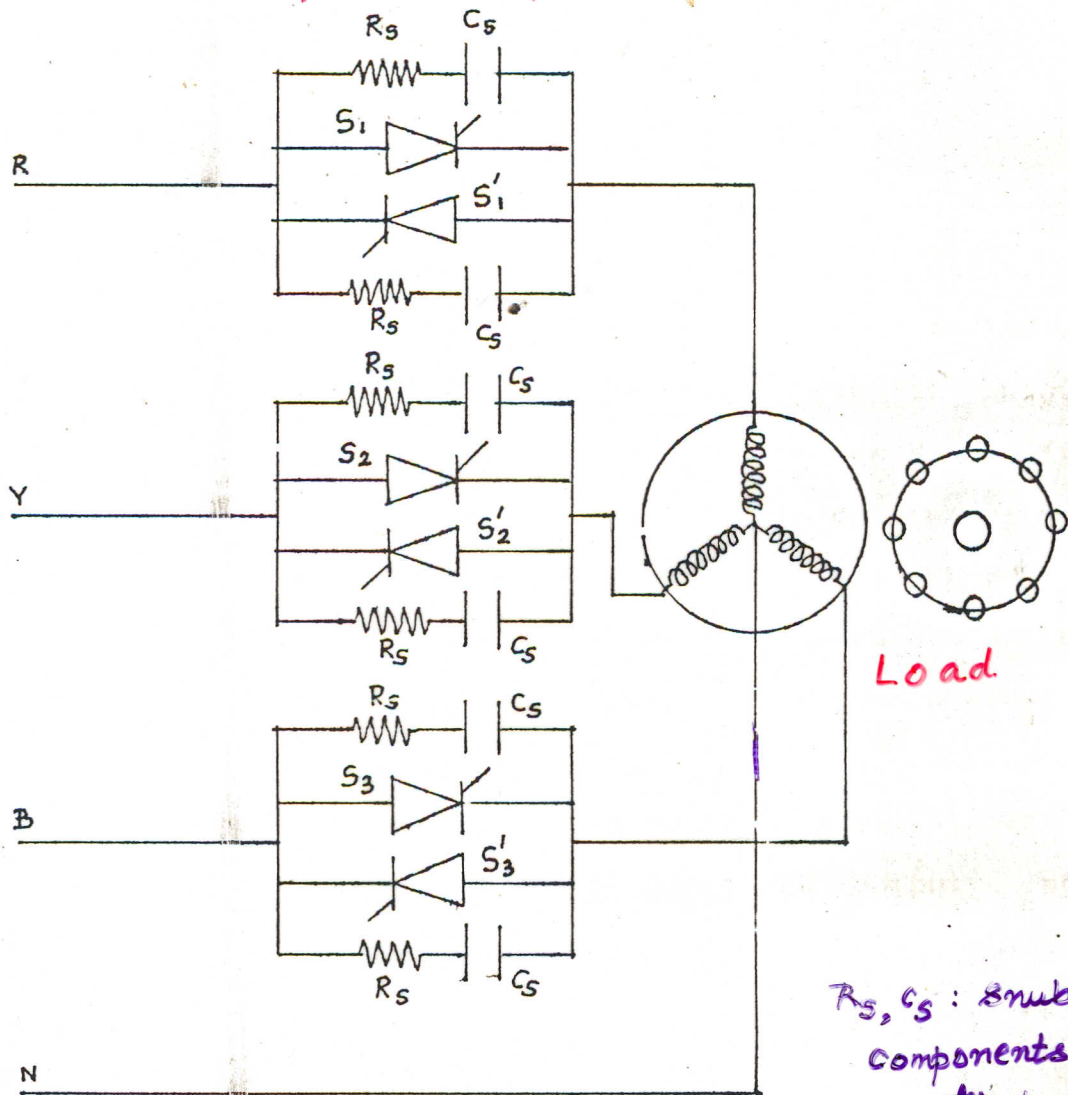
