

PIKO 2 Bay Hopper Car CamPac Box™ Install Guide

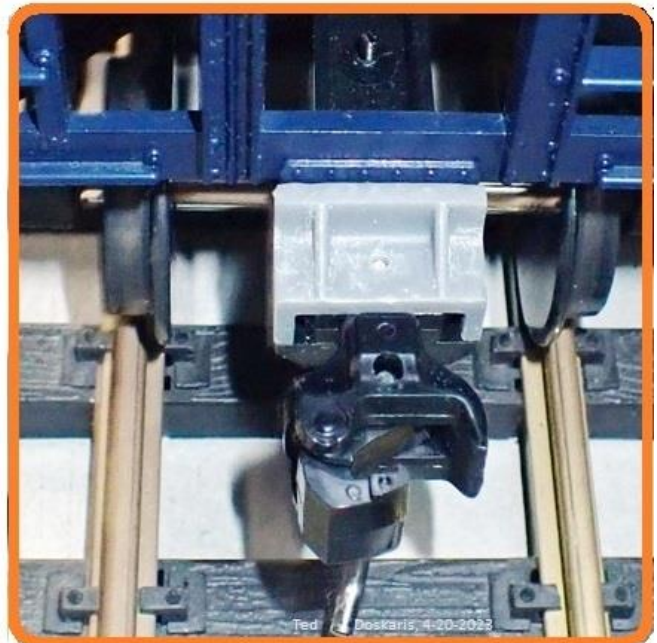
Ted Doskaris, 4/20/2023



PIKO 2 Bay Hopper Car with body mounted CamPac Boxes™ fitted with Kadee center set couplers



Example PIKO truck with USA Trains metal wheels

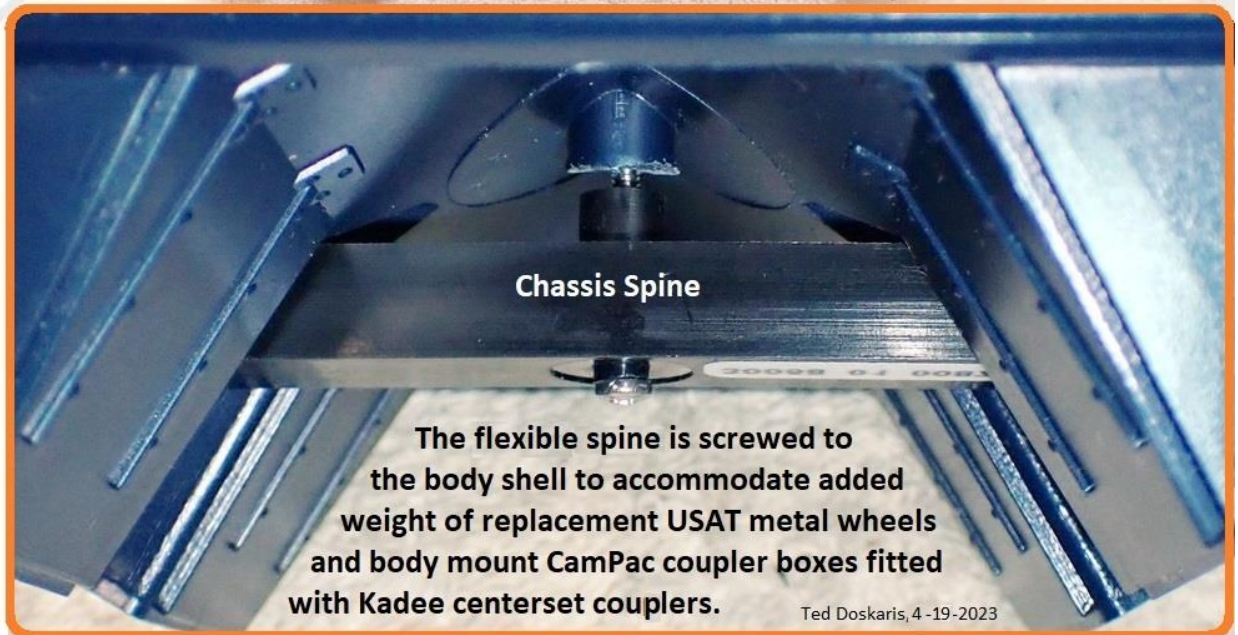


Preface

PIKO offers various versions of this 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 car version will be shown herein.

