

USA Trains Steel Side Boxcar CamPac Box™ Install Guide

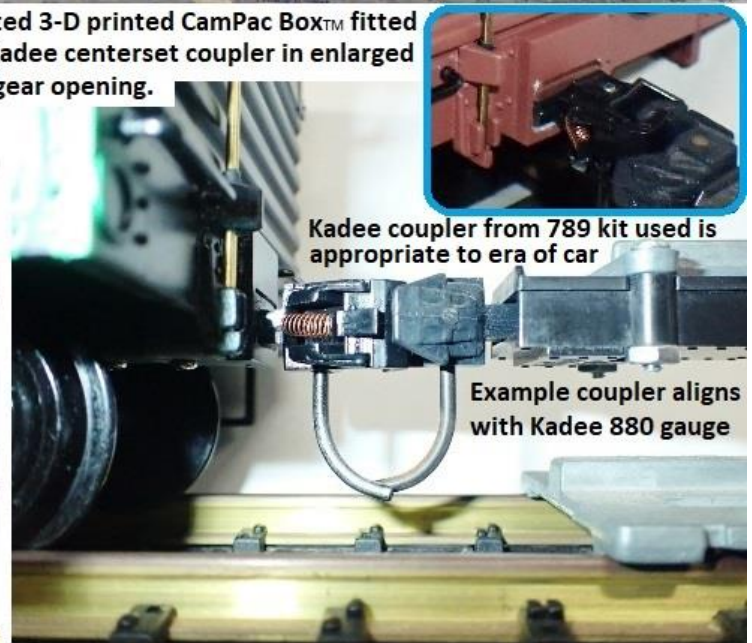
By Ted Doskaris, October 17, 2023



Body mounted 3-D printed CamPac Box™ fitted with Kadee centerset coupler in enlarged draft gear opening.



Kadee coupler from 789 kit used is appropriate to era of car



Example coupler aligns with Kadee 880 gauge

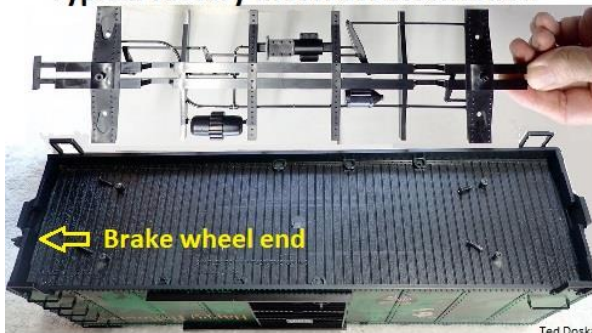
Ted Doskaris, 9-28-2023

Preface:

Underframe to car body brake apparatus orientation

Typical factory incorrect orientation

Prototypical orientation

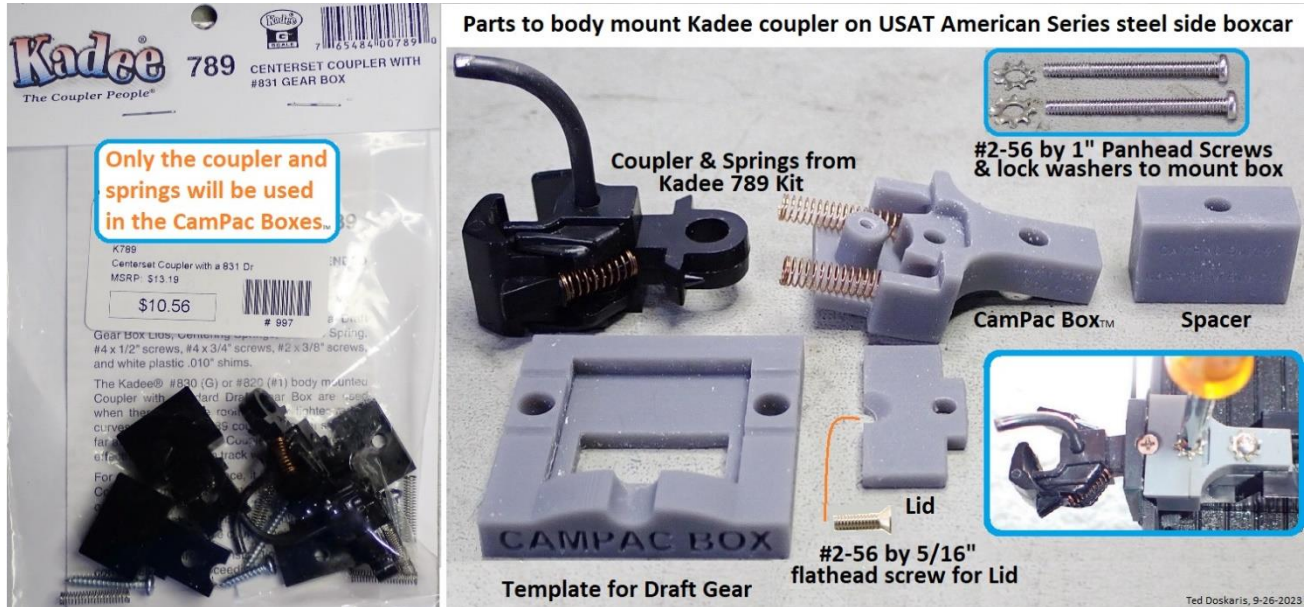


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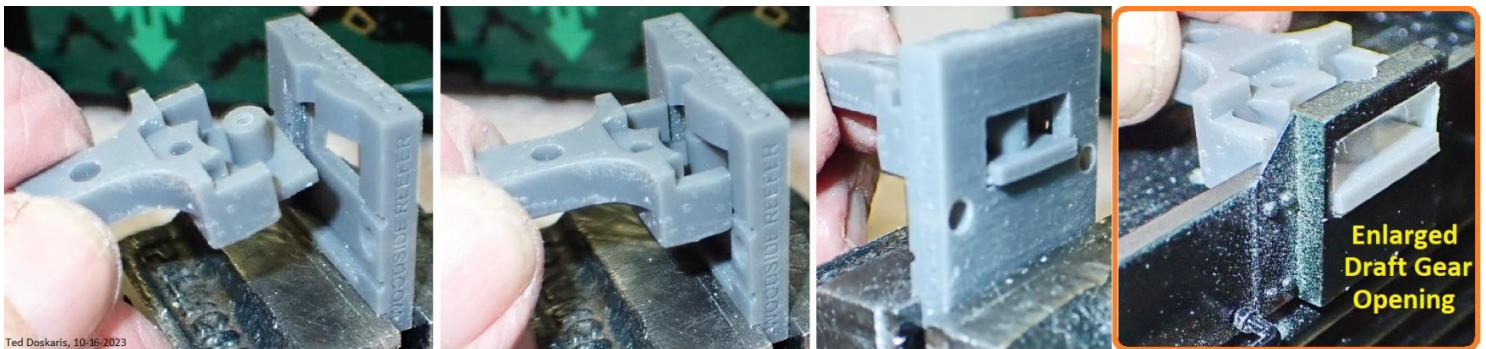
Advisory: The USA Trains “*American Series*” cars (like the steel side boxcar here) from the factory may have its underframe wrongly oriented with respect to the brake wheel car end when compared to a prototype. The underframe can be installed either way because it’s not keyed. During the process of installing CamPac Boxes™ and couplers, the underframe will be removed for modifications, so when it’s reinstalled it can be properly oriented. Though it’s preferred the car’s detail parts be installed after installation of CamPac parts & couplers, there is no need to remove them if already in place, but use caution when handling the car. (Usually, the brake wheel with its metal rod will fall out when the car is turned upside down!)

