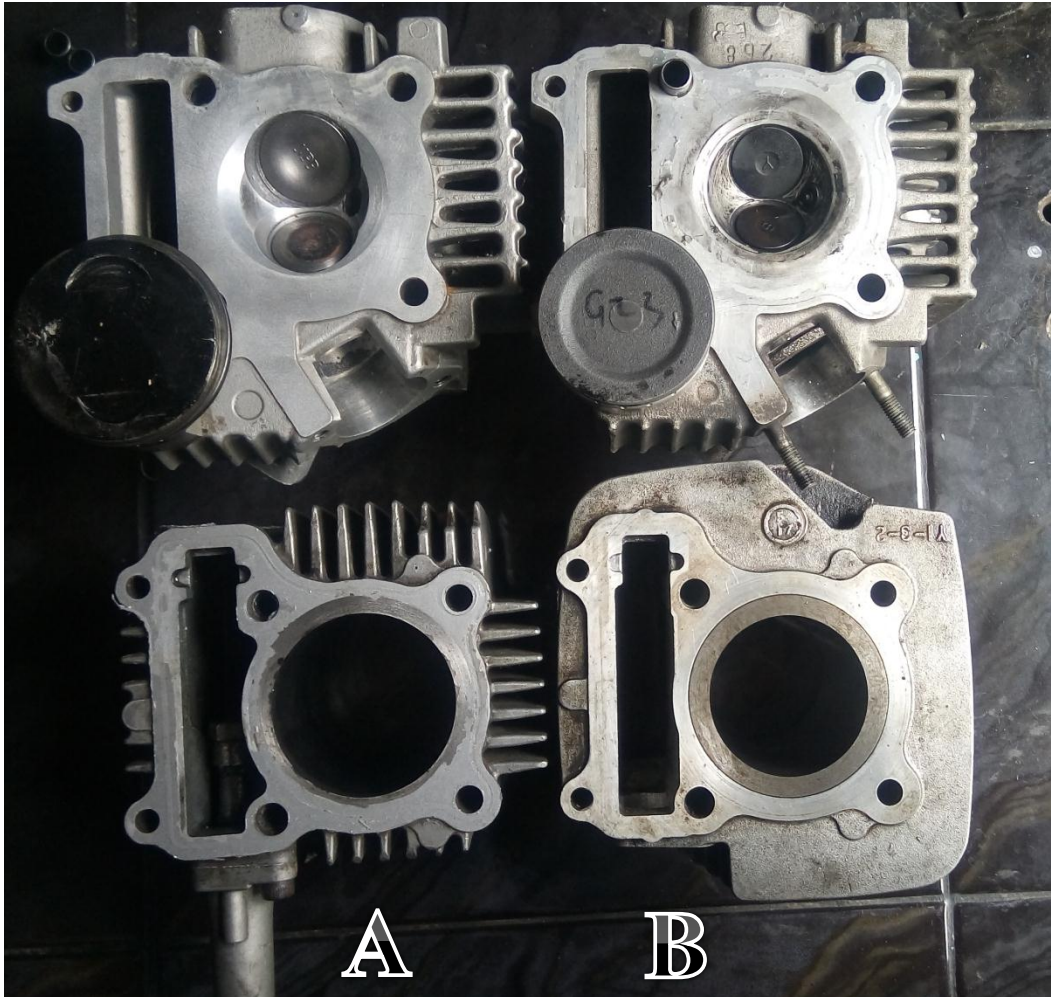


# **LAMPIRAN**

## Lampiran 1

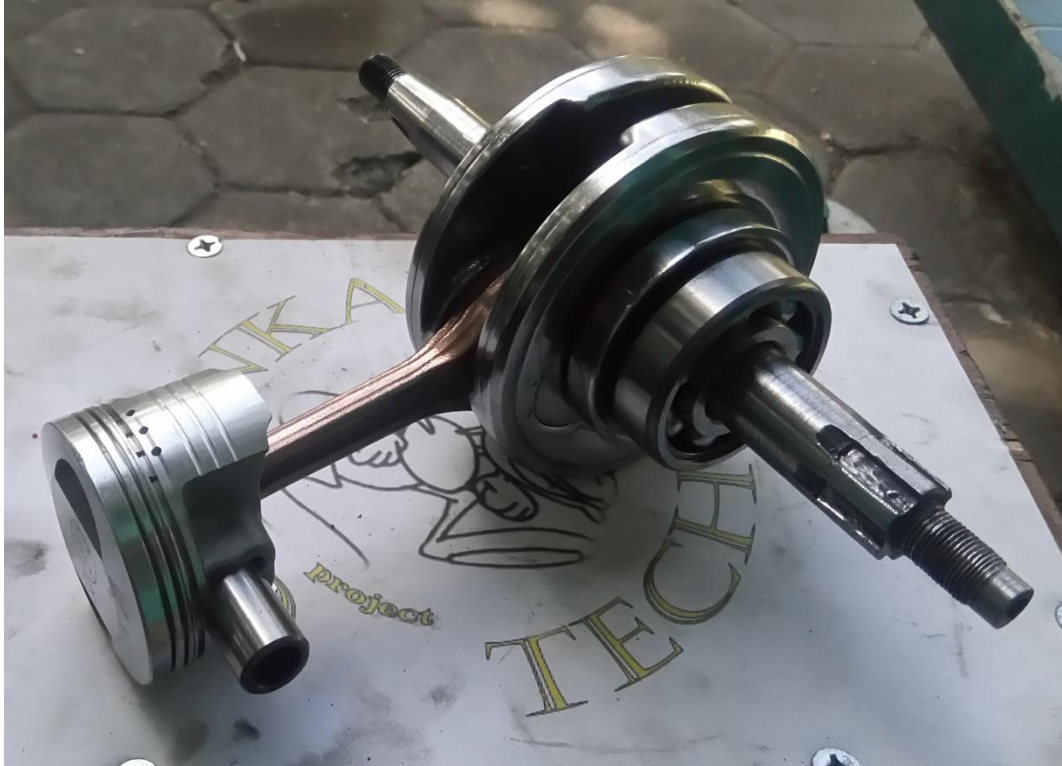
*Piston silinder blok dan silinder head*

- A. Motor modifikasi menggunakan *piston* dengan diameter 58 mm.
- B. Motor standar menggunakan piston 51 mm.