First impressions of the PIKO 2 bay hopper car is that it’s feather light (weighs 1 pound) and having a noticeably flexible fitting underside chassis. As to porotype, it seems to be of an era maybe around the 1920s. For 1/29 scale, the car can represent a 30 foot long prototype coal car. The car does not include super high level detail nor a brake wheel, and it’s factory equipped with plastic trucks having hook & loop couplers and plastic wheels. 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 operational usability in a relatively long train on curves and appearance, body mount 3-D printed CamPac Boxes™ fitted with Kadee* center set (no offset) “G” scale AAR E type couplers can be employed along with replacing the trucks’ plastic wheels with USA Trains metal wheels.

*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



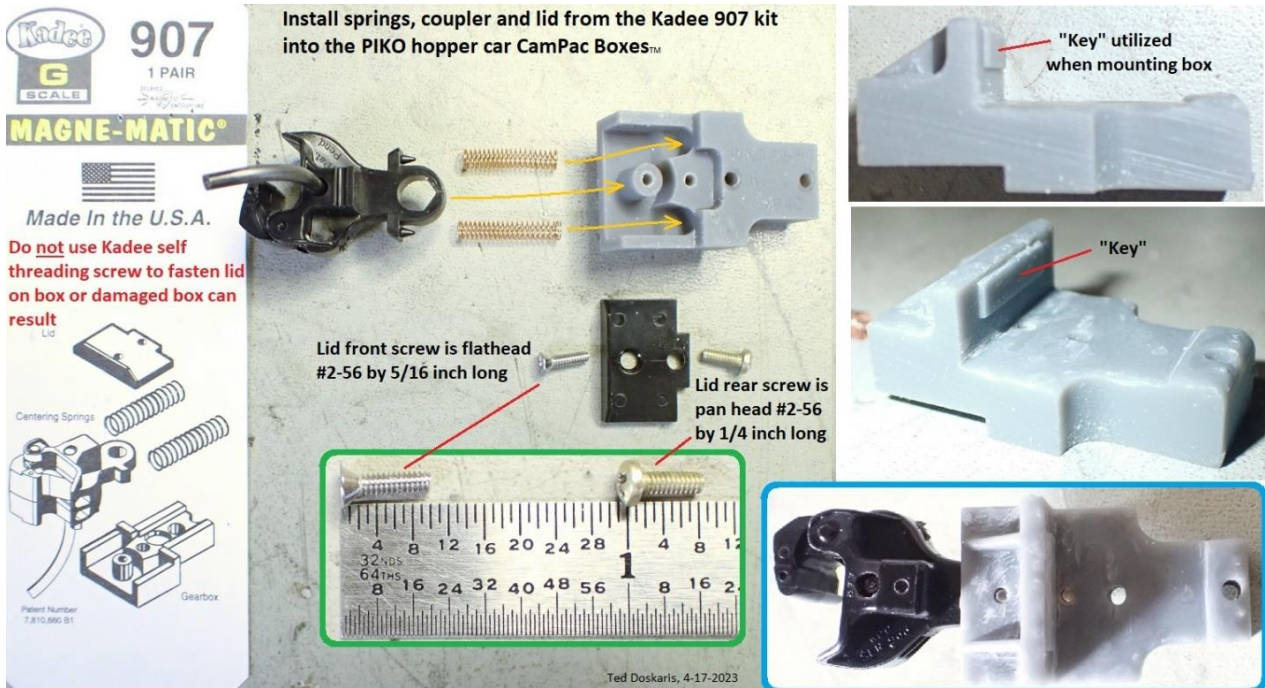
Car let go becomes upright



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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 (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 lid and mount boxes on the car
- Screw, one (1) #2-56 by 1 inch long pan head screw to fasten the chassis spine to the car body – described later.



