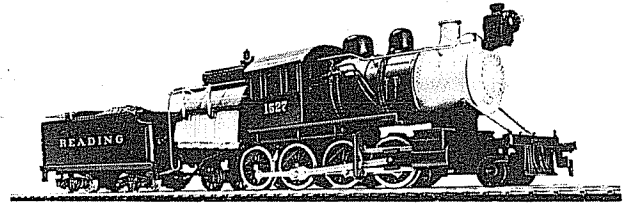


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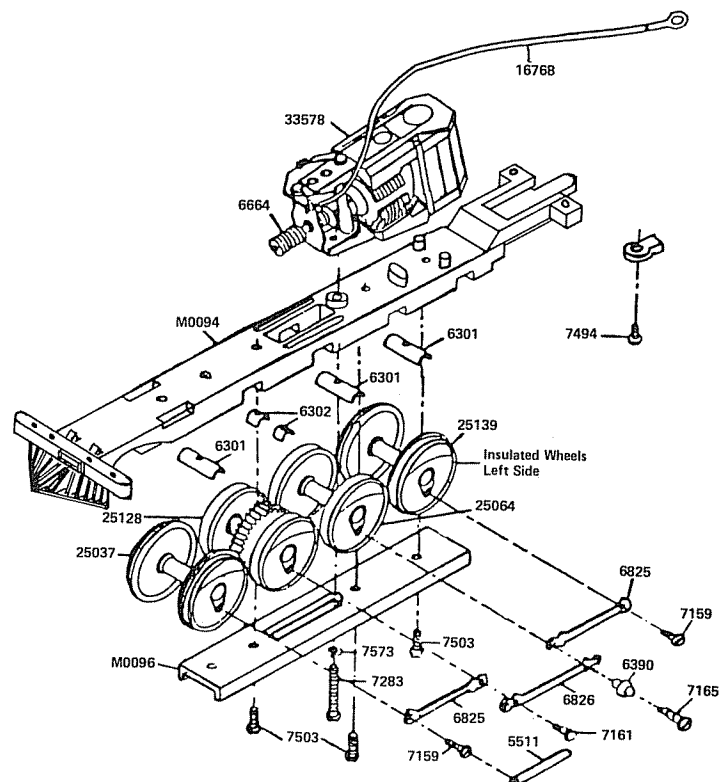
2-8-2 CAMELBACK

MECHANISM ASSEMBLY

1. Check all parts with Replacement Parts List. Study drawings to be sure to identify the parts. Read instructions thru before starting and be sure you understand how each part is to be mounted and avoid disappointing and expensive errors. Smooth edges of all casting with a knife or fine file to remove all flash and burrs.
2. Assemble three No.6301 Long Bearings and two No.6302 Short Bearings in M0094 Frame making sure they are located on pins and properly seated in bearing slots of frame.
3. Place one pair of No.25037 Drive Wheels in the first slot in No.M0094 Frame, one pair No.25128 (with blind rims and gear) in second slot. Place one pair No.25064 (blind rim) in third slot and one Pair No.25139 (with traction ring) in fourth slot. ALL INSULATED WHEELS must be on the left side. See drawing. Apply a few drops of oil to each axle.
4. Place No.M0096 Retainer in position and secure with three No.7503 Screws 2-56x $\frac{1}{4}$ " R.H.S.T. As shown. Do not use first hole with boss.
5. Make certain that each pair of wheels revolves freely in its bearing.
6. Assemble two No.6825 and one No.6826 Side Rods, one No.6390 Shouldered Bushing on drivers with two No.7159 No.0-80 Short Shouldered Side Rod Screws, one No.7161 No.0-80 Intermediate Shouldered Side Rod Screw and one No.7165 No.0-80 Hex Head Main Rod Screw in positions designated on drawings. Use No.5511 No.0-80 Wrench to tighten screws. DO NOT USE PLIERS. Drawing shows left side of assembly. Assemble right side in the same manner. The Main Rod Screws No.7165 must be in each side of the No.25064 Drivers.
7. Check rotation of coupled drivers. Tight spots in side rods may be freed by reaming slightly with a round file. Do Not Ream any more than is absolutely necessary. Assembled mechanism should roll freely.
8. Fasten No.33578 Motor Assembly to No.M0094 with No.7283 Screw 2-56x $\frac{1}{2}$ " 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 back lash. Should adjustment be necessary remove metal from pad surface carefully with a fine 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 fibre plate. Place stripped end of Lead Wire 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. (Or may be carefully soldered to top of front brush spring post.)
10. 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.

