



EXPERIMENTAL STUDY OF PERMANENT MAGNET WITH VARIABLE POWER SUPPLY

Prof. G.R.Kumrey ¹, Dr. S. K. Mahobia ²

¹ Assistant Professor, Department of Electrical Engg., Rewa Engineering College, Rewa (M.P.), India

² Assistant Professor, Department of Physics, Rewa Engineering College, Rewa (M.P.), India

Abstract:

In this paper we are studying about maximum R.P.M. of Permanent Magnet DC Motor. In this way we are using the regulator circuit and 1Amp. 2 Amp. 3Amp. With different voltages. R.P.M. of D.C. motor is measured by the digital type tachometer. The D.C. power supplies are obtaining by the rectifier circuit and also used the step down transformer.

Keywords: *Experimental Process; D.C. Power Supply; Permanent Magnet DC Motor.*

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1. Introduction

The Permanent Magnet DC Motor has basic component such as core, armature slip ring, permanent magnet and body structure. The armature is supported with bush in the body. The armature is obtaining the power supply with the help of slip ring.

2. Variable Voltage Power Supply

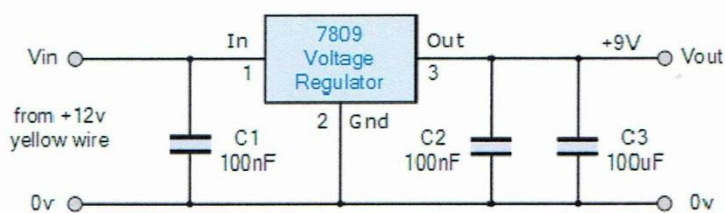


Figure 1: Power Supply with regulator

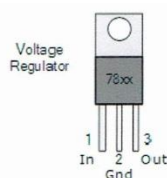


Figure 2: Voltage Regulator

Table 1: Regulator

| Type | Min Input Voltage | Output Voltage |
|------|-------------------|----------------|
| 7805 | 7V | +5V |
| 7806 | 8V | +6V |
| 7808 | 10V | +8V |
| 7809 | 11V | +9V |
| 7812 | 15V | +12V |
| 7815 | 18V | +15V |
| 7818 | 22V | +18V |
| 7824 | 30V | +24V |

3. Performance Testing

3.1. Permanent magnet type D.C. Motor

12V D.C., 9V D.C., 6V. D.C. obtained by regulator
Current = 1 Amp.

Table 2: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

| Sr. No. | Apply the Voltages in D.C. | R.P.M. measured by Tachometer |
|---------|----------------------------|-------------------------------|
| 1 | 12 | 800 |
| 2 | 9 | 700 |
| 3 | 6 | 600 |

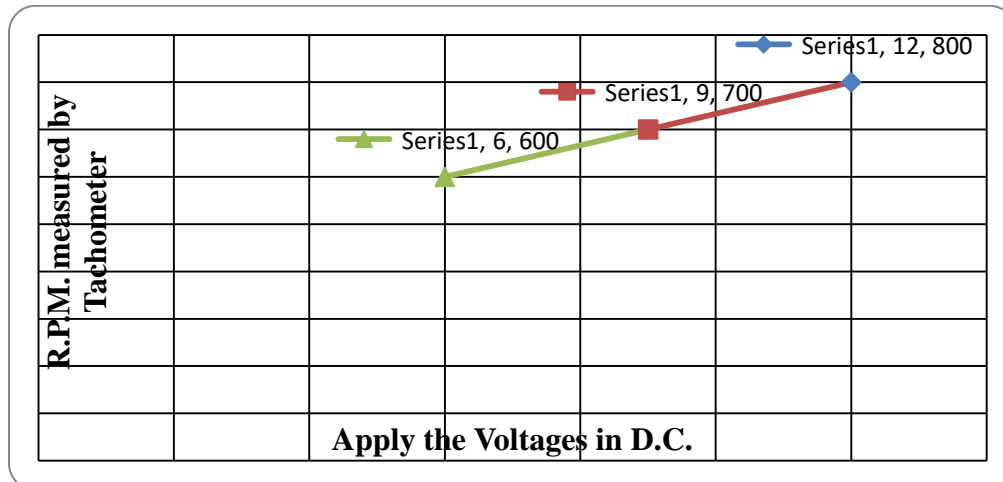


Figure 3: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

3.2. Permanent magnet type D.C. Motor

12V D.C., 9V D.C., 6V. D.C. obtained by regulator
Current = 2 Amp.