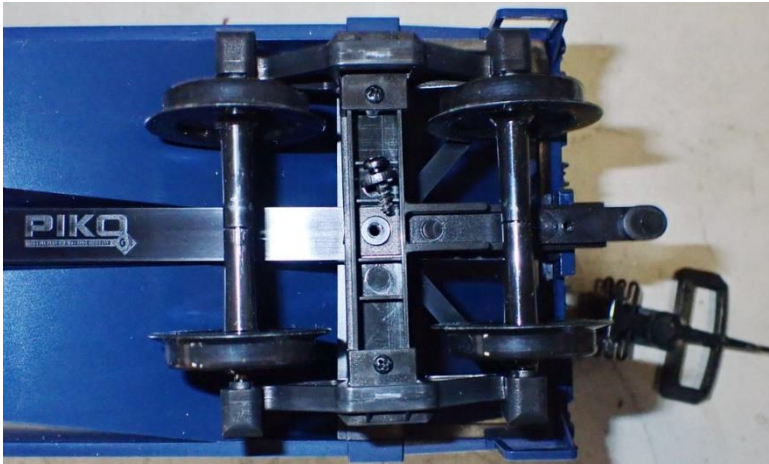
Not included, the installer is to obtain the Kadee 907 kit, and assemble the CamPac Boxes™ as illustrated above. The assembly can be painted to a desired color – example shown below.

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.



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

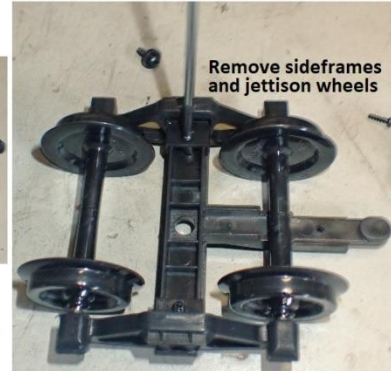


Technique of replacing PIKO freight truck factory plastic wheels with USA Trains R2093 - BLACKENED METAL WHEEL SETS(2)

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



Remove sideframes and jettison wheels



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.

PIKO 2 Bay Hopper Car Factory Trucks must have their coupler tang removed when using body mount couplers - example shown with wheels in place using razor saw



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

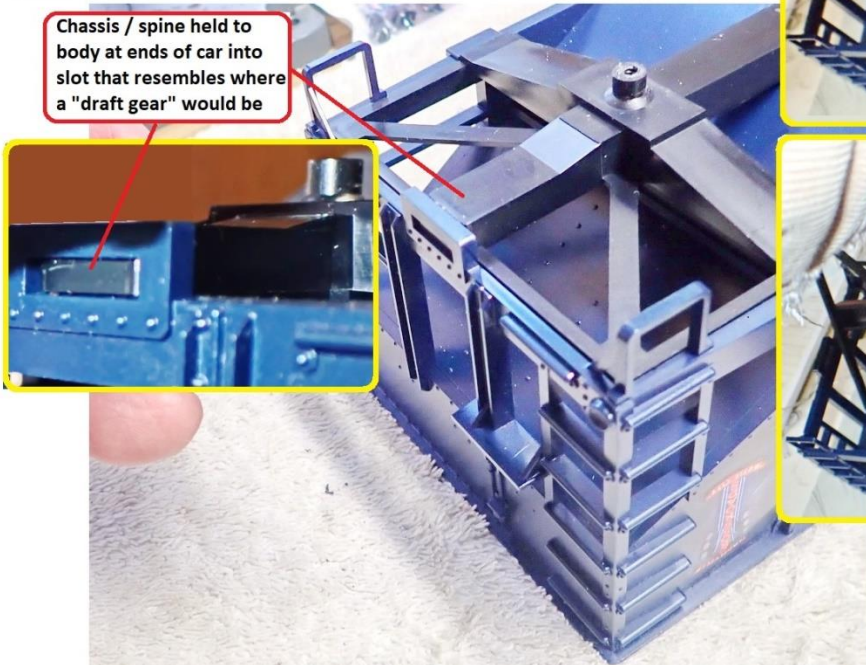
Car Preparation

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

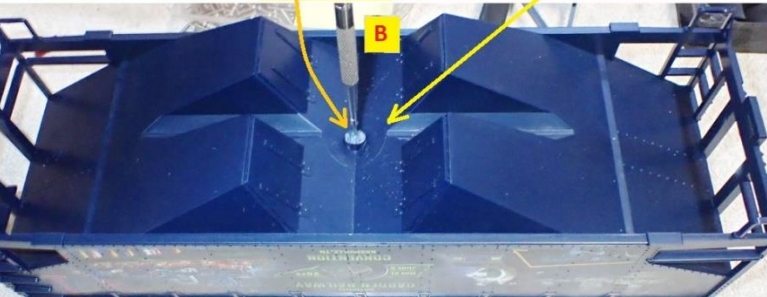
The spine of the chassis is to be anchored to the car body by fastening the spine at its center, and when ends of the car have mounted "keyed" CamPac coupler boxes, the chassis ends will be anchored, too.

