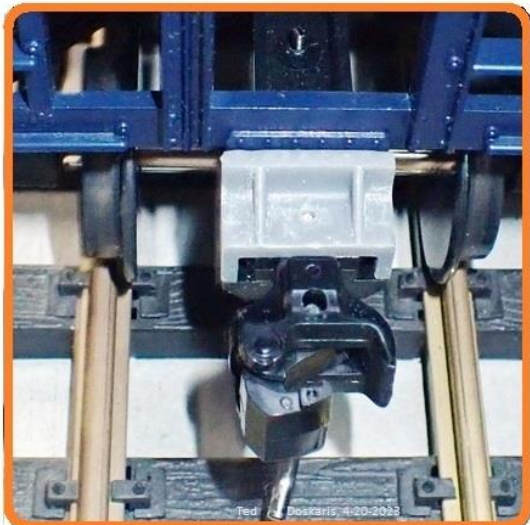


PIKO 2 Bay Hopper Car CamPac Box™ Install Guide

Ted Doskaris, 6/9/2023



Example PIKO truck with USA Trains metal wheels



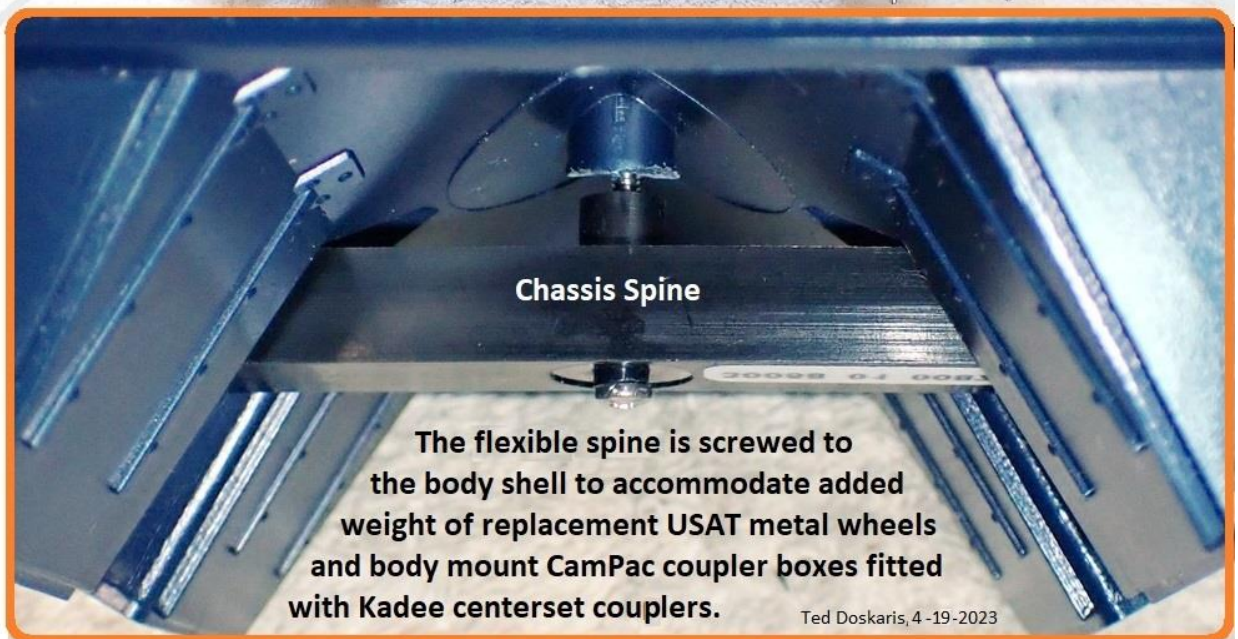
Preface

PIKO, including antecedent brand names MDC/Roundhouse/Mainline America, has various versions of this 1/32 scale car that include open top types of rib side, “offset” side, and the car with a covered top. Though all types should be applicable with what’s described in this Guide, the open top “offset” hopper PIKO car version will be shown herein with comments as to known difference for antecedent car versions.

