• **ARMATURE TEST.**—

- There are two practical tests for locating shorts, opens, and grounds in armatures—the growler test and the bar-to-bar test.
- To test for short circuits, place the armature on the V-block of the growler and turn on the current.
- With a thin metal strip (hacksaw blade is good) held over the core, as shown in figure 2-17, rotate the armature slowly through a complete revolution.
- If a short is present, the steel strip will become magnetized and vibrate.
- To find out whether the armature coils of the commutator are short-circuited, clean between the commutator segments and repeat the test.
- Should the thin metal strip still vibrate, the armature is short-circuited internally and must be replaced. Not all armatures can be tested for short circuits by the method just described.
- These armatures can be identified by excessive vibration of the saw blade all around the armature during the test.
- With these armatures, test for short circuits by using the milliamper contacts on an ac millimeter, as shown in figure 2-18.
- In doing so, keep the armature stationary in the V-block and move the contacts around the commutator until the highest reading is obtained.
- Then turn the armature to bring each pair of segments under the contacts and read the milliammeter at the same time.
- The readings should be nearly the same for each pair of adjacent bars.
- If a coil is short-circuited, the milliammeter reading will drop to almost zero.
- Test the armature for grounds by using the test light circuit, which is a part of most modern factory-built growlers (fig. 2-19).
- Place the armature on the V-block and touch one of the test probes to the armature core iron.
- Touch the other probe to each commutator segment in turn.
- If the armature is grounded, the bulb in the base of the growler will light.
- In contacting armature surfaces with the test probes, do not touch the bearing or the brush surfaces of the commutator.
- The arc would burn or pit the smooth finish.
- Replace the armature if it is grounded. In testing individual armature coils for open circuits, use the test probes, as shown in figure 2-20.
- Place them on the riser part of adjacent commutator bars, not on the brush surfaces.
- If the test lamp does not light, there is a break some where in the coil.
- Repeat this test on every pair of adjacent bars.
- Do this by walking the probes from bar to bar.
- Should you find an open coil, the fault may be at the commutator connectors where it is possible to make repairs with a little solder.
- If a coil is open-circuited internally, the armature should be discarded or rewound.
Figure 2-17.—Using growler.

Figure 2-18.—Testing for a short circuit.

Figure 2-19.—Testing armature for grounds.

Figure 2-20.—Testing an armature for open circuits.