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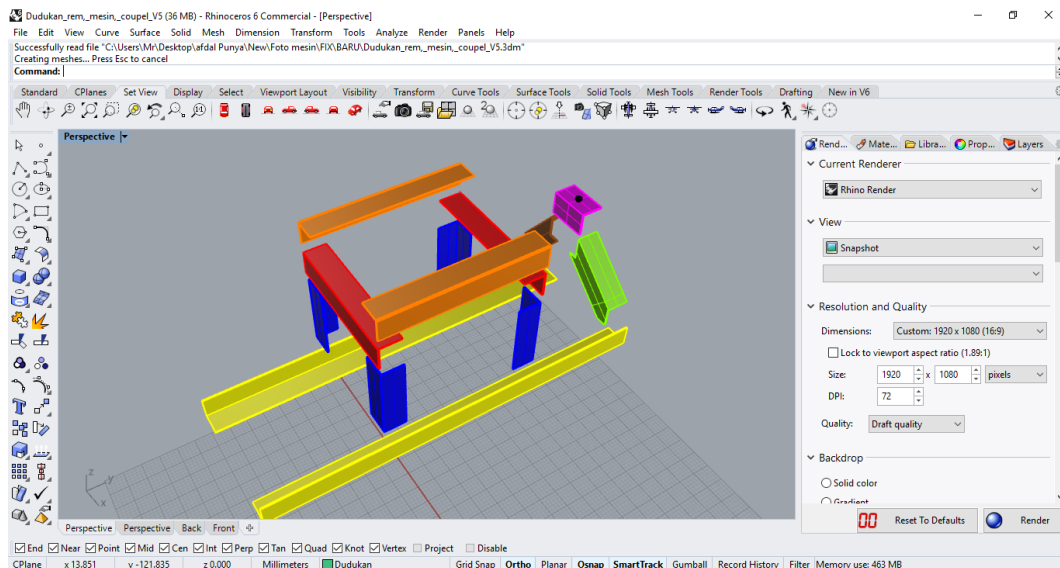
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**LAMPIRAN 1**  
**LAMPIRAN PROSES**  
**PEMBUATAN DUDUKAN REM**

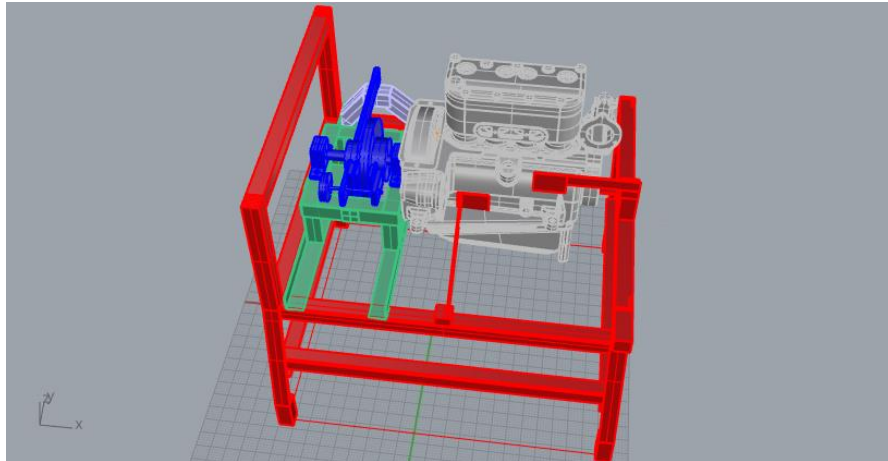
Salah satu tujuan penelitian ini adalah mendesain dudukan rem yang akan menopang rem yang akan digunakan untuk mengukur torsi mesin yang menggunakan bahan bakar hybrid gas HHO - solar. Untuk melakukan penelitian tentang torsi yang dihasilkan oleh mesin diperlukan sebuah rem sebagai alat atau media pengukur torsi yang dihasilkan mesin. Sebelum melangkah ke tahap tersebut, terlebih dahulu dilakukan sebuah proses mendesain dudukan terhadap rem yang akan digunakan agar pembuatan dudukan rem dapat lebih efisien dan terstruktur. Desain tersebut menggunakan software Rhino 6.

Tahapan desain dudukan rem dimulai dengan mendesain konstruksi dudukan rem seperti jenis batangan besi, dimensi batang besi yang digunakan, dan desain konstruksi dudukan rem yang digunakan. Dalam pengerjaannya diperoleh jenis batangan besi dan dimensinya yaitu menggunakan besi siku 50 mm x 50 mm dengan ketebalan 3 mm, panjang keseluruhan besi siku yang digunakan 500 mm tepatnya 421 mm. Tampak desain dudukan rem menggunakan Rhino 6 dapat dilihat pada gambar 4.1 sebagai berikut.



(Gambar 4.1, Tampilan Rhino 6 Desain Dudukan Rem)

Setelah melakukan proses perancangan terhadap dudukan rem, desain tersebut disatukan dengan desain dudukan mesin dan mesin sehingga memperoleh satu desain mesin dan rem seperti ditampilkan pada gambar 4.2



- **Posedur Pembuatan Dudukan Rem Mesin**

Prosedur yang dilakukan saat pembuatan dudukan Rem mesin adalah

- Siapkan bahan untuk dudukan rem : Memotong besi siku 50 mm x 50 mm dengan tebal 3 mm sebanyak dua potong dengan panjang 88.7 cm, 4 buah dengan panjang 16.7 cm, 2 buah dengan panjang 36 cm, dua buah dengan panjang 29.4 cm, satu buah dengan panjang 17.9 cm, satu buah 19.1 cm, dan satu buah dengan panjang 9 cm.
- Memotong plat besi dengan tebal 3 mm dengan ukuran 5 cm x 5 cm sebanyak 8 buah, 17.4 cm x 5 cm sebanyak 2 buah, 7.15 cm x 5 cm sebanyak 1 buah, 32.13 cm X 5 cm sebanyak 1 buah, 9.06 cm X 5 cm sebanyak 1, dan ukuran 32.92 cm x 5 cm sebanyak 1 buah.
- Merakit dudukan rem dengan menyambunfkan potongan – potongan besi menggunakan alat las maupun dengan mur dan baut sesuai dengan desain rancangan.
- Pemasang rem ke dudukan menggunakan mur dan baut.



Gambar pemotongan besi siku



Gambar Pengelasanudukan rem

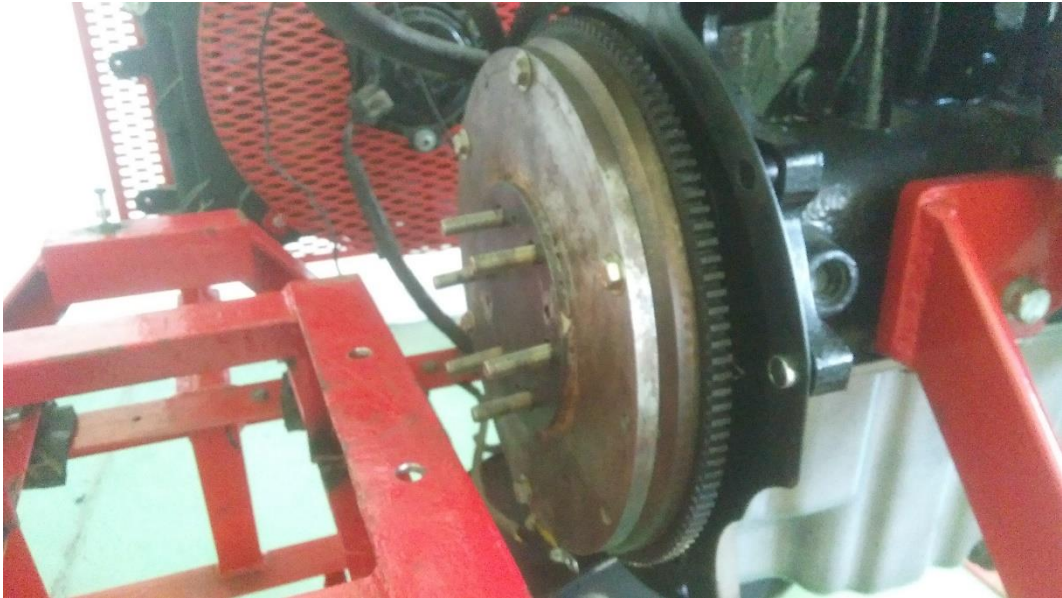


Gambar dudukan rem.

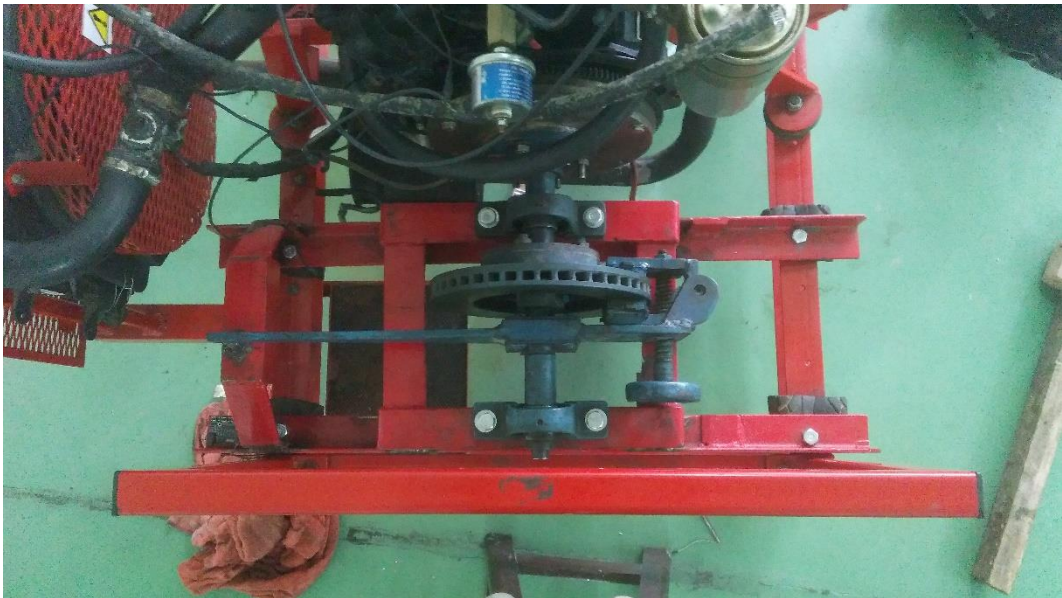


Pemasangan Load cell ke dudukan meisin





Gambar Pemasanganudukan rem dan Coupel untuk rem pada mesin.



Gambar pemasangan rem ke mesin

## **LAMPIRAN 2**

LAMPIRAN KALIBRASI SENSOR  
FLOWMETER DAN KODE  
PROGRAMAN ARDUINO

### Kalibrasi Sensor

Percobaan menggunakan fluida air dengan delay pembacaan sensor 1 s

Waktu (s)	Rps	Debit (ml/s)	Volume (ml)
1	4	1	1
2	20	6	6
3	20	6	13
4	20	6	19
5	20	6	25
6	20	6	31
7	20	5	36
8	20	5	41
9	20	5	46
10	20	5	51
11	16	5	56
12	16	5	61
13	16	4	65
14	16	5	70
15	16	4	74
16	16	4	78
17	16	4	82
18	16	4	86
19	16	4	90
20	16	4	94
21	16	4	98
22	12	4	102
23	4	1	103

Percobaan menggunakan fluida udara dengan delay pembacaan sensor 1 s.

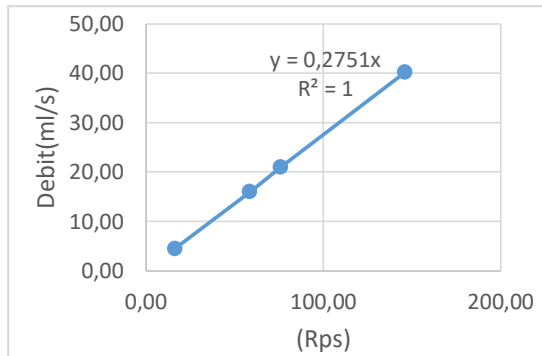
Waktu (s)	Rps	Debit (ml/s)	Volume (ml)
1	108	30	30
2	100	27	57
3	68	18	75
4	44	12	87
5	24	7	95
6	8	2	96

Waktu (s)	Rps	Debit (ml/s)	Volume (ml)
1	172	48	48
2	112	31	79
3	64	17	96
4	28	8	104
5	4	1	105

Waktu (s)	Rps	Debit (ml/s)	Volume (ml)
1	460	126	126
2	180	50	176
3	100	28	204
4	68	18	222
5	44	12	234
6	24	7	241

Rata-Rata Pengukuran

No.	Rps	Debit (ml/s)
1	16.35	4.48
2	58.67	16.00
3	76.00	21.00
4	146.00	40.17



Delay time : 1s  
 Volume total : 100 ml  
 Fluida : udara

No.	Rps	Debit (ml/s)	Volume (ml)
1	61	32	32
2	82	42	74
3	44	23	97
4	16	8	105

<b>KALIBRASI SENSOR BAHAN BAKAR</b>		
Delay time :	1 s	
Volume total :	100 ml	
Fluida :	air	

No	Rps	Debit (ml/s)	Volume (ml)
1	40	20	20
2	68	35	55
3	36	19	74
4	10	5	79

No.	Rps	Debit (ml/s)	Volume (ml)
1	1	0	0
2	10	5	5
3	11	6	11
4	11	6	17
5	11	5	22
6	11	5	27
7	11	5	32
8	10	5	37
9	10	5	42
10	10	5	47
11	10	5	52
12	9	5	57
13	9	4	61
14	9	4	65
15	9	4	69
16	9	4	73
17	8	4	77
18	8	4	81
19	8	4	85
20	8	4	89
21	8	4	93
22	7	4	97
23	6	3	100

No	Rps	Debit (ml/s)	Volume (ml)
1	40	21	21
2	28	14	35
3	5	2	37

No	Rps	Debit (ml/s)	Volume (ml)
1	57	29	29
2	46	23	52
3	18	9	61

No.	Rps	Debit (ml/s)	Volume (ml)
1	123	64	64
2	80	41	105
3	47	24	129
4	22	11	140

No.	Rps	Debit (ml/s)	Volume (ml)
1	93	48	48
2	63	32	80
3	36	19	99
4	13	7	106

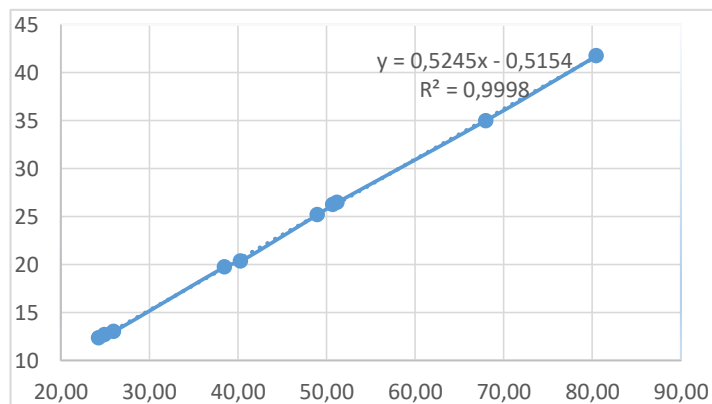
No.	Rps	Debit (ml/s)	Volume (ml)
1	34	17	17
2	18	9	26

No.	Rps	Debit (ml/s)	Volume (ml)
1	27	14	14
2	36	18	32
3	12	6	38

No.	Rps	Debit (ml/s)	Volume (ml)
1	59	30	30
2	92	48	78
3	55	28	106
4	31	16	122
5	8	4	126

No.	Rps	Debit (ml/s)	Volume (ml)
1	103	53	53
2	125	65	118
3	61	32	150
4	33	17	167

No.	Rps	Debit(ml/s)
1	24.33	12.33
2	25	12.67
3	26	13
4	38.5	19.75
5	40.33	20.33
6	49	25.2
7	50.75	26.25
8	51.25	26.5
9	68	35
10	80.5	41.75



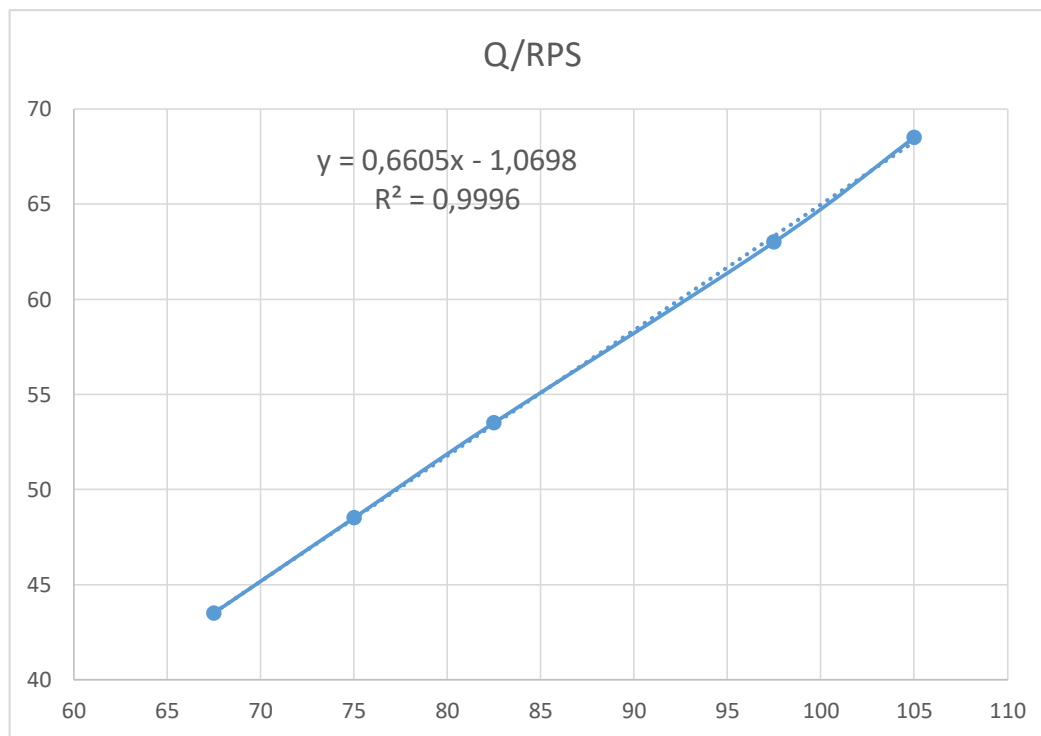
# KALIBRASI SENSOR UDARA

Delay time : 1 s  
 Volume total : 1.9 Lt  
 Fluida : udara

No.	Rpm	Debit (lt/m)	Volume (Lt)
1	105	68	1.13
2	90	58	2.1

No.	Rpm	Debit (lt/m)	Volume (Lt)
1	15	9	0.15
2	120	78	1.45

No.	Rpm	Debit (lt/m)	Volume (Lt)
1	150	98	1.63
2	60	39	2.28



# Tampilan Program Arduino



```
sensor_hho | Arduino 1.8.12 (Windows Store 1.8.33.0)
File Edit Sketch Tools Help

sensor_hho

int flowPin = 2;
float konstantal = 0.275;
float debitHHO;
volatile int counter0 = 0;
unsigned long time0 = 0;
unsigned long nowTime = 0;
float totalmtHHO;
int delayTime = 1000;

void pulseCounter0() {
  counter0++;
}

void setup() {
  Serial.begin(9600);
  pinMode(flowPin, INPUT);
  debitHHO=0;
  totalmtHHO=0;
  attachInterrupt(digitalPinToInterrupt(2), pulseCounter0, RISING);
  Serial.println("CLEAR DATA");
  Serial.println("LABE5, Time, DebitHHO, Volume HHO, RPS HHO, ");
}

void loop()
{
  nowTime =millis();
  if(nowTime-time0==delayTime){
    debitHHO= (counter0*konstantal);
    totalmtHHO+=debitHHO;
  }
}
```

## Kode Program Arduino

```
#include "PinChangeInt.h"
```

```
int flowPin = 2;
```

```
int flowPin1 = 3;
```

```
int flowPin2 = 5;
```

```
int flowPin3 = 9;
```

```
int flowPin4 = 11;
```

```
float konstanta1 = 0.275;
```

```
float konstanta2 = 0.655;
```

```
float konstanta3 = 0.521;
```

```
float debitHHO;
```

```
unsigned long debitKipas;
```

```
float debitBBM;
```

```
volatile int counter0 = 0;
```

```
volatile int counter1 = 0;
```

```
volatile int counter2 = 0;

volatile int counter3 = 0;

volatile int counter4 = 0;

unsigned long time0 = 0;

unsigned long nowtime = 0;

float totalmltHHO;

unsigned long totalmltKipas;

float totalmltBBM;

int delayTime = 1000;

void pulseCounter0() {
    counter0++;
}

void pulseCounter1() {
    counter1++;
}

void pulseCounter2() {
    counter2++;
}

void pulseCounter3() {
    counter3++;
}

void pulseCounter4() {
```



```
    counter4++;  
}  
  
void setup(){  
  Serial.begin(9600);  
  pinMode(flowPin,INPUT);  
  pinMode(flowPin1,INPUT);  
  pinMode(flowPin2,INPUT);  
  pinMode(flowPin3,INPUT);  
  pinMode(flowPin4,INPUT);  
  debitHHO=0;  
  debitKipas=0;  
  debitBBM=0;  
  totalmltHHO=0;  
  totalmltKipas=0;  
  totalmltBBM=0;  
  attachInterrupt(digitalPinToInterrupt(2), pulseCounter0, RISING);  
  attachPinChangeInterrupt(flowPin2, pulseCounter2, RISING);  
  attachInterrupt(digitalPinToInterrupt(3), pulseCounter1, RISING);  
  attachPinChangeInterrupt(flowPin3, pulseCounter3, RISING);  
  attachPinChangeInterrupt(flowPin4, pulseCounter4, RISING);  
  Serial.println("CLEARDATA");
```

```

Serial.println("LABEL,Time,DebitHHO,Volume HHO,RPS HHO,Debit Udara,Volume
Udara,RPM Udara,Debit BBM,Volume BBM,RPS BBM,RPM Mesin,");
}

```

```

void loop()
{
  nowtime =millis();

  if(nowtime-time0>=delayTime){

    debitHHO= (counter0*konstanta1);

    debitKipas= ((counter1*konstanta2)/2);

    debitBBM= (((counter2*konstanta3) - (counter3*konstanta3))/4);

    //(counter0*1000/ (millis() - time0))*konstanta;

    //((1000.0/ (millis() - time0))*counter0)/konstanta; //debit per millisecond

    totalmltHHO+=debitHHO;

    totalmltKipas+=debitKipas;

    totalmltBBM+=debitBBM;

    Serial.print("DATA,TIME,");

    Serial.print(debitHHO,DEC);

    Serial.print(",");

    Serial.print(totalmltHHO,DEC);

    Serial.print(",");

    Serial.print((counter0*1000/delayTime));

    Serial.print(",");