## Lampiran 2

Gambar poros engkol modifikasi



### Lampiran 3

#### A. Hasil uji motor standar 1



**Dyno Centre & Motorcycle Research Support**  
 Jl. Rimporod Sekeloa, Kecamatan, Pangasinan, Bantaregopah,  
 Bantul, Yogyakarta, Indonesia  
 Telp. 1-02-374-638303

SPORIDYNO V3.3  
 DYNAMOMETER: REXTOR PRO DYNO  
 ROLLER INERTIA: 1.446

Displacement Correction  
 Correction Factor: ISO 1585

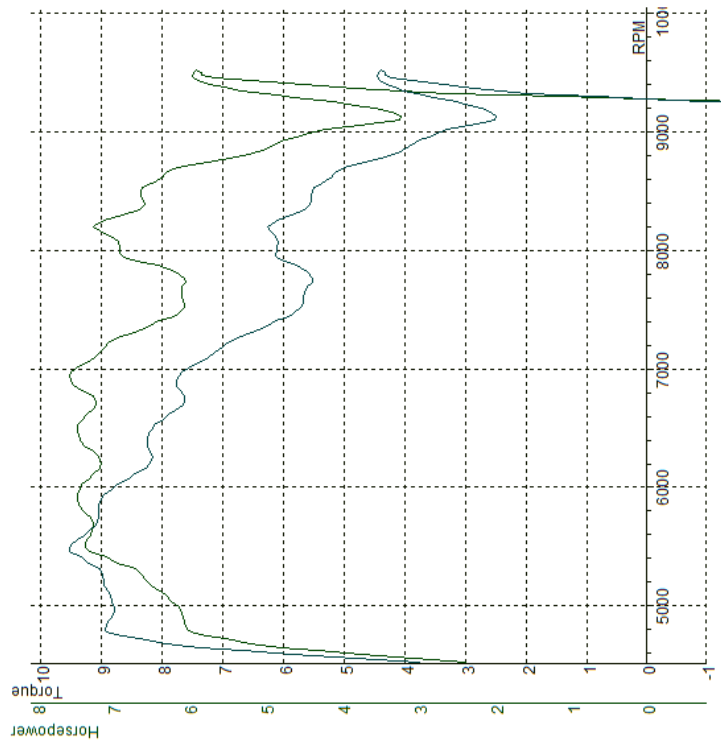
|                |                   |                     |          |            |             |      |                     |
|----------------|-------------------|---------------------|----------|------------|-------------|------|---------------------|
| TEST NAME      | MAX POWER         | MAX TORQUE          | Temp. °C | Humidity % | Pressure    | KMH  | Date/Time           |
| VEGAR 110 T001 | 7.6 (14.1) / 6921 | 9.53 (14.48) / 5493 | 30.7 °C  | 58 %       | 1000.0 mbar | 76.8 | 28/12/2017 13:46:57 |

DATA FOR TEST: VEGAR 110 T001

Comments  
 STANDART

| RPM  | HP (HEQ) (N*M*AD) | T    |
|------|-------------------|------|
| 4500 | 3.1               | 4.88 |
| 4750 | 5.8               | 8.66 |
| 5000 | 6.2               | 8.80 |
| 5250 | 6.6               | 8.98 |
| 5493 | 7.4               | 9.53 |
| 5500 | 7.4               | 9.49 |
| 5750 | 7.3               | 9.05 |
| 6000 | 7.4               | 8.75 |
| 6250 | 7.2               | 8.16 |
| 6500 | 7.5               | 8.12 |
| 6750 | 7.3               | 7.63 |
| 6921 | 7.6               | 7.76 |
| 7000 | 7.4               | 7.51 |
| 7250 | 6.9               | 6.77 |
| 7500 | 6.1               | 5.72 |
| 7750 | 6.1               | 5.52 |
| 8000 | 6.9               | 6.10 |
| 8250 | 7.1               | 6.10 |
| 8500 | 6.6               | 5.49 |
| 8750 | 5.7               | 4.57 |
| 9000 | 4.4               | 3.48 |
| 9250 | 4.1               | 3.14 |
| 9500 | 6.0               | 4.42 |

