

From: Luke Miller [REDACTED]

To: apactf [REDACTED]

Subject: Filter Report for L25366

Date: Fri, Jun 7, 2019 12:48 pm

Attachments: L25366-Filter.pdf (588K)

Hello,

Attached is a copy of the report we completed for the filter media you submitted with N8014T's latest oil sample. Feel free to respond to this email if you have any questions or follow-up information. We're always interested in learning about the exact source of metal if it can be located.

Thanks,

Luke Miller
Blackstone Labs



June 6, 2019

Oil filter analysis report corresponding to lab number: L25366

Findings: We received 1 section of pre-cut filter media about 16" long. The filter contained a large amount of brass/bronze/copper flakes (pictures 1-7, 9). These were identified by their reaction with nitric acid. The largest piece of debris was about 1/8" in diameter, with well over 20 pieces of debris present in every filter pleat. There were also a small amount of ferrous "whiskers" (picture 8). No significant amount of carbon or other debris was noted.

Conclusion: Based on what we found, we'd suggest corrective action 4 from Lycoming Service Bulletin 480F. The basics of that is inspect the engine until you can find the source of the metal and proceed with repairs from there. We consider this Lycoming Service bulletin applicable to Continental engines as well.

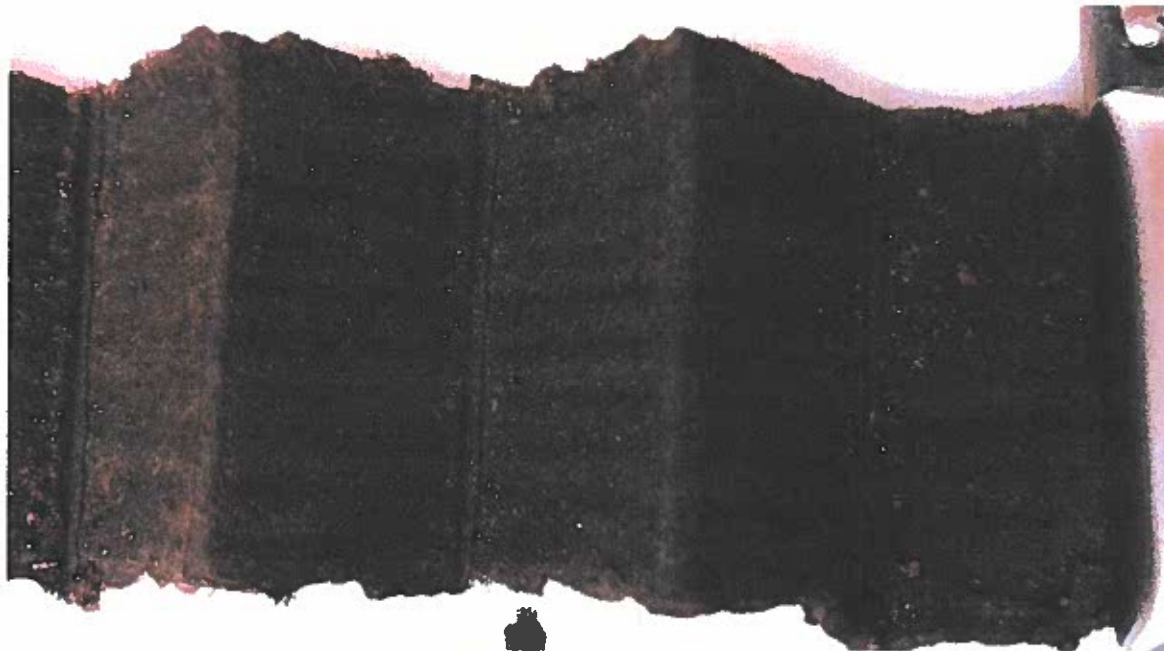
Note: We are just starting our filter analysis program and due to our relative inexperience on the subject, we are providing this report for informational purposes only and at No Charge. Any corrective action is solely the responsibility of the engine owner.

Sincerely,
Ryan Stark
President
Blackstone Laboratories Inc.

