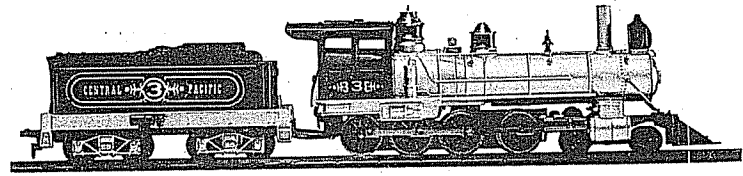


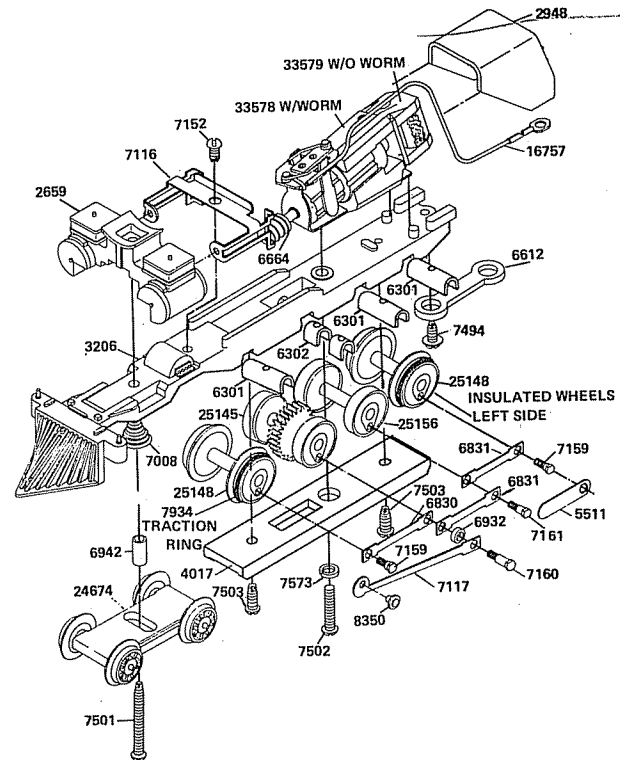
MANTUA



4-8-0 12-WHEELER

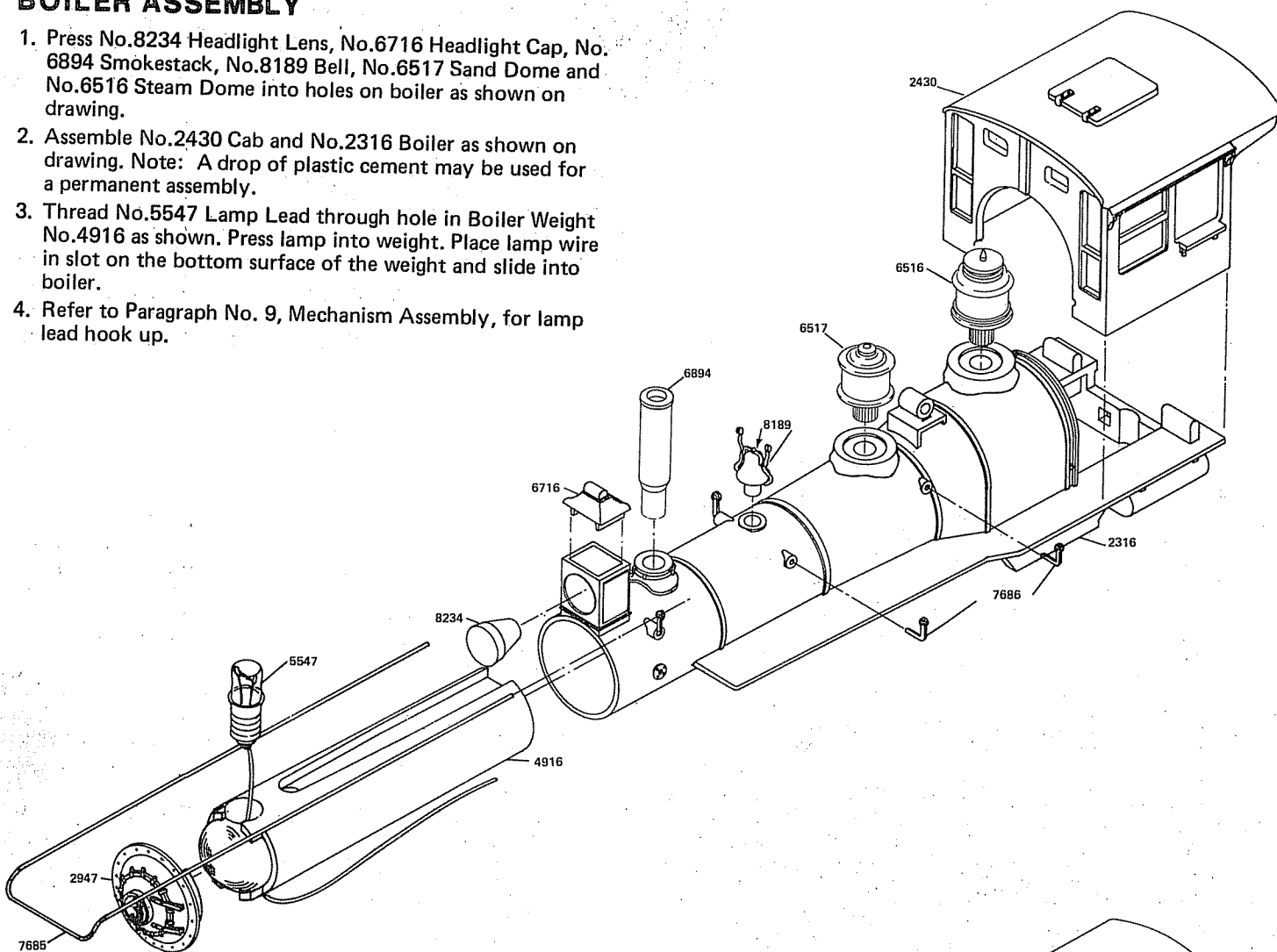
MECHANISM ASSEMBLY

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 three No.6301 Long Axle Bearings and two No. 6302 Short Axle Bearings in No.3206 Frame making certain they are located on pins and properly seated in bearing slots of frame.
3. Place No.25148 Drivers (with traction ring) in front and rear slots of No.3206 Frame. Place No.25145 Drivers with gear and blind rims in the second slot and No.25156 Drivers with blind rims in the third slot. ALL INSULATED WHEELS must be on the left side, see drawing. Insulated wheels are identified by a white ring between the wheel casting and the wheel rim. Apply a few drops of light oil.
4. Place No.4017 Retainer Plate in position and secure with two No.7503 Screws (#2-56x $\frac{1}{4}$ " Lg. R.H. Thread Cutting) as shown.
5. Make certain that each pair of wheels revolve freely in its bearing.
6. No.8350 Crosshead is attached to No.7117 Main Rod by riveting. Assemble left side as shown on drawing and right side opposite as shown. Back up crosshead andpeen to secure. Assemble left side Rods No.6830 and (2) No.6831 and Main Rod as shown on drawing, right side opposite as shown. Use No.5511 #0-80 Wrench to tighten side rod screws. DO NOT USE PLIERS.
