

# GRAND SCALES ON A BUDGET ECONOMY TRUCKS THAT YOU CAN BUILD

By Darrell Klompmaker

Over the past few years we have tried a number of different prototype designs that some may be interested in. We have worked to come up with a "Cadillac" design truck and an "economy" design truck. When working with these designs we try to include versatility, performance, and cost into new truck ideas. In an article to follow we will take a look at the "Cadillac" design for coach trucks. In this article we will cover our latest economy truck design.

No matter what size your railroad is, if your looking for an economical way to fashion truck sets without making up patterns, machining castings, or flame cutting, these trucks (built from bar stock and off the shelf pillow block bearings) could be for you. All dimensions including wheel size can be changed to suite your own needs and bearings should be sized to fit your particular requirements (most bearing houses are very cooperative in helping you choose the roper bearing)

The dimensions given in these drawings were used to build a pair of trucks for our bottom dump gravel car. The car has a capacity of over 4 tons, and although this car sees only intermittent duty, the trucks have required no service except required lubrication in the past 18 months.

## Getting Started

We usually start truck sets by machining and pressing together wheel sets first. Turning the axles and wheels are the only critical machining steps involved in the building of these trucks. If you don't have a lathe available to you, axles and wheels can

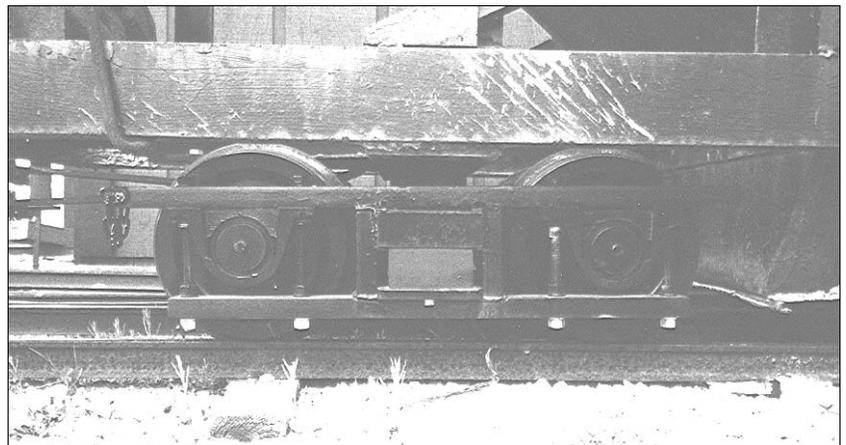
be jobbed out to a local machine shop or wheel sets could be purchased from a locomotive works. Although our locomotive works would supply these products to you, you will soon find that the real economy is in turning the axles and wheels on your own lathe. If you do not own a lathe, consider taking a machine shop coarse at a local high school or technical college, and machine them as your project.

Once wheel sets have been made up the construction is simple, start by cutting material to length. Break all sharp edges and round corners on side frame

pieces D & E. Mark center lines on side frame top A and bottom B, then layout and drill for 1/2" holes that mount pillow block bearings. Lay out parts A, B, and C as shown on drawing. Use a square to line up center lines on A & B and weld in C from the bearing side only. When welding all parts of the side frame and bolster, take care to have all pieces square. Next weld parts D & E in as shown on the drawing. Do not weld on the inside area were the bolster will slide in and ride. Now you can cut your threaded rod to length and bolt your bearings in place. We use four nuts and lockwashers per threaded rod. One on top, one to bolt in the bearing, and one on each side of the bottom rail.

## The Bolster

Start the bolster by cutting materials to length and breaking all sharp edges. With one plate A lay out both pieces B and tack them in place recessed about 1/4" from edge to allow for welding later. Now welding from the inside attach end caps C. Next lay the second plate A on top. Weld in the recess were parts A & B meet along bolster sides. Weld on keyway stock parts D, weld on top, bottom, and back only. No welding should be done were the bolster rides in the side frame. The cup and stabilizers should



be made to suite the individual car you are building trucks for. On these trucks, we used 2" angle iron cut 3" in length welded to the bolster for stabilizers. We use tube stock for cups, usually a 3" O.D. tube welded on the inside on the trucks and a 3 1/8" I.D. tube welded on the outside on the cars.

