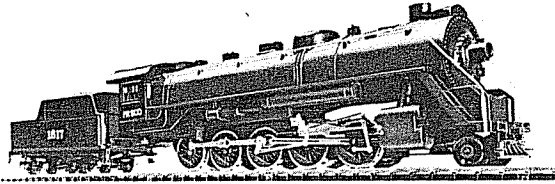


# MANTUA

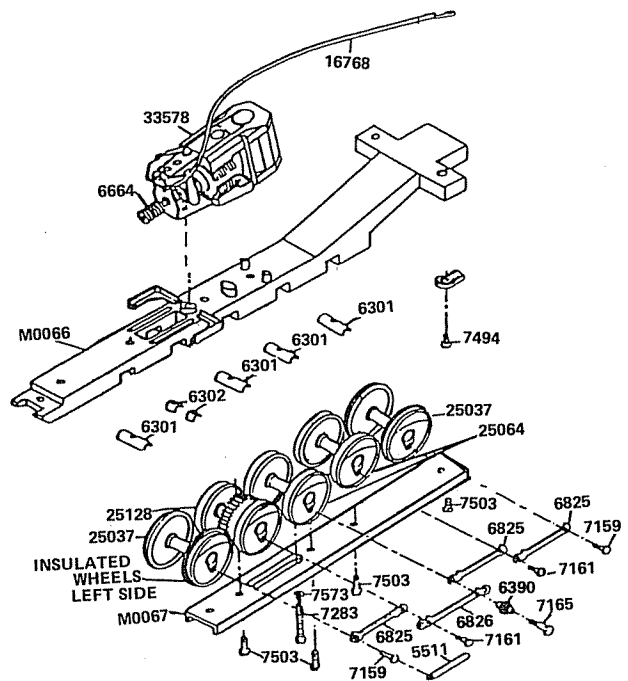


## 2-10-0 DECAPOD

### MECHANISM ASSEMBLY

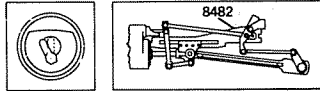
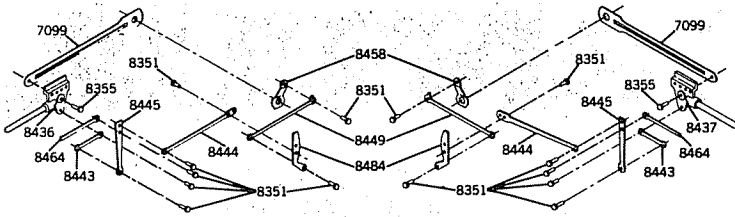
1. Check all parts with the Replacement Parts List. Study drawings to identify the parts. Read instructions through before starting and BE SURE you understand HOW each part is to be mounted and avoid disappointing and expensive errors. Smooth edges of all castings with a knife or fine file to remove all flash and burrs.
2. Assemble four No. 6301 Long Axle Bearings and two No. 6302 Short Axle Bearings in No. 3247 Frame making certain they are located on pins and properly seated in bearing slots of frame.
3. Place one pair No. 25037 Driving Wheels in the first and fifth slots in No. M0066 Frame, one pair No. 25128 (with blind rims and worm gear) in the second slot and one pair No. 25064 (with blind rims) in the third and fourth slots. ALL INSULATED WHEELS must be on the left side. (See drawing.) Apply a few drops of oil to each axle.
4. Place No. 0067 Retainer in position and secure with No. 7503 Screws, #2-56 x 1/4" R.H.S.T. as shown.
5. Make certain that each pair of wheels revolve freely in its bearing.
6. Assemble three No. 6825 and one No. 6826 Side Rods, one No. 6390 Shouldered Bushing on Drivers with two No. 7159 #0-80 Short Shouldered Side Rod Screws, two No. 7161 #0-80 Intermediate Shouldered Side Rod Screw and one No. 7165 #0-80 Hex Head Main Rod Screw in positions designated on drawing. Use No. 5511 #0-80 Wrench to tighten screws. DO NOT USE PLIERS. Drawing shows left side of assembly. Assemble the right side in the same manner. The main Rod Screws No. 7165 must be in each side of the No. 25064 pair of drivers.
7. Check rotation of coupled drivers. Tight spots in side rods may be freed by reaming slightly with a round needle file. DO NOT REAM any more than is absolutely necessary. Assembled mechanism should roll freely.
8. Fasten No. 33578 Motor Assembly to No. M0066 Frame with No. 7283 Screw, #2-56 x 1/2" Long R.H. used with No. 7573 Lock Washer. When the screw is tightened the worm and gear should mesh without binding but with minimum backlash. Should adjustment be necessary remove metal from pad surface carefully with a smooth file as follows: To bring worm and gear closer together remove from front pad and for wider setting from rear pad.
9. Rotate Motor Brush Spring so loop end is free from the fibre plate. Place stripped end of lead wire Part No. 16768 in loop of spring. Rotate spring back to original position, replace brush assembly. CAUTION! Make sure lead is locked between loop of spring and fibre plate.
10. Check unit with 12 Volts, D.C. Power in both forward and reverse motion.
11. Attach No. 6612 Drawbar from Tender to rear of Frame with No. 7494 Screw, #2-56 x 3/16" Lg. Washer Hd. S.T.

