

Tabel. Data identitas sampel oli bekas

No	Jenis Motor	Tahun Motor	Jenis Oli	Odometer Sebelumnya	Odometer Sekarang	Plat Nomor	Nama Pemilik/Pemakai	Alamat Pemilik / Pemakai	Keterangan
1	Beat PGMFI	2015	MPX4	516	1252	R 3584 XX	Rezky	Perum Gria Satria	Oli Bekas 1
2	Beat PGMFI	2013	MPX5	10000	11689	AB 6146 XX	Shoby	Pejaksen Jogjakarta	Oli Bekas 2
3	Beat PGMFI	2013	MPX3	4890	6690	BM 3199 XX			Oli Bekas 3
4	Beat PGMFI	2015	MPX2	9896	12307	B 6743 XXX	David Novembri	JL. Candrawasih V Jakarta	Oli Bekas 4
5	Beat PGMFI	2014	MPX6	9000	12745	AB 3205 X			Oli Bekas 5

Tabel. Data hasil pengukuran viskositas oli bekas 4

No.	Fluida	Rotor	Speed (rpm)	Percent (%)	Temperatur	Viskositas (mPas)	Rata-rata Viskositas
1	Oli Bekas 4 Temp. Kamar	1	1.5	1.8	29.1	72	38.35555556
		1	3	4.2	29.2	84	
		1	6	8.1	29.2	81	
		1	12	15.5	29.2	77.5	
		1	30	38.7	29.2	77.4	
		1	60	77.5	29.2	77.5	
2	Oli Bekas 4 Temp. $\pm 45^{\circ}\text{C}$	1	30	20.4	43	40.8	
		1	60	40.7	43	40.7	
		1	12	8	43.1	40	
		1	6	4.1	43.2	41	
		1	1.5	1.3	43.3	52	
		1	3	2.3	43.3	46	
3	Oli Bekas 4 Temp. $\pm 55^{\circ}\text{C}$	1	60	27	53.3	27	
		1	1.5	0.8	53.8	32	
		1	3	1.4	53.8	28	
		1	6	2.5	53.8	25	
		1	12	5.2	53.8	26	
		1	30	13.1	53.8	26.2	
4	Oli Bekas 4 Temp. $\pm 65^{\circ}\text{C}$	1	60	18.5	64.6	18.5	
		1	30	8.8	64.8	17.6	
		1	12	3.4	65	17	
		1	6	1.8	65.1	18	
		1	3	0.9	65.4	18	
5	Oli Bekas 4 Temp. $\pm 75^{\circ}\text{C}$	1	60	13.6	75	13.6	
		1	6	1.4	75.3	14	
		1	30	6.4	75.3	12.8	
		1	12	2.4	75.4	12	

Tabel. Data hasil pengukuran viskositas oli bekas 3

No.	Fluida	Rotor	Speed (rpm)	Percent (%)	Temperatur	Viskositas (mPas)	Rata-rata Viskositas
1	Oli Bekas 3 Temp. Kamar	1	1.5	1.8	30	72	36.32333333
		1	3	3.9	30	78	
		1	6	7.9	30.1	79	
		1	12	15.1	30.2	75.5	
		1	30	37.7	30.2	75.4	
		1	60	75.3	30.2	75.3	
2	Oli Bekas 3 Temp. ±45°C	1	1.5	1.2	44	48	
		1	3	2.2	44	44	
		1	60	39.9	44	39.9	
		1	6	3.9	44.1	39	
		1	12	7.8	44.1	39	
		1	30	19.8	44.1	39.6	
3	Oli Bekas 3 Temp. ±55°C	1	60	27.7	53.2	27.7	
		1	1.5	1	53.7	40	
		1	30	13.6	53.7	27.2	
		1	12	5.4	53.8	27	
		1	3	1.6	53.9	32	
		1	6	2.6	53.9	26	
4	Oli Bekas 3 Temp. ±65°C	1	60	18.6	65.5	18.6	
		1	30	8.9	65.7	17.8	
		1	12	3.4	66	17	
		1	6	1.9	66.4	19	
		1	3	0.8	66.7	16	
		1	1.5	0.6	66.8	24	
5	Oli Bekas 3 Temp. ±75°C	1	30	7.2	73	14.2	
		1	60	14.5	73	14.5	
		1	12	2.6	73.3	13	
		1	6	1.5	73.5	15	
		1	3	0.6	74.2	12	
		1	1.5	0.6	75	24	

Tabel. Data hasil pengukuran viskositas oli bekas 1

No.	Fluida	Rotor	Speed (rpm)	Percent (%)	Temperatur	Viskositas (mPas)	Rata-rata Viskositas
1	Oli Bekas 1 Temp. Kamar	1	1.5	1.6	30	64	32.34
		1	3	3.6	30.2	72	
		1	6	6.9	30.2	69	
		1	12	13.4	30.3	67	
		1	30	33.9	30.3	67.8	
		1	60	67.4	30.3	67.4	
2	Oli Bekas 1 Temp. ±45°C	1	60	34.4	45.4	34.4	
		1	30	16.7	45.6	33.4	
		1	6	3.3	45.7	33	
		1	12	6.6	45.7	33	
		1	1.5	0.9	45.8	36	
		1	3	1.7	45.9	34	
3	Oli Bekas 1 Temp. ±55°C	1	3	1.4	53.8	28	
		1	12	4.8	53.8	24	
		1	30	12.2	53.8	24.4	
		1	60	24.9	53.8	24.9	
		1	6	2.6	54	26	
		1	1.5	0.7	54.6	28	
4	Oli Bekas 1 Temp. ±65°C	1	60	17.5	65	17.5	
		1	30	8.5	65.2	17	
		1	12	3.2	65.6	16	
		1	6	1.9	66	19	
		1	3	0.8	66.5	16	
		1	1.5	0.7	66.8	28	
5	Oli Bekas 1 Temp. ±75°C	1	3	0.8	76	16	
		1	1.5	0.6	76.7	24	
		1	6	1.4	77.1	14	
		1	12	2.5	77.6	12.5	
		1	60	12.3	77.6	12.3	
		1	30	5.8	77.9	11.6	

Tabel. Data hasil pengukuran viskositas oli bekas 2

No.	Fluida	Rotor	Speed (rpm)	Perセント (%)	Temperatur	Viskositas (mPas)	Rata-rata viskositas
1	Oli Bekas 2 Temp. Kamar	1	1.5	2.1	30.3	84	32.46071429
		1	3	3.6	30.5	72	
		1	6	6.7	30.6	67	
		1	12	12.4	30.6	62	
		1	30	31.1	30.7	62.2	
		1	60	62.9	30.8	62.9	
2	Oli Bekas 2 Temp. $\pm 45^{\circ}\text{C}$	1	60	34.8	44.1	34.8	
		1	30	17	44.2	34	
		1	12	6.7	44.3	33.5	
		1	6	3.4	44.6	34	
		1	3	1.8	44.9	36	
		1	1.5	1	45.3	40	
3	Oli Bekas 2 Temp. $\pm 55^{\circ}\text{C}$	1	12	4.7	53	23.5	
		1	60	24.7	53	24.7	
		1	3	1.2	53.1	24	
		1	6	2.2	53.1	22	
		1	30	12.1	53.1	24.2	
		1	1.5	0.8	53.2	32	
4	Oli Bekas 2 Temp. $\pm 75^{\circ}\text{C}$	1	60	16.6	65.4	16.6	
		1	30	7.8	65.7	15.6	
		1	12	3	65.8	15	
		1	6	1.6	66	16	
		1	3	0.8	66.4	16	
5	Oli Bekas 2 Temp. $\pm 75^{\circ}\text{C}$	1	60	11.6	78.2	11.6	
		1	30	5.4	78.6	10.8	
		1	3	0.6	78.8	12	
		1	6	1.2	78.8	12	
		1	12	2.1	78.8	10.5	

