

Bore x Stroke - 4.030" x 3.40"

Piston specs - 1.09" compression height, flat top with valve notches  
 .912" floating pin w/ single wire lock rings, 1/16", 1/16", 3/16"  
 Speed Pro R9902 +.030 ring pack

Nominal compression ratio - 10.0:1 (range is +1-.5)

Deck height- 8.20"

Piston to deck - .000" min.

Camshaft - hydraulic roller,	Int. <i>C/I</i>	Exh. <i>C/I</i>
max valve lift	.563" 108 <sub>o</sub>	.584" 116 <sub>o</sub>
duration @ .050" lift	232 <sub>o</sub>	240 <sub>o</sub>
cam timing @ .050" ,open	9 <sub>o</sub> BTC	57 <sub>o</sub> BBC
close	43 <sub>o</sub> ABC	3 <sub>o</sub> ATC

Hydraulic roller lifters - M-6500-R302

Cylinder heads - M-6049-Z304 w/62cc +1-2cc chamber volume

Valves - 2.02" into (M-6507-A304) /1.60" exh. (M-6505-A304)

Valve springs - M-6513-A351 dual, 135 # @ 1.850" installed height,  
 394#@1.175"open

Rocker arms - 1.60 ratio, M-6564-K351

Ignition timing - 34<sub>o</sub> @ 4000 RPM

Rated HP - 450 HP @ 6000 RPM

Torque - 400 ft. lb. @ 4900 RPM

Note: All untoleranced dimensions are nominal

Torque Specs - with 30 weight oil

Main bearing bolts - 70 ft. lb.

Con. Rod bolts - 50 ft. lb. with ARP moly lube

Cam sprocket bolt - 45 ft. lb.

Cylinder head bolt - 3 steps, 40 / 60 / 70 ft. lb.

Flywheel - 80 ft. lb.

Crank damper - 80 ft. lb.

Recommended clearances

Piston to bore .004" @ .500" from bottom of skirt

Ring end gap Top .020", 2<sub>nd</sub> .016"

Piston pin .0008" - .0012" (snug but can be turned by hand)

Crank end play .004 - .008"

Main bearing .0025 - .0035"

Rod bearing .0020 - .0025"

Rod side clear .010 - .015"

Valve to piston .100" Int., .125" exh., .060" radial (to edge of notch)

PLEASE READ ALL NOTES AND WARNINGS BEFORE STARTING ENGINE!!!  
A BREATHER CAP MUST BE INSTALLED IN ONE VALVE COVER!  
A BREAK-IN IS ABSOLUTELY CRITICAL AND MUST BE RUN BEFORE ANY WOT PERFORMANCE IS ATTEMPTED!!

The M-6007-C347 engine assembly uses a combination of production and Ford Racing components including Z304 aluminum cylinder heads and the M-6010-B50 Sportsman cylinder block. The nominal 10.0:1 compression ratio and relatively low overlap hydraulic roller cam allow using this engine assembly in street rods. With 450 HP and 400 ft. lb. torque the engine is also suitable for use in bracket race vehicles.

Due to the many possible applications for this engine the final selection and installation of oil pan and front dress components are to be made by the customer. We recommend use of the Canton oil pan that is currently installed on the engine for most performance applications. The pan fits Fox body vehicles.

Engine Specs are listed on the attached sheet. For vehicle installation advice call the Hotline (810) 468-1356.

#### Recommended Parts To Complete The Engine

1. The Canton oil pan is baffled and should be adequate for most performance applications. The pan capacity is 7 quarts. Use a tubing bender to shape the dipstick tube to suit the vehicle application and header system.
2. The engine will require a 750 CFM Holley carbo or equivalent. A wood or phenolic spacer can be used to reduce the transfer of engine heat to the carbo if hood clearance is not a problem. At least 1" clearance between the top of the carb and the hood should be maintained.
3. A Holley high pressure (blue) or higher volume fuel pump is recommended. The pump should be mounted near the fuel tank. The fuel line should be 3/8" diameter minimum.
4. The engine is equipped with an MSD distributor. The timing advance curve starts about 1500 RPM and reaches full advance (20°) at 2500 RPM. An MSD 6AL or 7AL ignition module is recommended to complete the ignition system.
5. The engine is equipped with an M-6316-C351 crankshaft damper. A M-6375-A302 or equivalent flywheel should be used. This engine is externally balanced same as early 302 production (28.2 oz.in.). C-4 auto trans applications will require a M-6375-F302 flexplate (157 tooth) and a D20Z-7007-A rear cover plate (which locates the starter).
6. If vacuum boost brakes are used on the vehicle, a vacuum reservoir may be required. These are available from most auto parts stores.
7. Shorty exhaust headers are available for several vehicle applications from Ford Racing.

## Engine Prep

1. AT LEAST ONE VALVE COVER BREATHER MUST BE INSTALLED before starting the engine!! Instructions are included.
2. The engine has been hot tested. The 20W50 factory fill oil should be changed after the break-in cycle. Any good quality natural or synthetic 20W50 oil may be used.
3. A good quality engine oil cooler is highly recommended. Max engine oil temp is 220° for natural oil, 240° for synthetic oil. Warning: avoid small tube oil coolers, small id lines, 90 degree bends and restrictive fittings that can cause significant reduction in oil pressure. Generally 10# oil pressure per 1000 RPM is adequate. However less than 35# pressure at idle is cause for concern. Call the Hot Line for advice if you encounter low oil pressure.
4. FRPP offers the M-8005-C aluminum, cross flow radiator for 1979-1993 Mustangs. Other applications may require radiator upgrades.
5. The nominal compression ratio is 10.0:1. Minimum recommended fuel octane is 92. For racing, 102 minimum octane race gas is recommended.
6. The ignition timing was set during the hot test but, it should be rechecked when the engine is first started. The 347 made best power at 34° total timing.
7. RE-TORQUE THE CYLINDER HEADS AFTER THE FIRST DAY OF OPERATION. The engine must have run under load at normal operating temperature and COOLED COMPLETELY TO ROOM TEMP before re-torque. See spec sheet for torque specs.

## Competition Prep

1. The engine made best power with the camshaft at 0° timing. The 9 keyway crank sprocket allows up to 8° advance or retard. If cam timing is changed, piston to valve clearance must be checked.
2. The forged steel crank, the sportsman block and the SAE 4130 forged steel connecting rods together with the forged aluminum pistons form a very durable shortblock for the intended service. No special prep is required for these components. Traditional blueprinting operations may produce some gains in power. The engine has not been tested with power adders such as nitrous or superchargers and they are not recommended.

3. The intake and exhaust ports have been designed to provide a good balance of flow volume and flow velocity. Porting should be done with care by an experienced cylinder head porter.
4. The intake manifold can be port matched to the cylinder heads using the gasket as a guide. Use care to insure that the cylinder head port edges do not intrude in the flow path.