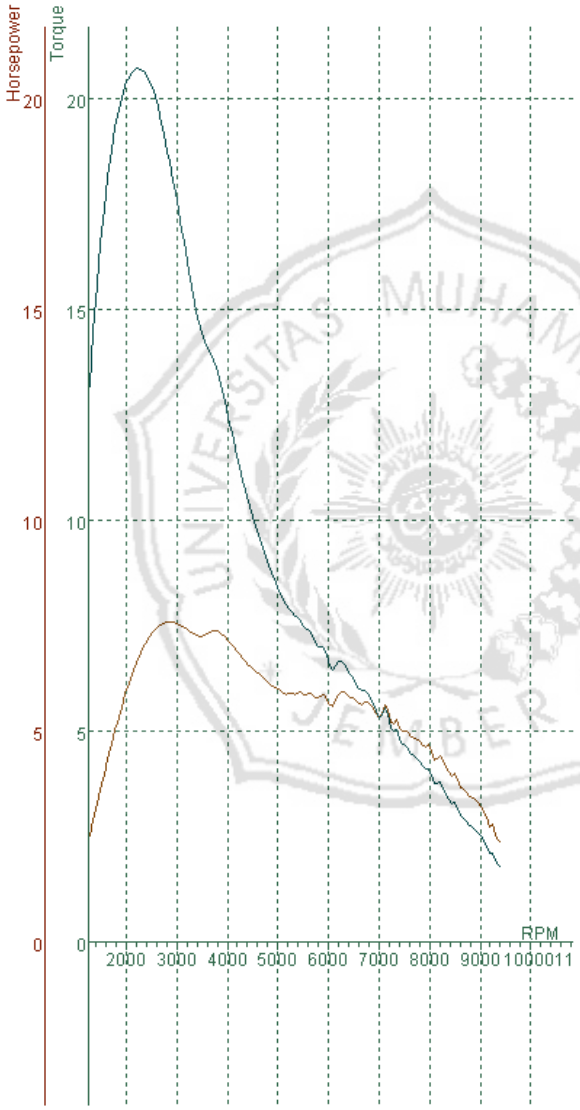
Lampiran 1. Hasil *dynotest*

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD PERTAMAX TEST 3	7.6 (7.6) / 2891	20.71 (20.71) / 2237	101.6	35.0	85	1000.0	27/10/2017 14:14:45

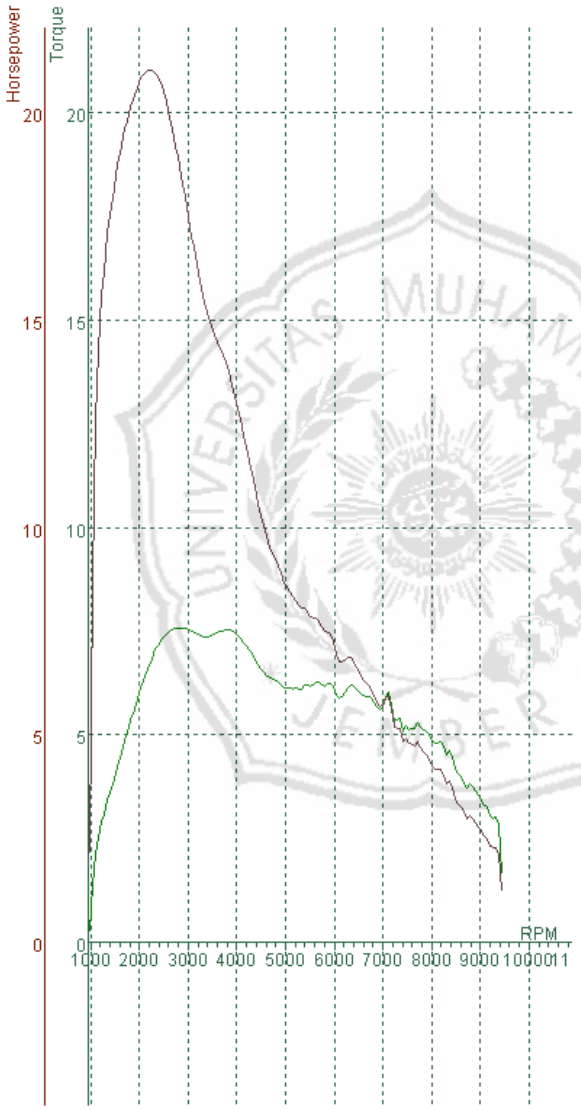


DATA FOR TEST: SCOOPY FI STD PERTAMAX TEST 3

RPM	HP (HP)	TQ (N*M)	T
1500	3.6	16.54	1.14
1750	4.9	19.05	1.28
2000	5.9	20.31	1.40
2237	6.6	**20.71**	1.50
2250	6.7	20.70	1.52
2500	7.3	20.29	1.64
2750	7.6	19.17	1.76
2891	**7.6**	18.50	1.82
3000	7.6	17.81	1.88
3250	7.4	15.93	2.04
3500	7.2	14.56	2.20
3750	7.4	13.71	2.40
4000	7.2	12.58	2.58
4250	6.8	11.28	2.78
4500	6.5	10.13	3.02
4750	6.2	9.21	3.28
5000	6.0	8.42	3.56
5250	5.9	7.89	3.88
5500	5.9	7.53	4.20
5750	5.8	7.08	4.54
6000	5.7	6.67	4.90
6250	5.9	6.68	5.28
6500	5.8	6.25	5.66
6750	5.7	5.93	6.10
7000	5.3	5.33	6.52
7250	5.2	4.99	6.98
7500	5.0	4.72	7.48
7750	4.8	4.35	8.04
8000	4.6	4.07	8.64
8250	4.4	3.72	9.30
8500	4.0	3.30	10.02
8750	3.4	2.72	10.86
9000	3.3	2.55	11.78
9250	2.8	2.10	12.86

WHEEL	7.6 HP	20.7 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	7.6 HP	20.71 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD PERTAMAX TEST 4	7.6 (7.6) / 2824	21.04 (21.04) / 2244	101.5	35.0	85	1000.0	27/10/2017 14:15:19

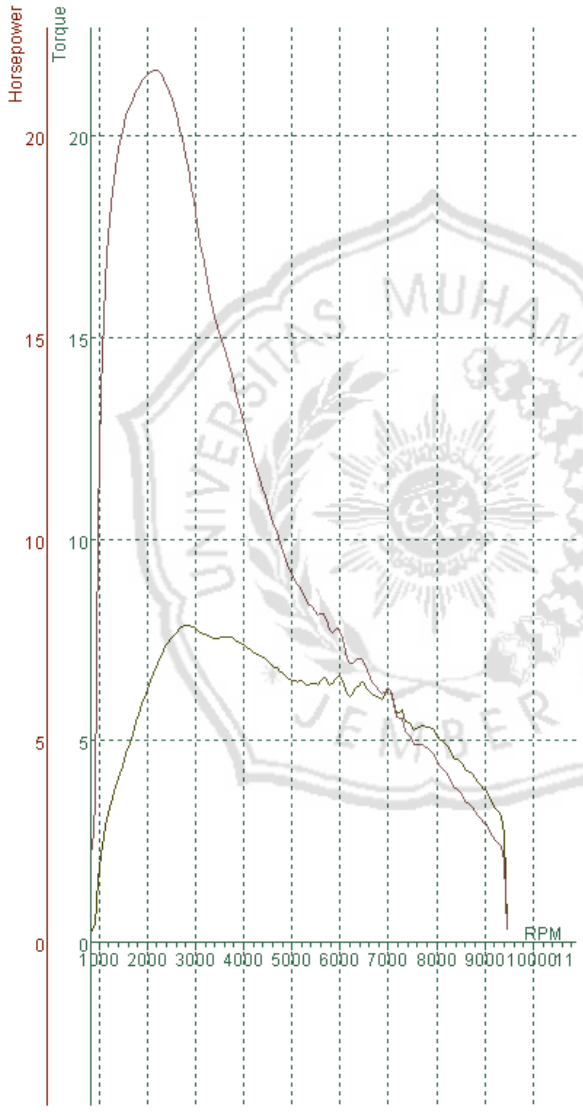


DATA FOR TEST: SCOOPY FI STD PERTAMAX TEST 4

RPM	HP (HP)	TQ (N*M)	T
1000	0.7	4.51	1.20
1250	2.9	15.61	1.46
1500	3.9	18.19	1.58
1750	5.0	19.79	1.72
2000	6.0	20.71	1.84
2244	6.7	**21.04**	1.94
2250	6.8	21.03	1.96
2500	7.3	20.62	2.06
2750	7.6	19.41	2.18
2824	**7.6**	18.94	2.22
3000	7.5	17.72	2.32
3250	7.4	15.94	2.48
3500	7.4	14.84	2.64
3750	7.5	14.06	2.82
4000	7.4	13.03	3.00
4250	7.1	11.71	3.20
4500	6.6	10.26	3.44
4750	6.3	9.40	3.68
5000	6.1	8.64	3.96
5250	6.1	8.19	4.26
5500	6.2	7.87	4.58
5750	6.2	7.56	4.90
6000	6.1	7.18	5.22
6250	6.1	6.85	5.60
6500	6.1	6.54	5.98
6750	5.9	6.12	6.38
7000	5.7	5.74	6.80
7250	5.3	5.15	7.22
7500	5.2	4.91	7.72
7750	5.3	4.78	8.24
8000	4.9	4.30	8.78
8250	4.7	4.01	9.40
8500	4.1	3.41	10.04
8750	3.9	3.10	10.84
9000	3.5	2.71	11.70
9250	3.0	2.27	12.72

WHEEL	7.6 HP	21.0 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	7.6 HP	21.04 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD PERTAMAX TEST 5	7.9 (10.9) / 2875	21.64 (23.92) / 2203	101.4	35.0	85	1000.0	27/10/2017 14:15:58