LOSSES: -6.5 HP  
 TOTAL ENGINE: 14.1HP



## B. Hasil uji motor standar 2



**Mototech**  
Indonesia

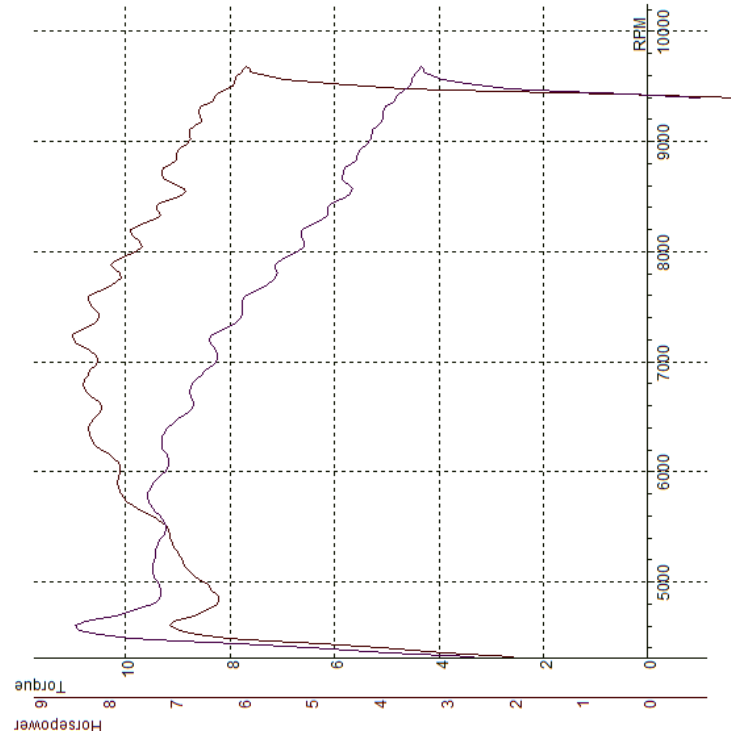
**Dyna Centre of Motorcycle Research Support**

A. Ringroad Iskoton, Kecamatan, Pongoren, Bontomatene,  
Mamuju, Sulawesi Barat, Indonesia  
Telp : +62 374 438433

**SPORDYNO V3.3**  
**DYNAMOMETER: RECTOR PRO DYNO**  
**ROLLER INERTIA: 1,446**

Displacement Correction:  
Correction Factor: ISO 1585

TEST NAME: VEGAR 110 T002 | MAX POWER: 8.5 (13.3) / 7211 | MAX TORQUE: 11.01 (14.61) / 4574 | Temp. °C: 30.7 °C | Humidity %: 38 % | Pressure: 1000.0 mbar | KMH: 81.7 | Date/Time: 28.12.2017 13:48:31



DATA FOR TEST: VEGAR 110 T002

| Comments STANDART | RPM  | HP (HP) | HP(N*M)*M | T    |
|-------------------|------|---------|-----------|------|
|                   | 4250 | 3.0     | 4.96      | 0.52 |
|                   | 4500 | 6.6     | 10.51     | 0.62 |
|                   | 4574 | 7.1     | 11.01     | 0.66 |
|                   | 4750 | 6.4     | 9.64      | 0.78 |
|                   | 5000 | 6.6     | 9.38      | 0.92 |
|                   | 5250 | 7.0     | 9.41      | 1.10 |
|                   | 5500 | 7.1     | 9.22      | 1.24 |
|                   | 5750 | 7.7     | 9.57      | 1.40 |
|                   | 6000 | 7.8     | 9.23      | 1.56 |
|                   | 6250 | 8.2     | 9.31      | 1.72 |
|                   | 6500 | 8.1     | 8.80      | 1.90 |
|                   | 6750 | 8.3     | 8.75      | 2.06 |
|                   | 7000 | 8.1     | 8.23      | 2.24 |
|                   | 7211 | 8.5     | 8.37      | 2.38 |
|                   | 7250 | 8.4     | 8.15      | 2.44 |
|                   | 7500 | 8.3     | 7.77      | 2.62 |
|                   | 7750 | 7.8     | 7.13      | 2.80 |
|                   | 8000 | 7.6     | 6.72      | 3.02 |
|                   | 8250 | 7.4     | 6.33      | 3.28 |
|                   | 8500 | 6.9     | 5.70      | 3.54 |
|                   | 8750 | 7.2     | 5.80      | 3.78 |
|                   | 9000 | 6.8     | 5.30      | 4.08 |
|                   | 9250 | 6.6     | 5.07      | 4.38 |
|                   | 9500 | 6.1     | 4.56      | 4.70 |

LOSSES: -4.8 HP -3.6N\*M\*M  
TOTAL ENGINE: 13.3HP 14.61N\*M\*M

### C. Hasil uji motor standar 3

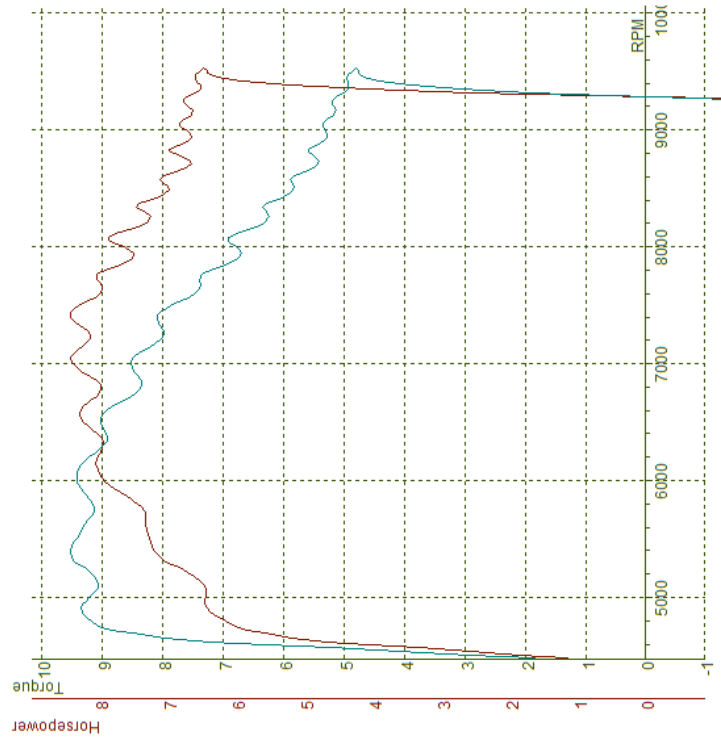


**Dyna Centre of Motorcycle Research Support**  
 Jl. Ringroad Selatan, Komplek Singsing, Bumpantapan,  
 Banjar, Yogyakarta, Indonesia  
 Telp : +62 31 858833

