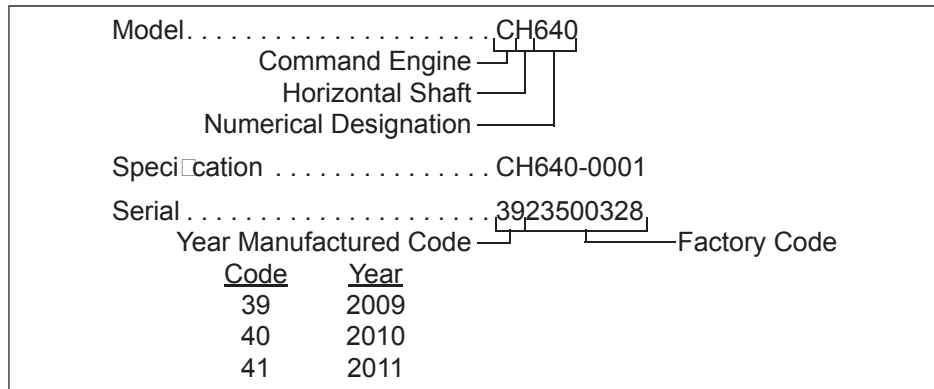




# Specifications

## ENGINE IDENTIFICATION NUMBERS

Kohler engine identification numbers (model, specification and serial) should be referenced for efficient repair, ordering correct parts, and engine replacement.



## GENERAL SPECIFICATIONS<sup>3,6</sup>

	CH18/CH20/ CH640	CH23	CH25/ CH730/CH740
Bore	77 mm (3.03 in.)	80 mm (3.15 in.)	83 mm (3.27 in.)
Stroke	67 mm (2.64 in.)		
Displacement	624 cc (38 cu. in.)	674 cc (41 cu. in.)	725 cc (44 cu. in.)
Oil Capacity (refill)	1.6-1.8 L (1.7-1.9 U.S. qt.)		
Maximum Angle of Operation (@ full oil level) <sup>4</sup>	25°		

## TORQUE SPECIFICATIONS<sup>3,5</sup>

	CH18/CH20/ CH640	CH23	CH25/ CH730/CH740
<b>Blower Housing and Sheet Metal</b>			
M5 Fasteners	6.2 N·m (55 in. lb.) into new holes 4.0 N·m (35 in. lb.) into used holes		
M6 Fasteners	10.7 N·m (95 in. lb.) into new holes 7.3 N·m (65 in. lb.) into used holes		
<b>Carburetor and Intake Manifold</b>			
Intake Manifold Mounting Fastener (torque in 2 increments)	First to 7.4 N·m (66 in. lb.) Finally to 9.9 N·m (88 in. lb.)		
M6 Mounting Screw or Nut	6.2-7.3 N·m (55-65 in. lb.)		
<b>Closure Plate</b>			
Fastener	24.4 N·m (216 in. lb.)		
<b>Connecting Rod</b>			
Cap Fastener (torque in increments)	22.7 N·m (200 in. lb.)		
8 mm straight shank	14.7 N·m (130 in. lb.)		
8 mm step-down	11.3 N·m (100 in. lb.)		
6 mm straight shank			

<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.

<sup>4</sup> Exceeding maximum angle of operation may cause engine damage from insufficient lubrication.

<sup>5</sup> Lubricate threads with engine oil prior to assembly.

<sup>6</sup> Any and all horsepower (hp) references by Kohler are Certified Power Ratings and per SAE J1940 & J1995 hp standards. Details on Certified Power Ratings can be found at KohlerEngines.com.

# Specifications

## TORQUE SPECIFICATIONS<sup>3,5</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Crankcase

Breather Cover Fastener	7.3 N·m (65 in. lb.)
Oil Drain Plug	13.6 N·m (10 ft. lb.)

### Cylinder Head

Fastener (torque in 2 increments) Nut	First to 16.9 N·m (150 in. lb.) Finally to 35.5 N·m (315 in. lb.)
Bolt (torque in 2 increments)	First to 22.6 N·m (200 in. lb.) Finally to 41.8 N·m (370 in. lb.)
Rocker Arm Screw	11.3 N·m (100 in. lb.)

### Flywheel

Fan Fastener	9.9 N·m (88 in. lb.)
Flywheel Retaining Screw	66.4 N·m (49 ft. lb.)

### Governor

Lever Nut	6.8 N·m (60 in. lb.)
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### Ignition

Spark Plug	27 N·m (20 ft. lb.)
Module Fastener	4.0-6.2 N·m (35-55 in. lb.)
Rectifier-Regulator Fastener	1.4 N·m (12.6 in. lb.)

### Muffler

Retaining Nut	24.4 N·m (216 in. lb.)
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### Oil Cooler

Adapter Nipple	27 N·m (20 ft. lb.)
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### Oil Sentry™

Pressure Switch	4.5 N·m (40 in. lb.)
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### Regulator

Bracket Screws	22.6 N·m (200 in. lb.)
Screws	24.4 N·m (216 in. lb.)

### Solenoid (Starter)

Mounting Hardware Nippondenso Starter Delco-Remy Starter	6.0-9.0 N·m (53-79 in. lb.) 4.0-6.0 N·m (35-53 in. lb.)
Nut, Positive (+) Brush Lead Nippondenso Starter Delco-Remy Starter	8.0-12.0 N·m (71-106 in. lb.) 8.0-11.0 N·m (71-97 in. lb.)

