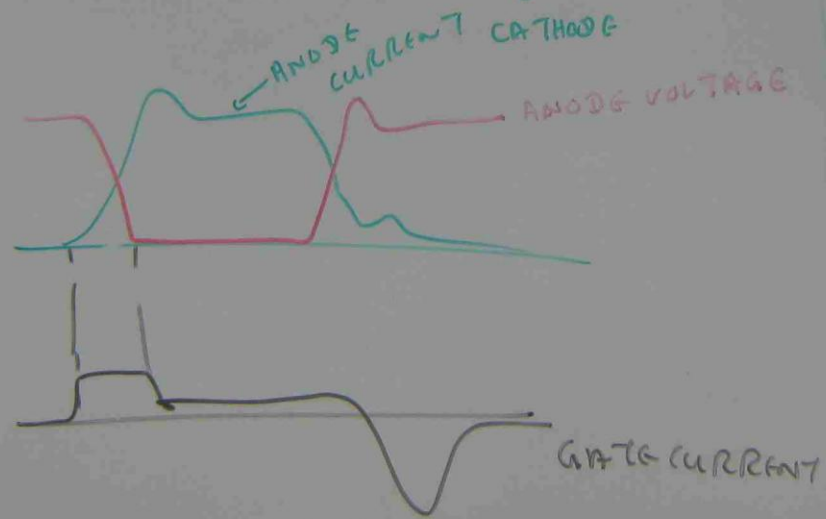
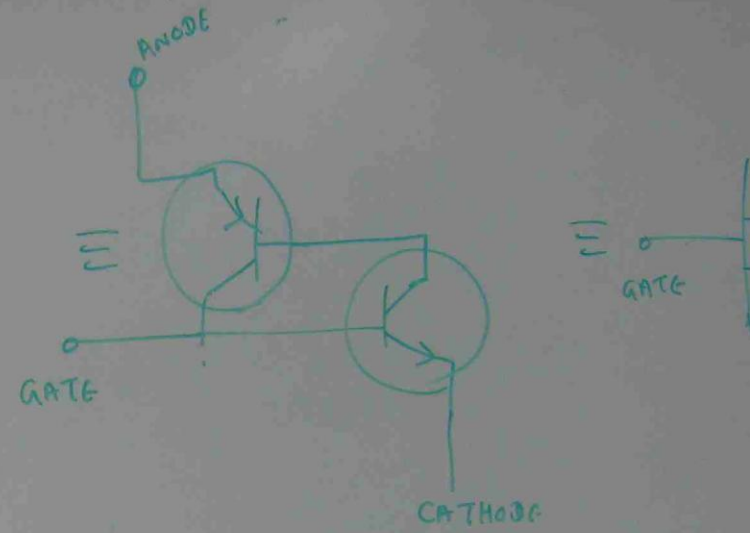
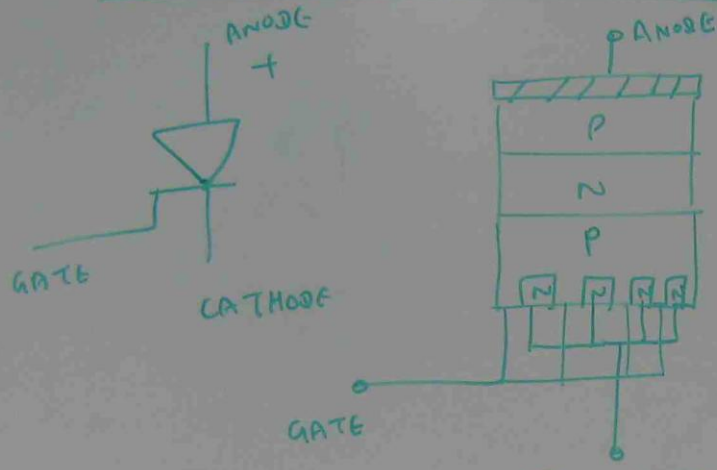
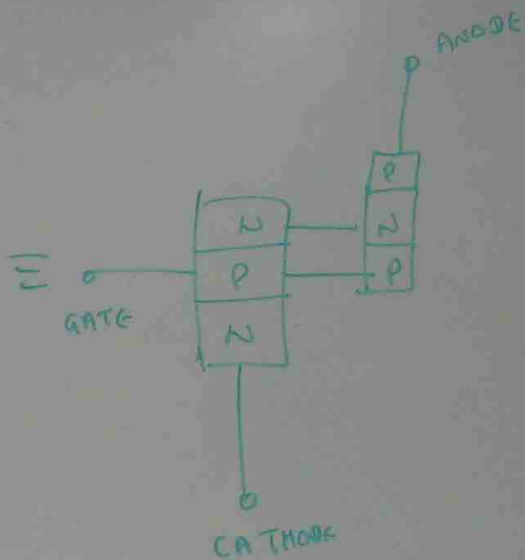
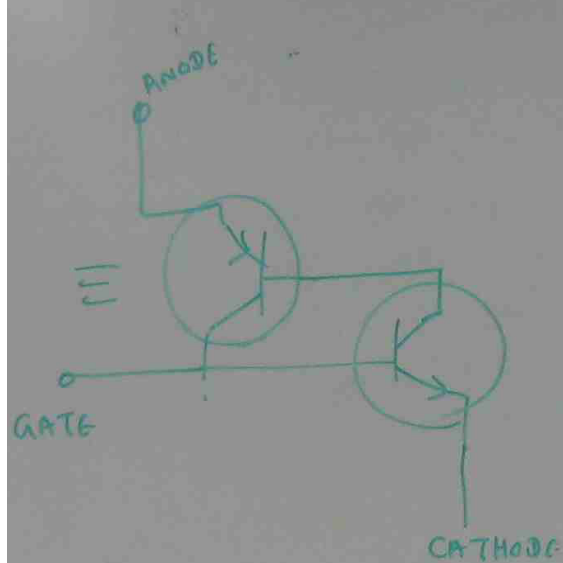