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 post

Close-up view of spine center post

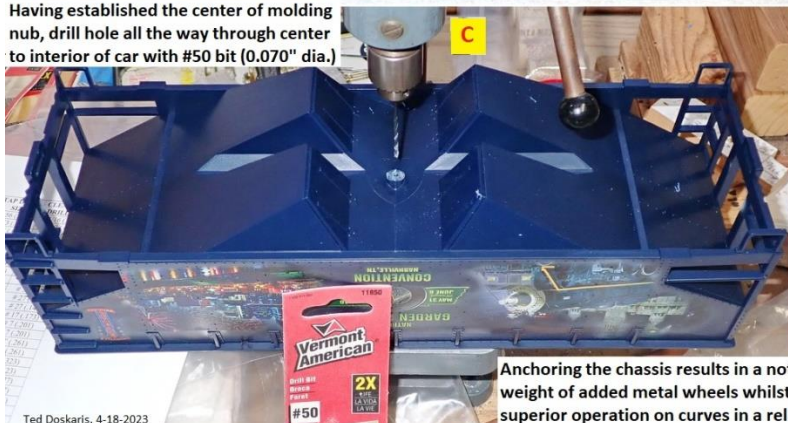
Mark center of car body underside molding nub - example scratch-awl used

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



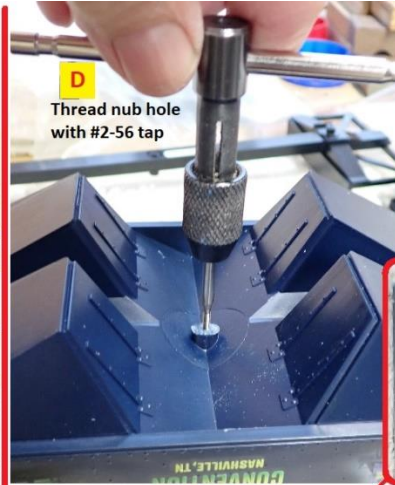
Having established the center of molding nub, drill hole all the way through center to interior of car with #50 bit (0.070" dia.)

C



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

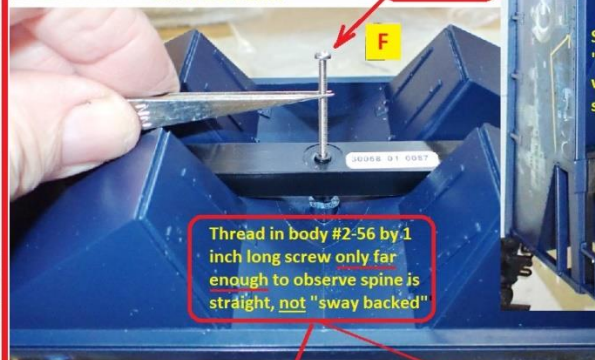


Thread nub hole with #2-56 tap

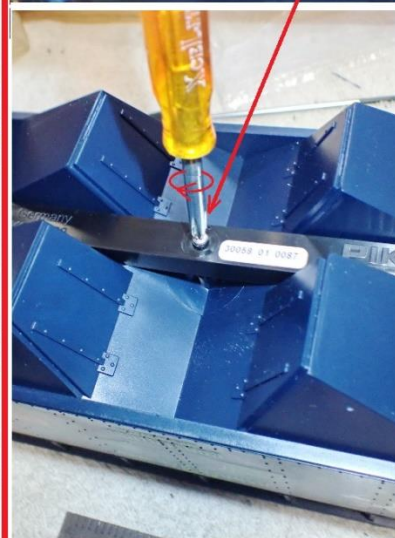
Re-install chassis in car body having hole drilled through spine center