Tabel. Data hasil pengukuran viskositas oli bekas 5

No.	Fluida	Rotor	Speed (rpm)	Percent (%)	Temperatur	Viskositas (mPas)	Rata-rata Viskositas
1	Oli Bekas 5 Temp. Kamar	1	1.5	1.8	29.9	72	35.59
		1	3	3.8	30	76	
		1	6	7.6	30	76	
		1	12	14.7	30	73.5	
		1	30	37	30	74	
		1	60	74.1	30	74.1	
2	Oli Bekas 5 Temp. ±45°C	1	6	3.7	44.7	37	
		1	12	7.3	44.7	36.5	
		1	30	18.7	44.7	37.4	
		1	60	38.1	44.8	38.1	
		1	3	1.9	45	38	
		1	1.5	0.8	45.3	32	
3	Oli Bekas 5 Temp. ±55°C	1	6	2.8	52.4	28	
		1	3	1.6	52.6	32	
		1	30	13.5	52.6	27	
		1	60	27.6	52.8	27.6	
		1	12	5.5	52.9	27.5	
		1	1.5	1	53	40	
4	Oli Bekas 5 Temp. ±65°C	1	60	18.5	64.6	18.5	
		1	30	9	64.8	18	
		1	1.5	0.8	65.3	32	
		1	12	3.6	65.3	18	
		1	3	1	65.4	20	
		1	6	2	65.6	20	
5	Oli Bekas 5 Temp. ±75°C	1	60	13.8	74.8	13.8	
		1	30	6.6	75	13.2	
		1	12	2.7	75.4	13.5	
		1	1.5	0.6	76.7	24	
		1	3	0.7	76.7	14	
		1	6	1.6	76.7	16	

Tabel. Data hasil pengukuran viskositas oli baru

No.	Fluida	Rotor	Speed (rpm)	Percent (%)	Temperatur	Viskositas (mPas)	Rata-rata Viskositas
1	Oli Baru Temp. Kamar	1	1.5	2.9	28.4	116	51.34827586
		1	3	5.5	28.4	110	
		1	6	11	28.4	110	
		1	12	21.7	28.4	108.5	
		1	30	54.3	28.4	108.8	
		1	60	100	28.4	100	
2	Oli Baru Temp. $\pm 45^{\circ}\text{C}$	1	12	10.2	43.1	51	
		1	3	3.2	43.4	64	
		1	6	5.8	43.4	58	
		1	30	26.3	43.4	52.6	
		1	1.5	1.8	43.5	72	
		1	60	51.5	43.7	51.5	
3	Oli Baru Temp. $\pm 55^{\circ}\text{C}$	1	60	35.7	53	35.7	
		1	30	17.3	53.1	34.6	
		1	12	6.9	53.8	34.5	
		1	1.5	1.1	53.9	44	
		1	3	2.1	53.9	42	
		1	6	3.4	53.9	34	
4	Oli Baru Temp. $\pm 65^{\circ}\text{C}$	1	1.5	0.7	59.4	28	
		1	3	1.7	61.1	34	
		1	6	2.4	61.5	24	
		1	60	25.7	62.2	25.7	
		1	12	5.2	62.4	26	
		1	30	12.6	62.4	25.2	
5	Oli Baru Temp. $\pm 75^{\circ}\text{C}$	1	6	2.1	68.2	21	
		1	3	1.1	68.6	22	
		1	12	3.9	71.5	19.5	
		1	60	18.7	71.8	18.7	
		1	30	8.9	72	17.8	

Tabel. Data pengukuran konduktivitas termal sampel oli

No	Jenis Fluida	T1(°C)	T2(°C)	Tegangan Heater (Volt)	Arus Heater (A)	Daya, Qe, (Watt)	(T1-T2) (°C)	Qi (Watt)	Qc (Watt)	Tebal Spesimen (m)	Luas Permukaan (m ²)	K Eksperimen (W/mk)	Temperatur Rata-rata (°C)
1	Oli Bekas 1	28.1	27.7	37	0.065	2.405	0.4	0.085	2.32	0.00034	0.0133	0.14827068	27.9
		30.6	30.1	41	0.073	2.993	0.5	0.1	2.893	0.00034	0.0133	0.14791278	30.35
		35.8	30.1	129	0.245	31.605	5.7	0.78	30.825	0.00034	0.0133	0.13824693	32.95
		47	33.1	202	0.342	69.084	13.9	2	67.084	0.00034	0.0133	0.12337621	40.05
		48.8	35.1	189	0.337	63.693	13.7	2	61.693	0.00034	0.0133	0.11511783	41.95
2	Oli Bekas 2	27.3	26.4	47	0.085	3.995	0.9	0.1	3.895	0.00034	0.0133	0.11063492	26.85
		32.3	31.8	42	0.075	3.15	0.5	0.1	3.05	0.00034	0.0133	0.15593985	32.05
		35.6	28.9	141	0.269	37.929	6.7	1.2	36.729	0.00034	0.0133	0.14013983	32.25
		47.4	32.2	213	0.36	76.68	15.2	2.25	74.43	0.00034	0.0133	0.12517907	39.8
		49.8	36.8	188	0.337	63.356	13	1.9	61.456	0.00034	0.0133	0.12085043	43.3
3	Oli Bekas 3	28	27.2	47	0.085	3.995	0.8	0.12	3.875	0.00034	0.0133	0.12382519	27.6
		28.5	28.2	35	0.061	2.135	0.3	0.08	2.055	0.00034	0.0133	0.17511278	28.35
		36.3	30.1	134	0.255	34.17	6.2	0.8	33.37	0.00034	0.0133	0.13759156	33.2
		45.8	31.5	194	0.346	67.124	14.3	2.1	65.024	0.00034	0.0133	0.11624249	38.65
		47	33.5	204	0.345	70.38	13.5	1.8	68.58	0.00034	0.0133	0.12986466	40.25
4	Oli Bekas 4	32.4	32.1	39	0.07	2.73	0.3	0.08	2.65	0.00034	0.0133	0.22581454	32.25
		28.1	27.7	35	0.061	2.135	0.4	0.085	2.05	0.00034	0.0133	0.13101504	27.9
		35.2	29.8	129	0.245	31.605	5.4	0.75	30.855	0.00034	0.0133	0.14606934	32.5
		45.4	32.9	203	0.343	69.629	12.5	1.75	67.879	0.00034	0.0133	0.13882021	39.15
		50.7	39	185	0.337	62.345	11.7	1.7	60.645	0.00034	0.0133	0.13250627	44.85

