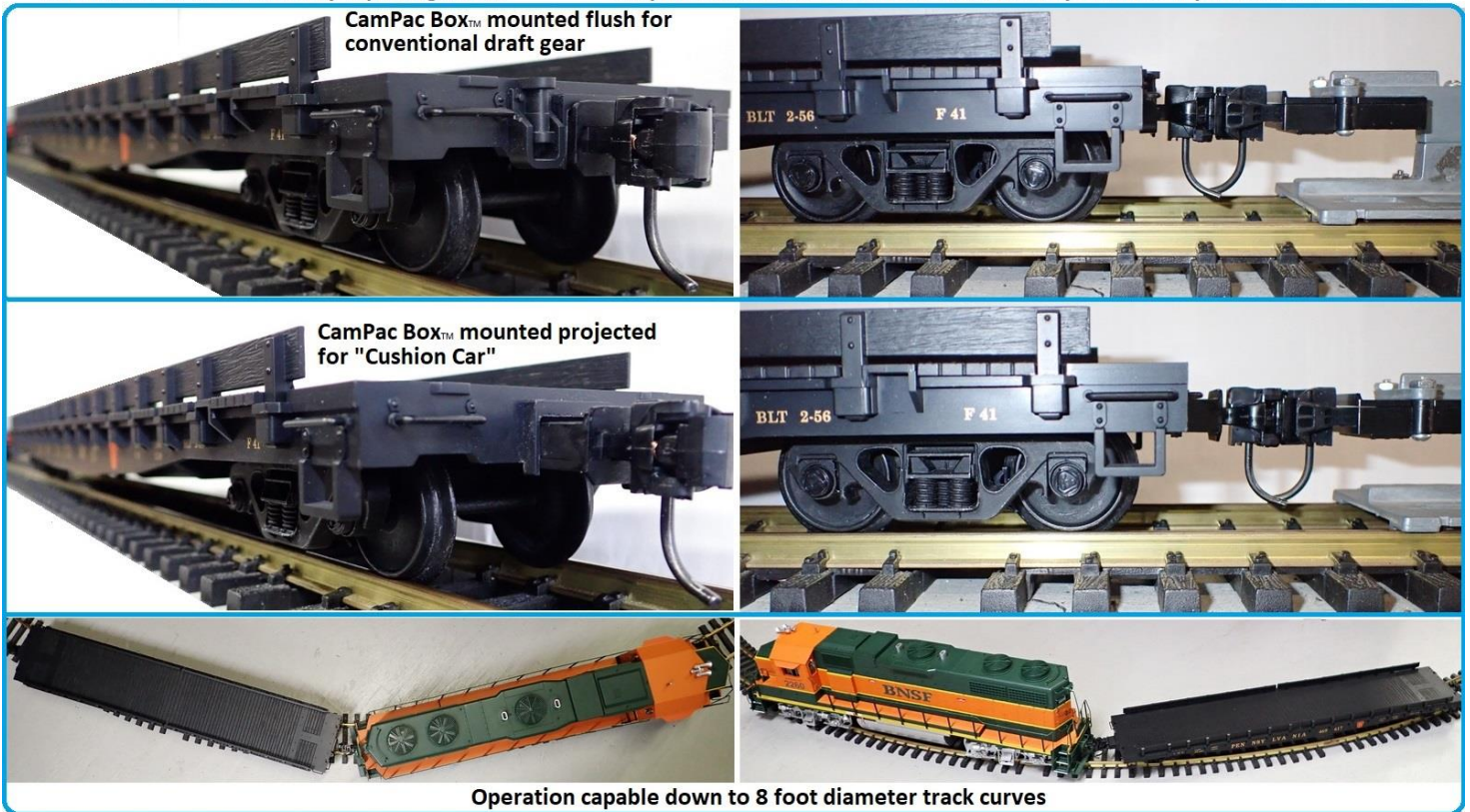


LGB 50/53 foot Flat Car CamPac Box™ Install Guide

Ted Doskaris, 5/16/2021

LGB flat car to be lowered by replacing trucks

Couplers are Kadee* centersets fitted in body mount 3-D printed CamPac Boxes™



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

Preface

LGB trucks do not appear to accurately replicate prototypes that this 1/29 scale 50 foot (aka 53 foot) flat car is modeled from. Factory configurations include a car with folding ramps for piggy back trailer and a car with bulkhead ends. The car represents a transitional era welded side (no rivets) car possibly having "hot box" or "roller bearing" type trucks. The LGB "roller bearing" trucks that come with this car (shared with other American LGB cars, including 40 footers) have an intrinsic design that raises the car high off the railhead. Accordingly, these trucks are to be replaced with more realistic trucks serving to lower the car about 2/10 inch for a more realistic height from the railhead that's, also, behooving to do when employing body mount centerset couplers. In this regard, the factory truck mount hook & loop couplers along with the trucks are done away with - being replaced by direct fit body mount 3-D printed CamPac coupler boxes which accept more realistic Kadee* centerset (no offset) "G" scale AAR E type knuckle couplers.

Replacement Trucks

The installer can choose from, and is to obtain, one of the following replacement brands of trucks:

- USA Trains Bettendorf plastic "hot box" truck #2033 – pair needed *if willing to slightly modify*; [wheels #R2093](#) *not included & sold separately*; **OR**.
- Aristo-Craft Bettendorf plastic "hot box" truck pair #ART-29101 - may *not* be available; **OR**
- Aristo-Craft 100 ton plastic roller bearing truck pair #ART-29100 - may *not* be available; **OR**
- [Kadee 70 ton #973](#), all metal roller bearing truck pair that includes metal wheels; **OR**

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

- USA Trains Intermodal car plastic [roller bearing truck #R2034](#) – pair needed - [wheels #R2093](#) *not included & sold separately*. (**Note:** The LGB metal clad wheels, *albeit oversize & light weight*, which may or may not come with the car can be fitted in the Intermodal truck to save on cost if already in possession.)

