

Installation Guide

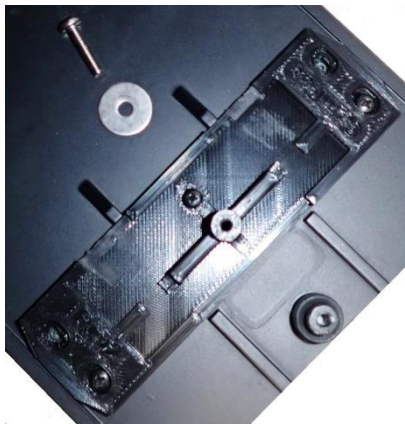
***Replacing Aristo-Craft Heavyweight Passenger Car 2 axle trucks
with USA Trains 3 axle metal trucks using CamPac Truck Mounting Adapter***

Ted Doskaris, 10/30/2022

From this:



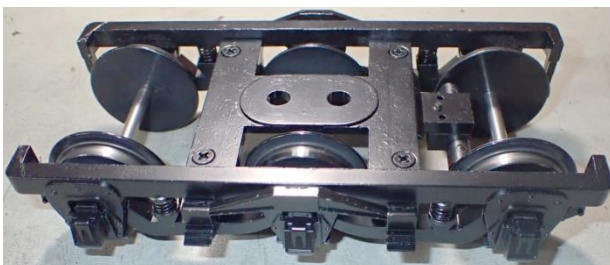
To this:



The heavier weight of the USA Trains metal trucks is also beneficial for improved car operational stability.



Aristo-Craft replacement 3 axle trucks are no longer produced; however, available [USA Trains Heavyweight passenger car 3 axle trucks](#) can be substituted (2 to be obtained by the installer) when using CamPac Adapters. (Trucks are not designed to accept tang mounted couplers.) For each Aristo Heavyweight car, 2 CamPac adapters are supplied with 2 #4-40 by 1/2 inch long screws to mount 2 trucks. Car operation is down to 8 foot diameter track.



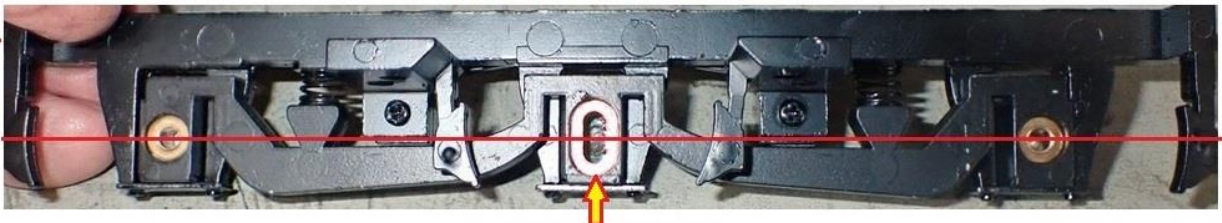
USA Trains Truck Advisory

USA Trains Heavyweight Passenger Car Metal 3 Axle Truck Characteristics



The center axle / wheels should vertically travel by gravity above & below with respect to the end axles / wheels. This is because there is an elongated center bushing in the sideframes where axle tips go into. Consequently, only the end axles are load bearing, being suspended with coil spring sideframes, so the truck can provide compliance on layout track work having reasonable crest & dip transitions.

Sideframe interior side, shown below

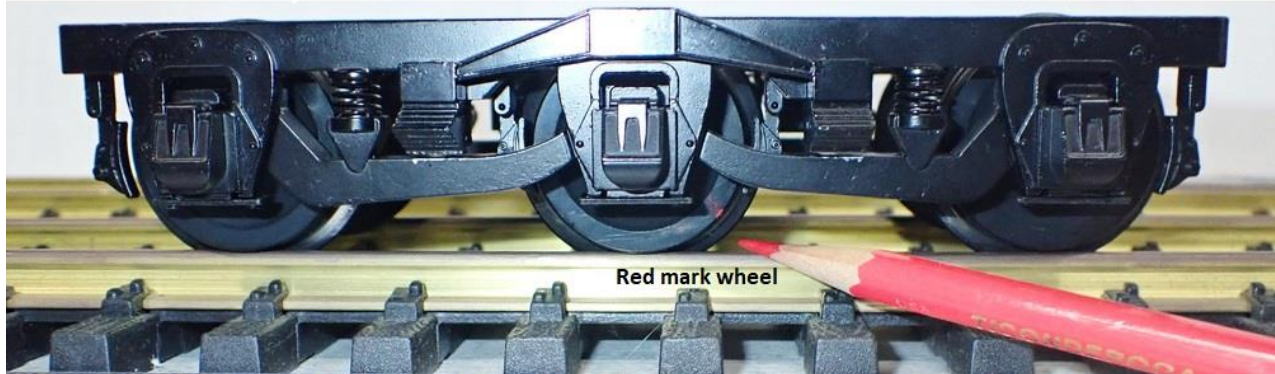


Elongated center bushing

Ted Doskaris, 7-21-2022

Inspect & Test USA Trains Trucks before installation

Testing USA Trains Heavyweight Passenger Car Metal 3 Axle Truck



Red mark wheel

With truck placed on track, verify center axle wheels tread touch railhead and rotate when truck moved



