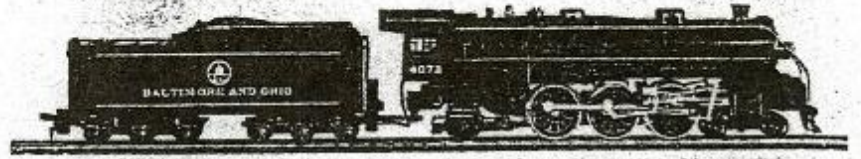


MANTUA



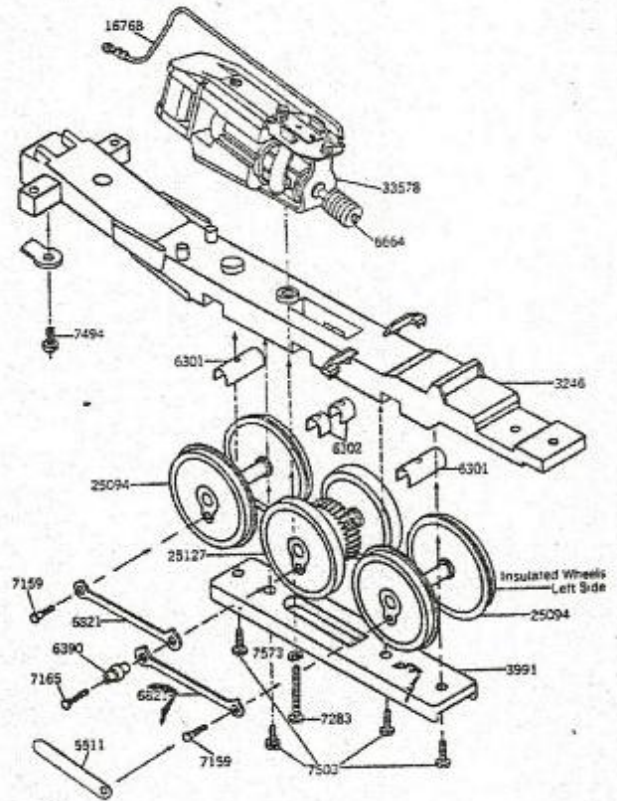
4-6-2 PACIFIC

From the Archives of Model Power

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 two No. 6301 Long Axle Bearings, and two No. 6302 Short Axle Bearings in No. 3246 Frame, making certain they are located on pins and properly seated in bearing slots of frame.
3. Place one pair No. 25094 Driving Wheels in the first and third slots of part No. 3246 Main Frame, one pair No. 25127 (with blind rims and worm gear) in the second slot. **ALL INSULATED WHEELS** must be on the left side (see drawing). Apply a couple drops of light oil.
4. Place No. 3991 Retainer Plate in position and secure with four No. 7503 Screws, #2-56 x 1/4" R.H. as shown. Make certain that each pair of wheels revolve freely in its bearing slot.
5. Assemble two No. 6821 Side Rods, one No. 6390 Shouldered Bushing, on drivers with two No. 7159 #0-80 Short Shouldered Side Rod Screws and one No. 7165 #0-80 Hex Head Main Rod Screw in positions designated on drawing. Use No. 5511 #0-80 Socket Wrench to tighten screws. **DO NOT USE PLIERS.** Drawing shows right side assembly. Assemble the left side in the same manner. The Main Rod Screws No. 7165 must be in each side of the No. 25127 pair of drivers.
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 No. 3246 Frame with No. 7283 Screw, #2-56 x 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 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 from rear pad.
8. To connect No. 16768 Motor Lead and Lug Assembly to No. 33578 Motor, remove brush assembly, retained by spring at front end of motor, 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.
9. Check unit with 12 Volts, D.C. Power in both forward and reverse motion.
10. Attach No. 6612 Drawbar from Tender to rear of Frame with No. 7494 Screw, #2-56 x 3/16" S.T.W.H.

