

Test Report

PASS

Starter specifications

P/N:	410-52033
Type:	
Model:	
UPC:	
Rated Voltage:	12.0 [Volts]
Rated Power:	1.40 [kW]
Ground:	NEG -
Pinion Teeth:	10 -
Rotation:	CW -

Battery Conditions

Initial Voltage:	12.0 Volts
Resistance:	10.00 mOhms
Pull Test Voltage:	9.0 Volts

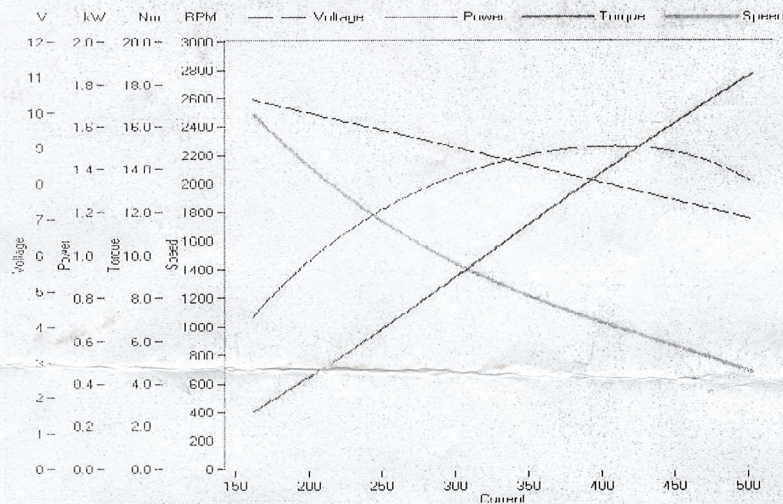
Tester Conditions

ST-16

Gear ID:	
Gear Teeth:	21
Fixture ID:	
Position - V:	H:

Motor T-Spec:	410-52033
Sol. T-Spec:	410-52033
Date Created:	1/17/2013 15:46
Date Last Modified:	1/17/2013 15:47
SW Rev:	1.332.8 1.05 1.00

Performance curves by current



Performance results

Max Torque:	18.5 [Nm]
Max Current	502 [Amps]
Max Power:	1.51 [kW]
Speed @ Max Power	1008 [RPM]
Current @ Max Power:	408 [Amps]
Torque @ Max Power	14.29 [Nm]

Free-run results

Current:	82 [Amp]
Speed: *	4636 [RPM]
Voltage	11.2 [Volts]

* Source: Extrapolation from performance curve

Solenoid results

* Compensated at Rated V

Pull Current: *	41.73 [Amps]
Hold Current: *	15.04 [Amps]
Voltage Drop (Max)	0.26 [Volts]
Close Test (Pull In):	PASS -
Open Test:	PASS -

Commutator / Brush Ripple Pattern



Ripple Current:	13 [Amps]
Analyzed at:	1000 [RPM] Pinion Speed
	4440 [RPM] Armature Speed

Test	Speed [RPM]	Current [Amps]	Voltage [Volts]	Torque [Nm]	Power [Watts]	Efficiency [%]	Trq. Const. [Nm/A]	Voltage Drop [Volts]
1	2498	162	10.37	2.74	715	42.4	0.0168	0.15
2	2000	212	9.87	4.95	1036	49.4	0.0233	0.18
3	1499	293	9.09	8.68	1361	51.1	0.0296	0.19
4	1001	408	7.93	14.29	1497	46.2	0.0350	0.26
5	693	502	7.00	18.53	1345	38.2	0.0369	0.26

We certify these results are within specifications!