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

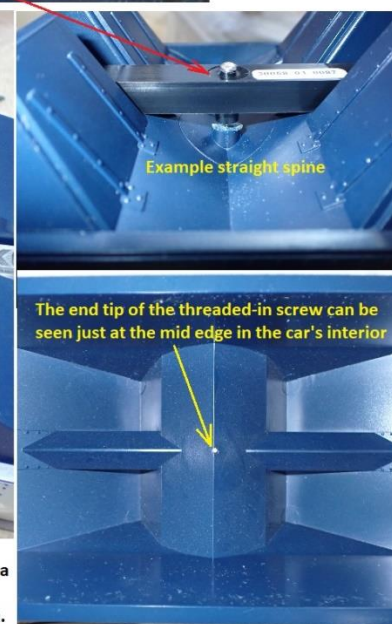


Thread in body #2-56 by 1 inch long screw only far enough to observe spine is straight, not "sway backed"



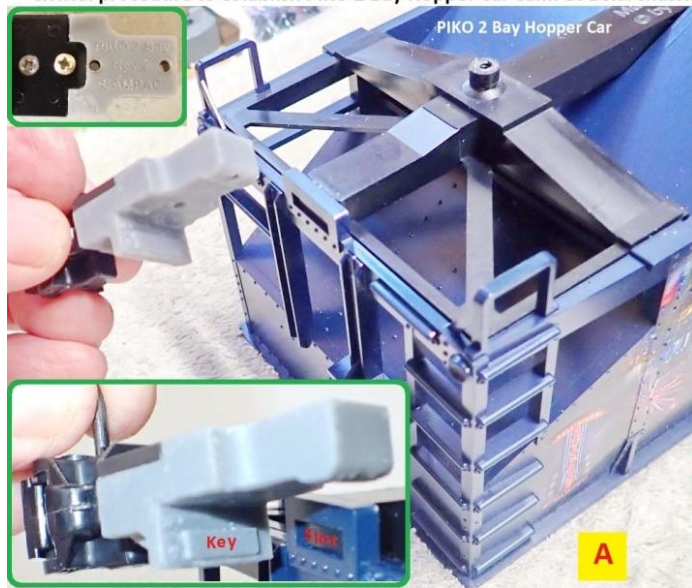
Example straight spine

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



Install CamPac Box™

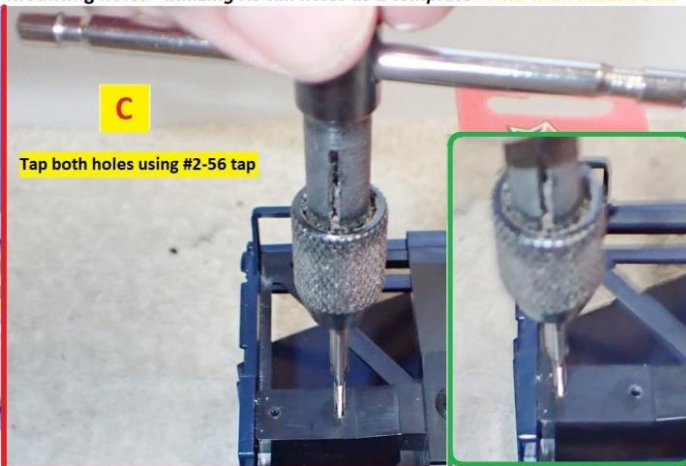
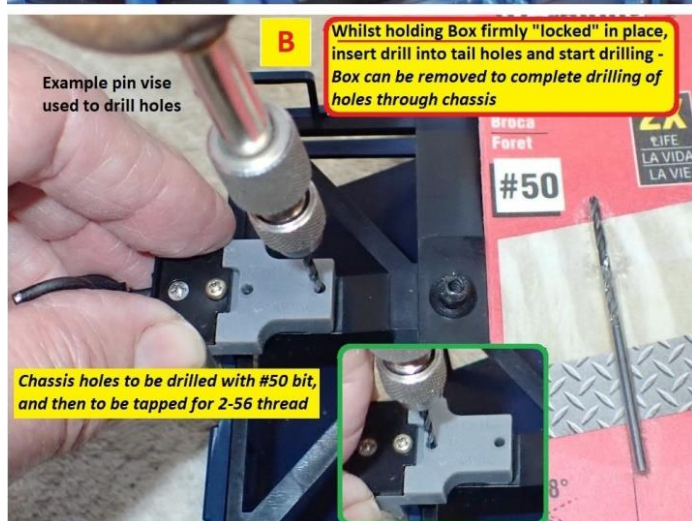
Critical procedure to establish PIKO 2 Bay Hopper Car CamPac Box™ chassis mounting holes - utilizing its tail holes as a template - And then mount Box