5	Oli Bekas 5	27.2	26.3	47	0.086	4.042	0.9	0.17	3.872	0.00034	0.0133	0.10998162	26.75
		34.9	28.6	136	0.261	35.496	6.3	0.85	34.646	0.00034	0.0133	0.14058527	31.75
		33.1	32	55	0.104	5.72	1.1	0.22	5.5	0.00034	0.0133	0.12781955	32.55
		34.3	31.9	80	0.157	12.56	2.4	0.3	12.26	0.00034	0.0133	0.13058897	33.1
		34.8	34.2	42	0.077	3.234	0.6	0.1	3.134	0.00034	0.0133	0.13352882	34.5
		38.4	33.2	121	0.235	28.435	5.2	0.72	27.715	0.00034	0.0133	0.13625072	35.8
		39.1	33	129	0.249	32.121	6.1	0.9	31.221	0.00034	0.0133	0.13084112	36.05
		37.9	34.6	96	0.189	18.144	3.3	0.45	17.694	0.00034	0.0133	0.13706904	36.25
		41.6	34.1	145	0.275	39.875	7.5	1.1	38.775	0.00034	0.0133	0.13216541	37.85
		46.8	31.8	209	0.354	73.986	15	2.2	71.786	0.00034	0.0133	0.12234206	39.3
		45.2	34.7	322	0.173	55.706	10.5	1.5	54.206	0.00034	0.0133	0.13197308	39.95
		50.8	35.6	211	0.356	75.116	15.2	2.3	72.816	0.00034	0.0133	0.12246458	43.2
		49.8	36.8	185	0.33	61.05	13	1.9	59.15	0.00034	0.0133	0.11631579	43.3
6	Oli Baru	28.4	27.6	48	0.087	4.176	0.8	0.15	4.026	0.00034	0.0133	0.12865038	28
		29.2	28.2	51	0.096	4.896	1	0.2	4.696	0.00034	0.0133	0.12004812	28.7
		30.8	28.1	84	0.17	14.28	2.7	0.4	13.88	0.00034	0.0133	0.13141743	29.45
		30.9	30.4	39	0.069	2.691	0.5	0.1	2.591	0.00034	0.0133	0.13247218	30.65
		32.2	31.1	56	0.106	5.936	1.1	0.22	5.716	0.00034	0.0133	0.13283937	31.65
		35.4	29.3	130	0.252	32.76	6.1	0.9	31.86	0.00034	0.0133	0.13351904	32.35
		35.7	31.9	100	0.196	19.6	3.8	0.5	19.1	0.00034	0.0133	0.12849228	33.8
		39.6	31	157	0.296	46.472	8.6	1.3	45.172	0.00034	0.0133	0.13427592	35.3
		39	33	128	0.247	31.616	6	0.85	30.766	0.00034	0.0133	0.13108321	36
		41.5	31.1	171	0.319	54.549	10.4	1.5	53.049	0.00034	0.0133	0.13039806	36.3
		43	33.3	162	0.303	49.086	9.7	1.4	47.686	0.00034	0.0133	0.12567429	38.15
		44.3	32.2	188	0.337	63.356	12.1	1.75	61.606	0.00034	0.0133	0.13015622	38.25
		44.9	32.4	189	0.338	63.882	12.5	1.8	62.082	0.00034	0.0133	0.12696469	38.65
		45.7	32.8	195	0.345	67.275	12.9	1.9	65.375	0.00034	0.0133	0.12955354	39.25
46.9	32.6	201	0.352	70.752	14.3	2.1	68.652	0.00034	0.0133	0.12272822	39.75		
46.5	33.7	192	0.341	65.472	12.8	1.85	63.622	0.00034	0.0133	0.12706461	40.1		

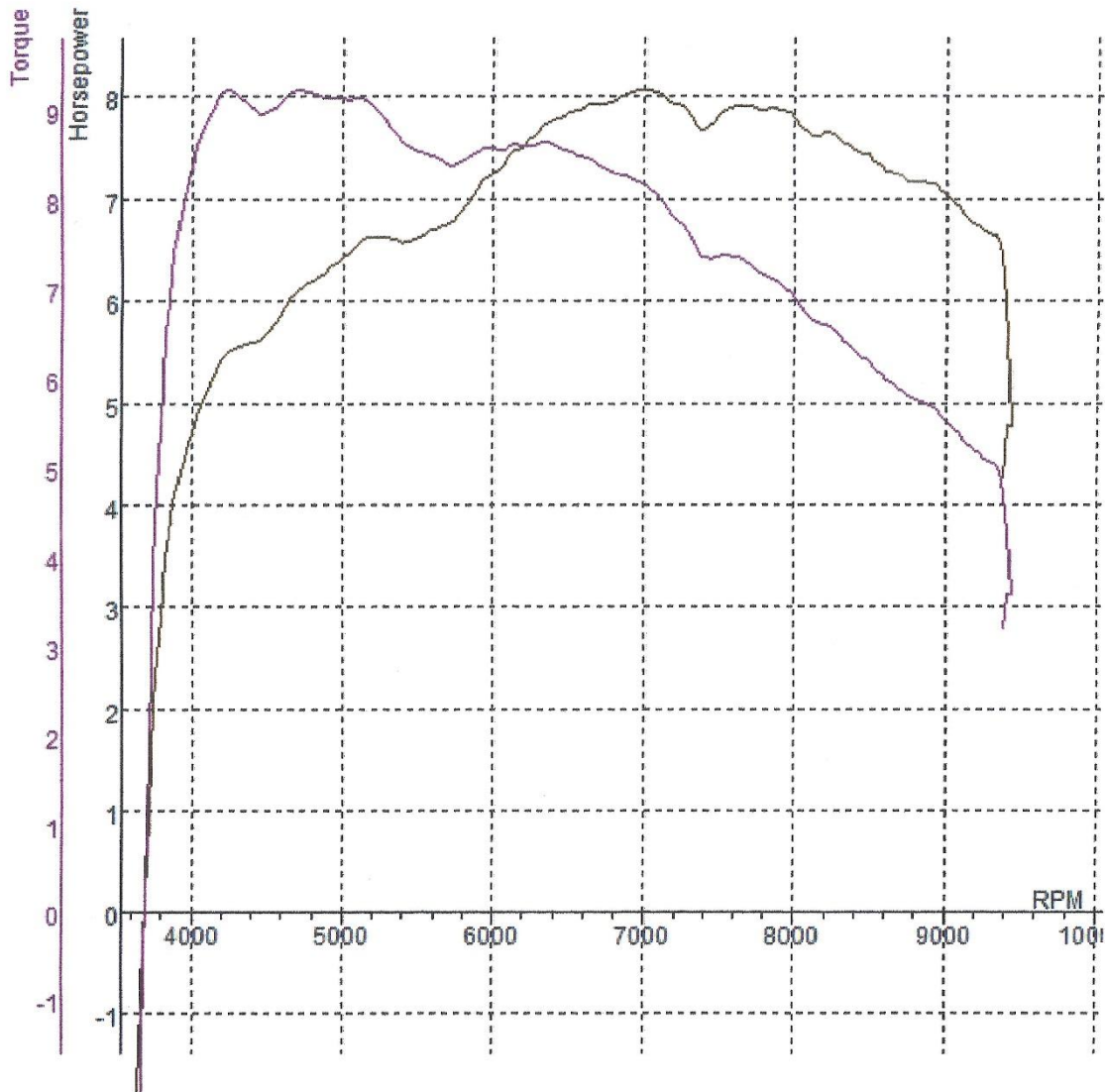
	46.8	34.4	191	0.339	64.749	12.4	1.8	62.949	0.00034	0.0133	0.12977601	40.6
	47.2	34.2	191	0.343	65.513	13	1.9	63.613	0.00034	0.0133	0.12509208	40.7
	47.8	34.3	188	0.34	63.92	13.5	2	61.92	0.00034	0.0133	0.11725313	41.05
	49	33.3	212	0.358	75.896	15.7	2.3	73.596	0.00034	0.0133	0.11983449	41.15
	50.5	34.9	211	0.356	75.116	15.6	2.3	72.816	0.00034	0.0133	0.11932447	42.7

Tabel. Data hasil pengukuran konsumsi bahan bakar

Sampel Oli	Odometer Awal	Odometer Akir	Jarak (KM)	Waktu (jam)	Volume BBM (Liter)
Oli Baru	36378.3	36383.5	5.2	0.1778	0.053
	36786.1	36791.3	5.2	0.1611	0.088
Oli Bekas 1	36393.75	36398.9	5.15	0.1627	0.073
	36770.6	36775.75	5.15	0.1611	0.078
Oli Bekas 2	36398.9	36404.05	5.15	0.1602	0.073
	36775.75	36780.95	5.2	0.162	0.083
Oli Bekas 3	36388.6	36393.75	5.15	0.164	0.071
	36765.4	36770.6	5.2	0.614	0.074
Oli Bekas 4	36383.5	36388.6	5.1	0.16	0.057
	36760.2	36765.4	5.2	0.1605	0.072
Oli Bekas 5	36404.05	36409.2	5.15	0.1616	0.0605
	36780.95	36786.1	5.15	0.1622	0.069

Displacement Correction
Correction Factor: ISO 1585
NOTE: Load Cell Included.

