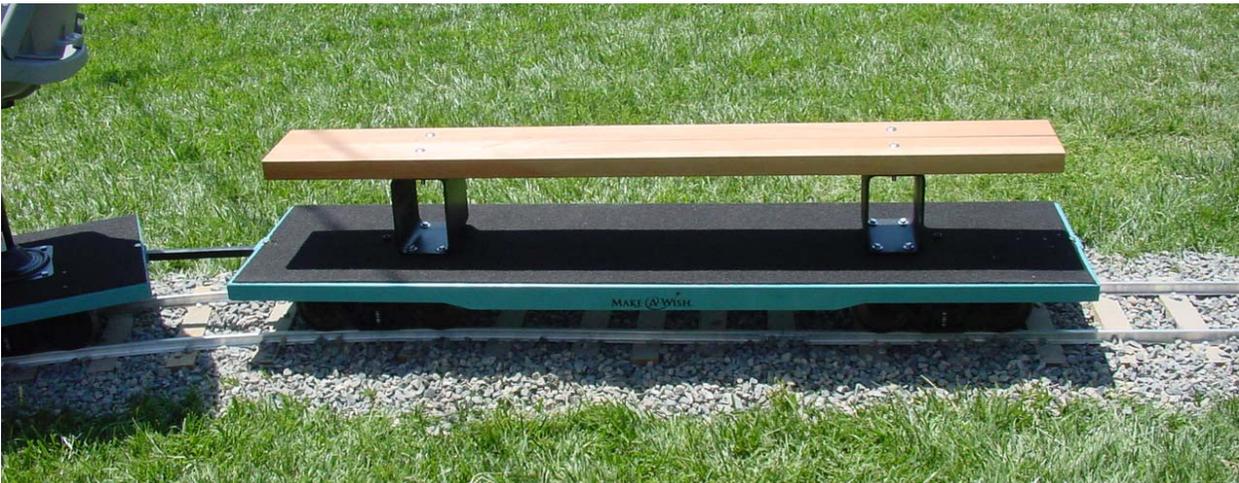


## Basic Train Set, 1 1/2" Scale



Some Items Shown are Optional at Extra Cost



Some Items Shown are Optional at Extra Cost

This set includes everything you need to start your backyard railroad. It includes an extremely safe and easy to run locomotive, a riding car, and a basic oval of track. Setup requires only a few basic hand tools and can be done in a day. If you plan to run only at a club or neighbors track the set is available without track. Additional cars may be purchased and you can add to the track at any time.

**Locomotive**

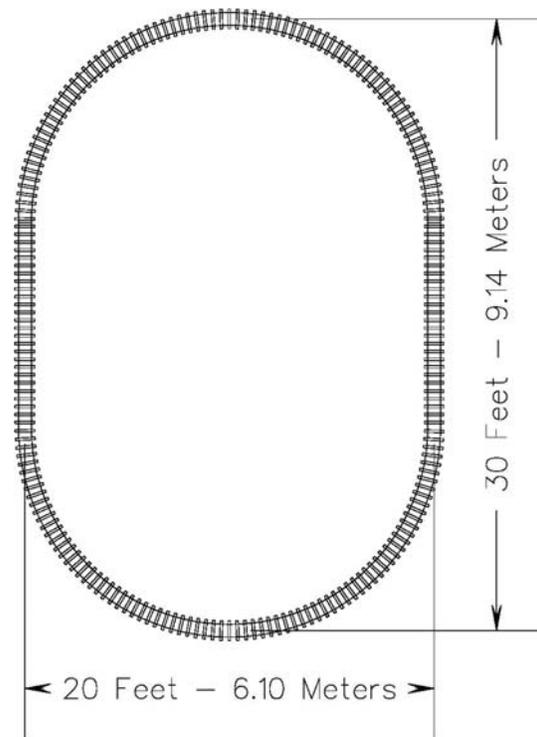
- 31" Long, 13" Wide Scale Model of 1930's Era Gas-Mechanical Industrial Locomotive
- 12 Volt, Industrial Duty Motor (not surplus or converted) Operates from a Standard Deep-Cycle Battery (available locally) - Recharges With Standard Automotive Battery Charger
- Solid State Speed Control - Overload Protection - Controlled Acceleration and Positive Deceleration Under Motor Control
- Operates from a Hand Held Remote Control - Locomotive Stops if Remote is Unplugged
- Key Lock Switch Prevents Unauthorized Use
- Fused Electrical System and Reverse Polarity Protection for Maximum Safety
- Interlocked Safety Controls - Speed Control Must Be at Zero Before Starting
- Safe Mode (key activated) Requires Button to be Held Continuously
- Includes Three Mode Headlight (bright, dim, off) and Horn
- Two Stage (belt and chain) Drive to All Wheels - Maximum 8 MPH Speed Set for Safe Operation at Home While Allowing Reasonable Speed at Club Tracks
- Full Spring Suspension Follows Uneven Track - Self Aligning Ball Bearings On All Wheels
- Completely Painted
- Includes Complete Operation and Maintenance Manual

**Car**

- Our Basic Steel Frame 40 Scale Foot (actual length 59.5" (1.51m)) Car
- Options Include Pedestal Seats, Bench Seat, Carpeted Deck
- 15" width (38.1cm) Provides a Comfortable Feeling When Riding
- High Strength with Minimum Maintenance
- Car May Be Used As Furnished or Used as the Basis For Your Construction Project of a More Elaborate Style
- Includes Drawbar and Our Steam Era Trucks
- Completely Painted
- Includes Complete Use and Maintenance Manuals

**Track**

- Scale Aluminum Rail - Includes Pre-Bent and Cut Curved Sections
- Rot Proof Ties Cut To Size and Grooved For Rail
- All Hardware Furnished (joint bars, bolts, nuts, track screws) - Requires Only Minimal Tools for Assembly
- Additional Track and Switches Available
- Includes Assembly Manual

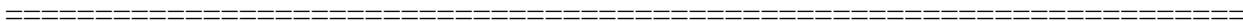


Stock Number	Description	Cost	Weight	Packing Handling
15S1A	Set Including Locomotive, Car, and 20 by 30 Foot Oval Of Track (see notes 1 and 2)	\$4399.00	800	\$120.00
15S1B	Set Including Locomotive and Car, Does Not Include Track (see notes 1 and 3)	\$3549.00	300	\$90.00

15S1C	Additional Track, 10' Straight Section (see notes 2 and 4)	\$89.00	50	See Note #4
15S1D	Additional Track, One-Eighth of a 20' Diameter Circle (approx. 8.1' long, see notes 2 and 4)	\$94.00	50	See Note #4
15S1E	Track Switch, Equivalent to one 10' Straight and one 1/8 <sup>th</sup> Curve, With Operating Mechanism (state right or left hand, see note 5)	\$399.00	100	\$40.00

Notes:

1. There Are Many Alternate Choices And Options That Must Be Selected. Please Request A Special Order Form That Lists And Explains These. This Form Must Be Completed Before An Order Can Be Finalized And Shipped.
2. Sets with Track or Track Alone Must Be Shipped by Freight.
3. Sets Without Track May Be Shipped By Freight or UPS. Some Partial Disassembly Is Required for Shipment by UPS or Postal Mail
4. For Additional Track Ordered Separately From Set Add \$30.00 Packing And Handling Per Order
5. Switches may be shipped UPS



## Industrial Locomotive, Battery Powered, 1 1/2" Scale



Some Items Shown are Optional at Extra Cost

A highly affordable first locomotive for someone new to the hobby. Also popular for work trains or as a less complex alternative for that junior engineer in the family. Designed to last for years with little maintenance.

- 31" Long, 13" Wide Scale Model of 1930's Era Gas-Mechanical Industrial Locomotive
- Steel Frame and Riveted Steel Body - No Plastic - Yet Highly Detailed
- 12 Volt, Industrial Duty Motor (not surplus or converted) Operates from a Standard Deep-Cycle Battery (available locally) - Recharges With Standard Automotive Battery Charger
- Solid State Speed Control - Overload Protection - Controlled Acceleration and Positive Deceleration Under Motor Control
- Operates from a Hand Held Remote Control - Locomotive Stops if Remote is Unplugged
- Key Lock Switch Prevents Unauthorized Use
- Fused Electrical System and Reverse Polarity Protection for Maximum Safety
- Interlocked Safety Controls - Speed Control Must Be at Zero Before Starting
- Safe Mode (key activated) Requires Button to be Held Continuously
- Includes Three Mode Headlight (bright, dim, off) and Horn
- Two Stage (belt and chain) Drive to All Wheels - Maximum 8 MPH Speed Set for Safe Operation at Home While Allowing Reasonable Speed at Club Tracks
- Full Spring Suspension Follows Uneven Track - Self Aligning Ball Bearings On All Wheels
- Completely Painted
- Includes Complete Operation and Maintenance Manual

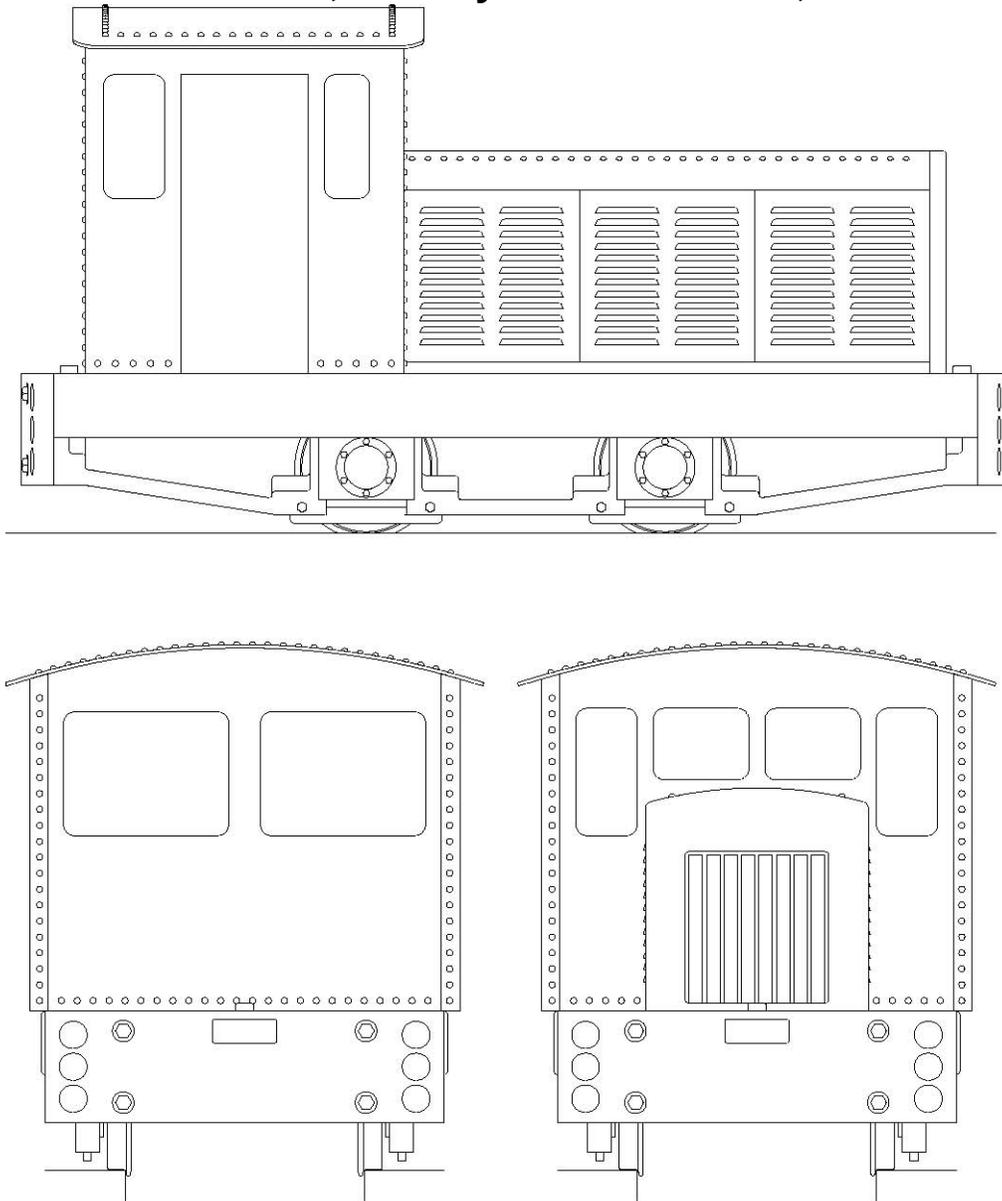
Stock Number	Description	Cost	Weight	Packing Handling
15L1	Industrial Locomotive, Battery Version, See Notes 1 and 2	\$2699.00	200	\$50.00

Notes:

1. There Are Many Alternate Choices And Options That Must Be Selected. Please Request A Special Order Form That Lists And Explains These. This Form Must Be Completed Before An Order Can Be Finalized And Shipped.

2. Some Partial Disassembly Is Required for Shipment by UPS or Postal Mail

## Industrial Locomotive, Gas Hydrostatic Drive, 1 1/2" Scale



Based on the same prototype as our battery powered locomotive but now available with engine power for those who prefer this type of power

- Scale Model of 1930's Plymouth Gas-Mechanical Industrial Locomotive – Overall 31" long, 14" wide and 18" high
- Honda Commercial Duty Engine – 4 Cycle - Uses Regular Automotive Gasoline – Manual Start (electric optional) – Throttle on Rear of Cab (remote optional)
- Hydrostatic Transmission Drive – Commercial Grade Components – Provides Infinitely Variable Speeds With a Single Control Both Forward and Reverse – Dynamic Braking to Slow or Stop – Lever Control from Rear Of Locomotive (remote optional)
- Will Pull 4 Adults (1000 pounds or 2 cars) on a 3 percent Grade and Normal Curves
- Minimum Radius of Track is 10 feet

- Sealed Beam Halogen Headlight with Off, Dim, and Bright Settings - Electric Horn - Hand Held Control - Uses a Standard 12 Volt Battery (not included)
- Key Lock Switch Prevents Unauthorized Use
- Individual Chain Drive to Each Axle
- Full Spring Suspension Follows Uneven Track
- Self Aligning Ball Bearings On All Wheels
- Completely Painted in Choice of Standard Colors - Other Colors and Paint Schemes Optional
- Includes Complete Operation and Maintenance Manual

Stock Number	Description	Cost	Weight	Packing Handling
15L2	Industrial Locomotive, Gas Version, Seen Notes 1 and 2	\$3899.00	220	\$50.00

Notes:

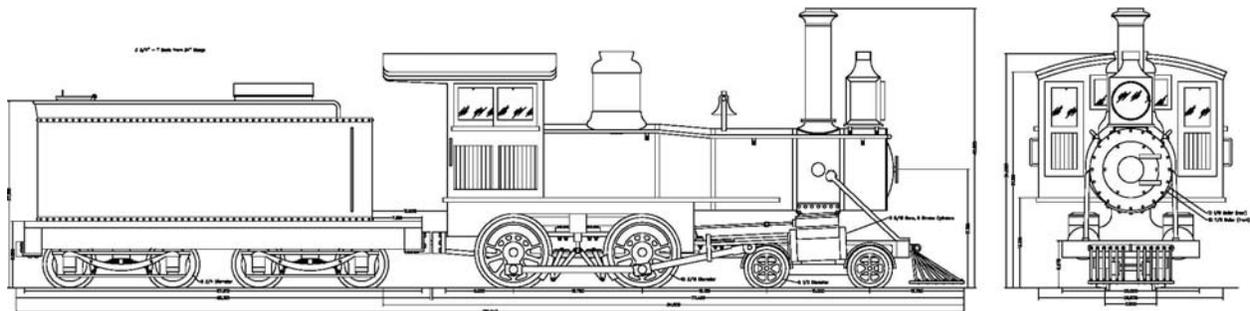
1. There Are Many Alternate Choices And Options That Must Be Selected. Please Request A Special Order Form That Lists And Explains These. This Form Must Be Completed Before An Order Can Be Finalized And Shipped.
2. Some Partial Disassembly Is Required for Shipment by UPS or Postal Mail

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## 4-4-0 American Style Steam Locomotive, 3 3/4" Scale



Under development for 7 1/2" or 7 1/4" gauge track. Provides the large size model desired by many persons while being simpler to operate than more modern locomotives:

- 34" high to top of cab - 40" high to top of stack
- 138" long pilot to rear of tender (84" locomotive only)
- 10 3/16" drivers, 5 1/2" pilot truck wheels
- 3 5/16" bore by 5" stroke cylinders
- 11 1/2" boiler diameter

Exact scale model from 1895 Baldwin built prototype for two foot narrow gauge. Classic American Style locomotive. Could be back dated (balloon stack and brass trim) or built as a more modern locomotive (steam driven pumps, compressors and generator). Currently planned to be offered as plans only, a completely machined and finished kit requiring only final assembly, and as a finished locomotive. Parts will be available in sections. Both coal and propane versions being designed.

