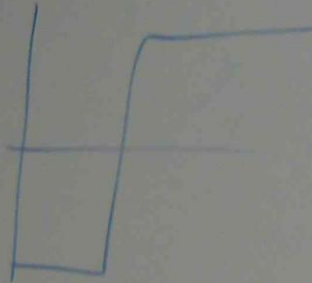


EXPECTED OUTPUT

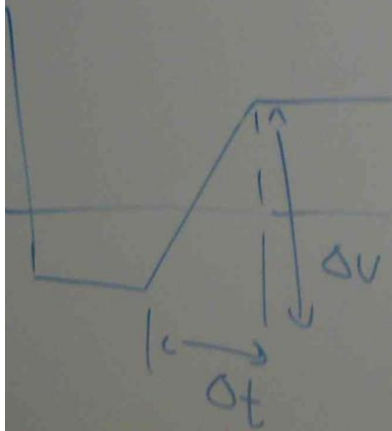


CIRCUITS.

TIME DELAYS.

IN OUTPUT WAVE.

ACTUAL OUTPUT



$$\text{SLEW RATE} = \frac{\Delta V}{\Delta t}$$

### CAUSE OF SLEW RATE

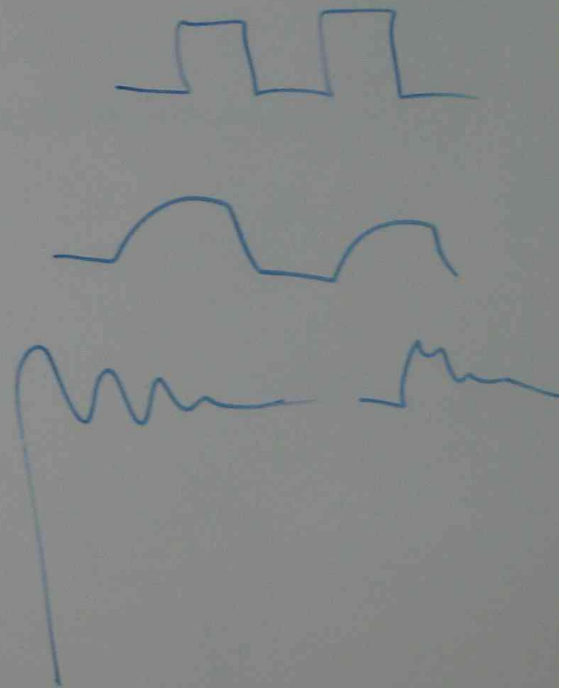
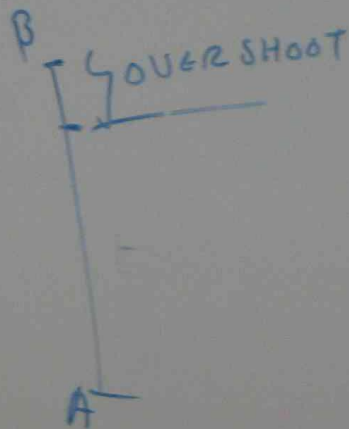
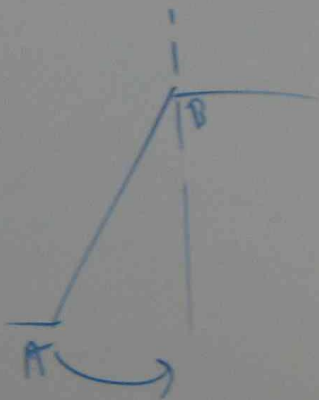
THERE ARE SOME SMALL INTERNAL CAPACITANCES IN ANY AMPLIFIER. IN SOME AMPLIFIERS, WE HAVE TO CONNECT SMALL EXTERNAL CAPACITORS TO ENSURE PROPER OPERATION. THE CHARGING TIME DELAY OF SUCH CAPACITOR CAUSES THE SLEW RATE.

### METHOD TO IMPROVE SLEW RATE

A HIGH SLEW RATE IS USUALLY DESIRABLE BECAUSE IT MEANS THAT THE OUTPUT CAN RESPOND QUICKLY TO A CHANGE IN INPUT.

