

A light gray world map serves as the background for the slide, centered behind the main title.

Creating Value through Field Trials

June 17, 2026

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Richful is Committed to Product Innovation



200+

Technical Professional

**New Innovation Center
commissioning in
2026**

100+

R&D projects per year

260+

Engine tests

53

Patents

20+

Key OEM Approvals obtained in 2025

365+

Accumulated vehicles used in the Field
Test

45,173,000+ KM

Mileage accumulated in Field Tests
(around the world 1000 times)

*We attain certifications for our products against major industry standards
such as API, ACEA and various OEM specifications.*

Xinxiang Headquarters and Manufacturing Base - Construction area 200,000m²



HQ main office building



New Innovation Center



Lubricant additives
research institute



Resin color developer
production workshop



Additive package blending
workshop



Component production
workshop



Raw material storage tanks



Warehouse and delivery

Our Continuous Commitment to Innovation and Employee Wellbeing



-  7-storey Innovation Center to be commissioned in 2026, centralize all R&D colleagues for greater collaboration
-  Build up area >18,000 square meter.
-  Recreational center to provide a well-balanced lifestyle.

Why Field Trials?



- R** Field trials offer proof of performance beyond specifications
- R** Additional data to instil confidence in Richful's products at customers
- R** They involve running technology in real world applications for a prescribed duration and stripping and inspection at the end of the test
- R** Sometimes needed for OEM approvals
- R** Field trails build further confidence in the technology
- R** Richful has and continues to run trails in different application areas

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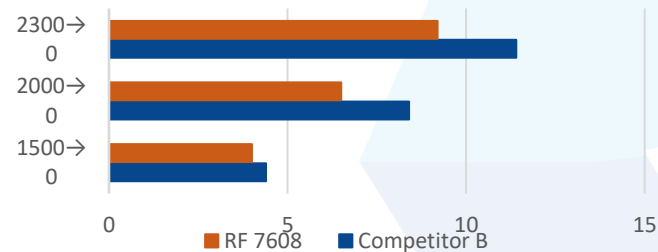
Field Test- Braking Time & Braking Distance - UTTO

R Road running test: LOVOL MW2304-6 MAX Tractor(Produced in 2022, 230hp);

R Brake test: UTTO addpack (5.1%) in LOVOL MW2304-6 MAX, Brake and shift performance on tractor (Engine rotate speed: 1500→0; 2000 →0; 2300 →0)

Item	Braking time, s			Braking distance, m			Abnormal sound		
Rotate, r/min	1500 →0	2000 →0	2300 →0	1500 →0	2000 →0	2300 →0	1500 →0	2000 →0	2300 →0
Competitor B	1.50	2.59	3.06	4.4	8.4	11.4	Quiet		
RF 7608	1.22	1.45	2.53	4.0	6.5	9.2			

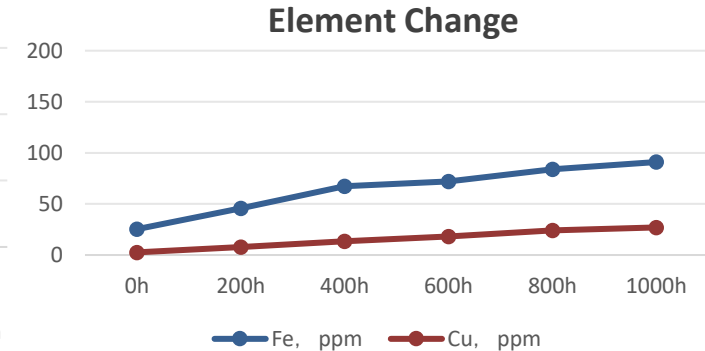
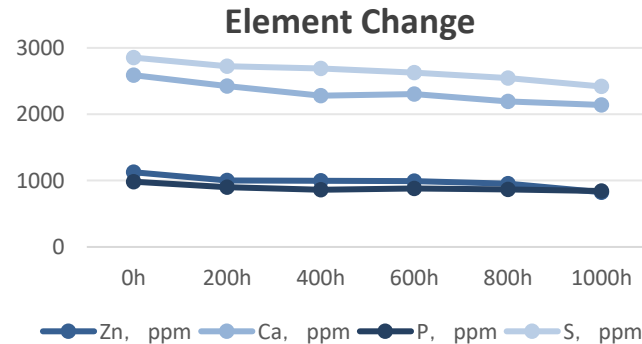
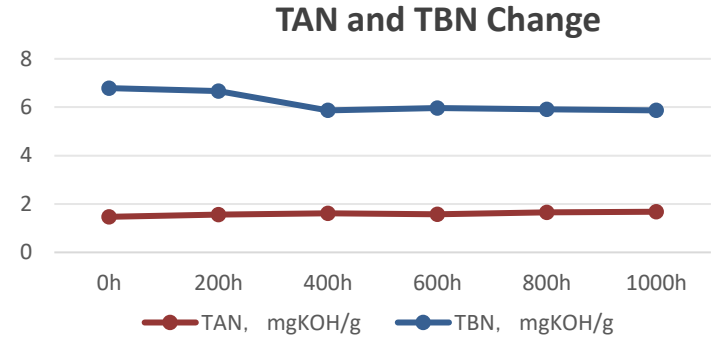
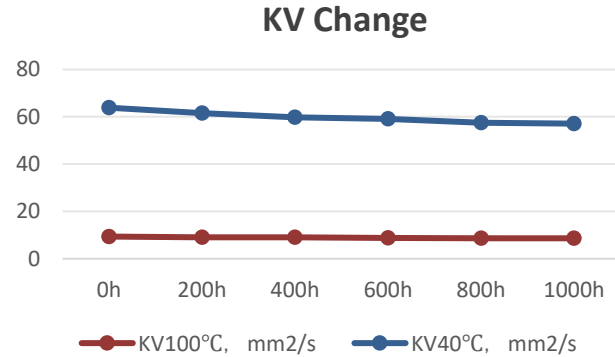
Braking Distance Test (MW2304-6 MAX)



