MANTUA

0-4-0 BOOSTER

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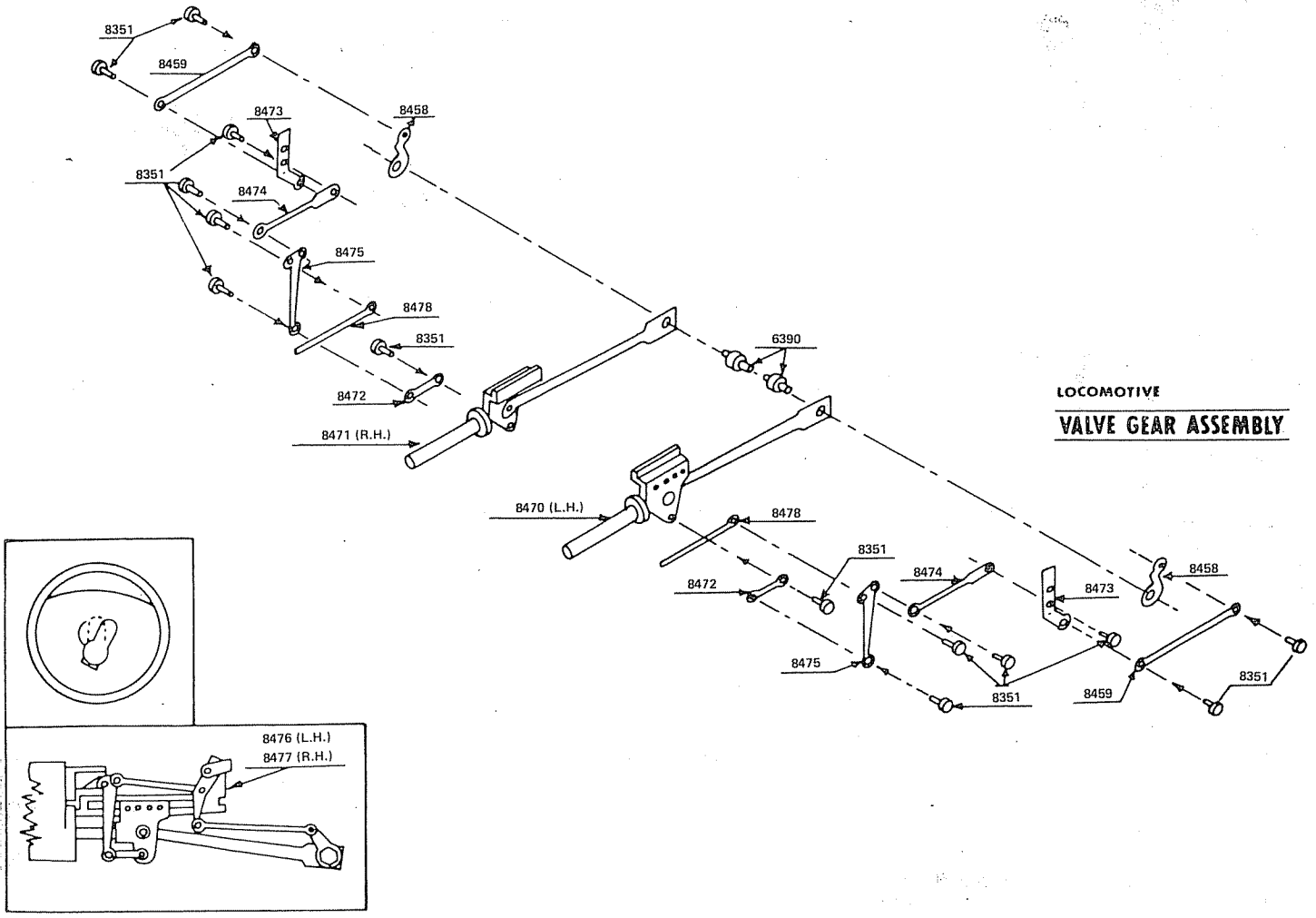
1. Check all parts with the replacement parts list. Study the drawing to identify the parts. Read the instructions through before starting and BE SURE you understand how each part is to be mounted and avoid disappointing errors. Smooth edges of all cast metal with a knife or fine file to remove all flash and burrs. Remove flash from plastic parts with a sharp knife only.
2. Assemble one No. 6301 Long Axle Bearing and two No. 6302 Short Axle Bearings in No.3277 Frame, making certain they are located on pins and properly seated in bearing slots of frame.
3. Place one pair No.25153 Driving Wheels with gear in the front bearing, and one pair No.25150 Driving Wheels in the rear slot. ALL INSULATED WHEELS must be on the left hand side. Insulated wheels are identified by a white ring between the wheel casting and the wheel rim.
4. Place No.3992 Retainer Plate in position and secure with two No.7152 Screws, #2-56x3/16" R.H.S.T. Make certain that each pair of wheels revolve freely in its bearing.
5. Assemble one No. 6821 Side Rod and one No.6390 Main Rod Spacer on drivers with one No.7165 Long Side Rod Screw through large end section of Side Rod in Rear Driver and one No.7159 Short Side Rod Screw through small end section of Side Rod in Front Driver in position designated on drawing: Use No.5511 #0-80 Wrench to tighten screws. DO NOT USE PLIERS. Drawings show left side of assembly. Assemble right side in the same manner.
6. 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.
7. Fasten No.33578 Motor Assembly to Frame with No.7281 Screw, #2-56x3/8" 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 fine file as follows: To bring worm and gear closer together remove from front pad and for wider setting from rear pad.
8. Assemble No.17696 Electrical Pick-up including No.7697 Insulator. Secure in place with No.6382 Nylon Bushing and No.7477 Screw, #0x7/32" S.T.R.H. Be certain that assembly does not make metal contact with frame at any point. Connect No.7601 Lead Wire to No.33578 Motor. Remove the brush assembly retained by the spring at the left hand side of the motor. Rotate the spring so the loop end is free from the fibre plate. Place stripped end of motor lead in loop of spring. Rotate spring back to original position. Replace brush assembly carefully. CAUTION! Make sure lead is locked between loop of spring and fibre plate. Push lead wire away from worm to provide clearance while in operation.
9. Check unit with 12 volts D.C. power in both forward and reverse direction. DO NOT TEST RUN without lubricating the nylon worm and gear with Lubriplate or a light grease.

