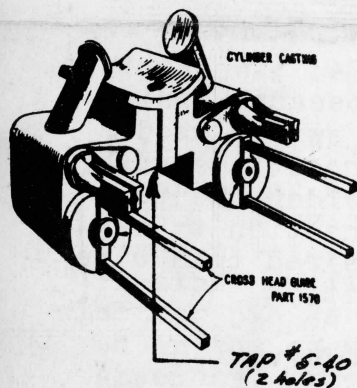


Mountain 4-8-2 Locomotive in 'O' Gauge MECHANISM ASSEMBLY INSTRUCTIONS-SECTION I

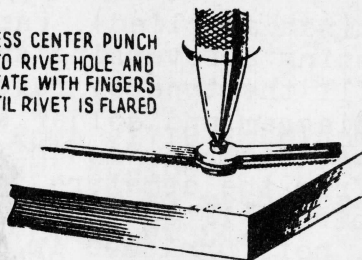
CONTINUED-PART 2

#7 CYLINDERS, #1712

First tap the two holes on the under side of the cylinder casting with a #5-40 tap as indicated, and carefully clean all flash with a file. The crosshead guides, Part #1570, should be carefully driven into the holes of the back of the cylinder. This can best be accomplished by using the crosshead Part #111 as a guide while driving the crosshead guides into position. Now screw the piston rods, Part #1383, in the crossheads, Part #1111. Slip the crosshead in the piston rod in its bushings. The crosshead must slide freely. If any binding is noted, check the guides for alignment. Now work the valve rod into the cylinder guide and the crosshead piston rod into the cylinder bushing. Clamp on the cylinder with the pilot beam casting, Part #1122, as shown in the general exploded drawing of the frame assembly.



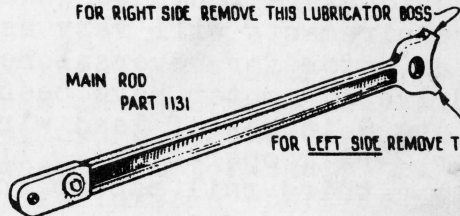
PRESS CENTER PUNCH INTO RIVET HOLE AND ROTATE WITH FINGERS UNTIL RIVET IS FLARED



FOR RIGHT SIDE REMOVE THIS LUBRICATOR BOSS

MAIN ROD
PART 1131

FOR LEFT SIDE REMOVE THIS LUBRICATOR BOSS



#8 MAIN RODS:

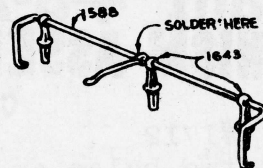
These are filed to remove the lower lubricator bosses to make right and left hand rods. (See drawing) Put washer, Part #C-1806, over the main crank pin, Part #1531, and place the rod on the crank; lubricator boss pointing up. Connect the small end of the main rod to the crosshead, Part #1111, with the crosshead link, Part #1091, under the head of the crosshead pin screw, Part #1058.

#9 RETURN CRANKS, (Eccentric), Part #1056

Place the eccentric on the main crank pin over the main rods. Tap it in place until the pin holes line up as shown in the drawings. Drive the #20 X 3/8 escutcheon pin, Part #C-2011, all the way in. A common straight pin will also do the trick. The cranks point about 20 degrees (See drawing for proper alignment) forward to the top of the counter-weight, when the side rods are on the bottom. This applies to both sides. If the cranks do not assume this position, reset the main crank pins to secure it.

#10 PILOT: Part #1079

The coupler lifting rod assembly on top of the pilot is clearly shown in the photographs of the mechanism and the forward view of the locomotive, as well as this sketch showing construction. Thread the three stanchions Part #1643, on to the wire to shape as shown. Drive the stanchions into the three holes provided in top of the pilot. The flag stanchions, Part #1035, may be mounted at the ends of the beams by drilling two #56 holes. If these driven pins don't fit snugly, flatten the shank slightly with a pair of pliers and a snug fit will result. Insert the front coupler into the pocket and fasten with cotter pin, Part #C-2002. The Pilot is fastened in position using the two screws Part #C-1253. These go into the pilot from the back side of the pilot beam.