SPORDYNO V3.3  
 DYNAMOMETER: RECTOR PRO DYNO  
 ROLLER INERTIA: 1,446

Displacement Correction:  
 Correction Factor: ISO 1585

TEST NAME: VEGAR 110 T003  
 MAX POWER: 8.4 (15.1) / 7434  
 MAX TORQUE: 9.52 (14.57) / 5519  
 Temp. °C: 30.7 °C  
 Humidity %: 38 %  
 Pressure: 1000.0 mbar  
 KMH: 79.4  
 Date/Time: 28.12.2017 13:48:43



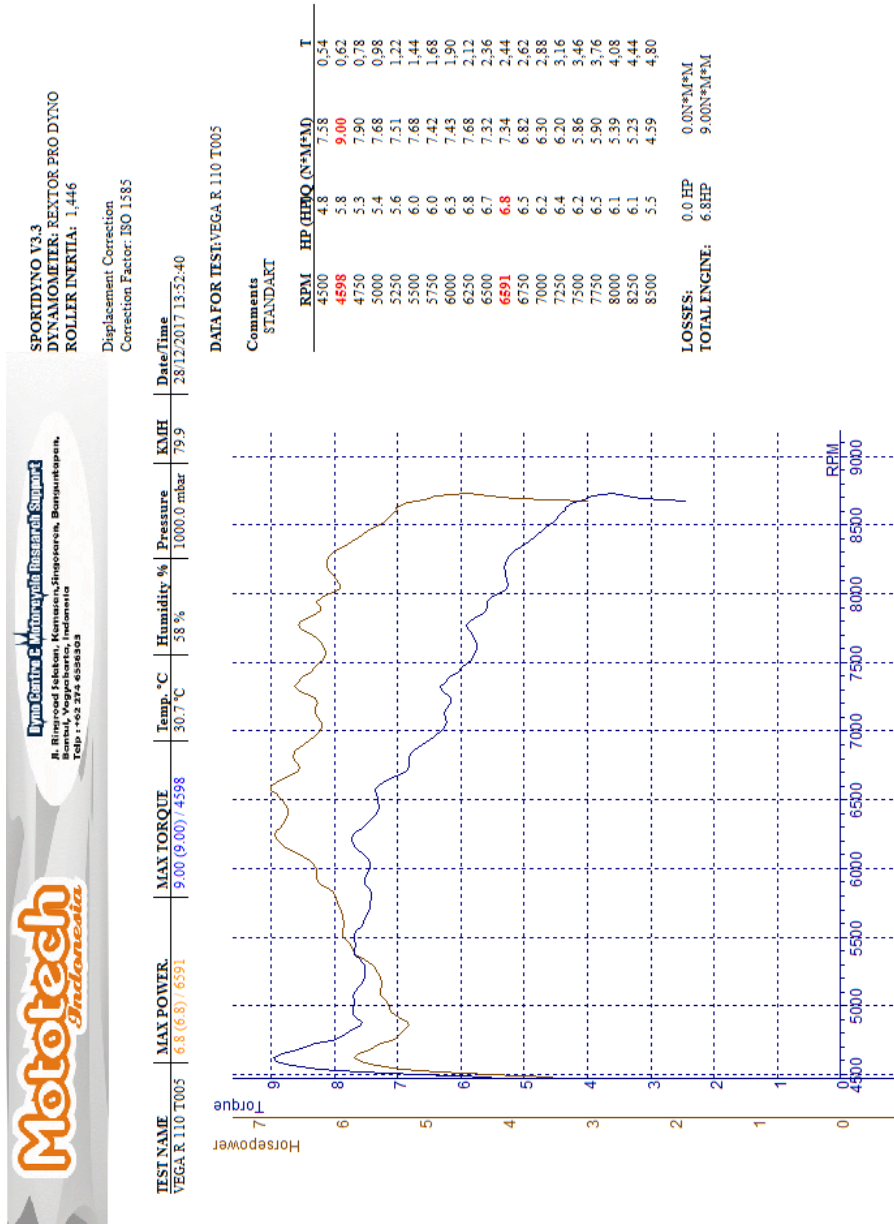
DATA FOR TEST: VEGAR 110 T003

Comments  
 STANDART

| RPM  | HP (HP) | (N*M)*M | T    |
|------|---------|---------|------|
| 4500 | 1.8     | 2.93    | 0.52 |
| 4750 | 6.0     | 9.03    | 0.68 |
| 5000 | 6.5     | 9.19    | 0.84 |
| 5250 | 6.8     | 9.28    | 0.98 |
| 5379 | 7.2     | 9.52    | 1.06 |
| 5500 | 7.3     | 9.41    | 1.14 |
| 5750 | 7.4     | 9.12    | 1.30 |
| 6000 | 8.0     | 9.42    | 1.46 |
| 6250 | 8.0     | 9.03    | 1.62 |
| 6500 | 8.3     | 9.02    | 1.78 |
| 6750 | 8.0     | 8.42    | 1.94 |
| 7000 | 8.4     | 8.52    | 2.12 |
| 7250 | 8.2     | 7.98    | 2.30 |
| 7434 | 8.4     | 8.05    | 2.42 |
| 7500 | 8.3     | 7.84    | 2.48 |
| 7750 | 8.0     | 7.36    | 2.68 |
| 8000 | 7.7     | 6.83    | 2.90 |
| 8250 | 7.3     | 6.22    | 3.12 |
| 8500 | 7.0     | 5.83    | 3.38 |
| 8750 | 6.8     | 5.47    | 3.64 |
| 9000 | 6.8     | 5.32    | 3.90 |
| 9250 | 6.8     | 5.18    | 4.20 |
| 9500 | 6.5     | 4.85    | 4.50 |