The installer is to obtain a Kadее 789 kit in which only the couplers and springs are utilized. The Kadее 789 coupler is preferred and chosen because it's more prototypically looking for the early 1900s era of the car -being slightly smaller size and less bulky to install than the Kadее 907 relatively modern era AAR-E type coupler. These parts will eventually be installed in the CamPac Boxes™, later to be described.

CamPac components along with the Kadее parts are illustrated below.



(Upon request, Nylon stability washer pair for trucks with smooth top bolster, Midwest Fastener 33543, 0.015" thick, 5/8" OD) When draft gear opening established using template, the CamPac Box™ is to fit through opening like it will thru the template



Important Comment about coupler:

The coupler is not to be pre-installed in the CamPac Box™ because it must first be inserted through the car's draft gear opening.

Inserting the coupler whilst getting it to fit into the Box pocket will require some manipulation (of both coupler & Box at same time), thus, needing a little time and patience.

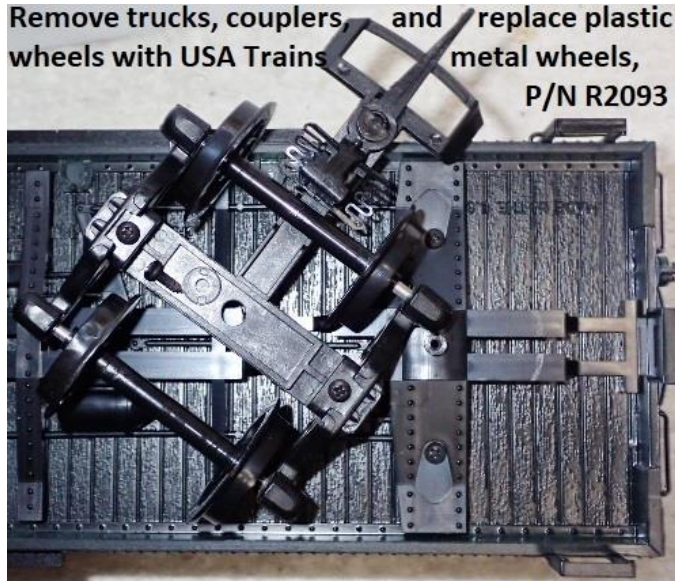
Though the back of the coupler can be trimmed to help installation, it's not mandatory, so you are urged to first trying the installation without trimming the coupler as shown in this Guide. →



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

Preparation:

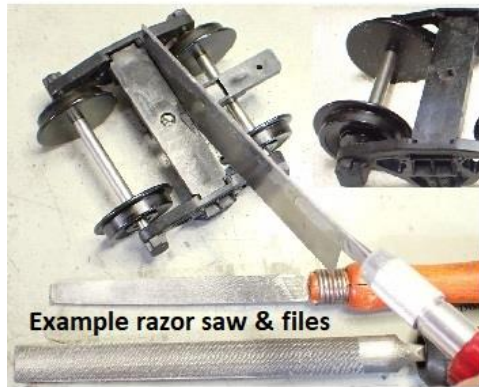
First, remove the trucks from the car, and discard their couplers. **Plastic wheels are to be replaced with installer obtained USA Trains metal wheels** that have a smaller diameter for which the body mounted CamPac Box™ is optimized for coupler height alignment with the [Kadee 880 gauge](#).



Remove trucks, couplers, and replace plastic wheels with USA Trains metal wheels,



After trucks are removed, the car's underframe is to be removed from the floor so its end ribs can be beveled. This must be done to facilitate installation of the CamPac 3-D printed coupler box



Example razor saw & files

Advisory: Because trucks must later be remounted with coupler tang facing inboard, it's best to cut off tang so trucks will freely rotate on layouts with less than ideal track work



Remove underframe from car floor (fastened by 2 screws at each bolster)

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Shown below are example tools used to modify underframe and work on the draft gear opening .