```

```
Serial.print(debitKipas,DEC);  
  
Serial.print(",");  
  
Serial.print(totalmltKipas,DEC);  
  
Serial.print(",");  
  
Serial.print((counter1*60000/delayTime)/2);  
  
Serial.print(",");  
  
Serial.print(debitBBM,DEC);  
  
Serial.print(",");  
  
Serial.print(totalmltBBM,DEC);  
  
Serial.print(",");  
  
Serial.print((counter2*1000/delayTime)/4);  
  
Serial.print(",");  
  
Serial.println((counter4*60000/delayTime));  
  
counter0 = 0;  
  
counter1 = 0;  
  
counter2 = 0;  
  
counter3 = 0;  
  
counter4 = 0;  
  
time0 = millis();  
  
}}
```

# **LAMPIRAN 3**

## **LAMPIRAN DATA HASIL PENGUJIAN GENERATOR HHO 10 PLAT**



ARUS : 16 A				ARUS : 20 A				ARUS : 30 A				ARUS : 40 A				ARUS : 50 A			
TEGANGAN : 20.2 V				TEGANGAN : 20.3 V				TEGANGAN : 21.1 V				TEGANGAN : 22.3 V				TEGANGAN : 23.4 V			
DAYA : 323.2 Watt				DAYA : 406 Watt				DAYA : 633 Watt				DAYA : 892 Watt				DAYA : 1170 Watt			
No.	Debit (ml/s)	Volume (ml)	Rps	No.	Debit (ml/s)	Volume (ml)	Rps	No.	Debit (ml/s)	Volume (ml)	Rps	No.	Debit (ml/s)	Volume (ml)	Rps	No.	Debit (ml/s)	Volume (ml)	Rps
1	5.00	5	20	1	7.00	7	27	1	12.00	12	45	1	25.00	25	92	1	44.00	44	162
2	5.00	10	19	2	7.00	14	27	2	12.00	24	46	2	28.00	53	104	2	45.00	89	165
3	5.00	15	20	3	7.00	21	27	3	12.00	36	46	3	29.00	82	106	3	46.00	135	169
4	5.00	20	19	4	7.00	28	28	4	12.00	48	46	4	28.00	110	105	4	47.00	182	173
5	5.00	25	20	5	7.00	35	27	5	12.00	60	46	5	29.00	139	107	5	47.00	229	172
6	5.00	30	19	6	7.00	42	26	6	12.00	72	46	6	29.00	168	109	6	47.00	276	171
7	5.00	35	19	7	7.00	49	27	7	12.00	84	47	7	29.00	197	109	7	47.00	323	171
8	5.00	40	20	8	7.00	56	27	8	12.00	96	47	8	29.00	226	109	8	47.00	370	171
9	5.00	45	19	9	7.00	63	28	9	12.00	108	47	9	29.00	255	108	9	46.00	416	170
10	5.00	50	19	10	7.00	70	27	10	12.00	120	47	10	29.00	284	107	10	47.00	463	173
11	5.00	55	19	11	7.00	77	27	11	12.00	132	47	11	28.00	312	105	11	46.00	509	170
12	5.00	60	19	12	7.00	84	27	12	12.00	144	46	12	28.00	340	104	12	47.00	556	172
13	4.00	64	18	13	7.00	91	26	13	12.00	156	46	13	28.00	368	104	13	47.00	603	173
14	5.00	69	19	14	7.00	98	26	14	12.00	168	47	14	28.00	396	104	14	48.00	651	175
15	5.00	74	19	15	7.00	105	27	15	12.00	180	46	15	28.00	424	105	15	49.00	700	179
16	5.00	79	19	16	7.00	112	27	16	12.00	192	47	16	28.00	452	105	16	48.00	748	176
17	5.00	84	20	17	7.00	119	27	17	12.00	204	47	17	28.00	480	104	17	48.00	796	176
18	5.00	89	20	18	7.00	126	26	18	12.00	216	46	18	28.00	508	105	18	48.00	844	177
19	5.00	94	19	19	7.00	133	26	19	13.00	229	48	19	29.00	537	106	19	48.00	892	178
20	5.00	99	20	20	7.00	140	26	20	12.00	241	46	20	28.00	565	103	20	48.00	940	175
21	5.00	104	19	21	7.00	147	26	21	12.00	253	47	21	28.00	593	102	21	48.00	988	178
22	5.00	109	19	22	7.00	154	27	22	12.00	265	46	22	28.00	621	102	22	48.00	1036	178
23	5.00	114	19	23	7.00	161	26	23	12.00	277	47	23	27.00	648	101	23	49.00	1085	180
24	5.00	119	19	24	7.00	168	26	24	12.00	289	46	24	28.00	676	102	24	48.00	1133	177
25	5.00	124	19	25	7.00	175	26	25	12.00	301	46	25	28.00	704	104	25	47.00	1180	173
26	5.00	129	20	26	6.00	181	25	26	12.00	313	46	26	28.00	732	105	26	47.00	1227	174
27	5.00	134	19	27	6.00	187	25	27	12.00	325	47	27	29.00	761	106	27	47.00	1274	174
28	5.00	139	19	28	7.00	194	26	28	12.00	337	47	28	29.00	790	106	28	48.00	1322	175
29	5.00	144	19	29	7.00	201	26	29	12.00	349	47	29	29.00	819	106	29	48.00	1370	176
30	5.00	149	19	30	7.00	208	26	30	13.00	362	48	30	28.00	847	105	30	48.00	1418	176
31	5.00	154	19	31	7.00	215	26	31	12.00	374	47	31	28.00	875	102	31	48.00	1466	175
32	5.00	159	20	32	7.00	222	26	32	12.00	386	46	32	28.00	903	103	32	47.00	1513	174
33	5.00	164	19	33	7.00	229	26	33	12.00	398	46	33	28.00	931	103	33	48.00	1561	175
34	5.00	169	19	34	7.00	236	26	34	12.00	410	46	34	27.00	958	99	34	48.00	1609	175
35	5.00	174	19	35	7.00	243	26	35	12.00	422	47	35	27.00	985	100	35	47.00	1656	174
36	5.00	179	19	36	6.00	249	26	36	12.00	434	46	36	28.00	1013	102	36	47.00	1703	174
37	5.00	184	20	37	6.00	255	25	37	12.00	446	46	37	27.00	1040	100	37	47.00	1750	173
38	5.00	189	19	38	6.00	261	24	38	12.00	458	46	38	27.00	1067	101	38	47.00	1797	174
39	5.00	194	20	39	6.00	267	25	39	12.00	470	46	39	27.00	1094	100	39	48.00	1845	176
40	5.00	199	19	40	7.00	274	26	40	12.00	482	46	40	27.00	1121	100	40	47.00	1892	172
41	5.00	204	20	41	7.00	281	26	41	12.00	494	46	41	27.00	1148	100	41	46.00	1938	171
42	5.00	209	19	42	7.00	288	26	42	12.00	506	46	42	26.00	1174	98	42	47.00	1985	175
43	5.00	214	19	43	7.00	295	26	43	12.00	518	46	43	26.00	1200	97	43	47.00	2032	174
44	5.00	219	20	44	7.00	302	26	44	12.00	530	45	44	27.00	1227	99	44	47.00	2079	174
45	5.00	224	19	45	7.00	309	26	45	12.00	542	45	45	26.00	1253	95	45	48.00	2127	176
46	5.00	229	19	46	7.00	316	26	46	12.00	554	46	46	26.00	1279	96	46	49.00	2176	179
47	5.00	234	19	47	6.00	322	25	47	12.00	566	46	47	26.00	1305	96	47	48.00	2224	176
48	5.00	239	19	48	6.00	328	25	48	12.00	578	45	48	26.00	1331	96	48	47.00	2271	173
49	5.00	244	19	49	6.00	334	25	49	12.00	590	45	49	26.00	1357	97	49	46.00	2317	169
50	4.00	248	18	50	7.00	341	26	50	12.00	602	46	50	26.00	1383	97	50	46.00	2363	169
51	4.00	252	18	51	6.00	347	25	51	12.00	614	47	51	26.00	1409	97	51	48.00	2411	176
52	5.00	257	19	52	7.00	354	26	52	12.00	626	46	52	27.00	1436	99	52	47.00	2458	174
53	4.00	261	18	53	7.00	361	27	53	12.00	638	46	53	26.00	1462	95	53	48.00	2506	175
54	4.00	265	18	54	7.00	368	26	54	12.00	650	46	54	26.00	1488	97	54	47.00	2553	173
55	5.00	270	19	55	7.00	375	27	55	12.00	662	45	55	26.00	1514	95	55	47.00	2600	172
56	4.00	274	18	56	6.00	381	25	56	12.00	674	45	56	25.00	1539	94	56	47.00	2647	174
57	4.00	278	18	57	7.00	388	26	57	12.00	686	44	57	25.00	1564	94	57	47.00	2694	171
58	4.00	282	18	58	7.00	395	27	58	12.00	698	45	58	25.00	1589	94	58	45.00	2739	166
59	5.00	287	19	59	7.00	402	27	59	12.00	710	44	59	25.00	1614	94	59	46.00	2785	169
60	4.00	291	17	60	7.00	409	27	60	12.00	722	45	60	25.00	1639	94	60	47.00	2832	174

# **LAMPIRAN 4**

## **SENSOR PUTARAN MESIN (RPM)**

# Proximity Sensor/Switch

E18-D80NK



## 1. Description

A very cheap, easy to assemble, easy to use Infrared sensor with a long detection



distance and has less interference by visible light. The implementations of modulated IR signal immune the sensor to the interferences caused by the normal light of a light bulb or the sun light. This sensor has a screwdriver adjustment to set the appropriate detected distance to make it useful in many applications, and then gives a digital output when it senses something within That range. This sensor does not measure a distance value. It can be used for collision avoidance robot and machine automation. The sensor provides a non- contact detection.

## 2. Specifications

- Input voltage : +5V DC
- Current consumption : > 25mA (min) ~ 100mA (max)
- Dimension : 1.7cm (diameter) x 4.5cm (length)
- Cable length : 45cm
- Detection of objects : transparent or opaque
- Diffuse reflective type
- Sensing range : 3cm to 80cm (depends on obstacle surface)
- NPN output (normally high)

- Environment temperature : -25 °C ~ 55 °C

### 3. Pin Configuration

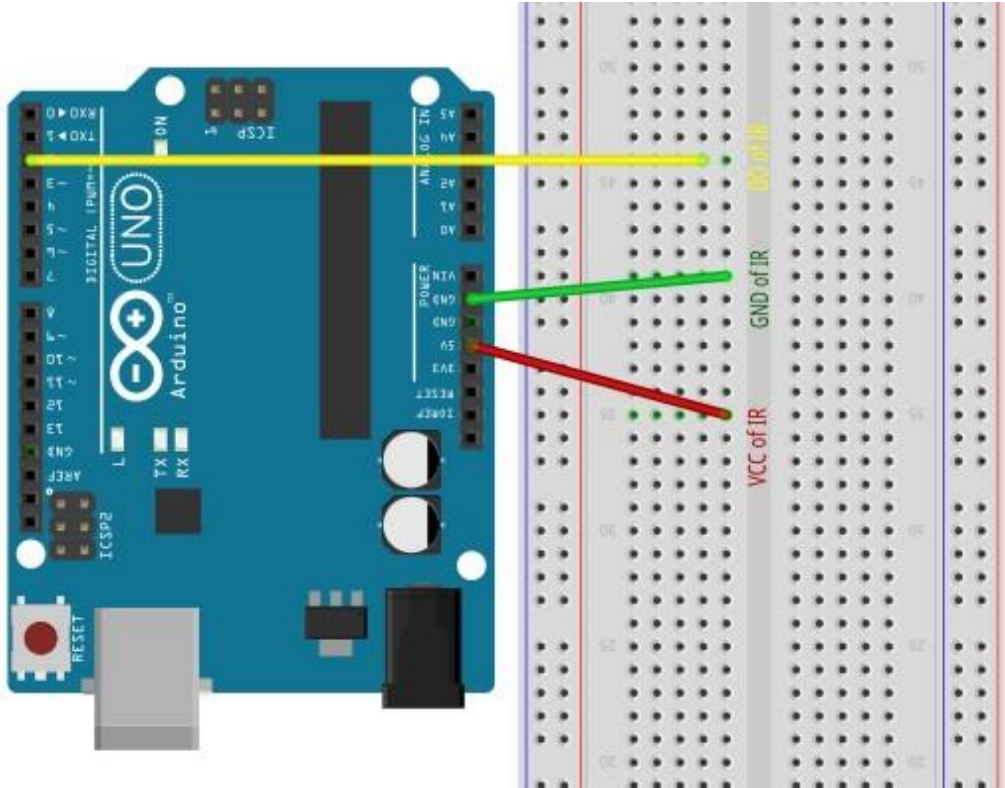
- Red wire : +5V
- Green wire : GND
- Yellow wire : DIGITAL OUTPUT

### 4. Sample Program

```
void setup()
{
  // initialize serial communication at 9600 bits per second:
  Serial.begin(9600);
  // make the pin 2 as an input:
  pinMode(2,INPUT);
}

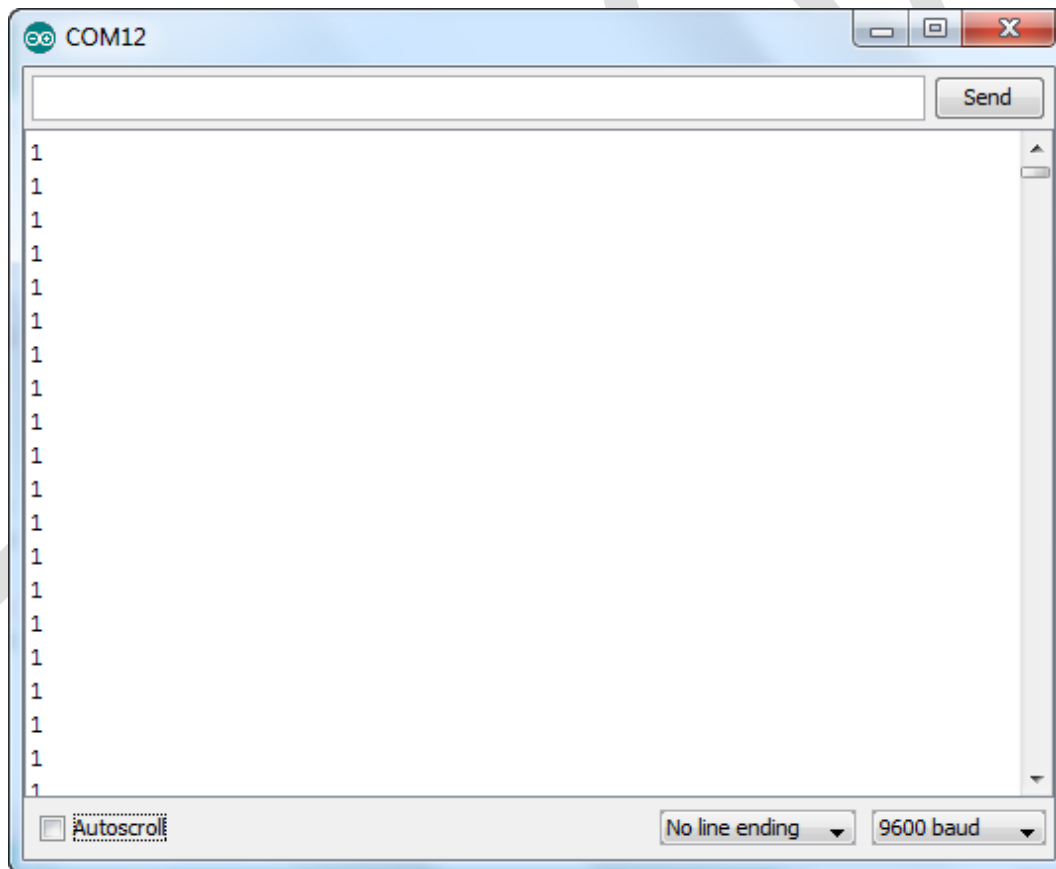
void loop()
{
  // read the input pin:
  int irread = digitalRead(2);
  // print out the reading of IR:
  Serial.println(irread);
  delay(1); // delay in between reads for stability
}
```

# Wiring Diagram



## Testing

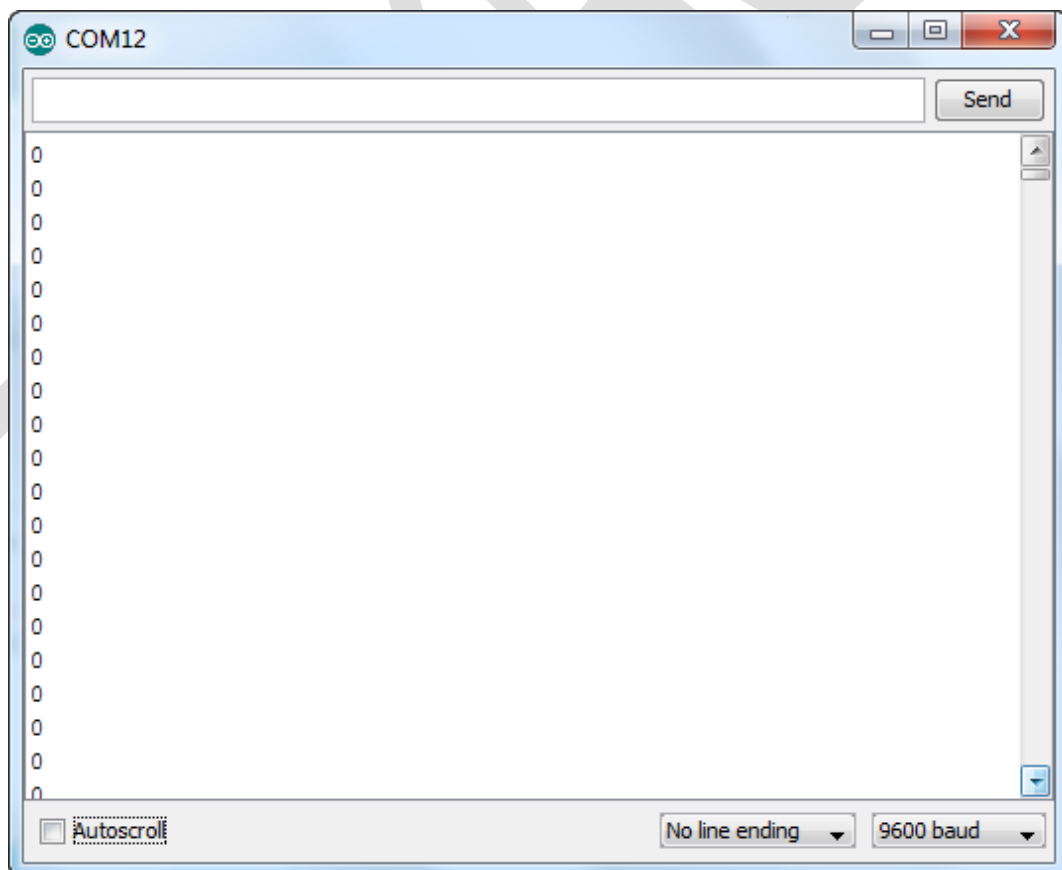
1. Please check all the connections from the given wiring diagram.
2. Type the sample program in your Arduino sketch then upload.
3. Open the serial monitor in the upper right corner.
4. When there is no object in front of the proximity sensor, the output must be 1.



5. Try to put an object in front of the proximity sensor, the proximity sensor will light and the output will become 0.

Note:

- \* If there is no change in the output of proximity sensor, try to move the object closer.
- \* Adjust the screw in the proximity sensor to change the range of detection.



**LAMPIRAN 5**  
LAMPIRAN DATA HASIL  
PENGUJIAN DENGAN 0 AMP  
PADA GENERATOR

## PADA 1000 RPM 0 AMP

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
05:13:39	0,00	0,00	0,00	10,284	102,835	2370	1,754	1,75	44	1051
05:13:40	0,00	0,00	0,00	10,218	113,053	2355	0,351	2,11	42	1050
05:13:41	0,00	0,00	0,00	10,146	123,198	2445	1,754	3,86	41	1050
05:13:42	0,00	0,00	0,00	10,115	133,313	2400	1,754	5,61	41	1051
05:13:43	0,00	0,00	0,00	10,153	143,465	2340	0,351	5,97	42	1049
05:13:44	0,00	0,00	0,00	10,149	153,614	2370	1,754	7,72	42	1048
05:13:45	0,00	0,00	0,00	10,415	164,029	2400	0,351	8,07	42	1049
05:13:46	0,00	0,00	0,00	10,511	174,540	2430	1,053	9,12	42	992
05:13:47	0,00	0,00	0,00	10,218	184,758	2340	0,351	9,47	42	990
05:13:48	0,00	0,00	0,00	10,677	195,434	2460	1,053	10,53	42	1047
05:13:49	0,00	0,00	0,00	10,835	206,269	2550	1,404	11,93	42	1047
05:13:50	0,00	0,00	0,00	10,480	216,749	2415	1,053	12,98	43	1049
05:13:51	0,00	0,00	0,00	10,022	226,771	2310	1,404	14,39	42	1047
05:13:52	0,00	0,00	0,00	10,084	236,854	2370	0,351	14,74	42	1048
05:13:53	0,00	0,00	0,00	10,053	246,907	2340	1,053	15,79	41	1049
05:13:54	0,00	0,00	0,00	10,046	256,952	2430	1,404	17,19	42	1047
05:13:55	0,00	0,00	0,00	10,046	266,998	2430	0,702	17,90	42	1047
05:13:56	0,00	0,00	0,00	10,049	277,047	2385	0,702	18,60	42	1047
05:13:57	0,00	0,00	0,00	10,015	287,061	2415	1,404	20,00	42	1048
05:13:58	0,00	0,00	0,00	10,411	297,472	2445	1,404	21,40	42	1046
05:13:59	0,00	0,00	0,00	10,273	307,745	2505	1,053	22,46	42	1046
05:14:00	0,00	0,00	0,00	10,208	317,953	2490	1,053	23,51	42	1047
05:14:02	0,00	0,00	0,00	10,277	328,229	2475	1,404	24,91	42	1046
05:14:03	0,00	0,00	0,00	10,208	338,437	2475	1,053	25,97	43	1047
05:14:04	0,00	0,00	0,00	10,211	348,648	2430	1,053	27,02	42	1048
05:14:05	0,00	0,00	0,00	10,280	358,928	2415	1,404	28,42	42	1047
05:14:06	0,00	0,00	0,00	10,280	369,208	2415	1,053	29,48	41	1047
05:14:07	0,00	0,00	0,00	10,246	379,453	2430	1,404	30,88	41	1048
05:14:08	0,00	0,00	0,00	10,277	389,730	2460	1,053	31,93	41	1046
05:14:09	0,00	0,00	0,00	10,473	400,203	2520	1,053	32,98	42	1046
05:14:10	0,00	0,00	0,00	10,477	410,679	2445	1,404	34,39	42	1047
05:14:11	0,00	0,00	0,00	10,411	421,090	2445	0,702	35,09	43	1046
05:14:12	0,00	0,00	0,00	10,473	431,563	2505	1,053	36,14	42	1046
05:14:13	0,00	0,00	0,00	10,408	441,971	2490	1,404	37,55	42	1047
05:14:14	0,00	0,00	0,00	10,480	452,451	2415	1,404	38,95	42	1046
05:14:15	0,00	0,00	0,00	10,480	462,931	2415	1,404	40,35	41	1046
05:14:16	0,00	0,00	0,00	10,742	473,673	2475	1,404	41,76	41	1046
05:14:17	0,00	0,00	0,00	10,742	484,415	2475	1,404	43,16	41	1048
05:14:18	0,00	0,00	0,00	10,611	495,026	2460	1,053	44,21	42	1045
05:14:19	0,00	0,00	0,00	10,246	505,271	2430	1,053	45,27	42	987
05:14:20	0,00	0,00	0,00	10,218	515,489	2355	1,404	46,67	42	1045
05:14:21	0,00	0,00	0,00	10,349	525,838	2370	1,053	47,72	42	1045
05:14:22	0,00	0,00	0,00	10,342	536,180	2460	1,053	48,77	42	1046
05:14:24	0,00	0,00	0,00	10,111	546,291	2460	1,404	50,18	41	1045
05:14:25	0,00	0,00	0,00	10,177	556,468	2475	1,053	51,23	42	1046
05:14:26	0,00	0,00	0,00	10,177	566,644	2460	1,053	52,28	42	1046
05:14:27	0,00	0,00	0,00	10,480	577,124	2400	1,053	53,34	42	1046
05:14:28	0,00	0,00	0,00	10,218	587,342	2355	1,404	54,74	42	1046
05:14:29	0,00	0,00	0,00	9,825	597,167	2250	1,053	55,79	41	1047
05:14:30	0,00	0,00	0,00	10,284	607,451	2385	1,404	57,20	41	1045
05:14:31	0,00	0,00	0,00	10,242	617,693	2475	1,404	58,60	42	1045
05:14:32	0,00	0,00	0,00	10,277	627,969	2445	1,053	59,65	42	1046
05:14:33	0,00	0,00	0,00	10,480	638,449	2415	1,404	61,06	42	1046
05:14:34	0,00	0,00	0,00	10,218	648,667	2355	0,702	61,76	42	1045
05:14:35	0,00	0,00	0,00	9,956	658,623	2295	1,404	63,16	43	1046
05:14:36	0,00	0,00	0,00	10,153	668,776	2340	1,404	64,56	43	1045
05:14:37	0,00	0,00	0,00	10,349	679,125	2370	1,053	65,62	42	1045
05:14:38	0,00	0,00	0,00	10,218	689,343	2370	1,053	66,67	42	1045
05:14:39	0,00	0,00	0,00	9,956	699,299	2295	1,053	67,72	42	1046
05:14:40	0,00	0,00	0,00	10,022	709,320	2310	0,702	68,42	43	1046
05:14:41	0,00	0,00	0,00	10,153	719,473	2355	0,702	69,13	42	1047
05:14:42	0,00	0,00	0,00	10,146	729,618	2430	1,404	70,53	42	1046
05:14:43	0,00	0,00	0,00	10,149	739,767	2385	1,404	71,93	43	1045
05:14:44	0,00	0,00	0,00	10,177	749,944	2460	1,053	72,99	42	1046
05:14:45	0,00	0,00	0,00	10,180	760,124	2415	0,702	73,69	42	1045
05:14:47	0,00	0,00	0,00	10,118	770,242	2355	1,404	75,09	42	1104
05:14:48	0,00	0,00	0,00	10,149	780,391	2400	1,053	76,14	42	1046
05:14:49	0,00	0,00	0,00	10,184	790,574	2385	1,053	77,20	42	1046
05:14:50	0,00	0,00	0,00	10,184	800,758	2370	0,702	77,90	42	1045
05:14:51	0,00	0,00	0,00	10,022	810,779	2295	1,404	79,30	42	1047