First impressions of the 2 bay hopper car is that it’s feather light (weighs 1 pound) and having a noticeably flexible fitting underside chassis lacking fastening hardware. As to prototype, it seems to be of an era maybe around the 1920s. In a 1/29 scale environment, the car could represent a 30 foot long prototype coal car. The car does include good detail but lacks a brake wheel, and it’s factory equipped with plastic trucks having plastic wheels and hook & loop couplers. The end sills of the car have a slot detail that resembles where a body mount coupler “draft gear” could be located.

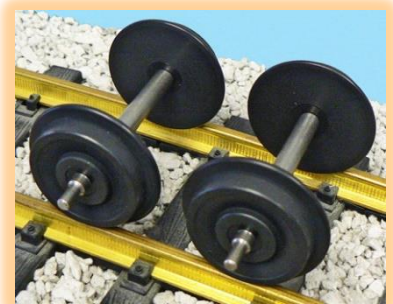
Accordingly, to enhance the car’s appearance and operational stability in a train on 8 foot or grater diameter curves, body mount 3-D printed CamPac Boxes™ fitted with Kadee* centerset (no offset) “G” scale AAR E type couplers from the 907 kit are employed along with replacing the trucks’ plastic wheels with heavier USA Trains metal wheels. If choosing to use the car in 1/32 scale environment, the Kadee 1907 kit’s #1 scale coupler could be fitted in the CamPac Boxes in place of the Kadee kit’s 907 where described in this guide. (Note: Coupler in 1907 kit is described as centerset, but has downward offset to conform with #1 scale coupler railhead height.)

*Kadee is a registered trademark of Kadee Quality Products Co., White City, Oregon, USA.



Replacement Wheels

Not included, the installer is to obtain replacement metal wheels made by USA Trains, part number [R2093](#), packaged as a pair, so two will be needed to get 4 wheels. The added weight of these metal wheels provide a very low to the track car roll center that make a profound improvement in operational stability. However, the PIKO truck sideframes will need minor work to accept these wheels – described later.



The illustration on the right demonstrates the benefit of having the added weight of metal wheels on the PIKO 2 bay hopper car. If the car is held in place on its side, and you let go, the car will roll upright on its wheels!

PIKO car with added weight of USAT metal wheels will "self center" upright!

