NDI APPLICATION NOTE

DOOR & CLOSURE TESTING

PROBLEM

Efforts to reduce variation and improve the quality of an auto body assembly can be a very complex and difficult task. Dimensional and assembly issues such as latch/hinge alignment, flush, gap, and seal gap quality can directly contribute to squeaks, rattles, wind noise, and water leaks resulting in major customer dissatisfaction. Closure dynamics such as traveled path, lift, drop-off, speed, acceleration, vibration, and part deformation require special measurement solutions to analyze assembly variability and required closure force.

SOLUTION

Using the OPTOTRAK, you can attach markers to a door or closure to accurately measure its kinematics at high data rates. Specific points of interest, features, or coordinates can easily be defined and reported using digitizing probes. In addition, body assembly, door side, and door dimensional measurements can be made using the same digitizing probes.

The OPTOTRAK's unique ability to measure many objects at once also enables simultaneous relative measurements to be made in real-time. For example, a door can be measured relative to the car's chassis. Reference targets placed on the chassis form a reference system to report other data within. Data from one or more closures can then be reported relative to the defined chassis reference system. Using this dynamic referencing feature, any chassis movement or vibration occurring during testing is compensated for automatically and only the relative closure motion is measured.

PRODUCT

The OPTOTRAK is the product that will give you the best results for this solution. Combined with part-to-CAD inspection software and reverse engineering tools, you have a highly versatile measurement tool you can use on the shop floor for almost any measurement problem.

BENEFITS

- Use one system to check closure dynamics, part-to-part alignment, and confirm dimensional measurements.
- Portable system enables use at the source.
- Solve problems traditional CMMs were never intended to address.

INDUSTRIAL APPLICATIONS

By attaching targets to any object, you can measure or track its position and orientation. Using convenient digitizing probes you can also capture 3D surface points easily. NDI technologies offer many possible solutions, some of which include:

Coordinate Measurement

- Part-to-CAD inspection
- Reverse engineering
- Assembly verification
- Fixture verification
- Offline programming
- Real-time 3D/6D feedback
- Cell alignment

Dynamic Tracking

- Part positioning/alignment
- Vibration analysis
- Part deformation
- Part dynamics
- Structural testing
- Guided assembly
- Door and Closure Testing

With over 10,000 installations in more than 30 countries worldwide, NDI technology provides the accuracy and reliability our customers have come to trust. Let us help you determine the NDI product best suited to solve your most demanding measurement problem.

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