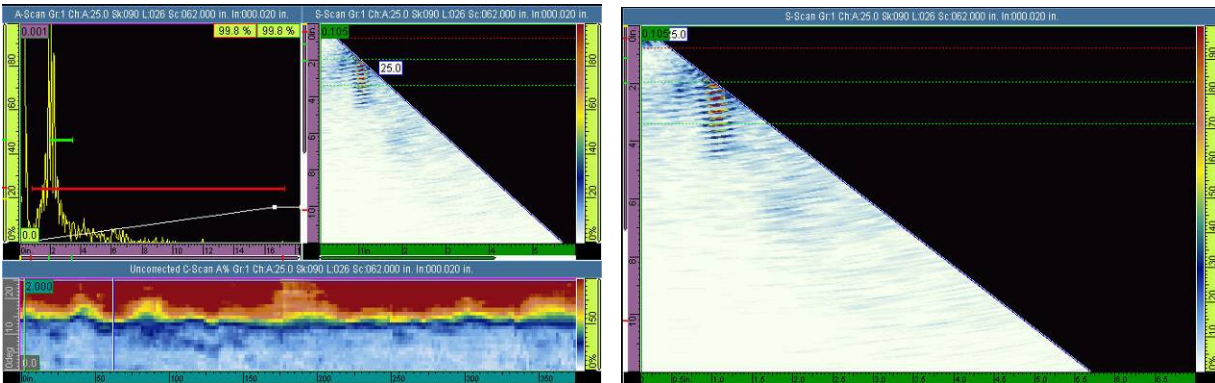


## General description

Power lines are aging in most North American areas and some critical components are now under constant surveillance. In the southern USA bolts were identified for inspection as weather conditions and environmental factors presented potential for significant structure failure. The potential of corrosion and cracking damage was recognized and to avoid unnecessary replacement of hard-to-access bolts, a phased array technique was developed and deployed to identify the defective bolts.

## Inspection summary

Phased array sectorial scanning, also termed an S-scan or azimuthal scan, generates an easy to interpret display. For a quick review of bolt condition the operator can move through the scan data upon completion of the scan. The data is digitally stored enabling periodic monitoring and also provides options for post-analysis or remote analysis. The scan fixture provides repeatable results and holds the transducer at an optimum position on the bolt generating an encoded full circumferential scan.



*Stored full 360deg. acquisition*

*Live cross-section display*

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## Inspection instrument & fixture detail

Bolts diameters: 50mm to 75mm (2 inch to 2.5 inch)

Bolt length: up to 50cm (20 inches) long from one side. If access is available from both ends of the bolt, the inspection can be performed from both ends for superior full length inspection of up to 100cm (40 inches)

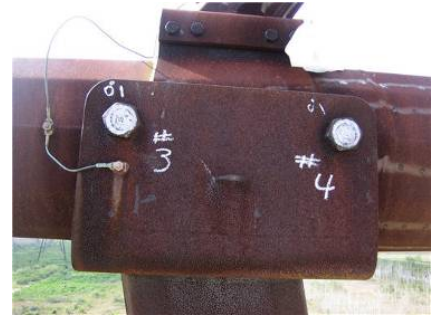
Bolt face or stud end must be ground/buffed to provide a smooth surface to ensure good coupling of the transducer

Phased array transducer: 5L15-A3

Bolt Scanner WEBCAN-A3 (X edition)

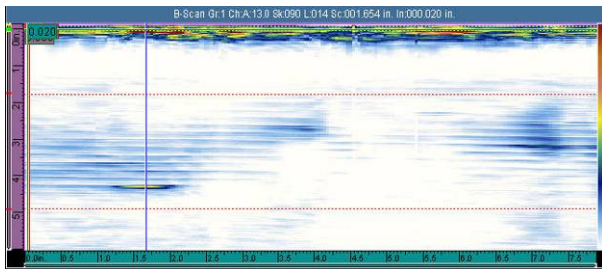
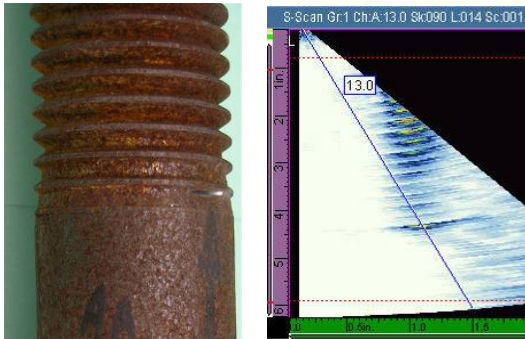
Encoder

OmniScan MX 16/16; 16/64; 16/128



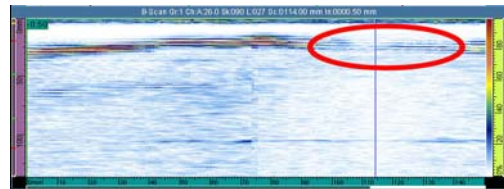
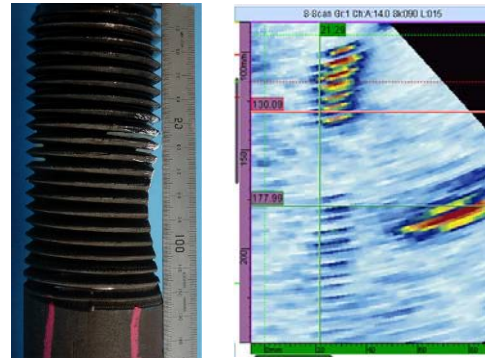
## Defect detection and presentation:

Crack indications



**Response:** High amplitude sharp signal inside or outside the threaded area indicates a crack defect

Corrosion in threads



**Response:** Thread loss signals display the interruption of the sectorial scan pattern