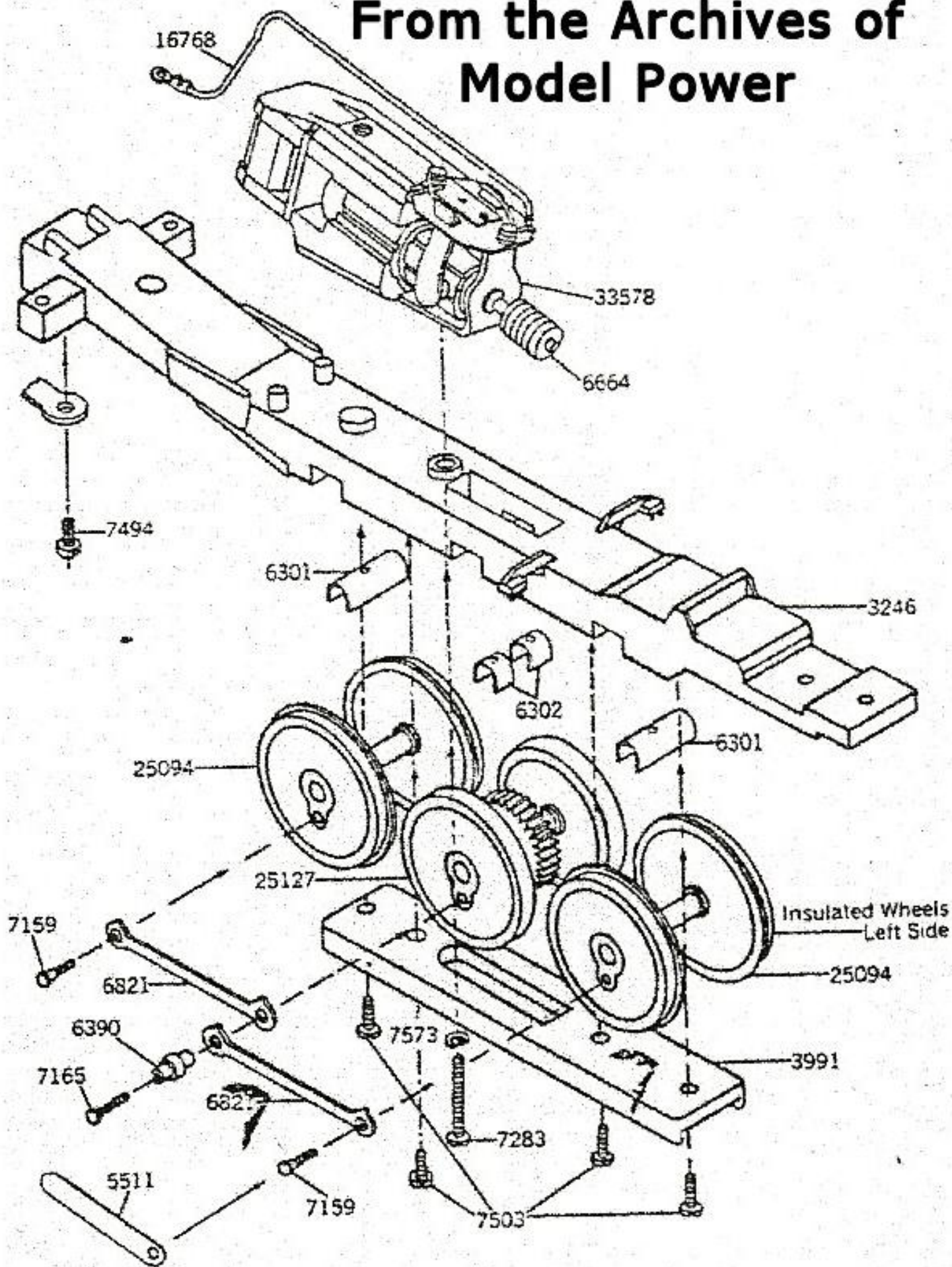
11. Lubricate worm and gear with Lubriplate or any good light grease. Apply a drop of light oil to all other moving parts. Turn mechanism upside down and in this position run-in mechanism for not less than 30 minutes with 12 Volts, D.C. Power. Reverse the direction of rotation one-half of the run-in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

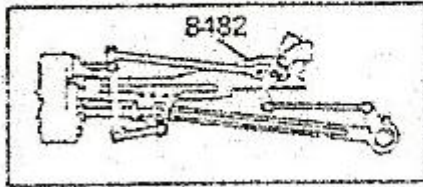
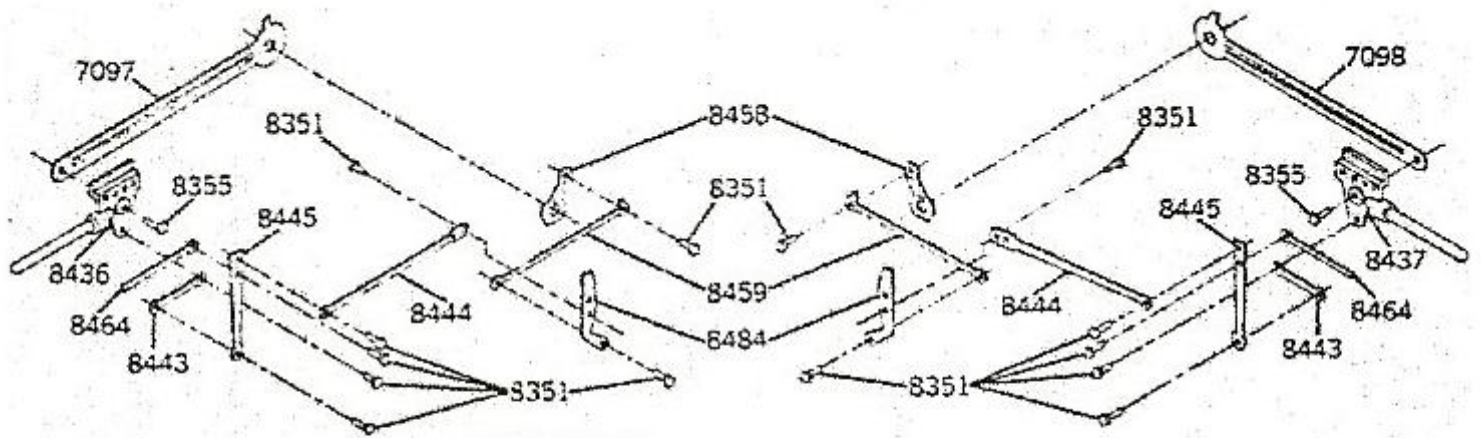