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## Center Bench Riding Cars



Trucks Shown For Illustration Only, Not Included



Trucks Shown For Illustration Only, Not Included

These cars are designed for maximum safety in hauling the public. Clubs that operate in parks must often deal with riders that are not experienced in riding and are sometimes difficult to

control. These cars allow persons to set at any point along their length so that persons may set together, hold children, etc. They are smooth in overall shape with no sharp corners or edges and are specifically designed so that they may not be held on to by persons that would cause them to tip over.

*Please request a copy of our Engineering Study*  
 “Stability Analysis of 7 1/2 Inch Gauge Ride-On Trains”

- Full 6 foot Seating Length
- Completely Assembled - Welded Steel Body - End Bulkheads are Aluminum Castings
- Choice of Seat Tops: Powder Coated Steel, Varnished Hardwood, or Padded Vinyl
- Durable Two Step Powder Coat Finish - Choice of Red, Green, Blue, Yellow or Black – Metal Seats are White
- Fits all Standard 3/4” Shank Couplers (not included)
- Truck Mounts Fit Any Of Our 1 1/2” Scale Freight Trucks (not included)
- Includes Complete Instructions

Stock Number	Description	Cost	Weight	Packing Handling
15C9A	Center Bench Car, 6 Foot, Metal Seat	\$660.00	90	\$40.00
15C9B	Center Bench Car, 6 Foot, Wood Seat	\$690.00	90	\$40.00
15C9C	Center Bench Car, 6 Foot, Padded Seat	\$750.00	90	\$40.00

Shipped Truck Freight

### Cordwood Car, 1 1/2” Scale



Trucks Shown For Illustration Only - Not Included

This car is a perfect scale model of a car used to haul cordwood for the paper manufacturing industry. It was commonly used during most of the modern steam and diesel eras. The design allows for easy conversion to a center bench riding car, needing only the seat to be added.

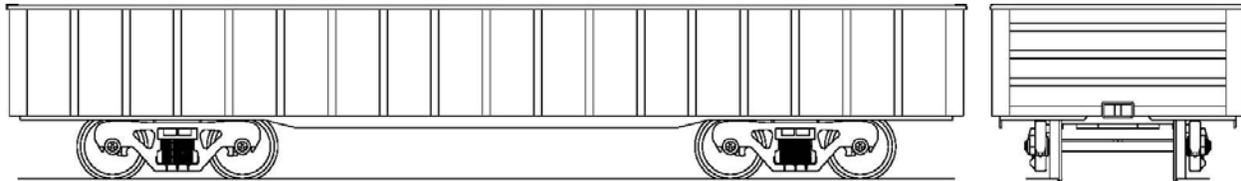
- Available as a 40 Scale Foot (inside length 59.25” (1.50m)) or 60 Scale Foot (inside length 89.25” (2.26m)) Car - 15” inside width (38.1cm)

- Includes a Completely Assembled and Welded Steel Floor with Center Tube and Body Bolsters
- End Bulkhead Parts are Laser Cut and Completely Formed of 12 gauge Steel
- Most Rivet Holes are Provided - Assembly Requires Some Drilling and Riveting - Solid Head Rivets and Rivet Tool are Included
- Hardwood Deck is Pre-Cut Individual Pieces - Requires Only Minor Trimming
- Fits all Standard 3/4" Shank Couplers (not included)
- Truck Mounts Fit Any Of Our 1 1/2" Scale Freight Trucks (not included)
- Includes Complete Plans and Instructions

Stock Number	Description	Cost	Weight	Packing Handling
15C5A	Cordwood Car Kit, 40 Scale Foot	\$670.00	70 40	\$20.00
15C5B	Cordwood Car Kit, 60 Scale Foot	\$750.00	95 40	\$20.00
15C5C	Factory Assembly and Painting (additional)	\$480.00		\$50.00

Kits Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box  
 Assembled Cars Ship Freight in One Crate

**Gondola Car Kit, 1 1/2" Scale**



Trucks Shown For Illustration Only - Not Included

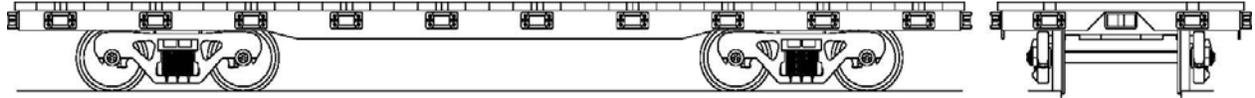
This car is a model of a modern welded steel gondola car. This car is commonly seen in service throughout the late steam and diesel eras.

- Available as a 40 Scale Foot (inside length 59.25" (1.50m)) or 60 Scale Foot (inside length 89.25" (2.26m)) Car - 15" inside width (38.1cm)
- Includes a Completely Assembled and Welded Steel Floor with Center Tube and Body Bolsters
- Includes Formed Steel Sides and Ends, Aluminum Tube Posts and Ribs, And "Pop" Style Rivets - Assembly Requires Drilling and Riveting
- Fits all Standard 3/4" Shank Couplers (not included)
- Truck Mounts Fit Any Of Our 1 1/2" Scale Freight Trucks (not included)
- Includes Complete Plans and Instructions

Stock Number	Description	Cost	Weight	Packing Handling
15C4A	Gondola Kit, 40 Scale Foot	\$410.00	70 40	\$20.00
15C4B	Gondola Kit, 60 Scale Foot	\$490.00	90 40	\$20.00
15C4C	Factory Assembly and Painting (additional)	\$360.00		\$40.00

Kits Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box  
 Assembled Cars Ship Freight in One Crate

## Flat Car Kit, 1 1/2" Scale



Trucks Shown For Illustration Only - Not Included

This car is a basic wood deck flat car. It can be modified and detailed to represent many types of cars.

- Available as a 40 Scale Foot (inside length 59.25" (1.50m)) or 60 Scale Foot (inside length 89.25" (2.26m)) Car - 15" inside width (38.1cm)
- Includes a Completely Assembled and Welded Steel Floor with Center Tube and Body Bolsters
- Includes Investment Cast Aluminum Stake Pockets, Solid Head Rivets, Rivet Tool
- Individual Pre-Cut Hardwood Floor Boards
- Assembly Requires Drilling, Riveting, and Minor Trimming
- Fits all Standard 3/4" Shank Couplers (not included)
- Truck Mounts Fit Any Of Our 1 1/2" Scale Freight Trucks (not included)
- Includes Complete Plans and Instructions

Stock Number	Description	Cost	Weight	Packing Handling
15C3A	Flat Car Kit, 40 Scale Foot	\$330.00	70 20	\$20.00
15C3B	Flat Car Kit, 60 Scale Foot	\$390.00	90 20	\$20.00
15C3C	Factory Assembly and Painting (additional)	\$290.00		\$40.00

Kits Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box  
Assembled Cars Ship Freight in One Crate

## Steel Car Floor and Frame, 1 1/2" Scale



Bottom View Showing Structure

May be used as furnished as a work car - add seats for a riding car - or use as the basis for construction of any style car (all the metal work is done if you are a woodworker).

- Available as a 40 Scale Foot (actual length 59.5" (1.51m)) or 60 Scale Foot (actual length 89.5" (2.27m)) Car - 15" width (38.1cm)
- Laser Cut, CNC Formed, Jig Welded Steel Floor, Center Tube, and Body Bolsters
- Fits all Standard 3/4" Shank Couplers (not included) - Mounting Bolts Included
- Truck Mounts Fit Any Of Our 1 1/2" Scale Freight Trucks (not included)

- Available Unpainted or Painted in Your Choice of Colors
- Includes Complete Use and Maintenance Manual

Stock Number	Description	Cost	Weight	Packing Handling
15C1A	Steel Car, 40 Scale Foot, Unpainted	\$210.00	70	\$20.00
15C1B	Steel Car, 40 Scale Foot, Painted (state color)	\$270.00	74	\$50.00
15C2A	Steel Car, 60 Scale Foot, Unpainted	\$290.00	90	\$20.00
15C2B	Steel Car, 60 Scale Foot, Painted (state color)*	\$355.00	94	\$50.00

Shipped UPS Except \* Painted 60 foot Cars Must be Shipped by Freight

### Steel Car Floor and Frame, 2 1/2" Scale



Bottom View Showing Structure

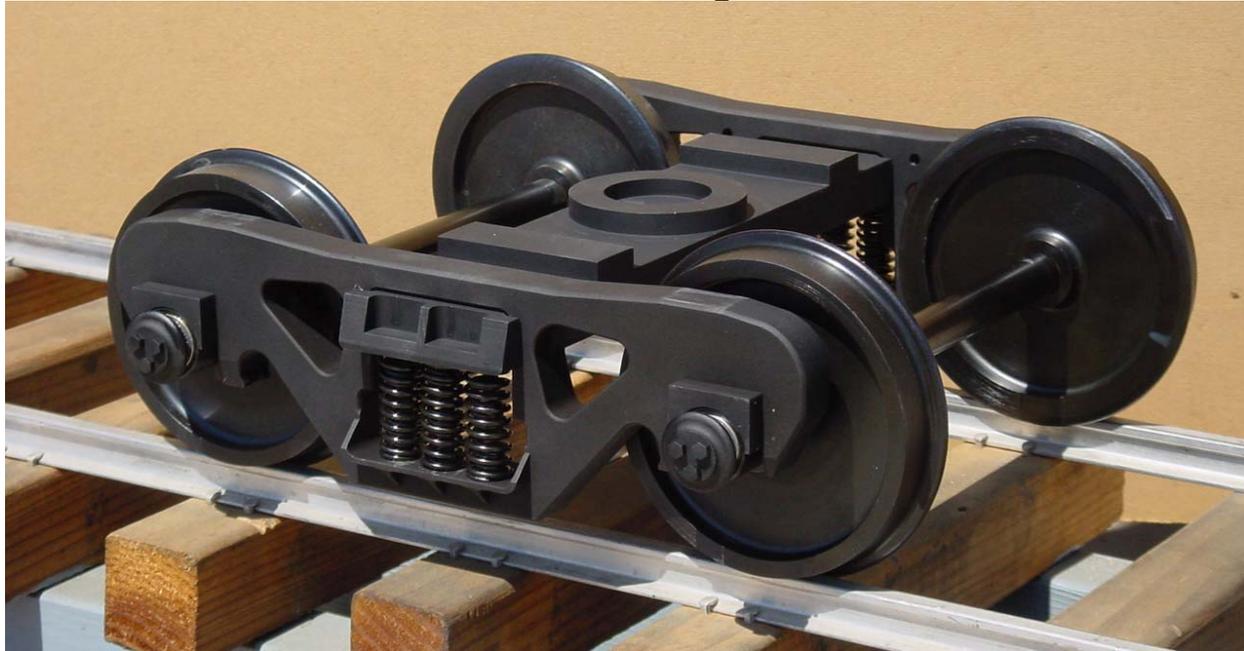
May be used as furnished as a work car - add seats for a riding car - or use as the basis for construction of any style car (all the metal work is done if you are a woodworker).

- Design Based on a 32 Scale Foot Length, 8 Foot Width Narrow Gauge Car (actual length 79.5" (2.02m) and width 20" width (50.8cm)
- Laser Cut, CNC Formed, Jig Welded Steel Floor, Center Tube, and Body Bolsters
- Fits 1 1/2" Scale Couplers Mounted to Couple With 1 1/2" Scale Cars to Allow Mixed Trains (couplers not included)
- Fits Real Trains 2 1/2" Scale Trucks (not included)
- Available Unpainted or Painted in Your Choice of Colors
- Includes Complete Use and Maintenance Manual

Stock Number	Description	Cost	Weight	Packing Handling
25C1A	Steel Car, Unpainted	\$300.00	104	\$20.00
25C1B	Steel Car, Painted (state color)*	\$350.00	109	\$50.00

Shipped UPS Except \* Painted Cars Must be Shipped by Freight

**Modern Era, 70 or 100 Ton Roller Bearing Truck, 1 1/2" Scale**



These trucks are what is used by the prototype today under all but the heaviest cars. The truck that this model is based on was first used in the early 1950's. It was initially rated for 70 tons but improvements in materials and bearings later resulted in a 100 ton version that looked identical.

This model is the only type of truck that is correct on modern cars and for use in trains pulled by late model diesel locomotives.

- True Roller Bearing Design - Same as Prototype - Double Sealed Caged Roller Bearings
- 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
- Tool Steel Axles - Hardened to 60 Rc for Long Wear - Bearing Support of High Strength 4130 Chrome Moly Steel - Side Frame and Bolster CNC Machined from Heat Treated Aluminum Bar - Detailed Aluminum Axle End Caps Turn With Wheels - All Bolts are Stainless Steel - All Aluminum Parts 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
- Includes Complete Installation and Maintenance Manual  
*To Include Brakes on These Trucks See Page 16*

Stock Number	Description	Cost	Weight	Packing Handling
15T1A	70-100 Ton Modern Era Roller Bearing Truck, 7 1/2" Gauge	\$530.00	17 17	\$10.00
15T1B	70-100 Ton Modern Era Roller Bearing Truck, 7 1/4" Gauge	\$530.00	17 17	\$10.00

Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box

**Steam Era, 70 Ton Plane Bearing Truck, 1 1/2" Scale**



These trucks were what was used throughout the steam era. You may see a few today on maintenance of way cars but they are uncommon. The model is correct under any type of freight car from built the first World War through the 1960's.