Example red marked wheel has rotated when truck moved to right

Ted Doskaris, 7-20-2022

If test fails, proceed to next page, *otherwise skip to page 5*

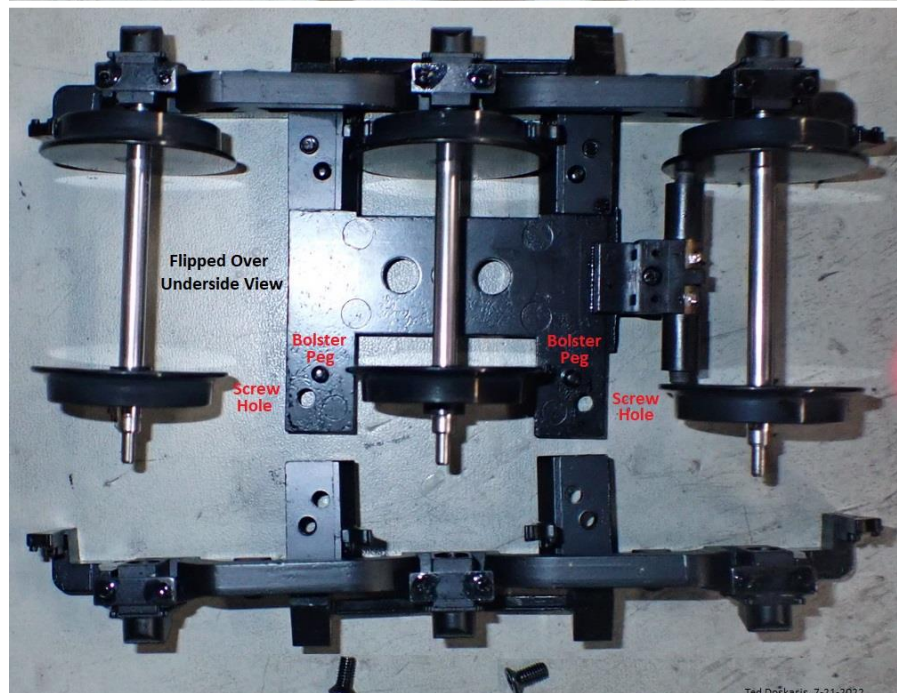
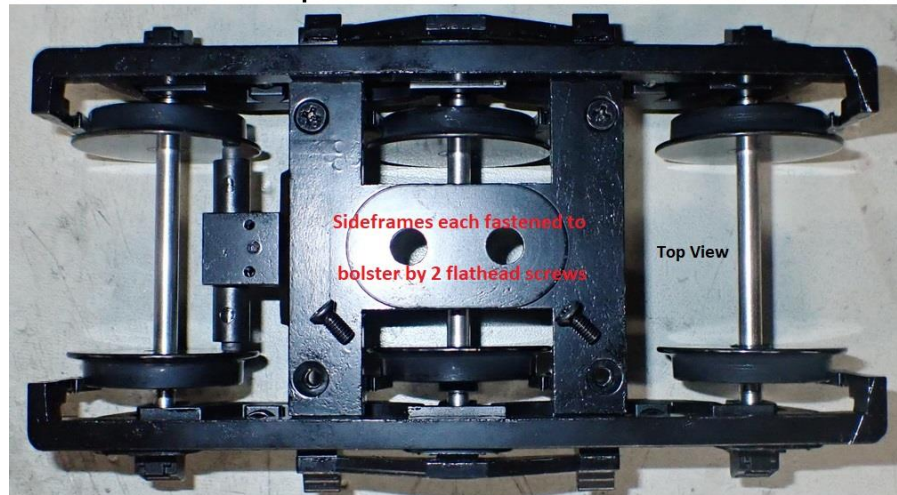
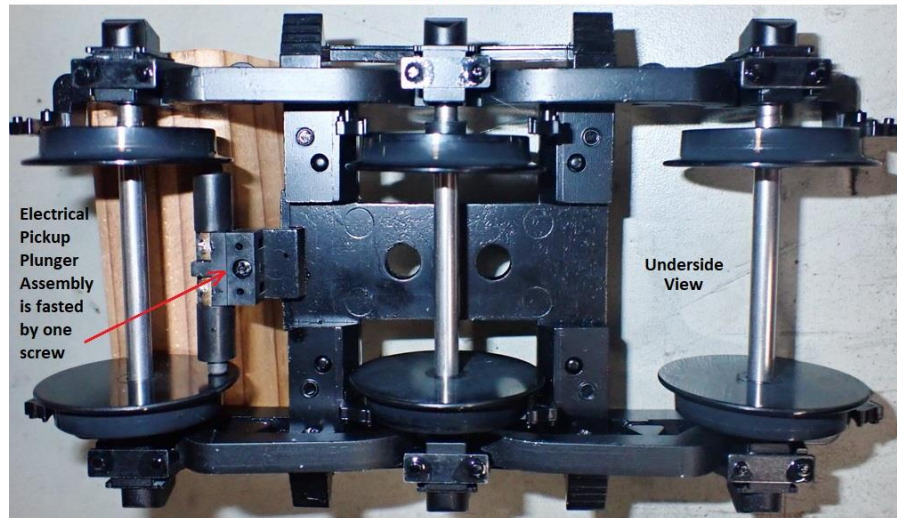
Inconsistent casting process of sideframe brake shoe/s can restrict center axle wheel vertical movement.

Remove sideframe/s so center axle wheels brake shoes can be trimmed - *illustrated on next page.*

Electrical track power pickup at wheel back sides at end axle is for lamps via plunger assembly - parts shown below



Sideframe Removal, USA Trains Heavyweight Passenger Car Metal 3 Axle Truck



Remove material from brake shoe/s- illustrated below (*painter's tape covers bushings to keep out debris*)

Example method to correct USA Trains 3 axle passenger car metal truck with limited center axle/wheel drop down



Metal castings can vary as to brake shoes attitude - as in this example having one shoe at a more pinched angle than the other where it would touch wheel tread, thereby, limiting wheel travel

One sideframe is illustrated, but both should be checked for brake shoe attitude.

Shown below is a Dremel with drum wheel used to grind away some material from the shoe

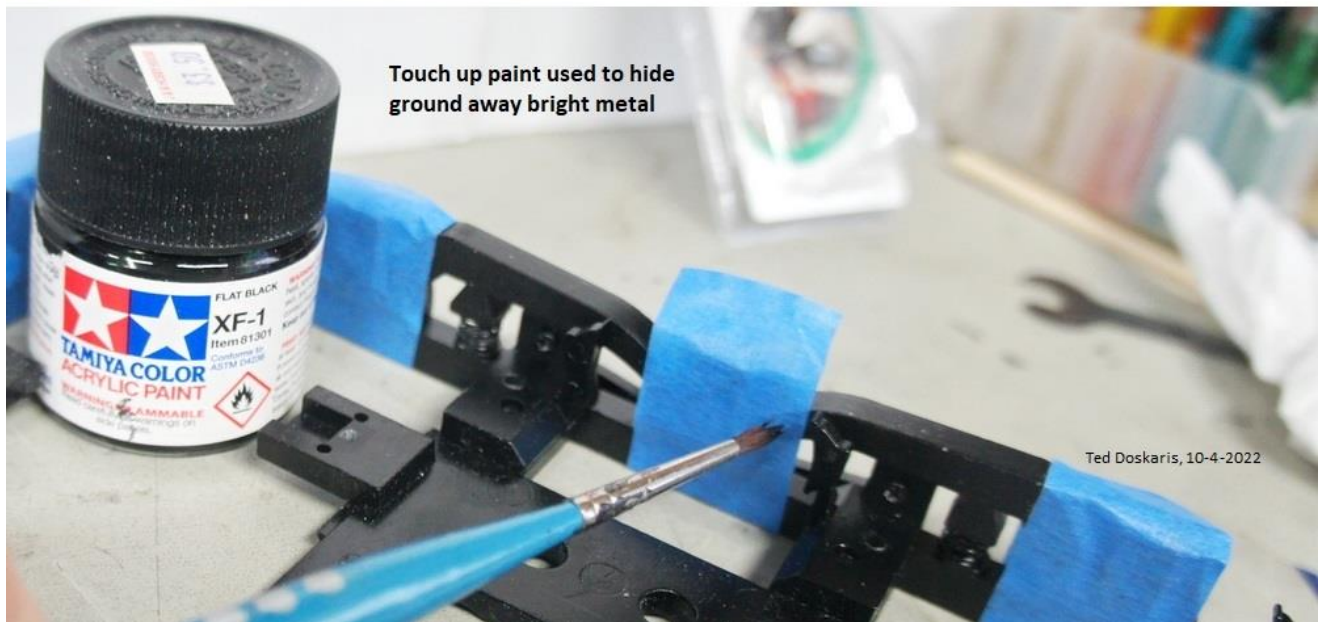


Painters tape used to cover bushings keeps debris out from sticking to any lubricant

WARNING: Periodically grind in short time intervals to allow cooling so not to overheat the metal, or risk deforming and/or total collapse of the brake shoe casting as heat can soften the weak arm at the brake shoe.



