

NUMBER: 81-6
DATE: 5/1/81

SUBJECT: Current V-8 Engine Specifications

CIRCULATE TO:
SERVICE MANAGER
PARTS MANAGER
MECHANICS

General Specifications

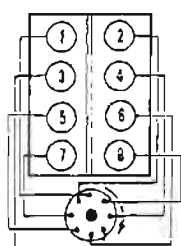
Model	198, 898, 228 228IITR, 230	255, 260, 270	330, 330IITR, 330IITRS, 340 (Note 1)	370-TRS 400-TRS (Note 2)
Horsepower	198 (198 & 898) 228 (228) 230 (230)	255 (255) 260 (260) 270 (270)	330 (330) 340 (340)	370
Kilowatts	147.7 (198 & 898) 170.1 (228) 171.6 (230)	190.2 (255) 194.0 (260) 201.4 (270)	246.2 (330) 253.6 (340)	276.02
Displacement	305 Cu. In. (4998cc)	350 Cu. In. (5735cc)	454 Cu. In. (7440cc)	454 Cu. In. (7440cc)
No. of Cylinders	8	8	8	8
Bore	3.736" (9.489cm)	4.000" (10.160cm)	4.250" (10.795cm)	4.250" (10.795cm)
Stroke	3.480" (8.839cm)	3.480" (8.839cm)	4.000" (10.160cm)	4.000" (10.160cm)
Compression Ratio	8.5 to 1	8.5 to 1	8.5 to 1	8.6 to 1
Compression Pressure (Note 3)	155 psi (10.9kg/cm ²)	150 psi (10.6kg/cm ²)	150 psi (10.6kg/cm ²)	150 psi (10.6kg/cm ²)
Firing Order	Figure 1 or 2	Figure 1 or 2	Figure 1 or 2	Figure 1
Oil Pressure At 2000 RPM	30-55 psi (2.1-3.9kg/cm ²)	30-55 psi (2.1-3.9kg/cm ²)	30-70 psi (2.1-4.9kg/cm ²)	35-70 psi (2.5-4.9kg/cm ²)
Oil Pan Capacity with New Dry Filter (Note 4)	Stern Drive Models - 898 - 5 Qts. (4.73 l.) 228 - 5.5 Qts. (5.2 l.)	Stern Drive Models - 5.5 Qts. (5.2 l.)	Stern Drive Models - 6 Qts. (5.7 l.)	Stern Drive Models 6 Qts. (5.7 l.)
	Inboard and V-Drive Models - 6 Qts. (5.7 l.)	Inboard and V-Drive Models - 6 Qts. (5.7 l.)	Inboard and V-Drive Models - 7 Qts. (6.6 l.)	

NOTE 1: In this manual, engine used with these models will be referred to as a "standard 454 cu. in. engine".

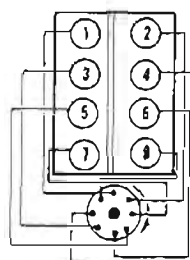
NOTE 2: In this manual, engine used with these models will be referred to as a "hi-performance 454 cu. in. engine".

NOTE 3: Allowable variation of 20 psi (1.4kg/cm²) between compression readings of cylinders.

NOTE 4: Oil capacities are approximate only. Be sure to use dipstick when adding oil to prevent overfilling engine.



FRONT
FIRING ORDER
1-8-4-3-6-5-7-2
**Figure 1. Left-Hand (Standard)
Rotation Engine**



FRONT
FIRING ORDER
1-2-7-5-6-3-4-8
**Figure 2. Right-Hand (Opposite)
Rotation Engine**

Internal Specifications

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Cylinder Bore:

Diameter		3.7350" - 3.7385" (94.8690 - 94.9579mm)	3.9995" - 4.0025" (101.5873 - 101.6635mm)	4.2495" - 4.2525" (107.9373 - 108.0135mm)	4.2451" - 4.2525" (107.8255 - 108.0135mm)
Out of Round	Production	.001" (.025mm) Max.			
	Service	.002" (.051mm) Max.			
Taper	Production	Thrust Side	.0005" (.0127mm) Max.		
		Relief Side	.001" (.025mm) Max.		
	Service		.001" (.025mm) Max.		

