

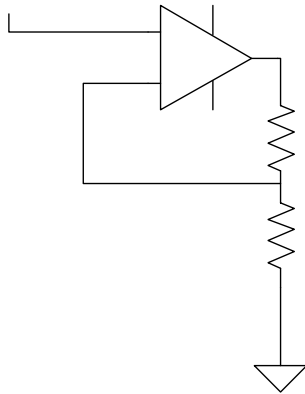
6.002 Demo# 21 (Load set up demo#21.set)
Schmitt Trigger
Lecture 21

Agarwal Fall 00

Purpose:

Demonstrates a Schmitt Trigger

Steps:



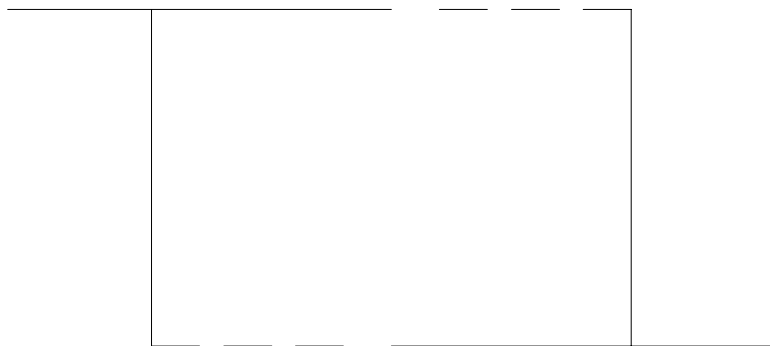
Part 1: Show slew rate of op-amp without feedback



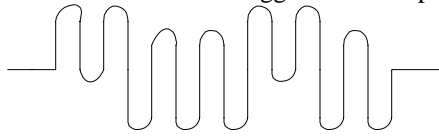
Note: Delay on scope should be set at 610

Time base = 1 usec

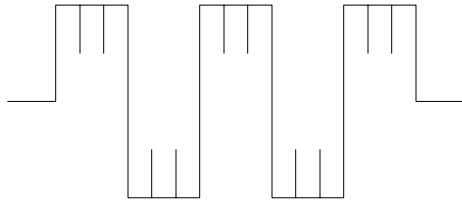
Part 2: A slow sweep of input shows hysteresis on output.



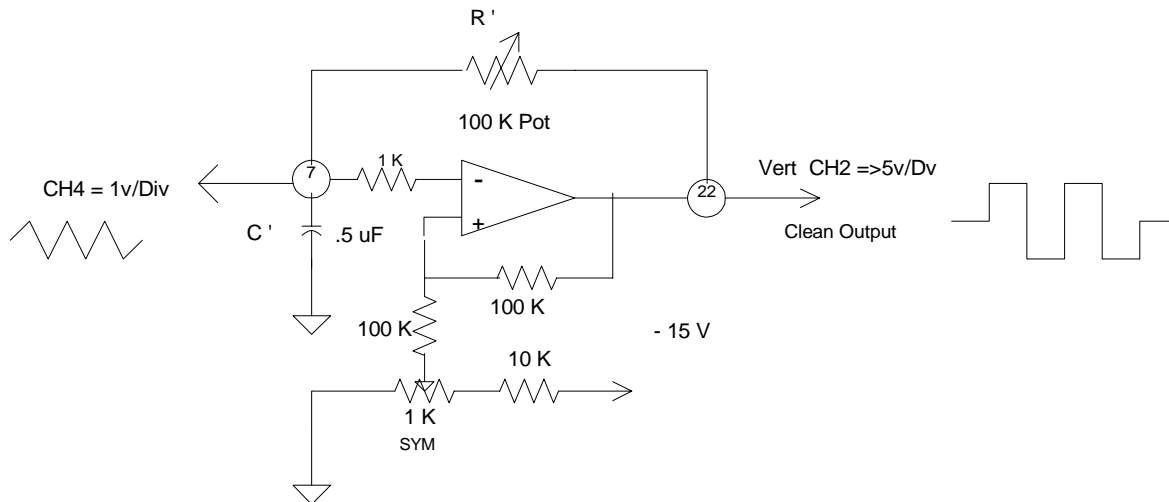
Part 3: Use Schmitt Trigger to clean up noisy sine wave.