The more equaled angled spread can be seen between both brake shoes - which will allow wheel to drop down



Touch up paint used to hide ground away bright metal

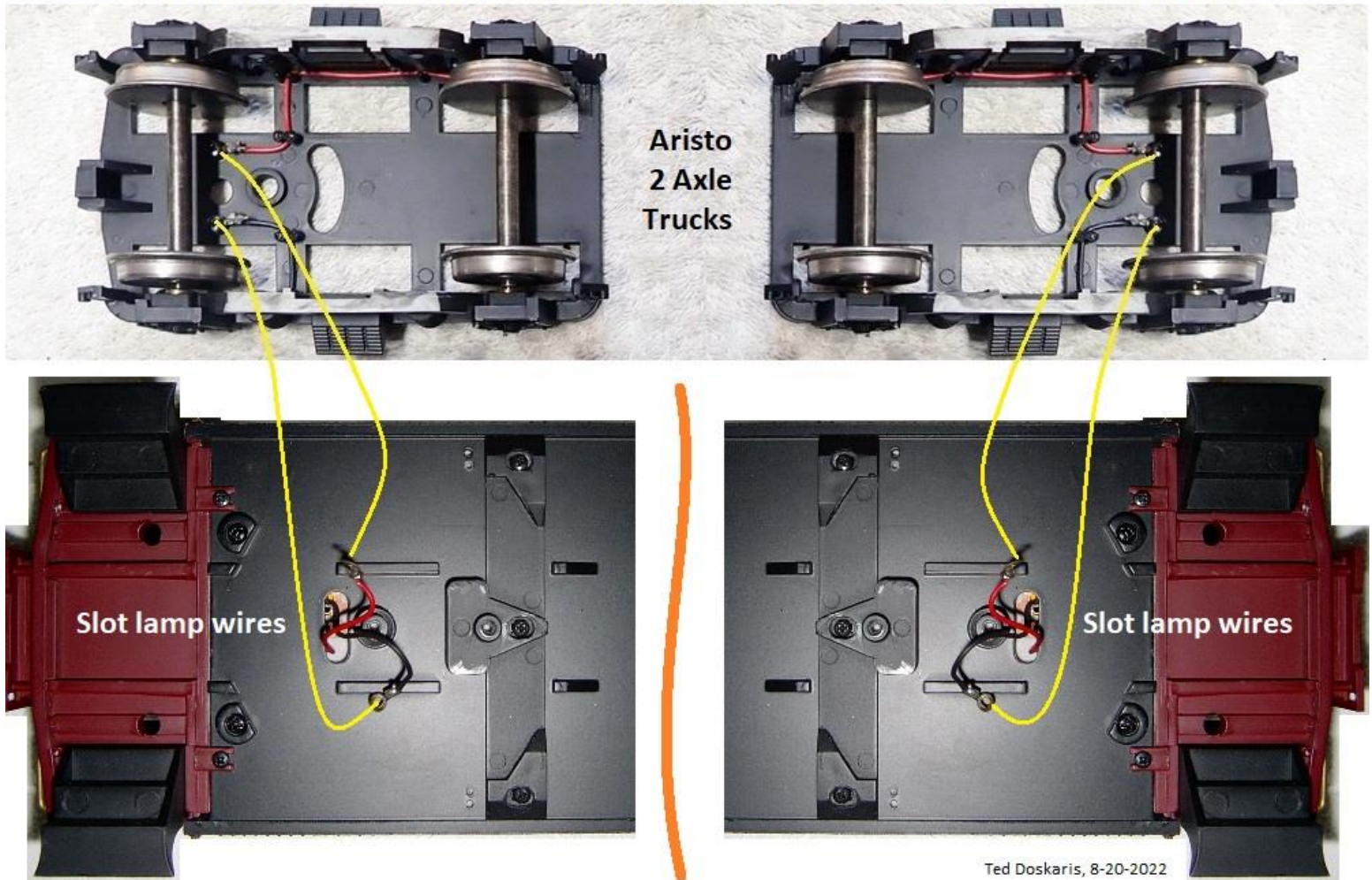
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When done, reassemble truck and retest.

Important Advisories

- Before removing trucks, remember how the lamp wires coming from the chassis oval slot are oriented as to which color is connected to which side of each truck (*Factory wired colors have been inconsistent, and may be different (including reds and blacks swapped where connected) to that shown in this guide*)

When removing Aristo trucks, "dress" (position) chassis slot lamp wires toward the side of the car that corresponds to the truck side frame they are connected at, so wires can be connected the same way to USA Trains 3 axle replacement trucks



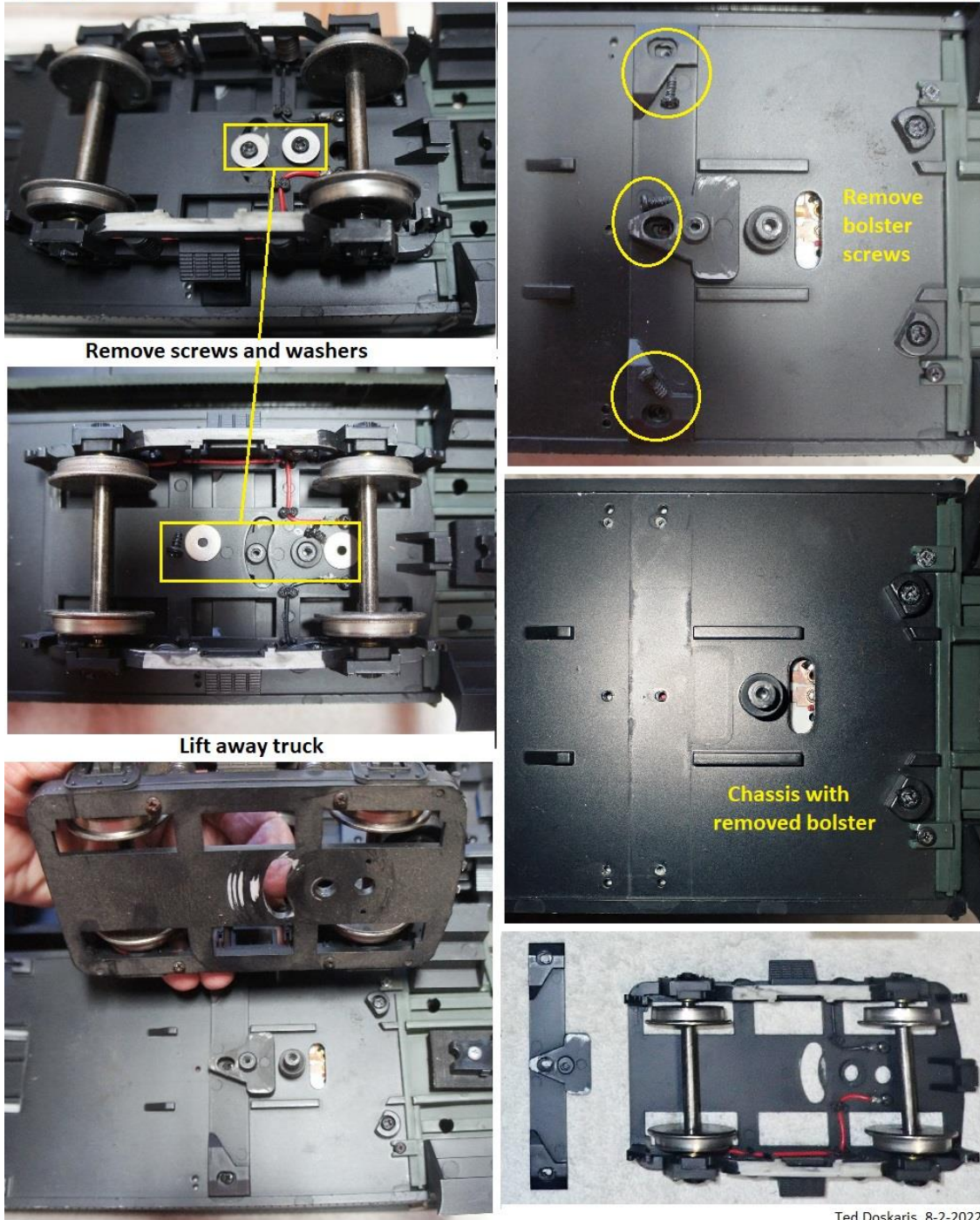
- Example car shown above does not have body mount couplers - a must when adapting USA Trains Heavyweight car 3 axle trucks because these trucks are not designed to accept tang couplers. See vignette (article) on Greg Elmassian's website that includes body mounting Kadee centerset knuckle couplers, title: "[Aristo Heavyweight Passenger Car & Body Mount Kadee 907s](#)"
- If for some reason when car is equipped with Aristo 3 axle plastic trucks it's desired to replace them using USA Trains 3 axle metal trucks, the methods described in this guide are virtually the same.

