MOREL Lifter-to-Bore Clearance Worksheet

This worksheet works for 8/6/4 cylinder engines.

For Instructions, see the Instructions tab.

1. Enter static data below

Date	
Customer	
Oil Pump Type	
Oil Type	
Rod Bearing Clearance	
Main Bearing Clearance	
Block Mfg Engine Size	
Block Type - Cast/Aluminum	
Clearance - Cast Iron Blocks	0.0015 - 0.0017
Clearance - Aluminum Blocks	0.0014 - 0.0016

1. Enter static data.
2. Enter actual Lifter Diameter measurements.
3. Enter Lifter-to-Bore Clearance Range: Min/Max/Target Avg.
4. Calculated: Bore Diameter.
5. Watch for Clearances out-of-range.

2. Enter actual Lifter Diameter Measurements below

Cylinder		Measurements	Min	Max	Bore Diameter	Calculated Clearance	Clearance Warning Messages: Below Minimum	Clearance Warning Messages: Above Maximum
1	Int	0.0000						
	Exh	0.0000						
2	Int	0.0000						
	Exh	0.0000						
3	Int	0.0000						
	Exh	0.0000						
4	Int	0.0000						
	Exh	0.0000						
5	Int	0.0000						
	Exh	0.0000						
6	Int	0.0000						
	Exh	0.0000						
7	Int	0.0000						
	Exh	0.0000						
8	Int	0.0000						
	Exh	0.0000						
Count number cylinders		0						

3. Enter Lifter-to-Bore Clearance Range:

Minimum Allowed	Desired Average	Maximum Allowed
0.0000	0.0000	0.0000

4. Calculated Values

Calculated: This Bore Diameter yields your desired Avg Clearance	
Calculated: Actual Avg Lifter-to-Bore Clearance (Col I18:I33)	
Calculated: Variance to Desired Avg Clearance (E39 in green)	

	Value	Count
Minimum Lifter Diameter	0	
Maximum Lifter Diameter	0	
Variance: Max - Min	0	

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For Instructions, see the Instructions tab.

1. Enter static data below

Date	4/20/2021
Customer	Example Customer Name
Oil Pump Type	Dry Sump
Oil Type	Synthetic 5W30
Rod Bearing Clearance	0.0025
Main Bearing Clearance	0.0025
Block Mfg Engine Size	Dart LS Next
Block Type - Cast/Aluminum	Cast
Clearance - Cast Iron Blocks	0.0013 - 0.0017
Clearance - Aluminum Blocks	0.0014 - 0.0016

1. Enter static data.
2. Enter actual Lifter Diameter measurements.
3. Enter Lifter-to-Bore Clearance Range: Min/Max/Target Avg.
4. Calculated: Bore Diameter.
5. Watch for Clearances out-of-range.

2. Enter actual Lifter Diameter Measurements below

Cylinder		Measurements	Min	Max	Bore Diameter	Calculated Clearance	Clearance Warning Messages: Below Minimum	Clearance Warning Messages: Above Maximum
1	Int	0.9358			0.9373	0.0015		
	Exh	0.9357	Min		0.9373	0.0016		
2	Int	0.9358			0.9373	0.0015		
	Exh	0.9357	Min		0.9373	0.0016		
3	Int	0.9358			0.9373	0.0015		
	Exh	0.9359		Max	0.9373	0.0014	Below Min	
4	Int	0.9358			0.9373	0.0015		
	Exh	0.9358			0.9373	0.0015		
5	Int	0.9359		Max	0.9373	0.0014	Below Min	
	Exh	0.9359		Max	0.9373	0.0014	Below Min	
6	Int	0.9358			0.9373	0.0015		
	Exh	0.9358			0.9373	0.0015		
7	Int	0.9359		Max	0.9373	0.0014	Below Min	
	Exh	0.9359		Max	0.9373	0.0014	Below Min	
8	Int	0.9358			0.9373	0.0015		
	Exh	0.9358			0.9373	0.0015		
Count number cylinders		8						