# CONSTRUCTION of power SCR



- BEFORE CONDUCTION, ANODE WHEN GATE CURRENT IS A ANODE VOLTAGE LEVEL AND CONDUCTION.
- ALTHOUGH THE GATE CONTINUES CONDUCTION THE CONDUCTIONS WILL NEGATIVE SIGNAL



- AGE** — BEFORE CONDUCTION, ANODE VOLTAGE IS HIGH.

WHEN GATE CURRENT IS APPLIED, IT LOWERS THE ANODE VOLTAGE LEVEL AND THE SCR STARTS CONDUCTION.
- ALTHOUGH THE GATE SIGNAL IS REMOVED, THE SCR CONTINUES CONDUCTION
- THE CONDUCTION WILL ONLY BE STOPPED WHEN THE NEGATIVE SIGNAL (OR) REVERSED BIAS IS APPLIED TO SCR

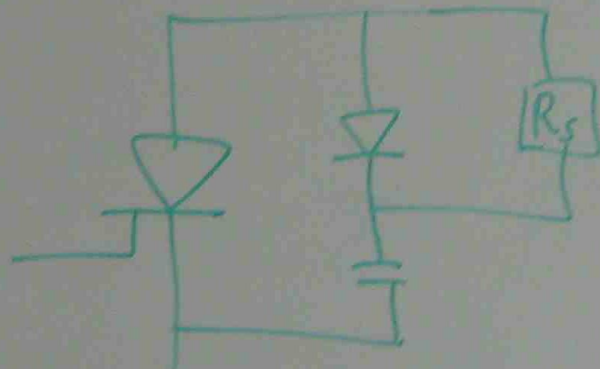
**RENT**

RECOMMENDED GATE DRIVE FOR IR 160 PFT

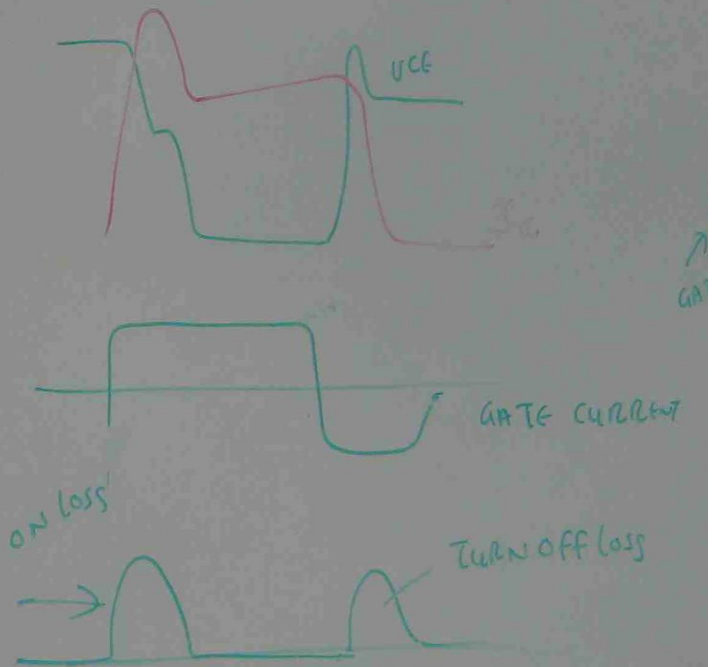
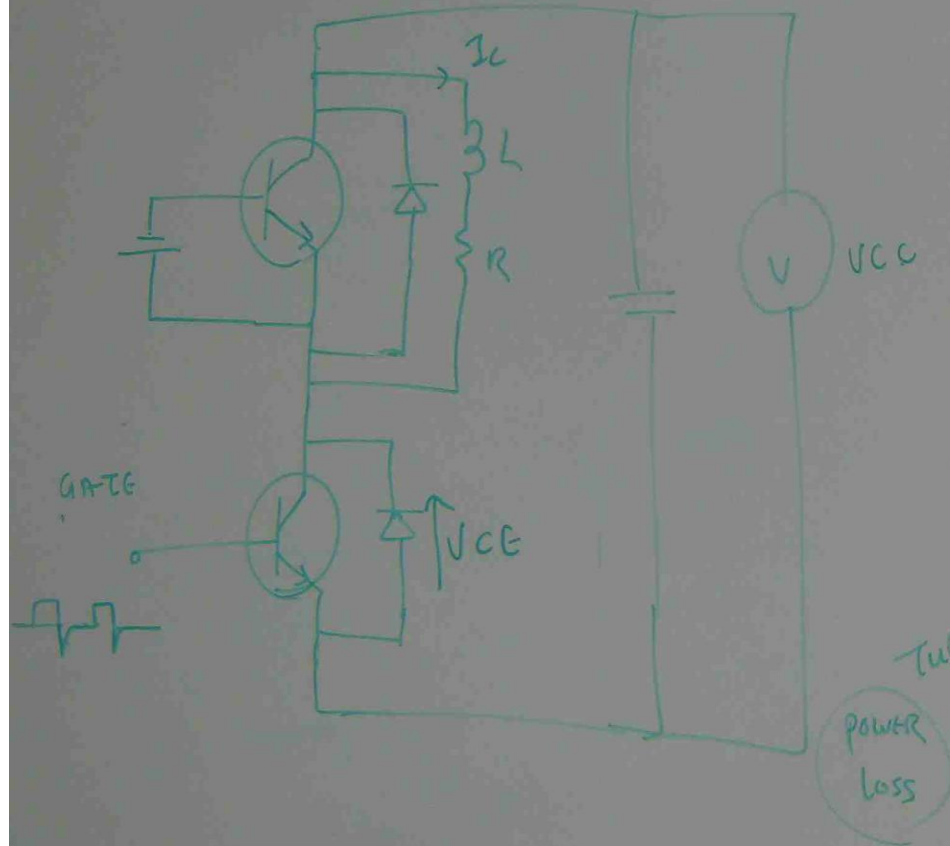
$$I = 120 \text{ Amp.}$$

$$V = 600 \text{ V}$$

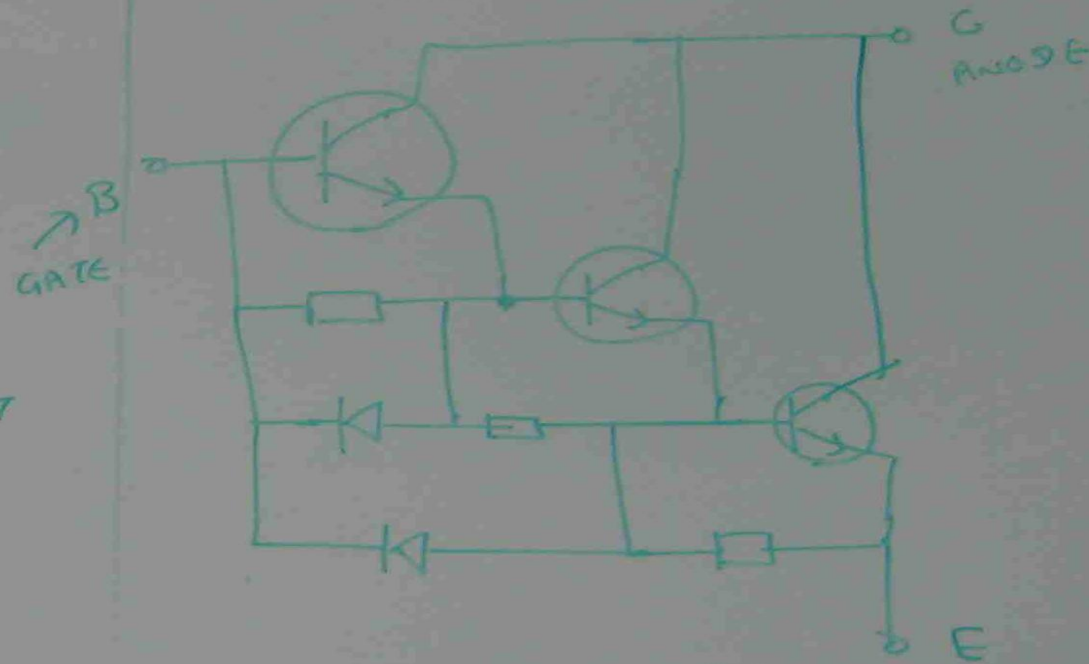
$$\text{GATE CURRENT} = 2 \text{ Amp.}$$