7. Check rotation of coupled drivers. Tight spots inside 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.3206 Frame with No.7502 Screw (#2-56x $\frac{7}{16}$ " Lg. R.H.) used with No. 7573 Lock Washer. When the screw is tightened the worm and gear should mesh without binding but with a minimum backlash. Should adjustment be necessary, remove metal from pad surface carefully with a fine file as follows: To bring worm and gear closer remove from front pad and for wider setting, remove from rear pad.
9. To connect No.16757 Motor Lead and Lug Assembly to No.33578, use a drop of solder on front brush post or it may be connected under brush spring loop. Remove brush assembly. Rotate the spring so loop end is free from fibre plate. Place stripped end of lead 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. Headlight lead is also connected in the same manner.
10. Assemble No.24674 Lead Truck (long end forward) using No.7501 Screw (#2-56x $\frac{13}{16}$ " Lg. R.H. thread cutting) inserted through lead truck, No.6942 Spacer, No.7008 spring, Loco Frame and NO.2659 Cylinder Unit. Fasten temporarily with a No.7427 Nut, #2-56 Hex.
11. Place assembled crosshead and main rod in slots of No. 7116 Crosshead Guide as shown in Boiler and Frame Assembly Drawing. With crosshead in slots, place guide on frame locating small holes on pins at rear of cylinder unit. Fasten to frame with No.7152 Screw (#2-56x $\frac{3}{16}$ " Lg. R.H. thread cutting).
12. Check unit with 12 volts, D.C. power in both forward and reverse motion.
13. Attach No.6612 Draw Bar from tender to rear of frame with No.7494 Screw (#2-56x $\frac{3}{16}$ " Lg. washer head thread cutting).
14. 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.