Field Test – UTTO Trial in Farming Application



Field Test:
UTTO addpack (5.1%)
LOVOL MW2304-6 MAX
Tractor, 230hp

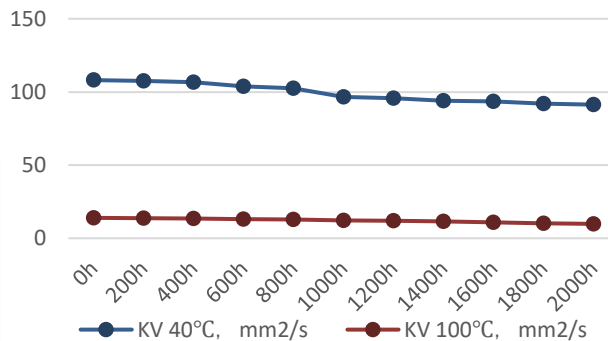


Field Test - Off-road Transmission Oil

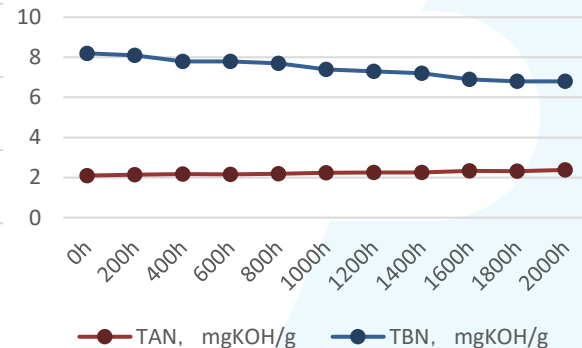


Field Test:
 New Gen Addpack (6.0%)
 Liu Gong CLG870H, 210KW

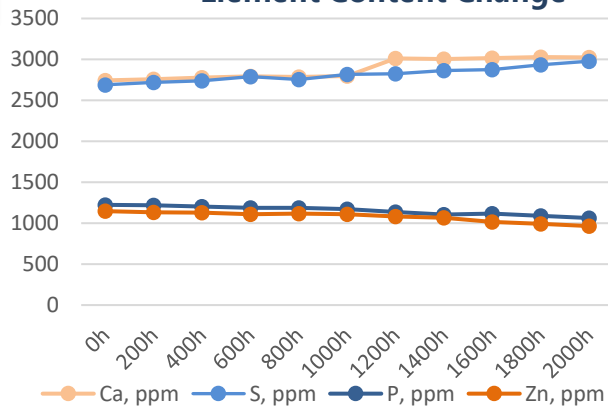
KV@40°C and KV@100°C Change



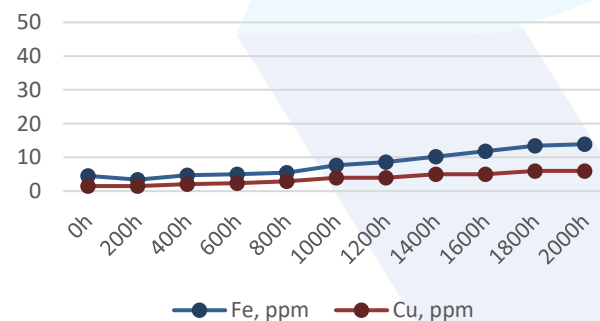
TAN and TBN Change



Element Content Change



Element Content Change

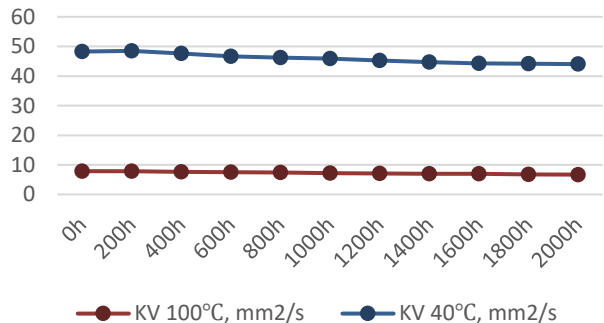


Field Test – Off-road Transmission Oil

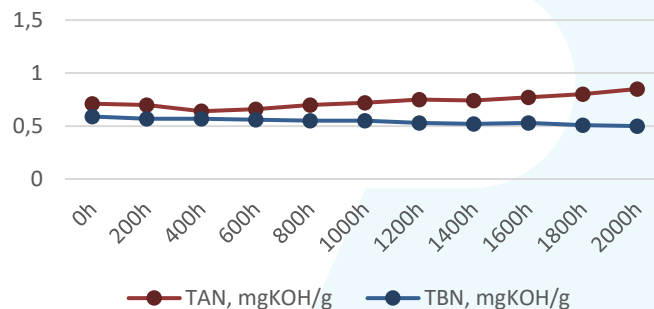


- Field Test:
- China #8 TO addpack (1.0%)
- Liu Gong CLG862H, 180KW

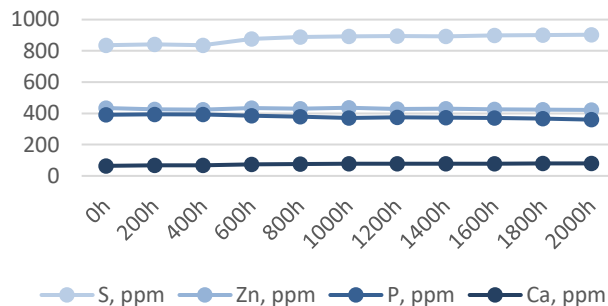
KV@40°C and KV@100°C Change



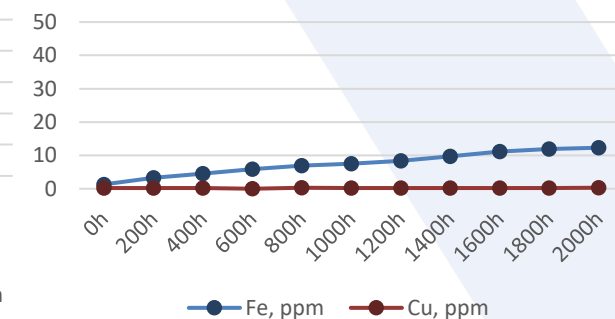
TAN and TBN Change



Element Content Change