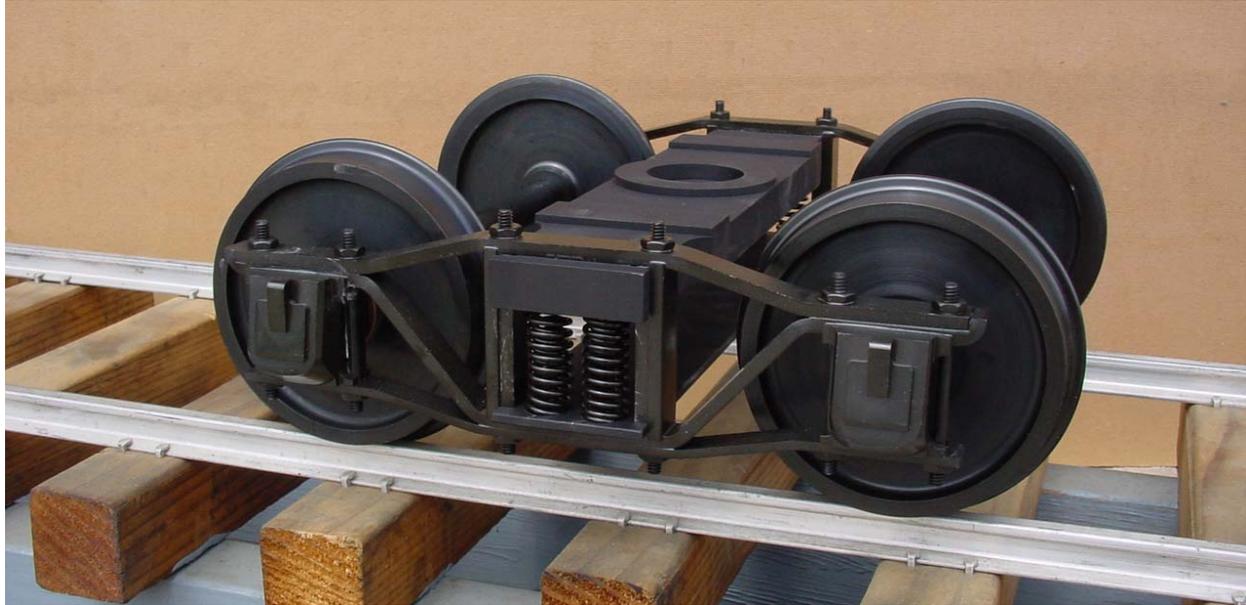
- Steel Wheels - IBSL Profile - Scale 33" (4 1/8" diameter) - Dished Both Sides
- More Than 1/2" Wheel Travel Prevents Derailments - Progressive Multi-Length Spring Design (12 springs per truck) - Full Flexibility From Empty to Maximum Load
- Needle Bearings in Special Self-Aligning Housing - Allows Axle to Rotate Freely Without Restricting Motion of Side Frames - Bearing Housing of High Strength 4130 Chrome Moly Steel Hardened to 45 Rc
- Side Frame and Bolster CNC Machined from Heat Treated Aluminum Bar - All 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
- Includes Complete Installation and Maintenance Manual  
*To Include Brakes on These Trucks See Page 16*

Stock Number	Description	Cost	Weight	Packing Handling
15T3A	70 Ton Steam Era Plane Bearing Truck, 7 1/2" Gauge	\$530.00	17 17	\$10.00
15T3B	70 Ton Steam Era Plane Bearing Truck, 7 1/4" Gauge	\$530.00	17 17	\$10.00

Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box

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



These trucks were common from the early days of railroading until after the first World War. The model is most correct under freight cars of wood frame or truss rod construction. In later years they were found only under cabooses and tenders, and still later only under maintenance-of-way equipment.

- 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
- Includes Complete Installation and Maintenance Manual

*Please Note - These Arch Bar Trucks Should Be Limited to a Maximum Total Car Weight of 600 Pounds (270 kg.) per Pair of Trucks  
To Include Brakes on These Trucks See Page 16*

Stock Number	Description	Cost	Weight	Packing Handling
15T5A	Arch Bar Truck, 7 1/2" Gauge, Coil Springs	\$610.00	21 21	\$10.00
15T5B	Arch Bar Truck, 7 1/4" Gauge, Coil Springs	\$610.00	21 21	\$10.00
15T5C	Arch Bar Truck, 7 1/2" Gauge, Leaf Springs	\$825.00	22 22	\$10.00

15T5D	Arch Bar Truck, 7 1/4" Gauge, Leaf Springs	\$825.00	22 22	\$10.00
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Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box

**Brakes for 1 1/2" Scale Modern Era, Steam Era, or Arch Bar Trucks**



If your club or home layout includes steep grades or long trains you may want to consider adding brakes to your cars. Some people simply like the looks or the expanded operating possibilities of brakes. Some clubs may require them. Most of our trucks are available with a brake system installed. You should be sure that the system selected is compatible with any existing brake systems so that all cars will work together to stop the train.

- Brake Beams, Hangers, and Operating Mechanism of Cold Rolled Steel – Black Zinc Plated
- Bronze Brake Shoes - Stainless Steel Air Cylinders
- All Bolts, Nuts, Washers, and Pins are Stainless Steel

**The Following Are The Brake Options Available:**

Add these prices to the price of a pair of trucks to get the price of a truck with brakes.

This applies only to orders for trucks and brakes together.

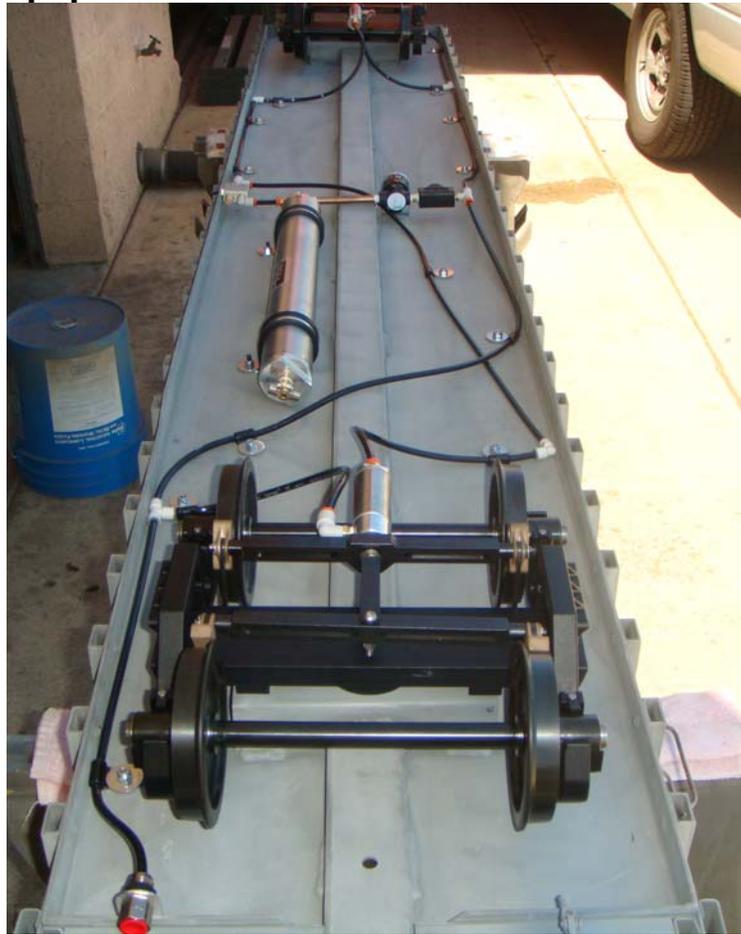
Contact us if you want to add brakes to existing trucks.

Stock Number	Description	Cost	Weight	Packing Handling
15T14A	Brake Hangers, Beams, and Shoes Only (no operating mechanism)	\$140.00	1	
15T14B	Brake Hangers, Beams, Linkage, Shoes and Air Cylinder (mounted directly to brake beams) State Cylinder Size Needed (9/16", 3/4", 1 1/16", 1 1/4" or 1 1/2") and if Single or Double Acting	\$250.00	4	
15T14C	Brake Hangers, Beams, Linkage, Shoes and Dual Vacuum Diaphragms (VC-12 type on brackets with operating linkage)	\$360.00	8	
15T14E	Additional for Arch Bar Trucks (requires bracket)	\$60.00	1	

**Automatic Safety Air Brake Equipment**

This adds automatic air brakes that will apply if the train brake line going to the car is parted. It must be used with trucks equipped with double acting air cylinders (not included). Normally supplied uninstalled but with complete instructions to add to any type of car. You need only to furnish mounting screws suitable to the material of the car floor. Available installed if ordered with an assembled car.

- Includes Air Tank, Check Valve, Regulator, Tubing and Fittings to Fit One Car (2 trucks)
- Air Dump Valve is Optional – Allows Moving of Car Not Attached to Air Source
- Prototype Operation – Decrease Train Line Pressure to Apply Brakes – Increase to Release
- Bulkhead Fittings and Mounting Brackets at Each End of Car



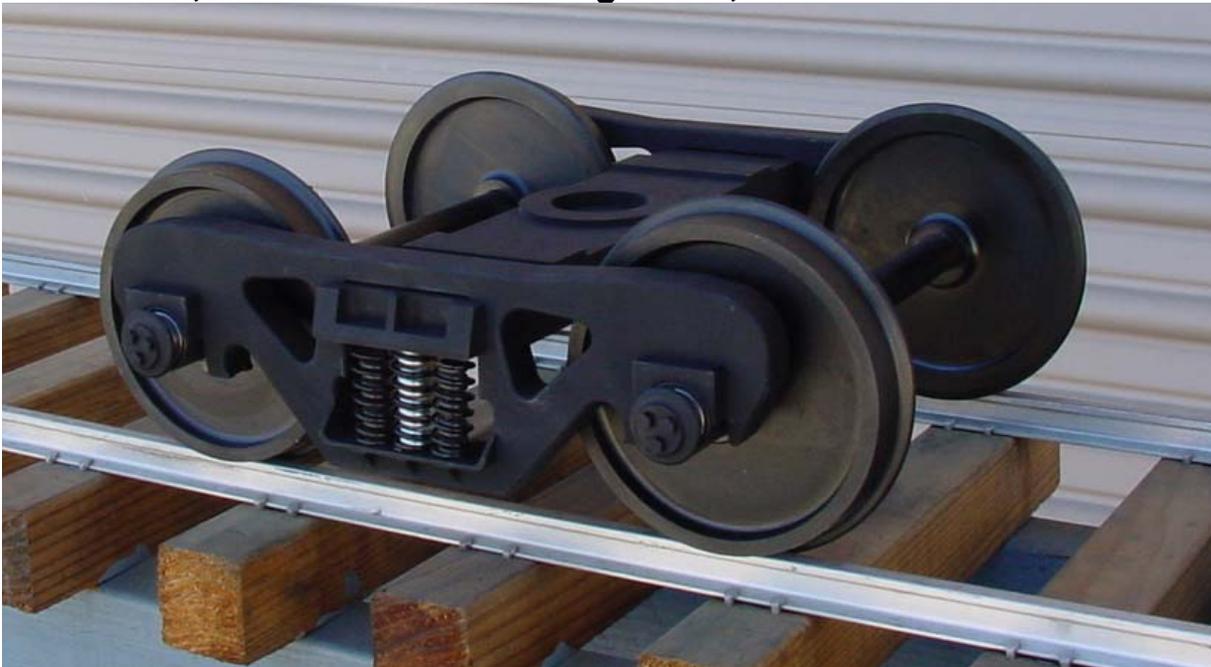
Shown with Optional Dump Valve and 18" Tank

Stock Number	Description	Cost	Weight	Packing Handling
15T15A	Automatic Air Brake Kit, 10" Air Tank for Shorter Cars	\$213.00	10	
15T15B	Automatic Air Brake Kit, 18" Air Tank for Long or Heavy Cars	\$230.00	10	
15T15C	Automatic Air Brake Kit, 10" Air Tank for Shorter Cars, Includes Dump Valve	\$262.00	12	
15T15D	Automatic Air Brake Kit, 18" Air Tank for Long or Heavy Cars, Includes Dump Valve	\$279.00	12	
15T15E	Installation On Finished Car (additional)	\$180.00		

See Section 13 for Air Compressors, Control Valves, Additional Tubing and Fittings

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**Modern Era, 100 Ton Roller Bearing Truck, 1 1/2" Scale**



These trucks are what is used by the prototype today under all but the heaviest cars. The truck that this model is based on was first used in the 1960's. Earlier versions of this truck using 33 inch wheels that were rated for 100 tons resulted in excessive rail wear. This was corrected by increasing the wheel size to 36 inches. This is a model of that later truck.

- True Roller Bearing Design - Same as Prototype - Double Sealed Caged Roller Bearings
- Steel Wheels - IBLS Profile - Scale 36" (4 1/2" 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
- Tool Steel Axles - Hardened to 60 Rc for Long Wear - Bearing Support of High Strength 4130 Chrome Moly Steel - Side Frame and Bolster CNC Machined from Heat Treated Aluminum Bar - Detailed Aluminum Axle End Caps Turn With Wheels - All Aluminum Parts 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 Bolts are Stainless Steel
- Not Available With Brakes
- Includes Complete Installation and Maintenance Manual

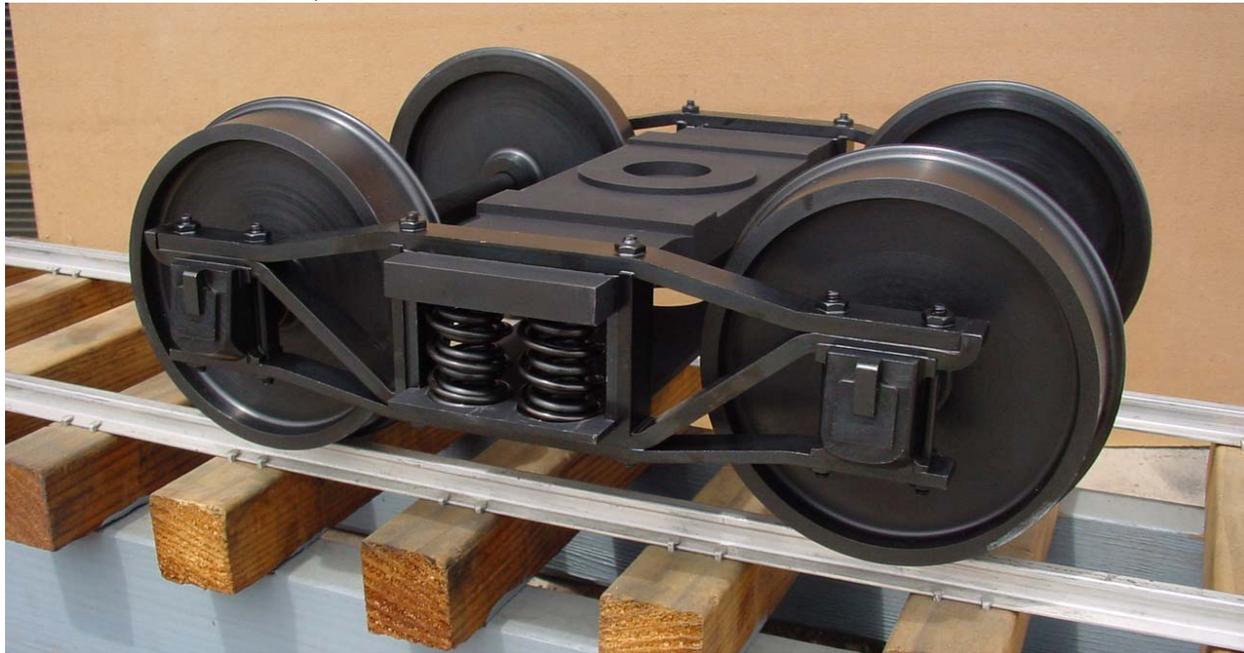
Stock Number	Description	Cost	Weight	Packing Handling
15T7A	100 Ton Modern Era 36" Wheel Roller Bearing Truck, 7 1/2" Gauge	\$579.00	19 19	\$10.00
15T7B	100 Ton Modern Era 36" Wheel Roller Bearing Truck, 7 1/4" Gauge	\$579.00	19 19	\$10.00

Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box



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



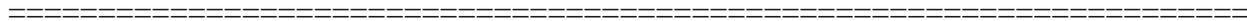
These trucks were common from the early days of railroading until after the first World War. The model is most correct under freight cars of wood frame or truss rod construction. In later years they were found only under cabooses and tenders, and still later only under maintenance-or-way equipment.