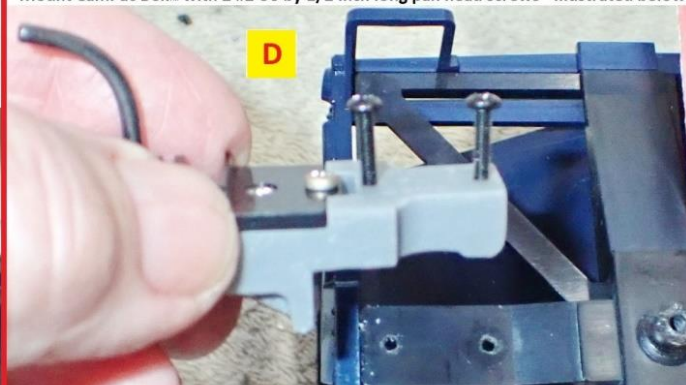
Orient the CamPac Box™ so its key will engage the slot and butt against the end of the black chassis



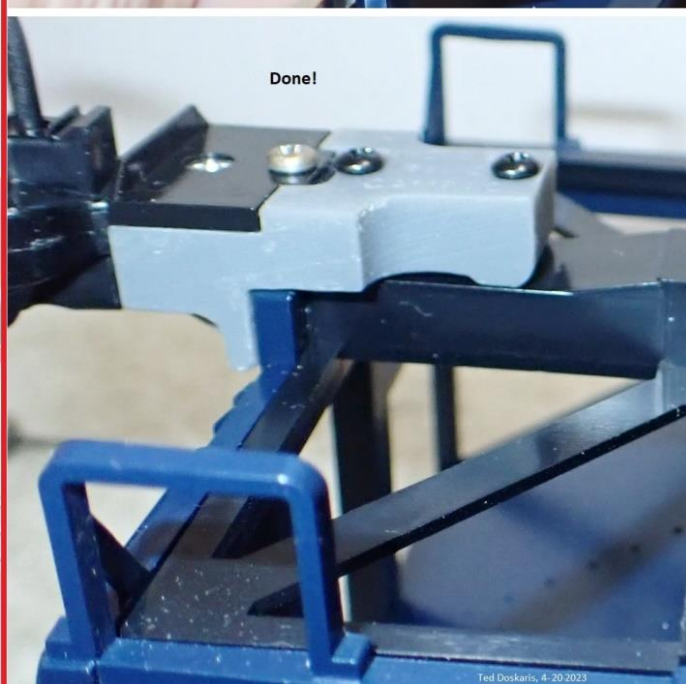
The Box must be seated flush & "locked" into the slot when establishing mounting holes



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



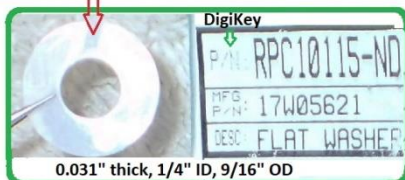
Seat the Box assembly into the chassis slot, and then thread in the 2 screws



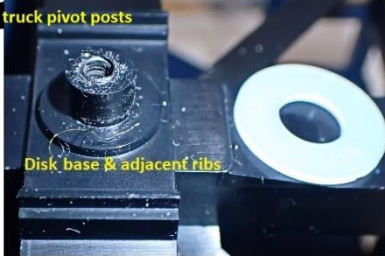
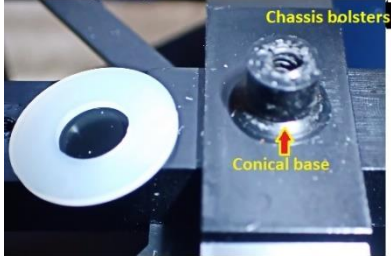
Remount Trucks with spacer washers