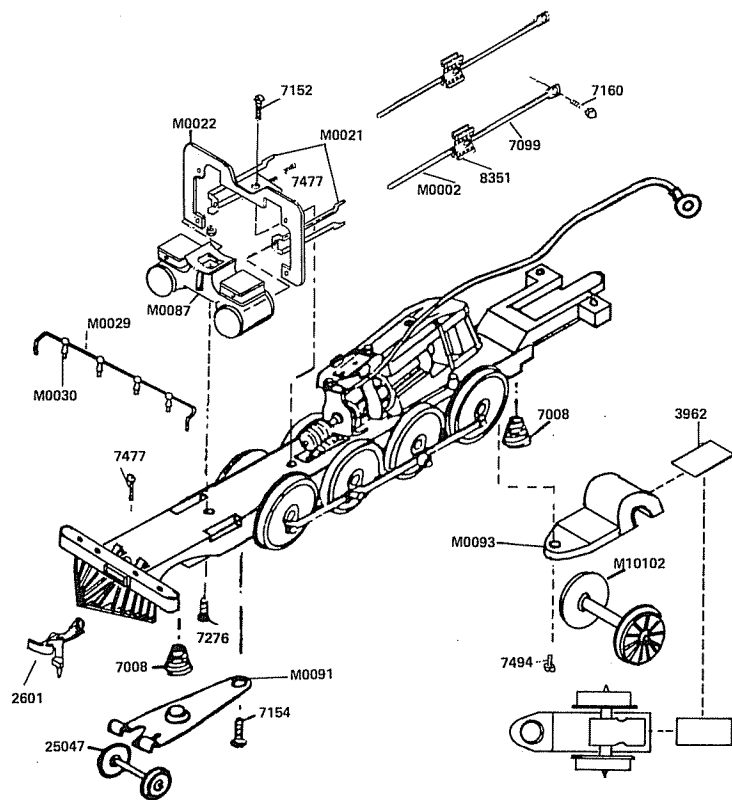
11. Check with 12 volts D.C. power in both forward and reverse motion.
12. Assemble No.M0002 Crosshead and Piston Rod to No.7099 Main Rod with No.8351 Rivet. Assemble left and right sides in the same manner.



(cont.)

BOILER ASSEMBLY

13. Assemble No.M0021 Crosshead Guide to No.M0087 Cylinder with No.7477 No.0x7/32" S.T. Screw. Do this for right and left sides. Attach No.M0022 Crosshead Guide Hanger to frame with No.7152, No.2-56x3/16" Screw. With Crosshead and Piston Rod fitted into guides set cylinder in place and put ends of Crosshead Guide into holes in hanger. Secure cylinder with No.7276,2-56x7/32" Screw.
14. Remove No.7165 Hex Head Screws and place main rod on No.6390 Bushing and replace the screw.
15. Place No.2601 Coupler in opening of pilot and put No.7477 No.0x7/32" S.T.Screw down through deck and coupler.
16. Place No.25047 Wheel and Axle in bearing slots of No. M0091 Lead Truck Frame and bend tab to hold wheels in position allowing suitable running clearance, sand axle points after assembly.
17. Place large end of No.7008 Conical Spring over boss on truck frame then place truck frame on boss on No.M0096 Retainer and secure with No.7154 No.2-56x5/16" S.T. Screw.
18. Place No.M10102 Spoked Wheel and Axle in slots of No.M0093 Trailing Truck Frame. Slide No.3962 Retainer Plate through slots in pins until plate snaps into place. Insert small end of No.7008 Conical Spring into recess in bottom of No.M0094 Main Frame at rear. Place rear truck over spring. Secure with No.7494 Screw, 2-56x3/16" S.T. R.H.