- Steel Wheels - IBL 1 1/2" Scale Flange Profile Except 1 1/4" Wide (correct width for scale with flange to allow operation on existing layouts) - Scale 26" (5.42" diameter) - Dished Both Sides
- More Than 1/2" Wheel Travel Prevents Derailments - Coil 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
- Includes Complete Installation and Maintenance Manual

Stock Number	Description	Cost	Weight	Packing Handling
25T5A	Arch Bar Truck, 7 1/2" Gauge	\$790.00	33 33	\$10.00
25T5B	Arch Bar Truck, 7 1/4" Gauge	\$790.00	33 33	\$10.00

Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box



### Steam Era Bettendorf Freight Truck, 3" Scale



This truck was one of the most commonly seen designs from 1920 to the 1970's. Unlike most of our trucks, this truck is offered as a set of castings to make two trucks but does not include bearings, springs, or metal stock.

- May be assembled for 14", 14 1/8", 15" or 16" Gauges
- Cast in Ductile Iron for Heavy Service
- Wheels are 85ksi Iron That Can Be Heat Treated to Harden Tread
- Kit Includes 4 Side Frames, 2 Bolsters, 8 Wheels, 8 Spring Plates, 8 Journal Box Lids
- You Furnish Bearings, Springs, Axles, Etc.
- Machining and Assembly Required
- Proven Design – Over 100 Running
- Complete Plans Included – Show Alternate Bearing and Spring Designs
- Operable Journal Lids
- Furnished as a Kit of Rough Castings – Machining, Springs, Bearings, Hardware and Assembly is Required

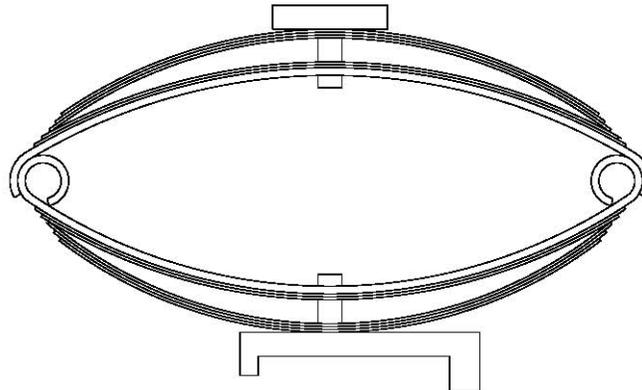
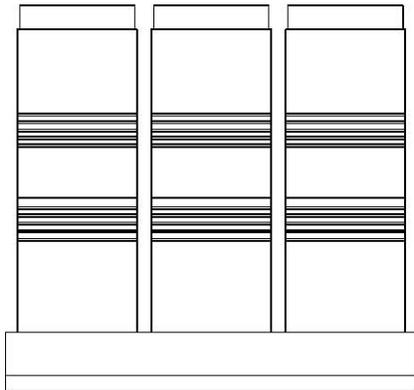
Stock Number	Description	Cost	Weight	Packing Handling
30T8J	Casting Kit (8 wheels, 4 side frames, 2 bolsters, 8 journal covers, 4 upper spring retainers, 4 lower spring retainers, plans, instructions)	\$820.00	290	\$20.00
30T8L	Brake Kit (8 shoes, plans, instructions)	\$140.00	24	
30T8M	Assembled, Painted, and Tested Pair of Trucks, Includes Air Brakes with 2" Double Acting Cylinders	\$3120.00	400	\$50.00

Trucks Shipped Freight

Brake Kits Ordered Separately Shipped UPS or Postal Mail



**Leaf Springs, 1 1/2" Scale**



These are leaf spring conversion units for some of our trucks. Leaf springs were commonly used under cabooses, tenders, and other cars which carried people. Drawing shows conversion unit for Modern Roller Bearing and Steam Era Trucks. Photo shows leaf springs in Arch Bar Truck.

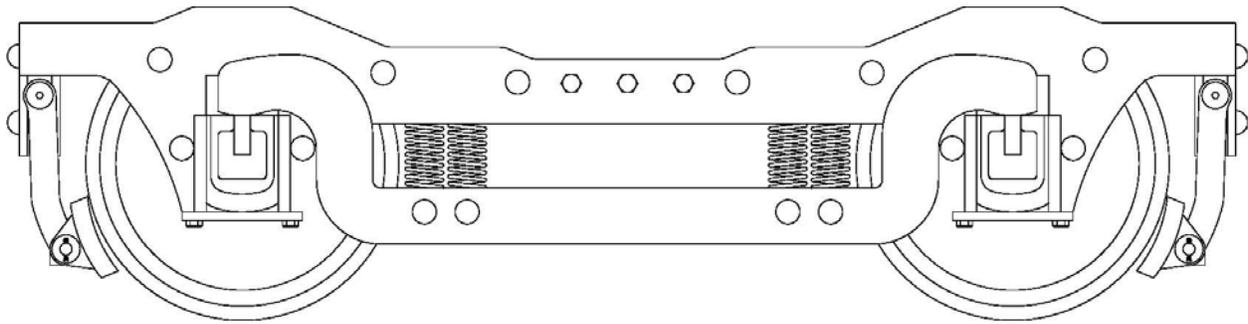
- Two Stage Progressive Design - Truck Remains Flexible With Car Empty or Loaded
- Stainless Steel Leaves - Do Not Rust Even After Flexing In Use
- Completely Assembled - Snap In Installation - If Ordered With Trucks Will Be Sent Installed
- Complete Instructions Furnished

Stock Number	Description	Cost	Weight	Packing Handling
15T14A	Leaf Spring Conversion for 1 1/2" Scale Modern Roller Bearing and Steam Era Plane Bearing Trucks, Three Springs Per Side	\$340.00	2	
15T14B	Leaf Spring Conversion for 1 1/2" Scale Arch Bar Trucks, Two Springs Per Side, Includes New Spring Plank	\$230.00	2	

Prices are For Conversion Units to Do One Pair (2) of Trucks  
 Sold Only to Owners of Our Trucks – Not For Use With Other Products – Proof of Ownership May Be Required



**Four Wheel Passenger Car Truck, 1 1/2" Scale**



These trucks were commonly used under passenger cars from the 1880's to the 1970's. They can be used wherever passenger train speeds and ride quality is important (mail cars, express refrigerators, etc.). They are also common under steam locomotive tenders built early in this same time period.

- Steel Wheels - IBLs Profile - Scale 36" (4 1/2" diameter) Passenger Car Diameter - Dished Both Sides
- More Than 1/2" Wheel Travel Prevents Derailments - Coil Springs with Two Stage Design - Full Flexibility From Empty to Maximum Load
- All Frame Components of Laser Cut and CNC Formed Steel Plate - Jig Welded into a One Piece Unit
- Needle Roller Bearings in Special Self-Aligning Steel Journal Box Housing - Allows Axle to Rotate Freely Without Restricting its Motion
- Brake Beams, Hangers, and Operating Mechanism of Cold Rolled Steel - Bronze Brake Shoes - Stainless Steel Air Cylinders
- Frame is Three Step Painted Black - All Other Steel Parts Black Zinc Plated - Much Tougher Than Paint and Prevents Corrosion Even if Scratched
- All Bolts, Nuts, Washers, and Pins are Stainless Steel
- Includes Complete Installation and Maintenance Manual

Stock Number	Description	Cost	Weight	Packing Handling
15T9A	Four Wheel Passenger Car Truck, 7 1/2" Gauge, No Brakes	\$629.00	22 22	\$10.00
15T9B	Four Wheel Passenger Car Truck, 7 1/4" Gauge, No Brakes	\$629.00	22 22	\$10.00
15T11C	Four Wheel Passenger Car Truck, 7 1/2" Gauge, with Air Brakes (specify cylinder bore and single or double acting)	\$919.00	24 24	\$10.00
15T11D	Four Wheel Passenger Car Truck, 7 1/4" Gauge, with Air Brakes (specify cylinder bore and single or double acting)	\$919.00	24 24	\$10.00

Prices are Per Pair (2 trucks)

Shipped in Two Boxes - Weight Shown is Shipping Weight in Pounds for Each Box



## Steam Locomotive Drivers

These are unmachined sand castings. They are for use in your own designs. Please also see our Berkshire kit for additional parts.



Stock Number	Description	Cost	Weight	Packing Handling
50M2A	5" Scale Porter Type Driver, Finishes to 10" over Tread, Aluminum Casting (left in photo)	\$75.00	20	
50M2B	5" Scale Porter Type Driver, Finishes to 10" over Tread, Ductile Iron Casting (left in photo)	\$123.00	45	
15M2A	1 1/2" Scale Baldwin Disc Driver (as used on Santa Fe 3460 class Hudson), Scale 84" Diameter, Finishes to 10.5" over Tread. Heavy Counterweight, Ductile Iron Casting (center in photo)	\$90.00	22	
15M2B	1 1/2" Scale Baldwin Disc Driver, Same as Above Except Light Counterweight, (right in photo)	\$90.00	20	

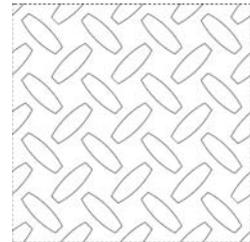


Stock Number	Description	Cost	Weight	Packing Handling
15M2C	1 1/2" Scale 17 Spoke Driver (as used on Atlantics or Pacifics), Scale 72" Diameter, Finishes to 9" over Tread, Light Counterweight (left in photo)	\$75.00	17	
15M2D	1 1/2" Scale 17 Spoke Driver, Same As Above Except Medium Counterweight (center in photo)	\$75.00	18	
15M2E	1 1/2" Scale 17 Spoke Driver, Same as Above Except Heavy Counterweight (right in photo)	\$75.00	19	

**Diamond Plate Walkway Material, 1", 1 1/2", 1.6", 2 1/2", 3", 3 3/4", and 5" Scales**

This material is what is most commonly seen on all types of walkways and cab floors of locomotives.

- Made By Photographically Etching Sheet Brass to Produce Perfect Sharp Detail
- Pattern is Raised 0.030"
- Remaining Plate is approximately 0.060" thick
- Furnished in 18" (457mm) by 24" (609mm) sheets



*Note: For open grid walkway see our general parts section*

Stock Number	Description	Cost	Weight	Packing Handling
10M4A	1" Scale Diamond Plate	\$392.00	17	\$10.00
15M4A	1 1/2" Scale Diamond Plate	\$392.00	17	\$10.00
16M4A	1.6" Scale Diamond Plate	\$392.00	17	\$10.00
25M4A	2 1/2" Scale Diamond Plate	\$272.00 see note	14	\$10.00
30M4A	3" Scale Diamond Plate	\$440.00	17	\$10.00
33M4A	3 3/4" Scale Diamond Plate	\$410.00	17	\$10.00
50M4A	5" Scale Diamond Plate	\$460.00	17	\$10.00

For this item, Packing and Handling applies once per order

Note: 2 1/2 scale remaining material is 0.025" thick

**Bell Kit, 3" and 5" Scales**

- Complete Set of Castings
- Bell Cast in Bronze
- Other Parts Aluminum
- Includes Complete Hardware, Bearings, Shafting, Drawings and Instructions



Furnished As A Kit – Machining and Assembly Required

Stock Number	Description	Cost	Weight	Packing Handling
30M6B	Bell Kit	\$126.00	8	

## 12 Volt DC High Pressure Boiler Water Feed Pump



This is an industrial quality high pressure cold water pump designed to operate off of 12 volt battery systems. Adding a small motorcycle battery and this pump provides a safe and reliable alternative to injectors, axle pumps or steam driven pumps to add water to the boiler. Will self prime and can be ran dry without damage. Includes overpressure shut off switch.

Stock Number	Description	Cost	Weight	Packing Handling
99X12A	Water pump capable of pressures up to 150 psi. Outputs approximately 1 quart (1 liter) per minute at full pressure. Approximately 4" x 9" x 5 1/2"	\$174.00	8	
99X12B	Water pump capable of pressures up to 150 psi. Smaller Pump for Small Locomotives, Outputs approximately 1 quart (1 liter) per 10 minutes at full pressure. Approximately 4" x 8" x 5"	\$153.00	7	

## Steam Locomotive Crossheads, 1.6" Scale



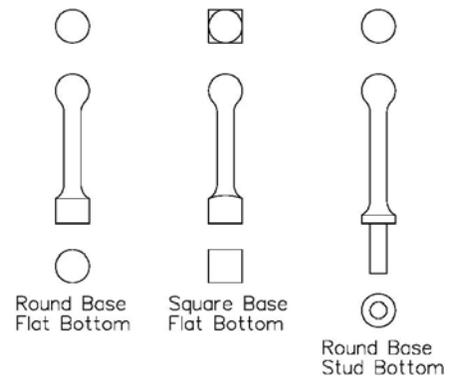
These are unmachined bronze castings made by the precision investment casting process. They are for use in your own designs or construction projects. Please also see our Berkshire kit for additional parts

Stock Number	Description	Cost	Weight	Packing Handling
16M3A	1.6" Scale Crosshead, Southern Pacific GS-4 Type (left in photo)	\$95.00	4	
16M3B	1.6" Scale Crosshead, Laird (center in photo)	\$95.00	4	
16M3C	1.6" Scale Crosshead, Drop Link Style (right in photo)	\$90.00	3	

### Handrail Stanchions, All Scales

These Stanchions are Used for Locomotive Handrails, Conduit Supports, Coupler Lift Rod Bearings, Etc. Machined From Brass Rod

- Ball Head, Drill to Suite Application
- Square or Round Base
- Flat Bottom May Be Drilled and Tapped
- Stud Bottom May Be Threaded
- Round Base Diameter or Square Base Sides are Equal To Ball Diameter
- Length is From End of Ball to Flat Base (without stud). All Studs are 0.375" (9.53mm) Long



Stock Number	Description	Cost	Weight	Packing Handling
99M1A	1/4" Diameter, 1/2" High, Round Base, Flat Bottom	\$2.80	0.1	
99M1B	1/4" Diameter, 3/4" High, Round Base, Flat Bottom	\$3.00	0.1	
99M1C	1/4" Diameter, 1" High, Round Base, Flat Bottom	\$3.30	0.1	
99M1D	1/4" Diameter, 1/2" High, Square Base, Flat Bottom	\$2.80	0.1	
99M1E	1/4" Diameter, 3/4" High, Square Base, Flat Bottom	\$3.00	0.1	
99M1F	1/4" Diameter, 1" High, Square Base, Flat Bottom	\$3.30	0.1	
99M1G	1/4" Diameter, 1/2" High, Round Base, Stud Bottom	\$3.40	0.1	
99M1H	1/4" Diameter, 3/4" High, Round Base, Stud Bottom	\$3.90	0.1	
99M1I	1/4" Diameter, 1" High, Round Base, Stud Bottom	\$4.40	0.1	
99M1J	3/8" Diameter, 3/4" High, Round Base, Flat Bottom	\$3.80	0.1	
99M1K	3/8" Diameter, 1" High, Round Base, Flat Bottom	\$4.00	0.1	
99M1L	3/8" Diameter, 1 1/4" High, Round Base, Flat Bottom	\$4.30	0.1	
99M1M	1/2" Diameter, 1" High, Round Base, Flat Bottom	\$4.80	0.1	
99M1N	1/2" Diameter, 1 1/2" High, Round Base, Flat Bottom	\$5.00	0.1	
99M1O	1/2" Diameter, 2" High, Round Base, Flat Bottom	\$5.30	0.1	



1 x 2 Tube Frame with Wide Body Bolster  
Shown Mounted to Trucks



1 x 3 Tube Frame, Standard Body Bolster and End Sill  
Shown Upside Down

### Car Center Tube Frames, 1 1/2” Scale

Provides pulling strength to connect the couplers at each end of the car and bending strength to support the weight carried on the car. When used with our body bolsters they also connect the trucks and insure that the couplers are at the correct height.