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLI T018	8.1 (8.4) / 7021	9.23 (9.79) / 4699	29.1 °C	84 %	1000.0 mbar	96.8	23/06/2016 10:11:41



DATA FOR TEST: DAVID PRASETYO TEST OLI T018

Comments
MPX2 OLI6 BARU

RPM	HP (HP70 (N*M*M))	T
4000	4.7	8.37
4250	5.5	9.22
4500	5.7	8.99
4699	6.1	9.23
4750	6.2	9.21
5000	6.4	9.13
5250	6.6	8.96
5500	6.6	8.54
5750	6.8	8.40
6000	7.3	8.57
6250	7.6	8.61
6500	7.8	8.55
6750	7.9	8.32
7000	8.1	8.15
7021	8.1	8.14
7250	7.9	7.71
7500	7.8	7.38
7750	7.9	7.17
8000	7.8	6.87
8250	7.6	6.53
8500	7.4	6.15
8750	7.2	5.78
9000	7.1	5.53
9250	6.7	5.10

LOSSES: -0.3 HP -0.6N*M*M
TOTAL ENGINE: 8.4HP 9.79N*M*M

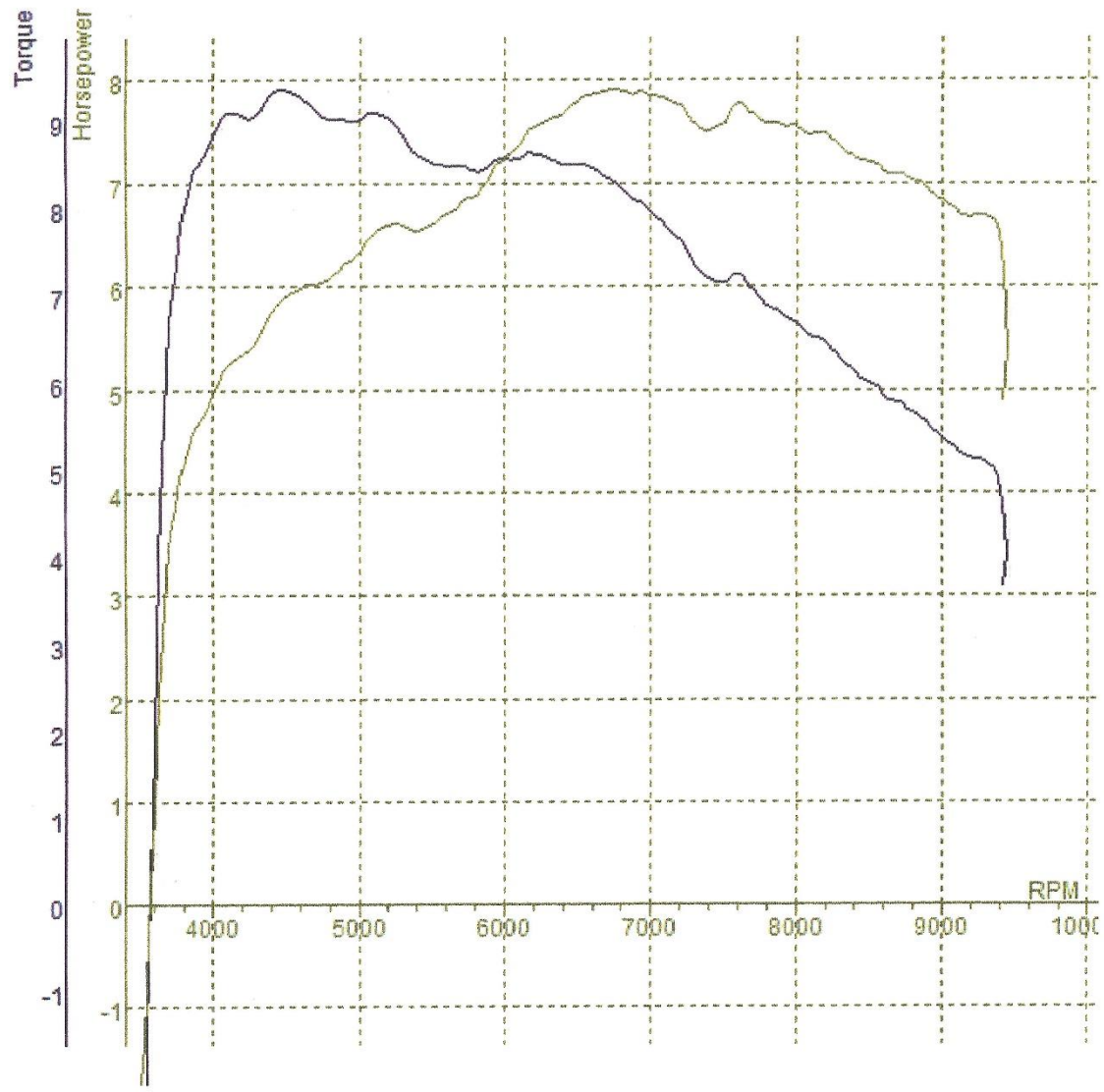


SPORTDYNO V3.3
 DYNAMOMETER: HMMC - RPD
 ROLLER INERTIA: 1.53

Displacement Correction
 Correction Factor: ISO 1585
 NOTE: Load Cell Included.

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLI T003	7.9 (8.2) / 6747	9.36 (9.95) / 4457	28.8 °C	84 %	1000.0 mbar	96.9	23/06/2016 9:39:34

