

# Thermal Oxidation Stability of Automotive Gear Lubricants

## test method

The L-60-1 Performance Test determines the deterioration of gear lubricants under severe thermal oxidation conditions. The sample lubricant is tested for 50 hours in a standardized gear box operating under a predetermined load. An elevated temperature and controlled air flow are maintained throughout the test and a copper catalyst is employed to accelerate the breakdown. At the end of the test period, various lubricant properties are determined by standard testing methods, and the weight loss of the catalyst is measured. The deposits that are formed on the gear box surfaces and the catalyst are examined and reported.

## L-60-1 performance test apparatus

- Conforms to ASTM D5704 and STP512A L-60-1 Performance Test specifications. Performs the L-60-1 Thermal Oxidation Stability performance test for API GL-5 gear lubricant service. Consists of a standardized gear box assembly with motor drive system and digital indicating controls for all test functions.

### Gear Case and Drive System

Two spur gears and a test bearing are operated inside a machined stainless steel case with removable window. The drive gear shaft is coupled to a heavy duty ball bearing motor loaded by a 45 ampere alternator. The standard L-60-1 test gear loading value of 128 watts generator output is precisely maintained by a digitally indicated load bank. All gear box components are easily accessible for cleaning.

### Temperature Control

An insulated heating case with high volume blower encloses the gear box. Sample oil temperature is maintained at 325°F ± 1°F (162.8 ± 0.6°C) by a digital indicating controller with PT-RTD sensor. A built-in microprocessor based recorder produces a test oil temperature chart for reporting purposes. Overtemperature protection is provided by a separate PT-RTD-sensed controller.

### Air Flow Control

A high accuracy mass flow controller with digital indication maintains air flow to the gear box at a constant 1.1L/h. The self correcting controller maintains the setpoint flow rate regardless of fluctuations in air input pressure or temperature. Test cabinet and control cabinet are finished in chemical resistant polyurethane enamel. Test cabinet has a cover for access to the gear box and a removable drive motor cover.

## ordering information

### catalog no. description

K18660	L-60-1 Performance Test Apparatus, 220-240V 60Hz
K18650	L-60-1 Performance Test Apparatus, 220-240V 50Hz

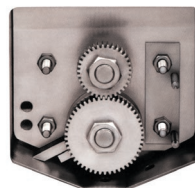
### accessories

K18661	Test Kit, for one test. Includes GA34 test gear, GA50 test gear, R-14 test bearing, viton shaft seals (2), O-ring seal, copper test strips (2)
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380-150-001 Silicone Carbide Paper, 150-grit (pack of 50)



K18660 L-60-1 Performance Test Apparatus



## specifications

Conforms to the specifications of:

ASTM D5704; STP512A L-60-1 Performance Test (formerly CRC L-60 Test); FTM 791-2504

### Controls and Monitors

Sample Oil Temperature: °C/°F, digital setpoint and display, user adjustable

Overtemperature Limit Control: °F, user acceptable

Heating Chamber Air Temperature: °C/°F

Air Flow: L/h, digital setpoint and display, user adjustable

Test Gear Load: Volts DC, Amps. DC, digital display, user adjustable

Sample Oil Temperature Recorder:

Programmable microprocessor based strip chart recorder with digital display, °C/°F

Drive Motor: 1725rpm thermally protected ball bearing type

Alternator: 45 ampere output

### Electrical Requirements

220-240V 60Hz, Single Phase, 15A

220-240V 50Hz, Single Phase, 15A

### Dimensions l x w x h, in. (cm)

Test Cabinet: 24x24x14 1/2 (61x61x37)

Control Cabinet: 23 1/2 x 23 1/2 x 17 3/8 (60x60x44)

Net Weight: 330 lbs (149.7kg)

### Shipping Information

Shipping Weight: 498 Lbs (225.9kg)

Dimensions: 29.2 Cu. ft.