### Assembly

Assemble the trucks by slipping one side frame on both axles and bolt on retaining washers to axles. Slide in the bolster, line up the second side frame with bolster and axles slip on and attach retaining washers to axles. Raise bolster and install springs or rubber. When we built these trucks we had planned on putting them under our gravel car. In past experience coilsprings would bottom out due to the weight of the gravel, so we tried spring rubber, and it has shown to be a great success. We cut the 2" thick

rubber 3" by 4" on a table saw. The rubber is held in place by a 1/4" hole in the center of the rubber. A 1/4-20 bolt is threaded in a tapped hole in the bottom of the side frame makes this assembly quick and easy.

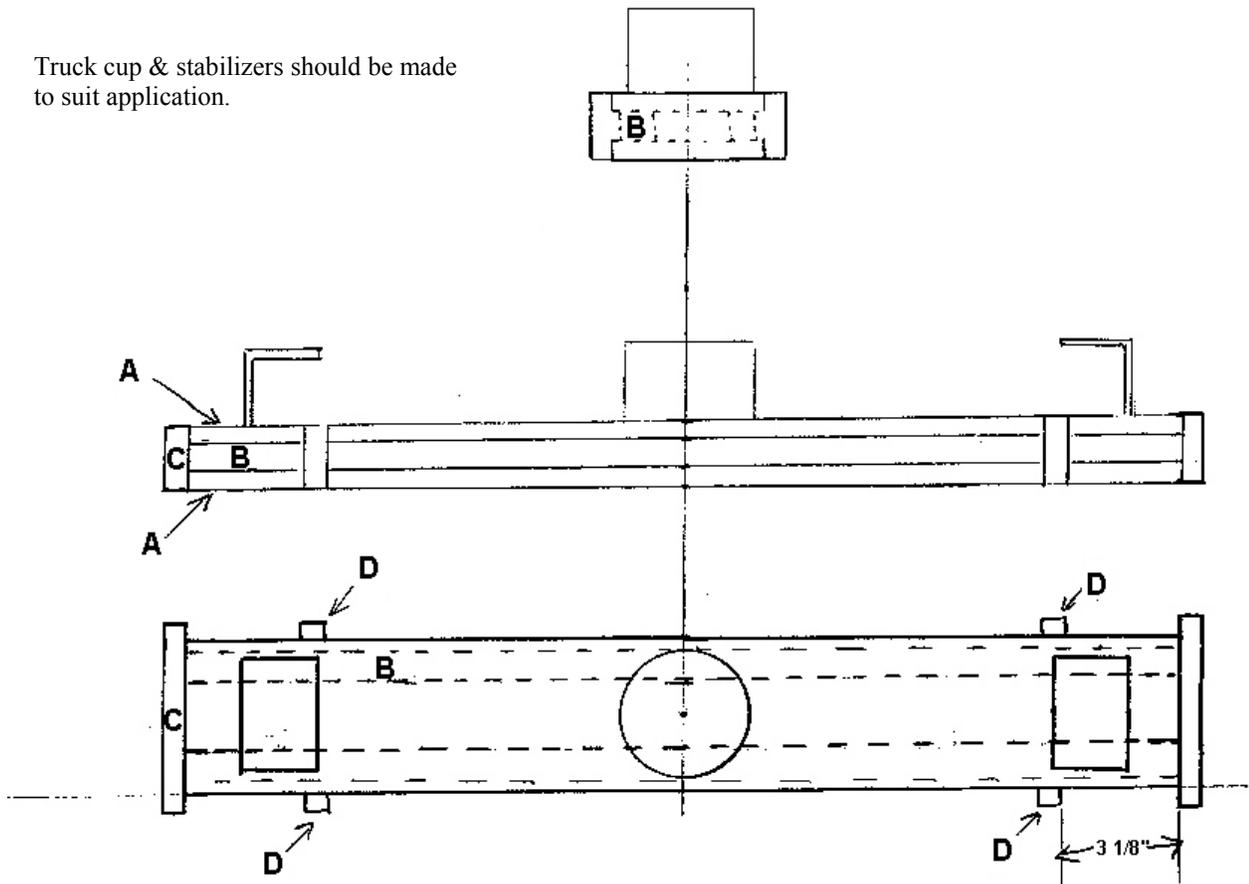
If you have any questions regarding wheels, axles, or the construction of these trucks, contact Darrell at 1-608-655-3181 or e-mail your questions or comments to [gardyloo@jvlnet.com](mailto:gardyloo@jvlnet.com)

Next time we will talk about building an alco style coach truck that can also be used as a tender truck or diesel power truck.