Remove Aristo Factory 2 axle trucks & Chassis Bolsters – same for both car ends

- When removing trucks, save Aristo factory screws and the large metal washers as most will be reused.
- Lamp wires from chassis oval slot, **not shown below**, are to be first detached / unsoldered from the truck.
- Example car shown below is equipped with typical chassis bolster. Late version bolster is bigger with different mounting hole locations – shown on next page

Example Removal of 2 axle truck and factory bolster from Aristo Heavyweight Car

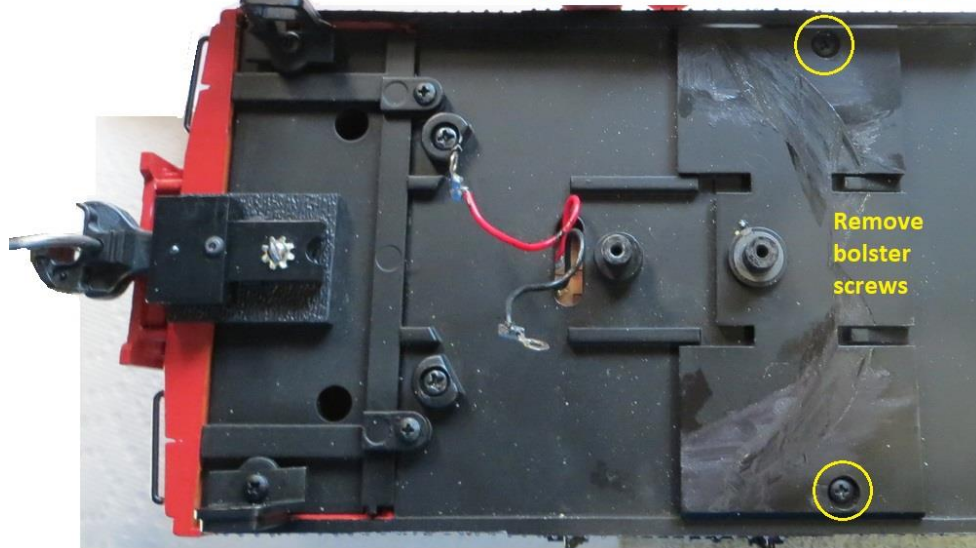
(Example car converted to battery powered lamps with removed wires from chassis slot to truck)



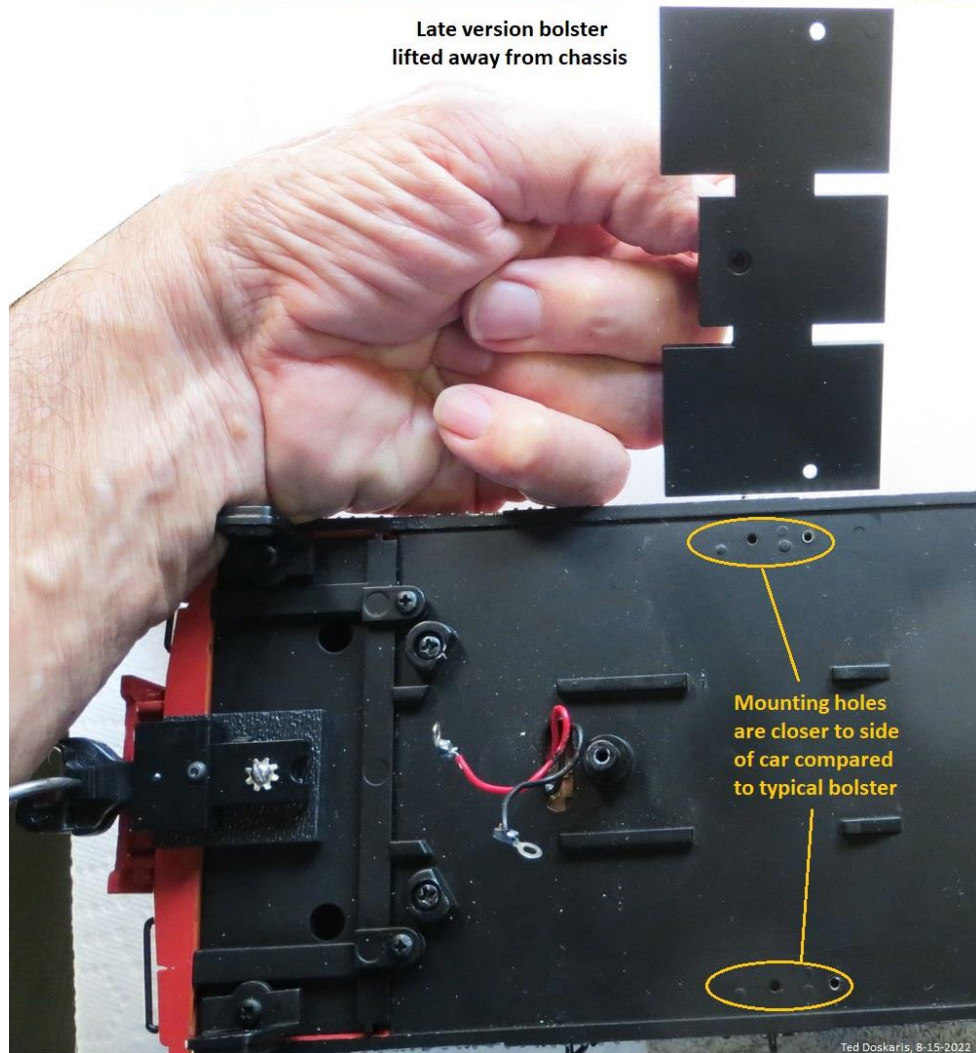
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Note lamp wires from chassis oval slot can also be seen below on this example car

