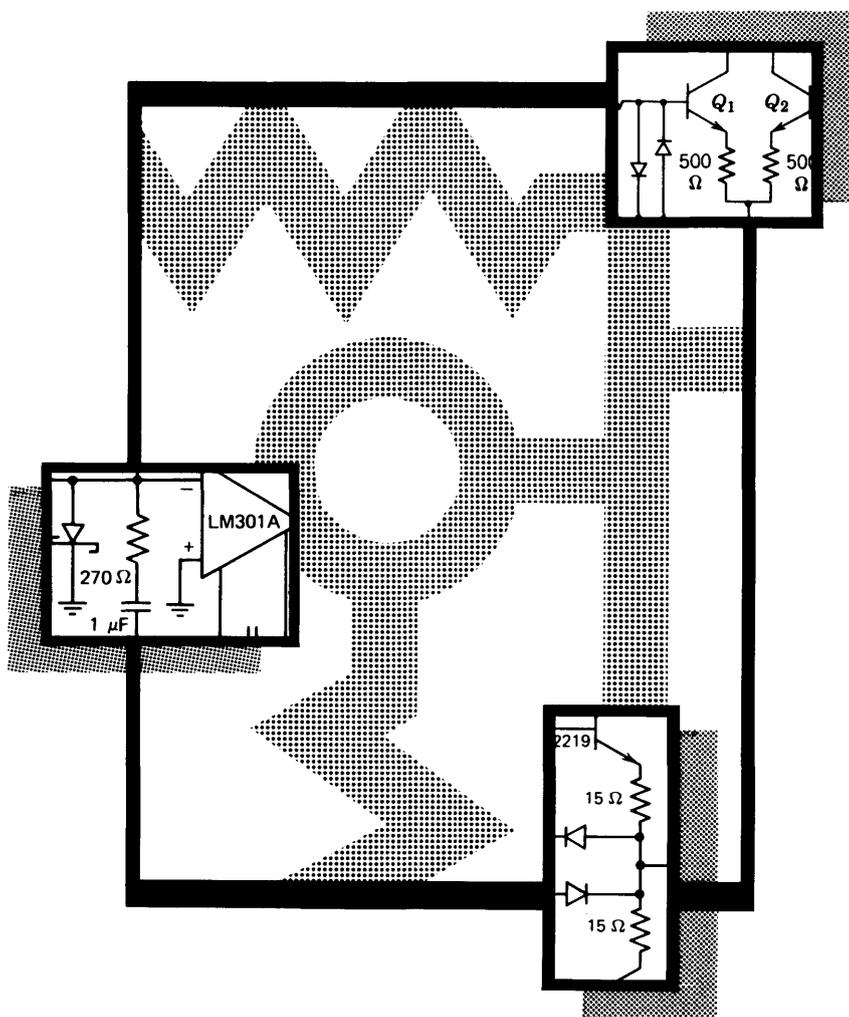
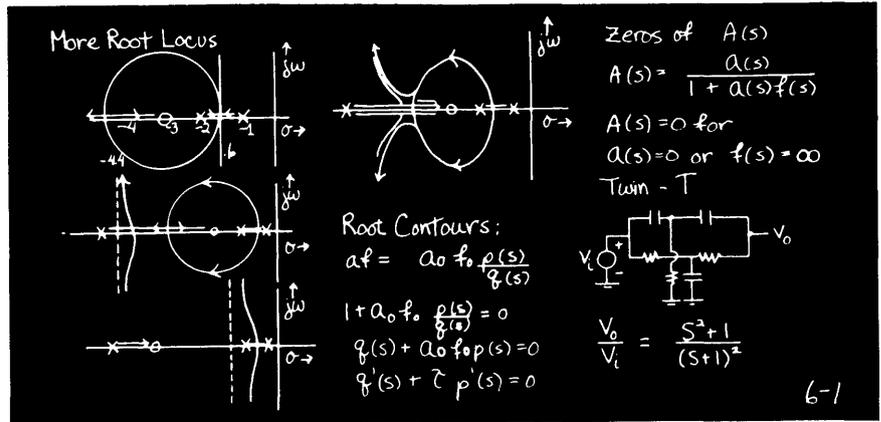