12. Lubricate worm and gear with Lubriplate or any good light grease. Apply a drop of light oil to all other moving parts. Turn mechanism upside down and in this position run-in mechanism for not less than 30 minutes with 12 volts, D.C. power. Reverse the direction of rotation one-half of the run-in period.



### VALVE GEAR ASSEMBLY

1. Check all parts with the replacement parts list. Riveting the valve gear links together requires a reasonable amount of care and study.
2. On a sheet of white paper, place all the valve gear parts just as they will be assembled on the locomotive. The drawing shows the exact relation of the parts to each other. Check your layout over again with the drawing as each part must overlap the other as shown.
3. A few tools will be required for the riveting operation:
  - A small flat block of steel as an anvil.
  - A flat fine cut needle file.
  - A small center punch.
  - A light hammer.



4. To become more familiar with the riveting — start with the No. 7099 Main Rods, No. 8436, L.H. side and No. 8437 R.H. side crosshead Assemblies using No. 8355 Long Crosshead Rivet. Insert a small center punch in the hollow end of the rivet and tap lightly until the rivet is flared out. Then tap rivet lightly with the flat face of the hammer until it pulls the main rod and crosshead snugly but not tight. All the rods and levers must operate freely before assembling them on the locomotive frame.
5. After both sides of the main rod and crosshead assemblies are finished rivet together the No. 8458 eccentric crank and the No. 8449 eccentric rod, using No. 8351 rivet. Finish both sides before going to the next step, being careful to keep the projecting lug up, thus distinguishing the left from the right side assembly. **IMPORTANT NOTE:** All No. 8351 rivets are placed with the head outside except the two rivets used to rivet part No. 8444 to part No. 8484. A few extras rivets are supplied for your convenience.
6. Left Side — Rivet No. 8449 to No. 8484  
Right Side — Rivet No. 8449 to No. 8484.
7. Left Side — Rivet No. 8484 to No. 8444  
Right Side — Rivet No. 8484 to No. 8444.
8. Left Side — Rivet No. 8444 to No. 8445  
Right — Rivet No. 8444 to No. 8445.
9. Left side — Rivet No. 8445 to No. 8464.  
Right Side — Rivet No. 8445 to No. 8464.
10. Left Side — Rivet No. 8445 to No. 8443.  
Right Side — Rivet No. 8445 to No. 8443.
11. Left Side — Rivet No. 8443 to No. 8436.  
Right Side — Rivet No. 8443 to No. 8437.
12. Rivet the No. 8484 Reverse Links to No. 8482 L.H. and No. 8483 R.H. Crosshead Guide and Reverse Link Hanger. Use No. 8351 Short Valve Gear Rivet (see insert drawing). Bending ear of hanger out slightly will aid riveting.
13. Assemble crosshead and No. 8482 L.H. and No. 8483 R.H. crosshead guide and reverse link hanger as shown in final mechanism assembly drawing. Small end of guide pointing the same direction as the piston rod.
14. Assemble No. 2655 Cylinder Unit and crosshead guides by inserting piston rod in cylinder, followed by the single point end of crosshead guide into the hole above it. Hold completed unit in position over frame and place notched end of crosshead guide between protecting pins at bottom of guide bracket. When in proper position cylinder unit will drop in slot in frame. A No. 7503 Screw, # 2-56 x 1/4" R.H.S.T. is used to hold cylinder on Frame. Check crossheads making certain that they slide freely in guides.
15. Remove the No. 7165 main rod screw from each side of the pair of No. 25064 drivers, slip the end of the No. 7099 main rod over the No. 6930 Shouldered bushing. Now with the No. 8458 eccentric crank placed over the end of the bushing, replace the long hex main rod screws. The eccentric crank is thus clamped between end of bushing and the underside of the hex head screw. The eccentric crank may be set at any angle from 0 degrees to 30 degrees. The

