

Monday, Aug 14, 2006

← *RAKO STUDIOS* →

CMM-machine

A coordinate measuring machine to reverse- engineer Sportster engines.



I bought this CMM machine from an ad in the San Jose Mercury News. I wanted it measure Harley Sportster case. This let me redesign the cases for a big project I have worked on for 20 years. Its somewhat home-made. It only measures X and Y, there is no Z measurement. This was not a problem since most of the measurements I needed were center-to-center dimensions between shafts and such.

I think it cost \$1,400, I later sold it for much let when I moved from the shop to my Sunnyvale house. The guys I bought it from were so happy I did not haggle on the price they gave me a spring winder and tubing bender as well. They used a fork truck to put it in the back of my 1974 Chevy van. I had the print shop or a machinist in my complex put it one one of my steel desks, which I still have.



The CMM had an Anilam readout.



The back view shows the X-axis linear optical scale.



The Z-axis drops down so a cone can center on whatever hole I needed to measure.



There were two linear optical scales. The unit was not as accurate as an air-bearing CMM, but it did the job I needed it to.

The unit had a very heavy cast-iron base and was quite stable. It moved smoothly and was quite repeatable.

Many times the hole locations I was measuring turned out to be an even fractional dimension, I learned to expect this in a motorcycle engine designed in 1957. I was sad to sell the unit, especially at a loss. The landlord had learned I was living in the shop and did a "soft eviction" by not renewing my lease.

I had built an entire second floor inside the shop, doubling the square footage to 2000 Sq feet. Those 2x4 studs behind the machine are supporting the mezzanine floor. It's a shady legal area. The landlord has to tear out all the "improvements, but they can't really sue me since they have no proof I built it. I got the last laugh. I designed and built the mezzanine really solidly. It was glued and screwed and survived the big 1989 earthquake. When the landlord hired a crew to tear out the second floor, they did not realize how well it was attached to the wall and they collapsed the back wall. The machine shop that was on the other side of the wall got quite a surprise that day.