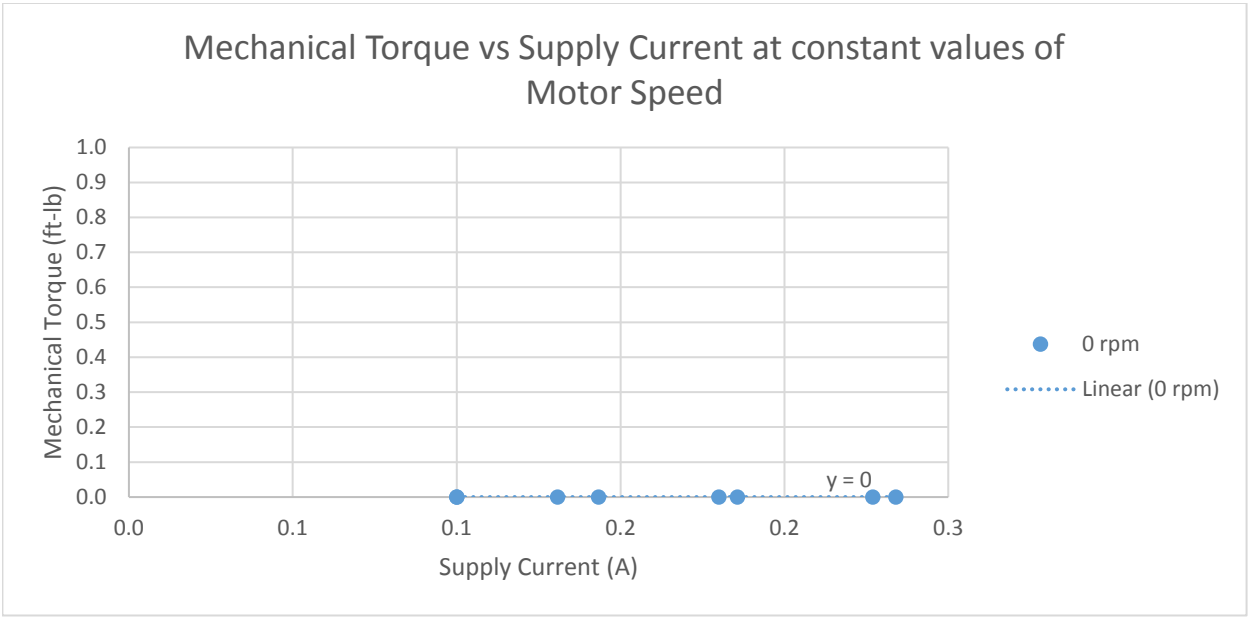
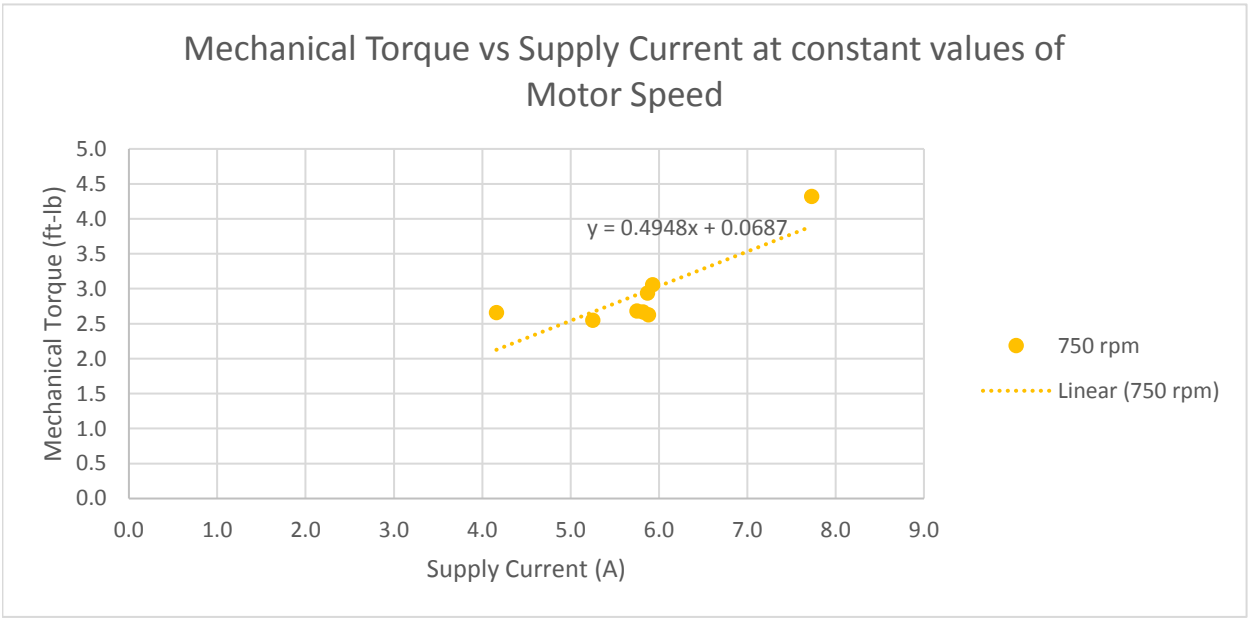
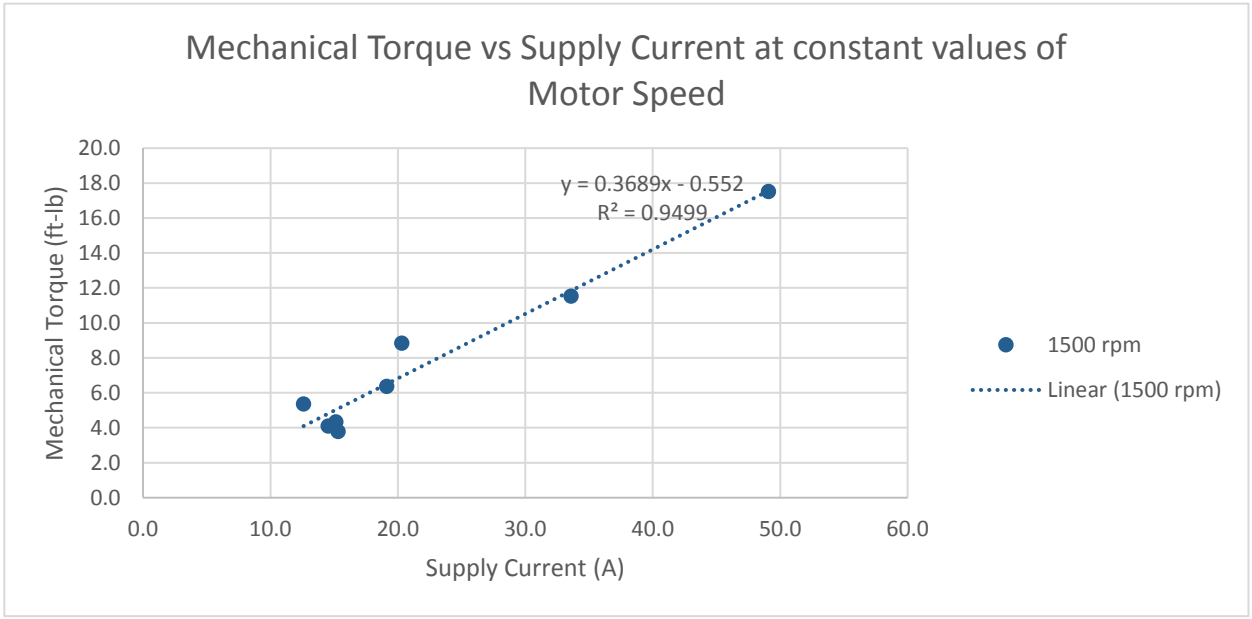