VALVE GEAR ASSEMBLY

1. Check all parts with replacement parts list. Riveting the valve gear linkage 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 small flat ended punch.
   A light hammer.
4. To become more familiar with riveting - start with the No. 7104 Main Rods, No.8470 L.H. side and No.8471 R.H.Side Crosshead Assemblies using No.8351 Crosshead Rivet. Insert a small center punch into the hollow end of the rivet. Tap lightly until the rivet is flared out. With a flat ended punch finish flaring the rivet until it pulls the main rod and crosshead together snugly but not tight. Linkage must operate freely before assembling on locomotive.

5. After both sides of the main rod and crosshead assemblies are finished rivet together the No.8458 Eccentric Crank and the No.8459 Eccentric Rod, using a 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 head outside. A few extra rivets are supplied for your convenience.
6. Left Side – Rivet No.8459 to No.8473.
   Right Side – Rivet No.8459 to No.8473.
7. Left Side – Rivet No.8473 to No.8474.
   Right Side – Rivet No.8473 to No.8474.
8. Left Side – Rivet No. 8474 to No.8475.
   Right Side – Rivet No.8474 to No.8475.
9. Left Side – Rivet No.8475 to No.8478.
   Right Side – Rivet No.8475 to No.8478.
10. Left Side – Rivet No.8475 to No.8472.
    Right Side – Rivet No.8475 to No.8472.
11. Left Side – Rivet No.8472 to No.8470.
    Right Side – Rivet No.8472 to No.8471.
12. Rivet the No.8473 Reverse Links to No.8476 L.H. and No. 8477 Crosshead Guide and REverse Link Hanger. Use No. 8351 Short Valve Gear Rivet (see insert drawing).
13. Assemble crosshead assemblies and No.8476 L.H. and No. 8477 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.2658 Cylinder Unit and crosshead guides by inserting piston rod in cylinder, followed by the single point end of crosshead guide into the elongated hole above it. Hold complete 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. See mechanism assembly drawing (view shows assembly less valve gear). See also view at bottom of valve gear drawing. Check crossheads making certain that they slide freely in the guides.
15. Remove the No.7165 Main Rod Screw from each side of the rear drivers, slip the end of No.7104 Main Rod over No. 6390 Shouldered Bushing. Now with the No.8458 Eccentric Crank place over the bushing, replace the long hex head main rod screws. The eccentric crank is now clamped between the end of the 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 and also less wear on the valve gear. Insert drawing shows 0 degree angle in dotted line position and 30 degree angle in solid line. line.
16. Lubricate worm and gear with Lubriplate or any good light grease. Apply a drop of light oil to all other moving parts. Turn locomotive 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 the run-in period.

