

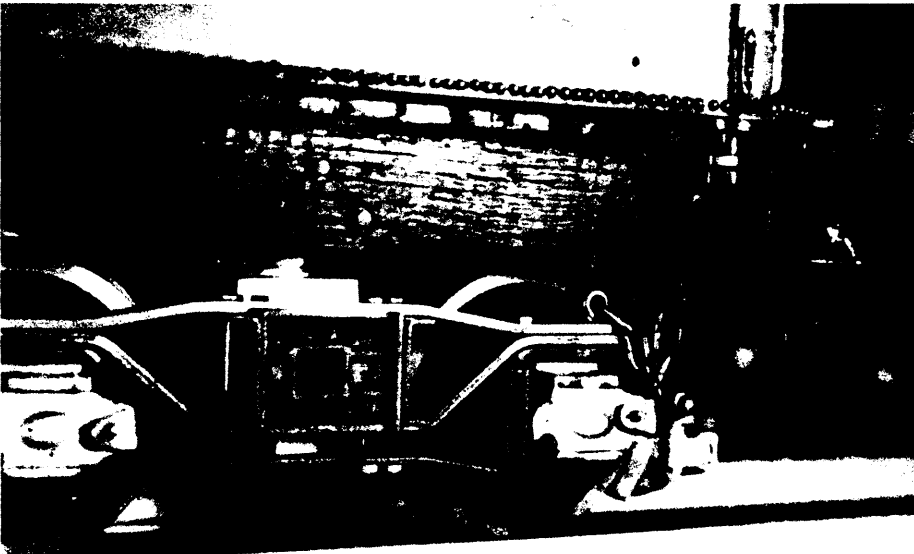
Constructing the tender truck group for

# RIO GRANDE'S T-12 TEN WHEELERS

by Warren K. Weston  
and Gail O. Gish

## PART 24

PHOTOS FROM THE COLLECTION OF WARREN K. WESTON  
DRAWINGS BY JERRY WILLIAMS FROM DESIGN BY WARREN K. WESTON



This month our project continues with work on the tender truck group.

### 229 TENDER SIDE FRAME

Form the several bars and then match drill the arch bars and spacers. Just when the spacers were added to the prototype to raise the tender is unknown. The exceptionally long square-headed bolts were made from some special headed pins that fell victim to a cost reduction program and are no longer available. You can thread both ends of a .125" diameter rod and silver solder a 5-40 square nut for the bolt head. A .125" diameter rod was heated and formed around another rod, just as you would make a close-wound spring. Then a slice separated the loops which were flattened and silver soldered to the rod to make the safety chain attachment point.



### 230 JOURNAL BOX

The choice of bearing is up to you. You should remember that the truck is quite rigid and the bearings need to have considerable slop or be able to rock to prevent binding on the shaft. Lay out the side-

**Upper left.** A close up of the tender truck on Gail's 167. The water line stubbed from the tender tank is a detail derived from photos.

**Left.** The tender on my 169. The seat and footrest have been removed.

**Opposite page.**

**Upper.** A detail of the rear truck under 168 at Colorado Springs.

**Middle.** The other side of the same truck.

**Lower.** A detail of the journal box on 169 at Alamosa, Colorado.

swing cover on a piece of brass for easy forming or a piece of steel if you prefer. We cut a recess in some scrap material to the .687" x .375" elliptical shape of the emboss and then shaped the end of a bar to a .625" x .312" ellipse with smooth radii on the ends. A bit of forming and flattening and you are ready to cut the outline. The *Big Boys* utilized the spring back of the steel to provide retention of the cover in its proper place. For the model, we used a hard rubber spacer to act as the spring of the steel.

### 264 SAFETY CHAIN

Another chain to wind, cut, flatten and solder together.

### 303 TENDER BOLSTER

The hardwood was our choice. It appears that frequently the construction of that time was to laminate wood and steel plate to make up the bolster. To retain the springs, we added a retainer to hold the bolster in contact with the springs. Double-nut a long machine screw to the spring pad (312) and leave good clearance through the bolster. You should counter-bore for the screw head since weight applied to the bolster will extend the screw upward.

### 311 TRUCK BEAM

We formed these from sheet stock, sacrificing square outside corners for less machining time from solid stock.

### 312 SPRING PAD

Crisp, sharp bends help make these parts fit together nicely. The .036" material hooks over the bottom leg of the channel used for the truck beam. The prototype used five coil springs. My experience has been to use solid blocks instead of springs on the rear truck and a medium soft spring set on the front truck. The engineer's seat puts most of my weight on the rear truck and a foot bar through the front steps puts very little weight on the front truck. When the engineer has his weight so far above the track, a little flexing or sway is quite noticeable.