DATA FOR TEST: DAVID PRASETYO TEST OLI T003

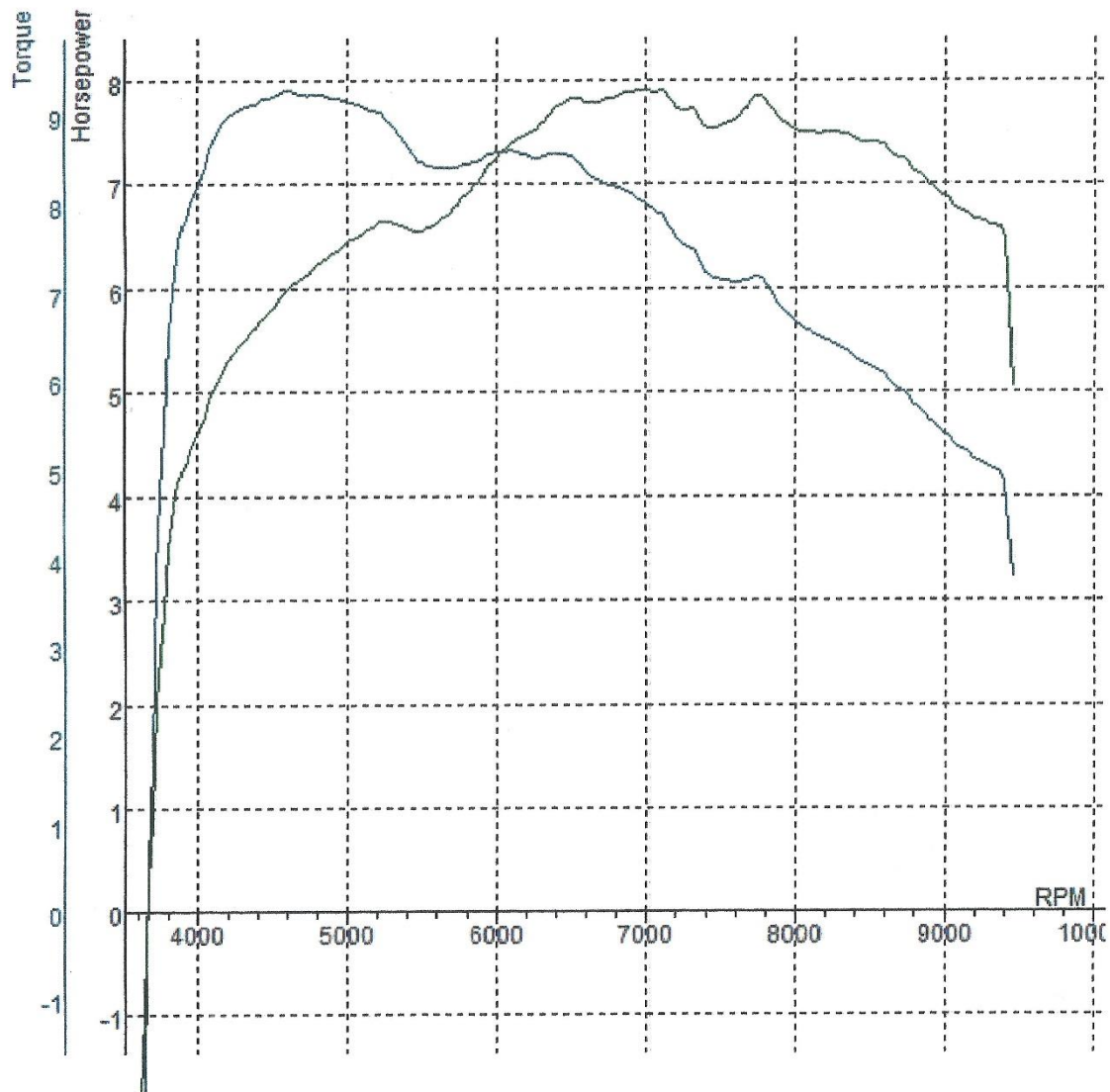


Comments
 MPX2 OLII

RPM	HP (HP/Q)	(N*M*M)	T
4000	5.0	8.89	1.32
4250	5.4	9.02	1.56
4457	5.9	9.36	1.76
4500	5.9	9.35	1.80
4750	6.1	9.04	2.06
5000	6.4	9.01	2.32
5250	6.6	8.92	2.58
5500	6.6	8.52	2.84
5750	6.9	8.44	3.12
6000	7.3	8.57	3.38
6250	7.6	8.60	3.64
6500	7.8	8.49	3.92
6747	7.9	8.31	4.18
6750	7.9	8.28	4.20
7000	7.9	7.93	4.48
7250	7.7	7.50	4.78
7500	7.6	7.15	5.12
7750	7.6	6.93	5.44
8000	7.6	6.67	5.78
8250	7.4	6.36	6.14
8500	7.2	6.00	6.52
8750	7.0	5.68	6.94
9000	6.8	5.36	7.36
9250	6.7	5.11	7.82

LOSSES: -0.3 HP -0.6N*M*M
 TOTAL ENGINE: 8.2HP 9.95N*M*M

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLI T006	7.9 (8.3) / 6979	9.28 (9.99) / 4585	29.1 °C	84 %	1000.0 mbar	97.0	23/06/2016 9:48:17



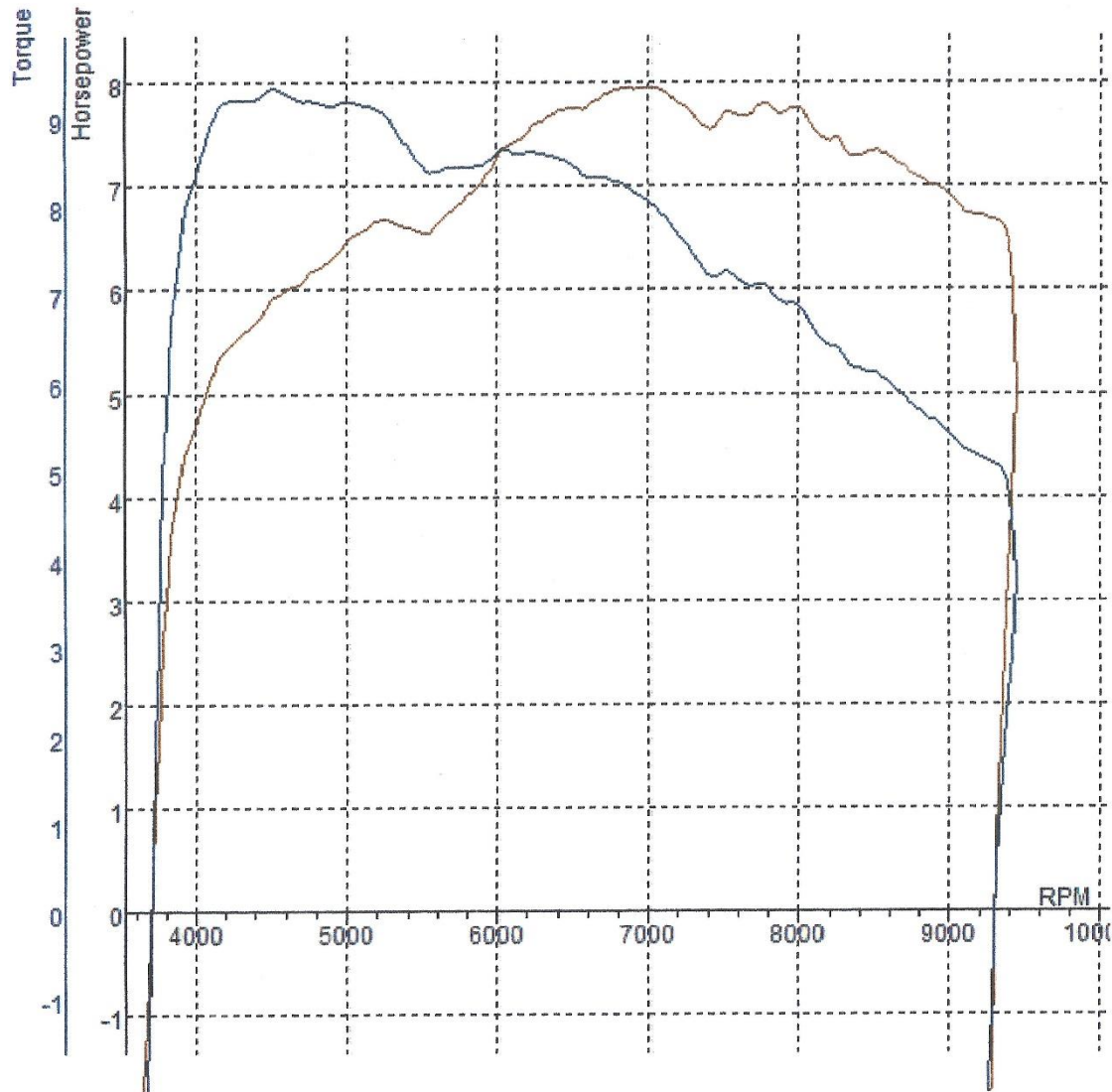
DATA FOR TEST: DAVID PRASETYO TEST OLI T006

Comments
MPX2 OLI2

RPM	HP (HP)Q (N*M*M)	T
4000	4.6 8.24	1.08
4250	5.4 9.04	1.34
4500	5.8 9.20	1.58
4585	6.0 9.28	1.66
4750	6.2 9.22	1.84
5000	6.4 9.15	2.08
5250	6.6 8.96	2.34
5500	6.6 8.45	2.62
5750	6.8 8.42	2.88
6000	7.3 8.57	3.14
6250	7.5 8.50	3.42
6500	7.8 8.53	3.68
6750	7.8 8.19	3.98
6979	7.9 8.02	4.22
7000	7.9 7.98	4.26
7250	7.7 7.52	4.56
7500	7.6 7.12	4.88
7750	7.8 7.16	5.20
8000	7.5 6.65	5.54
8250	7.5 6.42	5.90
8500	7.4 6.16	6.28
8750	7.2 5.80	6.68
9000	6.9 5.39	7.12
9250	6.6 5.05	7.58

