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LAMPIRAN

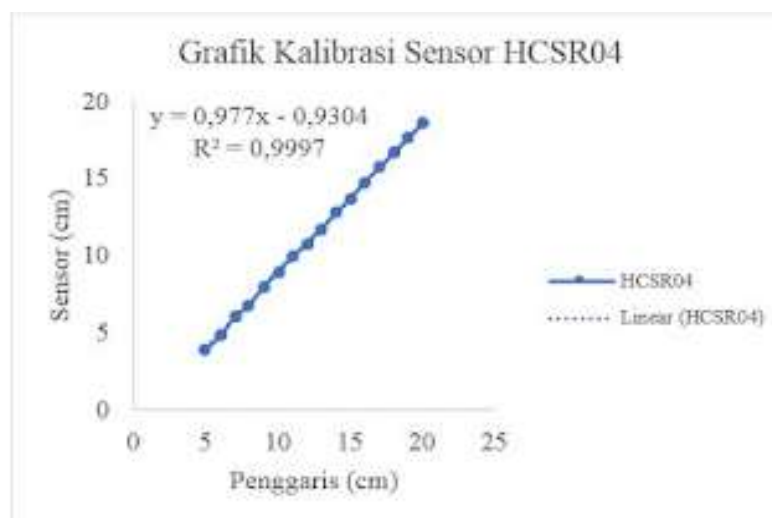


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Lampiran 1 : Kalibrasi Sensor Flowmeter dan Sensor Ultrasonik

Kalibrasi menggunakan benda yang di simpan di depan sensor dan penggaris sebagai patokan dari pembacaan hasil sensor.

Sensor	Penggaris	Hasil Kalibrasi	%Error
18.56	20	19.94923234	0.25383828
17.61	19	18.97686796	0.121747562
16.66	18	18.00450358	-0.025019902
15.69	17	17.01166837	-0.068637486
14.74	16	16.03930399	-0.245649949
13.67	15	14.94411464	0.372569098
12.77	14	14.02292733	-0.163766633
11.71	13	12.93797339	0.477127785
10.8	12	12.00655067	-0.054588878
9.89	11	11.07512794	-0.682981297
8.98	10	10.14370522	-1.437052201
7.97	9	9.109928352	-1.221426234
6.77	8	7.881678608	1.4790174
6	7	7.093551689	-1.336452698
4.81	6	5.875537359	2.074377346



Sensor Flowmeter

Kalibrasi menggunakan fluida air dengan waktu 1 s setiap pembacaan, percobaan dilakukan dengan menggunakan spoit dan flow meter sensor dengan variasi tekanan pada spoit

Delay time : 1 s							
Volume total : 100 ml				Kalibrasi Sensor Solar			
Fluida : air							
No.	debit	rps	volume	No.	Rps	Debit(ml/s)	Volume(ml)
1	1	2	1	1	1	0	0
2	6	10	6	2	9	5	5
3	6	10	13	3	10	6	11
4	6	10	19	4	10	6	17
5	6	10	25	5	10	5	22
6	6	10	31	6	10	5	27
7	5	10	36	7	10	5	32
8	5	10	41	8	10	5	37
9	5	10	46	9	10	5	42
10	5	10	51	10	9	5	47
11	5	8	56	11	9	5	52
12	5	8	61	12	9	5	57
13	4	8	65	13	9	4	61
14	5	8	70	14	8	4	65
15	4	8	74	15	8	4	69
16	4	8	78	16	8	4	73
17	4	8	82	17	8	4	77
18	4	8	86	18	8	4	81
19	4	8	90	19	8	4	85
20	4	8	94	20	8	4	89
21	4	8	98	21	8	4	93
22	4	6	102	22	7	4	97
23	1	2	103	23	6	3	100

KALIBRASI SENSOR SOLAR			
Delay time : 1s			
Volume total : 100 ml			
Fluida : solar			
No.	Rps	Debit(ml/s)	Konstanta
1	8.17391304	4.48	0.547872
2	8.39	4.35	0.518135



