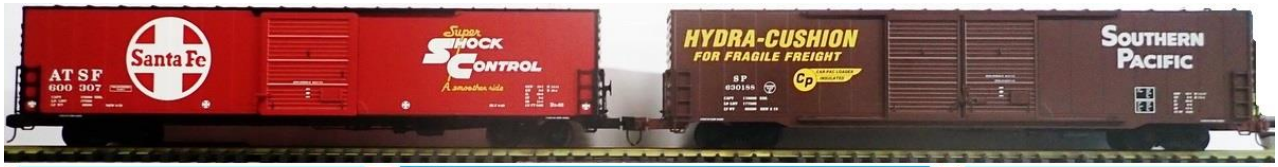
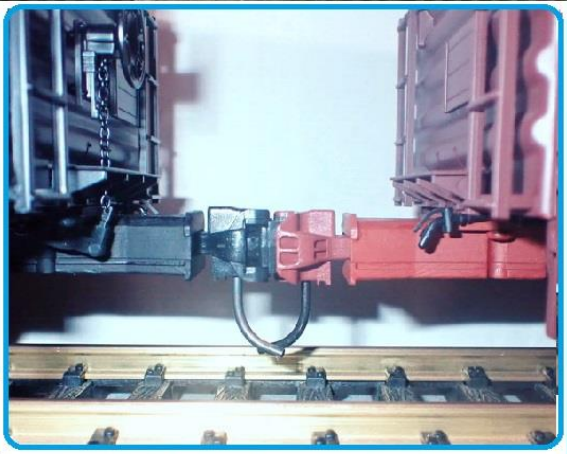
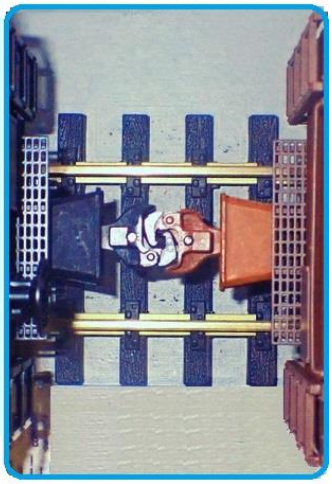
USA Trains 60 foot Boxcar *Bell Mouth* CamPac Box™ Install Guide

Ted Doskaris, 7/12/2021; Added sheet 6 advisory, 1/4/2022

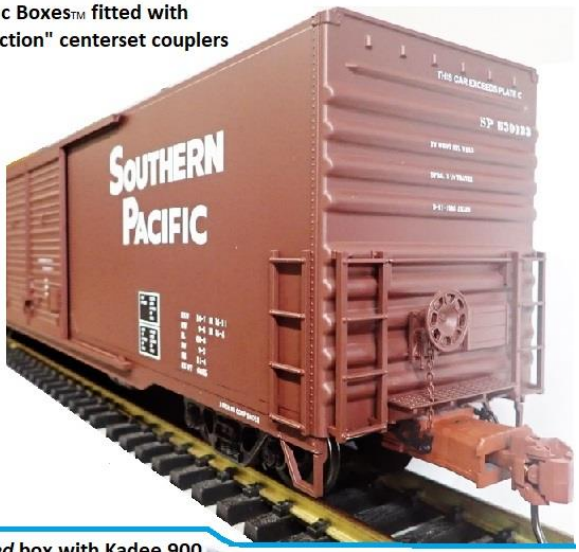


The CamPac Box™ emulates prototype *bell mouth* extended draft gear from Keystone, Hydro-Frame, Hydra-Cushion, Shock Control used on longer cushion frame cars



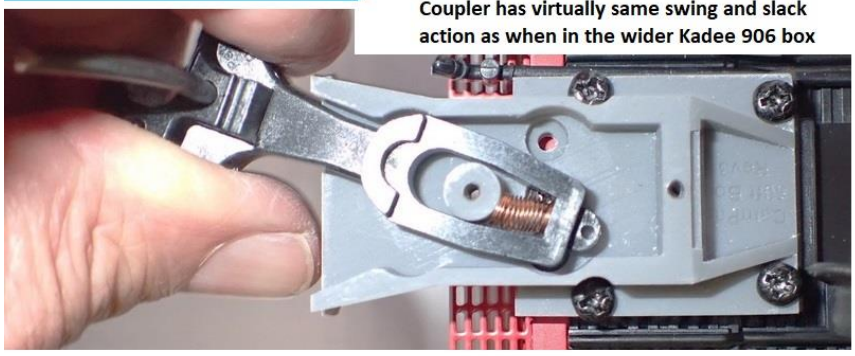


Example USA Trains 60 foot single & double door boxcars equipped with CamPac Boxes™ fitted with Kadee* 900 / 900R*ust* "slack action" centerset couplers