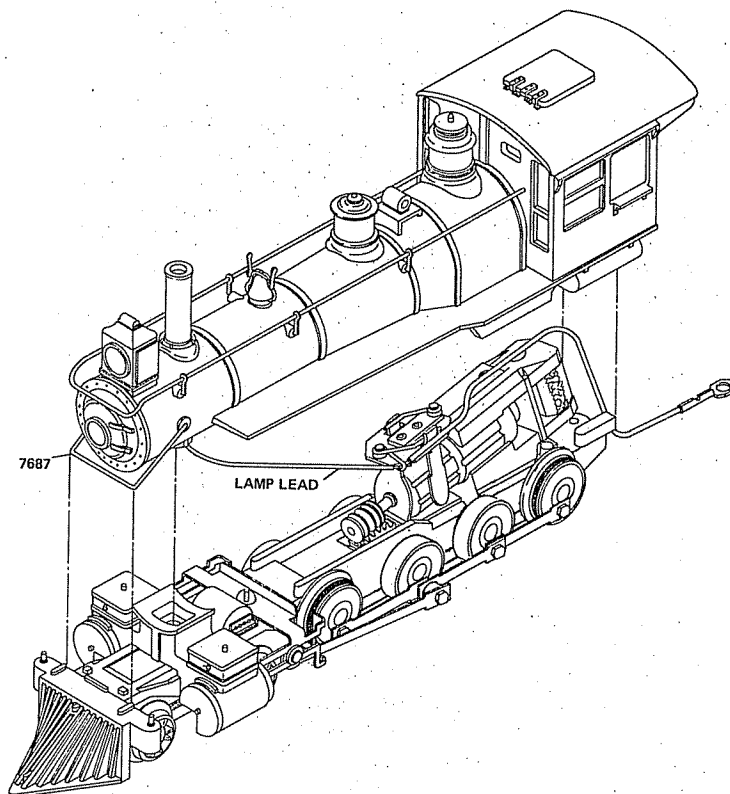
BOILER ASSEMBLY

1. Press No.8234 Headlight Lens, No.6716 Headlight Cap, No. 6894 Smokestack, No.8189 Bell, No.6517 Sand Dome and No.6516 Steam Dome into holes on boiler as shown on drawing.
2. Assemble No.2430 Cab and No.2316 Boiler as shown on drawing. Note: A drop of plastic cement may be used for a permanent assembly.
3. Thread No.5547 Lamp Lead through hole in Boiler Weight No.4916 as shown. Press lamp into weight. Place lamp wire in slot on the bottom surface of the weight and slide into boiler.
4. Refer to Paragraph No. 9, Mechanism Assembly, for lamp lead hook up.