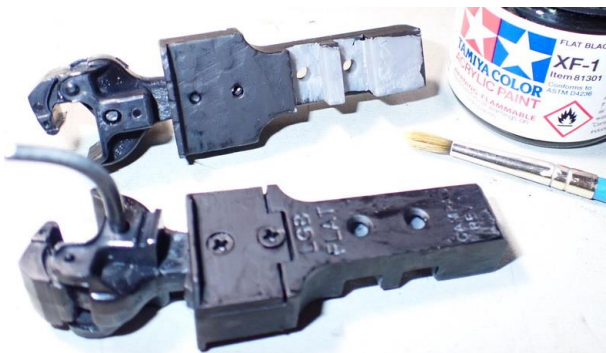
CamPac Kit Parts

When choosing USA Trains Intermodal truck, *Wheels used must be specified at time order:*

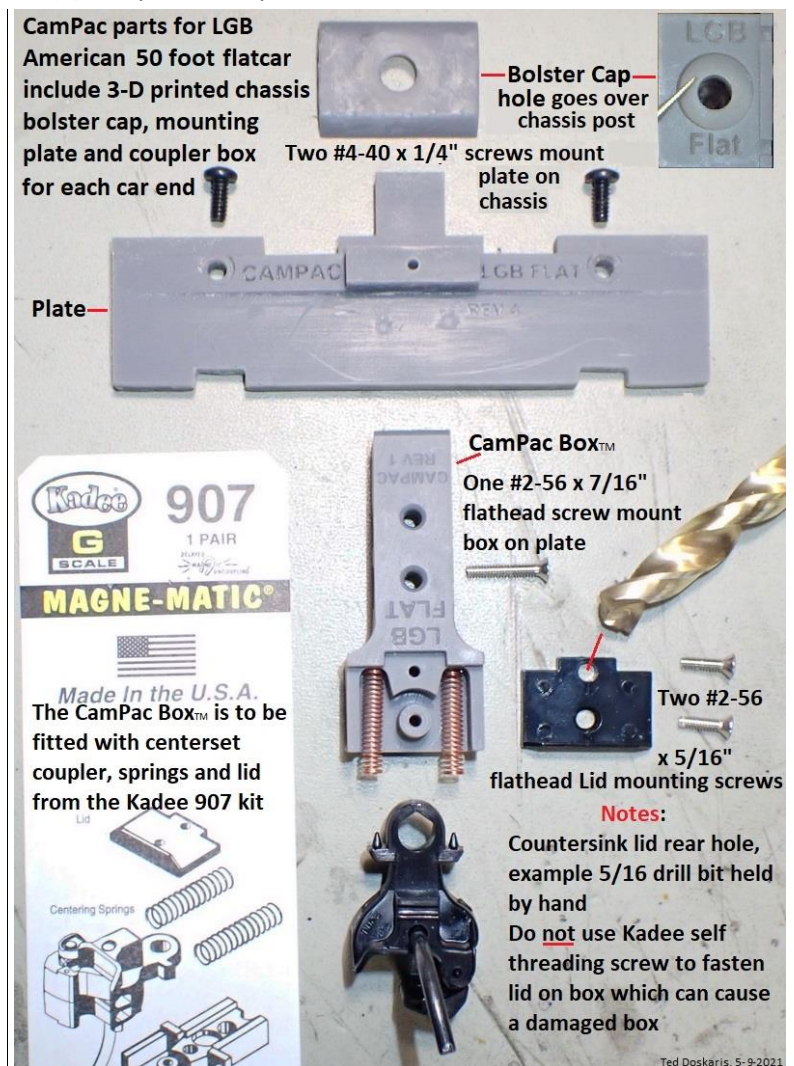
- If using LGB large diameter metal wheels, the CamPac kit is to further add eight (8) axle tip spacer washers, #4 size, 0.047 inch thick, [DigiKey P/N 36-345-ND](#), and add two (2) truck spacer washers, 0.032 inch thick, [DigiKey P/N RPC10115-ND](#). **OR:**
- If using USA Trains metal wheels, the CamPac kit is to add two truck spacer washers (2) 0.062 inch thick, [DigiKey P/N RPC10185-ND](#)

The CamPac kit, regardless of truck brand, includes two (2) 3-D printed direct fit (no spacers needed) CamPac coupler boxes, **AND** two (2) 3-D printed mounting plates, **AND** two (2) 3-D printed caps to fit over the LGB chassis bolsters.

The installer is to obtain the Kadee 907 kit and assemble the boxes as illustrated. They can be pre painted to desired color.



The CamPac kit also includes screws to fasten lid and mount boxes on the plate and mount plate on the car along with hardware specific to the installer's chosen trucks at time of order.

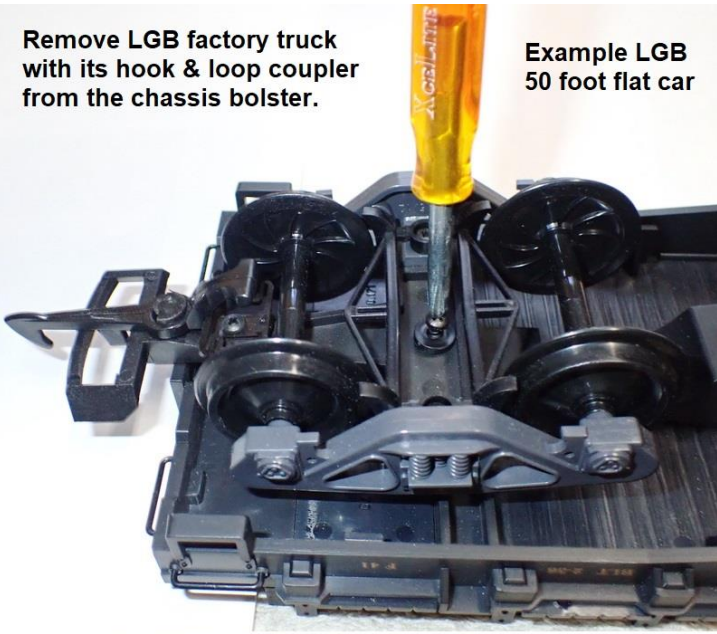


The CamPac assembled coupler boxes, mounting plates and bolster caps will be installed later

Car Preparation

Remove LGB factory truck with its hook & loop coupler from the chassis bolster.

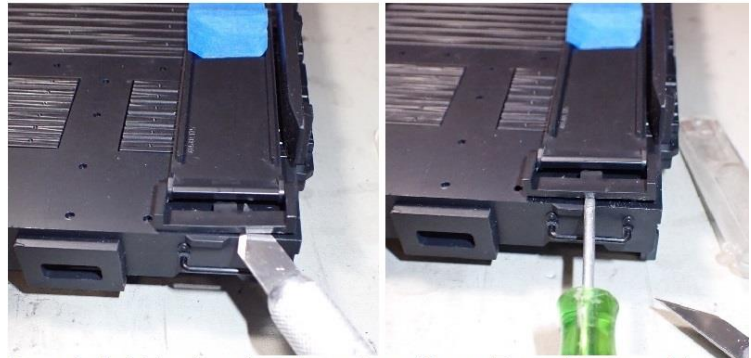
Example LGB 50 foot flat car



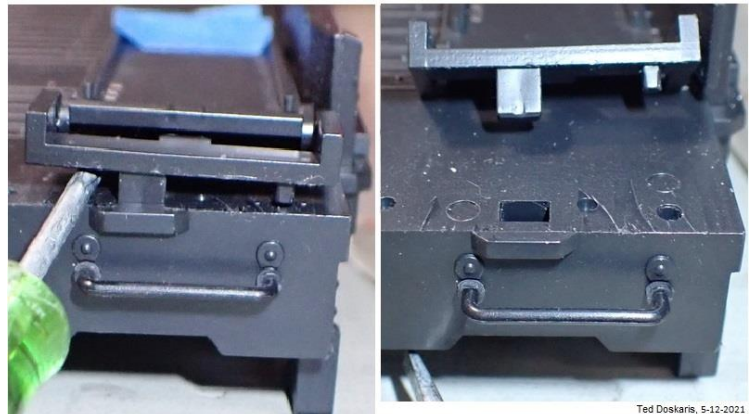
The LGB 50 foot Flatcar Ramps should be kept from deploying when working on the car - example painters tape used to temporarily secure them.



