

Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 36 - (1 * 0.015)

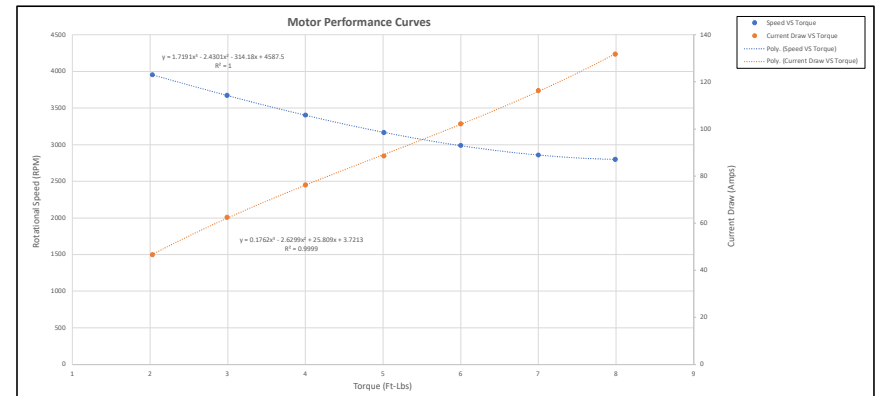
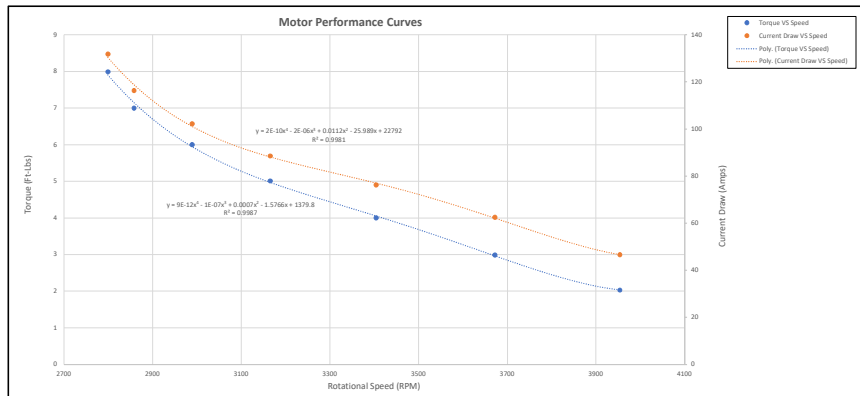
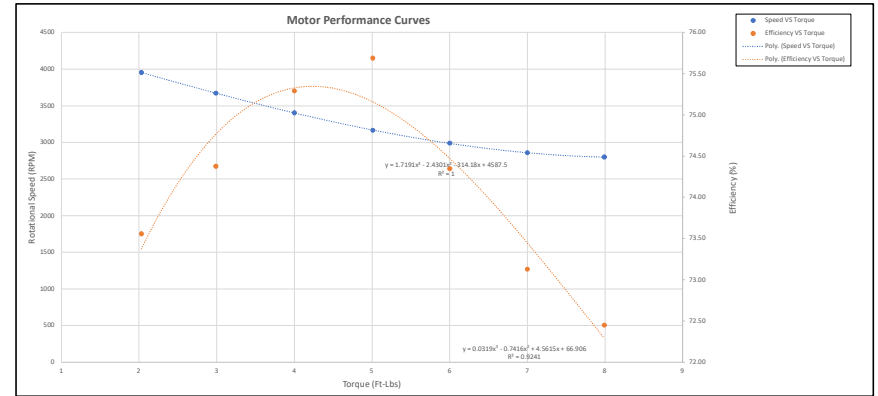
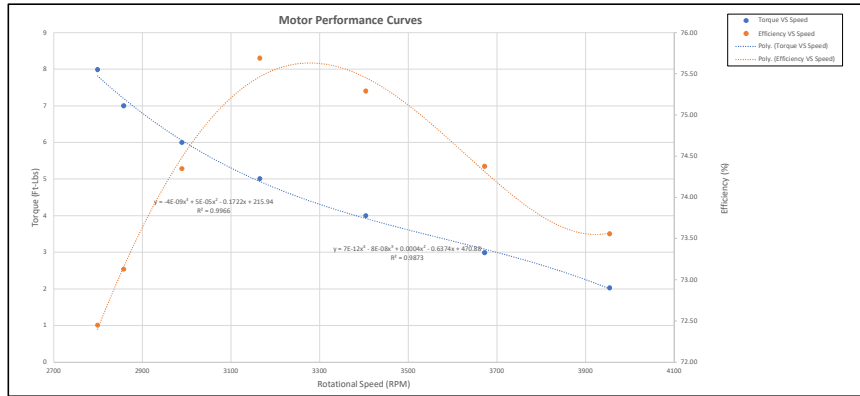
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 7/29/2011

Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.03	3954	35.3	43.6	2.9	2.96	46.56	2.08	1.53	73.56
2.99	3572	35.1	50.5	2.9	2.99	62.49	2.81	2.09	74.98
4	3404	34.9	73.3	3	2.94	76.24	3.44	2.59	75.29
5.01	3165	34.7	85.6	3	2.94	88.54	3.99	3.02	75.69
6	2989	34.5	99.2	3	2.97	102.17	4.6	3.42	74.35
7	2858	34.2	113.3	3	2.97	116.27	5.21	3.81	73.13
7.99	2799	34	128.8	3	2.98	131.78	5.88	4.26	72.45



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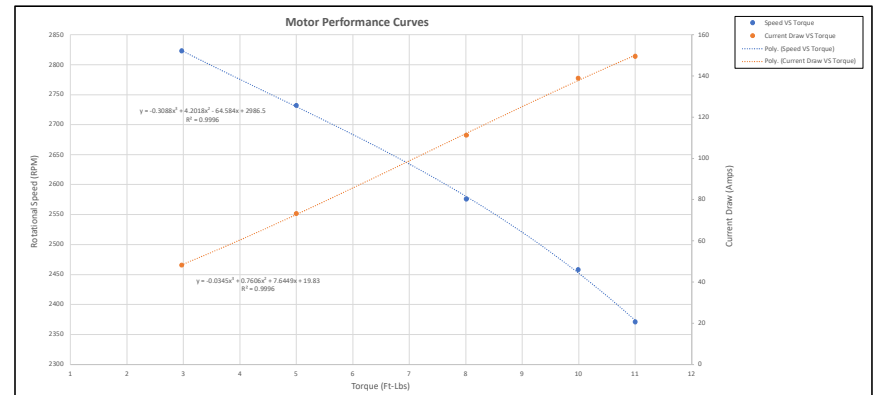
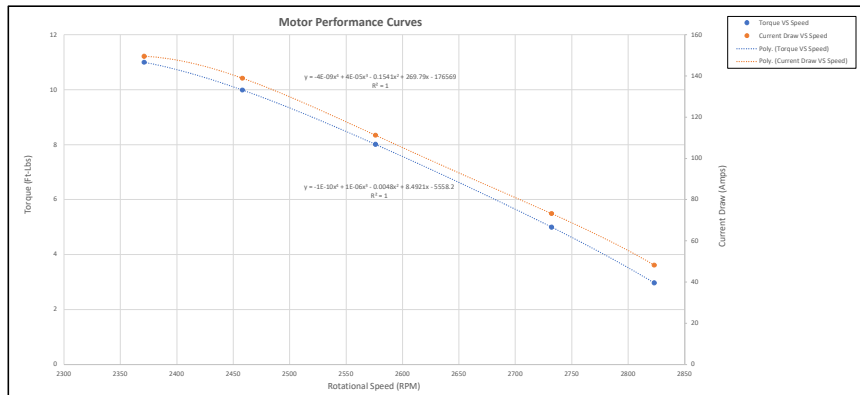
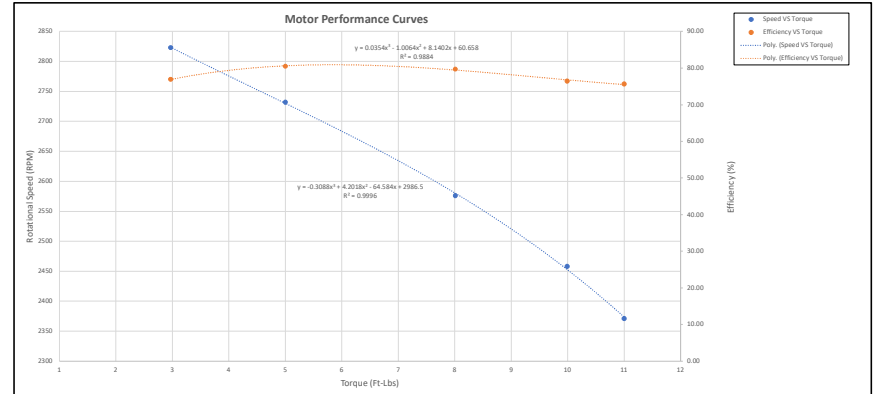
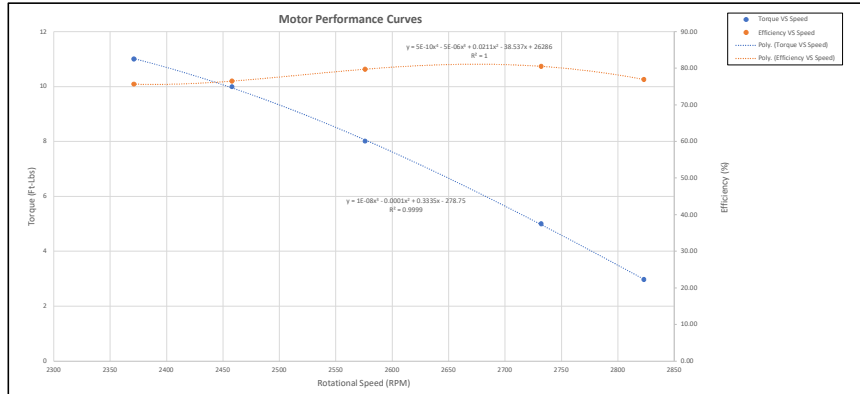
Brush Grade: K-254

Rotation Direction: Clockwise

Date Tested: 7/29/2011

Tested By: ERIC DIERDORF

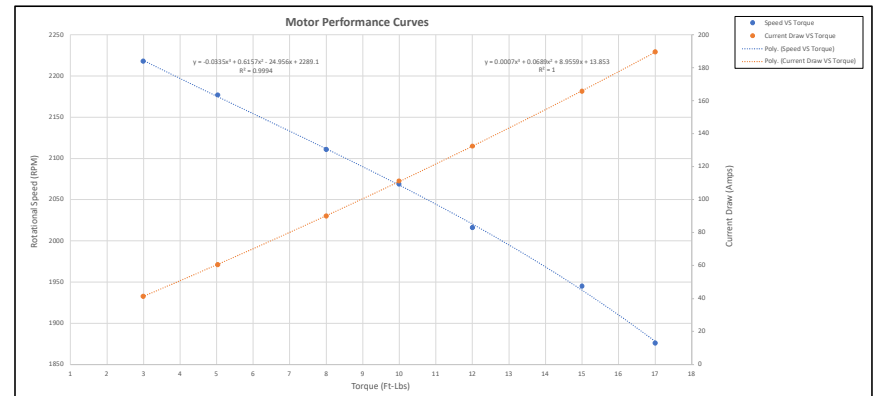
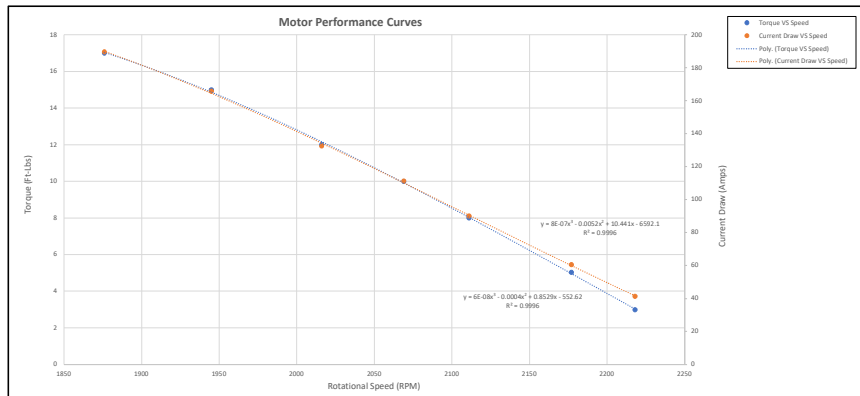
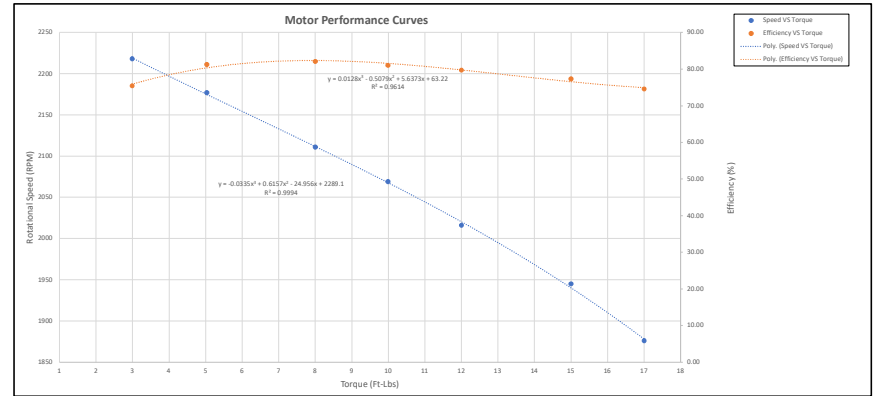
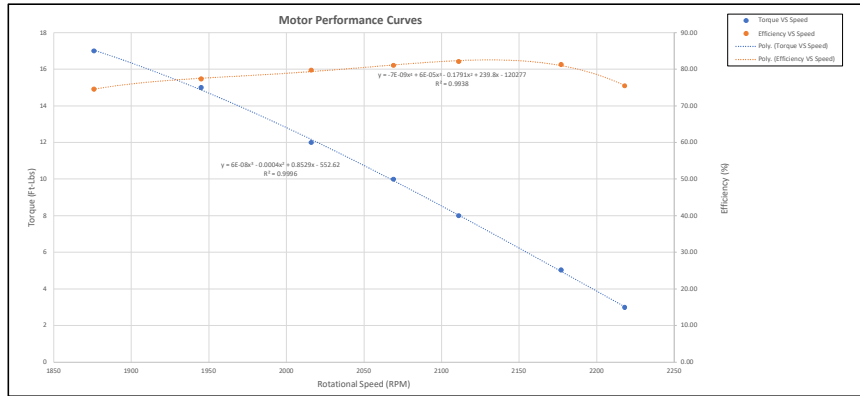
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.97	2823	35.4	43.2	4.8	5	48.2	2.08	1.6	76.92
5	2732	35	48.2	4.8	5.01	73.21	3.23	2.6	80.50
8.01	2576	34.3	106.3	4.8	4.95	111.25	4.93	3.93	79.72
9.99	2458	33.9	133.9	4.9	5.03	138.93	6.12	4.68	76.47
11	2371	33.8	144.5	4.9	5.04	149.94	6.57	4.97	75.65



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 Brush Grade: X-254
 Rotation Direction: Clockwise
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 Tested By: ERIC DIERDORF

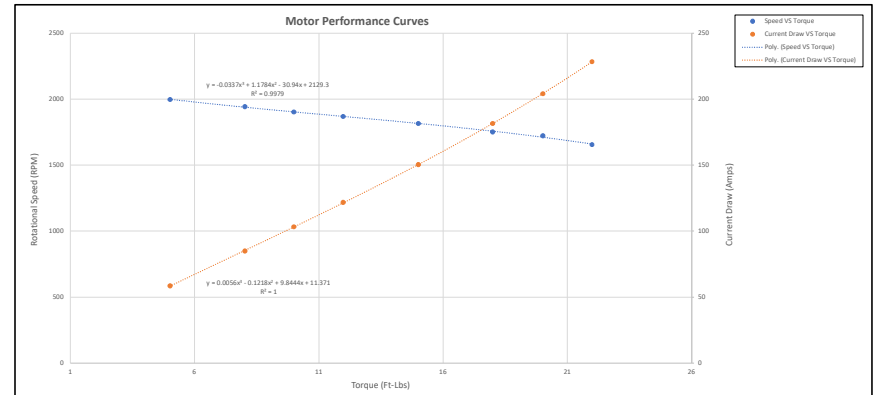
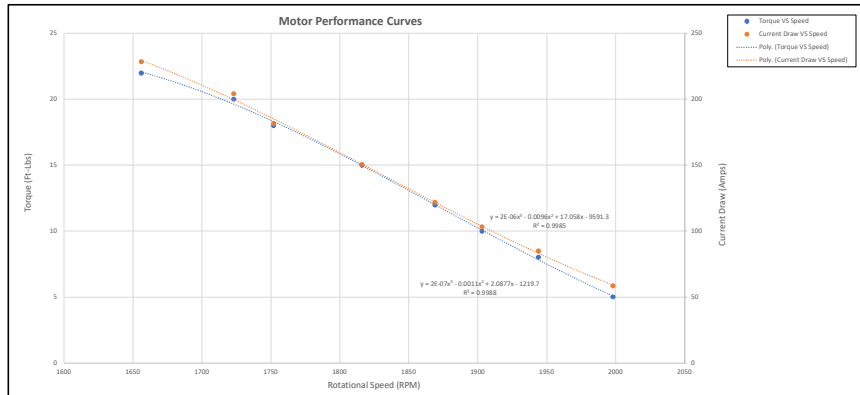
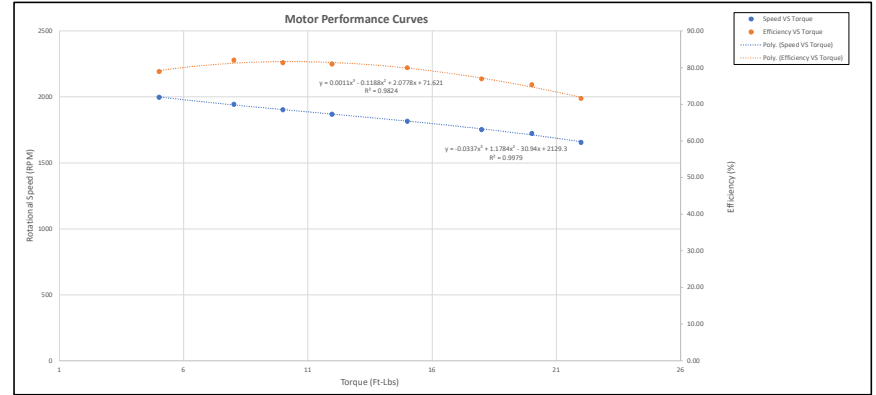
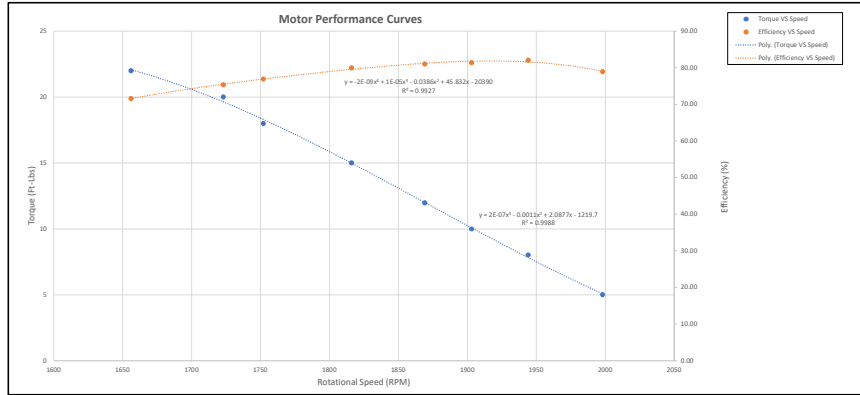
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.99	2218	35.5	33.3	7.8	8.08	41.38	1.67	1.26	75.45
5.03	2177	35.2	32.5	7.8	8.05	40.55	2.56	2.08	81.25
8	2111	34.8	82	7.8	8.06	90.06	3.91	3.21	82.10
9.99	2069	34.4	103.3	7.8	8.05	111.35	4.85	3.93	81.03
12	2016	34.1	124.4	7.9	8.04	132.44	5.77	4.6	79.72
15	1945	33.6	157.6	7.9	8.12	165.72	7.19	5.56	77.33
17	1876	33.1	181.3	7.9	8.31	189.61	8.14	6.07	74.57