#11 ENGINE STEP, Part #1719

Clean up and drill hole to clear 0-80 screw, Part #C-1051. This is shown on the drawing. Then line up engine step and drill #56 hole in side of pilot beam platform. Then tap this 0-80 and mount ladder with screw.

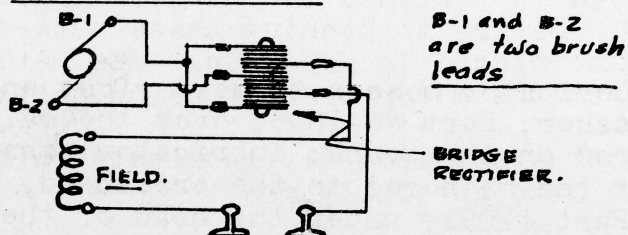
#12 TOOL BOX: Part #2119

The tool box must first be drilled with a #50 drill and then tapped with a #2-56 tap. The box may then be mounted on the pilot beam using tool box mounting screw, Part #C-1264.

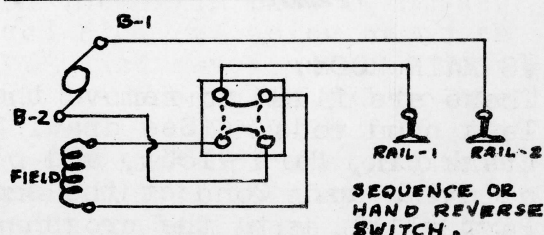
#13 REVERSE SWITCH:

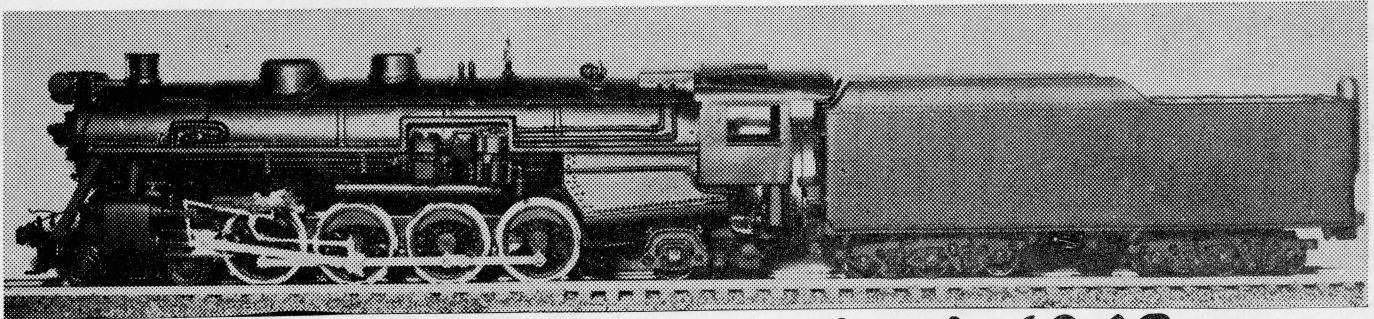
(Use optional with AC-DC motor), (not supplied), Part #1584: No specific instructions are included on mounting a reversing switch because individual requirements will vary as will the type of reversing switch used. Wire the motor for reversal per diagram and solder all connections after worm drive and motor have been assembled to mechanism. Solder the terminal, to 6 inches of lead wire from the armature for connection to tender for 2-rail operations. If third rail operation is desired this wire goes to a third rail pickup shoe, not furnished in this kit.

FOR D.C. OPERATION:



FOR A.C. OPERATION:





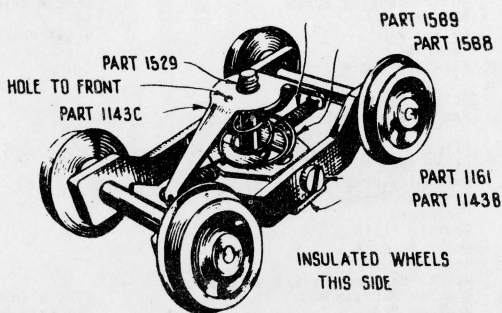
Mountain 4-8-2 Locomotive in 'O' Gauge

#14 PILOT TRUCK:

