

Automotive Engine Head 3D Inspection

This system utilizes two Cognex DS (displacement sensor camera) 3D units in conjunction with a Yamaha single axis linear servo. The Yamaha linear servo carries the two DS units across the scanning plane. The inspection system images the upper assembled head of the engine block at different angles to verify items such as valve positioning, rocker arm set screw height, and various presence/absence inspections.

Application inspects for debris in specific portions of the engine head, presence/absence of the Push Tube, Rocker Arms, Cross Foot, Set Screws and Jake Brake if applicable. The application also measures the height of the set screws and determines if they are within a specified tolerance. This type of application setup could be used to inspect anything that requires inspection at 90° angles from each other. Parts per minute rate of this application is dependent on the customer line speed rather than the capability of the inspection system. The inspection system is capable of approximately 4 parts per minute at the current inspection settings where the customer line rate is 1 part per 2-5 minutes on average.

Features:

- This system replaced an existing, non-functioning inspection cell.
- All results of inspection are recorded to a SQL database along with engine type, seal number, assembly verification, and pallet ID for tracking and reporting purposes.
- This application requires no user interaction. Engine type data is handed to the application from the PLC.
- This allows the application to automatically update the inspection criteria with each new part that enters the inspection cell.