Example Late Version Aristo Chassis Bolster



**Late version bolster
lifted away from chassis**



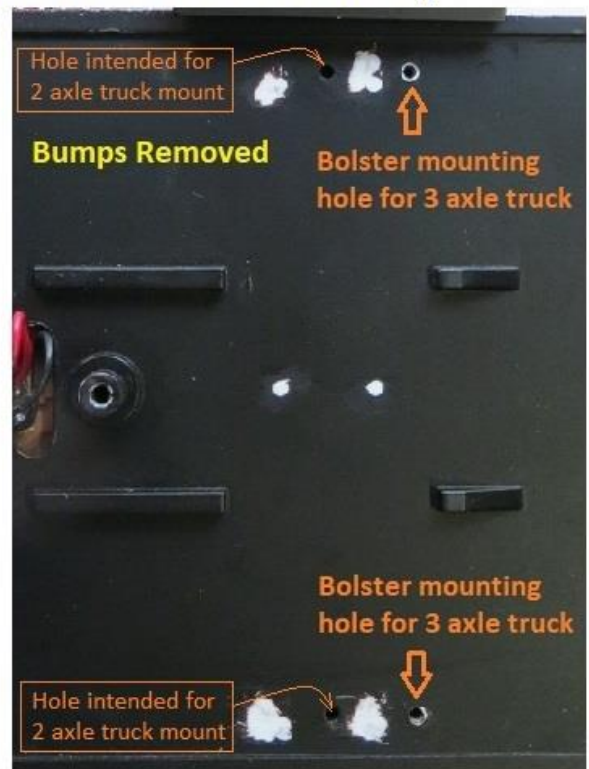
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Chassis Info. & Preparation - after Aristo bolsters removed

Advisory: Some Aristo Heavyweight cars may have chassis surface bumps - preferably cleaned off before mounting the CamPac truck adaptor bolster



(Screw holes in chassis shown below are used for mounting placement of Aristo factory chassis bolster for either Aristo 2 & 3 axle trucks)



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USA Trains 3 Axle Truck Lamp Wiring Prep

The USA Trains truck, when purchased as a replacement part, includes one axle insulated wheel set dedicated for track power pickup via spring plunger assembly without any interfacing wires attached.

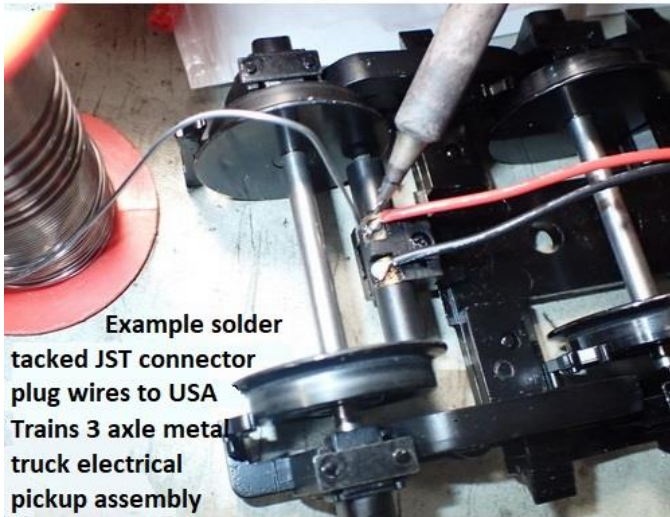
Because the truck is to be installed with this axle facing toward the center of the car, longer wires are needed to extend to the Aristo chassis slot factory Lamp wires.

While jumper wires can be used, the example shown below utilizes JST connectors for serviceability should the truck, once installed, need to be removed. The JST plug wires are tack soldered to the USAT plunger assembly, and the JST mating socket would need to be solder spliced to the Aristo factory Lamp wires coming out of the chassis slot.

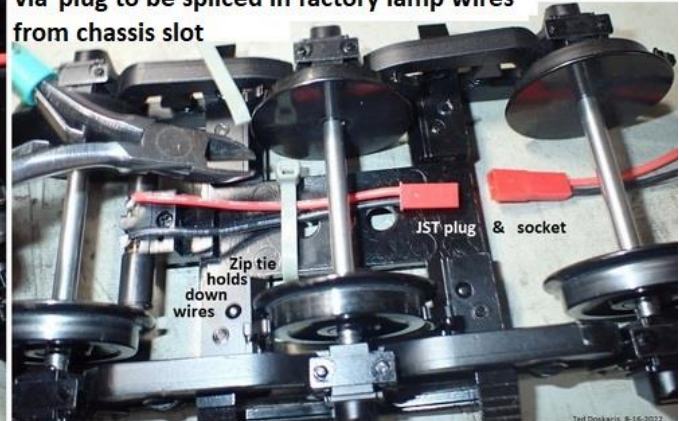
Example JST connectors can be obtained by the installer via Amazon:

[RGBZONE 20Pairs 22 AWG 2Pin JST Plug Connector Cable Wire Male + Female](#)

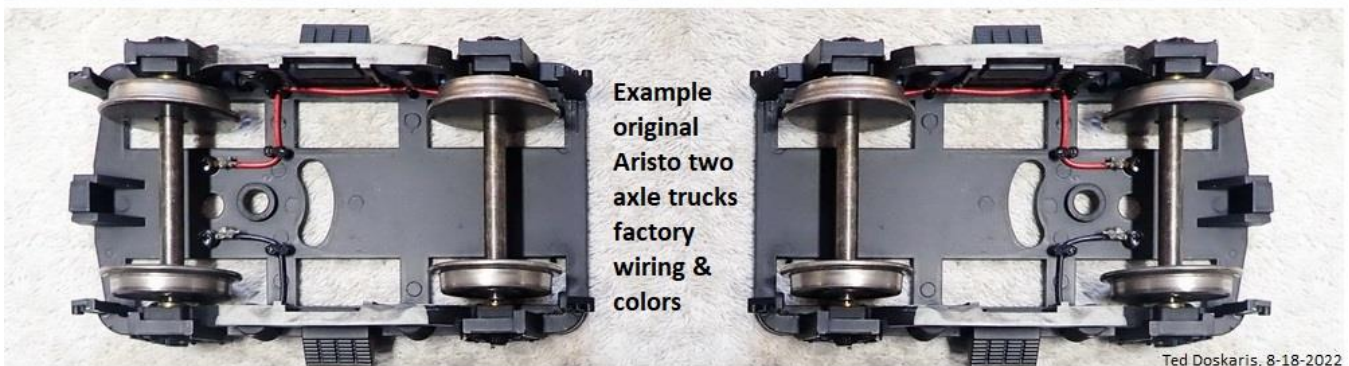
Example track power pickup wiring of USA Trains Heavyweight Car 3 axle truck adapted for Aristo Heavyweight Car