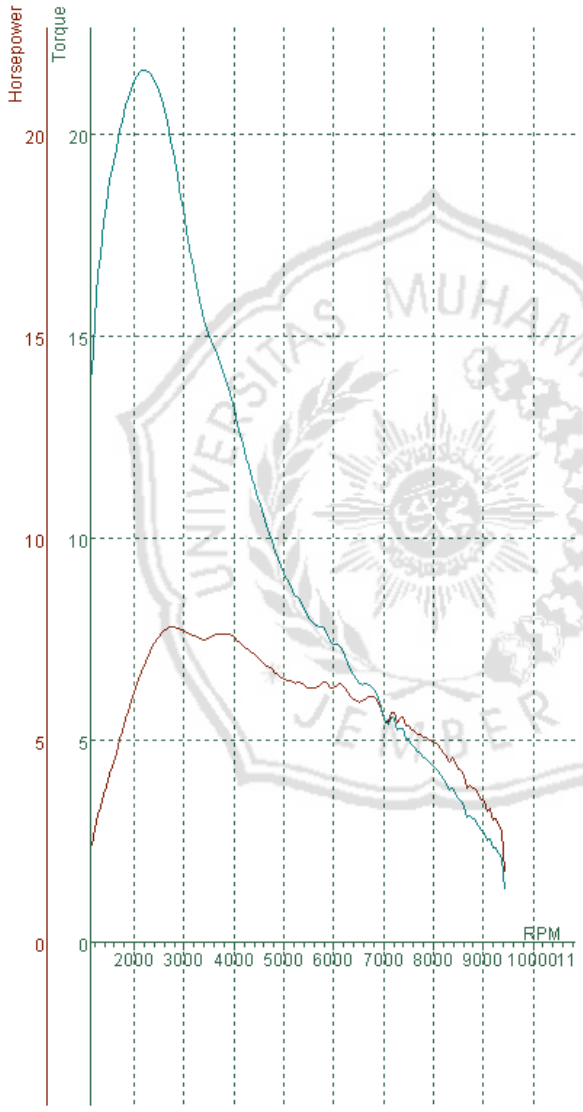


DATA FOR TEST: SCOOPY FI STD PERTAMAX TEST 5

RPM	HP (HP)	TQ (N*M)	T
1000	2.0	12.60	1.50
1250	3.5	18.30	1.64
1500	4.4	20.10	1.74
1750	5.3	21.00	1.86
2000	6.2	21.50	1.98
2203	6.8	**21.64**	2.06
2250	7.0	21.57	2.10
2500	7.5	21.03	2.20
2750	7.8	19.94	2.32
2875	**7.9**	19.23	2.38
3000	7.8	18.40	2.44
3250	7.6	16.40	2.60
3500	7.5	15.14	2.76
3750	7.5	14.08	2.94
4000	7.4	12.92	3.12
4250	7.2	11.83	3.32
4500	7.0	10.90	3.54
4750	6.7	9.97	3.78
5000	6.5	9.15	4.04
5250	6.5	8.65	4.32
5500	6.4	8.14	4.64
5750	6.5	7.87	4.94
6000	6.6	7.70	5.26
6250	6.2	6.92	5.60
6500	6.4	6.93	5.96
6750	6.1	6.34	6.34
7000	6.3	6.30	6.76
7250	5.7	5.56	7.16
7500	5.3	4.97	7.64
7750	5.3	4.82	8.16
8000	5.2	4.54	8.68
8250	4.8	4.12	9.26
8500	4.5	3.69	9.92
8750	4.1	3.32	10.62
9000	3.8	2.95	11.44
9250	3.3	2.48	12.36

WHEEL	7.9 HP	21.6 N*M
LOSSES	-3.1 HP	-2.3 N*M
TOTAL ENGINE:	10.9 HP	23.92 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD TURBO003	7.8 (7.8) / 2805	21.59 (21.59) / 2221	101.6	35.0	85	1000.0	27/10/2017 14:53:09

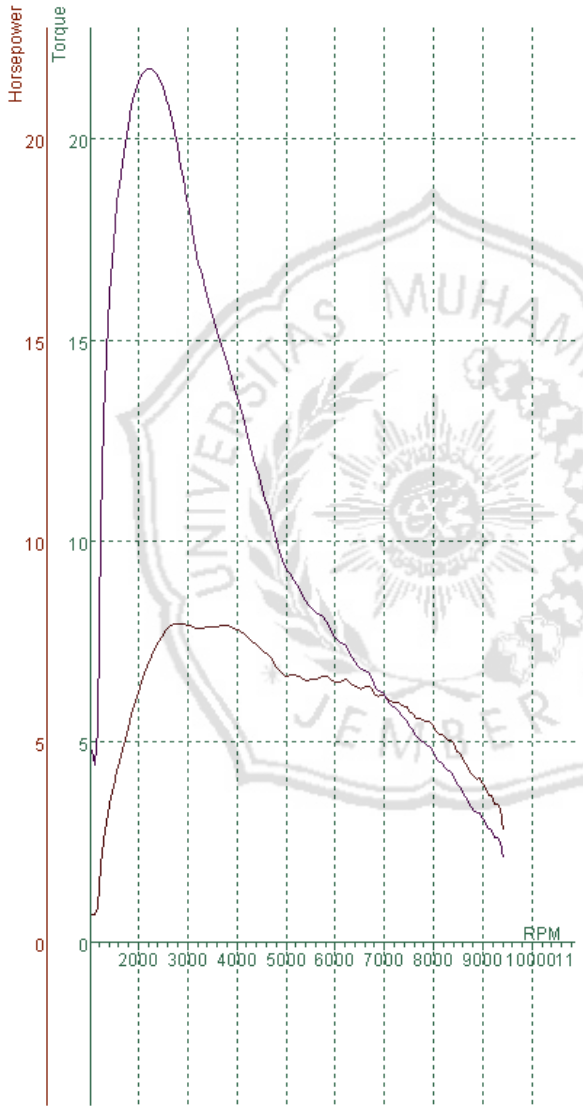


DATA FOR TEST: SCOOPY FI STD TURBO003

RPM	HP (HP)	TQ (N*M)	T
1250	3.0	15.97	1.08
1500	4.0	18.54	1.20
1750	5.0	20.11	1.32
2000	6.1	21.20	1.44
2221	6.8	**21.59**	1.54
2250	7.0	21.57	1.56
2500	7.6	21.07	1.68
2750	7.8	19.82	1.80
2805	**7.8**	19.56	1.82
3000	7.7	18.15	1.92
3250	7.5	16.26	2.08
3500	7.5	15.08	2.24
3750	7.6	14.35	2.40
4000	7.5	13.20	2.60
4250	7.3	11.99	2.80
4500	7.0	11.01	3.00
4750	6.8	10.00	3.26
5000	6.5	9.20	3.50
5250	6.4	8.56	3.80
5500	6.3	8.04	4.10
5750	6.4	7.82	4.42
6000	6.3	7.36	4.76
6250	6.2	7.01	5.10
6500	5.9	6.41	5.48
6750	6.1	6.35	5.86
7000	5.5	5.57	6.28
7250	5.5	5.34	6.74
7500	5.4	5.03	7.22
7750	5.1	4.65	7.76
8000	5.0	4.36	8.30
8250	4.6	3.95	8.90
8500	4.3	3.53	9.58
8750	3.9	3.11	10.32
9000	3.5	2.73	11.16
9250	3.1	2.34	12.20

WHEEL	7.8 HP	21.6 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	7.8 HP	21.59 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD TURBO004	7.9 (7.9) / 2827	21.73 (21.73) / 2311	101.6	35.0	85	1000.0	27/10/2017 14:53:37

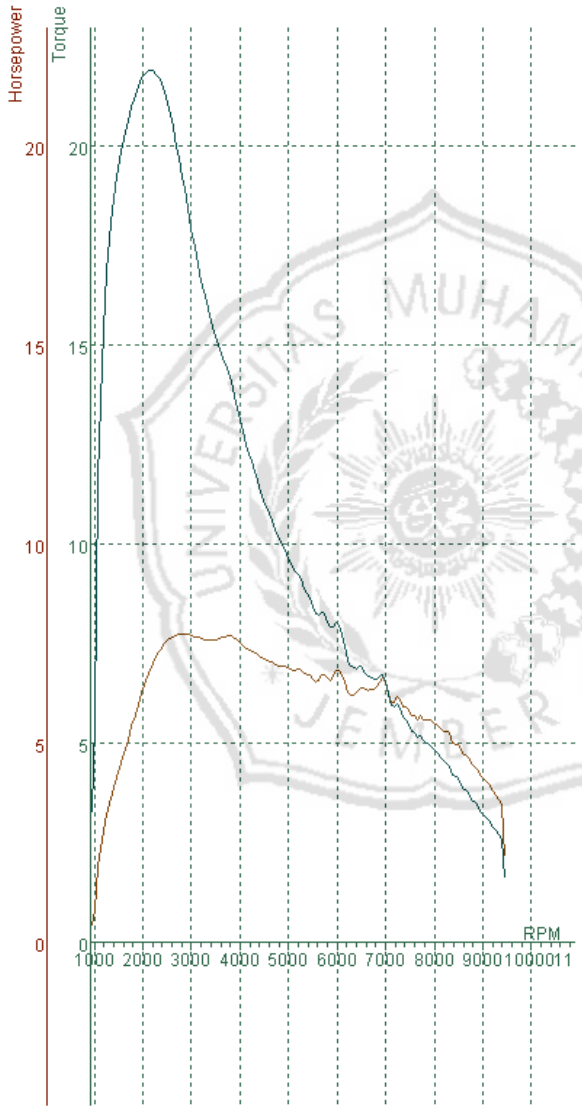


DATA FOR TEST: SCOOPY FI STD TURBO004

RPM	HP (HP)	TQ (N*M)	T
1250	2.1	11.24	1.46
1500	3.9	17.37	1.62
1750	5.1	20.01	1.74
2000	6.2	21.42	1.86
2250	7.0	21.73	1.96
2311	7.1	**21.73**	1.98
2500	7.7	21.30	2.08
2750	7.9	20.10	2.20
2827	**7.9**	19.84	2.22
3000	7.9	18.49	2.32
3250	7.8	16.91	2.46
3500	7.8	15.72	2.62
3750	7.9	14.78	2.78
4000	7.8	13.69	2.96
4250	7.6	12.60	3.14
4500	7.3	11.40	3.36
4750	7.0	10.30	3.60
5000	6.6	9.29	3.86
5250	6.6	8.88	4.12
5500	6.5	8.35	4.42
5750	6.6	8.10	4.72
6000	6.5	7.59	5.04
6250	6.5	7.33	5.38
6500	6.3	6.81	5.74
6750	6.3	6.55	6.10
7000	6.2	6.17	6.50
7250	6.0	5.81	6.90
7500	5.8	5.42	7.36
7750	5.5	5.03	7.84
8000	5.4	4.72	8.34
8250	5.1	4.32	8.90
8500	4.7	3.90	9.50
8750	4.2	3.39	10.18
9000	3.9	3.06	10.96
9250	3.4	2.59	11.84