LOSSES: -0.4 HP -0.7N*M*M
TOTAL ENGINE: 8.3HP 9.99N*M*M

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLI T009	7.9 (14.4) / 6959	9.33 (14.25) / 4493	29.1 °C	84 %	1000.0 mbar	96.9	23/06/2016 9:55:14



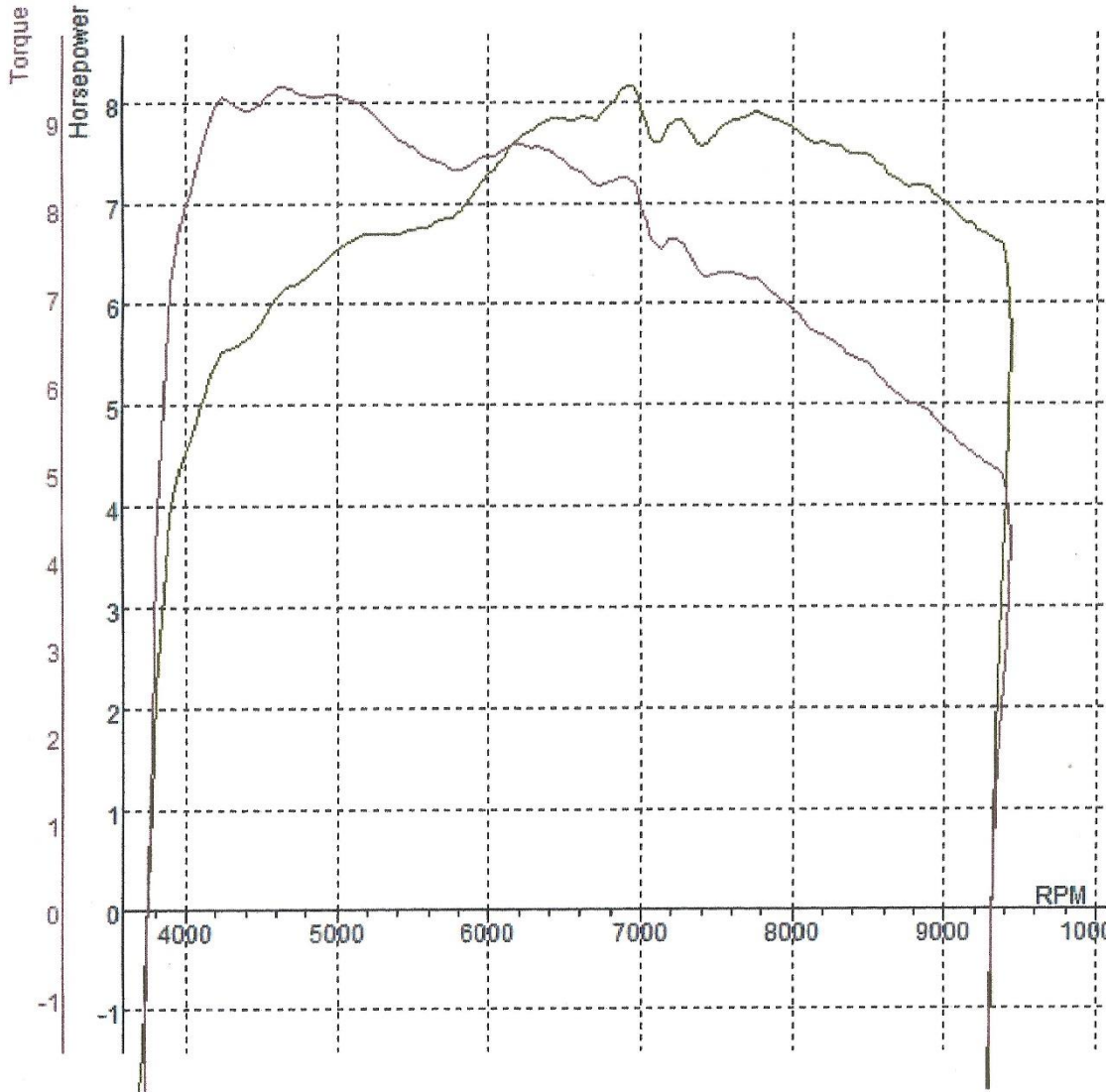
DATA FOR TEST: DAVID PRASETYO TEST OLI T009

Comments
MPX2 OLI3

RPM	HP (HPYQ (N*M*M))	T
4000	4.8	8.44
4250	5.5	9.19
4493	5.9	9.33
4500	5.9	9.33
4750	6.2	9.18
5000	6.5	9.18
5250	6.7	9.04
5500	6.5	8.41
5750	6.9	8.42
6000	7.3	8.61
6250	7.6	8.61
6500	7.7	8.43
6750	7.9	8.28
6959	7.9	8.08
7000	7.9	8.01
7250	7.8	7.56
7500	7.7	7.25
7750	7.8	7.10
8000	7.7	6.84
8250	7.5	6.38
8500	7.3	6.09
8750	7.1	5.72
9000	6.9	5.42
9250	6.7	5.10

LOSSES: -6.4 HP -4.9N*M*M
TOTAL ENGINE: 14.4HP 14.25N*M*M

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLI T012	8.2 (13.5) / 6927	9.39 (13.48) / 4652	29.1 °C	84 %	1000.0 mbar	97.0	23/06/2016 10:01:21



