

Category	Component	Brand / Item Type	Price	Purchased From:
Machining	Cylinder Bore Machining	Bore and hone with torque plates over .250.	\$300	HKE
	Deck Machining	Set the piston deck height, target -.010"	\$150	HKE
	Main Bore Hone	Line hone main bores with ARP fasteners	\$175	HKE
	Clean Block	Deburr and clean block.	\$50	HKE
	Balance Rotating Assembly	Balance the crank, rods, pistons.	\$276	Texas Speed and Performance
Total Machining Cost			<b>\$951</b>	
Short Block	Block	GM LM7 Iron, P/N 12567392	\$400	Used from LKQ online
	Pistons	Wiseco LS1 3cc, 3.903 Bore, 1.2/1.2/3.0mm Rings, 1.110 Compression Height (K464X3903)	\$565	HKE
	Rods	Eagle 6.125-Inch H-Beam (CRS612503D)	\$430	Texas Speed and Performance
	Rod Bolts	ARP 8740, included with rods	\$0	Texas Speed and Performance
	Crankshaft	K1 Technologies Forged 4.000", 24x Reluctor (340-4000RB6F)	\$860	Texas Speed and Performance
	Main Bearings	Clevite H Main Bearing Set (MS-2199H)	\$120	Texas Speed and Performance
		Clevite HX Main Bearing Set (MS-2199HX)	\$110	Ebay seller "theengineshop632"
	Connecting Rod Bearings	Clevite H Rod Bearing Set (CB-663HN)	\$60	Texas Speed and Performance
		Clevite HX Rod Bearings (CB-663HXXN), Qty 2	\$31	Texas Speed and Performance
	Cam Bearings	Federal Mogul Sealed Power (1898M)	\$36	<a href="http://rpmspeed.com/ls1-federal-mogul-cam-">http://rpmspeed.com/ls1-federal-mogul-cam-</a>
	Piston Rings	Wiseco GFX	\$175	HKE
	Main Studs	ARP 234-5608	\$185	HKE
Total Short Block Parts Cost			<b>\$3,205</b>	
Valvetrain / Heads	Head Studs	ARP 234-4317	\$259	ebay seller "hinson_motorsports_store"
	Heads	AFR 210 V2, S/N 00045982	\$2,445	<a href="http://www.airflowresearch.com/index.php?cPat">http://www.airflowresearch.com/index.php?cPat</a>
	Lifters	OEM LS7 Lifters, GM P/N 12499225	\$145	<a href="http://www.coloradospeed.com/index.php?main">http://www.coloradospeed.com/index.php?main</a>
	Camshaft	Pat G: 224/228 .566"/.571" 115 LSA +1	\$440	Geoff @ EPS
	Camshaft Bolts	ARP 134-1003	\$7	<a href="http://www.ws6project.com/user_stor/catalog/a">http://www.ws6project.com/user_stor/catalog/a</a>
	Timing Set	OEM LS2 Timing Set	\$80	<a href="http://www.oreillyauto.com/site/c/detail/CL00/">http://www.oreillyauto.com/site/c/detail/CL00/</a>
	Head Gaskets	Cometic MLS, .045" x 4.135", H1067SP10455	\$85	Custom order WS6Store.com
		Cometic MLS, .051" x 4.135", H1067SP10515	\$85	Custom order WS6Store.com
	Crankshaft Keyway	OEM GM P/N 12561513	\$4	<a href="http://www.texas-speed.com/p-228-gm-">http://www.texas-speed.com/p-228-gm-</a>
	Crank Bolt	ARP 234-2503	\$28	<a href="http://www.ws6project.com/user_stor/catalog/a">http://www.ws6project.com/user_stor/catalog/a</a>
	Lifter Trays	Use from LM7 engine, GM P/N 12569259 (Qty. 4)	\$0	-
	Lifter Tray Bolts	Use from LM7 engine	\$0	-
	Rocker Arm Pedestal	Use from LM7 engine, GM P/N 12552203 (Qty. 2)	\$0	-
	Pushrods	Comp Cams Hi-Tech Chromemoly, 7.325"	\$138	Texas Speed and Performance
