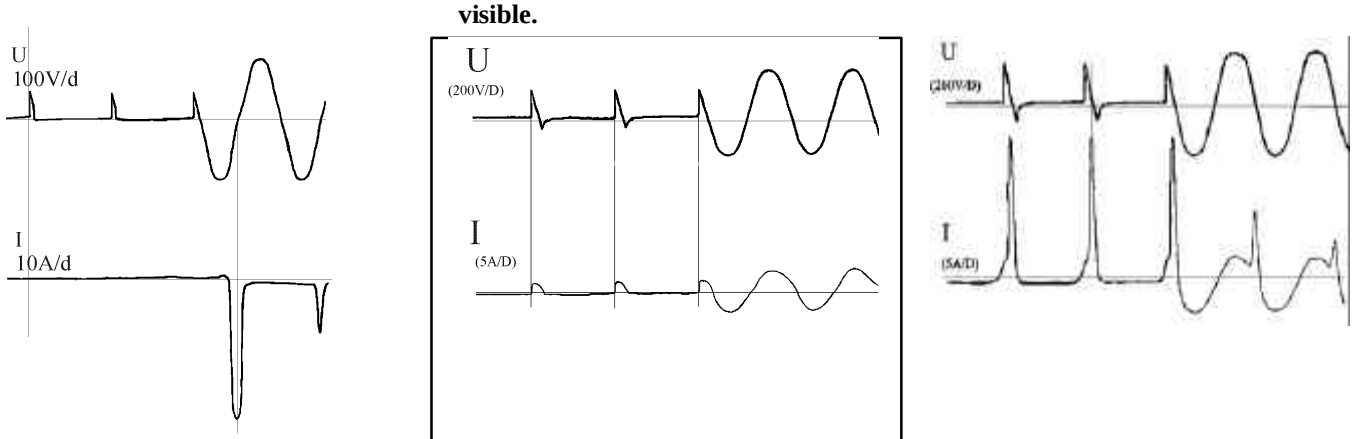
Transformer-Switching-Relais Adjusting advice.

Wrong adjusting:
Premagnetizing is to week. The Potentiometer was turn to much to left. Big Neg. Inrush current peak after full switch on is visible.

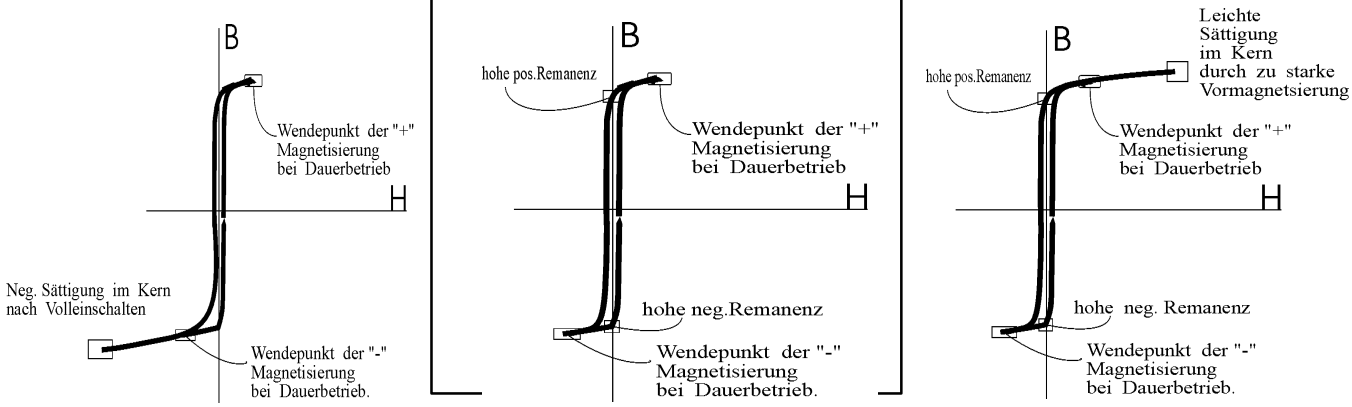
Correct adjusting:
No Inrrush current peak is visible.
Only the resistive load current is visible.

Wrong adjusting:
Premagnetising is to strong. The Potentiometer was turned to much to right.
Big Positive Premagn. current Pulses are visible.



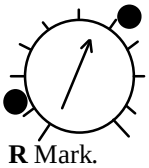
negativ poled Saturation

positiv poled Saturation



The showed Premagnetising -"Voltage pulsesof eg.. 2msec. are applicated to an Toroidal core transformer.
The magnetisation in the iron core are transported from the voltage time pulse area of the applicated pulses. The voltage pulses in this case positiv, transports the magnetisation in direction to the upper pos. turning point of the Hysteresic loop. In the Puls Pause the magnetisation is running to the vertical axe with field strength zerol. Each Puls transports the magnetisation a little bit higher. When the magnetisation is already in the pos remanence point, a voltage time area pulse transports it to the pos. turning point of the hysteresic loop. In the Pause the magnetisation is running back to the pos. Remanence point. To much pulses d´ont care for the estate of the remanence or turning point, (Wendepunkt). Are enough Premagnetising pulses given to the transformer, the magnetisation is positioned in the pos. turning point after the last pulse and joined with the following zero crossing the transformer is switched full on. No inrush current peak occurs. The with and account of the premagnetising pulses are depending of the type of transformer and must to be adjusted.

<u>Adjusting of the Premagnetising Strenght at the -Potentiometer depending of type of transformer:</u>



P = rectangular core = Standard adjusting by deliverer

Toroidal core =R > P = transformers with air gap

For Toroidal,(**R**ing kern trafo) : on the **R** Mark.

For rectangular core, (**P**aket-Kern-Trafo), on the **P** Mark.

The precise adjusting can differ between the 11 and 13 o clock position of the potentiometer, at rectangular transformers, depending of her small air gaps between the iron foil layers. The adjusting of the potentiometer is not critical and do not deadjust itself over time..
The monitoring of the adjusting of the switch on procedure must be taken while switching the power line on to the TSR.

An AC-Ampere meter inline to TSR-, is showing the current pulses. The best way to monitor is with a current clamp together with a Storage oscilloscope. See graphics on top. In most cases the preadjusting to R or P, depending of core type is sufficient.