WHEEL	7.9 HP	21.7 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	7.9 HP	21.73 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD TURBO005	7.7 (7.7) / 2815	21.91 (21.91) / 2210	101.4	35.0	85	1000.0	27/10/2017 14:54:02

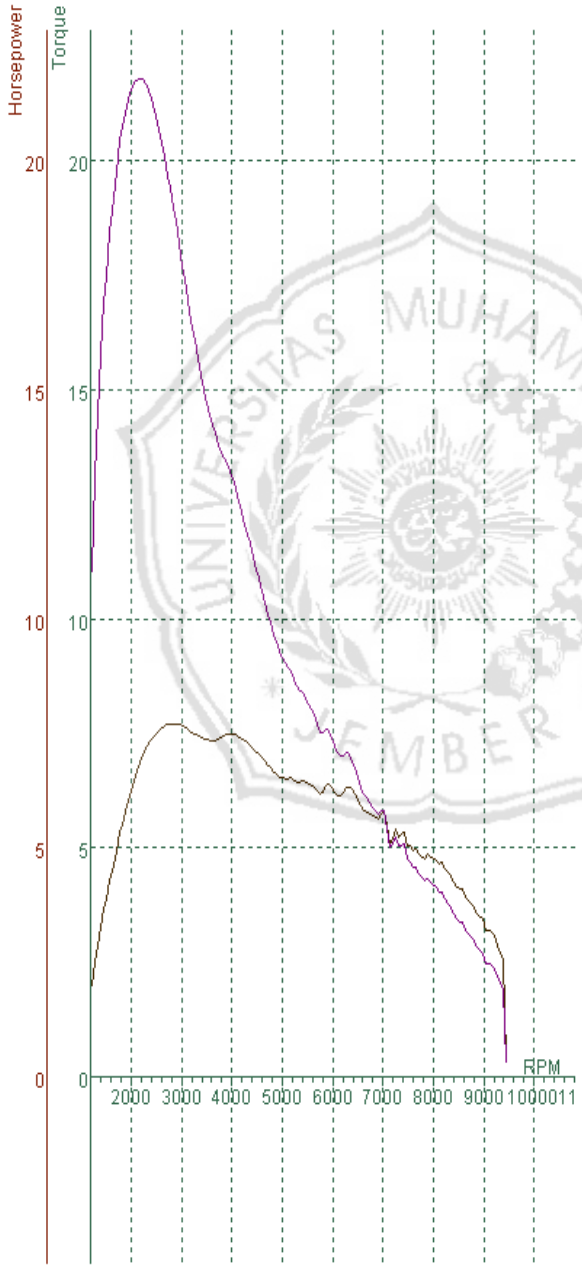


DATA FOR TEST: SCOOPY FI STD TURBO005

RPM	HP (HP)	TQ (N*M)	T
1000	0.7	5.02	1.20
1250	3.2	16.84	1.48
1500	4.2	19.35	1.58
1750	5.3	20.81	1.70
2000	6.3	21.71	1.82
2210	6.9	**21.91**	1.90
2250	7.0	21.87	1.92
2500	7.6	21.13	2.04
2750	7.7	19.69	2.16
2815	**7.7**	19.43	2.18
3000	7.7	18.17	2.28
3250	7.6	16.43	2.44
3500	7.6	15.21	2.60
3750	7.7	14.41	2.76
4000	7.6	13.29	2.94
4250	7.3	12.08	3.14
4500	7.1	11.09	3.36
4750	7.0	10.35	3.58
5000	6.9	9.69	3.84
5250	6.9	9.18	4.10
5500	6.6	8.44	4.40
5750	6.7	8.24	4.68
6000	6.8	8.02	5.00
6250	6.2	7.00	5.34
6500	6.4	6.92	5.68
6750	6.4	6.61	6.06
7000	6.5	6.50	6.44
7250	6.2	5.99	6.84
7500	5.8	5.41	7.28
7750	5.6	5.12	7.76
8000	5.5	4.85	8.24
8250	5.3	4.51	8.80
8500	5.0	4.12	9.36
8750	4.5	3.63	10.02
9000	4.1	3.20	10.76
9250	3.7	2.81	11.58

WHEEL	7.7 HP	21.9 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	7.7 HP	21.91 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD BENSOL003	7.7 (10.0) / 2842	21.80 (23.54) / 2169	101.9	35.0	85	1000.0	27/10/2017 16:02:09

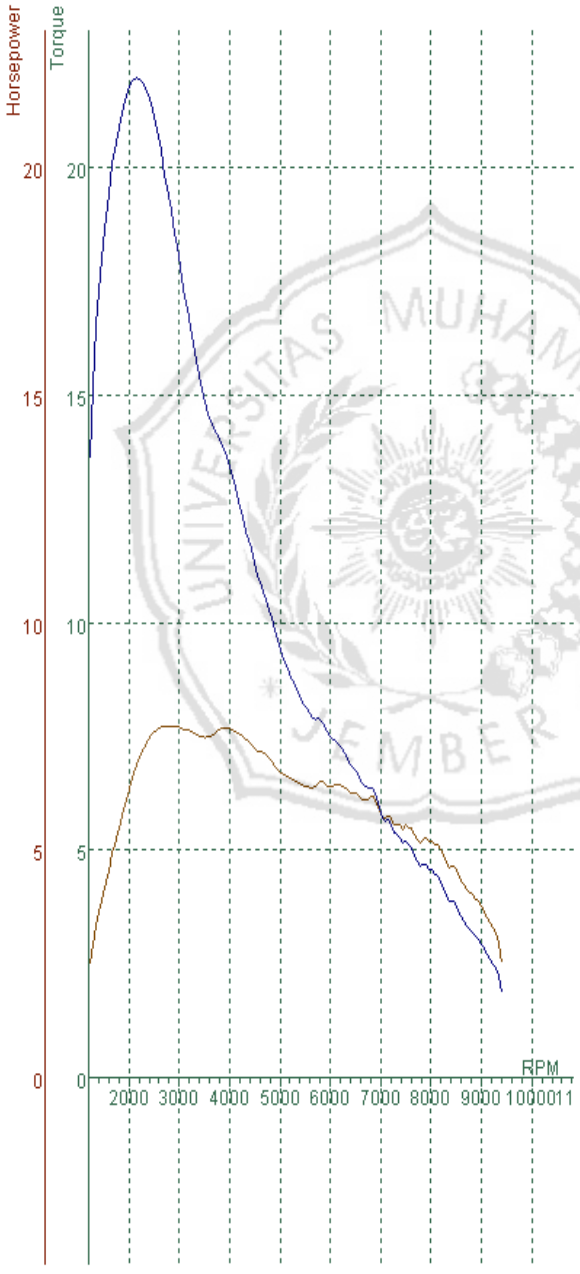


DATA FOR TEST: SCOOPY FI STD BENSOL003

RPM	HP (HP)	TQ (N*M)	T
1250	2.3	12.41	1.08
1500	3.9	17.45	1.24
1750	5.1	20.08	1.36
2000	6.3	21.54	1.48
2169	6.7	**21.80**	1.54
2250	7.0	21.77	1.58
2500	7.5	20.97	1.70
2750	7.7	19.65	1.82
2842	**7.7**	19.17	1.86
3000	7.7	17.92	1.96
3250	7.5	16.07	2.12
3500	7.4	14.71	2.28
3750	7.4	13.79	2.46
4000	7.5	13.14	2.64
4250	7.3	12.14	2.84
4500	7.1	11.08	3.06
4750	6.8	10.01	3.30
5000	6.5	9.19	3.56
5250	6.5	8.63	3.86
5500	6.4	8.18	4.16
5750	6.2	7.53	4.48
6000	6.3	7.35	4.82
6250	6.3	7.04	5.16
6500	6.1	6.55	5.54
6750	5.7	5.97	5.94
7000	5.8	5.84	6.36
7250	5.4	5.24	6.84
7500	5.0	4.72	7.34
7750	4.8	4.38	7.92
8000	4.8	4.17	8.50
8250	4.5	3.82	9.14
8500	4.1	3.39	9.84
8750	3.8	3.05	10.60
9000	3.4	2.64	11.52
9250	2.9	2.22	12.48

WHEEL	7.7 HP	21.8 N*M
LOSSES	-2.3 HP	-1.7 N*M
TOTAL ENGINE:	10.0 HP	23.54 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD BENSOL004	7.7 (11.8) / 2840	21.96 (24.99) / 2232	101.9	35.0	85	1000.0	27/10/2017 16:02:35