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*Darrell Klompaker is a machinist for the Merrick Light Railway in Wisconsin. We appreciate his taking the time to provide this useful column.*

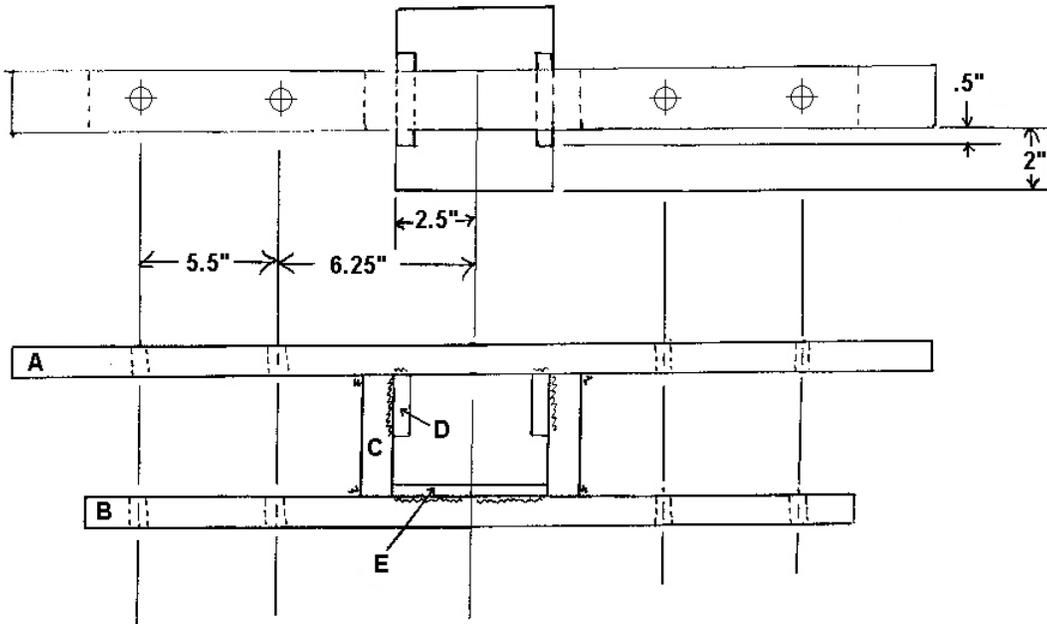
Truck cup & stabilizers should be made to suit application.



- Material needed for 1 Bolster:
- A) 2 - 1/2" x 4" x 261/8 HRS
  - B) 2 - 3/4" x 3/4" x 261/8" HRS
  - C) 2 - 1/2" x 5" x 1 2/4" HRS
  - D) 4 - 1 3/4" x 1/3" Keystock

### Economy Truck - BOLSTER WELDMENT

- Note:
- cut material
  - break sharp edges
  - do not weld near bolster rides in sideframe