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Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.01	1998	35.3	48.3	9.7	10.2	58.5	2.42	1.91	78.93
8.02	1944	34.9	74.2	9.8	10.12	84.87	3.62	2.97	81.04
9.99	1903	34.6	93.1	9.8	10.16	103.26	4.45	3.62	81.35
11.07	1869	34.3	111.5	9.8	10.24	121.74	5.26	4.26	80.99
15	1816	33.9	140.1	9.9	10.27	150.37	6.49	5.19	79.97
17.99	1752	33.3	171.5	9.9	10.09	181.99	7.8	6.1	78.92
20.01	1723	33	194.2	9.9	10	204.2	8.72	6.57	75.34
21.99	1656	32.6	218.2	10	10.3	228.5	9.68	6.93	71.59



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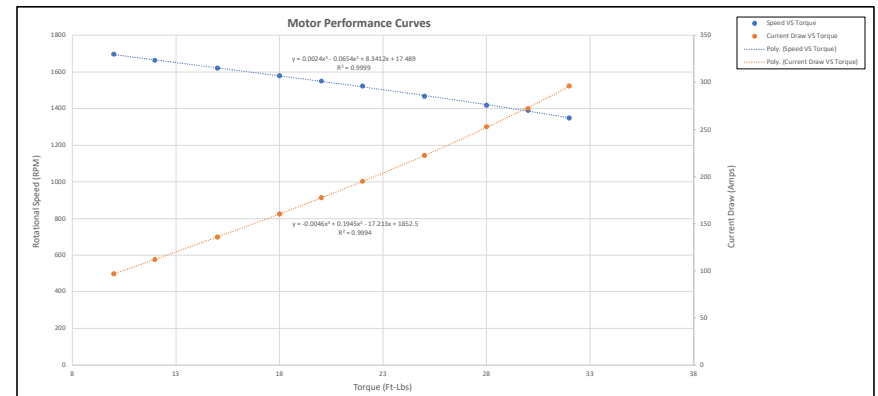
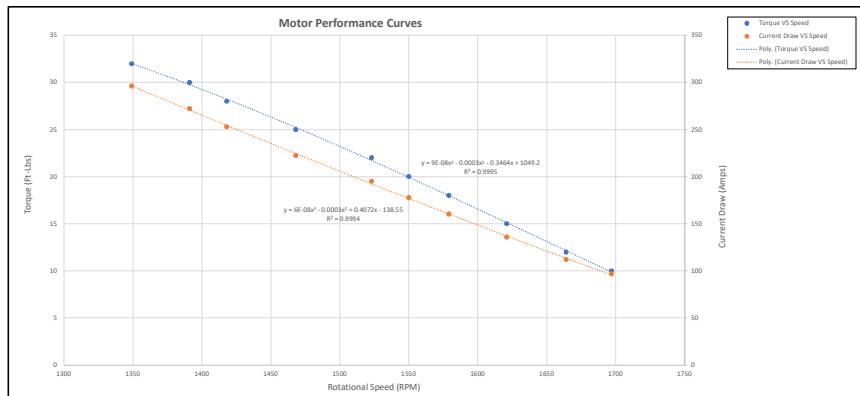
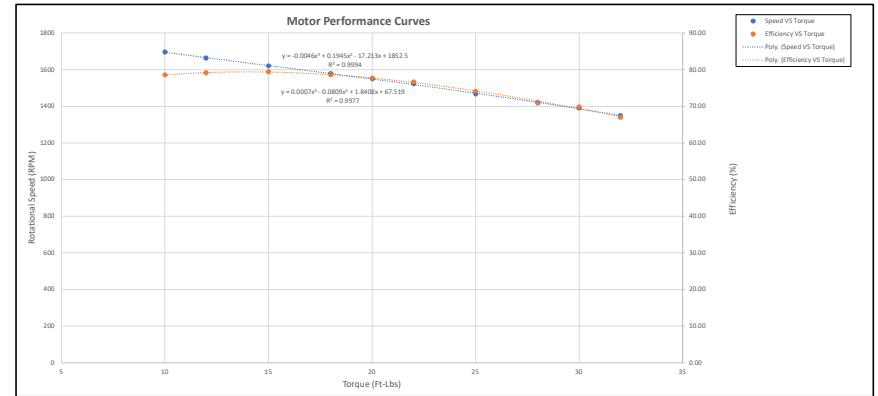
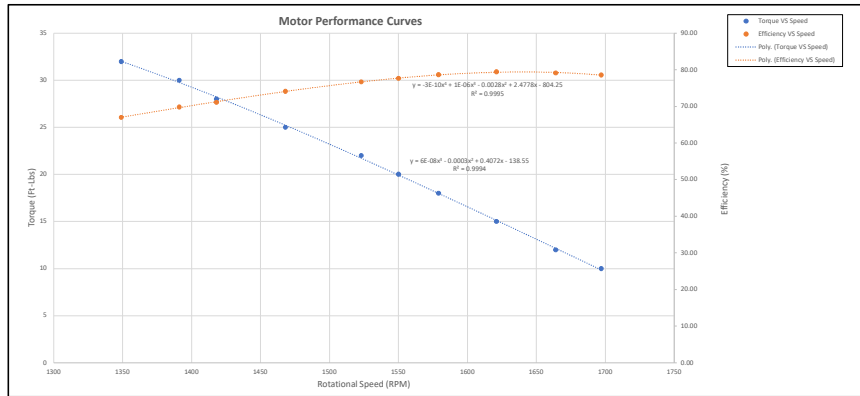
Brush Grade: X-254

Rotation Direction: Clockwise

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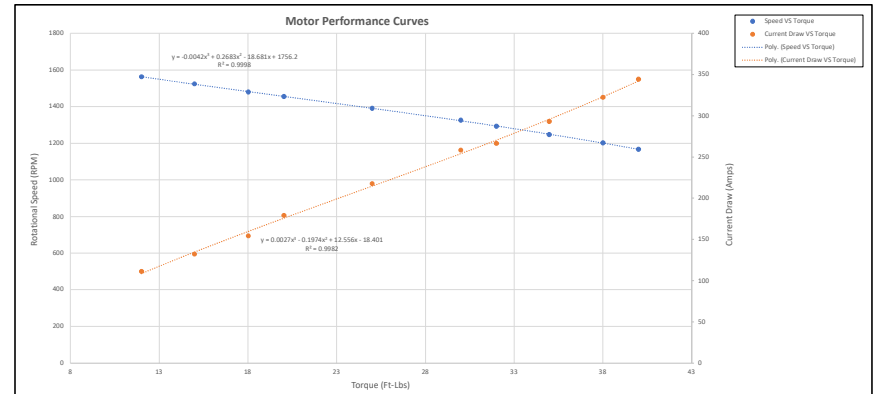
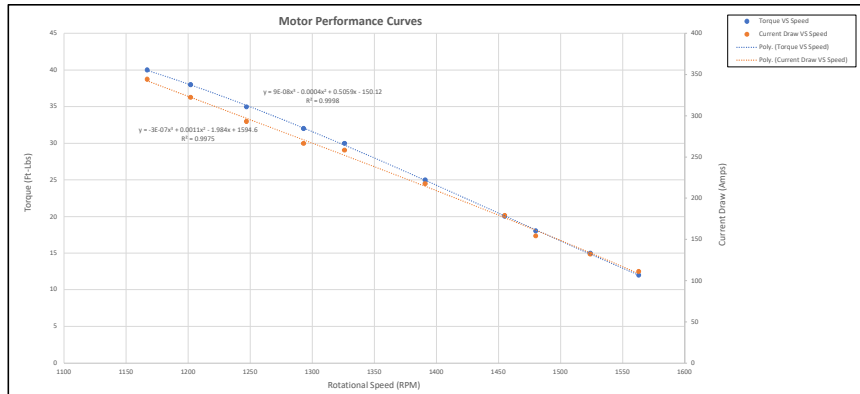
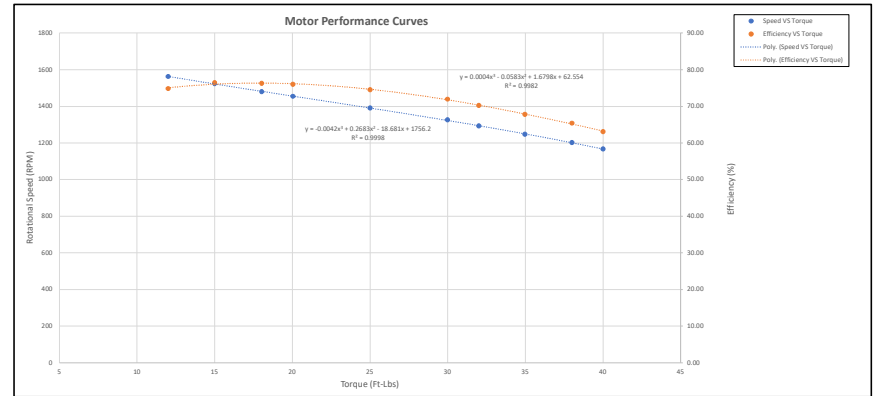
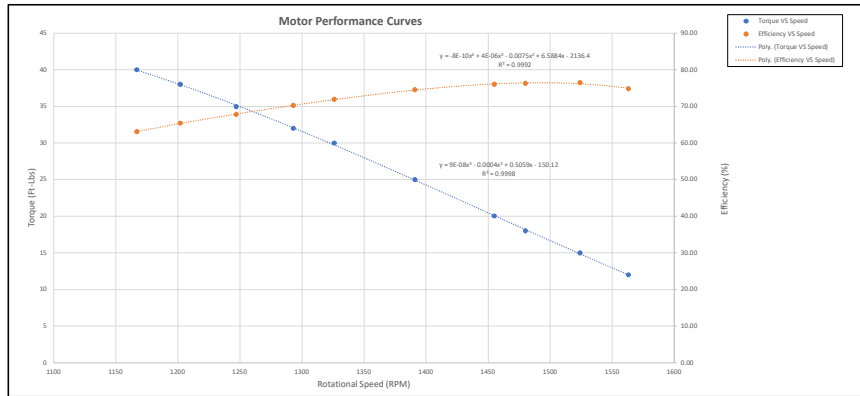
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
10	1697	34.8	81.7	14.7	15.2	96.9	4.11	3.23	78.59
11.98	1564	34.6	96.8	14.9	15.24	112.04	4.79	3.29	79.12
15	1621	34.2	120.6	15	15.18	135.78	5.83	4.63	79.42
18	1579	33.8	145.1	15.1	15.2	160.3	6.88	5.41	78.63
20.02	1550	33.6	162.3	15.2	15.35	177.65	7.61	5.91	77.66
22.01	1521	33.2	179.8	15.3	15.3	195.1	8.32	6.38	76.66
25	1468	32.8	207.4	15.4	15.03	222.43	9.43	6.99	74.13
28	1418	32.4	237.2	15.5	15.19	252.89	10.63	7.56	71.12
30	1391	32.1	257	15.6	15.23	272.23	11.37	7.94	69.83
31.99	1349	31.7	281.2	15.7	15.07	296.27	12.27	8.22	66.99



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Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
12	1563	34.6	90.9	20.1	20.26	111.16	4.77	3.57	74.84
14.99	1524	34.3	111.8	20.4	20.35	132.15	5.69	4.25	76.45
18.02	1480	34	134	20.7	20.31	154.31	6.66	5.08	76.28
20.03	1455	33.7	148.8	20.9	30.33	179.13	7.3	5.55	76.03
25	1391	33.1	187.2	21.2	30.41	217.61	8.88	6.62	74.55
29.99	1336	32.5	227.1	21.4	30.59	258.09	10.52	7.57	71.96
32	1293	32.2	246	21.7	20.4	266.4	11.22	7.88	70.23
34.97	1247	31.8	273	21.9	20.13	293.13	12.24	8.3	67.81
38	1202	31.4	302.2	22.1	20.17	322.37	13.3	8.7	65.41
40	1167	31	324.1	22.4	20.12	344.22	14.09	8.89	63.05



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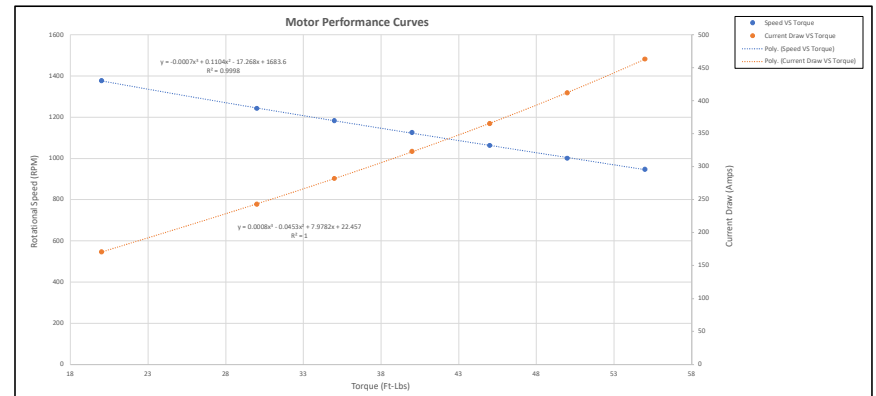
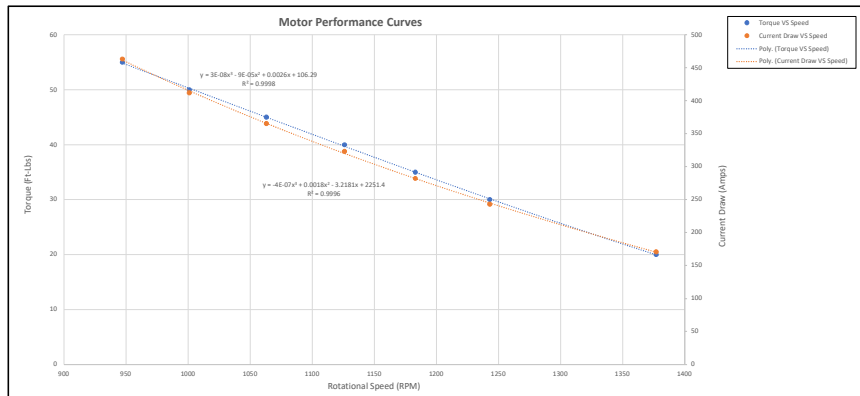
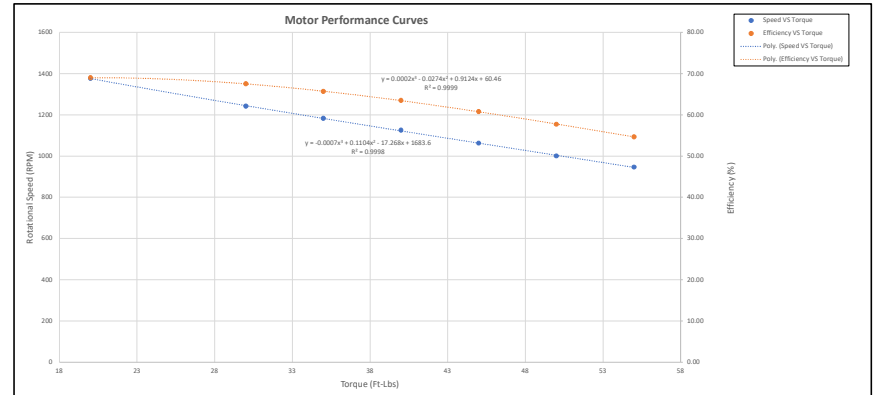
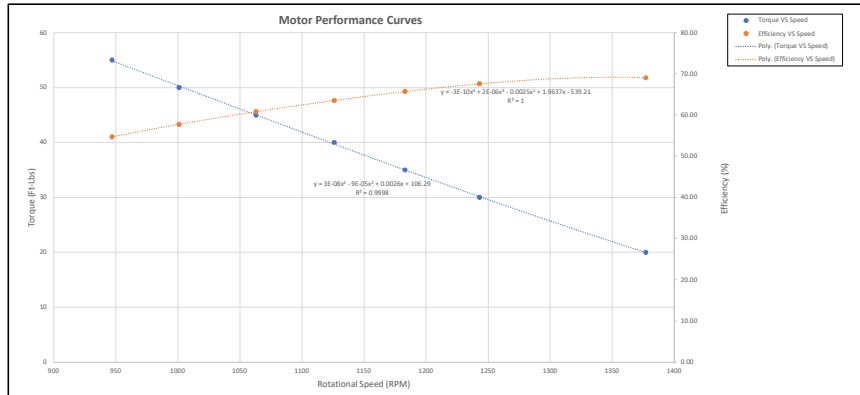
Brush Grade: X-254