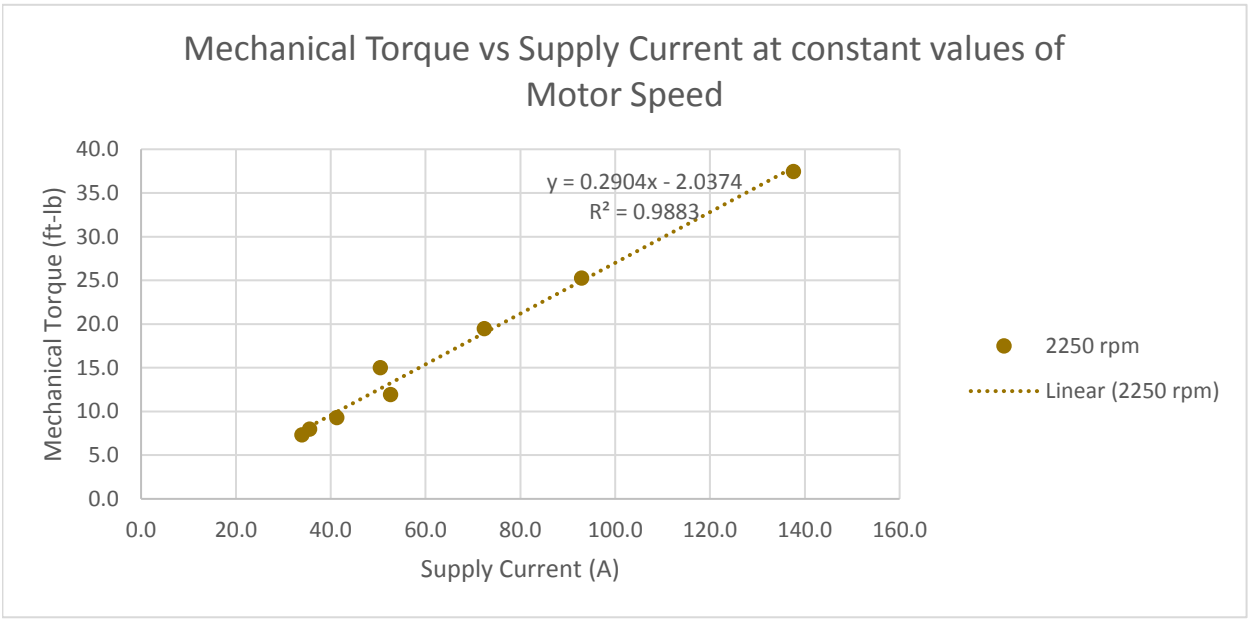
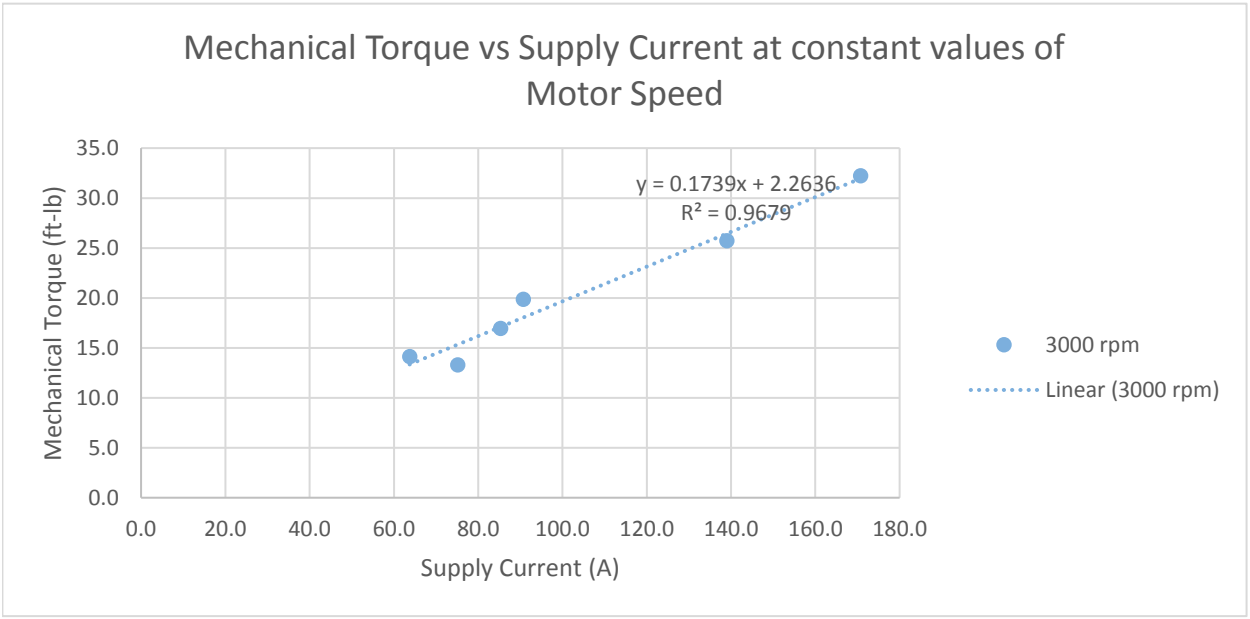
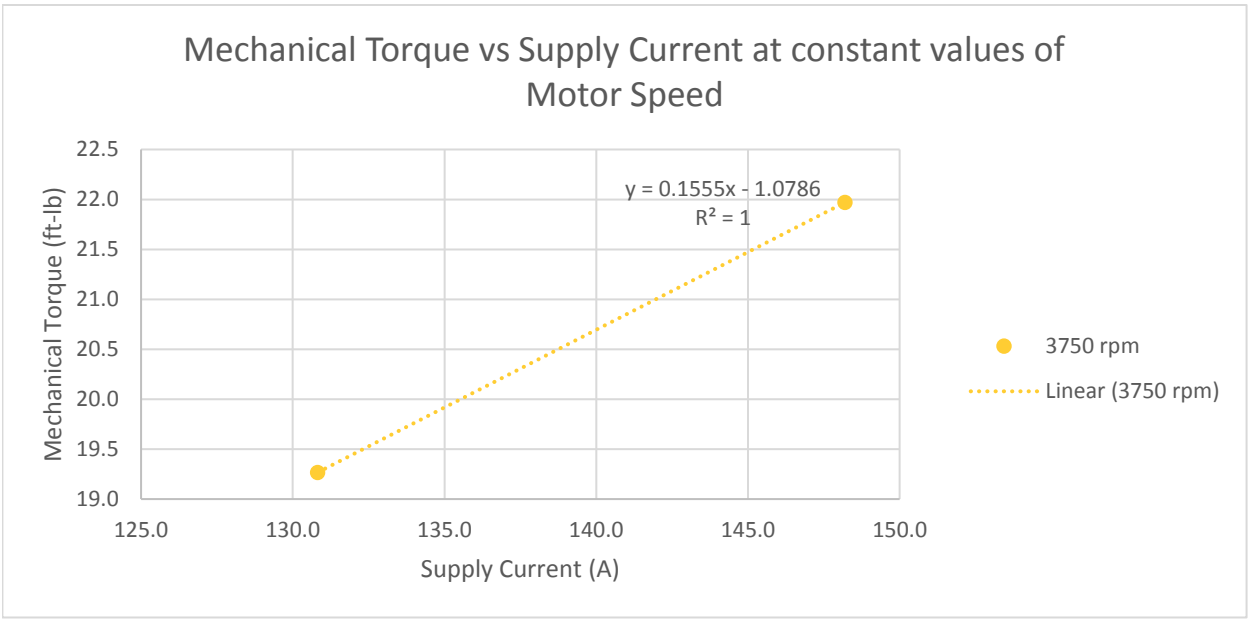

