



M-6049-N351 Cylinder Head INSTALLATION INSTRUCTIONS

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!!! 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 !!!

OVERVIEW:

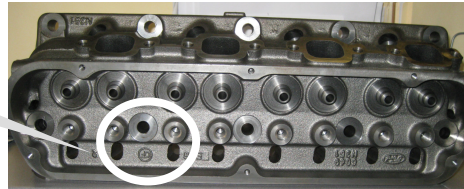
The M-6049-N351 Sportsman cylinder head has been designed for sanctioning bodies that require a cast iron "Spec" cylinder head for oval track racing. This includes NASCAR Late Model Stock Cars, WISSOTA, IMCA and other race series. There are no provisions for emission system controls or carb heat for cold winter starts. Basic specs follow.

NOTE: The N351 Sportsman Cylinder head has been retooled and all production after December 2008 is from this new tooling. Heads produced from this tooling have unique casting marks as shown below. Heads from this new tooling have been approved for competition by NASCAR and WISSOTA.



This Mark will be present on all heads produced by the new tooling.

Cylinder head includes tracking date stamped in the machined surface on the end of the head



Specifications:

- 2.02" Intake valve
- 1.60" Exhaust valve
- 64cc (nominal) Chamber
- 200cc +/- 2cc (nominal) Intake port
- 82cc +/- 2cc (nominal) Exhaust port

INSTALLATION INSTRUCTIONS:

Recommended Cylinder Head Assembly Components:

- Check with your cam manufacturer for the required valve springs for your application.
- Coolant holes generally match most 351W production cylinder blocks. Use the head gasket as a template to compare the coolant hole pattern in the block and head. The Ford Racing 4-bolt race blocks have a significantly different coolant hole pattern. The gasket and cylinder head should be modified to match the block coolant hole pattern. There must be adequate coolant flow from the block through the head or hot spots and cracking can occur.
- Attention should also be paid to coolant fill. Air or steam pockets can cause hot spots as well. If the engine is higher than the radiator fill point, it may be necessary to add air bleed fittings in the intake manifold flanges where the water opening at the rear of the head meets the flange. After filling, cap the fittings or connect them with a hose.

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

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Assembly Components List:

- M-6507-A351 Intake valve
- M-6505-A351 Exhaust valve
- M-6566-D351 Pushrod guide plate
- M-6527-C311 Rocker arm studs
- M-6564-F351 Roller rocker arms (1.65:1 ratio)

Intake Manifolds:

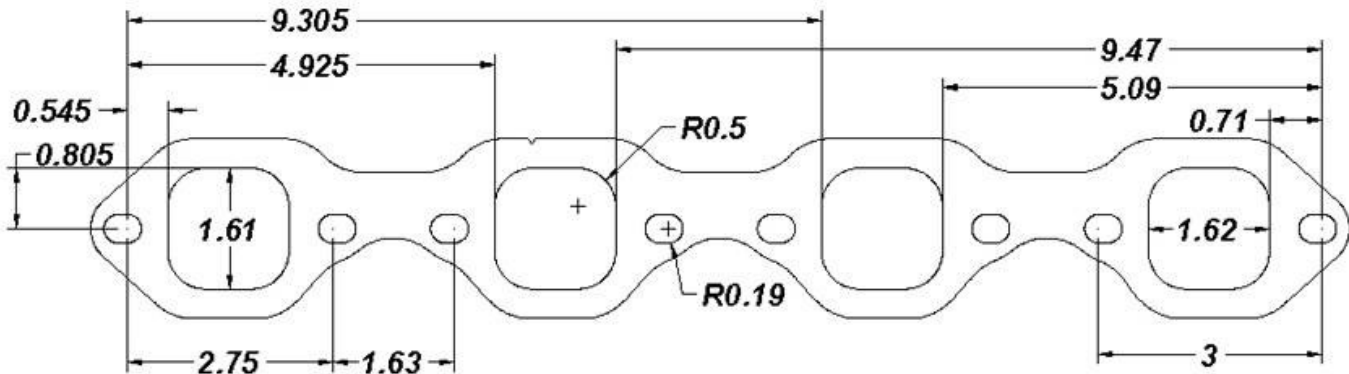
Intake ports in the N351 head are close enough to production heads in size and location to allow use of currently available intake manifolds as shown in the following table.

<u>Cyl. Block</u>	<u>Deck Height</u>	<u>Intake</u>	<u>Description</u>
351W	9.5"	M-9424-V351	Single plane, Victor Jr.
351Ford Racing		M-9424-Z351	Dual plane, Performer RPM
		Others	Most existing 351W intakes
351Ford Racing	9.2"	M-9424-C358	Dual plane, Performer (available through CV Products 800-448-1223)
		# 2980/2940	Edelbrock 2V/4V single plane
351C	9.2"	M-9424-C358	See above
302	8.2"	All 302	Existing 302 intakes (except Boss 302)
302Ford Racing			

Headers:

Exhaust headers are available from Dynatech (800-848-5850), Schoenfeld (501-474-7529) and others.

Shown below is a typical N351 Sportsman Cylinder Head header flange with bolt hole spacing shown.



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Valve Covers:

Use M-6582-E302P aluminum valve covers.

Spark Plugs:

Cylinder head is machined for 0.708" reach taper seat spark plug. Contact your engine builder for a recommended spark plug and heat range.

Pushrods:

Hardened 5/16" pushrods are required. Variations in deck height, cam base circles and lifter types affect pushrod length. The engine builder must determine the optimum length for the engine components used.

Gaskets:

M-6051-A302 Cyl. head gasket, check coolant hole alignment especially on Ford Racing blocks.
M-9439-A50 Intake manifold gasket
VS13264T FEL-PRO Rocker cover gasket

Airflow

Baseline Airflow data out of the box condition

2.02" intake valve M-6507-N351

1.60" exhaust valve M-6505-N351

4.060" Bore Clay radius approx. 1/2" intake side only

Lift at valve - inches	Airflow - CFM - at 28 inches of water	
	Intake	Exhaust
0.100	67.6	54.2
0.200	141.5	104.1
0.350	193.8	131.4
0.450	213.2	147.1
0.550	228.0	157.2
0.650	241.1	165.7

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Technical Specs

Ford Racing N351 Sportsman Cylinder Head

Head part number	M-6049-N351
Head material	Cast iron
Intake port location	Stock
Intake port volume	200cc (+/- 2cc)
Intake valve part number	M-6507-A351
Intake Valve Head Diameter	2.02
Intake valve length	5.120" Overall length
Intake valve material	Stainless steel
Intake valve stem diameter	11/32
Intake guide material	Cast iron
Intake valve seat material	Cast iron
Exhaust port location	Custom
Exhaust port volume	82cc (+/- 2cc)
Exhaust valve part number	M-6505-A351
Exhaust valve head diameter	1.6
Exhaust valve length	5.130" Overall length
Exhaust valve material	Stainless steel
Exhaust valve stem diameter	11/32
Exhaust valve guide material	Cast iron
Exhaust seat material	Cast iron
Combustion chamber volume	64.0 cc's
Deck thickness	.400" (+/- .030)
Rocker stud part number	M-6527-C311
Pushrod guide plate part number	M-6566-D351
Weight	51 lbs.

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