



M-6049- X303/X305/Y303 GT-40 Aluminum Cylinder Head INSTRUCTION SHEET

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FORD RACING PERFORMANCE PARTS

Please contact the Tech "Hot Line" for the most current instruction information (586) 468-1356

!!! PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION !!!

PARTS INCLUDED IN THIS KIT:

M-6049-Y303/X303/X305 Cylinder Head Assembly*

ADDITIONAL PARTS RECOMMENDED FOR INSTALLATION:

M-6051-A50	Head Gasket Kit
M-6051-B51	Head Gasket
M-9489-A50	Intake Manifold Gasket Kit (Street)
M-9439-A51	Intake Manifold Gasket Kit (Competition)
E3TZ-9448-A	Exhaust Manifold Gasket – available at your Ford dealer
F422-6E086A	Thermactor Thread Insert (2 required)

*Note: If you purchased bare heads M-6049-Y302 or X302, the use of Ford Racing valve kit M-6090-X302 is strongly recommended to complete your heads.

INSTALLATION INSTRUCTIONS:

STEP 1: Remove valve covers and gaskets. Remove the rocker arms and pushrods in order. Remove drive belt, A/C compressor and P/S pump bracket and thermactor crossover tube at rear of cylinder head.

STEP 2: Remove, clean the intake manifold, engine block surface before installation of new gasket and heads.

STEP 3: Position the new cylinder head gasket over the guide dowels on the engine block. Installation of new guide dowels may be needed.

STEP 4: Install the GT-40 heads on engine block and install mounting bolts. Torque in 3 steps using the shown in Figure 1. **Use the appropriate torque specs for your application. NOTE: Ford Racing Kit (M-6051-A50) and late model production applications use torque to yield bolts.**

Torque to yield bolts:	1) 35 ft./lbs.	2) 55 ft./lbs.	3) Torque and additional ¼ turn (85-90°)
Conventional 7/16" bolts:	1) 20-30 ft./lbs.	2) 45-55 ft./lbs.	3) 65-72 ft./lbs.
Conventional ½" bolts	1) 50 ft./lbs.	2) 80 ft./lbs.	3) 110 ft./lbs.

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

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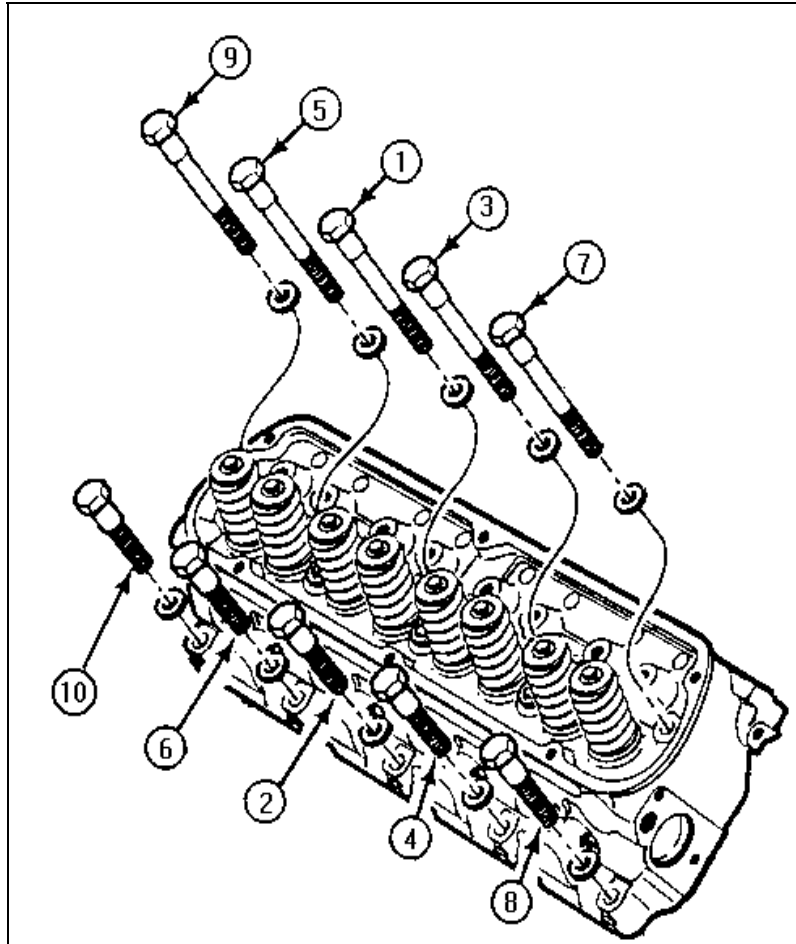


Figure 1 - Torque Sequence

- STEP 5:** Install pushrods with multi-purpose grease on both ends. Make sure the pushrods are installed in original mounting locations.
- STEP 6:** Install headers (new gaskets), rocker arms and valve covers (new gaskets). **NOTE: If using non-production rocker arms, verify collapsed tappet gap is within specifications. Information can be found in the appropriate shop manual.**
- STEP 7:** Install A/C compressor, drive belt, P/S pump bracket and thermactor crossover tube.
- STEP 8:** Install intake manifold gasket, intake manifold and related parts.
- STEP 9:** Torque intake manifold to specifications (16-18 ft./lbs.). Install all vacuum lines and electrical connections.

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CYLINDER HEAD FEATURES/SPECIFICATIONS:

Cylinder Head Features:

- Light weight – approximately 22 lbs assembled with Ford Racing components
- Excellent out-of-the-box flow characteristics
- Excellent potential for improving flow with porting
- O.E. quality castings and machining
- Uses production rockers and pedestals
- Excellent cooling characteristics
- Excellent chamber combustion characteristics
- Integral spring seats
- Chrome/moly intake seats
- High tech trick contoured exhaust seats
- Excellent mechanical characteristics
- X303/X305 exhaust port seat short side transitions are CNC'd

Nominal Specifications:

	<u>Y303</u>	<u>X303</u>	<u>X305</u>
Combustion chamber volume	64cc	64cc	58cc
Intake port volume	166cc	178cc	178cc
Exhaust port volume	54cc	62cc	62cc
Intake valve OD – 1.94" (21-4N stainless steel) for all			
Exhaust valve OD – 1.54" (21-4N stainless steel) for all			

Typical Flows (@ 28" H₂O with Ford Racing Valves):

M-6049-Y303

<u>Intake lift</u>	<u>Flow CFM</u>	<u>Exhaust lift</u>	<u>Flow CFM</u>
0.100"	64.2	0.100"	52.3
0.200"	114.3	0.200"	97.7
0.300"	166.5	0.300"	128.0
0.400"	199.4	0.400"	136.5
0.500"	212.5	0.500"	134.1
0.600"	217.4		

M-6049-X303/X305

<u>Intake lift</u>	<u>Flow CFM</u>	<u>Exhaust lift</u>	<u>Flow CFM</u>
0.100"	63.9	0.100"	60.1
0.200"	129.8	0.200"	111.6
0.300"	183.6	0.300"	142.7
0.400"	219.9	0.400"	163.0
0.500"	237.6	0.500"	172.7
0.600"	249.0	0.650"	175.2

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