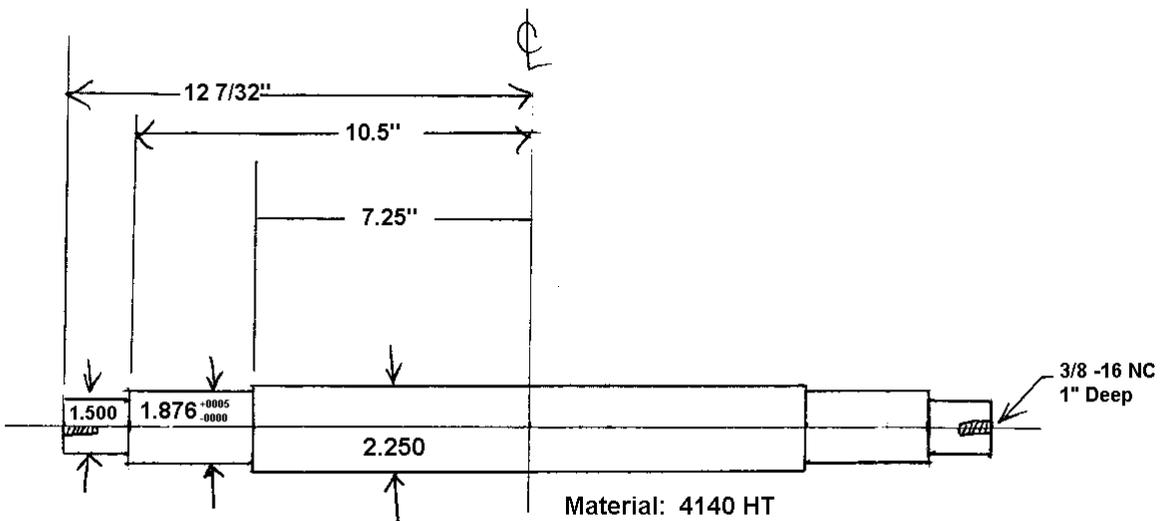
Pillow block mounting holes should be drilled to suit pillow block used.

**Materials needed for 2 side frames:**

- A) 2 - 1" x 2" x 30" HRS
- B) 2 - 1" x 2" x 25" HRS
- C) 4 - 1" x 2" x 4" HRS
- D) 4 - 1/2" x 2" x 3" HRS
- E) 2 - 3/8" x 4" x 5" HRS

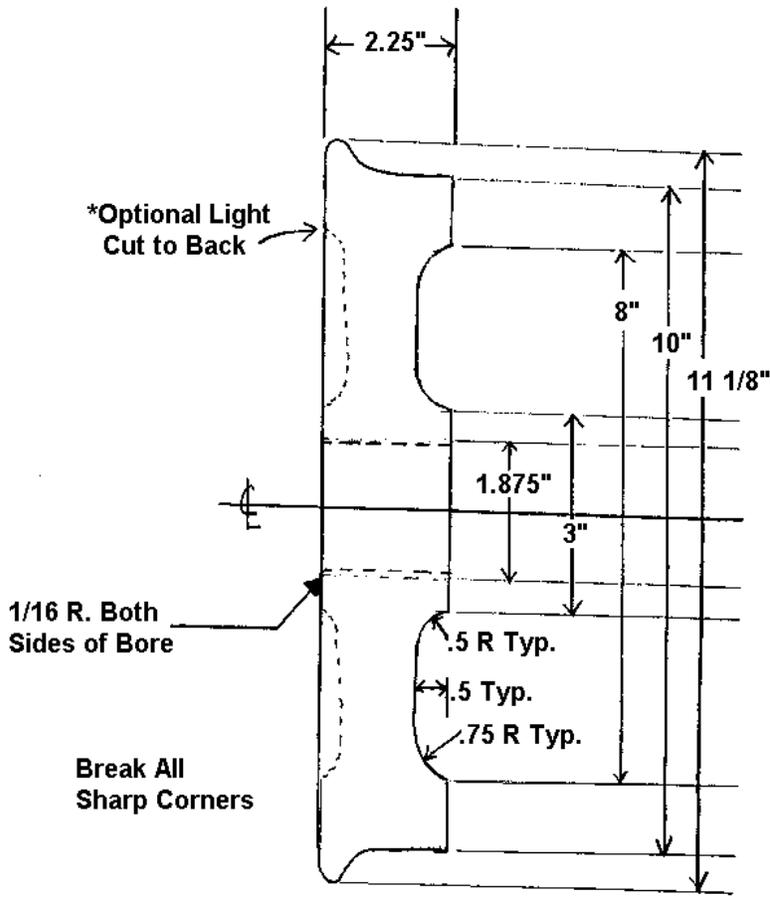
**Economy Truck - Side Frame Weldment**

- Note:
- cut materials
  - drill holes
  - break sharp edges
  - DO NOT weld on the inside of bolster guide