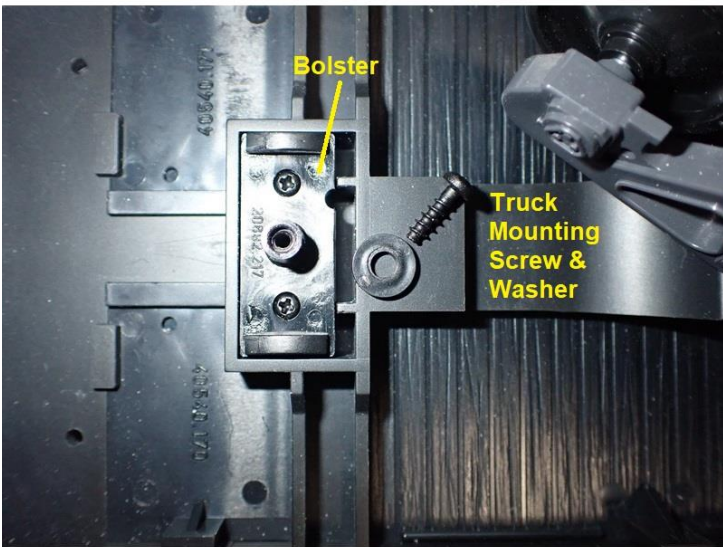
When desiring to use LGB or aftermarket bulkhead ends on the flatcar, the ramps are to be removed - example method shown. The hinged end is press fit into the car's deck.



Ramp is held in place by a large & small peg. Example removal is by use of XACTO blade & thin flat blade screwdriver to gently pry



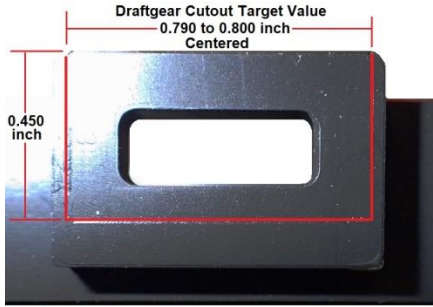
Ted Doskars, 5-12-2021



Save the LGB screws & washers; one or both will be used to mount replacement trucks.

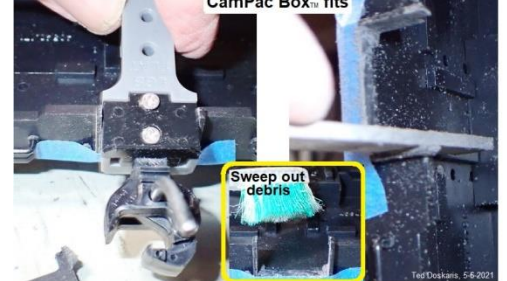
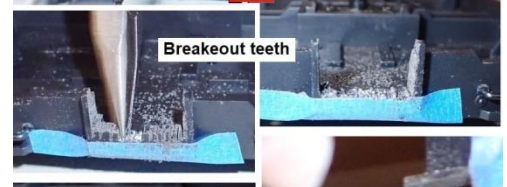
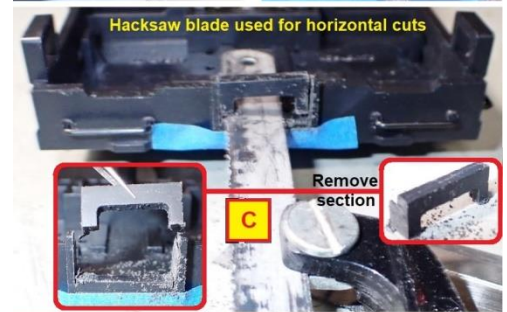
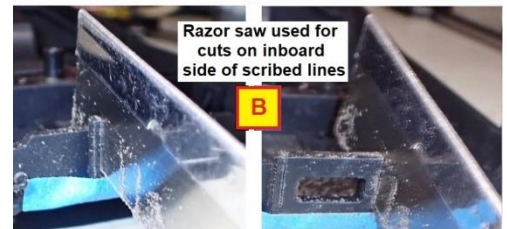
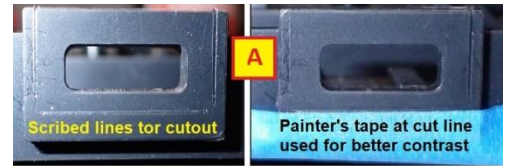
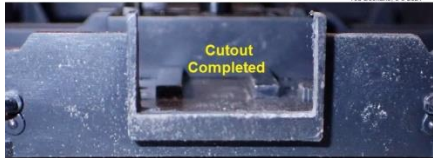
Draft Gear Cutout

Draftgear Cutout Target Value
0.790 to 0.800 inch
Centered



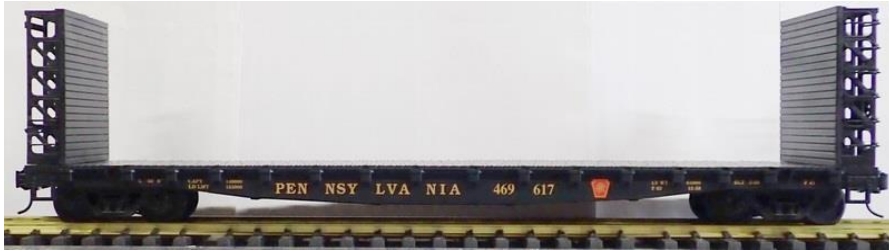
At each end of the car, the draft gear opening is to be "U" cut and enlarged 0.790 to 0.800 inch wide by 0.450 inch deep to accept the CamPac Box™

Illustrated is an example method.