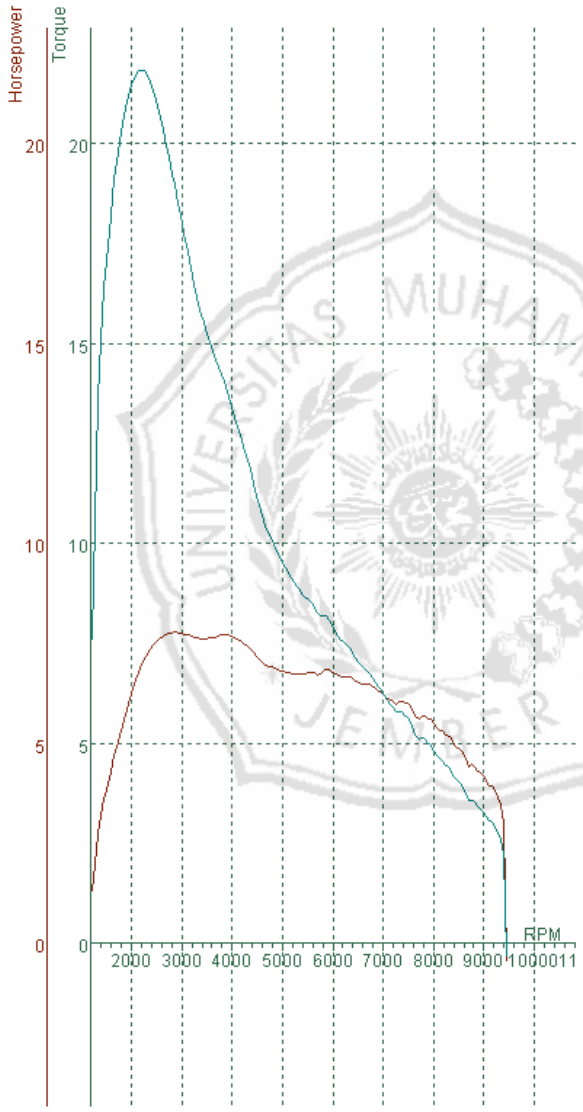


DATA FOR TEST: SCOOPY FI STD BENSOL004

RPM	HP (HP)	TQ (N*M)	T
1250	2.7	14.41	1.04
1500	4.0	18.15	1.16
1750	5.1	20.36	1.28
2000	6.2	21.68	1.40
2232	7.0	**21.96**	1.50
2250	7.1	21.89	1.52
2500	7.6	21.28	1.62
2750	7.7	19.82	1.74
2840	**7.7**	19.29	1.78
3000	7.7	18.04	1.88
3250	7.6	16.49	2.02
3500	7.5	15.10	2.18
3750	7.6	14.16	2.38
4000	7.7	13.54	2.54
4250	7.5	12.42	2.74
4500	7.3	11.32	2.96
4750	7.1	10.43	3.20
5000	6.7	9.40	3.46
5250	6.5	8.76	3.72
5500	6.4	8.19	4.02
5750	6.5	7.88	4.34
6000	6.4	7.49	4.68
6250	6.4	7.17	5.02
6500	6.3	6.77	5.36
6750	6.1	6.36	5.76
7000	5.8	5.78	6.18
7250	5.6	5.39	6.62
7500	5.6	5.21	7.10
7750	5.2	4.72	7.60
8000	5.2	4.57	8.14
8250	4.9	4.17	8.70
8500	4.6	3.77	9.36
8750	4.1	3.27	10.06
9000	3.7	2.91	10.90
9250	3.3	2.48	11.80

WHEEL	7.7 HP	22.0 N*M
LOSSES	-4.1 HP	-3.0 N*M
TOTAL ENGINE:	11.8 HP	24.99 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI STD BENSOL005	7.8 (10.9) / 2886	21.84 (24.20) / 2222	101.8	35.0	85	1000.0	27/10/2017 16:03:02

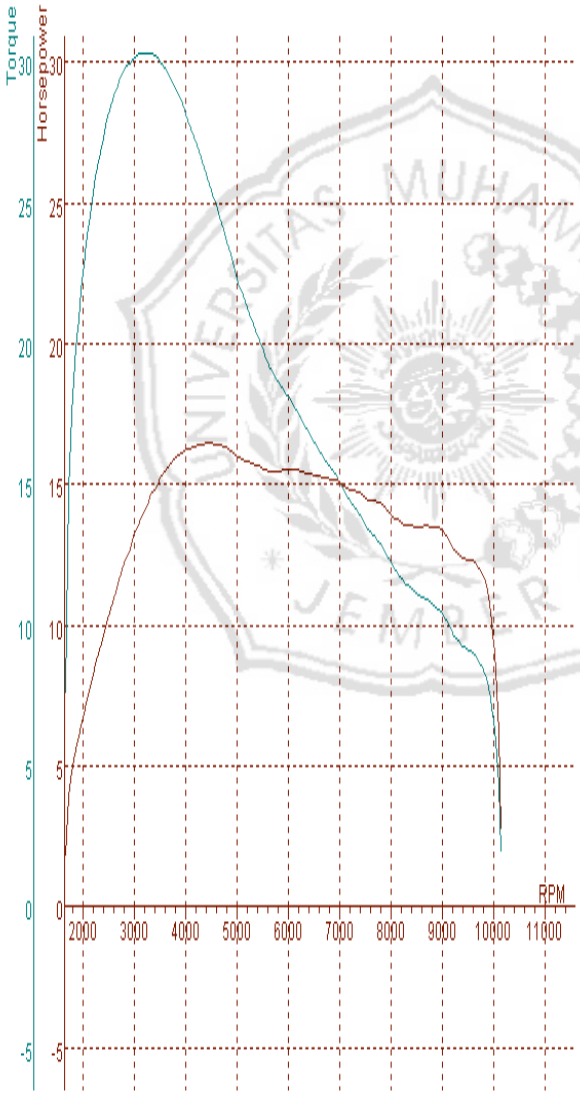


DATA FOR TEST: SCOOPY FI STD BENSOL005

RPM	HP (HP)	TQ (N*M)	T
1250	1.7	9.17	1.08
1500	3.8	17.06	1.30
1750	5.1	19.94	1.42
2000	6.3	21.53	1.54
2222	6.9	**21.84**	1.62
2250	7.0	21.81	1.64
2500	7.5	21.00	1.76
2750	7.7	19.68	1.88
2886	**7.8**	18.97	1.94
3000	7.8	18.23	2.00
3250	7.7	16.68	2.14
3500	7.6	15.25	2.32
3750	7.7	14.32	2.50
4000	7.7	13.53	2.66
4250	7.5	12.38	2.86
4500	7.2	11.16	3.08
4750	6.9	10.21	3.32
5000	6.8	9.53	3.58
5250	6.7	9.01	3.84
5500	6.8	8.61	4.14
5750	6.7	8.20	4.44
6000	6.8	7.93	4.74
6250	6.7	7.49	5.08
6500	6.5	7.02	5.42
6750	6.5	6.72	5.78
7000	6.2	6.26	6.18
7250	6.0	5.80	6.60
7500	6.0	5.62	7.04
7750	5.7	5.14	7.50
8000	5.5	4.85	8.00
8250	5.2	4.41	8.56
8500	4.8	4.01	9.16
8750	4.5	3.60	9.80
9000	4.2	3.27	10.54
9250	3.7	2.80	11.38

WHEEL	7.8 HP	21.8 N*M
LOSSES	-3.2 HP	-2.4 N*M
TOTAL ENGINE:	10.9 HP	24.20 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOPY FI PERTAMAX 1	16.5 (20.1) / 4498	30.36 (32.86) / 3285	108.1	35.0	85	1000.0	26/12/2017 15:42:20



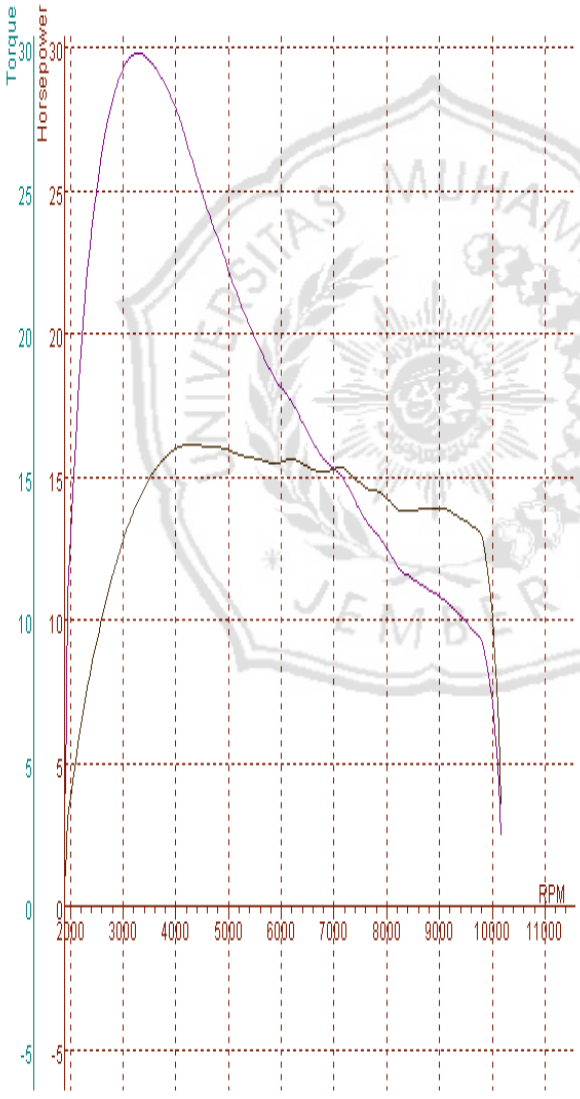
DATA FOR TEST: SCOPY FI PERTAMAX 1

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	4.3	16.17	12.42
2000	6.5	21.89	12.45
2250	8.5	25.70	12.35
2500	10.0	27.77	12.45
2750	11.8	29.47	12.16
3000	13.0	30.13	11.83
3250	14.1	30.36	11.80
3285	14.1	30.36	11.80
3500	15.1	30.17	11.87
3750	15.8	29.33	12.12
4000	16.2	28.35	12.27
4250	16.4	27.21	12.41
4498	16.5	25.81	12.43
4500	16.5	25.52	12.56
4750	16.4	24.10	12.53
5000	16.1	22.64	12.56
5250	15.8	21.17	12.52
5500	15.6	20.01	12.39
5750	15.5	18.90	12.24
6000	15.5	18.21	12.25
6250	15.5	17.35	12.24
6500	15.4	16.61	12.30
6750	15.2	15.87	12.22
7000	15.1	15.11	12.11
7250	14.8	14.29	12.19
7500	14.5	13.60	12.21
7750	14.4	13.00	12.12
8000	13.9	12.22	12.14
8250	13.6	11.60	12.17
8500	13.5	11.16	12.20
8750	13.5	10.85	12.29
9000	13.4	10.42	12.41