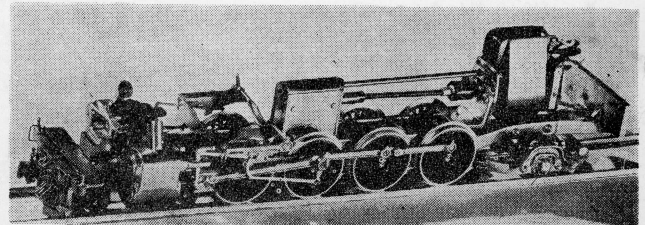
Assembly is obvious as shown by the drawing. Note that the 1/16" hole in the centering bracket, Part #1143C, is forward, with insulated wheels on the left side. Mount the assembled truck with the center pivot screw, Part #1529, in the hole provided in the pilot beam. The 1/16" hole in the centering bracket locks over the boss on the under side of the pilot beam to prevent turning. The truck must be removed at the time the boiler is attached and subsequently replaced.

#15 DELTA TRAILING TRUCK:

The Delta Trailing Truck with Booster, Part #1725, which comes completely assembled, is attached to the main bearing plate, Part #1714, at the rear hole using screw, Part #1107.



PILOT TRUCK



Part #16 DRIVE MECHANISM:

Mount motor bracket Part #1718 in place as shown on assembly drawing #1760, using screw Part #C-1504. This screw fastens into rear main frame rivet. Fasten Motor to motor bracket using screws Part #1605. Flexible shaft Part #4055 can now be fastened to motor shaft using cotter pin Part #C-2002. The squared end of flexible shaft is inserted in the square socket hole in the drive shaft of the gear mechanism assembly. The alignment rod Part #1743 is fastened to the gear housing as shown using two nuts Part #C-1510. Before tightening these nuts, gear housing cover Part #1734 should be placed in position. The motor end of the alignment rod is fastened to the motor bracket using cotter pin Part #C-2002.

The complete locomotive mechanism should be thoroughly lubricated with a good grade of light grease and should be carefully run in before the boiler is assembled to it.

KIT PACKING LIST

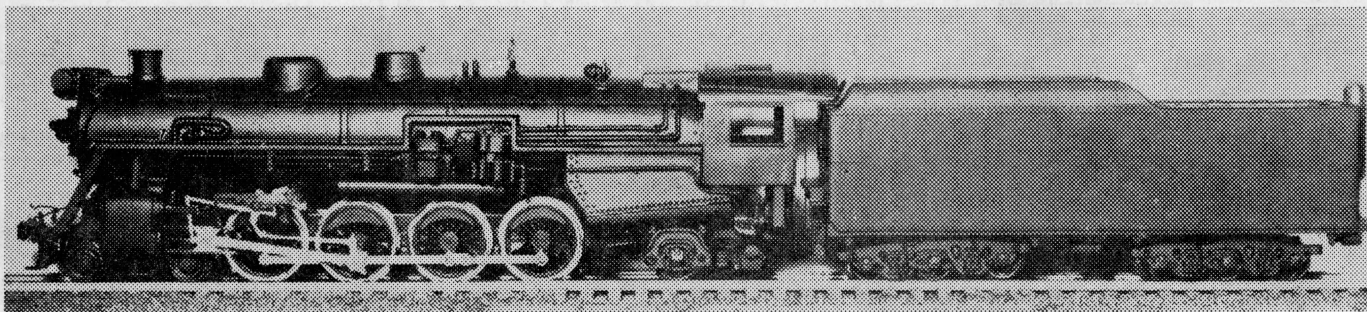
O GAGE - MOUNTAIN LOCOMOTIVE - TYPE 4-8-2 (Insulated for 2-rail)

SECTION I (MECHANISM ASSEMBLY)