Table 3: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

| Sr. No. | Apply the Voltages in D.C. | R.P.M. measured by Tachometer |
|---------|----------------------------|-------------------------------|
| 1 | 12 | 1200 |
| 2 | 9 | 1000 |
| 3 | 6 | 800 |

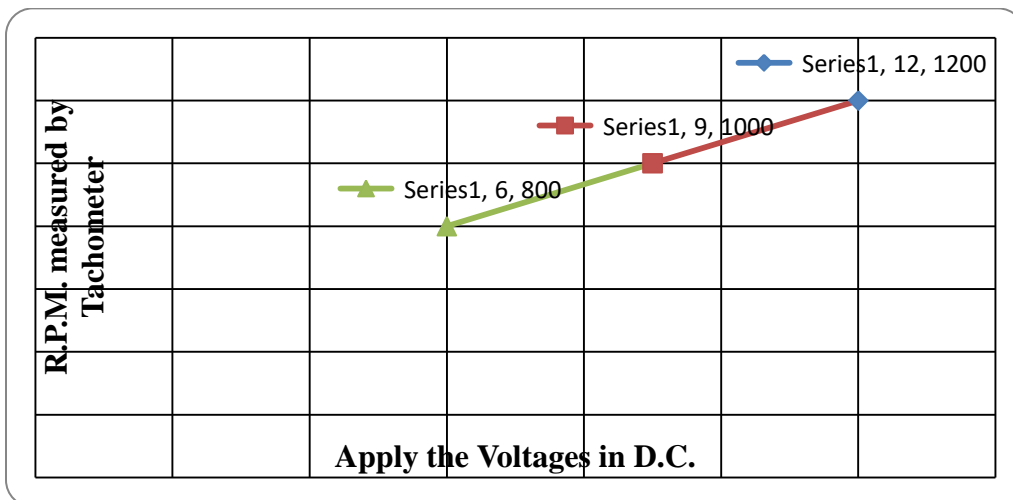


Figure 4: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

3.3. Permanent magnet type D.C. Motor

12V D.C., 9V D.C., 6V. D.C. obtained by regulator
Current = 1 Amp.

Table 4: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

| Sr. No. | Apply the Voltages in D.C. | R.P.M. measured by Tachometer |
|---------|----------------------------|-------------------------------|
| 1 | 12 | 1800 |
| 2 | 9 | 1600 |
| 3 | 6 | 1400 |

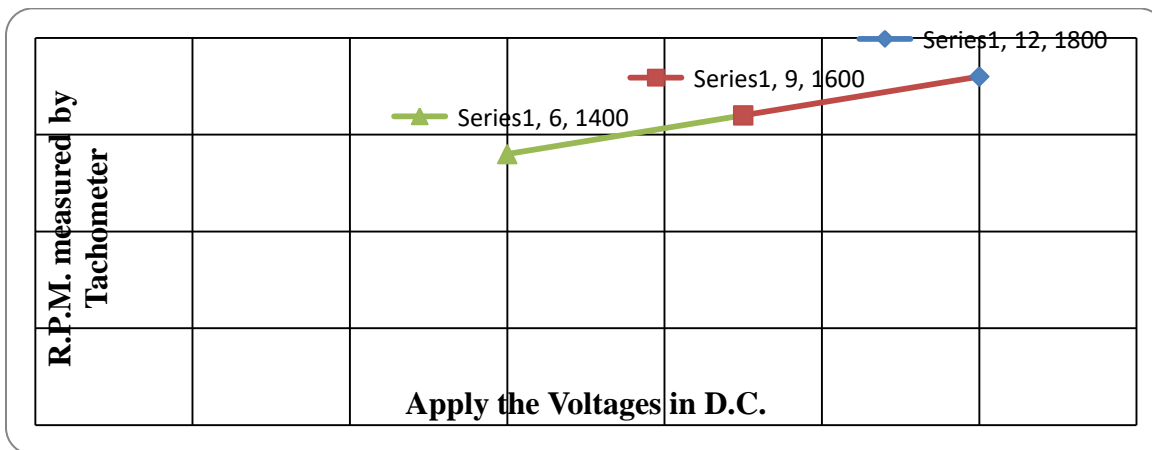


Figure 5: Voltage and R.P.M. using of Permanent magnet type D.C. Motor

4. Conclusion

In this study we are observed the maximum R.P.M. of D.C. motor such as 1800 R.P.M. with applied voltages as 12V.D.C. which are shown in table.4. This type of D.C. motor are using in various application as industrial machine.

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