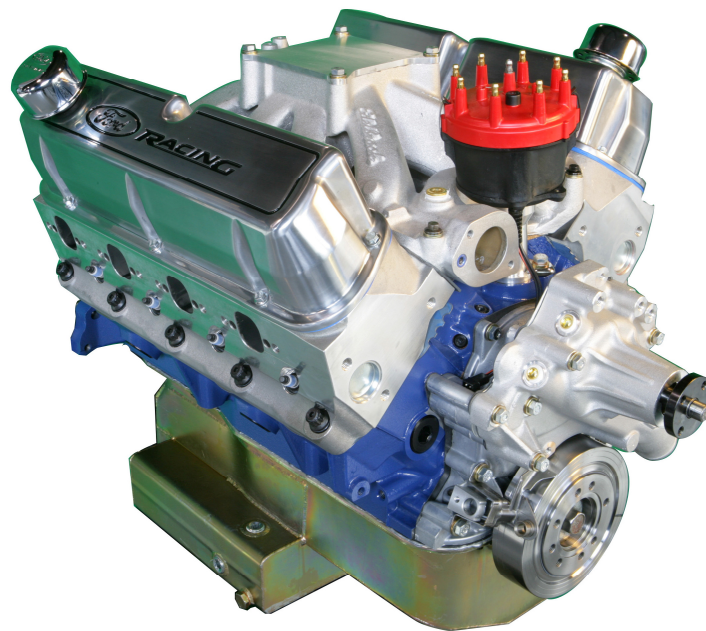




**M-6007-S374W  
Sealed Racing Engine  
INSTRUCTION SHEET**

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**M-6007-S374W SEALED RACING ENGINE  
SPECIFICATIONS AND OWNER'S MANUAL**

[FORDRACINGPARTS.COM/CIRCLETRACK](http://fordracingparts.com/circletrack)

**Techline 1-800-367-3788**

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

IS-1850-0238



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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 !!!**

### INSTALLATION INSTRUCTIONS:

These instructions consist of five (5) sections:

1. Technical Specifications: M-6007-S374W Sealed Racing Engine
2. Lubrication Priming Procedure
3. Bill of Materials - Sealed Racing Engine
4. Torque Specifications
5. Engineering Notes for M-6007-S374W

#### **1. Technical Specifications: M-6007-S374W Sealed Racing Engine**

Crate Engine Part Number	M-6007-S374W
Engine Type	351-Based Small Block
Displacement (cubic inches)	374
Block M-6010-BOSS35192	Cast Iron; 4-Bolt Main (Center 3)
Bore	4.125"
Stroke	3.500"
Crankshaft	Forged Steel Neutral Balance
Vibration Damper (M-6316-D302)	Detachable weight removed for neutral balance
Connecting Rod (CRS6200B3D)	H-Beam Forged Steel (6.200" Center to Center .927" Pin)
Piston (SBF245125F06)	Forged Aluminum
Camshaft	Mechanical Roller Tappet
Lobe Separation	108°
Camshaft Duration Intake	258° @ .050" Lift
Camshaft Duration Exhaust	266° @ .050" Lift
Camshaft Gross Lift	.543" (Int. and Ex.)
Cylinder Head (CM-6049-Z304PA)	Aluminum
Chamber Volume	59.0cc
Valve Diameter Int./Ex.	2.080" Int./1.600" Ex.
Compression Ratio	11.0:1
Rocker Arm (M-6564-F351)	Aluminum Roller – 1.65:1 Ratio Intake Offset .150"
Recommended Timing	32° BTDC Total by 4,000 rpm (110 Octane Racing Fuel)
Maximum Rated rpm	7,200 rpm
Oil Pan	7 Quart plus filter/cooler
Oil Filter	M-6731-FL1A
Oil Pressure	50 - 70psi @ 240° F/4000 rpm
Recommended Oil	<b>Must be RACING GRADE OIL</b>
Max Oil Temperature	280° F
Coolant Temperature	195° F Thermostat
Spark Plugs	AR3932

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### Technical Specifications: M-6007-S374W Sealed Racing Engine (continued)

Firing Order	1-3-7-2-6-5-4-8
Fuel Pressure (@ carburetor)	6 - 7psi
Fuel Type	104 Octane (R+M/2) minimum

### Recommended Parts Not Included:

M-12259-M302	Universal Spark Plug Wire Set
or	
M-12259-M301	Pre-fit Black Spark Plug Wire Set
M-6375-D302	0-Balance Flywheel (may require M-6397-A302 metric bolt kit dependent on clutch)
M-4216-A210	Flywheel Bolts (Note: threads have required sealer pre-applied)
Fel-Pro 1262R	Intake Manifold Gasket Set