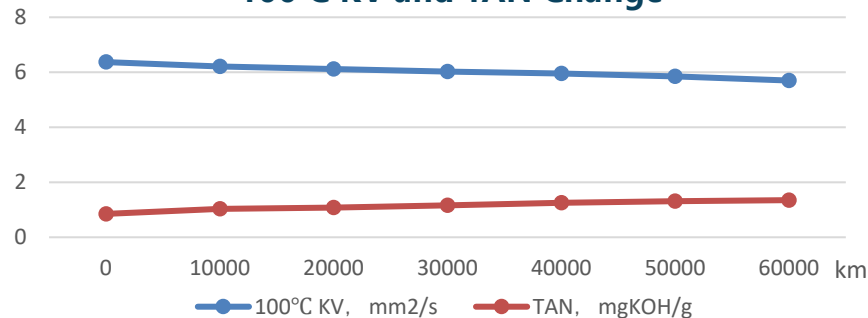
Element Content Change



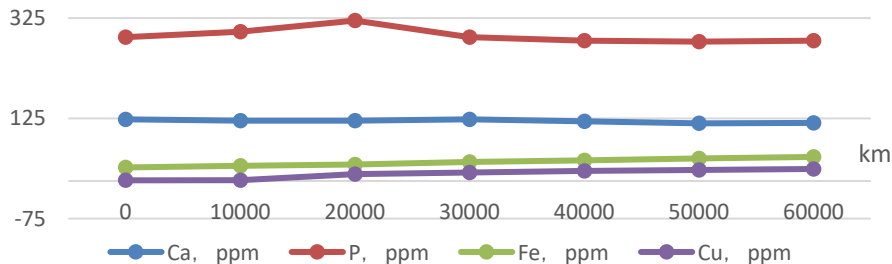
Field Test of ATF

R Toyota Camry 2018, License Plate: Yu VV03F8

100°C KV and TAN Change



Element Content



Field Test of ATF – Power Steering Fluid - ongoing



Field Test Overview:

- R Vehicles:** Two FAW Jiefang CA4250P66M (Lic. Yu A1716L & Yu A0696J)
- R Fluid:** ATF addpack @ 4.5% in Power Steering Fluid (Group II Base Oil)
- R Target:** 100,000 km
- R Current Status:** 60,000 km completed
- R Result:** All physical and chemical indicators are normal.

Field Test of DCTF - ongoing



Field Test Overview:

- Vehicles:** Great Wall Motor Haval H2 (Lic. Yu GE910V & Yu G48K09)
- Transmission Box:** 7DCT250, 7-speed wet DCT, Getrag
- Fluid:** ATF addpack @ **6.5%** in **DCTF**(Group III Base Oil)
- Target:** 60,000 km
- Current Status:** 10,000/20,000 km completed