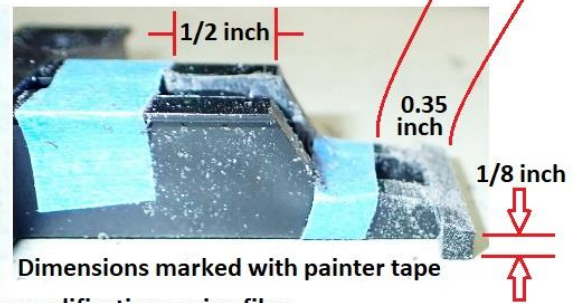
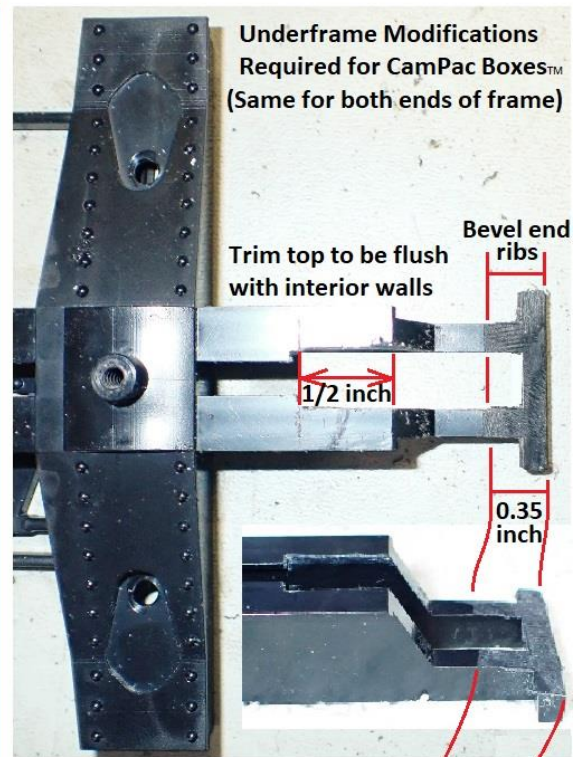
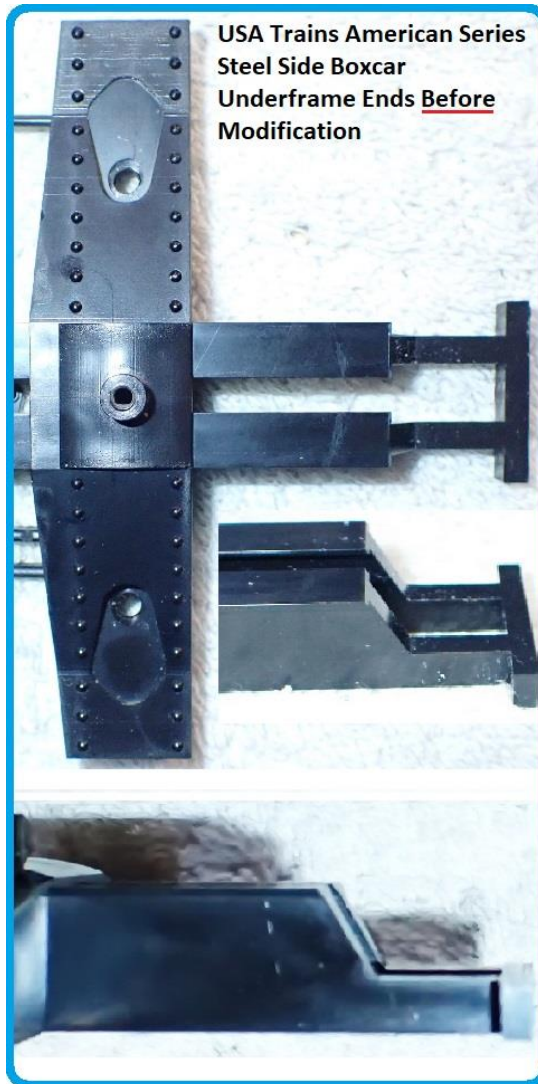
Example files used to enlarge factory draft gear opening and to bevel its interior side in order to accept realistic Kadee centerset couplers fitted in specially designed 3-D printed CamPac Boxes™



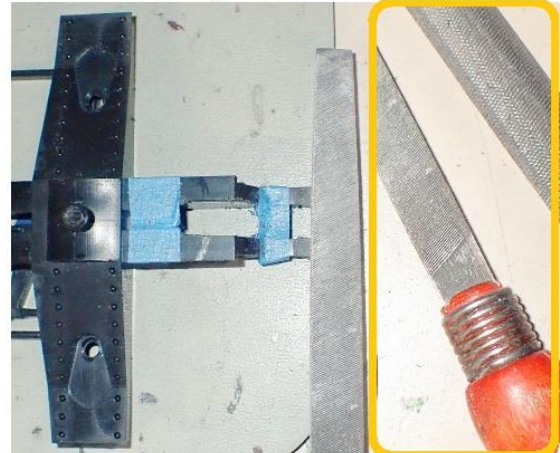
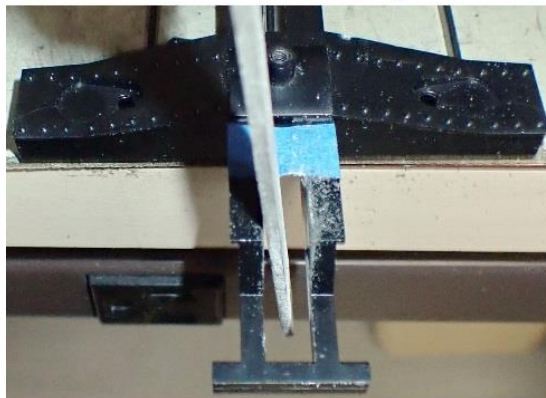
This file includes serrated edges
Small micro files used to "square-up" corners and "rat-tail" file to make small rounds

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Modify the Underframe as illustrated below



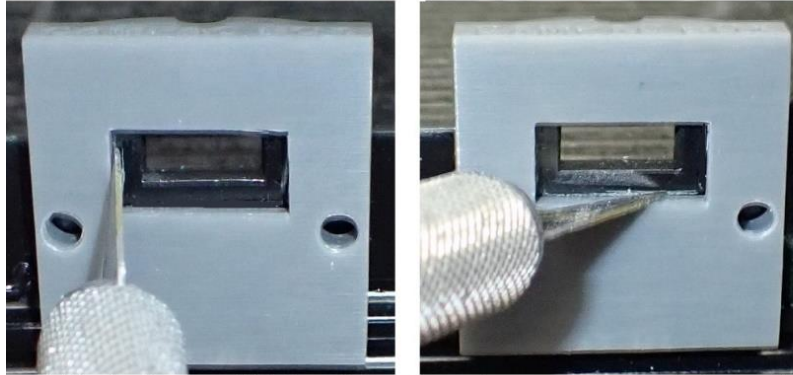
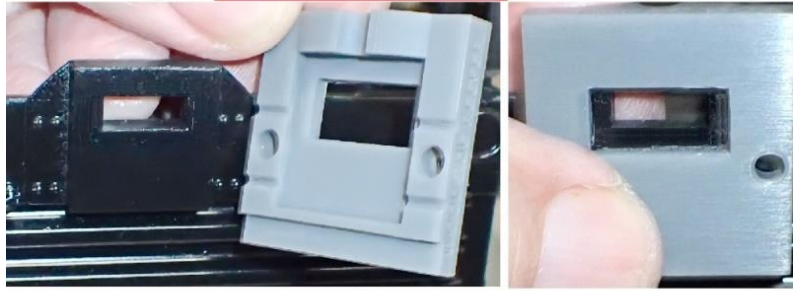
Example method for modifications using files



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Fully seat template side to side & top to bottom over existing car draft gear area