Rotation Direction: Clockwise

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Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
20	1377	33.8	145.3	29.6	25.38	170.68	7.59	5.24	69.04
30	1243	32.6	217.8	29.1	25.3	243.1	10.51	7.1	67.55
34.99	1183	32.1	256.6	28.5	25.44	282.04	12.01	7.89	65.70
39.99	1126	31.5	298	28	25.2	323.2	13.51	8.58	63.51
44.99	1063	30.8	339.9	27.4	25.47	365.37	14.98	9.11	60.81
49.99	1001	30.1	386.2	26.8	25.8	412	16.40	9.52	57.93
54.99	947	29.4	438	26.2	25.23	463.23	18.12	9.91	54.69



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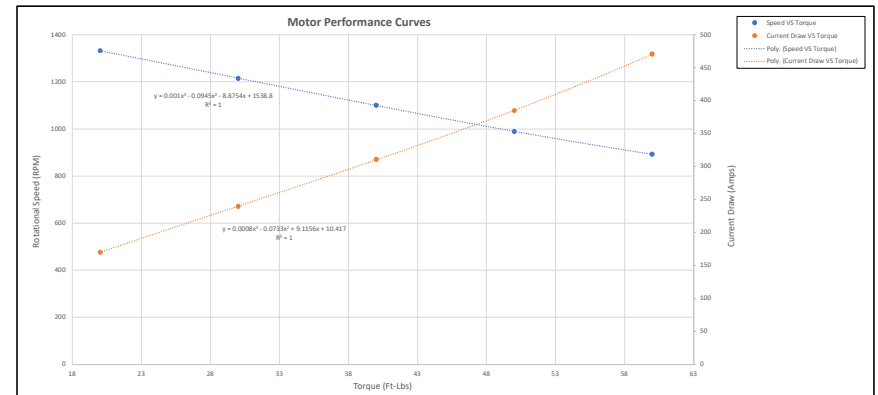
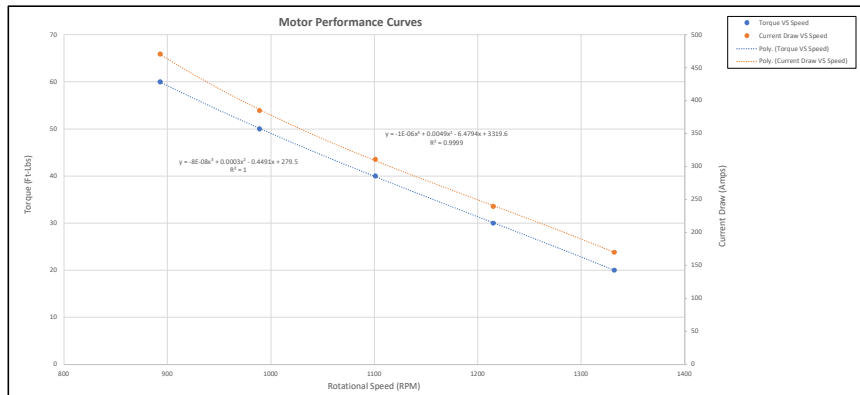
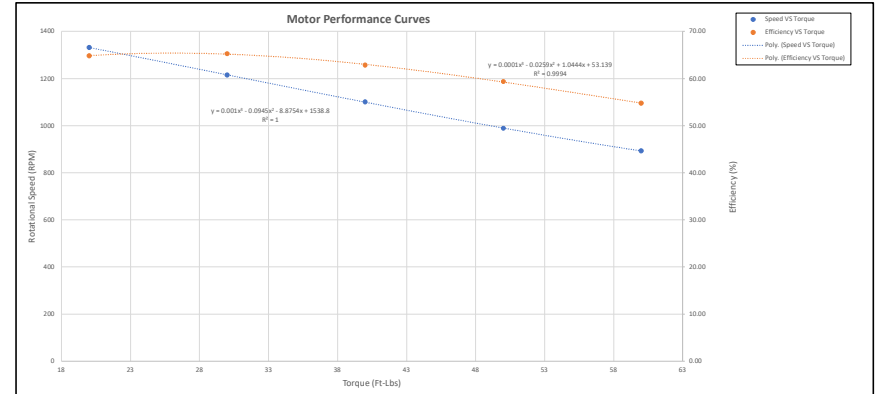
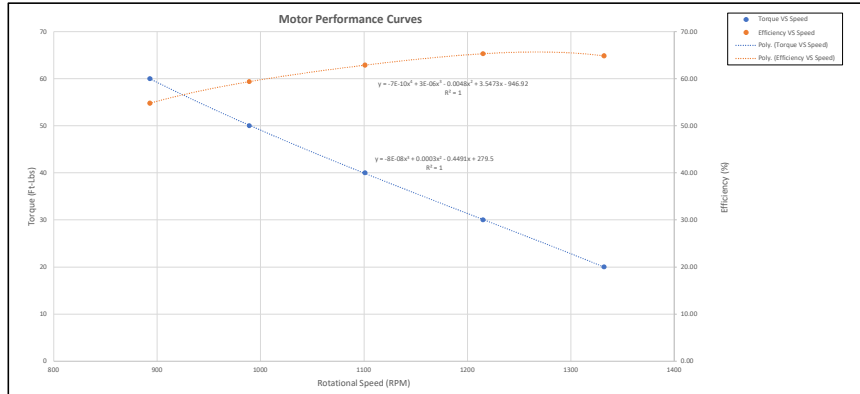
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 7/29/2011

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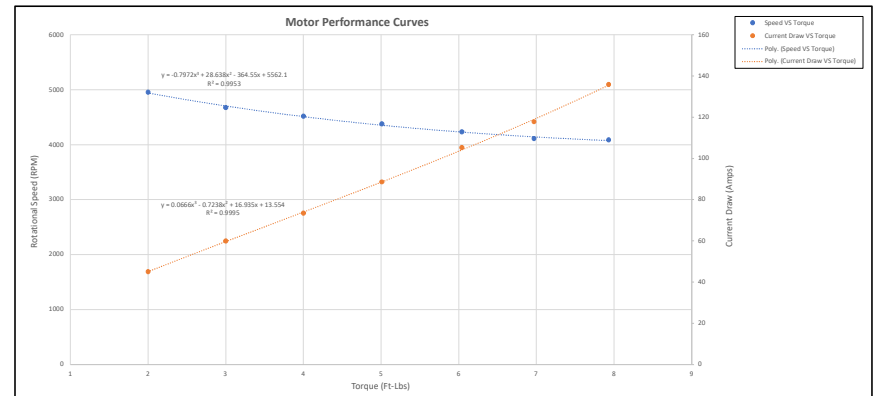
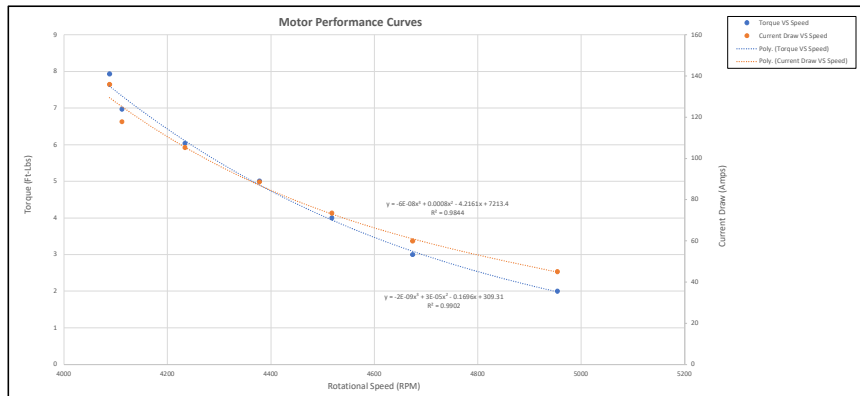
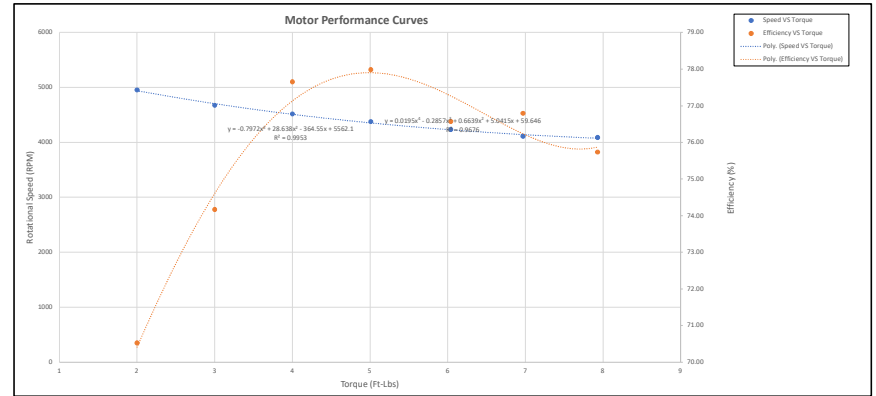
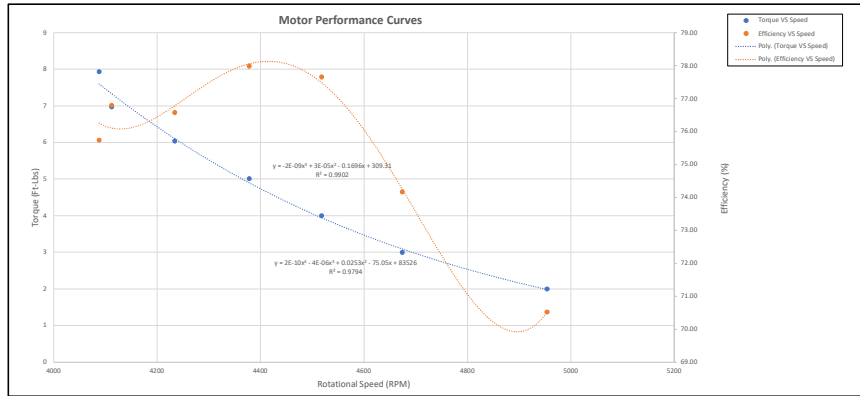
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
20.01	1332	33.9	139.7	36.1	30.47	170.17	7.82	5.07	64.83
30	1215	32.8	209.1	35.1	30.47	239.57	10.61	6.94	65.29
40	1101	31.7	280.7	34.2	30.28	310.98	13.33	8.38	62.87
50.01	989	30.6	354.3	33.1	30.72	385.02	15.87	9.42	59.36
59.99	893	29.3	440.2	32.1	30.38	470.58	18.62	10.2	54.78



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 Tested By: ERIC DIERDORF

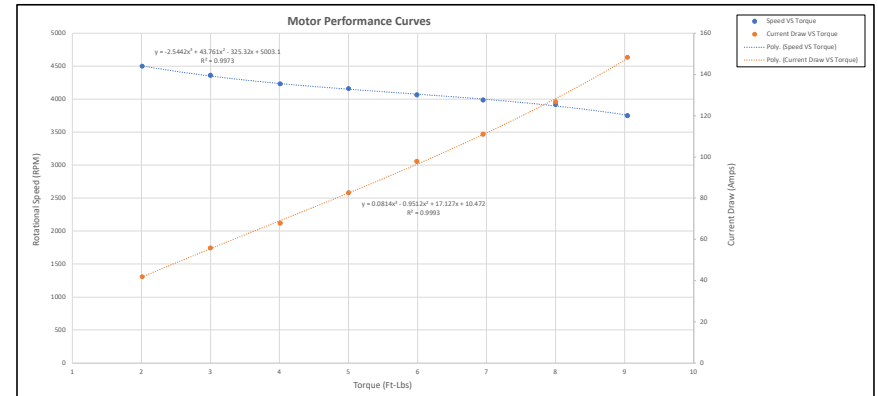
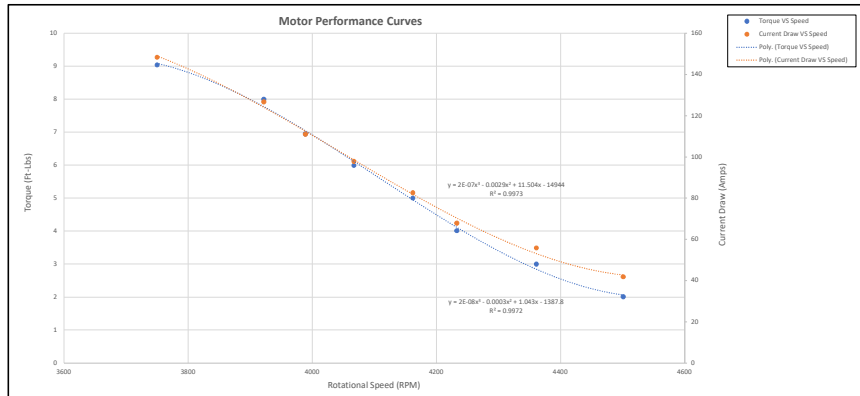
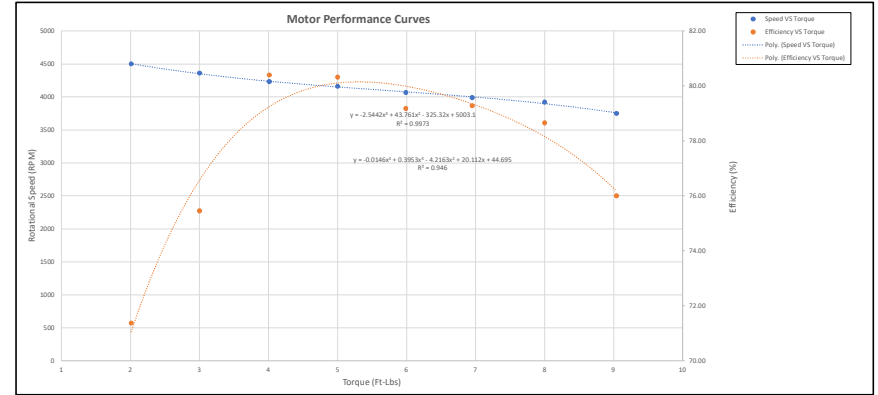
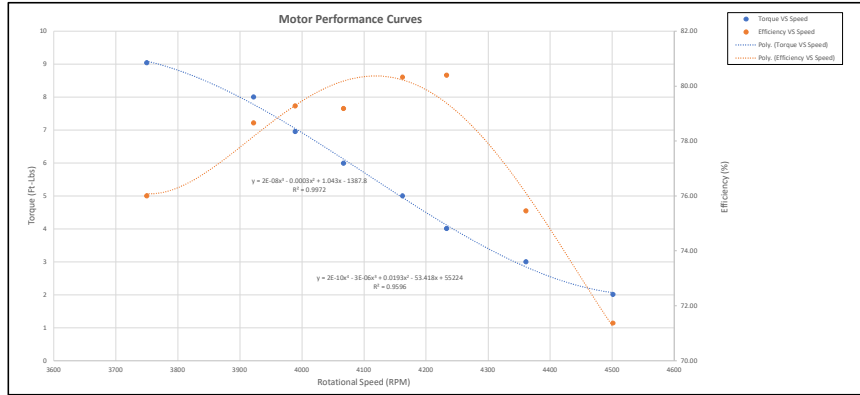
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2	4954	47.2	42.1	3	2.95	45.05	2.68	1.89	70.52
3	4674	47	56.9	3	2.98	59.88	3.6	2.67	74.17
4	4518	46.8	70.5	2.9	2.94	73.44	4.43	3.44	77.65
5.01	4378	46.6	85.6	2.9	2.98	88.58	5.36	4.18	77.99
6.04	4234	46.3	102.3	2.9	2.96	105.26	6.36	4.87	76.57
6.97	4112	46.1	114.8	2.9	3	117.8	7.11	5.46	76.79
7.93	4088	45.8	132.9	3	2.98	135.88	8.16	6.18	75.74



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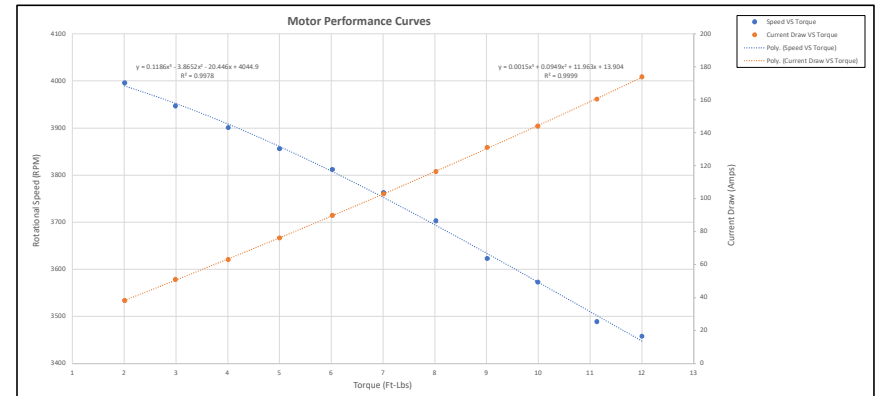
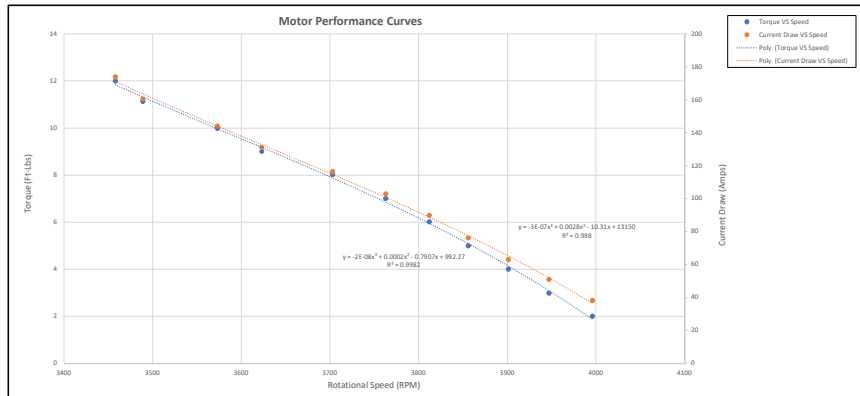
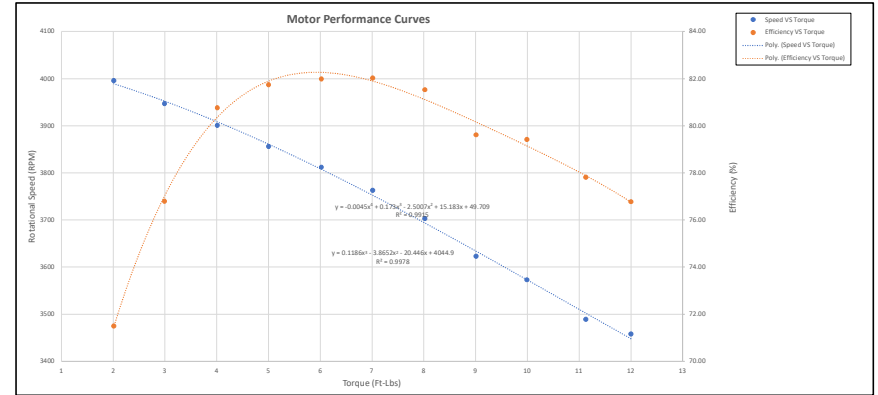
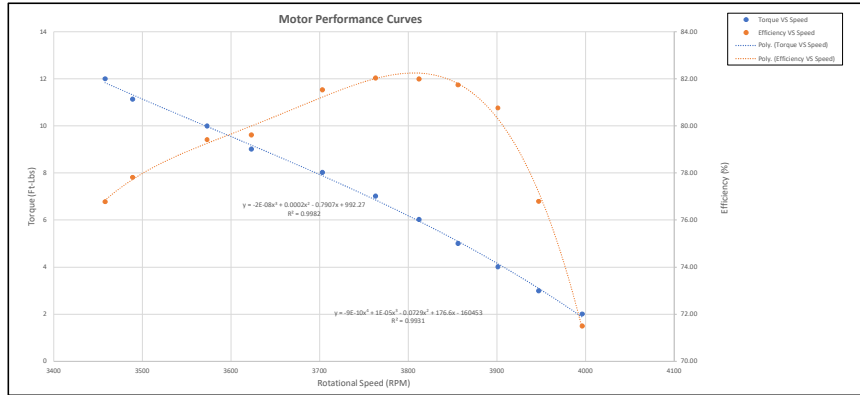
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.01	4501	47.3	37.8	3.8	4.02	41.82	2.41	1.72	71.37
3	4361	47.1	31.8	3.8	4.04	55.84	3.1	2.49	79.45
4.01	4233	46.9	63.8	3.8	4.06	67.86	4.03	3.24	80.40
5	4162	46.7	78.5	3.8	4.09	82.59	4.93	3.96	80.32
5.99	4057	46.5	93.8	3.8	4.05	97.85	5.86	4.64	79.18
6.95	3985	46.3	107.1	3.9	3.97	111.07	6.66	5.28	79.28
8	3922	46	122.7	3.8	4.05	126.75	7.59	5.97	78.66
9.04	3750	45.7	138.4	3.8	9.97	148.37	8.5	6.46	76.00



