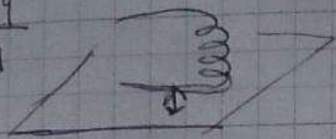
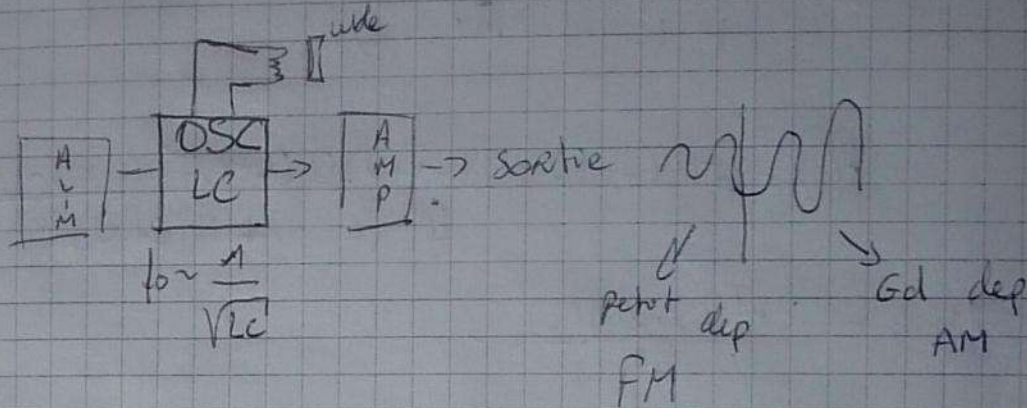


Conditionnement des ccf (TD4)

$$\frac{\Delta l_{eq}}{l_{eq}}$$

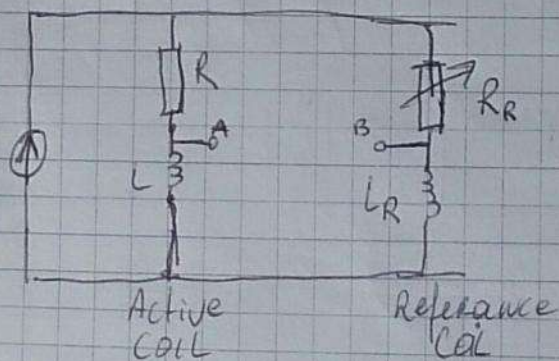


10) Le KD-2440: "Basic": 0 x "Lc"



Très N-L
non linéaire

20) Le pont inductif KD-2300 d(TD4, Q2 et Q3)



on a simplifier en
éliminant les capteurs

$$L = L_0 + \Delta L = L_0 \left(1 + \frac{\Delta L}{L_0} \right)$$

$$V_{AB} = \left(\frac{j\omega L}{R + j\omega L} - \frac{j\omega L_R}{R_R + j\omega L_R} \right) E$$

$$= \left(\frac{j\omega L_R - j\omega R L}{(R + j\omega L)(R_R + j\omega L_R)} \right) E$$

$$= \left(\frac{j\omega (L_R R - L R_R)}{(R + j\omega L)(R_R + j\omega L_R)} \right) E$$

Equilibre du pont

On veut à $\Delta L = 0$ $V_{AB} = 0$

$$\Rightarrow L_0 R_R = L_R R$$

$\Rightarrow$ Nécessite de R_R variable

Nécessite 1 réglage préalable de "zero"

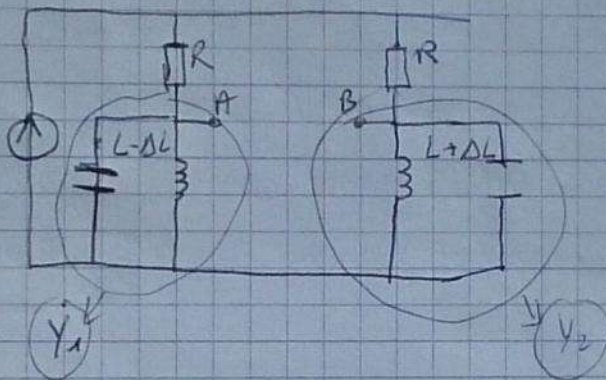
$$V_{AB} = \frac{j \Delta L R \omega}{(R + j \omega L_0 (1 + \frac{\Delta L}{L_0})) \cdot (R + j \omega L \omega)} E$$

↳ Repousse N-L

L'info contenue ds l'amplitude de $V_{AB} \Rightarrow$ Demod. AM

(Demod synchrone $\rightarrow$ Multiplieur $\rightarrow$ Filtre PB)

3-) Le pont de capture différentiel RDS100 (4-TD₄, Q4)



$$L = L_0 \pm \Delta L = L_0 (1 \pm \frac{\Delta L}{L_0})$$

$$Y = j\omega C + \frac{1}{j\omega L} = j\omega C + \frac{1}{j\omega L_0 (1 \pm \frac{\Delta L}{L_0})}$$

$$Y \approx j\omega C + \frac{1}{j\omega L_0} (1 \mp \frac{\Delta L}{L_0})$$

$$\begin{cases} Y_2 = j\omega C + \frac{1}{j\omega L_0} (1 - \frac{\Delta L}{L_0}) \\ Y_1 = j\omega C + \frac{1}{j\omega L_0} (1 + \frac{\Delta L}{L_0}) \end{cases}$$