0 degree setting allows a minimum amount of movement of the valve gear. A 30 degree setting allows a maximum amount of movement and also more wear on the valve gear. Insert drawing shows 0 degree angle in dotted line position and 30 degree angle in solid line.

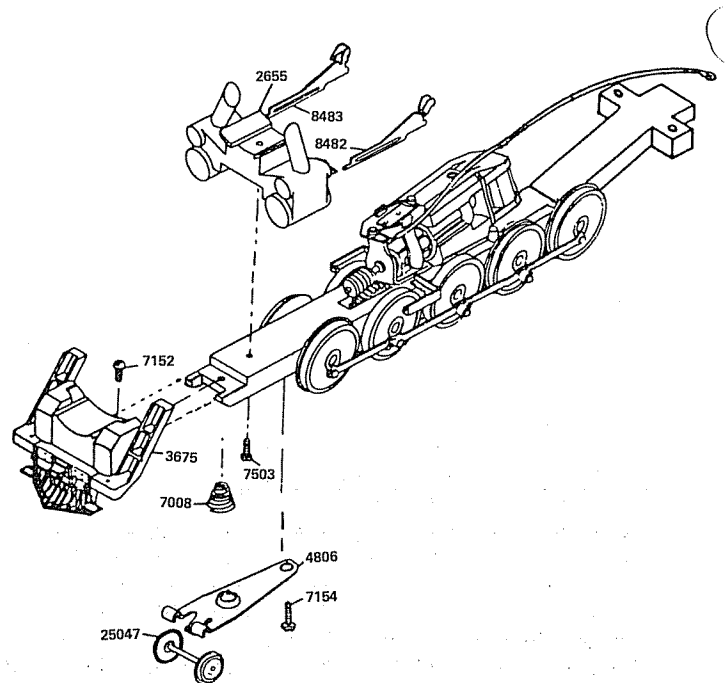
16. Put a drop of oil on each bearing (Rivet) run-in mechanism the same as mentioned in the mechanism assembly.

## MECHANISM ASSEMBLY

When the parts shown on this drawing have been installed the Mechanism will be completely assembled.

1. Fasten No. 3675 Pilot and Step Unit to main frame with No. 7152 Screw, #2-56 x 3/6" S.T.
2. Place No. 25047 Wheel Assembly in bearing slots of No. 4806 Truck Frame. Bend tap up to hold wheels in position, allowing suitable running clearance. Sand axle points after assembly.
3. Place large end of No. 7008 Spring over boss truck frame, then place truck frame on Boss on Retainer No. M0067 and secure with No. 7154 Screw, # 2-56 x 5/16" Lg. S.T.
4. The following parts shown on this drawing for better illustration have been installed as follows:  
Valve Gear Assembly, Step 13 and 14.

- 1 No. 8482 Crosshead Guide and Reverse Link Hanger L.H.
- 1 No. 8483 Crosshead Guide and Reverse Link Hanger, R.H.
- 1 No. 2655 Cylinder Unit
- 1 No. 7503 Screw, # 2-56 x 1/4" R.H.S.T.