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 Date Tested: 6/25/2010
 Tested By: ERIC DIERDORF

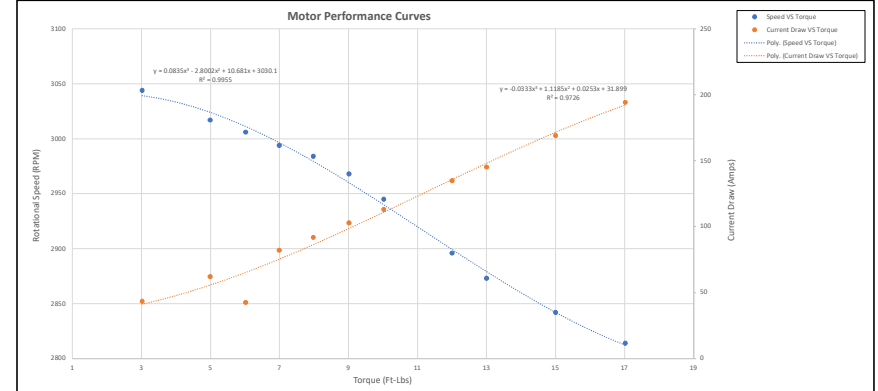
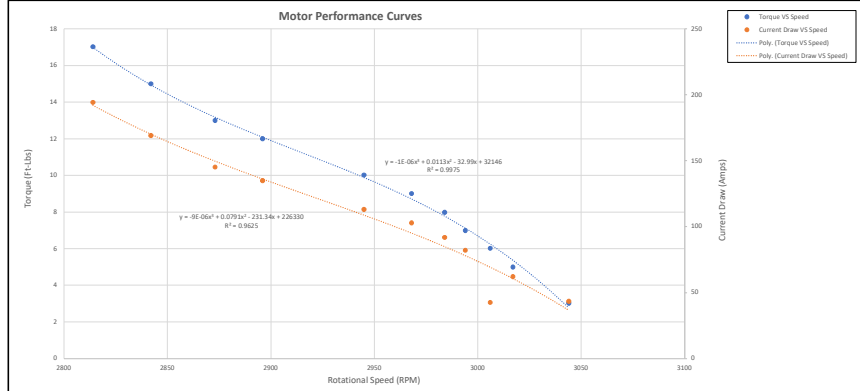
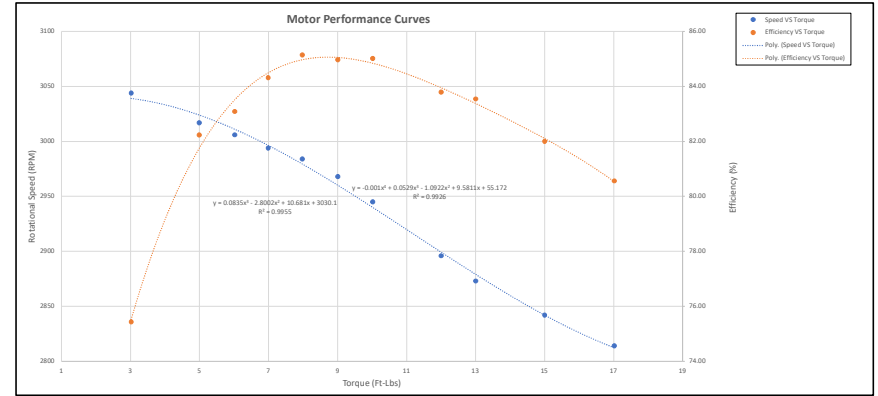
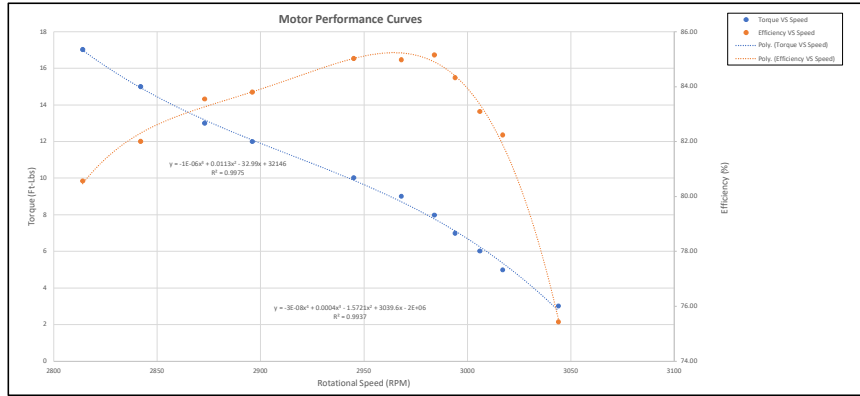
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.01	3996	47.4	33.2	4.6	5.05	38.25	2.14	1.53	71.50
2.99	3947	47.2	45.8	4.6	5.07	50.87	2.93	2.25	76.39
4.01	3901	47	58	4.6	5.08	63.08	3.69	2.98	80.76
5	3856	46.8	71.1	4.6	5.08	76.18	4.49	3.67	81.74
6.02	3812	46.6	84.8	4.6	5.07	89.87	5.33	4.37	81.99
7.01	3763	46.4	97.9	4.6	5.01	102.91	6.12	5.02	82.03
8.02	3703	46.2	111.4	4.6	5.07	116.47	6.93	5.65	81.53
9.01	3623	46	126.1	4.6	5.02	131.12	7.8	6.21	79.62
9.99	3573	45.7	139	4.6	5.05	144.05	8.55	6.79	79.42
11.13	3485	45.5	155.4	4.6	5.01	160.41	9.51	7.4	77.81
12	3458	45.3	168.9	4.6	5.01	173.91	10.29	7.9	76.77



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 48 - (I * 0.015)
 Brush Grade: K-24
 Rotation Direction: Clockwise
 Date Tested: 6/25/2010
 Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3.02	3044	47.4	35.3	7.5	8.06	43.36	2.32	1.75	75.43
4.99	3017	47.1	54.1	7.5	8.06	62.16	3.49	2.87	82.23
6.02	3006	46.9	34.5	7.5	8.06	42.56	4.14	3.44	83.09
6.99	2994	46.8	74	7.5	8.07	82.07	4.72	3.98	84.32
7.98	2984	46.6	83.8	7.6	8.06	91.86	5.32	4.53	85.15
9.01	2968	46.5	94.7	7.6	8.09	102.79	5.90	5.09	84.97
10.02	2945	46.4	105	7.6	8.06	113.06	6.61	5.62	85.02
12	2896	46	126.8	7.6	8.05	134.85	7.9	6.62	83.80
13	2873	45.8	137.2	7.6	8.01	145.21	8.51	7.11	83.55
15	2842	45.5	160.9	7.6	8.21	169.11	9.89	8.11	82.00
17.02	2814	45	186.1	7.6	8.18	194.28	11.32	9.12	80.57



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (I * 0.015)

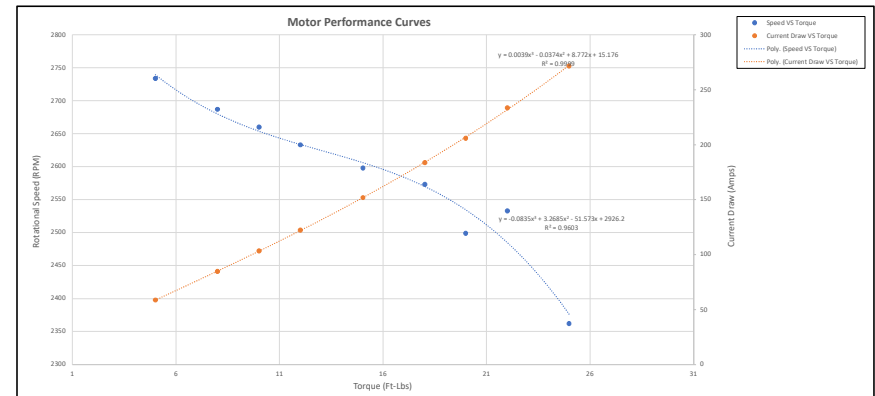
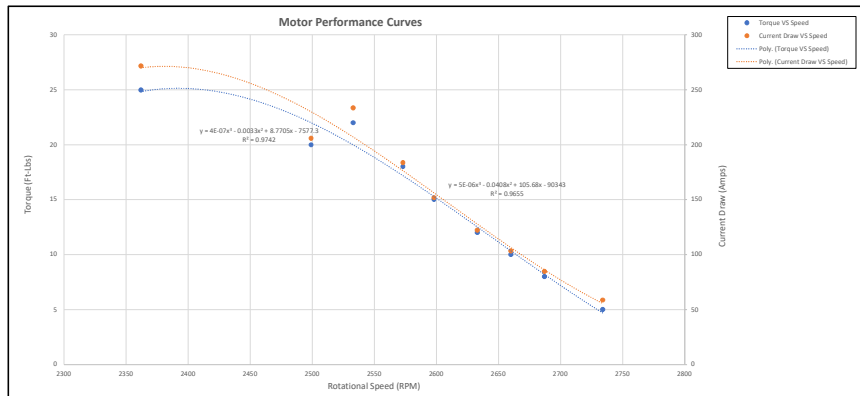
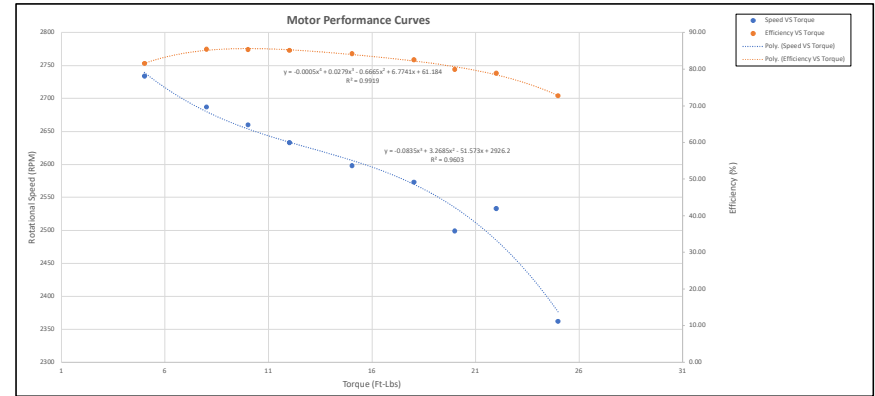
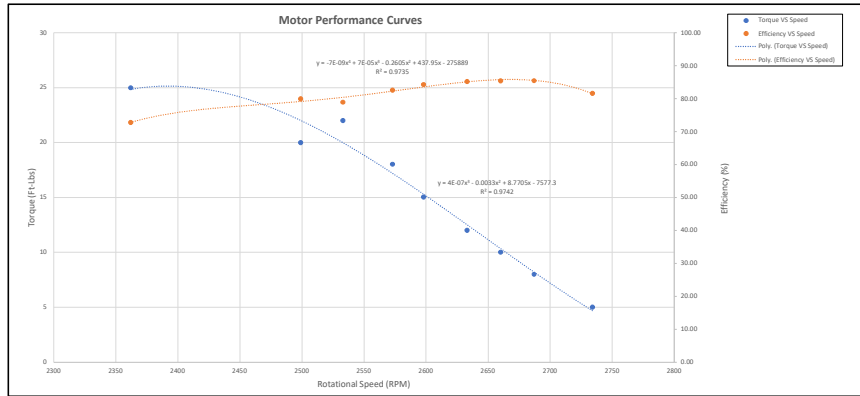
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

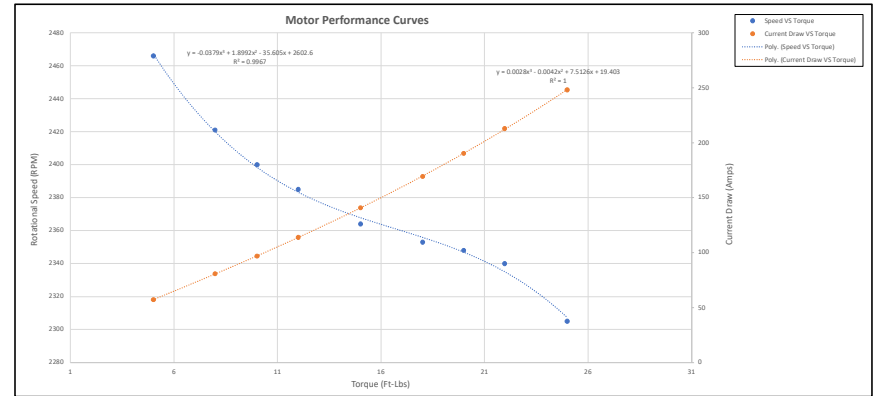
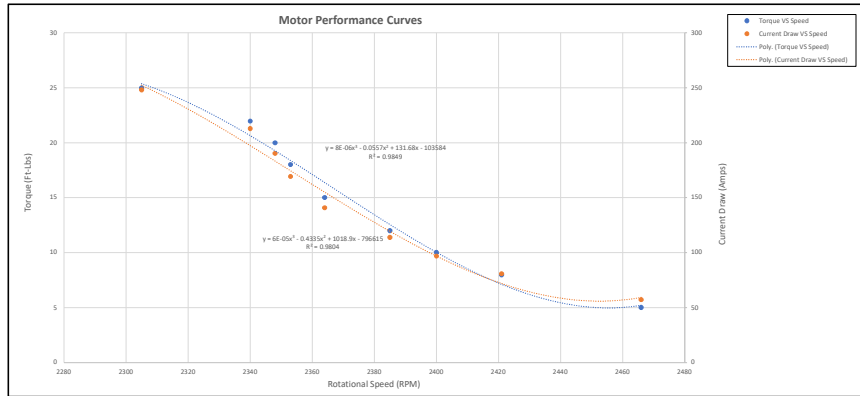
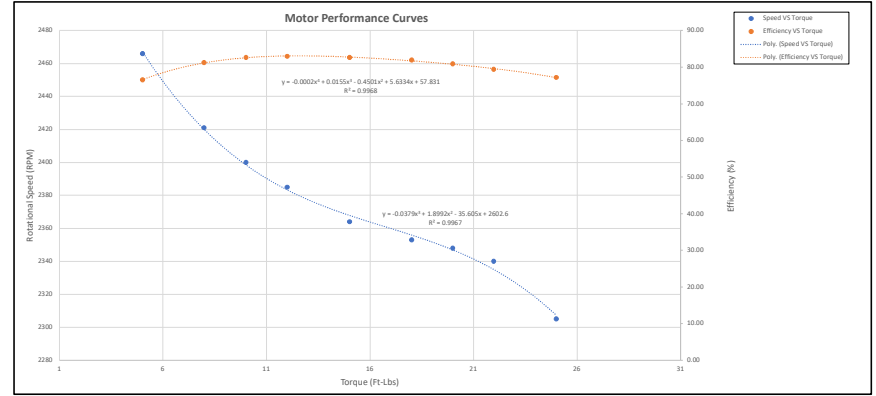
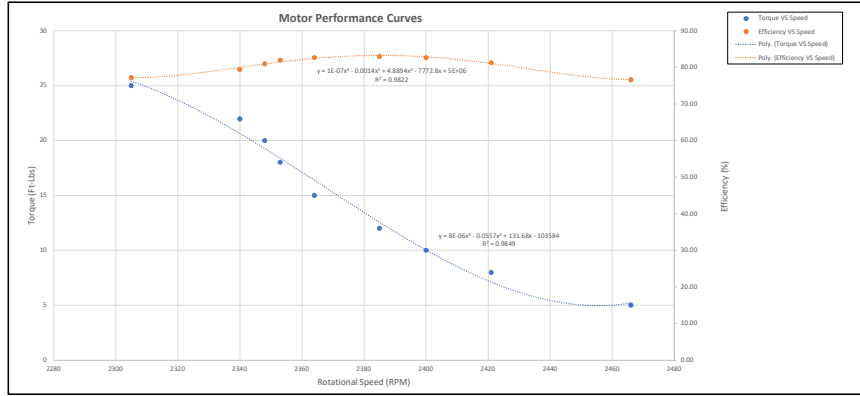
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.01	2734	47.1	48.5	9.5	10.19	58.69	3.2	2.61	81.56
8	2587	46.8	74.5	9.5	10.2	84.7	4.8	4.1	85.42
10.01	2660	46.5	93.2	9.5	10.16	103.36	5.94	5.07	85.35
12.01	2633	46.2	112.1	9.6	10.21	122.31	7.07	6.02	85.15
15.03	2598	45.7	141.7	9.6	10.2	151.9	8.82	7.43	84.24
18.02	2571	45.3	173.5	9.6	10.14	183.64	10.66	8.8	82.55
19.99	2499	44.9	195.7	9.6	10.17	205.87	11.9	9.51	79.92
22	2533	44.5	223.5	9.7	10.06	231.56	13.45	10.61	78.88
24.98	2362	43.7	261.5	9.7	10.19	271.69	15.45	11.24	72.75