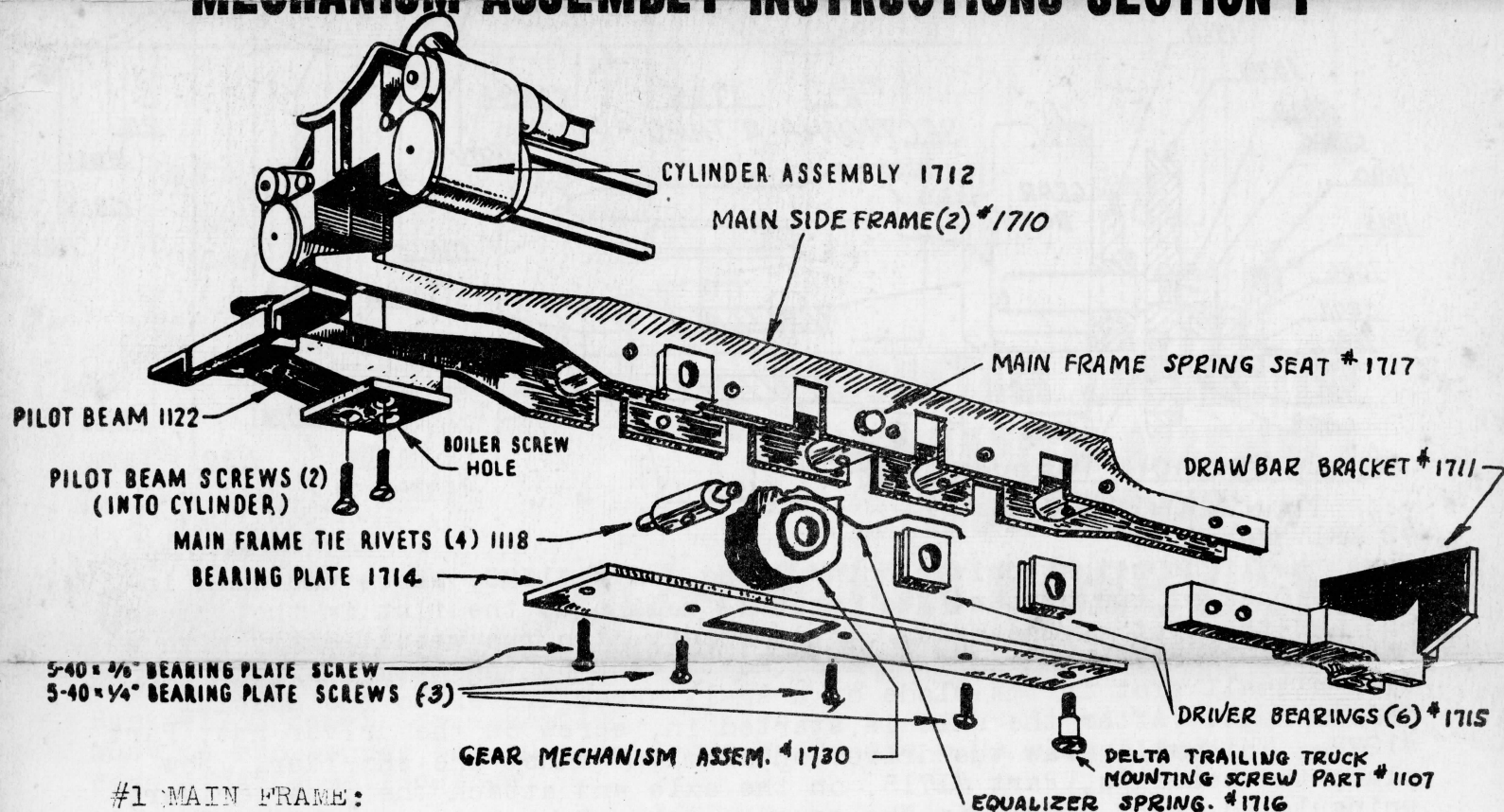
QUAN.	PART NO.	DESCRIPTION	REMARKS	QUAN.	PART NO.	DESCRIPTION	REMARKS
2454 SECTION "A-M": Mechanism Accessories (Enclosed in envelope -- 42 pieces)				1	1736	Worm Gear 30T-40P	
2	1035	Pilot Beam Stanchion		1	1737	Pinion Gear 14T-36P	
2	1107	Draw Bar Screw		1	1738	Spur Gear 34T-36P	
1	1114	Draw Bar		2	1739	Bearing (Upper)	
5	1118	Main Frame Tie Rivet		1	1740	Shaft (Upper)	
1	1592B	Coupler - Short Shank		1	1741	Worm Drive Shaft	
3	1643	Coupler Release Stanchion	3/16"	1	1742	Worm Gear Spacer	
6	1715	Driver Box Bearing		1	1743	Alignment Rod	
2	1716	Equalizer Spring		1	1744	Worm Shaft Spacer (Sleeve)	
2	1717	Spring Seat		1	1745	Worm Shaft Spacer (Ball)	
4	C1051	Step Mounting Screw	.080 x 1/8" Fil.H.	1	1746	Worm Shaft Sleeve Bearing	
2	C1253	Pilot Mounting Screw	2-56 x 1/4" Fil.H.	2	1747	Axle Gear Bearing	
1	C1264	Tool Box Mounting Screw		1	1530	Driver Axle (Knurled)	
4	C1501	Draw Bar Bracket Screw	5-40 x 1/4" R.H.	1	1597	Ball Bearing	
1	C1505	Bearing Plate Screw	5-40 x 7/16" R.H.	2	C1510	Hexagon Nut	5-40 Thread
3	C1506	Bearing Plate Screw	5-40 x 5/16" Fil.H.	1	C2002	Cotter Pin	3/64" x 1/2"
2	C1509	Pilot Beam Screw	5-40 x 1/2" F.H.	1	C2009	Retaining Ring	
1	C2002	Coupler Pin (Cotter Pin)		2428 SECTION "F": Valve Gear Kit (Enclosed in envelope -- 47 pieces)			
2455 SECTION "A-I-M": Driver & Axle Kit (Enclosed in envelope -- 11 pieces)				12	1084	Valve Gear Rivet	
3	1277	Driver Axle (Plain)		2	1085	Link	
1	1578	70" Main Driver Assembly (Insulated)		2	1086	Reverse Bell Crank	
1	1579	70" Main Driver Assembly (Uninsulated)		2	1088	Radius Rod	
3	1580	70" Driver Assembly (Insulated)	Light Counter Wt.	2	1089	Combination Lever	
3	1581	70" Driver Assembly (Uninsulated)	Light Counter Wt.	2	1090	Eccentric Rod	
2456 SECTION "B-M": Pilot Truck Kit (Enclosed in envelope -- 9 pieces)				2	1087	Lifting Link	