... (more)

WHEEL	16.5 HP	30.4 N*M
LOSSES	-3.6 HP	-2.5 N*M
TOTAL ENGINE:	20.1 HP	32.86 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOPY FI PERTAMAX 2	16.1 (16.1) / 4371	29.83 (29.83) / 3352	107.8	35.0	85	1000.0	26/12/2017 15:44:00



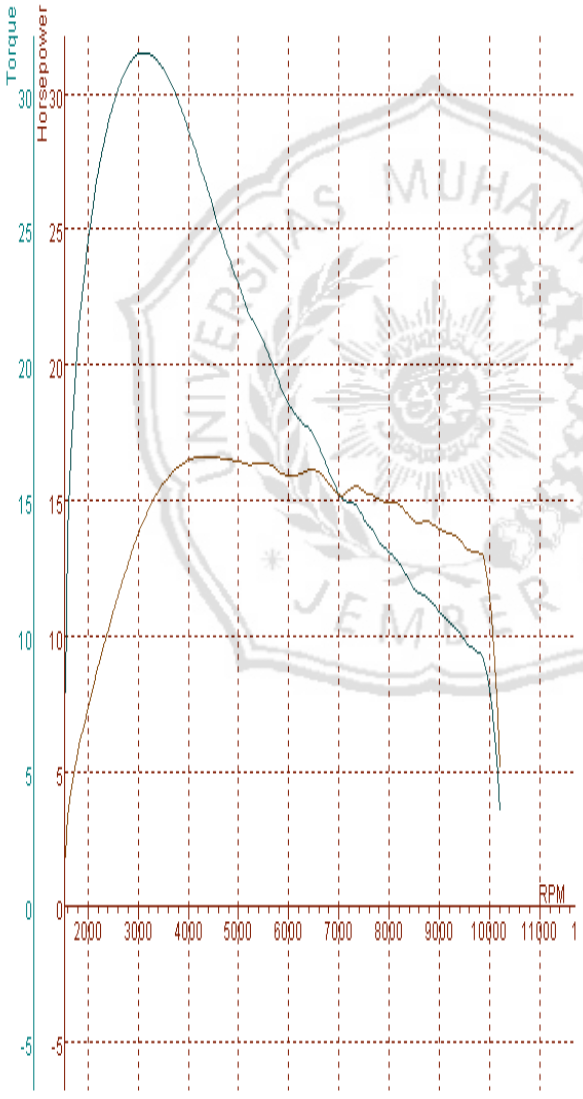
DATA FOR TEST: SCOPY FI PERTAMAX 2

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
2000	3.9	12.97	12.07
2250	6.8	20.36	12.06
2500	9.0	24.69	11.98
2750	11.2	27.73	12.06
3000	12.7	29.19	11.89
3250	13.9	29.79	11.77
3352	14.2	29.83	11.73
3500	14.8	29.62	11.82
3750	15.5	29.04	11.96
4000	15.9	28.15	12.12
4250	16.1	26.42	12.25
4371	16.1	26.11	12.24
4500	16.1	25.21	12.26
4750	16.0	23.62	12.28
5000	16.0	22.46	12.27
5250	15.8	21.10	12.26
5500	15.7	19.91	12.11
5750	15.5	18.97	12.13
6000	15.5	18.16	12.16
6250	15.6	17.55	12.12
6500	15.4	16.58	12.14
6750	15.2	15.80	12.15
7000	15.3	15.31	12.12
7250	15.2	14.80	12.09
7500	14.8	13.89	12.01
7750	14.5	13.17	12.05
8000	14.3	12.53	12.11
8250	13.8	11.76	12.00
8500	13.9	11.44	12.10
8750	13.9	11.14	12.25
9000	13.9	10.82	12.52
9250	13.7	10.42	12.65

... (more)

WHEEL	16.1 HP	29.8 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	16.1 HP	29.83 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI PERTAMAX 3	16.6 (16.6) / 4446	31.52 (31.52) / 3132	107.6	35.0	85	1000.0	26/12/2017 18:07:04



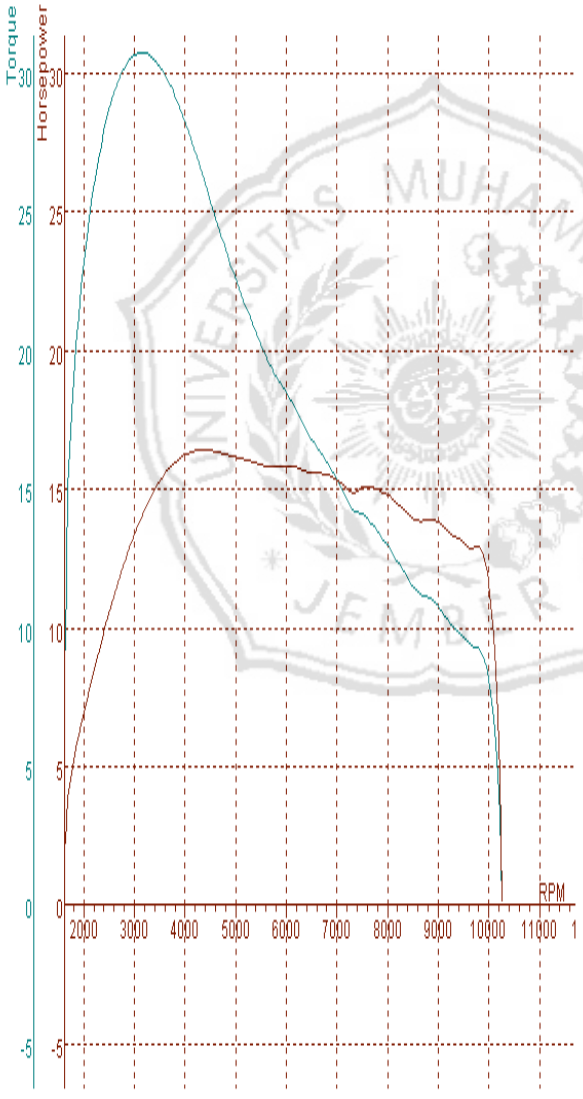
DATA FOR TEST: SCOOPY FI PERTAMAX 3

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	5.1	19.17	13.60
2000	7.2	24.30	13.54
2250	8.9	27.18	13.57
2500	10.5	29.28	13.41
2750	12.1	30.63	12.95
3000	13.5	31.39	12.41
3132	14.1	31.52	12.26
3250	14.7	31.49	12.21
3500	15.5	31.00	12.22
3750	16.1	30.10	12.39
4000	16.4	28.94	12.52
4250	16.6	27.32	12.75
4446	16.6	26.38	12.74
4500	16.6	26.06	12.82
4750	16.5	24.29	12.75
5000	16.4	23.04	12.69
5250	16.3	21.74	12.72
5500	16.4	20.98	12.70
5750	16.1	19.67	12.76
6000	15.9	18.54	12.62
6250	16.0	17.96	12.56
6500	16.1	17.38	12.53
6750	15.8	16.38	12.59
7000	15.2	15.26	12.56
7250	15.4	14.95	12.56
7500	15.3	14.33	12.61
7750	15.1	13.67	12.55
8000	14.9	13.07	12.53
8250	14.8	12.57	12.57
8500	14.2	11.78	12.65
8750	14.2	11.42	12.69
9000	13.9	10.86	12.84

... (more)

WHEEL	16.6 HP	31.5 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	16.6 HP	31.52 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP TURBO 1	16.4 (16.4) / 4478	30.78 (30.78) / 3195	107.4	35.0	85	1000.0	26/12/2017 18:08:18



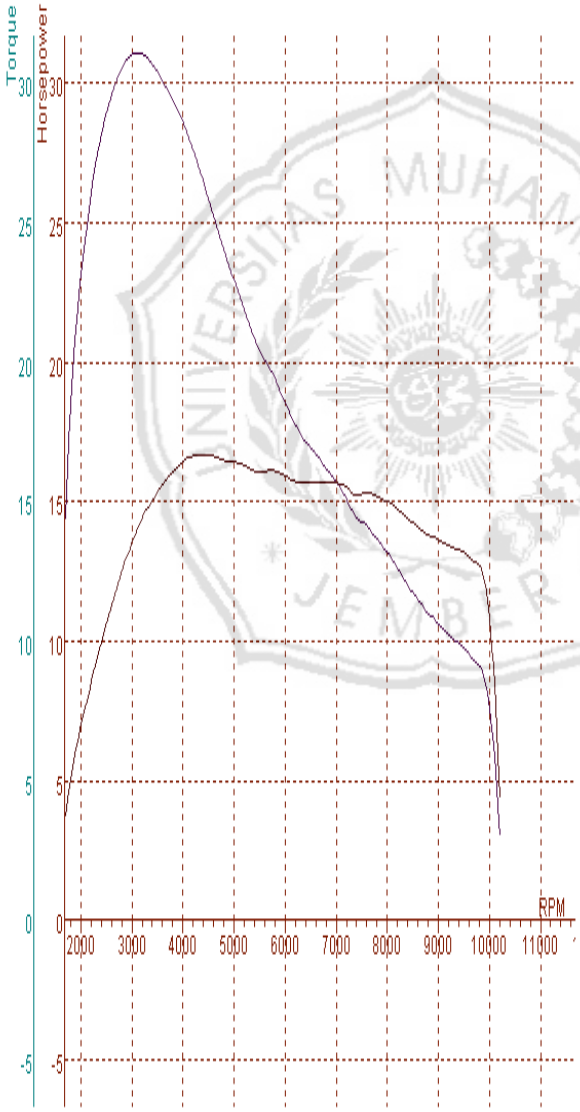
DATA FOR TEST: SCOOPY FI BORE UP TURBO 1