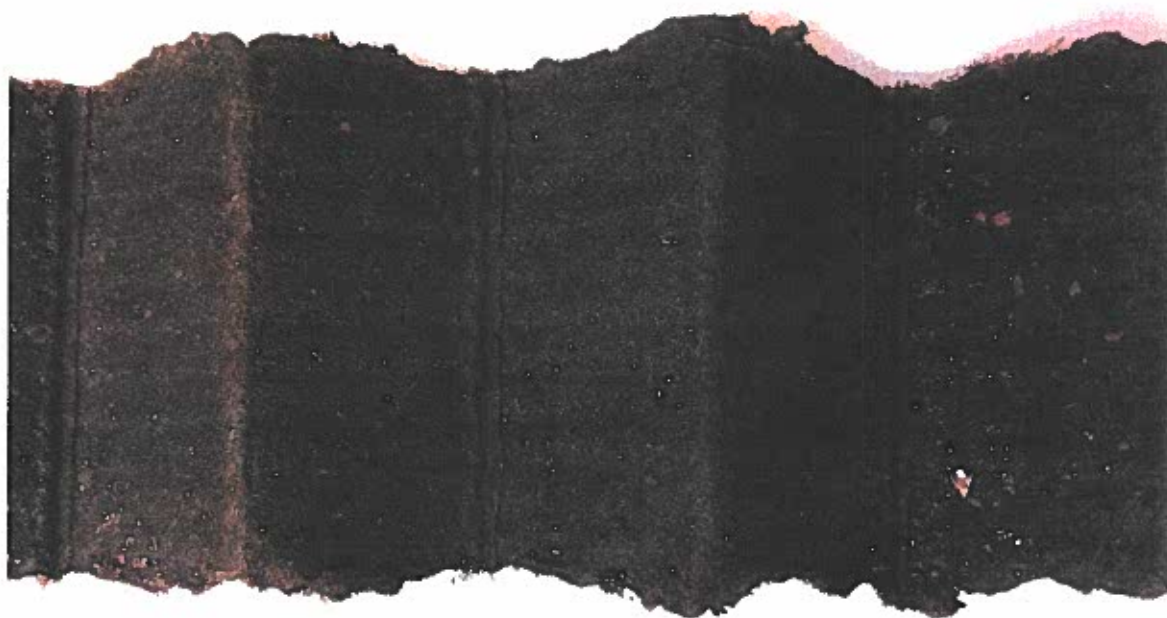
BLACKSTONE

LABORATORIES

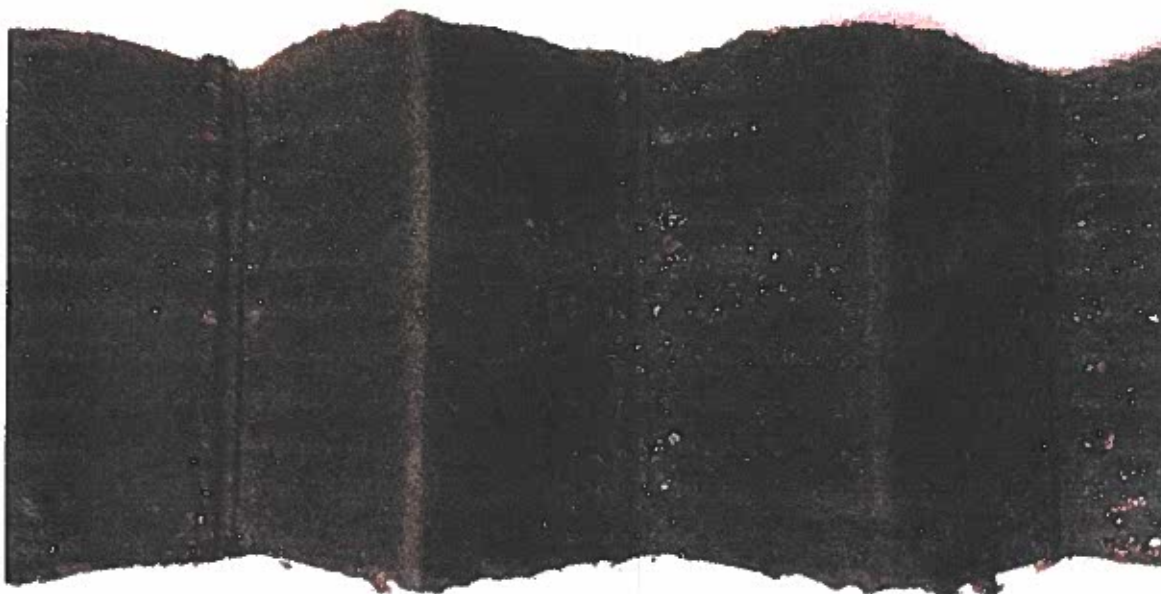
Picture 1



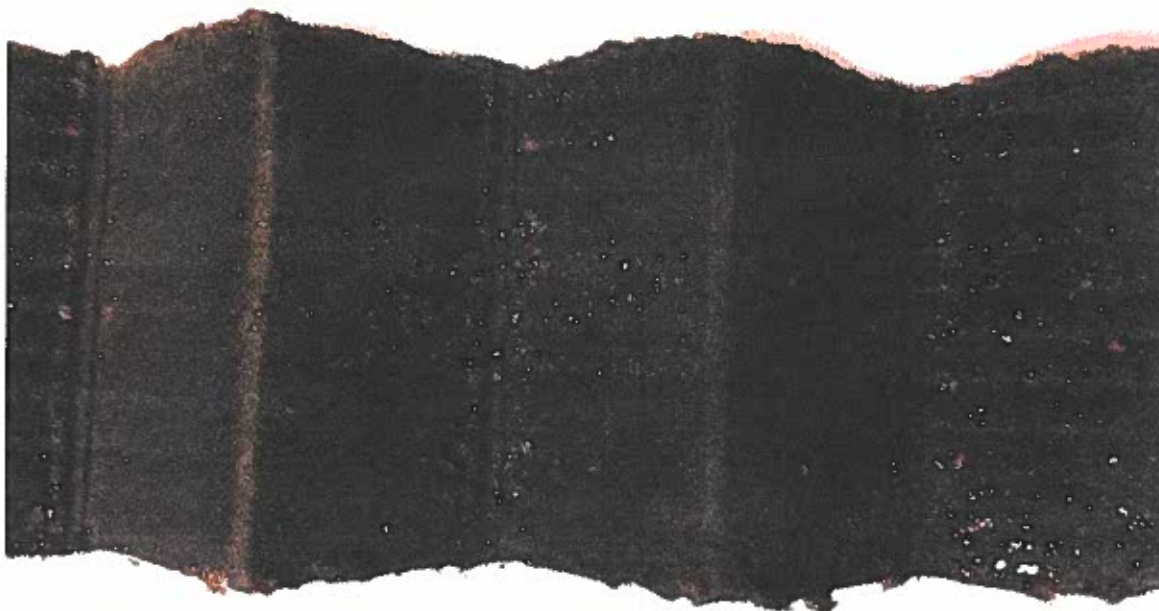
Picture 2



Picture 3



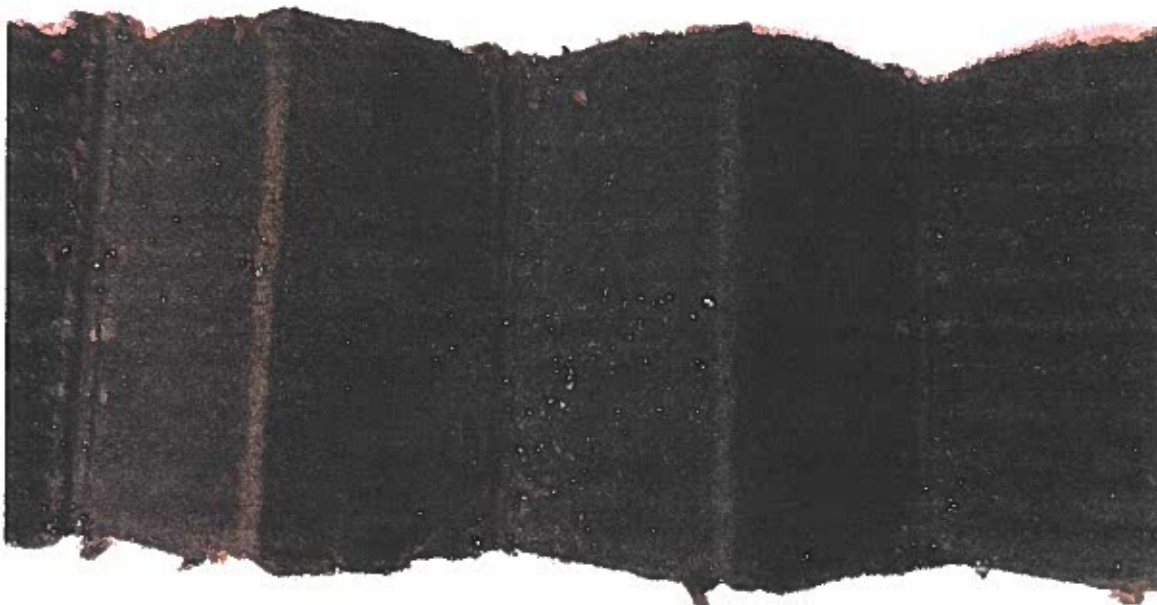
Picture 4



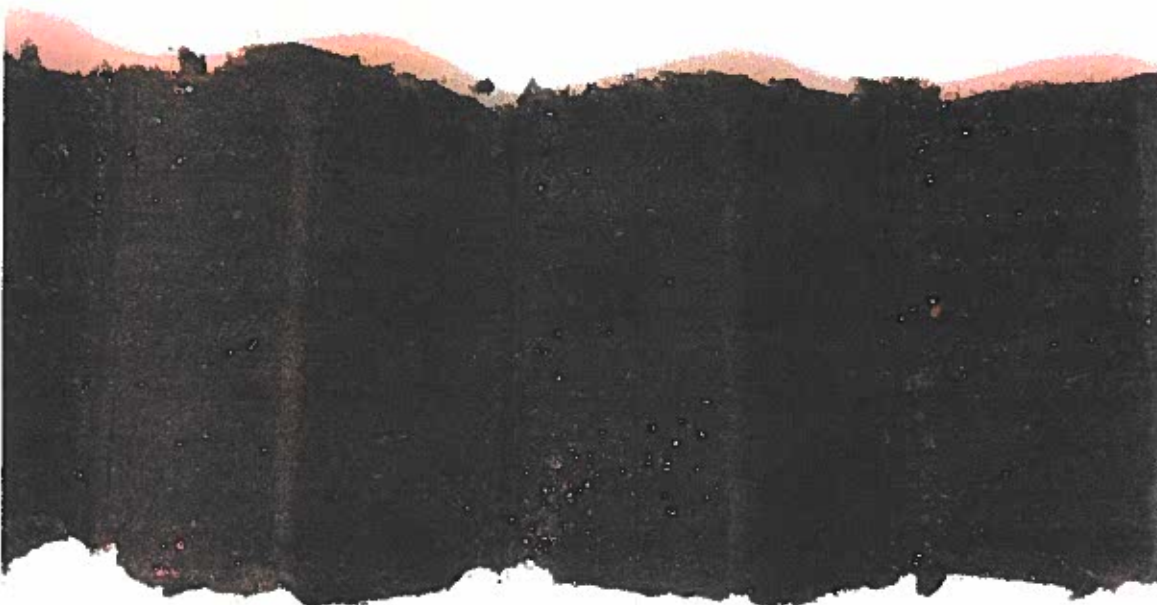
BLACKSTONE

LABORATORIES

Picture 5



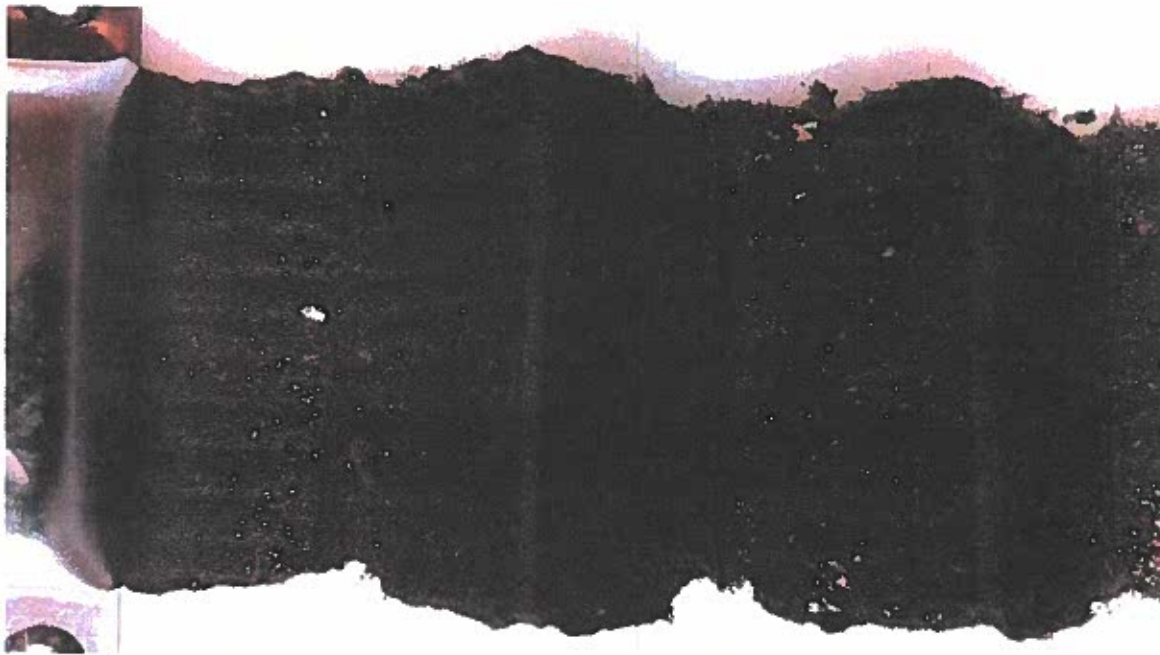
Picture 6



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Picture 7



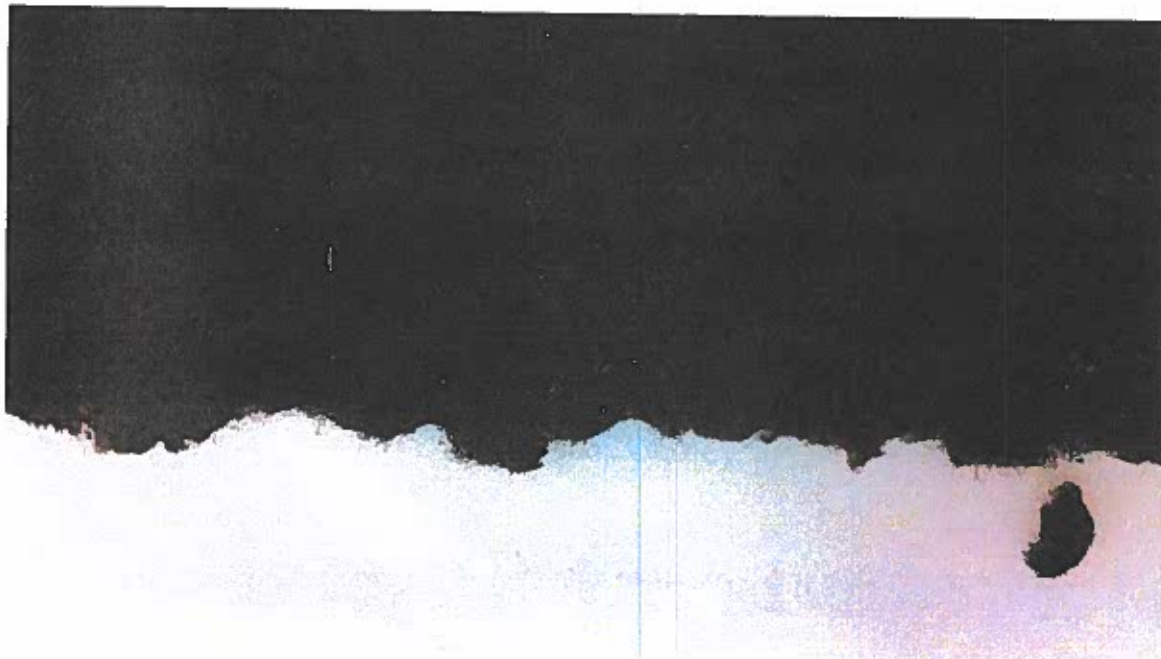
Picture 8



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Picture 9