DATA FOR TEST: DAVID PRASETYO TEST OLI T012

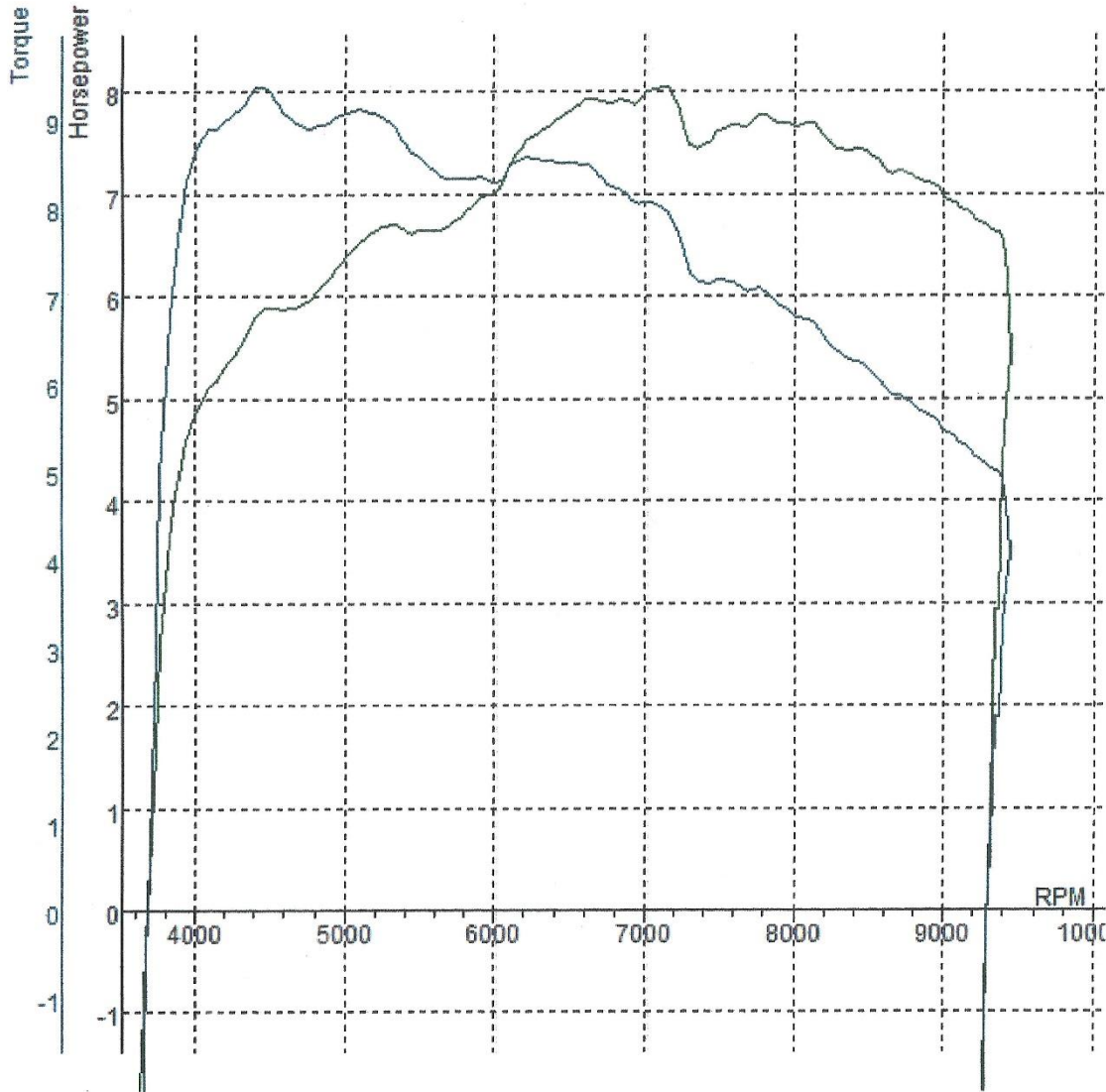
Comments
MPX2 OLI4

RPM	HP (HPFQ (N*M*M))	T
4250	5.6	9.25
4500	5.9	9.23
4652	6.2	9.39
4750	6.2	9.30
5000	6.6	9.28
5250	6.7	9.05
5500	6.7	8.67
5750	6.9	8.44
6000	7.3	8.61
6250	7.7	8.72
6500	7.8	8.51
6750	7.9	8.28
6927	8.2	8.34
7000	8.0	8.04
7250	7.8	7.63
7500	7.7	7.25
7750	7.9	7.19
8000	7.7	6.82
8250	7.6	6.47
8500	7.5	6.19
8750	7.2	5.78
9000	7.0	5.48
9250	6.7	5.12

LOSSES: -5.4 HP -4.1N*M*M
TOTAL ENGINE: 13.5HP 13.48N*M*M

Displacement Correction
Correction Factor: ISO 1585
NOTE: Load Cell Included.

TEST NAME	MAX POWER.	MAX TORQUE	Temp. °C	Humidity %	Pressure	KMH	Date/Time
DAVID PRASETYO TEST OLIT014	8.0 (15.8) / 7133	9.37 (15.51) / 4440	29.1 °C	84 %	1000.0 mbar	97.1	23/06/2016 10:05:23



DATA FOR TEST: DAVID PRASETYO TEST OLIT014

Comments
MPX2 OL15

RPM	HP (HP/TQ (N*M*M))	T
4000	4.8 8.62	1.20
4250	5.4 9.06	1.46
4440	5.9 9.37	1.64
4500	5.9 9.31	1.70
4750	6.0 8.89	1.96
5000	6.4 9.08	2.22
5250	6.7 9.00	2.48
5500	6.6 8.55	2.74
5750	6.8 8.32	3.02
6000	7.0 8.28	3.28
6250	7.6 8.55	3.56
6500	7.8 8.50	3.82
6750	7.9 8.26	4.10
7000	8.0 8.06	4.40
7133	8.0 7.97	4.54
7250	7.7 7.47	4.70
7500	7.6 7.17	5.02
7750	7.8 7.07	5.34
8000	7.6 6.75	5.68
8250	7.5 6.40	6.04
8500	7.4 6.15	6.42
8750	7.2 5.80	6.82
9000	6.9 5.43	7.26
9250	6.7 5.10	7.70

