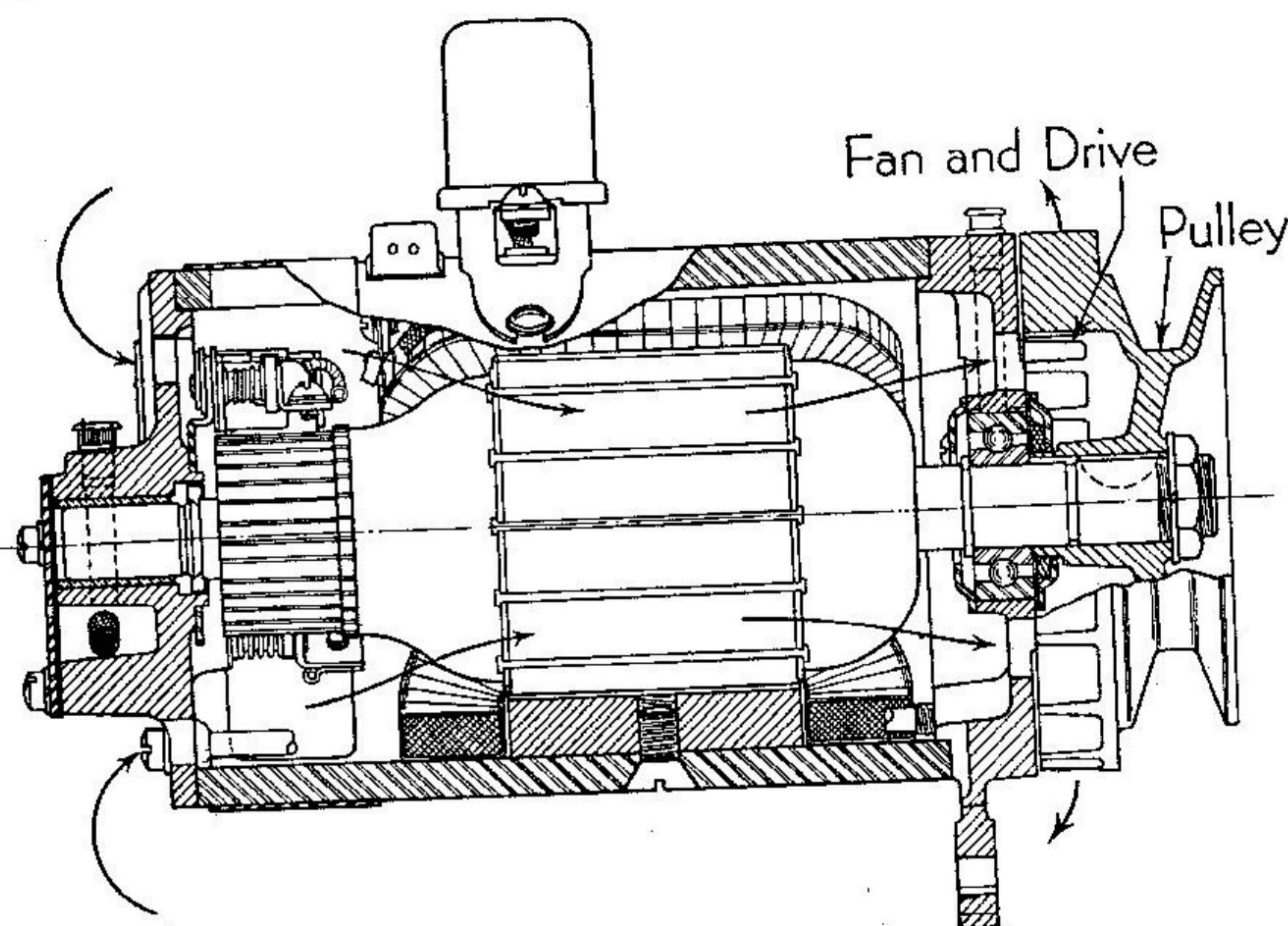


GENERATOR



If a generator is not performing according to specifications and it has been determined that the cut-out relay or regulator is not at fault, the generator should be removed and checked thoroughly on a bench test.