Example CamPac *bell-mouthed* box with Kadee 900

Coupler has virtually same swing and slack action as when in the wider Kadee 906 box



CamPac Lid

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

Ted Doskaris, 7-9-2021

CamPac Boxes™ with Kadee couplers are intended for car operation on 8 foot diameter or greater track curves.

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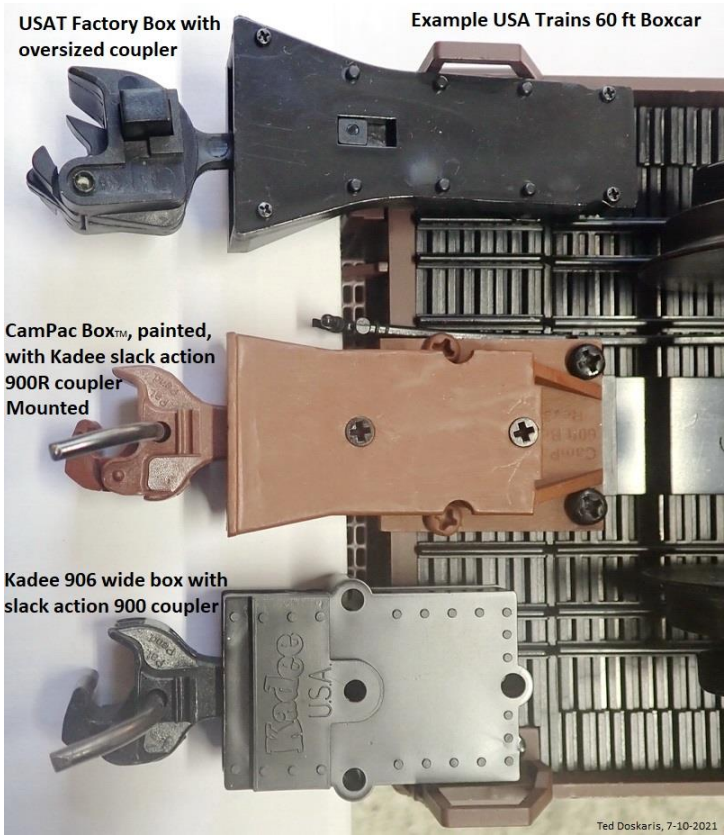
Preface

USA Trains 1/29 scale "Ultimate Series" 60 foot boxcars are factory equipped with body mounted knuckle couplers (though oversized) housed in prototypically looking “bell mouth” boxes equipped with spacers compatible for low mount USA Trains rolling stock couplers. The spacers, when removed, allow the coupler to better conform with more commonly used body mounted couplers of other brands more close to prototypal scaled height from the railhead.

The factory boxes are designed to functionally emulate impacts like a prototype cushion frame car; however, prototype cushion cars would absorb both impact / push and tension / pull forces. In contrast, Kadee slack action couplers don’t absorb impacts, but do work in tension.

USA Trains 60 foot boxcars are not advertised or promoted to accommodate aftermarket body mount Kadee 906 coupler boxes like many of their other cars.



When desiring to use Kadee couplers, now available via Colin Camarillo’s website, are 3-D printed *bell mouthed* CamPac direct fit boxes (no adapter spacers needed) designed with a relatively slim housing which accept the Kadee 900 / 900R centerset (no offset) “G” scale AAR type slack action coupler used in the Kadee 906 box.

(**The CamPac box is not designed to accept the older Kadee couplers with bulkier rectangular shank used in the 830 box. Though it can fit in the box, its swing will be severely limited.**)

Notes:

- The CamPac box is mounted to the chassis floor in the same place as the USA Trains spacer, but adds an additional screw to fasten the box at the end bulkhead to correct for intrinsic downward chassis tilt & flexing needed for coupler leveling. Accordingly, the installer must drill a new hole & tap it to accept the added screw; hence, **a #50 drill and #2-56 tap will be needed**.

