

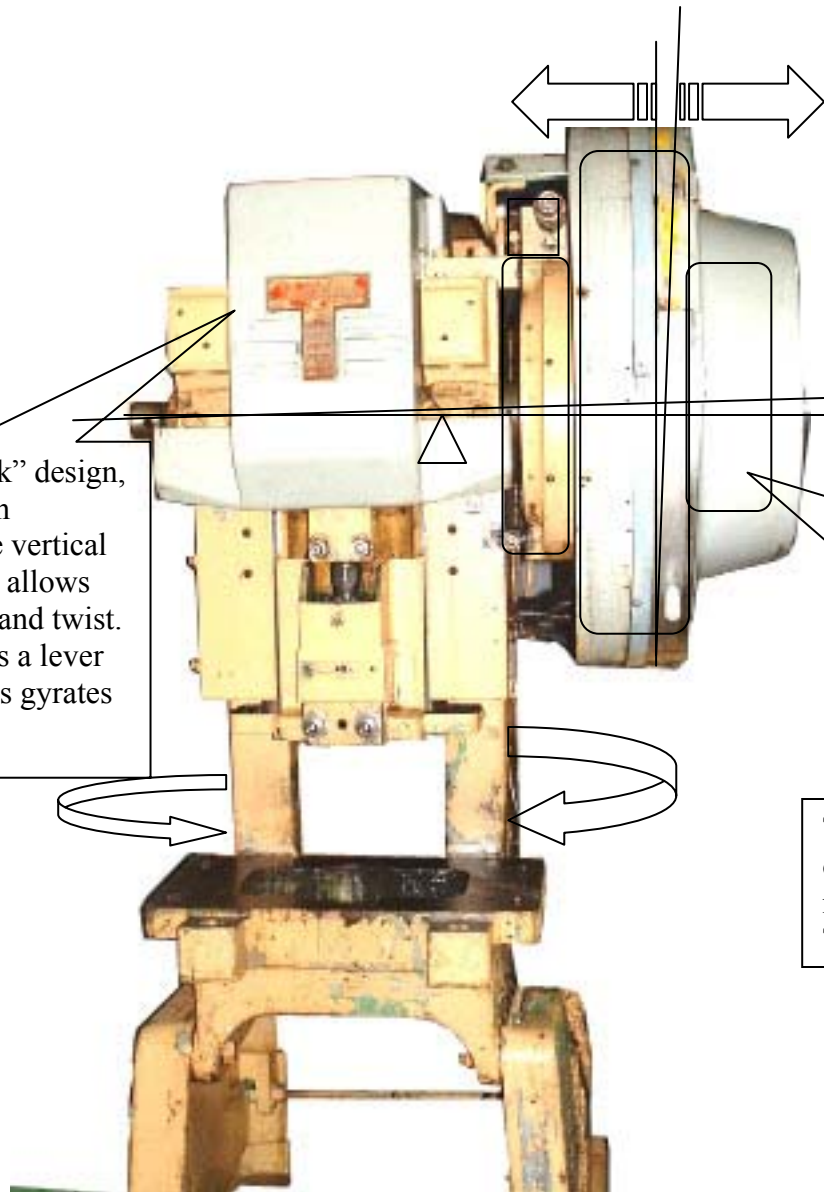
**Forces Acting on 1970's Technology Press  
Under NO LOAD.**

Due to the "open back" design, there is very little iron spanning between the vertical frame members. This allows gib position to move and twist. The crankshaft acts as a lever that flexes as the mass gyrates changing shut height.

The clutch, brake and flywheel are at least 1/3 the press weight. The overhang must cause the crankshaft to sag. As the flywheel turns, the mass must oscillate, flexing the crankshaft and deflecting the supporting frame members. The mass cannot be made with perfect balance causing added deflection to the frame members.

