JASO M341-92 Detergency & CEC L-79-T97 Detergency Tests

Specifications

- JASO
- CEC
- ISO 13738

Objective

- Evaluate piston ring sticking tendencies and engine cleanliness at high temperature for a lubricant used in two-stroke cycle engines.

Test Condition	Stage 1	Stage 2
Duration, min	10	60, 180*
Engine speed, rpm	6000	6000
Torque, Nm	1.76	WOT
Spark plug gasket temp, °C	Full cooling	240
Coolant-in temp, °C	Record	6.0

* For CEC L-79-T-97

Field Service Simulated

- Two-stroke cycle gasoline engine operation such as motorcycle, utility, and outboard engines.

Test Fixture

- A Honda AF-27, type SK-50MM, air-cooled, single-cylinder, two-stroke cycle, spark-ignition engine is coupled to a high-speed 10-hp dynamometer.
- External cooling air is supplied to the engine by a variable delivery fan.

Test Parameters

- A baseline test using Jatre-1 reference lubricant is conducted before any candidate lubricants are run.
- All candidates for the day are compared against this baseline, providing that:
  - The candidates are conducted on the same cylinder and crankshaft assembly as the baseline.
  - The candidates are required to complete testing within 24 hours of baseline end of test.
- The test is conducted using gasoline mixed with the lubricant to be evaluated at 100:1 fuel/lubricant ratio for 70 minutes at the following conditions:
- For 50:1 fuel/lubricant ratio, stage 2 is 260.

Test Parts Evaluation

- The following parts are rated using JPI-5S-34-91 rating manual and color chips. The initial ratings are then corrected by applying the appropriate weighted detergency correction factor:

Rated Item	Factor
Top piston ring sticking	2.3
Second piston ring sticking	2.0
Top land deposits	1.0
Second land deposits	0.6
Top ring groove deposits	1.3
Second ring groove deposits	1.2
Piston skirt deposits	0.5
Piston under crown deposits	0.5
Piston crown deposits	0.3
Cylinder head deposits	0.3

Used Lubricant Analysis

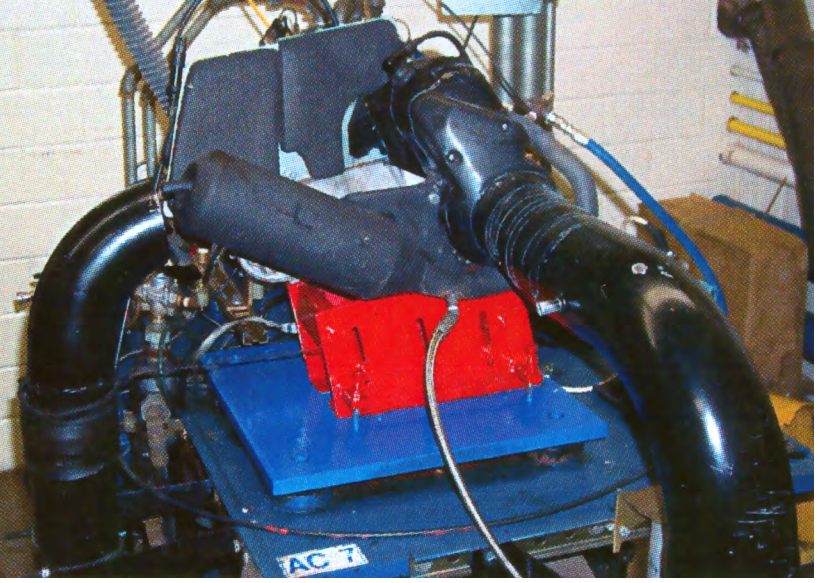
- None.

Pass/Fail Criteria

- Lubricants in each grade correspond to the following two-stroke cycle lubricants:
  - The FB and EGB grades correspond to lubricants that have high performance in lubricity, but are non-low-smoke type.
  - The FC and EGC grades correspond to lubricants typical of low-smoke type lubricants in the Japanese market.
  - The FD and EGD grades correspond to lubricants that have greater detergency performance as identified in International Standard 13738.

Grade	Minimum Detergency Index	Minimum Piston Skirt Deposit Index
FB	85*	N/A
FC	95*	N/A
FD	125**	95*
EGB	85*	85*
EGC	95*	90**
EGD	125**	95**

*In JASO one-hour detergency test
**In JASO and CEC 3-hour detergency test



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