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	4.8	17.77	13.70
2000	7.0	23.18	13.94
2250	8.6	26.24	13.96
2500	10.2	28.39	13.88
2750	11.7	29.79	13.25
3000	13.1	30.58	12.71
3195	14.0	**30.78**	12.37
3250	14.3	30.75	12.36
3500	15.2	30.39	12.35
3750	15.8	29.62	12.44
4000	16.2	28.59	12.58
4250	16.4	27.13	12.70
4478	**16.4**	25.91	12.77
4500	16.4	25.59	12.69
4750	16.3	24.09	12.79
5000	16.2	22.57	12.75
5250	16.1	21.49	12.65
5500	15.9	20.33	12.64
5750	15.8	19.23	12.68
6000	15.9	18.57	12.66
6250	15.8	17.62	12.61
6500	15.6	16.89	12.56
6750	15.6	16.19	12.60
7000	15.4	15.42	12.57
7250	14.9	14.44	12.63
7500	15.1	14.12	12.57
7750	15.1	13.66	12.55
8000	14.8	12.98	12.66
8250	14.4	12.31	12.55
8500	14.0	11.53	12.69
8750	13.9	11.15	12.63
9000	13.8	10.82	12.79

... (more)

WHEEL	16.4 HP	30.8 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	16.4 HP	30.78 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP TURBO 2	16.7 (16.7) / 4367	31.10 (31.10) / 3196	107.5	35.0	85	1000.0	26/12/2017 18:07:55



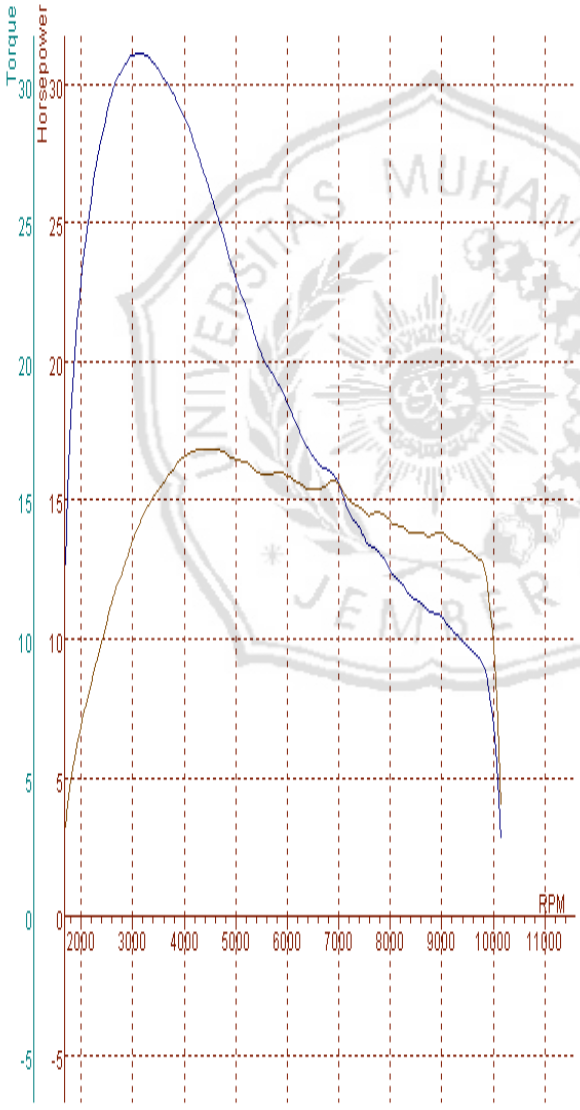
DATA FOR TEST: SCOOPY FI BORE UP TURBO 2

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	4.6	17.18	13.98
2000	6.8	22.85	14.06
2250	8.6	26.15	14.02
2500	10.7	28.98	13.68
2750	12.2	30.35	13.11
3000	13.2	30.92	12.68
3196	14.1	31.10	12.31
3250	14.4	31.03	12.39
3500	15.2	30.53	12.36
3750	15.8	29.76	12.49
4000	16.4	28.65	12.66
4250	16.7	27.56	12.75
4367	16.7	26.93	12.82
4500	16.7	25.98	12.79
4750	16.5	24.43	12.91
5000	16.4	23.10	12.81
5250	16.3	21.74	12.73
5500	16.1	20.48	12.68
5750	16.1	19.70	12.67
6000	15.9	18.62	12.65
6250	15.7	17.61	12.65
6500	15.7	16.95	12.65
6750	15.7	16.40	12.72
7000	15.7	15.75	12.69
7250	15.4	14.93	12.56
7500	15.3	14.27	12.55
7750	15.3	13.84	12.60
8000	15.0	13.17	12.61
8250	14.6	12.45	12.54
8500	14.2	11.76	12.61
8750	13.9	11.13	12.74
9000	13.6	10.61	12.82

... (more)

WHEEL	16.7 HP	31.1 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	16.7 HP	31.10 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP TURBO 3	16.9 (16.9) / 4528	31.12 (31.12) / 3128	108.1	35.0	85	1000.0	26/12/2017 15:43:17



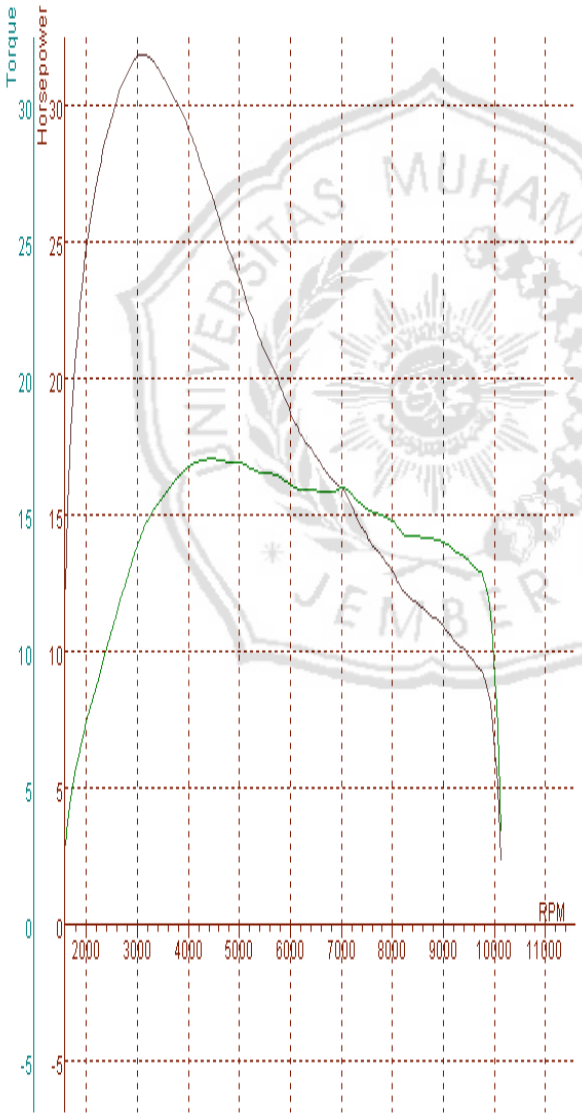
DATA FOR TEST: SCOOPY FI BORE UP TURBO 3

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	4.5	16.68	11.53
2000	6.6	22.36	11.74
2250	8.8	26.48	11.73
2500	10.4	28.71	11.85
2750	11.9	30.17	11.89
3000	13.3	30.98	11.80
3128	13.9	31.12	11.79
3250	14.4	31.08	11.84
3500	15.4	30.46	12.12
3750	15.9	29.95	12.18
4000	16.5	28.94	12.41
4250	16.8	27.89	12.51
4500	16.9	26.38	12.67
4528	16.9	26.38	12.67
4750	16.8	24.87	12.66
5000	16.5	23.11	12.60
5250	16.3	21.72	12.55
5500	16.0	20.34	12.43
5750	16.0	19.52	12.43
6000	15.9	18.63	12.43
6250	15.6	17.42	12.44
6500	15.4	16.62	12.43
6750	15.5	16.13	12.41
7000	15.6	15.68	12.42
7250	14.9	14.39	12.28
7500	14.6	13.65	12.32
7750	14.6	13.20	12.23
8000	14.3	12.58	12.31
8250	14.0	11.96	12.21
8500	13.8	11.43	12.34
8750	13.7	10.99	12.47
9000	13.8	10.78	12.64

... (more)

WHEEL	16.9 HP	31.1 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	16.9 HP	31.12 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP BENSOL 1	17.1 (17.1) / 4505	31.89 (31.89) / 3234	108.2	35.0	85	1000.0	26/12/2017 16:59:12