The USA Trains 60 ft boxcar chassis where the coupler box is mounted is predisposed with a downward tilt and is too flexible. This is be corrected when mounting the CamPac box™ with added end bulkhead screw.

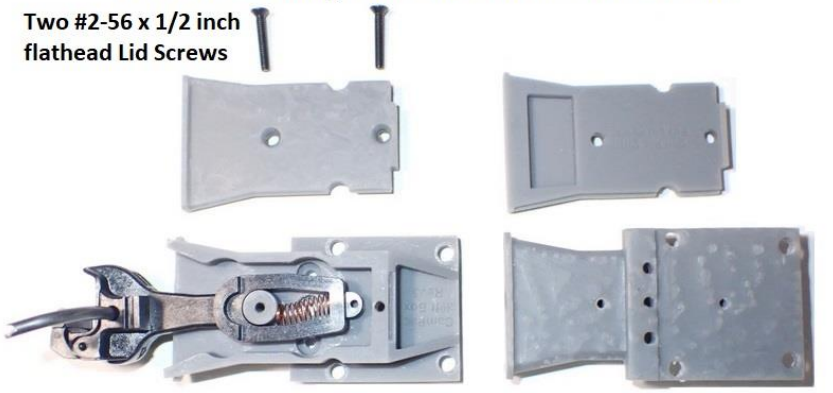
- FYI, Unlike other USA Trains cars with all metal 100 ton trucks, the 60 ft. boxcar otherwise same trucks include a factory spacer hidden between its bolster and each side frame spring perch. The spacers are to be left in place.

CamPac Kit Parts

The CamPac kit includes two (2) 3-D resin printed direct fit (no spacers needed) CamPac coupler boxes & lids and screws **The installer is to obtain a Kadee 900 or 900R*ust*** coupler pair that includes springs. – to be installed <u>after</u> box is mounted on car chassis floor.

Screws for Mounting CamPac Box™ to Chassis & Lid to Box

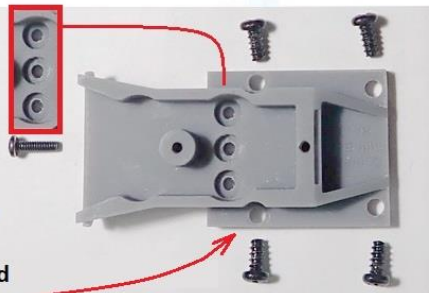
Two #2-56 x 1/2 inch flathead Lid Screws



Coupler shown fitted in box, but to be installed <u>after</u> box is mounted on chassis

One #2-56 x 5/16 inch pan head screw for chassis bulkhead fastening in one of 3 holes - typically center hole

Four M3 x 6mm pan head USA Trains factory spacer screws can be used to mount box; however longer substitute screws are preferred, particularly at the forward holes where minimal head diameter must be considered, too.



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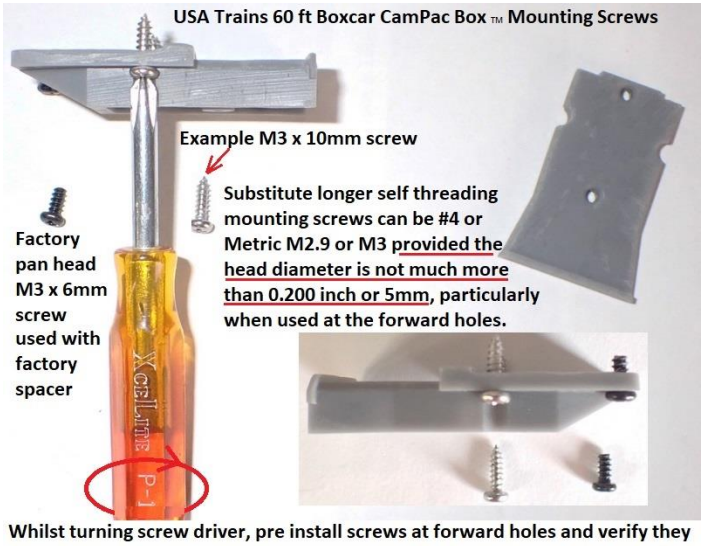
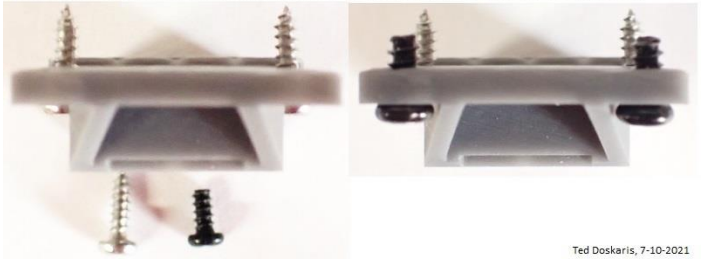
USA Trains 60 ft Boxcar CamPac Box ™ Mounting Screws