05:14:52	0,00	0,00	0,00	10,153	820,932	2340	1,404	80,71	41	1046
05:14:53	0,00	0,00	0,00	10,218	831,150	2340	1,404	82,11	42	1046
05:14:54	0,00	0,00	0,00	10,249	841,399	2400	1,053	83,16	43	1104
05:14:55	0,00	0,00	0,00	10,249	851,648	2385	0,702	83,86	42	1046
05:14:56	0,00	0,00	0,00	10,087	861,735	2340	0,702	84,57	41	1046
05:14:57	0,00	0,00	0,00	10,084	871,818	2370	1,053	85,62	42	1046
05:14:58	0,00	0,00	0,00	10,018	881,836	2355	1,053	86,67	42	1046
05:14:59	0,00	0,00	0,00	10,084	891,920	2370	1,053	87,72	42	1045
05:15:00	0,00	0,00	0,00	10,349	902,269	2385	1,404	89,13	42	1045
05:15:01	0,00	0,00	0,00	10,480	912,749	2430	1,404	90,53	42	1103
05:15:02	0,00	0,00	0,00	10,380	923,129	2415	1,053	91,58	43	1045
05:15:03	0,00	0,00	0,00	10,349	933,478	2385	1,053	92,64	43	1046
05:15:04	0,00	0,00	0,00	10,346	943,823	2430	0,702	93,34	43	1045
05:15:05	0,00	0,00	0,00	10,349	954,172	2385	1,404	94,74	42	1104
05:15:06	0,00	0,00	0,00	10,280	964,452	2430	1,404	96,14	42	1046
05:15:07	0,00	0,00	0,00	10,218	974,670	2355	1,053	97,20	42	1046
05:15:09	0,00	0,00	0,00	10,218	984,888	2355	1,053	98,25	42	1045
05:15:10	0,00	0,00	0,00	10,211	995,099	2445	1,053	99,30	43	1104
05:15:11	0,00	0,00	0,00	10,242	1005,341	2490	1,404	100,71	42	1045
05:15:12	0,00	0,00	0,00	10,480	1015,821	2415	1,404	102,11	42	1103
05:15:13	0,00	0,00	0,00	10,311	1026,132	2460	1,404	103,51	42	1046
05:15:14	0,00	0,00	0,00	10,315	1036,447	2415	1,404	104,92	42	1103
05:15:15	0,00	0,00	0,00	10,311	1046,758	2460	1,053	105,97	43	1103
05:15:16	0,00	0,00	0,00	10,346	1057,103	2445	1,053	107,02	42	1046
05:15:17	0,00	0,00	0,00	10,373	1067,476	2505	1,404	108,43	42	1045
05:15:18	0,00	0,00	0,00	10,373	1077,849	2520	1,404	109,83	43	1102
05:15:19	0,00	0,00	0,00	10,373	1088,222	2520	0,702	110,53	43	1045
05:15:20	0,00	0,00	0,00	10,373	1098,595	2505	0,702	111,23	43	1044
05:15:21	0,00	0,00	0,00	10,342	1108,937	2475	1,404	112,64	42	1044
05:15:22	0,00	0,00	0,00	10,342	1119,279	2475	0,702	113,34	42	1103
05:15:23	0,00	0,00	0,00	10,742	1130,021	2460	1,404	114,74	43	1103
05:15:24	0,00	0,00	0,00	10,611	1140,632	2445	1,053	115,79	43	1044
05:15:25	0,00	0,00	0,00	10,742	1151,374	2475	1,053	116,85	43	1045
05:15:26	0,00	0,00	0,00	10,611	1161,985	2460	1,404	118,25	43	1045
05:15:27	0,00	0,00	0,00	10,284	1172,269	2370	1,053	119,30	42	1046
05:15:28	0,00	0,00	0,00	10,542	1182,811	2475	1,053	120,36	42	1102
05:15:29	0,00	0,00	0,00	10,508	1193,318	2490	1,053	121,41	42	1044
05:15:31	0,00	0,00	0,00	10,546	1203,864	2430	1,404	122,81	42	1045
05:15:32	0,00	0,00	0,00	10,415	1214,278	2415	1,404	124,22	43	1102
05:15:33	0,00	0,00	0,00	10,415	1224,693	2400	1,404	125,62	43	1044
05:15:34	0,00	0,00	0,00	10,442	1235,135	2490	1,053	126,67	43	1044
05:15:35	0,00	0,00	0,00	10,442	1245,577	2475	1,404	128,08	43	1102
05:15:36	0,00	0,00	0,00	10,411	1255,988	2445	1,053	129,13	43	1046
05:15:37	0,00	0,00	0,00	10,677	1266,664	2460	1,404	130,53	43	1044
05:15:38	0,00	0,00	0,00	10,642	1277,306	2475	1,404	131,94	42	1102
05:15:39	0,00	0,00	0,00	10,677	1287,983	2460	0,702	132,64	42	1045
05:15:40	0,00	0,00	0,00	10,415	1298,397	2400	1,053	133,69	42	1045
05:15:41	0,00	0,00	0,00	10,442	1308,839	2475	1,404	135,09	43	1103
05:15:42	0,00	0,00	0,00	10,611	1319,450	2460	0,702	135,80	43	1046
05:15:43	0,00	0,00	0,00	10,546	1329,996	2445	1,404	137,20	43	1102



**PADA 1500 RPM 0 AMP**

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:22:06	0,00	0,00	0,00	17,554	175,540	4050	1,860	1,860	52	1575
07:22:07	0,00	0,00	0,00	17,423	192,963	4020	2,232	4,092	53	1516
07:22:08	0,00	0,00	0,00	17,423	210,386	4110	1,860	5,952	52	1574
07:22:09	0,00	0,00	0,00	17,554	227,940	4140	1,860	7,812	53	1575
07:22:10	0,00	0,00	0,00	17,423	245,363	4140	2,232	10,044	52	1572
07:22:12	0,00	0,00	0,00	17,554	262,917	4095	1,860	11,904	53	1571
07:22:13	0,00	0,00	0,00	17,423	280,340	4110	2,232	14,136	52	1572
07:22:14	0,00	0,00	0,00	17,423	297,763	4110	1,860	15,996	53	1513
07:22:15	0,00	0,00	0,00	17,489	315,251	4035	1,860	17,856	52	1571
07:22:16	0,00	0,00	0,00	17,816	333,067	4110	2,232	20,088	52	1571
07:22:17	0,00	0,00	0,00	17,554	350,621	4050	1,488	21,576	52	1572
07:22:18	0,00	0,00	0,00	17,292	367,913	3990	1,860	23,436	52	1571
07:22:19	0,00	0,00	0,00	17,292	385,205	3990	1,860	25,296	52	1513
07:22:20	0,00	0,00	0,00	17,423	402,628	4005	1,860	27,156	52	1514
07:22:21	0,00	0,00	0,00	17,554	420,182	4050	1,860	29,016	53	1569
07:22:22	0,00	0,00	0,00	17,423	437,605	4020	2,232	31,247	52	1569
07:22:23	0,00	0,00	0,00	17,423	455,028	4005	2,232	33,479	52	1571
07:22:24	0,00	0,00	0,00	17,358	472,386	4005	1,860	35,339	53	1569
07:22:25	0,00	0,00	0,00	17,423	489,809	4050	1,860	37,199	52	1569
07:22:26	0,00	0,00	0,00	17,816	507,625	4110	2,232	39,431	52	1571
07:22:27	0,00	0,00	0,00	17,620	525,244	4065	1,488	40,919	52	1569
07:22:28	0,00	0,00	0,00	17,685	542,929	4080	1,488	42,407	52	1569
07:22:29	0,00	0,00	0,00	17,423	560,352	4095	1,488	43,895	52	1571
07:22:30	0,00	0,00	0,00	17,947	578,299	4140	1,860	45,755	53	1569
07:22:31	0,00	0,00	0,00	17,816	596,115	4110	2,232	47,987	52	1569
07:22:32	0,00	0,00	0,00	17,620	613,735	4065	2,232	50,219	53	1569
07:22:33	0,00	0,00	0,00	17,489	631,223	4035	1,860	52,079	52	1569
07:22:35	0,00	0,00	0,00	17,423	648,646	4065	1,860	53,939	52	1569
07:22:36	0,00	0,00	0,00	17,423	666,069	4065	1,860	55,799	53	1511
07:22:37	0,00	0,00	0,00	17,620	683,689	4065	2,232	58,031	53	1569
07:22:38	0,00	0,00	0,00	18,733	702,422	4080	1,860	59,891	53	1569
07:22:39	0,00	0,00	0,00	18,733	721,155	4065	1,860	59,891	53	1569
07:22:40	0,00	0,00	0,00	17,620	738,774	4065	2,232	62,123	55	1569
07:22:41	0,00	0,00	0,00	18,013	756,787	4110	1,860	63,983	54	1569
07:22:42	0,00	0,00	0,00	17,423	774,210	4110	2,232	66,215	54	1569
07:22:43	0,00	0,00	0,00	18,013	792,222	4095	1,860	68,075	54	1569
07:22:44	0,00	0,00	0,00	18,013	810,235	4110	2,232	70,307	54	1569
07:22:45	0,00	0,00	0,00	18,733	828,968	4170	1,860	72,167	53	1569
07:22:46	0,00	0,00	0,00	18,733	847,701	4185	1,488	73,655	53	1569
07:22:47	0,00	0,00	0,00	18,013	865,713	4155	1,860	75,515	54	1569
07:22:48	0,00	0,00	0,00	18,733	884,446	4200	2,232	77,747	53	1569
07:22:49	0,00	0,00	0,00	18,275	902,721	4215	1,860	79,607	53	1571
07:22:50	0,00	0,00	0,00	18,078	920,799	4170	1,860	81,467	53	1569
07:22:51	0,00	0,00	0,00	18,733	939,532	4170	1,488	82,955	53	1569
07:22:52	0,00	0,00	0,00	18,209	957,741	4200	1,860	84,815	53	1571
07:22:53	0,00	0,00	0,00	18,144	975,884	4170	1,488	86,303	53	1569
07:22:54	0,00	0,00	0,00	18,013	993,897	4155	2,232	88,535	53	1627
07:22:55	0,00	0,00	0,00	18,733	1012,630	4185	2,232	90,767	52	1569
07:22:57	0,00	0,00	0,00	18,209	1030,839	4200	1,488	92,255	53	1568
07:22:58	0,00	0,00	0,00	18,078	1048,917	4170	1,860	94,114	53	1626
07:22:59	0,00	0,00	0,00	18,209	1067,126	4200	1,488	95,602	53	1568
07:23:00	0,00	0,00	0,00	18,013	1085,138	4155	1,860	97,462	53	1568
07:23:01	0,00	0,00	0,00	18,078	1103,216	4170	2,232	99,694	52	1568
07:23:02	0,00	0,00	0,00	17,947	1121,163	4140	1,488	101,182	53	1568
07:23:03	0,00	0,00	0,00	18,013	1139,176	4155	1,860	103,042	53	1568
07:23:04	0,00	0,00	0,00	18,209	1157,385	4125	2,232	105,274	52	1569
07:23:05	0,00	0,00	0,00	18,209	1175,594	4170	1,860	107,134	53	1566
07:23:06	0,00	0,00	0,00	18,209	1193,803	4200	2,232	109,366	53	1624
07:23:07	0,00	0,00	0,00	18,340	1212,143	4245	1,860	111,226	53	1568
07:23:08	0,00	0,00	0,00	18,275	1230,417	4230	1,488	112,714	53	1624
07:23:09	0,00	0,00	0,00	18,209	1248,626	4200	1,488	114,202	53	1566
07:23:10	0,00	0,00	0,00	17,947	1266,573	4230	1,488	115,690	53	1624
07:23:11	0,00	0,00	0,00	17,947	1284,520	4230	1,488	117,178	53	1566
07:23:12	0,00	0,00	0,00	18,340	1302,860	4230	1,860	119,038	53	1624
07:23:13	0,00	0,00	0,00	18,471	1321,331	4275	2,232	121,270	53	1566
07:23:14	0,00	0,00	0,00	17,947	1339,278	4320	2,232	123,502	54	1566
07:23:15	0,00	0,00	0,00	18,668	1357,946	4305	1,860	125,362	53	1626
07:23:16	0,00	0,00	0,00	17,947	1375,893	4245	2,232	127,594	53	1566
07:23:17	0,00	0,00	0,00	18,733	1394,626	4320	1,860	129,454	54	1624
07:23:19	0,00	0,00	0,00	18,471	1413,097	4275	1,860	131,314	54	1566

07:23:20	0,00	0,00	0,00	18,733	1431,830	4320	1,860	133,174	54	1566
07:23:21	0,00	0,00	0,00	18,799	1450,628	4350	1,860	135,034	54	1624
07:23:22	0,00	0,00	0,00	18,864	1469,492	4350	1,860	136,894	53	1566
07:23:23	0,00	0,00	0,00	18,733	1488,225	4320	2,232	139,126	53	1566
07:23:24	0,00	0,00	0,00	18,340	1506,565	4290	1,860	140,986	54	1626
07:23:25	0,00	0,00	0,00	18,340	1524,905	4320	2,232	143,218	53	1566
07:23:26	0,00	0,00	0,00	18,340	1543,245	4290	2,232	145,450	54	1566
07:23:27	0,00	0,00	0,00	18,406	1561,651	4245	1,860	147,310	54	1624
07:23:28	0,00	0,00	0,00	18,406	1580,056	4260	1,860	149,170	54	1624
07:23:29	0,00	0,00	0,00	18,406	1598,462	4260	1,860	151,030	54	1566
07:23:30	0,00	0,00	0,00	18,733	1617,195	4245	1,860	152,890	54	1624
07:23:31	0,00	0,00	0,00	18,340	1635,535	4230	1,488	154,378	54	1624
07:23:32	0,00	0,00	0,00	18,733	1654,268	4215	1,860	156,237	54	1626
07:23:33	0,00	0,00	0,00	18,471	1672,739	4275	2,232	158,469	54	1566
07:23:34	0,00	0,00	0,00	18,733	1691,472	4230	1,488	159,957	54	1624
07:23:35	0,00	0,00	0,00	18,668	1710,139	4305	2,232	162,189	54	1624
07:23:36	0,00	0,00	0,00	18,668	1728,807	4320	2,232	164,421	54	1624
07:23:37	0,00	0,00	0,00	18,209	1747,016	4215	1,488	165,909	54	1566
07:23:38	0,00	0,00	0,00	18,733	1765,749	4185	1,860	167,769	54	1566
07:23:39	0,00	0,00	0,00	18,733	1784,482	4200	1,488	169,257	54	1624
07:23:41	0,00	0,00	0,00	18,471	1802,953	4260	1,488	170,745	53	1626
07:23:42	0,00	0,00	0,00	18,471	1821,424	4275	1,488	172,233	54	1624
07:23:43	0,00	0,00	0,00	18,471	1839,895	4260	1,488	173,721	54	1624
07:23:44	0,00	0,00	0,00	18,668	1858,562	4275	2,232	175,953	54	1624
07:23:45	0,00	0,00	0,00	18,406	1876,968	4245	2,232	178,185	54	1566
07:23:46	0,00	0,00	0,00	18,668	1895,635	4185	2,232	180,417	54	1566
07:23:47	0,00	0,00	0,00	18,406	1914,041	4245	1,860	182,277	54	1624
07:23:48	0,00	0,00	0,00	18,537	1932,577	4290	1,488	183,765	54	1624
07:23:49	0,00	0,00	0,00	18,668	1951,245	4320	1,860	185,625	54	1626
07:23:50	0,00	0,00	0,00	18,668	1969,912	4275	1,488	187,113	54	1624
07:23:51	0,00	0,00	0,00	17,947	1987,859	4320	1,860	188,973	54	1624
07:23:52	0,00	0,00	0,00	18,668	2006,527	4305	1,488	190,461	54	1624
07:23:53	0,00	0,00	0,00	18,602	2025,129	4290	1,488	191,949	54	1624
07:23:54	0,00	0,00	0,00	17,947	2043,076	4365	1,488	193,437	54	1566
07:23:55	0,00	0,00	0,00	18,995	2062,071	4380	2,232	195,669	53	1566
07:23:56	0,00	0,00	0,00	18,537	2080,607	4350	1,488	197,157	53	1566
07:23:57	0,00	0,00	0,00	18,537	2099,144	4275	2,232	199,389	54	1626
07:23:58	0,00	0,00	0,00	18,733	2117,877	4320	1,488	200,877	54	1624
07:23:59	0,00	0,00	0,00	18,537	2136,413	4350	2,232	203,109	53	1624
07:24:00	0,00	0,00	0,00	17,947	2154,360	4305	1,488	204,597	54	1624
07:24:02	0,00	0,00	0,00	18,602	2172,962	4290	1,488	206,085	54	1624
07:24:03	0,00	0,00	0,00	18,209	2191,171	4215	2,232	208,317	54	1624
07:24:04	0,00	0,00	0,00	18,471	2209,642	4260	1,488	209,805	54	1624
07:24:05	0,00	0,00	0,00	17,947	2227,589	4290	1,488	211,293	54	1624
07:24:06	0,00	0,00	0,00	18,799	2246,388	4335	1,488	212,781	54	1626
07:24:07	0,00	0,00	0,00	18,733	2265,121	4320	1,488	214,269	54	1624
07:24:08	0,00	0,00	0,00	17,947	2283,068	4395	1,488	215,757	54	1624
07:24:09	0,00	0,00	0,00	17,947	2301,015	4275	2,232	217,988	54	1624
07:24:10	0,00	0,00	0,00	18,537	2319,551	4290	2,232	220,220	54	1624
07:24:11	0,00	0,00	0,00	18,930	2338,481	4365	2,232	222,452	54	1624

