

MOTOR STACKS AND WINDINGS

FACT A motor of the same diameter and stack can be substituted when neither the HP or ampere rating of the defective motor is known. The stack of a motor is the width of the stator iron laminations. This is a very rough measurement to be used as a last resort in selecting a replacement motor.

FACT The reason a stator is made of individual laminations is basically to reduce the electrical losses due to circulating currents that occur in the iron. These are called eddy currents. These are caused by the magnetic flux created by the windings. Laminating this core greatly reduces these losses.

FACT Most open circuits in the windings resulting from defects in the motor windings occur within the first two hours of operation. This is the time required to reach maximum temperature rise. Most short circuits in windings occur if the motor windings are wet when the motor is operating or if lightning strikes. Usually shorts are not a result of motor overheating, since the motor is thermally protected.

FACT Why are there different size wire and different number of turns in windings? Because the torque output of a motor depends on the strength of the magnetic fields created by the poles in the stator. The stator's size of wire, number of turns, and stack height determine the strength of these magnetic fields.

FACT The number of similar coils visible in the stator winding equals the number of poles.