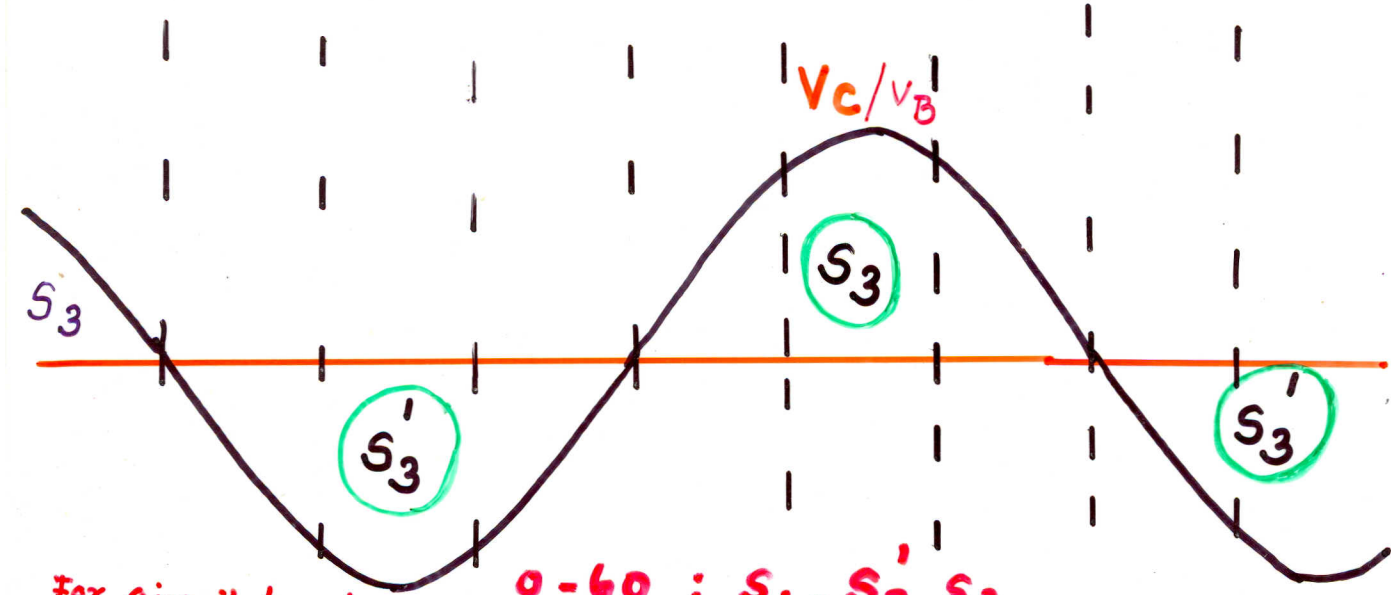
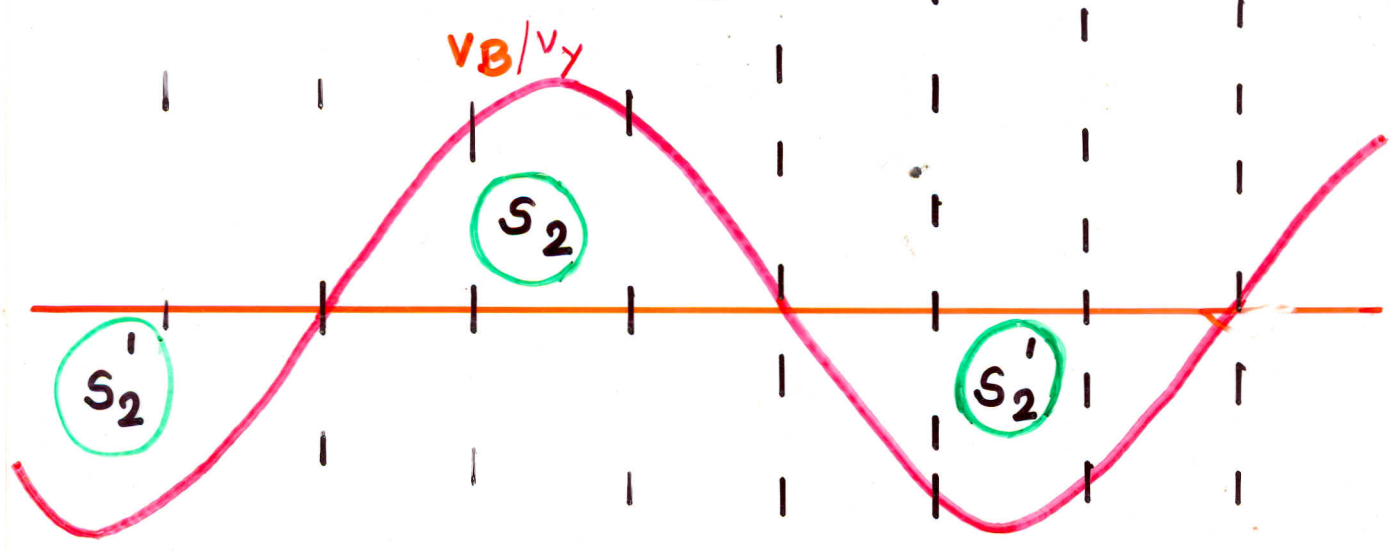