	Rocker Arms	LM7 rocker arms with Comp Cams bearings	\$130	<a href="http://www.coloradospeed.com/index.php?main">http://www.coloradospeed.com/index.php?main</a>
	Total Valvetrain / Heads Parts Cost			<b>\$3,864</b>
Engine Assembly	Oil Pump	Melling 10295, High Pressure	\$121	<a href="http://www.coloradospeed.com/index.php?main">http://www.coloradospeed.com/index.php?main</a>
	Throttle Body	Use from LQ4 engine	\$0	
	Intake Manifold	Use from LM7 engine, GM P/N 25350348	\$0	
	Manifold Threaded Inserts	Brass 1/4-20 internal threads, P/N 9EC26	\$14	<a href="http://www.mcfeelys.com/product/3606-BI/14-">http://www.mcfeelys.com/product/3606-BI/14-</a>
	Fuel Rails	Use from LM7 engine, GM P/N 25326901 (drivers) and 25326900 (passengers)	\$0	
	Fuel Injectors	FAST 36lb, P/N 303608	\$305	<a href="http://www.ws6project.com/user_stor/catalog/f">http://www.ws6project.com/user_stor/catalog/f</a>
	Injector Harness Adaptors	Racetrax, Multec II to Minitimer	\$86	<a href="http://www.racetrax.biz/itemdesc.a...IA-">http://www.racetrax.biz/itemdesc.a...IA-</a>
	MAF	Use from LQ4 engine	\$0	
	Driveability Tune	Patrick Guerra Street Tune	\$500	
	Air Intake	Generic 4" Intake	\$65	ebay seller "cmpautoparts11"
	Header Studs	ARP 434-1301	\$103	<a href="http://www.ws6project.com/user_stor/catalog/a">http://www.ws6project.com/user_stor/catalog/a</a>
	Headers	TSP 1-3/4" SS Long Tube Headers	\$360	<a href="http://www.texas-speed.com/p-3410-all-new-">http://www.texas-speed.com/p-3410-all-new-</a>
	Spark Plugs	Use from LM7 engine, GM P/N 12609877, AC Delco P/N 41-110	\$6	Oreilly Auto Parts
	Spark Plug Wires	MSD 32829	\$70	<a href="http://www.oreillyauto.com/site/c/detail/MSD0/">http://www.oreillyauto.com/site/c/detail/MSD0/</a>
	Engine Oil	Royal Purple 10w-30 Break-in Oil	\$60	Oreilly Auto Parts
	Oil Filter	Mobil 1, M1-206	\$13	Oreilly Auto Parts
	Engine Coolant	2 Gal DexCool	\$32	Oreilly Auto Parts
	Windage Tray Spacer Washers	3/8" SS Washers, HD P/N: 436873, Qty 38	\$10	In stock at Home Depot
	Valve Cover Bolts/Grommets	Aftermarket SS bolts with grommets	\$40	ebay seller "jantzerperformance"
	Oil Dipstick & Tube	Use from LQ4 engine	\$0	
	Windage Tray	Use from LM7 engine, GM P/N 12558268	\$0	LKQ online
	Lower Oil Pan Splash Tray	Use from LM7 engine, GM P/N 12559510	\$0	LKQ online
	Front Cover	Use from LM7 engine, GM P/N 12556623	\$0	LKQ online
	Rear Cover	Use from LM7 engine, GM P/N 12572014	\$0	LKQ online
	Oil Pan	Use from LM7 engine, GM P/N 12573704	\$0	LKQ online
	Valley Cover	Use from LM7 engine, GM P/N 12561107	\$0	LKQ online
	Valve Covers	Use from LM7 engine, GM P/N 12570427 (drivers) and 12570428 (passengers)	\$0	LKQ online
	Radiator Fan	Fan clutch and fan blade from LQ4 engine	\$0	

	Coil Packs	Use from LM7 engine	\$0	LKQ online
	Thermostat	Stant 14948, 186-deg, 54mm	\$14	Advanced Auto Parts
	Crank Position Sensor	Use from LM7 engine	\$0	LKQ online
	Cam Position Sensor	Use from LM7 engine	\$0	LKQ online