1	1143B	Pilot Truck Bolster		2	1091	Cross Head Link	
1	1143C	Pilot Truck Centering Bracket		2	1093	Valve Rod	
2	1161	Pilot Truck Side Screw		2	1110	Link Bracket	
1	1529	Pilot Truck Pivot Screw		1	1112	Guide and Link Bracket Hanger	
1	1568	Pilot Truck Pivot Spring		1	1113	Link Bracket Hanger	
2	1569	Pilot Truck Centering Spring		4	1158	Long Rivet	
1	1770	Wheel and axle Assembly with Truck Sides		2	1159	Link Pivot Rivet	
2457 SECTION "D-M": Rods, Crosshead, etc. Kit (Enclosed in envelope -- 47 pieces)				1	1587	Reverse Crank Shaft	
2	1056	Eccentric Crank		2	C1500	Mounting Screw	5-40 x 1/8"
6	1057	Crank Pin Screw		4	C1051	Link Bracket Screw	0-80 x 1/8" Fil.
2	1058	Cross Head Screw		2	C2011	Valve Rod Pin	#20 x 3/8" Pin
2	1109	Main Side Rod		2459 SECTION "G-M": Motor Drive Accessories (Enclosed in envelope -- 10 Pieces)			
2	1111	Cross Head		1	C1504	Motor Bracket Screw	5-40 x 5/8" R.H.
4	1130	Side Rod Knuckle		2	C1605	Motor Mounting Screw	6-32 x 5/16" R.H.
2	1131	Main Rod		4	C1806	Washer	#6
6	1215	Side Rod Knuckle Screw		1	C2002	Cotter Pin	3/64" x 1/2"
11	1278	Driver Axle Nut		1	C2017	Terminal	
2	1383	Piston Rod		1	4055	Flexible Shaft	
2	1531	Main Crank Pin		SECTION "S-M": (Packed Separately -- 15 pieces)			
4	1570	Cross Head Guides		1	1760	Pilot	
2	C1806	Main Rod Spacer Washer	#6 Brass	1	1122	Pilot Beam	
2	C2011	Return Crank Lock Pin	#20 x 3/8" Pin	2	1710	Main Side Frame	
2458 SECTION "E-M": Gear Mechanism Assembly #1730 (Packed Assembled -- part listed)				1	1711	Draw Bar Bracket	
2	1732	Gear Housing Side Plate		1	1712	Cylinders	
1	1733	Gear Housing Strap		1	1714	Bearing Plate	
1	1734	Gear Housing Cover		1	1718	Motor Bracket	
1	1735	Worm 4T-40P		2	1719	Step	
				1	1725	Delta Trailing Truck with Booster	.932 Wire-5" Long
				1	1903C	Coupler Release Rod	#20 Push-back 10"
				1	1906	Hook-up Wire	
				1	2119	Tool Box	
				1	Q201	AC-DC Series Motor	

