

FORD GODZILLA 7.3 GAS ENGINE TESTING

STREET PERFORMANCE “DROP IN” REPLACEMENT ENGINE

- NATURALLY ASPIRATED
- FACTORY SHORT BLOCK
- LST ENGINE CONTROLS PACKAGE



MAST TECHNOLOGIES GROUP

POWERING ENGINEERING & TECHNICAL PRODUCTS FOR INDUSTRY

TEST PROGRAM

Engine:

7.3 Liter
2020 Godzilla Superduty Engine

Mast ECM “LST Conversion”

Objective:

- Finalize Street Performance Crate Engine (Turn Key)
- Validate Mast LST Engine Controls
- Validate Mast Proprietary Camshaft and Adjustable Timing Gear
- Validate Camshaft Profiles
- Validate CNC Ported Cylinder Heads
- Validate “Drop in” Beehive and Titanium Retainer Spring Kit



MAST AVAILABLE CAMSHAFT PROFILES

Mast PN	Applications	Valve Spring Recommendation	Core Type	Intake Duration @ 0.050	Exhaust Duration @ 0.050	Lobe Sep Angle	Lobe Lift Intake	Lobe Lift Exhaust
CS-FD2-100263	Factory Upgrade	Mast Beehive	Single Bolt	220	236	120+0	0.350	0.366
CS-FD2-100264	Off Road	Mast Beehive	Single Bolt	232	246	112+0	0.360	0.366
CS-FD2-100265	Street Car	Mast Beehive	Single Bolt	242	256	114+0	0.372	0.366
CS-FD2-100266****	Street Car	Mast Beehive	Single Bolt	250	264	116+0	0.372	0.366

**** Not Tested

All testing completed with Factory OE valves & Mast Beehive Spring & Titanium retainer Kit

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CYLINDER HEAD CNC PORTING FLOW DATA CFM-

	Factory OE	CNC Street Port	CNC Big Valve***	CNC Street Port	CNC Big Valve***	CNC Street Port	CNC Big Valve***
Lift	CFM Output	CFM Output	CFM Output	CFM Increase	CFM Increase	CFM % Increase	CFM % Increase
0.100	68.4	69.1	68.9	0.7	0.5	1%	1%
0.200	147.5	148.0	156.4	0.5	8.9	0%	6%
0.300	221.7	229.9	234	8.2	12.3	4%	5%
0.400	268.2	290.5	297.3	22.3	29.1	8%	10%
0.500	298.8	316.2	345.5	17.4	46.7	6%	14%
0.600	301.1	340.7	373.3	39.6	72.2	12%	19%
0.700	305.0	356.0	391.8	51.0	86.8	14%	22%
0.800	308.4	368.3	381.7	59.9	73.3	16%	19%
0.900	307.8	375.4	388.5	67.6	80.7	18%	21%
Average	247.4	277.1	293.0				
Max	308.4	375.4	391.8			***Not Tested	

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TEST SUMMARY -

Test Number	Intake	Throttle Body	Heads	Camshaft
MST1002-A	Factory Truck	90mm	Truck 7.3(Stock)	200/212/538/600/108(stock)
MST1002-B	Factory Truck	90mm	Truck 7.3(Stock)	SG#1_220/236/.630/.659/120+0
MST1002-C	Factory Truck	90mm	Truck 7.3(Stock)	SG#2_232/246/.648/658/112+0
MST1002-D	Factory Truck	90mm	Truck 7.3(Stock)	SG#3_242/256/.670/.659/114+0
MST1002-F	Factory Truck	90mm	Truck 7.3(CNC Ported)	Stage#1_220/236/.630/.659/120+0
MST1002-G	Factory Truck	90mm	Truck 7.3(CNC Ported)	Stage#2_232/246/.648/658/112+0
MST1002-H	Factory Truck	90mm	Truck 7.3(CNC Ported)	Stage#3_242/256/.670/.659/114+0