LOSSES: -6.6 HP  
 TOTAL ENGINE: 15.1HP  
 -5.0N\*M\*M  
 14.57N\*M\*M

## D. Hasil uji motor standar 5





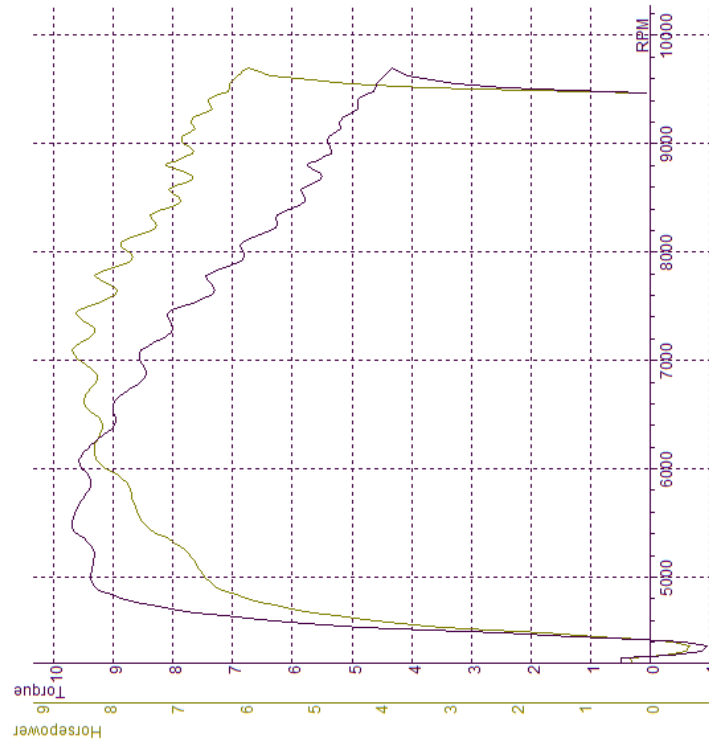
## E. Hasil uji motor standar 6


  
**Dyna Centre & Motorcycle Research Support**
  
Jl. Ririproad Sekeloa, Kecamatan, Pangkajene, Bantupakpan,  
 Bantul, Yogyakarta, Indonesia  
 Telp. +62 274 4056303

SPORIDYNO V3.3  
 DYNAMOMETER: REXTOR PRO DYNO  
 ROLLER INERTIA: 1,446

Displacement Correction:  
 Correction Factor: ISO 1585

TEST NAME | MAX POWER | MAX TORQUE | Temp. °C | Humidity % | Pressure | KM/H | Date/Time  
 VEGAR.110 T006 | 8.5 (10.3) / 7096 | 9.69 (10.97) / 5491 | 30.7 °C | 58 % | 1000.0 mbar | 81.9 | 28/12/2017 13:52:51



DATA FOR TEST: VEGAR.110 T006

Comments  
 STANDART

| RPM   | HP (HP) | (N*M)*M | T    |
|-------|---------|---------|------|
| 4750  | 5.8     | 8.63    | 0.84 |
| 5000  | 6.6     | 9.36    | 1.00 |
| 5250  | 6.9     | 9.32    | 1.14 |
| 5500  | 7.5     | 9.69    | 1.28 |
| 5750  | 7.5     | 9.68    | 1.30 |
| 6000  | 7.7     | 9.44    | 1.46 |
| 6250  | 8.1     | 9.56    | 1.62 |
| 6500  | 8.1     | 9.23    | 1.78 |
| 6750  | 8.2     | 8.99    | 1.94 |
| 7000  | 8.2     | 8.67    | 2.10 |
| 7250  | 8.4     | 8.55    | 2.28 |
| 7500  | 8.5     | 8.33    | 2.34 |
| 7750  | 8.2     | 8.02    | 2.46 |
| 8000  | 8.3     | 7.81    | 2.66 |
| 8250  | 8.2     | 7.46    | 2.86 |
| 8500  | 7.7     | 6.83    | 3.08 |
| 8750  | 7.3     | 6.25    | 3.32 |
| 9000  | 6.9     | 5.78    | 3.56 |
| 9250  | 6.9     | 5.61    | 3.82 |
| 9500  | 6.7     | 5.42    | 4.10 |
| 9750  | 6.7     | 5.08    | 4.42 |
| 10000 | 6.2     | 4.61    | 4.72 |

