaws and derail.

But overall, a good set of trucks with decent wheels will track better through almost any trackage, while perfect track will not

help bad trucks.

One of the biggest problems is Athearn trucks. Nearly all of them have the bearing holes too deep for the length of the axles, and many of the third party wheels have axles even shorter than stock Athearn. This lets the car sit low on the axles (this causes coupler height problems) and also lets the car rock sideways, shifting the center of gravity to one side and this in turn can cause cars to just fall off the track on curves, particularly if they are super-elevated.

A great many trucks come with either wheels that are off center or where the metal axles are ground off center. Many of the wheelsets on MDC and Athearn have the latter problem. This makes the car wobble badly but of itself doesn't seem to affect tracking very much.

Weight is important, and the formula relating length to weight is useful, but if you have decent track, and the wheels/axles/trucks are good and properly installed, it isn't that important on most layouts.

I have rarely added weight to cars beyond what was supplied and can think of few cases where operation required I fix that. Those gorgeous Detail Associates GS gons are one exception- they really are too light to run in a train, even at the end. Some wood cars have the same problem.

The old NMRA standard was arrived at by testing and does work, and will work well if you have a wide range of rolling stock that needs to be freely mixed. But most modern (in the market sense) equipment will work with less weight because most of us tend to have most of our equipment pretty much from one era. I have recent plastic hoppers mixed with old cast Zamak hoppers, and I'm sure a few others have similar situations. But we're an exception.

If you are having tracking problems, added weight may indeed cause some improvement by forcing poor trucks to better conform to the track. But replacing the trucks might well do the same thing without adding weight.

Try, experiment and use what works.

Fred Dabney  
Watching the action from BNSF MP 1112, El Paso sub