Car held on its side



Car held from going upright



Car held from almost going upright



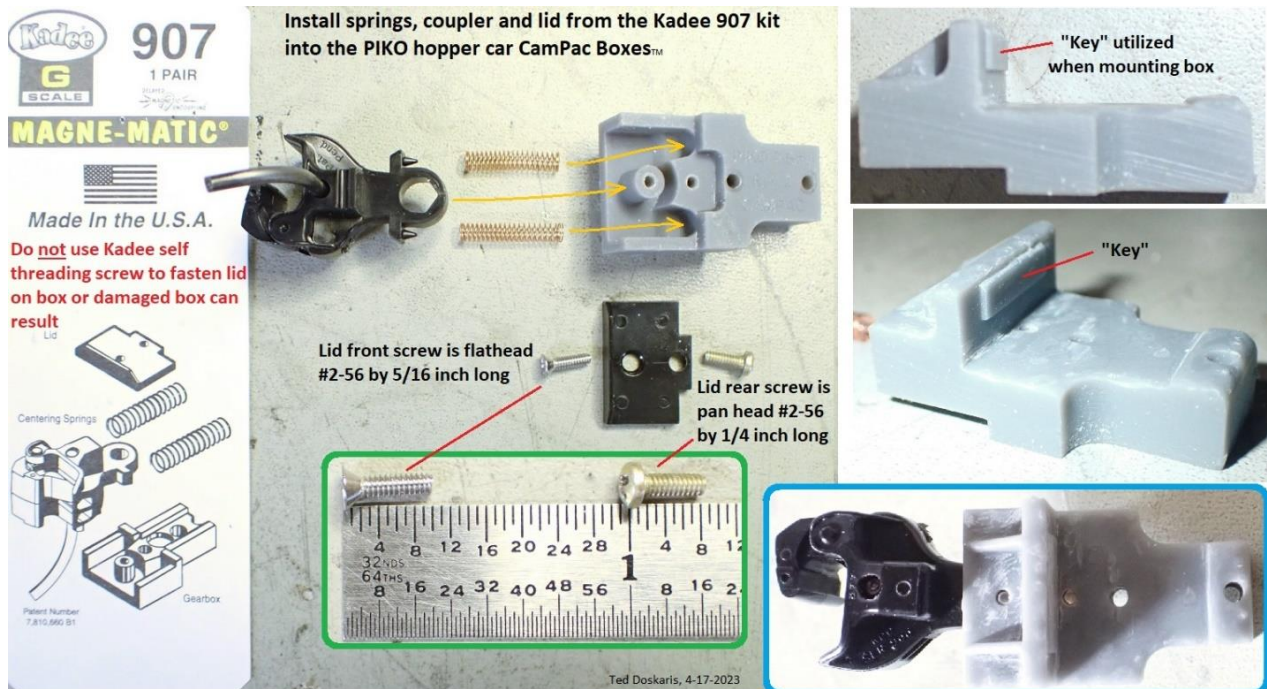
Car let go becomes upright



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CamPac Kit Parts Include:

- Two (2) truck spacer washers Nylon, 0.031 inch thick with an ID=1/4 inch, and an OD=9/16 inch, (Digi-Key part number [RPC10115-ND](#))
- Two (2) metric M3 internal tooth lock washers, OD=6mm max. (Grainger part number [23NJ62](#)) that will go on top of chassis bolster truck pivot posts
- Two (2) 3-D resin printed direct fit (no spacers needed) CamPac coupler boxes
- Screws to fasten coupler box lid - shown in illustration below
- Screws, four (4) pan head #2-56 by 1/2 inch long to mount boxes on the car (2 screws per box)
- Screw, one (1) pan head #2-56 by 1 inch long screw to fasten the center of chassis spine to the car body - described later.



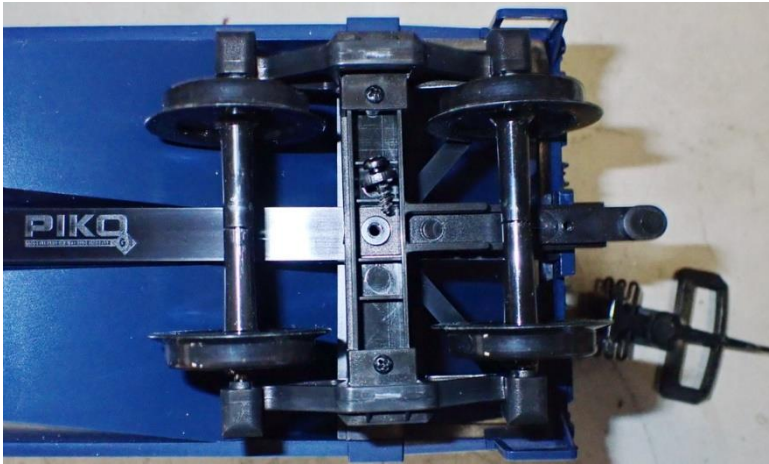
Not included, the installer is to obtain the Kadее 907 kit (**For 1/32 scale environment, the #1 scale Kadее 1907 kit could be substituted; however, coupler tail hole may need to be enlarged to 0.200 inch (5mm) diameter to fit over CamPac box post.**), and assemble the CamPac Boxes™ as illustrated above.

