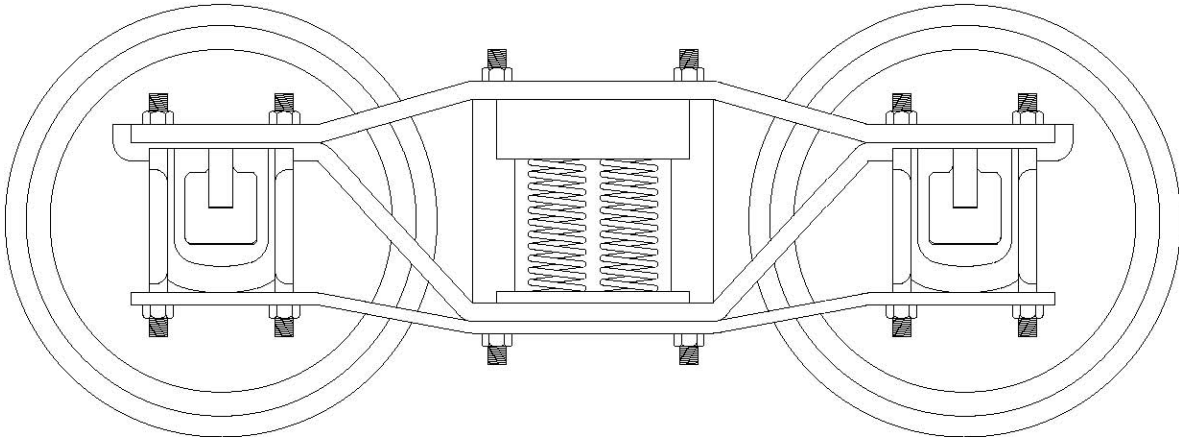


## Owners Manual and Parts List

### Arch Bar Truck, 1 1/2" Scale

Catalog Number 15T5A or 15T5B



#### Features

- Steel Wheels - IBLs Profile - Scale 33" (4 1/8" diameter) - Dished Both Sides
- More Than 1/2" Wheel Travel Prevents Derailments - Coil or Leaf Springs with Two Stage Design - Full Flexibility From Empty to Maximum Load
- All Side Frame Components of Steel - Completely Bolted Together and Then Furnace Brazed Into One Unit - Nothing To Come Loose or Require Maintenance
- Needle Roller Bearings in Special Self-Aligning Steel Journal Box Housing - Allows Axle to Rotate Freely Without Restricting Motion of Side Frames
- Bolster and Spring Plank Machined from Heat Treated Aluminum - 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

**Real Trains<sup>®</sup>, Inc.**

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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 a 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. 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.

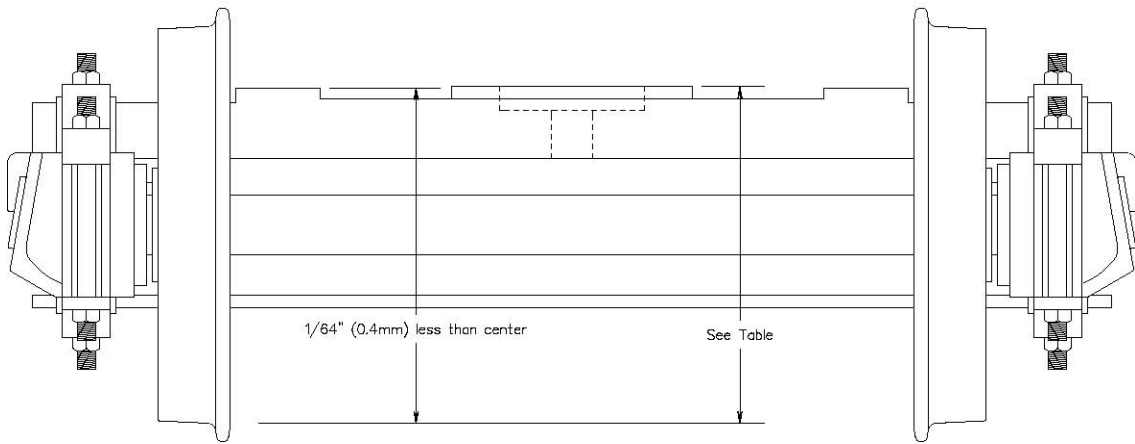
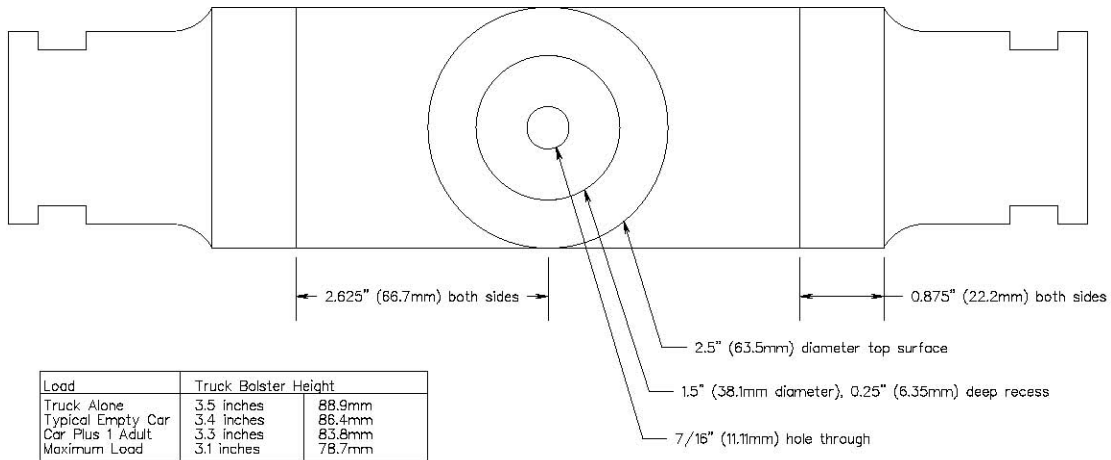
As also shown in the figure, our trucks use a circular recess in the top of the bolster. We have used this design in order to provide the most flexibility to adapt to other companies products. You will typically find that an existing cars body bolster is of one of three designs:

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**

The following assumes that the truck has been removed from the car. For total disassembly of the truck, the side frames are removed from the bolster, spring plank, and wheels by removal of the springs. The method differs between coil and leaf spring versions of the truck.

Coil springs are held in a deeper recess at the top and a shallow recess at the bottom. Use a small screwdriver or similar tool to lift the bottom of the spring from the recess in the spring plank while

pushing outward (from the center line of the car) at the bottom of the spring. It can then be pushed completely beyond the end of the spring plank and then pulled from the recess in the bolster.

**Danger** - Notice that each outer spring contains an inner spring. Do not operate the truck unless all springs are installed and in their correct location.

The leaf springs have a round button on their top that fits the same recess in the bolster used by the coil springs. This button also has a pin extending from its bottom through the holes in the spring leaves. Compress the spring enough to allow this button to be removed from the bolster and then move it outward beyond the end of the bolster and pull it up out of the spring. This allows removal of all but the center of the leaves on the top side of the spring which may be pulled outward from the center line of the truck. The center top leaf may now be snapped off the lower center leaf and removed. This allow removal of all the lower leaves from the pin that extends through their center from the spring plank.

With all of the springs removed the spring plank can be lifted and rotated at an angle allowing it to be slipped completely out of the side of the truck. The bolster can then be rotated allowing the side frames to be removed off the end of the bolster and away from the bearings, wheels and axles.

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

### **Bearing Lubrication**

The bearing units are threaded into the ends of the axles. You can get access to them for lubrication when the truck is disassembled as discussed above and the side frames are removed from the wheel and axle units.

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.

