SYSTEM PERFORMANCE SAMPLE

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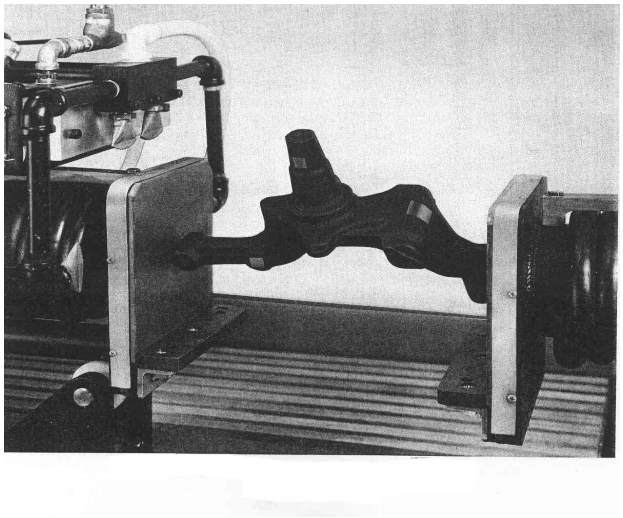
When high volume of a given part is involved, an experienced inspector usually seeks out one or two parts, which have minimal size defects in those areas considered critical. He uses these parts to develop his MPI inspection technique. Minimum, borderline, natural defects are difficult to find. Should a part have more than one critical area, his task is even more difficult. QQI's are shims that have a specified artificial defect. These shims are not the perfect answer, but they are convenient and do work for most applications. They are the closest thing to having a large number of production parts containing defects of the type, location and size specified in acceptance requirements. **(Fig. 2.1)** By using a QQI shim at every critical location, only one sample part is required.

The "System Performance Sample", may be used to determine how many shots are required and what current is best. Should a specific size or type of magnetic particle be used? Is multidirectional or induced current magnetizing an option?



(Fig. 2.1) System Performance Sample Using QQIs

Developing the best inspection technique is important, but assuring it is consistently used is equally important. The inspector now has a part to run first, at the start of each production run, to assure that the complete "set-up" is in order. Are the bath concentration and bath application correct? Is the bath contaminated? Has the part been properly magnetized? Is there adequate black light and not too much visible light? Is the part being processed using the "continuous" method?

The argument still goes on questioning whether QQI's or any paste on shim truly represent the actual natural defects being sought. The only true proof that a "System Performance Sample" using artificial defects is as good as one with natural defects is using it for set up and closely monitoring production line results. Each industry has its own product line values. Automotive values differ from aerospace and they both differ from nuclear, and so on.