Adjustments. Generator Output. The output of third brush generators can be changed by shifting the position of the third brush with respect to the main brushes. To increase the charging rate, loosen the locking screw and shift the third brush in the direction of armature rotation. The output is decreased by shifting the third brush opposite to the direction of armature rotation. After adjustments have been completed, tighten the lock screw so there will be no change in output while the generator is in operation. On the shunt type generators used with external current regulators or current and voltage regulators, the output is adjusted by adjusting the current regulator unit.

When checking or adjusting the generator output, it is essential to use an accurate reading ammeter connected in series in the charging circuit at the generator terminal rather than use the dash ammeter. In checking the output of any generator, it is recommended that an accurate reading voltmeter be connected from the generator armature terminal to ground at the same time the current output is checked. Generator outputs are always specified as so many amperes at a certain voltage. If the voltage does not reach the specified value, it will be impossible to secure the rated output of the generator. It may be necessary to use a variable resistance in series in the charging circuit to increase the voltage to specifications. Never set the output of a generator beyond the maximum safe specified value.

Many of the later model generators

are air cooled by means of a centrifugal fan, incorporated in the generator drive pulley. Other models, such as the flange mounted type, have the centrifugal fan assembled on the armature shaft inside of the generator or on the outside of the commutator end bearing. Air cooling the generator allows it to carry a heavier load without danger of overheating. A generator ventilated in this manner will carry a greater load than a non-ventilated unit and still run 80° F. to 100° F. cooler.

Brushes. In case the brush spring tension becomes weak, the charging rate will be reduced and more or less arcing and burning of the commutator will result because of poor contact of the brushes. Excessive spring tension will cause the commutator and brushes to wear faster, reducing the amount of service to be obtained from them. The brush spring tension should be within limits for the particular model being checked. Brushes should be removed and checked to determine if they are seating properly. The "pig-tail" lead connection at the brush should be checked to see that it is tight. A loose connection at this point causes a high resistance, forcing the generator to build up its voltage to a dangerously high value.

Brushes used in swivel and box type holders should be well seated on the commutator in order to obtain the correct generator output. To seat the brushes in these holders, wrap a strip of No. 00 sandpaper around the commutator with the rough side next to the brush or brushes. A few strokes with the sandpaper will form the brush seat correctly. NEVER USE EMERY CLOTH TO SEAT BRUSHES. With reaction type brush holders where the brush "floats" in the holder, the brushes attain the proper seat

during the normal operation of the generator. Do not seat brushes in reaction type holders. If the brushes in the reaction type holder do not seat properly, check the holders for burrs or other defects which may cause the brush to stick. A rough or burred commutator may cause brushes to seat improperly and it should be smoothed up by using sandpaper.

INSPECTION AND MAINTENANCE

It is advisable to inspect the generator at least every twenty thousand (20,000) miles and make any adjustments or repairs needed. Have the various parts taken out, thoroughly cleaned and greased, and any other parts excessively worn repaired or replaced. If the commutator is worn or eccentric it should be turned in a lathe to true it. The mica in the commutator should be undercut. Commutator and brushes should be kept clean. Brushes should seat well. All connections in the charging circuit should be kept tight and clean. A loose or corroded connection causes high resistance and may cause the generator voltage to build up to a dangerous high value.

Bearings. Annular ball bearings and bronze bearings are used in practically all generators. Some generators use the annular ball bearings on both ends of the shaft, while others use a bronze bearing on one end and a ball bearing on the other end. When the generator is being overhauled, the bearings should be cleaned and well oiled before being reassembled.

Lubrication. All bearings provided with hinge cap oilers should be supplied with 8-10 drops of light engine oil every one thousand miles. Generators, having ball bearings that are provided with grease cups, should have the grease cups filled with special ball bearing grease every 5,000 miles. Generators, having distributors mounted on the commutator end frame, use fibre grease in the distributor well. This should be checked every one thousand miles and be filled whenever needed.

Caution: An important factor that must not be overlooked is that the generator must not be operated unless it is connected to a battery or damage to the unit will result as the battery plays an important part in maintaining a normal voltage condition. When the generator is operated on open circuit, the voltage will rise abnormally high, thus increasing several times the normal amount of current through the field coils and cause the insulation on the field coils and armature to be burned. If the generator is to be operated without being connected to a battery, it should be short circuited by disconnecting the lead that is connected to the generator side of the cut-out relay and connecting it to a convenient ground.