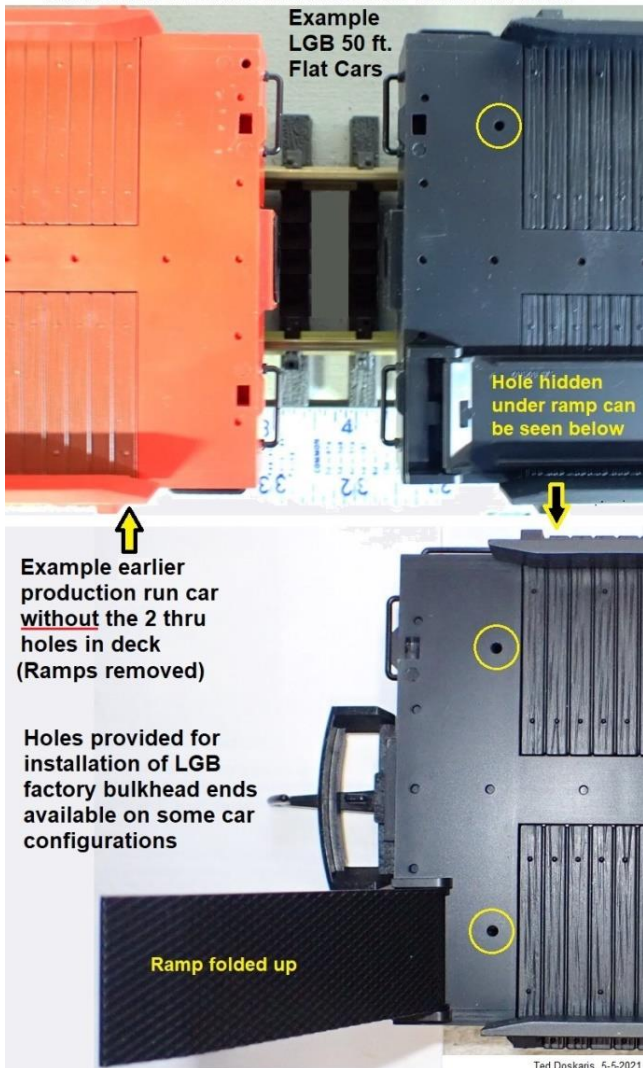
CamPac Plate Mounting

The CamPac plate is fastened to the car chassis. The CamPac Box™ coupler assembly is to be mounted on the plate. The plate is to be fastened with screws (or can be glued) to the underside of the chassis the same way at either end of the car. Cars having bulkhead ends, either LGB factory or aftermarket, can be accommodated when fastening the plate with screws, though differing having a smaller diameter and longer.



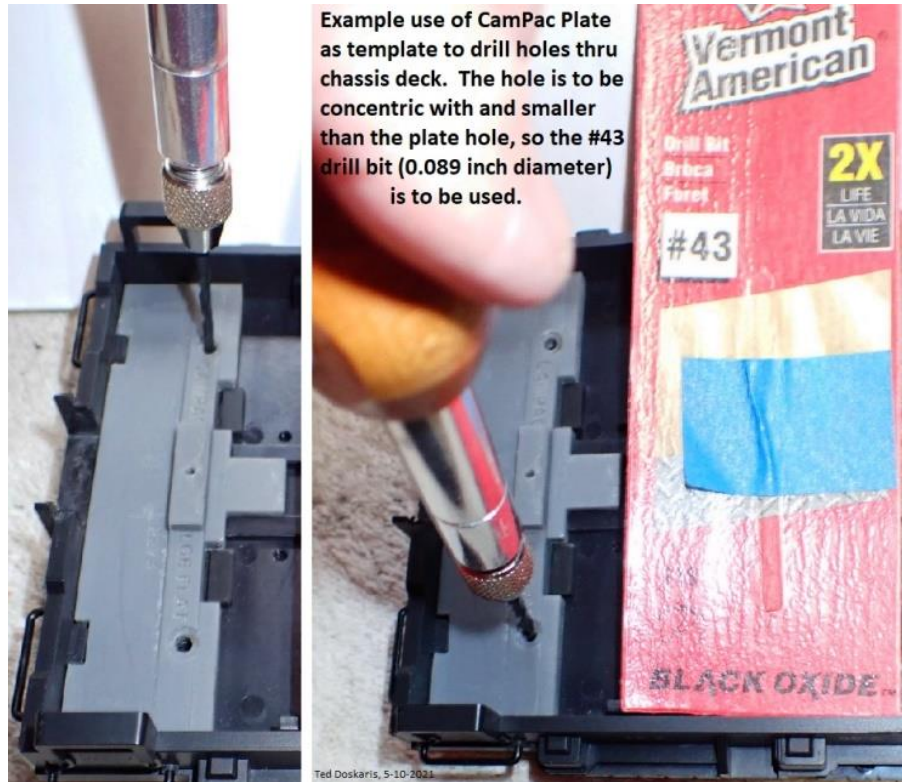
Cars with bulkheads are further described in the Appendix - near the end of this installation guide.

LGB 50 foot flat car may or may not have deck holes intended to facilitate installation of Bulkhead Ends




How the plate can be mounted is affected by the production era of the car as illustrated to the left showing the cars' deck. Accordingly, the plate can be mounted by simply fastening with screws to cars that have deck holes or by gluing – both methods illustrated on the next sheet.

To forego having to glue the plate, it can be fastened to the car without holes if willing to drill the holes, where the plate can be used as a template - shown below. (The plate is a snug fit and may “snap-in” when seating it within the chassis.)



Mount the CamPac Plate by Screws or Glue

Illustrated to the right is method using glue to fasten plate
Note: The plate should be trial fit before fastening it. 

Illustrated below is easier method using screws to fasten plate when deck holes present. 



Trial fit CamPac Plate before gluing to ensure it seats perfectly flat



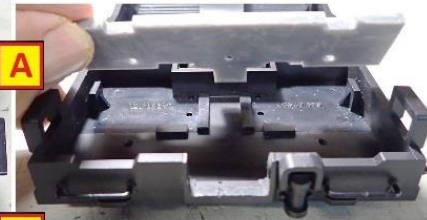
Apply glue to chassis surface, if holes present leave some space so glue won't ooze thru onto deck side

Keep in mind the glue's dry time during installation process

CamPac Plate Installation Sequence
 Example car shown with 2 factory deck holes provided for optional bulkhead ends to be utilized for fastening plate with #4-40, 1/4 inch long screws



Ensure surfaces & crevasses are clean of any debris



A



Position & seat plate (plate fits snug and may "snap" in place)



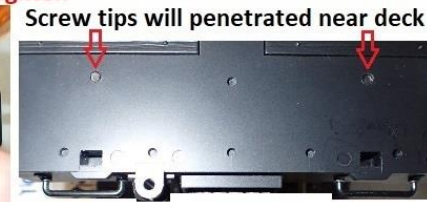
C

Whilst pinching one side to chassis, thread in screw finger tight, and then do same on other side