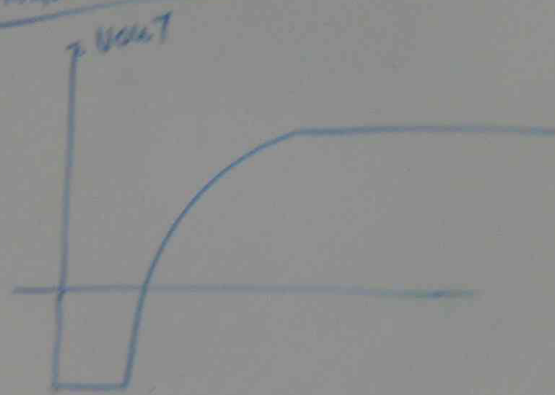
BUT HIGH SLEW RATE CAN CAUSE OVERSHOOTING.  
ELIMINATING OVERSHOOTING (OR RINGING)  
NEEDS TO BE DONE. BUT SUCH WAY TO ELIMINATE  
OVERSHOOTING CAN ALSO REDUCE THE SLEW RATE.  
TO COMPENSATE THE LOSS OF SLEW RATE,  
COMPENSATING CAPACITOR NEEDS TO BE ADDED.

HIGH SLEW RATE  $\Delta V \uparrow$   $\Delta t \downarrow$

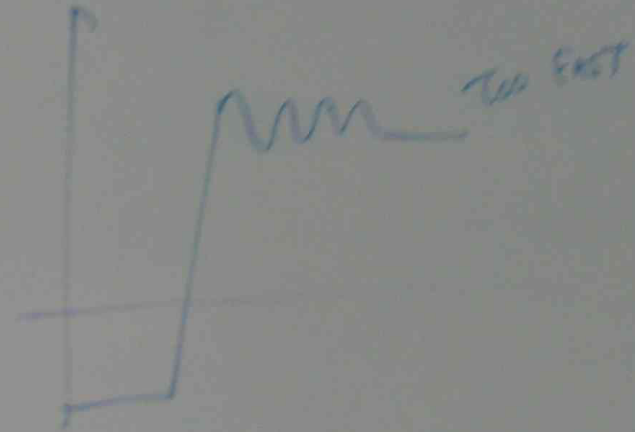


## EFFECT OF SLEW RATE ON SQUARE WAVE RESPONSE

SMALL SIGNAL



TOO DELAYED

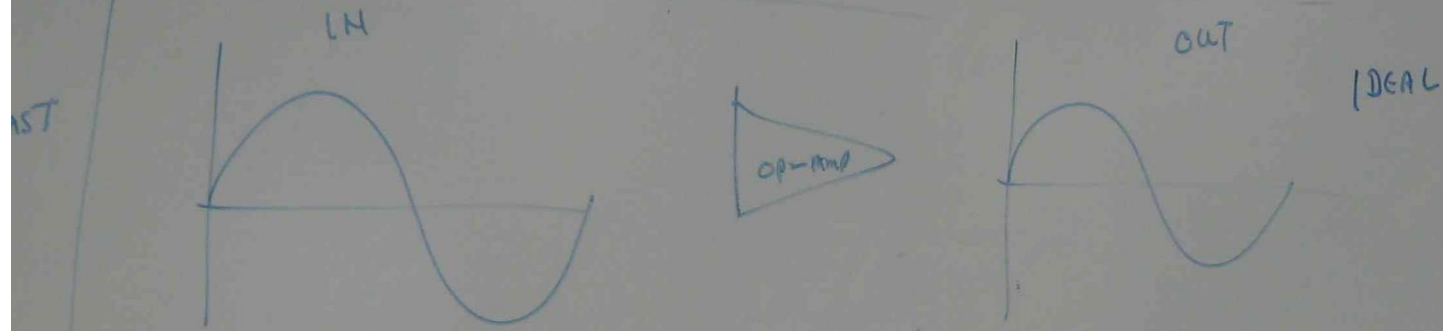


TOO FAST