Whilst turning screw driver, pre install screws at forward holes and verify they penetrate in parallel. If head diameter is too large, they won't be parallel.



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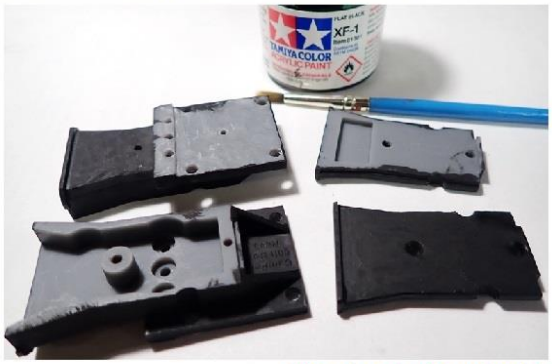
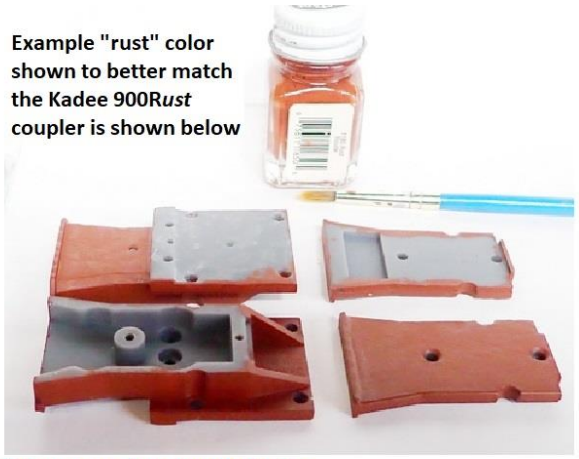
At time of order, inquire and request what possible substitute screws may be available.

Painting the Box

The CamPac Box™ & Lid can / must be painted separately to a desired color before installation on the car's chassis and then the coupler in box - example black shown below



Example "rust" color shown to better match the Kadee 900R*ust* coupler is shown below



Note that the lid underside edge surround is to be painted, too, as it will show once fastened to the box.

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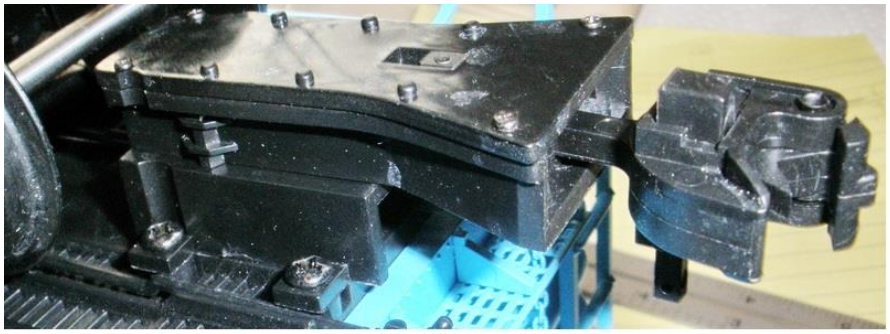
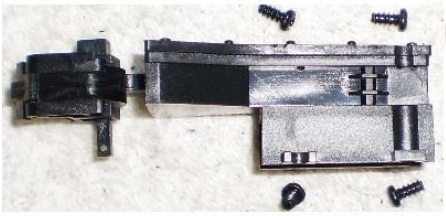
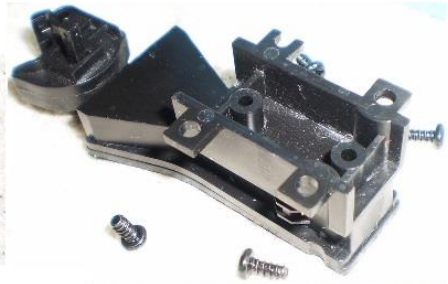
Car Preparation