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 48 - (1 * 0.015)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 10/6/2004
 Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.01	2466	47.5	45.1	12.1	12.07	57.17	3.07	2.35	76.55
7.98	2321	47.1	48.7	12.2	12.09	60.79	4.53	3.68	81.24
10.01	2400	46.9	48.8	12.2	12.06	60.86	5.53	4.57	82.64
12	2385	46.7	101.8	12.3	12.06	113.86	6.57	5.45	82.95
15.01	2364	46.3	128.7	12.3	12.11	140.81	8.18	6.76	82.64
18.01	2353	45.8	157.3	12.4	12.16	169.01	9.95	8.07	81.33
19.99	2348	45.4	178.1	12.5	12.17	190.27	11.05	8.94	80.90
21.97	2340	45.1	200.8	12.5	12.02	212.82	12.33	9.79	79.40
24.99	2305	44.3	236.1	12.6	12.02	248.12	14.21	10.97	77.20



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (1 * 0.015)

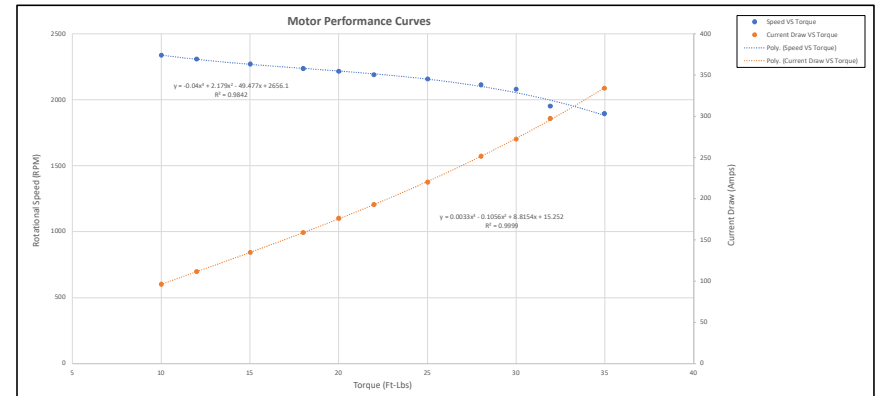
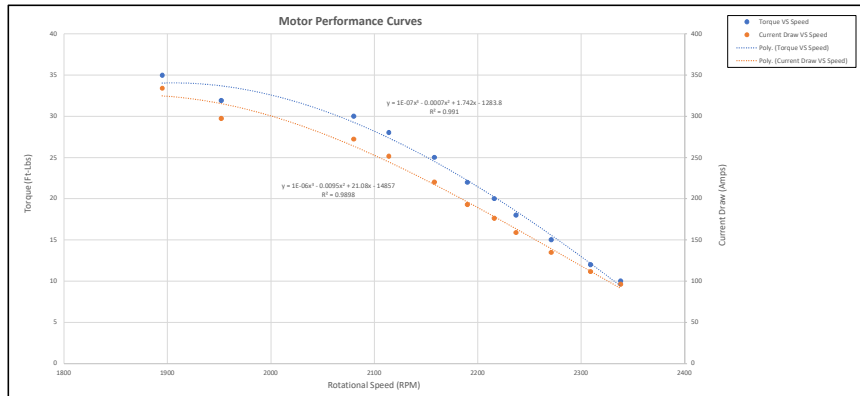
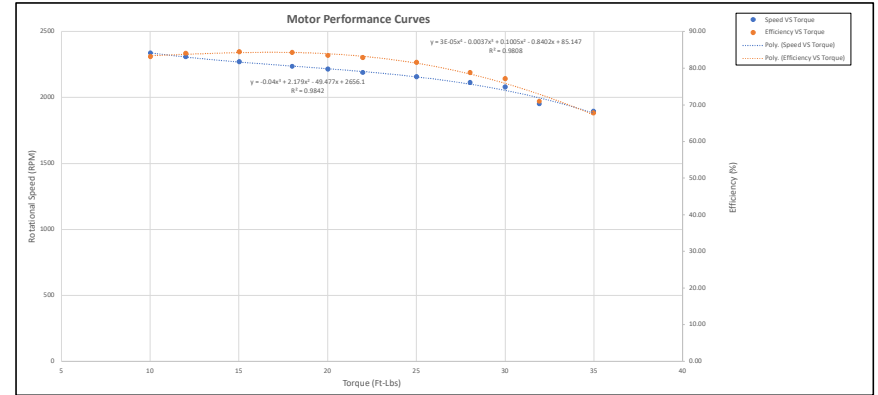
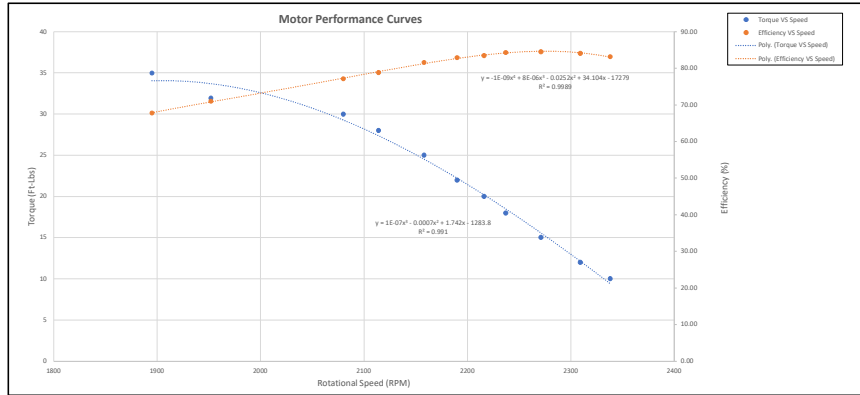
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
10.01	2338	46.7	81	14.2	15.18	96.18	5.35	4.45	83.18
12	2309	46.5	86.3	14.3	15.2	111.5	6.38	5.23	81.08
15.02	2271	46.1	119.6	14.4	15.17	134.77	7.68	6.49	84.51
18	2237	45.7	143.7	14.5	15.21	158.91	9.1	7.67	84.29
20.01	2216	45.4	161	14.6	15.25	176.25	10.11	8.44	83.48
21.98	2190	45.2	177.2	14.7	15.09	192.79	11.06	9.17	82.91
25.01	2158	44.7	205.2	14.8	14.99	220.19	12.6	10.28	81.59
28.02	2114	44.2	236.5	14.8	15.06	251.56	14.31	11.28	78.83
30	2080	43.8	257	14.9	15.3	272.3	15.4	11.89	77.14
31.92	1952	43.4	282.1	15	15.26	297.36	16.72	11.87	70.99
34.97	1895	42.9	318.7	15.1	15.34	334.04	18.62	12.62	67.78



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (I * 0.015)

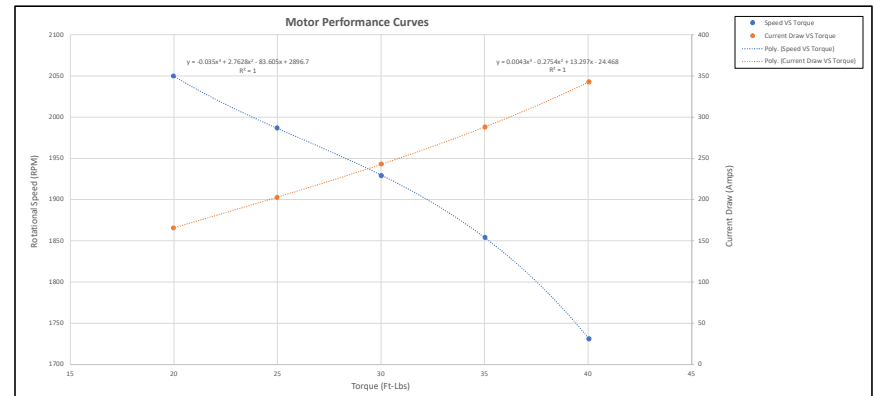
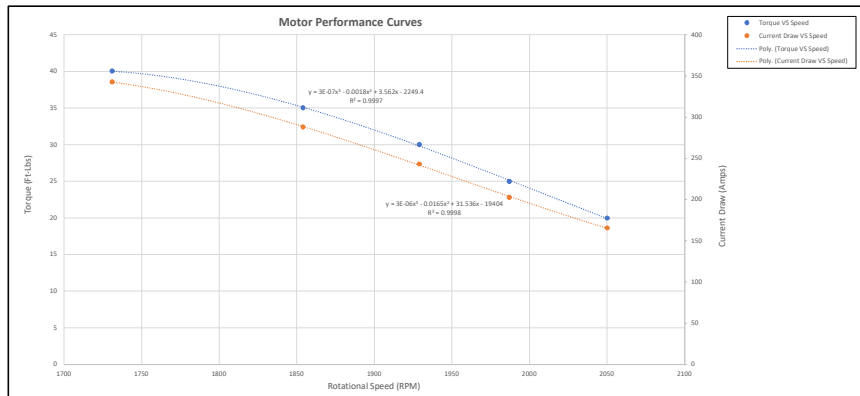
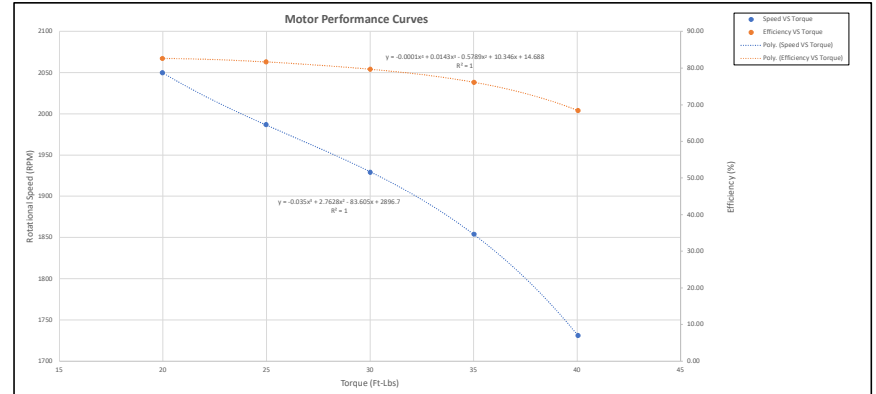
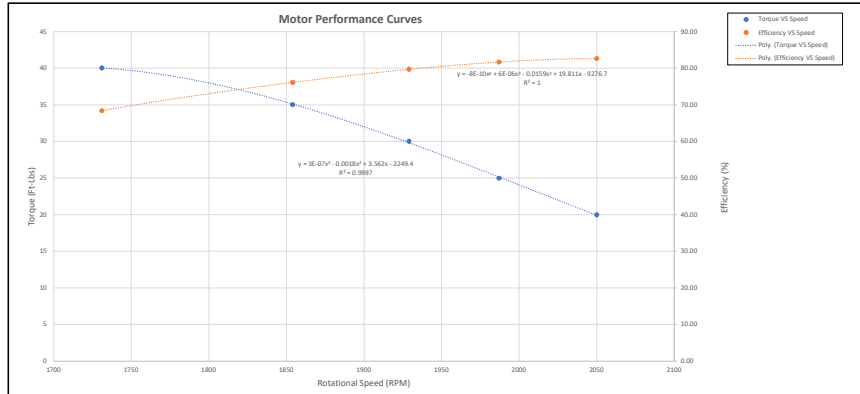
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

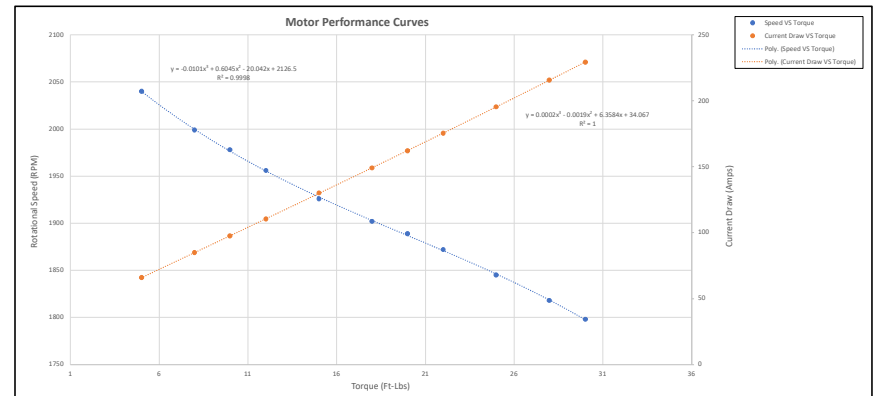
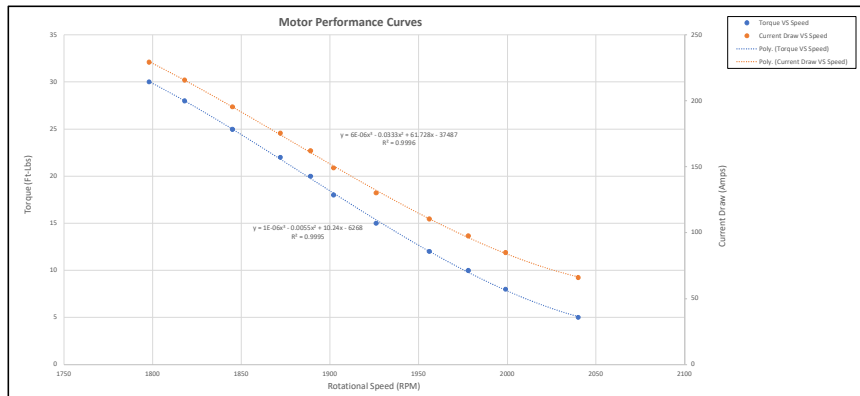
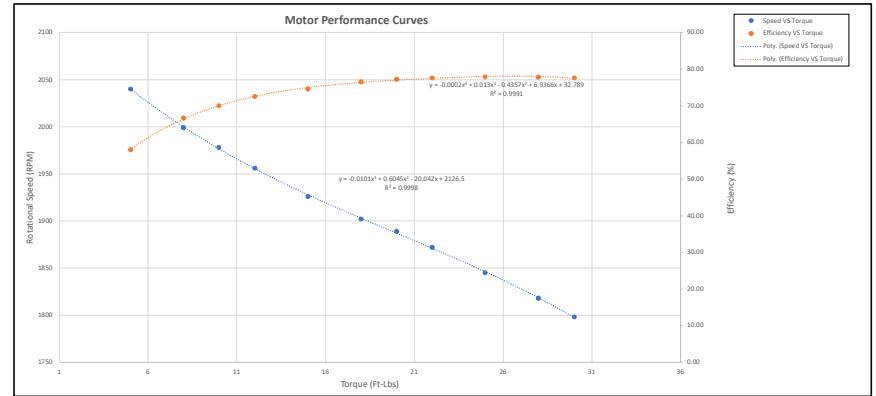
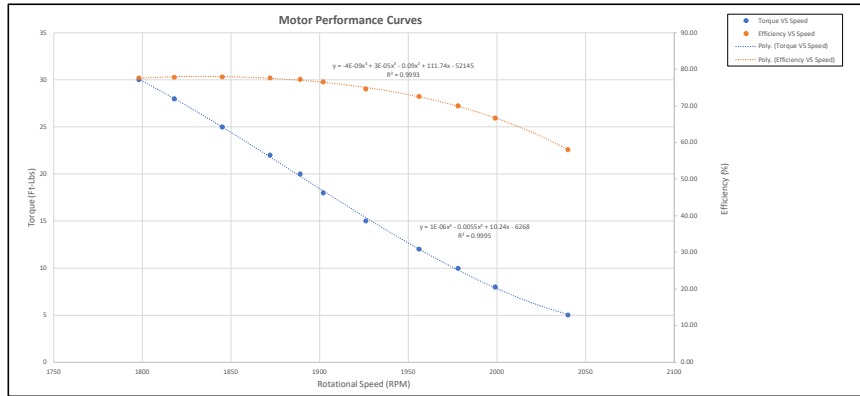
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
19.97	2050	45.7	145.3	19.5	20.27	165.57	9.43	7.79	82.61
24.98	1987	45.1	132.3	19.7	20.41	202.71	11.57	9.45	81.68
30.01	1929	44.5	222.8	20	20.38	243.18	13.83	11.02	79.68
35.02	1854	43.7	267.6	20.2	20.46	288.06	16.25	12.37	76.12
40.04	1731	42.7	322.4	20.4	20.33	342.73	19.3	13.2	68.39



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 48 - (1 * 0.015)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 10/19/2004
 Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.01	2040	47.6	41	22.4	24.89	65.89	3.36	1.95	58.04
7.99	1999	47.3	60	22.9	24.9	84.9	4.56	3.04	66.67
9.98	1978	47.1	72.7	23.3	24.89	97.59	5.37	3.76	70.02
12.01	1956	46.9	85.5	23.7	24.89	110.39	6.16	4.47	72.56
15	1926	46.6	105.2	24.1	24.93	130.13	7.37	5.5	74.63
17.99	1903	46.3	124.2	24.5	24.93	149.13	8.52	6.52	76.53
19.99	1889	46.1	137.2	24.9	24.86	162.06	9.31	7.19	77.23
22	1872	45.9	150.6	25.3	24.89	175.49	10.1	7.84	77.62
24.98	1845	45.6	170.5	25.6	24.91	195.41	11.27	8.78	77.91
27.98	1818	45.3	190.9	26	24.85	215.75	12.45	9.69	77.83
30.01	1798	45.1	204.4	26.3	24.93	229.33	13.23	10.27	77.63



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (I * 0.015)