## PADA 2000 RPM 0 AMP

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:28:59	0,00	0,00	35	19,519	19,519	5085	2,7194	2,72	59	2101
07:29:00	0,00	0,00	38	15,917	35,436	5310	2,0918	4,81	59	2097
07:29:01	0,00	0,00	38	18,340	53,776	5010	2,0918	6,90	59	2097
07:29:02	0,00	0,00	38	18,668	72,443	4875	2,0918	8,99	58	2099
07:29:03	0,00	0,00	37	18,340	90,783	4800	2,0918	11,09	58	2097
07:29:04	0,00	0,00	39	10,677	101,460	4785	2,3010	13,39	58	2095
07:29:05	0,00	0,00	37	13,362	114,822	5145	2,3010	15,69	59	2097
07:29:06	0,00	0,00	36	19,650	134,472	5070	2,3010	17,99	59	2097
07:29:08	0,00	0,00	39	19,519	153,991	5250	2,0918	20,08	59	2095
07:29:09	0,00	0,00	39	18,078	172,069	4920	2,3010	22,38	60	2093
07:29:10	0,00	0,00	38	20,633	192,701	4575	2,0918	24,47	59	2093
07:29:11	0,00	0,00	38	13,690	206,391	4620	2,3010	26,78	59	2093
07:29:12	0,00	0,00	38	13,690	220,080	4185	2,3010	29,08	58	2093
07:29:13	0,00	0,00	37	14,607	234,687	4035	2,0918	31,17	58	2032
07:29:14	0,00	0,00	38	13,690	248,376	4995	2,0918	33,26	59	2090
07:29:15	0,00	0,00	36	18,668	267,044	5505	1,8826	35,14	59	2093
07:29:16	0,00	0,00	37	18,340	285,384	4890	2,0918	37,23	60	2090
07:29:17	0,00	0,00	38	19,519	304,903	4695	2,3010	39,54	60	2090
07:29:18	0,00	0,00	37	18,537	323,439	4755	2,0918	41,63	60	2093
07:29:19	0,00	0,00	37	20,895	344,334	4800	2,0918	43,72	60	2090
07:29:20	0,00	0,00	39	19,519	363,853	4770	2,0918	45,81	60	2090
07:29:21	0,00	0,00	38	20,633	384,485	4620	2,3010	48,11	60	2093
07:29:22	0,00	0,00	38	20,895	405,380	4830	2,0918	50,20	60	2090
07:29:23	0,00	0,00	37	18,340	423,720	5370	2,3010	52,50	61	2090
07:29:24	0,00	0,00	39	19,650	443,370	5310	2,3010	54,81	60	2093
07:29:25	0,00	0,00	36	19,519	462,889	4725	2,0918	56,90	60	2034
07:29:26	0,00	0,00	37	15,851	478,740	4950	1,8826	58,78	61	2090
07:29:27	0,00	0,00	36	12,052	490,792	4800	2,0918	60,87	60	2095
07:29:28	0,00	0,00	37	18,537	509,328	5250	1,8826	62,75	60	2090
07:29:29	0,00	0,00	38	18,537	527,865	4725	2,0918	64,85	60	2090
07:29:31	0,00	0,00	36	20,764	548,628	4680	2,0918	66,94	60	2036
07:29:32	0,00	0,00	35	19,519	568,147	4470	2,0918	69,03	60	2093
07:29:33	0,00	0,00	37	18,340	586,487	4470	2,3010	71,33	60	2090
07:29:34	0,00	0,00	36	19,519	606,006	5040	2,0918	73,42	60	2095
07:29:35	0,00	0,00	35	20,633	626,639	4830	2,0918	75,51	60	2093
07:29:36	0,00	0,00	37	16,703	643,341	5010	2,0918	77,61	61	2093
07:29:37	0,00	0,00	38	14,738	658,079	5055	2,0918	79,70	60	2093
07:29:38	0,00	0,00	36	16,048	674,126	5055	2,0918	81,79	60	2093
07:29:39	0,00	0,00	35	16,965	691,091	5040	2,0918	83,88	60	2093
07:29:40	0,00	0,00	36	18,537	709,627	5025	2,0918	85,97	59	2095
07:29:41	0,00	0,00	38	20,764	730,391	5100	2,0918	88,07	59	2090
07:29:42	0,00	0,00	36	19,519	749,910	5160	2,3010	90,37	60	2151
07:29:43	0,00	0,00	37	17,751	767,660	5130	2,3010	92,67	59	2093
07:29:44	0,00	0,00	39	16,965	784,625	5100	1,8826	94,55	59	2090
07:29:45	0,00	0,00	36	18,340	802,965	5220	2,0918	96,64	59	2093
07:29:46	0,00	0,00	36	20,043	823,008	5070	2,3010	98,94	60	2095
07:29:47	0,00	0,00	36	20,764	843,771	5160	2,3010	101,24	60	2090
07:29:48	0,00	0,00	37	14,869	858,640	4845	2,3010	103,54	60	2088
07:29:49	0,00	0,00	37	19,519	878,159	4995	2,0918	105,64	59	2149
07:29:50	0,00	0,00	37	16,441	894,599	5280	1,8826	107,52	60	2088
07:29:51	0,00	0,00	38	19,519	914,118	5175	2,0918	109,61	59	2088
07:29:53	0,00	0,00	38	20,043	934,161	5265	2,0918	111,70	61	2090
07:29:54	0,00	0,00	36	20,633	954,794	5025	2,0918	113,79	60	2090
07:29:55	0,00	0,00	35	20,895	975,688	5280	2,0918	115,89	59	2090
07:29:56	0,00	0,00	37	14,869	990,557	5430	2,0918	117,98	59	2090
07:29:57	0,00	0,00	37	19,519	1010,076	5535	2,0918	120,07	60	2088
07:29:58	0,00	0,00	38	15,196	1025,272	5190	2,0918	122,16	59	2088
07:29:59	0,00	0,00	36	19,323	1044,594	5310	2,0918	124,25	60	2090
07:30:00	0,00	0,00	38	19,781	1064,375	4890	1,8826	126,14	60	2090
07:30:01	0,00	0,00	38	17,816	1082,191	4890	2,0918	128,23	60	2090
07:30:02	0,00	0,00	37	19,781	1101,972	4845	2,0918	130,32	59	2088
07:30:03	0,00	0,00	36	19,323	1121,295	4980	2,0918	132,41	60	2090
07:30:04	0,00	0,00	38	16,965	1138,259	5220	2,3010	134,71	60	2090
07:30:05	0,00	0,00	39	17,620	1155,879	5355	2,0918	136,80	60	2088
07:30:06	0,00	0,00	37	19,781	1175,660	5250	2,0918	138,90	60	2088
07:30:07	0,00	0,00	36	20,043	1195,703	5130	2,0918	140,99	60	2090
07:30:08	0,00	0,00	37	20,633	1216,335	4995	2,0918	143,08	60	2088
07:30:09	0,00	0,00	39	20,895	1237,230	5040	2,0918	145,17	60	2088
07:30:10	0,00	0,00	38	19,323	1256,552	5070	1,8826	147,05	60	2147
07:30:11	0,00	0,00	38	19,781	1276,333	5355	2,3010	149,36	60	2088

07:30:12	0,00	0,00	38	19,323	1295,656	5115	1,8826	151,24	60	2090
07:30:13	0,00	0,00	34	20,043	1315,699	5295	2,0918	153,33	59	2090
07:30:15	0,00	0,00	36	20,895	1336,593	5100	2,0918	155,42	60	2032
07:30:16	0,00	0,00	37	20,633	1357,226	4995	2,0918	157,51	60	2090
07:30:17	0,00	0,00	37	12,642	1369,867	4875	1,8826	159,40	60	2088
07:30:18	0,00	0,00	36	17,620	1387,487	5295	2,0918	161,49	60	2090
07:30:19	0,00	0,00	38	15,786	1403,272	5385	2,0918	163,58	60	2088
07:30:20	0,00	0,00	36	20,764	1424,036	4860	1,6735	165,25	60	2090
07:30:21	0,00	0,00	35	15,458	1439,494	4845	2,0918	167,35	60	2093
07:30:22	0,00	0,00	37	20,764	1460,257	4965	1,8826	169,23	60	2088
07:30:23	0,00	0,00	37	17,620	1477,877	4770	1,8826	171,11	60	2088
07:30:24	0,00	0,00	36	15,458	1493,335	5040	2,3010	173,41	60	2093
07:30:25	0,00	0,00	36	17,620	1510,954	5205	2,3010	175,71	60	2090
07:30:26	0,00	0,00	38	19,781	1530,735	4545	2,0918	177,80	59	2088
07:30:27	0,00	0,00	37	17,620	1548,355	4695	2,0918	179,90	60	2090
07:30:28	0,00	0,00	39	15,458	1563,813	4980	2,0918	181,99	60	2088
07:30:29	0,00	0,00	35	17,620	1581,432	5010	2,0918	184,08	60	2090
07:30:30	0,00	0,00	37	15,786	1597,218	4980	2,0918	186,17	60	2088
07:30:31	0,00	0,00	38	20,764	1617,981	5250	1,8826	188,05	60	2088
07:30:32	0,00	0,00	37	15,458	1633,439	4950	1,8826	189,94	60	2093
07:30:33	0,00	0,00	38	19,781	1653,220	5070	1,8826	191,82	60	2088
07:30:34	0,00	0,00	38	19,323	1672,543	5085	1,8826	193,70	59	2147
07:30:36	0,00	0,00	38	20,043	1692,586	4995	1,8826	195,58	60	2090
07:30:37	0,00	0,00	38	20,764	1713,349	5070	2,0918	197,68	59	2088
07:30:38	0,00	0,00	38	19,781	1733,130	5190	1,8826	199,56	60	2088
07:30:39	0,00	0,00	38	19,323	1752,453	5130	2,0918	201,65	60	2147
07:30:40	0,00	0,00	37	17,620	1770,072	5025	2,0918	203,74	60	2088
07:30:41	0,00	0,00	38	20,764	1790,836	4845	2,0918	205,83	60	2088
07:30:42	0,00	0,00	40	20,764	1811,599	4920	2,0918	207,93	60	2084
07:30:43	0,00	0,00	38	20,764	1832,363	5190	2,0918	210,02	59	2084
07:30:44	0,00	0,00	38	18,864	1851,227	4815	2,0918	212,11	60	2084
07:30:45	0,00	0,00	38	19,323	1870,549	4785	2,3010	214,41	61	2142
07:30:46	0,00	0,00	37	19,323	1889,872	4425	2,3010	216,71	60	2086
07:30:47	0,00	0,00	37	18,864	1908,736	4605	2,0918	218,80	60	2084
07:30:48	0,00	0,00	36	17,620	1926,355	4650	2,0918	220,90	61	2086
07:30:49	0,00	0,00	39	20,764	1947,119	4560	1,8826	222,78	60	2084
07:30:50	0,00	0,00	39	20,436	1967,555	4650	2,0918	224,87	60	2084
07:30:51	0,00	0,00	37	17,620	1985,174	4650	2,0918	226,96	60	2086
07:30:52	0,00	0,00	37	17,620	2002,794	4470	2,0918	229,05	60	2084
07:30:53	0,00	0,00	39	18,668	2021,461	4395	2,0918	231,15	60	2084
07:30:54	0,00	0,00	37	18,864	2040,325	4080	2,3010	233,45	60	2084
07:30:55	0,00	0,00	38	19,192	2059,517	4740	2,0918	235,54	60	2084
07:30:57	0,00	0,00	37	20,764	2080,280	4725	2,0918	237,63	59	2142
07:30:58	0,00	0,00	39	19,781	2100,061	4290	2,0918	239,72	60	2084
07:30:59	0,00	0,00	39	19,519	2119,580	4290	1,8826	241,60	61	2086
07:31:00	0,00	0,00	38	15,982	2135,562	3810	1,8826	243,49	60	2084
07:31:01	0,00	0,00	36	20,764	2156,326	4065	2,0918	245,58	60	2086
07:31:02	0,00	0,00	40	19,519	2175,845	4230	2,0918	247,67	60	2142
07:31:03	0,00	0,00	38	17,423	2193,268	5130	2,3010	249,97	61	2084
07:31:04	0,00	0,00	39	20,436	2213,704	5070	2,0918	252,06	60	2084

**LAMPIRAN 6**  
LAMPIRAN DATA HASIL  
PENGUJIAN DENGAN 16 AMP  
PADA GENERATOR

### PADA 1000 RPM 16 A

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
05:13:39	2,48	2,475	9	10,284	102,835	2370	1,766	1,766	44	1051
05:13:40	2,48	4,950	9	10,218	205,015	2355	1,060	2,826	42	1050
05:13:41	2,20	7,150	8	10,546	310,470	2445	1,766	4,592	41	1050
05:13:42	2,20	9,350	8	10,415	414,615	2400	1,060	5,652	41	1051
05:13:43	2,20	11,550	8	10,153	516,140	2340	0,353	6,005	42	1049
05:13:44	2,75	14,300	10	10,349	619,630	2370	1,060	7,065	42	1048
05:13:45	2,48	16,775	9	10,415	723,775	2400	0,353	7,418	42	1049
05:13:46	2,48	19,250	9	10,611	829,885	2430	1,060	8,478	42	992
05:13:47	2,75	22,000	10	10,218	932,065	2340	0,353	8,831	42	990
05:13:48	2,75	24,750	10	10,677	1038,830	2460	1,060	9,891	42	1047
05:13:49	2,75	27,500	10	11,135	1150,180	2550	1,413	11,304	42	1047
05:13:50	2,48	29,975	9	10,480	1254,980	2415	1,060	12,363	43	1049
05:13:51	2,75	32,725	10	10,022	1355,195	2310	1,413	13,776	42	1047
05:13:52	2,48	35,200	9	10,284	1458,030	2370	0,353	14,130	42	1048
05:13:53	2,48	37,675	9	10,153	1559,555	2340	0,353	14,483	41	1049
05:13:54	2,75	40,425	10	10,546	1665,010	2430	1,413	15,896	42	1047
05:13:55	2,75	43,175	10	10,546	1770,465	2430	0,706	16,602	42	1047
05:13:56	3,03	46,200	11	10,349	1873,955	2385	0,706	17,309	42	1047
05:13:57	2,75	48,950	10	10,415	1978,100	2415	1,413	18,722	42	1048
05:13:58	2,75	51,700	10	10,611	2084,210	2445	1,413	20,135	42	1046
05:13:59	2,75	54,450	10	10,873	2192,940	2505	1,060	21,194	42	1046
05:14:00	2,75	57,200	10	10,808	2301,015	2490	1,060	22,254	42	1047
05:14:02	2,75	59,950	10	10,677	2407,780	2475	0,353	22,607	42	1046
05:14:03	2,48	62,425	9	10,808	2515,855	2475	1,060	23,667	43	1047
05:14:04	2,20	64,625	8	10,611	2621,965	2430	1,060	24,727	42	1048
05:14:05	2,20	66,825	8	10,480	2726,765	2415	1,413	26,140	42	1047
05:14:06	2,48	69,300	9	10,480	2831,565	2415	1,060	27,199	41	1047
05:14:07	2,48	71,775	9	10,546	2937,020	2430	1,413	28,612	41	1048
05:14:08	2,75	74,525	10	10,677	3043,785	2460	1,060	29,672	41	1046
05:14:09	2,75	77,275	10	10,873	3152,515	2520	1,060	30,732	42	1046
05:14:10	2,75	80,025	10	10,677	3259,280	2445	1,413	32,145	42	1047
05:14:11	2,75	82,775	10	10,611	3365,390	2445	0,706	32,851	43	1046
05:14:12	2,75	85,525	10	10,873	3474,120	2505	1,060	33,911	42	1046
05:14:13	2,48	88,000	9	10,808	3582,195	2490	0,706	34,617	42	1047
05:14:14	2,75	90,750	10	10,480	3686,995	2415	0,706	35,324	42	1046
05:14:15	2,75	93,500	10	10,480	3791,795	2415	1,060	36,384	41	1046
05:14:16	2,75	96,250	10	10,742	3899,215	2475	1,060	37,443	41	1046
05:14:17	2,48	98,725	9	10,742	4006,635	2475	1,413	38,856	41	1048
05:14:18	2,75	101,475	10	10,611	4112,745	2460	1,060	39,916	42	1045
05:14:19	2,75	104,225	10	10,546	4218,200	2430	1,060	40,976	42	987
05:14:20	2,75	106,975	10	10,218	4320,380	2355	1,413	42,389	42	1045
05:14:21	2,75	109,725	10	10,349	4423,870	2370	1,060	43,448	42	1045
05:14:22	2,48	112,200	9	10,742	4531,290	2460	1,060	44,508	42	1046
05:14:24	2,75	114,950	10	10,611	4637,400	2460	1,413	45,921	41	1045
05:14:25	2,20	117,150	8	10,677	4744,165	2475	1,060	46,981	42	1046
05:14:26	2,48	119,625	9	10,677	4850,930	2460	0,706	47,687	42	1046
05:14:27	2,48	122,100	9	10,480	4955,730	2400	1,060	48,747	42	1046
05:14:28	2,48	124,575	9	10,218	5057,910	2355	1,060	49,807	42	1046
05:14:29	2,48	127,050	9	9,825	5156,160	2250	1,060	50,866	41	1047
05:14:30	2,75	129,800	10	10,284	5258,995	2385	1,413	52,279	41	1045
05:14:31	2,75	132,550	10	10,742	5366,415	2475	1,413	53,692	42	1045
05:14:32	2,48	135,025	9	10,677	5473,180	2445	1,060	54,752	42	1046
05:14:33	2,48	137,500	9	10,480	5577,980	2415	1,413	56,165	42	1046
05:14:34	2,75	140,250	10	10,218	5680,160	2355	0,706	56,871	42	1045
05:14:35	3,03	143,275	11	9,956	5779,720	2295	1,413	58,284	43	1046
05:14:36	3,03	146,300	11	10,153	5881,245	2340	0,706	58,991	43	1045
05:14:37	3,03	149,325	11	10,349	5984,735	2370	1,060	60,050	42	1045
05:14:38	2,75	152,075	10	10,218	6086,916	2370	1,060	61,110	42	1045
05:14:39	2,75	154,825	10	9,956	6186,476	2295	1,060	62,170	42	1046
05:14:40	2,48	157,300	9	10,022	6286,690	2310	0,706	62,876	43	1046
05:14:41	2,20	159,500	8	10,153	6388,215	2355	0,706	63,583	42	1047
05:14:42	2,20	161,700	8	10,546	6493,670	2430	1,413	64,996	42	1046
05:14:43	2,48	164,175	10	10,349	6597,161	2385	1,413	66,409	43	1045
05:14:44	2,48	166,650	9	10,677	6703,926	2460	1,060	67,468	42	1046
05:14:45	2,75	169,400	10	10,480	6808,726	2415	0,706	68,175	42	1045
05:14:47	2,48	171,875	9	10,218	6910,906	2355	1,413	69,588	42	1104
05:14:48	2,48	174,350	9	10,349	7014,396	2400	1,060	70,648	42	1046
05:14:49	2,48	176,825	9	10,284	7117,231	2385	1,060	71,707	42	1046
05:14:50	2,75	179,575	10	10,284	7220,066	2370	0,706	72,414	42	1045
05:14:51	2,48	182,050	9	10,022	7320,281	2295	0,353	72,767	42	1047

05:14:52	2,20	184,250	8	10,153	7421,806	2340	0,706	73,474	41	1046
05:14:53	2,20	186,450	8	10,218	7523,986	2340	0,706	74,180	42	1046
05:14:54	2,48	188,925	9	10,349	7627,476	2400	1,060	75,240	43	1104
05:14:55	2,48	191,400	9	10,349	7730,966	2385	1,060	76,299	42	1046
05:14:56	2,48	193,875	9	10,087	7831,836	2340	1,060	77,359	41	1046
05:14:57	2,48	196,350	9	10,284	7934,671	2370	1,060	78,419	42	1046
05:14:58	2,48	198,825	9	10,218	8036,852	2355	1,060	79,479	42	1046
05:14:59	2,75	201,575	10	10,284	8139,687	2370	1,060	80,538	42	1045
05:15:00	2,75	204,325	10	10,349	8243,177	2385	1,413	81,951	42	1045
05:15:01	2,75	207,075	10	10,480	8347,977	2430	1,413	83,364	42	1103
05:15:02	2,75	209,825	10	10,480	8452,776	2415	1,060	84,424	43	1045
05:15:03	2,75	212,575	10	10,349	8556,267	2385	1,060	85,484	43	1046
05:15:04	2,75	215,325	10	10,546	8661,722	2430	0,706	86,190	43	1045
05:15:05	2,48	217,800	9	10,349	8765,212	2385	1,413	87,603	42	1104
05:15:06	2,75	220,550	10	10,480	8870,012	2430	1,413	89,016	42	1046
05:15:07	2,48	223,025	9	10,218	8972,191	2355	0,706	89,722	42	1046
05:15:09	2,75	225,775	10	10,218	9074,371	2355	0,706	90,429	42	1045
05:15:10	3,03	228,800	11	10,611	9180,481	2445	0,706	91,135	43	1104
05:15:11	2,75	231,550	10	10,742	9287,901	2490	1,413	92,548	42	1045
05:15:12	2,75	234,300	10	10,480	9392,701	2415	0,706	93,255	42	1103
05:15:13	2,75	237,050	10	10,611	9498,812	2460	1,413	94,668	42	1046
05:15:14	2,75	239,800	10	10,415	9602,956	2415	1,413	96,081	42	1103
05:15:15	2,75	242,550	10	10,611	9709,066	2460	0,706	96,787	43	1103
05:15:16	3,03	245,575	11	10,546	9814,521	2445	0,706	97,494	42	1046
05:15:17	3,03	248,600	11	10,873	9923,252	2505	1,413	98,907	42	1045
05:15:18	3,03	251,625	11	10,873	10031,982	2520	1,413	100,320	43	1102
05:15:19	2,75	254,375	10	10,873	10140,713	2520	0,706	101,026	43	1045
05:15:20	3,03	257,400	11	10,873	10249,443	2505	0,706	101,733	43	1044
05:15:21	2,75	260,150	10	10,742	10356,863	2475	1,413	103,145	42	1044
05:15:22	2,48	262,625	9	10,742	10464,283	2475	0,706	103,852	42	1103
05:15:23	2,48	265,100	9	10,742	10571,703	2460	1,413	105,265	43	1103
05:15:24	2,75	267,850	10	10,611	10677,813	2445	0,706	105,971	43	1044
05:15:25	2,48	270,325	9	10,742	10785,233	2475	0,706	106,678	43	1045
05:15:26	2,48	272,800	9	10,611	10891,344	2460	1,413	108,091	43	1045
05:15:27	2,48	275,275	9	10,284	10994,179	2370	0,706	108,797	42	1046
05:15:28	2,75	278,025	10	10,742	11101,599	2475	0,706	109,504	42	1102
05:15:29	3,03	281,050	11	10,808	11209,674	2490	0,706	110,210	42	1044
05:15:31	3,03	284,075	11	10,546	11315,129	2430	1,413	111,623	42	1045
05:15:32	3,03	287,100	11	10,415	11419,273	2415	1,413	113,036	43	1102
05:15:33	3,03	290,125	11	10,415	11523,418	2400	1,413	114,449	43	1044
05:15:34	3,03	293,150	11	10,742	11630,838	2490	0,706	115,156	43	1044
05:15:35	2,75	295,900	10	10,742	11738,258	2475	1,413	116,569	43	1102
05:15:36	2,48	298,375	9	10,611	11844,368	2445	0,706	117,275	43	1046
05:15:37	2,75	301,125	10	10,677	11951,133	2460	1,413	118,688	43	1044
05:15:38	2,75	303,875	10	10,742	12058,553	2475	1,413	120,101	42	1102
05:15:39	2,75	306,625	10	10,677	12165,317	2460	1,413	121,514	42	1045
05:15:40	2,48	309,100	9	10,415	12269,462	2400	0,706	122,220	42	1045
05:15:41	2,48	311,575	9	10,742	12376,882	2475	1,413	123,633	43	1103
05:15:42	2,48	314,050	9	10,611	12482,992	2460	0,706	124,340	43	1046
05:15:43	2,75	316,800	10	10,546	12588,447	2445	1,413	125,753	43	1102