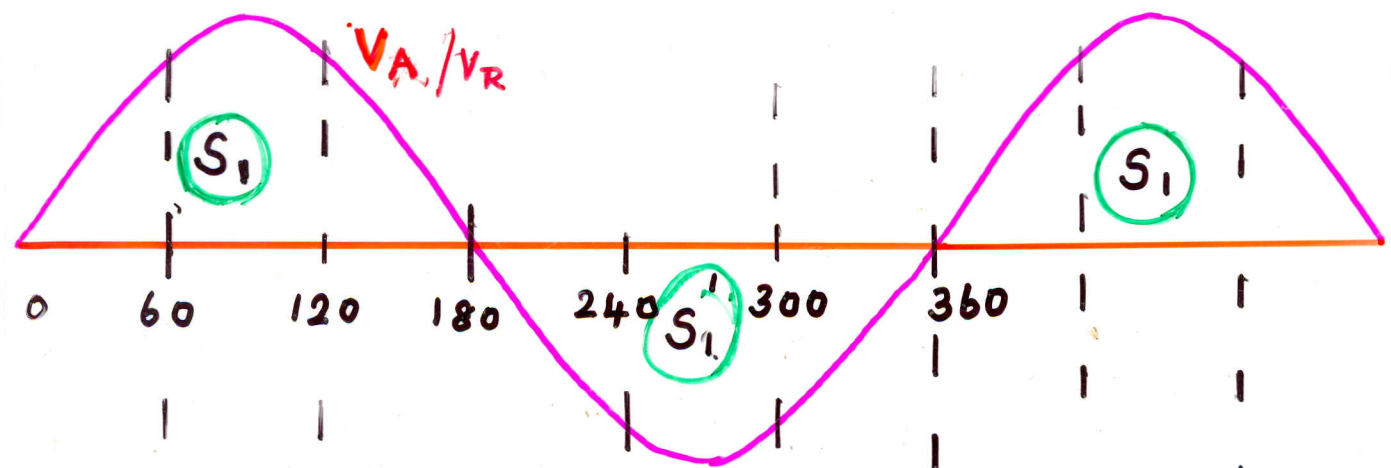


