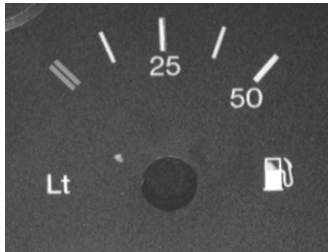


Fuel Gauge

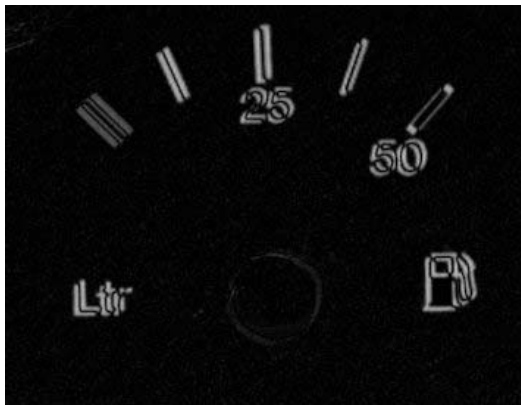
This application has been taken from the book *Industrial Image Processing* by Christian Demant, Bernd Streicher-Abel and Peter Waszkewitz, published by Springer (Berlin, Heidelberg, New York), ISBN 3-540-41977-2.



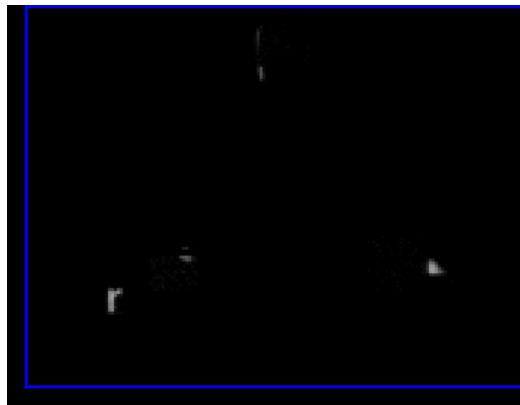
The image shows a section of a dash board with some printing defects. The "r" of the "Ltr" mark is missing and the petrol pump exhibits a white spot in its display area.

Typically, the basis of a print quality inspection is a difference image, containing the differences between the current test piece and a reference image. The creation of a difference image for print quality inspection or any other type of reference image comparison is far from

trivial. Because of positioning and image capturing inaccuracies, edges are practically never aligned precisely so that a simple subtraction would lead to the detection of severe pseudo errors along the edges. This is illustrated by the adjacent image. The pronounced errors are due to a misalignment of a perfectly correct print.



Simple difference image



Difference image

To deal with this problem, NeuroCheck's **Print Quality Inspection** function uses a highly configurable, sophisticated three-stage positioning process and also takes heed of the structure size of the objects to be checked. The parameters can accommodate any desired distinction between tolerable and inadmissible defects. Furthermore, the type of error (missing print, additional ink, both) can be selected also. The image shows faultless detection of all defects by a hierarchical template matching algorithm.

Due to the consistent object-oriented approach of NeuroCheck you are not restricted to a single more or less flexible function when build print quality inspection applications. The difference image can of course be analyzed with the full range of functions in NeuroCheck.

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