

Synchronous Motor Drives

Rotor Structure

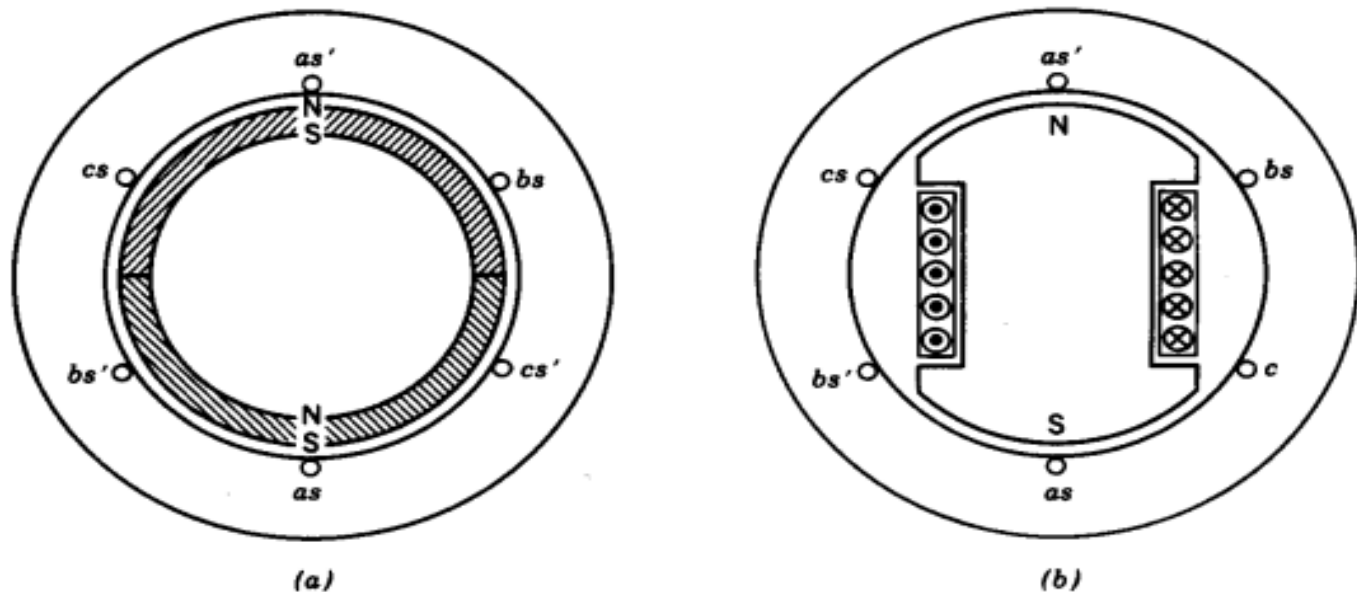


Figure : Structure of synchronous motors: (a) permanent-magnet rotor (two-pole); (b) salient-pole wound rotor (two-pole).