OIL REPORT

LAB NUMBER: L25366
REPORT DATE: 6/6/2019
CODE: 20/75

UNIT ID: N8014T
CLIENT ID: 28039
PAYMENT: CC: Visa (Bulk)

UNIT	MAKE/MODEL:	Continental IO-550-B	OIL TYPE & GRADE:	Phillips (AC) 20W/50 Type M (Mineral)
	FUEL TYPE:	Gasoline (Leaded)	OIL USE INTERVAL:	36 Hours
	ADDITIONAL INFO:	Beech A36, S/N 1007-085		

CLIENT	ED LIBASSI	PHONE: [REDACTED]
	A + P AIRCRAFT MAINTENANCE	FAX: [REDACTED]
	MACARTHUR AIRPORT	ALT PHONE: [REDACTED]
	2111 SMITHTOWN AVE UNIT 1	EMAIL: [REDACTED]
	RONKONKOMA, NY 11779	

COMMENTS	ED: Thanks for the notes. Copper is high in this sample, but a good chunk of it is probably from the new parts wearing in from the cylinder work that was done before this oil was installed. The oil filter analysis shows lots of brass/bronze material, which might be from the wear-in process too, but it's hard to be sure. We've only just begun our oil filter analysis program so it's in its early stages. Once that report is ready, you should get a copy. If the copper in this sample is just wear-in material, it should drop quite a bit next time. All else looks good for N8014T in this report.