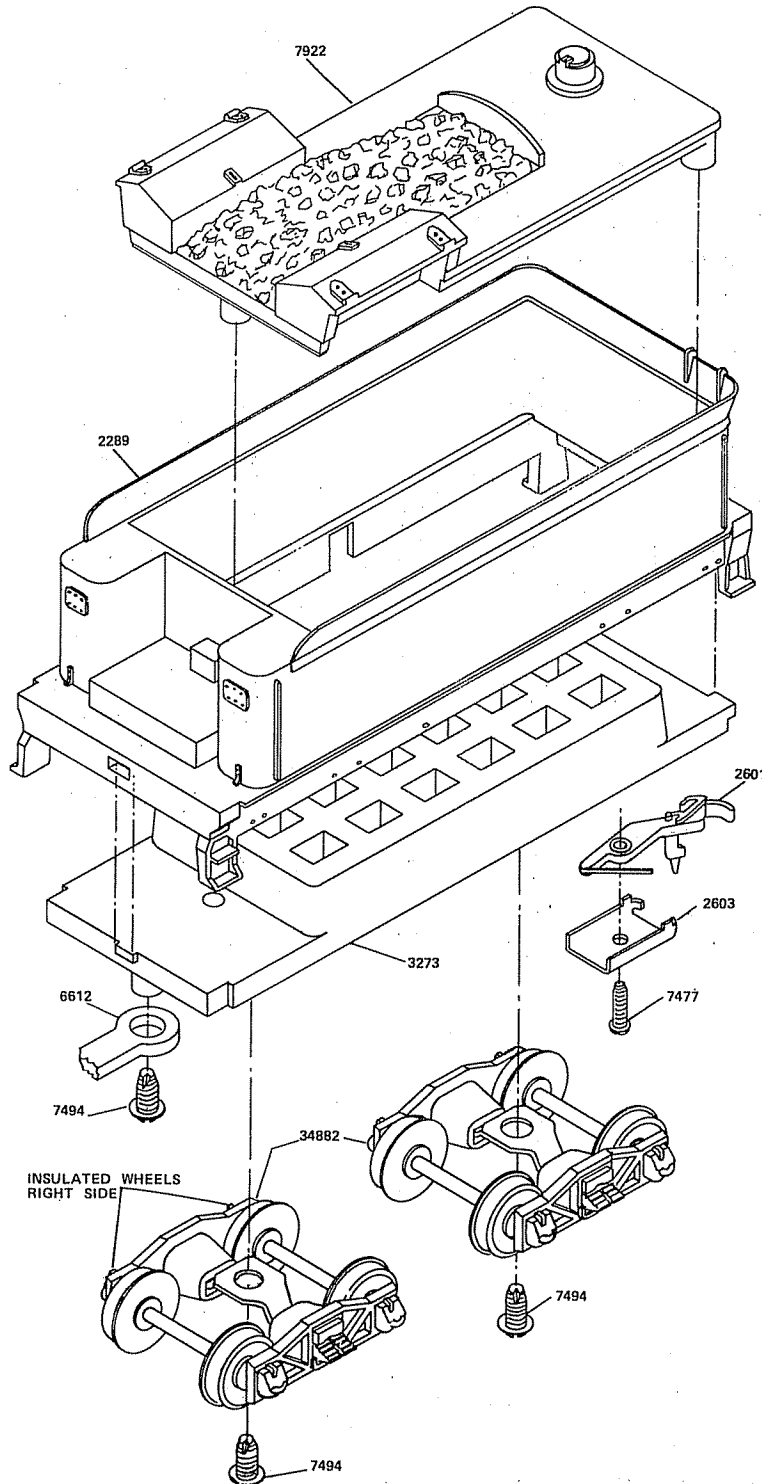
BOILER AND MECHANISM ASSEMBLY

1. Remove No.7427 Nut #2-56 Hex from No.7501 Screw on mechanism assembly. Place rear lugs on No.3206 Frame into holes provided at the rear of boiler assembly. Screw No.7501 into Boiler Weight No.4916. Place No.7687 Smoke Box Support on boiler as shown and locate bottom behind sill on Frame No.3206, then tighten screw.
2. Press No.2947 Boiler Front on boiler.
3. Press six No.7686 Handrail Posts in holes on boiler as shown. Thread No.7685 Handrail through posts and before pressing into holes in cab, put a small flat or spline on each end with a pair of pliers so as to hold handrail in position after pressing into place.
4. Position motor lead as shown on drawing and insert No. 2948 Motor Housing through rear of cab and press on to back of motor.