Lampiran 2 : Code Arduinno

```
// Pin untuk sensor flowmeter
const double flowMeterPin = 2;

// Pin untuk sensor ultrasonik HC-SR04
const double trigPin = 9;
const double echoPin = 10;
long durasi, jarak;

// Pin untuk sensor infrared proximity
const double irProximityPin = 3; // Define the pin where the sensor
is connected
unsigned int rpm = 0; // Variable to store RPM value
//unsigned long timeElapsed; // Variable to store time elapsed
between pulses
//volatile unsigned long lastPulseTime = 0; // Variable to store the
last time a pulse was detected
volatile unsigned int proxpulseCount = 0;

// Variabel untuk menghitung liter yang telah mengalir
volatile double flowpulseCount = 0;
float flowRate = 0.0;
unsigned int flowMilliLitres = 0;
unsigned long totalMilliLitres = 0;

unsigned long oldTime = 0;

void setup() {
  Serial.begin(9600);
  pinMode(flowMeterPin, INPUT);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  pinMode(irProximityPin, INPUT);
  attachInterrupt(digitalPinToInterrupt(irProximityPin),
  proxcountPulse, RISING);
}

void loop() {
  // Membaca data dari sensor flowmeter dan menghitung laju alir
  unsigned long currentTime = millis();
  if (currentTime - oldTime >= 1000){
```



```

detachInterrupt(digitalPinToInterrupt(flowMeterPin));

flowRate = (1000.0 / (currentTime - oldTime)) * flowpulseCount;
//oldTime = currentTime;
flowMilliLitres = (flowRate / 60) * 1000;
totalMilliLitres += flowMilliLitres; //total debit
flowpulseCount = 0;
attachInterrupt(digitalPinToInterrupt(flowMeterPin),
flowcountPulse, RISING);
// Membaca data dari sensor ultrasonik
digitalWrite(trigPin, LOW);
delayMicroseconds(10);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
delayMicroseconds (10);
durasi = pulseIn(echoPin, HIGH);
jarak = durasi * 0.034 / 2; // 340 m/s

// Membaca data dari sensor infrared proximity

int rpm = proxpulseCount * 60; // Assuming one pulse per
revolution
//Serial.print("RPM: ");
//Serial.println(rpm);
proxpulseCount = 0;

Serial.print(flowRate);
Serial.print(",");
Serial.print(totalMilliLitres);
Serial.print(",");
Serial.print(jarak);
Serial.print(",");
Serial.println(rpm);

oldTime= currentTime;
}
}

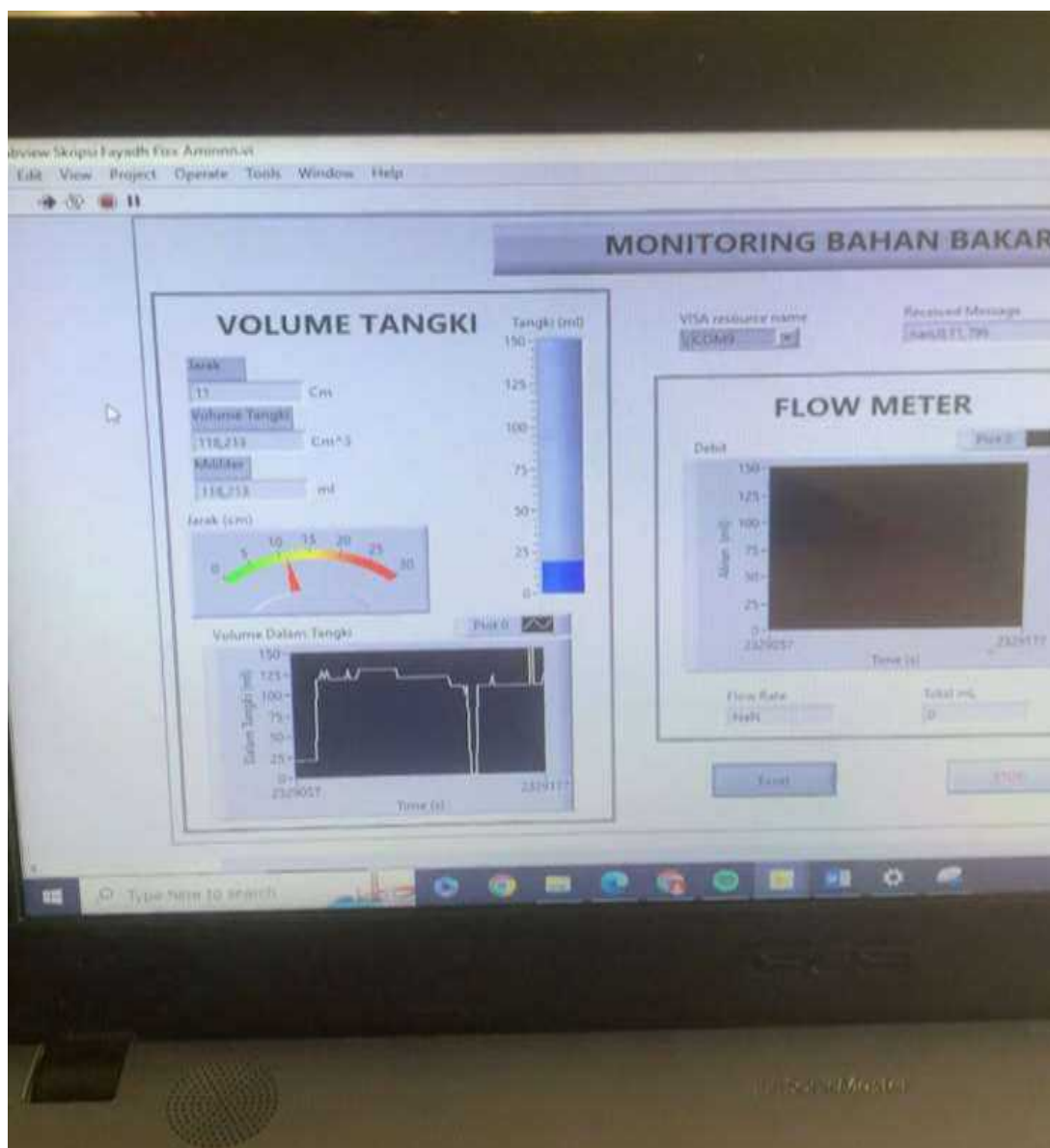
// Fungsi untuk menghitung pulsa dari sensor flowmeter
void flowcountPulse() {
    ilseCount++;

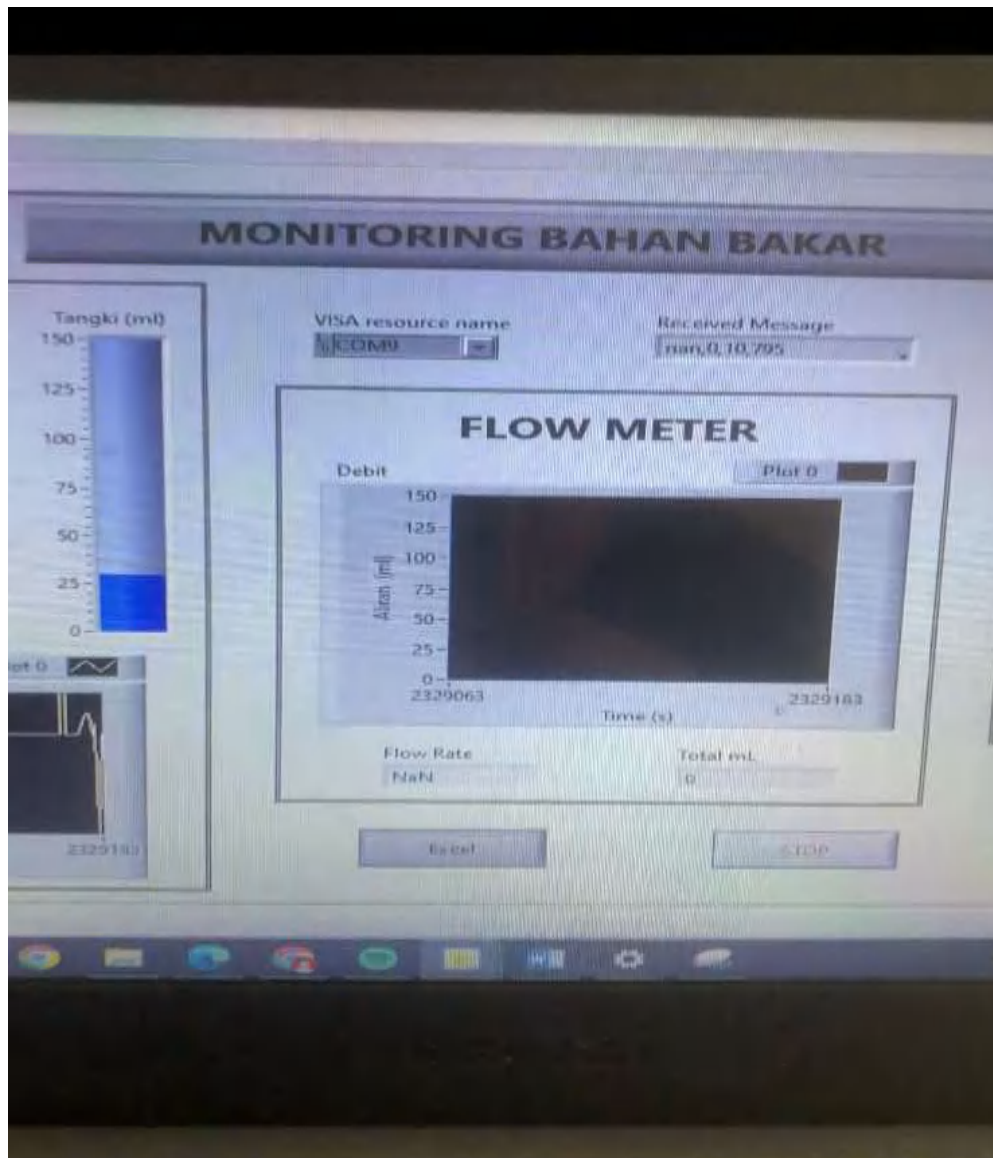
    proxcountPulse() {
        ilseCount++;

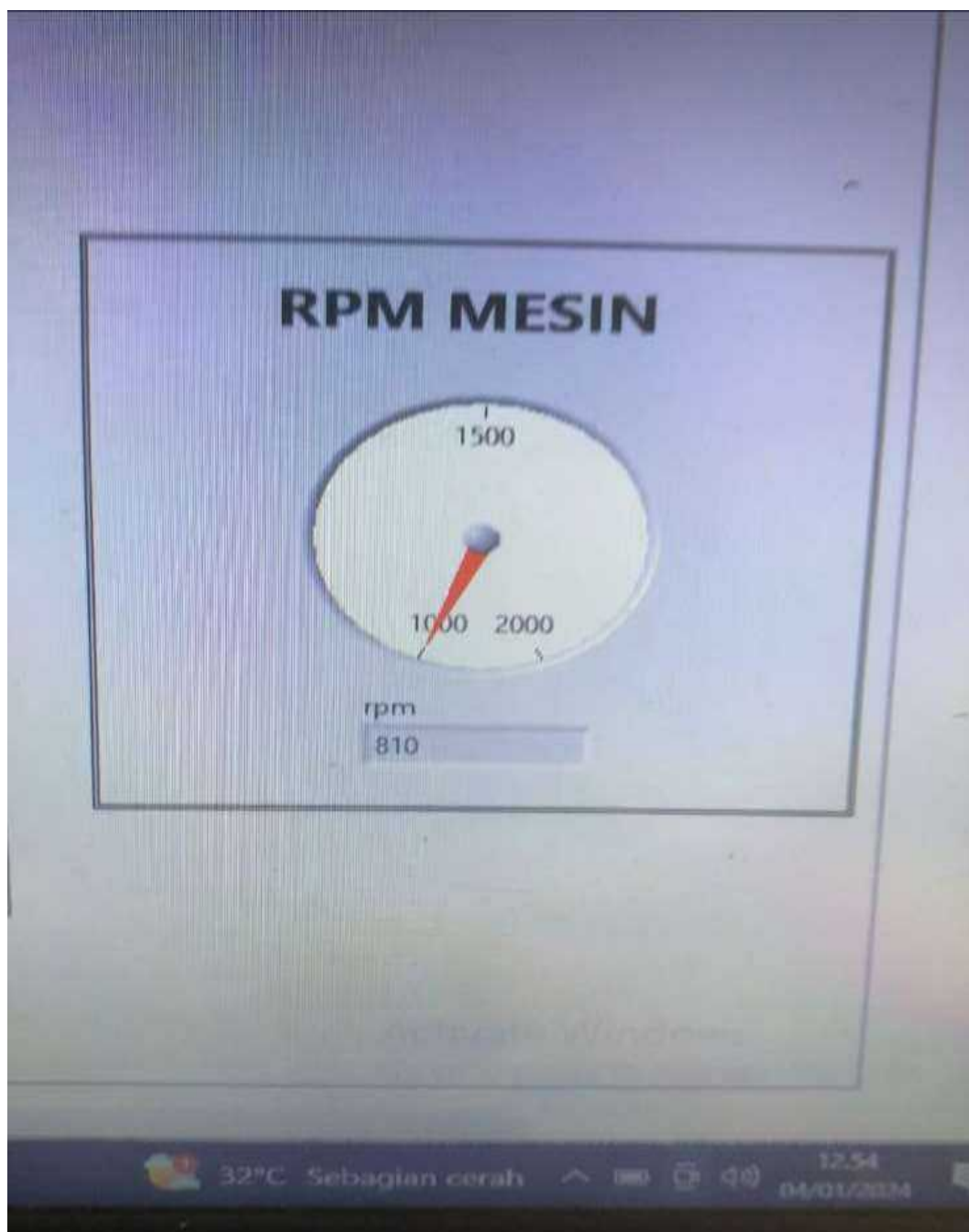
```



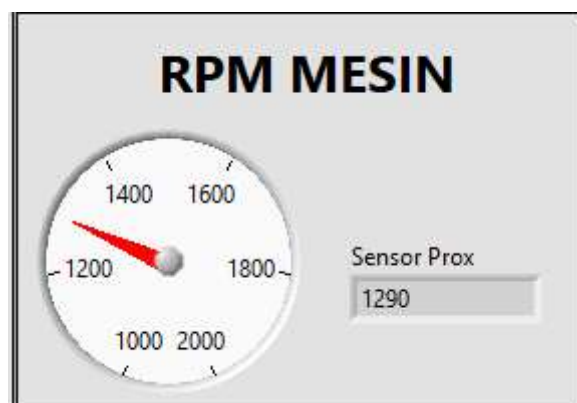
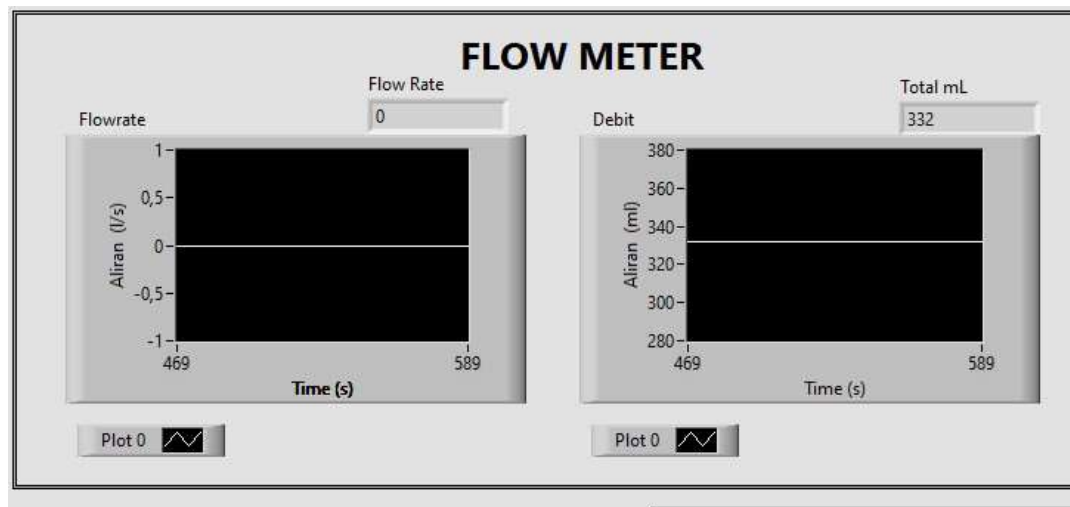
Lampiran 3 : Menguji Program Pada Mesin Motor