PIKO 2 Bay Hopper Car Truck Re-mounting Process

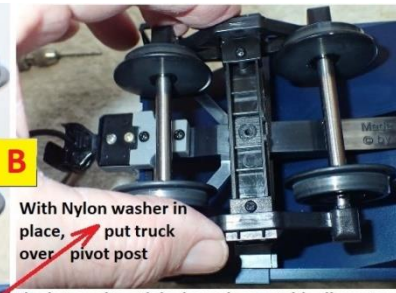
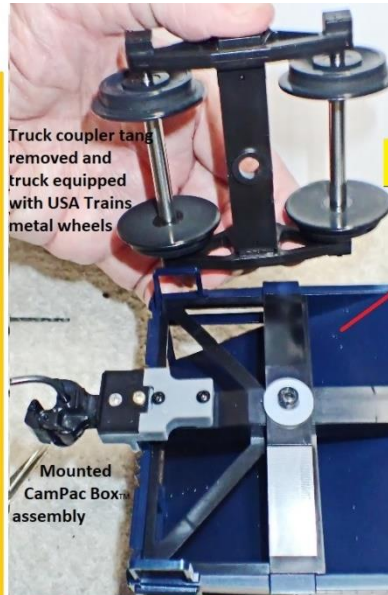
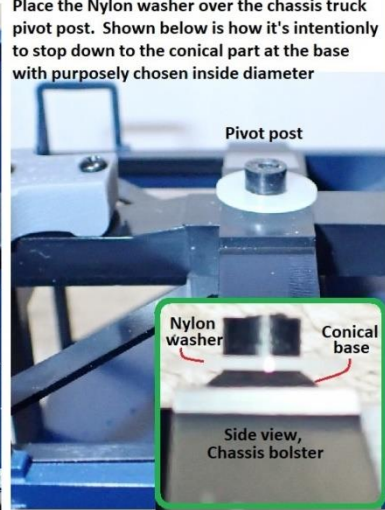
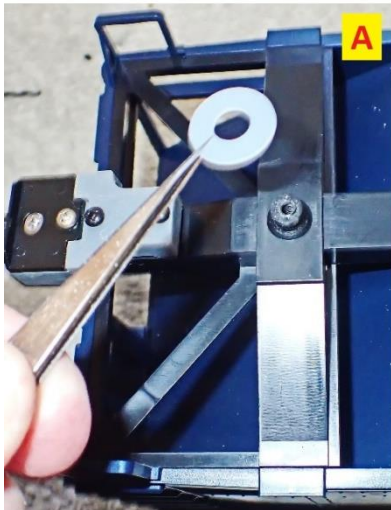
Additional internal tooth lock washer & Nylon spacer washer are to go on chassis bolster post



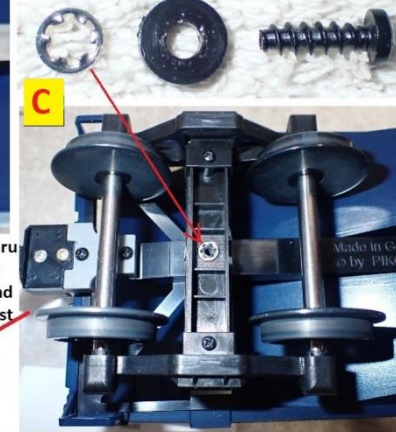
The same added washers are to be used over bolster pivot posts at both ends of the car's chassis, even though they are different. Installation on "conical" base is illustrated - do same on disk base.



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

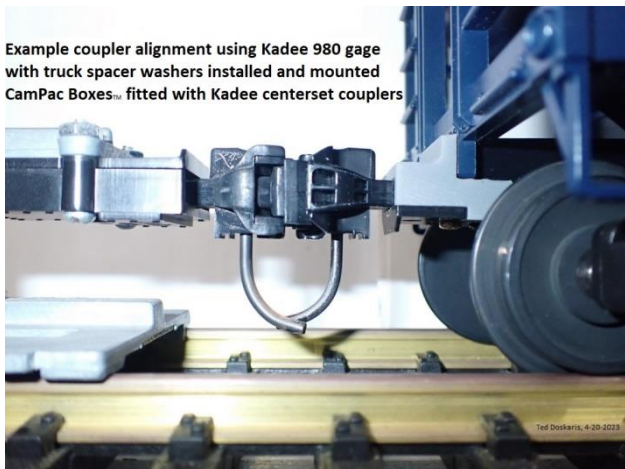


The internal tooth lock washer outside diameter is such that it's to fit within the truck bolster hole right on top of the chassis pivot post



Truck should freely rotate and exhibit some rocking compliance when done

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



DONE!