Mechanical Torque vs Supply Current at constant values of Motor Speed
Mechanical Torque (ft-lb)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.0
0.1
0.1
0.2
0.2
0.3
Supply Current (A)
y = 0
0 rpm
Linear (0 rpm)

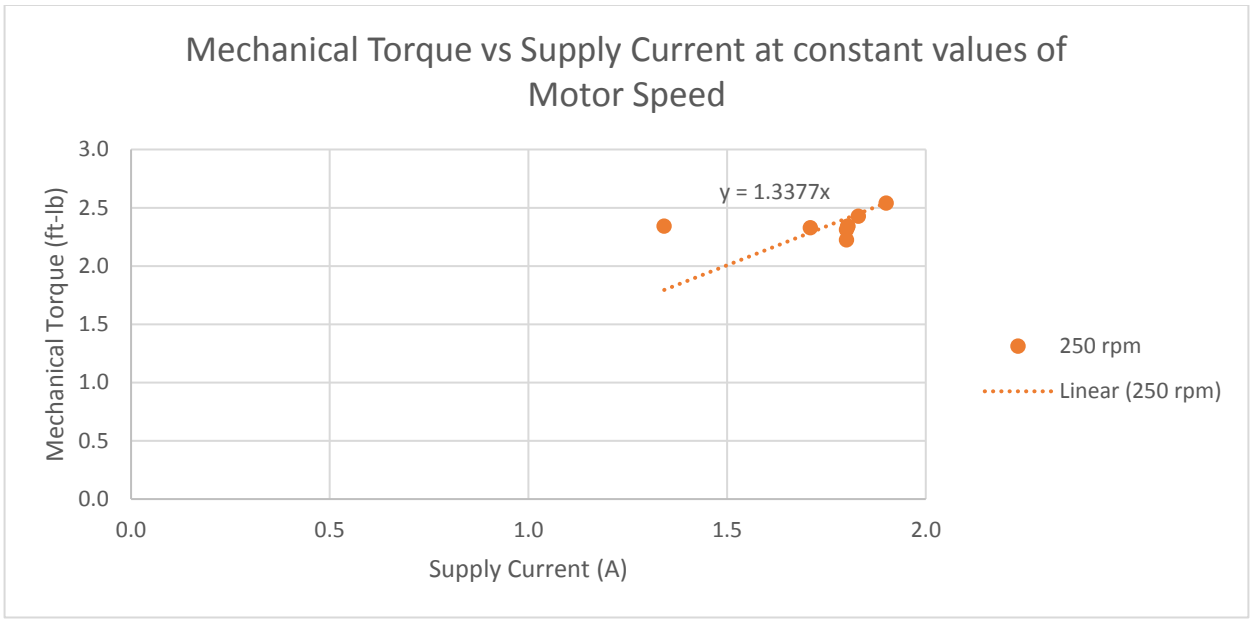

Mechanical Torque vs Supply Current at constant values of Motor Speed
Mechanical Torque (ft-lb)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
Supply Current (A)
y = 0.4948x + 0.0687
750 rpm
Linear (750 rpm)

