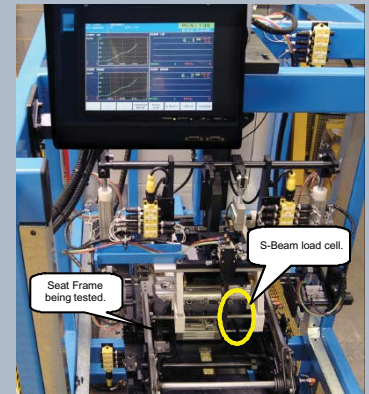




Modern automotive seats can be adjustable in many directions, adjustments for reach, height and recline are commonplace. As part of the quality control process during manufacture these adjustments need to be tested to ensure correct operation. These tests need to ensure the adjustment will 'feel' right when used in the vehicle by the customer.

At the end of the manufacturing process the seat frames are placed in PDI testing machines which automatically operate and test the seat adjustments. The DECADE 260 Series is used to measure the force and position signals in these test machines and determine if the seat assembly is acceptable or not.



Seat Frame Height Adjustment Test Machine and 260 Unit.

Height Adjustment Tests

To test for height adjustment the force that is exerted on the adjustment handles is measured using load cells as the handle is 'pumped' up and down to raise and lower the seat. The 260 Unit processes this force information as the seat is pumped all the way up and then all the way down. The 260 checks each operation of the adjustment handle is within pre-set limits of effort (force) and that the handle doesn't get stiff to operate. All the results for each seat are shown on a single screen, grouped for up and down.

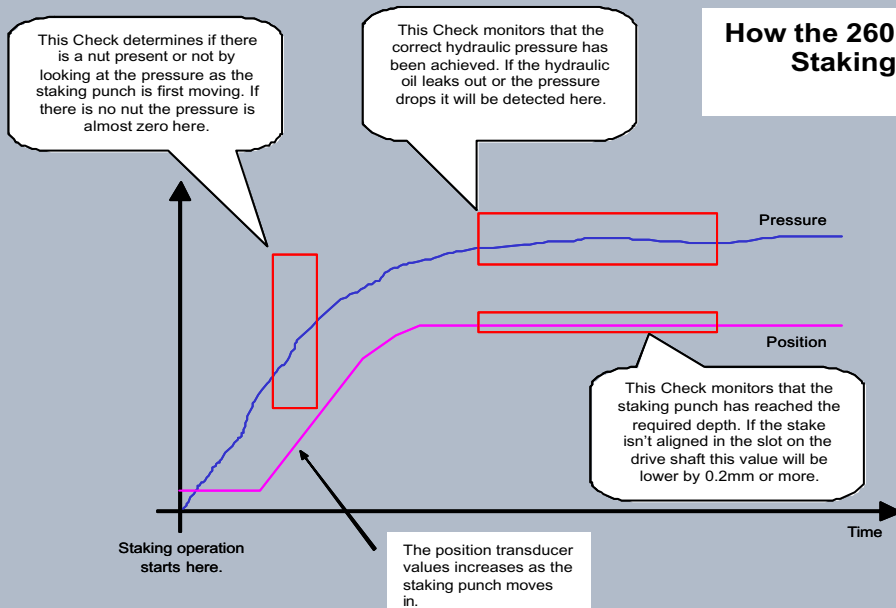
Reach Adjustment Tests

To test for reach adjustment the seat is loaded with a static weight then pushed backward and forward along its track. Two load cells measure the forces required to move the seat and a position transducer measure the distance travelled. The 260 unit checks the effort required to move the seat is within pre-set limits for forward and reverse movements. A check is also made to ensure the seat has moved the correct distance and to the correct position. During the test cycle when the seat is moving the 260 unit carries out six separate checks as the seat assesses certain points in its travel, each check will have its own pass/fail criteria.

Recording Test Results

At the end of each test cycle the 260 unit displays process graphs on its colour screen showing force and position plots and check criteria. These test results are also then sent via an Ethernet network link to a central database where they are saved. The central database records test results for the many 260 units used in the manufacturing cell. This facility enables the results of testing operations to be viewed in the future should the need arise. The database can list tests carried out with results and time-date stamps, and for failed tests a graph of the data can also be displayed.

How the 260 Checks the Staking Operation..



SPC Data & Cpk Values

The 260 Series can also generate SPC information from the measurements it takes. In this application the staking depth and final pressure values are recorded and the results shown on SPC charts. A standard Xbar and R chart displays process trends, values of Sigma, Cp and Cpk are also calculated and displayed. A histogram is also displayed detailing distribution. The SPC data collected can be downloaded to a PC via a serial port and supplied link-software.



The 260 Series

The 260 Series is a very versatile piece of process monitoring equipment, this application details just one way it has been used. With inputs for up to 8 transducers which could be position, force, pressure, temperature or in fact a DC voltage signal from any type of transducer many process monitoring applications can be tackled. The 260 has an array of test functions that can be applied to the measured input signals, you can look for peaks, dips, averages, point values, detect shear points, monitor insertion position with feedback just for starters. This data can be displayed on the colour screen for no-nonsense setting up. The 260 also has the option to send test results to a central database via an Ethernet network link providing a record of all it has tested.