# APPLICATION OF FREE WHEELING DIODE



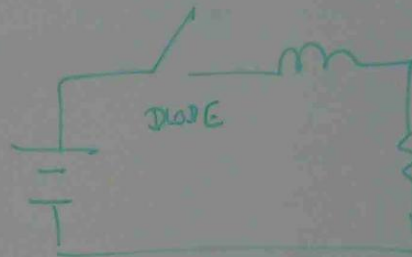
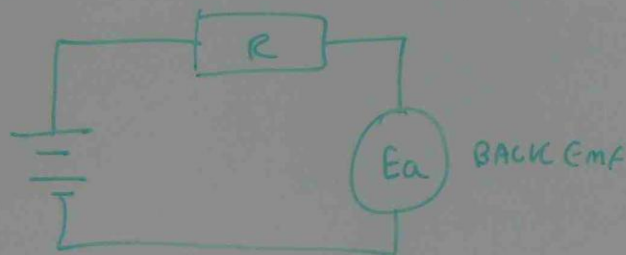
# EQUIVALENT TRANSISTOR CONNECTION FOR POWER SCR



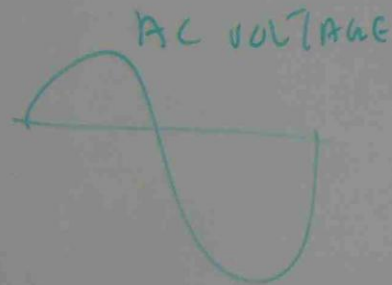
3 STAGE  
DARLINGTON ARRANGEMENT  
OF POWER TRANSISTORS.

## POWER TRANSFER TO MOTOR DURING SCR CONDUCTION

CONDUCTION



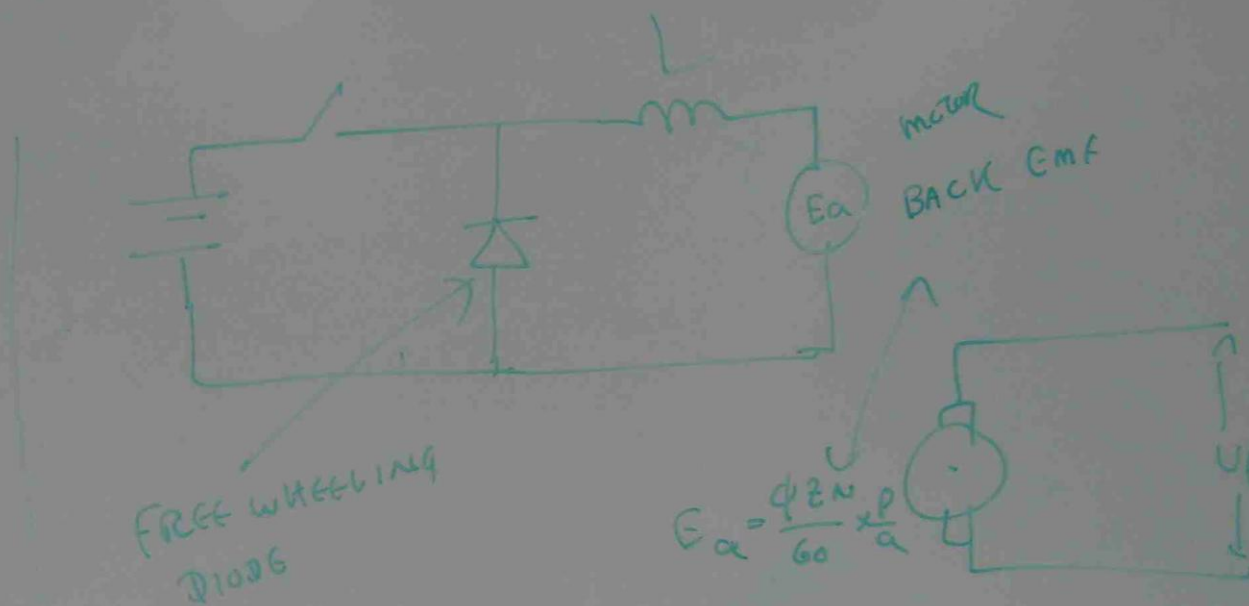
INSUFFICIENT POWER TRANSFER



POSITIVE HALF CYCLE  $\rightarrow$  POWER FLOWS IN TO LOAD  
NEGATIVE HALF CYCLE  $\rightarrow$  POWER FLOW IS INTERRUPTED