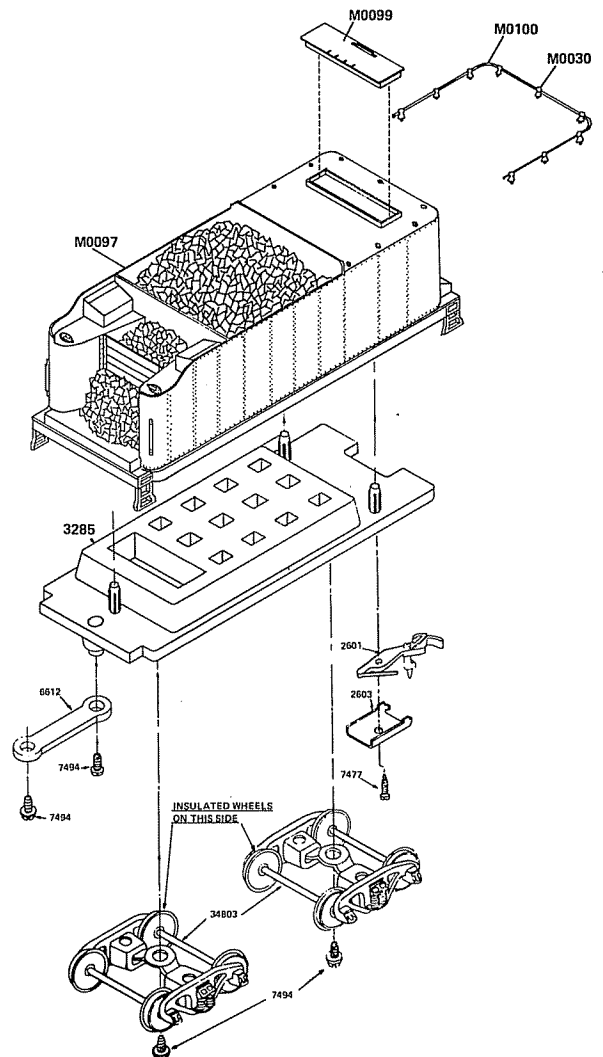
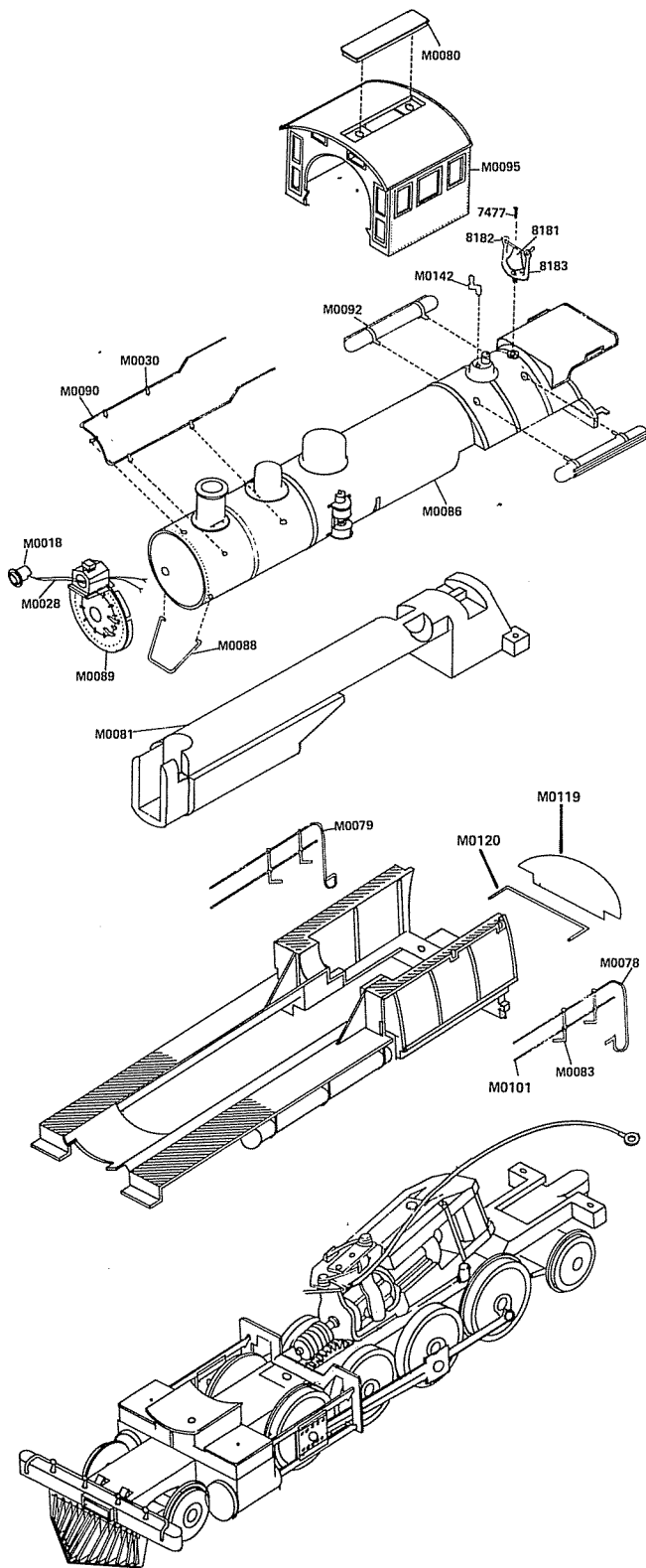