DYNO DATA

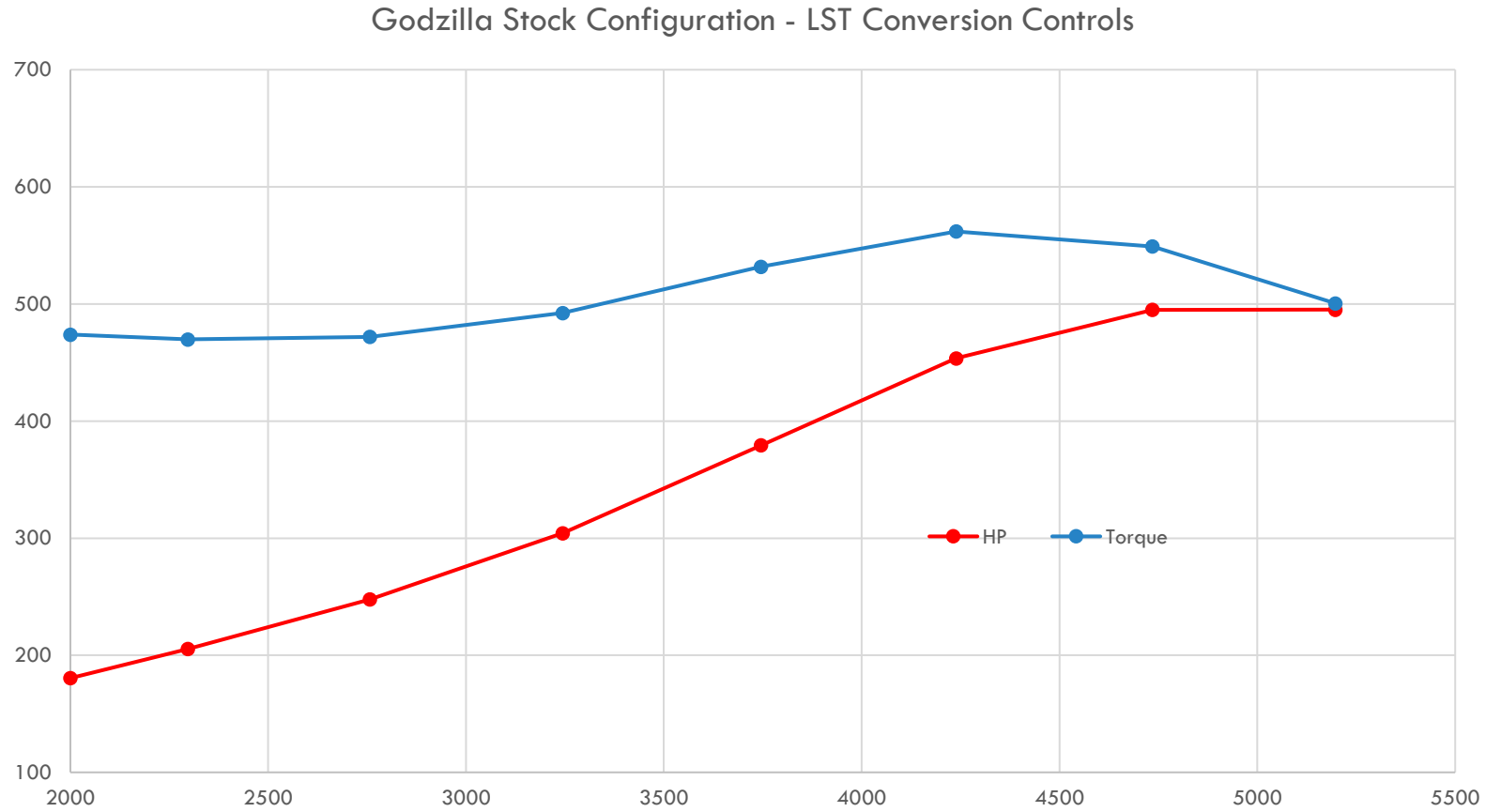
MST1002A- Stock			MST1002B-Stage1 Cam			MST1002C-Stage2 Cam			MST1002D-Stage3 Cam			MST1002F			MST1002G			MST1002H					
Stock OE w/LST ECM			CS-FD2-100263 Camshaft Only			CS-FD2-100264 Camshaft Only			CS-FD2-100265 Camshaft Only			CS-FD2-100263 Camshaft & CNC Ported Heads			CS-FD2-100264 Camshaft & CNC Ported Heads			CS-FD2-100265 Camshaft & CNC ported Heads					
EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq	EngSpd	STPPwr	STPTRq
RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft	RPM	CHp	Clb-ft
2000	180.5	473.9	2250	187.5	437.5	2243	188.1	440.3	2235	166.1	390.5	2252	188.6	439.8	1993	159.5	420.2	2232	162.8	383.2			
2297	205.5	469.8	2571	215.3	439.7	2584	218.6	444.4	2606	196.7	396.4	2571	215.9	441	2328	187	421.8	2603	194.1	391.7			
2757	247.7	472	3023	270.9	470.6	3013	285.3	497.2	3014	269	468.8	3020	270.8	470.8	2766	249.8	474.4	3010	266.9	465.6			
3245	304.3	492.4	3489	342	514.9	3505	353.2	529.3	3520	335.8	501	3507	341.5	511.4	3245	320.2	518.3	3519	330.8	493.7			
3746	379.3	531.8	3996	424.8	558.3	3997	436.4	573.4	4001	422.5	554.6	4002	427.9	561.6	3750	392.8	550.2	4002	419	549.9			
4239	453.6	562	4497	497.2	580.7	4505	506.2	590.1	4511	493.6	574.7	4512	503.8	586.4	4250	472.9	584.4	4512	496.6	578.1			
4735	495.1	549.2	5009	561	588.2	5019	574.5	601.2	5027	571.5	597.1	5020	574.5	601.1	4766	552.3	608.6	5013	582	609.7			
5197	495.2	500.5	5495	601.5	574.9	5506	620.5	591.9	5522	625.6	595.1	5504	614.3	586.2	5269	616.3	614.3	5513	637.2	607.1			
			5957	620.5	547.1	5968	645.4	568	5976	653.7	574.5	5969	636.5	560	5746	654.4	598.1	5984	671.7	589.5			
			6340	608.2	503.8	6358	637.5	526.6	6378	652.8	537.6	6353	629	520.1	6197	668.6	566.6	6402	676.3	554.8			