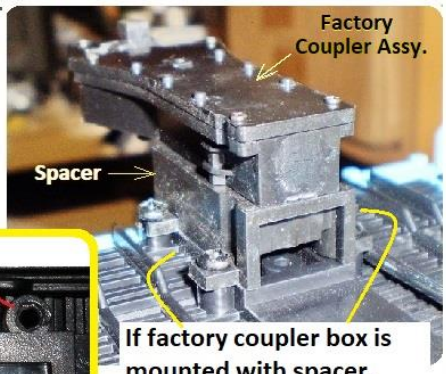
Remove factory coupler box assemblies (but save screws). ***No need to remove trucks***.



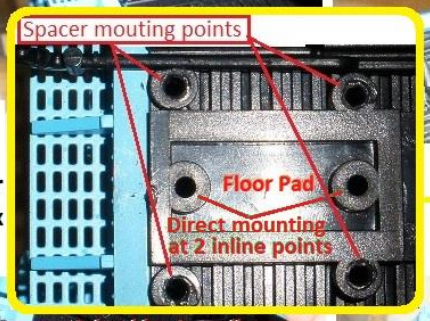
USA Trains Cushion Coupler Assembly with factory Spacer





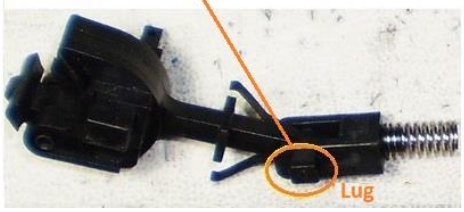


Removing USA Trains 60 ft boxcar coupler box



If factory coupler box is mounted with spacer, remove 4 screws at base.

If box directly mounted, remove cover and coupler within, then remove 2 screws at bottom of box.



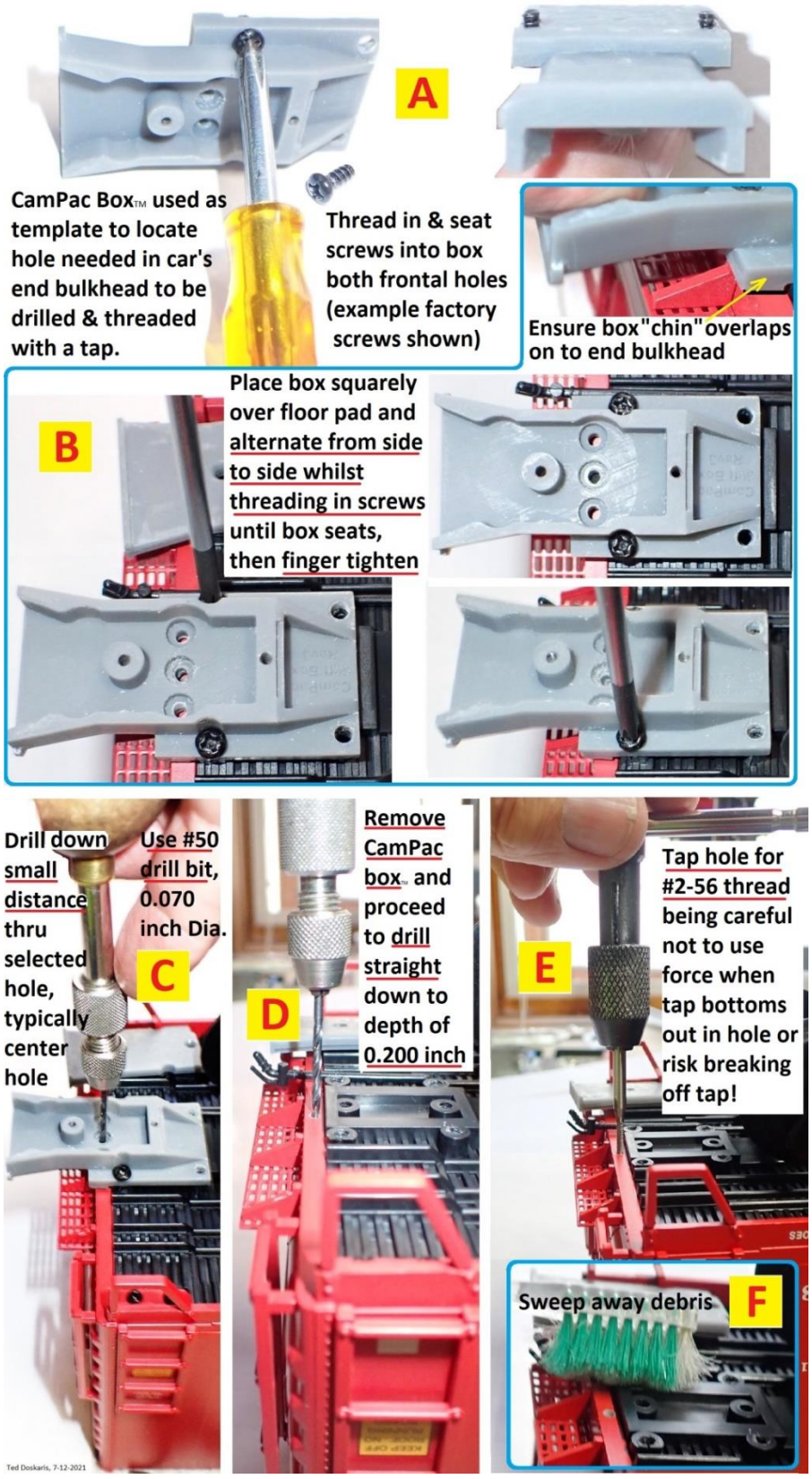
Drill & Tap End Bulkhead Fastening Hole, *same both ends of car*