### Standard Operating Specifications Nominal:

Main Bearing Clearance	.0020" - .0025"
Rod Bearing Clearance	.0020" - .0025"
Crankshaft End Float	.0050" - .0080"
Wrist Pin to Rod Clearance	.0010" - .0012"
Wrist Pin to Piston Clearance	.0010" - .0012"
Piston to Deck Distance	.0050" Below Deck
Piston to Bore Clearance	(follow Piston manufactures recommendations)
Valve Spring Installed Height/Pressure	1.900" I.H. / 221 lbs.
Valve Spring Open Height/Pressure	1.350" (.550" lift) / 594 lbs.
Intake Valve to Guide Clearance	.0014" - .0016"
Exhaust Valve to Guide Clearance	.0018" - .0022"
Valve Lash	.015 Cold/.020 Hot

## MAXIMUM ENGINE SPEED IS 7,200 RPM

### 2. Lubrication Priming Procedure:

1. Fill engine with recommended oil.
2. Hand rotate engine to cylinder #1 TDC firing.
3. Remove distributor cap.
4. Mark rotor position on distributor housing.
5. Mark distributor housing and intake manifold interface.
6. Remove distributor.
7. Insert a ¼" deep-well 6-point socket and long extension into distributor hole and engage the oil pump drive shaft.
8. Remove valve covers.
9. Rotate counterclockwise with an electric drill until oil flow is visible in the rocker cover area.
10. Re-install valve covers.

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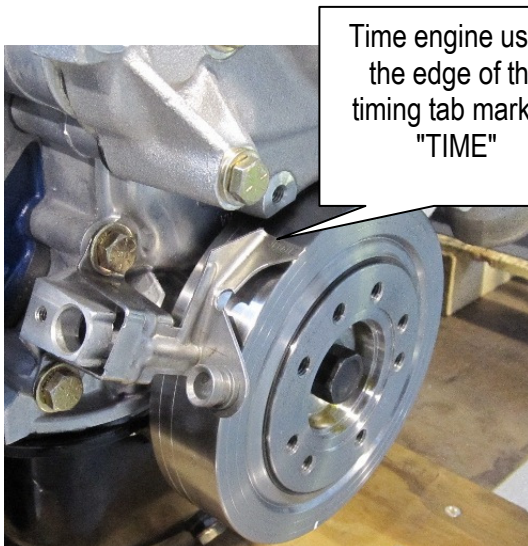
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### Lubrication Priming Procedure (continued):

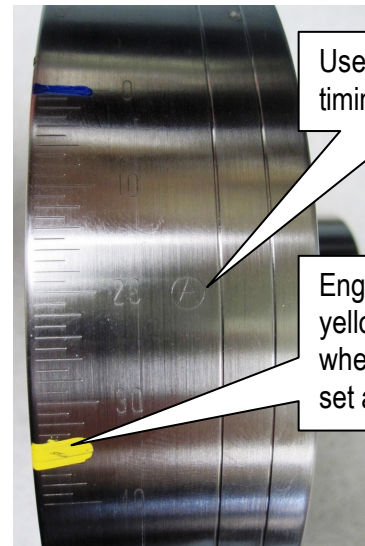
11. Remove socket/extension from distributor hole.
12. Install distributor and align **both** rotor to distributor housing **and** distributor housing to intake manifold marks.  
Note: if distributor does not drop into place, gradually rotate engine over until distributor drops. **Do not** force distributor into position.
13. Install distributor hold down.
14. Check oil level.
15. Set timing as recommended (total advance of 32° BTDC @ 4,000 rpm).

### Setting the Timing

- a. Dyno testing has shown that 32 degrees of total timing produces the best overall performance.
- b. Check total timing at 4,000 RPM to make sure the full mechanical advance has been achieved



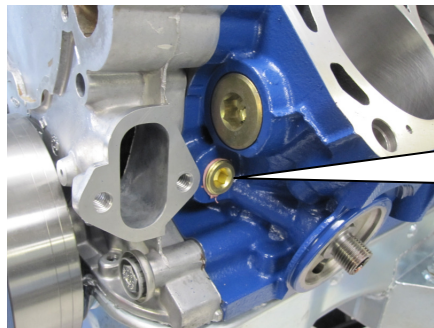
Time engine using the edge of the timing tab marked "TIME"



Use "A" set of timing marks.

Engine will have yellow paint mark where timing was set at engine run in.