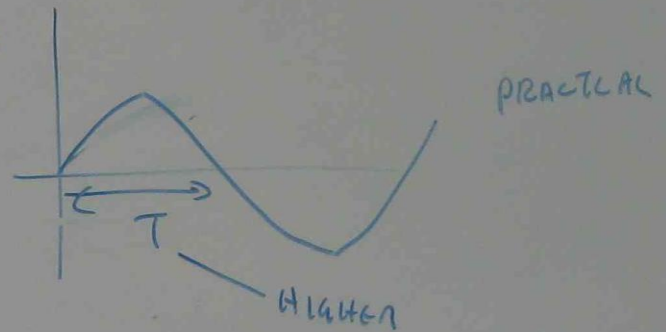
LARGE SIGNAL



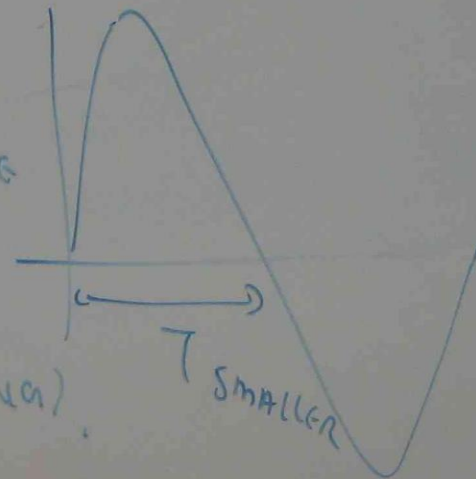
## EFFECT OF SLEW RATE ON SINE WAVE RESPONSE



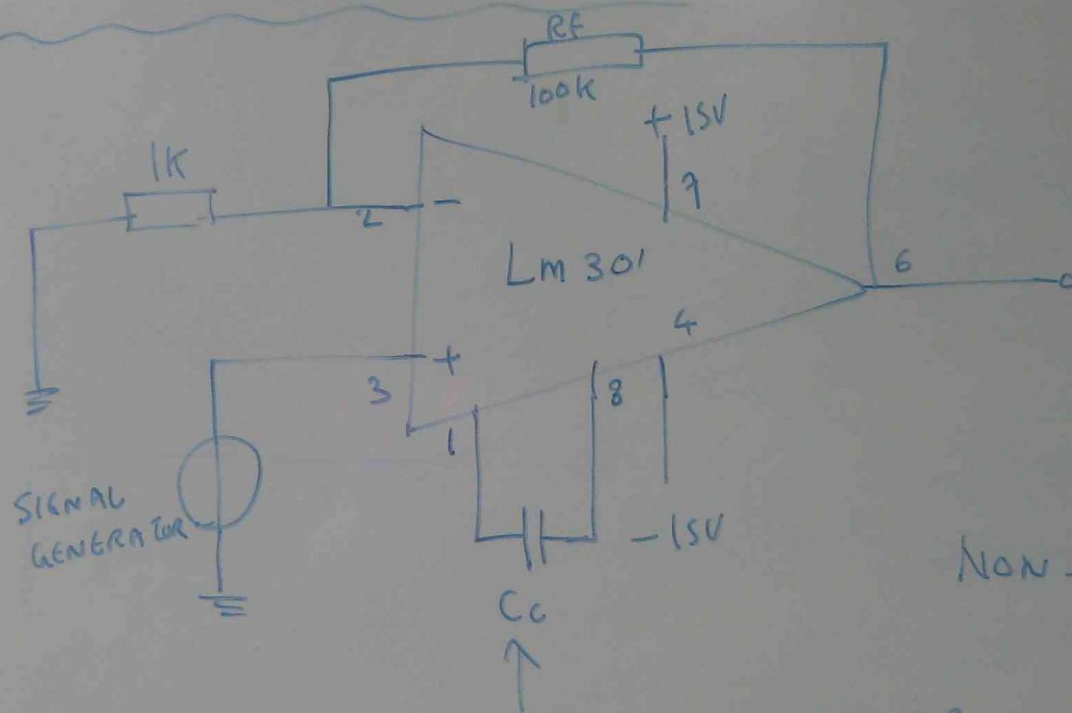
POOR SLEW RATE CAN DISTORT THE  
OUT PUT SINUSOIDAL WAVE CAUSING  
EITHER LOWER HEIGHT (OR) TOO  
SHARP WAVE FORM.



IF ELECTRICAL MOTORS ARE DRIVEN BY  
INVERTER, DISTORTED SINE WAVE VOLTAGE  
CAN GRADUALLY DEGRAD IT'S  
INSULATION (PARTIAL DISCHARGING).



THE CIRCUIT TO IMPROVE SLEW RATE



NON-INVERTING  
OP-AMP

COMPENSATION CAPACITOR  
TO COMPENSATE SLEW RATE