- Available In Two Sizes Depending on the Size and Weight of The Car:
- Made of Steel Tubing - Furnished Completely Machined - Ready to Paint
- End Opening is 3/4” High to Fit Standard Coupler Shanks - Drilled and Tapped for 3/8” Diameter Shoulder Bolts (included) to Mount Coupler - Coupler Mounting Holes Provided at Two Locations for Standard Shanks and Loop Shanks
- Fits all Our 1 1/2” Scale Body Bolsters and End Sills Without Modification - All Bolt Holes Provided
- Includes Holes for Bolting To Car Floor (bolts not included)
- Complete Installation Instructions Furnished

Stock Number	Description	Cost	Weight	Packing Handling
15P3A	2” Straight Tube Frame, 42” Long (28’ scale), Trucks 7” In From Ends	\$70.00	11	\$10.00
15P3B	2” Straight Tube Frame, 48” Long (32’ scale), Trucks 8” In From Ends	\$75.00	12	\$10.00
15P3C	2” Straight Tube Frame, 54” Long (36’ scale), Trucks 9” In From Ends	\$80.00	14	\$10.00
15P3D	2” Straight Tube Frame, 60” Long (40’ scale), Trucks 10” In From Ends	\$85.00	15	\$10.00
15P3E	3” Straight Tube Frame, 54” Long (36’ scale), Trucks 9” In From Ends	\$110.00	18	\$10.00
15P3F	3” Straight Tube Frame, 60” Long (40’ scale), Trucks 10” In From Ends	\$120.00	20	\$10.00
15P3G	3” Straight Tube Frame, 75” Long (50’ scale), Trucks 12” In From Ends	\$145.00	24	\$10.00

## Car Body Bolsters, 1 1/2” Scale

The simplest way to mount our trucks to your car. Provides a smoothly operating and very strong mount without machining.

- CNC Machined from Heat Treated Aluminum Bar - Bead Blasted and Finished In Hard (type III) Black Anodize for Maximum Wear
- Fit Any of Our 1 1/2” Scale Trucks Without Modification - Top Surface is 4 7/8” (124mm) Above Top Of Rail Under Normal Load
- Available With Flat Top Surface or Recessed To Fit Under and Around Our 1” x 2” or 1” x 3” Rectangular Tube Center Frames (provides correct coupler mounting height)
- Includes Truck Mounting Bolts, Washers, and Self Locking Nuts - Includes Holes for Bolting To Car Floor (bolts not included) - Bolsters for Tube Frames Include Stainless Steel Mounting Bolts to Attach to Frame - Roller Versions Include Bearings
- Complete Installation Instructions Furnished

Stock Number	Description	Cost Per Pair	Weight	Packing Handling
15P2A	Body Bolster, Flat Top, 7 inch Width	\$79.00	7	
15P2B	Body Bolster, Recess for 1” by 2” Tube Center Frame, 7 inch Width	\$89.00	6	
15P2C	Body Bolster, Recess for 1” by 3” Tube Center Frame, 7 inch Width	\$89.00	6	
15P2D	Full Width Body Bolster, Flat Top, 14 3/4 inch Width	\$139.00	10	
15P2E	Full Width Body Bolster, Recess for 1” by 2” Tube Center Frame, 14 3/4 inch Width	\$139.00	9	
15P2F	Full Width Body Bolster, Recess for 1” by 3” Tube Center Frame, 14 3/4 inch Width	\$139.00	9	

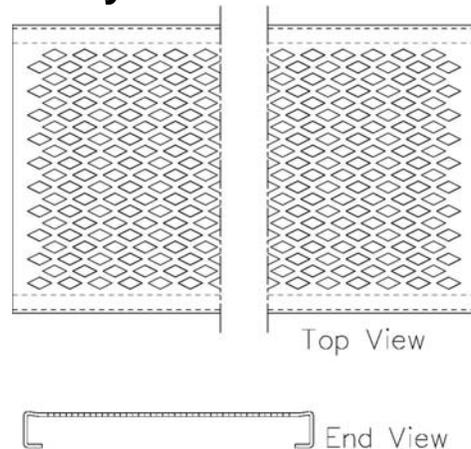
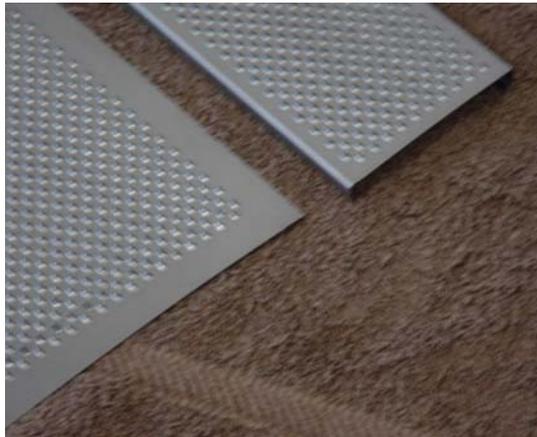
## Car End Sills, 1 1/2” Scale

These parts provide a detailed frame end for your car construction. They can be used with wood or metal cars. The use of push poles was discontinued at different times by various railroads but they were generally gone by the 1940’s. Modern era cars with cushion under frames do not use end sills.

- CNC Machined from Heat Treated Aluminum Bar - Ready To Install and Paint
- Available In Three Mounting Methods:
  - Flat Back (to mount on any car design)
  - Recessed Back To Fit Over Our 1” x 2” Rectangular Tube Center Frame
  - Recessed Back To Fit Over Our 1” x 3” Rectangular Tube Center Frame
- Recessed Back Designs Include Threaded Mounting Holes, Mounting Brackets and Stainless Steel Hardware (attaches sill to center tube, floor, and/or outside frame - a pair of sills add one inch to total length of center tube)
- Includes Complete Installation Instructions

Stock Number	Description	Cost Per Pair	Weight	Packing Handling
15P1A	Car End Sill, Plain Face, Flat Back, 12" Width (8' scale width)	\$79.00	4	
15P1B	Car End Sill, Plain Face, Flat Back, 15" Width (10' scale width)	\$84.00	5	
15P1C	Car End Sill, Plain Face, Flat Back, 18" Width (12' scale width)	\$89.00	6	
15P1D	Car End Sill, With Push Pole Pockets, Flat Back, 12" Width (8' scale width)	\$89.00	4	
15P1E	Car End Sill, With Push Pole Pockets, Flat Back, 15" Width (10' scale width)	\$94.00	5	
15P1F	Car End Sill, With Push Pole Pockets, Flat Back, 18" Width (12' scale width)	\$99.00	6	
15P1G	Car End Sill, Plain Face, 1 x 2 Recess Back, 12" Width (8' scale width)	\$104.00	5	
15P1H	Car End Sill, Plain Face, 1 x 2 Recess Back, 15" Width (10' scale width)	\$109.00	6	
15P1I	Car End Sill, Plain Face, 1 x 2 Recess Back, 18" Width (12' scale width)	\$114.00	7	
15P1J	Car End Sill, With Push Pole Pockets, 1 x 2 Recess Back, 12" Width (8' scale width)	\$114.00	5	
15P1K	Car End Sill, With Push Pole Pockets, 1 x 2 Recess Back, 15" Width (10' scale width)	\$119.00	6	
15P1L	Car End Sill, With Push Pole Pockets, 1 x 2 Recess Back, 18" Width (12' scale width)	\$124.00	7	
15P1M	Car End Sill, Plain Face, 1 x 3 Recess Back, 12" Width (8' scale width)	\$104.00	5	
15P1N	Car End Sill, Plain Face, 1 x 3 Recess Back, 15" Width (10' scale width)	\$109.00	6	
15P1O	Car End Sill, Plain Face, 1 x 3 Recess Back, 18" Width (12' scale width)	\$114.00	7	
15P1P	Car End Sill, With Push Pole Pockets, 1 x 3 Recess Back, 12" Width (8' scale width)	\$114.00	5	
15P1Q	Car End Sill, With Push Pole Pockets, 1 x 3 Recess Back, 15" Width (10' scale width)	\$119.00	6	
15P1R	Car End Sill, With Push Pole Pockets, 1 x 3 Recess Back, 18" Width (12' scale width)	\$124.00	7	

### 1 1/2” Scale Open Grid (USG Style) Walkway



This is an exact scale reproduction of the walkway used on most modern equipment. Commonly seen as top walkways and platforms on tank cars, end platforms on container cars and on EMD diesel locomotives. Made from 20 gauge steel with a two stage die forming operation that punches the openings and then forms the edges upward to give the anti-slip design as in the prototype. The fully formed walkway channels include side and bottom flanges and a top offset and measure 3” wide and 3/8” high. The flat panels have approximately 1/2” of unpunched material on all four edges.

*Note: For diamond plate see our locomotive parts section*

Stock Number	Description	Cost	Weight	Packing Handling
15G1A	Open grid walkway channel, 24” length	\$30.00	2	
15G1B	Open grid walkway sheet, 6” by 12” overall	\$25.00	2	

### Coupler Pocket, 1 1/2” Scale

This coupler pocket is for appearance only, it does not support the coupler. It is large enough to cover the end of any of our tube frames or coupler mount, which will retain the coupler.

- Made of Aluminum - Furnished Machined but Not Drilled for Mounting Bolts (since this depends on your design) - Ready to Paint
- End Opening is 3/4” High to Fit Standard Coupler Shanks
- Overall Dimensions are 2” (50.8mm) High, 3.5” (88.9mm) Wide and 0.5” (12.7mm) Thick.



Stock Number	Description	Cost Each	Weight	Packing Handling
15G2A	Coupler Pocket	\$21.00	1	

### Drawbars, 1 1/2” Scale

Consider the use of a drawbar in place of couplers. Drawbars are less expensive and much more reliable. Some clubs that normally require safety chains between cars with couplers allow drawbars by themselves (but check first).



- Short Length for Replacement of Two Standard Couplers
- Long Length for Replacement of Loop Shank Couplers or Wherever More Space is Desired Between Cars or Locomotive and Tender
- Made of Low Carbon Steel - Furnished Completely Machined - Black Zinc Finish
- 5/8” (15.9mm) High - 1” (25.4mm) Maximum Width - Fits Standard 3/8” Coupler Bolts (not included)

Stock Number	Description	Cost	Weight	Packing Handling
15G3A	Short Drawbar (7 inch (178mm) center distance)	\$32.00	2	
15G3B	Long Drawbar (10 inch (254mm) center distance)	\$35.00	3	

### Quarter-Size Iron Coupler

This highly detailed model of a modern coupler has been designed in 3” scale and is one-quarter full size. Since narrow gauge equipment often used couplers that were smaller, also suitable for 5” scale equipment.



- Furnished In Kit Form Including Cast Ductile Iron Body, Knuckle, and Latch Pin and Finish Machined Steel Pivot Pin
- Includes Complete Instructions
- Utilizes an Internal Cam to Open Knuckle
- Requires Clean-Up, Drilling and Fitting to Assemble

Stock Number	Description	Cost	Weight	Packing Handling
30G4A	Quarter Size Iron Coupler Kit, Iron	\$91.00	12	

### Coupler Pocket, 3”, 3 3/4” and 5” Scales

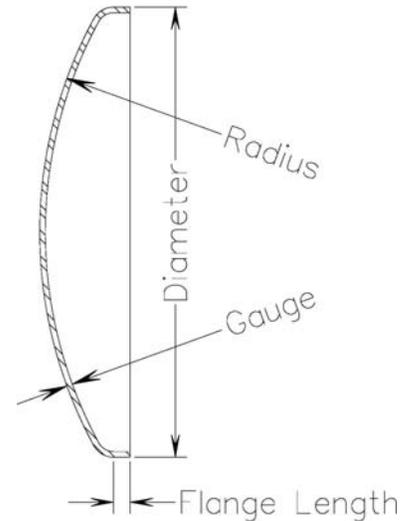
This coupler pocket is for appearance only, it does not support the coupler.

- Overall Dimensions are 4” (101.6mm) High and 6” (152.4mm) Wide
- End Opening is 1 3/4” High and 4 9/16” Wide to Fit Standard Coupler Shanks



Stock Number	Description	Cost Each	Weight	Packing Handling
30G2A	Coupler Pocket	\$25.00	2	

**Tank Heads, All Scales**



If you are building a tank car or Vanderbilt tender, these are the parts you need. Formed by the Same Company that Makes the Full Size Ones, By the Same Method, Using Hot Rolled Steel. Drawing Shows a Cross Section Through the Center.

Stock Number	Description	Cost	Weight	Packing Handling
99G5A	Tank Head, 6" diameter and radius, 12 gauge, 1/2" flange length	\$26.00	6	
99G5B	Tank Head, 8" diameter and radius, 12 gauge, 1" flange length	\$30.00	8	
99G5C	Tank Head, 10" diameter and radius, 12 gauge, 3/4" flange length	\$34.00	10	
99G5D	Tank Head, 12" diameter and radius, 12 gauge, 3/4" flange length	\$39.00	12	
99G5E	Tank Head, 14" diameter and radius, 10 gauge, 1" flange length	\$51.00	14	
99G5F	Tank Head, 16" diameter and radius, 10 gauge, 1" flange length	\$64.00	17	

## Brake Wheels and Operator, All Scales

- Highly detailed brass investment castings
- Small wheel is scale 14” diameter and is usually used on vertical shafts at the end of cars
- Large wheel is a scale 20” and usually used on operator housings



Stock Number	Description	Cost	Weight	Packing Handling
15D1A	1 1/2” Scale Flat Cast Wheel, Small (1.75” od)	\$13.00	1	
15D1B	1 1/2” Scale Flat Cast Wheel, Large (2.5” od)	\$15.00	1	
25D1B	2 1/2” Scale Flat Cast Wheel, Small (2.92” od)	\$17.00	2	
30D1A	3” Scale Flat Cast Wheel, Small (3.5” od)	\$20.00	2	
30D1B	3” Scale Flat Cast Wheel, Large (5” od)	\$26.00	2	
37D1A	3 3/4” Scale Flat Cast Wheel, Small (4.375” od)	\$34.00	2	
50D1A	5” Scale Cast Wheel, Small (5.833” od)	\$44.00	2	
15D2A	1 1/2” Scale Housing (dummy)	\$17.50	1	
15D2B	1 1/2” Scale Release Lever (fits on housing)	\$4.00	0.1	

## Stake Pockets, Various Scales

Used on many flat cars, work cars, and other cars with a wood deck

Rivet on style (upper photo)

- Unmachined Investment Casting
- Stake Opening - 3/4” Wide by 1/2” Thick



U-Bolt style (lower photo)

- Unmachined Sand Casting
- Requires a U-Bolt to be made from 3/16” brass rod (not included)
- Stake Opening - 3/4” Wide by 3/4” Thick



Stock Number	Description	Cost	Weight	Packing Handling
99P10A	Rivet Stake Pocket	\$6.00	0.2	
99P10B	U-Bolt Stake Pocket	\$5.00	0.1	

**Machined Steel Wheels – 3/4, 1, 1 1/2, 2 1/2, 3, 3 3/4 Scales**



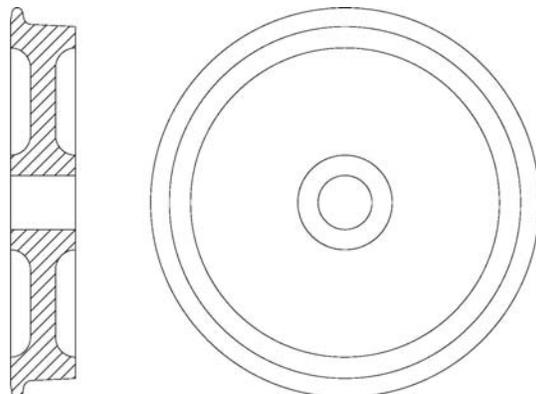
**Car Style Wheels**

- Precision CNC Machined - Ready To Use
- Made From Low Carbon Steel Bar - Tough Enough to Stand Up to Steel Rail
- Prototype Cross Section - Dished Both Sides
- Axle Hole Undersize by  $0.0015 \pm 0.0005$  for Press Fit
- Used for Freight or Passenger Cars, Leading or Trailing Trucks, or Diesel Locomotives

**Specifications**

Scale	Tread Width	Flange (outside) Diameter Larger Than Tread Diameter By	Axle Hole
3/4 inch	0.375 inch 9.53mm	0.18 inch 4.6 mm	0.3125
1 inch	0.500 inch 12.70 mm	0.24 inch 6.1 mm	0.3750
1 1/2 inch	0.750 inch 19.05 mm	0.36 inch 9.1 mm	0.6250
2 1/2 inch	1.25 inch 31.75 mm	0.36 inch 9.1 mm	0.7500
3 inch	1.500 inch 38.10 mm	0.72 inch 18.3 mm	1.1250
3 3/4 inch	1.875 inch 47.63 mm	0.36 inch 9.1 mm	1.1250

- Each scale uses IBLS flange profile for that scale except 1.6, 2 1/2 and 3 3/4 scales use 1 1/2 inch scale flanges to operate on 7 1/2 inch gauge track.
- Diameters listed in ordering information are measured where tread meets base of flange.