TENDER ASSEMBLY

1. Check all parts with the replacement parts list.
2. Assemble No.2289 Tender Body to No.3273 Frame. Insert two rear lugs on frame into openings on body and press front lug into slot on body.
3. Place No.2601 Coupler in No.2603 Coupler Pocket and insert No.7477 Screw (#0x7/32" Lg. S.T.R.H.) as shown on drawing. Screw into hole provided on Tender Underframe No.3273. Be sure coupler is under spring tension and moves freely.
4. Install No.34882 Trucks with INSULATED WHEELS ON THE RIGHT HAND SIDE (opposite side of loco insulated wheels). Screw into place with two No.7494 Screws (#2-56 x3/16" Lg. washer head thread cutting).
5. Place No.6612 Draw Bar over boss at front of tender underframe, over this place motor lead wire terminal, secure with No.7494 Screw. The other end of Draw Bar slips over boss at rear of loco frame. A No.7494 Screw is also used to secure this end.
6. Place No.7922 Coal Pile in position as shown. For a permanent assembly a drop of plastic cement may be used.



NO. IN KIT DESCRIPTION	PART NO.
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MECHANISM PARTS

1 Main Frame, Loco	3206
3 Bearings, Long Axle	6301
2 Bearings, Short Axle	6302
1 Wheel, Axle and Gear Assembly	25145
2 Wheel and Axle Assembly with Traction Ring	25148
2 Traction Ring	7934
1 Wheel and Axle, Blind	25156
1 Retainer Plate	4017
1 Screw, #2-56x1/4" R.H.S.T.	7503
4 Side Rod	6831
2 Side Rod	6830
2 Spacer, Main Rod	6932
2 Screw, Shld. Side Rod Long	7160
4 Screw, Shld. Side Rod Short	7159
2 Screw, Shld. Side Rod Intermediate	7161
2 Main Rod	7117
2 Crosshead Rivet	8350
1 Crosshead Guide	7116
1 Screw, #2-56x3/16" R.H.S.T.	7152
1 Wrench, #0-80	5511
1 Lead Truck	24674
1 Spacer	6942
1 Spring	7008
1 Screw, #2-56x13/16" R.H.S.T.	7501
1 Cylinder Unit	2659
1 Nut #2-56 Hex (Temporary Assembly)	7427
1 Motor and Worm Assembly	33578
Parts for Above:	
1 Motor PM-1	33579
1 Worm, 56 Pitch	6664
1 Screw, #2-56x7/16" R.H.	7502
1 Lock Washer	7573
1 Motor Lead and Lug	16757

BOILER PARTS

1 Boiler, Plastic	2316
1 Cab, Loco	2430
1 Weight, Boiler	4916
1 Lamp and Lead Assembly (Headlight)	5547
1 Smoke Box Support	7687
1 Boiler Front	2947
6 Handrail Post	7686
1 Handrail	7685
1 Lens, (Headlight)	8234
1 Headlight Cap	6716
1 Bell	8189
1 Sand Dome	6517
1 Steam Dome	6516
1 Motor Housing (Plastic)	2948
1 Smoke Stack, Coal Burning	6894

NO. IN KIT DESCRIPTION	PART NO.
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TENDER PARTS

1 Tender Body	2289
1 Frame	3273
2 Truck	34882
1 Coupler	2601
1 Coupler Pocket	2603
1 Screw, #0x7/32" R.H.S.T.	7477
1 Coal Pile	7922
1 Draw Bar	6612
4 Screw, #2-56x3/16" Washer Head S.T.	7494

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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