CONV2, PARCIAL #3. MS.

MS: 45HP, 208V, pf = 0.8(+), "Δ", 60Hz
$X_S = 0.65\,pu$, $R_A = 0$
$P_{FRV} = 1.5\,kW$, $P_C = 1.0\,kW$.

@ FL: $P_{OUT} = 45\,HP \times \frac{746\,W}{HP}$

$P_{IN} = P_{OUT} + P_{elect} + P_{FRV} + P_C$; $S_{IN} = \frac{P_{IN}}{pf}$

$Z_{BASE} = \frac{3 V_{LN}^2}{S_{IN}}$; $V_{LN} = V_{LL}$ PARA "Δ".

$X_S = Z_{BASE} \times X_{S,pu}$

a) @ $P_{OUT} = 25\,HP$ & $pf = 0.8(+)$: I_A, I_L, E_A ?

$I_L = \frac{P_{IN}}{\sqrt{3}\, V_{LL} \cos\varphi}$; $I_A = I_L/\sqrt{3}$

$E_A \angle\delta = V_\phi \angle 0^\circ - jX_S I_a \angle\phi$; $\phi = \cos^{-1} pf$

b) @ $P_{OUT} = 45\,HP$ & $pf = 0.8(+)$: EN (c) LOS CALCULOS Y EN (b) Diagrama Fasorial.

c)

$P_{IN} = \frac{3 V_\phi E_A}{X_S} \operatorname{Sen}\delta'$; $E_A = E_A'$ ya que $I_F = Const.$

$\delta' = \operatorname{Sen}^{-1}\left(\frac{X_S P_{IN}}{3 V_\phi E_A'}\right)$; $I_A = \frac{V_\phi \angle 0^\circ - E_A' \angle\delta'}{jX_S}$

$E_A' \angle \delta' \Rightarrow V_\phi \Rightarrow E_A' \cos\delta' > V_\phi$

SUMINISTRA Q, opera sobre-excitado.

d) $E_a'' \operatorname{Sen}\delta'' = (\%)\, E_a' \operatorname{Sen}\delta'$

$$\delta'' = \operatorname{Sen}^{-1}\left[\frac{1}{(\%)} \operatorname{Sen}\delta'\right]$$

$$I_A'' \angle \Phi'' = \frac{V_\phi \angle 0^\circ - E_a'' \angle \delta''}{jX_s} \quad ; \quad \phi'' < 0$$

$$E_A'' \angle \delta'' = V_\phi \angle 0^\circ - jX_s I_A'' \angle 0''$$

$E_a'' \operatorname{Sen}\delta'' < V_\phi$ BAJO EXCITADO

ABSORBE Q