LOSSES: -1.7 HP -1.3(N\*M)\*M  
 TOTAL ENGINE: 10.3HP 10.97(N\*M)\*M



## Lampiran 4

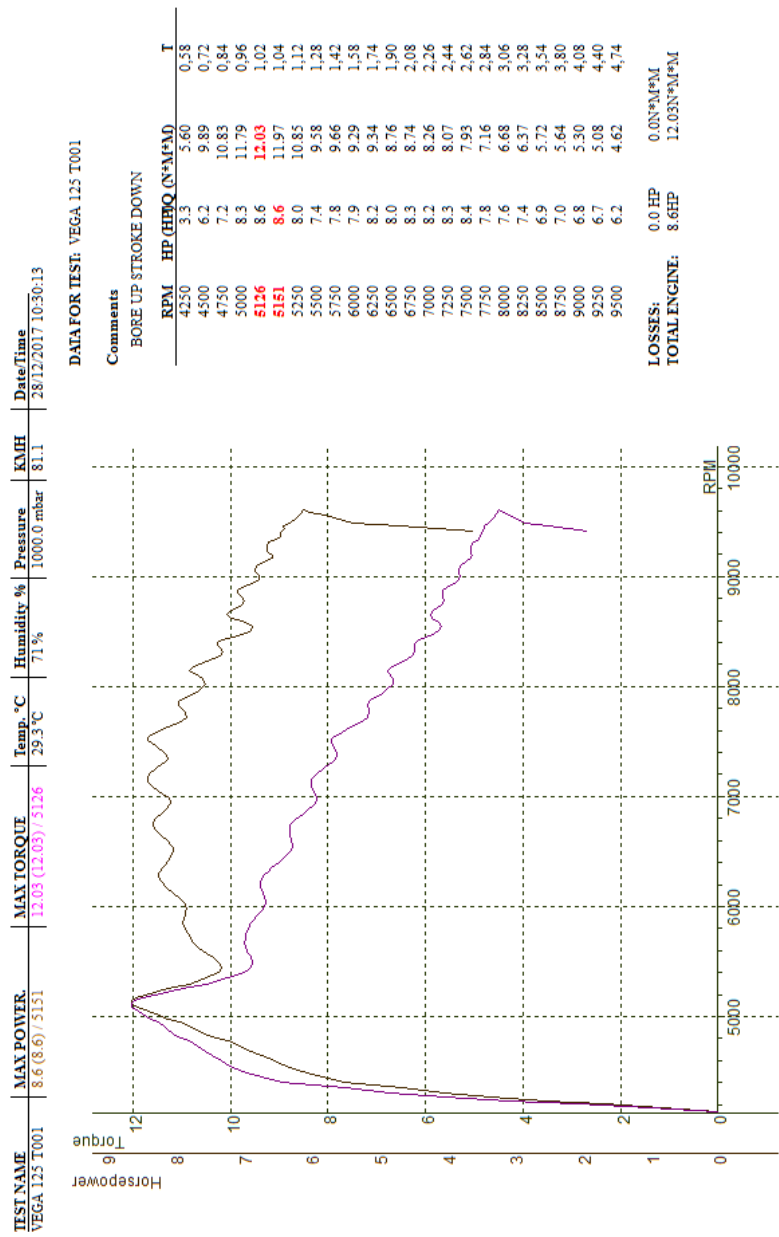
### A. Hasil uji motor modifikasi 1



**Dina Gantiva Motorcycle Research Support**  
R. Bintaro Selatan, Kemiri, Tangerang, Banten  
Telp: +62 214 4558203

SPORTIVO V3.3  
DYNAMOMETER: REXTOR PRO DINO  
KOLLER INERZIA: 1,446

Displacement Correction  
Correction Factor: ISO 1585



## B. Hasil uji motor modifikasi 2



**Mototech Indonesia**  
 Dyno Center & Motorcycle Research Support  
 Jl. Ringroad Selatan, Komplek Sinarasih, Bantarkayen, Sukoharjo, Jawa Tengah  
 Telp. +62 274 4554323

SPORTIVO V3.3  
 DYNAMOMETER: REXTOR PRO DINO  
 ROLLER INERTIA: 1,446

Displacement Correction  
 Correction Factor: ISO 1585

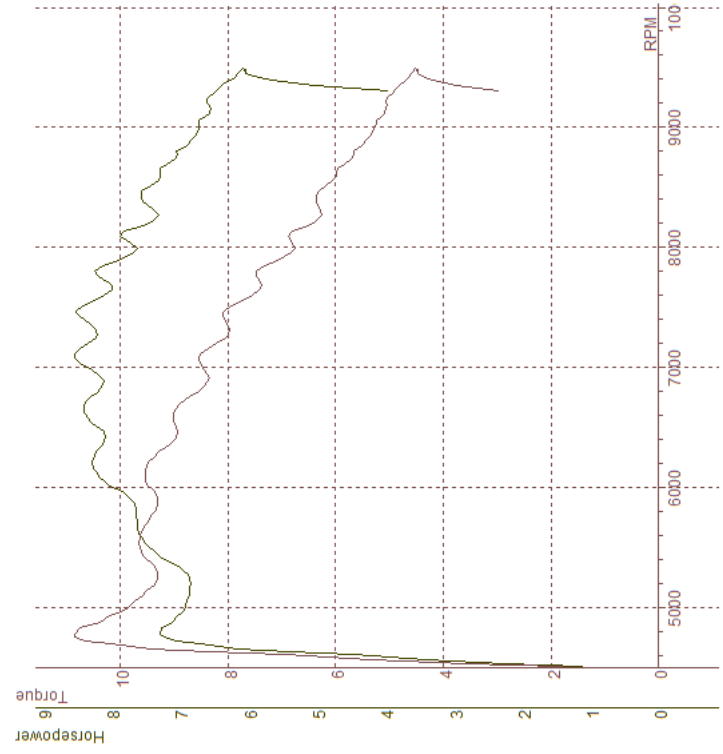
TEST NAME: VEGA 125 T002 | MAX POWER: 8.3 (8.5) / 7113 | MAX TORQUE: 10.83 (10.85) / 4781 | Temp. °C: 29.3 °C | Humidity: %: 71% | Pressure: 1000.0 mbar | KMH: 80.2 | Date/Time: 28/12/2017 10:30:24

DATA FOR TEST: VEGA 125 T002

Comments  
 BORE UP STROKE DOWN

| RPM  | HP (HEPQ) (N*M*MIN) | T     |
|------|---------------------|-------|
| 4500 | 2.3                 | 3.59  |
| 4750 | 7.2                 | 10.84 |
| 4781 | 7.3                 | 10.85 |
| 5000 | 6.9                 | 9.82  |
| 5250 | 6.9                 | 9.29  |
| 5500 | 7.5                 | 9.64  |
| 5750 | 7.6                 | 9.43  |
| 6000 | 8.0                 | 9.47  |
| 6250 | 8.2                 | 9.36  |
| 6500 | 8.2                 | 8.97  |
| 6750 | 8.3                 | 8.67  |
| 7000 | 8.4                 | 8.52  |
| 7113 | 8.6                 | 8.51  |
| 7250 | 8.2                 | 7.99  |
| 7500 | 8.4                 | 7.88  |
| 7750 | 8.2                 | 7.47  |
| 8000 | 7.6                 | 6.76  |
| 8250 | 7.3                 | 6.25  |
| 8500 | 7.4                 | 6.17  |
| 8750 | 7.0                 | 5.67  |
| 9000 | 6.7                 | 5.26  |
| 9250 | 6.6                 | 5.01  |
| 9500 | 6.0                 | 4.48  |