VALVE GEAR ASSEMBLY

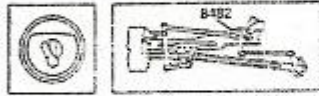
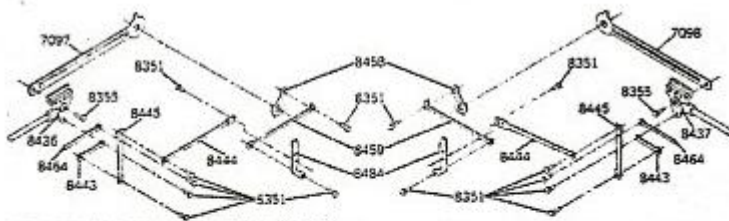
1. Check all parts with the Replacement Parts List. Riveting the valve gear links together requires a reasonable amount of care and study.
2. On a sheet of white paper, place all the valve gear parts just as they will be assembled on the locomotive. The drawing shows the exact relation of the parts to 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.

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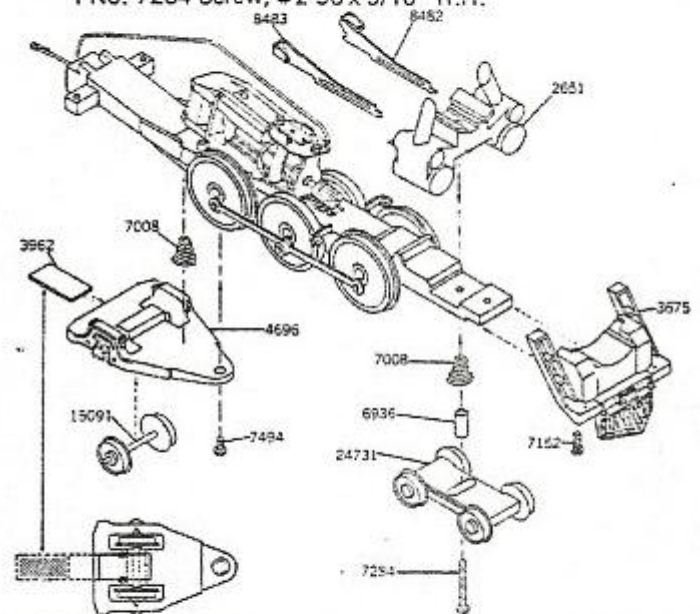
4. To become more familiar with the riveting — Start with the No. 7097 L.H. and No. 7098 R.H. Main Rods, No. 8436 L.H. and No. 8437 R.H. side Crosshead Assemblies using No. 8355 Long Rivet. Insert a small center punch in the hollow end of the rivet and tap lightly until the rivet is flared out. Then 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. 8459 Eccentric Rod, using No. 8351 Rivet. Finish both sides before going to the next step.
IMPORTANT NOTE: All No. 8351 Rivets are placed with the HEAD OUTSIDE except Step 7 (see drawing). A few extra rivets are supplied for your convenience.
6. Left Side — Rivet No. 8459 to No. 8484.
Right Side — Rivet No. 8459 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 Side — 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).
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. 2651 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 projecting pins at bottom of guide bracket. When in proper position cylinder unit will drop in slot in frame. A No. 7284 Screw, #2-56 x 9/16" R.H. is used to temporarily hold cylinder on frame.
15. Remove the No. 7165 Main Rod Screw from each side of the center pair of No. 25127 Drivers, slip the end of the No. 7097 and No. 7098 Main Rod over the No. 6390 Shouldered Bushing. Now with the No. 8458 eccentric crank placed over the end of the bushing, replace the long hex head main rod screws. The eccentric crank is thus clamped between end of bushing and the underside of hex head screw. The eccentric crank may be set at any angle from 0 degree 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.