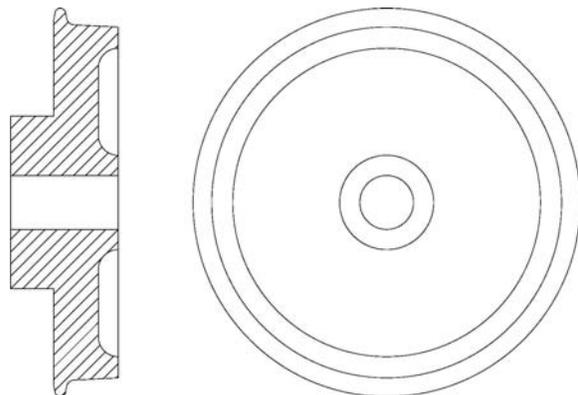


**Ordering Information**

Stock Number	Description	Cost	Weight	Packing Handling
07W1C	3/4 Inch Scale 33" Wheel, 2.0625" (52.39mm) Diameter	\$15.00	1	
10W1C	1 Inch Scale 33" Wheel, 2.75" (69.85mm) Diameter	\$19.00	1	
10W1D	1 Inch Scale 36" Wheel, 3.0" (76.20mm) Diameter	\$21.00	1	
10W1E	1 Inch Scale 40" Wheel, 3.33" (84.67mm) Diameter	\$24.00	1	
15W1C	1 1/2 Inch Scale 33" Wheel, 4.125" (104.78mm) Diameter	\$27.00	1	
15W1D	1 1/2 Inch Scale 36" Wheel, 4.5" (114.30mm) Diameter	\$31.00	2	
15W1E	1 1/2 Inch Scale 40" Wheel, 5.0" (127.00mm) Diameter	\$34.00	2	
15W1F	1 1/2 Inch Scale 42" Wheel, 5.25" (133.35mm) Diameter	\$38.00	2	
25W1B	2 1/2 Inch Scale 26" Wheel, 5.42" (137.58mm) Diameter	\$58.00	7	
25W1C	2 1/2 Inch Scale 33" Wheel, 6.88" (174.63mm) Diameter	\$72.00	9	
30W1C	3 Inch Scale 33" Wheel, 8.25" (209.55mm) Diameter	\$144.00	21	
37W1A	3 3/4 Inch Scale 22" Wheel, 6.88" (174.63mm) Diameter	\$119.00	15	

**Steel Wheels with Hubs**

- Precision CNC Machined - Ready To Use
- Made From Low Carbon Steel Bar - Tough Enough to Stand Up to Steel Rail
- Dished On Outer Side with Hub On Inner Side
- Axle Hole Is Sliding Fit - Oversize by 0.0005 ± 0.0005
- Commonly for Diesel Locomotives - Hub Increases Strength in Drive Applications



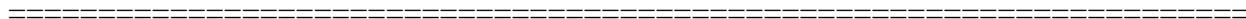
**Specifications**

Scale	Tread Width	Flange (outside) Diameter Larger Than Tread Diameter By	Axle Hole	Hub Diameter	Hub Width
1 inch	0.500 inch 12.70 mm	0.24 inch 6.1 mm	0.3750	1.5 inches 38.1mm	0.4 inches 10.16mm
1 1/2 inch	0.750 inch 19.05 mm	0.36 inch 9.1 mm	0.6250	2 inches 50.8mm	0.5 inches 12.7mm
2 1/2 inch	1.25 inch 31.75 mm	0.36 inch 9.1 mm	0.7500	2.5 inches 63.5mm	0.6 inches 15.24mm
3 inch	1.500 inch 38.10 mm	0.72 inch 18.3 mm	1.1250	2.5 inches 63.5mm	0.6 inches 15.24mm
3 3/4 inch	1.875 inch 47.63 mm	0.36 inch 9.1 mm	1.1250	2.5 inches 63.4mm	0.6 inches 15.24mm

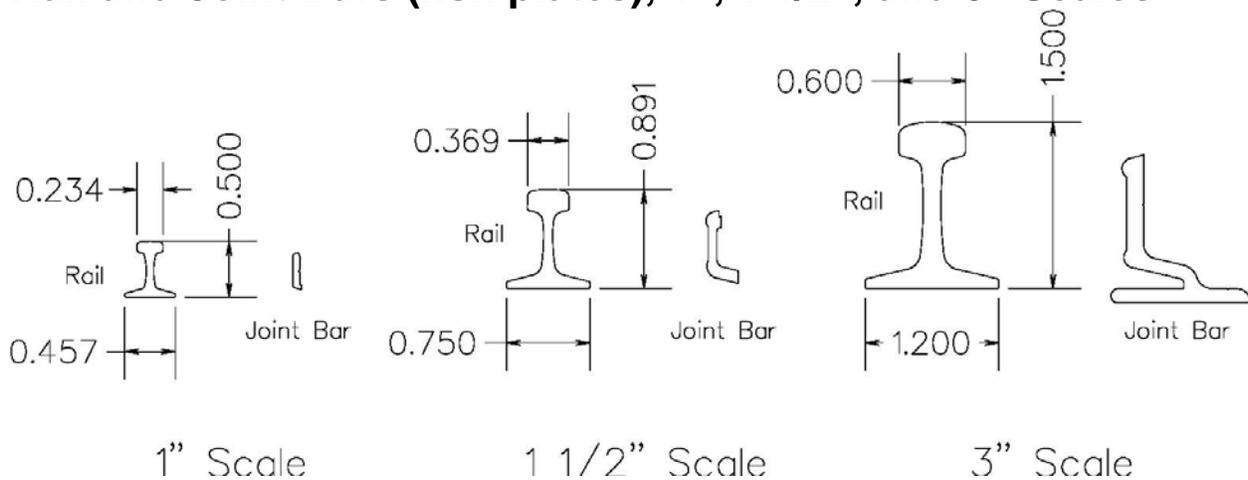
- Each scale uses IBL5 flange profile for that scale except 1.6, 2 1/2 and 3 3/4 scales use 1 1/2 inch scale flanges to operate on 7 1/2 inch gauge track.
- Diameters listed in ordering information are measured where tread meets base of flange.

**Ordering Information**

Stock Number	Description	Cost	Weight	Packing Handling
10W2C	1 Inch Scale 33" Wheel, 2.75" (69.85mm) Diameter	\$39.00	2	
10W2D	1 Inch Scale 36" Wheel, 3.0" (76.20mm) Diameter	\$44.00	2	
10W2E	1 Inch Scale 40" Wheel, 3.33" (84.67mm) Diameter	\$49.00	2	
15W2C	1 1/2 Inch Scale 33" Wheel, 4.125" (104.78mm) Diameter	\$51.00	3	
15W2D	1 1/2 Inch Scale 36" Wheel, 4.5" (114.30mm) Diameter	\$55.00	4	
15W2E	1 1/2 Inch Scale 40" Wheel, 5.0" (127.00mm) Diameter	\$60.00	4	
15W2F	1 1/2 Inch Scale 42" Wheel, 5.25" (133.35mm) Diameter	\$64.00	5	
25W2B	2 1/2 Inch Scale 26" Wheel, 5.42" (137.58mm) Diameter	\$112.00	9	
25W2C	2 1/2 Inch Scale 33" Wheel, 6.88" (174.63mm) Diameter	\$148.00	10	
30W2C	3 Inch Scale 33" Wheel, 8.25" (209.55mm) Diameter	\$197.00	27	
37W2A	3 3/4 Inch Scale 22" Wheel, 6.88" (174.63mm) Diameter	\$155.00	19	



### Rail and Joint Bars (fish plates), 1”, 1 1/2”, and 3” Scales



A Complete Rail System. All Designs Have Been Proven Through Many Years of Service on Various Types of Layouts

- Extruded Aluminum Rail - 6061 Alloy Heat Treated to T6 (hardest possible) Condition
- Each Rail is an Exact Scale Model of Prototype Rails
  - 1” Scale Rail is a Model of AREA\* 100 Pound Prototype – 1/2” High
  - 1 1/2” Scale Rail is a Model of AREA\* 132 Pound Prototype - The Heaviest Rail Currently Manufactured – 0.891” High
  - 3” Scale Rail is a Model of AREA\* 100 Pound Prototype – 1 1/2” High
- Rail has True Crowned Head for Correct Tracking of Your Trucks - Minimizes Derailments - Maximizes Life - Tapered Web and Broad Base for Long Life
- Joint Bars Have True Prototype Cross Section - Mount Tight Against Head and Toe of Rail - Assure Vertical Alignment While Allowing Lengthwise Thermal Expansion (if oversize holes are drilled in rail)
- 1” and 1 1/2” Scale Joint Bars are Cut to Length and Punched With Four Holes\* (#4 for 1” scale, #10 for 1 1/2” scale) - Available With Hex Head Bolts and Nylon Insert Self-Locking Nuts in Sets or In Bulk Without Hardware - 3” Scale Are Without Holes (no standards)

Stock Number	Description	Cost	Weight	Packing Handling
10R1A	1” Scale Rail, 106” Lengths	\$5.50	1	\$10.00
10R2A	1” Scale Joint Bar Set (2 bars, 4 bolts, 4 nuts)	\$1.10	0.1	
10R2B	1” Scale Joint Bars, Package of 100	\$51.00	2	
15R1A	1 1/2” Scale Rail, 106” Lengths	\$9.00	2	\$10.00
15R1B	1 1/2” Scale Rail, 10’ Lengths	\$9.50	See Below	\$10.00
15R1C	1 1/2” Scale Rail, Made to Order (4000 feet minimum), State Desired Cut Length (maximum 50’), Special Order Requires Added Time	\$0.75 per foot	See Below	\$20.00

\* American Railway Engineering Association (AREA™) is the official trackwork standards group of the American Association of Railroads

15R2A	1 1/2" Scale Joint Bar Set (2 bars, 4 bolts, 4 nuts)	\$1.30	0.1	
15R2B	1 1/2" Scale Joint Bars, Package of 100	\$59.00	3	
30R1A	3" Scale Rail, 12' Lengths	\$23.00	See Below	\$10.00
30R1B	3" Scale Rail, Bulk Order (4000 feet minimum), State Desired Cut Length (maximum 50')	\$1.75 per foot	See Below	
30R2A	3" Scale Joint Bar Set (2 bars, 4 bolts, 4 nuts)	\$4.60	1	
30R2B	3" Scale Joint Bars, Package of 100	\$200.00	17	

Rail in 106" Lengths Shipped UPS - Longer Rail Lengths Sent by Freight  
 For Rail Only Packing/Handling is Once Per Order  
 Rail Prices are Per Length Except Bulk is Per Foot

**Switch (turnout)  
 Frogs, 1" Scale**

Sand Cast Aluminum Frogs for Switch Construction.

- Use With Points Constructed of 1/2" Steel Angle
- Complete Instructions Included



Stock Number	Description	Cost	Weight	Packing Handling
10R3D	1" Scale Frog, For Number 4 Switch	\$20.00	2	
10R3E	1" Scale Frog, For Number 6 Switch	\$23.00	2	
10R3F	1" Scale Frog, For Number 8 Switch	\$26.00	3	
10R3G	1" Scale Frog, For Number 10 Switch	\$29.00	3	

Prices are Each

**Switch (turnout) Points and Frogs, 1 1/2" and 3" Scales**



Cast Aluminum Point Pairs and Frogs for Switch Construction.

- Allow Construction of Switches Using Straight Points With Rail Type Frogs
- Results in a Number 8 Switch
- Complete Instructions Included

Stock Number	Description	Cost	Weight	Packing Handling
15R3A	1 1/2" Scale Frog	\$30.00	2	
15R4A	1 1/2" Scale Point Set	\$70.00	3	
30R3A	3" Scale Frog	\$55.00	5	
30R4A	3" Scale Point Set	\$110.00	8	

### Switch Stand, All Scales

Provides a Commonly Seen Design of Switch Stand.

- Kit of Unmachined Aluminum Sand Castings
- Includes Center Rod, Hardware, Drawings and Complete Instructions



### Operating Rod



Connects Switch Stand to Points

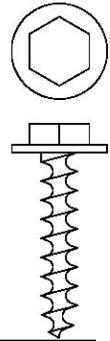
- Complete Spring Loaded (both directions) Rod and Pivots
- Allows Up To 32" From Center of Stand to Center of Track

Stock Number	Description	Cost	Weight	Packing Handling
99R8A	Switch Stand Kit	\$85.00	7	
99R8B	Operating Rod and Hardware	\$30.00	5	

### Track Screws, All Scales

The Use of Screws to Hold Rail Down has Replaced Spikes in Most Model Railways. Screws Provide a More Secure Fastener While Allowing Removal and Adjustment.

- Standard Screws Provide a Head Diameter of 0.33” Under the Washer Portion of The Head
- Large Head Screws Are Specially Made For Us and Provide a Larger 0.50” Diameter Under The Head
- Both are #10 by 1” Self Threading Shank, Steel, Zinc Plated



Stock Number	Description	Cost	Weight	Packing Handling
99R9A	Track Screw, Standard Head, Package of 100	\$3.10	1	
99R9B	Track Screw, Standard Head, Package of 1000	\$23.00	8	
99R9C	Track Screw, Large Head, Package of 100	\$5.20	1	
99R9D	Track Screw, Large Head, Package of 1000	\$49.00	8	

### Track Work Tools, All Scales



**Rail Drilling Jig** - Furnished Attached to the Jaws of Locking Style Pliers to Allow Secure Clamping to Rail. Design Provides a Flat Back for Use on a Drill Press Table and an Open Bottom to Allow Field Use on Rail Already Secured to Ties.