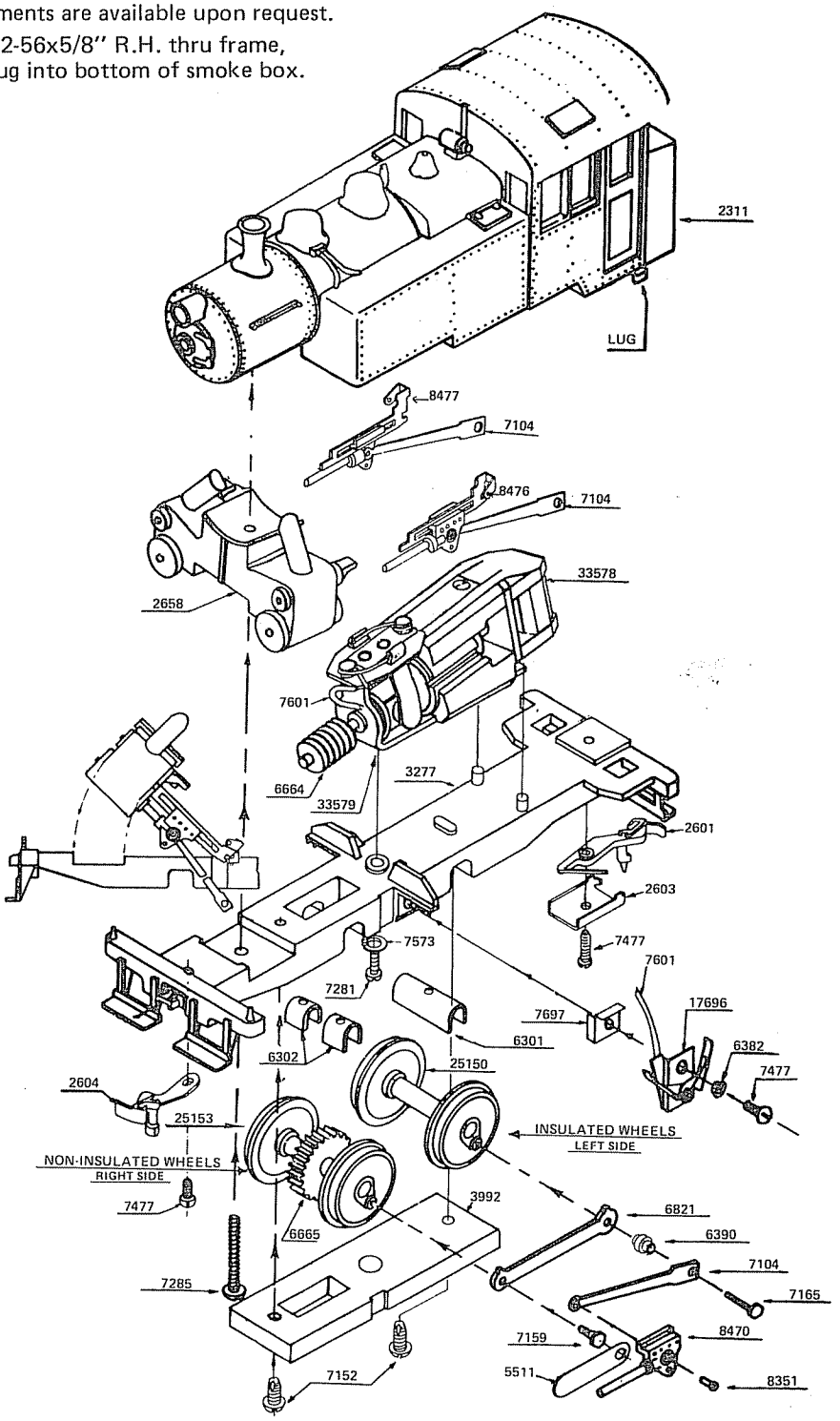


LOCOMOTIVE

VALVE GEAR ASSEMBLY

FINAL ASSEMBLY

1. Place No.2601 Coupler in No.2603 Coupler Pocket and insert No.7477 Screw, #0-7/32" S.T.R.H. as shown in drawing. Screw into hole provided in locomotive underframe No.3277. Be sure coupler is under spring tension and moves freely. Plastic Boiler and attachments are available upon request.
2. Place No.2311 Boiler and Cab Superstructure on frame with cab lugs slightly ahead of bumper beam. Let cab rest on frame and smoke box in cylinder saddle, slide superstructure back so that lugs lock into bumper beam.
3. Plastic Boiler and attachments are available upon request.
4. Insert No.7285 Screw, #2-56x5/8" R.H. thru frame, cylinder, then pull up snug into bottom of smoke box.
5. Secure No.2604 Front Coupler with No.7477 Screw, #0x7/32" S.T.R.H. inserted through hole in shank of coupler into the frame. Position coupler so hook is over center line and will couple with cars easily.
6. Lightly oil all moving parts. Lubricate worm and gear with Lubriplate or any good light grease. Turn locomotive 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.



NO. IN KIT	DESCRIPTION - KIT No. 501	PART NO.
1	Boiler and Cab, Die Cast	2311
1	Coupler Pocket	2603
1	Coupler, Rear	2601
1	Screw, #0x7/32" Long S.T.R.D.	7477
1	Coupler, Front	2604
1	Screw #0x7/32" R.H. (Front Coupler)	7477
1	Cylinder Unit, Die Cast	2658
1	Screw, #2-56x5/8" R.H. for above	7285
1	Nut, #2-56 Hex (Temporarily)	7427