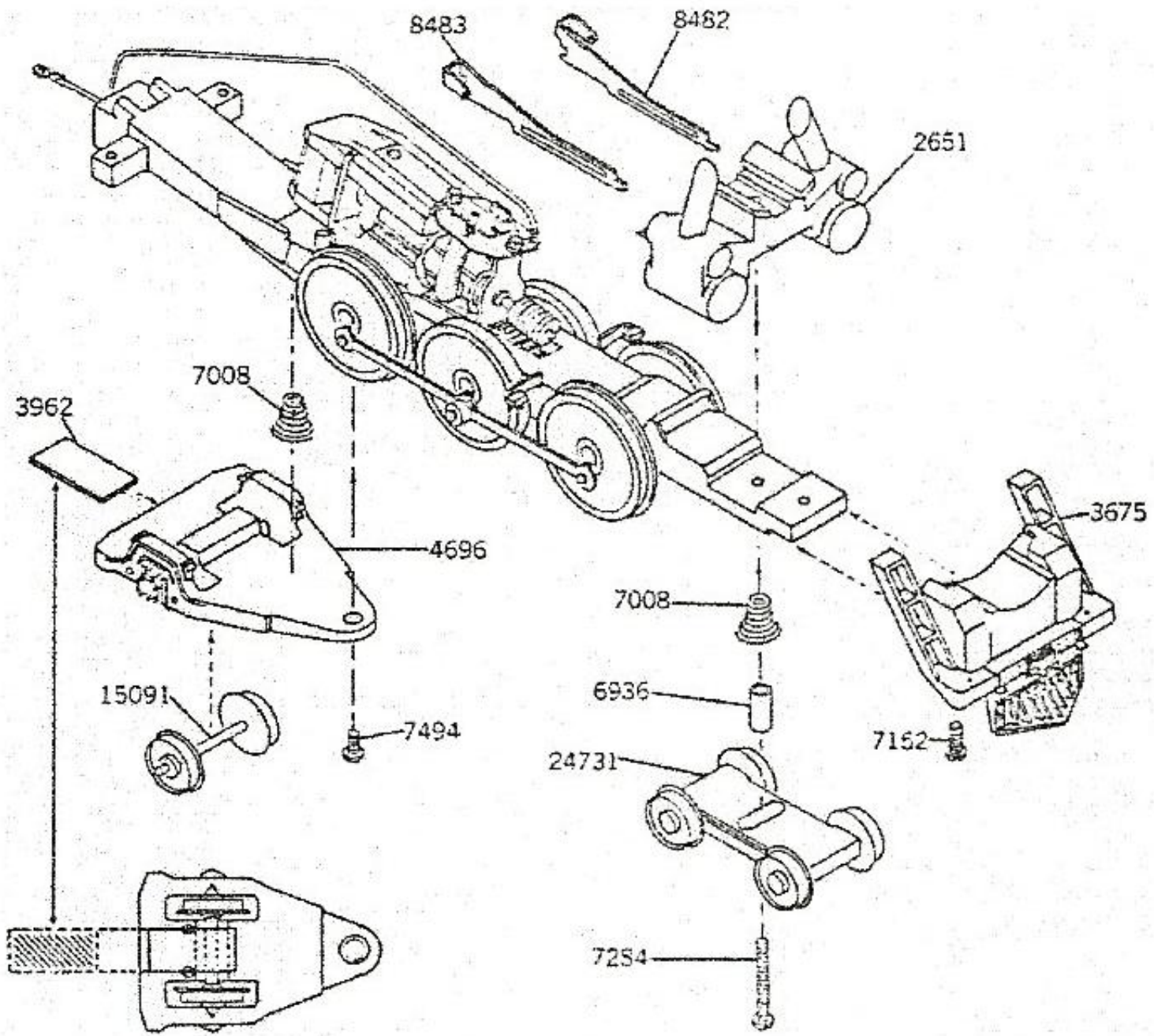
MECHANISM ASSEMBLY

1. Fasten No. 3675 Pilot and Step Unit to main frame with No. 7152 Screw, #2-56 x 3/16" R.H. type 23 self tapping.
2. Refer to Valve Gear Assembly, Step 14, and remove the No. 7284 Screw, #2-56 x 9/16" R.H. used to hold cylinder block in place when the valve gear was installed and insert through mounting slot in frame of No. 24731 Lead Truck (long end of truck forward). No. 6936 Spacer and No. 7008 Spring and re-assemble into place through frame and into No. 2651 Cylinder Unit.
3. Place one pair of No. 15091 Wheels and Axle in slots of No. 4696 Truck Frame. Slide No. 3962 Retainer Plate through slot in Pins forward until plate snaps into place (see drawing). Insert small or top end of No. 7008 Spring in the recess, at the rear in bottom of No. 3246 Loco Frame. The large or bottom end of spring will slide across the center piece of No. 4696 Trailing Truck. Insert one No. 7494 Screw, #2-56 x 3/16" Washer Head Type 23 self tapping through mounting hole in end of No. 4696 Trailing Truck and screw into place in rear of frame.
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. 2651 Cylinder Unit.
1 No. 7284 Screw, #2-56 x 9/16" R.H.



BOILER ASSEMBLY

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 hold provided in No. 2310 Boiler. Insert No. 8252 Lens in front of boiler.
2. Mount No. 2427 Cab on NO. 2310 Boiler with No. 7488 Screw, #2-56 x 1/4" S.T. inserted through lug at top of rear end of boiler and screw in place into the top of cab. Make sure that the bottom front edge fits into the slots in sides of firebox.



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

1 Main Frame, Loco	3206	\$ 3.00
3 Bearings, Long Axle	6301	.30
2 Bearings, Short Axle	6302	.30
1 Wheel, Axle and Gear Assembly	25145	3.50
2 Wheel and Axle Assembly with Traction Ring	25148	2.75
2 Traction Ring	7934	.40
1 Wheel and Axle, Blind	25156	2.75
1 Retainer Plate	4017	1.00
3 Screw, #2-56x1/4" R.H.S.T.	7503	.10
4 Side Rod	6831	.25
2 Side Rod	6830	.25
2 Spacer, Main Rod	6932	.10
2 Screw, Shld. Side Rod Long	7160	.25
4 Screw, Shld. Side Rod Short	7159	.25
2 Screw, Shld. Side Rod Intermediate	7161	.25
2 Main Rod	7117	.25
2 Crosshead Rivet	8350	.10
1 Crosshead Guide	7116	1.25
1 Screw, #2-56x3/16" R.H.S.T.	7152	.10
1 Wrench, #0-80	5511	.30
1 Lead Truck	24674	1.50
1 Spacer	6942	.25
1 Spring	7008	.50
1 Screw, #2-56x13/16" R.H.S.T.	7501	.10
1 Cylinder Unit	2659	2.75
1 Nut #2-56 Hex (Temporary Assembly)	7427	.10
1 Motor and Worm Assembly	33578	12.00
Parts for Above:		
1 Motor PM-1	33579	11.50
1 Worm, 56 Pitch	6664	.75
1 Screw, #2-56x7/16" R.H.	7502	.10
1 Lock Washer	7573	.10
1 Motor Lead and Lug	16757	.50