LOSSES: 0.0 HP  
 TOTAL ENGINE: 8.5HP  
 0.0N\*M\*MIN  
 10.85N\*M\*MIN



### C. Hasil uji motor modifikasi 3



**Dyna Centre & Motorcycle Research Support**  
 Jl. Ringroad Selatan, Kemaren, Hingoreah, Bangunkopan,  
 Kabupaten Indragiri  
 Telp. +62 274 4338323

**SPORDINO V3.3**  
**DYNAMOMETER: REXTOR PRO DYNNO**  
**ROLLER INERTIA: 1,446**

Displacement Correction  
 Correction Factor: ISO 1585

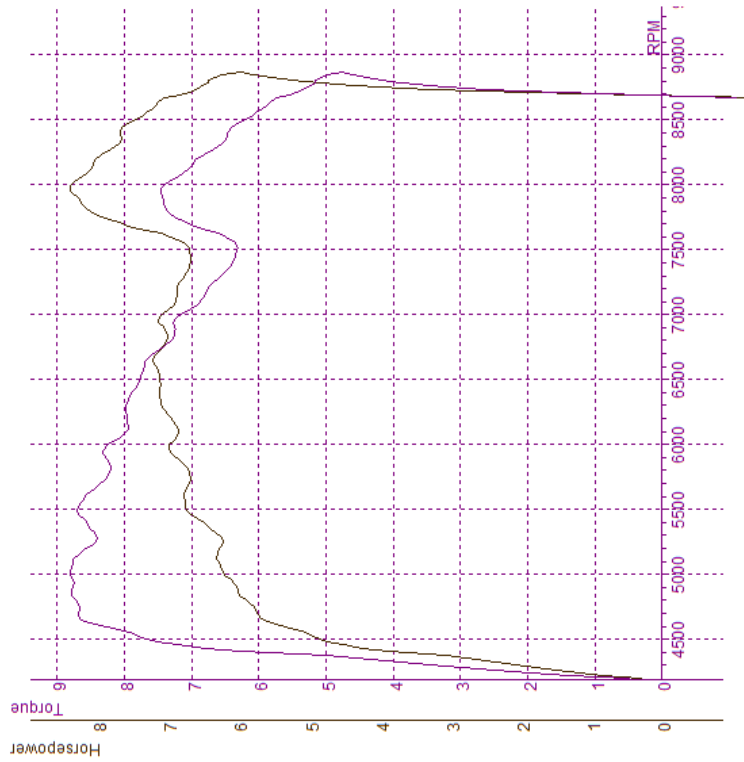
TEST NAME | MAX POWER | MAX TORQUE | Temp. °C | Humidity % | Pressure | KMH | Date/Time  
 VEGA 125 T003 | 8.4 (11.4) / 7964 | 8.81 (11.26) / 5026 | 29.3 °C | 71 % | 1000.0 mbar | 81.1 | 28/12/2017 10:30:36

DATA FOR TEST: VEGA 125 T003

Comments  
 BOKE UP STROKE DOWN

| RPM  | HP (HP) | (N*M/M) | I    |
|------|---------|---------|------|
| 4500 | 4.9     | 7.74    | 0.76 |
| 4750 | 5.8     | 8.70    | 0.96 |
| 5000 | 6.2     | 8.81    | 1.16 |
| 5250 | 6.2     | 8.42    | 1.34 |
| 5500 | 6.7     | 8.68    | 1.56 |
| 5750 | 6.7     | 8.24    | 1.76 |
| 6000 | 7.0     | 8.26    | 1.96 |
| 6250 | 7.0     | 7.97    | 2.18 |
| 6500 | 7.1     | 7.75    | 2.42 |
| 6750 | 7.1     | 7.43    | 2.64 |
| 7000 | 7.1     | 7.16    | 2.88 |
| 7250 | 6.8     | 6.68    | 3.14 |
| 7500 | 6.7     | 6.32    | 3.42 |
| 7750 | 8.0     | 7.32    | 3.66 |
| 8000 | 8.4     | 7.46    | 3.84 |
| 8250 | 7.9     | 6.76    | 4.14 |
| 8500 | 7.5     | 6.21    | 4.42 |
| 8750 | 6.5     | 5.25    | 4.78 |