- Furnished With Replaceable Hardened Steel Bushings for Drill
- Standard With Oversize Hole (3/16” for 1” scale, 5/16” for 1 1/2” scale and 1/2” for 3” scale) to Allow Thermal Expansion of Rail - Available With Other Sizes (specify on order)

**Rail Spacer Gage** - Hold Rail At the Proper Spacing While It is Screwed Down. Our Design Holds Both the Head and Foot of the Rail. Made from Aluminum, Three Widths, Engraved With Gauge Dimension, and Color Anodized (red, blue, purple) to Identify

**Screw Locating Punch** - Fits Over Rail and Makes Two Indentions in Tie at Proper Screw Locations when Hit With A Hammer, Hardened Steel, Vinyl Handle

Stock Number	Description	Cost	Weight	Packing Handling
10R5A	1” Scale Gauge Bar, Standard 4 3/4” Gauge	\$20.00	1	
10R5B	1” Scale Gauge Bar, Wide 4 51/64” Gauge	\$20.00	1	
10R5C	1” Scale Gauge Bar, Extra 4 27/32” Gauge	\$20.00	1	
15R5A	1 1/2” Scale Gauge Bar, Standard 7 1/4” Gauge	\$20.00	2	
15R5B	1 1/2” Scale Gauge Bar, Wide 7 5/16” Gauge	\$20.00	2	
15R5C	1 1/2” Scale Gauge Bar, Extra 7 3/8” Gauge	\$20.00	2	
15R5D	1 1/2” Scale Gauge Bar, Standard 7 1/2” Gauge	\$20.00	2	
15R5E	1 1/2” Scale Gauge Bar, Wide 7 9/16” Gauge	\$20.00	2	
15R5F	1 1/2” Scale Gauge Bar, Extra 7 5/8” Gauge	\$20.00	2	
10R6A	1” Scale Rail Drilling Jig	\$75.00	3	
15R6A	1 1/2” Scale Rail Drilling Jig	\$75.00	3	
10R7A	1” Scale Screw Locating Punch	\$10.00	1	
15R7A	1 1/2” Scale Screw Locating Punch	\$10.00	1	

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### Steam Cylinder Oil

This is a true steam cylinder oil and is correct for all piston in cylinder steam applications. Fresh stock from a major refiner. Packaged in rugged, flip top, resalable plastic bottles. Available in three types for differing applications:

- Type 1** – Most common type. For use with saturated (wet) or superheated (dry) steam at pressures up to 200 psi. Used for model locomotives and large stationary engines with force fed (pumped) lubricators.
- Type 2** – For use with superheated (dry) steam only at all pressures and temperatures. Usually required only for commercial equipment as used in amusement operations and other commercial products.
- Type 3** – Required where displacement type lubricators are used. Usually best in steam locomotive auxiliary equipment (pumps, compressors) or small stationary engines. Also correct for the “air end” of steam driven compressors.

Stock Number	Description	Cost	Weight	Packing Handling
99X2B	Type 1 - 1 Quart (32 fluid ounce) Bottle	\$4.00	3	\$5.00
99X2D	Type 2 - 1 Quart (32 fluid ounce) Bottle	\$4.00	3	\$5.00
99X2F	Type 3 - 1 Quart (32 fluid ounce) Bottle	\$4.00	3	\$5.00

### Grease

Bearing Grease – For all small bearings, extra fine milled. Comes in all our products.  
 Center Pivot Grease – Totally waterproof for sliding surfaces, pivots, pedestals, etc.

Stock Number	Description	Cost	Weight	Packing Handling
99X2G	Bearing Grease – 8 ounce jar	\$3.00	1	\$5.00
99X2H	Center Pivot Grease – 8 ounce jar	\$3.00	1	\$5.00

### Way Oil

This is a special oil for sliding surfaces that are open to the air such as crossheads and other valve gear on steam locomotives. Most oils will oxidize and thicken in that use while way oil is formulated to remain fluid. New oil also dissolves old oil that may have accumulated dirt while washing it away.

Packaged in rugged, flip top, resealable plastic bottles.

Stock Number	Description	Cost	Weight	Packing Handling
99X2J	Way Oil – 1 Quart (32 fluid ounce) Bottle	\$4.00	3	\$5.00

For all items on this page, packing and handling applies once per order

## Air Compressors



These are industrial quality air compressors designed to operate off of 12 volt battery systems. Easily added to electric or electric start gas or diesel locomotives to provide air for brakes. Adding a small motorcycle battery and a compressor provides a reliable source of high pressure air for steam locomotives and replaces troublesome steam driven compressors.

Stock Number	Description	Cost	Weight	Packing Handling
99X10A	The smallest compressor available (top right), fits even the tightest spaces, designed for intermittent duty (start and stop) and capable of putting out 0.48cfm at 120psi Approximately 2" x 5" x 5"	\$149.00	3	

99X10B	A more powerful compressor (top left), designed for intermittent duty (start and stop) and capable of putting out 1.23cfm at 150psi, may also be used as a vacuum pump at up to 25”hg (provides vacuum or pressure, not both) Approximately 4” x 6” x 8”	\$189.00	6	
99X10C	A continuous duty compressor (middle), capable of putting out 0.90cfm at 100psi, may also be used as a vacuum pump at up to 25”hg (provides vacuum or pressure, not both) Approximately 4” x 8” x 5 1/2”	\$229.00	6	

**Air Brake Valve**



An Industrial Quality, Rebuildable, Control Valve

- 4 Port Design
- Controls Straight or Automatic Air Brakes
- 1/8 inch Pipe Thread Ports

Stock Number	Description	Cost	Weight	Packing Handling
99X11A	Brake Control Valve, Approximately 2.1/2” x 2 1/2” at base	\$77.00	2	

**Polyester Tubing and Press-To-Lock Fittings**

Pushing In on The Ring at the End of the Fitting Allows Tubing Removal. Fittings and Tubing are Reusable. Maximum Air Pressures 150 PSI. Also Usable With Cold Water. Must Not Be Located Near Heat Sources (boilers, engines, etc.). Not Usable With Vacuum Systems.

Stock Number	Description	Cost	Weight	Packing Handling
99X3A	1/4" Outside Diameter Black Polyester Tubing, Cut Lengths, Minimum 1', Maximum 100'	\$0.55 per foot	0.1	
99X3B	1/4" Tube Straight Connector to 1/8" Male Pipe	\$3.50	0.1	
99X3C	1/4" Tube Straight Connector to 10-32 O-Ring	\$4.00	0.1	
99X3D	1/4" Tube Connector to 1/8" Female Pipe	\$4.00	0.1	
99X3E	1/4" Tube 90 Degree Elbow to 1/8" Male Pipe	\$4.20	0.1	
99X3F	1/4" Tube Swivel Elbow to 1/8" Male Pipe	\$4.50	0.1	
99X3G	1/4" Tube Swivel Elbow to 10-32 O-Ring	\$5.00	0.1	
99X3F	1/4" Tube Elbow (both connections are tube)	\$2.50	0.1	
99X3G	1/4" Tube Branch Tee to 1/8" Male Pipe (top of tee are two tube connections, side arm is pipe)	\$5.50	0.1	
99X3G	1/4" Tube Run Tee to 1/8" Male Pipe (one top and side arm are tube connections, other top is pipe)	\$5.50	0.1	
99X3H	1/4" Tube Tee (all three connections are tubing)	\$5.30	0.1	
99X3I	1/4" Tube Union (both connections are tubing)	\$4.00	0.1	
99X3J	1/4" Tube Bulkhead Fitting (tubing on ends, threaded center for installation through drilled hole in flat surface)	\$8.00	0.1	

Please also see automatic air brake systems in Section 4



**Round Head Rivet - Brass - Plain Finish**

Diameter	Length	Part Number	Price per 10	Price per 100
1/16	1/8	30B0202		\$0.83
1/16	3/16	30B0203		\$0.83
1/16	1/4	30B0204		\$0.71
3/32	1/8	30B0302		\$1.84
3/32	3/16	30B0303		\$1.46
3/32	1/4	30B0304		\$1.42
3/32	5/16	30B0305		\$2.25
3/32	3/8	30B0306		\$1.45
3/32	7/16	30B0307		\$3.23
3/32	1/2	30B0308		\$2.33
1/8	3/16	30B0403		\$3.31
1/8	1/4	30B0404		\$2.54
1/8	5/16	30B0405		\$5.20
1/8	3/8	30B0406		\$3.12
1/8	7/16	30B0407		\$6.26
1/8	1/2	30B0408		\$3.81
3/16	1/4	30B0604	\$1.80	\$14.40
3/16	5/16	30B0605	\$1.11	\$8.87
3/16	3/8	30B0606	\$1.28	\$10.26
3/16	1/2	30B0608	\$1.47	\$11.76
3/16	5/8	30B0610	\$1.62	\$12.99
3/16	3/4	30B0612	\$1.81	\$14.49
1/4	3/8	30B0806	\$2.54	
1/4	1/2	30B0808	\$2.93	
1/4	5/8	30B0810	\$3.36	
1/4	3/4	30B0812	\$4.11	

**Round Head Rivet - Copper - Plain Finish**

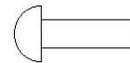
Diameter	Length	Part Number	Price per 100
1/16	1/8	32C0202	\$0.83
1/16	3/16	32C0203	\$0.82
1/16	1/4	32C0204	\$0.84
1/16	3/8	32C0206	\$1.61
1/16	1/2	32C0208	\$1.91
3/32	1/8	32C0302	\$1.47
3/32	3/16	32C0303	\$1.27
3/32	1/4	32C0304	\$1.59
3/32	5/16	32C0305	\$1.62
3/32	3/8	32C0306	\$2.50
3/32	7/16	32C0307	\$1.84
3/32	1/2	32C0308	\$2.06
3/32	5/8	32C0310	\$2.33
3/32	3/4	32C0312	\$1.24
3/32	7/8	32C0314	\$3.26
3/32	1	32C0316	\$3.46

**Round Head Rivet - Steel - Plain Finish**

Diameter	Length	Part Number	Price per 100
3/32	3/16	31S0303	\$0.55
3/32	1/4	31S0304	\$0.61
3/32	5/16	31S0305	\$1.63
3/32	3/8	31S0306	\$1.91
3/32	7/16	31S0307	\$0.80
3/32	1/2	31S0308	\$0.73
1/8	3/16	31S0403	\$0.71
1/8	1/4	31S0404	\$0.91
1/8	5/16	31S0405	\$1.03
1/8	3/8	31S0406	\$1.05
1/8	7/16	31S0407	\$1.16

**Round Head Rivet - Aluminum - Plain Finish**

Diameter	Length	Part Number	Price per 100
3/32	3/16	33A0303	\$0.60
3/32	1/4	33A0304	\$0.72
3/32	5/16	33A0305	\$0.80
3/32	3/8	33A0306	\$0.83
1/8	3/16	33A0403	\$0.73
1/8	1/4	33A0404	\$0.98
1/8	5/16	33A0405	\$1.43
1/8	3/8	33A0406	\$1.17
1/8	7/16	33A0407	\$1.40
1/8	1/2	33A0408	\$1.36



- Rivet diameter is diameter of shank
- Head is approximately twice shank diameter
- Recommended length is material thickness plus an amount equal to twice the shank diameter

**Rivet Tools**

Description	Fits Rivets*	Part Number	Price Each
Air Hammer with retainer spring and regulator	1/8" *	39T001	\$ 172.00
Air Hammer with retainer spring and regulator	1/4" *	39T002	\$ 237.00
Rivet Set to fit either hammer and round head rivets	1/16"	39T010	\$ 23.00
Rivet Set to fit either hammer and round head rivets	3/32"	39T011	\$ 23.00
Rivet Set to fit either hammer and round head rivets	1/8"	39T012	\$ 23.00
Rivet Set to fit either hammer and round head rivets	3/16"	39T013	\$ 23.00
Rivet Set to fit either hammer and round head rivets	1/4"	39T014	\$ 23.00
Bucking Bars to upset inside head of rivet, set of 5	all	39T020	\$ 110.00
Rivet Cutter Tool	3/16" *	39T030	\$ 43.00
Spring Retainers (known as Cleco's), package of 20	3/32"	39T041	\$ 68.00
Spring Retainers, package of 20	1/8"	39T042	\$ 88.00
Cleco Tool	all	39T048	\$ 14.42

\* For Hammer and Cutter, Size is Largest Aluminum, Brass or Copper Rivet, Steel is One Size Smaller

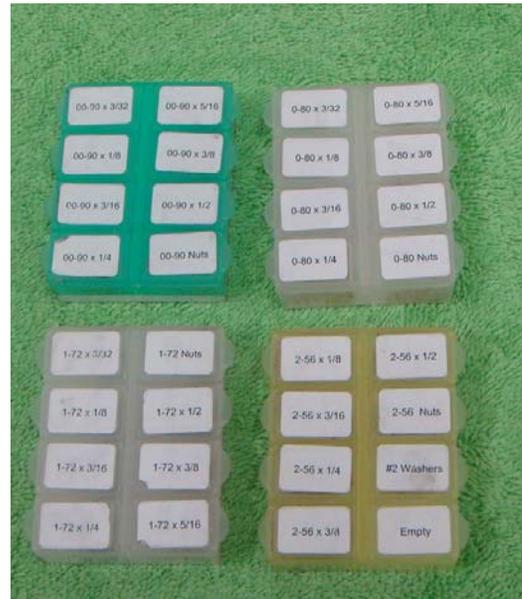
**Miniature Stainless Steel Hex Head Bolt Assortment**

Stock Number	Description	Cost	Weight	Packing Handling
45SA1	Thread Sizes 4-40, 6-32, 8-32, 10-24 20 Each 1/4", 3/8", 1/2", 3/4", 1" Lengths 50 Each Nuts	\$39.95	4	



### Miniature Brass Hex Head Bolt Assortments

Stock Number	Description	Cost	Weight	Packing Handling
44BA1	Thread Size 00-90 10 - 3/32" 1/8", 3/16" 1/4", 5/16", 3/8", 1/2" 20 - Nuts	\$19.95	0.5	
44BA2	Thread Size 0-80 10 - 3/32", 1/8", 3/16" 1/4", 5/16", 3/8", 1/2" 20 - Nuts	\$18.95	0.5	
44BA3	Thread Size 1-72 10 - 3/32", 1/8", 3/16" 1/4", 5/16", 3/8", 1/2" 20 - Nuts	\$18.95	0.5	
44BA4	Thread Size 2-56 10 - 1/8", 3/16" 1/4", 5/16", 3/8", 1/2" 20 - Nuts 10 - Washers	\$15.95	0.5	



**Miniature Brass Hex Head Bolts**

<u>Thread Size</u>	<u>Length</u>	<u>Catalog Number</u>	<u>Price for 10</u>
00-90	3/32	40B903	\$1.45
00-90	1/8	40B904	\$1.45
00-90	3/16	40B906	\$1.45
00-90	1/4	40B908	\$1.80
00-90	5/16	40B9010	\$2.31
00-90	3/8	40B9012	\$2.31
00-90	1/2	40B9016	\$2.99
0-80	3/32	40B803	\$1.45
0-80	1/8	40B804	\$1.45
0-80	5/32	40B805	\$1.45
0-80	3/16	40B806	\$1.45
0-80	1/4	40B808	\$1.80
0-80	5/16	40B8010	\$2.31
0-80	3/8	40B8012	\$2.31
0-80	1/2	40B8016	\$2.66
1-72	3/32	40B723	\$1.45
1-72	1/8	40B724	\$1.45
1-72	3/16	40B726	\$1.45
1-72	1/4	40B728	\$1.80
1-72	5/16	40B7210	\$2.31
1-72	3/8	40B7212	\$2.31
1-72	1/2	40B7216	\$2.66
2-56	1/8	40B564	\$1.45
2-56	3/16	40B566	\$1.45
2-56	1/4	40B568	\$2.31
2-56	3/8	40B5610	\$2.66
2-56	1/2	40B5612	\$2.66