1. Insert No.M0028 Bulb in No.M0018 Bulb-Holder being careful to get wires through slot at bottom rear of holder. Twist the wires together to make easier threading.
2. Place No.M0018 Bulb holder with bulb into headlight cavity on front of No.M0089 Boiler front with slot in holder so wire comes out through rear of headlight housing.
3. Slide No.M0081 weight into top half of No.M0086 Boiler.
4. Thread the wires down the opening between Weight and Boiler on the left side. Wires can now be carefully pulled and boiler front pushed in place.
5. Tabs on front of No.M0082 bottom of Boiler are locked into top half of Boiler as they are pushed forward. Rear lock is then engaged.
6. The stripped ends of the wires are now attached to the brush springs of the motor in the following manner: Rotate motor brush spring so loop is free from fibre plate. Place stripped end of wire in loop of spring. Rotate spring back to original position replace brush arm. Caution: Make sure wire is locked between loop of spring and fibre plate. (Alternate Method) Solder wires to brush spring posts on motor. Do not overheat.
7. Thread No.16768 Motor Lead Wire back between bottom of boiler and frame to be attached to tender.
8. Boiler assembly is attached by two No.7504 2-56x3/8" Screws through the rear outrigger of the frame into the weight. The front is secured by putting No.7281 2-56x3/8" Screw down thru weight to cylinder.
9. Assemble No.M0080 Ventilator to cab roof and place cab over boiler, locate by locks on cab and boiler as shown.
10. Place five No.M0030 Handrail Posts on Handrail No.M0090 and press into holes shown on boiler drawing. Place four No.M0030 Handrail Posts on No.M0029 Pilot Handrail and press into pilot.
11. Press two No.M0083 Handrail Posts into left side of fire box and slide No.M0101 Straight Handrail Wire through center holes. Next slide No.M0078 Handrail through top holes and into holes in cab and rear of lower boiler. Repeat for right side.
12. Assemble bell and bracket and attach to top of boiler with No.7477 0-7/32" S.T. Screw.
13. Press whistle in hole provided.
14. Press air tanks in holes on each side of boiler. All parts may be cemented for extra security if desired.
15. Push Rear Deck Support Wire No.M0120 into holes in rear of Lower Boiler. Wrap tab of Deck No.M0119 around wire to form hinge.
16. Assemble Smoke Box Support as shown.