Piston:

Clearance	Production	.0007" - .0017" (0.178 - .0432mm)	.0014" - .0024" (.0356 - .0610mm)	.0045" - .0065" (0.1143-0.1651mm)
	Service	.0027" (.0686mm) Max.		.0035" (.0889mm) Max.
		.0075" (0.1905mm) Max.		

Piston Ring:

Compression	Groove Side Clearance	Production	Top	.0012" - .0032" (.0305 - .0813mm)	.0017" - .0032" (0.0432 - 0.0813mm)
			2nd	.0012" - .0032" (.0305 - .0813mm)	.0017" - .0032" (0.0432 - 0.0813mm)
		Service		Hi Limit Production + .001 (.025mm)	
	Gap	Production	Top	.010" - .020" (.254 - .508mm)	
			2nd	.010" - .025" (.254 - .635mm)	.010" - .020" (.254 - .508mm)
		Service		Hi Limit Production + .010" (.254mm)	
Oil	Groove Side Clearance	Production	.002" - .007" (.051 - .178mm)	.005" - .0065" (.127 - .165mm)	
		Service	Hi Limit Production + .001" (.025mm)		
	Gap	Production	.015" - .055" (.381 - 1.397mm)	.020" - .035" (.508 - .889mm)	
		Service	Hi Limit Production + .010" (.254mm)		

Piston Pin:

Diameter		.9270" - .9273" (23.5458 - 23.5534mm)	.9895" - .9898" (25.1333 - 25.1409mm)
Clearance	Production	.00025" - .00035" (.00635 - .00889mm)	
	Service	.001" (.025mm) Max.	
Fit in Rod		.0008" - .0016" (.0203 - .0406mm) Interference	

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Crankshaft: Dia of rear seal area on crank $2.4304 - 2.432$

Main Journal	Diameter	No. 1	2.4484" - 2.4493" (62.1894 - 62.2122mm)	2.7485" - 2.7494" (69.8119 - 69.8348mm)
		No. 2, 3, 4	2.4481" - 2.4490" (62.1817 - 62.2046mm)	2.7481" - 2.7490" (69.8017 - 69.8246mm)
		No. 5	2.4479" - 2.4488" (62.1767 - 62.1995mm)	2.7478" - 2.7488" (69.7941 - 69.8195mm)
	Taper	Production	.0002" (.0051mm) Max.	
		Service	.001" (.025mm) Max.	
	Out of Round	Production	.0002" (.0051mm) Max.	
Service		.001" (.025mm) Max.		
Main Bearing Clearance	Production	No. 1	.0008" - .0020" (.0203 - .0508mm)	.0013" - .0025" (.0330 - .0635mm)
		No. 2, 3, 4	.0011" - .0023" (.0279 - .0584mm)	
		No. 5	.0017" - .0032" (.0432 - .0813mm)	.0024" - .0040" (.0610 - .1016mm)
	Service	No. 1	.001" - .0015" (.0254 - .0381mm)	
		No. 2, 3, 4	.001" - .0025" (.0254 - .0635mm)	
		No. 5	.0025" - .0035" (.0635 - .0889mm)	
Crankshaft End Play			.002" - .006" (.051 - .152mm)	.006" - .010" (.152mm - .254mm)
Connecting Rod Journal	Diameter		2.0988"-2.0998"(53.3095-53.3349mm)	2.1985"-2.1995"(55.8419-55.8673mm)
	Taper	Production	.0005" (.0127mm) Max.	
		Service	.001" (.025mm) Max.	
	Out of Round	Production	.0005" (.0127mm) Max.	
Service		.001" (.025mm) Max.		
Rod Bearing Clearance	Production	.0013" - .0035" (.0330 - .0889mm)	.0009" - .0025" (.0229 - .0635mm)	
	Service	.0030" (.0762mm) Max.		
Rod Side Clearance			.008" - .014" (.203 - .356mm)	.013" - .023" (.330 - .584mm)
Crankshaft Runout			.0015" (.0381) Max.	