Once screw head seats, do not over tighten



D

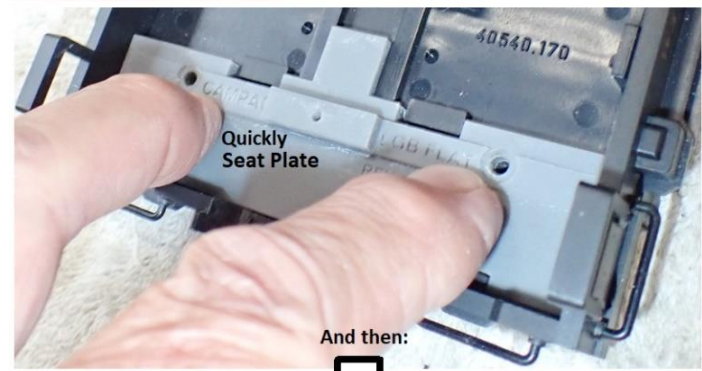


Screw tips will penetrate near deck



Quickly Seat Plate

And then:



Quickly clamp both sides until glue completely dries

Ted Doskaris, 5-11-2021

Ted Doskaris, 5-10-2021

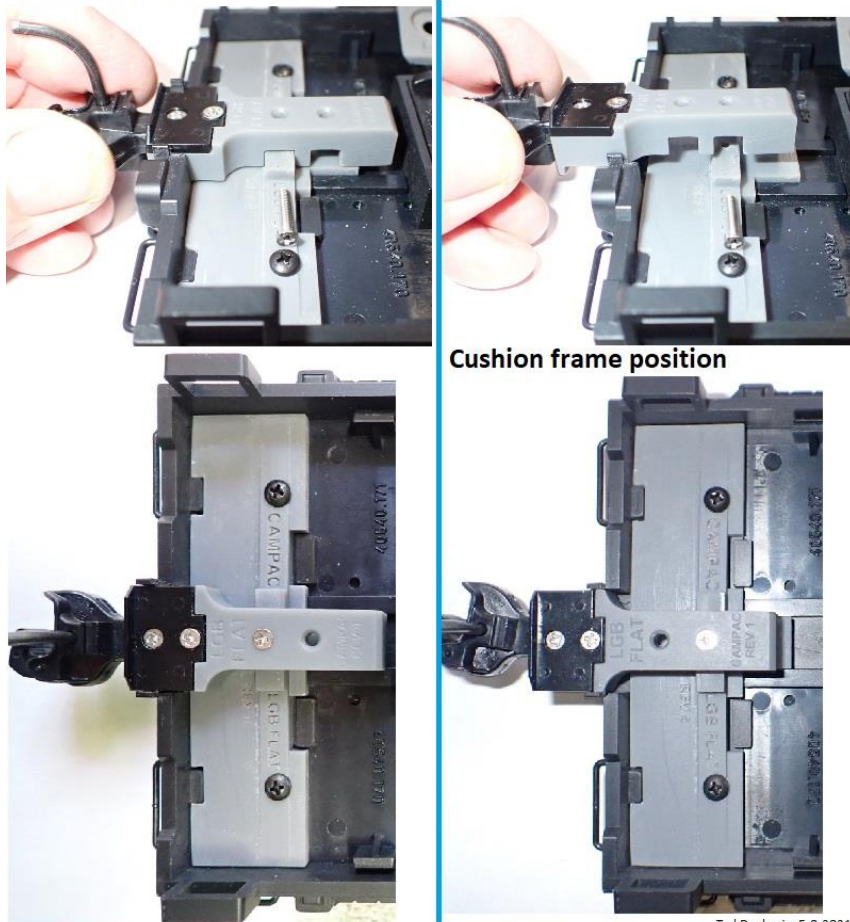
Install CamPac Box™ - on both ends of car the same way

The box is designed to be positioned to emulate *Hydra Cushion*, *Shock Control*, or other type cushion underframe cars.

Fasten the box to the plate with one #2-56 by 7/16 inch flat head screw.

Do not over tighten screw because it could distort the couper box.

The CamPac Box™ can be mounted for conventional draft gear position or extended for a "cushion frame" car



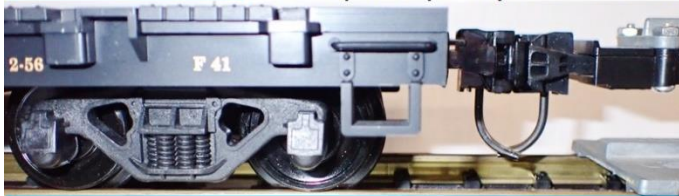
Ted Doskaris, 5-8-2021

Choose a truck with wheels - required when body mounting CamPac Boxes™ from the selections shown below.

LGB 50 foot Flatcar Selected Replacement Truck Choices to Lower Car

Bolster coupler tangs to be removed from trucks

USA Trains Bettendorf Plastic Truck, each #2033 - pair needed, with required separately sold USA Trains metal wheels, #2093



"Hot Box" type truck

Requires truck bolster's 4 ribs to be shaved off



Aristo Bettendorf Plastic Truck, pair #ART-29101, with required Aristo metal wheels #ART-29111B

"Hot Box" type truck



Aristo 100 ton "Roller Bearing" Plastic Truck, pair #ART-29100, with required Aristo metal wheels #ART-29111D



Kadee 70 ton "Roller Bearing" all Metal Truck, pair #973, includes Kadee metal wheels



USA Trains Intermodal Car "Roller Bearing" Plastic Truck, each #R2034 - pair needed, with required separately sold USA Trains metal wheels, #R2093

Requires truck spacer washer, 0.062 inch thick



USA Trains Intermodal Car "Roller Bearing" Plastic Truck, each #R2034 - pair needed, with LGB oversize metal clad wheels transplanted from LGB truck

Requires truck spacer washer, 0.032 inch thick



Ted Deskaris, 5-13-2021

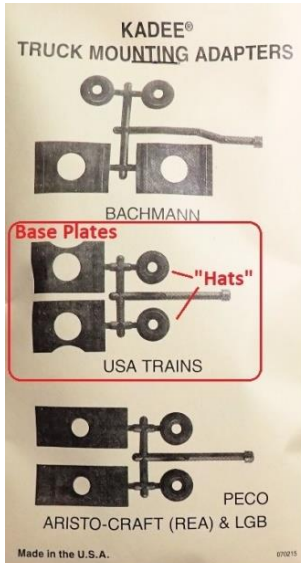
Truck Choice Considerations

If choosing USA Trains Bettendorf Truck:



If choosing Kadee 70 ton Truck:

Use the Adapter kit 's USA Trains "Hat" with ring made from a paper clip on its shank. The ring limits undesirable vertical truck slack when lifting up the car.