### 340 BEAM END

Machine the ends of the casting square and parallel and .500" wide slots in the top and bottom to fit the arch bars.

### 372 PIVOT PLATE

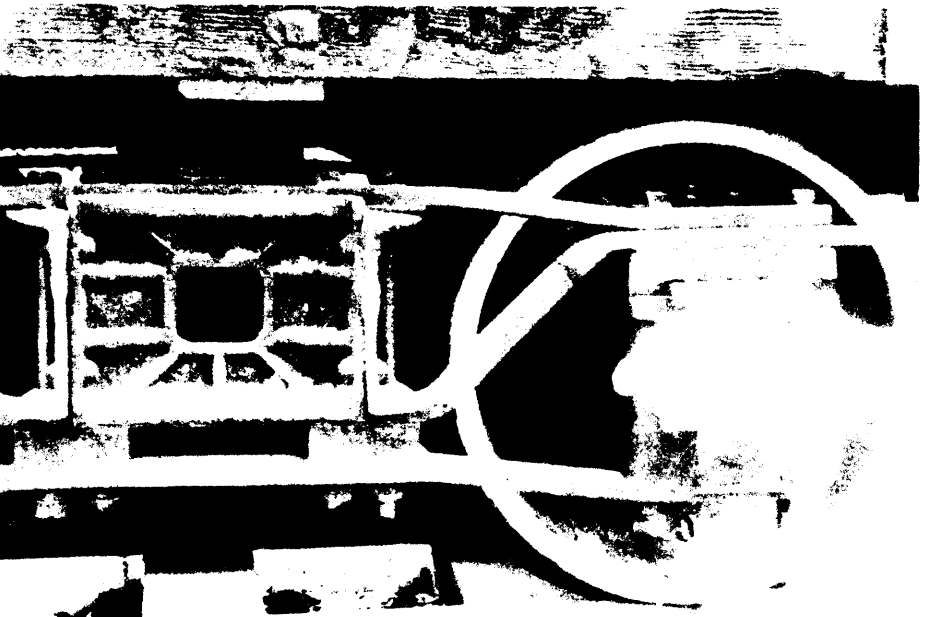
A straight forward ring and flat plate silver solder assembly.

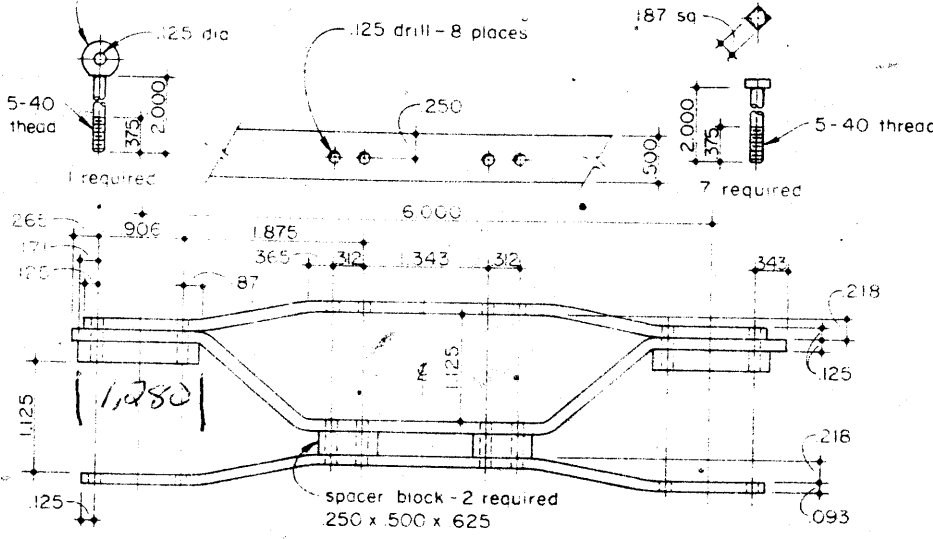
### 374 AXLE

Machine the axle for a light press fit to the wheel bore and the proper fit to your bearing system specifications.

### 375 TRUCK WHEEL

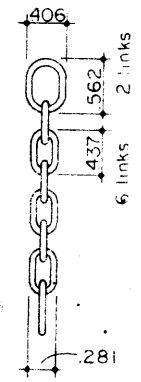
Machine the bore and tread.