Sortie du pont :

$$V_{AB} = \left(\frac{Z_1}{R + Z_1} - \frac{Z_2}{R + Z_2} \right) E = \left(\frac{1}{1 + RY_1} - \frac{1}{1 + RY_2} \right) E = \frac{R(Y_2 - Y_1)}{1 + R(Y_1 + Y_2) + R^2 Y_1 Y_2} E$$

$$\text{or } Y_2 - Y_1 = -\frac{2\Delta L}{L_0}, \quad Y_1 + Y_2 = 2 \left(j\omega C + \frac{1}{j\omega L_0} \right)$$

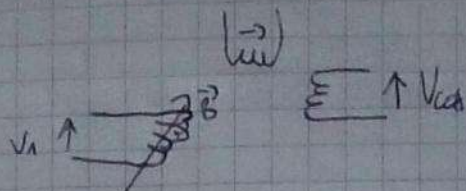
$$Y_1 Y_2 = \left(j\omega C + \frac{1}{j\omega L_0} \right)^2 - \left(\frac{\Delta L}{L_0} \right)^2$$

$$\Rightarrow V_{AB} = \frac{-2R \frac{\Delta L}{L_0} \cdot E}{1 + 2 \left(j\omega C + \frac{1}{j\omega L_0} \right) + \left(j\omega C + \frac{1}{j\omega L_0} \right)^2}$$

$$\Rightarrow V_{AB} = \frac{-2R \frac{\Delta L}{L_0} \cdot E}{\left[1 + \left(j\omega C + \frac{1}{j\omega L_0} \right) \right]^2}$$

gagné en linéarité

schéma équivalent V_{sc}



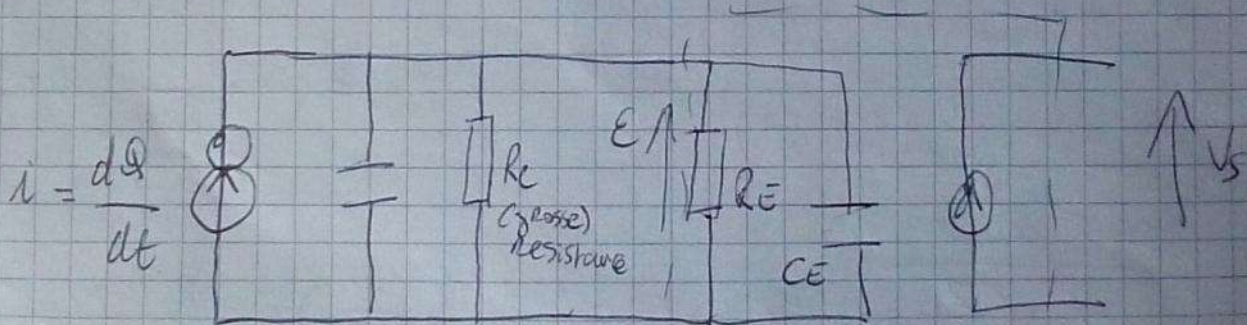
Si V_1 variable $\Rightarrow B$ variable
 $\Rightarrow B = B_0 \sin \omega t$
 $\Rightarrow \Phi$ variable des stat
 $\Rightarrow V_{sc} \neq 0$
 $V_{cor} \neq 0$

$$\begin{cases} \Phi_{stat} = BS \cos \theta \\ \Phi_{stat} = BS \cos \left(\frac{\pi}{2} - \theta \right) = BS \sin \theta \end{cases}$$

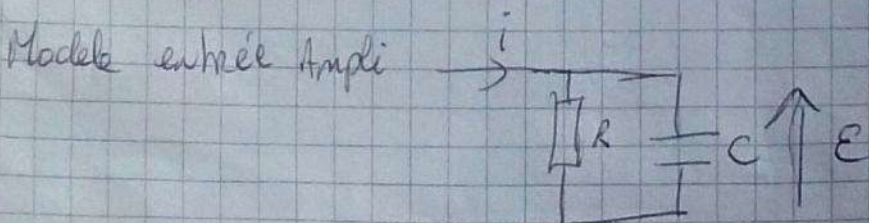
Pour V_{sc} ? $\frac{d\Phi_{stat}}{dt} = \omega B_0 \sin \omega t \cos \theta$
 $V_{sc} = \frac{d\Phi_{stat}}{dt} = \omega B_0 \sin \omega t \cos \theta$
 $V_{sc} = \omega B_0 S \cos \theta \sin \omega t$

$$V_{sc} \rightarrow k \left(\frac{1 + \cos 2\omega t}{2} \right) \sin 2\theta \quad \left[\begin{matrix} \omega_c < 2\omega \\ PB \end{matrix} \right] \rightarrow \sin 2\theta$$

schéma 2°



$$i = k \frac{dF}{dt} \quad I = j k \omega F \quad \text{Ampli de tension}$$



$$V_s = A \cdot E = G(R \parallel C)$$

$$= A \frac{R}{1 + \frac{1}{j\omega C}} \cdot j\omega = \frac{A R j\omega}{1 + j\omega R C}$$