## Heavy Engineering - Forms and Gears

Since the cycle time of machining is long, the pressure in the hydraulics needs to be maintained even though the fixture has been decoupled from the powerpack. Hence, the fixture was fitted with a pressure switch which was set at a certain pressure. In case of pressure dropping below the set pressure, the pressure switch sends an electric signal to the machine to stop, thereby avoiding accidents and tool breakages caused due to drops in hydraulic pressure.

The trials of the fixture, were conducted in Japan at Toshiba's Numazu plant and the test was carried to perfection. "We were confident that we would not face any glitches as we had tested the performance with high end technologies available. Our Japanese counterparts were shocked that anyone in India could build a fixture like this," beams Varghese.

## Getting the Team Right

Setting up a team of professionals trained in fixture building is hard



 The fixture will be a part of a floor type milling and boring CNC machining centre built by Toshiba for machining earth moving equipment components

to obtain directly, they have to be developed. A highly skilled team of five Indian engineers and four engineers from Toshiba, made this project happen. "Our motto is to get it right the first time and this mindset needs to be cultivated. Fixture building is a customised, high precision, low volume business and the mindset needs to be different from that in mass production. In the final stages of machining, our people are more interested in manufacturing to perfection than getting the job done a few hours earlier," explains Varghese.

While this has been one of the milestone projects for the company, it has been working constantly in the segments of automotive (passenger cars, trucks and two wheeler), textiles, earth-moving equipments, tractors, defence and aerospace. The company has been effectively supplying some major global clients including Hyundai, Ford, Tata Motors, John Deere, Ashok Leyland, Mahindra Auto and Tractors, Cummins, Caterpillar, John Deere and to international machine tool makers like Mazak, Toshiba, Makino, MAG and NTC among others.

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