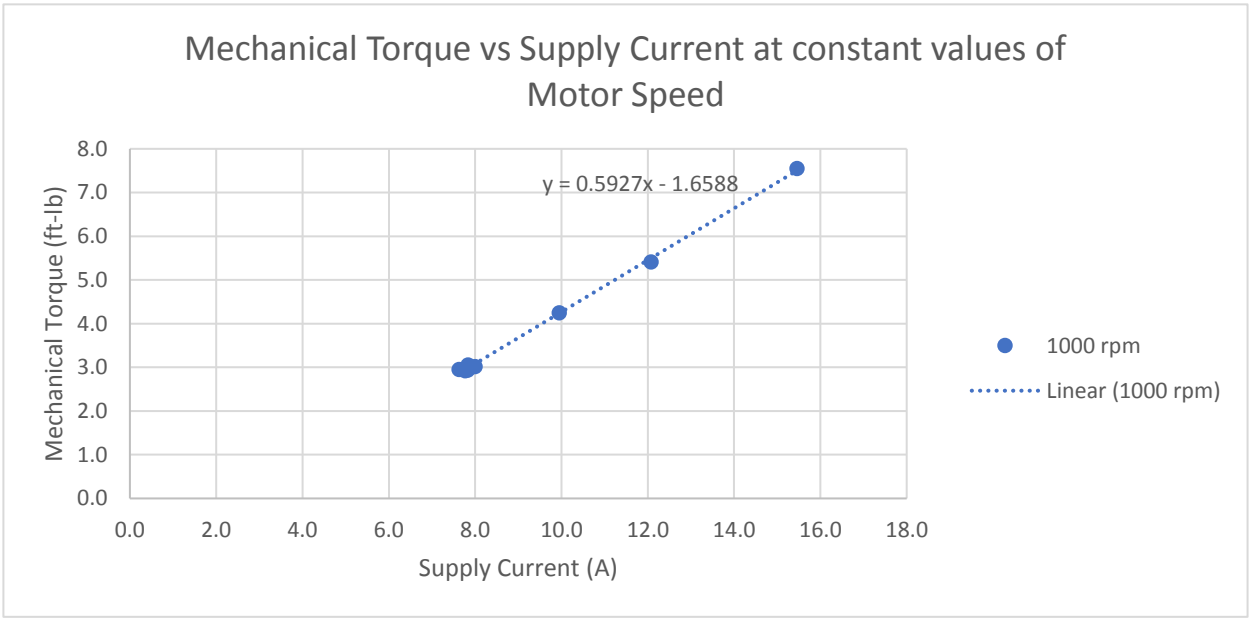

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.3689x - 0.552
R² = 0.9499
Mechanical Torque (ft-lb)
Supply Current (A)
1500 rpm
Linear (1500 rpm)

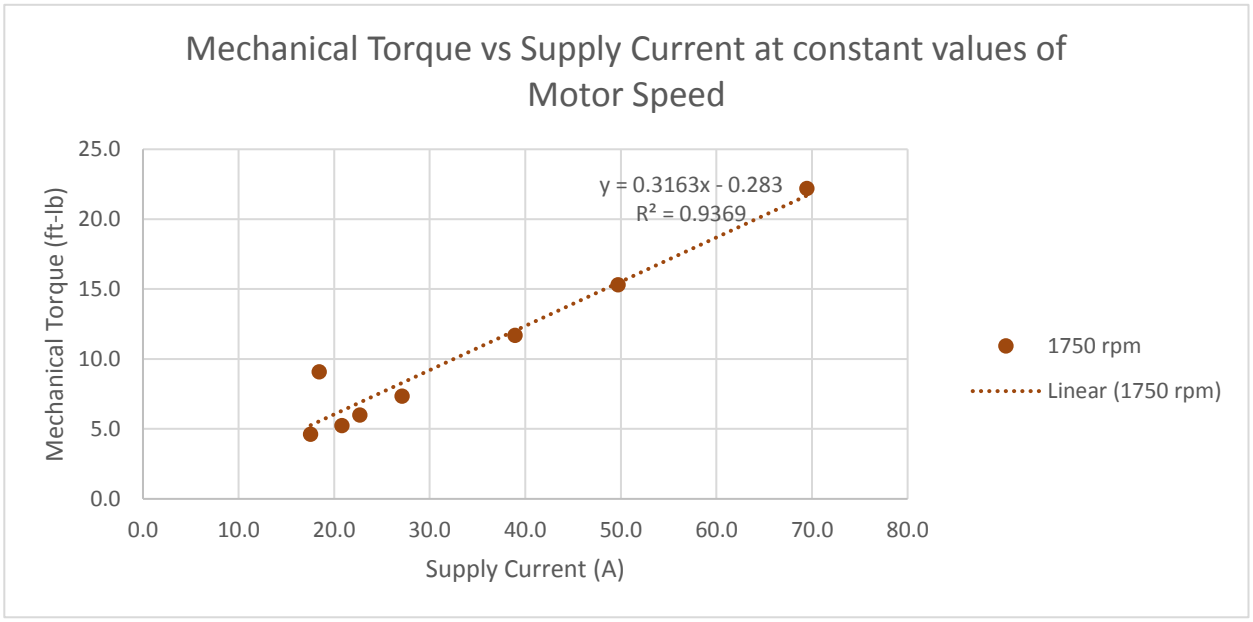

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.2904x - 2.0374
R² = 0.9883
Mechanical Torque (ft-lb)
Supply Current (A)
2250 rpm
Linear (2250 rpm)