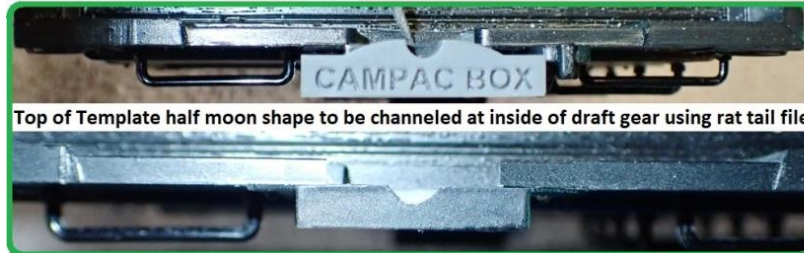
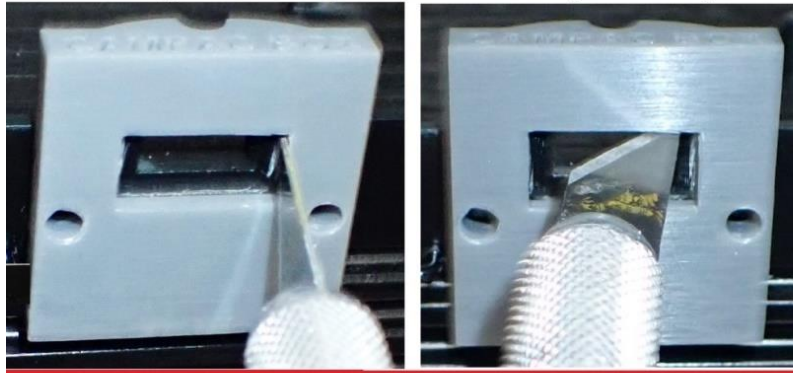
Enlarge Draft Gear Opening as illustrated (Same for both ends of car)



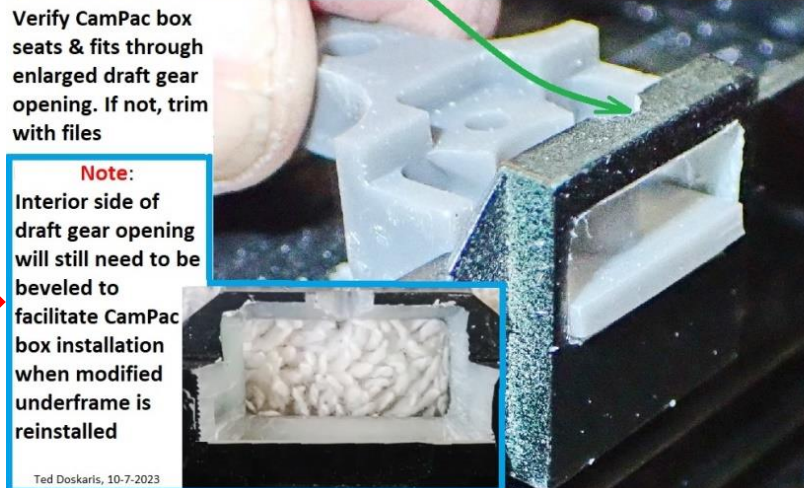
Scribe draft gear within template surrounds - example razor knife used



Using various files, enlarge draft gear opening until lines just disappear with corners squared-up



Top of Template half moon shape to be channeled at inside of draft gear using rat tail file



Verify CamPac box seats & fits through enlarged draft gear opening. If not, trim with files

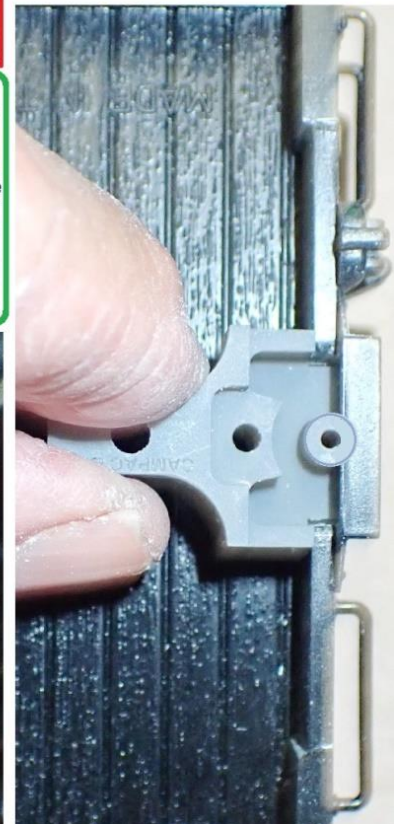
Note:

Interior side of draft gear opening will still need to be beveled to facilitate CamPac box installation when modified underframe is reinstalled

Interior beveling shown on next page

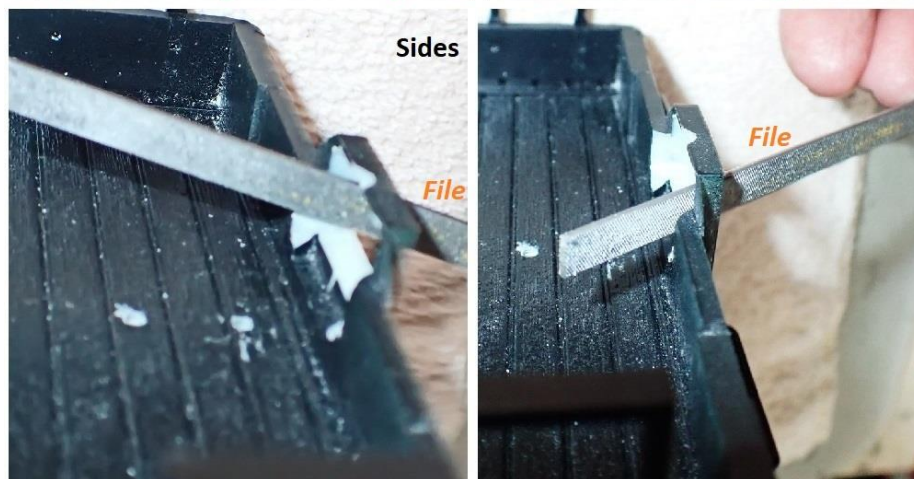
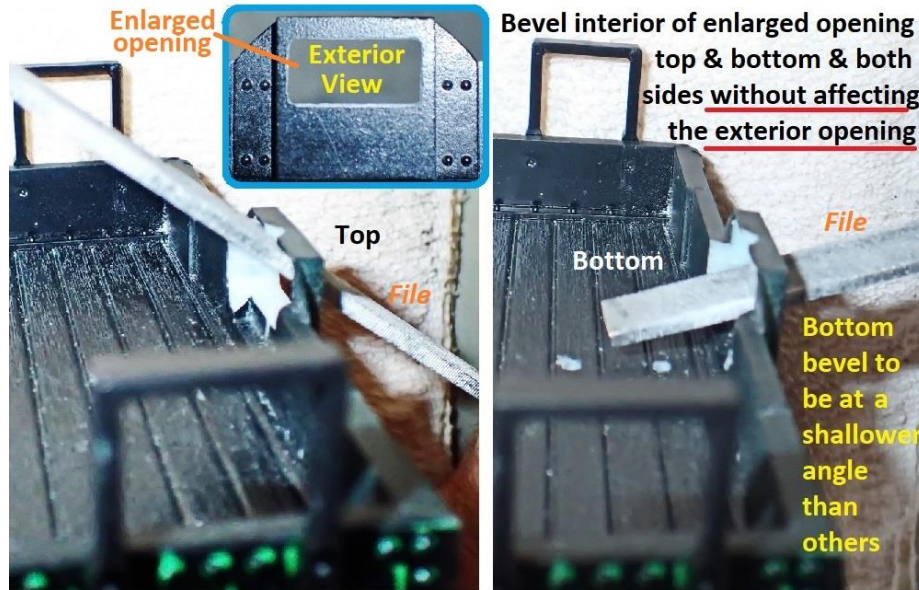