Following the steps as illustrated, the CamPac Box™ can be used as a template to accurately establish the location of the bulkhead end sill hole needed to be drilled & tapped for a #2-56 machine screw. (Using a self-threading screw could risk splitting the end bulkhead.)

Accordingly, the box frontal holes are purposely slightly smaller in diameter than its rear holes. This provides for a tighter tolerance so one of the 3 recessed holes in the box pocket will be more accurately in the center of the bulkhead's width.

The center hole in the box pocket is normally to be used, but the two side holes are provided in the event the drill or tap should break-off within the hole.

When drilling (shown with pin vise) and tapping, be very careful to maintain a straight attitude, and don't use too much force when turning the tap as it bottoms within the hole. (The hole depth can be more, though not needed for the screw used, but then the risk of breaking the drill or tap could increase because the plastic bulkhead is rather hard.)



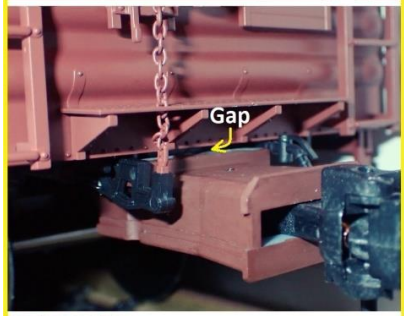
After understanding advisory illustrated below, *then follow the detailed installation on next sheet*

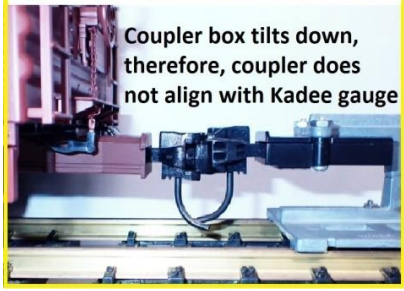
CamPac Box - **IMPORTANT PRE INSTALLATION ADVISORY** -
Having previously drilled & tapped bulkheads' end sill hole

The chassis / floor ends must be pressed down ***whilst mounting the CamPac Box*** so it's coupler can align with Kadee gauge, otherwise the box & coupler will tilt down toward the track

This column (outlined in yellow) shows what can happen if chassis is not sufficiently pressed down whilst mounting coupler box

Column below (outlined in green) is what to anticipate for correct installation

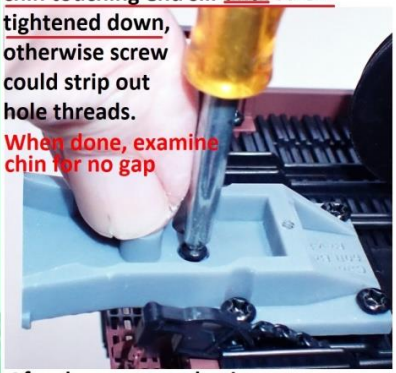




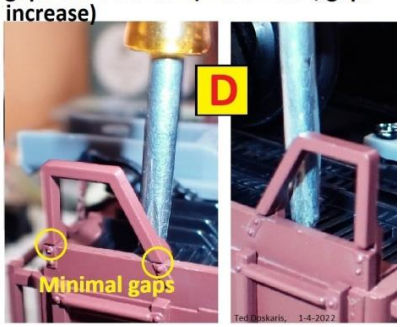
Box chin is to go over end sill whilst overlapping mounting pad