The assembly can be painted to a desired color – example shown below. *Be sure to not let wet paint get into mouth of coupler box & mechanism or coupler may not freely swing.*



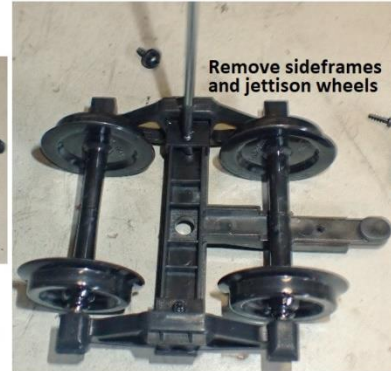
Trucks Preparation

Remove trucks from car (save screws & washers). Remove from trucks and discard hook & loop couplers and plastic wheels.



Technique of replacing PIKO freight truck factory plastic wheels with USA Trains R2093 - BLACKENED METAL WHEEL SETS(2)

Remove truck from car, and then remove hook & loop coupler from tang



Remove sideframes and jettison wheels

USA Trains metal wheels are to be installed in the trucks, but before they are, the PIKO truck sideframe journals must be countersunk so the axles won't bind.

(*Not applicable to antecedent car versions with flush journals*)



Note: Truck coupler tang must be cut off at truck bolster when using body mount couplers. This can be done before or after metal wheels are fitted.



Before countersink Counter sink sideframe journal box holes where axle tip penetrates

Outer Diameter Example 3/8 inch drill bit turned by hand can be used to countersink hole to depth stopping at outer diameter

After countersink After countersink

Countersinking accommodates USA Trains tapered axle hub, so axles will not bind restricting wheel rotation

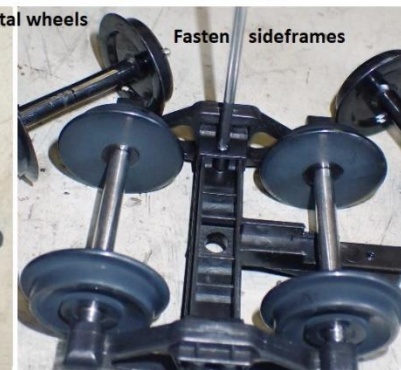
Tapered hub



Factory Trucks must have their coupler tang removed when using body mount couplers - Example shown with wheels in place using razor saw



Install USAT metal wheels



Fasten sideframes

After re-assembling truck with metal wheels, verify wheels freely rotate. If not, the PIKO sideframe journal hole depth of countersinking may have been insufficient.

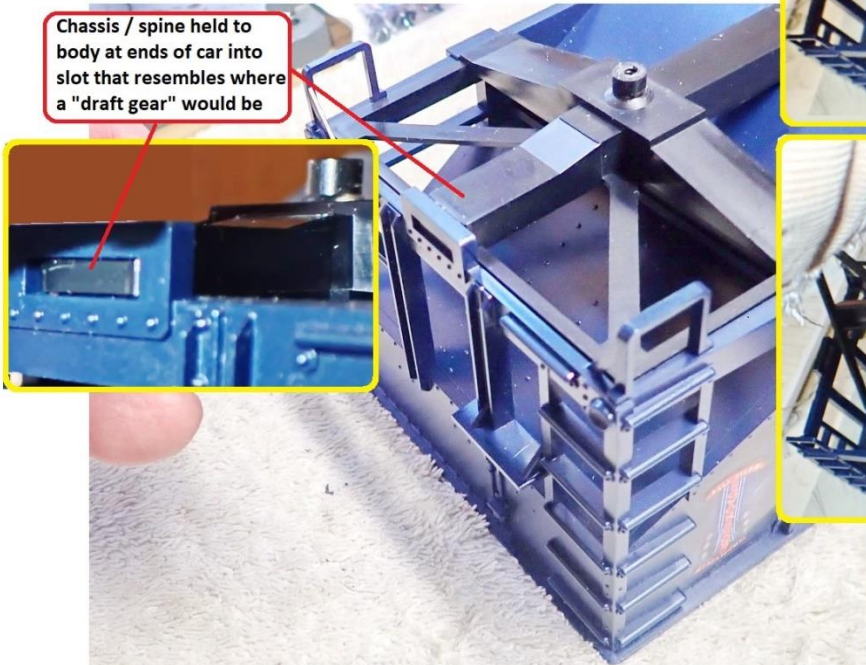
Car Preparation

The car's chassis is a one piece framework with ends having the bolsters where trucks fasten and a long flexible spine between the ends. The chassis ends fit into car body end sill slots that resemble where a "draft gear" would be, so no factory screws are used to fasten the chassis!

