Fuel filter test

For testing the kleenfuel filter we installed the filter in the return fuel line of engine OM314 Diesel engine that coupled with engine test dynamometer with eddy current dynamometer (Schenck W320). And test the engine in several time with and without filter. In both cycle the speed of engine are the same and around 2000 rpm. The F (torque of dynamometer) in both test are in 200 Nm.

For calculating the volume of fuel consumptions we use the container grading and for time calculating we use the mobile timer. The result of fuel consumption and gas pollutant in the below tables.

1 – Table of fuel consumption

Number of test	Time of Test	Engine RPM	(F) of Dynamo	Fuel consumption		Time duration	Consumption/ Min	
				With Filter	Without filter			
1	10:50 Am	2000	198		2 liter	9 min	0.222	
2	11:09 Am	2000	202	2 liter		10 min	0.2	
3	11:21 Am	2000	201	2 liter		8.39 min	0.238	
4	11:35 Am	2000	200		2 liter	9.45 min	0.211	
5	12:08 Am	2000	200	2 liter		9.03 min	0.221	
6	12:18 Am	2000	200	2 liter		9.30 min	0.215	
7	12:30 Am	2000	200		2 liter	8.29 min	0.241	
8	13:44 Pm	2000	200		2 liter	9.10 min	0.219	
9	14:15 Pm	2000	200	2 liter		10.20 min	0.196	
10	14:29 Pm	2000	200	4 liter		20.36 min	0.196	
11	15:02 Pm	2000	200		4 liter	16.38 min	0.244	-27%
13	15:21 Pm	2000	200	2 liter		11.36 min	0.176	

We run the engine with fuel that showed in the photo No.2 (the color of fuel is not good). And testing the item number 1, 2 and 3 with this dirty fuel. For item number 4 up to the end, we change the fuel with the clean fuel (photo No.3).

Because of using the container grading to measure the fuel consumption and a timer to measure the time duration the test, there is possibility of measurement error for Consumption/ Min during this test and we estimate the correct value is between 18% to 20% reduction. We have plan to use other laboratory that have enough instrument for next test to get exact results.

2 – Table of gas pollutant

item	Pollutant particle	With filter	Without filter
1	HC	0 ppm	11 ppm
2	Co	0.02 %	0.07 %
3	Co2	0.1%	10.6 %
4	O2	19.68 %	21.58 %
5	Lambda	9.999	-------
6	No	17 ppm	816 ppm
7	No2	0 ppm	0 ppm

Photo No.1 – filter under testing

Photo No. 2 – the color of fuel before the test

Photo No.3 – the color of fuel after test

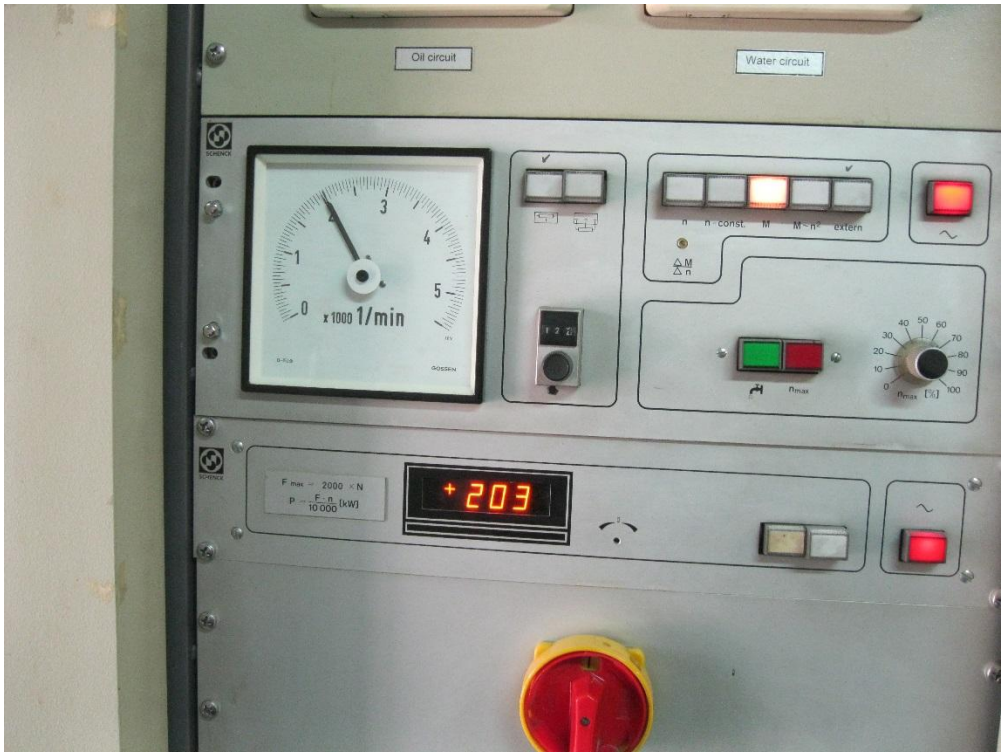

Photo No 4 – the dynamometer situation