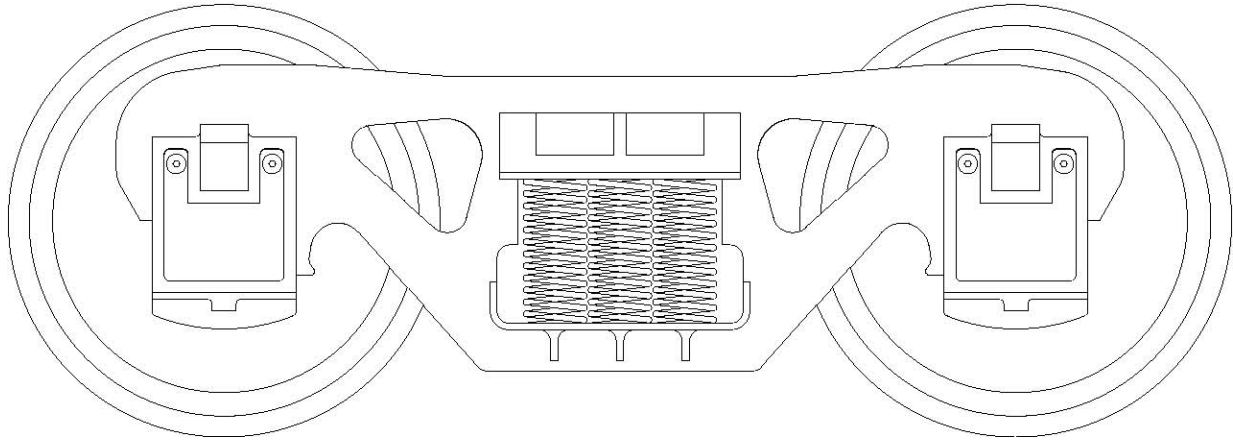


Owners Manual and Parts List

Steam Era Plane Bearing Freight Car Truck, 1 1/2" Scale

Catalog Number 15T3A or 15T3B



Features

- Steel Wheels - IBLs Profile - Scale 33" (4 1/8" diameter) - Dished Both Sides
- More Than 1/2" Wheel Travel Prevents Derailments - Progressive Multi-Length Spring Design (12 springs per truck) - Full Flexibility From Empty to Maximum Load
- Needle Bearings in Special Self-Aligning Bushing - Allows Axle to Rotate Freely Without Restricting Motion of Side Frames - Bushing of Hardened (45 Rc) 4130 Chrome Moly Steel
- Side Frame and Bolster CNC Machined from Heat Treated Aluminum Bar
- All Aluminum Parts Bead Blasted to Simulate Prototype Look - Finished In Hard (type III) Black Anodize for Maximum Wear
- All Steel Parts Black Zinc Plated - Much Tougher Than Paint and Prevents Corrosion Even if Scratched
- All Screws are Stainless Steel

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Overview

This manual is provided to help you understand and better use your trucks. Like anything mechanical, they require care in handling and proper maintenance to work correctly. By reading and following the information presented here you will be better able to safely enjoy these trucks. The remainder of this manual is divided into the following sections:

- Installation
- Maintenance
- Parts Diagram and List

Installation

If you are installing these trucks on a car purchased from Real Trains, or built from our plans, or are using our body bolster or center pivot, please follow the directions for mounting provided with that product. If you are designing a car yourself, we hope you will consider the use of our body bolster or center pivot to make mounting easier. You may find that converting an existing design is much easier if the current mounting is replaced with one of our products.

It is important to realize that the mounting of the trucks must not only be designed to support the weight of the car while pivoting, but must also provide correct coupler height. The standard in most areas for 1 1/2" scale is 4 3/8" (108mm) from the top of the rail to the center of the coupler. If a different standard exists in your area, please use that value. In designing your mounting method you must add spacers or machine away material to obtain this height. Because of the hard anodizing used as a finish on the trucks, we do not recommend that you try to modify them. Please always consider strength and safety when making any modifications to the mounting.