Remove the chassis framework as illustrated below.

Removal of PIKO 2 Bay Hopper Car Chassis Spine

The spine is not fastened by screws to the car body. The spine is designed to be flexible with its ends only held to the body into rectangular "draft gear" slots.



To reinstall the chassis, bow the spine so that the chassis ends begin to fit into the "draft gear" slots at the car ends, and then allow the spine to straighten out.

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With a little work, the chassis framework and car body are to be mechanically fastened together - illustrated below

Take the "flex" out of the PIKO 2 bay hopper car chassis

The spine of the chassis is to be anchored to the car body by fastening the spine at its center, and when ends of the car have mounted "keyed" CamPac coupler boxes, the chassis ends will be anchored, too.

With chassis / spine removed from car, drill clearance hole for #2-56 screw with #43 drill bit (0.089" dia.) through the spine's center

Close-up view of spine center post

(Antecedent version cars may not have post)

Mark center of car body underside molding nub - example scratch-awl used (Antecedent version cars may not have molding nub)

Molding Nub

Note: If nub has "flashing" obstruction, file it off

D Thread hole with #2-56 tap

Re-install chassis in car body having hole drilled through spine center

E Spine will need to be "bowed" until ends fit within "draft gear" slots at ends of car

F Thread in body #2-56 by 1 inch long screw only far enough to observe spine is straight, not "sway backed"

Example straight spine

The end tip of the threaded-in screw can be seen just at the mid edge in the car's interior

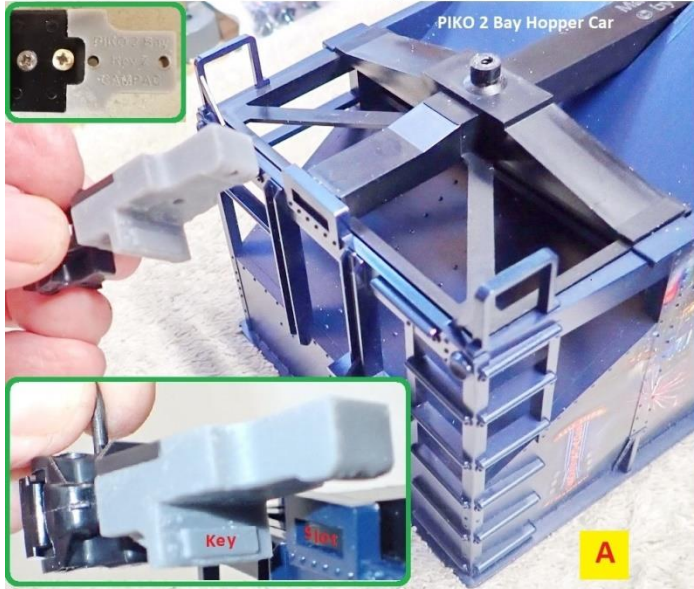
Having established the car body center, drill hole all the way through center to interior of car with #50 bit (0.070" dia.)

Anchoring the chassis results in a noticeably sturdy configuration that supports extra weight of added metal wheels whilst providing car with a low gravity roll center for superior operation on curves in a relatively long train that may not otherwise be doable