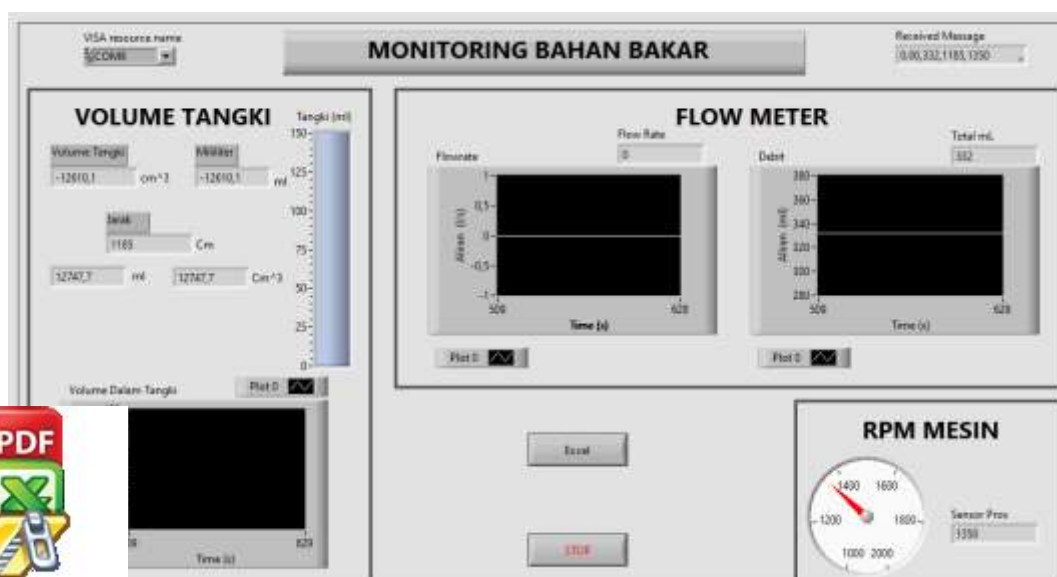
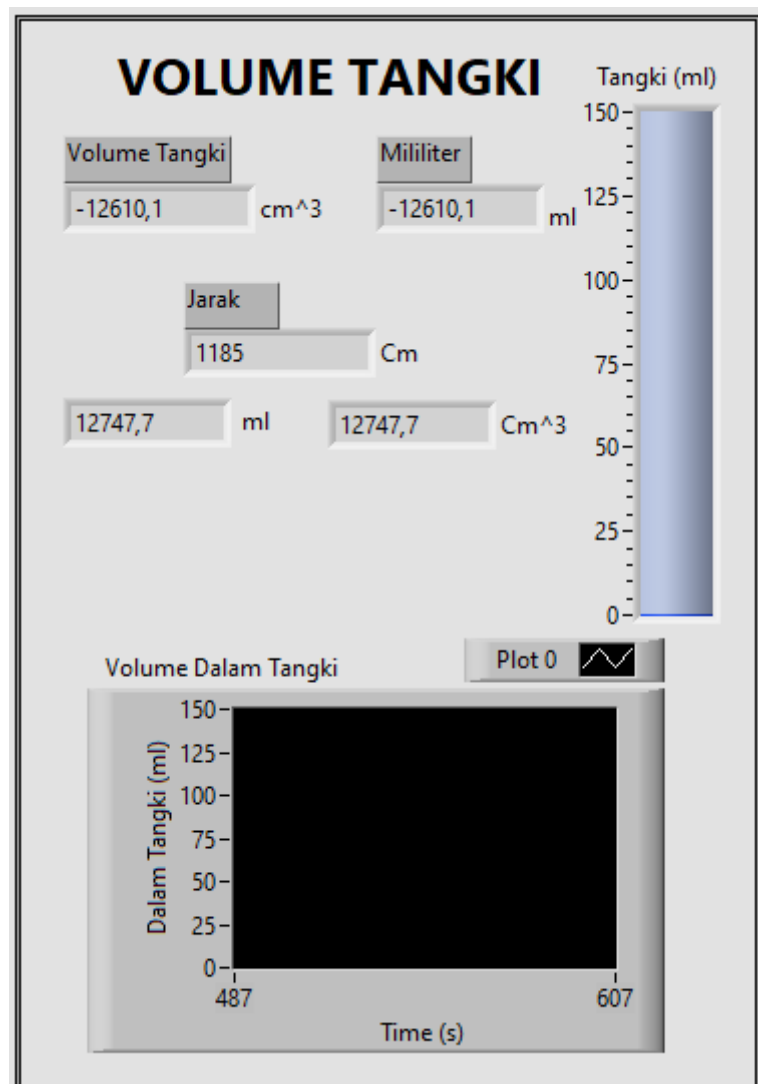