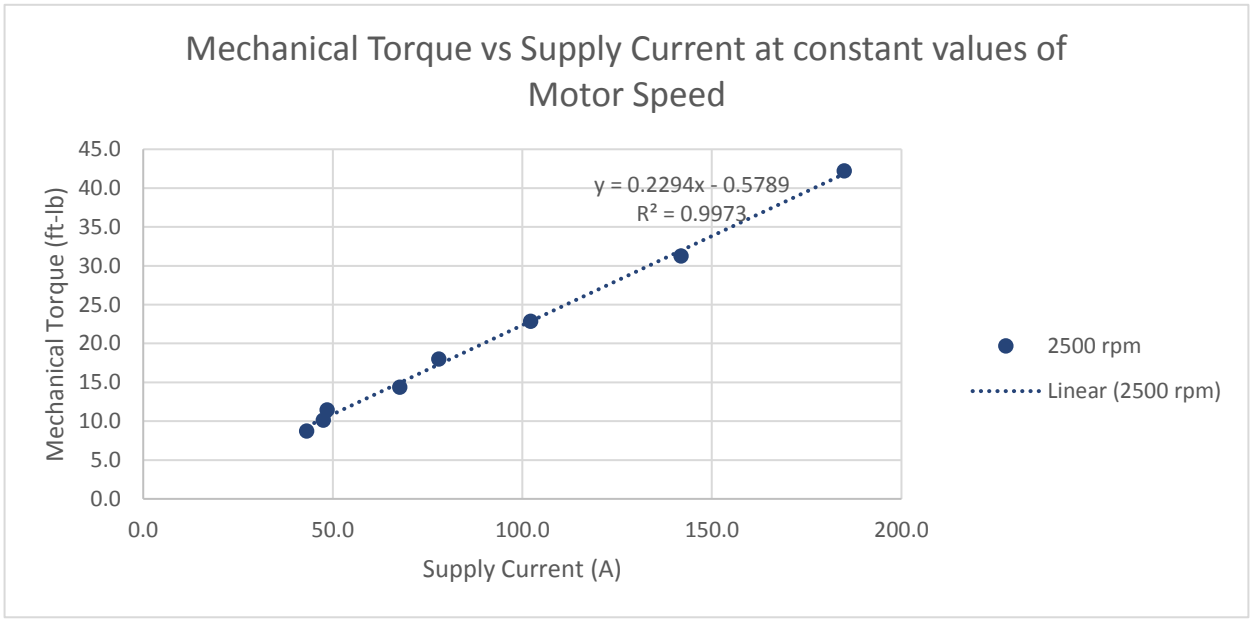

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.1739x + 2.2636
R² = 0.9679
Mechanical Torque (ft-lb)
Supply Current (A)
3000 rpm
Linear (3000 rpm)

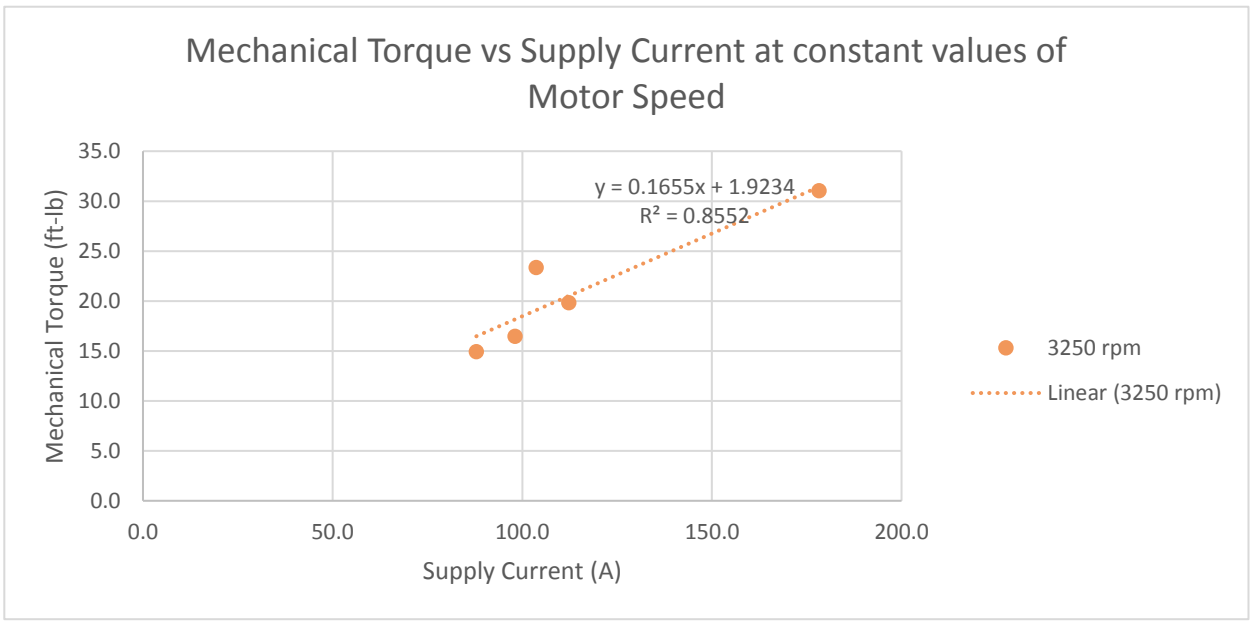

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.1555x - 1.0786
R² = 1
Mechanical Torque (ft-lb)
Supply Current (A)
3750 rpm
Linear (3750 rpm)