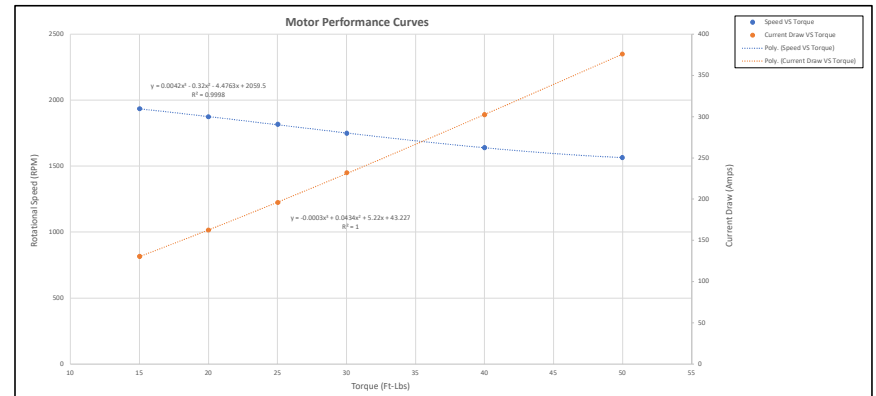
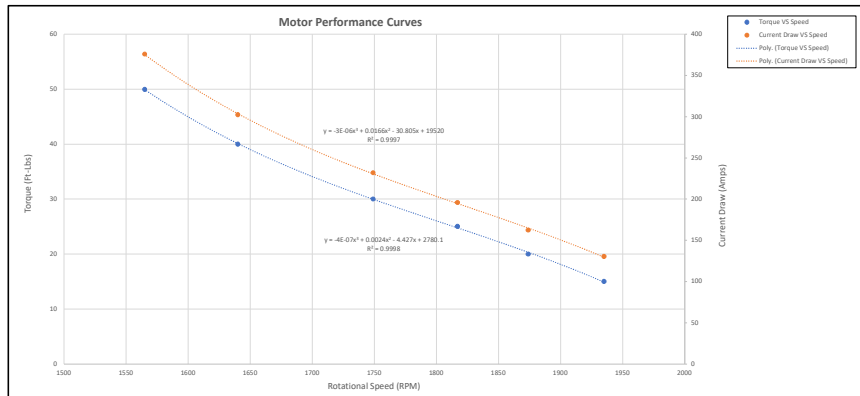
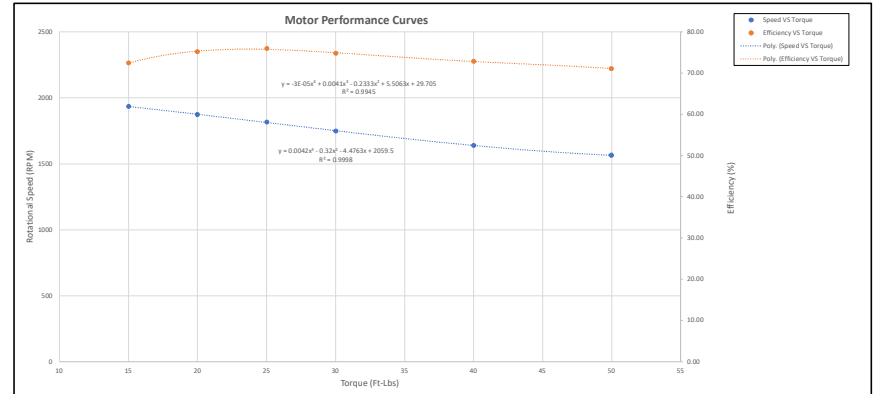
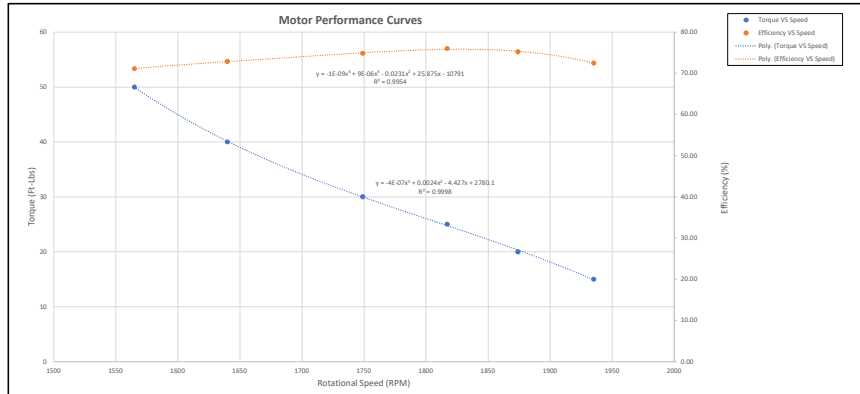
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
15.01	1935	46.4	100.1	34.4	30.42	130.52	7.63	5.53	72.48
19.99	1874	45.9	132	33.6	30.4	162.4	9.68	7.13	73.21
25.02	1817	45.3	165.4	32.8	30.43	195.83	11.38	8.65	76.01
30.02	1749	44.6	201.5	32	30.47	231.97	13.35	9.99	74.83
40	1640	43.6	271.9	31.1	30.38	302.28	17.14	12.49	72.87
49.98	1555	42.5	345.7	30.2	30.25	375.95	20.94	14.89	71.11



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (1 * 0.015)

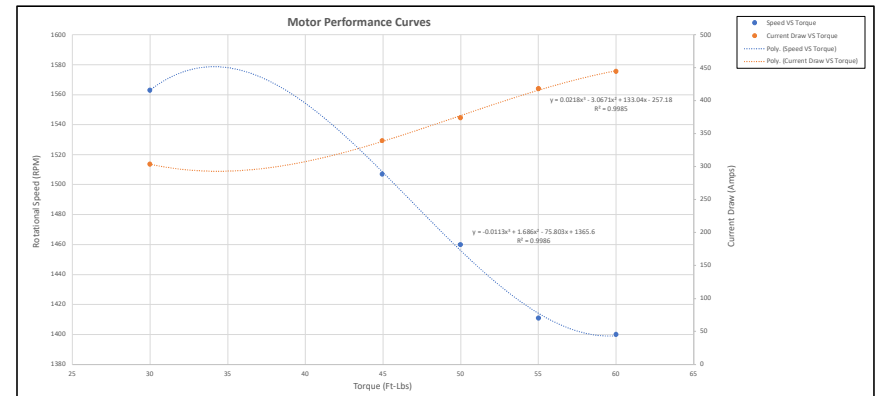
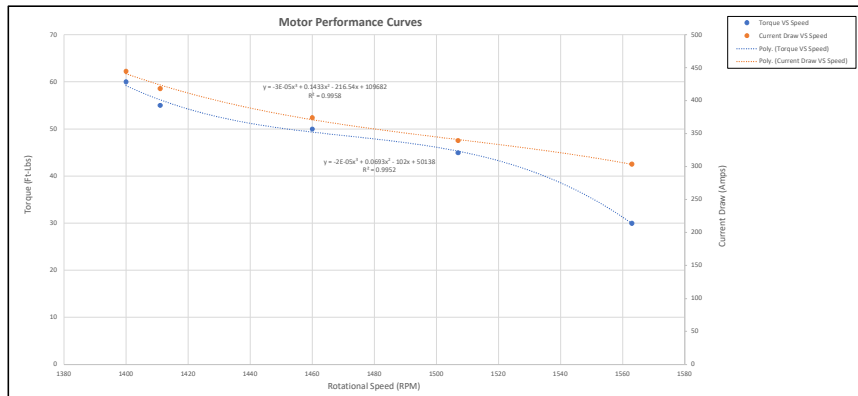
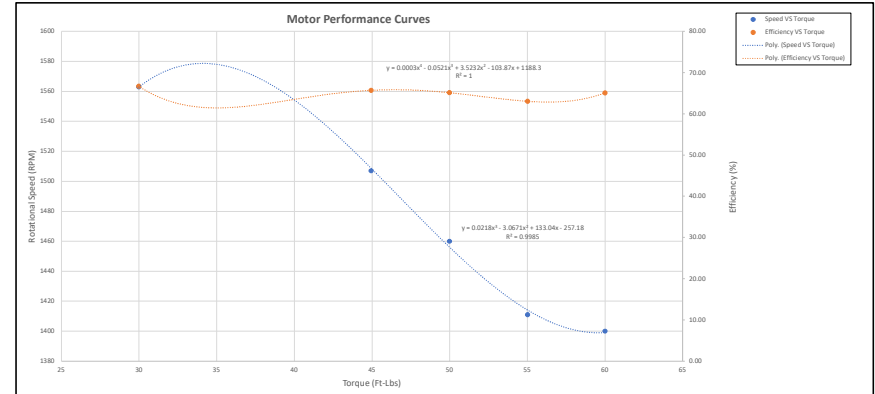
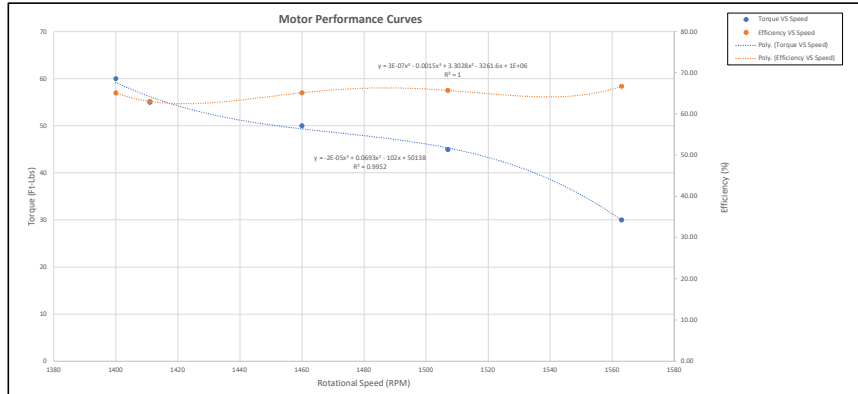
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
29.98	1563	43.6	268.2	45.4	35.57	303.77	17.84	11.9	66.70
44.94	1507	43	304	44	35.49	339.49	19.61	12.9	65.72
49.98	1460	42.5	338.6	42.6	35.61	374.21	21.34	13.9	65.14
55.01	1411	41.9	382.9	41.1	35.53	418.43	23.44	14.78	63.05
60	1400	41.4	409.1	39.6	35.55	444.65	24.58	16	65.09



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 48 - (I * 0.015)

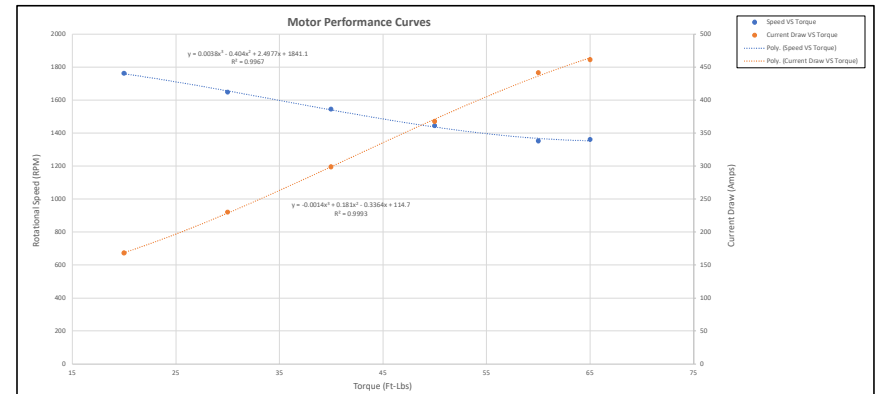
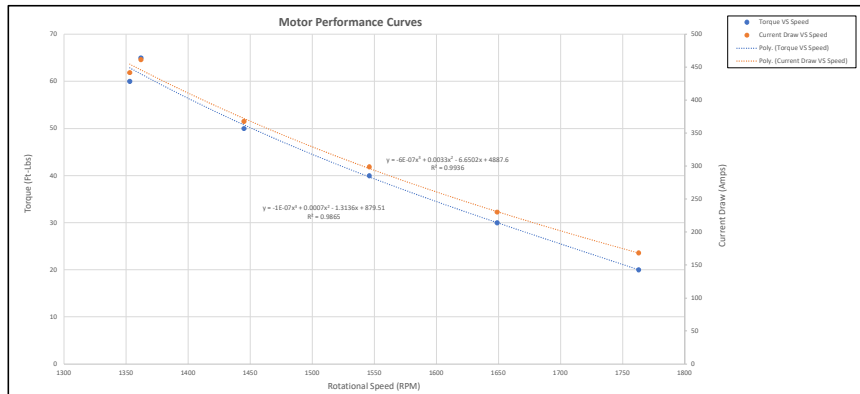
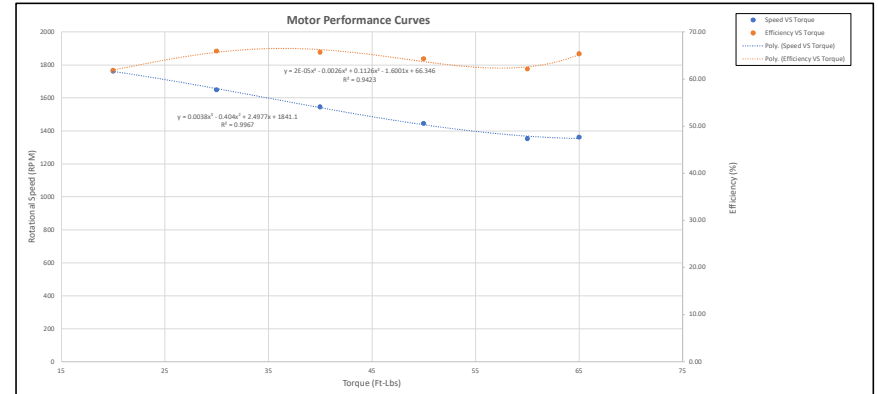
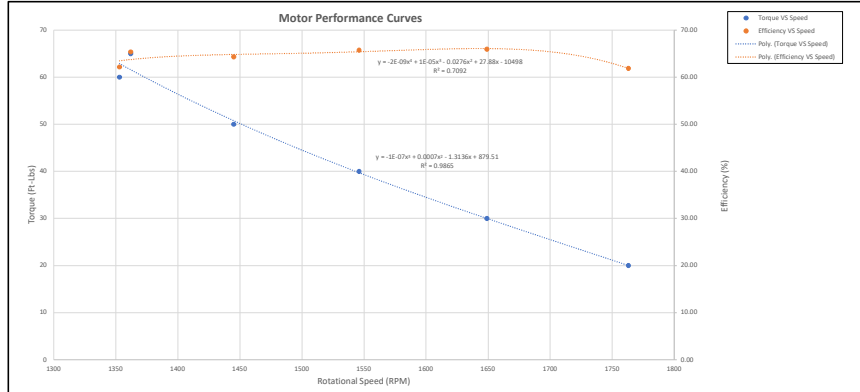
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/25/2010

Tested By: ERIC DIERDORF

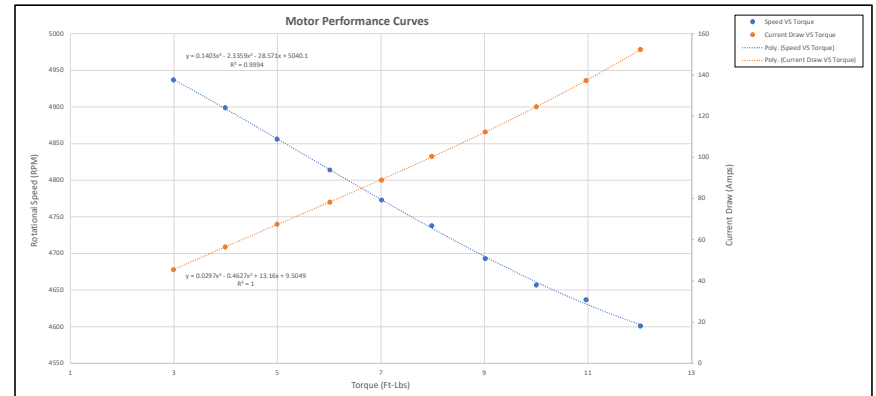
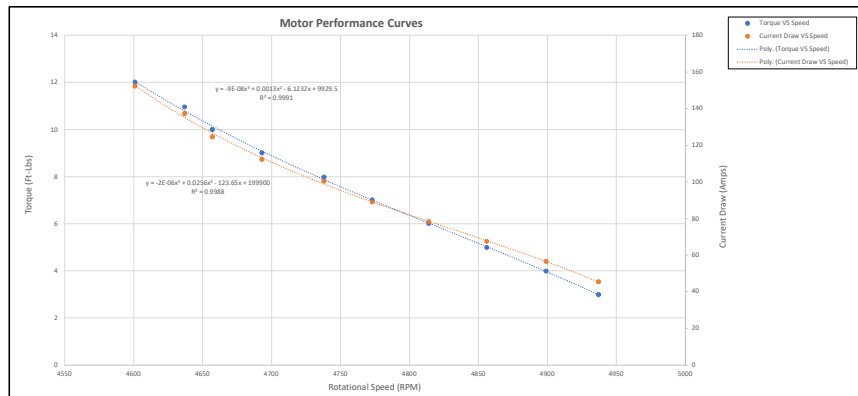
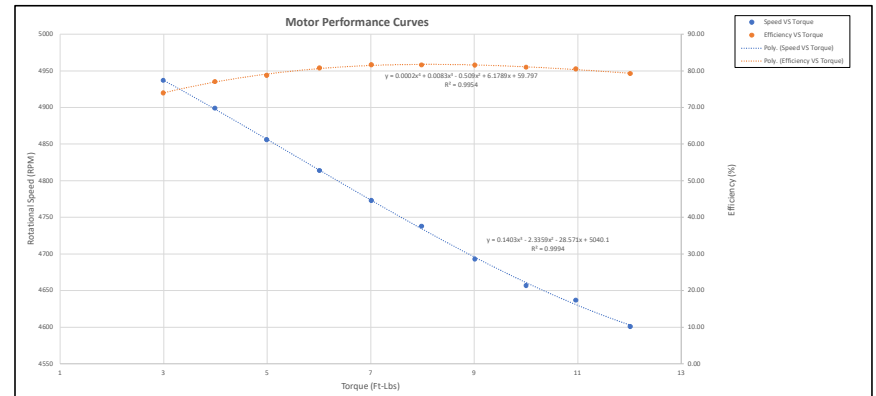
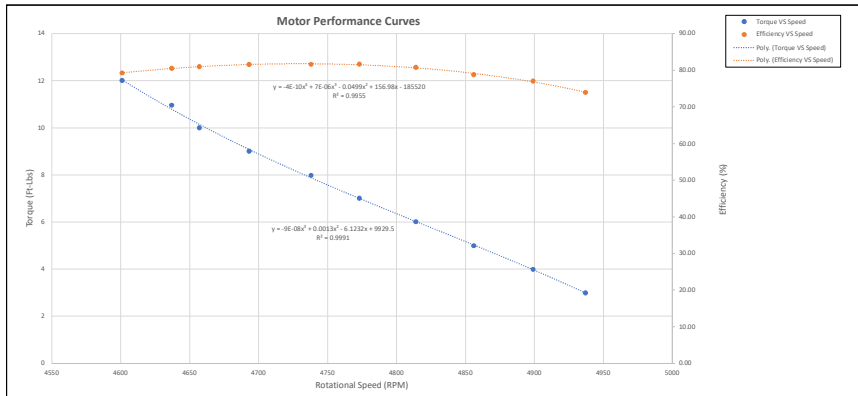
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
19.98	1763	45.9	127.6	25	40.62	168.22	10.83	6.7	61.87
29.98	1549	44.8	139.6	23.8	40.65	230.25	14.27	9.41	65.94
39.97	1546	43.8	258	50.6	40.81	298.81	17.91	11.77	65.72
49.98	1445	42.7	327.3	48.3	40.62	367.92	21.38	13.75	64.31
60	1353	41.6	401.4	46.1	40.4	441.8	24.86	15.45	62.15
64.99	1362	41.5	421.2	43.8	40.39	461.59	25.76	16.85	65.36