Per-Phase Representation

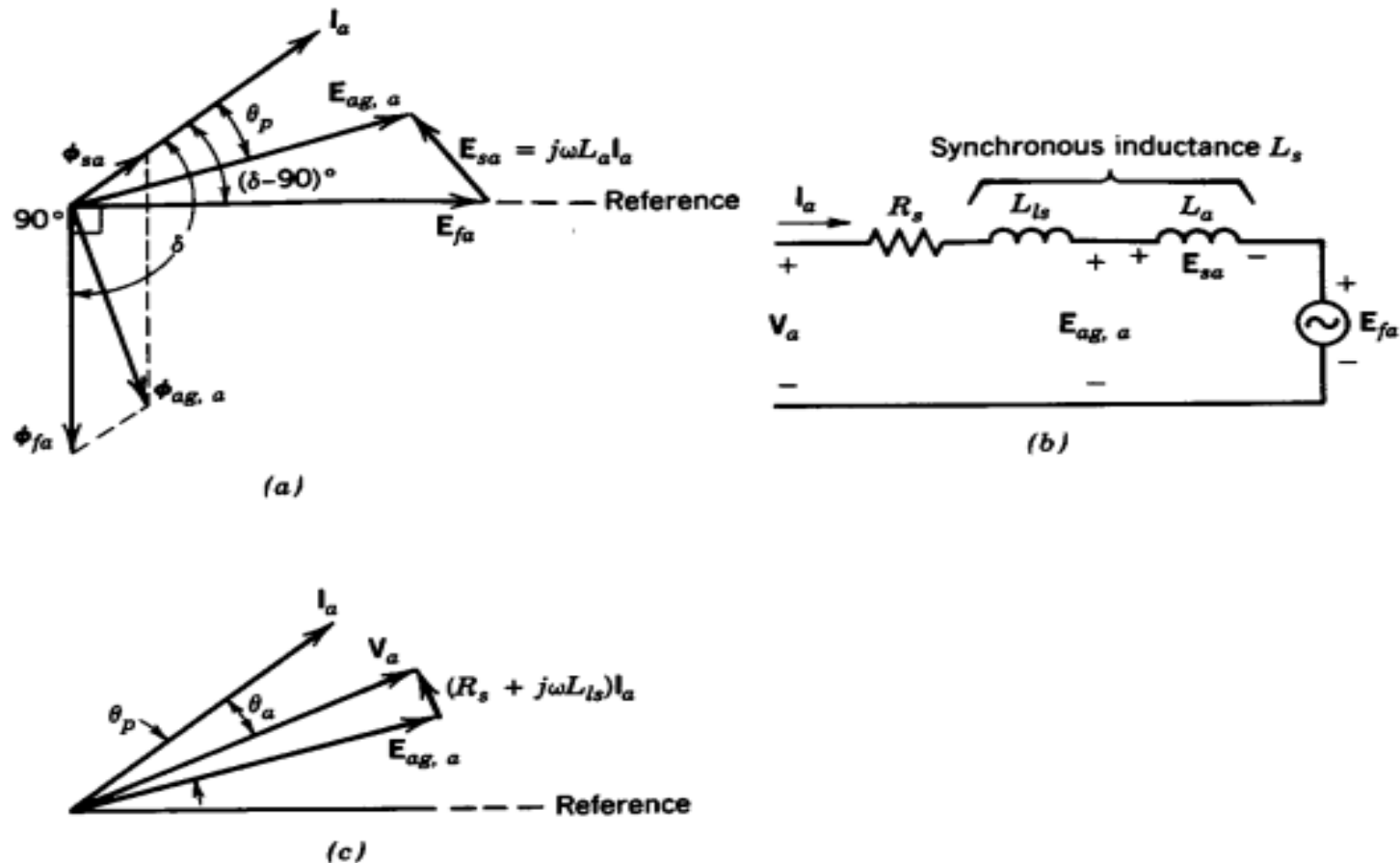


Figure Per-phase representation: (a) phasor diagram; (b) equivalent circuit; (c) terminal voltage.