- Result:** All physical and chemical indicators are normal.

Field Test of E-Fluid Technology - ongoing

Field Test - E-fluid addpack 1



BYD Qin PLUS DM-Qin(Hybrid Electric)



X Peng P7



Hong Qi E-QM5

- R Fluid:** E-fluid addpack 1 @5.7%
- R Target:** 60,000 km
- R Current Status:** Ongoing
- R Current Result:** All physical and chemical indicators are normal

Field Test - E-fluid addpack 2



AION S Plus



AION Y Plus

- R Fluid:** E-fluid addpack 2 @6.0%
- R Target:** 60,000 km
- R Current Status:** Ongoing
- R Current Result:** All physical and chemical indicators are normal

- R** The **ODI** specified in the maintenance manuals of most well-known **Chinese** electric vehicle manufacturers is **60,000** km.

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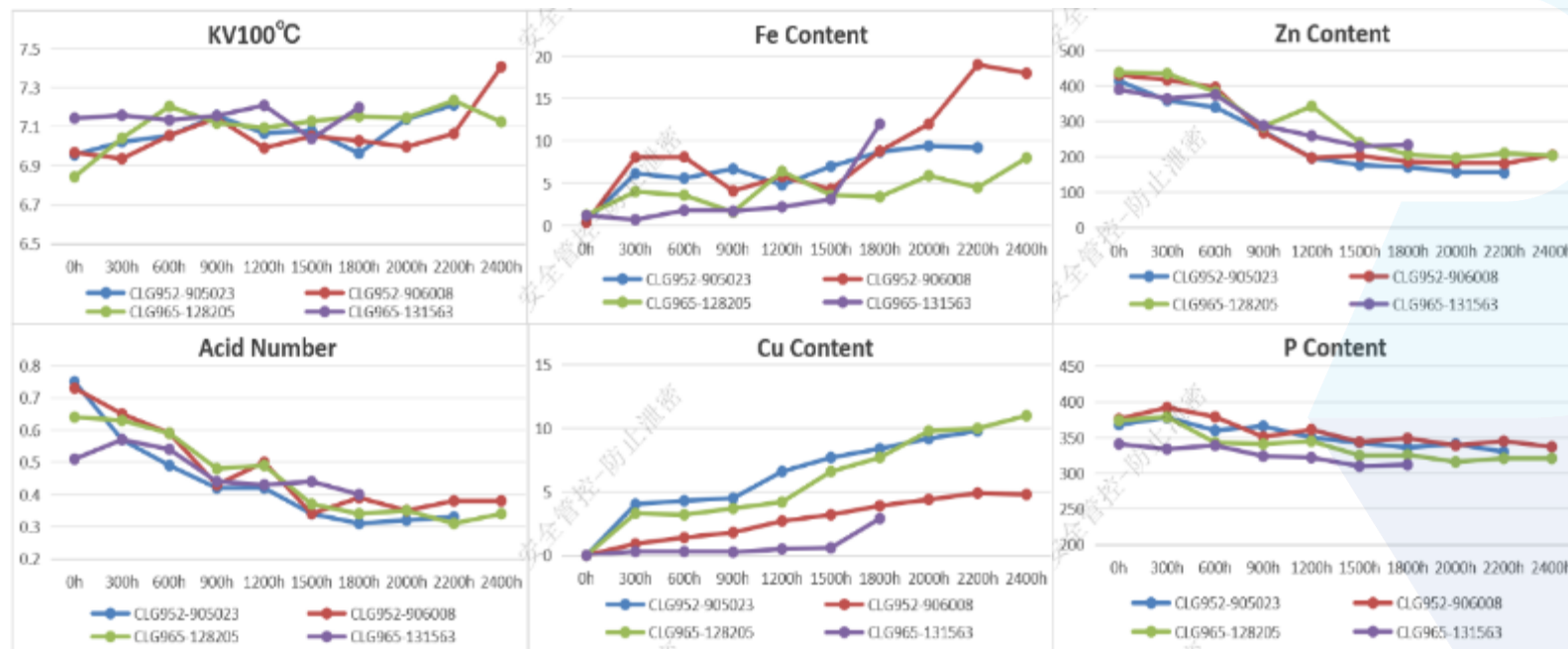
Field test - Hydraulic