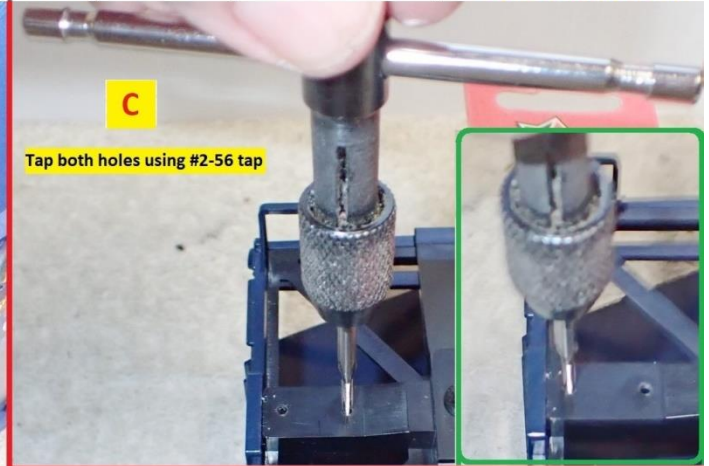
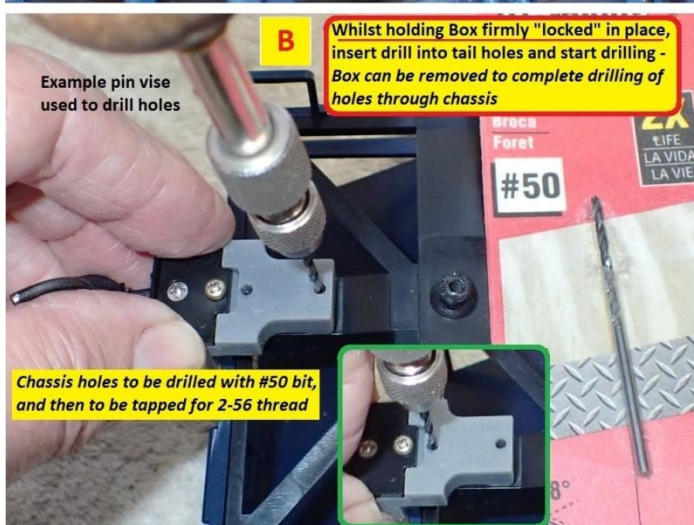
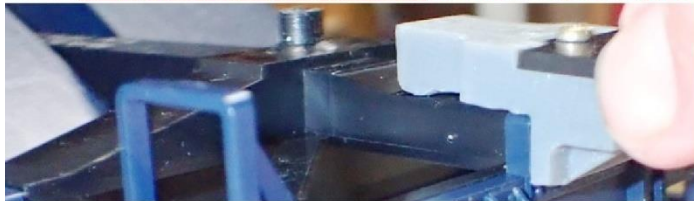
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Install CamPac Box™

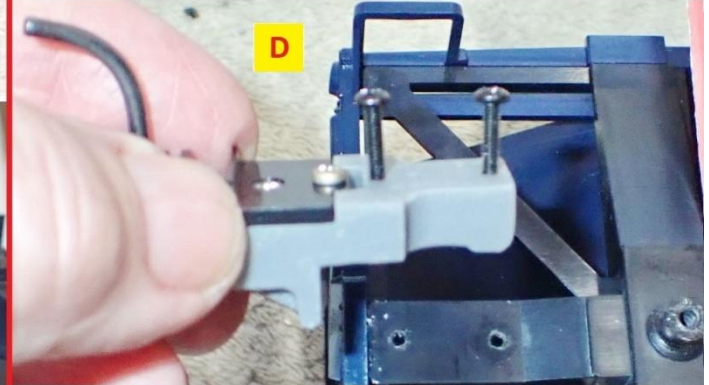
Critical procedure to establish PIKO 2 Bay Hopper Car CamPac Box™ chassis mounting holes - utilizing its tail holes as a template - And then mount Box



