



# Ball Rust Test

(ASTM D 6557)

## SPECIFICATIONS

For API SL, SM and ILSAC GF-3 / GF-4..

## OBJECTIVE

Developed to replace the Sequence IID (ASTM D 5844) gasoline engine test, and evaluates the ability of an oil to prevent the formation of rust under short-trip service conditions.

## FIELD SERVICE SIMULATED

The Sequence IID has been correlated with vehicles used in short-trip service prior to 1978, particularly with regard to rusting.

## TEST FIXTURE

The test fixture is a custom-built bench rig centered around a temperature-controlled shaker table. A syringe pump is used to inject acid into the test oil. In addition, a compressed air manifold system supplies clean, dry air into the oil at a controlled rate.

## TEST PARAMETERS

Tests are run for 18 hours with the test oil environment controlled at 48°C. A solution comprised of Acetic, HBr, HCl acids and deionized water is injected into the oil at a rate of 0.193 mL/hour and air is injected at a rate of 40 mL/min.

## TEST PARTS EVALUATION

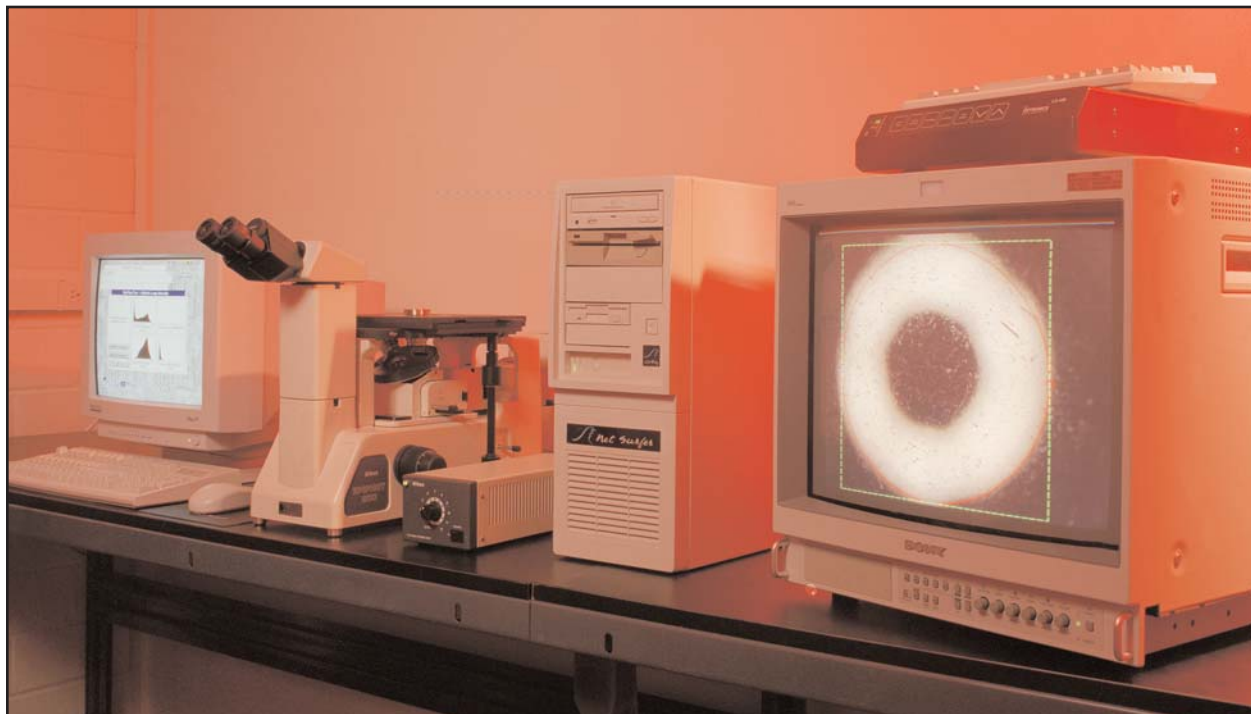
Post test, the hydraulic lifter balls are removed from the rig, washed per procedure, and rated for surface discoloration using an optical rating/computer/video system. Each candidate oil is typically run in pairs during a single test. Up to 5 oils can typically be run at once. A reference oil makes up one or more of those oils.

## USED LUBRICANT ANALYSIS

None is required.

## PASS/FAIL CRITERIA

An average gray scale value of 100 minimum.



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