Snubber
ckt.



R_s, C_s : snubber
components for
 $\frac{dv}{dt}$ protection

Fig.2.2 POWER CIRCUIT OF THE A.C. CONTROLLER

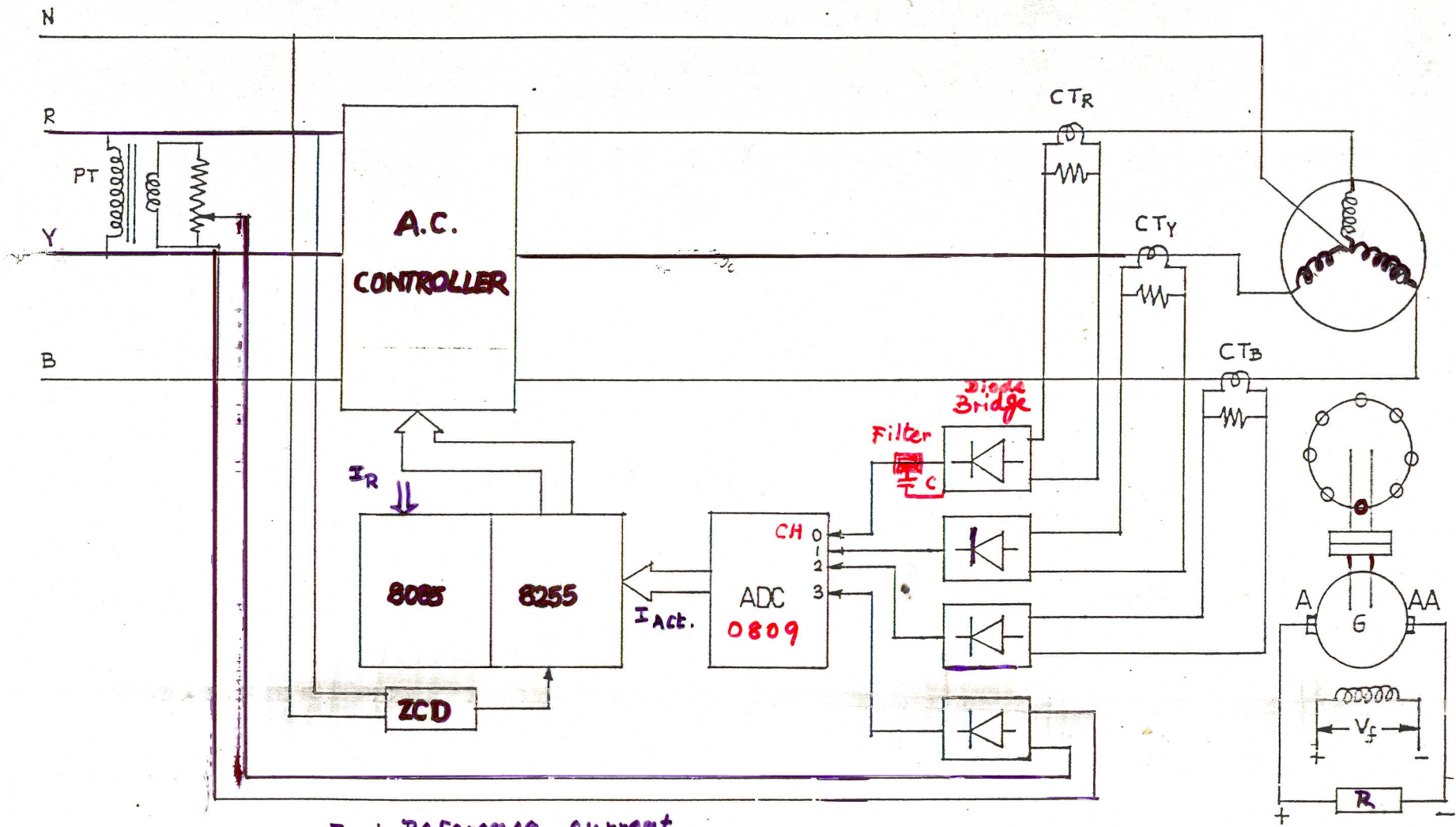


For circuit breaking operation, keep $\alpha = 0^\circ$

- 0 - 60 : S_1, S_2', S_3
- 60 - 120 : S_1, S_2', S_3'
- 120 - 180 : S_1, S_2, S_3'
- 180 - 240 : S_1', S_2, S_3'
- 240 - 300 : S_1', S_2, S_3
- 300 - 360 : S_1', S_2', S_3

