

Application note

Bond seam inspection

Customer need

Adhesives are increasingly being used as a joining technology for automotive body panels including edge and non-edge joints. Total accumulated length of glue lines can reach hundreds of meters per automobile body. Similar to other automotive joining processes, adhesive bonding may not provide 100% process reliability. Testing is required to identify areas with lack of adhesive as well as misaligned bond lines. Traditionally, this has been accomplished only through time-consuming and costly destructive testing.



Customer solution

Waygate Technologies provides a non-destructive method for conducting bond seam inspections. The Bond Seam Scanner is easily clamped on body panels joined by a seam or other adhesive bonding process. The design enables the array to adopt to contoured parts commonly used in automobile designs. A spring-loaded encoder wheel provides a stable inspection platform and tracks the sensor position for bond lines up to 32 mm wide. A protection foil minimizes the need for couplant and facilitates manual scanning.

The innovative Bond Seam Scanner linear array design ensures inspection spatial resolution and detection resulting in an easily interpreted visual image of the presence of adhesive allowing the operator to evaluate the overall width of his bond seam and identify where adhesive requirements are not met.

Custom array probes can be developed to inspect similar adhesive applications in automotive and other industrial segments.

Key features

- Bond Scanner App on the Mentor UT provides a guided workflow to standardize and reduce time for calibration and set-up of inspection
- Touch screen operation for fast and easy interrogation of suspect areas
- Flexible 10 MHz array to contour to body panel curvature
- Spring loaded and sealed encoder for optimal positioning
- Protective foil for reduced wear and couplant
- Ergonomic handling and a smooth scanning operation
- Silicone oil free

Application

Glue line and seam inspection for automotive body panels.

Modality

Ultrasonic (Phased Array)

Industry

Automotive



Green indicates strong adhesive bonding; Red indicates missing adhesive
Note areas of slight adhesive leakage

Equipment used

Option A

- Mentor UT Phased Array Flaw Detector- P/N 100N3883
- Probe LA10-32 flex (Bond Scanner)- P/N0600325 (includes frame, clamp, encoder. Mentor connector)
- Bond Scanner Foil- P/N 0600199

Option B

- Mentor UT Phased Array Flaw Detector- P/N 100N3883
- MUX Module- P/N Mentor-UT-MUX-T
- Probe LA10-64 flex (Bond Scanner)- P/N060180 (includes frame, clamp, encoder. Phasor connector)
- Bond Scanner Foil- P/N 0600199