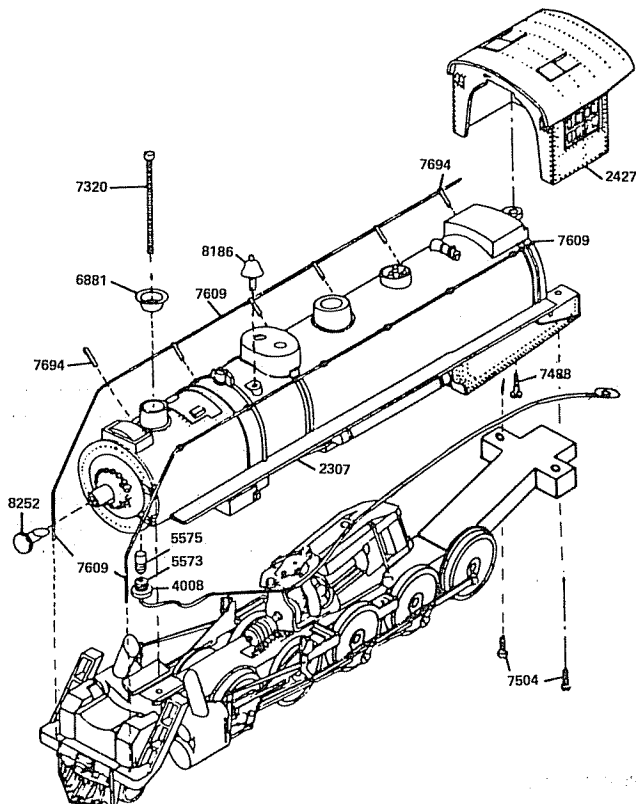


## BOILER ASSEMBLY

The Boiler is a one piece Die Casting with all fittings cast on, therefore, the assembly of this unit is very easy.

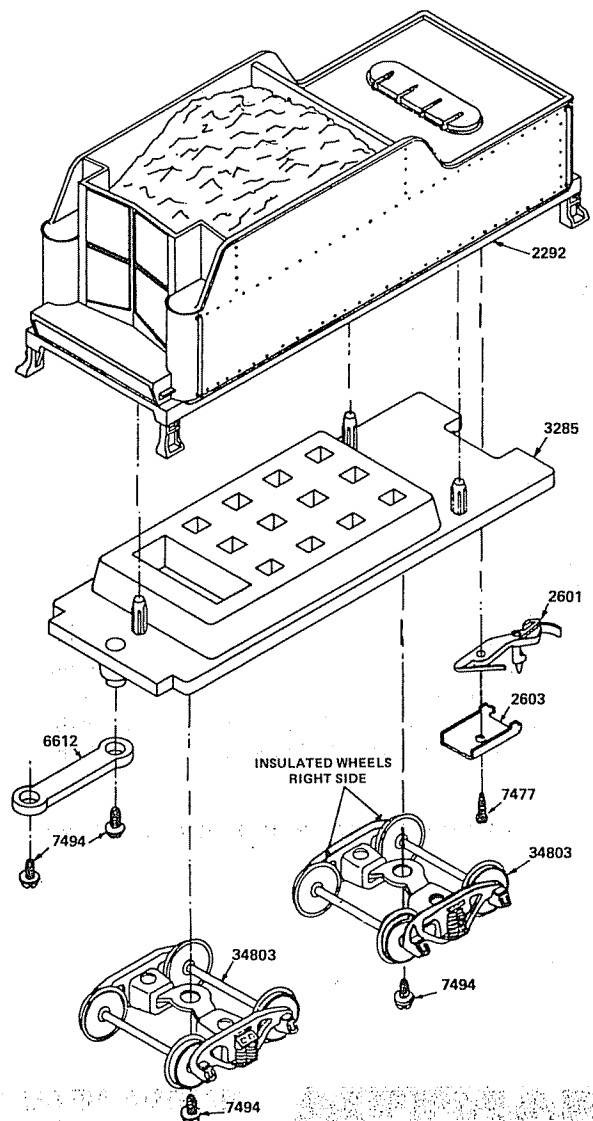
1. Screw No. 5575 Lamp into No. 5573 Socket and Wire Assembly. Thread Lead Wire through hole in No. 4008 Lamp Socket Retainer. Insert No. 5573, No. 5575 and No. 4008 into hole provided in No. 2307 Boiler. Insert No. 8252 Lens in front of boiler.