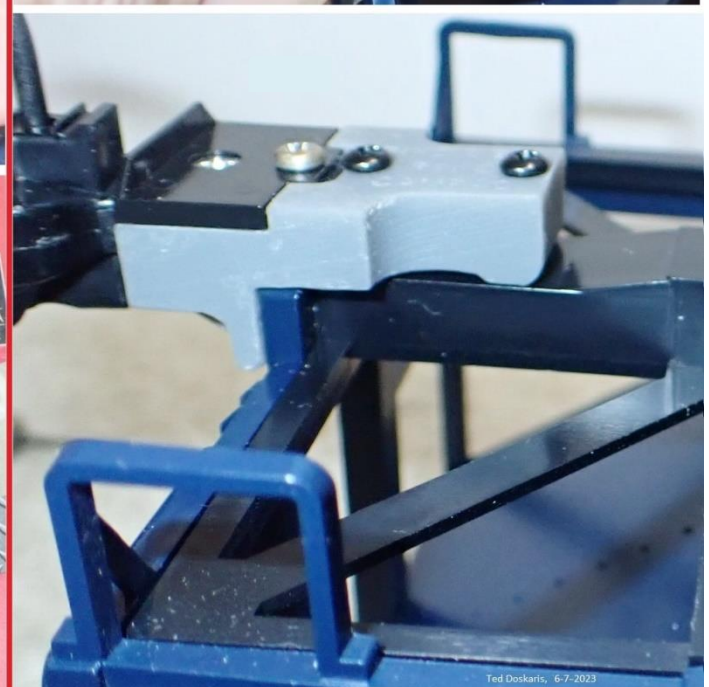
Orient the CamPac Box™ so its key will engage the slot and butt against the end of the black chassis



Mount CamPac Box™ with 2 #2-56 by 1/2 inch long pan head screws - illustrated below



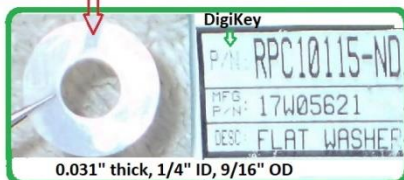
Seat the Box assembly into the chassis slot, and then thread in the 2 screws



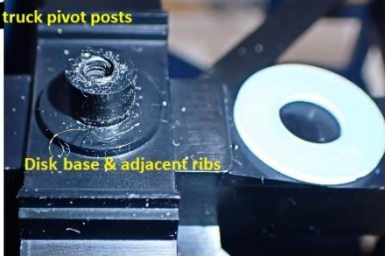
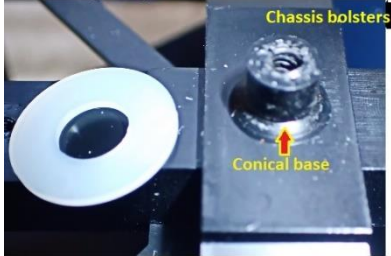
Remount Trucks with spacer washers

PIKO 2 Bay Hopper Car Truck Re-mounting Process

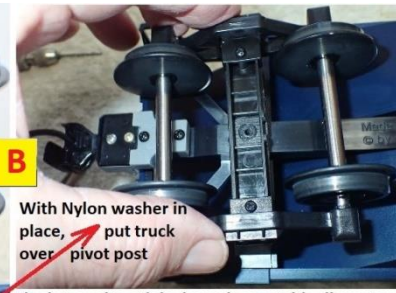
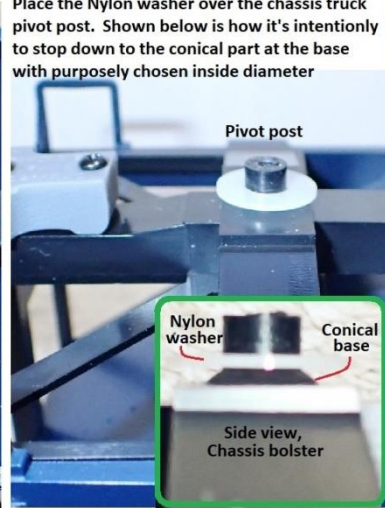
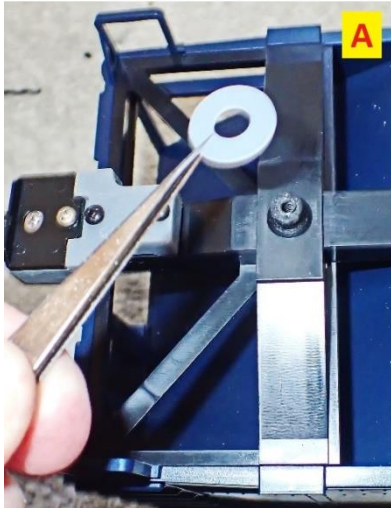
Additional internal tooth lock washer & Nylon spacer washer are to go on chassis bolster post