### **Wheel or Axle Replacement**

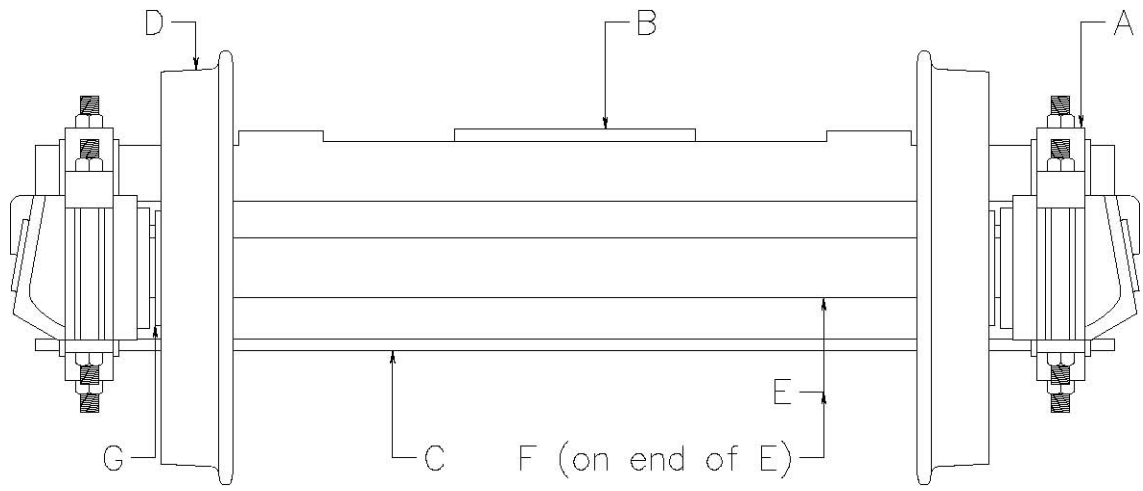
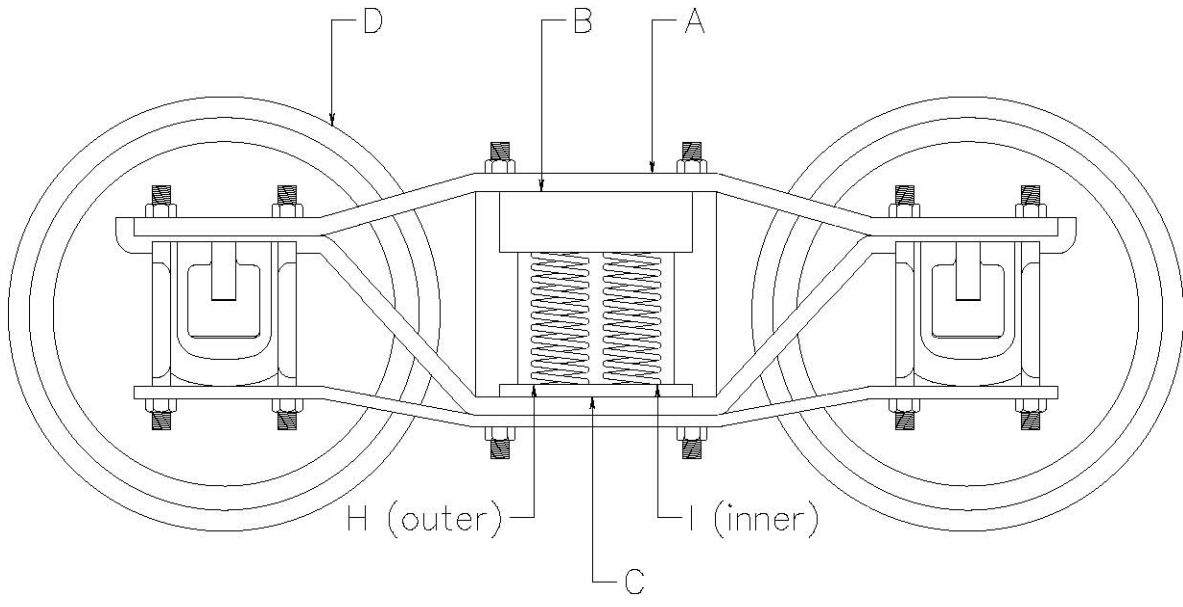
Accident damage or extreme wear may require replacement of wheels or axles. These parts can only be disassembled with a high capacity press. This operation requires skills and proper tooling that should come with the ownership and operation of the press. Wheels that have been pressed on and off more 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 15T5A 7 1/2" gauge	Quantity for Model 15T5B 7 1/4" gauge
A	Side Frame	15T5-001	2	2
B	Bolster	15T5-002	1	1
C	Coil Spring Plank	15T5-003	1 or 0	1 or 0
C	Leaf Spring Plank	15T5-004	1 or 0	1 or 0
D	Wheel	15T5-005	4	4
E	Axle (not plated)	15T5-006	2	2
F	Bearing Unit	15T5-007	4	4
G	Thrust Bearing (7 1/2" gauge)	15T5-008	4	0
G	Thrust Bearing (7 1/4" gauge)	15T5-009	0	4
H	Outer Coil Spring	15T5-010	4 or 0	4 or 0
I	Inner Coil Spring	15T5-011	4 or 0	4 or 0
not shown	Leaf Spring Assembly (complete)	15T5-012	4 or 0	4 or 0

## Parts Packages, Assemblies, Tools

Description	Part Number	Quantity for Model 15T5A 7 1/2" gauge	Quantity for Model 15T5B 7 1/4" gauge
Coil Spring Set (4 outer, 4 inner)	15T5-030	1 or 0	1 or 0
Leaf Spring Set (4 sets of leaves, 4 buttons)	15T5-031	1 or 0	1 or 0
Wheel and Axle Set, 7 1/2" gauge (2 wheels, 1 axle, black zinc plated)	15T5-032	2	0
Wheel and Axle Set, 7 1/4" gauge (2 wheels, 1 axle, black zinc plated)	15T5-033	0	2
Complete Wheel Unit, 7 1/2" gauge (2 wheels, 1 axle, 2 bearing units, 2 thrust bearings) completely assembled	15T5-034	2	0
Complete Wheel Unit, 7 1/4" gauge (2 wheels, 1 axle, 2 bearing units, 2 thrust bearings) completely assembled	15T5-035	0	2
Grease, For Wheel Bearings, 10 ounce cartridge	15T5-050	as required	as required
Grease, For Center Pivot, 10 ounce cartridge	15T5-051	as required	as required
Bearing Mount Retaining Compound (enough for 5 to 10 bearings)	15T5-052	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 inner spring is number 3273, the outer spring is similar to number 71797 but their standard spring is unfinished and must be painted to prevent rusting by the purchaser.

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