



509 / 540 Merlin Street Crate Engine

Thank you for choosing a Merlin 509/540 street engine. With proper maintenance, your investment will return many years of driving pleasure. A word of caution—your Merlin “crate engine” will meet or exceed the factory rated horsepower. These numbers are not inflated! Accordingly, your car may be a real “handful.” Get used to the power before tapping its full potential. Be sure that your driveline can withstand this level of power. Have fun, enjoy, and be careful. Thanks again for your business.

CAUTION! NO OIL IN ENGINE

You **MUST PUT OIL IN THIS ENGINE BEFORE STARTING**. We have drained all engine oil after testing because freight carriers will not ship engines filled with liquids. We supply a brand new filter. Please add the appropriate amount of oil. The capacity for this engine is **6 qts. with the filter**. You should fill the oil filter before installing it on the engine to avoid oil pressure interruption during start up.

MODIFY VALVE COVERS FOR PCV/BREATHERS

PVC/BREATHERS: Some valve covers may not be drilled for a PCV valve or breathers, as every application requires a different type and location. You **MUST** install either breathers or PCV valve before use to evacuate crankcase pressure. We strongly recommend a PCV valve over breathers to contain crankcase fumes. Your engine’s carburetor is equipped with vacuum fittings for vacuum advance and PCV connections.

IGNITION TIMING: 38” total @ 3000 to 3200 rpm (with vacuum advance hose disconnected). Fuel economy usually improves with vacuum advance hooked up.

VALVE ADJUSTMENT: This engine is equipped with a hydraulic flat tappet camshaft. Adjust the valves with the engine running by loosening the rocker until it starts to make a clacking noise. Then tighten the rocker until the clacking noise goes away, go 1/8 turn more and lock poly lock in place.

OIL: Any high quality 20W50.

FUEL: This engine is compatible with unleaded “pump gas”. Premium unleaded 93-octane fuel is recommended.

SPECIFICATIONS:

ENGINE BLOCK: Merlin 9.800” deck height 4-bolt main

CRANKSHAFT: Eagle 4340 forged steel 4.00” stroke (509 engine) 4.250” stroke (540 engine)

CONNECTING RODS: Manley 6.385”

PISTONS: JE/SRP forged 4.500” bore

COMPRESSION RATIO: 9.5 to 1

PISTON RINGS: JE

BEARINGS: Clevite H series

CAMSHAFT: Hydraulic flat tappet.. Duration @ .050 is 236 intake & 246 exhaust. Lift .553 intake & .571 exhaust. Centerline is 114

CYLINDER HEADS: Cast Iron Merlin 345 cc Rectangular Port or Aluminum 305 cc Rectangular Port

VALVES: 2.300” x 1.88” Manley valves: Severe Duty intake & exhaust

ROCKER ARMS: 1.7:1 ratio roller rockers intake & 1.7 ratio roller rockers exhaust

INTAKE MANIFOLD: Merlin Rectangular Port Intake

CARBURETOR: Hardcore 870 cfm Hi flow 4150 style carb

IGNITION: Hardcore HEI distributor, Taylor Merlin 8mm ignition wire, Accel spark plugs (276 for iron heads and 416 for aluminum heads) gapped @ .035

EMISSIONS: This engine was not designed to meet emission requirements.

WARRANTIES AND DISCLAIMERS:

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World Products, Inc. reserves the right to change specifications, prices and discontinue parts without notice. We make every effort to present accurate information; however, we are not responsible for typographical errors. The 2-year, 24,000 mile limited warranty that comes with these engines is issued by an independent insurance company. In the event of any disagreement or dispute between any purchaser or end user, regardless of what state or country the parties may reside in, all jurisdiction shall be retained solely within the state of New York and venue shall vest solely within the county of Suffolk. If any question of law may arise during any litigation, New York law shall solely apply to all such questions. In the event that any conflict of laws between jurisdictions, New York law shall apply and all actions shall remain as New York state actions.

EVERY Merlin 509/540 cid ENGINE RECEIVES FACTORY BREAK-IN AND INDIVIDUAL DYNO TESTING

Very few enthusiasts get the opportunity to own a dyno tested engine. Even fewer individuals can claim to have a professionally built engine. You now have both. We thank you for your purchase and your confidence in us.

PROFESSIONAL QUALITY

Your Merlin has been professionally built. Assembly line crate engines cannot compare with our quality. Merlin crate engines are prepped in our state-of-the-art machine shop and built one at a time in our engine assembly clean room.

BREAK-IN AND TESTING

Before your engine is prepared for shipment, your Merlin 509/540 is broke-in and fully tested on our engine dyno. We break in the cam, check it for ring seal and leaks. After the important break-in procedure, each and every engine is dyno-tested. Our dyno measures true SAE brake horsepower. We don't add correction factors to artificially inflate the numbers. Each engine is shipped as tested to ensure proper function of external items such as carburetor and ignition. Every engine gets multiple dyno pulls to verify power output.

USING THE NUMBERS

More than just impressive peak numbers, you can use the engine power curve to fine-tune your driveline combination and driving style. Merlin 509/540 crate engines make peak power at 5600-5800 rpm. For best results, shift just below the peak

Peak torque is 3700-4000rpm When matching driveline components, be sure to provide this information to the transmission and/or chassis builder. Be sure that the driveline can handle upwards of 750 + ft.-lbs of torque. We do not recommend revving this engine beyond the stated 6000 rpm redline.

For more information or technical help, please call or write:

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