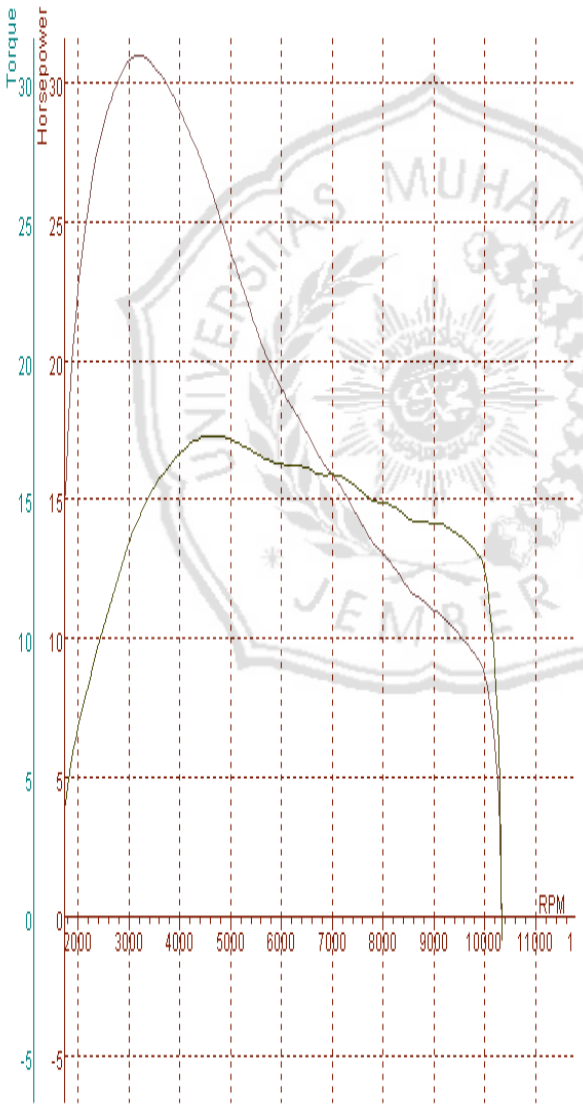
DATA FOR TEST: SCOOPY FI BORE UP BENSOL 1

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	5.1	19.27	11.75
2000	7.3	24.51	11.79
2250	8.9	27.30	11.79
2500	10.8	29.57	11.73
2750	12.3	30.92	11.66
3000	13.8	31.76	11.53
3234	14.7	31.89	11.73
3250	14.9	31.78	11.73
3500	15.7	31.10	11.92
3750	16.2	30.27	12.19
4000	16.7	29.36	12.40
4250	17.0	28.25	12.61
4500	17.1	26.75	12.82
4505	17.1	26.75	12.82
4750	17.0	24.95	12.84
5000	16.9	23.76	12.95
5250	16.7	22.22	12.92
5500	16.5	21.20	12.84
5750	16.5	20.07	12.79
6000	16.1	18.80	12.66
6250	15.9	17.85	12.66
6500	15.9	17.21	12.64
6750	15.8	16.46	12.67
7000	16.0	16.04	12.66
7250	15.7	15.21	12.62
7500	15.3	14.31	12.63
7750	15.1	13.67	12.47
8000	14.8	13.01	12.41
8250	14.3	12.17	12.38
8500	14.2	11.78	12.52
8750	14.2	11.38	12.53
9000	14.0	10.94	12.66

... (more)

WHEEL	17.1 HP	31.9 N*M
LOSSES	0.0 HP	0.0 N*M
TOTAL ENGINE:	17.1 HP	31.89 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP BENSOL 2	17.3 (26.7) / 4757	30.97 (38.79) / 3254	108.5	35.0	85	1000.0	26/12/2017 16:58:51



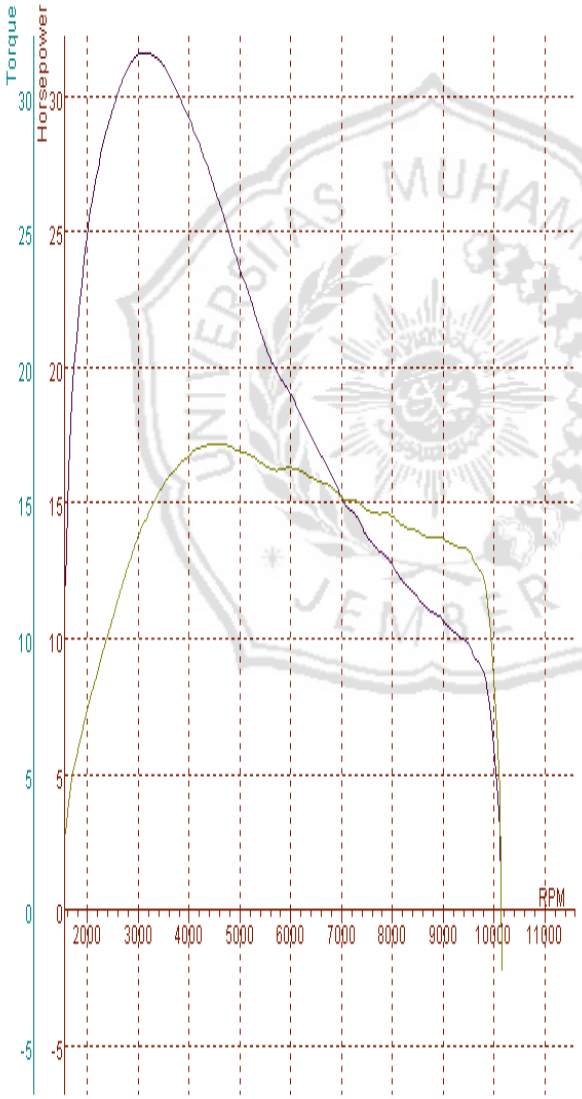
DATA FOR TEST: SCOOPY FI BORE UP BENSOL 2

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	4.1	15.22	12.07
2000	6.8	22.58	12.14
2250	8.6	25.93	12.13
2500	10.2	28.17	12.05
2750	11.7	29.64	11.81
3000	13.2	30.63	11.62
3250	14.4	30.97	11.69
3254	14.4	30.97	11.69
3500	15.3	30.68	11.81
3750	16.0	30.02	12.01
4000	16.6	29.20	12.19
4250	17.0	28.04	12.51
4500	17.2	27.03	12.64
4750	17.3	25.63	12.65
4757	17.3	25.63	12.65
5000	17.2	24.21	12.88
5250	16.9	22.60	12.92
5500	16.7	21.20	12.86
5750	16.4	20.01	12.79
6000	16.3	19.08	12.72
6250	16.2	18.23	12.70
6500	16.2	17.46	12.75
6750	15.9	16.61	12.87
7000	15.9	15.97	12.84
7250	15.8	15.29	12.70
7500	15.4	14.42	12.48
7750	15.0	13.60	12.47
8000	14.9	13.09	12.38
8250	14.7	12.52	12.40
8500	14.3	11.81	12.33
8750	14.2	11.43	12.36
9000	14.2	11.03	12.59

... (more)

WHEEL	17.3 HP	31.0 N*M
LOSSES	-9.4 HP	-7.8 N*M
TOTAL ENGINE:	26.7 HP	38.79 N*M

Name	HP/rpm	N*M/rpm	KMH	Temp. (°C)	Humidity (%)	Pressure (mbar)	Date/Time
SCOOPY FI BORE UP BENSOL 3	17.2 (24.3) / 4631	31.60 (36.58) / 3165	108.8	35.0	85	1000.0	26/12/2017 16:58:15



DATA FOR TEST: SCOOPY FI BORE UP BENSOL 3

RPM	HP (HP)	TQ (N*M)	LAMBDA 1 (Volt)
1750	5.3	19.97	11.39
2000	7.3	24.78	11.39
2250	8.9	27.32	11.52
2500	10.8	29.50	11.33
2750	12.2	30.72	11.20
3000	13.9	31.53	11.32
3165	14.2	**31.60**	11.22
3250	14.7	31.59	11.37
3500	15.6	31.19	11.57
3750	16.2	30.37	11.84
4000	16.7	29.19	12.13
4250	17.0	28.19	12.29
4500	17.2	26.76	12.40
4631	**17.2**	26.19	12.47
4750	17.1	25.32	12.47
5000	16.9	23.59	12.57
5250	16.7	22.41	12.67
5500	16.4	20.96	12.67
5750	16.2	19.77	12.57
6000	16.3	19.02	12.61
6250	16.2	18.20	12.62
6500	15.9	17.15	12.53
6750	15.7	16.29	12.43
7000	15.3	15.33	12.39
7250	15.1	14.62	12.17
7500	14.8	13.82	12.25
7750	14.6	13.24	12.26
8000	14.5	12.76	12.20
8250	14.1	12.00	12.36
8500	14.0	11.52	12.21
8750	13.8	11.03	12.30
9000	13.6	10.64	12.32

... (more)

WHEEL	17.2 HP	31.6 N*M
LOSSES	-7.1 HP	-5.0 N*M
TOTAL ENGINE:	24.3 HP	36.58 N*M

Lampiran 2. Perhitungan kapasitas mesin

1. Mesin skuter matik injeksi standar

Spesifikasi skuter matik injeksi 110cc :

Diameter piston (D) : 50 mm

Panjang langkah (L) : 55 mm

Rasio kompresi : 9,2:1

Kapasitas mesin (Vs) $= 0{,}785 \cdot D^2 \cdot L$

$= 0{,}785 \cdot (50)^2 \cdot 55$

$= 43{,}175 \text{ X } 2{,}500 =$ **107,93 cc**

2. Mesin skuter matik injeksi modifikasi 135 cc

Spek mesin skuter matik injeksi setelah dimodifikasi

Diameter piston (D) : 55 mm

Panjang langkah (L) : 57 mm

Rasio kompresi : 12:1

Kapasitas mesin (Vs) $= 0{,}785 \cdot D^2 \cdot L$

$= 0{,}785 \cdot (55)^2 \cdot 57$

$= 44{,}745 \text{ X } 3{,}025 =$ **135,35 cc**

Lampiran 3. Perhitungan penelitian perbedaan daya dan torsi

1. Perhitungan Perbedaan Daya

Tabel 4.1 Daya yang dihasilkan pada mesin standar dan modifikasi bahan bakar pertamax