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After enlarging the draft gear opening, beveling the interior side of it must be done for two reasons:

- ❖ 1 Top & bottom bevel allows installation of CamPac Box™ and coupler (albeit with some manipulation) with modified underframe first installed
- ❖ 2 Beveled sides allows coupler to swing without binding



Serrated edge of file or micro files can be used to finish bevel corners

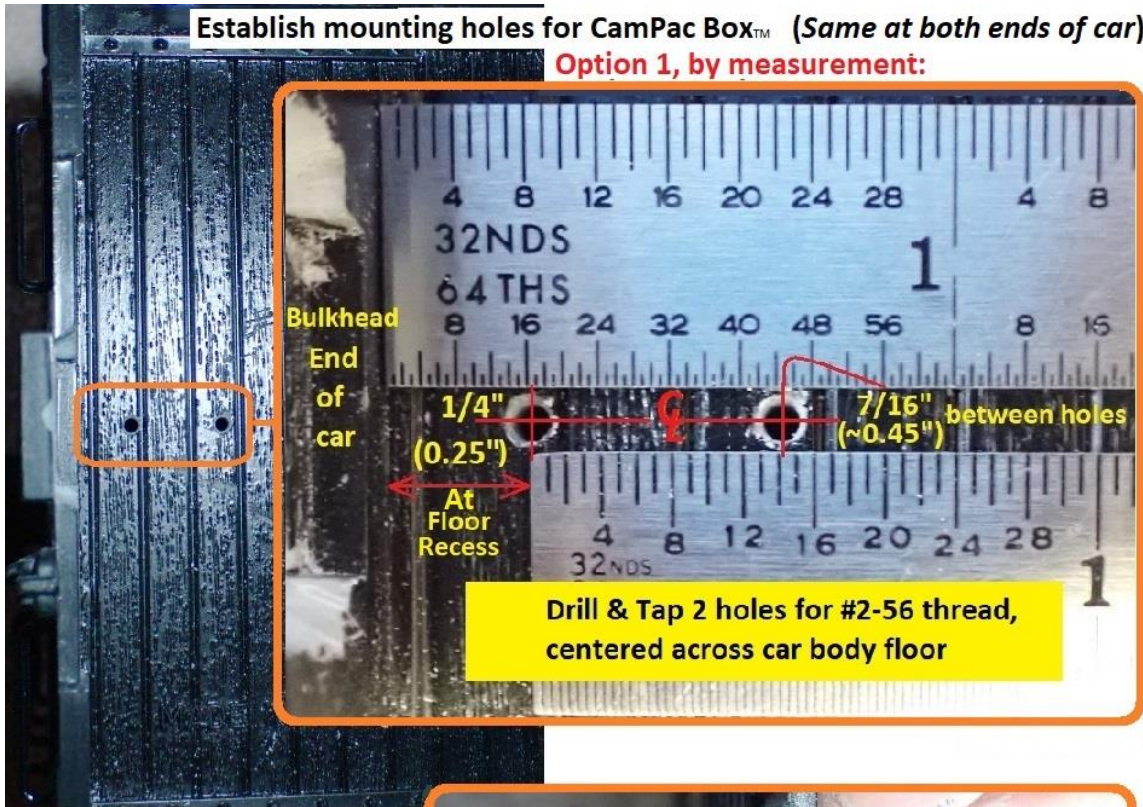
View of example beveled interior of opening completed

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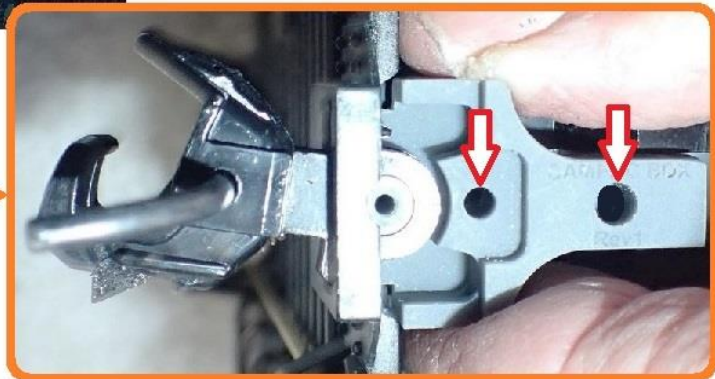
Establishing CamPac Box Mounting Holes

Establish mounting holes for CamPac Box™ (Same at both ends of car)

Option 1, by measurement:



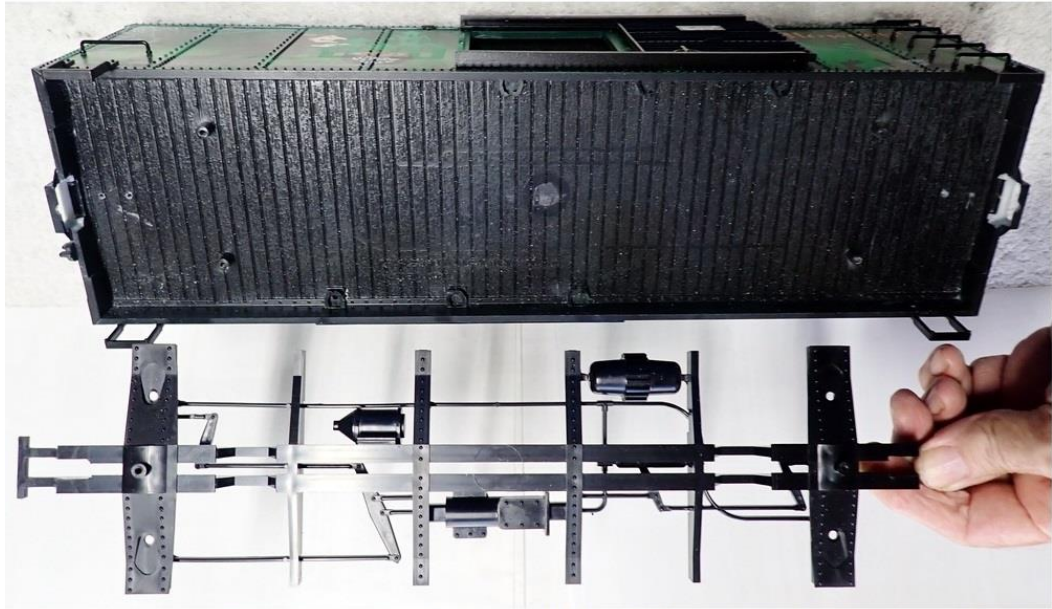
Option 2, Use seated CamPac Box™ with spacer and coupler (after installing modified underframe) as template to drill & tap 2 holes in floor for #2-56 thread