To mount the trucks on an existing design, use the dimensions shown on the next page. As can be seen from the figure, the height to the top of the truck bolster changes under load. We recommend that you use the "Typical Load" value (based on 350 pounds or 160kg for car including payload, less trucks) unless you know that the car will always be lighter or heavier than this value. Do not exceed a maximum load of 850 pounds (390kg.) per pair of trucks or excessive wear or other damage may occur. Be aware that uneven distribution of loads in the car, passenger movement, and incorrect coupler height in the adjacent car can still cause problems even if all these guidelines are followed.

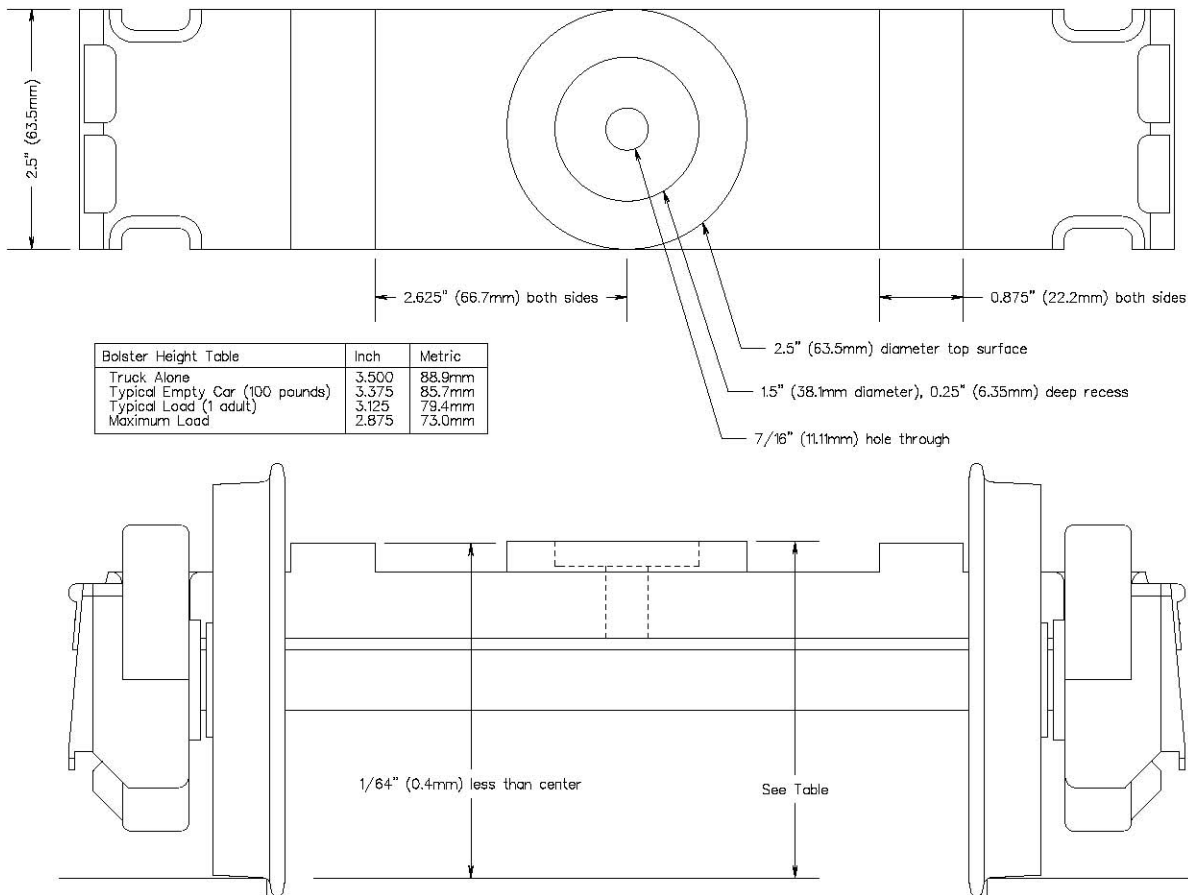
As also shown in the figure, our trucks use a circular recess in the top of the bolster. We have used this design in order to provide the most flexibility to adapt to other companies products. You will typically find that an existing cars body bolster is of one of three designs:

Flat Bottom - If the bottom mounting surface at the truck location is flat, the design is one that uses the center bolt as the pivot. You should use a 7/16" bolt that is long enough to allow free movement of the truck. The car will ride on the 2.5" diameter flat surface at the top of the truck bolster. If the cars mounting surface is much smaller than the 2.5" diameter it may be necessary to make a plug to fill the recess on the top of the truck flush with the upper surface.

Recess Upwards - If the car has a circular recess upwards it is recommended that you use a two diameter plug that has one end the correct diameter for the car and the other end to fit the 1.5" diameter recess in the truck. Use of a center bolt is optional, but allows the car to be lifted without the truck falling off. A 3/8" bolt is recommended since the pivoting is on the recess surfaces.

Projection Downwards - If the car has a circular projection downwards that is similar in size to the recess in the truck it may be used directly. If the projection is smaller than the recess, a sleeve may be made to increase its size. Where the projection is larger than the truck it must be machined smaller to fit. Use of a center bolt is optional but allows the car to be lifted without the truck falling off. A 3/8" bolt is recommended since the pivoting is on the recess surfaces.

A spacer may also be required either separately, or as part of the plug or sleeve discussed above, for coupler height adjustment. You can make these yourself, have them made locally, or contact us to custom make them for you. Lubrication in the form of heavy grease or a self-lubricating bearing material (such as Teflon®) in a cup or washer shape must be used at the center pivot.



We cannot over stress how important a correct mounting is to both the safety and enjoyment of your car. Please consider that a common industrial standard is that any part should be able to withstand three times the total load it normally carries. If you feel your mounting is this strong, you will be much more comfortable when enjoying your trains operation.

Maintenance

This section discusses both normal or periodic maintenance, and the major repairs that will typically only be necessary after many years of use. It is important to carefully inspect your new trucks both to make sure they were not damaged in shipping, and to become familiar with their design for future reference.

When used as part of a hobby your trucks should be inspected for anything that looks worn, damaged, broken, or otherwise unusual at certain times:

- On a periodic basis depending on how much they are used (perhaps monthly for club usage, annually for home usage, trucks stored outside would naturally require more maintenance, if submerged in water they should be immediately disassembled and completely serviced)
- Whenever they have not been used for a while
- If they have been in a derailment or accident

Trucks used in commercial service should be part of a complete scheduled preventative maintenance program

In each of the following maintenance sections the parts are referred to by name. The parts section includes a table that gives this name, a part number for replacement parts, and a key letter for the parts diagrams that show the location of each part.

Finish Care

The anodized finish on the aluminum parts is very hard. Do not try to sand, file or machine these surfaces. If the finish is damaged it may be touched up with aluminum blackening solution available at sporting goods, firearms and large hardware stores.

The black zinc used on most steel parts is actually two layers. Below the black surface is bright zinc. If scratched, even completely through to the steel, the zinc will still protect against most rust and corrosion. Repairs can be made with paint. You should expect the treads of the wheels to become shiny (the same as the prototype) fairly quickly. If you desire some color other than black, both the anodizing and black zinc function as good primers for paint.

Your trucks should be kept clean and dry. In some cases a thin oily film (such as from washing the equipment down with kerosene) will help protect the finish and provide lubrication for the sliding surfaces. But this oil may also attract and hold dirt, and increase wear.

General Disassembly and Reassembly

For total disassembly of the truck, the side frames are removed from the bolster and wheels by removal of the springs. The springs are held in a recess at their top. Pushing outward (from the center line of the car) at the bottom of the spring will cause it to move beyond the side frame. It can then be pulled from the recess. With all of the springs removed the bolster can be moved to the bottom of its opening in the side frame allowing the side frame to be pulled off the end of the bolster and away from the bearings, wheels and axles.