Phasor Diagram

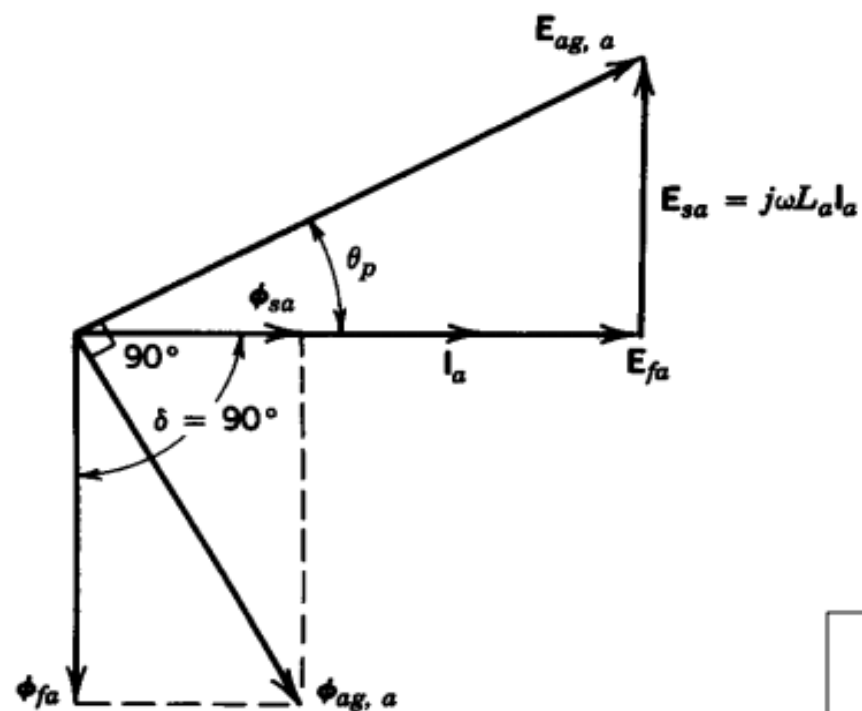


Figure 15-3 Phasor diagram with

$$\delta = 90^\circ.$$

Rotor Position

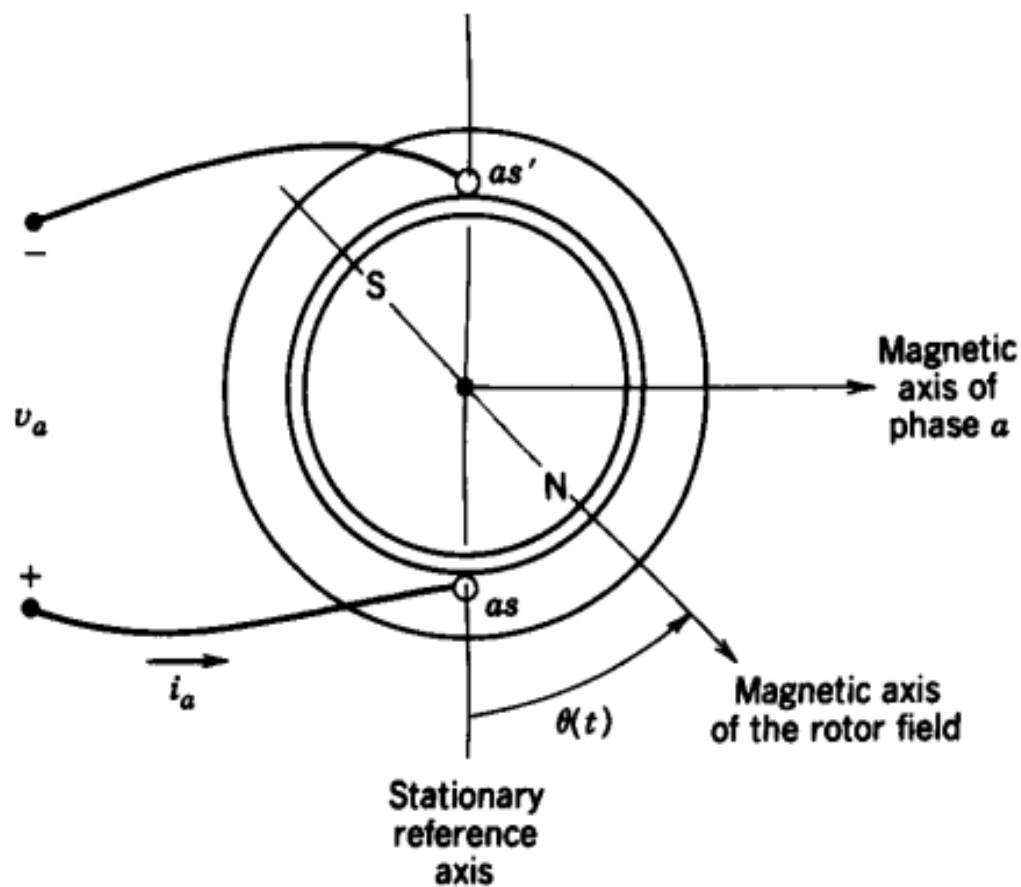


Figure Measured rotor position θ at time t .