2. Mount No. 2427 Cab on No. 2307 Boiler with No. 7488 Screw, # 2 x 1/4" Lg. R.H. Self Tapping inserted through Lug at top of rear end of Boiler. Make sure that the bottom front edge of Cab fits into slots provided.
3. Insert mounting lug on No. 8186 Bell into hole in top of boiler as shown in drawing. Place a small block of wood on top of the bell and tap into position.
4. Assemble the handrail on the boiler using 12 No. 7694 Handrail Posts. Grip Posts with a needle nose plier and start in place in the six holes on each side of the boiler. To secure a nice radius for the front end of the No. 7609 handrail wire, as shown in drawing, bend over a round rod 1/8" in diameter. Insert thru holes in the six posts on each side of the boiler. All handrail posts should be lightly tapped home with a hammer.
5. Press No. 6881 Smokestack Rim into place in top of smokestack.
6. Refer to Mechanism Assembly, Paragraph 9, Page 1 for lamp lead hook up.
7. Place completed boiler on frame, making certain that it seats properly on the cylinder block and rear of main frame. Insert two No. 7504 Screws, #2-56 x 3/8" S.T. through rear of main frame and screw into boiler. DO NOT TIGHTEN.
8. Form the second bend in the handrail as shown on drawing. Raise front end of boiler and insert handrails in holes on beam plate of No. 3675 Pilot and Step Unit. Snip off ends even with the bottom of the beam plate. DO NOT BEND WIRES OVER.
9. Insert one No. 7320 Screw # 2-56 x 1 1/4" Fill. H. through smokestack and screw into cylinder block. If boiler is seating properly, screw up on all three screws until boiler is tight on cylinder block and main frame.
10. Check the assembly and make sure the boiler is clear of the motor assembly.



## TENDER ASSEMBLY

1. Check all parts with replacement parts list. Study drawings to identify the parts. Read instructions through before starting and BE SURE you understand how each part is to be mounted and avoid disappointing and expensive errors. Smooth edges of all castings with a knife or fine file to remove all flash and burrs.
2. Assemble No. 3285 Frame to No. 2292 Body by pressing the three pins on the frame into the holes provided in body.
3. Place No. 2601 Coupler in No. 2603 Coupler Pocket and insert No. 7477 Screw, #0 x 7/32" lg. S.T.R.H. as shown on drawing. Screw into hole provided on Tender Body. Be sure coupler is under spring tension and moves freely.
4. Install No. 34803 trucks with insulated wheels on the right hand side (opposite side to loco insulate wheels). Screw into place with two No. 7494 screws, #2-56x3/16" W.H.S.T.
5. Place No. 6612 drawbar over boss at front of tender frame, over this place motor lead wire terminal, secure with a No. 7494 screw, #2-56 x 3/16" S.T.W.H. The other end of drawbar slips over the boss at the rear of loco frame, No. 7494 screw is also used here.