Because truck to be installed reversed, connector wires are to extend to other end of truck where they can mate via plug to be spliced in factory lamp wires from chassis slot



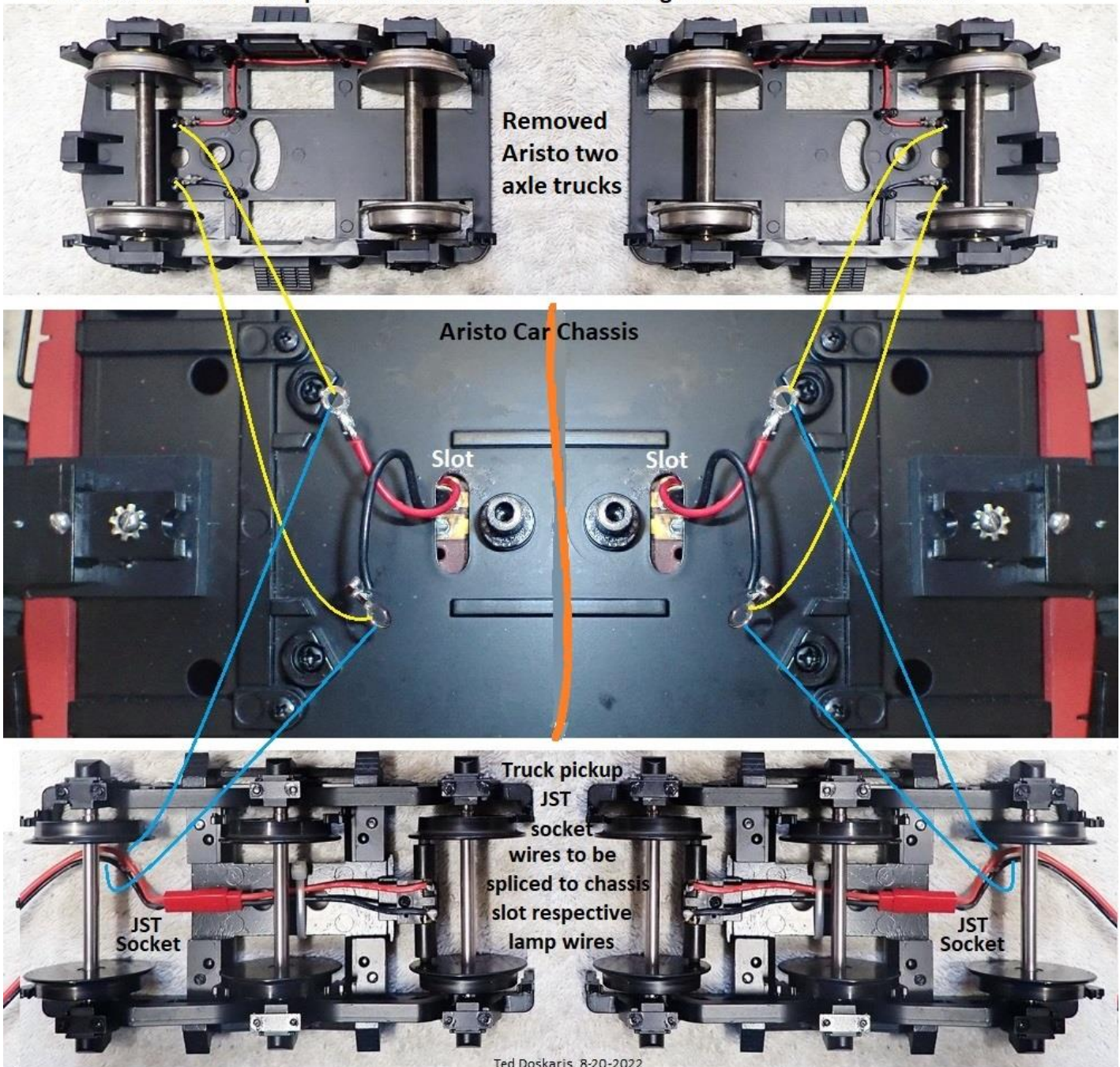
Make wire & color connections with one truck opposite to the other truck - just like original Aristo 2 axle trucks



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Comment: Aristo axles have one electrically insulated and one electrically connected wheel with opposite oriented axles on truck (diagonal pickup) whilst USA Trains have both wheels insulated on same axle with spring loaded plunger pickups; thus, both trucks have one wheel per truck power pick up on each side of the truck from the railheads.

Having "dressed" slot lamp wires toward the sides of car corresponding to original Aristo 2 axle truck side frame connections, connect the wires the same way to the JST socket pigtails used for the USA Trains 3 axle replacement trucks before mounting them - illustrated at bottom



