



## M-6007-A392/D392 Engine INSTALLATION INSTRUCTIONS

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Please visit [www.fordracingparts.com](http://www.fordracingparts.com) for the most current instruction information

**!!! PLEASE READ ALL OF THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION.  
AT ANY TIME YOU DO NOT UNDERSTAND THE INSTRUCTIONS, PLEASE CALL THE FORD RACING  
TECHLINE AT 1-800-367-3788 !!!**

**!!! PLEASE READ ALL NOTES AND WARNINGS BEFORE STARTING ENGINE.  
A BREATHER CAP MUST BE INSTALLED IN ONE VALVE COVER.  
A BREAK-IN MUST BE RUN BEFORE FULL POWER PASSES ARE ATTEMPTED !!!**

### OVERVIEW:

The M-6007-A392 engine assembly uses a combination of production and Ford Racing components including GT-40 aluminum cylinder heads and the M-6010-A351/A58 Sportsman cylinder block. The nominal 9.7:1 compression ratio and relatively low overlap hydraulic roller cam allow using this engine assembly in street rods. With 430 HP and 450 ft./lbs. torque the engine is also suitable for use in bracket race vehicles.

Engine Specs are listed on the attached sheet.

### **Recommended Parts To Complete The Engine:**

1. The engine will require a 750 CFM Holley carb. or equivalent. A wood or phenolic spacer can be used to reduce the transfer of engine heat to the carb. if hood clearance is not a problem. At least 1/2" clearance between the top of the carb and the hood should be maintained.
2. 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.
3. The engine is equipped with a Duraspark style distributor. The timing advance curve starts about 1500 RPM and reaches full advance (200) at 2500 RPM. An MSD 6AL or 7AL ignition module is recommended to complete the ignition system.
4. The engine is equipped with an M-6316-C351 crankshaft damper and M-6375-A302 flywheel. Using these components, the engine is externally balanced the same as a production 351W. C-4 auto trans applications will require a M-6375-F302 flexplate (157-tooth) and a D2OZ-7007-A rear cover plate (which locates the starter).
5. If vacuum boost brakes are used on the vehicle, a vacuum reservoir may be required. These are available from most auto parts stores.
6. Shorty exhaust headers are available for several vehicle applications from Ford Racing.

Factory Ford shop manuals are available from Helm Publications, 1-800-782-4356



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### INSTALLATION INSTRUCTIONS:

#### 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. An engine oil cooler is highly recommended. Max engine oil temp is 220° for natural oil, 240° for synthetic oil.
4. Ford Racing offers the M-8005-C aluminum, cross flow radiator for 1979-93 Mustangs. Other applications may require radiator upgrades.
5. The nominal compression ratio is 9.7:1. Minimum recommended fuel octane is 92. For racing, 102 minimum octane race fuel is recommended.
6. The ignition timing was set during the hot test but, it should be rechecked when the engine is first started. The 392 made best power at 32° 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. Retarding the cam reduced torque but did not increase power. 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 cast stroker crank, the sportsman block and the SAE 4130 forged steel connecting rods together with the cast hypereutectic 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.
3. Both the block and the heads could be milled to increase compression ratio. Minimum piston to cylinder head clearance is .040" (head gasket compressed thickness is .042"). GT-40 heads can be milled up to .050" (beyond .050" the milling will run into the intake valve seat). Milling .005" to .006" will reduce chamber volume approximately 1cc. Reducing chamber volume 9cc will increase the compression ratio by 1, which should result in a 4% power increase.
4. 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.

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5. 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.
6. The 3100# A392 Project Mustang uses a 4.10 ring and pinion with 28" x 10" slicks. Although still under development the Project Mustang has run 11.30's.

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### M-6007-A392 ENGINE SPEC SHEET

Bore x Stroke - 4.030" x 3.850"

Piston specs - 1.615" compression height, dish + notch volume = 15 +/- .5cc

.912" floating pin w/ single wire lock rings, 1/16", 1/16", 3/16"

Grant CC4000H030 or Speed Pro R9902 +.030 ring pack

Nominal compression ratio - 9.7:1 (range is +/- .5)

Deck height - 9.50"

Piston to deck - .000" min.

Camshaft - hydraulic roller,

|                          | Int.    | C/L  | Exh.    | C/L  |
|--------------------------|---------|------|---------|------|
| max valve lift           | .566"   | 108° | .576"   | 116° |
| duration @ .050" lift    | 232°    |      | 240°    |      |
| cam timing @ .006", open | 29° BTC |      | 77° BBC |      |
| close                    | 73° ABC |      | 33° ATC |      |

Hydraulic roller lifters - M-6500-R302

Cylinder heads - M-6049-X303 w/64cc +/-2cc chamber volume

Valves - 1.94" int. (M-6507-J302) / 1.54" exh. (M-6505-G302)

Valve springs - M-6513-A50 single w/damper, 110 # @ 1.820" installed height,  
240 # @ 1.400" open

Rocker arms - 1.60 ratio, M-6564-B351

Ignition timing - 32° @ 3000 RPM

Rated HP - 430 HP @ 5500 RPM

Torque - 450 ft. lb. @ 4000 RPM

Note: All untoleranced dimensions are nominal

### Torque Specs - with 30 weight oil:

|                      |                                   |
|----------------------|-----------------------------------|
| Main bearing bolts   | - 105 ft./lbs.                    |
| Connecting Rod bolts | - 50 ft./lbs. with Moly lube      |
| Cam sprocket bolt    | - 45 ft./lbs.                     |
| Cylinder head bolt   | - 3 steps, 45 / 75 / 105 ft./lbs. |
| Rocker arm bolt      | - 18-24 ft./lbs.                  |
| Flywheel             | - 80 ft./lbs.                     |
| Crank damper         | - 80 ft./lbs.                     |

### Recommended Clearances:

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| Piston to bore  | .0025" - .0035"                                         |
| Ring end gap    | Top .020", 2nd .016"                                    |
| Piston pin      | .0008" - .0012" (snug but can be turned by hand)        |
| Crank end play  | .004" - .008"                                           |
| Main bearing    | .0025" - .0030"                                         |
| Rod bearing     | .0018" - .0024"                                         |
| Rod side clear  | .010" - .015"                                           |
| Piston to deck  | .000" min.                                              |
| Valve to piston | .100" int., .125" exh., .060" radial (to edge of notch) |

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