R Zinc containing hydraulic oil field test

- **Test vehicle:** Liugong CLG952E (two vehicles) ,
Liugong CLG965E (two vehicles)
- **Pump:** Kawasaki K5V212 (CLG952E), Kawasaki
K7V280DTH (CLG965E)
- **Working condition:** Quarrying
- **Location:** Liuzhou (temperature@15°C,
humidity@90%)
- **Test oil:** HM46 (Hydraulic addpack @0.8% in GII base
oil)
- **Test time:** 3500h(goal)→2600h(ongoing)



Field test - Hydraulic



Compressor Oil Additive Package - Application - Compressor



- R** Air compressor addpack is used for VG100 vacuum pump oil at a dosage of 0.5% in 500SN;
- R** Vacuum pump: Shandong Zeyi reciprocating vacuum pump(Model number: WLW-200; Limiting vacuum: 2600pa; Pumping speed: 12 m3/min; Rotary speed: 310 r/min; Motor power:22KW).The application test results are as follows;

Component	VG 100	Vacuum pump oil blended by RF7231				Reference A			
RF7231 ,%	0.5	40 °C kinematic viscosity,mm²/s	Fresh oil	Oil after running for 1000 hours	Oil after running for 2000 hours	Oil after running for 3000 hours	Fresh oil	Oil after running for 1000 hours	
500 SN ,%	99.5		40°C kinematic viscosity change rate,%	-	0.93	0.93	1.80	-	1.20
RF 9005 ,%(In Addition)	0.02		TAN increase number,mgKOH/g	-	0.01	0.04	0.06	-	0.10
			P _B ,kg	82	76	82	76	71	66
	Scar (1200r/min, 75°C,40kg,60min)	μ _{MAX}	0.128	0.121	0.112	0.119	0.121	0.117	
		μ _{AVG}	0.111	0.108	0.097	0.092	0.113	0.110	
		D,mm	0.51	0.47	0.50	0.50	0.48	0.48	
Copper corrosion (100°C,3h)		1a	1a	1a	1a	1a	1a		
RPVOT@150°C,min		720	416	368	279	179	114		
Rust prevention, procedure A		Pass	Pass	Pass	Pass	Pass	Moderate corrosion		



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Field test – Engine – API CF-4 15W-40

Richful

- **Test vehicle:** Jiefang brand CA4259P25K2T1E5A80
- **Test Engine:** Xichai CA6DM3-55E51
- **Route:** Xinxiang – Jiangsu, city roads and highway
- **Test oil:** HDEO addpack in API CF-4 & SAE 15W-40
- **Test distance:** 22,350km (vehicle odometer at SoT 790,200km)
- Original pistons, rings, cylinders, bearing bushes and bearings replaced
- Overall excellent cleanliness at the end of the trial
 - Most engine parts as new
 - Vehicle maintained stable oil pressure and powerful performance during operation