LOSSES: -7.8 HP -6.1N*M*M
TOTAL ENGINE: 15.8HP 15.51N*M*M

Grafik 1 Kalibrasi Q_i

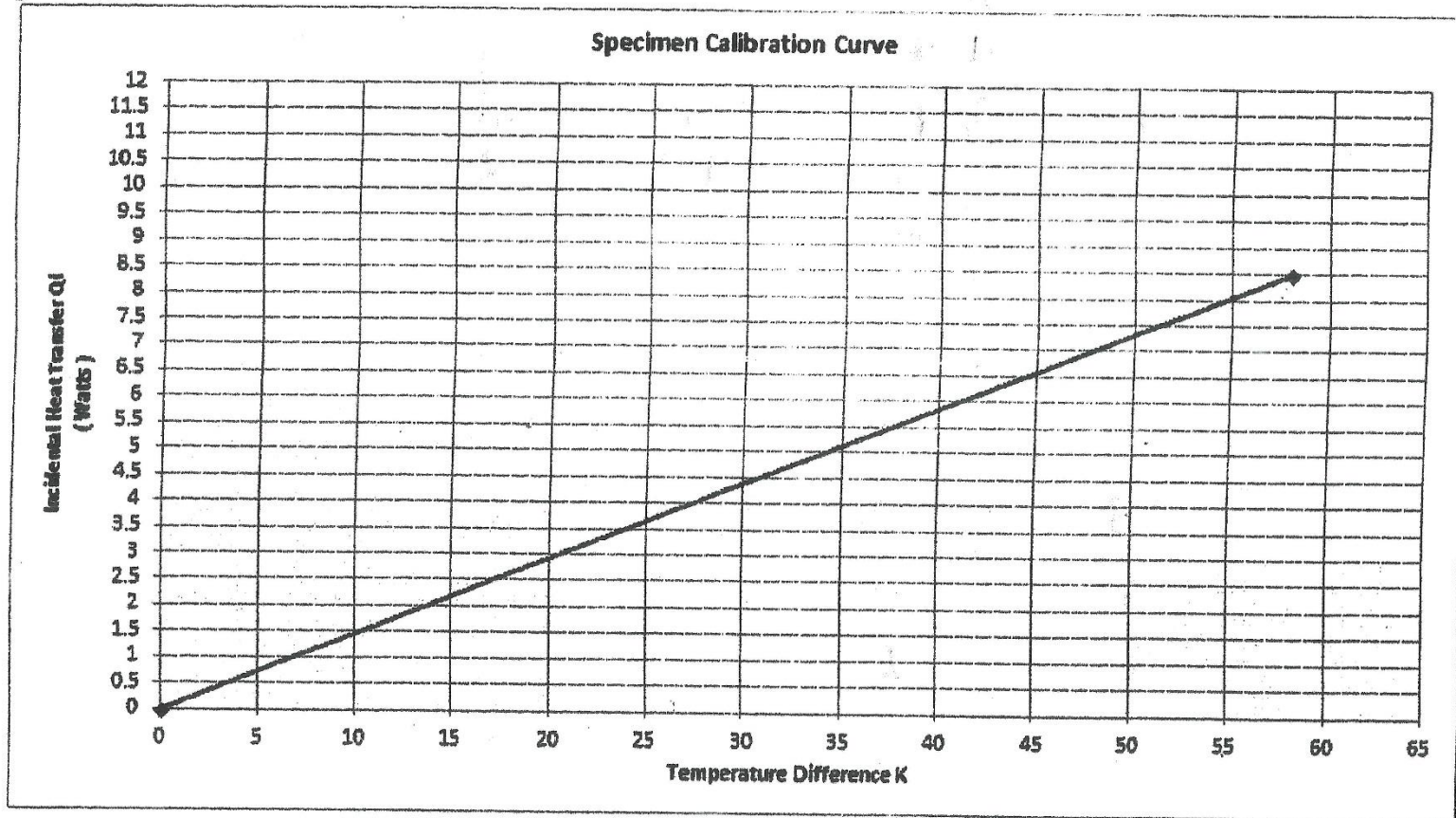


TABLE A-13
Properties of liquids

Temp. T, °C	Density ρ , kg/m ³	Specific Heat c_p , J/kg-K	Thermal Conductivity k , W/m-K	Thermal Diffusivity α , m ² /s	Dynamic Viscosity μ , kg/m-s	Kinematic Viscosity ν , m ² /s	Prandtl Number Pr	Volume Expansion Coeff. β , 1/K
<i>Methane (CH₄)</i>								
-160	420.2	3492	0.1863	1.270 × 10 ⁻⁷	1.133 × 10 ⁻⁴	2.699 × 10 ⁻⁷	2.126	0.00352
-150	405.0	3580	0.1703	1.174 × 10 ⁻⁷	9.169 × 10 ⁻⁵	2.264 × 10 ⁻⁷	1.927	0.00391
-140	388.8	3700	0.1550	1.077 × 10 ⁻⁷	7.551 × 10 ⁻⁵	1.942 × 10 ⁻⁷	1.803	0.00444
-130	371.1	3875	0.1402	9.749 × 10 ⁻⁸	6.288 × 10 ⁻⁵	1.694 × 10 ⁻⁷	1.738	0.00520
-120	351.4	4146	0.1258	8.634 × 10 ⁻⁸	5.257 × 10 ⁻⁵	1.496 × 10 ⁻⁷	1.732	0.00637
-110	328.8	4611	0.1115	7.356 × 10 ⁻⁸	4.377 × 10 ⁻⁵	1.331 × 10 ⁻⁷	1.810	0.00841
-100	301.0	5578	0.0967	5.761 × 10 ⁻⁸	3.577 × 10 ⁻⁵	1.188 × 10 ⁻⁷	2.063	0.01282
-90	261.7	8902	0.0797	3.423 × 10 ⁻⁸	2.761 × 10 ⁻⁵	1.056 × 10 ⁻⁷	3.082	0.02922
<i>Methanol (CH₃(OH))</i>								
20	788.4	2515	0.1987	1.002 × 10 ⁻⁷	5.857 × 10 ⁻⁴	7.429 × 10 ⁻⁷	7.414	0.00118
30	779.1	2577	0.1980	9.862 × 10 ⁻⁸	5.088 × 10 ⁻⁴	6.531 × 10 ⁻⁷	6.622	0.00120
40	769.6	2644	0.1972	9.690 × 10 ⁻⁸	4.460 × 10 ⁻⁴	5.795 × 10 ⁻⁷	5.980	0.00123
50	760.1	2718	0.1965	9.509 × 10 ⁻⁸	3.942 × 10 ⁻⁴	5.185 × 10 ⁻⁷	5.453	0.00127
60	750.4	2798	0.1957	9.320 × 10 ⁻⁸	3.510 × 10 ⁻⁴	4.677 × 10 ⁻⁷	5.018	0.00132
70	740.4	2885	0.1950	9.128 × 10 ⁻⁸	3.146 × 10 ⁻⁴	4.250 × 10 ⁻⁷	4.655	0.00137
<i>Isobutane (R600a)</i>								
-100	683.8	1881	0.1383	1.075 × 10 ⁻⁷	9.305 × 10 ⁻⁴	1.360 × 10 ⁻⁶	12.65	0.00142
-75	659.3	1970	0.1357	1.044 × 10 ⁻⁷	5.624 × 10 ⁻⁴	8.531 × 10 ⁻⁷	8.167	0.00150
-50	634.3	2069	0.1283	9.773 × 10 ⁻⁸	3.769 × 10 ⁻⁴	5.942 × 10 ⁻⁷	6.079	0.00161
-25	608.2	2180	0.1181	8.906 × 10 ⁻⁸	2.688 × 10 ⁻⁴	4.420 × 10 ⁻⁷	4.963	0.00177
0	580.6	2306	0.1068	7.974 × 10 ⁻⁸	1.993 × 10 ⁻⁴	3.432 × 10 ⁻⁷	4.304	0.00199
25	550.7	2455	0.0956	7.069 × 10 ⁻⁸	1.510 × 10 ⁻⁴	2.743 × 10 ⁻⁷	3.880	0.00232
50	517.3	2640	0.0851	6.233 × 10 ⁻⁸	1.155 × 10 ⁻⁴	2.233 × 10 ⁻⁷	3.582	0.00286
75	478.5	2896	0.0757	5.460 × 10 ⁻⁸	8.785 × 10 ⁻⁵	1.836 × 10 ⁻⁷	3.363	0.00385
100	429.6	3361	0.0669	4.634 × 10 ⁻⁸	6.483 × 10 ⁻⁵	1.509 × 10 ⁻⁷	3.256	0.00628
<i>Glycerin</i>								
0	1276	2262	0.2820	9.773 × 10 ⁻⁸	10.49	8.219 × 10 ⁻³	84.101	
5	1273	2288	0.2835	9.732 × 10 ⁻⁸	6.730	5.287 × 10 ⁻³	54.327	
10	1270	2320	0.2846	9.662 × 10 ⁻⁸	4.241	3.339 × 10 ⁻³	34.561	
15	1267	2354	0.2856	9.576 × 10 ⁻⁸	2.496	1.970 × 10 ⁻³	20.570	
20	1264	2386	0.2860	9.484 × 10 ⁻⁸	1.519	1.201 × 10 ⁻³	12.671	
25	1261	2416	0.2860	9.388 × 10 ⁻⁸	0.9934	7.878 × 10 ⁻⁴	8.392	
30	1258	2447	0.2860	9.291 × 10 ⁻⁸	0.6582	5.232 × 10 ⁻⁴	5.631	
35	1255	2478	0.2860	9.195 × 10 ⁻⁸	0.4347	3.464 × 10 ⁻⁴	3.767	
40	1252	2513	0.2863	9.101 × 10 ⁻⁸	0.3073	2.455 × 10 ⁻⁴	2.697	
<i>Engine Oil (unused)</i>								
0	899.0	1797	0.1469	9.097 × 10 ⁻⁸	3.814	4.242 × 10 ⁻³	46.636	0.00070
20	888.1	1881	0.1450	8.680 × 10 ⁻⁸	0.8374	9.429 × 10 ⁻⁴	10.863	0.00070
40	876.0	1964	0.1444	8.391 × 10 ⁻⁸	0.2177	2.485 × 10 ⁻⁴	2.962	0.00070
60	863.9	2048	0.1404	7.934 × 10 ⁻⁸	0.07399	8.565 × 10 ⁻⁵	1.080	0.00070
80	852.0	2132	0.1380	7.599 × 10 ⁻⁸	0.03232	3.794 × 10 ⁻⁵	499.3	0.00070
100	840.0	2220	0.1367	7.330 × 10 ⁻⁸	0.01718	2.046 × 10 ⁻⁵	279.1	0.00070
120	828.9	2308	0.1347	7.042 × 10 ⁻⁸	0.01029	1.241 × 10 ⁻⁵	176.3	0.00070
140	816.8	2395	0.1330	6.798 × 10 ⁻⁸	0.006558	8.029 × 10 ⁻⁶	118.1	0.00070
150	810.3	2441	0.1327	6.708 × 10 ⁻⁸	0.005344	6.595 × 10 ⁻⁶	98.31	0.00070

Source: Data generated from the EES software developed by S. A. Klein and F. L. Alvarado. Originally based on various sources.