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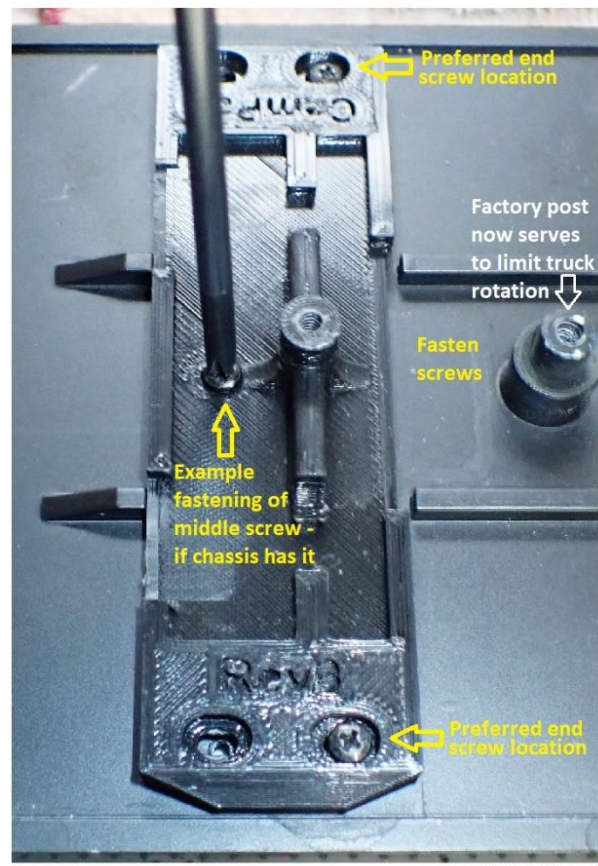
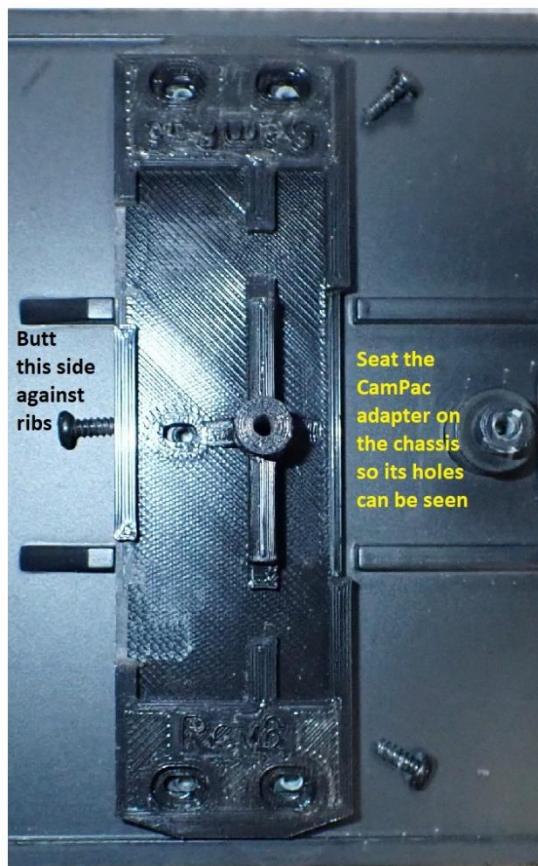
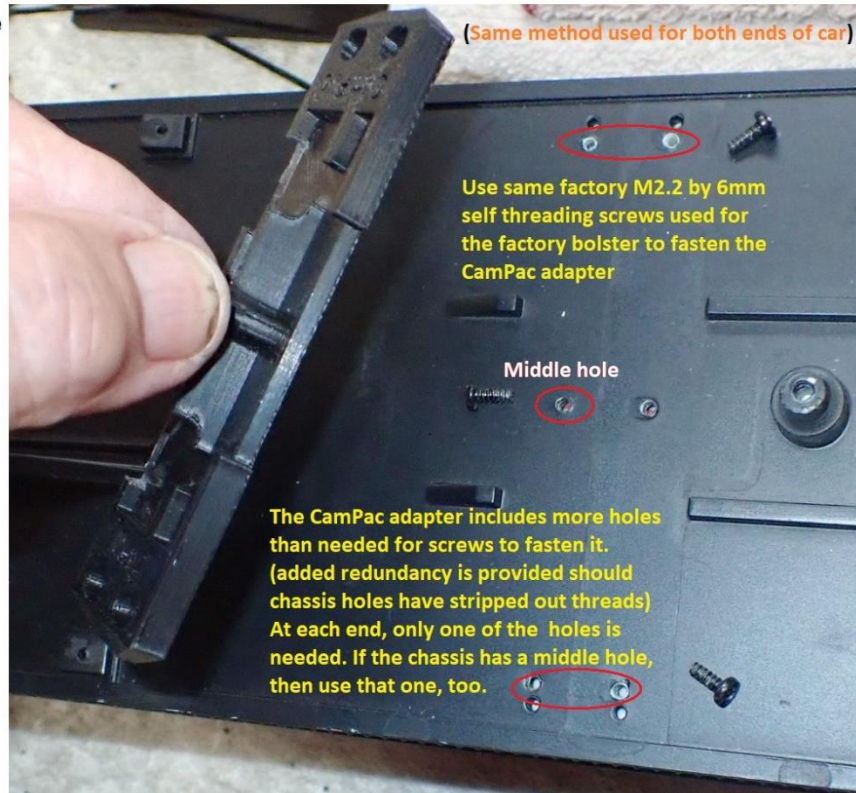
Note: Some Aristo production run cars have slot lamp wires tack soldered to the Aristo truck wires, whilst newer ones have eyelets stacked on top of the truck wire eyelets retained by screws. Splicing & insulating JST socket wires to the lamp slot respective wires is easier done unplugged from truck. **Warning:** If one end of the car has wires reversed (not respectively connected), there can be a damaging dead short circuit with the car placed on powered track. With correct wiring, but lamps don't illuminate on powered track, verify underside chassis light slide switch is on



Fasten the CamPac Adapter - typical Aristo Heavyweight car as illustrated below (late version shown on next page)

For the Typical Aristo Heavyweight Car Chassis, Orient the CamPac USA Trains Truck Adapter and fasten it as illustrated

The adapter is made with more holes than needed to mount it



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For Late Version Aristo Heavyweight, Fasten CamPac Adapter - as illustrated below



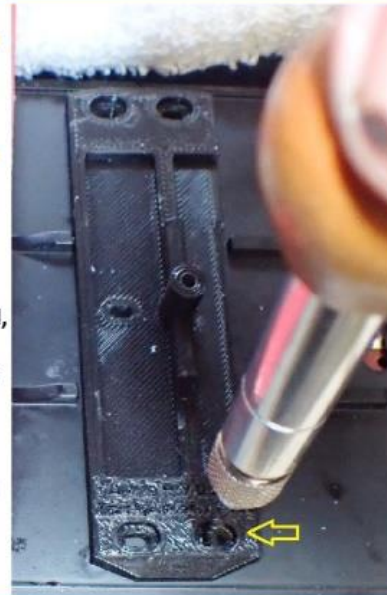
Sometimes chassis holes may not be visible, or present, with once positioned adapter - in which case, using adapter as template, drill one top & one bottom end hole with #50 bit, about 1/10 inch deep but no more than 1/8 inch deep



Only 1 top hole and 1 bottom hole are needed to fasten adapter

With adapter positioned, start new holes with drill bit

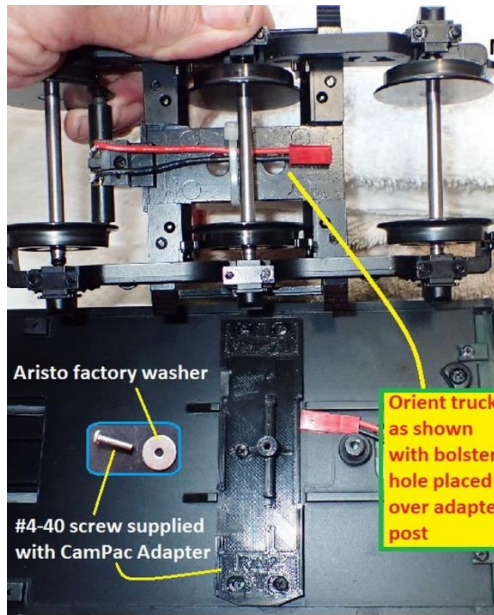
Adapter can be set aside to complete drilling



