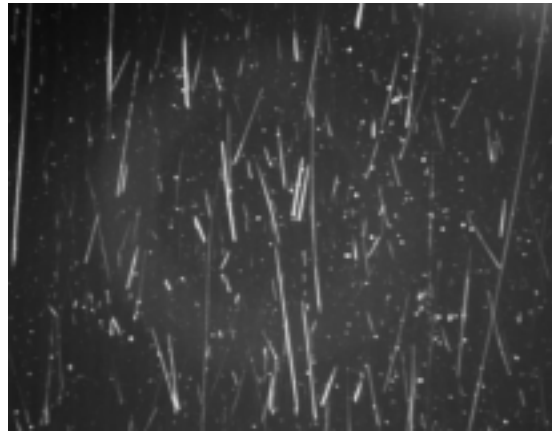


APPLICATION NOTE: **207**

Application: Surface Flaw Detection - Painted Surface

Problems: 1) Extremely Fine Surface Scratches
2) Color of Painted Surface



Fine Surface Scratches in Paint

Solution:

The look of quality for many finished surfaces is highly dependent on the very fine detailed nature of the surface. In many cases, the surface is painted and the surface finish required is that of a high gloss. As end users place tighter demands on surface finish, machine vision technologies play a bigger role in quantitatively defining the degree to which finished surfaces are scratched. In order to do this, specific lighting techniques must be used to reliably and repeatably evaluate the extent to which the surface is scratched (length, depth and number of scratches). The problem is made difficult by the small nature of the scratches, their random orientation, and their inherent low contrast. The color of the paint can also reduce contrast. To eliminate color issues a complementary filter can be used to make the background dark.

Once the spectral issues are solved, the structure of the light must be low angle, highly uniform, and symmetric about the camera axis. Our DRI solution is designed specifically for these types of applications. The DRI solution ensures the proper structure for reliable surface defect detection, independent of the defect orientation. The DRI's high uniformity ensures that the signal intensity from each scratch is a viable measure of its actual size. The above image is representative of how this solution works for the basic detection of scratches, pits, digs, pinheads, and other surface defects.

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