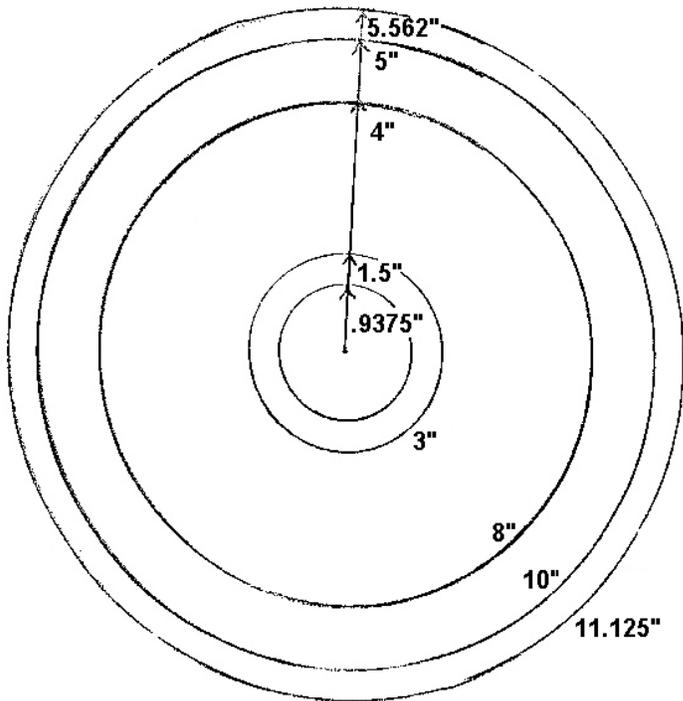
**Economy Truck - Axle**

- Notes:
- Break all sharp edges
  - Axle shoulders should have 1/16" fillet at all shoulders