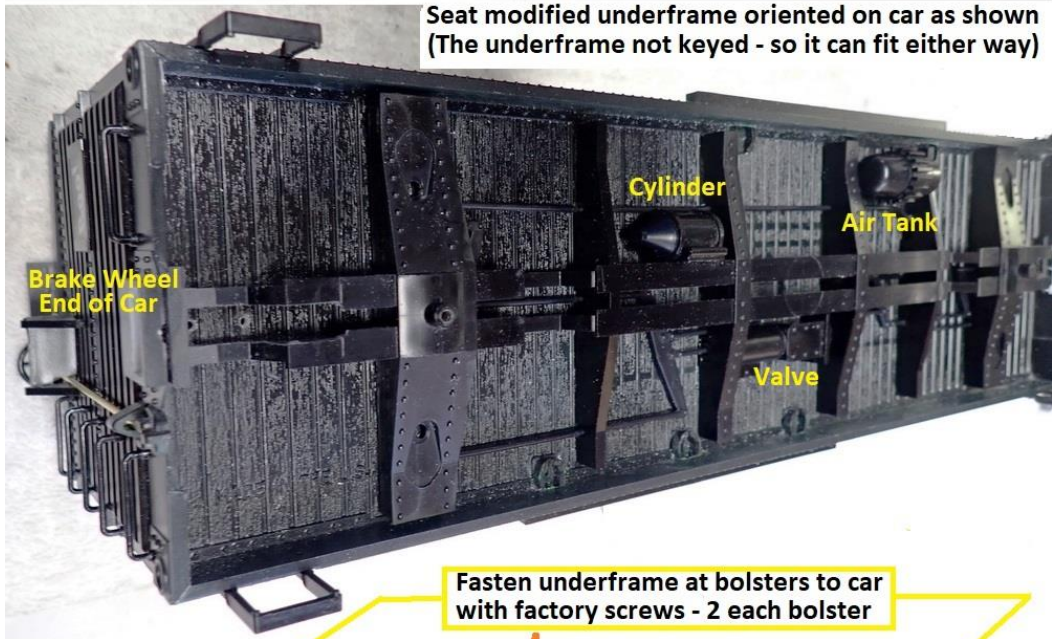
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If opting to use template method, best place to do this is shown at bottom of illustration on page 9

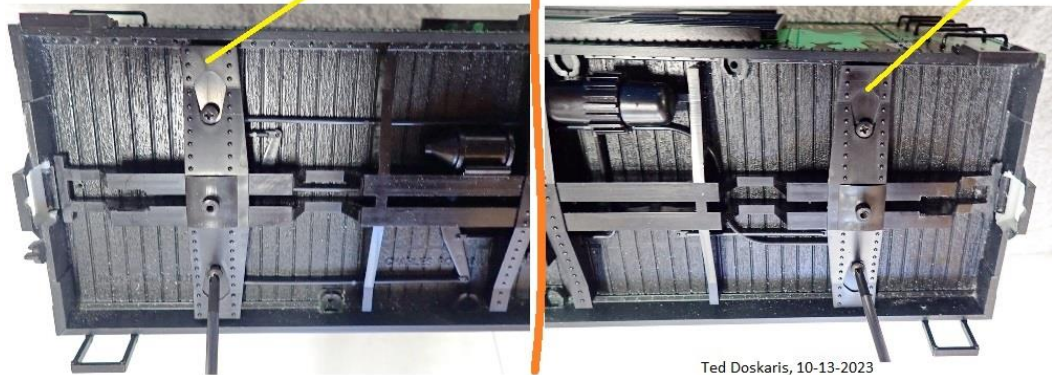
Re-install Underframe (as Modified) on Car



Seat modified underframe oriented on car as shown
(The underframe not keyed - so it can fit either way)



Fasten underframe at bolsters to car
with factory screws - 2 each bolster

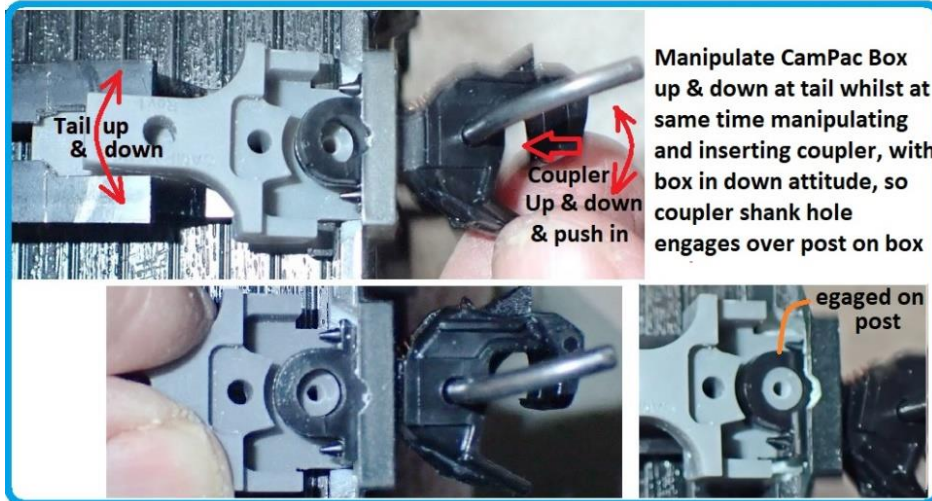
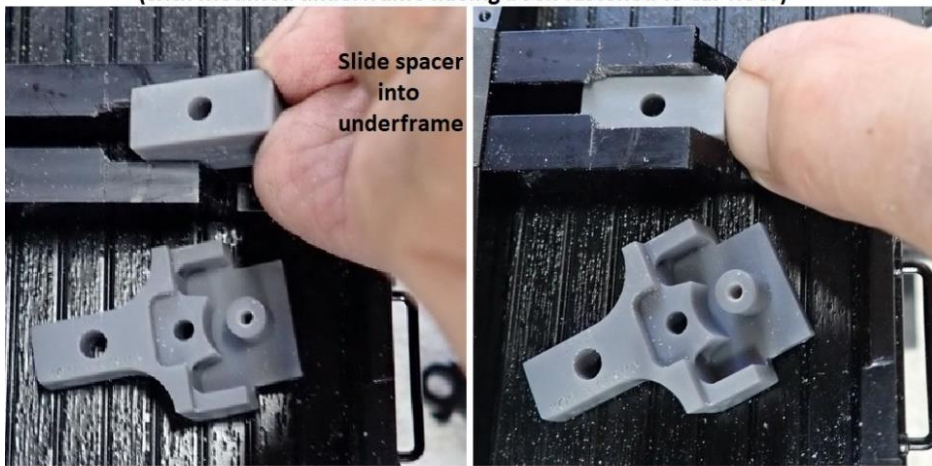