Firing sequence
3/2 mode

9



I_R : Reference current
 I_{Act} : Actual current

Fig.2.1 BLOCK DIAGRAM OF THE PROPOSED SCHEME

3-phase solid state circuit breaker
 employing MP

SSCB-3

13

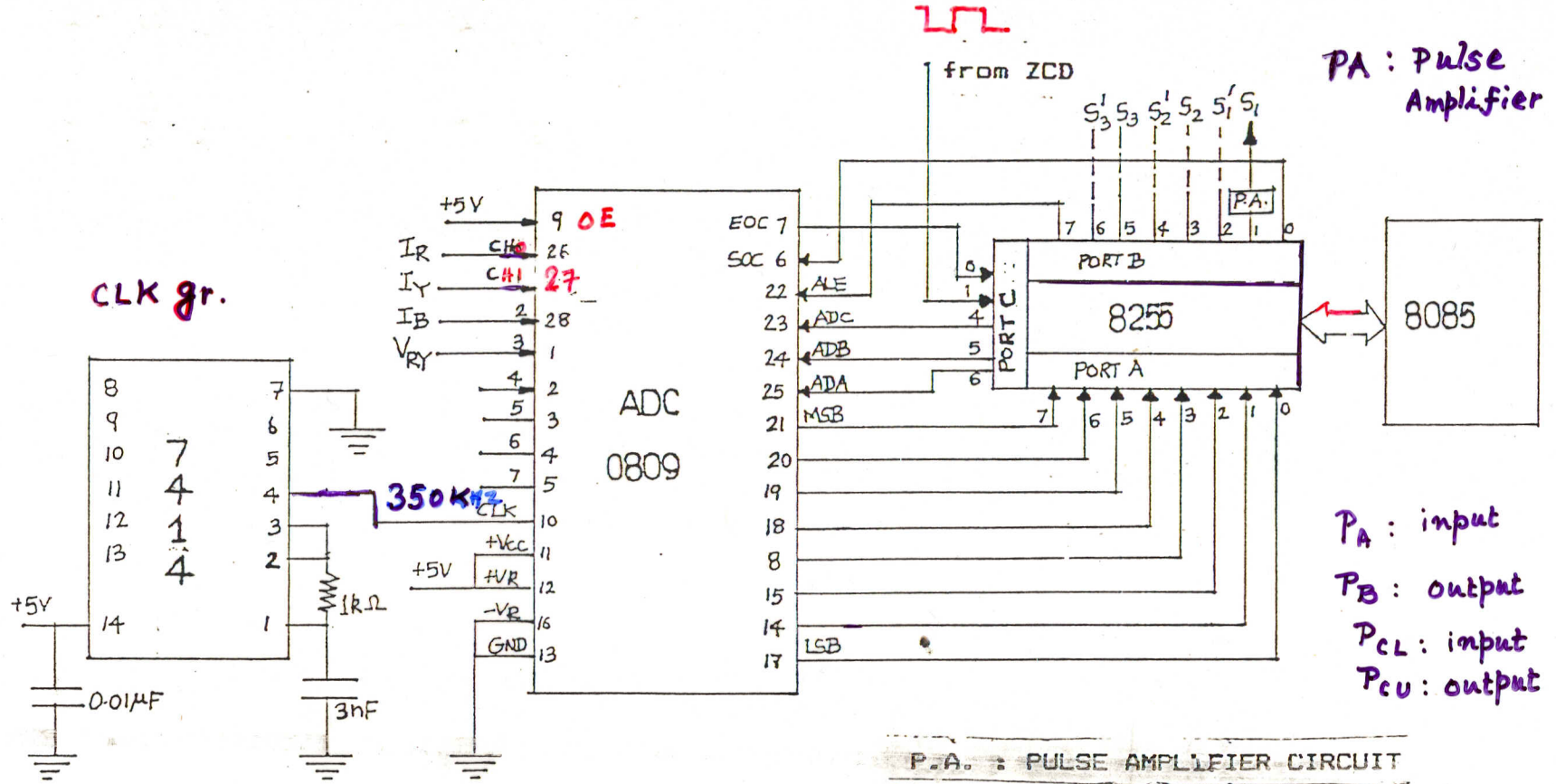


Fig.2.6 ANALOG TO DIGITAL CONVERTER INTERFACING CIRCUIT

ADA, } Channel
 ADB } selection
 ADC } pins

P.A. : PULSE AMPLIFIER CIRCUIT

PA : Pulse Amplifier

PA : input
 PB : output