**PADA 1500 RPM 16 A**

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:22:06	6,60	6,60	25	17,554	175,540	4050	1,947	1,947	52	1575
07:22:07	6,05	12,65	23	17,423	349,770	4020	1,558	3,505	53	1516
07:22:08	6,60	19,25	24	17,816	527,930	4110	1,947	5,452	52	1574
07:22:09	6,60	25,85	24	17,947	707,400	4140	1,947	7,400	53	1575
07:22:10	7,15	33,00	26	17,947	886,870	4140	1,947	9,347	52	1572
07:22:12	6,88	39,88	25	17,816	1065,030	4095	2,337	11,683	53	1571
07:22:13	6,88	46,75	25	17,882	1243,845	4110	2,337	14,020	52	1572
07:22:14	6,60	53,35	24	17,816	1422,005	4110	1,947	15,967	53	1513
07:22:15	7,15	60,50	26	17,489	1596,890	4035	1,947	17,915	52	1571
07:22:16	7,15	67,65	26	17,816	1775,050	4110	1,947	19,862	52	1571
07:22:17	7,15	74,80	26	17,554	1950,590	4050	1,558	21,420	52	1572
07:22:18	7,15	81,95	26	17,292	2123,510	3990	1,947	23,367	52	1571
07:22:19	6,60	88,55	24	17,292	2296,430	3990	1,947	25,314	52	1513
07:22:20	6,88	95,43	25	17,423	2470,660	4005	1,947	27,261	52	1514
07:22:21	6,60	102,03	24	17,554	2646,200	4050	2,337	29,598	53	1569
07:22:22	6,88	108,90	25	17,423	2820,430	4020	2,337	31,935	52	1569
07:22:23	7,43	116,33	27	17,423	2994,660	4005	1,558	33,492	52	1571
07:22:24	7,15	123,48	26	17,358	3168,235	4005	1,947	35,440	53	1569
07:22:25	6,88	130,35	25	17,554	3343,775	4050	1,947	37,387	52	1569
07:22:26	6,88	137,23	25	17,816	3521,935	4110	1,947	39,334	52	1571
07:22:27	6,60	143,83	24	17,620	3698,130	4065	1,947	41,281	52	1569
07:22:28	6,88	150,70	25	17,685	3874,980	4080	2,337	43,618	52	1569
07:22:29	7,70	158,40	28	17,751	4052,485	4095	1,947	45,565	52	1571
07:22:30	6,33	164,73	23	17,947	4231,955	4140	1,947	47,513	53	1569
07:22:31	7,15	171,88	26	17,816	4410,115	4110	1,168	48,681	52	1569
07:22:32	6,05	177,93	22	17,620	4586,310	4065	1,558	50,239	53	1569
07:22:33	7,15	185,07	26	17,489	4761,195	4035	2,337	52,575	52	1569
07:22:35	7,15	192,22	26	17,620	4937,390	4065	1,558	54,133	52	1569
07:22:36	7,70	199,92	28	17,620	5113,584	4065	1,558	55,691	53	1511
07:22:37	7,43	207,35	27	17,620	5289,779	4065	2,337	58,028	53	1569
07:22:38	7,43	214,77	27	17,685	5466,629	4080	1,558	59,585	53	1569
07:22:38	7,15	214,77	27	17,685	5466,629	4080	1,558	61,143	53	1569
07:22:40	7,15	229,07	26	17,620	5819,019	4065	1,558	62,701	55	1569
07:22:41	7,15	236,22	26	17,816	5997,179	4110	1,558	64,259	54	1569
07:22:42	6,33	242,55	23	17,816	6175,339	4110	1,947	66,206	54	1569
07:22:43	6,33	248,87	23	17,751	6352,844	4095	1,947	68,153	54	1569
07:22:44	6,60	255,47	24	17,816	6531,004	4110	1,168	69,322	54	1569
07:22:45	6,60	262,07	24	18,078	6711,784	4170	1,947	71,269	53	1569
07:22:46	6,88	268,95	25	18,144	6893,219	4185	1,558	72,827	53	1569
07:22:47	7,15	276,10	26	18,013	7073,344	4155	1,947	74,774	54	1569
07:22:48	6,60	282,70	24	18,209	7255,434	4200	1,947	76,721	53	1569
07:22:49	7,43	290,12	27	18,275	7438,179	4215	1,947	78,668	53	1571
07:22:50	6,60	296,72	24	18,078	7618,959	4170	1,947	80,616	53	1569
07:22:51	7,15	303,87	26	18,078	7799,739	4170	1,558	82,173	53	1569
07:22:52	6,33	310,20	23	18,209	7981,829	4200	1,947	84,121	53	1571
07:22:53	6,60	316,80	24	18,144	8163,264	4170	1,558	85,678	53	1569
07:22:54	6,88	323,67	25	18,013	8343,389	4155	1,168	86,847	53	1627
07:22:55	7,15	330,82	26	18,144	8524,823	4185	1,558	88,405	52	1569
07:22:57	6,60	337,42	24	18,209	8706,913	4200	1,558	89,962	53	1568
07:22:58	6,88	344,30	25	18,078	8887,693	4170	1,947	91,910	53	1626
07:22:59	6,88	351,17	25	18,209	9069,783	4200	1,558	93,467	53	1568
07:23:00	6,60	357,77	24	18,013	9249,908	4155	1,947	95,415	53	1568
07:23:01	6,88	364,65	25	18,078	9430,688	4170	1,558	96,972	52	1568
07:23:02	6,88	371,52	25	17,947	9610,158	4140	1,558	98,530	53	1568
07:23:03	6,88	378,40	26	18,013	9790,283	4155	1,947	100,477	53	1568
07:23:04	7,15	385,55	26	17,882	9969,099	4125	1,558	102,035	52	1569
07:23:05	6,60	392,15	24	18,078	10149,879	4170	1,947	103,982	53	1566
07:23:06	6,60	398,75	24	18,209	10331,969	4200	1,558	105,540	53	1624
07:23:07	6,60	405,35	24	18,340	10515,369	4245	1,168	106,709	53	1568
07:23:08	6,60	411,95	24	18,275	10698,114	4230	1,558	108,266	53	1624
07:23:09	6,88	418,83	25	18,209	10880,204	4200	1,558	109,824	53	1566
07:23:10	7,15	425,98	26	18,340	11063,604	4230	1,168	110,993	53	1624
07:23:11	7,15	433,13	26	18,340	11247,005	4230	1,558	112,550	53	1566
07:23:12	6,88	440,00	25	18,340	11430,405	4230	1,558	114,108	53	1624
07:23:13	6,88	446,88	25	18,471	11615,115	4275	1,168	115,276	53	1566
07:23:14	7,15	454,02	26	18,733	11802,445	4320	1,947	117,224	54	1566
07:23:15	6,33	460,35	23	18,668	11989,120	4305	1,558	118,782	53	1626
07:23:16	7,15	467,50	26	18,406	12173,175	4245	1,558	120,339	53	1566
07:23:17	6,60	474,10	24	18,733	12360,505	4320	1,168	121,508	54	1624
07:23:19	7,15	481,25	27	18,471	12545,215	4275	1,558	123,065	54	1566



07:23:20	7,15	488,40	26	18,733	12732,545	4320	1,947	125,013	54	1566
07:23:21	7,43	495,82	27	18,799	12920,530	4350	1,947	126,960	54	1624
07:23:22	7,15	502,97	26	18,864	13109,170	4350	1,947	128,907	53	1566
07:23:23	7,15	510,12	26	18,733	13296,500	4320	1,558	130,465	53	1566
07:23:24	6,33	516,45	23	18,602	13482,520	4290	1,947	132,412	54	1626
07:23:25	6,88	523,32	25	18,668	13669,194	4320	1,558	133,970	53	1566
07:23:26	7,43	530,75	27	18,537	13854,560	4290	1,558	135,528	54	1566
07:23:27	7,15	537,90	26	18,406	14038,614	4245	1,947	137,475	54	1624
07:23:28	6,88	544,77	25	18,406	14222,669	4260	1,947	139,422	54	1624
07:23:29	7,15	551,92	26	18,406	14406,724	4260	1,947	141,369	54	1566
07:23:30	6,33	558,25	24	18,340	14590,124	4245	1,947	143,317	54	1624
07:23:31	6,60	564,85	24	18,340	14773,524	4230	1,558	144,874	54	1624
07:23:32	6,33	571,17	24	18,209	14955,614	4215	1,947	146,822	54	1626
07:23:33	6,60	577,77	24	18,471	15140,324	4275	1,558	148,380	54	1566
07:23:34	6,60	584,37	24	18,340	15323,725	4230	1,558	149,937	54	1624
07:23:35	6,88	591,25	25	18,668	15510,399	4305	1,947	151,885	54	1624
07:23:36	6,60	597,85	24	18,668	15697,074	4320	1,947	153,832	54	1624
07:23:37	7,15	605,00	26	18,209	15879,164	4215	1,947	155,779	54	1566
07:23:38	7,43	612,42	27	18,078	16059,944	4185	1,947	157,726	54	1566
07:23:39	7,15	619,57	26	18,209	16242,034	4200	1,947	159,674	54	1624
07:23:41	7,15	626,72	26	18,471	16426,744	4260	1,947	161,621	53	1626
07:23:42	6,88	633,60	25	18,471	16611,455	4275	1,947	163,568	54	1624
07:23:43	7,43	641,02	27	18,471	16796,166	4260	1,947	165,515	54	1624
07:23:44	6,33	647,35	23	18,471	16980,877	4275	1,947	167,462	54	1624
07:23:45	6,88	654,22	25	18,406	17164,932	4245	1,947	169,410	54	1566
07:23:46	6,88	661,10	26	18,144	17346,367	4185	1,947	171,357	54	1566
07:23:47	6,60	667,70	24	18,406	17530,422	4245	1,947	173,304	54	1624
07:23:48	7,43	675,12	27	18,537	17715,787	4290	1,947	175,251	54	1624
07:23:49	6,88	682,00	25	18,668	17902,463	4320	1,947	177,199	54	1626
07:23:50	6,88	688,87	25	18,471	18087,174	4275	1,558	178,756	54	1624
07:23:51	7,43	696,30	27	18,668	18273,850	4320	1,947	180,704	54	1624
07:23:52	7,15	703,45	26	18,668	18460,525	4305	1,947	182,651	54	1624
07:23:53	7,15	710,60	26	18,602	18646,545	4290	1,947	184,598	54	1624
07:23:54	6,88	717,47	25	18,864	18835,186	4365	1,558	186,156	54	1566
07:23:55	7,43	724,90	27	18,995	19025,135	4380	1,947	188,103	53	1566
07:23:56	7,15	732,05	26	18,799	19213,119	4350	1,947	190,050	53	1566
07:23:57	7,15	739,20	26	18,537	19398,484	4275	1,947	191,998	54	1626
07:23:58	7,15	746,35	26	18,733	19585,814	4320	1,558	193,555	54	1624
07:23:59	6,88	753,23	25	18,799	19773,799	4350	1,558	195,113	53	1624
07:24:00	7,15	760,38	26	18,668	19960,475	4305	1,558	196,671	54	1624
07:24:02	7,43	767,80	27	18,602	20146,494	4290	1,947	198,618	54	1624
07:24:03	6,60	774,40	24	18,209	20328,584	4215	1,947	200,565	54	1624
07:24:04	6,88	781,28	25	18,471	20513,295	4260	1,947	202,513	54	1624
07:24:05	6,88	788,15	25	18,537	20698,660	4290	1,947	204,460	54	1624
07:24:06	6,88	795,03	25	18,799	20886,645	4335	1,947	206,407	54	1626
07:24:07	7,43	802,45	27	18,733	21073,975	4320	1,947	208,354	54	1624
07:24:08	7,70	810,15	28	19,061	21264,580	4395	1,947	210,302	54	1624
07:24:09	7,15	817,30	26	18,471	21449,291	4275	2,337	212,638	54	1624
07:24:10	6,60	823,90	24	18,537	21634,656	4290	2,337	214,975	54	1624
07:24:11	6,88	830,78	25	18,930	21823,951	4365	1,558	216,533	54	1624

**PADA 2000 RPM 16 A**

Time	DebitHHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:28:59	9,63	9,63	35	17,685	17,685	5085	1,732	1,73	59	2101
07:29:00	10,45	20,08	38	15,917	33,602	5310	1,540	3,27	59	2097
07:29:01	10,45	30,53	38	18,340	51,942	5010	1,732	5,00	59	2097
07:29:02	10,45	40,98	38	20,895	72,836	4875	1,925	6,93	58	2099
07:29:03	9,90	50,88	37	20,895	93,731	4800	1,732	8,66	58	2097
07:29:04	10,73	61,60	39	19,323	113,053	4785	2,117	10,78	58	2095
07:29:05	10,18	71,78	37	20,633	133,686	5145	1,732	12,51	59	2097
07:29:06	9,90	81,68	36	19,650	153,336	5070	2,117	14,63	59	2097
07:29:08	10,73	92,40	39	20,043	173,379	5250	1,732	16,36	59	2095
07:29:09	10,73	103,13	39	18,078	191,457	4920	1,925	18,28	60	2093
07:29:10	10,45	113,58	38	20,043	211,500	4575	1,925	20,21	59	2093
07:29:11	10,45	124,03	38	19,323	230,822	4620	1,732	21,94	59	2093
07:29:12	10,45	134,48	38	20,633	251,455	4185	1,732	23,67	58	2093
07:29:13	10,18	144,65	37	14,607	266,061	4035	1,925	25,60	58	2032
07:29:14	10,45	155,10	38	18,144	284,205	4995	1,925	27,52	59	2090
07:29:15	9,90	165,00	36	18,668	302,872	5505	1,732	29,25	59	2093
07:29:16	10,18	175,18	37	18,406	321,278	4890	1,732	30,99	60	2090
07:29:17	10,45	185,63	38	19,519	340,797	4695	1,925	32,91	60	2090
07:29:18	10,18	195,80	37	18,537	359,333	4755	1,732	34,64	60	2093
07:29:19	10,18	205,98	37	16,375	375,708	4800	1,732	36,37	60	2090
07:29:20	10,73	216,70	39	19,519	395,227	4770	1,732	38,11	60	2090
07:29:21	10,45	227,15	38	20,895	416,122	4620	1,732	39,84	60	2093
07:29:22	10,18	237,33	38	20,633	436,754	4830	1,732	41,57	60	2090
07:29:23	10,18	247,50	37	20,043	456,797	5370	1,732	43,30	61	2090
07:29:24	10,73	258,23	39	20,633	477,430	5310	1,732	45,04	60	2093
07:29:25	9,90	268,13	36	19,781	497,211	4725	1,732	46,77	60	2034
07:29:26	10,18	278,30	37	20,895	518,105	4950	1,732	48,50	61	2090
07:29:27	9,63	287,92	36	19,323	537,428	4800	1,925	50,42	60	2095
07:29:28	10,18	298,10	37	19,519	556,947	5250	1,925	52,35	60	2090
07:29:29	10,45	308,55	38	20,633	577,579	4725	1,925	54,27	60	2090
07:29:31	9,90	318,45	36	19,519	597,098	4680	1,925	56,20	60	2036
07:29:32	9,63	328,07	35	20,043	617,141	4470	1,925	58,12	60	2093
07:29:33	10,18	338,25	37	14,869	632,010	4470	1,925	60,05	60	2090
07:29:34	9,90	348,15	36	15,065	647,075	5040	1,732	61,78	60	2095
07:29:35	9,63	357,77	35	17,751	664,825	4830	1,732	63,51	60	2093
07:29:36	9,90	367,67	37	16,703	681,528	5010	1,803	65,31	61	2093
07:29:37	10,45	378,12	38	20,895	702,422	5055	1,925	67,24	60	2093
07:29:38	9,90	388,02	36	19,519	721,941	5055	1,925	69,16	60	2093
07:29:39	9,63	397,65	35	16,965	738,906	5040	1,732	70,89	60	2093
07:29:40	9,90	407,55	36	19,781	758,687	5025	1,925	72,82	59	2095
07:29:41	10,45	418,00	38	20,895	779,581	5100	1,925	74,74	59	2090
07:29:42	9,90	427,90	36	19,519	799,100	5160	1,732	76,48	60	2151
07:29:43	10,18	438,07	37	19,323	818,423	5130	2,117	78,59	59	2093
07:29:44	10,73	448,80	39	17,751	836,173	5100	1,732	80,33	59	2090
07:29:45	9,90	458,70	36	19,519	855,692	5220	1,925	82,25	59	2093
07:29:46	9,90	468,60	36	14,148	869,840	5070	1,732	83,98	60	2095
07:29:47	9,90	478,50	36	15,786	885,626	5160	1,925	85,91	60	2090
07:29:48	10,18	488,67	37	20,633	906,258	4845	1,925	87,83	60	2088
07:29:49	10,18	498,85	37	19,519	925,777	4995	1,925	89,76	59	2149
07:29:50	10,18	509,02	37	16,441	942,218	5280	1,925	91,68	60	2088
07:29:51	10,45	519,47	38	17,751	959,968	5175	1,925	93,60	59	2088
07:29:53	10,18	529,65	38	19,519	979,487	5265	1,925	95,53	61	2090
07:29:54	9,90	539,55	36	17,358	996,845	5025	1,732	97,26	60	2090
07:29:55	9,63	549,17	35	20,895	1017,739	5280	1,925	99,19	59	2090
07:29:56	9,90	559,07	37	20,043	1037,782	5430	1,732	100,92	59	2090
07:29:57	10,18	569,25	37	17,751	1055,533	5535	1,732	102,65	60	2088
07:29:58	10,45	579,70	38	19,519	1075,052	5190	1,925	104,57	59	2088
07:29:59	9,63	589,32	36	19,257	1094,309	5310	1,925	106,50	60	2090
07:30:00	9,63	589,32	37	20,764	1115,072	4845	1,732	108,23	60	2088
07:30:01	10,45	610,22	38	17,816	1132,888	4890	1,925	110,16	60	2090
07:30:02	10,18	620,40	37	20,895	1153,783	4845	1,925	112,08	59	2088
07:30:03	9,90	630,30	36	17,685	1171,468	4980	2,117	114,20	60	2090
07:30:04	10,45	640,75	38	20,764	1192,231	5220	1,732	115,93	60	2090
07:30:05	10,73	651,47	39	17,620	1209,851	5355	1,732	117,66	60	2088
07:30:06	10,18	661,65	37	17,751	1227,601	5250	1,540	119,20	60	2088
07:30:07	9,90	671,55	36	17,489	1245,090	5130	1,925	121,13	60	2090
07:30:08	10,18	681,72	37	19,257	1264,347	4995	2,117	123,24	60	2088
07:30:09	10,73	692,45	39	19,519	1283,866	5040	2,117	125,36	60	2088
07:30:10	10,45	702,90	38	20,043	1303,909	5070	1,925	127,28	60	2147
07:30:11	10,45	713,35	38	20,764	1324,672	5355	1,732	129,02	60	2088

07:30:12	10,18	723,52	38	19,257	1343,929	5115	2,117	131,13	60	2090
07:30:13	9,35	732,87	34	14,148	1358,077	5295	1,925	133,06	59	2090
07:30:15	9,90	742,77	36	17,620	1375,697	5100	1,732	134,79	60	2032
07:30:16	10,18	752,95	37	20,764	1396,460	4995	1,925	136,72	60	2090
07:30:17	10,18	763,12	37	17,620	1414,080	4875	1,732	138,45	60	2088
07:30:18	9,90	773,02	36	19,519	1433,599	5295	1,732	140,18	60	2090
07:30:19	10,45	783,47	38	20,043	1453,642	5385	2,117	142,30	60	2088
07:30:20	9,90	793,38	36	19,519	1473,161	4860	1,732	144,03	60	2090
07:30:21	9,63	803,00	35	20,764	1493,924	4845	1,732	145,76	60	2093
07:30:22	10,18	813,17	37	15,458	1509,382	4965	1,925	147,69	60	2088
07:30:23	10,18	823,35	37	20,764	1530,146	4770	1,925	149,61	60	2088
07:30:24	9,90	833,25	36	19,257	1549,403	5040	2,117	151,73	60	2093
07:30:25	9,90	843,15	36	20,764	1570,166	5205	1,925	153,65	60	2090
07:30:26	10,45	853,60	38	20,043	1590,209	4545	1,732	155,38	59	2088
07:30:27	10,18	863,78	37	19,519	1609,728	4695	1,925	157,31	60	2090
07:30:28	10,73	874,50	39	15,458	1625,186	4980	2,117	159,43	60	2088
07:30:29	9,63	884,13	35	17,489	1642,675	5010	1,925	161,35	60	2090
07:30:30	10,18	894,30	37	17,620	1660,294	4980	1,732	163,08	60	2088
07:30:31	10,45	904,75	38	19,257	1679,551	5250	1,925	165,01	60	2088
07:30:32	9,90	914,65	37	15,458	1695,009	4950	2,117	167,12	60	2093
07:30:33	10,45	925,10	38	17,620	1712,629	5070	2,117	169,24	60	2088
07:30:34	10,45	935,55	38	15,458	1728,087	5085	1,925	171,17	59	2147
07:30:36	10,45	946,00	38	19,257	1747,344	4995	1,732	172,90	60	2090
07:30:37	10,45	956,45	38	19,257	1766,601	5070	1,732	174,63	59	2088
07:30:38	10,45	966,90	38	20,764	1787,364	5190	1,925	176,55	60	2088
07:30:39	10,45	977,35	38	17,620	1804,984	5130	1,925	178,48	60	2147
07:30:40	10,18	987,53	37	15,458	1820,442	5025	2,117	180,60	60	2088
07:30:41	10,45	997,98	38	20,764	1841,205	4845	2,117	182,71	60	2088
07:30:42	11,00	1008,98	40	19,519	1860,724	4920	1,925	184,64	60	2084
07:30:43	10,45	1019,43	38	20,764	1881,488	5190	1,925	186,56	59	2084
07:30:44	10,45	1029,88	38	19,519	1901,007	4815	1,732	188,29	60	2084
07:30:45	10,45	1040,33	38	19,257	1920,264	4785	1,925	190,22	61	2142
07:30:46	10,18	1050,50	37	15,458	1935,722	4425	2,117	192,34	60	2086
07:30:47	10,18	1060,68	37	18,864	1954,586	4605	2,117	194,45	60	2084
07:30:48	9,90	1070,58	36	16,441	1971,026	4650	2,117	196,57	61	2086
07:30:49	10,73	1081,30	39	15,065	1986,091	4560	1,925	198,49	60	2084
07:30:50	10,73	1092,03	39	20,436	2006,527	4650	1,732	200,23	60	2084
07:30:51	10,18	1102,20	37	19,388	2025,915	4650	1,540	201,77	60	2086
07:30:52	10,18	1112,38	37	19,781	2045,696	4470	1,732	203,50	60	2084
07:30:53	10,73	1123,10	39	18,668	2064,364	4395	1,732	205,23	60	2084
07:30:54	10,18	1133,28	37	16,506	2080,870	4080	1,540	206,77	60	2084
07:30:55	10,45	1143,73	38	19,192	2100,061	4740	1,925	208,69	60	2084
07:30:57	10,18	1153,90	37	19,061	2119,122	4725	1,925	210,62	59	2142
07:30:58	10,73	1164,63	39	20,764	2139,885	4290	1,925	212,54	60	2084
07:30:59	10,73	1175,35	39	12,511	2152,396	4290	2,117	214,66	61	2086
07:31:00	10,45	1185,80	38	19,519	2171,915	3810	2,117	216,78	60	2084
07:31:01	9,63	1195,43	36	20,567	2192,482	4065	2,117	218,89	60	2086
07:31:02	11,00	1206,43	40	19,192	2211,673	4230	1,540	220,43	60	2142
07:31:03	10,18	1216,60	38	17,423	2229,096	5130	2,117	222,55	61	2084
07:31:04	10,45	1227,05	39	19,781	2248,877	5070	2,117	224,67	60	2084