3. Enter Lifter-to-Bore Clearance Range:

Minimum Allowed	Desired Average	Maximum Allowed
0.0015	0.0015	0.0017

4. Calculated Values

Calculated: This Bore Diameter yields your desired Avg Clearance	0.9373
Calculated: Actual Avg Lifter-to-Bore Clearance (Col I18:I33)	0.0015
Calculated: Variance to Desired Avg Clearance (E39 in green)	0.0000

	Value	Count
Minimum Lifter Diameter	0.9357	2
Maximum Lifter Diameter	0.9359	5
Variance: Max - Min	0.0002	

6. If you get Clearance Warnings, revise the target Avg Clearance, or adjust Min/Max range.

MOREL Lifter-to-Bore Clearance Worksheet

This worksheet works for 8/6/4 cylinder engines.

For Instructions, see the Instructions tab.

1. Enter static data below	
Date	4/20/2021
Customer	Example Customer Name
Oil Pump Type	Dry Sump
Oil Type	Synthetic 5W30
Rod Bearing Clearance	0.0025
Main Bearing Clearance	0.0025
Block Mfg Engine Size	Dart LS Next
Block Type - Cast/Aluminum	Cast
Clearance - Cast Iron Blocks	0.0015 - 0.0017
Clearance - Aluminum Blocks	0.0014 - 0.0016

1. Enter static data.
2. Enter actual Lifter Diameter measurements.
3. Enter Lifter-to-Bore Clearance Range: Min/Max/Target Avg.
4. Calculated: Bore Diameter.
5. Watch for Clearances out-of-range.

2. Enter actual Lifter Diameter Measurements below					Bore	Calculated	Clearance Warning Messages	
Cylinder		Measurements	Min	Max	Diameter	Clearance	Below Minimum	Above Maximum
1	Int	0.9358			0.9375	0.0017		
	Exh	0.9357	Min		0.9375	0.0018		Above Max
2	Int	0.9358			0.9375	0.0017		
	Exh	0.9357	Min		0.9375	0.0018		Above Max
3	Int	0.9358			0.9375	0.0017		
	Exh	0.9359		Max	0.9375	0.0016		
4	Int	0.9358			0.9375	0.0017		
	Exh	0.9358			0.9375	0.0017		
5	Int	0.9359		Max	0.9375	0.0016		
	Exh	0.9359		Max	0.9375	0.0016		
6	Int	0.9358			0.9375	0.0017		
	Exh	0.9358			0.9375	0.0017		
7	Int	0.9359		Max	0.9375	0.0016		
	Exh	0.9359		Max	0.9375	0.0016		
8	Int	0.9358			0.9375	0.0017		
	Exh	0.9358			0.9375	0.0017		
Count number cylinders		8						

3. Enter Lifter-to-Bore Clearance Range:		
Minimum Allowed	Desired Average	Maximum Allowed
0.0015	0.0017	0.0017

4. Calculated Values	
Calculated: This Bore Diameter yields your desired Avg Clearance	0.9375
Calculated: Actual Avg Lifter-to-Bore Clearance (Col I18:I33)	0.0017
Calculated: Variance to Desired Avg Clearance (E39 in green)	0.0000

	Value	Count
Minimum Lifter Diameter	0.9357	2
Maximum Lifter Diameter	0.9359	5
Variance: Max - Min	0.0002	

6. If you get Clearance Warnings, revise the target Avg Clearance, or adjust Min/Max range.

MOREL Lifter-to-Bore Clearance Worksheet

This worksheet works for 8/6/4 cylinder engines.

For Instructions, see the Instructions tab.

1. Enter static data below	
Date	4/20/2021
Customer	Example Customer Name
Oil Pump Type	Dry Sump
Oil Type	Synthetic 5W30
Rod Bearing Clearance	0.0025
Main Bearing Clearance	0.0025
Block Mfg Engine Size	Dart LS Next
Block Type - Cast/Aluminum	Cast
Clearance - Cast Iron Blocks	0.0015 - 0.0017
Clearance - Aluminum Blocks	0.0014 - 0.0016

1. Enter static data.
2. Enter actual Lifter Diameter measurements.
3. Enter Lifter-to-Bore Clearance Range: Min/Max/Target Avg.
4. Calculated: Bore Diameter.
5. Watch for Clearances out-of-range.