	Oil Level Sensor	Use from LM7 engine	\$0	LKQ online
	Oil Pressure Sensor	Use from LM7 engine	\$0	LKQ online
	Head Temperature Sensor	Use from LM7 engine	\$0	LKQ online
	Front Knock Sensor	Use from LM7 engine	\$0	LKQ online
	Rear Knock Sensor	Use from LM7 engine	\$0	LKQ online
<b>Total Engine Assembly Cost</b>			<b>\$1,845</b>	
<b>Seals &amp; Gaskets</b>	Oring, Cam Pos Sensor	Dash No. 113, Qty 1	\$1	oreilly auto parts store (in stock)
	Oring, Crank Pos Sensor	Dash No. 113, Qty 1	\$1	oreilly auto parts store (in stock)
	Oring, Fuel Pressure Reg. OD	Dash No. 118, Qty 1, Use from LM7 engine	\$0	
	Oring, Fuel Pressure Reg. ID	Dash No. 109, Qty 1, Use from LM7 engine	\$0	
	Oring, Fuel Injectors	Qty 16, FAST, Same size as LM7 injectors	\$0	
	Oring, Fuel Return Line	Dash No. 109, Qty 1, Use from LM7 engine	\$0	
	Oring, Fuel Crossover Pipe	Dash No. 112, Qty 2, Use from LM7 engine	\$0	
	Oring, IAC Valve	Dash No. 011, Qty 1	\$1	
	Oring, Dipstick Tube	Dash No. 010, Qty 1	\$1	
	Oring, Oil Pickup Tube	Green, Melling, 1.130" OD x 0.168" THK	\$0	
	Valve Cover Gasket	GM P/N 12637683, 2x Required (center bolt)	\$0	Included with WS6store.com kit
	Camshaft Retainer Plate/Seal	LS3 Style, GM P/N 12589016	\$18	<a href="http://www.summitracing.com/parts/NAL-">http://www.summitracing.com/parts/NAL-</a>
	Cam Retainer Plate Bolts	GM P/N 11561455 (Qty. 4)	\$14	<a href="http://www.texas-speed.com/p-225-gm-lsx-">http://www.texas-speed.com/p-225-gm-lsx-</a>
	Throttle Body Gasket	For LQ4 TB, Felpro P/N Q61070	\$9	<a href="http://www.summitracing.com/parts/FEL-61070/">http://www.summitracing.com/parts/FEL-61070/</a>
	Rear Cover Gasket	GM P/N 12633578	\$20	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Camshaft Install Kit	VC, WP, Cam, Front Cover Gasket Kit	\$77	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Timing Cover Gasket	GM P/N 12633904	\$0	Included with WS6store.com kit
	Valley Cover Gasket	GM P/N 12558178	\$20	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Knock Sensor Grommet	GM P/N 12558177 (Qty. 2)	\$8	<a href="http://www.summitracing.com/parts/NAL-">http://www.summitracing.com/parts/NAL-</a>
	Rear Seal	GM P/N 89060436	\$19	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Oil Pan Gasket	GM P/N 12612350	\$33	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Water Pump Gasket Set	GM P/N 12588372 (sold as pair)	\$0	<a href="http://www.ws6project.com/user_stor/catalog/9">http://www.ws6project.com/user_stor/catalog/9</a>
	Intake Manifold Gasket Set	Felpro MS 96587 (sold as pair)	\$55	oreilly auto parts
	Exhaust Manifold Gaskets	GM P/N 12617944	\$0	Included with TSP SS Headers
	Head Alignment Dowels	GM P/N 12570326 (Qty. 4)	\$32	<a href="http://www.summitracing.com/parts/NAL-">http://www.summitracing.com/parts/NAL-</a>
	Oil Cooler Lines Gasket	Use from LQ4 engine	\$0	-
	Head Steam Vent Gaskets	GM P/N 12551933 (Qty. 4)	\$48	<a href="http://www.summitracing.com/parts/NAL-">http://www.summitracing.com/parts/NAL-</a>