Lampiran 4 : Pengujian Program Pada Mesin





Lampiran 5 : Data Hasil Pengujian

Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1377	0,21	0,21	840		
1376,79	0	0,21	1080		
1376,79	0,14025	0,35025	1140		
1376,64975	0,14025	0,4905	1200		
1376,5095	0,2605	0,751	1020	1,33325	1,33325
1376,249	0	0,751	1003		
1376,249	0,14025	0,89125	1020		
1376,10875	0,221	1,11225	960		
1375,88775	0,221	1,33325	1200		
1375,66675	0	1,33325	1200		
1375,66675	0,21	1,54325	1140		
1375,45675	0	1,54325	1140		
1375,45675	0,14825	1,6915	1140		
1375,3085	0	1,6915	1200		
1375,3085	0,2605	1,9520	1020	1,201	1,201
1375,048	0	1,952	960		
1375,048	0,14025	2,09225	960		
1374,90775	0,221	2,31325	1003		
1374,68675	0,221	2,53425	1140		
1374,46575	0	2,53425	1200		
1374,46575	0,321	2,85525	1080		
1374,14475	0,321	3,17625	1200		
1373,82375	0,14025	3,3165	1020		
1373,6835	0,14025	3,45675	1020		
1373,54325	0,2605	3,71725	1020	2,646	2,9065
1373,28275	0,2605	3,97775	1020		
1373,02225	0,2605	4,23825	1380		
1372,76175	0,321	4,55925	1080		
1372,44075	0,621	5,18025	1020		
1371,81975	0,2605	5,44075	1020		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1371,55925	0,301	5,74175	1020		
1371,25825	0,301	6,04275	1260		
1370,95725	0,14025	6,183	1140		
1370,817	0,14025	6,32325	1180		
1370,67675	0,2605	6,58375	1080	1,985	2,2355
1370,41625	0,2605	6,84425	1140		
1370,15575	0,2605	7,10475	960		
1369,89525	0,321	7,42575	1020		
1369,57425	0	7,42575	960		
1369,57425	0,2505	7,67625	1080		
1369,32375	0,311	7,98725	1320		
1369,01275	0,2605	8,24775	1260		
1368,75225	0,41025	8,658	1080		
1368,342	0,14025	8,79825	1140		
1368,20175	0,2605	9,05875	960	2,515	2,7755
1367,94125	0,2605	9,31925	1020		
1367,68075	0,2605	9,57975	1080		
1367,42025	0,351	9,93075	1239		
1367,06925	0,2605	10,19125	1140		
1366,80875	0,2605	10,45175	1140		
1366,54825	0,7815	11,23325	1080		
1365,76675	0	11,23325	1080		
1365,76675	0,521	11,75425	1020		
1365,24575	0,521	12,27525	1140		
1364,72475	0,2505	12,52575	960	2,67575	3,027
1364,47425	0,2505	12,77625	1200		
1364,22375	0	12,77625	1200		
1364,22375	0	12,77625	1140		
1364,22375	0,35125	13,1275	1260		
1363,8725	0,35125	13,47875	1140		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1363,52125	0	13,47875	1260		
1363,52125	0,121	13,59975	1080		
1363,40025	0,521	14,12075	1140		
1362,87925	0,65125	14,772	1020		
1362,228	0	14,772	1020	1,99575	2,51675
1362,228	0	14,772	1020		
1362,228	0,35125	15,12325	1020		
1361,87675	0,35125	15,4745	1080		
1361,5255	0	15,4745	1020		
1361,5255	0,521	15,9955	1200		
1361,0045	0,781	16,7765	1260		
1360,2235	0,511	17,2875	1080		
1359,7125	0,161	17,4485	1260		
1359,5515	0,511	17,9595	1180		
1359,0405	0,2505	18,21	1140	2,816	3,167
1358,79	0,2505	18,4605	1080		
1358,5395	0	18,4605	1080		
1358,5395	0	18,4605	1140		
1358,5395	0,351	18,8115	1020		
1358,1885	0,351	19,1625	1080		
1357,8375	0,21	19,3725	1020		
1357,6275	0,31	19,6825	1020		
1357,3175	0,14025	19,82275	1020		
1357,17725	0,14025	19,963	1080		
1357,037	0,2605	20,2235	1020	1,85325	1,85325
1356,7765	0,21	20,4335	1080		
1356,5665	0,14025	20,57375	1080		
1356,42625	0,221	20,79475	1080		
1356,20525	0,221	21,01575	1080		
1355,98425	0	21,01575	1180		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1355,98425	0,6115	21,62725	1140		
1355,37275	0,521	22,14825	1080		
1354,85175	0,321	22,46925	1020		
1354,53075	0,521	22,99025	1080		
1354,00975	0,2505	23,24075	1080	3,06875	3,42
1353,75925	0,2505	23,49125	1080		
1353,50875	0,121	23,61225	1140		
1353,38775	0,121	23,73325	1140		
1353,26675	0,35125	24,0845	1020		
1352,9155	0,35125	24,43575	1020		
1352,56425	0,311	24,74675	1080		
1352,25325	0,2605	25,00725	1020		
1351,99275	0,41025	25,4175	1080		
1351,5825	0	25,4175	1080		
1351,5825	0,2605	25,678	1080	2,37475	2,63525
1351,322	0,2605	25,9385	1080		
1351,0615	0,2605	26,199	1180		
1350,801	0,351	26,55	1140		
1350,45	0,2605	26,8105	1080		
1350,1895	0,2605	27,071	1080		
1349,929	0,7815	27,8525	1080		
1349,1475	0,521	28,3735	1080		
1348,6265	0,121	28,4945	1080		
1348,5055	0,521	29,0155	1080		
1347,9845	0,2305	29,246	1080	2,79675	3,168
1347,754	0,2505	29,4965	1020		
1347,5035	0	29,4965	1080		
1347,5035	0	29,4965	1080		
1347,5035	0,37125	29,86775	1080		
1347,13225	0,37125	30,239	1080		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1346,761	0,6715	30,9105	1560		
1346,0895	0,521	31,4315	1620		
1345,5685	0,321	31,7525	1560		
1345,2475	0,521	32,2735	1560		
1344,7265	0,2505	32,524	1620	2,92875	3,28
1344,476	0,2505	32,7745	1560		
1344,2255	0,021	32,7955	1560		
1344,2045	0,021	32,8165	1620		
1344,1835	0,35125	33,16775	1620		
1343,83225	0,35125	33,519	1560		
1343,481	0,6715	34,1905	1560		
1342,8095	0,521	34,7115	1560		
1342,2885	0,321	35,0325	1620		
1341,9675	0,521	35,5535	1620		
1341,4465	0	35,5535	1620	2,65725	3,0085
1341,4465	0,2505	35,804	1620		
1341,196	0	35,804	1620		
1341,196	0,021	35,825	1620		
1341,175	0,35125	36,17625	1620		
1340,82375	0,35125	36,5275	1620		
1340,4725	0,6715	37,199	1620		
1339,801	0,521	37,72	1620		
1339,28	0,321	38,041	1620		
1338,959	0,421	38,462	1620		
1338,538	0	38,462	1620	2,53625	2,8875
1338,538	0,2505	38,7125	1680		
1338,2875	0	38,7125	1620		
1338,2875	0	38,7125	1620		
1338,2875	0,35125	39,06375	1620		
1337,93625	0,35125	39,415	1680		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1337,585	0,6715	40,0865	1620		
1336,9135	0,511	40,5975	1680		
1336,4025	0,321	40,9185	1680		
1336,0815	0,321	41,2395	1680		
1335,7605	0	41,2395	1680	2,42625	2,7775
1335,7605	0,2505	41,49	1680		
1335,51	0	41,49	1680		
1335,51	0	41,49	1560		
1335,51	0,35125	41,84125	1560		
1335,15875	0,35125	42,1925	1500		
1334,8075	0,6715	42,864	1560		
1334,136	0,521	43,385	1560		
1333,615	0,321	43,706	1560		
1333,294	0,521	44,227	1560		
1332,773	0,152	44,379	1560	2,80925	3,1605
1332,621	0,2505	44,6295	1560		
1332,3705	0	44,6295	1560		
1332,3705	0,021	44,6505	1560		
1332,3495	0,35125	45,00175	1500		
1331,99825	0,35125	45,353	1560		
1331,647	0,7815	46,1345	1560		
1330,8655	0	46,1345	1560		
1330,8655	0,521	46,6555	1560		
1330,3445	0,521	47,1765	1560		
1329,8235	0,2505	47,427	1560	2,67575	3,027
1329,573	0,2505	47,6775	1560		
1329,3225	0	47,6775	1560		
1329,3225	0	47,6775	1560		
1329,3225	0,35125	48,02875	1620		