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage [V]: 72 - (1 * 0.030)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 6/27/2003
 Tested By: ERIC DIERDORF

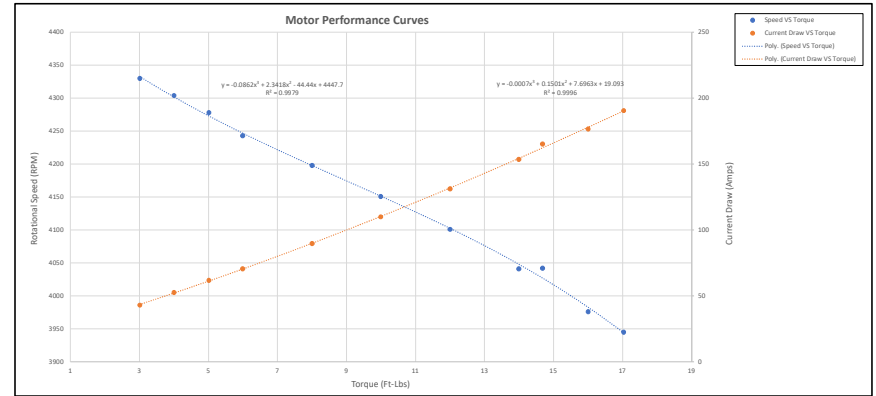
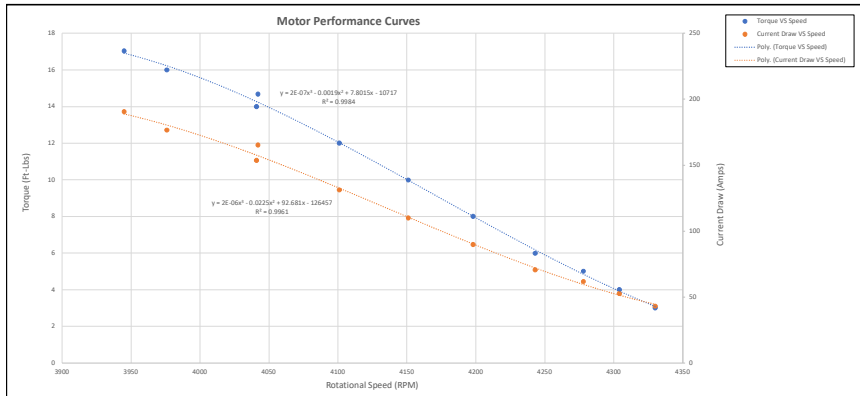
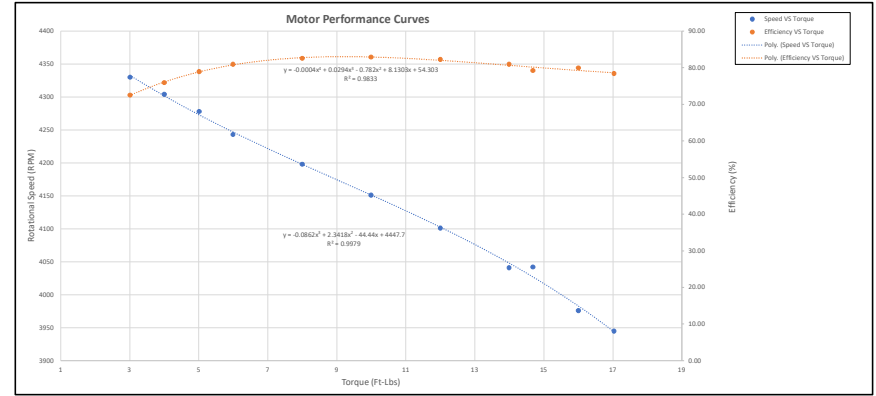
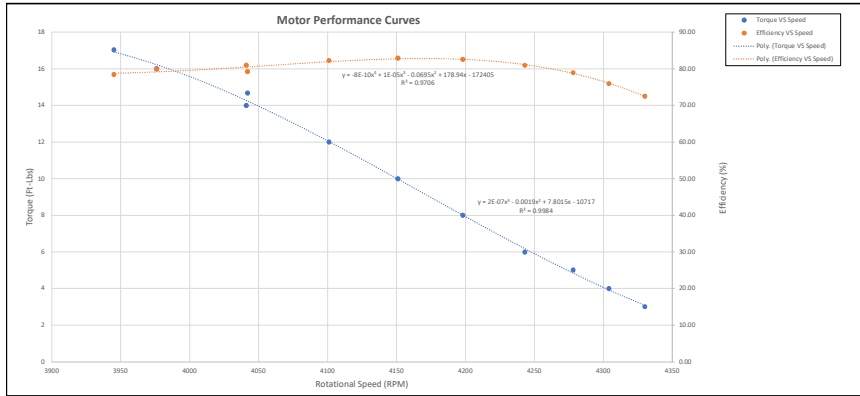
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
2.99	4937	71	39.5	6.1	5.97	45.47	3.8	2.81	73.95
3.99	4899	70.7	50.6	6.1	5.96	56.56	4.84	3.73	77.07
4.99	4856	70.3	61.5	6.2	6.02	67.52	5.85	4.61	78.80
6.01	4814	70	72.2	6.2	6.01	78.21	6.82	5.51	80.79
7.01	4773	69.7	83	6.2	5.98	88.98	7.8	6.37	81.67
7.98	4738	69.3	94.5	6.2	5.97	100.47	8.82	7.21	81.63
9.01	4693	68.9	106.3	6.2	5.99	112.29	9.87	8.05	81.56
10	4657	68.5	118.5	6.2	6	124.5	10.94	8.86	80.99
10.96	4627	68	131.3	6.3	6	137.3	12.02	9.68	80.53
12.01	4601	67.4	146.3	6.3	6.05	152.35	13.27	10.52	79.28



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 72 - (1 * 0.030)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 6/27/2003
 Tested By: ERIC DIERDORF

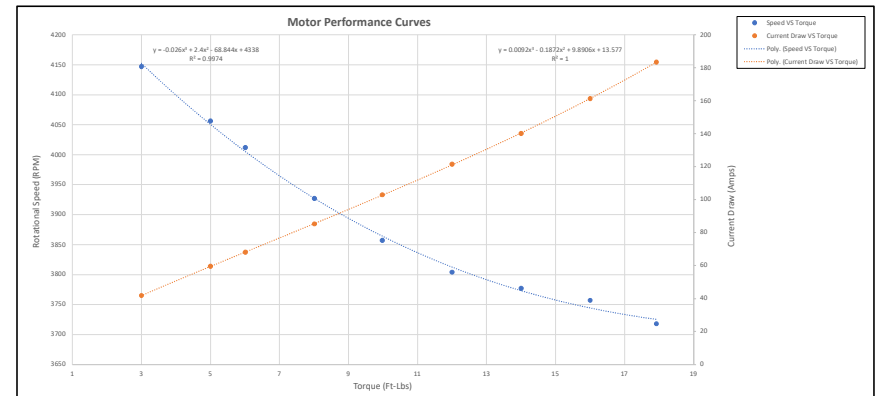
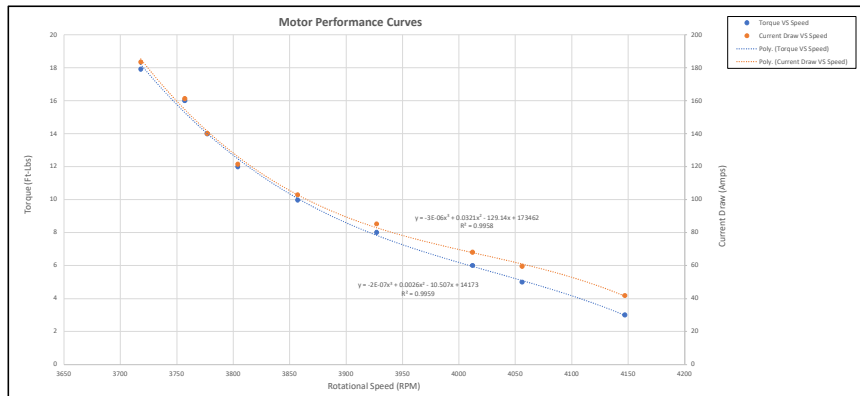
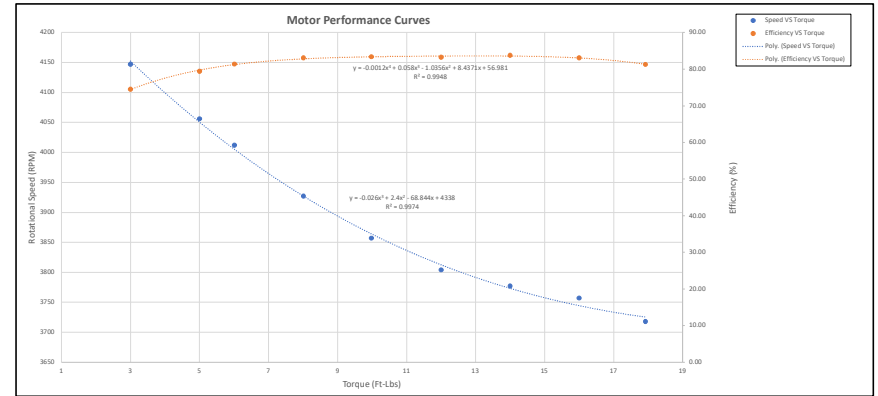
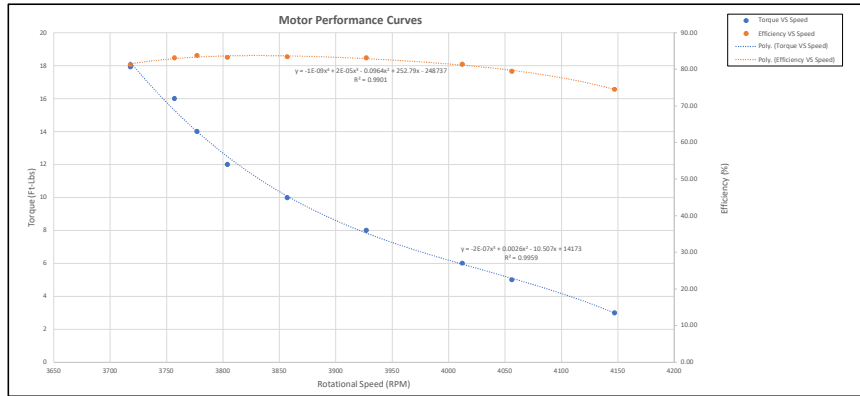
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3.01	4330	71.1	35	8.1	8.03	43.03	3.42	2.48	72.51
4	4304	70.9	44.6	8.2	8.07	52.67	4.32	3.28	75.99
5.01	4278	70.6	53.7	8.2	8.08	61.78	5.17	4.08	78.92
5.99	4243	70.3	62.5	8.2	8.04	70.54	5.98	4.84	80.94
8	4198	69.7	81.8	8.2	8	89.8	7.74	6.39	82.56
9.99	4151	69.1	101.9	8.3	8.08	109.98	9.51	7.9	82.90
12	4101	68.4	123.2	8.3	8.05	131.25	11.39	9.37	82.27
13.99	4041	67.6	145.6	8.3	7.97	153.57	13.29	10.76	80.96
14.68	4042	67.3	157.1	8.4	8.1	165.2	14.26	11.3	79.24
16	3976	66.6	168.5	8.4	8.06	176.56	15.15	12.11	79.93
17.03	3945	66.3	182.5	8.4	8.03	190.53	16.31	12.79	78.42



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 72 - (1 * 0.030)
 Brush Grade: L300
 Rotation Direction: Clockwise
 Date Tested: 1/17/2005
 Tested By: ERIC DIERDORF

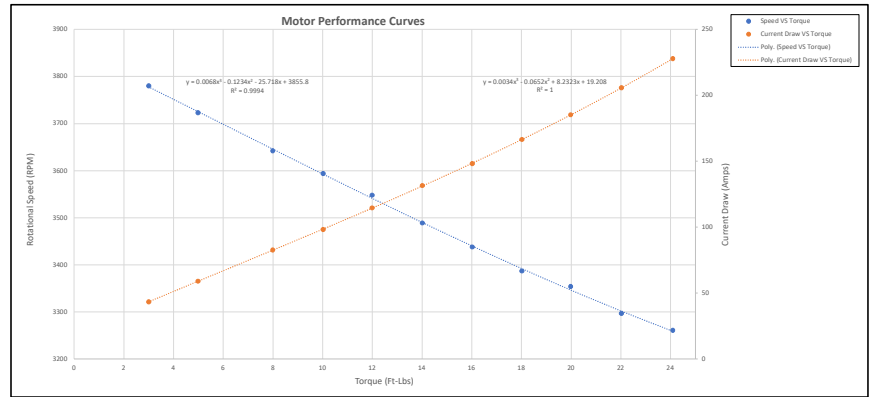
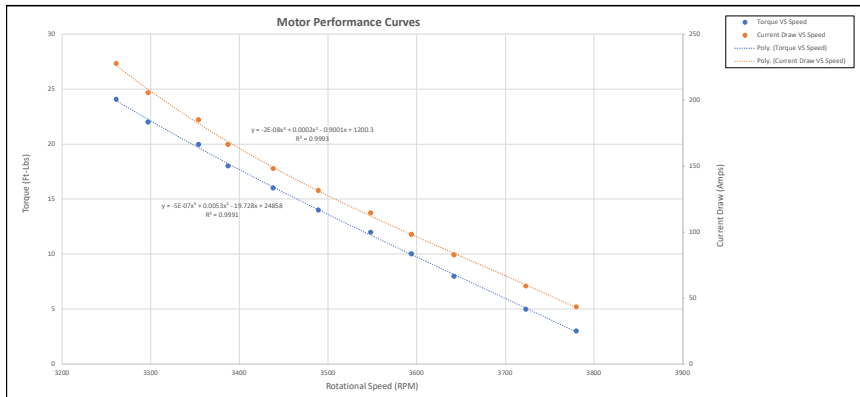
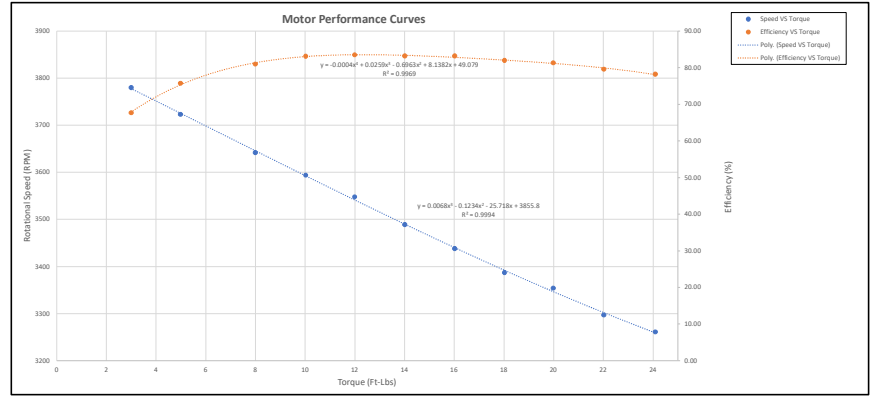
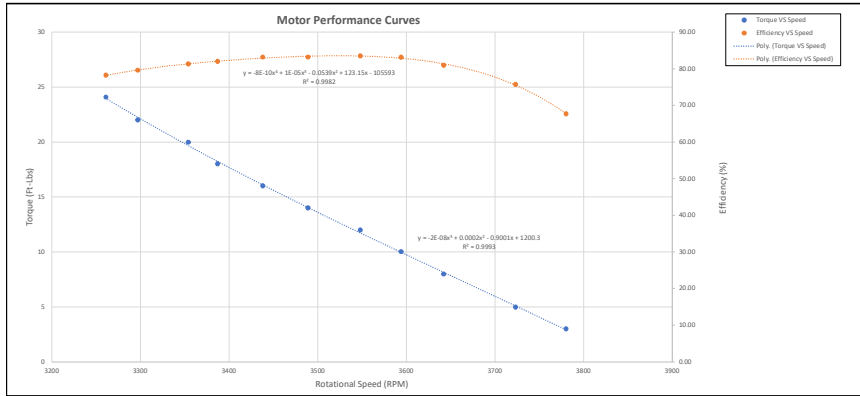
Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3	4147	71.5	31.8	10.2	10.04	41.84	3.18	2.37	74.53
5	4056	70.9	49.6	10.3	10	59.6	4.36	3.86	79.42
6.01	4012	70.7	58.1	10.3	9.99	68.09	5.64	4.59	81.38
8.01	3927	70.1	75.2	10.3	10.08	85.28	7.21	5.99	83.08
9.98	3857	69.5	92.9	10.4	10.01	102.91	8.79	7.33	83.39
12	3804	68.9	111.5	10.4	10	121.5	10.44	8.69	83.24
14	3777	68.2	130.1	10.4	10.03	140.13	12.02	10.07	83.78
16	3757	67.2	151.3	10.5	10.01	161.31	13.78	11.45	83.09
17.92	3718	66.5	173.5	10.5	9.96	183.46	15.61	12.69	81.29



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage (V): 72 - (I * 0.030)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 6/27/2003
 Tested By: ERIC DIERDORF