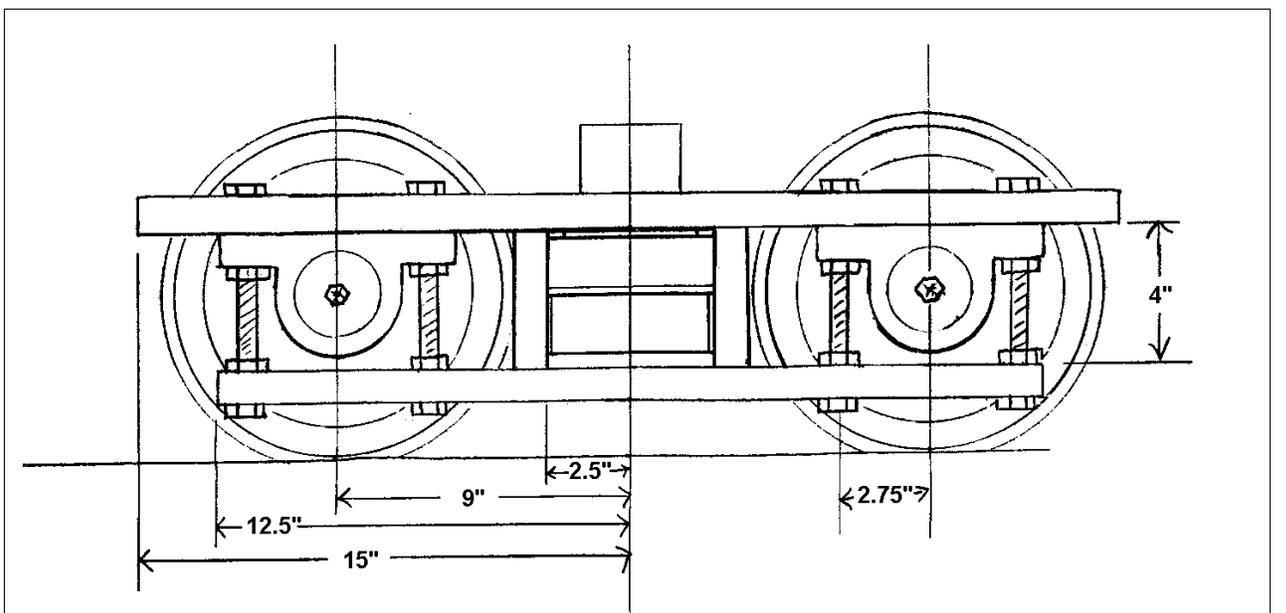
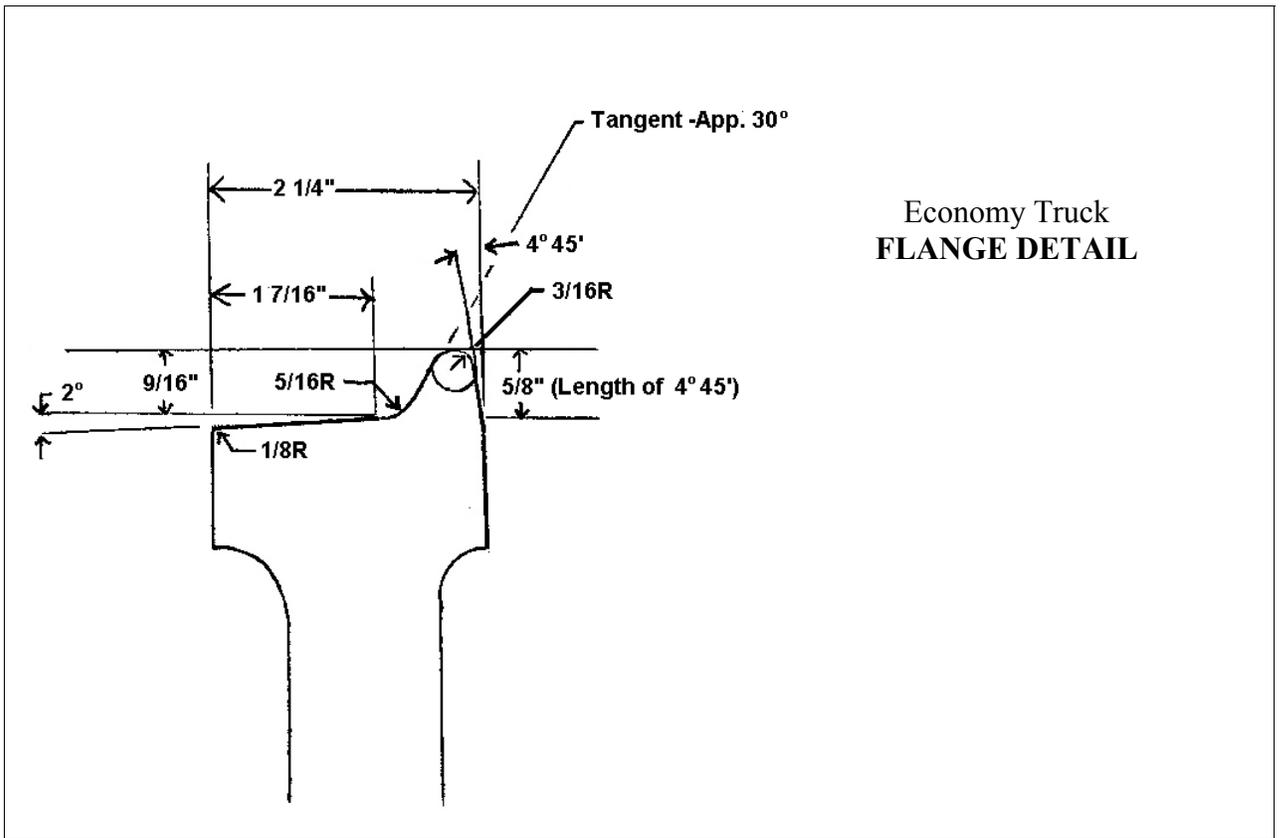
**Economy Truck -  
10" Wheel Profile**

Material: 4140 2 1/2" x 11 1/2"  
forged round  
annealed for machining.



**Economy Truck  
10" Wheel side**

**All drawings by Darrell Klompaker**



### Economy Truck

- 10" Wheel
- Short wheel base
- 1 1/2" standard pillow block
- 1/2" threaded rod
- Spring rubber block (available from McMaster Carr - Part #8630K87 — Phone 630-833-0300)

Note: -end of axels tapped 3/8-16 to attach side frame retaining washer  
 -make washer 1/4" x 2 3/8 from CRS)