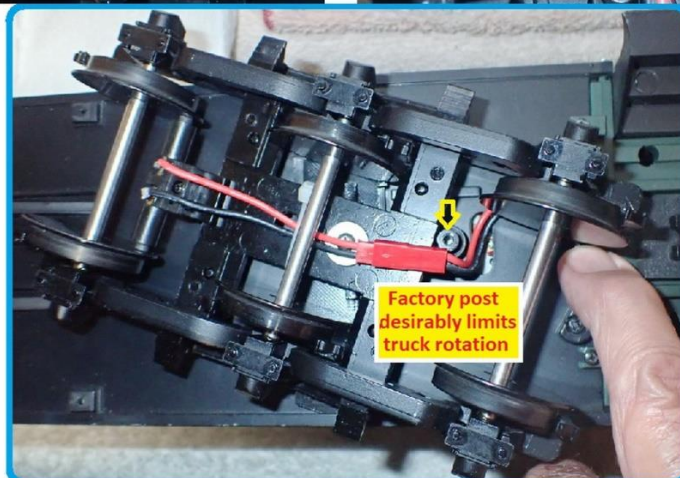
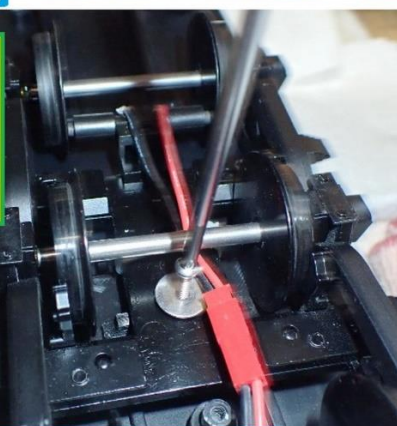
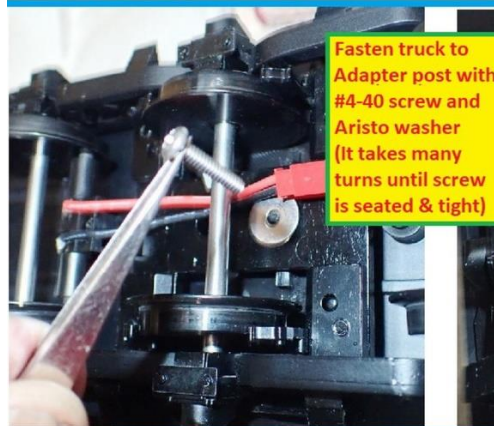
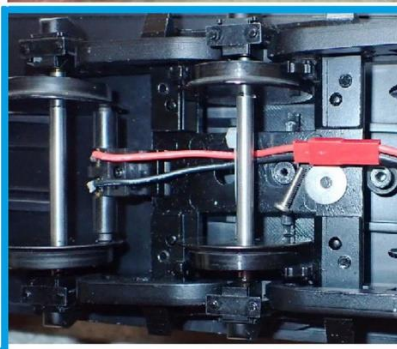
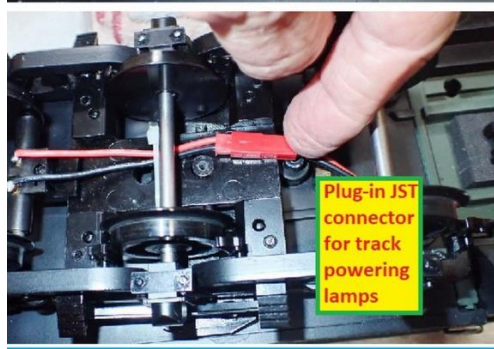
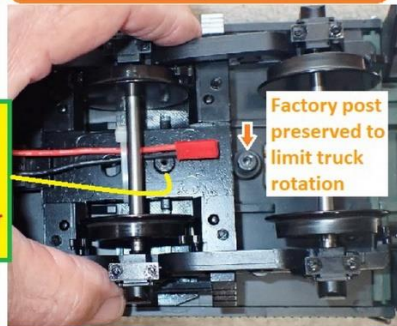
Use same factory M2.2 by 6mm self threading screws used for the factory bolster to fasten the CamPac adapter



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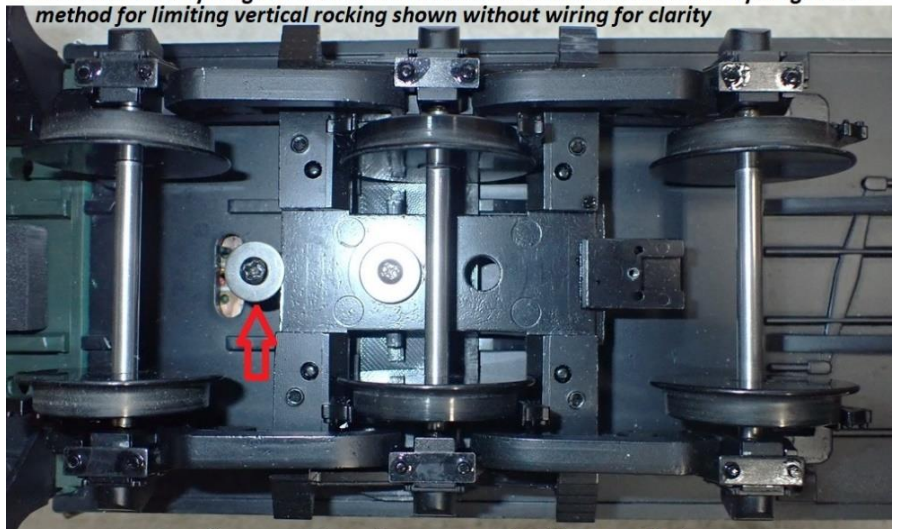
Finally, the last to do is:
Mount the USA Trains 3 Axle Metal Truck
 on the CamPac Adapter using a #4-40 pan head 1/2 inch long screw with 1 Aristo factory washer that had been used for the Aristo truck.
 (Do the same for truck at other end of car)



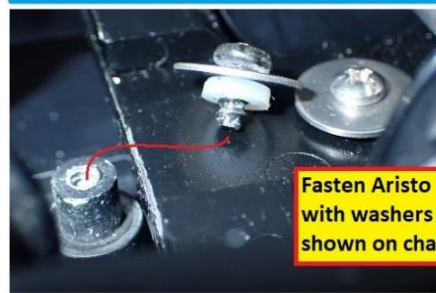
When handling the car, like turning it sideways, its trucks could assume an undesirable position due to excessive rocking. While this would not be a problem once the car is placed on the track, but additional manipulating of the trucks would have to be done so the wheels are properly on the rails. This condition is alleviated as illustrated.

The small Nylon washers shown in the illustration can be supplied in the CamPac kit.

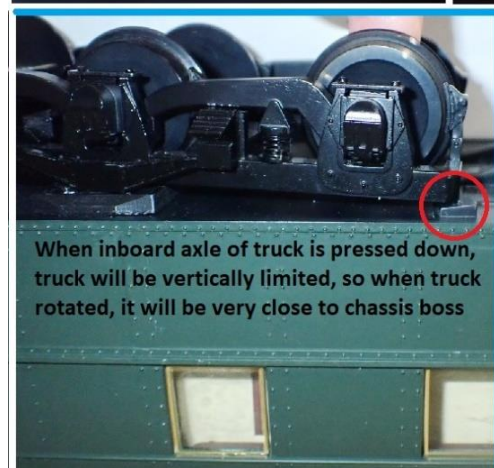
USA Trains Heavyweight Car 3 axle metal truck mounted on Aristo Heavyweight Car - method for limiting vertical rocking shown without wiring for clarity



Install screw with washers arranged as illustrated below



Fasten Aristo factory screw with washers arranged as shown on chassis post



When inboard axle of truck is pressed down, truck will be vertically limited, so when truck rotated, it will be very close to chassis boss



Ted Doskaris, 10-30-2022