BOILER PARTS

1 Boiler, Plastic	2316	6.00
1 Cab, Loco	2430	1.00
1 Weight, Boiler	4916	1.50
1 Lamp and Lead Assembly (Headlight)	5547	1.25
1 Smoke Box Support	7687	.25
1 Boiler Front	2947	.50
6 Handrail Post	7686	.05
1 Handrail	7685	.30
1 Lens, (Headlight)	8234	.25
1 Headlight Cap	6716	.50
1 Bell	8189	.75
1 Sand Dome	6517	1.00
1 Steam Dome	6516	1.00
1 Motor Housing (Plastic)	2948	.75
1 Smoke Stack, Coal Burning	6894	.50

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

1 Tender Body	2289	3.00
1 Frame	3273	2.50
2 Truck	34882	1.50
1 Coupler	2601	.25
1 Coupler Pocket	2603	.30
1 Screw, #0x7/32" R.H.S.T.	7477	.10
1 Coal Pile	7922	1.00
1 Draw Bar	6612	.25
4 Screw, #2-56x3/16" Washer Head S.T.	7494	.10

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.

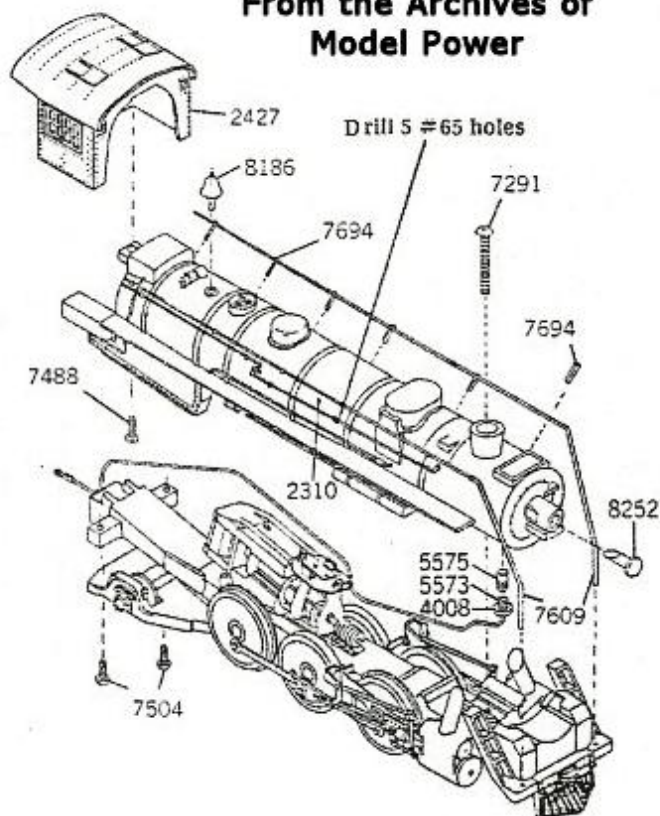
MANTUA FULL ONE YEAR WARRANTY

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.