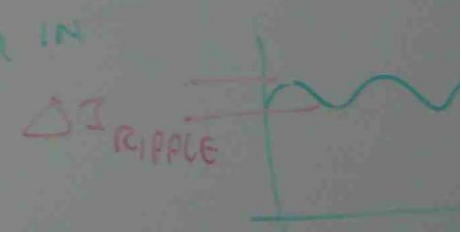
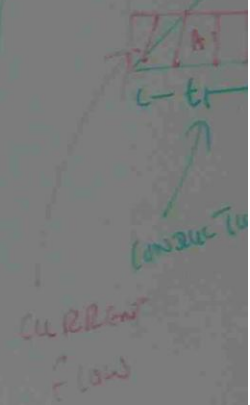
TO IMPROVE THE POWER FLOW, FREEWHEELING  
DIODE IS UTILIZED

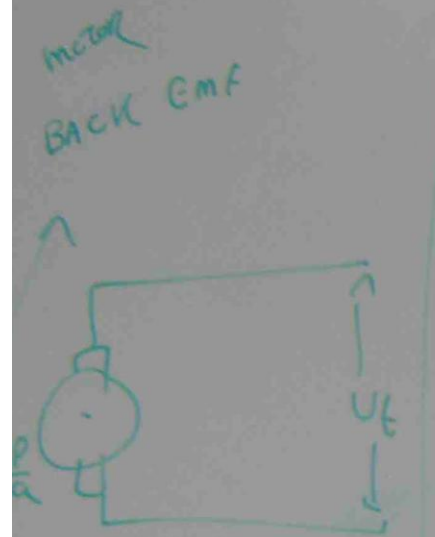




FREE WHEELING DIODE IS UTILIZED TO

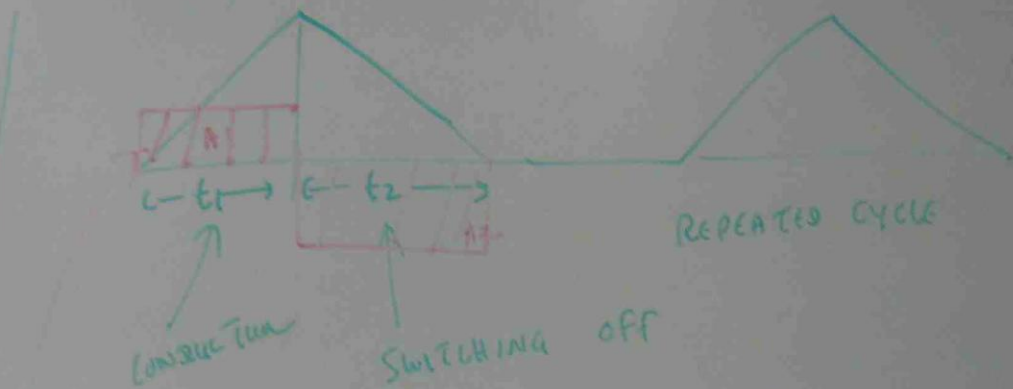
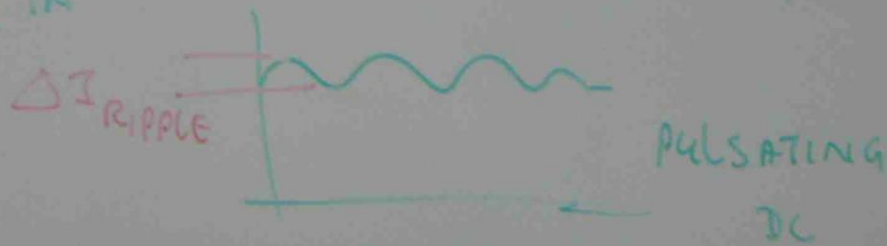
- IMPROVE THE CONDUCTION INTO MOTOR LOAD
- TO DISSIPATE THE ENERGY STORED IN COILS.





TO  
TO MOTOR LOAD

STORED IN



$$\Delta I_{\text{RIPPLE}} = \frac{V_s}{4fL}$$

$V_s$  = SUPPLY VOLTAGE  
 $f$  = SUPPLY FREQUENCY  
 $L$  = INDUCTOR