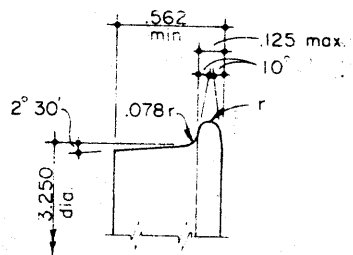


**229 TENDER SIDE FRAME**  
Cold Rolled Steel  
4 Required

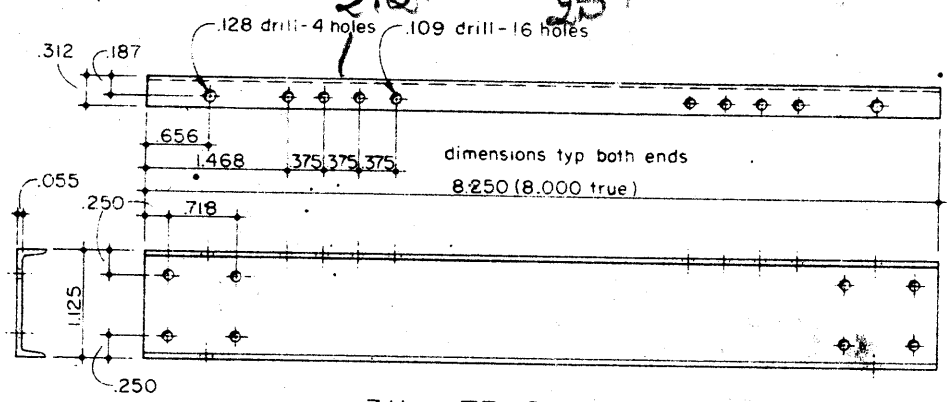
note - insert one end link thru loop of bolt on 229 before joining link.



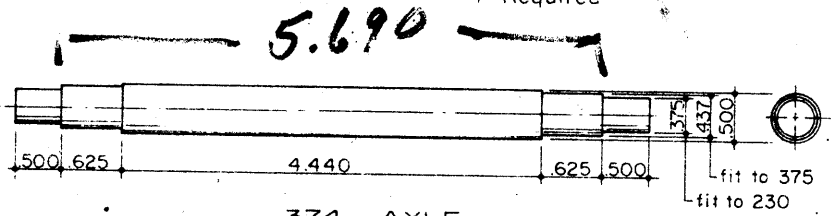
**264 SAFETY CHAIN**  
.060 Wire  
4 Required



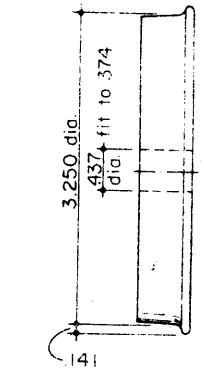
**375 TRUCK WHEEL**  
Grey iron Casting  
8 Required



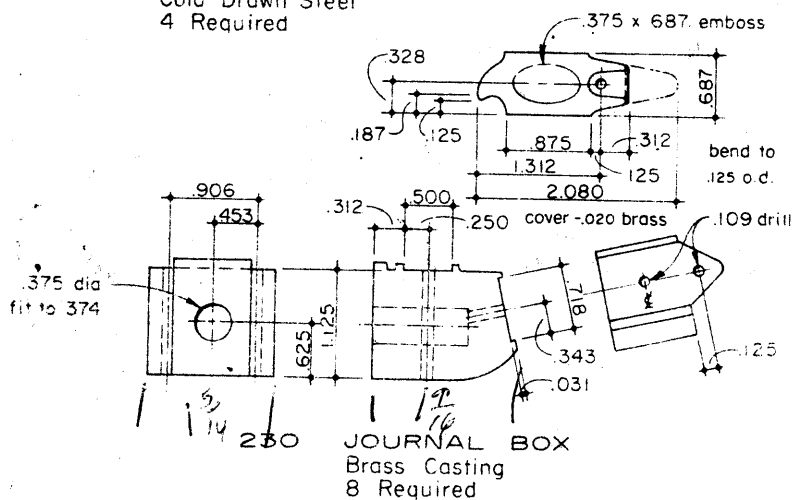
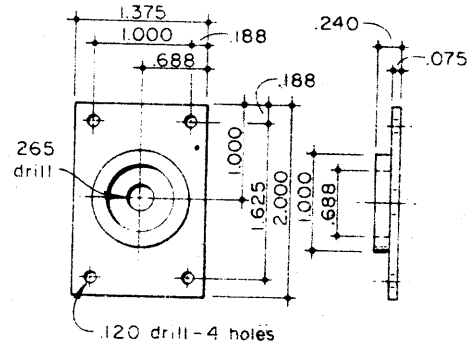
**311 TRUCK BEAM**  
Cold Rolled Steel  
4 Required



**374 AXLE**  
Cold Drawn Steel  
4 Required



**375 PIVOT PLATE**  
Cold Rolled Steel  
2 Required



**230 JOURNAL BOX**  
Brass Casting  
8 Required