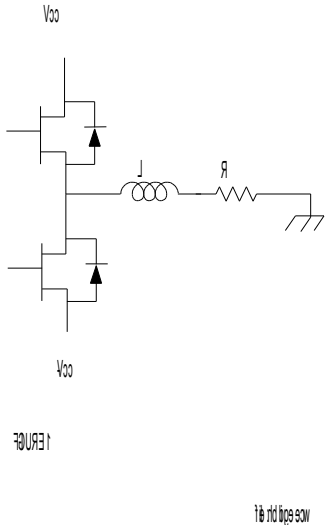
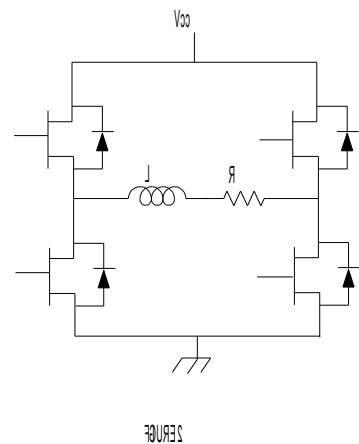


To: File  
 From: Jon Hagen  
 Date: Mar. 4, 1999  
 Subject: Switching converter for servo motor control

For simplicity, assume we're dealing with a single-phase servo motor with inductance  $L$  and resistance  $R$ . For operation, we drive current direction. In to be able to produced by the regeneration.



If we use two the simple totem Figure 1 will When current into the left side top transistor and operate as a step-down (buck) converter. With current flowing left to right, regeneration is provided by using the lower transistor and the upper diode as a step-up (boost) converter.



bidirectional need to be able to through it in either addition, we need accept the energy motor during power supplies, pole circuit of suffice. must be driven of the inductor, the the lower diode

If only one power supply is to be used, the H-bridge of Figure 2 is used. When current is flowing from left to right, the lower right transistor is kept on to ground the resistor and the upper right transistor remains off. The left side totem pole operates as described above. When current is flowing from right to left, the roles of the two totem poles reverse.