	Front Crankshaft Seal	GM P/N 12585673	\$0	Included with WS6store.com kit
Motor Mounts	Auto Extra 2909, Rubber, for LQ4 Engine	\$58	<a href="http://www.summitracing.com/parts/ANI-2909/">http://www.summitracing.com/parts/ANI-2909/</a>	
<b>Total Seals &amp; Gaskets Cost</b>			<b>\$430</b>	
<b>Tooling</b>  Does not include standard garage tools: ratchets, wrenches, breaker bars, etc.	Harmonic Balancer Installer	Hawk Tool	\$50	<a href="http://www.coloradospeed.com/index.php?main">http://www.coloradospeed.com/index.php?main</a>
	Engine hoist	2-ton Harbor Freight	\$200	<a href="http://www.harborfreight.com/2-ton-foldable-">http://www.harborfreight.com/2-ton-foldable-</a>
	Engine stand	1-ton Harbor Freight	\$100	<a href="http://www.harborfreight.com/2000-lb-foldable-">http://www.harborfreight.com/2000-lb-foldable-</a>
	Load Leveler	Harbor Freight, 3/4t Rated	\$25	
	Valve Spring Compressor	Napa SER-385	\$60	<a href="http://www.napaonline.com/Catalog/Catalogite">http://www.napaonline.com/Catalog/Catalogite</a>
	Deep Socket, 27mm, 12-pt	Craftsman 1/2" Dr, Oil Press, ARP Crank Bolt	\$10	Sears
	Deep Socket, 5/8", 12-pt	Craftsman 3/8" Dr, for ARP Main Studs	\$5	Sears
	Socket, 1-11/16", 12-pt	Craftsman 3/4" Dr, for Cam Bearing tool	\$22	Sears
	Gear Puller	3-jaw, 4" reach	\$20	Oreilly Auto Parts
	Piston Ring Compressor	ARP, Tapered, 3.900 bore	\$67	ebay seller "northernautoparts"
	Piston Ring Filer	Proform 66785	\$50	<a href="http://www.jegs.com/i/Proform/778/66785/100">http://www.jegs.com/i/Proform/778/66785/100</a>
	<b>Total Speical Tooling Cost</b>			<b>\$645</b>
<b>Instrumentation</b>	Dial Bore Gauge	Mitutoyo 511-169, 50-100mm, .001mm	\$301	<a href="http://www.amazon.com/Mitutoyo-511-169-50-">http://www.amazon.com/Mitutoyo-511-169-50-</a>
	Mag. Mount for Dial Indicator	Jegs 81615	\$30	<a href="http://www.jegs.com/i/JEGS-Performance-">http://www.jegs.com/i/JEGS-Performance-</a>
	Generic Dial Indicator	2x Proform 66962	\$44	<a href="http://www.jegs.com/i/Proform/778/66962/100">http://www.jegs.com/i/Proform/778/66962/100</a>
	Bolt Stretch Gauge	Lunati 98401	\$70	<a href="http://www.jegs.com/i/JEGS+Performance+Prod">http://www.jegs.com/i/JEGS+Performance+Prod</a>
	Bridge Stand for Dial Indicator	Proform 66797	\$40	<a href="http://www.jegs.com/i/Proform/778/66797/100">http://www.jegs.com/i/Proform/778/66797/100</a>
	Outside Micrometer, 2"-3"	Mitutoyo 103-217, 2-3", .0001"	\$121	<a href="http://www.amazon.com/dp/B0006J42CW/ref=d">http://www.amazon.com/dp/B0006J42CW/ref=d</a>
	Outside Micrometer, 3"-4"	Mitutoyo 103-218, 3-4", .0001"	\$139	<a href="http://www.amazon.com/Mitutoyo-103-218-">http://www.amazon.com/Mitutoyo-103-218-</a>
	3/8" Torque Wrench	Snap On, 20-100 lb-ft range	\$280	<a href="http://buy1.snapon.com/catalog/item.asp?P65-">http://buy1.snapon.com/catalog/item.asp?P65-</a>
	Feeler Gauge Set	Harbor Freight	\$3	Harbor Freight