 PC L : input
 PC U : output

SSCB-4

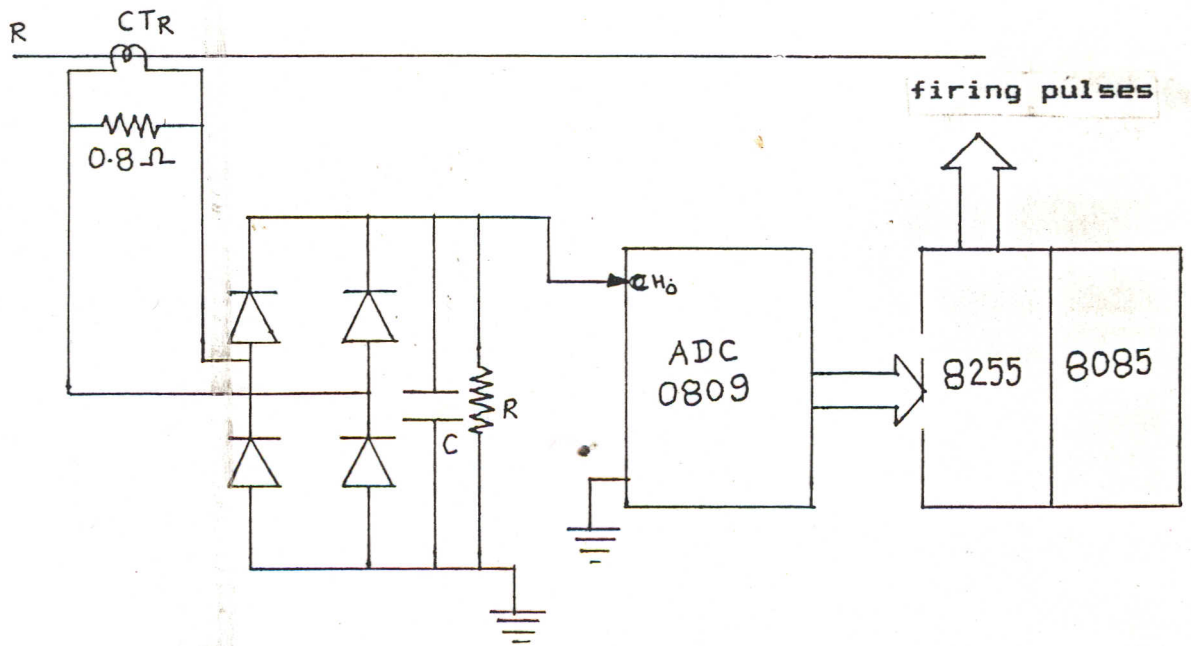


Fig.4.1 C.T. CONNECTION FOR CURRENT SENSING

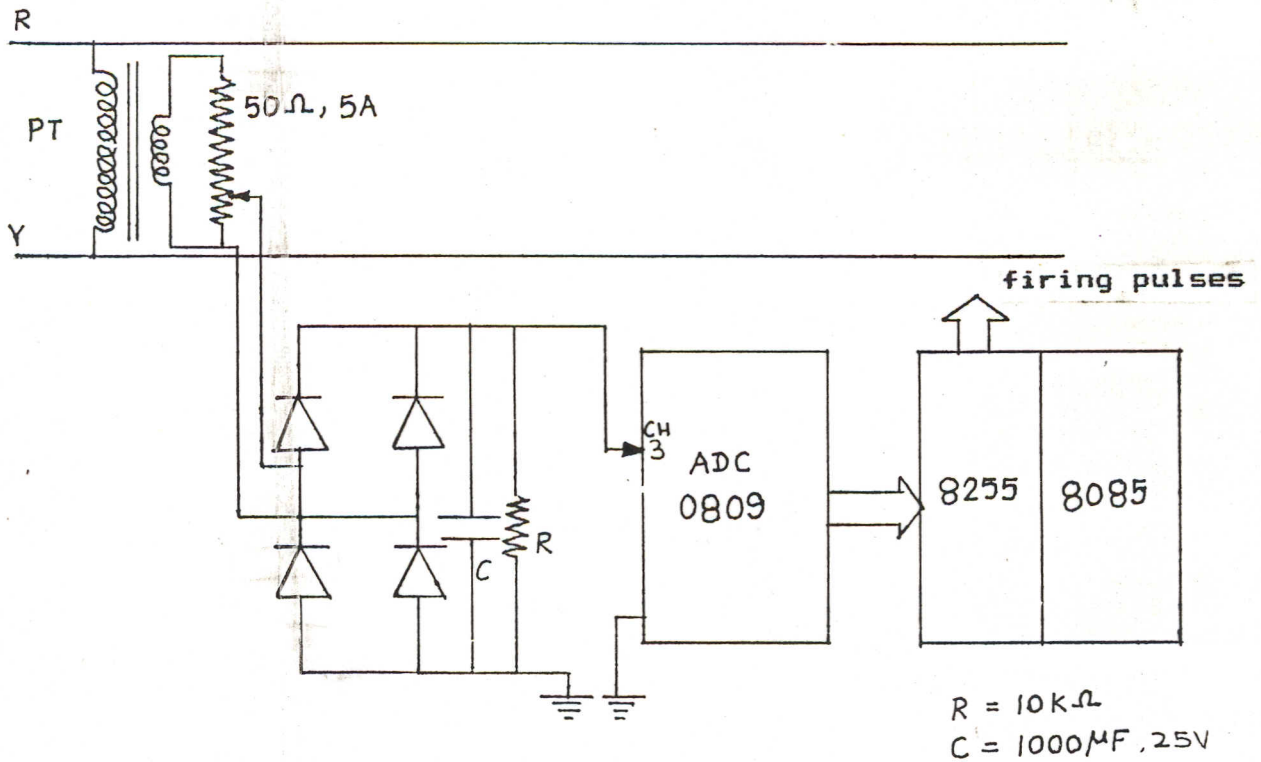
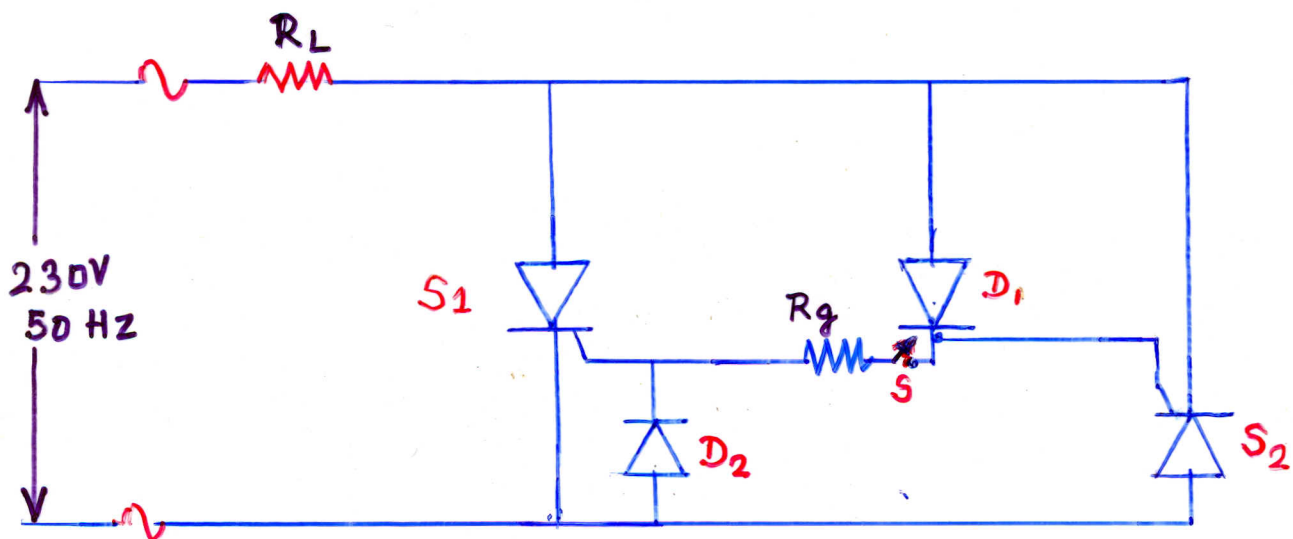