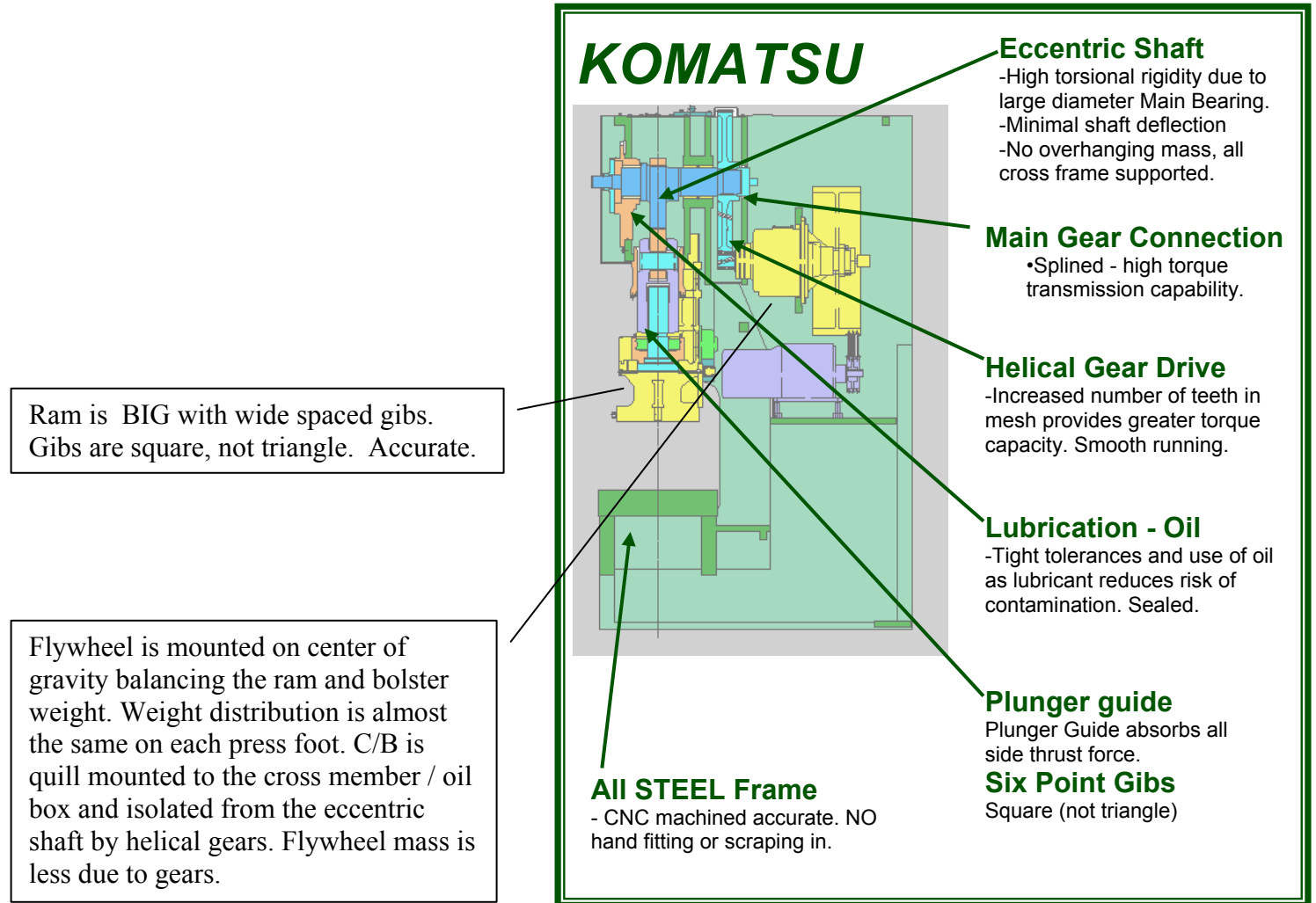
The flywheel releases energy to make the part. Up to 10% of the RPM is used during the bottom 1/16" of stroke. The motor "recovers" this RPM prior to making the next part. The flywheel accel. / decl. dynamics cause frame deflection.

Six Sigma problem identification:  
The flywheel is located where it causes an unbalanced system. Accuracy changes as the mass takes the machine for a ride.



**Year 2000 Press Technology – All CNC Machined  
Komatsu Exclusive Plunger Guide**

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**Isolated (sealed) Compartments for Continuous Oil Lubrication of Main Gear and Plunger Guide**