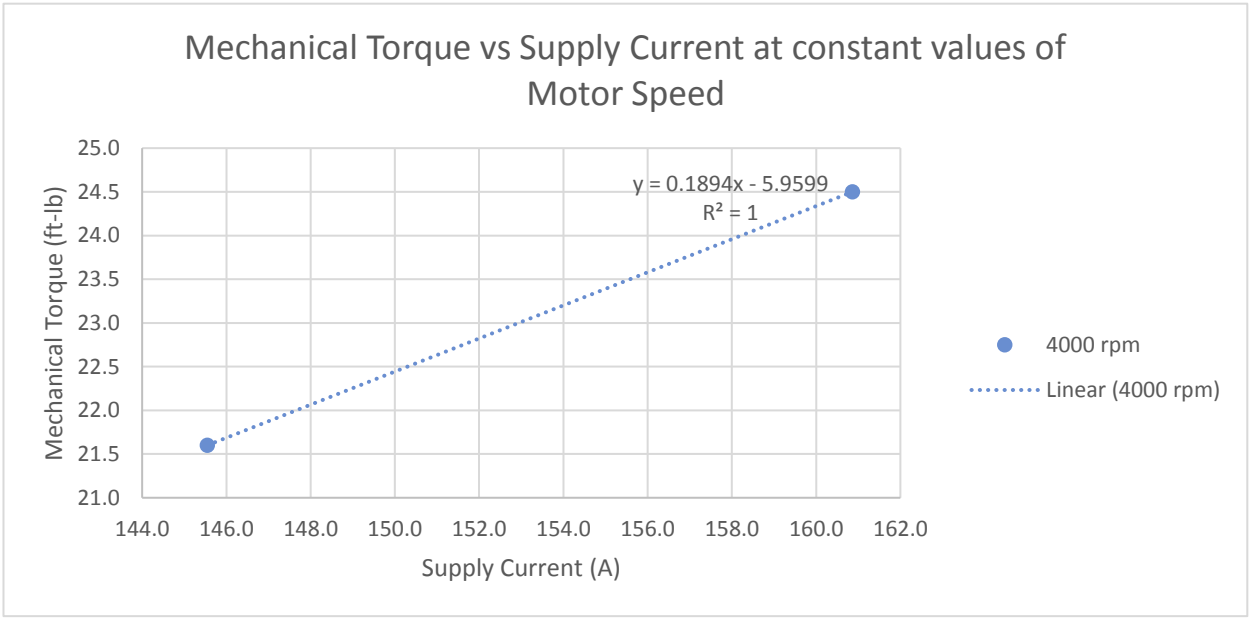

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 1.3377x
Mechanical Torque (ft-lb)
Supply Current (A)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
250 rpm
Linear (250 rpm)

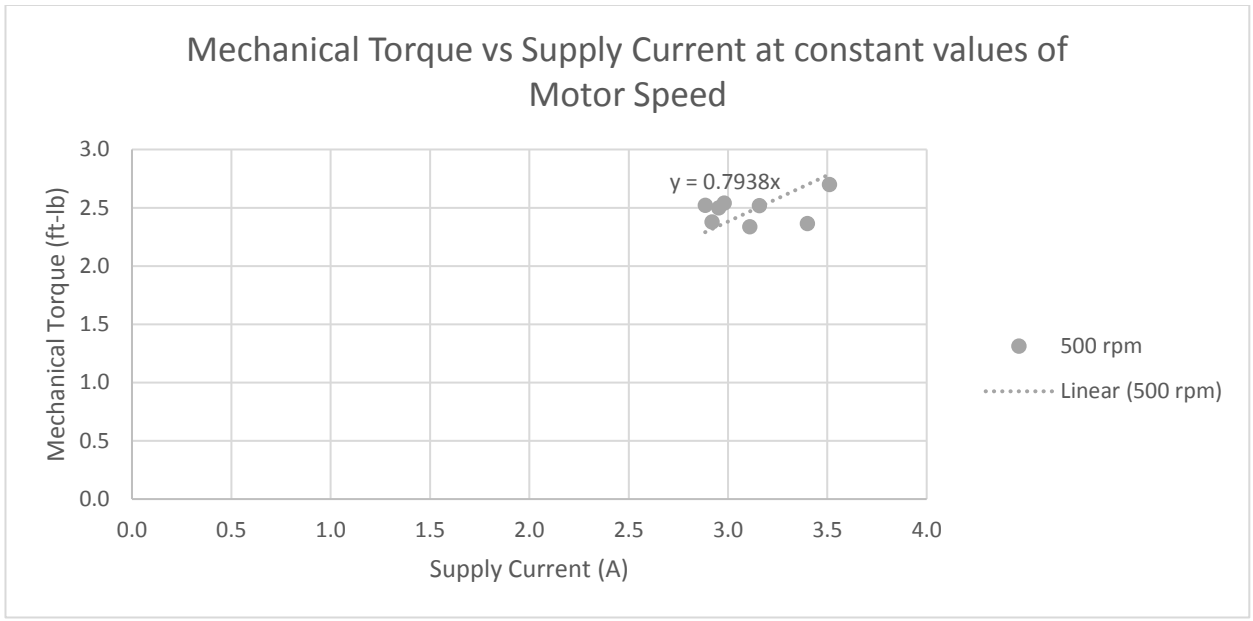

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.5927x - 1.6588
Mechanical Torque (ft-lb)
Supply Current (A)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
18.0
1000 rpm
Linear (1000 rpm)