1328,97125	0,35125	48,38	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1328,62	0,7815	49,1615	1500		
1327,8385	0,521	49,6825	1500		
1327,3175	0,121	49,8035	1560		
1327,1965	0,521	50,3245	1560		
1326,6755	0,2505	50,575	1560	2,79675	3,148
1326,425	0,2505	50,8255	1500		
1326,1745	0	50,8255	1620		
1326,1745	0	50,8255	1560		
1326,1745	0,35125	51,17675	1620		
1325,82325	0,35125	51,528	1560		
1325,472	0,6115	52,1395	1560		
1324,8605	0,521	52,6605	1560		
1324,3395	0,321	52,9815	1560		
1324,0185	0,521	53,5025	1620		
1323,4975	0,2505	53,753	1560	3,06875	3,42
1323,247	0,2505	54,0035	1560		
1322,9965	0,121	54,1245	1560		
1322,8755	0,121	54,2455	1620		
1322,7545	0,35125	54,59675	1620		
1322,40325	0,35125	54,948	1620		
1322,052	0,6715	55,6195	1620		
1321,3805	0,111	55,7305	1620		
1321,2695	0,321	56,0515	1620		
1320,9485	0,321	56,3725	1620		
1320,6275	0	56,3725	1620	2,02625	2,3775
1320,6275	0,2505	56,623	1620		
1320,377	0	56,623	1620		
1320,377	0	56,623	1620		
1320,377	0,35125	56,97425	1620		
1320,02575	0,35125	57,3255	1620		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1319,6745	0,6715	57,997	1620		
1319,003	0,411	58,408	1620		
1318,592	0,321	58,729	1680		
1318,271	0,321	59,05	1680		
1317,95	0	59,05	1620	2,32625	2,6775
1317,95	0,2505	59,3005	1680		
1317,6995	0	59,3005	1680		
1317,6995	0	59,3005	1680		
1317,6995	0,35125	59,65175	1680		
1317,34825	0,35125	60,003	1680		
1316,997	0,6115	60,6145	1680		
1316,3855	0,521	61,1355	1680		
1315,8645	0,391	61,5265	1680		
1315,4735	0,521	62,0475	1620		
1314,9525	0,2505	62,298	1560	2,94575	3,297
1314,702	0,2505	62,5485	1560		
1314,4515	0,028	62,5765	1500		
1314,4235	0,021	62,5975	1560		
1314,4025	0,35125	62,94875	1560		
1314,05125	0,35125	63,3	1560		
1313,7	0,6115	63,9115	1560		
1313,0885	0,521	64,4325	1560		
1312,5675	0,391	64,8235	1560		
1312,1765	0,521	65,3445	1560		
1311,6555	0,2505	65,595	1560	2,94575	3,297
1311,405	0,2505	65,8455	1560		
1311,1545	0,028	65,8735	1560		
1311,1265	0,021	65,8945	1560		
1311,1055	0,35125	66,24575	1560		
1310,75425	0,35125	66,597	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1310,403	0,6115	67,2085	1620		
1309,7915	0,521	67,7295	2040		
1309,2705	0,521	68,2505	2040		
1308,7495	0,521	68,7715	2040		
1308,2285	0,2505	69,022	2100	4,02875	4,38
1307,978	0,2505	69,2725	2006		
1307,7275	0,521	69,7935	2065		
1307,2065	0,521	70,3145	2006		
1306,6855	0,31125	70,62575	2040		
1306,37425	0,35125	70,977	2040		
1306,023	0,6115	71,5885	2040		
1305,4115	0,511	72,0995	2160		
1304,9005	0,511	72,6105	2065		
1304,3895	0,511	73,1215	2065		
1303,8785	0,2505	73,372	2100	3,86985	4,2211
1303,628	0,2505	73,6225	2124		
1303,3775	0,3921	74,0146	2183		
1302,9854	0,521	74,5356	2124		
1302,4644	0,31125	74,84685	2242		
1302,15315	0,35125	75,1981	2183		
1301,8019	0,6115	75,8096	2124		
1301,1904	0,521	76,3306	2220		
1300,6694	0,891	77,2216	2220		
1299,7784	0,521	77,7426	2183		
1299,2574	0,2505	77,9931	2124	3,40875	3,76
1299,0069	0,2205	78,2136	2006		
1298,7864	0,021	78,2346	2242		
1298,7654	0,021	78,2556	2300		
1298,7444	0,35125	78,60685	2006		
1298,39315	0,35125	78,9581	2065		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1298,0419	0,6115	79,5696	2124		
1297,4304	0,521	80,0906	2160		
1296,9094	0,891	80,9816	2124		
1296,0184	0,121	81,1026	2183		
1295,8974	0,2705	81,3731	2280	3,02875	3,38
1295,6269	0,2205	81,5936	2124		
1295,4064	0,021	81,6146	2183		
1295,3854	0,021	81,6356	2183		
1295,3644	0,35125	81,98685	2160		
1295,01315	0,35125	82,3381	2220		
1294,6619	0,6115	82,9496	2300		
1294,0504	0,421	83,3706	2300		
1293,6294	0,861	84,2316	2160		
1292,7684	0,121	84,3526	2124		
1292,6474	0,2705	84,6231	2183	2,89875	3,25
1292,3769	0,2205	84,8436	2242		
1292,1564	0,021	84,8646	2065		
1292,1354	0,021	84,8856	2242		
1292,1144	0,35125	85,23685	2242		
1291,76315	0,35125	85,5881	2124		
1291,4119	0,7115	86,2996	2065		
1290,7004	0,421	86,7206	2220		
1290,2794	0,881	87,6016	2242		
1289,3984	0,121	87,7226	2300		
1289,2774	0,2705	87,9931	2124	3,01875	3,37
1289,0069	0,2205	88,2136	2300		
1288,7864	0,021	88,2346	2124		
1288,7654	0,021	88,2556	2124		
1288,7444	0,35125	88,60685	2220		
1288,39315	0,35125	88,9581	2280		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1288,0419	0,6115	89,5696	2220		
1287,4304	0,521	90,0906	2300		
1286,9094	0,891	90,9816	2300		
1286,0184	0,321	91,3026	2183		
1285,6974	0,2105	91,5131	2124	3,15875	3,51
1285,4869	0,2105	91,7236	2300		
1285,2764	0,021	91,7446	2160		
1285,2554	0,021	91,7656	2280		
1285,2344	0,35125	92,11685	2124		
1284,88315	0,35125	92,4681	2124		
1284,5319	0,6115	93,0796	2065		
1283,9204	0,521	93,6006	2124		
1283,3994	0,891	94,4916	2183		
1282,5084	0,321	94,8126	2183		
1282,1874	0,2105	95,0231	2100	3,15875	3,51
1281,9769	0,2105	95,2336	2160		
1281,7664	0,021	95,2546	2100		
1281,7454	0,021	95,2756	2242		
1281,7244	0,35125	95,62685	2183		
1281,37315	0,35125	95,9781	2124		
1281,0219	0,6115	96,5896	2124		
1280,4104	0,521	97,1106	2065		
1279,8894	0,891	98,0016	2160		
1278,9984	0,121	98,1226	2124		
1278,8774	0,2705	98,3931	2100	3,02875	3,38
1278,6069	0,2205	98,6136	2160		
1278,3864	0,021	98,6346	2160		
1278,3654	0,021	98,6556	2124		
1278,3444	0,35125	99,00685	2065		
1277,99315	0,35125	99,3581	2124		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1277,6419	0,6115	99,9696	2124		
1277,0304	0,521	100,4906	2160		
1276,5094	0,891	101,3816	2124		
1275,6184	0,331	101,7126	2160		
1275,2874	0,2105	101,9231	2160	3,16875	3,52
1275,0769	0,2105	102,1336	2124		
1274,8664	0,021	102,1546	2160		
1274,8454	0,021	102,1756	2160		
1274,8244	0,35125	102,52685	2160		
1274,47315	0,35125	102,8781	2160		
1274,1219	0,6115	103,4896	2124		
1273,5104	0,511	104,0006	2300		
1272,9994	0,511	104,5116	2160		
1272,4884	0,511	105,0226	2160		
1271,9774	0,2505	105,2731	2300	3,96985	4,4211
1271,7269	0,2505	105,5236	2220		
1271,4764	0,3921	105,9157	2220		
1271,0843	0,521	106,4367	2220		
1270,5633	0,41125	106,84795	2220		
1270,15205	0,45125	107,2992	2160		
1269,7008	0,6115	107,9107	2220		
1269,0893	0,511	108,4217	2280		
1268,5783	0,511	108,9327	2300		
1268,0673	0,511	109,4437	2242		
1267,5563	0,7505	110,1942	2220	4,8798	5,331
1266,8058	0,7505	110,9447	2220		
1266,0553	0,3921	111,3368	2183		
1265,6632	0,431	111,7678	2280		
1265,2322	0,4112	112,179	2280		
1264,821	0,4512	112,6302	2220		