With box fastened to mounting pad, it must be pressed & held with its chin touching end sill until screw tightened down, otherwise screw could strip out hole threads.

When done, examine chin for no gap

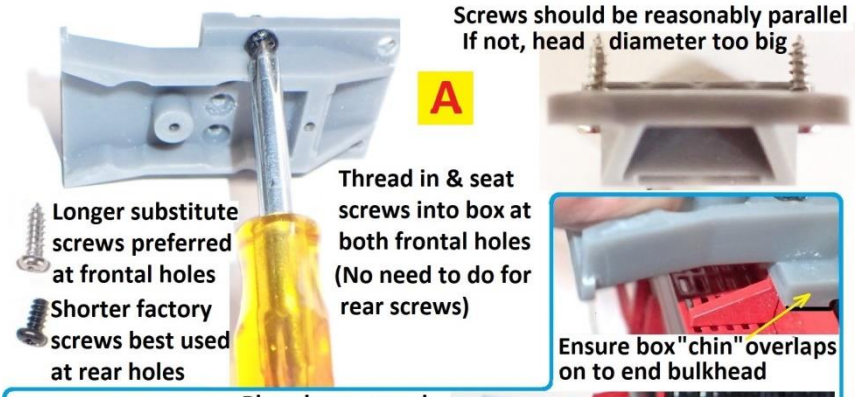


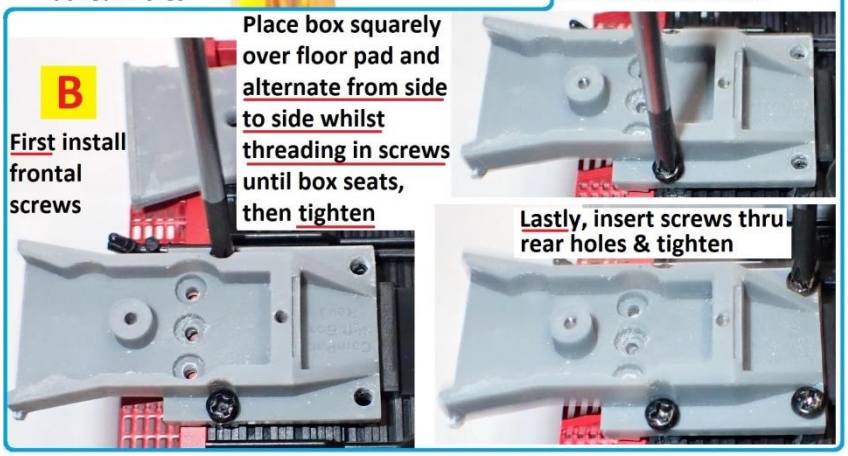
After box mounted, stirrup screws to be tightened just enough for minimal gaps at side of car (if too much, gaps increase)