All-Nation's New Mighty

Mountain 4-8-2 Locomotive in 'O' Gauge

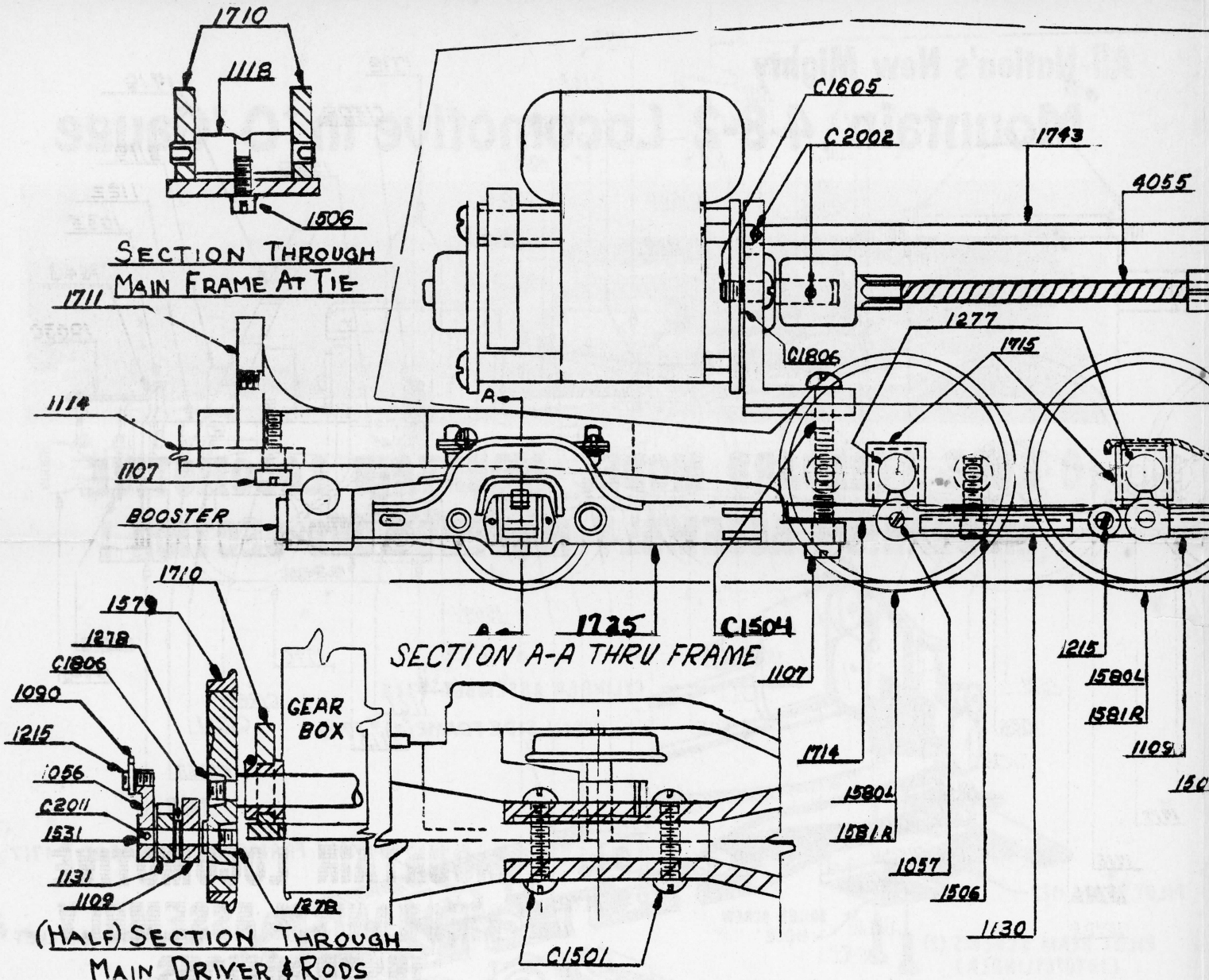


O-GAGE STANDARD MODEL MOUNTAIN LOCOMOTIVE MECHANISM ASSEMBLY INSTRUCTIONS-SECTION I



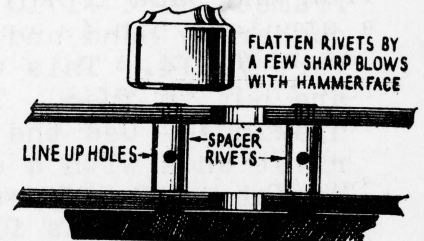
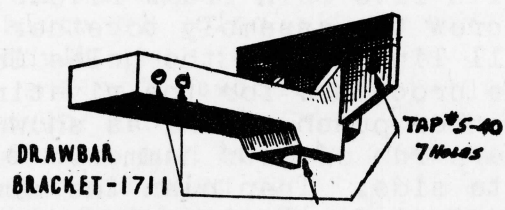
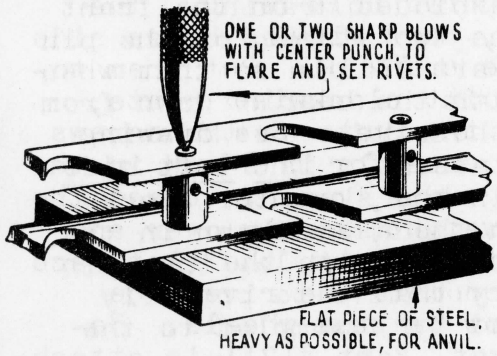
#1 MAIN FRAME:

The first step in the assembly of the MAIN FRAME is to rivet the two spring seats Part #1717 in position as shown in exploded drawing. The MAIN FRAME is then formed by riveting together the two stamped brass side frames, Part #1710 with five main frame rivets, Part #1118. Put them together by hand and screw the assembly together with the bearing plate, Part #1714. This will line up all the holes in the rivets as the screws are put in them. The procedure for the riveting assembly is shown in the drawings. Use the center punch ground as shown in the sketch. Upset the rivet ends with a sharp rap of your hammer. Turn the assembly over and repeat on the opposite side. Then bend the rivet over with the flat face of the hammer as illustrated. It is not necessary that the rivets be flush with the side because a clearance is allowed for the wheels. Remove the bearing cover plate. The Draw Bar Bracket, Part #1711 is attached with screws, Part #C-1506, after holes in bracket have been tapped. See sketch for tapping information.



#2 DRIVE WHEELS:

Take the light weight driver uninsulated, Part #1580, shove the axle into the back of the driver. Be careful to line up the flat in the driver hub and the flat of the axle. If necessary, tap the wheel gently with a hammer to start, but do not damage the threads on the axles. Grind or file a small slot in the blade of a small screw driver to the special driver nuts. After the axle is started in, screw on the driver nut, Part #1278. This will draw the driver on firmly against the shoulder. Now place two bearings, Part #1715, on the axle and attach the other driver, uninsulated, Part #1581, in the same manner. Repeat this process with the other drivers.