### Installation Notes



Use caution when tightening ½ NPT oil galley plug.  
**40 Ft. Lbs. MAX.**  
**Overtightening can cause cracking in this area.**

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### Bill of Materials:

PART NUMBER	DESCRIPTION
10833	OIL PUMP
8584 WBRZ GR	DISTRIBUTOR WITH BRONZE GEAR
IR340SP4060KF	INTAKE MANIFOLD GASKET
CM-6675-LT351	OIL SUMP
CM-6622-LT351	OIL PICKUP TUBE
387239-S	MAIN STUD
388813-S	BALANCER BOLT
838-16	ROLLER LIFTERS
AR3932	SPARK PLUG
C3AZ-6287-B	ECCENTRIC
CB663H	ROD BEARING
CM-6049-Z304PA	CYLINDER HEAD
435235006200	CRANKSHAFT
DOOZ-8597-B	BY-PASS HOSE
E6DZ-6700-A	FRONT COVER SEAL
E7AZ-6A674-C	PAN RAIL
E7AZ-6A674-D	PAN RAIL
EDC-6378-A	CRANK DAMPER WASHER
EOAZ-6626-B	OIL PUMP GASKET
F1TZ-6023-A	TIMING POINTER
F3TZ-6020-A	FRONT COVER GASKET
F87E-8255-CA	THERMOSTAT HOUSING GASKET
F2AE-6890-AA	OIL FILTER INSERT
FL1-HP	OIL FILTER
M-8501-F351	WATER PUMP
M-12270-A302	DISTRIBUTOR CLAMP
M-6010-BOSS35192	BOSS 351 IRON BLOCK

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M-6014-Z304	HEAD STUD KIT
M-6051-R351	CYLINDER HEAD GASKET
M-6059-D351	FRONT COVER
M-6261-J351	CAM BEARING SET
M-6268-B302	TIMING SET
M-6316-D302	CRANK DAMPER
M-6564-F351	ROLLER ROCKER
M-6582-CT	VALVE COVER
M-6605-A341	OIL PUMP SHAFT
M-6710-A351	OIL PAN GASKET
M-6766-B302	BREATHER CAP
MS-1010-H	MAIN BEARING
MS-1010-HX	MAIN BEARING
CRS6200B3D	CONNECTING ROD SET
FRP245125F06	FORGED PISTON
35-000-9SPECCARD029313	ROLLER TAPPET CAMSHAFT
T8300805	8.300 PUSH ROD .080 WALL 5/16
2929	9.2" DECK SUPER VICTOR INTAKE MANIFOLD
M-6269-A351	STEEL THRUST PLATE
17015	REAR MAIN SEAL
42910-S	CAM PLATE BOLTS
VS13264T	RUBBER V/C GASKETS
PK-9	CRANK KEY

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### 4. Torque Specifications:

Application	Torque (lb-ft unless otherwise noted)	Recommended Lubricant
Main nuts 1/2 inch	95-105	Engine oil
Main splayed bolts 3/8 inch	35-45	Engine oil
Rod bolts	50	ARP Moly rod bolt lube
Head bolts	95-105	Engine oil
Rocker studs	60-65	Loctite PFT
Intake manifold bolts	18-20	Loctite 242
Flywheel bolts	75-80	Loctite 242 or dry-seal
Vibration damper bolt	90	Engine oil
Oil pump to block	28-35	Loctite 242
Oil pickup tube to main stud	28-35	Loctite 242
Cam bolt	40-45	Loctite 242
Cam retainer plate bolt	9-12	Loctite 242
Tappet guide retainer	9-12	Loctite 242
Oil pickup tube to oil pump	12-18	Loctite 242

### 5. Engineering Notes for M-6007-S374W:

- Each M-6007-S374W is dyno-tested to validate power levels – this dyno test sheet is included. Components used to produce the test runs are as follows:
  - Superflow air meter/bell
  - 750 Holley Carburetor
  - Dyno headers 1-3/4" O.D. x 26" long primary 3" collector
- Log into <http://www.fordracingparts.com/circletrack> for tech updates and more information

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### OTHER PARTS TO COMPLETE THE INSTALLATION OF THIS FORD RACING ENGINE IN YOUR RACE CAR

#### Front Drive System - KRC

- KRC 66374015 – Complete S374W Pavement Front Engine Kit
- KRC 66374115 – Complete S374W Complete Front Engine Kit with Bolt-On Tank
- KRC 66374020 – Complete S374W Dirt Front Engine Kit
- KRC 66374120 – Complete S374W Dirt Front Engine Kit with Bolt-On Tank
- KRC 66374022 – Complete S374W Water-Pump-Only Drive Kit with Bellhousing-Mounted Steering Pump
- KRC 66374024 – Complete S374W Water-Pump-Only Drive Kit with Bellhousing-Mounted Fuel Drive Steering Pump
- KRC 66374026 – Complete S374W Water-Pump-Only Drive Kit

KRC Power Steering  
2115 Barrett Park Drive  
Kennesaw, GA 30144  
Phone: 1-770-422-5135  
[techhelp@krcpower.com](mailto:techhelp@krcpower.com)

**Headers – Hedman Hustler Racing Headers** has headers for both asphalt and dirt late model chassis

**Bellhousing** – Quatermaster Industries

**Water Neck w/-16 AN Fitting** – UB Machine PN 60-1250 or Moroso 63455

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