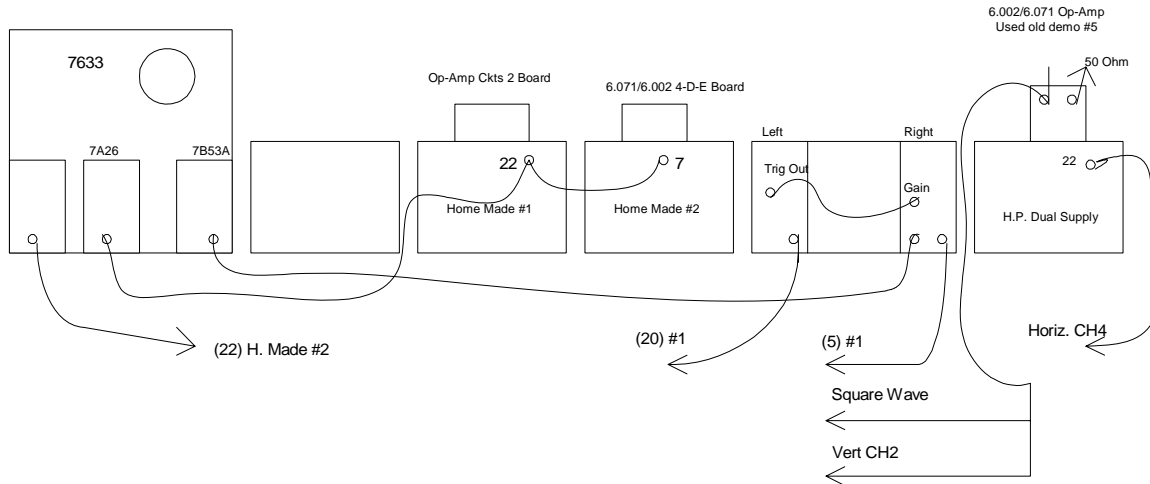


Input noise sq. wave

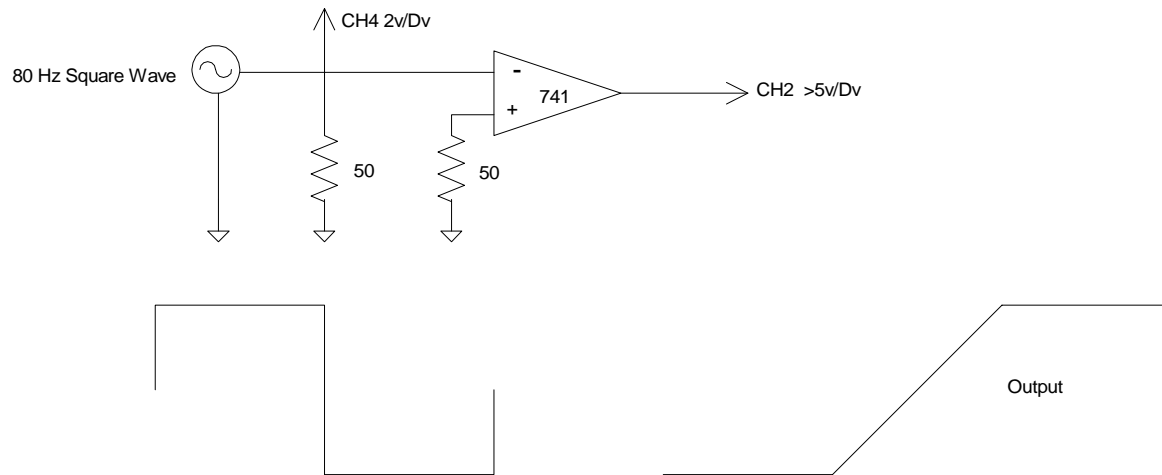


Part 4: Place feedback around Schmitt trigger and add a capacitor to create triangle and square waves.





Part 1:



Note: Delay on scope should be set at 610

Time base = 1 usec

Equipment:

- Fader System and (2) cameras
- Small monitor
- HP Dynamic Signal Analyzer
- (2) RC Circuit of 1 K, .01 uF
(kept in 6.002 demo drawer)
- (2) BNC-Clip, BNC Tees
- Amplifier and speaker

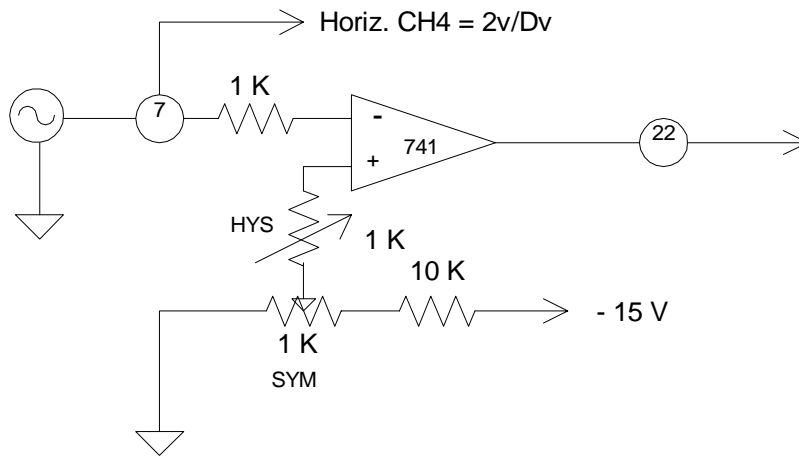
Scope Settings:

- Vert CH1 = 2v/Div, Display CHOP
- Vert CH2 = 2v/Div
- Vert Mode = Left
- Vert CH3 & CH4 = .5v/Div
- Horiz. CH2 = .2v/Div Display CH2

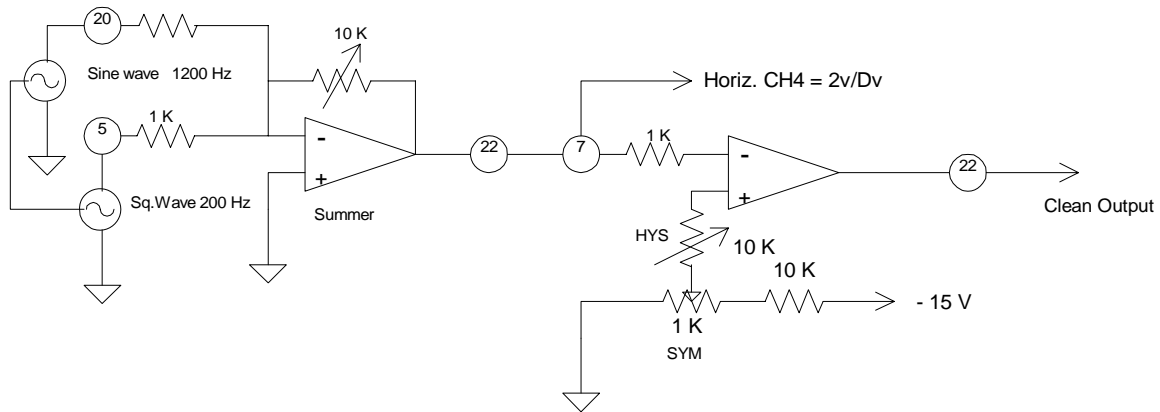
Trig Amplifier

- Mode = Norm
- Coupling = DC
- Source = Int
- Sweep = 10 ms/Div

Part 2:

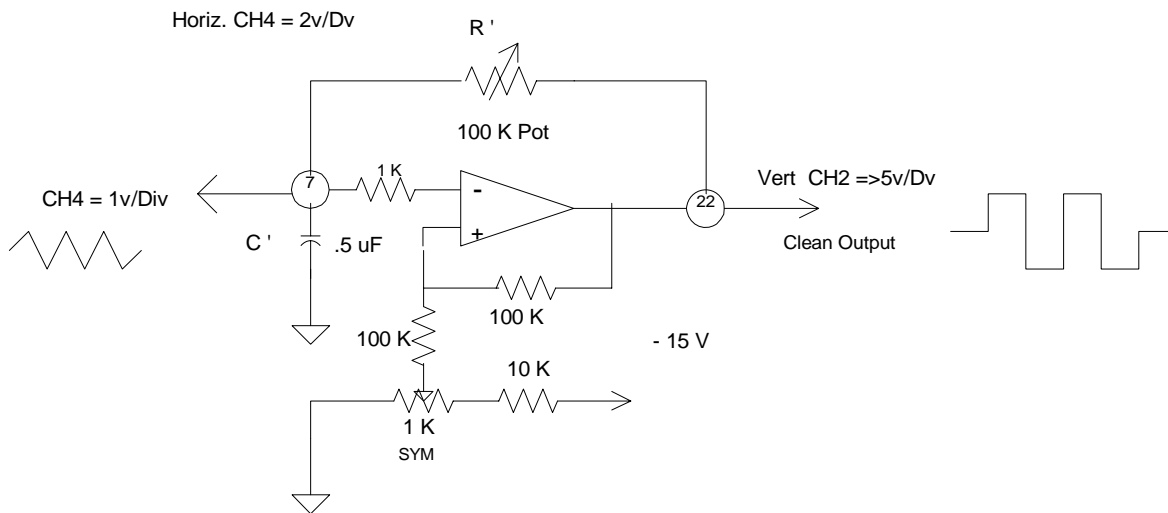


Part 3:



Note Sync Lock

Part 4:



$R' C' =$ External components