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Camshaft and Drive

Lobe Lift ± .002" (.051mm)	Intake	.263" (6.680mm)		.271" (6.883mm)	.294" (7.468mm)
	Exhaust	.269" (6.833mm)		.282" (7.163mm)	.294" (7.468mm)
Journal Diameter	1.8682" - 1.8692" (47.452 - 47.478mm)			1.9482" - 1.9492" (49.484 - 49.510mm)	
Journal Out-of-Round	.001" (.025mm) Max.				
Camshaft Runout	.002" (.051mm) Max.				
Timing Chain Deflection [L.H. (Standard) Rotation Engines Only]	3/8" (9.5mm) From Taut Position [3/4" (19.1mm) Total]				
Camshaft End Play [R.H. (Opposite) Rotation Engines Only]	N.A.	N.A.	.001" - .005" (.025 - .127mm)		N.A.
Camshaft Timing Gear Runout [R.H. (Opposite) Rotation Engines Only]	.004" (.102mm) Max.				N.A.
Crankshaft Timing Gear Runout [R.H. (Opposite) Rotation Engines Only]	.003" (.076mm) Max.				N.A.
Camshaft to Crankshaft Timing Gear Backlash [R.H. (Opposite) Rotation Engines Only]	.004" - .006" (.102 - .152mm) New Gears .004" - .008" (.102 - .203mm) Used Gears				N.A.

Cylinder Head:

Gasket Surface Flatness	.003" (.076mm) in 6" (15.24cm) .007" (.178mm) Overall Maximum
-------------------------	--

Flywheel:

Runout	.008" (.203mm) Max.
--------	---------------------

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Valve System:

Lifter Type		Hydraulic		
Rocker Arm Ratio		1.50 to 1	1.70 to 1	
Valve Lash (Intake & Exhaust)		1 Turn Down from Zero Lash		
Face Angle (Intake & Exhaust)		45°		
Seat Angle (Intake & Exhaust)		46°		
Seat Runout (Intake & Exhaust)		.002" (.051mm) Max.		
Seat Width		Intake	1/32" - 1/16" (.79 - 1.59mm)	
		Exhaust	1/16" - 3/32" (1.59 - 2.38mm)	
Stem Clear- ance	Production	Intake	.0010" - .0027" (.0254 - .0686mm)	
		Exhaust	.0010" - .0027" (.0254 - .0686mm)	.0012" - .0029" (.0305 - .0737mm)
	Service	Intake	.0037" (.0940mm)	
		Exhaust	.0047" (.1194mm)	.0049" (.1245mm)

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Valve Spring:

Valve Spring (Note 1)	Spring B-24-72642 (With 2 Light Green Stripes)	Free Length		1.91" (48.5mm)		N.A.	N.A.
		Pressure Lbs. @ In. (Note 2)	Closed @ 1.61" (40.89mm)	76 - 84 Lbs. 34.5 - 38.1kg)		N.A.	N.A.
			Open @ 1.16" (29.46mm)	194 - 206 Lbs. 88.1 - 93.5kg)		N.A.	N.A.
		Installed Height		1-23/32" (43.7mm)		N.A.	N.A.
	Spring B-24-48437 (With 1 Lavender Stripe)	Free Length		2.03" (51.6mm)		N.A.	N.A.
		Pressure Lbs. @ In. (Note 2)	Closed @ 1.70" (43.16)	76 - 84 Lbs. (34.5 - 38.1kg)		N.A.	N.A.
			Open @ 1.25" (31.75mm)	194 - 206 Lbs. (88.1 - 93.5kg)		N.A.	N.A.
		Installed Height		1-19/32" (40.5mm)		N.A.	N.A.
	Spring B-24-75584 (Single Spring)	Free Length		N.A.	N.A.	2.12" (53.8mm)	
		Pressure Lbs. @ In. (Note 2)	Closed @ 1.88" (47.75mm)	N.A.	N.A.	74 - 86 Lbs. (33.6 - 39.0kg)	
			Open @ 1.38" (35.05mm)	N.A.	N.A.	288 - 312 Lbs. (130.8 - 141.6kg)	
		Installed Height		N.A.	N.A.	1-7/8" (47.6mm)	
	Spring Assembly B-24-88154 (With 2 Springs)	Free Length		N.A.	N.A.	N.A.	Outer - 2.25" (57.2mm) Inner - 2.125" (54.0mm)
		Pressure Lbs. @ In. (Note 3)	Closed @ 1.88" (47.75mm)	N.A.	N.A.	N.A.	115 - 125 Lbs. (52.2 - 56.8kg)
			Open @ 1.38" (35.05mm)	N.A.	N.A.	N.A.	305 - 325 Lbs. (138.5 - 147.6kg)
		Installed Height		N.A.	N.A.	N.A.	1-7/8" (47.6mm)
	Damper	Free Length		1.86" (47.24mm)			
		Approximate No. of Coils		4			

NOTE 1: Refer to information under "Cylinder Heads", following to determine which valve spring is being used.

NOTE 2: Test spring pressure with damper removed.

NOTE 3: Test spring pressure with inner and outer springs and damper assembled.

Torque Specifications

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Exhaust Manifold and Related Parts:

Distribution Block Attaching Nuts (Reversed Elbow V-Drive Engines)	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)	N.A.	N.A.	N.A.
6" (15.24cm) Exhaust Elbow Riser Attaching Screws	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)			
Exhaust Manifold Attaching Screws	20 Lbs. Ft. (27.1 N.m.)		35 Ft. Lbs. (47.5 N.m.) on bolts, 25 Lbs. Ft. (33.9 N.m.) on nuts	
Exhaust Manifold End Cap Attaching Screws (Old Style Manifolds)	96 Lbs. In. (10.8 N.m.)			
Lower Exhaust Elbow Attaching Screws (II-TR and II-TRS Engines)	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)	N.A.	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)	N.A.
Lower Exhaust Elbow and Separator Attaching Screws (I-Drive Engines)	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)	N.A.		N.A.
Upper Exhaust Elbow Attaching Nuts or Screws	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)			

Intake Manifold and Related Parts:

Carburetor Attaching Screws or Nuts	132 Lbs. In. (14.9 N.m.)			
Distributor Clamping Screw	25 Lbs. Ft. (33.9 N.m.)			
Intake Manifold Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Thermostat Housing Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Water Temperature Sending Unit	20 Lbs. Ft. (27.1 N.m.)			

Engine	305 Cu. In.	350 Cu. in.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Cylinder Heads and Related Parts:

Cylinder Head Attaching Bolts (With Sealer Applied to Threads)	65 Lbs. Ft. (88.1 N.m.)		80 Lbs. Ft. (108.5 N.m.)	
Rocker Arm Cover Attaching Screws or Nuts	45 - 50 Lbs. In. (5.1 - 5.6 N.m.)			
Rocker Arm Nuts	1 Turn Down From Zero Lash			
Rocker Arm Studs	N.A.	N.A.	50 Lbs. Ft. (67.8 N.m.)	
Spark Plugs	180 Lbs. In. (20.3 N.m.)			