The Kadee #973, 70 ton trucks can be used on the LGB 50 foot flat car. An adapter kit is provided with the trucks. However, only the kit's "Hats", which Kadee intended for the USA Trains application, will be used for mounting trucks.



If choosing USA Trains Intermodal Truck:

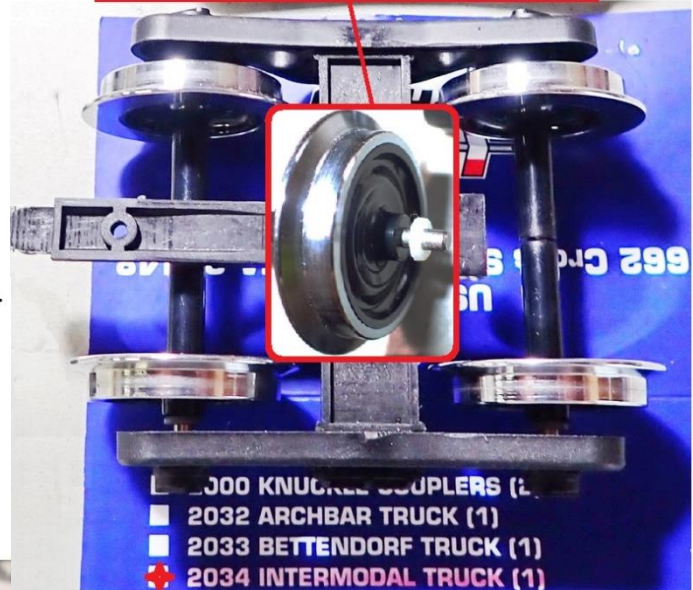
Remove coupler tang

If using LGB metal clad wheel, see Illustration below.

Transplanting LGB metal wheels to USAT Intermodal truck

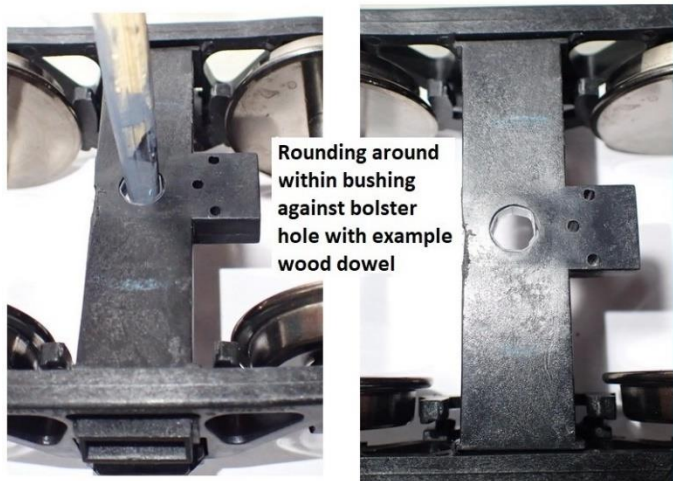
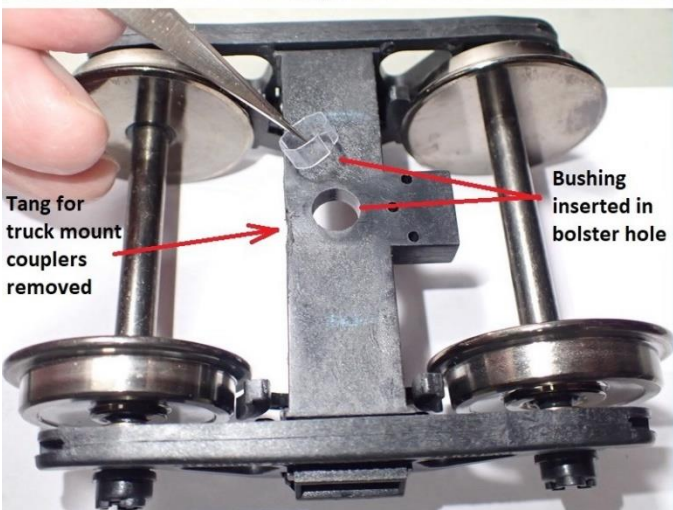
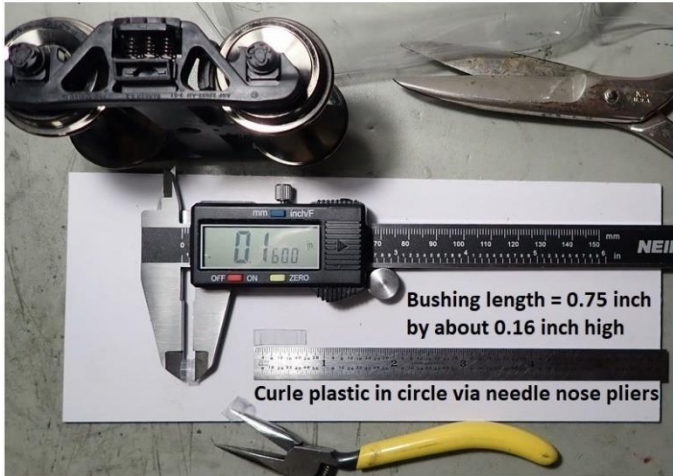


0.047 inch thick washer needs to be placed on axle tips to prevent excessive lateral displacement



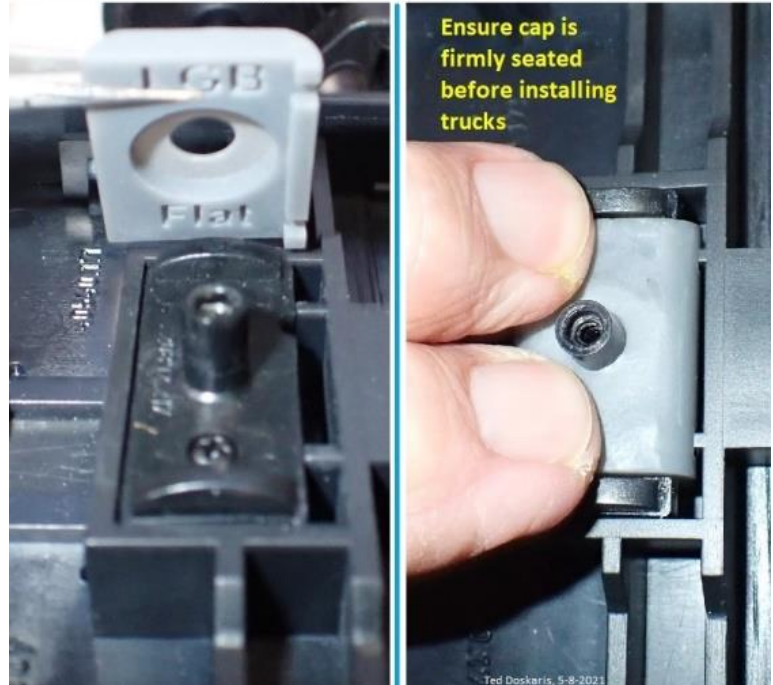
If choosing Aristo-Craft 100 ton Truck:

Installation of Aristo-Craft 100 ton roller bearing truck on LGB 50 foot flat car needs a thin bushing inserted into its relatively large bolster hole to prevent excessive lateral movement when mounting over / on the car's chassis post. The bushing can be made using a Kadee plastic box package by cutting it to the dimensions as illustrated below.