Danger - Notice that each outer spring contains an inner spring. The center of the three outer springs on each side of a truck contains an inner spring that is longer than the inner spring on either side of it. Do not operate the truck unless all springs are installed and in their correct location.

To reassemble the truck follow the above steps in reverse order.

Journal Cover Removal and Reinstallation

The journal covers are held in place with two journal cover screws. They may be removed by removing the screws.

Note - While these screws are provided with a black finish, they are stainless steel. Do not substitute standard (non-stainless) steel screws.

To install the journal cover use a “small-screw” (low strength) retaining compound on the screws. Install one screw loosely and then start the second before tightening both.

Bearing Lubrication

The bearing units are threaded into the ends of the axles. You can get access to them for lubrication if the wheel and axle units are removed from the side frames or if the journal covers are removed. If only lubrication is being done the removal of the journal covers is simpler.

The bearing units cannot be disassembled. They may be re-lubricated by using a “needle” type adapter fitted to a standard grease gun. There is a hex shaped opening on the end of the bearing with a round hole at its bottom. This hole is where the grease is to be added. Use a high quality grease suited for bearing use. Shell Alvania number 2 grease is what is originally provided and is available from our parts list. Automotive wheel bearing grease is an acceptable substitute. Do not use excessive pressure or the bearing seals may be damaged. This is a small bearing and only a limited amount of grease is needed. More frequent lubrication is better than large amounts.

The thrust bearings cannot be removed without removal of the bearing units. They should be wiped clean and lightly oiled (automotive motor oil is acceptable) to refill the porous bronze.

If the bearings appear damaged or badly worn they should be replaced as discussed in the next section.

Bearing Replacement

If during the bearing lubrication process described above, damage or extreme wear is found, the bearing should be replaced.

To replace the bearing unit you must unscrew it from the end of the axle. Use a proper size hex wrench in the hole in the end of the bearing. The bearings are installed with a high-strength retaining compound and considerable force is required to unscrew them. Heat may be applied to soften the retaining compound but the bearing cannot then be reused. With the bearing unit removed, clean the end of the axle, hole and threads. Install a new bearing unit after completely

coating the threads and shank with a “high-strength” (bearing mount type) retaining compound. Screw the bearing into the end of the axle and tighten to a torque of 50 to 55 lb•ft. Allow the retaining compound to set before use.

The thrust bearing may only be replaced by removal of the bearing unit. It is recommended that both be replaced at the same time. With the bearing unit off the axle the thrust bearing may be slipped on or off.

Side Frame Bushing Replacement

The side frame bushings are installed with a high-strength retaining compound. To remove them use a press and suitable length of round rod to press them out, working from the outside of the frame and pressing towards the inside. Moderate heat may be applied to soften the retaining compound but excessive temperature can damage the hardened steel.

To install side frame bushings use a “high-strength” retaining compound (bearing mount type). Completely clean the side frame and side frame bushing. Coat the exterior of the bushing and slip it into the frame from the inside (flange towards center of car) while rotating the bushing to distribute the retaining compound (it may be removed and checked to make sure that it is completely coated). Place the side frame and bushings with the inside upward on a clean surface and allow the retaining compound to set before additional handling.

