



SERVICE PROCEDURE - Estimating the Change in Temperature Rise of a Generator with a Change in the Generator's Output Rating.

Heating of a generator – temperature rise – is closely associated with the square of load current (I^2) flow. While differences in air flow, load power factor, and a number of other factors come into play when determining final values of temperature rise, the largest single factor effecting operating temperature rise is the magnitude of load current. In situations where the temperature rise of a generator is specifically stated for a given output rating, fairly accurate estimations of change in temperature rise with change in load magnitude can be made as follows:

$$(A) \quad TR2 = \left[\frac{R2}{R1} \right]^2 \times TR1 \qquad (B) \quad R2 = \sqrt{\frac{TR2}{TR1}} \times R1$$

Where:

R1 = Base, or calculated rate at a known value of temperature rise.

TR1 = Temperature rise at R1 rating

R2 = New, or prospective rating

TR2 = Temperature rise at R2 rating.

JBW

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