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TEST SUMMARY — BASE LINE



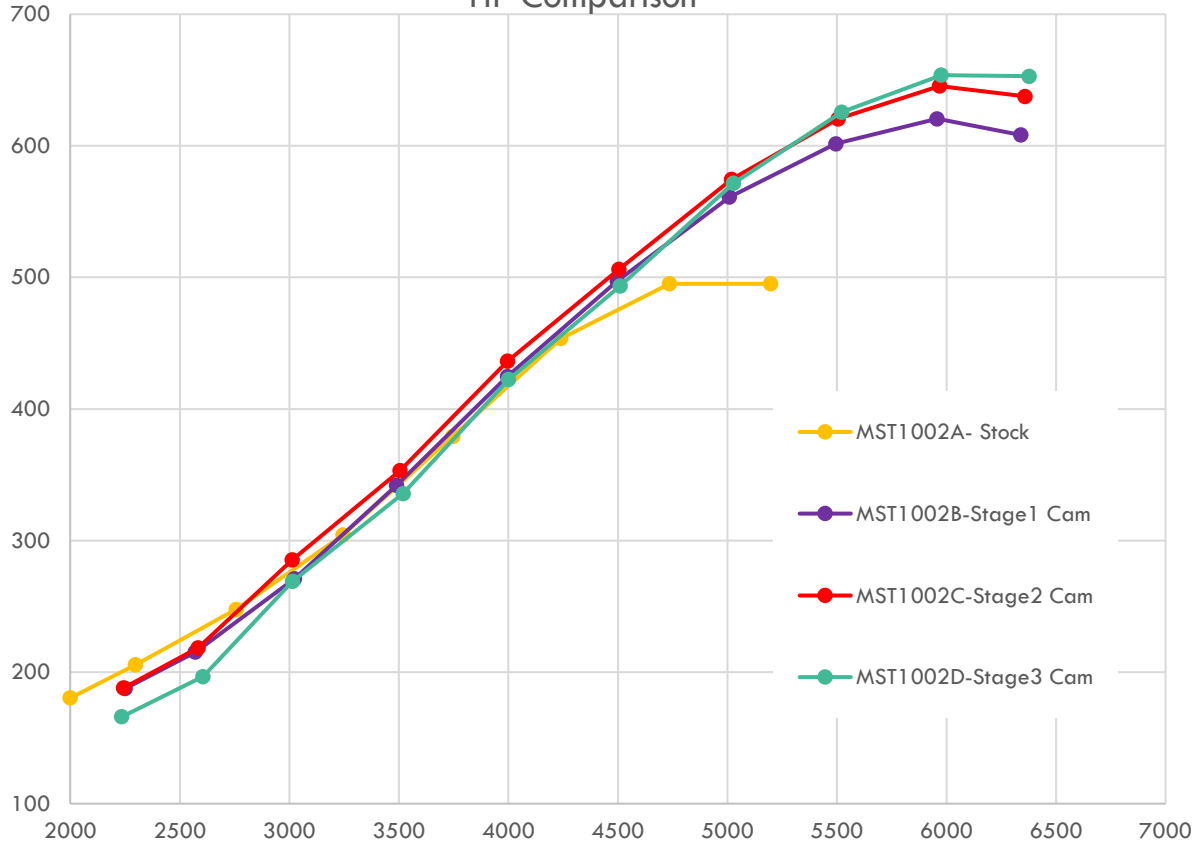