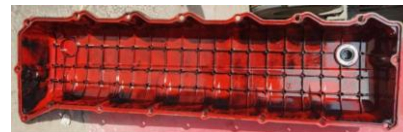
Field test – Engine – API CH-4 15W-40



- **Test vehicle:** Jiefang brand CA4250P66K24T3HE4
- **Test Engine:** Xichai CA6DM2-46E4
- **Route:** Xinxiang – Guangzhou, city roads and highway
- **Test oil:** HDEO addpack in API CH-4 & SAE 15W-40
- **Test distance:** 76,300km (vehicle odometer at SoT 466,752km)
- Original engine parts with no replacement



- Overall excellent cleanliness at the end of the trial
 - Some carbon deposits on pistons
 - Cleanliness and wear as normal

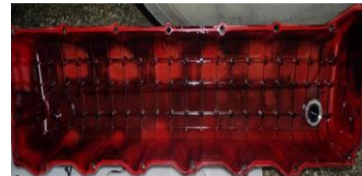


- Summary: good wear resistance and dispersibility

Field test – Engine – API CI-4 15W-40



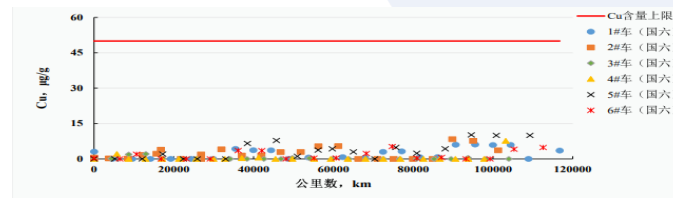
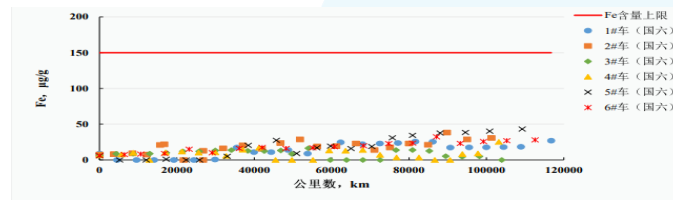
- **Test vehicle:** Jiefang brand CA4250P25K24T1E5A1
- **Test Engine:** Xichai CA6DM2-46E51
- **Route:** Xinxiang – Jiangsu, city roads and highway
- **Test oil:** HDEO addpack in API CI-4 & SAE 15W-40
- **Test distance:** 78,174km (vehicle odometer at SoT 279,074km)
- Original engine parts with no replacement
- Overall excellent cleanliness at the end of the trial
 - Some carbon deposits on pistons
 - Cleanliness and wear as normal
- Summary: good wear resistance and dispersibility



Field test – Engine – API CK-4 15W-40



- **Test vehicle:** Jiefang branded CA4250P26K2T1E
Foton branded BJ4189Y6ADL-06
- **Test Engine:** CA6DM2-46E6; X13NS6B580
- **Route:** Xinxiang – Guangdong, Xinxiang - Zhejiang
- **Test oil:** HDEO addpack in API CK-4 & SAE 15W-40
- **Test distance:** 116,715 km (vehicle odometer at SoT 554896km)
112,565 km (vehicle odometer at SoT 47373 km)
- Original engine parts with no replacement, no harm trial
- Summary: excellent wear resistance with very low iron and copper in oil



Field test – LNG, CNG Engine – 15W-40

- **Test vehicle:** SinoTruk Hovo ZZ4257V384HF1LB
- **Test Engine:** WP15NG530E61
- **Route:** Hangzhou - Kunming
- **Test oil:** GEO addpack in SAE 10W-40
- **Test distance:** 123,867 km (vehicle odometer at SoT 399720km)
- Original engine parts used for the trial
- Overall excellent cleanliness at the end of the trial
 - Engine looks very clean after test with very few piston deposit and clean sump
 - All other components inspected clean with little signs of wear
- The engine parts rating is conducted by 3rd party lab, CATARC



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Upcoming Field Trial – SAE J2360 – in CHINA



First SAE J2360 to be run outside of North America

- Features: heavy duty, light duty and E-vehicles
- 25 units in total for standard and long drain



Conclusions

R Field trials offer proof of performance beyond specifications

- Testing in real world conditions which are beyond the controlled conditions in laboratory and rig tests

R They offer additional confidence in products that they will work in real world conditions

R Richful has run over 45,000,000km in over 365 vehicles to demonstrate performance of our products in real conditions

R Field trials are ongoing with Richful supported by the technology teams developing the formulations and the remote field trial support team



Thanks for Listening