Synchronous Motor Drive

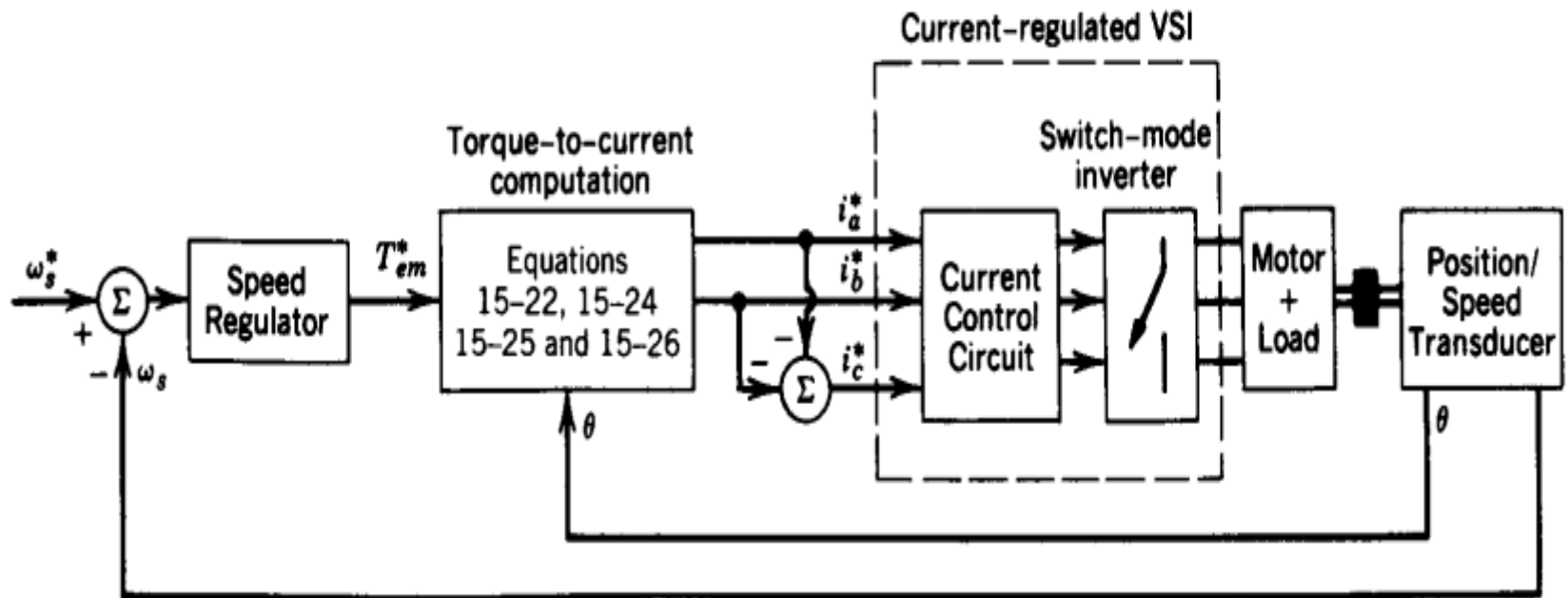


Figure Synchronous motor servo drive.

