

# No. 622 & No. 6220 DIESEL SWITCHER

No. 622 Diesel Switcher, first made by Lionel in 1949, is a close adaptation to 'O' gauge requirements of the diesel-powered switching engine made by General Motors for Atchafalaya, Topeka and Santa Fe Railroad. The '6220' designation was originally reserved for the model intended for operation on '027' track. In initial production the gauge (distance between wheels) of the 622 and the 6220 locomotives differed slightly, but in later production this difference was eliminated and the two locomotives became identical.

The 1949 model of the 622 switcher is the first Lionel locomotive in which the principle of magnetic loading, or 'Magne-Traction' was used in regular production, although it was not announced until the following year. In this model 'Magne-Traction' was achieved by the use of a heavy permanently magnetized driving axles.

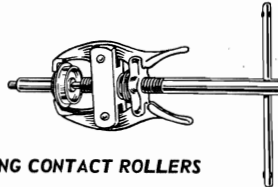
Because of this feature No. 622 Diesel Switcher is characterized by its high tractive force and ability to keep the rails at high speeds. Its operating voltage ranges from 7 to 12 volts, somewhat lower than other Lionel locomotives.

No. 622 switcher is powered by a motor which is mounted vertically on the power truck and is free to swivel with it.

The switcher is equipped with electrically operated couplers front and back and with a mechanically-operated warning bell, the striking arm of which is geared to a worm axle of the bell truck.

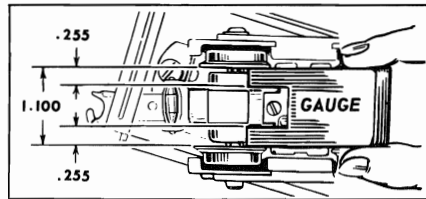
## REMOVING WHEELS

Because the magnetized axles used on the motor truck may become de-magnetized by excessive hammering, it is advisable to remove motor truck wheels by using a Lionel wheel puller No. ST-301, as shown below.