Wheel or Axle Replacement

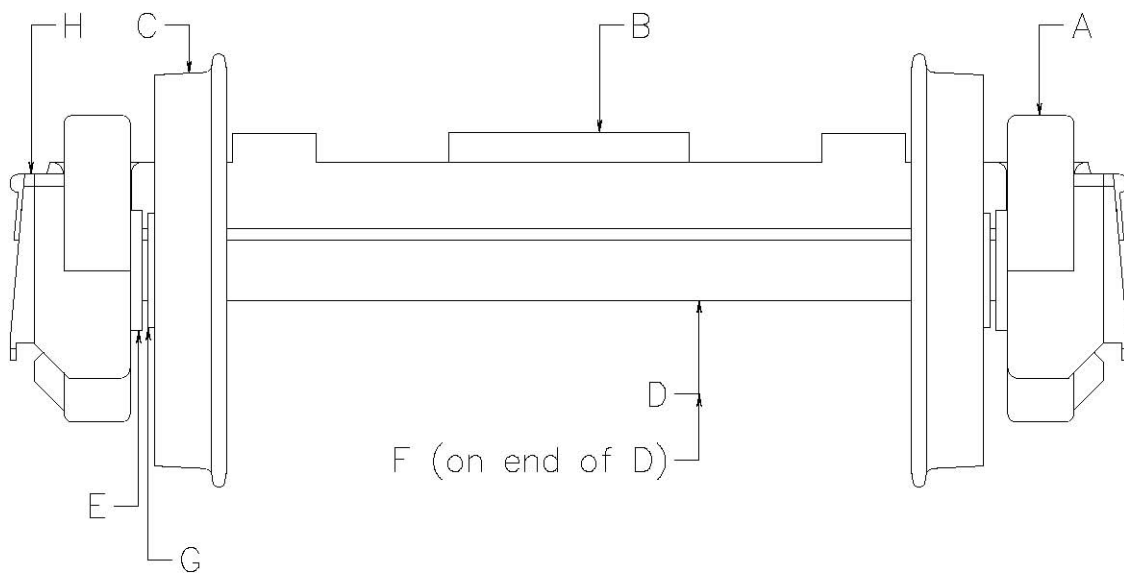
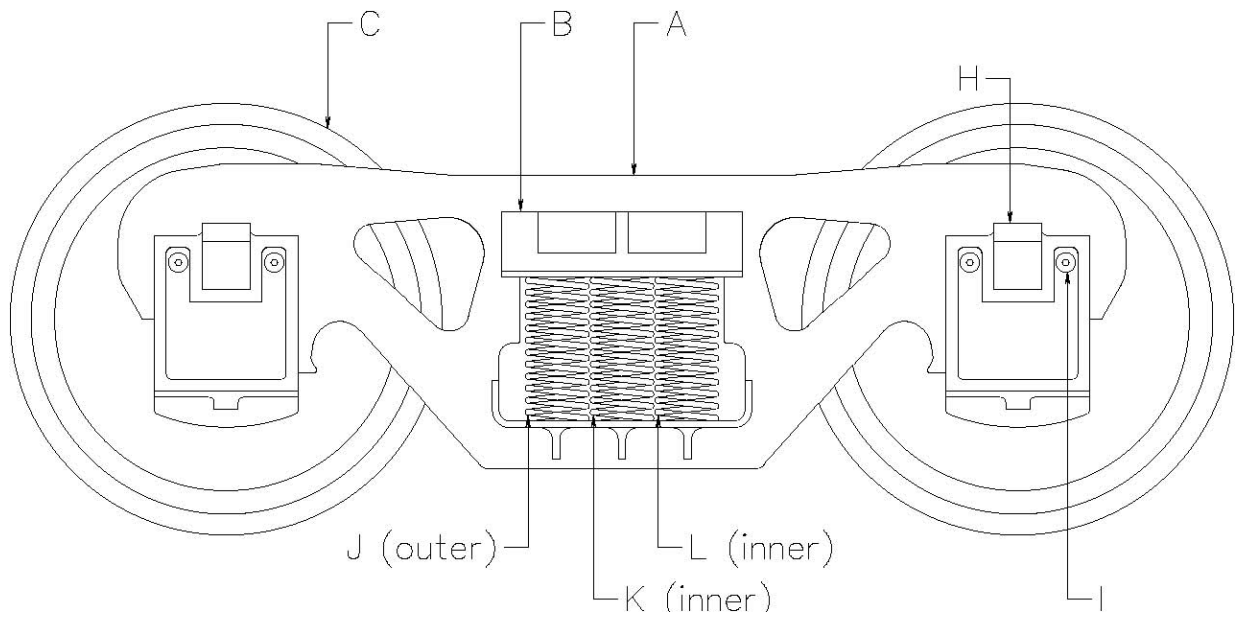
Accident damage or extreme wear may require replacement of wheels or axles. These parts can only be disassembled with a high capacity press. This operation requires skills and proper tooling that should come with the ownership and operation of the press. Wheels that have been pressed on and off more than once may become loose and not hold properly. Complete replacement wheel and axle assemblies are available as parts and this method of repair is recommended for most users.