Trapezoidal Waveform Synchronous Motor

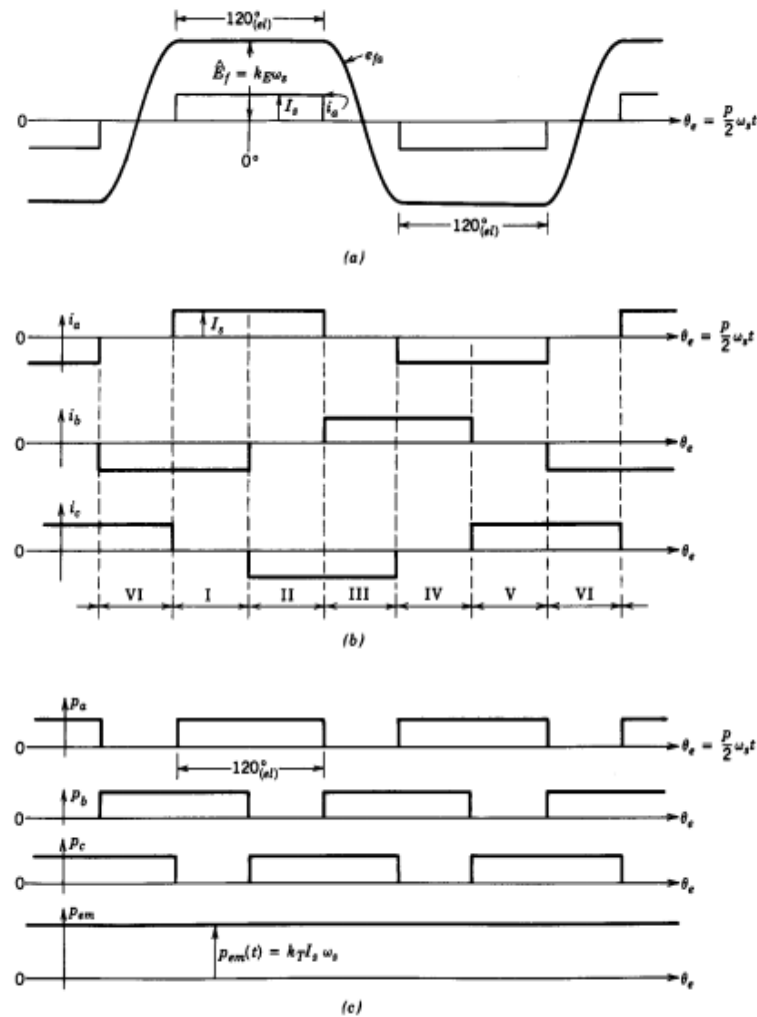


Figure . Trapezoidal-waveform synchronous motor drive.

Load-Commutated Inverter (LCI) Drive

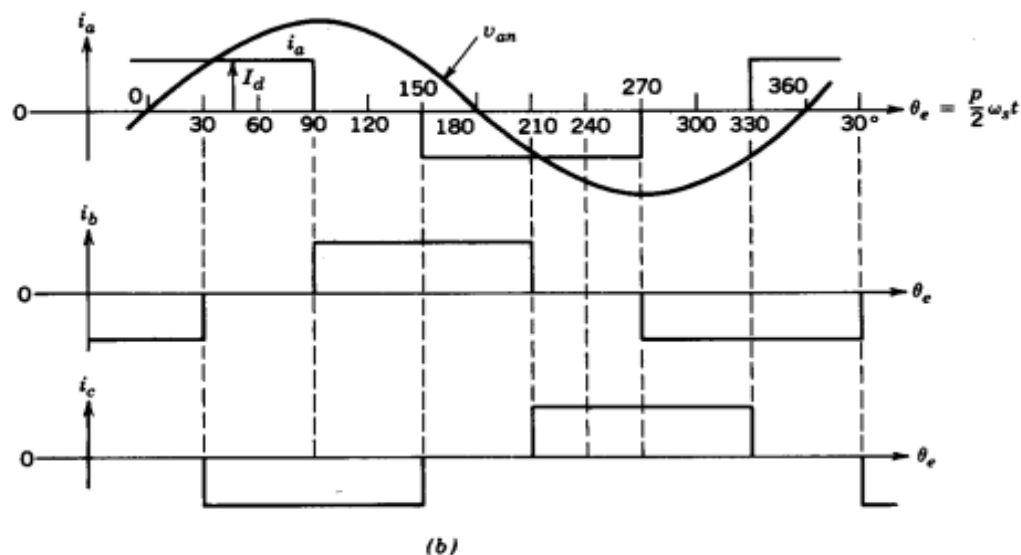
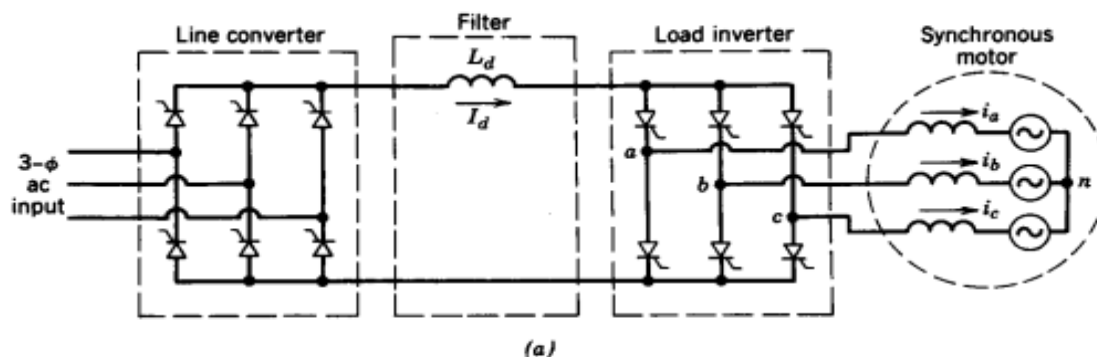


Figure An LCI drive: (a) circuit; (b) idealized waveforms.