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Position CamPac Spacer, then CamPac Box™ adding Kaddee coupler, on car as illustrated (with modified underframe having been fastened to car floor)

Position CamPac Box™ with coupler within the underframe and on car floor as illustrated

(This will involve some simultaneous manipulation of both box and coupler)

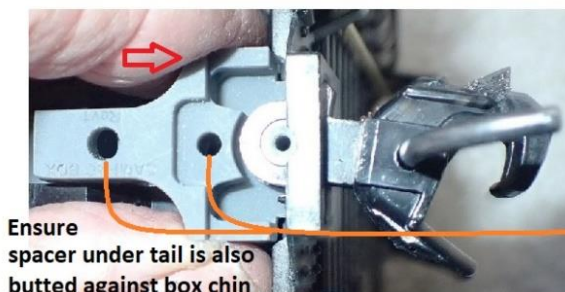


Slide spacer under box tail so it butts against box chin and holes line up



Seat box with coupler all the way into draft gear opening

NOTE: This is an optimum position, when held in place, if choosing to use the CamPac Box™ tail 2 holes as template to drill & tap floor holes for #2-56 thread to mount box.

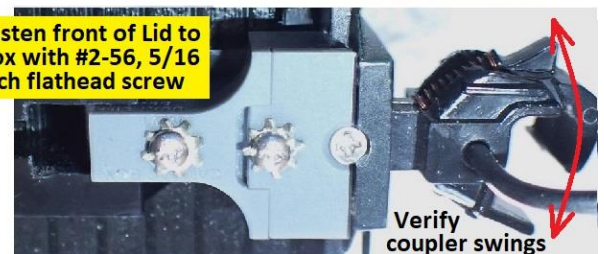
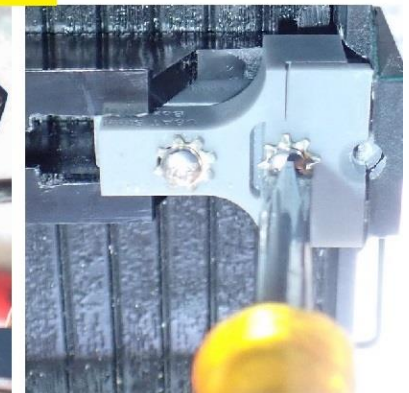
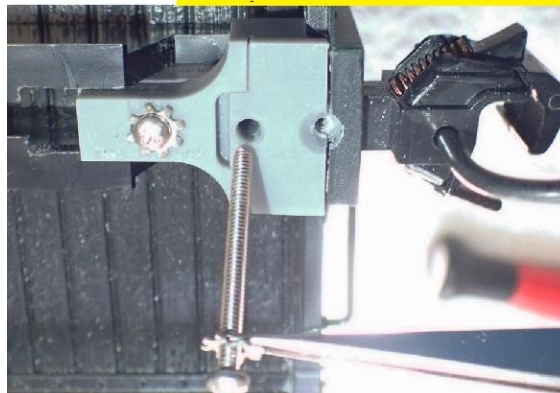
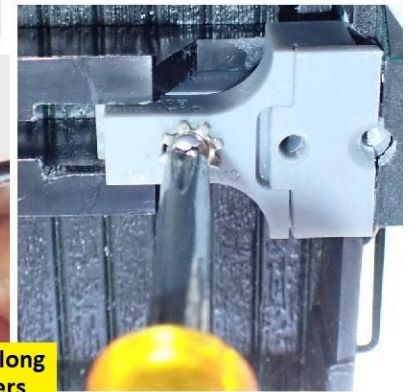
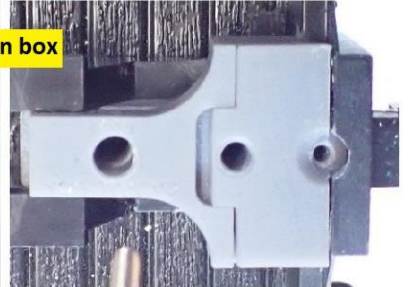
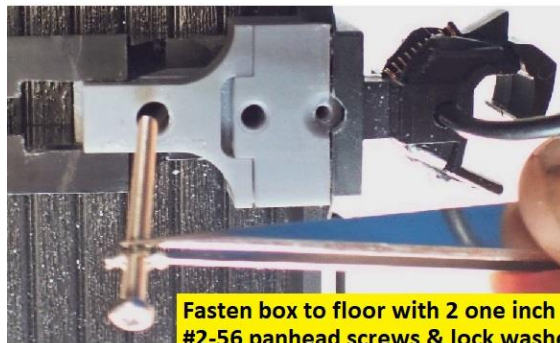


Ensure spacer under tail is also butted against box chin

Fastening the Box to floor shown on the next page

Install Kadee coupler springs in CamPac box, then place CamPac lid on box to cover springs, then fasten box to floor with screws as illustrated below.

“Button-up” & fasten the CamPac Box™ with coupler, springs & lid as illustrated



Note: If coupler can't freely swing, the interior sides of the draft gear beveling may have been insufficient

Note: Tightness of any or all screws may affect ability of coupler to swing side to side

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Smooth Bolster Type

**Mount Trucks on Car
and**

Ribbed Bolster Type

There can be 2 types of truck bolsters having the same Bettendorf sideframes.

