SURFACE VEHICLE RECOMMENDED PRACTICE

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Surface Hardness Testing with Files

RATIONALE

The technical report covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Metals Technical Executive Steering Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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Foreword—This Reaffirmed Document has been changed only to reflect the new SAE Technical Standards Board Format.

1. Scope—Hardness testing with files consists essentially of cutting or abrading the surface of metal parts, and approximating the hardness by the feel, or extent to which, the file bites into the surface. The term "file hard" means that the surface hardness of the parts tested is such that a new file of proven hardness will not cut the surface of the material being tested.

1.1 Application—This SAE Recommended Practice describes the technique of using a file for testing the surface hardness of miscellaneous iron and steel parts as designated by engineering specifications. In presenting this procedure, it is recognized that it is subjective and that it must be used with considerable judgment on the part of the operator. File hardness tests may be used when case depth is too shallow for conventional indentation hardness methods, to detect the presence of a soft surface condition on hardened or case-hardened parts, or to check the hardness of sintered parts that may not respond predictably to indentation hardness methods. The method is useful in production control.

2. References—There are no referenced publications specified herein.

3. Apparatus Required

3.1 Standard Files—Hand files meeting the following requirements:

a. 150 or 200 mm (6 or 8 in) pillar
b. No. 1 Swiss double cut
c. 26 cuts per cm (66 per in)
d. Hardness of File

65 to 68 HRC designated No. 65
61 to 63 HRC designated No. 62
57 to 59 HRC designated No. 58
54 to 56 HRC designated No. 55
49 to 51 HRC designated No. 50