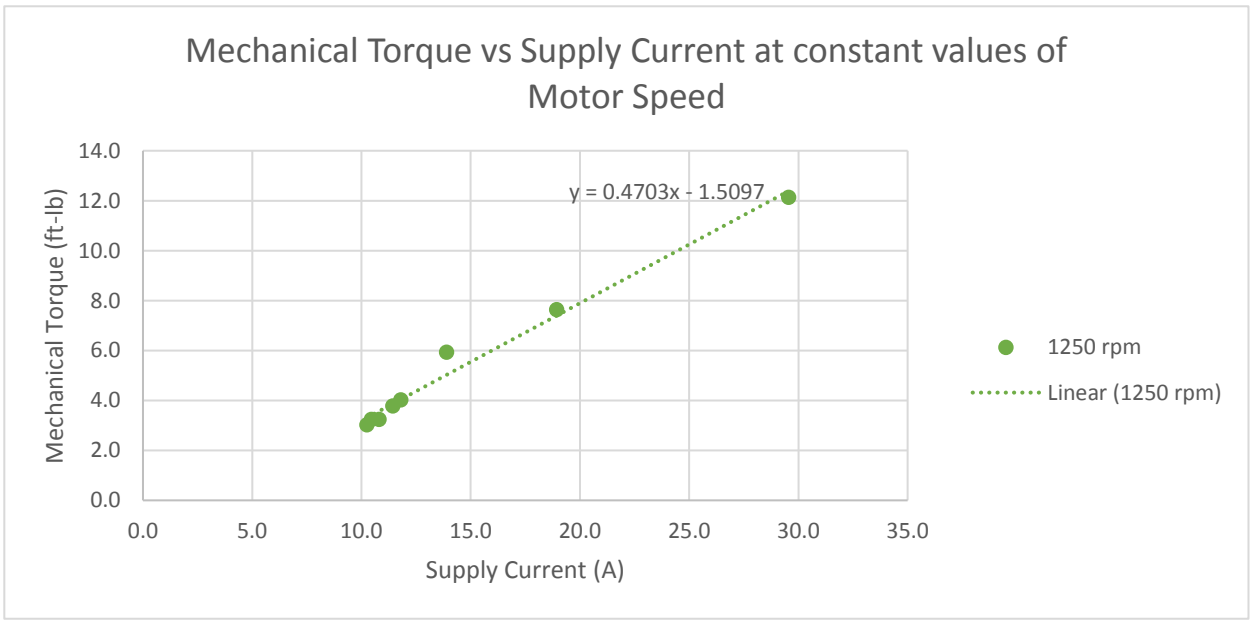

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.3163x - 0.283
R² = 0.9369
Mechanical Torque (ft-lb)
Supply Current (A)
0.0
5.0
10.0
15.0
20.0
25.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0
1750 rpm
Linear (1750 rpm)

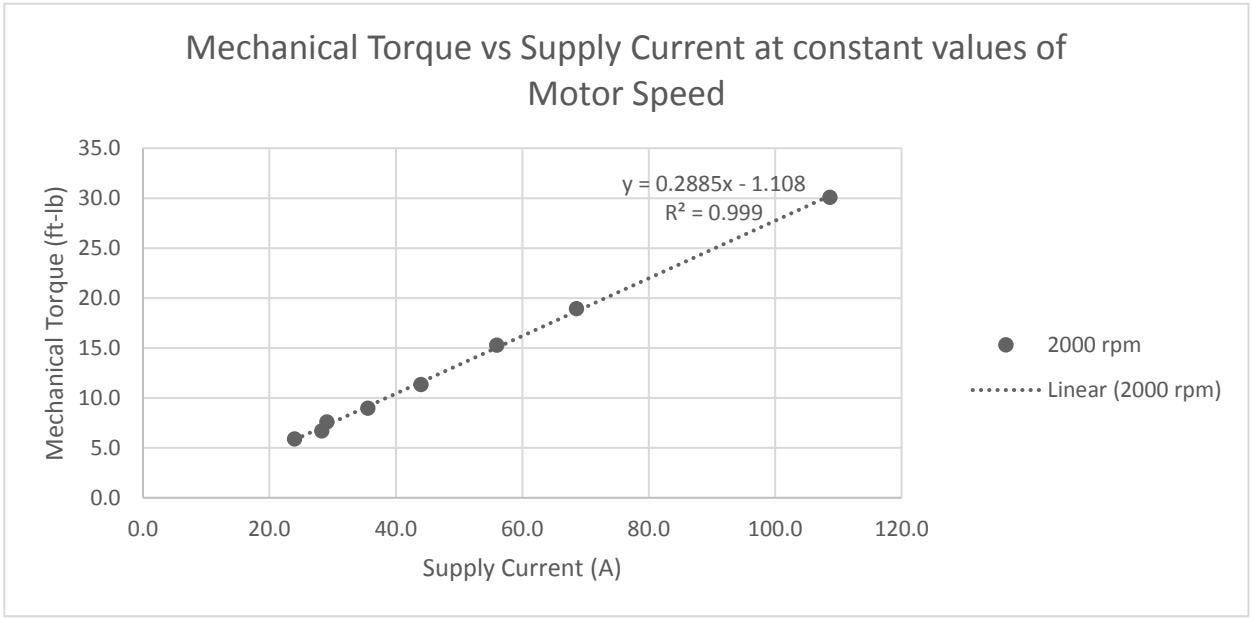

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.2294x - 0.5789
R² = 0.9973
Mechanical Torque (ft-lb)
Supply Current (A)
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0
0.0
50.0
100.0
150.0
200.0
2500 rpm
Linear (2500 rpm)