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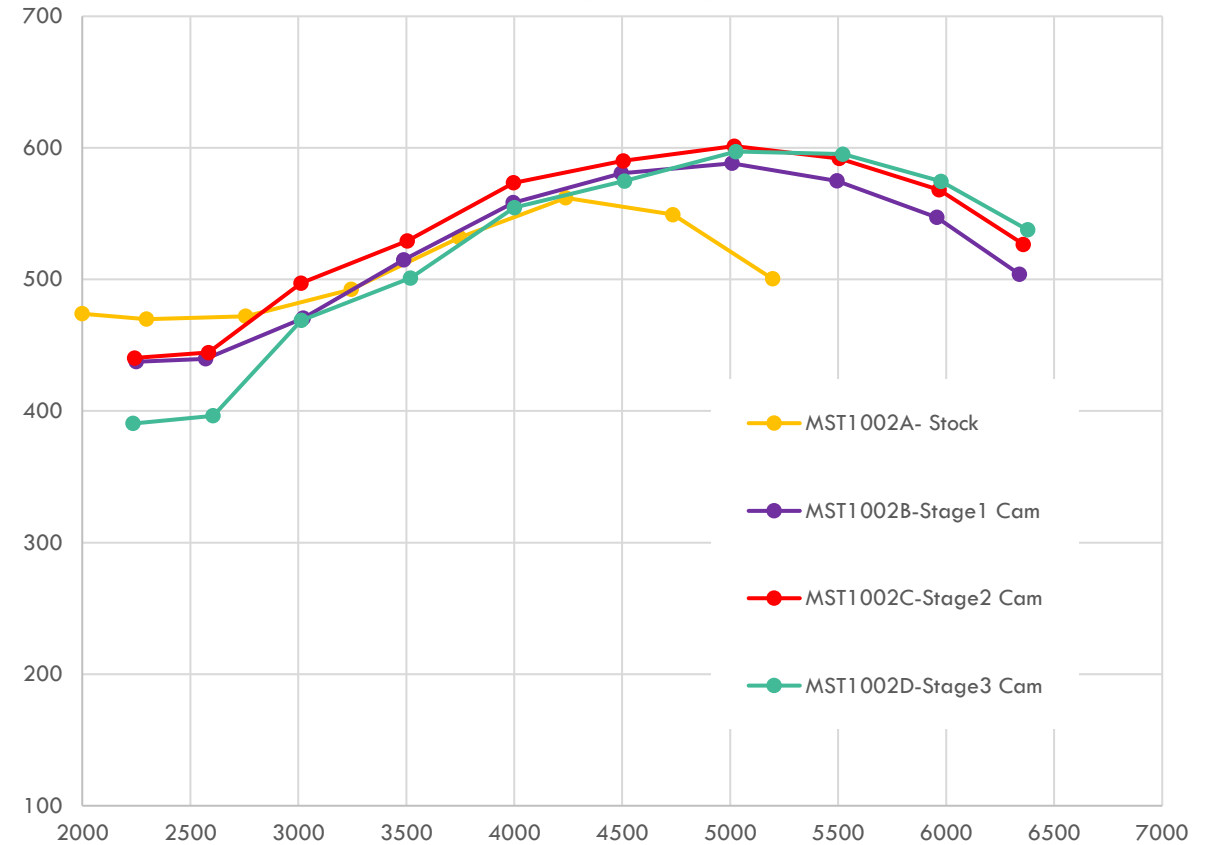