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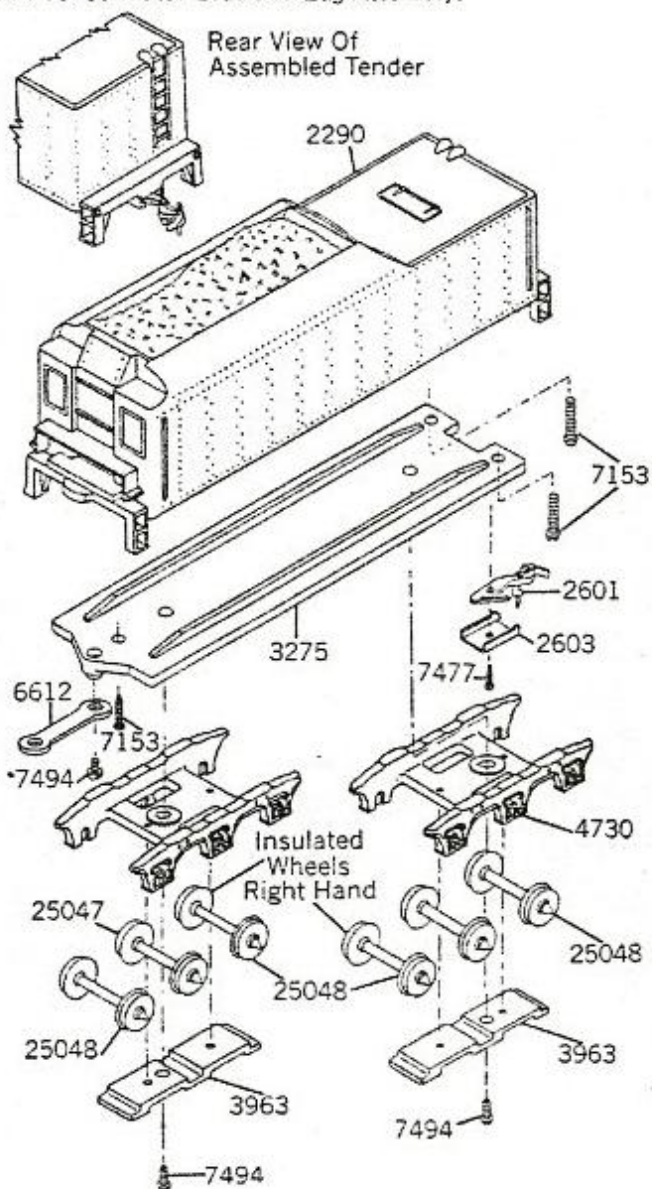
3. Insert mounting lug on No. 8186 Bell into hole of boiler as shown in drawing. Place a small block of wood on top of the bell and tap into position.
4. Assemble the handrail on the boiler using 12 No. 7694 Handrail Posts. Grip posts with a needle nose plier and start in place in the six holes on each side of the boiler and five holes for the throttle. To secure a nice radius for the front end of the No. 7609 Handrail Wire as shown in drawings, bend over a round rod $\frac{1}{4}$ " in diameter. Insert through holes in the six posts on each side of the boiler. All handrail posts should be lightly tapped home with a hammer.
5. To mount throttle linkage, drill 5 #65 holes in right side of boiler. Insert 2 short lengths of wire through 5 posts and attach as in paragraph #4 above.
6. Refer to Mechanism Assembly, Paragraph 8, Page 1 for lamp lead hook up.
7. Place completed boiler on frame, making certain that it seats properly on the cylinder unit and rear of frame. The tops of the pipes on the cylinder unit should be filed slightly so that they do not get up under the running boards and thus prevent the boiler from seating on the cylinder saddle. Motor lead should lay across top of motor and extend out the back of the cab. Insert two No. 7504 Screws #2-56 x $\frac{3}{8}$ " S.T.R.H. through rear of frame and screw into boiler. DO NOT TIGHTEN.
8. Form the second bend of 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. 7291 Screw, #2-56 x 1" R.H. through smokestack and screw into cylinder unit. If boiler is seating properly, screw all three screws until boiler is tight on cylinder unit and loco frame.
10. Check the Assembly and make sure the boiler is clear of the motor Assembly.

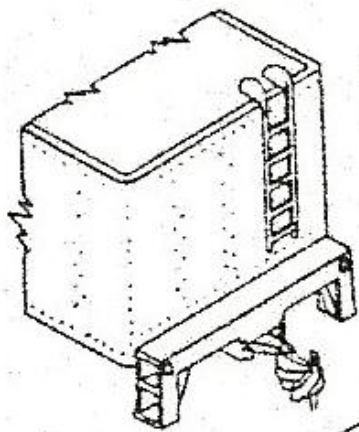
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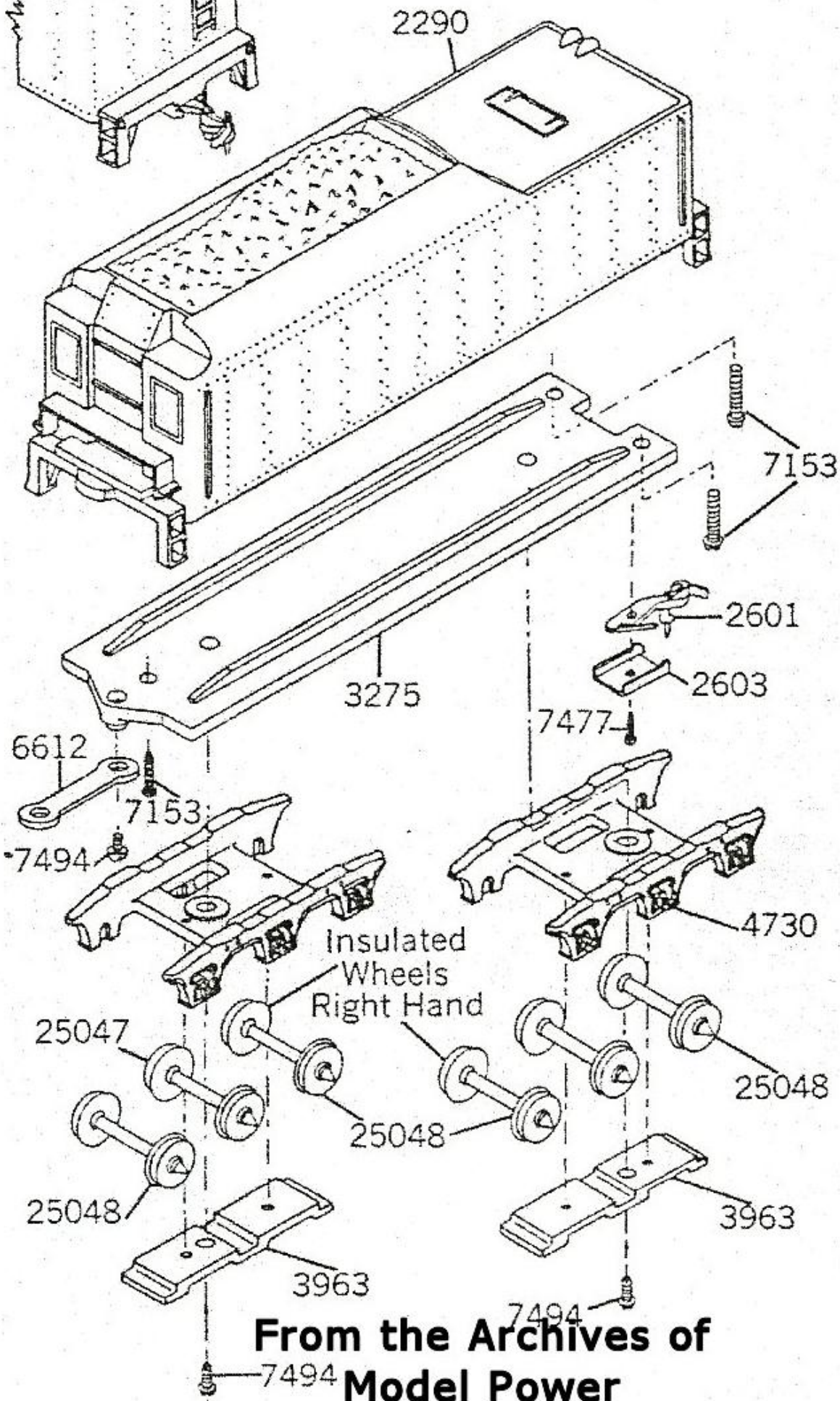
LONG HAUL TENDER ASSEMBLY