**Miniature Brass Hex Nuts**

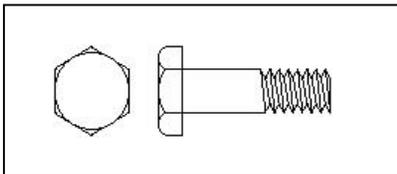
<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
00-90	41B90	\$1.56
0-80	41B80	\$1.56
1-72	41B72	\$1.56
2-56	41B56	\$1.56

**Miniature Brass Flat Washers**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
00	42B90	\$1.37
0	42B80	\$1.37
1	42B72	\$1.37
2	42B56	\$1.37

**Miniature Nut Drivers**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
00	43B90	\$12.00
0	43B80	\$12.00
1	43B72	\$12.00
2	43B56	\$12.00
Set of 4	43B00	\$39.00

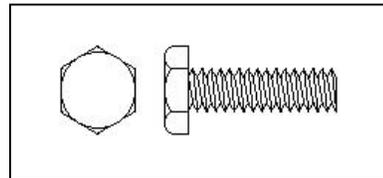


**Miniature Stainless Steel Hex Head Bolts**

<u>Thread Size</u>	<u>Length</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	1/4	43S48	\$0.66
4-40	3/8	43S412	\$0.70
4-40	1/2	43S416	\$0.75
4-40	5/8	43S420	\$0.88
4-40	3/4	43S424	\$0.82
4-40	1	43S432	\$0.96
6-32	1/4	43S68	\$0.72
6-32	3/8	43S612	\$0.76
6-32	1/2	43S616	\$0.81
6-32	5/8	43S620	\$0.97
6-32	3/4	43S624	\$0.88
6-32	1	43S632	\$1.02
8-32	1/4	43S88	\$0.78
8-32	3/8	43S812	\$0.82
8-32	1/2	43S816	\$0.87
8-32	5/8	43S820	\$0.99
8-32	3/4	43S824	\$0.94
8-32	1	43S832	\$1.08
10-24	1/4	43S108	\$0.86
10-24	3/8	43S1012	\$0.90
10-24	1/2	43S1016	\$0.95
10-24	5/8	43S1020	\$1.04
10-24	3/4	43S1024	\$1.02
10-24	1	43S1032	\$1.16
10-32	1/4	43S1108	\$0.86
10-32	3/8	43S1112	\$0.90
10-32	1/2	43S1116	\$0.95
10-32	5/8	43S1120	\$1.04
10-32	3/4	43S1124	\$1.02
10-32	1	43S1132	\$1.16
10-32	1 1/4	43S1140	\$1.54
10-32	1 1/2	43S1148	\$1.88
10-32	2	43S1164	\$2.18

**Miniature Stainless Steel Hex Nuts**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	44S4	\$0.25
6-32	44S6	\$0.30
8-32	44S8	\$0.35
10-24	44S10	\$0.40
10-32	44S11	\$0.40



**Dimensions of Bolt Heads and Nuts Listed on this page**

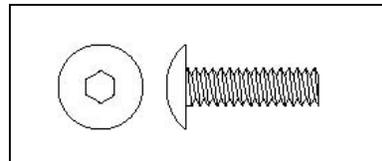
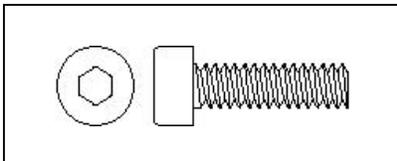
<u>Thread Size</u>	<u>Bolt Head or Nut Across Flats</u>	<u>Bolt Head or Nut Thickness</u>
4-40	nominal 3/16" exact 0.186"	0.063"
6-32	nominal 1/4" exact 0.246"	0.091"
8-32	nominal 1/4" exact 0.249"	0.104"
10-24	nominal 5/16" exact 0.307"	0.112"
10-32	nominal 5/16" exact 0.310"	0.112"

**Stainless Steel Socket Head Cap Screws**

<u>Thread Size</u>	<u>Length</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	1/4	50S48	\$0.28
4-40	3/8	50S412	\$0.29
4-40	1/2	50S416	\$0.32
4-40	5/8	50S420	\$0.37
4-40	3/4	50S424	\$0.37
4-40	1	50S432	\$0.38
6-32	1/4	50S68	\$0.38
6-32	3/8	50S612	\$0.40
6-32	1/2	50S616	\$0.40
6-32	5/8	50S620	\$0.40
6-32	3/4	50S624	\$0.41
6-32	1	50S632	\$0.53
8-32	1/4	50S88	\$0.35
8-32	3/8	50S812	\$0.40
8-32	1/2	50S816	\$0.56
8-32	5/8	50S820	\$0.73
8-32	3/4	50S824	\$0.80
8-32	1	50S832	\$0.90
10-24	1/4	50S108	\$0.51
10-24	3/8	50S1012	\$0.67
10-24	1/2	50S1016	\$0.80
10-24	5/8	50S1020	\$0.89
10-24	3/4	50S1024	\$0.95
10-24	1	50S1032	\$1.10
10-32	1/4	50S1108	\$0.51
10-32	3/8	50S1112	\$0.67
10-32	1/2	50S1116	\$0.80
10-32	5/8	50S1120	\$0.89
10-32	3/4	50S1124	\$0.95
10-32	1	50S1132	\$1.10
10-32	1 1/4	50S1140	\$1.26
10-32	1 1/2	50S1148	\$1.44
10-32	2	50S1164	\$2.55

**Stainless Steel Button Head Cap Screws**

<u>Thread Size</u>	<u>Length</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	1/4	51S48	\$0.28
4-40	3/8	51S412	\$0.37
4-40	1/2	51S416	\$0.41
4-40	5/8	51S420	\$0.47
4-40	3/4	51S424	\$0.51
4-40	1	51S432	\$0.59
6-32	1/4	51S68	\$0.42
6-32	3/8	51S612	\$0.44
6-32	1/2	51S616	\$0.47
6-32	5/8	51S620	\$0.49
6-32	3/4	51S624	\$0.53
6-32	1	51S632	\$0.66
8-32	1/4	51S88	\$0.37
8-32	3/8	51S812	\$0.47
8-32	1/2	51S816	\$0.54
8-32	5/8	51S820	\$0.62
8-32	3/4	51S824	\$0.64
8-32	1	51S832	\$0.90
10-24	1/4	51S108	\$0.55
10-24	3/8	51S1012	\$0.70
10-24	1/2	51S1016	\$0.80
10-24	5/8	51S1020	\$0.85
10-24	3/4	51S1024	\$1.02
10-24	1	51S1032	\$0.65
10-32	1/4	51S1108	\$0.56
10-32	3/8	51S1112	\$0.70
10-32	1/2	51S1116	\$0.80
10-32	5/8	51S1120	\$0.85
10-32	3/4	51S1124	\$1.02
10-32	1	51S1132	\$1.29
10-32	1 1/4	51S1140	\$1.53
10-32	1 1/2	51S1148	\$1.57
10-32	2	51S1164	\$2.86



**Stainless Steel Flat Socket Head Cap Screws**

<u>Thread Size</u>	<u>Length</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	1/4	52S48	\$0.41
4-40	3/8	52S412	\$0.44
4-40	1/2	52S416	\$0.45
4-40	5/8	52S420	\$0.47
4-40	3/4	52S424	\$0.52
4-40	1	52S432	\$0.65
6-32	1/4	52S68	\$0.47
6-32	3/8	52S612	\$0.49
6-32	1/2	52S616	\$0.59
6-32	5/8	52S620	\$0.65
6-32	3/4	52S624	\$0.72
6-32	1	52S632	\$0.89
8-32	1/4	52S88	\$0.73
8-32	3/8	52S812	\$0.57
8-32	1/2	52S816	\$0.59
8-32	5/8	52S820	\$0.65
8-32	3/4	52S824	\$0.72
8-32	1	52S832	\$0.89
10-24	1/4	52S108	\$0.54
10-24	3/8	52S1012	\$0.83
10-24	1/2	52S1016	\$0.83
10-24	5/8	52S1020	\$0.87
10-24	3/4	52S1024	\$0.98
10-24	1	52S1032	\$1.29
10-32	1/4	52S1108	\$0.97
10-32	3/8	52S1112	\$0.83
10-32	1/2	52S1116	\$0.83
10-32	5/8	52S1120	\$0.87
10-32	3/4	52S1124	\$0.98
10-32	1	52S1132	\$1.29
10-32	1 1/4	52S1140	\$1.72
10-32	1 1/2	52S1148	\$1.96
10-32	2	52S1164	\$3.69

**Stainless Steel Hex Machine Nuts**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	20S4	\$0.25
6-32	20S6	\$0.30
8-32	20S8	\$0.35
10-24	20S10	\$0.40
10-32	20S11	\$0.40

**Stainless Steel Flat Washers**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4	21S4	\$0.25
6	21S6	\$0.30
8	21S8	\$0.35
10	21S10	\$0.40

**Stainless Steel Nylon Insert Lock Nuts**

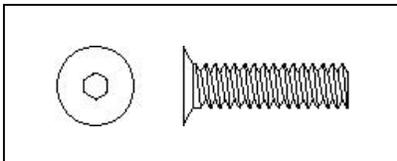
<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
4-40	22S4	\$0.70
6-32	22S6	\$0.80
8-32	22S8	\$1.00
10-24	22S610	\$1.30
10-32	22S611	\$1.30

**Stainless Steel Lock Washers**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
6	23S6	\$0.30
8	23S8	\$0.35
10	23S10	\$0.40

**Stainless Steel Cap (acorn) Nuts**

<u>Thread Size</u>	<u>Catalog Number</u>	<u>Price for 10</u>
6-32	24S6	\$0.75
8-32	24S8	\$0.95
10-24	24S10	\$1.20
10-32	24S11	\$1.20



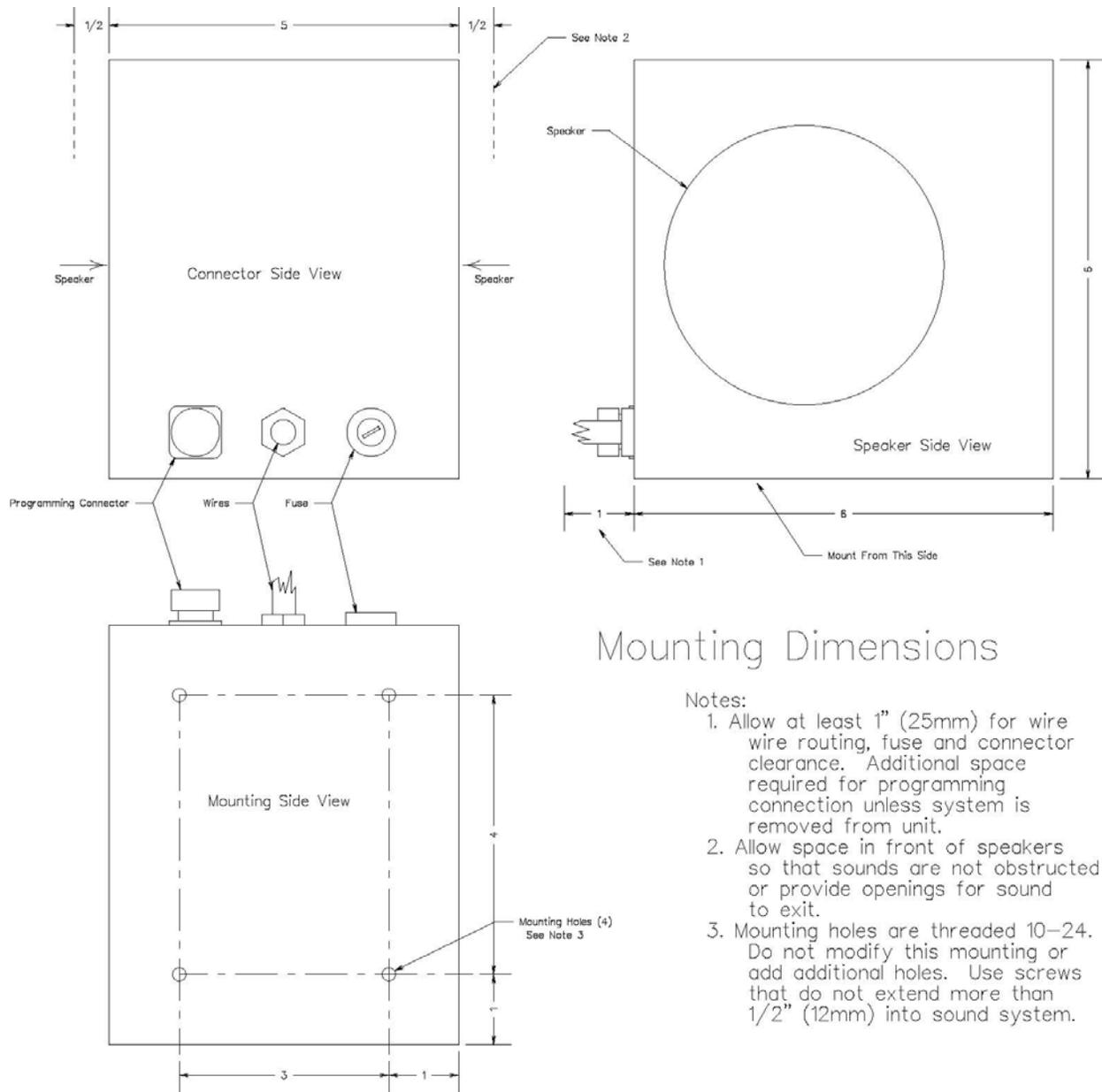
## General Purpose Sound System



A sound system that can be added to existing equipment, or incorporated into new construction projects.

- Self-Contained Sound System for Ride-On Applications
- Applicable to Steam, Diesel, Electric, Gas, and Interurban Locomotives or Self-Powered Cars
- Steam Sounds are Synchronized to Wheel Rotation
- Speed Pickup From Motor Voltage of Electric Motor Driven Applications
- Speed Pickup From Wheel or Shaft Rotation in All Applications
- Choice of 83 Different Sound Packages To Match Most Applications
- Based On Popular Phoenix Sound System
- Includes Two Dual Cone Stereo Quality Speakers Driven by High Wattage Amplifier

Optional computer interface cable allows changing of sound packages loaded into unit. Also allows customization of operating modes, type of horn, whistle, bell, etc. PC compatible computer running Windows with an available serial or USB port is required.



### Mounting Dimensions

Notes:

1. Allow at least 1" (25mm) for wire routing, fuse and connector clearance. Additional space required for programming connection unless system is removed from unit.
2. Allow space in front of speakers so that sounds are not obstructed or provide openings for sound to exit.
3. Mounting holes are threaded 10–24. Do not modify this mounting or add additional holes. Use screws that do not extend more than 1/2" (12mm) into sound system.

Stock Number	Description	Cost	Weight	Packing Handling
99X9A	General Purpose Sound System, Includes All Cables and Connectors Plus Complete Installation and Operation Manual	\$460.00	12	
99X9B	Computer Programming Kit (cable and CD), Serial Interface for Windows PC	\$80.00	1	
99X9C	Computer Programming Kit (cables and CD), USB Interface for Windows PC	\$110.00		