LCI Drive Controller

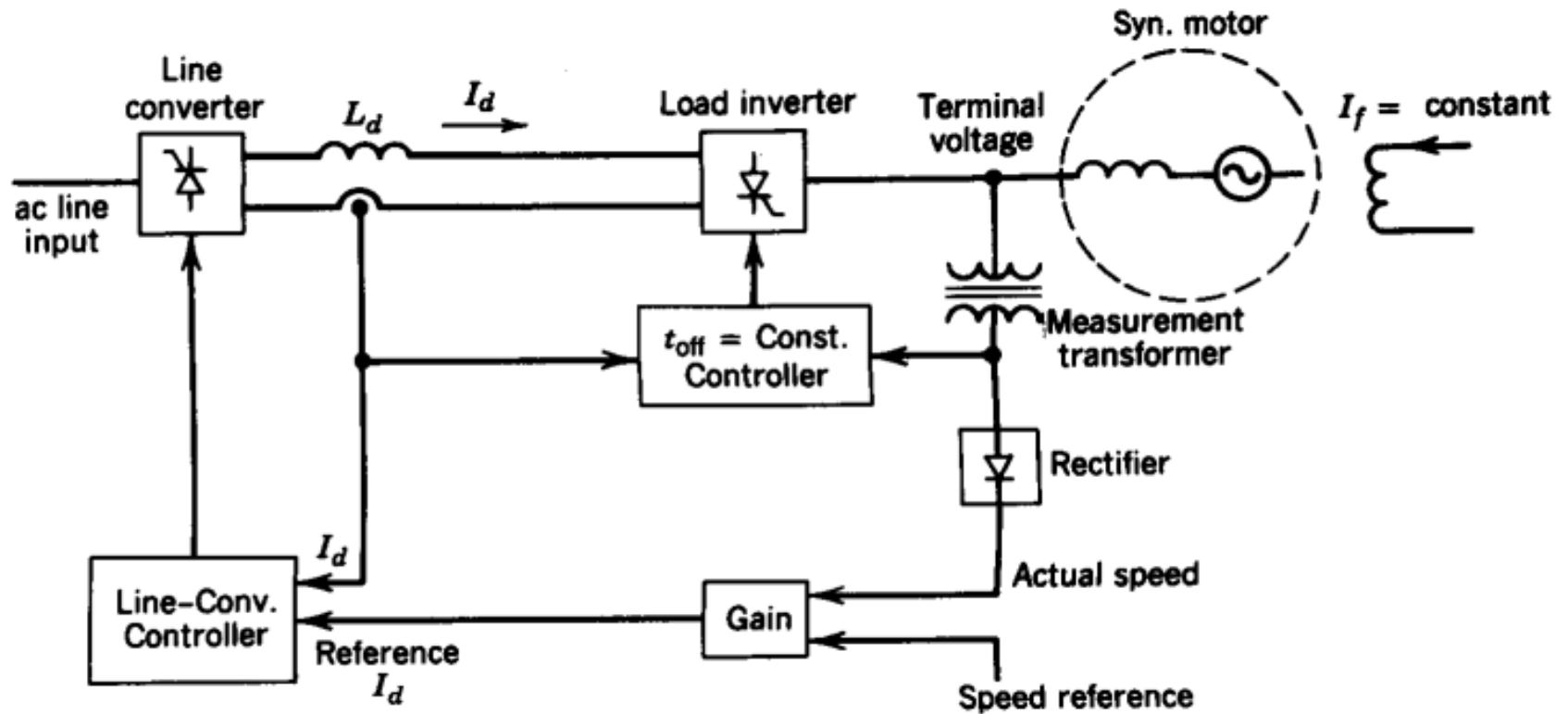


Figure : An LCI drive controller.