(Boiler assembly pictured to the right)

TENDER ASSEMBLY

1. Check all parts with replacement parts list.
2. Press No.M0099 Hatch into opening of tender with hinges toward front.
3. Thread nine No.M0030 Handrail Posts on No.M0100 Handrail. Then push parts into designated holes on top of No.M0097 Body.
4. Press No.3285 Tender Frame into No.M0097 Tender Body so all three pins are set firmly in body. Be sure frame is all the way in the body.
5. Place No.2601 Coupler in No.2603 Coupler Pocket and insert No.7477 Screw 0x7/32" S.T. as shown in drawing. Screw into hole provided in tender body. Be sure coupler is under spring tension and moves freely.
6. Install No.34803 Trucks with insulated wheels on the right side. (Opposite from insulated wheels on loco.) Screw into place with two No.7494 Screws 2-56 3/16" W.H.S.T.
7. Place No.6612 Drawbar over boss at front of tender frame. Over this place motor lead wire terminal and secure with No.7494 Screw. 2-56x3/16" S.T.W.H. The other end of drawbar slips over the boss at the rear of the locomotive and secured with No.7494 Screw.



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

1	Frame, Loco	M0094 \$
3	Bearings, Long	6301
2	Bearings, Short	6302
1	Wheel & Axle, 61½ Flanged	25037
1	Wheel and Axle, 61½ Blind with No.6663 gear 34T, 56P	25128
1	Wheel & Axle, 61½ Blind	25064
1	Wheel & Axle, 61½ Flanged w/traction ring	25139
1	Retainer	M0096
3	Screws, No.2-56x¼" R.H.S.T.	7503
4	Side Rods (edn)	6825
2	Side Rods (center)	6826
2	Bushing, Shouldered	6390
4	Screw, short side rod	7159
2	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, No.2-56x½" R.H.S.T.	7283
1	Washer, Lock	7573
1	Motor Lead and Lug Assembly	16768
1	Cylinder Unit	M0087
1	Screw, No.2-56x¼" R.H.S.T.	7503
1	Wrench, No.0-80	5511
1	Wheel & Axle Assembly (Ins.)	25047
1	Truck Frame	M0091
1	Spring, Conical	7008
1	Screw, No.2-56x5/16" W.H.S.T.	7154
1	Truck Frame, Trailing	M0093
1	Wheel and Axle Assembly, 45"	M10102
1	Retainer plate	3962
1	Spring, Conical	7008
1	Screw, No.2-56x3/16" W.H.S.T.	7494
2	Main Rods, 1.600" centers	7099
2	Crossheads & Piston Rod	M0002
2	Rivet, Crosshead	8153
2	Crosshead Guide	M0021
2	Screw, No.0x 7/32" S. T.	7477
1	Hanger, Crosshead Guide	M0022
1	Screw, No.2-56x3/16" S.T.	7152
1	Handrail, Pilot	M0029
18	Posts, handrail	M0030
1	Screw, 2-56x7/32 R.H.	7276
1	Deck, Rear	M0119
1	Wire Support, Deck	M0120

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

BOILER PARTS

1	Boiler, Top Half	M0086 \$
1	Boiler, Bottom Half	M0082
2	Screws, S.T. 2-56x3/8	7504
1	Screw 2-25x3/8 R.H.	7281
1	Cab	M0095
1	Cab Ventilator	M0080
2	Air Tanks	M0092
1	Boiler Front	M0089
1	Bulb Holder, Headlight	M0018
1	Bulb & Lead wire	M0028
1	Weight, boiler	M0081
1	Bell, Brass	8181
1	Bell Bracker - straight	8183
1	Bell, Crank	8182
1	Screw, OX 7/32" R.H.S.T.	7477
1	Whistle	M0142
1	Handrail, Front	M0090
1	Smokebox support	M0088
1	Handrail, Rear R.H.	M0079
1	Handrail, Rear L.H.	M0078
2	Handrail, Rear-Straight	M0101
4	Handrail posts, Rear	M0083

TENDER PARTS

1	Tender Body	M0097 \$
1	Tender Hatch	M0099
1	Tender Frame	3285
2	Tender Truck	34803
4	Screw, No.2-56x3/16" W.H.S.T.	7494
1	Coupler, Pocket	2603
1	Coupler	2601
1	Drawbar	6612
1	Screw No.OX 7/32" S.T.	7477
1	Handrail, Tender	M0100

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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