TEST SUMMARY — CAMSHAFT ONLY

Godzilla Street Car Swap Engine- LST - Cam Only Testing-
HP Comparison

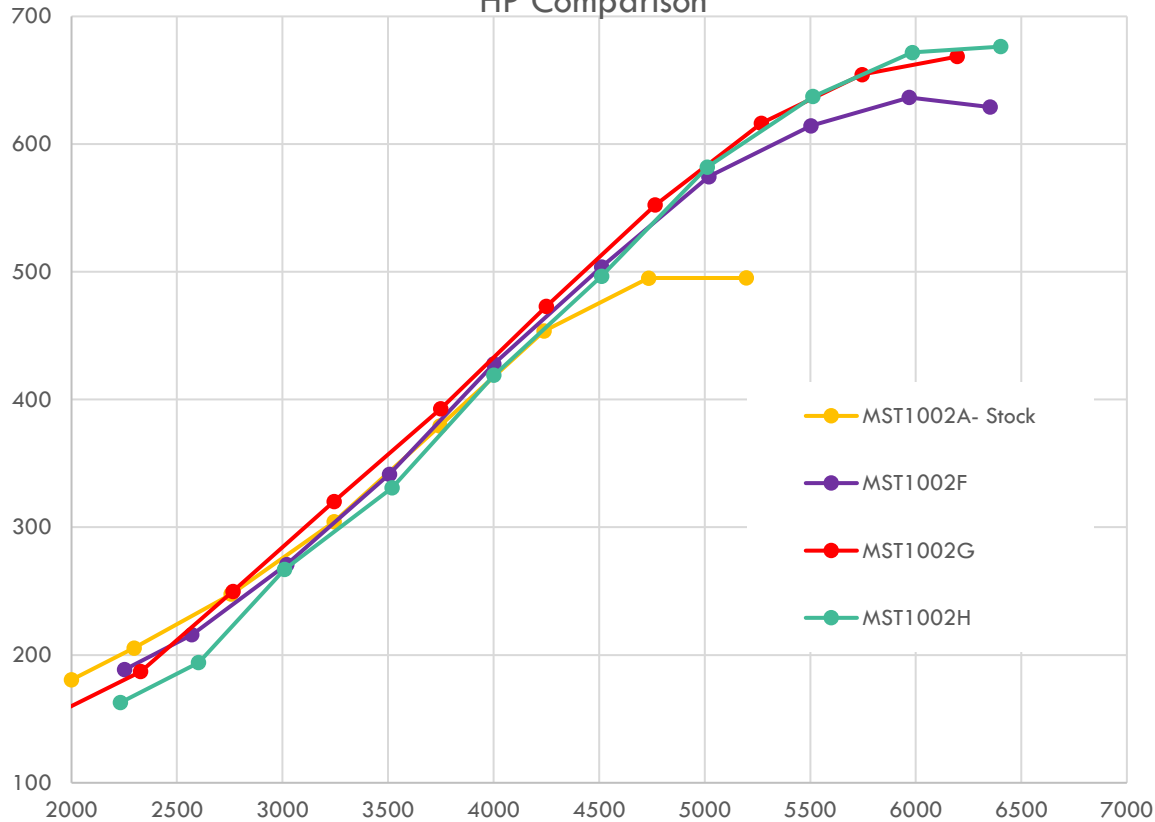


Godzilla Street Car Swap Engine- LST - Cam Only Testing-
Torque Comparison

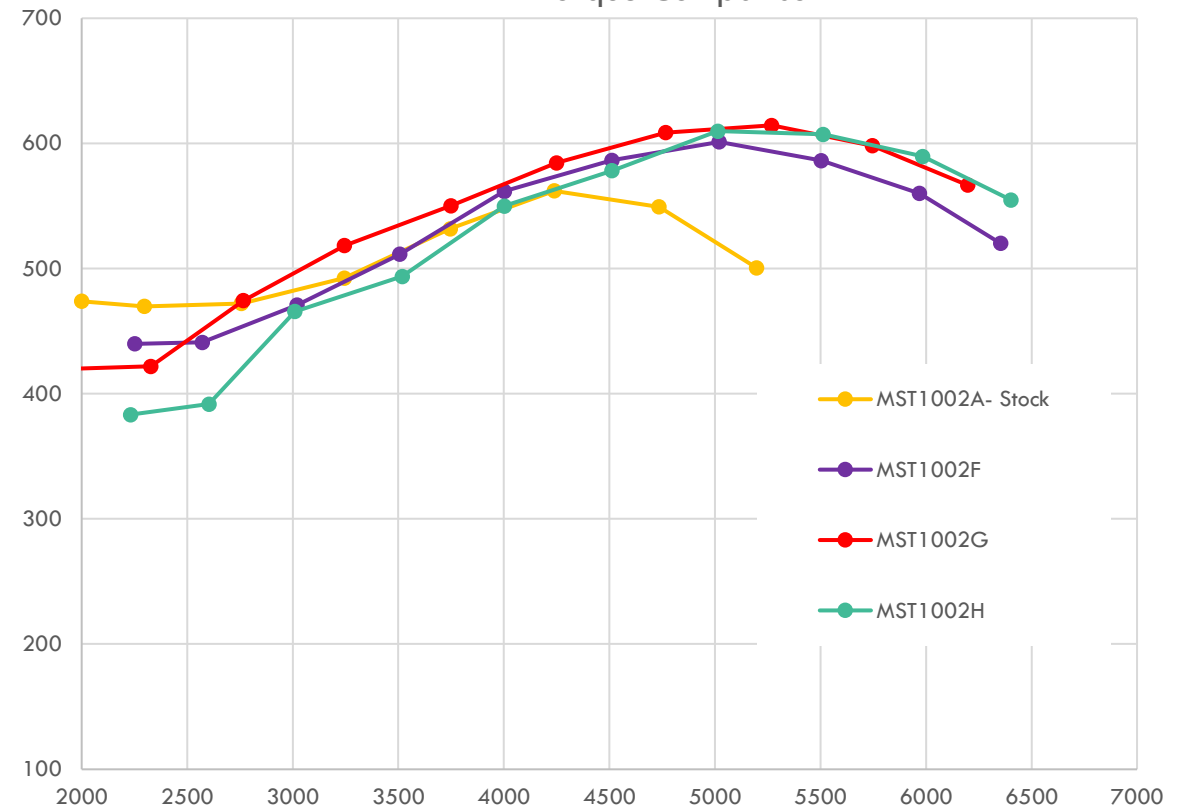


TEST SUMMARY — CAMSHAFT & CNC PORTED HEADS