Percobaan data ke 2

Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik (Ultrasonik)	Total debit (ml) Flowmeter
1377	0,21	0,21	840		
1376,79	0	0,21	1080		
1376,79	0,14025	0,35025	1140		
1376,64975	0,14025	0,4905	1200		
1376,5095	0,2605	0,751	1020	1,33325	1,33325
1376,249	0	0,751	1003		
1376,249	0,14025	0,89125	1020		
1376,10875	0,221	1,11225	960		
1375,88775	0,221	1,33325	1200		
1375,66675	0	1,33325	1200		
1375,66675	0,21	1,54325	1140		
1375,45675	0	1,54325	1140		
1375,45675	0,14825	1,6915	1140		
1375,3085	0	1,6915	1200		
1375,3085	0,2605	1,9520	1020	1,201	1,201
1375,048	0	1,952	960		
1375,048	0,14025	2,09225	960		
1374,90775	0,221	2,31325	1003		
1374,68675	0,221	2,53425	1140		
1374,46575	0	2,53425	1200		
1374,46575	0,321	2,85525	1080		
1374,14475	0,321	3,17625	1200		
1373,82375	0,14025	3,3165	1020		
1373,6835	0,14025	3,45675	1020		
1373,54325	0,2605	3,71725	1020	2,646	2,9065
1373,28275	0,2605	3,97775	1020		
1373,02225	0,2605	4,23825	1380		
1372,76175	0,321	4,55925	1080		
1372,44075	0,621	5,18025	1020		
1371,81975	0,2605	5,44075	1020		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1371,55925	0,301	5,74175	1020		
1371,25825	0,301	6,04275	1260		
1370,95725	0,14025	6,183	1140		
1370,817	0,14025	6,32325	1180		
1370,67675	0,2605	6,58375	1080	1,985	2,2355
1370,41625	0,2605	6,84425	1140		
1370,15575	0,2605	7,10475	960		
1369,89525	0,321	7,42575	1020		
1369,57425	0	7,42575	960		
1369,57425	0,2505	7,67625	1080		
1369,32375	0,311	7,98725	1320		
1369,01275	0,2605	8,24775	1260		
1368,75225	0,41025	8,658	1080		
1368,342	0,14025	8,79825	1140		
1368,20175	0,2605	9,05875	960	2,515	2,7755
1367,94125	0,2605	9,31925	1020		
1367,68075	0,2605	9,57975	1080		
1367,42025	0,351	9,93075	1239		
1367,06925	0,2605	10,19125	1140		
1366,80875	0,2605	10,45175	1140		
1366,54825	0,7815	11,23325	1080		
1365,76675	0	11,23325	1080		
1365,76675	0,521	11,75425	1020		
1365,24575	0,521	12,27525	1140		
1364,72475	0,2505	12,52575	960	2,67575	3,027
1364,47425	0,2505	12,77625	1200		
1364,22375	0	12,77625	1200		
1364,22375	0	12,77625	1140		
1364,22375	0,35125	13,1275	1260		
1363,8725	0,35125	13,47875	1140		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1363,52125	0	13,47875	1260		
1363,52125	0,121	13,59975	1080		
1363,40025	0,521	14,12075	1140		
1362,87925	0,65125	14,772	1020		
1362,228	0	14,772	1020	1,99575	2,51675
1362,228	0	14,772	1020		
1362,228	0,35125	15,12325	1020		
1361,87675	0,35125	15,4745	1080		
1361,5255	0	15,4745	1020		
1361,5255	0,521	15,9955	1200		
1361,0045	0,781	16,7765	1260		
1360,2235	0,511	17,2875	1080		
1359,7125	0,161	17,4485	1260		
1359,5515	0,511	17,9595	1180		
1359,0405	0,2505	18,21	1140	2,816	3,167
1358,79	0,2505	18,4605	1080		
1358,5395	0	18,4605	1080		
1358,5395	0	18,4605	1140		
1358,5395	0,351	18,8115	1020		
1358,1885	0,351	19,1625	1080		
1357,8375	0,21	19,3725	1020		
1357,6275	0,31	19,6825	1020		
1357,3175	0,14025	19,82275	1020		
1357,17725	0,14025	19,963	1080		
1357,037	0,2605	20,2235	1020	1,85325	1,85325
1356,7765	0,21	20,4335	1080		
1356,5665	0,14025	20,57375	1080		
1356,42625	0,221	20,79475	1080		
1356,20525	0,221	21,01575	1080		
1355,98425	0	21,01575	1180		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1355,98425	0,6115	21,62725	1140		
1355,37275	0,521	22,14825	1080		
1354,85175	0,321	22,46925	1020		
1354,53075	0,521	22,99025	1080		
1354,00975	0,2505	23,24075	1080	3,06875	3,42
1353,75925	0,2505	23,49125	1080		
1353,50875	0,121	23,61225	1140		
1353,38775	0,121	23,73325	1140		
1353,26675	0,35125	24,0845	1020		
1352,9155	0,35125	24,43575	1020		
1352,56425	0,311	24,74675	1080		
1352,25325	0,2605	25,00725	1020		
1351,99275	0,41025	25,4175	1080		
1351,5825	0	25,4175	1080		
1351,5825	0,2605	25,678	1080	2,37475	2,63525
1351,322	0,2605	25,9385	1080		
1351,0615	0,2605	26,199	1180		
1350,801	0,351	26,55	1140		
1350,45	0,2605	26,8105	1080		
1350,1895	0,2605	27,071	1080		
1349,929	0,7815	27,8525	1080		
1349,1475	0,521	28,3735	1080		
1348,6265	0,121	28,4945	1080		
1348,5055	0,521	29,0155	1080		
1347,9845	0,2305	29,246	1080	2,79675	3,168
1347,754	0,2505	29,4965	1020		
1347,5035	0	29,4965	1080		
1347,5035	0	29,4965	1080		
1347,5035	0,37125	29,86775	1080		
1347,13225	0,37125	30,239	1080		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1377	0,6715	30,9105	1560		
1376,3285	0,521	31,4315	1620		
1375,8075	0,321	31,7525	1560		
1375,4865	0,521	32,2735	1560		
1374,9655	0,2505	32,524	1620	2,92875	3,28
1374,715	0,2505	32,7745	1560		
1374,4645	0,021	32,7955	1560		
1374,4435	0,021	32,8165	1620		
1374,4225	0,35125	33,16775	1620		
1374,07125	0,35125	33,519	1560		
1373,72	0,6715	34,1905	1560		
1373,0485	0,521	34,7115	1560		
1372,5275	0,321	35,0325	1620		
1372,2065	0,521	35,5535	1620		
1371,6855	0	35,5535	1620	2,65725	3,0085
1371,6855	0,2505	35,804	1620		
1371,435	0	35,804	1620		
1371,435	0,021	35,825	1620		
1371,414	0,35125	36,17625	1620		
1371,06275	0,35125	36,5275	1620		
1370,7115	0,6715	37,199	1620		
1370,04	0,521	37,72	1620		
1369,519	0,321	38,041	1620		
1369,198	0,421	38,462	1620		
1368,777	0	38,462	1620	2,53625	2,8875
1368,777	0,2505	38,7125	1680		
1368,5265	0	38,7125	1620		
1368,5265	0	38,7125	1620		
1368,5265	0,35125	39,06375	1620		
1368,17525	0,35125	39,415	1680		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1367,824	0,6715	40,0865	1620		
1367,1525	0,511	40,5975	1680		
1366,6415	0,321	40,9185	1680		
1366,3205	0,321	41,2395	1680		
1365,9995	0	41,2395	1680	2,42625	2,7775
1365,9995	0,2505	41,49	1680		
1365,749	0	41,49	1680		
1365,749	0	41,49	1560		
1365,749	0,35125	41,84125	1560		
1365,39775	0,35125	42,1925	1500		
1365,0465	0,6715	42,864	1560		
1364,375	0,521	43,385	1560		
1363,854	0,321	43,706	1560		
1363,533	0,521	44,227	1560		
1363,012	0,152	44,379	1560	2,80925	3,1605
1362,86	0,2505	44,6295	1560		
1362,6095	0	44,6295	1560		
1362,6095	0,021	44,6505	1560		
1362,5885	0,35125	45,00175	1500		
1362,23725	0,35125	45,353	1560		
1361,886	0,7815	46,1345	1560		
1361,1045	0	46,1345	1560		
1361,1045	0,521	46,6555	1560		
1360,5835	0,521	47,1765	1560		
1360,0625	0,2505	47,427	1560	2,67575	3,027
1359,812	0,2505	47,6775	1560		
1359,5615	0	47,6775	1560		
1359,5615	0	47,6775	1560		
1359,5615	0,35125	48,02875	1620		
1359,21025	0,35125	48,38	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1358,859	0,7815	49,1615	1500		
1358,0775	0,521	49,6825	1500		
1357,5565	0,121	49,8035	1560		
1357,4355	0,521	50,3245	1560		
1356,9145	0,2505	50,575	1560	2,79675	3,148
1356,664	0,2505	50,8255	1500		
1356,4135	0	50,8255	1620		
1356,4135	0	50,8255	1560		
1356,4135	0,35125	51,17675	1620		
1356,06225	0,35125	51,528	1560		
1355,711	0,6115	52,1395	1560		
1355,0995	0,521	52,6605	1560		
1354,5785	0,321	52,9815	1560		
1354,2575	0,521	53,5025	1620		
1353,7365	0,2505	53,753	1560	3,06875	3,42
1353,486	0,2505	54,0035	1560		
1353,2355	0,121	54,1245	1560		
1353,1145	0,121	54,2455	1620		
1352,9935	0,35125	54,59675	1620		
1352,64225	0,35125	54,948	1620		
1352,291	0,6715	55,6195	1620		
1351,6195	0,111	55,7305	1620		
1351,5085	0,321	56,0515	1620		
1351,1875	0,321	56,3725	1620		
1350,8665	0	56,3725	1620	2,02625	2,3775
1350,8665	0,2505	56,623	1620		
1350,616	0	56,623	1620		
1350,616	0	56,623	1620		
1350,616	0,35125	56,97425	1620		
1350,26475	0,35125	57,3255	1620		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1349,9135	0,6715	57,997	1620		
1349,242	0,411	58,408	1620		
1348,831	0,321	58,729	1680		
1348,51	0,321	59,05	1680		
1348,189	0	59,05	1620	2,32625	2,6775
1348,189	0,2505	59,3005	1680		
1347,9385	0	59,3005	1680		
1347,9385	0	59,3005	1680		
1347,9385	0,35125	59,65175	1680		
1347,58725	0,35125	60,003	1680		
1347,236	0,6115	60,6145	1680		
1346,6245	0,521	61,1355	1680		
1346,1035	0,391	61,5265	1680		
1345,7125	0,521	62,0475	1620		
1345,1915	0,2505	62,298	1560	2,94575	3,297
1344,941	0,2505	62,5485	1560		
1344,6905	0,028	62,5765	1500		
1344,6625	0,021	62,5975	1560		
1344,6415	0,35125	62,94875	1560		
1344,29025	0,35125	63,3	1560		
1343,939	0,6115	63,9115	1560		
1343,3275	0,521	64,4325	1560		
1342,8065	0,391	64,8235	1560		
1342,4155	0,521	65,3445	1560		
1341,8945	0,2505	65,595	1560	2,94575	3,297
1341,644	0,2505	65,8455	1560		
1341,3935	0,028	65,8735	1560		
1341,3655	0,021	65,8945	1560		
1341,3445	0,35125	66,24575	1560		
1340,99325	0,35125	66,597	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1377	0,6115	67,2085	1620		
1376,3885	0,521	67,7295	2040		
1375,8675	0,521	68,2505	2040		
1375,3465	0,521	68,7715	2040		
1374,8255	0,2505	69,022	2100	4,02875	4,38
1374,575	0,2505	69,2725	2006		
1374,3245	0,521	69,7935	2065		
1373,8035	0,521	70,3145	2006		
1373,2825	0,31125	70,62575	2040		
1372,97125	0,35125	70,977	2040		
1372,62	0,6115	71,5885	2040		
1372,0085	0,511	72,0995	2160		
1371,4975	0,511	72,6105	2065		
1370,9865	0,511	73,1215	2065		
1370,4755	0,2505	73,372	2100	3,86985	4,2211
1370,225	0,2505	73,6225	2124		
1369,9745	0,3921	74,0146	2183		
1369,5824	0,521	74,5356	2124		
1369,0614	0,31125	74,84685	2242		
1368,75015	0,35125	75,1981	2183		
1368,3989	0,6115	75,8096	2124		
1367,7874	0,521	76,3306	2220		
1367,2664	0,891	77,2216	2220		
1366,3754	0,521	77,7426	2183		
1365,8544	0,2505	77,9931	2124	3,40875	3,76
1365,6039	0,2205	78,2136	2006		
1365,3834	0,021	78,2346	2242		
1365,3624	0,021	78,2556	2300		
1365,3414	0,35125	78,60685	2006		
1364,99015	0,35125	78,9581	2065		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1364,6389	0,6115	79,5696	2124	3,02875	3,38
1364,0274	0,521	80,0906	2160		
1363,5064	0,891	80,9816	2124		
1362,6154	0,121	81,1026	2183		
1362,4944	0,2705	81,3731	2280		
1362,2239	0,2205	81,5936	2124		
1362,0034	0,021	81,6146	2183		
1361,9824	0,021	81,6356	2183		
1361,9614	0,35125	81,98685	2160		
1361,61015	0,35125	82,3381	2220	2,89875	3,25
1361,2589	0,6115	82,9496	2300		
1360,6474	0,421	83,3706	2300		
1360,2264	0,861	84,2316	2160		
1359,3654	0,121	84,3526	2124		
1359,2444	0,2705	84,6231	2183		
1358,9739	0,2205	84,8436	2242		
1358,7534	0,021	84,8646	2065		
1358,7324	0,021	84,8856	2242		
1358,7114	0,35125	85,23685	2242	3,01875	3,37
1358,36015	0,35125	85,5881	2124		
1358,0089	0,7115	86,2996	2065		
1357,2974	0,421	86,7206	2220		
1356,8764	0,881	87,6016	2242		
1355,9954	0,121	87,7226	2300		
1355,8744	0,2705	87,9931	2124		
1355,6039	0,2205	88,2136	2300		
1355,3834	0,021	88,2346	2124		
1355,3624	0,021	88,2556	2124	2280	
1355,3414	0,35125	88,60685	2220		
1354,99015	0,35125	88,9581	2280		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1354,6389	0,6115	89,5696	2220		
1354,0274	0,521	90,0906	2300		
1353,5064	0,891	90,9816	2300		
1352,6154	0,321	91,3026	2183		
1352,2944	0,2105	91,5131	2124	3,15875	3,51
1352,0839	0,2105	91,7236	2300		
1351,8734	0,021	91,7446	2160		
1351,8524	0,021	91,7656	2280		
1351,8314	0,35125	92,11685	2124		
1351,48015	0,35125	92,4681	2124		
1351,1289	0,6115	93,0796	2065		
1350,5174	0,521	93,6006	2124		
1349,9964	0,891	94,4916	2183		
1349,1054	0,321	94,8126	2183		
1348,7844	0,2105	95,0231	2100	3,15875	3,51
1348,5739	0,2105	95,2336	2160		
1348,3634	0,021	95,2546	2100		
1348,3424	0,021	95,2756	2242		
1348,3214	0,35125	95,62685	2183		
1347,97015	0,35125	95,9781	2124		
1347,6189	0,6115	96,5896	2124		
1347,0074	0,521	97,1106	2065		
1346,4864	0,891	98,0016	2160		
1345,5954	0,121	98,1226	2124		
1345,4744	0,2705	98,3931	2100	3,02875	3,38
1345,2039	0,2205	98,6136	2160		
1344,9834	0,021	98,6346	2160		
1344,9624	0,021	98,6556	2124		
1344,9414	0,35125	99,00685	2065		
1344,59015	0,35125	99,3581	2124		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1344,2389	0,6115	99,9696	2124		
1343,6274	0,521	100,4906	2160		
1343,1064	0,891	101,3816	2124		
1342,2154	0,331	101,7126	2160		
1341,8844	0,2105	101,9231	2160	3,16875	3,52
1341,6739	0,2105	102,1336	2124		
1341,4634	0,021	102,1546	2160		
1341,4424	0,021	102,1756	2160		
1341,4214	0,35125	102,52685	2160		
1341,07015	0,35125	102,8781	2160		
1340,7189	0,6115	103,4896	2124		
1340,1074	0,511	104,0006	2300		
1339,5964	0,511	104,5116	2160		
1339,0854	0,511	105,0226	2160		
1338,5744	0,2505	105,2731	2300	3,96985	4,4211
1338,3239	0,2505	105,5236	2220		
1338,0734	0,3921	105,9157	2220		
1337,6813	0,521	106,4367	2220		
1337,1603	0,41125	106,84795	2220		
1336,74905	0,45125	107,2992	2160		
1336,2978	0,6115	107,9107	2220		
1335,6863	0,511	108,4217	2280		
1335,1753	0,511	108,9327	2300		
1334,6643	0,511	109,4437	2242		
1334,1533	0,7505	110,1942	2220	4,8798	5,331
1333,4028	0,7505	110,9447	2220		
1332,6523	0,3921	111,3368	2183		
1332,2602	0,431	111,7678	2280		
1331,8292	0,4112	112,179	2280		
1331,418	0,4512	112,6302	2220		