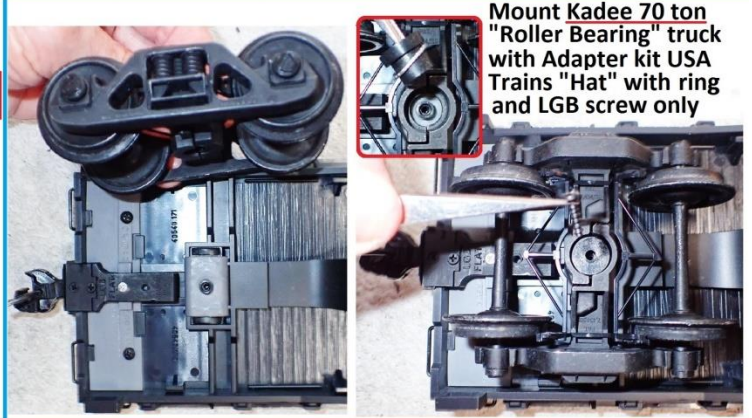
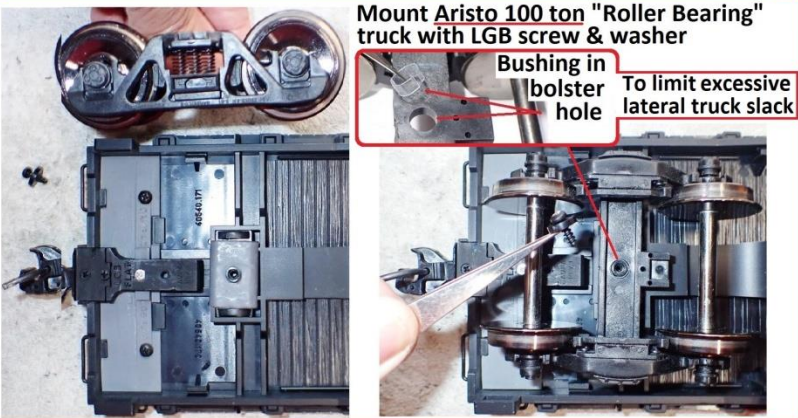
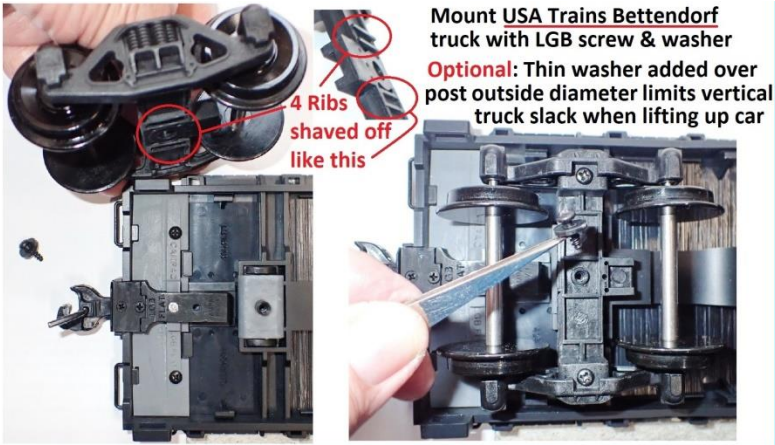
Install CamPac Bolster Cap on the chassis before mounting trucks – same at both ends

The CamPac Bolster Cap fits one way on the chassis recess as shown



Mount Truck of Choice

Each of the replacement brand choices of trucks is described in the below illustration.



The USA Trains Intermodal Car Truck Accommodates 2 Wheel Choices ↓ Or →



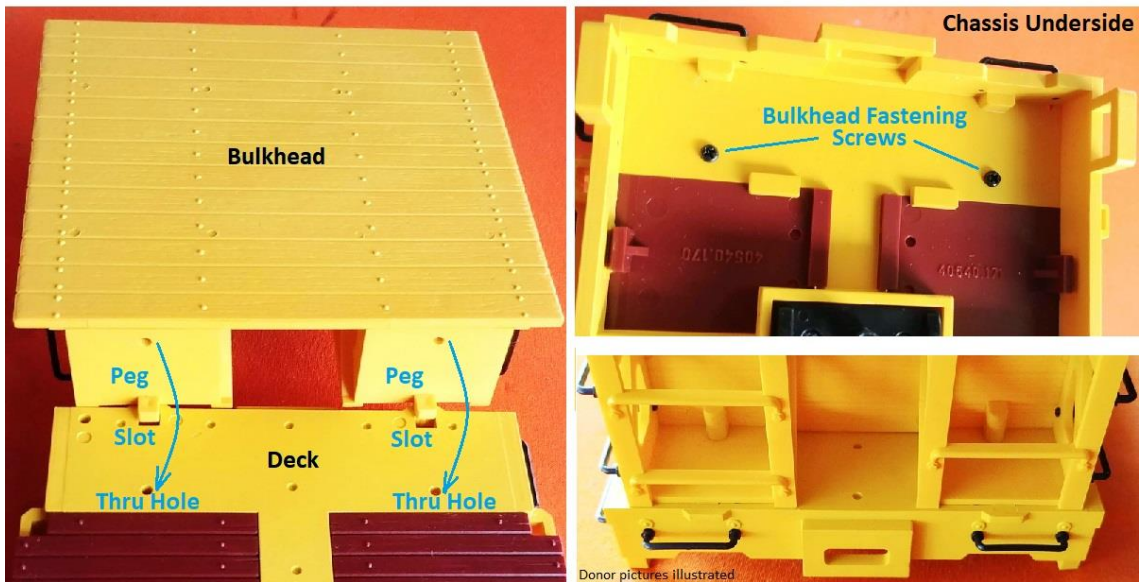
Ted Doskaris, 5-13-2021

Appendix – Bulkhead End Flatcar.

