CRATE ENGINE DEVELOPMENT PROCESS

All great crate engines start as an idea. The engineer begins with a horsepower target and the engine family for hitting that target. Then, the engineer documents the components that will likely achieve targeted horsepower and meet durability requirements. This procedure is based on years of experience in the high-performance engine building business. Many formulas also support this process. Next, the engineer has one or more development engines built and sent to the engine dynamometer lab for break-in and testing. During dyno-testing, fuel distribution, best cam timing, and best ignition timing for maximizing horsepower and torque is assessed. If target performance numbers are not met—or can be improved—changes are made accordingly. Oftentimes, different carburetors, camshafts, intake manifolds and cylinder heads are evaluated. After target numbers are reached, the engine is run for durability. Durability testing is based on the market application of the engine. Various durability tests may be run—sometimes as severe as 50 hours at wide open throttle, full power. Others may be cycling tests where the engine accelerates from peak torque to peak power, then decelerates back to peak torque, then repeats the cycle for many hours. The tests selected vary depending on the market application. Upon successful completion of durability testing, the engine package is released for production.

CRATE ENGINE PART NUMBER	M-6007-XE3M	M-6007-XB3M	M-6007-Z50E	M-6007-Z50Z	M-6007-C347	M-6007-Z351
Displacement	302	302	302	302	347	351
Horsepower	340	345	360	390	450	410
Torque	310 ft./lbs.	305 ft./lbs.	330 ft./lbs.	360 ft./lbs.	400 ft./lbs.	417 ft./lbs.
Compression Ratio	9.0:1	9.0:1	9.0:1	10.0:1	9.7:1	9.0:1
Heads	X303 GT-40	X303 GT-40	Z304A High Flow	Z304A High Flow	Z304A High Flow	Z304A High Flow
Camshaft	E303 Hyd. Roller Cam	B303 Hyd. Roller Cam	E303 Hyd. Roller Cam	Z303 Hyd. Roller Cam	Crane Hyd. Roller Cam	Z303 Hyd. Roller Cam
Crank	3.00" Stroke Cast	3.00" Stroke Cast	3.00" Stroke Cast	3.00" Stroke Cast	3.40" Stroke Forged	3.50" Stroke Cast
Piston	4.000" Hypereutectic	4.000" Hypereutectic	4.000" Forged	4.000" Forged	4.030" Forged	4.000" Forged
Intake	No Intake	No Intake	No Intake	No Intake	Victor Jr.	Victor Jr.
Distributor	No Distributor	No Distributor	No Distributor	No Distributor	Billet Distributor	Billet Distributor
Valve Cover	M-6000-K302R	M-6000-K302R	M-6582-R302	M-6582-R302	M-6582-E302P	M-6582-E302P
Oil Pan	Production	Production	Production	Production	Canton 7qt.	Production
Water Pump	Serpentine Belt	Serpentine Belt	V Belt	V Belt	V Belt	V Belt

CRATE ENGINE PART NUMBER	M-6007-D351FT	M-6007-D351RT	M-6007-J58	M-6007-S58	M-6007-D392FT	M-6007-D392RT
Displacement	351	351	351	351	392	392
Horsepower	385	385	240	250	430	430
Torque	377 ft./lbs	377 ft./lbs	n/a	n/a	450 ft./lbs.	450 ft./lbs.
Compression Ratio	9.0:1	9.0:1	8.5:1	8.5:1	9.7:1	9.7:1
Heads	X305 GT-40	X305 GT-40	Production Cast Iron	Production Cast Iron	X303 GT-40	X303 GT-40
Camshaft	Z303 Hyd. Roller Cam	Z303 Hyd. Roller Cam	Standard Hyd. Cam	Standard Hyd. Cam	Crane Hyd. Roller Cam	Crane Hyd. Roller Cam
Crank	3.50" Stroke Cast	3.50" Stroke Cast	3.50" Stroke Cast	3.50" Stroke Cast	3.85" Stroke Cast	3.85" Stroke Cast
Piston	4.000" Forged	4.000" Forged	4.000" Hypereutectic	4.000" Hypereutectic	4.030" Forged	4.030" Forged
Intake	Victor Jr.	Victor Jr.	2V Aluminum	FRPP Dual Plane	Victor Jr.	Victor Jr.
Distributor	Billet Distributor	Billet Distributor	Ford Duraspark	Ford Duraspark	Billet Distributor	Billet Distributor
Valve Cover	M-6582-E302P	M-6582-E302P	Production	M-6582-E302P	M-6582-E302P	M-6582-E302P
Oil Pan	7qt. Front Sump	7qt. Rear Sump	Full Sump	Full Sump	7qt. Front Sump	7qt. Rear Sump
Water Pump	Both	Both	V Belt	V Belt	Both	Both

CRATE ENGINE PART NUMBER	M-6007-C392FT	M-6007-C392RT	M-6007-F460FT	M-6007-F460RT	M-6007-D514RT	M-6007-E514FT
Displacement	392	392	460	460	520	520
Horsepower	475	475	550	550	625	Check website
Torque	495 ft./lbs.	495 ft./lbs.	545 ft./lbs.	545 ft./lbs.	600 ft./lbs.	Check website
Compression Ratio	10.0:1	10.0:1	10.5:1	10.5:1	9.8:1	9.8:1
Heads	Z304A High Flow	Z304A High Flow	SCJ Super Cobra Jet	SCJ Super Cobra Jet	SCJ Super Cobra Jet	SCJ Super Cobra Jet
Camshaft	Hyd. Roller Cam	Hyd. Roller Cam	C460 Hyd. Cam	C460 Hyd. Cam	A514 Mech. Roller Cam	C460 Hyd. Cam
Crank	3.85" Forged	3.85" Forged	3.85" Stroke Cast	3.85" Stroke Cast	4.30" Stroke Cast	4.30" Stroke Cast
Piston	4.030" Forged	4.030" Forged	4.390" Hypereutectic	4.390" Hypereutectic	4.390" Forged	4.390" Forged
Intake	Victor Jr.	Victor Jr.	Performer RPM	Performer RPM	Victor Jr.	Torker II
Distributor	Billet Distributor	Billet Distributor	Billet Distributor	Billet Distributor	Billet Distributor	Billet Distributor
Valve Cover	M-6582-E302P	M-6582-E302P	M-6582-C460	M-6582-C460	M-6582-C460	M-6582-C460
Oil Pan	7qt. Front Sump	7qt. Rear Sump	7qt. Front Sump	7qt. Rear Sump	7qt. Rear Sump	7qt. Front Sump
Water Pump	Both	Both	V Belt	V Belt	V Belt	V Belt