1. Check all parts with the Replacement List.
2. Assemble No. 3275 Underframe to No. 2290 Tender Body with three No. 7153 Screws, #2-56 x $\frac{5}{16}$ " S.T. Insert No. 7477 Screw #0 x $\frac{7}{32}$ " Lg., into Hole in No. 2603 Coupler Pocket and also into Hole in NO. 2601 Coupler as shown in Instructions. Fasten to No. 2290 Body, be sure Tabs on Coupler Pocket are fitted into openings provided in Tender Body.
3. Insert one Pair of No. 25048 Wheels & Axles, insulated on one side, in each end of the Two No. 4730 Tender Truck Frames, making certain that the insulated Wheels are placed on the right hand side, as the truck stands on the Rail (See Drawing). Insert one pair of No. 25047 Wheels & Axles insulated on two sides in the center. Place No. 3963 Retainer Plate on trucks, line up small holes to fit pins on Truck. Place truck on something solid and peen over Pins to hold Retainer in place. Wheels must rotate freely. Using two No. 7494 Screws, #2-56 x $\frac{3}{16}$ " S.T.W.H. install assembled trucks on frame in the holes provided with the long ends of truck bolsters towards center.
4. Slip end of No. 6612 Drawbar over Boss at front end of Frame and screw in place with one No. 7494 Screw, #2-56 x $\frac{3}{16}$ " S.T.W.H. inserted thru the Lug on end of No. 16768 motor Lead and Lug Assembly.