NO. IN KIT	DESCRIPTION	UNIT PART NO.	PRICE EACH
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### MECHANISM PARTS

1	Frame, Loco	M0066	<del>2500</del>
3	Bearings, Long Axle	6301	
2	Bearings, Short Axle	6302	
2	Wheel & Axle, 61½" Flanged	25037	
1	Wheel & Axle, 61½" Blind with No. 663 Gear, 34T, 56P	25128	
2	Wheel & Axle, 61½" Blind	25064	
1	Retainer	M0067	
4	Screws, #2-56 x ¼" R.H.S.T.	7503	
6	Side Rods (End)	6825	
2	Side Rods (Center)	6826	
2	Shouldered Bushing	6390	
4	Screws, Short Side Rod	7159	
4	Screw, Intermediate Side Rod	7161	
2	Screw, Hex Head Side Rod	7165	
1	Motor Assembly	33578	
Parts for above:			
1	Motor, Std. PM-1	33579	
1	Worm, 56 Pitch	6664	
1	Screw, #2-56 x ½" R.H.S.T.	7283	
1	Washer, Lock	7573	
1	Motor Lead and Lug Assembly	16768	
1	Wrench, #0-80	5511	
1	Pilot and Step Unit	3675	
1	Screw, #2-56 x 3/16" R.H.S.T.	7152	
1	Cylinder Unit	2655	
1	Screw, #2-56 x ¼" R.H.S.T.	7503	
1	Wheel and Axle Assembly (Ins.)	25047	
1	Truck Frame	4806	
1	Spring, Conical	7008	
1	Screw, #2-56 x 5/16" W.H.S.T.	7154	

### VALVE GEAR PARTS

2	Main Rods, 1.600" Centers	7099	
1	Crosshead Assembly L.H.	8436	
1	Crosshead Assembly R.H.	8437	
2	Rivets, Crosshead, Long	8355	
2	Eccentric Crank	8458	
2	Eccentric Rod	8449	
16	Rivets, Valve Gear	8351	
2	Reverse Link	8484	
2	Radius Rods	8444	
2	Combination Lever	8445	
2	Valve Rod	8464	
2	Crosshead Link	8443	
1	Hanger L.H. Crosshead Guide & Reverse Link	8482	
1	Hanger R.H. Crosshead Guide & Reverse Link	8483	

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

NO. IN KIT	DESCRIPTION	UNIT PART NO.	PRICE EACH
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### BOILER PARTS

1	Boiler, Die Cast	2307	
1	Cab	2427	
1	Screw, #2 x ¼" R.H.S.T.	7488	
1	Bell, Brass with Mtg. Lug	8186	
12	Handrail Posts	7694	
2	Wire, Steel Handrail, 8" Lg.	7609	
1	Smokestack Rim	6881	
1	Screw, #2-56 x 1¼" Fill. Hd.	7320	
2	Screws, #2-56 x 3/8" R.H.S.T.	7504	
1	Lens Headlight	8252	
1	Lamp, w/Midget Screw Base Type B	5575	
1	Socket & Leadwire Assy.	5573	
1	Lamp, Socket Retainer	4008	

### TENDER PARTS

1	Tender Body	2292	
1	Tender Frame	3285	
1	Tender Trucks	34803	
4	Screw, #2-56 x 3/16" W.H.S.T.	7494	
1	Coupler Pocket	2603	
1	Coupler	2601	
1	Screw, #0 x 7/32" S.T.R.H.	7477	
1	Drawbar	6612	

### REPLACEMENT PARTS

See your Hobby Dealer. If he cannot supply them you may order from the factory. Please send check or money order for parts required, plus \$1.00 for postage and handling.

### DEFECTIVE PARTS

RETURN PARTS ONLY — NOT COMPLETE MODEL. Any defective part will be replaced at no charge. If complete or partially completed model is returned only the defective part will be replaced, not installed.

Please enclose check or money order for \$1.00 to cover the cost of postage and handling.

### MANTUA FULL ONE YEAR WARRANTY

All Mantua Products are thoroughly inspected and tested prior to shipment and are guaranteed to operate satisfactorily and be free from factory defects. If within one (1) year from the date of purchase this product fails due to defect in material or workmanship Mantua will repair or replace it free of charge. This guarantee does not apply to (a) electric bulbs, (b) damage caused by accident, abuse or mishandling, dropping and (c) units which have been subjected to unauthorized repair. To prevent damage in transit please pack securely and return to: Mantua Service, Grandview Avenue, Woodbury Heights, N. J. 08097.

# MANTUA

MANTUA METAL PRODUCTS CO., INC.  
GRANDVIEW AVENUE, WOODBURY HEIGHTS, NEW JERSEY 08097

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