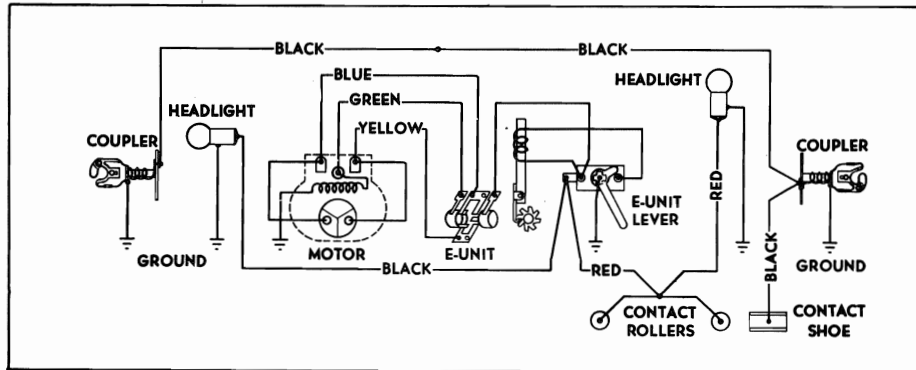
## CENTERING CONTACT ROLLERS

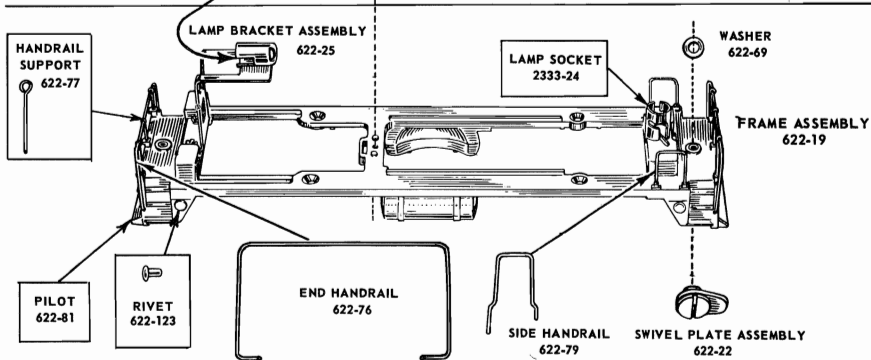
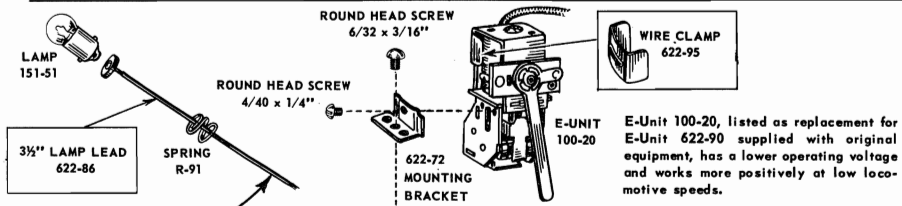
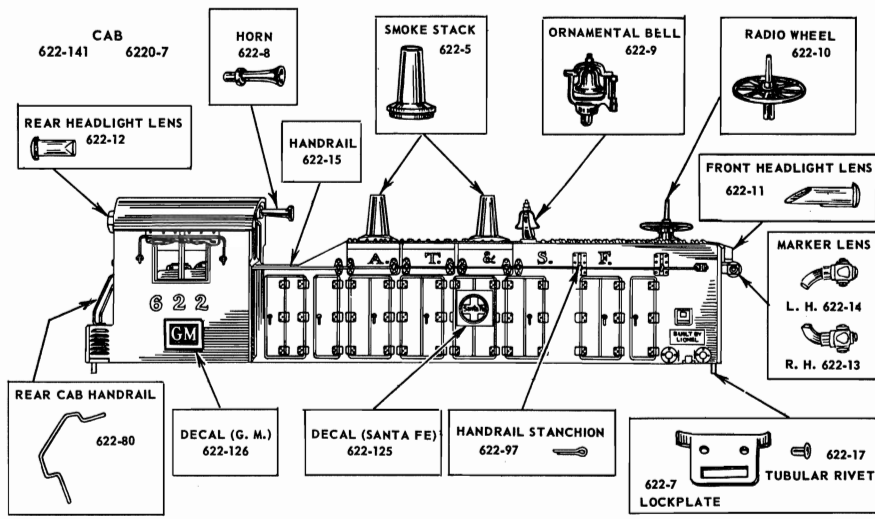
Contact rollers and brackets should be accurately centered between the wheels. Otherwise, particularly on layouts where a No. 6019 Remote Control Track adjoins a curved section, the contact roller may short the center rail to one of the control rails and cause