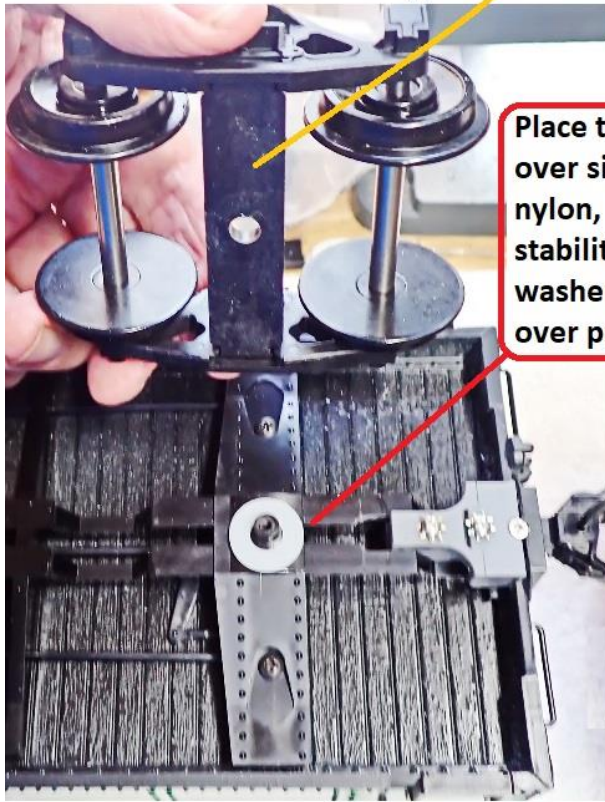
Depending on the car production run, they can have a smooth top surface or be ribbed.

If the bolster top is of the smooth type, an oversized thin nylon washer placed over the car pivot post is recommended to keep the car from excessively rocking side to side.

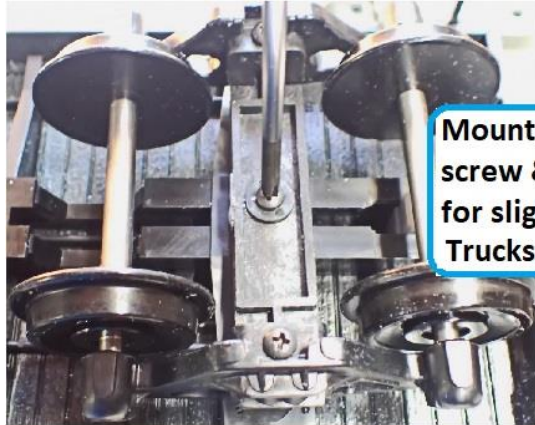
If you have this type truck bolster, request a pair of washers at time of ordering the CamPac Boxes™

(Washer = "Midwest Fastener 33543, Nylon 9-C", 0.015 inch thick, 5/8 inch OD)

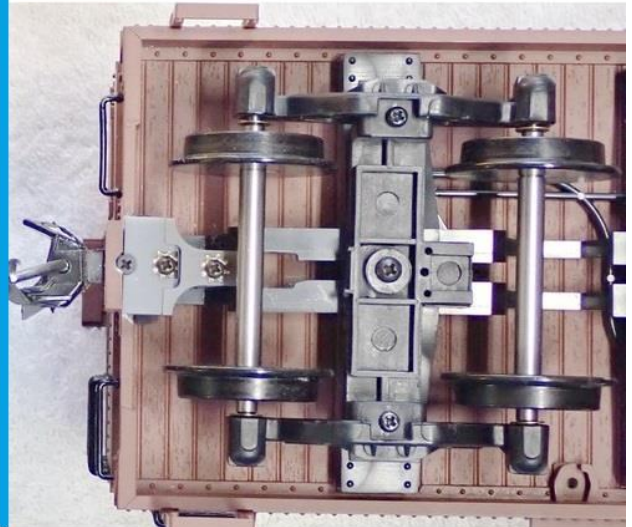
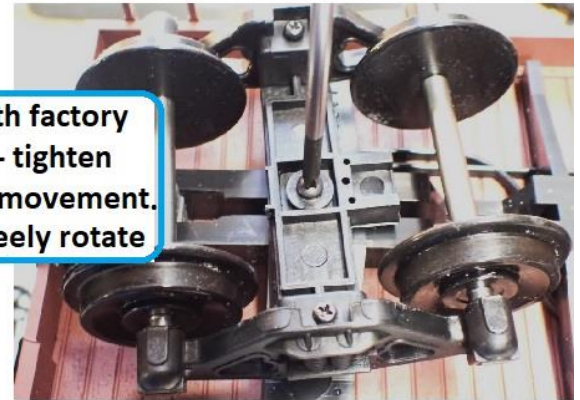
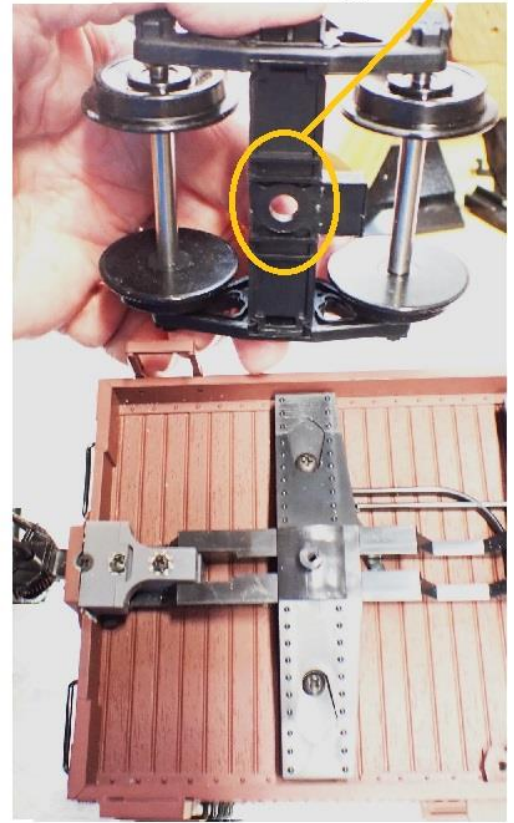
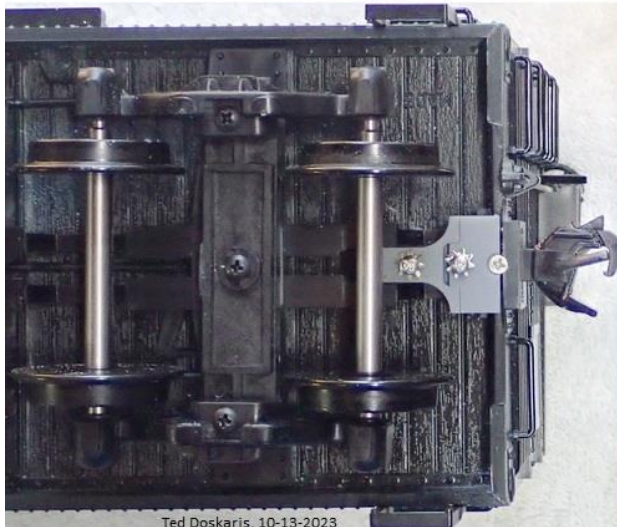
DONE



Place thin, over size nylon, stability washer over post



Mount trucks with factory screw & washer - tighten for slight lateral movement. Trucks should freely rotate



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