More Root Locus

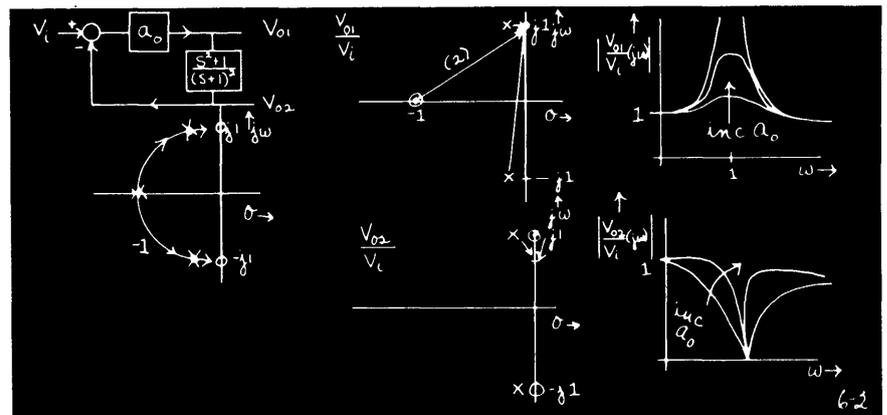
6

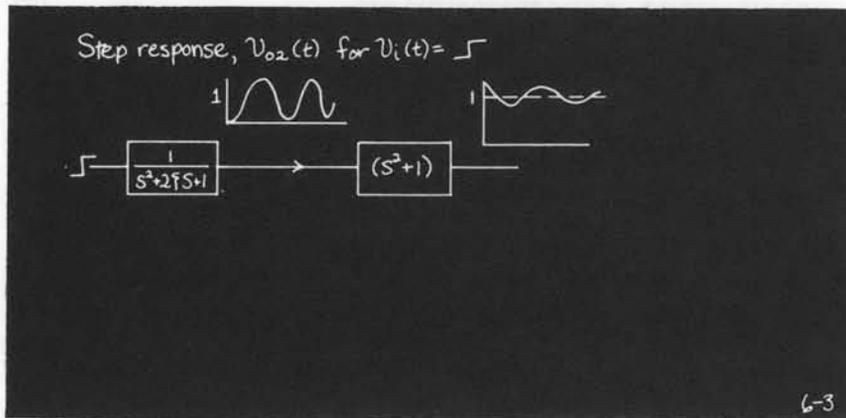


Blackboard 6.1

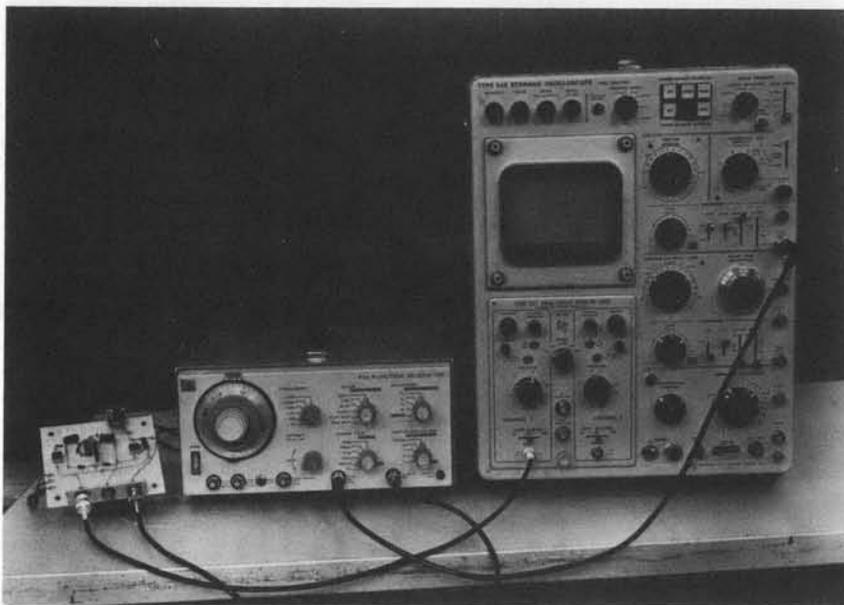


Blackboard 6.2

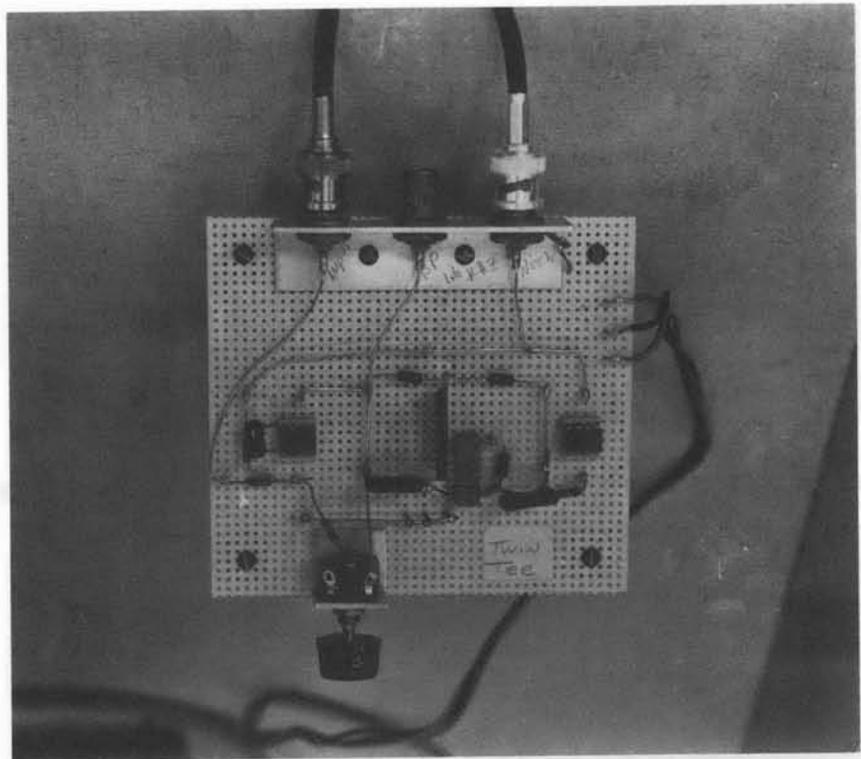




Blackboard 6.3

**Demonstration Photograph 6.1**
Frequency-selective amplifier
demonstration

Demonstration Photograph 6.2
Close-up of frequency-selective amplifier



Comments

This lecture extends our understanding of root-locus techniques. We see that the addition of a zero to a multiple-pole loop transmission increases the amount of desensitivity that can be achieved for a given damping ratio. Future material on compensation will show how this technique can be used to improve system performance.

We also saw how the root-locus method can be generalized to determine how system poles are related to the value of a single parameter other than d-c loop transmission magnitude.

Finally we determined the location of zeros of the closed-loop transfer function and saw the profound effect they can have on the performance of certain systems.

The phase of the signal associated with the rejection amplifier is wrong in my blackboard drawing. As I mentioned, the initial value theorem can be used to show that the initial value of the step response will be unity. The waveform displayed in the demonstration correctly shows the phase for a small damping ratio as approximately that of $-\sin \omega t$.

Correction

Textbook: Sections 4.3.3 through 4.3.5.

Reading

Problems

Problem 6.1 (P4.6)

Problem 6.2 (P4.8)

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