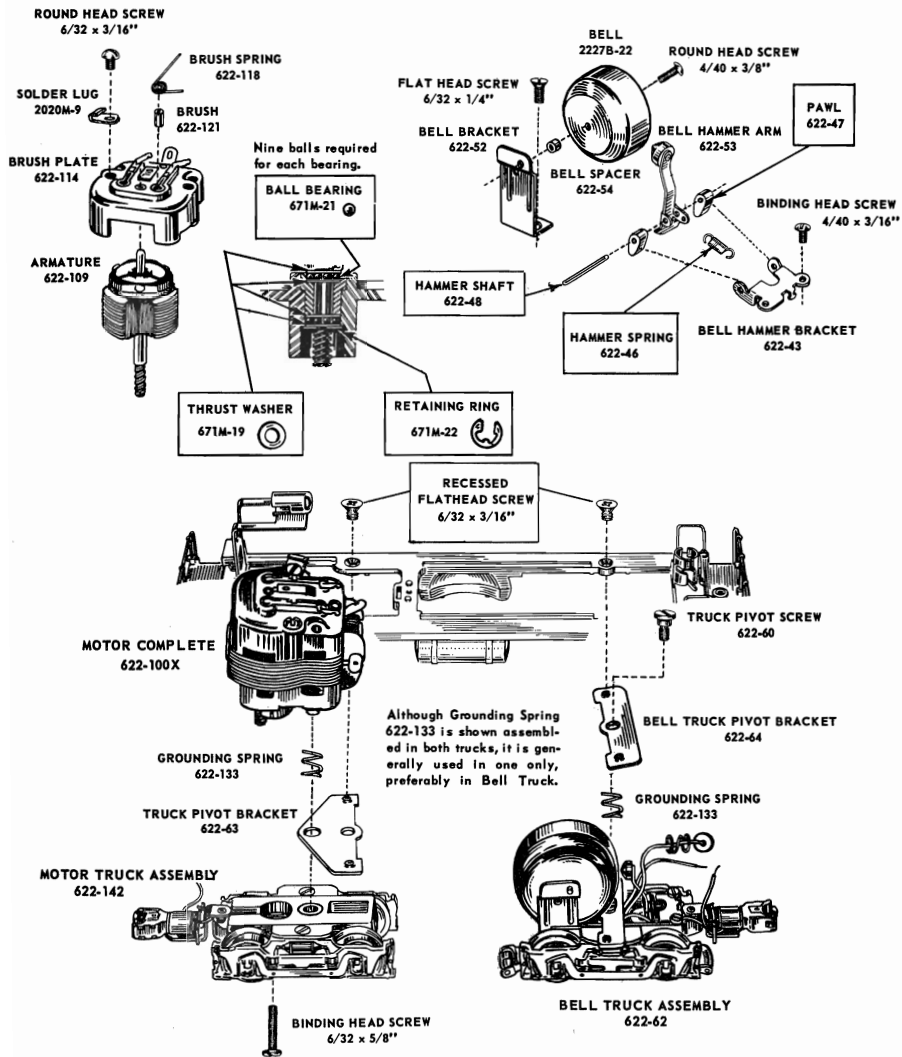


the switcher coupler to open involuntarily. A gauge which can be used for checking the distance between the wheels and for centering the contact assembly accurately is illustrated above.

WIRING DIAGRAM OF NO. 622 DIESEL SWITCHER

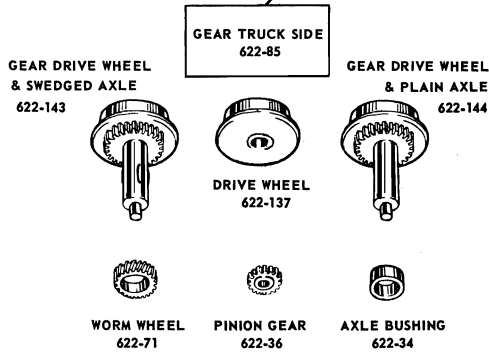
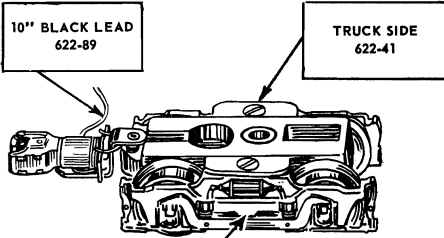






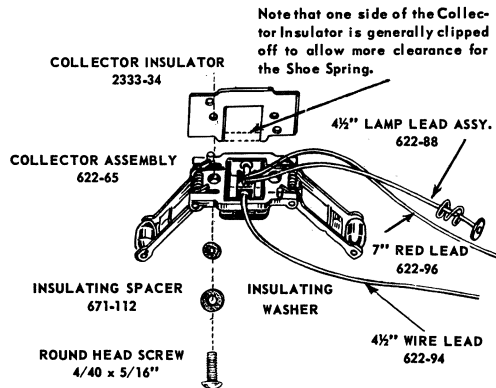
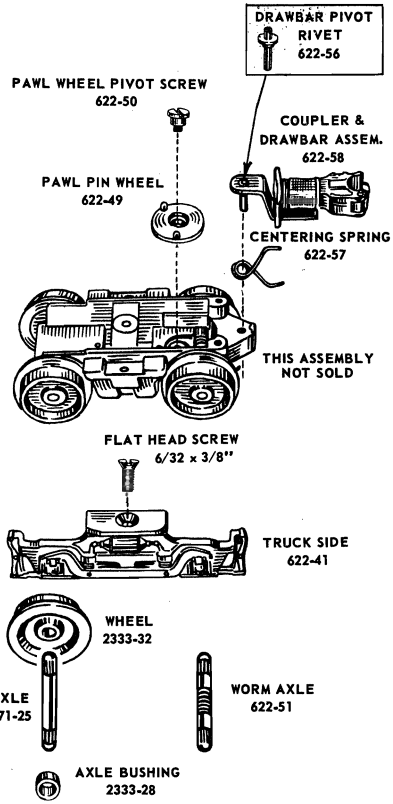
Note that Bell Truck Assembly uses two Truck Sides 622-41 while Motor Truck Assembly uses one Truck Side 622-41 and one Gear Truck Side 622-85.

Component parts of the Coupler appear on Page 4, MIS-TRUCKS.



Note that Drive Wheels 622-137 used on Motor Truck differ from Wheels 2333-32 used on the Bell Truck. Note also that Geared Drive Wheels are sold in assembly with their magnetized axles while Bell Truck Wheels 2333-32 and Axles 671-25 and 622-51 are sold separately.

Complete Breakdown of Collector Assembly appears on Page 5, LOC-2333.



Note that one side of the Collector Insulator is generally clipped off to allow more clearance for the Shoe Spring.

# No. 622 & 6220 DIESEL SWITCHER (1950 Model)

The 1950 model of No. 622 Diesel Switcher differs in several respects from the previous year's production, so that most of their component parts are not interchangeable.

The principal change has been in the method of obtaining magne-traction. Instead of driving axles machined of special magnetic material, 1950 motor trucks are equipped with externally cemented magnets and non-magnetic stainless steel axles. Other changes have been made in adding weight to the frame casting and in redesigning the motor to incorporate the use of ball thrust bearing assemblies. The shape of the motor casting has been changed to improve motor seating and alignment.

