
2. Chapman Problem 5-16.

3. Chapman Problem 5-17. Unsaturated synchronous reactance can be found from the air gap line (which assumes the machine never saturates). Saturated synchronous reactance can be found from the OCC.

4. Chapman Problem 5-20. Note the rating given is normally for the output power. For a motor, that means the mechanical output power, normally given in hp.

5. Phasor Diagram. A 480 V, Y-connected, 6 pole synchronous generator has a per-phase synchronous reactance of $X_s = 1.0 \Omega$. Its full load current is 60 A. The back emf is $E_{af} = 480$ V. What is the terminal voltage of this generator at rated current and the following conditions?

   - Power factor 1.0.
   - Power factor 0.8 leading.