	Cam Degree Wheel	Comp Cams 4790	\$17	<a href="http://www.jegs.com/i/Comp+Cams/249/4790/1">http://www.jegs.com/i/Comp+Cams/249/4790/1</a>
	Solid Test Lifters	Convert 2 LM7 lifters from donor engine	\$0	LKQ Online
	Adjustable Length Pushrod	Jegs 80861	\$15	<a href="http://www.jegs.com/i/JEGS+Performance+Prod">http://www.jegs.com/i/JEGS+Performance+Prod</a>
	Lightweight Test Spring Set	Jegs 80523	\$8	<a href="http://www.jegs.com/i/JEGS-Performance-">http://www.jegs.com/i/JEGS-Performance-</a>
	<b>Total Instrumentation Cost</b>			<b>\$1,068</b>
<b>Consumables</b>	Paper towels	generic, Qty. 3 rolls	\$10	Oreilly Auto Parts
	Loctite	Blue, Red	\$10	Oreilly Auto Parts
	Thread Lubricant	ARP Ultra-Torque Fastener Lube, 10oz	\$18	<a href="http://www.jegs.com/i/ARP/070/100-">http://www.jegs.com/i/ARP/070/100-</a>
	Brake Cleaner	4 cans	\$20	Oreilly Auto Parts
	Desiccant Bags	10 bags @ 10g each, for inside block storage bag	\$10	Ebay
	Thick Assembly Lube	Moly Engine Assembly Lube	\$7	Oreilly Auto Parts
<b>Total Consumables Cost</b>			<b>\$79</b>	

Total Engine Project Cost **\$12,088**

Additional Engine Upgrades	FAST LSXRT Manifold	Including Porting by Tony Mamo	\$1,375	
	FAST Fuel Rails	FAST, aluminum, anodized red	\$200	<a href="http://www.texas-speed.com/p-2363-fast-ls1-">http://www.texas-speed.com/p-2363-fast-ls1-</a>
	102mm Throttle Body	PTM 102mm Cable driven, without sensors	\$400	<a href="http://www.texas-speed.com/p-691-ptm-102mm-">http://www.texas-speed.com/p-691-ptm-102mm-</a>
	100mm MAF	TSP 100mm MAF, with coupler and harness	\$250	<a href="http://www.texas-speed.com/p-660-texas-speed-">http://www.texas-speed.com/p-660-texas-speed-</a>
	Exhaust Headers Welding	Dual 3" aluminized pipes, cat removal	\$320	
	Muffler	Magnaflow P/N 12599	\$139	<a href="http://www.jegs.com/i/Magnaflow/642/12599/1">http://www.jegs.com/i/Magnaflow/642/12599/1</a>
	Intake Manifold Gaskets	Felpro MS 92438	\$27	<a href="http://www.ws6project.com/user_stor/catalog/p">http://www.ws6project.com/user_stor/catalog/p</a>
	Catch Can			
	Transmission Cooler			
	Exhaust Wrap near Tranny	Thermoflex sleeve	\$65	<a href="http://www.jegs.com/i/Thermo+Tec/893/17300/">http://www.jegs.com/i/Thermo+Tec/893/17300/</a>
	Circle D Torque Converter			
	Transfer Case Fix			<a href="http://www.merchant-automotive.com/transfer-">http://www.merchant-automotive.com/transfer-</a>
	Rear 4.56 Gears	For GM 14-bolt 10.5" Rear End	\$292	<a href="http://www.summitracing.com/parts/SAG-">http://www.summitracing.com/parts/SAG-</a>
	Front 4.56 Gears			
	Cam Bearing Tool		\$90	<a href="http://carshop.carshopinc.com/product_info.php">http://carshop.carshopinc.com/product_info.php</a>
	Electric Fans	OEM Unit for 2005 Tahoe	\$172	<a href="http://www.rockauto.com">www.rockauto.com</a>
	efan wiring harness		\$106	<a href="http://www.ls1fans.com/1999-">http://www.ls1fans.com/1999-</a>
Dyno Tuning	Patrick Guerra in Victoria	\$200		
<b>Total Additional Parts Cost</b>			<b>\$3,340</b>	