Cars can include factory LGB bulkheads and cars fitted with aftermarket 3-D printed bulkheads designed by Dan Gilchrist. Cars with end bulkheads can be equipped with CamPac Boxes™ & mounting plates using the LGB deck holes, but plates will be attached with longer, smaller diameter screws which also serve to fasten the bulkheads.



Attachment relationship of factory bulkheads shown below



The LGB bulkhead fastening screws could be used to fasten both the CamPac plate and bulkhead; however, they may be 6 to 7mm (about 1/8 inch) too short. If so, at time of order, request 4 screws: M2 by 14mm long.

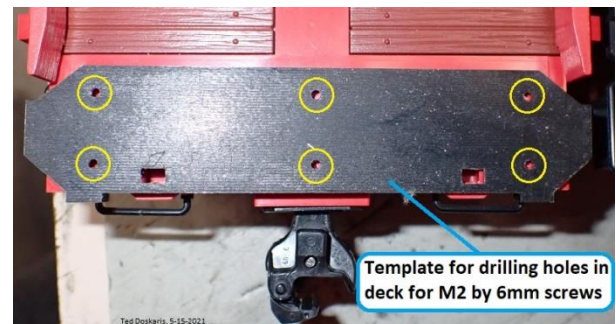
Aftermarket 3-D printed Example Bulkheads - *designed by Dan Gilchrist* are shown below.

Dan's downloadable [Software on Thingiverse](#) for bulkheads (devoid of vertical "sheets") are to be printed at the behest of the user. The example below shows the vertical "sheet" recycled from an Aristo-Craft 40 foot box car floor that was cut to fit and bonded back to back so its emulated wood grain appearance is seen on both sides. The bulkhead frame and "sheet" were spray painted to match the car, and then the "sheet" was CA glued to the bulkhead 3-D printed frame.



Along with downloaded software files for printing the bulkheads, includes a brake wheel and a "drill template" used to locate several holes on the car's deck intended for mounting the bulkheads using M2 by 6mm long screws. The bulkheads can also be glued to the deck, but this makes for an irrevocable installation.

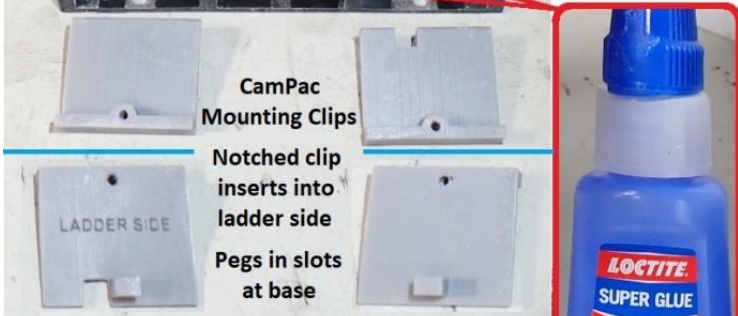
As an alternative to gluing or drilling more holes in the car's deck, CamPac 3-D printed bulkhead retaining clips are available that when inserted into the base of the bulkheads, will avail the use of the deck's existing holes intended for and to mimic the mounting the LGB bulkheads – described on next sheet There are two different clip types needed for each bulkhead, with one having a notch.



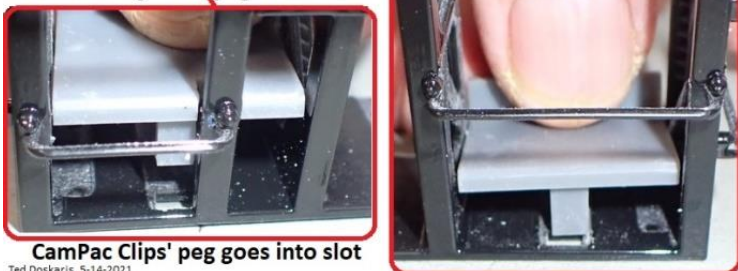
Optional CamPac Bulkhead Retaining Clips

Taking advantage of existing deck holes for mounting the 3-D printed bulkheads, the bulkheads' base needs to have 2 holes drilled, and then CamPac clips are to be glued on as shown in the illustration below.

LGB 50 foot Flatcar Aftermarket Bulkheads by *Dan Gilchrist*
An alternative mounting method using CamPac Clips

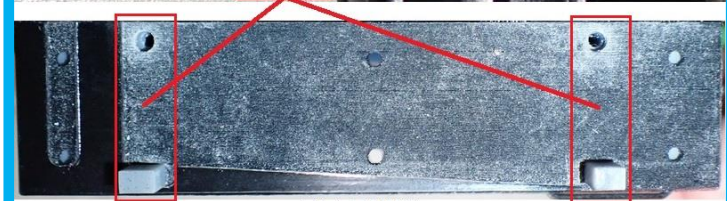
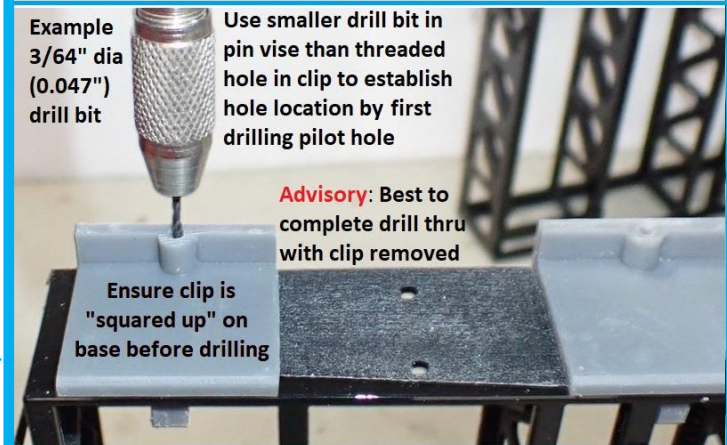
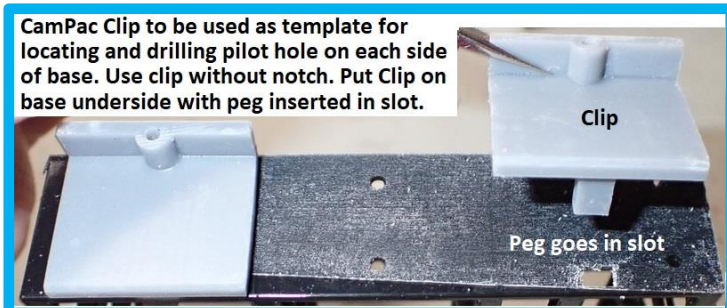


Bulkhead placed to overhang on table's edge for pegs insertion



Ted Doskaris, 5-14-2021

The bulkheads are mounted on the car using smaller diameter, longer M2 by 14mm screws thru the CamPac plate holes. At time of order, request CamPac Clips & 4 M2 x 14mm screws.



Ted Doskaris, 5-14-2021