Changing of Gauge

To change the wheels between 7 1/4" gauge and 7 1/2" gauge is a difficult operation requiring skill and the use of a large press. If moving the wheels inward, first remove the black zinc plating from the part of the axle behind the wheel using a fine abrasive. If moving the wheels outward be sure to paint the bare area of the axle to prevent rusting. Both wheels must be moved the same amount (the axle must project the same distance beyond each wheel). Do not damage the axle ends when pressing. This operation is only recommend once as it can result in the wheels becoming loose on the axle. If gauge changes are required periodically you should consider ordering extra wheel and axle sets, including bearings, as needed to allow replacement as a unit.

Parts Diagram and List

Below are side and end views with "key letters" pointing to each specific part. These keys are indexed to the parts list that follows which also gives the part name, part number, and quantity per truck (double quantities for one car, two trucks). Listed separately are assemblies, packages and tools.



Individual Parts

Key Letter	Part Name	Part Number	Quantity for Model 15T3A 7 1/2" gauge	Quantity for Model 15T3B 7 1/4" gauge
A	Side Frame	15T3-001	2	2
B	Bolster	15T3-002	1	1
C	Wheel	15T3-003	4	4
D	Axle (not plated)	15T3-004	2	2
E	Side Frame Bushing	15T3-005	4	4
F	Bearing Unit	15T3-006	4	4
G	Thrust Bearing (7 1/2" gauge)	15T3-007	4	0
G	Thrust Bearing (7 1/4" gauge)	15T3-008	0	4
H	Journal Cover	15T3-009	4	4
I	Journal Cover Screw	15T3-010	8	8
J	Outer Spring	15T3-011	6	6
K	Center Inner Spring	15T3-012	2	2
L	Side Inner Spring	15T3-013	4	4

Parts Packages, Assemblies, Tools

Description	Part Number	Quantity for Model 15T3A 7 1/2" gauge	Quantity for Model 15T3B 7 1/4" gauge
Spring Set (6 outer, 2 center inner, 4 side inner)	15T3-030	1	1
Wheel and Axle Set, 7 1/2" gauge (2 wheels, 1 axle, black zinc plated)	15T3-031	2	0
Wheel and Axle Set, 7 1/4" gauge (2 wheels, 1 axle, black zinc plated)	15T3-032	0	2
Complete Wheel Unit, 7 1/2" gauge (2 wheels, 1 axle, 2 bearing units, 2 thrust bearings) completely assembled	15T3-033	2	0
Complete Wheel Unit, 7 1/4" gauge (2 wheels, 1 axle, 2 bearing units, 2 thrust bearings) completely assembled	15T3-034	0	2
Grease, 10 ounce cartridge	15T3-050	as required	as required
Small Screw Retaining Compound (enough for 20 to 50 screws)	15T3-051	as required	as required
Bearing Mount Retaining Compound (enough for 5 to 10 bearings)	15T3-052	as required	as required

There are certain parts that we do not manufacture. The suppliers of these parts often change their specifications, delete models, and change part numbers without notice. The only way to be sure that you are getting exactly the correct replacement part is to order it by our part number. We do, however, understand that some people will want to know the current manufacturers name and part number. We provide this without warranty for information only. The bearing units are Torrington CRSB-14, the 7 1/2" gauge thrust bearings are Bunting TT1204, the 7 1/4" gauge thrust bearings are custom made but you may use three Bunting TT1204 stacked together. Each of these should be available from industrial distributors of such products. The springs are available from Century Spring Corp., Los Angeles, California, USA, phone (213)749-5225 The center inner spring is number 3273, the side inner spring is number WW-42, the outer spring is similar to number 71797 but their standard spring is unfinished and must be painted to prevent rusting by the purchaser.