



UT of MIG Welds between Strap/Link and Sheet Profile

Ultrasonic Application Solutions

Application

Round steel straps or links, for example used for seat anchoring in the passenger compartment, or as towing links, are connected to the underbody sheet profiles by means of MAG/MIG fillet welds in the car body manufacture.

As safety and functional aspects require nondestructive checking and the proof of a perfect welded joint, the GE European Solutions Center delivers an ultrasonic through transmission method for this inspection.

Solution

The varying geometry of the welded components (strap/link: round steel, base material: sheet profile) excludes the use of the ultrasonic pulse-echo method. The through-transmission technique offers a versatile solution for the varying strap-link-metal sheet base geometries.

For this purpose, a guided wave is excited in the metal sheet profile by a transmitter probe fixed magnetically to the surface, with this wave then being

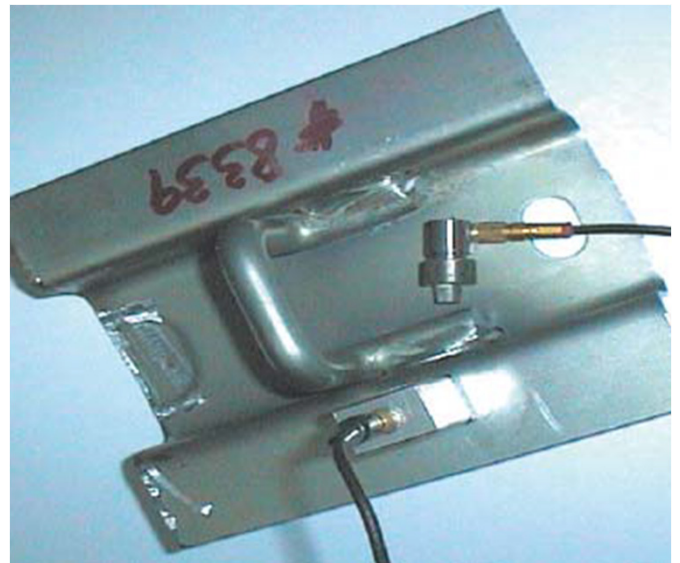


Figure 1: Testing arrangement of a car seat anchoring

scanned by a second, manually handled, receiver probe after passing through the welded joint.

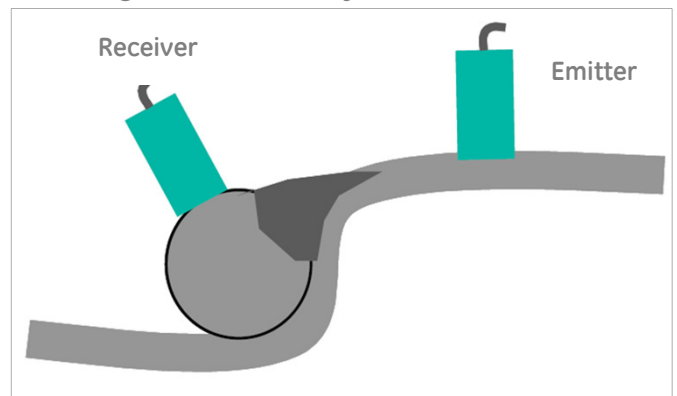
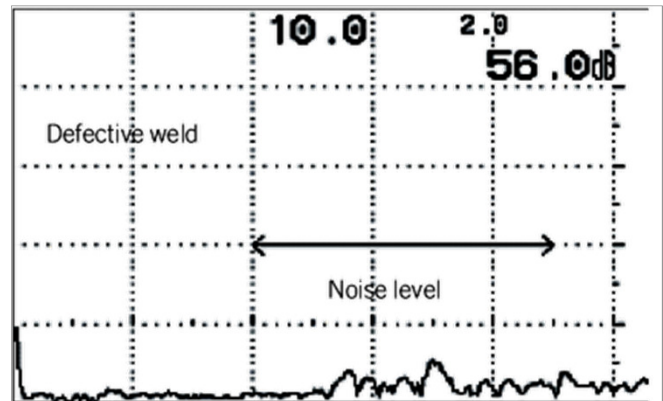
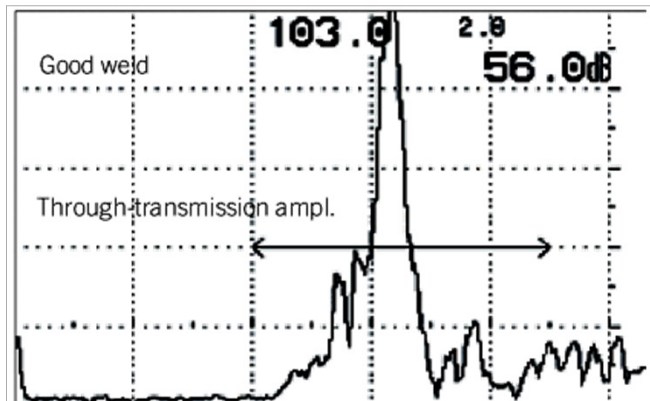


Figure 2: Test setup

Results



The upper images illustrate the detected A-Scans of welded joints. The left picture shows the through transmission signal which is detected by the receiver probe. It is an indication of fully welded joints. The right picture demonstrates that no signal is detected. This means a poorly welded joint with bad connection between the welded parts or weld flaws.

The pictures on the left show emitter and receiver probes. A straight beam probe with exchangeable delay line is used as receiver for the inspection of MIG/MAG welds. The probe W 45/3xB 2 KE is recommended as sender.

General solution information

- Flaw Detector: USM Go+, USM 36 or USLT USB
- Probe: W 45 B2 KE1, K 2 MNE

Your benefits

- Ensure high quality
- Reduce field failures and potential liability
- Save money by eliminating destructive testing and by improving your process

Part numbers

USM Go+	0113214	USM 36	0037400
USLT USB	0036752	W45B2KE1	0068134
K2MNE	0068092		

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