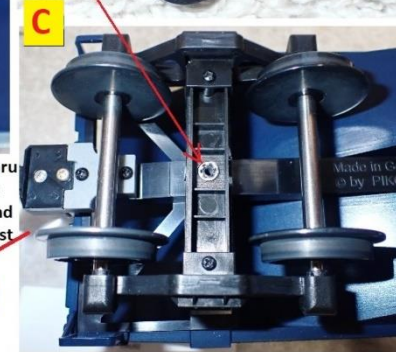
The same added washers are to be used over bolster pivot posts at both ends of the car's chassis, even though they are different. Installation on "conical" base is illustrated - do same on disk base.



Place the Nylon washer over the chassis truck pivot post. Shown below is how it's intentionally to stop down to the conical part at the base with purposely chosen inside diameter

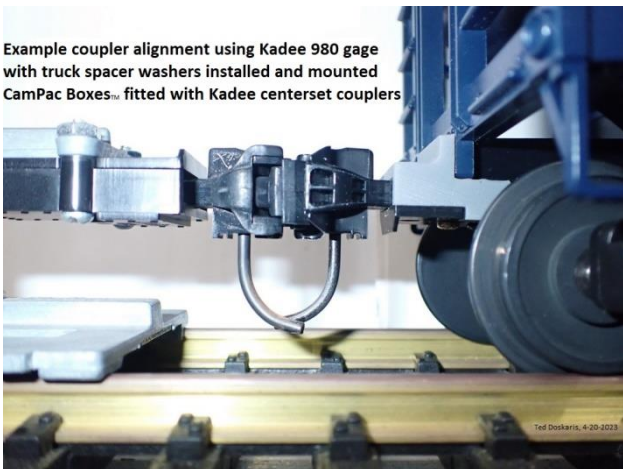


The internal tooth lock washer outside diameter is such that it's to fit within the truck bolster hole right on top of the chassis pivot post



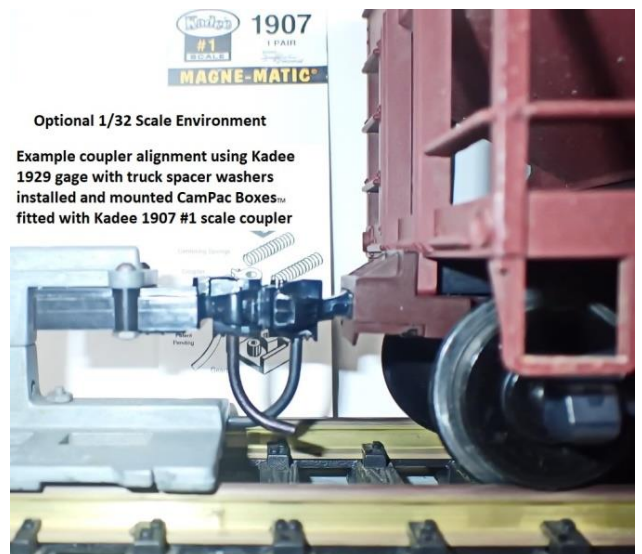
Truck should freely rotate and exhibit some rocking compliance when done

Example coupler alignment using Kadее 980 gage with truck spacer washers installed and mounted CamPac Boxes™ fitted with Kadее centerset couplers



Optional 1/32 Scale Environment

Example coupler alignment using Kadее 1907 gage with truck spacer washers installed and mounted CamPac Boxes™ fitted with Kadее 1907 #1 scale coupler



DONE!