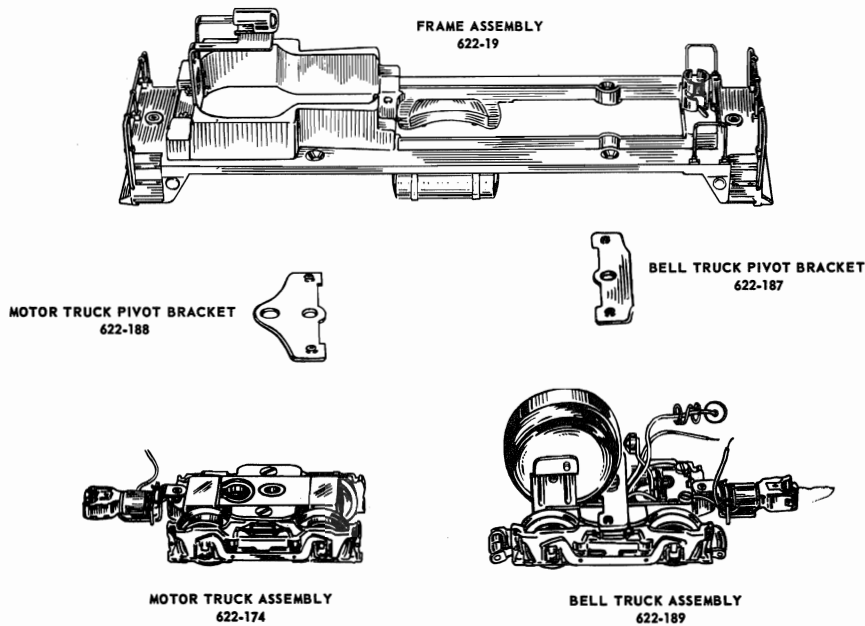
A change in the bell truck is the use of new type contact rollers riveted to the contact arms to eliminate sparking and wear between the contact arm and the roller axle.

## SERVICE HINTS

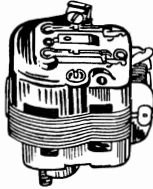
In some cases excessive play in the driving wheels may cause one of the wheels to rub against the magnet, thus acting as a brake. This condition can be relieved by removing the Plain Wheel and inserting one or two No. 671M-19 Thrust Washers between the rubbing wheel and the axle bushing.

The magnets are cemented to the casting with a special oven-baked cement and should not be removed, since they cannot be recemented easily.

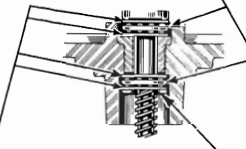
FOR OTHER 622 SWITCHER PARTS SEE SECTION LOC-622 (1949)



MOTOR COMPLETE  
622-100 (1950)



Note that the 1950 motor 622-100 and the 1949 motor 622-100X, shown on Page 3, Section LOC-622 (1949), are not interchangeable since they differ in the shape of the casting, as shown above, as well as in internal details.



MOTOR TRUCK PARTS

GEAR DRIVE WHEEL  
& SWEDGED AXLE  
622-178



GEAR DRIVE WHEEL  
& PLAIN AXLE  
622-176



DRIVE WHEEL  
2343-33



Note that these motor truck axles are made of stainless steel which is non-magnetic.

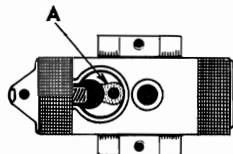


WORM WHEEL  
622-181



AXLE BUSHING  
622-184

Because the magnets cemented to the motor truck frame should not be removed, a slot must be cut in the casting to replace the worm wheel. Drill out hole at 'A' about 1/4" deep using a 1/4" drill and file out edges of the hole to size. Be careful not to drill through the bottom of the casting.



BELL TRUCK PARTS

WHEEL  
2333-32



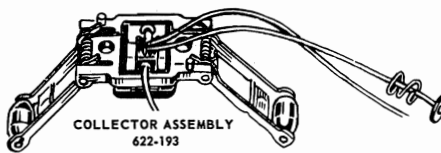
WORM AXLE  
622-51



AXLE  
671-25



AXLE BUSHING  
2333-28

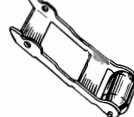


COLLECTOR ASSEMBLY  
622-193

COLLECTOR ROLLER PIN  
2023-44



COLLECTOR ARM ASSY.  
2023-41



COLLECTOR ROLLER  
2023-43