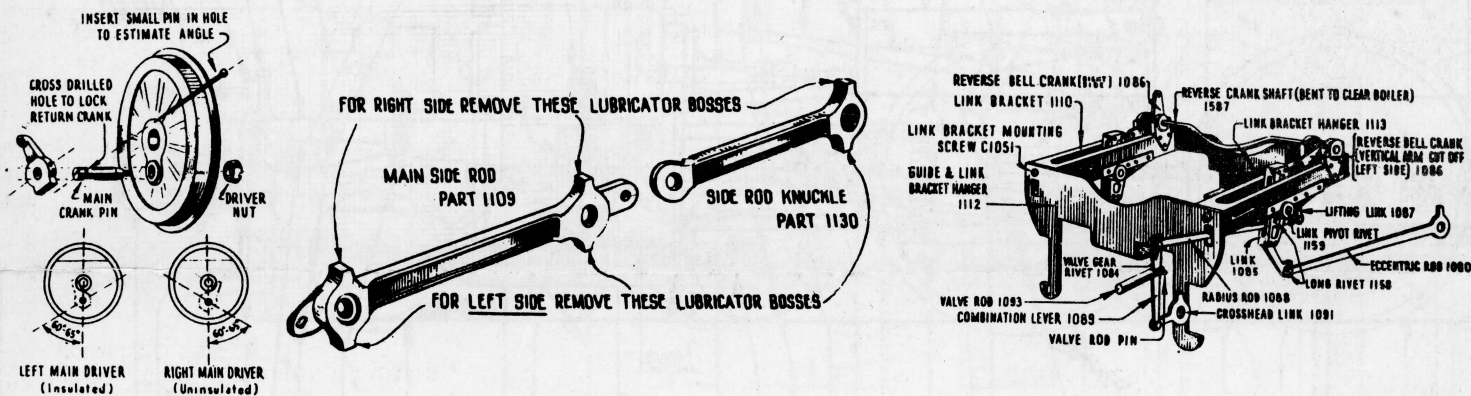


All-Nation

Part #1711 is attached with screws, #C1506, after holes in bracket have been ped. See sketch for tapping information.

Mountain 4-8-2 Locomotive MECHANISM ASSEMBLY

all four pairs of drivers into the bearing slots provided in the main frame, with insulated wheels on left side of loco, and fasten the bearing plate in place using the screws provided. Insert equalizer springs Part #1716.



#5 SIDE RODS:

These are assembled as shown on drawing #1760, the knuckle rod to the rear. File off the lubricator bosses to make left and right assemblies. (See sketches) The lubricators point up. Make doubly sure you have a right and left pair, and do not make a pair of lefts or a pair of rights. Attach the rods to the wheels with the crank pins Part #1057. The mechanism should now roll freely if all the steps have been followed correctly.

#6 VALVE GEAR ASSEMBLY:

Assemble the links in section as follows: the radius rods #1088, link #1085, lifting line #1087, reverse valve crank #1086, and the eccentric rod #1090 are made in one assembly. Rivet to make right and left hand assemblies. The rivets #1084 and #1158 are set by inserting a center punch in the hollow end of the rivet. (See drawing). Exert just enough pressure with your fingers in a circular motion, swivelling the center punch around to slightly flare the rivet. A hammer is unnecessary and very likely to spoil the rivet. Do not use it. Next assemble the right and left hand assembly of the valve rod #1093 and combination lever #1089 with the crosshead link #1091. The valve rod pin, Part #6-2011, is driven through the rod and cut off at each end. The ends are filed flush with the valve rod to slide into the cylinder valve guide freely. Assemble the valve gear frame consisting of guide and link bracket hanger (front) Part #1112, link bracket hanger (rear), Part #1113, and the two link brackets, Part #1110 with the 4 screws, Part #C-1051, as shown in the drawing. Form the reverse shaft, Part #1587 from the 1/16" brass wire, and insert in the link brackets as shown. Next, insert the radius rod #1088 through the hole in the hanger #1112, and then rivet the radius rod #1088 to the combination lever #1089. Then insert the link pivot rivet #1159 on each side and set the rivet in the same way as the smaller rivets. The reverse shaft can be pushed from one side to the other to enter the reverse bell crank lever #1086. On the left side, the top arm of the reverse bell crank, #1086, should be cut off. The assembly is then ready to be mounted on top of the locomotive frame, using screws, Part #C-1500, which thread into the frame rivets.