Torsional Damper, Circulating Pump, Front Cover, Oil Pan and Related Parts

Crankcase Front Cover Attaching Screws	80 Lbs. In. (9.0 N.m.)			
Crankshaft Drive Pulley Attaching Screws	35 Lbs. Ft. (47.5 N.m.)			
Oil Pan Attaching Screws	1/4-20	80 Lbs. In. (9.0 N.m.)		55 Lbs. In. (6.2 N.m.)
	5/16-18	165 Lbs. In. (18.6 N.m.)		135 Lbs. In. (15.3 N.m.)
Oil Pan Drain Plug	20 Lbs. Ft. (27.1 N.m.)			
Torsional Damper Retaining Bolt	60 Lbs. Ft. (81.3 N.m.)		85 Lbs. Ft. (115.2 N.m.)	
Water Circulating Pump Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			

Flywheel, Drive and Related Parts

Coupler and Flywheel Attaching Nuts (I-Drive Engines)	60 Lbs. Ft. (81.3 N.m.)		N.A.	
Drive Plate Attaching Screws (II-TR, II-TRS, Inboard and V-Drive Engines)	35 Lbs. Ft. (47.5 N.m.)			
Flywheel Attaching Screws (II-TR, II-TRS, Inboard and V-Drive Engines)	60 Lbs. Ft. (81.3 N.m.)		65 Lbs. Ft. (88.1 N.m.)	
Flywheel Housing Attaching Screws	30 Lbs. Ft. (40.7 N.m.)		35 Lbs. Ft. (47.5 N.m.)	
Flywheel Housing Cover Attaching Screws	80 Lbs. In. (9.0 N.m.)			
Transmission Attaching Screws	50 Lbs. Ft. (67.8 N.m.)			

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Internal Engine Parts

Camshaft Thrust Plate Attaching Screws [R.H. (Opposite) Rotation Engines Only]	N.A.	N.A.	96 Lbs. In. (10.8 N.m.)	N.A.
Camshaft Timing Sprocket or Gear Attaching Screws	20 Lbs. Ft. (27.1 N.m.)		25 Lbs. Ft. (33.9 N.m.) (Note 1)	25 Lbs. Ft. (33.9 N.m.)
Connecting Rod Bearing Cap Attaching Nuts	45 Lbs. Ft. (61.0 N.m.)		50 Lbs. Ft. (67.8 N.m.)	65 Lbs. Ft. (88.1 N.m.)
Main Bearing Cap Attaching Bolts	80 Lbs. Ft. (108.5 N.m.)		110 Lbs. Ft. (149.1 N.m.)	
Oil Pump Attaching Screw	65 Lbs. Ft. (88.1 N.m.)			
Oil Pump Cover Attaching Screws	80 Lbs. In. (9.0 N.m.)			

NOTE 1: Applicable to L.H. (standard) rotation engine only.

Oil Filter and Related Parts:

Oil Filter (With Gasket Oiled)	25 Lbs. Ft. (33.9 N.m.) or Hand-Tighten Until Gasket Contacts Mounting Surface, Then Tighten 1/3-Turn More		
Oil Filter Bypass Valve and Adaptor Assembly Attaching Screws (Engines So Equipped)	80 Lbs. In. (9.0 N.m.)		
Oil Hoses to Cylinder Block Adaptor Attaching Screws or Bolt (Engines So Equipped)	1/2-13 Old Style	20 - 25 Lbs. Ft. (27.1 - 33.9 N.m.)	
	5/16-18 New Style	18 - 20 Lbs. Ft. (24.4 - 27.1 N.m.)	

Engine	305 Cu. In.	350 Cu. In.	454 Cu. In. (Standard)	454 Cu. In. (Hi-Performance)
--------	-------------	-------------	---------------------------	---------------------------------

Miscellaneous:

Alternator to Alternator Mounting Bracket Attaching Bolt and Nut	35 Lbs. Ft. (47.5 N.m.)			
Alternator Brace to Block Attaching Screw	30 Lbs. Ft. (40.7 N.m.)			
Alternator Brace to Alternator Attaching Screw	192 Lbs. In. (21.7 N.m.)			
Alternator and/or Power Steering Pump Mounting Bracket Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Drive Shaft Attaching U-Bolts and Nuts (Staggered Installation Forward Engine)	N.A.	N.A.	N.A.	35 Lbs. Ft. (47.5 N.m.)
Front Mount Bracket Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Fuel Pump Attaching Screws	30 Lbs. Ft. (40.7 N.m.)		20 Lbs. Ft. (27.1 N.m.)	
Heat Exchanger Mounting Brackets (Closed Cooling Equipped Engines Only)	30 Lbs. Ft. (40.7 N.m.)			
Power Steering Pump and/or Seawater Pickup Pump Brace Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Rear Engine Mount Bolts (Stern Drive Engines Except II-TR and II-TRS)	35 - 40 Lbs. Ft. (47.5 - 54.2 N.m.)			100 Lbs. Ft. (135.6 N.m.)
Rear Mount Compression Nuts (II-TR and II-TRS Engines)	70 Lbs. In. (7.9 N.m.)	N.A.	70 Lbs. In. (7.9 N.m.)	N.A.
Seawater Pickup Pump Mounting Bracket Attaching Screws	30 Lbs. Ft. (40.7 N.m.)			
Starter Mounting Bolts	50 Lbs. Ft. (67.8 N.m.)			

CYLINDER HEADS

MERCUISER MCM 898/228/250/260 and MIE 198/228/255

New, lightweight cylinder heads for the above MerCruiser V-8 Engines were released for 1978 production. The new heads are approx. 6 pounds lighter than earlier style heads, due to water passage internal coring changes and slight outer configuration modifications.

These lightweight heads were used, together with the earlier style or "heavy" heads, because of production requirements and limited machining capacities at the manufacturer's casting and machining plants. Therefore, the subject MerCruiser (1978) V-8 Engines may be assembled with either "heavy" or "light" heads or one of each type.

Also, the lightweight heads consist of two designs (from differences in the machining of the exhaust valve spring seats). Identify these cylinder heads from the following information:

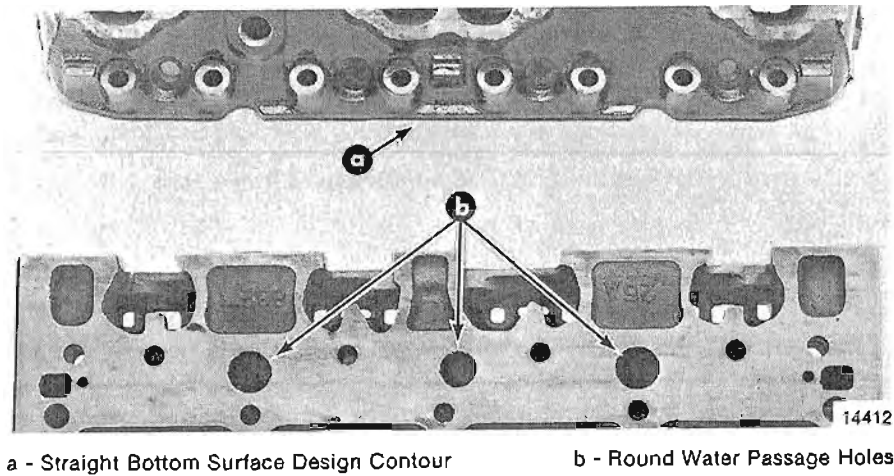


Figure 3. Heavy Head Identification

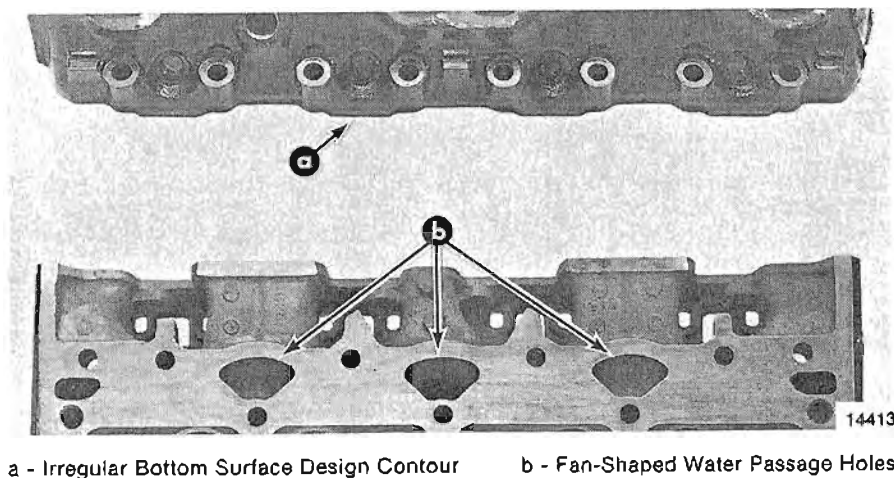


Figure 4. Lightweight Head Identification

LIGHTWEIGHT HEAD - 1ST DESIGN

Exhaust valve spring seats are machined to "heavy" head specifications (uses B-24-48347 valve spring assembly for inlet valve and B-24-72642 valve spring assembly for exhaust valve).

LIGHTWEIGHT HEAD - 2ND DESIGN

Incorporates machining that allows inlet valve spring assembly (B-24-48347) to be used at both inlet and exhaust valve locations.

The valve springs can be identified by paint stripes and measurements, as follows:

- B-24-48347 - Inlet Spring - (one lavender stripe) approx. 2.03" (2-1/32" or 5.16cm) free height
- B-24-72642 - Exhaust Spring - (2 light green stripes) approx. 1.91" (1-29/32" or 4.85cm) free height

The cylinder heads can be identified by measuring from the top of the exhaust valve guide to valve spring seat (exhaust only).

If the dimension is .75" (3/4" or 1.91cm), use B-24-72642 valve spring (1st design head)

If the dimension is .84" (27/32" or 2.14cm), use B-24-48347 valve spring (2nd design head).

Service cylinder heads must be identified by this method to ensure correct valve spring usage prior to installation.

EXHAUST VALVE STEM DIAMETER/GUIDE BORE

All early style "heavy" cylinder heads have exhaust valve guide bores machined to accept .341" (8.661mm) exhaust valve stems. (Exhaust valve B-35323).

Late style "lightweight" cylinder heads were manufactured with both .341" (8.661mm) and .372" (9.449mm) exhaust valve stem diameters.

MCM 898 models with "lightweight" cylinder heads use exhaust valves with .341" (8.661mm) stem diameter (B-85803).

MCM/MIE 228, MIE 255 and MCM 260 models with "lightweight" cylinder heads normally use exhaust valves with .372" (9.449mm) stem diameter (B-87284); HOWEVER, there have been instances where small diameter .341" (8.661mm) exhaust valve (B-85803) stems and guide bores have been found in these models. It is imperative, therefore, that precise measurements of exhaust valve stem/guide dimensions be taken when ordering replacement exhaust valves for these models.

REPLACEMENT CYLINDER HEADS

When ordering replacement cylinder heads, use the information in this bulletin to determine if early style "heavy" or late style "lightweight" cylinder heads are required, then order from the following chart:

MODEL	"HEAVY"	"LIGHTWEIGHT"	
MCM 898	B-938-6536	B-938-7482	<i>NOTE: All MIE 198 models use "heavy" heads (B-938-6536), MCM 250 models use "heavy" head (B-938-4625).</i>
MCM/MIE 228	B-938-6536	B-938-7482	
MCM 260/MIE 255	B-938-4625	B-938-7499	

All "lightweight" service replacement cylinder heads are 2nd design configuration; therefore, if a replacement cylinder head is required for an engine, that is originally equipped with a 1st design "lightweight" cylinder head, new exhaust valve springs (B-24-48347) also must be installed (4 required per cylinder head).

In addition, all "lightweight" service replacement cylinder heads use exhaust valves with .372" (9.449mm) stem diameter. Because of this, when installing a replacement "lightweight" cylinder head on a MCM 898, new exhaust valves (B-87284) also must be installed.

Any model MerCruiser V-8 engine (referred to in this bulletin), which was originally equipped with an early style "heavy" cylinder head, can be converted to late style "lightweight" cylinder head only if the proper exhaust valves and exhaust valve springs also are installed (in accordance with the information in this bulletin).