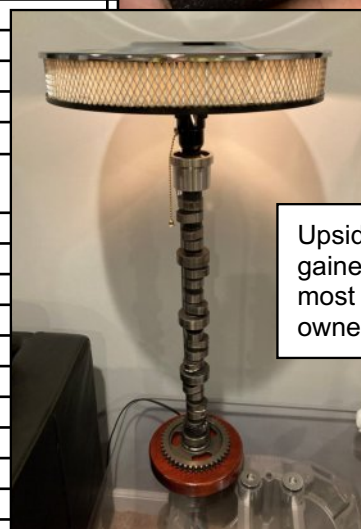


This '65 Mustang's got trouble.
Can you tell what's wrong?

To learn where the elements are coming from,
[click here](#) and scroll down.

UNIT	MAKE/MODEL: Ford 5.0L 302 CID V-8	OIL TYPE & GRADE: Motorcraft 10W/30
	FUEL TYPE: Gasoline (Unleaded)	OIL USE INTERVAL: 540 Miles
	ADDITIONAL INFO:	

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	540	UNIT / LOCATION AVERAGES	334	UNIVERSAL AVERAGES
	MI/HR on Unit	14,202		13,662	
	Sample Date	6/12/2022		7/21/2021	
	Make Up Oil Added	0 qts		0 qts	
ALUMINIUM	9	5	1	4	
CHROMIUM	6	4	1	1	
IRON	144	77	9	21	
COPPER	20	11	1	6	
LEAD	30	17	3	10	
TIN	3	2	0	1	
MOLYBDENUM	9	25	40	66	
NICKEL	1	1	0	1	
MANGANESE	2	1	0	2	
SILVER	0	0	0	0	
TITANIUM	0	1	1	1	
POTASSIUM	13	7	1	2	
BORON	79	80	81	49	
SILICON	65	38	10	11	
SODIUM	20	15	10	45	
CALCIUM	1369	1501	1633	1708	
MAGNESIUM	696	598	499	283	
PHOSPHORUS	1005	887	768	772	
ZINC	1103	987	871	908	
BARIUM	0	0	0	0	



Upside: The wiped cam gained a new life as the most expensive lamp the owner ever hopes to own!

PROPERTIES	Values Should Be*		
SUS Viscosity @ 210°F	63.0	59-69	68.5
cSt Viscosity @ 100°C	11.07	9.9-12.9	12.55
Flashpoint in °F	420	>385	435
Fuel %	<0.5	<2.0	<0.5
Antifreeze %	0.0	0	0.0
Water %	0.0	0.0	0.0
Insolubles %	0.4	<0.6	0.3
TBN			
TAN			
ISO Code			

The owner reported back: "You nailed it when you suggested wear at a steel-on-steel interface like cams/lifters. I tore the engine down to find four hydraulic roller lifters failed, with damage to cam lobes. One lifter dogbone was found broken on cylinder #1's intake lifter, likely due to the lifter dropping lower into the block. The only other damage found was a chunk of bearing material missing from the #3 crank bearing. The big question is, why did the roller lifters stop rolling? I am going to take these bits to a local engine builder for further inspection and analysis.

Later, he reported: The engine builder inspected the valvetrain bits and believes the failure was due to an incorrectly set-up valve train. We found ALL of the pushrods were bent; some only very slightly. It is likely the pushrods were the incorrect length, or the rocker arm height was set incorrectly.