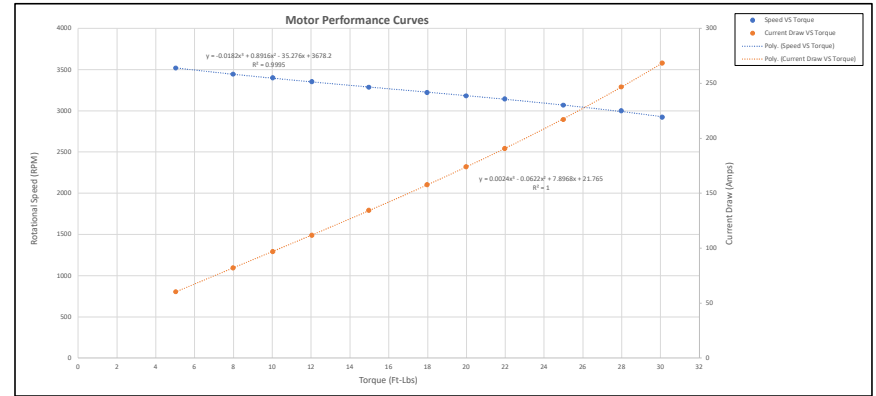
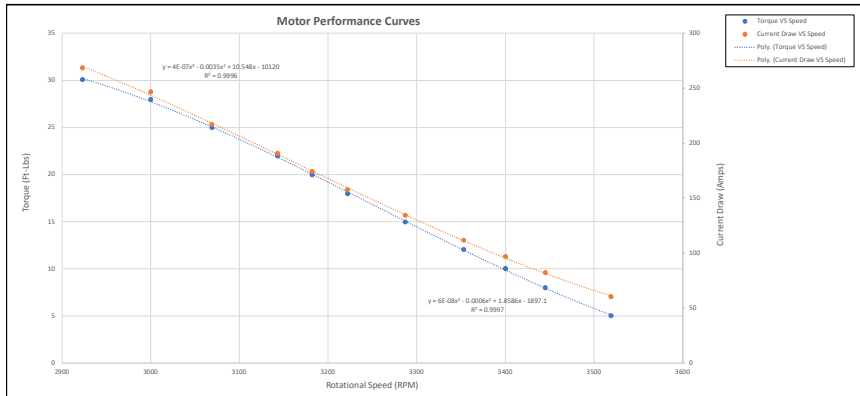
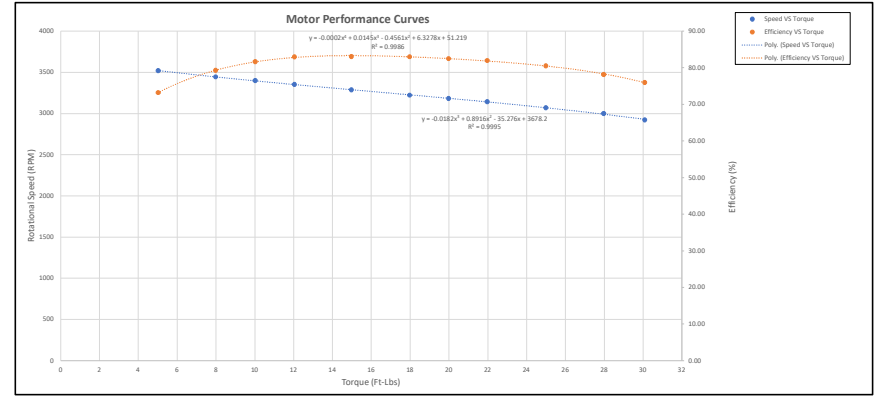
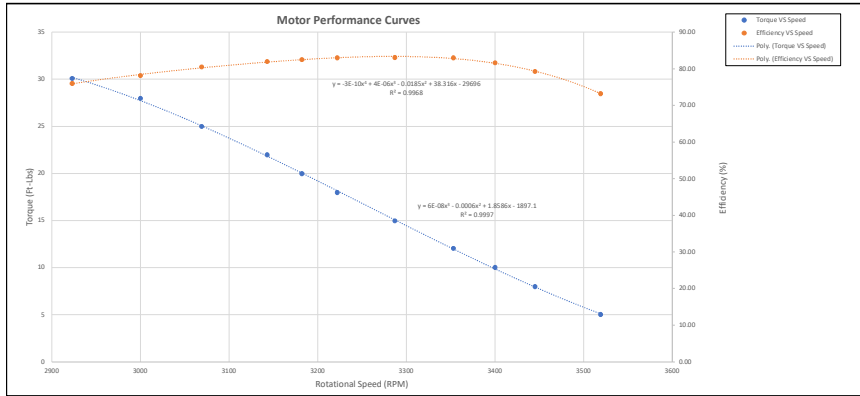
Torque (FT-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
3	3780	71.2	31.3	12.4	12.08	43.38	3.19	2.16	67.71
4.98	3723	70.8	47	12.4	12.06	59.06	4.66	3.53	75.75
7.99	3642	70.1	70.6	12.5	12.12	82.72	6.84	5.54	80.99
10.02	3594	69.7	86.2	12.5	12.04	98.24	8.25	6.86	83.15
11.99	3548	69.1	102.5	12.6	12.09	114.69	9.7	8.1	83.51
14.01	3489	68.6	119.5	12.6	12.09	131.99	11.19	9.31	83.20
16.02	3438	68	136.1	12.7	12.08	148.18	12.61	10.49	83.19
18.02	3387	67.5	154.5	12.7	12.06	166.56	14.17	11.62	82.00
19.98	3354	66.7	171.1	12.8	12.1	185.2	15.69	12.76	81.23
22.02	3297	66.1	193.6	12.8	12.06	205.66	17.36	13.82	79.61
24.09	3261	65.4	215.9	12.9	11.94	227.84	19.12	14.96	78.24



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage [V]: 72 - (1 * 0.030)
 Brush Grade: X-254
 Rotation Direction: Counter-Clockwise
 Date Tested: 6/27/2003
 Tested By: ERIC DIERDORF

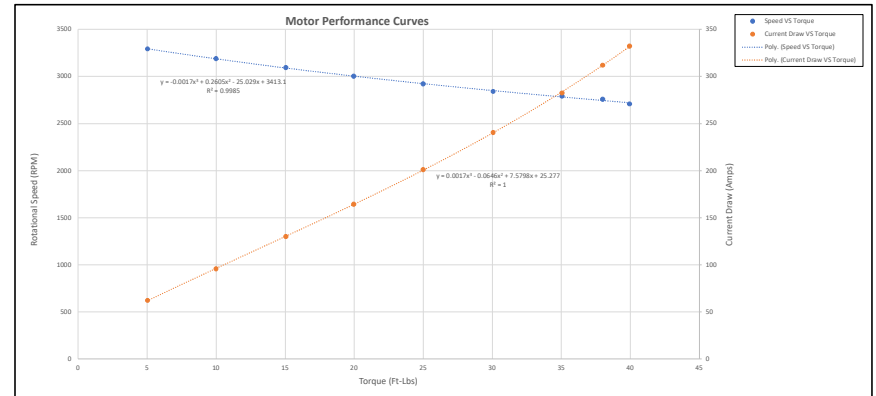
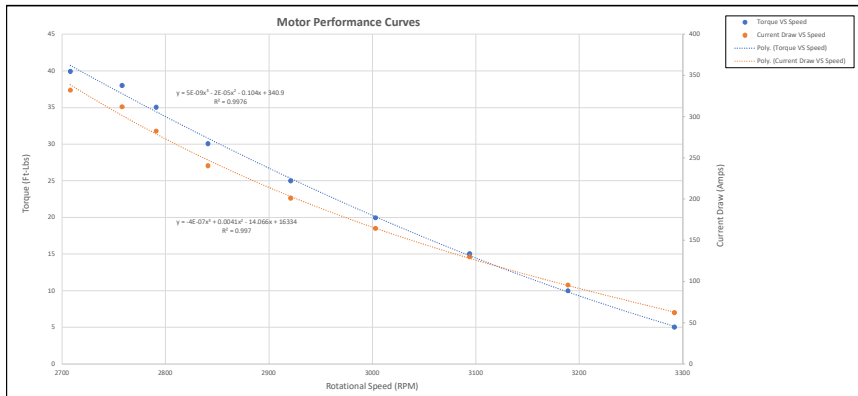
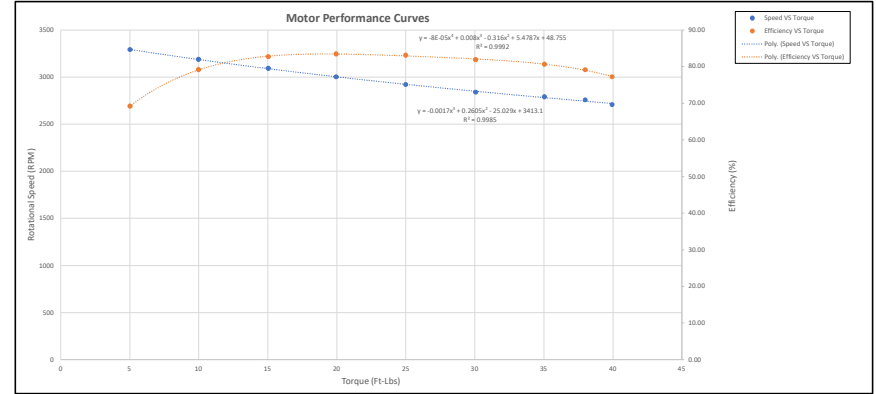
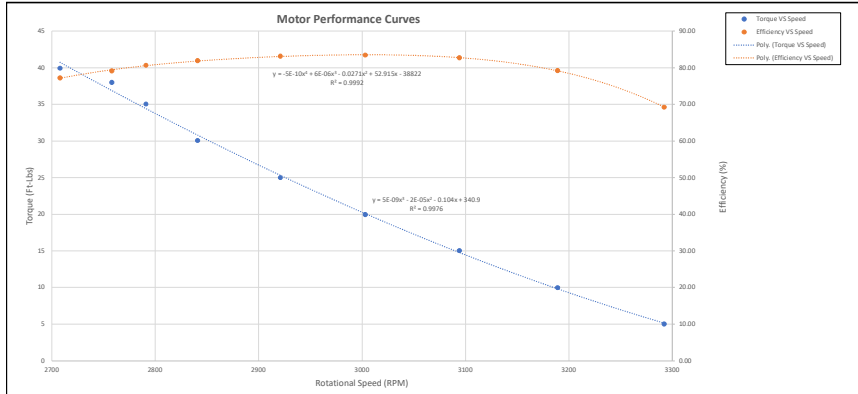
Torque (FT-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.02	3519	70.8	45.2	14.8	15.08	60.28	4.59	3.36	73.20
7.98	3445	70.2	47	14.9	15.06	62.06	6.61	5.24	79.27
10.02	3400	69.7	47.1	15	15.1	64.2	7.95	6.49	81.64
12.04	3353	69.3	46.6	15.1	15.11	64.71	9.27	7.69	82.96
14.97	3287	68.6	45.8	15.2	15.02	64.42	11.28	9.37	83.07
17.07	3222	67.8	44.7	15.3	15.04	64.74	13.36	11.02	82.98
19.98	3182	67.4	45.1	15.5	15.14	64.67	14.67	12.1	82.48
21.97	3143	66.7	45.6	15.6	15.06	64.76	16.03	13.14	81.97
24.99	3069	65.9	45.2	15.7	15.05	64.75	18.15	14.61	80.50
27.97	3000	64.8	43.6	15.8	15.16	64.76	20.45	15.98	78.14
30.08	2923	63.9	42.4	15.9	15.08	64.84	22.03	16.74	75.99



Engineering Performance Test Report

Performance Spec (PS) Number: 10
 System Voltage [V]: 72 - (1 * 0.030)
 Brush Grade: X-254
 Rotation Direction: Clockwise
 Date Tested: 6/27/2003
 Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
5.02	3292	70.9	42.1	20.5	20.11	62.21	4.55	3.15	69.23
9.98	3189	69.9	75.6	20.7	20.12	95.72	7.65	6.06	79.22
15.04	3094	68.9	109.9	21	20.11	130.01	10.71	8.86	82.73
19.95	3003	67.8	144.3	21.1	20.08	164.38	13.67	11.41	83.47
24.99	2921	66.5	181	21.3	20.12	201.12	16.72	13.9	83.13
30.06	2841	65.2	220.4	21.6	20.05	240.45	19.85	16.35	83.91
35.04	2791	63.9	262.5	21.8	19.99	282.49	23.08	18.62	80.68
37.99	2758	62.9	291.7	22	20.25	311.95	25.2	19.95	79.17
39.94	2708	62.3	312	22.2	20.19	332.19	26.66	20.59	77.23



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage [V]: 72 - (1 * 0.030)

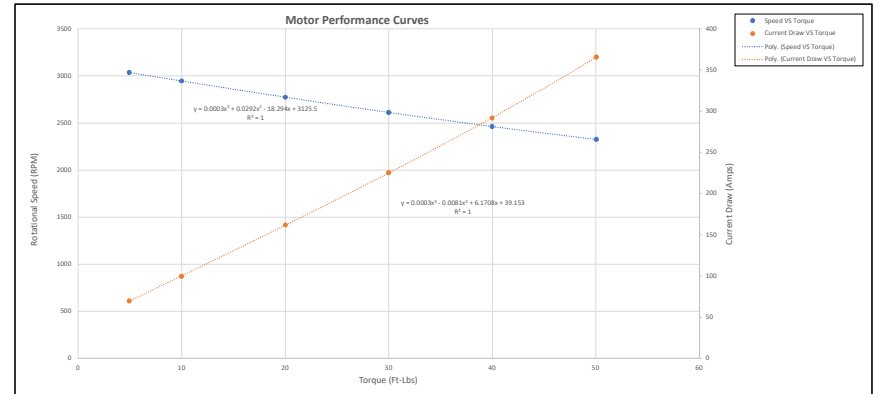
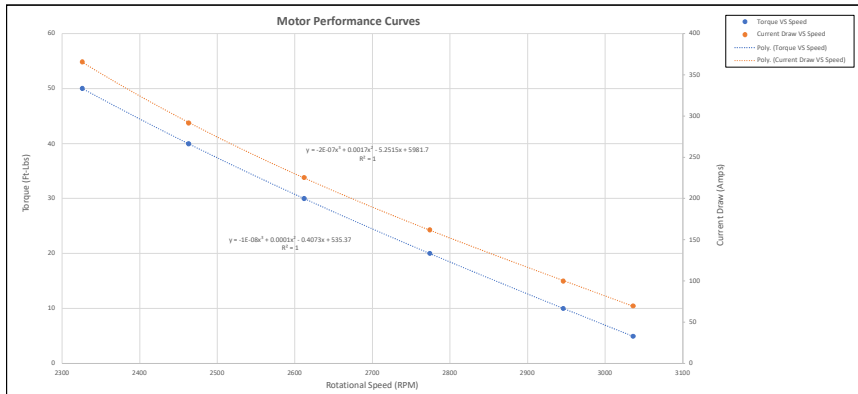
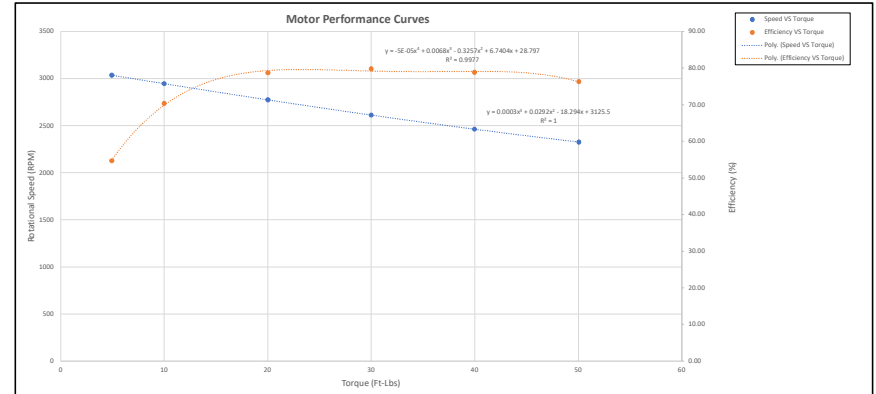
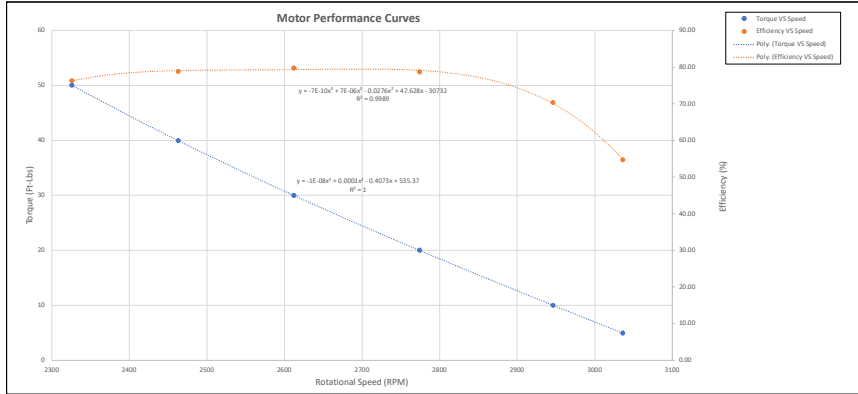
Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/27/2003

Tested By: ERIC DIERDFF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
4.93	3036	71	39.8	35.5	29.91	69.71	5.21	2.85	54.70
9.99	2766	70.1	69.9	34.9	29.86	99.76	7.36	5.6	70.35
20.01	2774	68.2	132	33.9	29.96	161.96	13.43	10.57	78.70
29.99	2612	66.2	195.5	33.1	29.93	225.43	18.69	14.91	79.78
39.97	2463	64	262	32.2	29.76	291.76	23.77	18.74	78.84
50.04	2326	61.8	335.7	31.3	29.99	365.69	29.06	22.17	76.29



Engineering Performance Test Report

Performance Spec (PS) Number: 10

System Voltage (V): 72 - (1 * 0.030)

Brush Grade: X-254

Rotation Direction: Clockwise

Date Tested: 6/27/2003

Tested By: ERIC DIERDORF

Torque (Ft-Lbs)	Speed (RPM)	Armature Voltage (Volts)	Armature Current (Amps)	Field Voltage (Volts)	Field Current (Amps)	Total Current (Amps)	Power In (Horsepower)	Power Out (Horsepower)	Efficiency (%)
10	2851	70.2	68.8	43.2	34.95	103.75	8.49	5.43	63.96
20.02	2589	68.4	127.9	42	34.95	162.85	13.60	10.25	74.87
30	2539	66.5	188.4	40.6	35.01	223.41	18.69	14.5	77.58
40.01	2398	64.5	249.7	39.3	34.97	284.67	23.43	18.27	77.98
49.98	2257	62.4	316.1	37.8	34.94	351.04	28.21	21.48	76.14
60.01	2129	60	390.9	36.4	35.12	426.02	33.16	24.93	73.37

