14 Computer Numerical Control

14.3 Find the vibration frequency of a 1000 lb machine on four pads.
a.) Each pad deflects 1/32 of an inch for an applied load of 200 lb.
b.) Deflects 1/8 of an inch.

14.6.2 The RS232 serial interface is damaged by a lightning surge. "IN" is working fine, "OUT" is dead. For common send and receive chips:
a.) Sketch the pin out schematics from a standard TTL data book.
b.) Which chip is likely blown?
c.) How can it be tested?

14.20 All three axes of a mill are moved at 100% rapid (10m/min). During the move, the error pulse is X=4063, Y=4253 and Z=4160 pulses. If each "friendly" pulse is .001 mm/pulse,

a.) Find the factory set-up EP value for a machine with $K_p=40s^{-1}$.

b.) For a machine with $K_p=25\ s^{-1}$.

c.) What's the expression for motor speeds?

d.) For a 10 mm screw and 2500 pulse/rev feedback, how fast are the motors turning at a 100% rapid?