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	36	UNIT / LOCATION AVERAGES	49	20				UNIVERSAL AVERAGES
	MI/HR on Unit	942		158	139				
	Sample Date	5/17/2019		12/19/2014	9/3/2013				
	Make Up Oil Added								
	ALUMINUM	13	15	14	17				8
	CHROMIUM	13	22	30	22				7
	IRON	48	77	90	94				41
	COPPER	27	19	17	13				5
	LEAD	3450	6929	9504	7832				4730
TIN	2	2	1	4				1	
MOLYBDENUM	3	6	7	7				4	
NICKEL	11	17	27	12				9	
MANGANESE	1	2	2	2				1	
SILVER	0	0	0	0				0	
TITANIUM	0	0	1	0				0	
POTASSIUM	0	0	0	0				1	
BORON	1	0	0	0				1	
SILICON	10	11	13	10				7	
SODIUM	1	1	1	2				1	
CALCIUM	1	5	6	7				24	
MAGNESIUM	1	1	1	2				1	
PHOSPHORUS	2	1	0	0				552	
ZINC	4	10	14	11				5	
BARIUM	0	0	0	0				0	

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	87.8	82-105	85.1	88.8			
	cSt Viscosity @ 100°C	17.44	16.0-21.8	16.80	17.70			
	Flashpoint in °F	455	>425	425	405			
	Fuel %	<0.5	<1.0	TR	1.3			
	Antifreeze %	-	-	-	-			
	Water %	0.0	0.0	0.0	0.0			
	Insolubles %	0.3	<0.6	0.4	0.4			
	TBN							
	TAN							
	ISO Code							

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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