Percobaan data ke 3

Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik (Ultrasonik)	Total debit (ml) Flowmeter
1377	0,7815	0,7815	840		
1376,2185	0	0,7815	1080		
1376,2185	0,13025	0,91175	1140		
1376,08825	0,13025	1,042	1200		
1375,958	0,2605	1,3025	1020	2,47475	2,47475
1375,6975	0	1,3025	1003		
1375,6975	0,13025	1,43275	1020		
1375,56725	0,521	1,95375	960		
1375,04625	0,521	2,47475	1200		
1374,52525	0	2,47475	1200		
1374,52525	0,521	2,99575	1140		
1374,00425	0,2605	3,25625	1140		
1373,74375	0,39075	3,647	1140		
1373,353	0,65125	4,29825	1200		
1372,70175	1,042	5,3403	1020	4,680317	5,071067
1371,65975	0,2605	5,60075	960		
1371,39925	0,521	6,12175	960		
1370,87825	0,512317	6,634067	1003		
1370,365933	0,521	7,155067	1140		
1369,844933	0,39075	7,545817	1200		
1369,454183	0,65125	8,197067	1080		
1368,802933	0,521	8,718067	1200		
1368,281933	0,39075	9,108817	1020		
1367,891183	0,521	9,629817	1020		
1367,370183	0,65125	10,281067	1020	5,07975	5,731
1366,718933	0,7815	11,062567	1020		
1365,937433	0,521	11,583567	1380		
1365,416433	0,2605	11,844067	1080		
1365,155933	0,7815	12,625567	1020		
1364,374433	0,65125	13,276817	1020		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1363,723183	0,521	13,797817	1020		
1363,202183	0,521	14,318817	1260		
1362,681183	0,2605	14,579317	1140		
1362,420683	0,65125	15,230567	1180		
1361,769433	0,521	15,751567	1080	4,689	5,60075
1361,248433	0,521	16,272567	1140		
1360,727433	0,65125	16,923817	960		
1360,076183	0,65125	17,575067	1020		
1359,424933	0,39075	17,965817	960		
1359,034183	0,91175	18,877567	1080		
1358,122433	0,39075	19,268317	1320		
1357,731683	0,2605	19,528817	1260		
1357,471183	0,39075	19,919567	1080		
1357,080433	0,39075	20,310317	1140		
1356,689683	0,39075	20,701067	960	4,689	5,21
1356,298933	0,7815	21,482567	1020		
1355,517433	0,521	22,003567	1080		
1354,996433	0,7815	22,785067	1239		
1354,214933	0,7815	23,566567	1140		
1353,433433	0,521	24,087567	1140		
1352,912433	0,521	24,608567	1080		
1352,391433	0,2605	24,869067	1080		
1352,130933	0,2605	25,129567	1020		
1351,870433	0,7815	25,911067	1140		
1351,088933	0,7815	26,692567	960	5,21	5,731
1350,307433	0,65125	27,343817	1200		
1349,656183	0,65125	27,995067	1200		
1349,004933	0,7815	28,776567	1140		
1348,223433	0,521	29,297567	1260		
1347,702433	0,521	29,818567	1140		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1347,181433	0,65125	30,469817	1260		
1346,530183	0,65125	31,121067	1080		
1345,878933	0,521	31,642067	1140		
1345,357933	0,7815	32,423567	1020		
1344,576433	0,7815	33,205067	1020	6,38225	6,90325
1343,794933	0,65125	33,856317	1020		
1343,143683	0,7815	34,637817	1020		
1342,362183	0,7815	35,419317	1080		
1341,580683	0,7815	36,200817	1020		
1340,799183	0,521	36,721817	1200		
1340,278183	0,39075	37,112567	1260		
1339,887433	0,39075	37,503317	1080		
1339,496683	0,521	38,024317	1260		
1338,975683	0,521	38,545317	1180		
1338,454683	0,7815	39,326817	1140	4,03775	4,81925
1337,673183	0,2605	39,587317	1080		
1337,412683	0,39075	39,978067	1080		
1337,021933	0,39075	40,368817	1140		
1336,631183	0,39075	40,759567	1020		
1336,240433	0,7815	41,541067	1080		
1335,458933	0,521	42,062067	1020		
1334,937933	0,91175	42,973817	1020		
1334,026183	0,7815	43,755317	1020		
1333,244683	0,91175	44,667067	1080		
1332,332933	0,7815	45,448567	1020	6,12175	6,64275
1331,551433	0,39075	45,839317	1080		
1331,160683	0,65125	46,490567	1080		
1330,509433	0,521	47,011567	1080		
1329,988433	0,65125	47,662817	1080		
1329,337183	0,521	48,183817	1180		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1328,816183	0,7815	48,965317	1140		
1328,034683	0,7815	49,746817	1080		
1327,253183	0,521	50,267817	1020		
1326,732183	0,521	50,788817	1080		
1326,211183	0,7815	51,570317	1080	6,252	7,0335
1325,429683	0,7815	52,351817	1080		
1324,648183	0,7815	53,133317	1140		
1323,866683	0,39075	53,524067	1140		
1323,475933	0,91175	54,435817	1020		
1322,564183	0,7815	55,217317	1020		
1321,782683	0,91175	56,129067	1080		
1320,870933	0,7815	56,910567	1020		
1320,089433	0,39075	57,301317	1080		
1319,698683	0,521	57,822317	1080		
1319,177683	0,521	58,343317	1080	5,4705	5,9915
1318,656683	0,65125	58,994567	1080		
1318,005433	0,521	59,515567	1180		
1317,484433	0,7815	60,297067	1140		
1316,702933	0,39075	60,687817	1080		
1316,312183	0,521	61,208817	1080		
1315,791183	0,65125	61,860067	1080		
1315,139933	0,65125	62,511317	1080		
1314,488683	0,7815	63,292817	1080		
1313,707183	0,65125	63,944067	1080		
1313,055933	0,7815	64,725567	1080	6,38225	7,16375
1312,274433	0,7815	65,507067	1020		
1311,492933	0,65125	66,158317	1080		
1310,841683	0,65125	66,809567	1080		
1310,190433	0,7815	67,591067	1080		
1309,408933	0,7815	68,373	1080		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1377	0,39075	68,763317	1560		
1376,60925	0,521	69,284317	1620		
1376,08825	0,521	69,805317	1560		
1375,56725	0,521	70,326317	1560		
1375,04625	0,521	70,847317	1620		
1374,52525	0,65125	71,498567	1560	4,81925	5,21
1373,874	0,65125	72,149817	1560		
1373,22275	0,65125	72,801067	1620		
1372,5715	0,39075	73,191817	1620		
1372,18075	0,39075	73,582567	1560		
1371,79	0,65125	74,233817	1560		
1371,13875	0,65125	74,885067	1560		
1370,4875	0,7815	75,666567	1620		
1369,706	0,7815	76,448067	1620		
1368,9245	0,521	76,969067	1620	5,34025	5,9915
1368,4035	0,39075	77,359817	1620		
1368,01275	0,39075	77,750567	1620		
1367,622	0,521	78,271567	1620		
1367,101	0,65125	78,922817	1620		
1366,44975	0,65125	79,574067	1620		
1365,7985	0,7815	80,355567	1620		
1365,017	0,65125	81,006817	1620		
1364,36575	0,65125	81,658067	1620		
1363,7145	0,7815	82,439567	1620		
1362,933	0,65125	83,090817	1620	5,86125	6,64275
1362,28175	0,65125	83,742067	1680		
1361,6305	0,521	84,263067	1620		
1361,1095	0,65125	84,914317	1620		
1360,45825	0,521	85,435317	1620		
1359,93725	0,7815	86,216817	1680		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1359,15575	0,65125	86,868067	1620		
1358,5045	0,65125	87,519317	1680		
1357,85325	0,7815	88,300817	1680		
1357,07175	0,65125	88,952067	1680		
1356,4205	0,65125	89,603317	1680	5,34025	5,86125
1355,76925	0,65125	90,254567	1680		
1355,118	0,521	90,775567	1680		
1354,597	0,39075	91,166317	1560		
1354,20625	0,39075	91,557067	1560		
1353,8155	0,521	92,078067	1500		
1353,2945	0,521	92,599067	1560		
1352,7735	0,521	93,120067	1560		
1352,2525	0,65125	93,771317	1560		
1351,60125	0,65125	94,422567	1560		
1350,95	0,39075	94,813317	1560	5,07975	5,9915
1350,55925	0,39075	95,204067	1560		
1350,1685	0,65125	95,855317	1560		
1349,51725	0,65125	96,506567	1560		
1348,866	0,65125	97,157817	1500		
1348,21475	0,91175	98,069567	1560		
1347,303	0,39075	98,460317	1560		
1346,91225	0,521	98,981317	1560		
1346,39125	0,65125	99,632567	1560		
1345,74	0,7815	100,414067	1560		
1344,9585	0,521	100,935067	1560	5,731	6,38225
1344,4375	0,7815	101,716567	1560		
1343,656	0,7815	102,498067	1560		
1342,8745	0,65125	103,149317	1560		
1342,22325	0,65125	103,800567	1620		
1341,572	0,65125	104,451817	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1340,92075	0,521	104,972817	1500		
1340,39975	0,65125	105,624067	1500		
1339,7485	0,521	106,145067	1560		
1339,2275	0,521	106,666067	1560		
1338,7065	0,640396	107,306463	1560	5,060213	5,711463
1338,066104	0,512317	107,81878	1500		
1337,553787	0,521	108,33978	1620		
1337,032787	0,521	108,86078	1560		
1336,511787	0,65125	109,51203	1620		
1335,860537	0,65125	110,16328	1560		
1335,209287	0,521	110,68428	1560		
1334,688287	0,65125	111,33553	1560		
1334,037037	0,65125	111,98678	1560		
1333,385787	0,65125	112,63803	1620		
1332,734537	0,65125	113,28928	1560	5,731	6,12175
1332,083287	0,7815	114,07078	1560		
1331,301787	0,65125	114,72203	1560		
1330,650537	0,65125	115,37328	1620		
1329,999287	0,521	115,89428	1620		
1329,478287	0,39075	116,28503	1620		
1329,087537	0,39075	116,67578	1620		
1328,696787	0,521	117,19678	1620		
1328,175787	0,521	117,71778	1620		
1327,654787	0,521	118,23878	1620		
1327,133787	0,65125	118,89003	1620	5,34025	6,12175
1326,482537	0,65125	119,54128	1620		
1325,831287	0,7815	120,32278	1620		
1325,049787	0,65125	120,97403	1620		
1324,398537	0,65125	121,62528	1620		
1323,747287	0,7815	122,40678	1620		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1322,965787	0,65125	123,05803	1620		
1322,314537	0,65125	123,70928	1620		
1321,663287	0,521	124,23028	1680		
1321,142287	0,65125	124,88153	1680		
1320,491037	0,521	125,40253	1620	5,86125	6,5125
1319,970037	0,7815	126,18403	1680		
1319,188537	0,65125	126,83528	1680		
1318,537287	0,65125	127,48653	1680		
1317,886037	0,7815	128,26803	1680		
1317,104537	0,65125	128,91928	1680		
1316,453287	0,65125	129,57053	1680		
1315,802037	0,65125	130,22178	1680		
1315,150787	0,521	130,74278	1680		
1314,629787	0,39075	131,13353	1620		
1314,239037	0,39075	131,52428	1560	5,07975	5,731
1313,848287	0,521	132,04528	1560		
1313,327287	0,521	132,56628	1500		
1312,806287	0,65125	133,21753	1560		
1312,155037	0,7815	133,99903	1560		
1311,373537	0,65125	134,65028	1560		
1310,722287	0,7815	135,43178	1560		
1309,940787	0,521	135,95278	1560		
1309,419787	0,65125	136,60403	1560		
1308,768537	0,65125	137,25528	1560		
1308,117287	0,65125	137,90653	1560	6,252	7,0335
1307,466037	0,91175	138,81828	1560		
1306,554287	0,65125	139,46953	1560		
1305,903037	0,7815	140,25103	1560		
1305,121537	0,65125	140,90228	1560		
1304,470287	0,7815	141,68378	1560		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1377	0,521	142,20478	1620		
1376,479	0,7815	142,98628	2040		
1375,6975	0,521	143,50728	2040		
1375,1765	0,521	144,02828	2040		
1374,6555	0,521	144,54928	2100	4,797541	5,318541
1374,1345	0,65125	145,20053	2006		
1373,48325	0,384237	145,584767	2065		
1373,099013	0,512317	146,097084	2006		
1372,586696	0,384237	146,481321	2040		
1372,202459	0,521	147,002321	2040		
1371,681459	0,39075	147,393071	2040		
1371,290709	0,521	147,914071	2160		
1370,769709	0,521	148,435071	2065		
1370,248709	0,512317	148,947388	2065		
1369,736392	0,512317	149,459705	2100	4,387255	5,027651
1369,224075	0,521	149,980705	2124		
1368,703075	0,512317	150,493022	2183		
1368,190758	0,384237	150,877259	2124		
1367,806521	0,512317	151,389576	2242		
1367,294204	0,640396	152,029972	2183		
1366,653808	0,512317	152,542289	2124		
1366,141491	0,512317	153,054606	2220		
1365,629174	0,521	153,575606	2220		
1365,108174	0,7815	154,357106	2183		
1364,326674	0,512317	154,869423	2124	4,888718	5,529114
1363,814357	0,384237	155,25366	2006		
1363,43012	0,512317	155,765977	2242		
1362,917803	0,512317	156,278294	2300		
1362,405486	0,640396	156,91869	2006		
1361,76509	0,640396	157,559086	2065		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1361,124694	0,640396	158,199482	2124	5,785272	6,436522
1360,484298	0,768475	158,967957	2160		
1359,715823	0,7815	159,749457	2124		
1358,934323	0,640396	160,389853	2183		
1358,293927	0,768475	161,158328	2280		
1357,525452	0,521	161,679328	2124		
1357,004452	0,512317	162,191645	2183		
1356,492135	0,512317	162,703962	2183		
1355,979818	0,640396	163,344358	2160		
1355,339422	0,65125	163,995608	2220		
1354,688172	0,521	164,516608	2300	5,268614	5,780931
1354,167172	0,640396	165,157004	2300		
1353,526776	0,512317	165,669321	2160		
1353,014459	0,521	166,190321	2124		
1352,493459	0,640396	166,830717	2183		
1351,853063	0,640396	167,471113	2242		
1351,212667	0,640396	168,111509	2065		
1350,572271	0,640396	168,751905	2242		
1349,931875	0,512317	169,264222	2242		
1349,419558	0,512317	169,776539	2124		
1348,907241	0,640396	170,416935	2065	5,259931	5,780931
1348,266845	0,512317	170,929252	2220		
1347,754528	0,521	171,450252	2242		
1347,233528	0,512317	171,962569	2300		
1346,721211	0,640396	172,602965	2124		
1346,080815	0,640396	173,243361	2300		
1345,440419	0,640396	173,883757	2124		
1344,800023	0,640396	174,524153	2124		
1344,159627	0,512317	175,03647	2220		
1343,64731	0,521	175,55747	2280		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1343,12631	0,521	176,07847	2220		
1342,60531	0,65125	176,72972	2300		
1341,95406	0,7815	177,51122	2300		
1341,17256	0,512317	178,023537	2183		
1340,660243	0,768475	178,792012	2124	5,817834	6,586309
1339,891768	0,640396	179,432408	2300		
1339,251372	0,640396	180,072804	2160		
1338,610976	0,7815	180,854304	2280		
1337,829476	0,521	181,375304	2124		
1337,308476	0,768475	182,143779	2124		
1336,540001	0,512317	182,656096	2065		
1336,027684	0,512317	183,168413	2124		
1335,515367	0,768475	183,936888	2183		
1334,746892	0,640396	184,577284	2183		
1334,106496	0,640396	185,21768	2100	5,798297	6,566772
1333,4661	0,7815	185,99918	2160		
1332,6846	0,65125	186,65043	2100		
1332,03335	0,65125	187,30168	2242		
1331,3821	0,640396	187,942076	2183		
1330,741704	0,768475	188,710551	2124		
1329,973229	0,768475	189,479026	2124		
1329,204754	0,768475	190,247501	2065		
1328,436279	0,640396	190,887897	2160		
1327,795883	0,65125	191,539147	2124		
1327,144633	0,768475	192,307622	2100	6,321467	6,961863
1326,376158	0,65125	192,958872	2160		
1325,724908	0,7815	193,740372	2160		
1324,943408	0,65125	194,391622	2124		
1324,292158	0,640396	195,032018	2065		
1323,651762	0,640396	195,672414	2124		