**LAMPIRAN 7**  
LAMPIRAN DATA HASIL  
PENGUJIAN DENGAN 20 AMP  
PADA GENERATOR

**PADA 1000 RPM 20 AMP**

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
05:33:51	4,40	4,400	16	11,004	110,040	2535	1,214	1,214	43	1108
05:33:52	4,13	8,525	15	10,939	219,425	2520	0,405	1,619	42	1050
05:33:53	4,13	12,650	15	11,004	329,465	2520	1,214	2,834	43	1048
05:33:54	4,40	17,050	16	11,266	442,125	2580	0,405	3,239	44	1107
05:33:55	4,40	21,450	16	11,201	554,130	2580	1,214	4,453	43	1048
05:33:56	4,68	26,125	17	11,201	666,135	2595	0,810	5,263	44	1048
05:33:57	4,40	30,525	16	10,939	775,520	2535	0,810	6,072	43	1049
05:33:58	4,68	35,200	17	11,070	886,215	2550	1,214	7,287	42	1049
05:33:59	4,40	39,600	16	11,266	998,875	2610	1,214	8,501	43	1106
05:34:00	4,68	44,275	17	11,004	1108,915	2535	1,214	9,716	44	1047
05:34:01	4,40	48,675	16	11,528	1224,195	2640	1,214	10,930	44	1106
05:34:02	4,40	53,075	16	11,004	1334,235	2550	0,405	11,335	43	1047
05:34:03	4,13	57,200	15	11,070	1444,930	2565	0,810	12,145	43	1047
05:34:04	4,40	61,600	16	11,201	1556,935	2580	0,810	12,954	43	1106
05:34:05	4,40	66,000	16	11,135	1668,285	2565	0,810	13,764	43	1047
05:34:06	4,13	70,125	15	10,808	1776,360	2490	0,810	14,573	43	1047
05:34:07	4,40	74,525	16	10,808	1884,435	2490	1,214	15,788	43	1047
05:34:08	4,40	78,925	16	10,939	1993,820	2520	1,214	17,002	43	1048
05:34:09	4,40	83,325	16	11,070	2104,515	2535	1,214	18,217	43	1105
05:34:10	4,13	87,450	15	11,135	2215,865	2565	1,619	19,836	43	1047
05:34:11	4,40	91,850	16	10,873	2324,595	2505	1,214	21,050	43	1106
05:34:13	4,13	95,975	15	11,004	2434,635	2550	1,214	22,265	43	1047
05:34:14	4,13	100,100	15	11,201	2546,640	2580	1,214	23,479	44	1104
05:34:15	4,40	104,500	16	11,135	2657,990	2565	1,619	25,099	44	1046
05:34:16	4,13	108,625	16	11,070	2768,685	2550	1,214	26,313	43	1103
05:34:17	4,68	113,300	17	10,939	2878,070	2520	0,405	26,718	43	1045
05:34:18	4,40	117,700	16	10,873	2986,800	2505	0,405	27,123	43	1046
05:34:19	4,40	122,100	16	11,004	3096,840	2550	1,214	28,337	44	1045
05:34:20	4,68	126,775	17	10,873	3205,570	2505	1,214	29,552	44	1103
05:34:21	4,40	131,175	16	10,677	3312,335	2460	1,214	30,766	44	1045
05:34:22	4,40	135,575	16	10,808	3420,410	2490	1,214	31,981	44	1045
05:34:23	4,13	139,700	15	10,873	3529,140	2520	0,810	32,790	44	1045
05:34:24	4,40	144,100	16	10,939	3638,525	2535	0,810	33,600	43	1045
05:34:25	4,40	148,500	16	11,201	3750,530	2595	1,619	35,219	43	1045
05:34:26	4,13	152,625	15	10,808	3858,605	2505	0,810	36,029	44	1045
05:34:27	4,13	156,750	15	10,808	3966,680	2505	1,214	37,243	44	1045
05:34:28	4,13	160,875	15	10,939	4076,065	2535	1,619	38,862	44	1045
05:34:29	4,40	165,275	16	11,004	4186,104	2535	1,214	40,077	44	1046
05:34:30	4,40	169,675	16	11,135	4297,455	2580	1,214	41,291	44	1045
05:34:31	4,13	173,800	15	11,135	4408,805	2565	1,214	42,506	43	1045
05:34:32	4,40	178,200	16	11,266	4521,465	2595	0,810	43,315	43	1046
05:34:33	4,40	182,600	16	11,201	4633,470	2580	0,810	44,125	43	1045
05:34:35	4,13	186,725	15	11,135	4744,820	2580	1,619	45,744	44	1103
05:34:36	4,40	191,125	16	11,266	4857,480	2610	0,810	46,554	44	1046
05:34:37	4,40	195,525	16	11,070	4968,175	2550	0,810	47,364	44	1103
05:34:38	4,13	199,650	16	10,873	5076,905	2520	0,810	48,173	44	1045
05:34:39	4,13	203,775	15	10,939	5186,290	2505	1,619	49,792	44	1046
05:34:40	4,68	208,450	17	11,004	5296,330	2550	1,619	51,412	44	1103
05:34:41	4,13	212,575	15	11,201	5408,334	2595	0,810	52,221	43	1045
05:34:42	4,13	216,700	15	11,201	5520,339	2580	0,810	53,031	43	1104
05:34:43	4,40	221,100	16	11,332	5633,654	2610	0,810	53,841	44	1045
05:34:44	4,40	225,500	16	11,266	5746,314	2610	1,619	55,460	44	1103
05:34:45	4,40	229,900	16	11,266	5858,975	2595	1,214	56,674	44	1045
05:34:46	4,40	234,300	16	11,266	5971,635	2580	0,810	57,484	44	1103
05:34:47	4,13	238,425	15	11,332	6084,950	2610	1,214	58,698	44	1045
05:34:48	4,40	242,825	16	11,397	6198,920	2640	0,810	59,508	44	1103
05:34:49	3,85	246,675	14	11,332	6312,235	2610	0,810	60,318	45	1103
05:34:50	4,40	251,075	16	11,397	6426,205	2625	0,810	61,127	44	1046
05:34:51	4,40	255,475	16	11,332	6539,520	2610	1,619	62,747	44	1103
05:34:52	4,40	259,875	16	11,397	6653,490	2625	0,810	63,556	45	1045
05:34:53	4,13	264,000	15	11,463	6768,115	2640	1,214	64,771	44	1046
05:34:54	4,40	268,400	16	11,332	6881,430	2595	1,214	65,985	43	1045
05:34:55	4,40	272,800	16	10,873	6990,160	2505	1,214	67,200	44	1045
05:34:57	4,13	276,925	15	10,873	7098,990	2520	0,810	68,009	44	1104
05:34:58	4,13	281,050	15	10,939	7208,275	2535	0,810	68,819	44	1045
05:34:59	4,40	285,450	16	10,939	7317,660	2535	0,810	69,629	45	1103
05:35:00	4,13	289,575	15	10,939	7427,044	2520	0,810	70,438	45	1104
05:35:01	4,13	293,700	15	10,742	7534,464	2490	0,810	71,248	44	1045
05:35:02	4,40	298,100	16	10,742	7641,884	2475	0,810	72,057	44	1045
05:35:03	4,40	302,500	16	11,004	7751,924	2550	1,214	73,272	44	1104

05:35:04	4,13	306,625	15	11,201	7863,929	2595	0,810	74,082	45	1045
05:35:05	4,40	311,025	16	11,070	7974,624	2565	0,810	74,891	45	1103
05:35:06	4,13	315,150	15	10,939	8084,009	2520	0,810	75,701	45	1103
05:35:07	4,13	319,275	15	10,873	8192,739	2520	1,214	76,915	45	1045
05:35:08	4,13	323,400	15	10,939	8302,124	2535	0,810	77,725	44	1103
05:35:09	4,13	327,525	15	10,939	8411,509	2535	0,810	78,534	44	1045
05:35:10	3,85	331,375	14	10,677	8518,273	2475	0,810	79,344	45	1103
05:35:11	4,13	335,500	15	11,004	8628,313	2535	1,619	80,963	44	1046
05:35:12	4,40	339,900	16	11,004	8738,354	2520	1,214	82,178	44	1103
05:35:13	4,40	344,300	16	10,873	8847,084	2520	0,810	82,987	44	1045
05:35:14	4,40	348,700	16	11,004	8957,124	2535	0,810	83,797	45	1104
05:35:15	4,13	352,825	15	10,873	9065,854	2520	1,214	85,012	45	1045
05:35:16	4,13	356,950	15	11,070	9176,550	2535	0,810	85,821	44	1103
05:35:17	4,13	361,075	15	11,135	9287,899	2580	0,810	86,631	45	1046
05:35:19	4,13	365,200	15	11,332	9401,215	2610	1,619	88,250	45	1045
05:35:20	4,13	369,325	15	11,397	9515,185	2640	1,619	89,869	46	1045
05:35:21	4,13	373,450	15	11,332	9628,500	2625	0,810	90,679	45	1104
05:35:22	4,13	377,575	15	11,397	9742,470	2640	0,810	91,489	45	1103
05:35:23	4,13	381,700	15	11,397	9856,439	2625	0,810	92,298	45	1045
05:35:24	4,40	386,100	16	11,135	9967,789	2580	1,214	93,513	45	1104
05:35:25	4,13	390,225	15	11,004	10077,829	2535	0,810	94,322	46	1044
05:35:26	4,13	394,350	15	11,135	10189,179	2565	0,810	95,132	46	1102
05:35:27	4,13	398,475	15	11,201	10301,184	2595	1,214	96,346	44	1102
05:35:28	4,13	402,600	15	11,135	10412,533	2580	1,619	97,966	44	1044
05:35:29	4,40	407,000	17	11,266	10525,193	2595	1,619	99,585	46	1103
05:35:30	4,13	411,125	15	11,135	10636,543	2565	1,214	100,799	45	1102
05:35:31	3,85	414,975	14	11,201	10748,548	2580	0,810	101,609	46	1102
05:35:32	4,13	419,100	15	11,135	10859,897	2580	0,810	102,419	46	1045
05:35:33	3,85	422,950	14	11,135	10971,247	2565	0,810	103,228	46	1102
05:35:34	4,13	427,075	15	11,397	11085,217	2625	0,405	103,633	45	1102
05:35:35	4,13	431,200	15	11,528	11200,497	2655	0,810	104,443	44	1102
05:35:36	4,13	435,325	15	11,266	11313,157	2610	1,619	106,062	46	1102
05:35:37	4,40	439,725	16	11,135	11424,507	2580	1,214	107,277	46	1044
05:35:38	4,13	443,850	15	11,201	11536,512	2595	0,810	108,086	47	1102
05:35:39	3,85	447,700	14	11,135	11647,861	2580	1,214	109,301	46	1102
05:35:41	4,13	451,825	15	11,266	11760,521	2610	0,810	110,110	45	1103
05:35:42	3,85	455,675	14	11,397	11874,491	2640	0,810	110,920	45	1044
05:35:43	4,13	459,800	15	11,528	11989,771	2655	1,214	112,134	44	1044
05:35:44	4,40	464,200	16	11,594	12105,706	2670	0,810	112,944	45	1044
05:35:45	4,13	468,325	15	11,528	12220,986	2670	1,214	114,158	44	1102
05:35:46	4,13	472,450	15	11,266	12333,646	2610	1,214	115,373	44	1044
05:35:47	3,85	476,300	14	11,266	12446,307	2595	0,810	116,182	45	1044
05:35:48	3,85	480,150	14	11,070	12557,002	2565	1,619	117,802	45	1044
05:35:49	4,13	484,275	15	11,397	12670,972	2640	0,810	118,611	46	1103
05:35:50	4,13	488,400	15	11,332	12784,287	2610	1,619	120,231	47	1102
05:35:51	4,13	492,525	15	11,463	12898,912	2655	1,619	121,850	47	1102
05:35:52	4,13	496,650	15	11,397	13012,882	2640	0,810	122,660	47	1102
05:35:53	4,13	500,775	15	11,201	13124,887	2595	0,810	123,469	47	1102
05:35:54	4,13	504,900	15	11,397	13238,856	2640	0,810	124,279	47	1102
05:35:55	4,40	509,300	16	11,397	13352,826	2640	0,810	125,088	46	1102

## PADA 1500 RPM 20 AMP

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:13:03	8,53	8,525	31	18,209	18,209	4185	12,586	12,586	52	1575
07:13:04	9,90	18,425	36	18,275	36,484	4215	12,676	25,262	52	1574
07:13:05	8,80	27,225	32	18,078	54,562	4170	12,541	37,803	53	1574
07:13:06	7,98	35,200	29	18,209	72,771	4185	12,587	50,390	53	1575
07:13:08	7,70	42,900	28	18,209	90,980	4200	12,633	63,023	53	1572
07:13:09	6,88	49,775	26	18,340	109,320	4230	12,724	75,747	52	1629
07:13:10	7,70	57,475	28	18,209	127,529	4185	12,589	88,336	52	1572
07:13:11	7,98	65,450	29	18,275	145,803	4215	12,680	101,015	52	1571
07:13:12	8,25	73,700	30	18,078	163,881	4170	12,545	113,560	52	1571
07:13:13	7,15	80,850	26	18,078	181,959	4170	12,545	126,105	52	1629
07:13:14	7,98	88,825	29	18,078	200,037	4170	12,546	138,651	52	1572
07:13:15	7,70	96,525	28	18,537	218,574	4095	12,321	150,972	53	1571
07:13:16	7,98	104,500	29	18,013	236,586	4140	12,456	163,428	53	1627
07:13:17	7,70	112,200	28	18,537	255,123	4140	12,457	175,885	53	1571
07:13:18	7,98	120,175	29	18,078	273,201	4170	12,548	188,433	53	1627
07:13:19	7,98	128,150	29	18,078	291,279	4170	12,548	200,981	54	1569
07:13:20	7,70	135,850	28	18,078	309,357	4170	12,549	213,529	54	1571
07:13:21	7,98	143,825	29	18,406	327,762	4245	12,775	226,304	54	1569
07:13:22	7,70	151,525	28	18,537	346,299	4275	12,866	239,170	54	1569
07:13:23	8,25	159,775	30	18,537	364,835	4275	12,866	252,036	52	1571
07:13:24	8,25	168,025	30	18,406	383,241	4245	12,776	264,812	52	1627
07:13:25	7,70	175,725	28	18,602	401,843	4290	12,912	277,724	52	1569
07:13:26	8,25	183,975	30	18,799	420,641	4335	13,048	290,772	52	1629
07:13:27	7,98	191,950	29	18,537	439,178	4275	12,868	303,641	53	1569
07:13:28	8,80	200,750	32	18,668	457,845	4260	12,823	316,464	52	1569
07:13:30	7,98	208,725	29	18,668	476,513	4305	12,960	329,424	52	1629
07:13:31	7,98	216,700	29	18,340	494,853	4245	12,780	342,203	52	1569
07:13:32	7,70	224,400	28	18,471	513,324	4260	12,825	355,029	53	1627
07:13:33	8,80	233,200	32	18,340	531,664	4230	12,736	367,764	53	1629
07:13:34	8,80	242,000	32	18,537	550,200	4275	12,872	380,636	53	1569
07:13:35	8,53	250,525	31	18,668	568,868	4125	12,420	393,056	54	1569
07:13:36	8,25	258,775	31	18,078	586,946	4170	12,556	405,613	53	1629
07:13:37	7,98	266,750	29	18,471	605,417	4260	12,828	418,440	53	1569
07:13:38	7,70	274,450	28	18,733	624,150	4320	13,009	431,449	53	1569
07:13:39	7,70	282,150	28	18,668	642,817	4230	12,738	444,188	53	1627
07:13:40	7,98	290,125	29	18,668	661,485	4245	12,784	456,972	53	1627
07:13:41	7,98	298,100	29	18,668	680,152	4305	12,965	469,937	54	1627
07:13:42	7,70	305,800	29	18,537	698,689	4275	12,875	482,813	53	1569
07:13:43	7,98	313,775	30	18,537	717,225	4275	12,876	495,689	53	1569
07:13:44	8,25	322,025	30	18,668	735,893	4320	13,012	508,701	54	1627
07:13:45	7,98	330,000	30	18,864	754,757	4350	13,103	521,804	54	1627
07:13:46	7,98	337,975	29	18,864	773,621	4350	13,103	534,907	53	1569
07:13:47	8,53	346,500	31	18,864	792,485	4350	13,104	548,011	53	1569
07:13:48	8,25	354,750	30	18,864	811,349	4350	13,104	561,115	53	1627
07:13:49	8,53	363,275	31	18,733	830,082	4320	13,015	574,130	54	1627
07:13:50	9,07	372,350	33	18,668	848,749	4305	12,970	587,100	53	1627
07:13:51	9,07	381,425	33	18,668	867,417	4320	13,016	600,115	53	1627
07:13:53	8,80	390,225	32	18,537	885,953	4275	12,881	612,996	53	1627
07:13:54	8,80	399,025	32	18,733	904,686	4320	13,017	626,013	53	1627
07:13:55	7,98	407,000	29	18,144	922,830	4185	12,611	638,624	54	1626
07:13:56	8,53	415,525	31	18,537	941,366	4275	12,882	651,506	53	1568
07:13:57	8,80	424,325	32	18,406	959,772	4245	12,792	664,299	53	1568
07:13:58	8,25	432,575	30	18,864	978,636	4365	13,155	677,453	54	1568
07:13:59	8,80	441,375	32	18,864	997,500	4350	13,110	690,563	54	1568
07:14:00	8,80	450,175	32	18,471	1015,971	4275	12,884	703,447	53	1624
07:14:01	10,18	460,350	37	18,602	1034,573	4305	12,975	716,423	54	1624
07:14:02	9,07	469,425	34	18,864	1053,437	4365	13,157	729,579	53	1624
07:14:03	7,98	477,400	29	18,733	1072,170	4320	13,022	742,601	53	1566
07:14:04	8,80	486,200	32	18,995	1091,165	4380	13,203	755,804	54	1568
07:14:05	8,80	495,000	32	18,864	1110,029	4350	13,113	768,917	54	1566
07:14:06	8,53	503,525	31	18,995	1129,024	4380	13,204	782,121	54	1624
07:14:07	9,07	512,600	33	18,733	1147,757	4320	13,024	795,144	53	1624
07:14:08	8,53	521,125	31	18,602	1166,359	4290	12,934	808,078	53	1624
07:14:09	8,53	529,650	31	18,995	1185,354	4380	13,205	821,283	53	1626
07:14:10	8,25	537,900	30	18,864	1204,218	4350	13,115	834,398	53	1624
07:14:11	9,63	547,525	35	18,799	1223,016	4335	13,071	847,469	54	1624
07:14:12	8,80	556,325	32	18,602	1241,618	4305	12,981	860,450	54	1626
07:14:13	9,07	565,400	33	18,995	1260,613	4380	13,207	873,657	54	1624
07:14:15	8,53	573,925	31	18,668	1279,281	4290	12,937	886,594	54	1624
07:14:16	8,25	582,175	30	18,078	1297,359	4185	12,621	899,215	54	1624

07:14:17	9,07	591,250	33	18,733	1316,092	4335	13,074	912,289	53	1624
07:14:18	10,45	601,700	38	18,864	1334,956	4380	13,210	925,499	53	1624
07:14:19	8,25	609,950	30	18,930	1353,885	4365	13,165	938,664	53	1624
07:14:20	9,07	619,025	33	18,930	1372,815	4380	13,211	951,875	54	1624
07:14:21	9,35	628,375	34	18,733	1391,548	4320	13,031	964,906	54	1624
07:14:22	8,25	636,625	30	18,864	1410,412	4350	13,121	978,027	53	1624
07:14:23	9,35	645,975	34	18,864	1429,276	4350	13,122	991,149	53	1624
07:14:24	8,80	654,775	32	18,668	1447,943	4320	13,032	1004,181	54	1624
07:14:25	8,53	663,300	31	19,061	1467,004	4395	13,259	1017,440	54	1624
07:14:26	8,80	672,100	32	18,602	1485,606	4305	12,988	1030,428	53	1626
07:14:27	8,25	680,350	30	18,602	1504,208	4305	12,988	1043,416	53	1624
07:14:28	8,25	688,600	31	18,799	1523,006	4335	13,079	1056,495	53	1682
07:14:29	9,35	697,950	34	18,406	1541,412	4245	12,808	1069,303	54	1624
07:14:30	9,90	707,850	36	18,602	1560,014	4305	12,990	1082,293	53	1624
07:14:31	9,63	717,475	35	18,733	1578,747	4305	12,990	1095,283	53	1624
07:14:32	8,53	726,000	31	18,602	1597,349	4290	12,945	1108,229	53	1624
07:14:33	9,35	735,350	34	18,537	1615,885	4290	12,946	1121,175	53	1624
07:14:34	9,35	744,700	34	18,471	1634,356	4275	12,901	1134,076	54	1626
07:14:36	9,35	754,050	34	18,406	1652,762	4260	12,857	1146,933	54	1682
07:14:37	9,63	763,675	35	18,209	1670,971	4215	12,722	1159,654	53	1624
07:14:38	8,80	772,475	32	19,126	1690,097	4410	13,311	1172,965	54	1624
07:14:39	8,80	781,275	32	18,078	1708,175	4185	12,632	1185,597	54	1624
07:14:40	9,63	790,900	35	18,995	1727,170	4395	13,266	1198,864	54	1624
07:14:41	9,35	800,250	34	18,668	1745,837	4320	13,041	1211,904	54	1624
07:14:42	9,35	809,600	34	18,537	1764,374	4275	12,905	1224,809	54	1624
07:14:43	8,80	818,400	32	18,930	1783,303	4380	13,223	1238,032	55	1626
07:14:44	9,07	827,475	33	18,668	1801,971	4305	12,997	1251,029	55	1624
07:14:45	8,53	836,000	31	18,668	1820,638	4320	13,043	1264,071	53	1624
07:14:46	8,80	844,800	32	18,930	1839,568	4365	13,179	1277,250	53	1624
07:14:47	9,90	854,700	36	18,668	1858,235	4275	12,908	1290,158	53	1566
07:14:48	8,25	862,950	30	18,668	1876,903	4200	12,682	1302,839	53	1566
07:14:49	7,98	870,925	30	18,013	1894,915	4020	12,139	1314,978	53	1508
07:14:50	8,53	879,450	32	18,013	1912,928	3990	12,049	1327,026	52	1566
07:14:51	8,80	888,250	32	18,668	1931,595	3945	11,913	1338,939	52	1510
07:14:52	6,60	894,850	24	18,668	1950,263	4005	12,095	1351,034	52	1508
07:14:53	7,98	902,825	29	18,668	1968,930	4095	12,367	1363,401	52	1566
07:14:54	8,25	911,075	30	18,668	1987,598	4050	12,232	1375,633	52	1508
07:14:55	8,25	919,325	30	17,816	2005,414	4110	12,413	1388,046	52	1566
07:14:56	8,25	927,575	30	18,668	2024,081	4005	12,097	1400,143	52	1508
07:14:58	8,25	935,825	30	18,668	2042,749	4035	12,188	1412,331	52	1566
07:14:59	8,25	944,075	30	18,013	2060,761	4050	12,234	1424,565	53	1508
07:15:00	7,98	952,050	29	17,816	2078,577	4125	12,461	1437,025	52	1510
07:15:01	8,80	960,850	33	18,013	2096,590	4080	12,325	1449,351	52	1566
07:15:02	8,25	969,100	30	17,816	2114,406	4110	12,417	1461,768	53	1566
07:15:03	8,25	977,350	30	18,668	2133,073	4065	12,281	1474,049	53	1508
07:15:04	8,80	986,150	32	18,668	2151,741	4080	12,327	1486,376	52	1508
07:15:05	9,35	995,500	34	18,668	2170,408	4125	12,463	1498,839	52	1566
07:15:06	8,80	1004,300	32	18,668	2189,076	4170	12,600	1511,439	52	1565
07:15:07	8,53	1012,825	31	18,013	2207,088	4110	12,419	1523,858	52	1507
07:15:08	7,98	1020,800	29	18,013	2225,101	4125	12,465	1536,322	52	1508