1	Frame, Loco, Die Cast	3277
1	Motor, Small with No.6664 Worm	33578
	Parts for above:	
	Motor, Small	33579
1	Worm, Nylon (56P)	6664
1	Screw, #2-56x3/8" Long R.H.	7281
1	Washer, Shakeproof	7573
1	Retainer, Plate, Die Cast	3992
2	Screws, #2-56x3/16" R.H.S.T. (Retainer)	7152
1	Wrench, #0-80 Hex	5511
1	Wheel and Axle, 50" Flanged with No. 6665 Nylon Worm Gear, 27T, 56P	25153
1	Wheeli and Axle, 50" Flanged	25150
1	Bearing, Long Axle	6301
2	Bearings, Short Axle	6302
2	Side Rods, Plain (.968" Centers)	6821
2	Main Rods (1" Centers)	7104
2	Screws, #0-80 Short Shouldered Side Rod	7159
2	Rivets, Crosshead	8351
1	Screw, #0-7/32" Lg. S.T.R.H.	7477
1	Insulator, Pick-up	7697
1	Bushing, Shouldered Plastic	6382
1	Crosshead Assembly, R.H.	8471
1	Crosshead Assembly, L.H.	8470
1	Pick-up Assembly, Electrical	17696
2	Bushings, Main Rod	6390
2	Screws, #0-80x¼" Hex Head Main Rod	7165
16	Rivets, Valve Gear	8351
2	Eccentric Cranks	8458
2	Eccentric Rods (.608" Centers)	8459
2	Eccentric Rods (.926" Centers Kit No. 5046)	8449

NO. IN KIT	DESCRIPTION - KIT No. 501	PART NO.	UNIT PRICE EACH
2	Crosshead Links	8472	
2	Reverse Links	8473	
2	Radius Rods	8474	
2	Combination Levers	8475	
1	Crosshead Guide and Reverse Link Hanger (L.H.)	8476	
1	Crosshead Guide and Reverse Link Hanger (R.H.)	8477	
2	Valve Rods	8478	

REPLACEMENT PARTS

See your Hobby Dealer. If he cannot supply them you r order from the factory. Please send check or money ord 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.