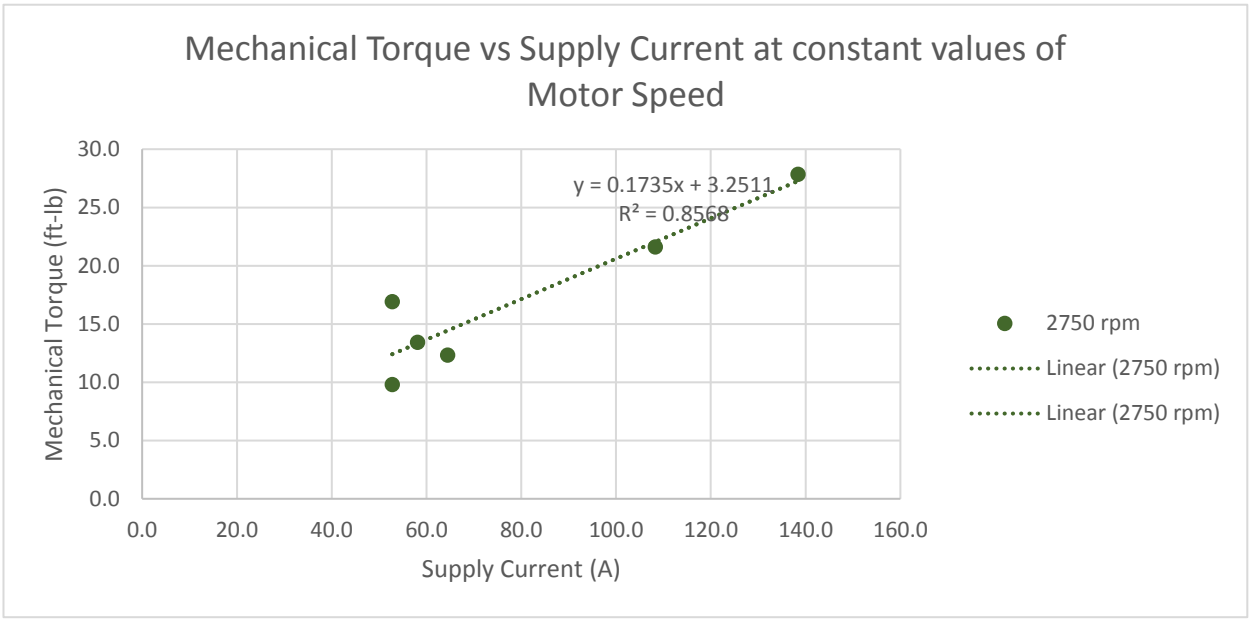

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.1655x + 1.9234
R² = 0.8552
Mechanical Torque (ft-lb)
Supply Current (A)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.0
50.0
100.0
150.0
200.0
3250 rpm
Linear (3250 rpm)

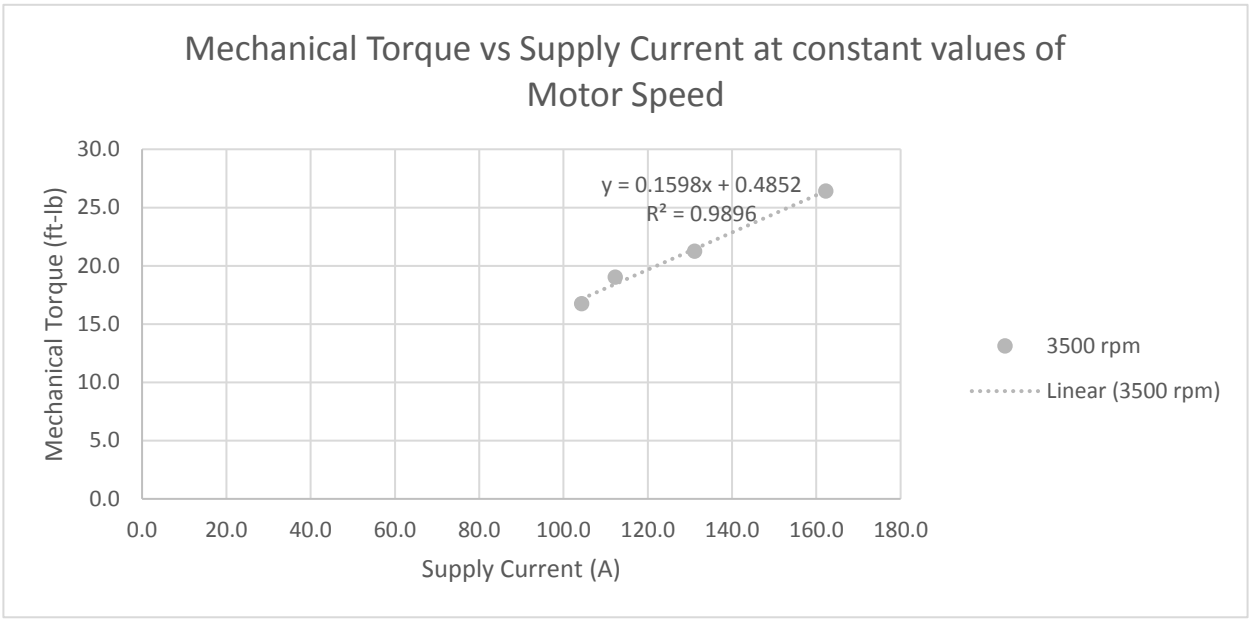

Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.1894x - 5.9599
R² = 1
Mechanical Torque (ft-lb)
Supply Current (A)
25.0
24.5
24.0
23.5
23.0
22.5
22.0
21.5
21.0
144.0
146.0
148.0
150.0
152.0
154.0
156.0
158.0
160.0
162.0
4000 rpm
Linear (4000 rpm)


Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.7938x
Mechanical Torque (ft-lb)
Supply Current (A)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
500 rpm
Linear (500 rpm)


Mechanical Torque vs Supply Current at constant values of Motor Speed
y = 0.4703x - 1.5097
Mechanical Torque (ft-lb)
Supply Current (A)
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
1250 rpm
Linear (1250 rpm)


Mechanical Torque vs Supply Current at constant values of Motor Speed
Mechanical Torque (ft-lb)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
Supply Current (A)
y = 0.2885x - 1.108
R² = 0.999
2000 rpm
Linear (2000 rpm)


Mechanical Torque vs Supply Current at constant values of Motor Speed
Mechanical Torque (ft-lb)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
160.0
Supply Current (A)
y = 0.1735x + 3.2511
R² = 0.8568
2750 rpm
Linear (2750 rpm)
Linear (2750 rpm)



Need Extrapolation for higher motor speed because of limitation of data collection. Motor becomes too hot too quick to continue because of combination of high motor speed and current.

Use the limitation region to set safe operation/ working zone for the motor.

USE LINEST FUNCTION FOR STATISTICS OF A STRAIGHT LINE:
http://www.colby.edu/chemistry/PChem/notes/linest.pdf
https://www.techonthenet.com/excel