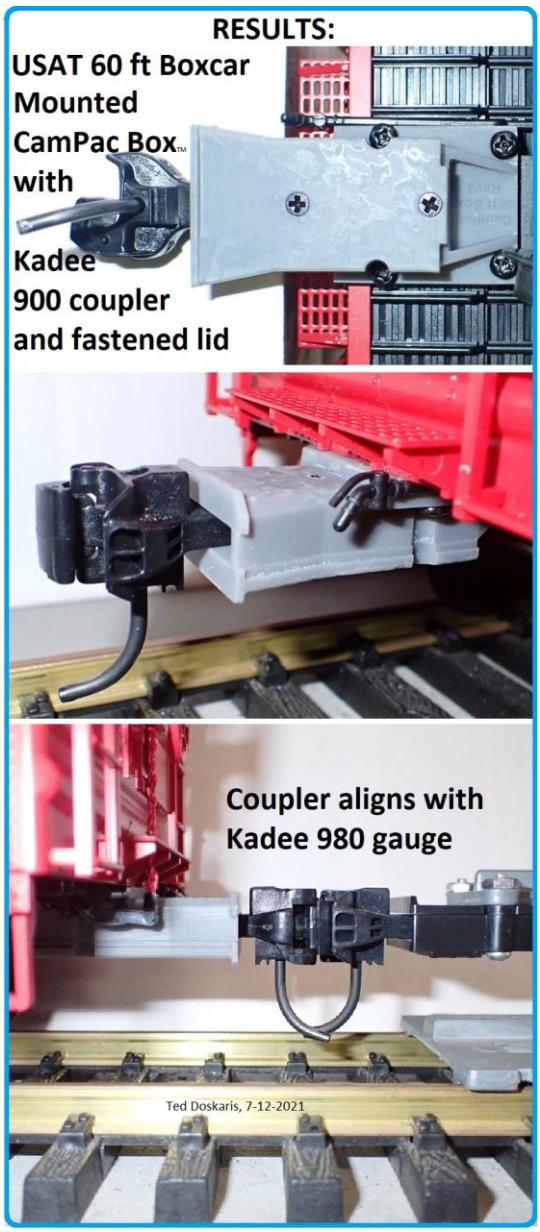


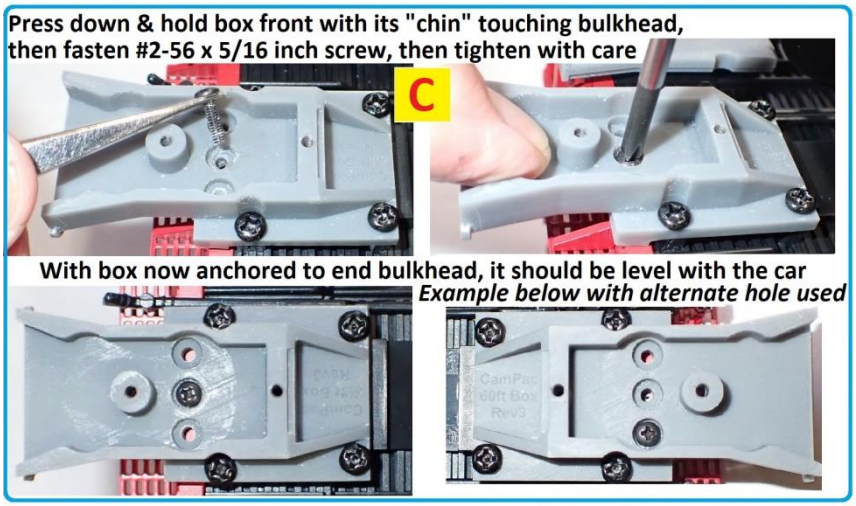
CamPac Box™, Coupler & Lid Installation

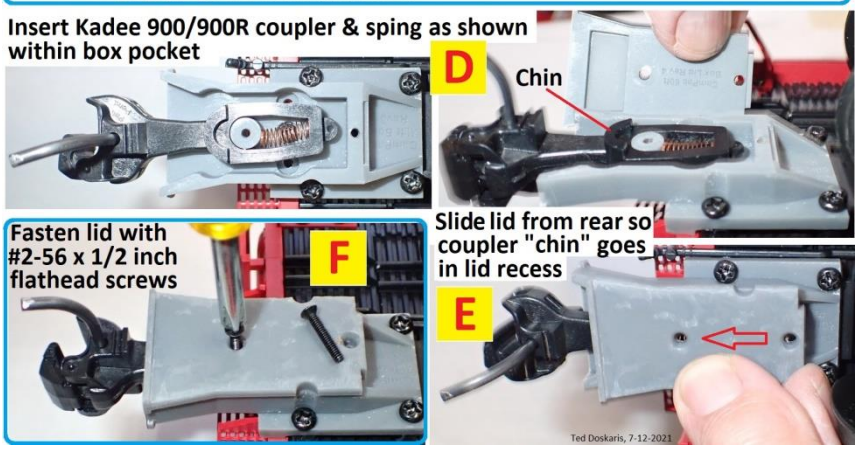
Install box, coupler & lid as illustrated the same way on both ends of the car.











When done, re-attached brake components if they had been dislodged and finger tighten foot stirrups' screws – *as illustrated in advisory shown on sheet 6.*