Putaran mesin (rpm)	Daya (Hp)	
	Mesin Standar	Mesin Modifikasi
3000	7,8	13,5
4500	7,0	16,6
6000	6,6	15,9
7500	5,3	15,3
9000	3,8	13,9
Rata – rata	6,1	15,04

Perhitungan :

a. Rata-rata perbedaan daya

15,04 – 6,1 = 8,94 Hp

$$\frac{8,94}{15,04} x100\% = 59\%$$

b. Perbedaan daya putaran 3000 rpm

13,5 – 7,8 = 5,7 Hp

$$\frac{5,7}{13,5} \text{x}100\% = 42\%$$

c. Perbedaan daya putaran 4500 rpm

16,6 – 7,0 = 9,6 Hp

$$\frac{9,6}{16,6} x100\% = 57\%$$

d. Perbedaan daya putaran 6000 rpm

15,9 – 6,6 = 9,3 Hp

$$\frac{9,3}{15,9} x100\% = 58\%$$

e. Perbedaan daya putaran 7500 rpm

15,3 – 5,3 = 10 Hp

$$\frac{10}{15,3} x100\% = 65\%$$

f. Perbedaan daya putaran 9000 rpm

13,9 – 3,8 = 10,1 Hp

$$\frac{10,1}{13,9} x100\% = 72\%$$

Tabel 4.2 Daya yang dihasilkan pada mesin standar dan modifikasi bahan bakar pertamax turbo

Putaran mesin (rpm)	Daya (Hp)	
	Mesin Standar	Mesin Modifikasi
3000	7,7	13,1
4500	7,1	16,4
6000	6,8	15,9
7500	5,8	15,1
9000	4,1	13,8
Rata - rata	6,3	14,86

a. Rata-rata perbedaan daya

14,86 – 6,3 = 8,59 Hp

$$\frac{8,59}{14,86} x100\% = 57\%$$

b. Perbedaan daya putaran 3000 rpm

13,1 – 7,7 = 5,4 Hp

$$\frac{5,4}{13,1} x100\% = 41\%$$

c. Perbedaan daya putaran 4500 rpm

16,4 – 7,1 = 9,3 Hp

$$\frac{9,3}{16,4} x100\% = 56\%$$

d. Perbedaan daya putaran 6000 rpm

15,9 – 6,8 = 9,1 Hp

$$\frac{9,1}{15,9} x100\% = 57\%$$

e. Perbedaan daya putaran 7500 rpm

15,1 – 5,8 = 9,3 Hp

$$\frac{9,3}{15,1} x100\% = 61\%$$

f. Perbedaan daya putaran 9000 rpm

13,8 – 4,1 = 9,7 Hp

$$\frac{9,7}{13,8} x100\% = 70\%$$

Tabel 4.3 Daya yang dihasilkan pada mesin standar dan modifikasi bahan bakar bensol

Putaran mesin (rpm)	Daya (Hp)	
	Mesin Standar	Mesin Modifikasi
3000	7,8	13,9
4500	7,2	17,2
6000	6,8	16,3
7500	6,0	14,8
9000	4,2	13,6
Rata - rata	6,4	15,16

a. Rata-rata perbedaan daya

15,16 – 6,4 = 8,76 Hp

$$\frac{8,76}{15,16} x100\% = 57\%$$

b. Perbedaan daya putaran 3000 rpm

13,9 – 7,8 = 6,1 Hp

$$\frac{6,1}{13,9} x100\% = 43\%$$

c. Perbedaan daya putaran 4500 rpm

17,2 – 7,2 = 10 Hp

$$\frac{10}{17,2} x100\% = 58\%$$

d. Perbedaan daya putaran 6000 rpm

16,3 – 6,8 = 9,5 Hp

$$\frac{9,5}{16,3} x100\% = 58\%$$

e. Perbedaan daya putaran 7500 rpm

14,8 – 6,0 = 8,8 Hp

$$\frac{8,8}{14,8} x100\% = 59\%$$

f. Perbedaan daya putaran 9000 rpm

13,6 – 4,2 = 9,4 Hp

$$\frac{9,4}{13,6} x100\% = 69\%$$

2. Perhitungan Perbedaan Torsi

Tabel 4.4 Torsi yang dihasilkan pada mesin standar dan modifikasi bahan bakar pertamax

Putaran mesin (rpm)	Torsi (Nm)	
	Mesin Standar	Mesin Modifikasi
3000	18,40	31,39
4500	10,90	26,06
6000	7,70	18,54
7500	4,97	14,33
9000	2,95	10,86
Rata – rata	8,98	20,23

Perhitungan :

a. Rata-rata perbedaan torsi

20,23 – 8,98 = 11,25 Nm

$$\frac{11,25}{20,23} x100\% = 55\%$$

b. Perbedaan torsi putaran 3000 rpm

31,39 – 18,40 = 12,99 *Nm*

$$\frac{12,99}{31,39} x100\% = 41\%$$

c. Perbedaan torsi putaran 4500 rpm

26,06 – 10,90 = 15,16 *Nm*

$$\frac{15,16}{26,06} x100\% = 58\%$$

d. Perbedaan torsi putaran 6000 rpm

18,54 – 7,70 = 10,84 *Nm*

$$\frac{10,84}{18,54} x100\% = 58\%$$

e. Perbedaan torsi putaran 7500 rpm

14,33 – 4,97 = 9,36 *Nm*

$$\frac{9,36}{14,33} x100\% = 65\%$$

f. Perbedaan torsi putaran 9000 rpm

10,86 – 2,95 = 7,91 *Nm*

$$\frac{7,91}{10,86} x100\% = 72\%$$

Tabel 4.5 Torsi yang dihasilkan pada mesin standar dan modifikasi bahan bakar pertamax turbo

Putaran mesin (rpm)	Torsi (Nm)	
	Mesin Standar	Mesin Modifikasi
3000	18,17	30,58
4500	11,09	25,59
6000	8,02	18,57
7500	5,41	14,12
9000	3,20	10,82
Rata - rata	9,17	19,93

Perhitungan :

a. Rata-rata perbedaan torsi

19,93 – 9,17 = 10,76 *Nm*

$$\frac{10,76}{19,93} x100\% = 53\%$$

b. Perbedaan torsi putaran 3000 rpm

30,58 – 18,17 = 12,41 *Nm*

$$\frac{12,41}{30,58} x100\% = 40\%$$

c. Perbedaan torsi putaran 4500 rpm

25,59 – 11,09 = 14,50 *Nm*

$$\frac{14,50}{25,59} x100\% = 56\%$$

d. Perbedaan torsi putaran 6000 rpm

18,57 – 8,02 = 10,55 *Nm*

$$\frac{10,55}{18,57} x100\% = 56\%$$

e. Perbedaan torsi putaran 7500 rpm

14,12 – 5,41 = 8,71 *Nm*

$$\frac{8,71}{14,12} x100\% = 61\%$$

f. Perbedaan torsi putaran 9000 rpm

10,82 – 3,20 = 7,62 *Nm*

$$\frac{7,62}{10,82} x100\% = 70\%$$

Tabel 4.6 Torsi yang dihasilkan pada mesin standar dan modifikasi bahan bakar bensol

Putaran mesin (rpm)	Torsi (Nm)	
	Mesin Standar	Mesin Modifikasi
3000	18,23	31,53
4500	11,16	26,76
6000	7,93	19,02
7500	5,62	13,82
9000	3,27	10,64
Rata - rata	9,24	20,35

Perhitungan :

a. Rata-rata perbedaan torsi

20,35 – 9,24 = 11,11 *Nm*

$$\frac{11,11}{20,35} x100\% = 54\%$$

b. Perbedaan torsi putaran 3000 rpm

31,53 – 18,23 = 13,30 *Nm*

$$\frac{13,30}{31,53} x100\% = 42\%$$

c. Perbedaan torsi putaran 4500 rpm

26,76 – 11,16 = 15,60 *Nm*

$$\frac{15,60}{26,76} x100\% = 58\%$$

d. Perbedaan torsi putaran 6000 rpm

19,02 – 7,93 = 11,09 *Nm*

$$\frac{11,09}{19,02} x100\% = 58\%$$

e. Perbedaan torsi putaran 7500 rpm

13,82 – 5,62 = 8,20 *Nm*

$$\frac{8{,}20}{13{,}82} x100\% = 59\%$$

f. Perbedaan torsi putaran 9000 rpm

10,64 – 3,27 = 7,37 *Nm*

$$\frac{7{,}37}{10{,}64} x100\% = 69\%$$

Lampiran 4. Dokumentasi penelitian

Gambar 1. Bengkel tempat penelitian

Gambar 2. Proses pengambilan data

Gambar 3. Bagian komponen ruang bakar mesin standar

Gambar 4. Bagian komponen ruang bakar mesin modifikasi

Gambar 5. Per cvt dan roller cvt

Gambar 6. Foto dengan pemilik bengkel

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SURAT KETERANGAN

Yang bertanda tangan dibawah ini :

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Menerangkan Bahwa :

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Perguruan Tinggi : Universitas Muhammadiyah Jember

Bahwa mahasiswa tersebut benar - benar telah melakukan penelitian skripsi tentang "Pengaruh Modifikasi Pada Bagian Ruang Bakar dan CVT (*Continusously Variable Transmission*) Terhadap Perfoma Motor 4 langkah *Skuter Matic* Injeksi Menggunakan Variasi Bahan Bakar" di Bengkel R.A.T sebagai syarat untuk menyelesaikan penyusunan skripsi.

Demikian surat keterangan ini dibuat dengan sebenar - benarnya untuk digunakan sebagaimana mestinya.

Sidoarjo, 29 Januari 2018

Swega Dhokoh

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