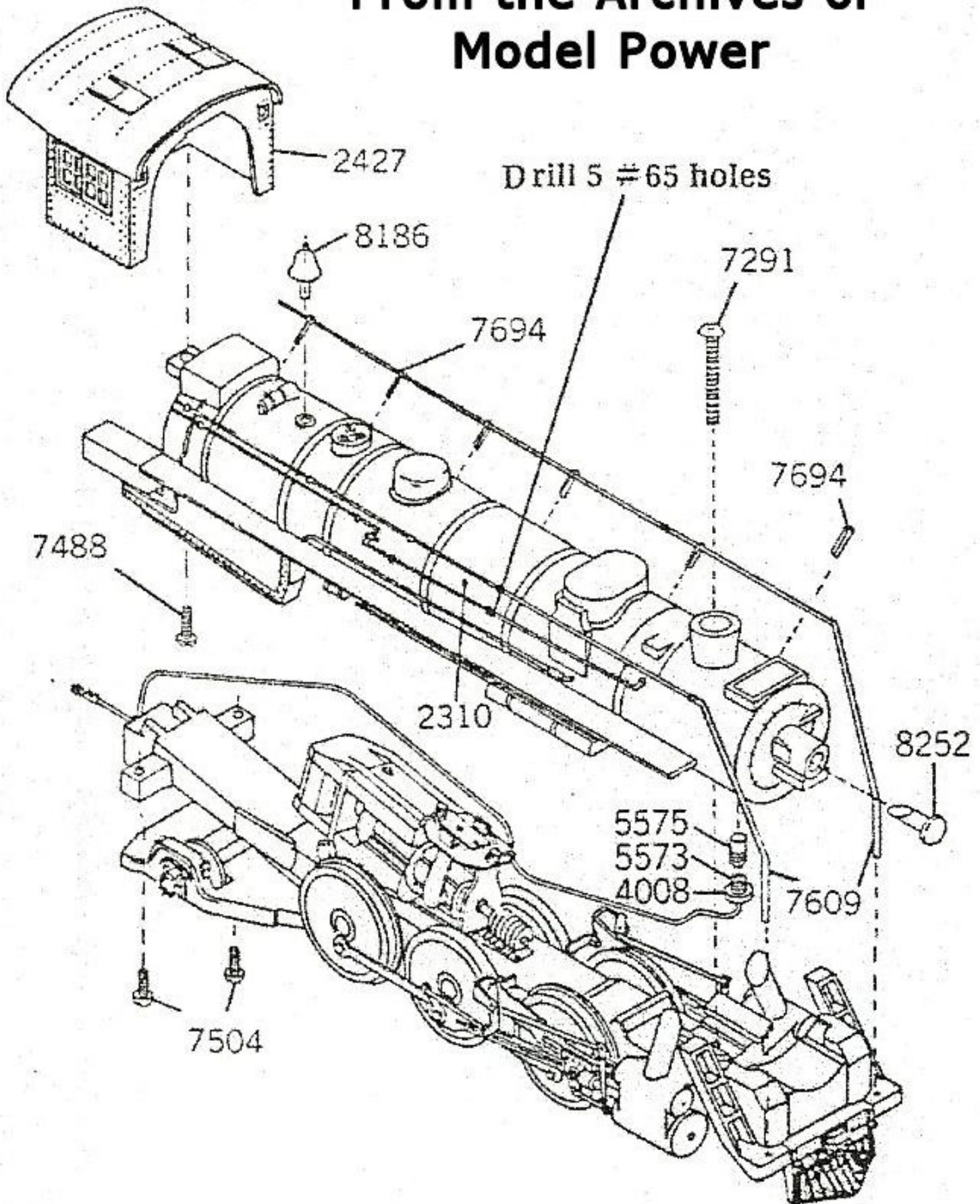


Rear View Of
Assembled Tender



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Model Power

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

1	Frame, Loco	3246	\$3.00
2	Bearings, Long Axle	6301	.30
2	Bearings, Short Axle	6302	.30
2	Wheels & Axle, Box Pok, 80" Flanged	25094	2.75
1	Wheels & Axle, Box Pok, 80" Blind with No. 663 Nylon 34T, 56 Pitch Worm Gear	25127	3.50
1	Retainer Plate, Loco frame	3991	1.00
4	Screws, #2-56 x 1/4" R.H.S.T.	7503	.10
4	Side Rod, Plain (.968" Centers)	6821	.25
2	Shouldered Bushing	6390	.25
4	Screws, Short Side Rod	7159	.15
2	Screws, Hex Head Side Rod	7165	.15
1	Motor Assembly	33578	12.00
Parts for above:			
1	Motor, Small	33579	11.50
1	Worm, Nylon 56 Pitch	6664	.75
1	Screw, #2-56 x 1/2" R.H.S.T.	7283	.10
1	Washer	7573	.10
1	Motor Lead & Lug Assembly	16768	.25
1	Wrench, #0-80	5511	.30
1	Pilot and Step Unit	3675	1.50
1	Screw, #2-56 x 3/16", R.H.S.T.	7152	.10
1	Lead Truck Assembly	24731	2.50
1	Spacer, Lead Truck	6936	.20
1	Spring, Conical	7008	.30
1	Screw, #2-56 x 3/16" W.H.S.T.	7494	.10
1	Cylinder Unit	2651	2.75
1	Screw, #2-56 x 9/16" R.H.S.T.	7284	.10
1	Truck Frame, Trailing	4696	1.75
1	Wheels & Axle Assembly, 46" Trailing	15091	.75
1	Retainer Plate	3962	.20
1	Spring, Conical	7008	.30

VALVE GEAR PARTS

1	Main Rod, L.H. (1.375" Centers)	7097	.75
1	Main Rod, R.H. (1.375" Centers)	7098	.75
1	Crosshead and Piston Rod L.H.	8436	.50
1	Crosshead and Piston Rod R.H.	8437	.50
2	Rivets, Valve Gear, Long	8355	.10
2	Eccentric Cranks (.650 Centers)	8458	.25
2	Eccentric Rods (.608 Centers)	8459	.25
16	Rivets, Valve Gear Short	8351	.10
2	Reverse Links	8484	.25
2	Radius Rods	8444	.25
2	Combination Levers	8445	.25
2	Valve Rods	8464	.25
2	Crosshead Links	8443	.25
1	Hanger, L.H. Crosshead Guide and Reverse Link	8482	.75
1	Hanger, R.H. Crosshead Guide and Reverse Link	8483	.75

PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

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

1	Boiler, Die Cast	2310	8.00
1	Cab	2427	1.00
1	Screw, #2-25 x 1/4" R.H.S.T.	7488	.10
1	Bell, Brass	8186	.35
17	Handrail Posts	7694	.05
3	Wire, Steel Handrail, 8" Long	7609	.25
2	Screws, #2-56 x 3/8" R.H.S.T.	7504	.15
1	Screw, #2-56 x 1" R.H.	7291	.20
1	Lens, Headlight	8252	.25
1	Lamp w/midget screwbase type B	5575	.75
1	Socket & Leadwire Assembly	5573	.75
1	Retainer, Lamp Socket	4008	.25

TENDER PARTS

1	Body Tender	2290	3.00
1	Underframe, Tender	3275	2.50
3	Screws, #2 x 5/16" Long, R.H.S.T.	7153	.10
1	Coupler Pocket	2603	.25
1	Coupler	2601	.25
1	Screw, #0 x 7/32" Long R.H.S.T.	7477	.10
2	Truck Frame, Tender	4730	1.00
2	Wheel & Axle, Pivot Point 33" ins. 2 sides	25047	.50
4	Wheel & Axle, Pivot Point 33" ins. 1 side	25048	.75
2	Retainer plate	3963	.40
1	Drawbar, Fibre	6612	.25
4	Screw, #2-56 x 3/16" Lg. Washer Hd. S.T.	7494	.10

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