## PADA 2000 RPM 20 AMP

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
07:34:59	12,38	12,375	45	19,978	19,978	4080	2,163	2,16	60	2097
07:35:00	12,38	24,750	45	21,812	41,789	3660	1,952	4,12	60	2097
07:35:01	12,10	36,850	44	19,781	61,570	4230	1,952	6,07	60	2099
07:35:02	11,82	48,675	43	20,043	81,613	4815	1,757	7,82	60	2099
07:35:03	12,38	61,050	46	20,109	101,722	4815	1,952	9,78	59	2097
07:35:04	12,10	73,150	44	19,781	121,503	4455	1,757	11,53	59	2095
07:35:06	12,10	85,250	45	19,912	141,415	4755	1,952	13,49	60	2097
07:35:07	12,93	98,175	47	20,043	161,458	4530	1,952	15,44	60	2095
07:35:08	12,38	110,550	45	19,912	181,370	4620	1,952	17,39	60	2093
07:35:09	12,93	123,475	47	20,043	201,413	4185	1,757	19,15	59	2093
07:35:10	12,38	135,850	45	20,043	221,456	3090	1,952	21,10	59	2090
07:35:11	12,93	148,775	47	19,912	241,368	3165	1,952	23,05	60	2090
07:35:12	12,65	161,425	46	19,912	261,280	3750	1,952	25,00	60	2093
07:35:13	12,38	173,800	46	19,978	281,257	3360	1,952	26,96	59	2090
07:35:14	12,65	186,450	46	20,043	301,300	4200	1,952	28,91	58	2090
07:35:15	11,82	198,275	43	19,781	321,081	4305	1,757	30,67	58	2093
07:35:16	12,10	210,375	44	20,174	341,255	4245	1,952	32,62	58	2090
07:35:17	12,38	222,750	45	19,978	361,233	4500	1,757	34,37	57	2090
07:35:18	12,65	235,400	46	19,454	380,686	4290	1,952	36,33	57	2093
07:35:19	12,93	248,325	47	19,912	400,598	3780	1,952	38,28	58	2090
07:35:20	12,65	260,975	46	19,847	420,445	3615	1,952	40,23	58	2090
07:35:21	12,65	273,625	46	20,043	440,488	3435	1,952	42,18	58	2093
07:35:22	12,65	286,275	46	20,240	460,727	3150	1,757	43,94	58	2090
07:35:23	12,38	298,650	45	20,174	480,901	3495	1,952	45,89	58	2090
07:35:24	12,93	311,575	47	22,270	503,171	3660	1,757	47,65	58	2090
07:35:25	12,65	324,225	46	21,157	524,328	4560	1,952	49,60	58	2090
07:35:26	12,65	336,875	46	19,716	544,043	3165	1,757	51,36	59	2090
07:35:28	12,93	349,800	47	22,205	566,248	2790	1,757	53,12	59	2090
07:35:29	12,93	362,725	47	19,978	586,225	2475	1,757	54,87	58	2090
07:35:30	12,65	375,375	46	20,371	606,596	3000	1,757	56,63	59	2093
07:35:31	12,65	388,025	46	20,436	627,032	2670	1,952	58,58	59	2090
07:35:32	12,65	400,675	47	20,305	647,337	3270	1,757	60,34	58	2090
07:35:33	12,38	413,050	45	20,043	667,380	3435	1,757	62,10	58	2093
07:35:34	12,38	425,425	45	20,567	687,947	3480	1,952	64,05	59	2149
07:35:35	12,38	437,800	45	20,371	708,317	4095	1,952	66,00	58	2090
07:35:36	12,10	449,900	44	20,174	728,491	3855	1,757	67,76	59	2093
07:35:37	12,65	462,550	46	20,829	749,320	3405	1,952	69,71	60	2149
07:35:38	12,65	475,200	46	20,502	769,822	3705	1,952	71,66	62	2090
07:35:39	12,38	487,575	46	20,567	790,389	3915	1,757	73,42	63	2093
07:35:40	12,38	499,950	45	20,567	810,956	3735	1,757	75,17	62	2149
07:35:41	12,10	512,050	44	20,895	831,850	3720	1,952	77,13	61	2090
07:35:42	12,38	524,425	45	22,663	854,513	3690	1,757	78,88	61	2093
07:35:43	12,93	537,350	47	20,043	874,556	3270	1,952	80,84	60	2090
07:35:44	12,10	549,450	44	19,781	894,337	3285	1,757	82,59	60	2090
07:35:45	12,65	562,100	46	20,502	914,839	3090	1,757	84,35	59	2090
07:35:46	12,38	574,475	45	20,043	934,882	3270	1,757	86,11	59	2090
07:35:47	12,65	587,125	46	20,109	954,990	3645	1,952	88,06	59	2090
07:35:48	12,10	599,225	44	19,847	974,837	3450	1,952	90,01	59	2149
07:35:50	12,65	611,875	46	19,912	994,749	3360	1,952	91,96	59	2090
07:35:51	12,38	624,250	45	20,371	1015,119	3795	1,757	93,72	58	2093
07:35:52	12,38	636,625	45	20,371	1035,490	3570	1,952	95,67	59	2090
07:35:53	12,65	649,275	46	19,912	1055,402	3795	1,952	97,63	59	2090
07:35:54	12,38	661,650	46	20,109	1075,510	4005	1,952	99,58	58	2093
07:35:55	12,93	674,575	47	21,026	1096,536	3360	1,757	101,33	59	2090
07:35:56	11,55	686,125	42	20,043	1116,579	3420	1,952	103,29	59	2090
07:35:57	12,65	698,775	46	20,895	1137,473	3435	1,952	105,24	58	2093
07:35:58	12,10	710,875	44	21,157	1158,630	3510	1,952	107,19	59	2090
07:35:59	12,10	722,975	45	20,698	1179,328	4440	1,757	108,95	59	2090
07:36:00	12,38	735,350	45	20,698	1200,026	4785	1,757	110,70	58	2093
07:36:01	12,93	748,275	47	20,436	1220,462	4110	1,757	112,46	58	2090
07:36:02	12,93	761,200	47	19,847	1240,308	3720	1,757	114,22	59	2149
07:36:03	12,38	773,575	45	20,174	1260,482	4080	1,952	116,17	59	2090
07:36:04	12,93	786,500	47	20,436	1280,918	3915	1,952	118,12	59	2088
07:36:05	12,38	798,875	45	19,847	1300,765	4080	1,952	120,08	58	2086
07:36:06	12,10	810,975	44	20,240	1321,004	3915	1,952	122,03	58	2088
07:36:07	11,82	822,800	43	19,912	1340,916	4050	1,952	123,98	59	2088
07:36:08	12,38	835,175	46	20,960	1361,876	3645	1,757	125,74	59	2090
07:36:09	12,38	847,550	46	20,502	1382,378	3810	1,757	127,49	58	2147
07:36:10	12,65	860,200	46	20,436	1402,814	3975	1,757	129,25	59	2088
07:36:12	12,93	873,125	47	20,567	1423,381	3720	1,757	131,01	59	2090

07:36:13	12,38	885,500	45	20,698	1444,079	3585	1,757	132,76	59	2088
07:36:14	12,93	898,425	47	20,764	1464,842	3270	1,952	134,72	59	2088
07:36:15	12,65	911,075	46	20,698	1485,540	3150	1,952	136,67	59	2088
07:36:16	12,38	923,450	45	20,502	1506,042	3015	1,952	138,62	60	2088
07:36:17	13,20	936,650	48	20,764	1526,805	2925	1,757	140,38	59	2149
07:36:18	12,65	949,300	47	20,764	1547,569	2880	1,952	142,33	59	2088
07:36:19	12,93	962,225	47	20,895	1568,463	2775	1,952	144,28	60	2147
07:36:20	13,20	975,425	48	20,764	1589,227	2370	1,562	145,84	60	2090
07:36:21	13,20	988,625	48	21,288	1610,514	2025	1,757	147,60	59	2090
07:36:22	12,93	1001,550	47	21,484	1631,998	2295	1,757	149,36	58	2088
07:36:23	12,65	1014,200	46	21,550	1653,548	2400	1,757	151,12	59	2086
07:36:24	12,93	1027,125	47	21,222	1674,770	2355	2,147	153,26	59	2086
07:36:25	12,10	1039,225	44	20,240	1695,009	2145	1,757	155,02	58	2147
07:36:26	13,20	1052,425	48	18,930	1713,939	1890	1,952	156,97	58	2088
07:36:27	12,93	1065,350	47	19,912	1733,851	1860	1,757	158,73	59	2147
07:36:28	12,93	1078,275	47	18,340	1752,191	2145	1,952	160,68	58	2090
07:36:29	12,93	1091,200	47	18,013	1770,203	1755	1,952	162,63	59	2147
07:36:30	12,65	1103,850	46	17,489	1787,692	1455	1,757	164,39	59	2088
07:36:31	12,93	1116,775	48	17,554	1805,246	1575	1,757	166,15	59	2147
07:36:32	13,20	1129,975	48	17,423	1822,669	1770	1,757	167,90	59	2088
07:36:33	13,20	1143,175	48	18,144	1840,812	1140	1,757	169,66	59	2149
07:36:34	13,20	1156,375	48	19,650	1860,462	1875	1,757	171,42	62	2088
07:36:35	12,93	1169,300	47	20,698	1881,160	2160	1,757	173,17	65	2147
07:36:36	13,48	1182,775	49	21,288	1902,448	1485	1,952	175,13	62	2090
07:36:37	13,20	1195,975	49	21,877	1924,325	1395	1,757	176,88	61	2147
07:36:38	13,75	1209,725	50	21,681	1946,005	1620	1,952	178,84	61	2088
07:36:39	13,48	1223,200	49	21,026	1967,031	1380	1,757	180,59	60	2088
07:36:40	13,20	1236,400	48	21,091	1988,122	1290	1,952	182,55	60	2088
07:36:41	12,93	1249,325	47	20,829	2008,951	1515	1,757	184,30	60	2090
07:36:42	13,20	1262,525	48	21,419	2030,369	1695	1,952	186,25	60	2088
07:36:43	13,20	1275,725	48	21,353	2051,722	1185	1,952	188,21	60	2088
07:36:44	13,48	1289,200	49	20,960	2072,682	840	1,757	189,96	59	2151
07:36:45	13,20	1302,400	48	21,288	2093,970	2835	1,757	191,72	59	2086
07:36:46	13,20	1315,600	48	21,419	2115,388	4350	1,952	193,67	59	2144
07:36:47	12,65	1328,250	46	21,157	2136,545	3810	1,952	195,62	59	2086
07:36:48	12,10	1340,350	44	21,222	2157,767	3510	1,757	197,38	59	2086
07:36:49	11,82	1352,175	43	20,633	2178,399	4740	1,952	199,33	59	2147
07:36:50	11,82	1364,000	43	21,157	2199,556	4500	1,952	201,29	60	2086
07:36:51	12,10	1376,100	44	20,764	2220,319	4575	1,952	203,24	60	2086
07:36:52	12,38	1388,475	45	21,353	2241,672	4320	1,952	205,19	60	2144
07:36:53	11,82	1400,300	43	21,222	2262,894	3840	1,757	206,95	60	2086
07:36:54	12,10	1412,400	44	21,091	2283,985	4455	1,757	208,70	59	2147
07:36:55	11,55	1423,950	42	20,895	2304,880	4410	1,757	210,46	59	2086
07:36:56	12,10	1436,050	44	20,829	2325,709	3165	1,952	212,41	60	2086
07:36:57	13,75	1449,800	50	20,960	2346,669	2895	1,757	214,17	59	2144
07:36:58	13,20	1463,000	48	20,371	2367,039	3690	1,757	215,93	60	2086
07:36:59	12,10	1475,100	45	20,698	2387,737	4755	1,952	217,88	58	2088
07:37:00	12,38	1487,475	45	20,960	2408,697	4440	1,952	219,83	59	2144
07:37:01	12,10	1499,575	45	21,091	2429,788	4035	1,757	221,59	59	2086
07:37:02	12,65	1512,225	46	21,026	2450,814	3600	1,952	223,54	59	2086

**LAMPIRAN 8**  
LAMPIRAN DATA HASIL  
PENGUJIAN DENGAN 30 AMP  
PADA GENERATOR

**PADA 1000 RPM 30 AMP**

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
05:52:35	7,70	7,70	40	11,070	110,695	2550	1,325	1,325	45	1106
05:52:36	9,90	17,60	40	10,939	220,080	2535	0,884	2,209	45	1106
05:52:37	7,70	25,30	41	11,135	331,430	2550	0,884	3,093	45	1048
05:52:38	9,90	35,20	41	11,201	443,435	2580	0,884	3,976	44	1047
05:52:39	9,63	44,83	45	11,070	554,130	2550	0,884	4,860	44	1105
05:52:40	7,70	52,53	43	11,266	666,790	2595	0,884	5,744	44	1105
05:52:41	9,90	62,43	43	11,266	779,450	2610	0,884	6,627	44	1048
05:52:42	7,70	70,13	44	11,332	892,765	2610	0,884	7,511	44	1105
05:52:43	9,63	79,75	42	11,266	1005,425	2610	0,884	8,394	44	1103
05:52:44	9,63	89,38	41	11,201	1117,430	2580	0,884	9,278	44	1104
05:52:45	9,63	99,00	42	11,201	1229,435	2580	0,884	10,162	43	1045
05:52:46	9,35	108,35	43	11,004	1339,475	2535	0,442	10,603	42	1045
05:52:48	7,70	116,05	42	11,332	1452,790	2610	1,767	12,371	43	1104
05:52:49	7,70	123,75	42	11,201	1564,795	2580	0,884	13,254	44	1103
05:52:50	7,70	131,45	41	11,266	1677,455	2610	0,884	14,138	44	1103
05:52:51	7,98	139,43	39	11,266	1790,115	2595	0,442	14,580	44	1045
05:52:52	7,98	147,40	41	11,266	1902,775	2610	1,767	16,347	44	1045
05:52:53	9,35	156,75	42	11,397	2016,745	2625	0,884	17,231	44	1103
05:52:54	7,98	164,73	43	11,201	2128,750	2580	0,884	18,114	45	1103
05:52:55	9,63	174,35	44	11,201	2240,755	2595	0,884	18,998	45	1103
05:52:56	9,90	184,25	42	11,266	2353,415	2595	0,884	19,881	45	1104
05:52:57	7,98	192,23	42	11,201	2465,420	2595	0,884	20,765	44	1045
05:52:58	7,98	200,20	45	11,332	2578,735	2610	0,884	21,649	44	1103
05:52:59	7,70	207,90	44	11,135	2690,085	2565	1,767	23,416	44	1104
05:53:00	7,98	215,88	42	11,397	2804,055	2625	0,884	24,299	45	1102
05:53:01	7,70	223,58	44	11,397	2918,025	2625	0,884	25,183	44	1102
05:53:02	7,98	231,55	44	11,266	3030,685	2610	0,884	26,067	44	1045
05:53:03	7,70	239,25	47	11,201	3142,689	2595	0,442	26,508	44	1044
05:53:04	7,98	247,23	47	11,332	3256,004	2625	1,767	28,276	44	1102
05:53:05	9,90	257,13	43	11,397	3369,974	2625	0,442	28,718	44	1102
05:53:06	7,98	265,10	43	11,266	3482,634	2610	0,884	29,601	45	1102
05:53:07	7,70	272,80	41	11,201	3594,639	2595	0,442	30,043	44	1045
05:53:08	8,80	281,60	41	11,397	3708,609	2625	0,442	30,043	44	1044
05:53:10	7,70	289,30	42	11,397	3822,579	2640	0,442	30,485	45	1102
05:53:11	8,80	298,10	42	11,397	3936,549	2625	0,884	31,368	44	1103
05:53:12	7,98	306,08	41	11,463	4051,174	2640	0,442	31,810	44	1102
05:53:13	7,98	314,05	42	11,332	4164,489	2625	0,884	32,694	45	1102
05:53:14	7,98	322,03	42	11,463	4279,114	2640	2,651	35,345	44	1044
05:53:15	7,70	329,73	43	11,397	4393,084	2625	3,093	38,437	45	1044
05:53:16	8,80	338,53	41	11,528	4508,364	2655	1,767	40,205	45	1102
05:53:17	7,70	346,23	42	11,397	4622,334	2640	1,325	41,530	45	1102
05:53:18	8,80	355,03	41	11,397	4736,305	2625	1,767	43,297	45	1102
05:53:19	7,70	362,73	42	11,397	4850,275	2625	0,884	44,181	45	1103
05:53:20	8,53	371,25	44	11,332	4963,590	2625	0,884	45,064	45	1044
05:53:21	8,53	379,78	44	11,528	5078,870	2655	1,767	46,832	45	1102
05:53:22	7,70	387,48	42	11,332	5192,185	2625	1,767	48,599	45	1102
05:53:23	8,53	396,00	42	11,397	5306,155	2640	0,442	49,041	45	1102
05:53:24	7,70	403,70	43	11,266	5418,815	2610	0,884	49,924	45	1102
05:53:25	8,53	412,23	42	11,266	5531,475	2595	0,442	50,366	45	1102
05:53:26	9,07	421,30	43	11,463	5646,100	2640	0,442	50,808	45	1044
05:53:27	7,70	429,00	42	11,332	5759,415	2625	0,442	51,250	44	1045
05:53:28	7,70	436,70	42	11,463	5874,040	2655	0,884	52,133	45	1102
05:53:29	8,80	445,50	41	11,397	5988,010	2625	0,442	52,575	45	1102
05:53:31	8,53	454,03	43	11,528	6103,290	2655	0,442	53,017	44	1102
05:53:32	7,98	462,00	42	11,594	6219,225	2670	0,884	53,901	44	1102
05:53:33	7,98	469,98	43	11,463	6333,850	2640	0,884	54,784	45	1102
05:53:34	7,98	477,95	42	11,266	6446,510	2610	0,884	55,668	45	1044
05:53:35	7,70	485,65	41	11,397	6560,480	2640	1,767	57,435	45	1044
05:53:36	7,70	493,35	43	11,332	6673,795	2610	0,442	57,877	45	1103
05:53:37	9,63	502,98	43	11,528	6789,075	2655	3,093	60,970	45	1102
05:53:38	7,98	510,95	42	11,463	6903,700	2655	0,884	61,853	45	1102
05:53:39	7,70	518,65	44	11,528	7018,980	2670	0,442	62,295	44	1102
05:53:40	7,98	526,63	44	11,397	7132,950	2640	0,442	62,737	45	1102
05:53:41	8,53	535,15	42	11,397	7246,920	2640	1,767	64,504	45	1102
05:53:42	7,70	542,85	42	11,528	7362,200	2655	0,442	64,946	45	1044
05:53:43	7,70	550,55	44	11,594	7478,135	2670	1,767	66,713	44	1044
05:53:44	7,98	558,53	43	11,594	7594,070	2670	0,884	67,597	45	1103
05:53:45	7,98	566,50	41	11,528	7709,350	2655	0,884	68,480	45	1102
05:53:46	7,98	574,48	42	11,397	7823,320	2640	1,767	70,247	45	1102
05:53:47	10,73	585,20	43	11,528	7938,600	2655	0,884	71,131	44	1102

05:53:48	7,70	592,90	44	11,528	8053,880	2670	1,767	72,898	45	1102
05:53:49	7,98	600,88	42	11,463	8168,505	2640	0,884	73,782	45	1102
05:53:50	7,70	608,58	43	11,528	8283,785	2670	0,884	74,666	44	1102
05:53:51	7,70	616,28	45	11,463	8398,410	2655	0,884	75,549	44	1044
05:53:53	7,70	623,98	43	11,463	8513,035	2640	1,767	77,316	45	1045
05:53:54	7,98	631,95	42	11,528	8628,315	2655	0,884	78,200	45	1102
05:53:55	8,53	640,48	42	11,659	8744,905	2685	0,884	79,084	45	1102
05:53:56	8,53	649,00	41	11,659	8861,495	2700	0,884	79,967	45	1102
05:53:57	8,53	657,53	41	11,463	8976,120	2655	1,767	81,734	45	1102
05:53:58	8,80	666,33	41	11,725	9093,365	2700	0,442	82,176	45	1102
05:53:59	8,53	674,85	41	11,659	9209,955	2685	0,884	83,060	45	1102
05:54:00	8,53	683,38	41	11,528	9325,235	2655	0,442	83,502	45	1102
05:54:01	8,53	691,90	42	11,528	9440,516	2670	0,442	83,944	45	1103
05:54:02	7,70	699,60	43	11,659	9557,105	2685	1,767	85,711	45	1102
05:54:03	7,70	707,30	44	11,528	9672,386	2670	0,884	86,594	45	1102
05:54:04	7,70	715,00	44	11,397	9786,355	2640	0,884	87,478	45	1101
05:54:05	7,70	722,70	42	11,659	9902,945	2700	0,884	88,362	45	1101
05:54:06	8,53	731,23	43	11,594	10018,880	2685	1,767	90,129	45	1101
05:54:07	8,80	740,03	42	11,463	10133,505	2655	0,884	91,012	46	1042
05:54:08	8,80	748,83	43	11,463	10248,130	2655	1,767	92,780	45	1042
05:54:09	7,70	756,53	41	11,659	10364,720	2700	0,442	93,221	46	1042
05:54:10	8,53	765,05	44	11,594	10480,654	2670	1,767	94,989	45	1042
05:54:11	8,53	773,58	43	11,725	10597,899	2700	1,767	96,756	45	1043
05:54:12	8,53	782,10	43	11,594	10713,834	2685	1,325	98,081	45	1100
05:54:14	8,53	790,63	45	11,659	10830,424	2700	1,325	99,407	45	1100
05:54:15	8,53	799,15	44	11,594	10946,358	2685	0,442	99,849	45	1100
05:54:16	7,70	806,85	43	11,659	11062,948	2700	0,442	100,290	45	1100
05:54:17	7,70	814,55	42	11,528	11178,229	2670	0,442	100,732	46	1100
05:54:18	8,53	823,08	42	11,594	11294,163	2685	0,884	101,616	45	1100
05:54:19	8,53	831,60	43	11,528	11409,443	2655	0,884	102,499	45	1101
05:54:20	8,53	840,13	42	11,463	11524,068	2655	0,884	103,383	45	1100
05:54:21	8,80	848,93	41	11,397	11638,038	2640	0,884	104,267	46	1100
05:54:22	8,53	857,45	43	11,528	11753,318	2670	0,884	105,150	46	1100
05:54:23	7,70	865,15	45	11,528	11868,599	2670	1,767	106,918	45	1100
05:54:24	8,53	873,68	45	11,463	11983,224	2640	0,442	107,359	45	1100
05:54:25	7,70	881,38	46	11,790	12101,124	2730	1,767	109,127	46	1100
05:54:26	7,98	889,35	44	11,528	12216,404	2670	0,884	110,010	44	1101
05:54:27	8,25	897,60	44	11,463	12331,029	2655	0,884	110,894	44	1100
05:54:28	7,70	905,30	43	11,397	12444,999	2640	0,884	111,777	45	1042
05:54:29	7,98	913,28	43	11,397	12558,969	2640	0,884	112,661	45	1042
05:54:30	7,98	921,25	43	11,594	12674,903	2685	1,767	114,428	44	1042
05:54:31	8,25	929,50	42	11,463	12789,528	2655	0,442	114,870	44	1100
05:54:32	7,98	937,48	42	11,528	12904,809	2670	1,767	116,637	45	1100
05:54:33	8,25	945,73	43	11,528	13020,089	2670	0,884	117,521	45	1101
05:54:35	8,80	954,53	43	11,528	13135,369	2670	1,767	119,288	45	1100
05:54:36	7,70	962,23	41	11,659	13251,959	2700	0,884	120,172	45	1100
05:54:37	7,70	969,93	41	11,594	13367,894	2685	0,442	120,614	46	1100
05:54:38	7,98	977,90	42	11,594	13483,828	2685	1,767	122,381	45	1100
05:54:39	7,98	985,88	40	11,528	13599,108	2670	0,442	122,823	45	1043
05:54:40	8,25	994,13	39	11,528	13714,389	2655	0,884	123,706	46	1042