2. Enter actual Lifter Diameter Measurements below					Bore	Calculated	Clearance Warning Messages	
Cylinder		Measurements	Min	Max	Diameter	Clearance	Below Minimum	Above Maximum
1	Int	0.9358			0.9374	0.0016		
	Exh	0.9357	Min		0.9374	0.0017		
2	Int	0.9358			0.9374	0.0016		
	Exh	0.9357	Min		0.9374	0.0017		
3	Int	0.9358			0.9374	0.0016		
	Exh	0.9359		Max	0.9374	0.0015		
4	Int	0.9358			0.9374	0.0016		
	Exh	0.9358			0.9374	0.0016		
5	Int	0.9359		Max	0.9374	0.0015		
	Exh	0.9359		Max	0.9374	0.0015		
6	Int	0.9358			0.9374	0.0016		
	Exh	0.9358			0.9374	0.0016		
7	Int	0.9359		Max	0.9374	0.0015		
	Exh	0.9359		Max	0.9374	0.0015		
8	Int	0.9358			0.9374	0.0016		
	Exh	0.9358			0.9374	0.0016		
Count number cylinders		8						

3. Enter Lifter-to-Bore Clearance Range:		
Minimum Allowed	Desired Average	Maximum Allowed
0.0015	0.0016	0.0017

4. Calculated Values	
Calculated: This Bore Diameter yields your desired Avg Clearance	0.9374
Calculated: Actual Avg Lifter-to-Bore Clearance (Col I18:I33)	0.0016
Calculated: Variance to Desired Avg Clearance (E39 in green)	0.0000

6. Sweet spot: No Clearance Warnings with this Desired Avg Clearance, for this Min/Max Clearance Range.

	Value	Count
Minimum Lifter Diameter	0.9357	2
Maximum Lifter Diameter	0.9359	5
Variance: Max - Min	0.0002	

	A
1	**Instructions:**
2	**Most engine builders will machine all 16 Lifter Bores to the same Bore Diameter**
3	**to achieve an AVERAGE Lifter-to-Bore Clearance of 0.0015 - 0.0017 (Cast Iron).**
4	
5	**Follow these instructions to calculate the Bore Diameter needed**
6	**to achieve your desired (target) Avg Lifter-to-Bore Clearance.**
7	
8	**1. Enter static information in the blue block at upper left.**
9	**2. Enter actual Lifter Diameter measurements for each cylinder in the blue column.**
10	**3. Enter three values for the Lifter-to-Bore Clearance Range in the green boxes:**
11	**Minimum Clearance, Desired Avg Clearance, Maximum Clearance**
12	**Note: If the desired Avg Clearance is .0016, then the Min/Max range might be**
13	**somewhat larger, say .0014 - .0018.**
14	**4. The calculated Bore Diameter (in yellow) will yield your desired Avg Bore-to-Lifter Clearance.**
15	**5. Watch for calculated Lifter-to-Bore Clearances that are out of the Min/Max Clearance Range.**
16	**Warning messages will be displayed if any actual clearances are outisde the Min/Max range.**
17	**If any Lifter Body diameters are way out of normal tolerances, they will stand out.**
18	**You may revise the desired (target) Avg Lifter-to-Bore Clearance in the green box provided.**
19	**Or, you may adjust the Min/Max Clearance Range.**
20	**The Sweet spot will show no Clearance Warnings with this desired (target) Avg Clearance,**
21	**for this Min/Max Clearance Range.**
22	**6. Whenever you enter/change a desired Avg Lifter-to-Bore Clearance:**
23	**A. The Bore Diameter will be re-calculated and displayed in the yellow box.**
24	**B. All calculations will be updated and displayed in the worksheet.**
25	
26	
27	
28	
29	
30	
31	
32	