Fig.4.2 P.T. CONNECTION FOR VOLTAGE SENSING

Single-phase a.c. Circuit breaker



During +ve half cycle :

S_1 gets forward biased and gets its gate current thro' D_1 when S is closed.

The load current flows thro' R_L & S_1 .

During -ve half cycle :

S_1 is self commutated and S_2 gets forward biased & gets its gate current thro' D_2

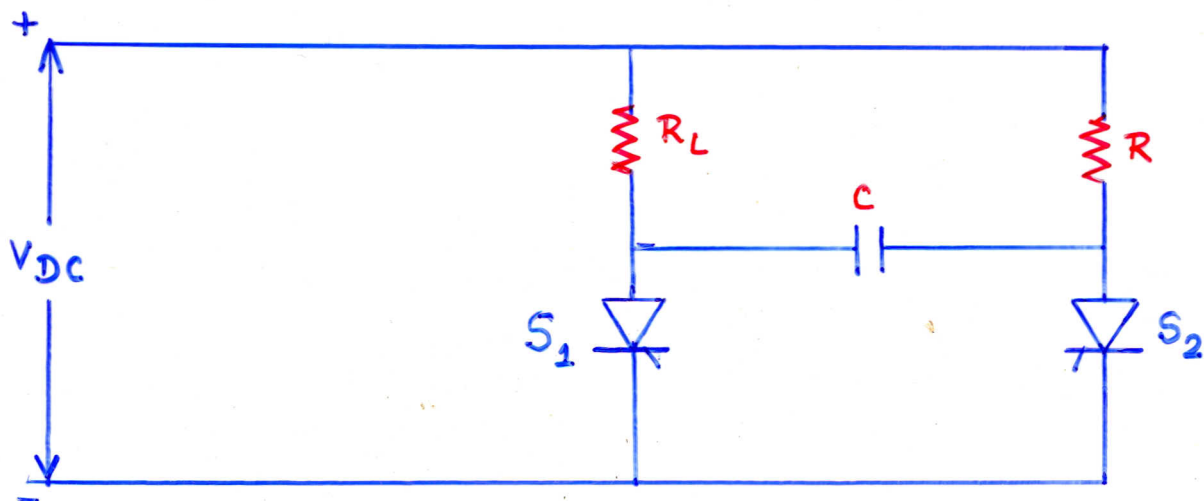
\therefore The load current flows thro' R_L & S_2 .

When we want to break the circuit, the switch ' S ' is opened.

Note : For automatic breaking of the circuit, the load current has to be sensed thro' a CT and compared with a reference current which fixes the limit for breaking.

Whenever the I_L exceeds I_R , control signal should be generated to open the switch S which may be a solid state switch.

D. C. CIRCUIT BREAKER



Working of the circuit:

S_1 is triggered and Load current flows thro' R_L .

Also, the capacitor C gets charged with right hand plate +ve.

Whenever we want to break the circuit, S_2 is triggered which will connect the charged capacitor across S_1 . This applies a reverse bias across S_1 and S_1 is turned off.

Hence there will not be any current thro' the load.

Note: When S_2 is fired, the capacitor charges in the reverse direction; i.e., with left hand plate +ve. When C is fully charged it acts as open circuit & the only path for S_2 to conduct is thro' R .

Hence R should be selected in such a way that the current thro' R is less than the holding current of S_2 .