## PADA 1500 RPM 30 AMP

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
06:00:56	11,28	11,275	41	17,227	17,227	3975	2,043	2,043	52	1514
06:00:57	10,73	22,000	39	17,030	34,257	3930	2,043	4,087	53	1514
06:00:59	10,45	32,450	38	17,030	51,287	3900	2,043	6,130	52	1516
06:01:00	9,90	42,350	36	17,227	68,513	3810	1,635	7,765	51	1459
06:01:01	9,63	51,975	35	17,227	85,740	3870	1,635	9,399	52	1456
06:01:02	10,73	62,700	39	17,227	102,966	3855	2,043	11,443	52	1453
06:01:03	9,90	72,600	36	17,227	120,193	3870	2,043	13,486	51	1456
06:01:04	9,63	82,225	35	18,340	138,533	3870	1,635	15,121	52	1513
06:01:05	9,63	91,850	35	18,340	156,873	3930	1,635	16,756	51	1513
06:01:06	9,63	101,475	35	18,340	175,213	3900	1,635	18,390	52	1513
06:01:07	11,28	112,750	35	18,340	193,553	3855	2,043	20,434	52	1511
06:01:08	9,35	122,100	34	17,030	210,583	3915	1,635	22,068	52	1511
06:01:09	9,63	131,725	35	18,340	228,923	3825	2,043	24,112	52	1511
06:01:10	9,35	141,075	34	18,340	247,263	3885	1,635	25,746	51	1511
06:01:11	10,45	151,525	35	18,340	265,603	3885	1,635	25,746	52	1511
06:01:12	9,90	161,425	36	16,834	282,436	3885	2,452	28,198	52	1453
06:01:13	10,45	171,875	35	18,340	300,776	3855	2,043	30,242	52	1511
06:01:14	10,45	182,325	35	18,340	319,116	3960	2,043	32,285	53	1569
06:01:15	9,63	191,950	35	18,340	337,456	4065	1,635	33,920	53	1569
06:01:16	11,28	203,225	35	18,013	355,469	4170	1,635	35,555	53	1569
06:01:17	9,90	213,125	36	18,340	373,809	4230	2,043	37,598	54	1569
06:01:18	9,35	222,475	35	18,078	391,887	4170	1,635	39,233	54	1627
06:01:19	10,18	232,650	37	18,209	410,096	4200	2,043	41,276	54	1626
06:01:20	9,90	242,550	36	18,609	428,705	4215	1,635	42,911	54	1627
06:01:22	10,18	252,725	37	18,340	447,045	4245	2,043	44,954	54	1626
06:01:23	10,18	262,900	37	18,537	465,581	4290	2,043	46,997	54	1626
06:01:24	10,18	273,075	37	18,602	484,183	4305	2,043	49,041	54	1626
06:01:25	11,00	284,075	40	18,340	502,523	4125	1,635	50,675	54	1626
06:01:26	10,45	294,525	38	18,340	520,863	4065	2,043	52,719	55	1626
06:01:27	9,90	304,425	36	18,275	539,138	4215	2,452	55,171	55	1627
06:01:28	10,73	315,150	39	18,471	557,609	4275	1,635	56,805	54	1627
06:01:29	11,28	326,425	37	18,609	576,218	4140	1,226	58,031	55	1626
06:01:30	9,63	336,050	35	18,602	594,820	4290	1,226	59,258	53	1569
06:01:31	9,63	345,675	35	18,144	612,963	4185	2,043	61,301	54	1571
06:01:32	9,07	354,750	33	18,340	631,303	4230	1,635	62,936	54	1569
06:01:33	9,90	364,650	36	18,209	649,512	4155	2,043	64,979	54	1627
06:01:34	9,35	374,000	34	18,209	667,721	4050	1,635	66,614	54	1627
06:01:35	11,28	385,275	32	18,340	686,061	4125	1,635	68,248	54	1627
06:01:36	11,28	396,550	32	18,340	704,401	4110	1,226	69,474	54	1627
06:01:37	8,80	405,350	32	18,144	722,545	4185	1,635	71,109	54	1627
06:01:38	10,73	416,075	31	18,340	740,885	4140	1,635	72,744	54	1627
06:01:39	10,73	426,800	32	18,275	759,159	4215	1,635	74,378	54	1627
06:01:40	9,90	436,700	32	18,013	777,172	4155	1,226	75,604	54	1627
06:01:41	9,90	446,600	31	18,078	795,250	4170	1,226	76,830	53	1627
06:01:42	9,90	456,500	31	18,144	813,393	4185	1,635	78,465	53	1569
06:01:44	10,73	467,225	33	18,340	831,733	4110	1,635	80,100	53	1569
06:01:45	11,28	478,500	34	18,340	850,073	4080	1,635	81,734	53	1569
06:01:46	11,28	489,775	34	18,340	868,413	4065	1,226	82,961	53	1569
06:01:47	9,35	499,125	34	18,013	886,426	4155	1,226	84,187	53	1568
06:01:48	9,07	508,200	33	18,340	904,766	4065	1,226	85,413	53	1568
06:01:49	9,07	517,275	33	18,013	922,778	4110	1,635	87,047	54	1568
06:01:50	9,07	526,350	33	18,013	940,791	4110	1,635	88,682	53	1510
06:01:51	10,73	537,075	32	18,013	958,803	4020	2,043	90,725	53	1510
06:01:52	10,73	547,800	31	18,340	977,143	4065	2,043	92,769	52	1568
06:01:53	8,53	556,325	31	18,340	995,483	4110	1,635	94,403	52	1511
06:01:54	10,73	567,050	32	18,340	1013,823	4020	1,635	96,038	53	1510
06:01:55	10,73	577,775	32	18,340	1032,163	4080	1,635	97,673	52	1508
06:01:56	11,28	589,050	32	18,209	1050,372	4020	1,226	98,899	52	1510
06:01:57	11,28	600,325	35	18,013	1068,385	4035	2,043	100,942	52	1566
06:01:58	11,28	611,600	35	18,209	1086,594	4020	1,635	102,577	52	1508
06:01:59	9,63	621,225	35	18,209	1104,803	4050	2,043	104,620	53	1508
06:02:00	9,63	630,850	35	18,340	1123,143	4005	2,043	106,664	53	1566
06:02:01	9,63	640,475	35	18,609	1141,752	4080	2,043	108,707	52	1508
06:02:02	10,18	650,650	37	18,340	1160,092	4080	2,043	110,750	52	1565
06:02:03	10,18	660,825	37	18,609	1178,701	4050	2,043	112,794	52	1507
06:02:04	11,28	672,100	34	17,685	1196,386	4080	1,635	114,428	52	1510
06:02:06	10,18	682,275	34	17,489	1213,874	4035	2,043	116,472	52	1566
06:02:07	11,28	693,550	35	17,947	1231,821	4155	1,635	118,106	53	1508
06:02:08	10,45	704,000	38	17,816	1249,637	4125	2,043	120,150	53	1565
06:02:09	10,73	714,725	39	17,620	1267,257	4080	1,635	121,784	53	1565

06:02:10	10,18	724,900	37	18,209	1285,466	4110	1,635	123,419	53	1508
06:02:11	10,18	735,075	35	18,609	1304,075	4080	1,635	125,054	52	1508
06:02:12	10,18	745,250	35	17,882	1321,956	4140	1,635	126,688	53	1566
06:02:13	9,35	754,600	34	17,554	1339,510	4050	1,635	128,323	53	1566
06:02:14	9,35	763,950	35	17,685	1357,195	4080	1,635	129,958	53	1508
06:02:15	9,35	773,300	34	17,423	1374,618	4020	2,043	132,001	53	1566
06:02:16	11,28	784,575	35	18,209	1392,827	3930	2,043	134,045	53	1566
06:02:17	9,35	793,925	34	17,358	1410,185	4005	1,635	135,679	53	1566
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06:02:19	11,28	816,475	32	17,947	1445,882	4155	1,635	139,357	53	1566
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06:02:21	10,18	837,925	34	17,292	1481,383	4005	1,635	142,627	53	1566
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06:02:23	9,07	856,350	33	18,609	1518,201	4110	1,635	146,305	52	1566
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06:03:00	11,28	1215,500	29	17,816	2148,295	4050	1,635	209,649	53	1565
06:03:01	10,18	1225,675	30	18,209	2166,504	4140	1,635	211,284	53	1565



**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN**  
**DEPARTEMEN TEKNIK SISTEM PERKAPALAN**  
**FAKULTAS TEKNIK UNIVERSITAS HASANUDDIN**  
Jalan Poros Malino Km. 6 Bontomarannu, Gowa, Sulawesi Selatan, 92172  
Telp/Fax: +62-411-588400, Email: kapal9uh@indosat.net.id

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No. : 1518/UN4.7.7/TD.06/2021  
Lamp : -  
Hal : Penugasan Bimbingan Tugas Akhir

Kepada Yth : **Wakil Dekan I**  
**Bidang Akademik, Riset dan Inovasi**  
**Fakultas Teknik UNHAS**  
**di-**  
**Gowa**

Dengan hormat,  
Kiranya dosen pembimbing tugas akhir (skripsi) dari mahasiswa :

Nama : Afdhalash Ramadhan M. R.  
Stambuk : D33116305  
Program Studi : Teknik Sistem Perkapalan

Dengan judul Tugas Akhir:  
*Analisis Performa Mesin Menggunakan Bahan Bakar Hybrid Hydrogen - Solar Pada Mesin Diesel Ford Escort 1.8*

Dosen Pembimbing :  
1. Andi Husni Sitepu, S.T., M.T.  
2. Baharuddin, S.T., M.T.

Dapat dibuatkan Surat Penugasan Bimbingan Tugas Akhir  
Demikian penyampaian kami, atas perhatian dan kerjasamanya diucapkan terima kasih.

Gowa, 3 Februari 2021

Ketua,

Dr.Eng. Faisal Mahmuddin, S.T., M.Inf.Tech., M.Eng.  
Nip. 19810211 200501 1 003





**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN**  
**UNIVERSITAS HASANUDDIN**  
**FAKULTAS TEKNIK**

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<http://eng.unhas.ac.id> Email : [teknik@unhas.ac.id](mailto:teknik@unhas.ac.id)

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**SURAT PENUGASAN**  
No. 1605/UN4.7.1/TD.06/2021

Dari : Dekan Fakultas Teknik Universitas Hasanuddin

Kepada : **1. Andi Husni Sitepu, S.T., M.T.**  
**2. Baharuddin, S.T., M.T.**

**Pemb. I**  
**Pemb. II**

Isi : 1. Berdasarkan Surat Ketua Departemen Teknik Sistem Perkapalan Fakultas Teknik Nomor 1510/UN4.7.7/TD.06/2021 tanggal 3 Februari 2021, tentang usul DOSEN PEMBIMBING MAHASISWA, maka dengan ini kami menugaskan Saudara untuk membimbing penulisan Skripsi/Tugas Akhir mahasiswa Teknik Sistem Perkapalan Fakultas Teknik Universitas Hasanuddin di bawah ini :

Nama :

**Afdhalash Ramadhan M. R.**

No. Stambuk :

**D33116305**

Judul Skripsi/Tugas Akhir:

***Analisis Performa Mesin Menggunakan Bahan Bakar Hybrid Hydrogen - Solar Pada Mesin Diesel Ford Escort 1.8***

2. Surat penugasan pembimbing ini mulai berlaku sejak tanggal ditetapkannya dan berakhir sampai selesainya penulisan Skripsi/Tugas Akhir Mahasiswa tersebut.
3. Agar surat penugasan ini dilaksanakan sebaik - baiknya dengan penuh rasa tanggung jawab.

Ditetapkan di Gowa,

Pada tanggal 4 Februari 2021

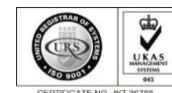
a.n Dekan,

Wakil Dekan I Bidang Akademik, Riset dan Inovasi Fakultas Teknik UH

Prof. Baharuddin Hamzah, ST.,M.Arch.,Ph.D  
Nip. 19690308 199512 1 001

Tembusan:

1. Dekan FT-UH.
2. Ketua Departemen Teknik Sistem Perkapalan FT-UH.
3. Mahasiswa yang bersangkutan



CERTIFICATE NO. JKT 36788

PADA 2000 RPM 30 AMP

Time	Debit HHO	Volume HHO	RPM HHO	Debit Udara	Volume Udara	RPM Udara	Debit BBM	Volume BBM	RPS BBM	RPM Mesin
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07:47:06	14,03	42,075	51	21,746	668,100	4560	14,792	46,076	61	2040
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07:47:08	14,03	70,675	52	20,829	1087,300	4635	15,036	76,098	60	2034
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07:47:15	14,85	158,675	54	19,781	2375,685	4620	14,991	165,647	60	1974
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07:47:18	14,58	202,125	53	17,620	2933,090	4620	14,993	210,477	60	2032
07:47:19	14,58	216,700	53	21,615	3149,240	4620	14,993	225,470	60	2032
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07:47:33	14,03	405,350	51	20,698	5923,165	5130	16,656	424,277	61	2032
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07:48:45	14,58	1409,925	54	21,026	13290,343	4875	15,869	1477,474	59	2027
07:48:46	14,85	1424,775	54	21,091	13311,434	4875	15,870	1493,344	59	2084
07:48:47	15,13	1439,900	55	20,829	13332,263	4815	15,675	1509,019	58	2086
07:48:48	14,58	1454,475	53	21,419	13353,681	4965	16,164	1525,182	58	2027
07:48:49	14,03	1468,500	51	21,353	13375,034	4950	16,116	1541,298	58	2084
07:48:50	14,58	1483,075	53	20,960	13395,994	4845	15,774	1557,072	59	2084
07:48:51	14,85	1497,925	54	21,288	13417,282	4935	16,068	1573,140	59	2027
07:48:52	14,85	1512,775	54	21,419	13438,700	4950	16,117	1589,257	58	2084
07:48:53	14,58	1527,349	54	21,157	13459,857	4890	15,922	1605,180	59	2084
07:48:54	15,13	1542,474	55	21,222	13481,079	4905	15,972	1621,152	58	2028
07:48:55	14,58	1557,049	53	20,633	13501,711	4770	15,533	1636,685	59	2027
07:48:57	14,85	1571,899	54	21,157	13522,868	4905	15,974	1652,658	58	2084
07:48:58	14,03	1585,924	52	20,764	13543,631	4800	15,632	1668,291	58	2027
07:48:59	14,30	1600,224	52	21,353	13564,984	4935	16,072	1684,363	59	2027
07:49:00	14,85	1615,074	55	21,222	13586,206	4905	15,975	1700,338	59	2084
07:49:01	14,85	1629,924	54	21,091	13607,297	4875	15,878	1716,216	58	2027
07:49:02	15,13	1645,049	55	20,895	13628,192	4830	15,732	1731,949	58	2086
07:49:03	15,40	1660,449	56	20,829	13649,021	4815	15,684	1747,632	57	2027
07:49:04	15,40	1675,849	56	20,960	13669,981	4845	15,782	1763,415	58	2027
07:49:05	14,85	1690,699	54	20,371	13690,351	4725	15,392	1778,806	58	2084
07:49:06	14,58	1705,274	53	20,698	13711,049	4800	15,637	1794,443	59	2027
07:49:07	14,03	1719,299	51	20,960	13732,009	4845	15,784	1810,227	58	2027
07:49:08	15,40	1734,699	56	21,091	13753,100	4875	15,882	1826,109	58	2084
07:49:09	14,03	1748,724	51	21,026	13774,126	4875	15,883	1841,992	58	2086



**KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,  
RISET, DAN TEKNOLOGI  
UNIVERSITAS HASANUDDIN  
KAMPUS TAMALANREA**

JALAN PERINTIS KEMERDEKAAN KM.10 MAKASSAR 90245  
TELEPON : 0411-586200 (6 SALURAN), 584002, FAX. 585188

**SURAT PERSETUJUAN**

**Nomor : 24547/UN4.1.1.2.1.1/PK.02.03/2021**

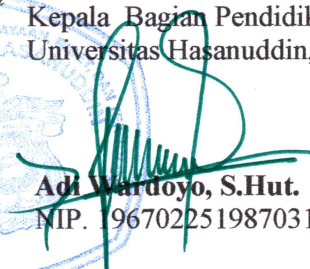
Berdasarkan Peraturan Rektor Universitas Hasanuddin tentang Penyelenggaraan Program Sarjana Nomor : 2781/UN4.1/KEP/2018 tanggal 16 Juli 2018, dengan ini menerangkan bahwa :

NIK : 7310041412990001  
N a m a : AFDHALASH RAMADHAN M.RANAHEDY ✓  
Tempat/Tanggal Lahir : PANGKEP, 14 DESEMBER 1999 ✓  
NIM : D33116305 ✓  
Fakultas : TEKNIK ✓  
Program Studi : TEK. SISTEM PERKAPALAN ✓

Telah memenuhi syarat untuk Ujian Skripsi Strata I (S1) **PERIODE II NOVEMBER 2021 TAHAP I**. Demikian Surat Persetujuan ini dibuat untuk digunakan dalam proses pelaksanaan ujian skripsi, dengan ketentuan dapat mengikuti wisuda **PERIODE II NOVEMBER 2021 TAHAP I**, jika persyaratan kelulusan/wisuda telah dipenuhi. Terima Kasih.

Makassar, 6 SEPTEMBER 2021

2 Kepala Biro Administrasi Akademik  
Kepala Bagian Pendidikan  
Universitas Hasanuddin,

  
Adi Wardoyo, S.Hut.  
NIP. 196702251987031002

**Keterangan :**

**Nomor User** : D33116305 ✓

**Nomor password/pin** : 2125675 ✓

**Alamat Website** : <http://unhas.ac.id/akad/wisuda/>

**Catatan**

1. Bagi Mahasiswa yang telah melaksanakan ujian Sarjana dan dinyatakan lulus, segera menyerahkan lembar pengesahan Skripsi dan Berita Acara Ujian Sarjana ke Sub Bagian Akademik Fakultas, untuk memperoleh nomor Alumni dan didaftar sebagai Wisudawan pada periode berjalan.
2. Jika terjadi perubahan Judul Skripsi agar melaporkan ke Kasubag. Pendidikan Fakultas sebelum didaftar sebagai Wisudawan pada Periode berjalan
3. Pada saat ON-LINE Mahasiswa diharapkan mengisi identitas diri sesuai surat izin ujian ini
4. Surat izin ini hanya berlaku untuk Wisuda periode berjalan (WISUDA PERIODE II NOVEMBER 2021 TAHAP I) ✓



**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN**  
**DEPARTEMEN TEKNIK SISTEM PERKAPALAN**  
**FAKULTAS TEKNIK UNIVERSITAS HASANUDDIN**  
Jalan Poros Malino Km. 6 Bontomarannu, Gowa, Sulawesi Selatan, 92172  
Telp/Fax: +62-411-588400, Email: kapal9uh@indosat.net.id

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No. : 1518/UN4.7.7/TD.06/2021  
Lamp : -  
Hal : Penugasan Bimbingan Tugas Akhir

Kepada Yth : **Wakil Dekan I**  
**Bidang Akademik, Riset dan Inovasi**  
**Fakultas Teknik UNHAS**  
**di-**  
**Gowa**

Dengan hormat,  
Kiranya dosen pembimbing tugas akhir (skripsi) dari mahasiswa :

Nama : Afdhalash Ramadhan M. R.  
Stambuk : D33116305  
Program Studi : Teknik Sistem Perkapalan

Dengan judul Tugas Akhir:  
***Analisis Performa Mesin Menggunakan Bahan Bakar Hybrid Hydrogen - Solar Pada Mesin Diesel Ford Escort 1.8***

Dosen Pembimbing :  
1. Andi Husni Sitepu, S.T., M.T.  
2. Baharuddin, S.T., M.T.

Dapat dibuatkan Surat Penugasan Bimbingan Tugas Akhir  
Demikian penyampaian kami, atas perhatian dan kerjasamanya diucapkan terima kasih.

Gowa, 3 Februari 2021

Ketua,

Dr.Eng. Faisal Mahmuddin, S.T., M.Inf.Tech., M.Eng.  
Nip. 19810211 200501 1 003



**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
UNIVERSITAS HASANUDDIN  
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Telp. (0411) 586015,586262 Fax. (0411) 586015  
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**SURAT PENUGASAN**  
No. 1605/UN4.7.1/TD.06/2021

Dari : Dekan Fakultas Teknik Universitas Hasanuddin

Kepada : **1. Andi Husni Sitepu, S.T., M.T.**  
**2. Baharuddin, S.T., M.T.**

**Pemb. I**  
**Pemb. II**

Isi : 1. Berdasarkan Surat Ketua Departemen Teknik Sistem Perkapalan Fakultas Teknik Nomor 1510/UN4.7.7/TD.06/2021 tanggal 3 Februari 2021, tentang usul DOSEN PEMBIMBING MAHASISWA, maka dengan ini kami menugaskan Saudara untuk membimbing penulisan Skripsi/Tugas Akhir mahasiswa Teknik Sistem Perkapalan Fakultas Teknik Universitas Hasanuddin di bawah ini :

Nama :

**Afdhalash Ramadhan M. R.**

No. Stambuk :

**D33116305**

Judul Skripsi/Tugas Akhir:

***Analisis Performa Mesin Menggunakan Bahan Bakar Hybrid Hydrogen - Solar Pada Mesin Diesel Ford Escort 1.8***

2. Surat penugasan pembimbing ini mulai berlaku sejak tanggal ditetapkannya dan berakhir sampai selesainya penulisan Skripsi/Tugas Akhir Mahasiswa tersebut.
3. Agar surat penugasan ini dilaksanakan sebaik - baiknya dengan penuh rasa tanggung jawab.

Ditetapkan di Gowa,

Pada tanggal 4 Februari 2021

a.n Dekan,

Wakil Dekan I Bidang Akademik, Riset dan Inovasi Fakultas Teknik UH

Prof. Baharuddin Hamzah, ST.,M.Arch.,Ph.D  
Nip. 19690308 199512 1 001

Tembusan:

1. Dekan FT-UH.
2. Ketua Departemen Teknik Sistem Perkapalan FT-UH.
3. Mahasiswa yang bersangkutan



CERTIFICATE NO. JKT 36788