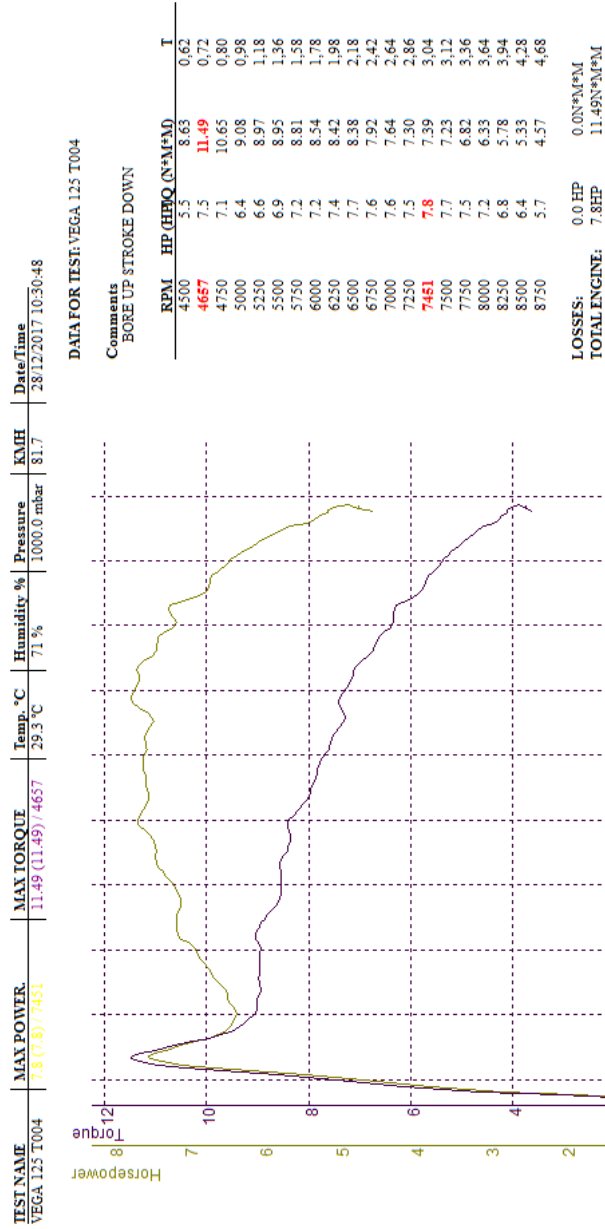
LOSSES: 3.0 HP    -2.4N\*M/M  
 TOTAL ENGINE: 11.4HP    11.26N\*M/M



## D. Hasil uji motor modifikasi 4


  
**Dyna Centre C. Mitra Utama Research Support**
  
Jl. Rimbood Seleson, Kemaman, Singapore, Singapore
  
Telp. +62 374 6588303

**SPORTDINO V3.3**  
**DYNAMOMETER: REXTOR PRO DYN0**  
**ROLLER INERTIA: 1,446**  
 Displacement Correction  
 Correction Factor: ISO 1585



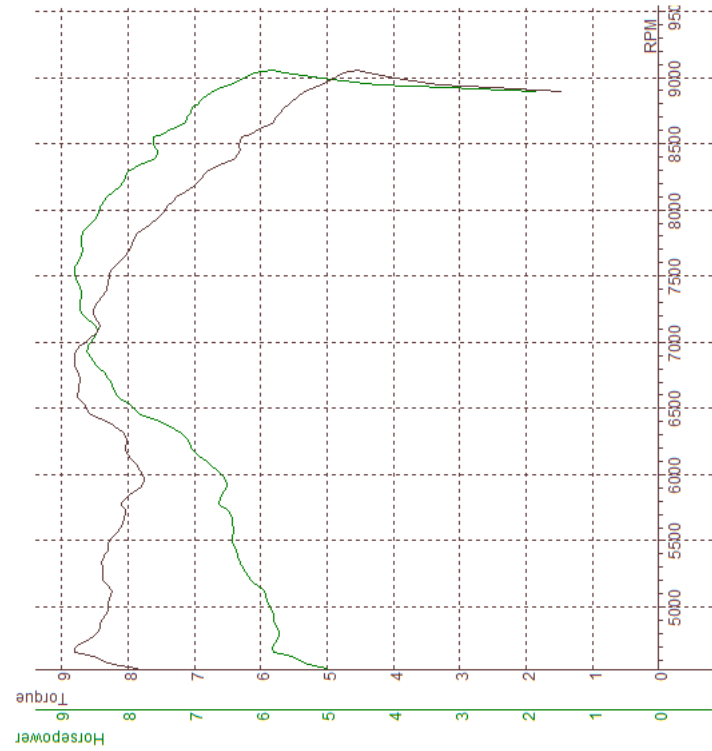
## E. Hasil uji motor modifikasi 6


  
**Lyno Centrifugal Motorcycle Research Support**
  
Jl. Ringroad Selatan, Komplek Harmonis, Bontomatene, Makassar
  
Telp. +62 374 4554323

SPORDYNO V3.3  
 DYNAMOMETER: REXTOR PRO DYN0  
 ROLLER INERTIA: 1,446

Displacement Correction  
 Correction Factor: ISO 1585

**TEST NAME** | VEGA 125 T006 | **MAX POWER** | 8.8 (8.87) / 528 | **Temp. °C** | 29.3 °C | **Humidity. %** | 71 % | **Pressure** | 1000.0 mbar | **KMH** | 82.8 | **Date/Time** | 28/12/2017 10:31:11



**DATA FOR TEST:** VEGA 125 T006

**Comments**  
BORE UP STROKE DOWN

| RPM  | HP (HEPQ) (N*M*MIN) | T    |
|------|---------------------|------|
| 4500 | 5.2                 | 8.12 |
| 4692 | 5.8                 | 8.81 |
| 4750 | 5.7                 | 8.53 |
| 5000 | 5.8                 | 8.30 |
| 5250 | 6.2                 | 8.39 |
| 5500 | 6.4                 | 8.27 |
| 5750 | 6.6                 | 8.11 |
| 6000 | 6.6                 | 7.78 |
| 6250 | 7.1                 | 8.03 |
| 6500 | 7.9                 | 8.63 |
| 6750 | 8.3                 | 8.74 |
| 7000 | 8.5                 | 8.58 |
| 7250 | 8.7                 | 8.52 |
| 7500 | 8.8                 | 8.29 |
| 7528 | 8.8                 | 8.27 |
| 7750 | 8.7                 | 7.92 |
| 8000 | 8.4                 | 7.42 |
| 8250 | 8.0                 | 6.87 |
| 8500 | 7.6                 | 6.32 |
| 8750 | 7.0                 | 5.65 |
| 9000 | 6.2                 | 4.86 |

**LOSSES:** 0.0 HP  
**TOTAL ENGINE:** 8.8 HP  
 0.0 N\*M\*MIN  
 8.81 N\*M\*MIN