Godzilla Street Car Swap Engine- LST - Cam & CNC Porting-
HP Comparison

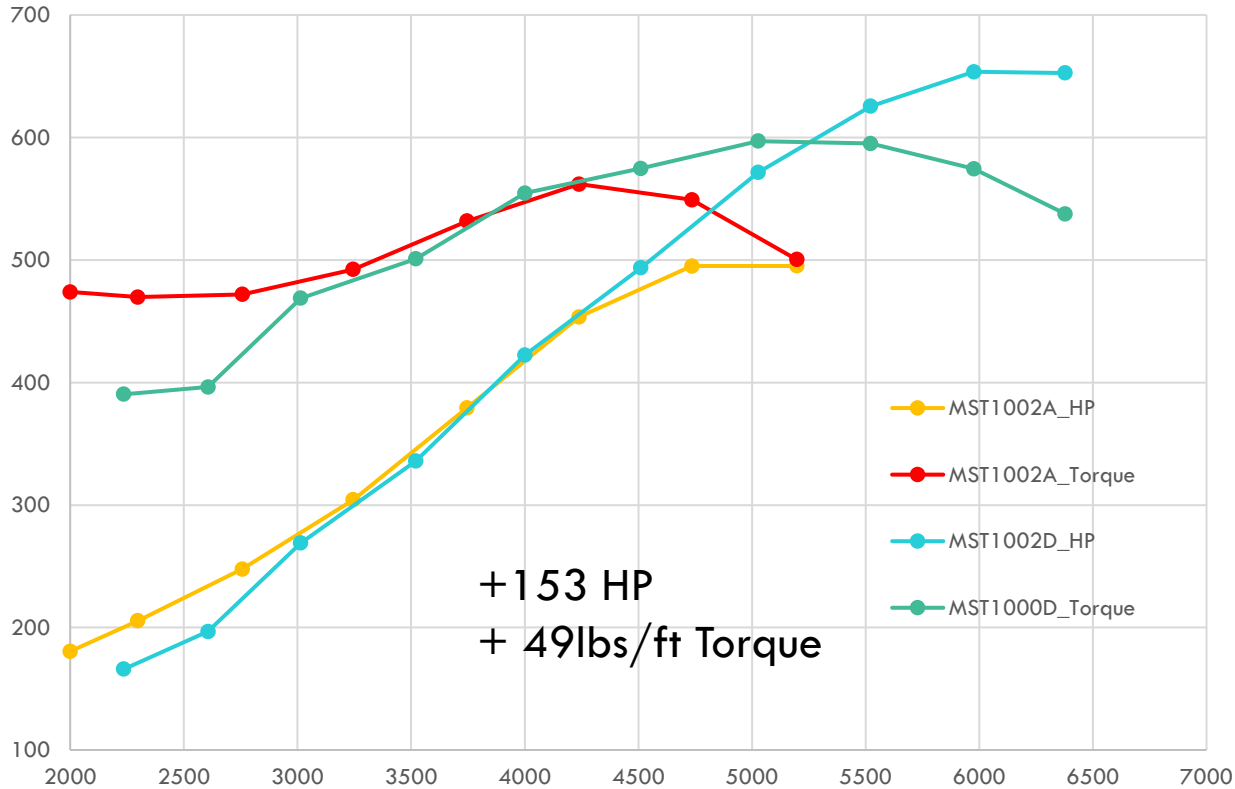


Godzilla Street Car Swap Engine- LST - Cam & CNC Porting-
Torque Comparison



TEST SUMMARY — FINAL POWER GAINS — STREET PERFORMANCE

Godzilla Cam Only (#3 cam) - Baseline V. Max Output



Godzilla #3 Cam & CNC Porting - Baseline V. Max