Volume Tangki (ml)	Debit (ml)	Total Debit (ml)	Rpm	Total Konsumsi BBM tiap 10 detik	Total debit (ml)
1323,011366	0,640396	196,31281	2124	6,078334	7,615284
1322,37097	0,768475	197,081285	2160		
1321,602495	0,65125	197,732535	2124		
1320,951245	0,640396	198,372931	2160		
1320,310849	0,91175	199,284681	2160		
1319,399099	0,521	199,805681	2124		
1318,878099	0,512317	200,317998	2160		
1318,365782	0,65125	200,969248	2160		
1317,714532	0,7815	201,750748	2160		
1316,933032	1,53695	203,287698	2160		
1315,396082	0,91175	204,199448	2124	8,038596	8,689846
1314,484332	1,53695	205,736398	2300		
1312,947382	1,563	207,299398	2160		
1311,384382	0,91175	208,211148	2160		
1310,472632	0,65125	208,862398	2300		
1309,821382	0,640396	209,502794	2220		
1309,180986	0,65125	210,154044	2220		
1308,529736	0,521	210,675044	2220		
1308,008736	0,65125	211,326294	2220		
1307,357486	0,65125	211,977544	2160		
1306,706236	0,65125	212,628794	2220	5,581213	6,102213
1306,054986	0,65125	213,280044	2280		
1305,403736	0,7815	214,061544	2300		
1304,622236	0,521	214,582544	2242		
1304,101236	0,640396	215,22294	2220		
1303,46084	0,65125	215,87419	2220		
1302,80959	0,65125	216,52544	2183		
1302,15834	0,512317	217,037757	2280		
1301,646023	0,521	217,558757	2280		
1301,125023	0,521	218,079757	2220		



Lampiran 6 : Karakteristik Mesin

Berikut adalah spesifikasi standard keluaran pabrik mobil Ford Ford 1.8 TD MT. Mobil tipe Hatchback ini diproduksi tahun 1995 sampai 2000.

Merek	Ford
Model	Escort
Generasi	6 Generation
Tahun Awal Produksi	1995
Tahun Akhir Produksi	2000
Seri	Hatchback 3-doors
Panjang	4.140 mm
Lebar	1.679 mm
Tinggi	1.349 mm
Jarak Sumbu Roda	2.520 mm
Jarak Pijak Depan	1.440 mm
Jarak Pijak Belakang	1.461 mm
Berat Kosong	1.050 Kg
Berat Penuh	1.600 Kg
Daya Maksimum	135 Nm
Tipe Injeksi	Multi-point fuel injection
Layout Piston	4
Jenis Bahan Bakar	Diesel
Jumlah Katup/Silinder	2
Boost Type	Turbo
Cylinder Bore	82 mm
Stroke Cycle	82 mm
Turnover Maximum Torque	2500 RPM
Volume Mesin	1.753 cm ³
Horse Power	70 Hp
Rpm Puncak	4.500 Rpm
Roda Penggerak	Front Wheel Drive
Jumlah Gigi	5



Transmisi	Manual
Konsumsi Bahan Bakar per 100 Km	6,6 Liter
Jarak Tempuh	650/1.000 Km
Kapasitas Bahan Bakar	55 Liter
Akselerasi 0-100 Km/Jam	15,8 Detik
Kecepatan Maksimum	163 Km/Jam
Efisiensi Bahan Bakar Dalam Kota	8,5 Liter/100 Km
Efisiensi Bahan Bakar di Toll	5,5 Liter/100 Km
Suspensi Belakang	Helical Spring
Rem Belakang	Drum
Rem Depan	Ventilated Disc
Jenis Suspensi Depan	Wishbone



Lampiran 7 : Proses Validasi Keakuratan Program