### Speed Control Bracket

Fastener	10.7 N·m (95 in. lb.) into new holes 7.3 N·m (65 in. lb.) into used holes
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<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.

<sup>5</sup> Lubricate threads with engine oil prior to assembly.

# Specifications

## TORQUE SPECIFICATIONS<sup>3,5</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Starter Assembly

Thru Bolt Inertia Drive Nippondenso Solenoid Shift Delco-Remy Solenoid Shift	4.5-5.7 N·m (40-50 in. lb.) 4.5-7.5 N·m (40-84 in. lb.) 5.6-9.0 N·m (49-79 in. lb.)
Mounting Screw	15.3 N·m (135 in. lb.)
Brush Holder Mounting Screw	2.5-3.3 N·m (22-29 in. lb.)

### Stator

Mounting Screw	6.2 N·m (55 in. lb.)
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### Valve Cover

Gasket Style Cover Fastener	3.4 N·m (30 in. lb.)
Black O-ring Style Cover Fastener w/Shoulder Screws w/Flange Screws and Spacers	5.6 N·m (50 in. lb.) 9.9 N·m (88 in. lb.)
Yellow or Brown O-ring Style Cover Fastener w/Integral Metal Spacers	6.2 N·m (55 in. lb.)

### Vaporizer

3/8 in. Screw	29.4 N·m (260 in. lb.)
1/4 in. Screw	7.9 N·m (70 in. lb.)

## CLEARANCE SPECIFICATIONS<sup>3</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Camshaft

End Play (w/shim)	0.076/0.127 mm (0.0030/0.0050 in.)
Running Clearance	0.025/0.063 mm (0.0010/0.0025 in.)
Bore I.D. New Max. Wear Limit	20.000/20.025 mm (0.7874/0.7884 in.) 20.038 mm (0.7889 in.)
Bearing Surface O.D. New Max. Wear Limit	19.962/19.975 mm (0.7859/0.7864 in.) 19.959 mm (0.7858 in.)

### Connecting Rod

Connecting Rod-to-Crankpin Running Clearance New Max. Wear Limit	0.030/0.055 mm (0.0012/0.0022 in.) 0.070 mm (0.0028 in.)
Connecting Rod-to-Crankpin Side Clearance	0.26/0.63 mm (0.0102/0.0248 in.)
Connecting Rod-to-Piston Pin Running Clearance	0.015/0.028 mm (0.0006/0.0011 in.)
Piston Pin End I.D. New Max. Wear Limit	17.015/17.023 mm (0.6699/0.6702 in.) 17.036 mm (0.6707 in.)

<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.

<sup>5</sup> Lubricate threads with engine oil prior to assembly.

# Specifications

## CLEARANCE SPECIFICATIONS<sup>3</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Crankcase

Governor Cross Shaft Bore I.D. 6 mm Shaft New Max. Wear Limit	6.025/6.050 mm (0.2372/0.2382 in.) 6.063 mm (0.2387 in.)
8 mm Shaft New Max. Wear Limit	8.025/8.075 mm (0.3159/0.3179 in.) 8.088 mm (0.3184 in.)

### Crankshaft

End Play (free)	0.070/0.590 mm (0.0028/0.0230 in.)
End Play (w/thrust bearing components)	0.070/0.270 mm (0.0028/0.0100 in.)
Except CH25 Engines Below Serial No. 2403500008	0.050/0.750 mm (0.0020/0.0295 in.)
Bore (in crankcase) New Max. Wear Limit	40.965/41.003 mm (1.6128/1.6143 in.) 41.016 mm (1.6148 in.)
Crankshaft to Sleeve Bearing (crankcase) Running Clearance-New	0.03/0.09 mm (0.0012/0.0035 in.)
Bore (in closure plate) New	40.987/40.974 mm (1.6136/1.6131 in.)
Crankshaft Bore (in closure plate)-to-Crankshaft Running Clearance-New	0.039/0.074 mm (0.0015/0.0029 in.)
Flywheel End Main Bearing Journal O.D. - New O.D. - Max. Wear Limit Max. Taper Max. Out-of-Round	40.913/40.935 mm (1.6107/1.6116 in.) 40.84 mm (1.608 in.) 0.022 mm (0.0009 in.) 0.025 mm (0.0010 in.)
Closure Plate End Main Bearing Journal O.D. - New O.D. - Max. Wear Limit Max. Taper Max. Out-of-Round	40.913/40.935 mm (1.6107/1.6116 in.) 40.84 mm (1.608 in.) 0.022 mm (0.0009 in.) 0.025 mm (0.0010 in.)
Connecting Rod Journal O.D. - New O.D. - Max. Wear Limit Max. Taper Max. Out-of-Round	35.955/35.973 mm (1.4156/1.4163 in.) 35.94 mm (1.415 in.) 0.018 mm (0.0007 in.) 0.025 mm (0.0010 in.)
T.I.R. PTO End, Crank in Engine Entire Crank, in V-Blocks	0.279 mm (0.0110 in.) 0.10 mm (0.0039 in.)

### Cylinder Bore

Bore I.D. New	77.000/77.025 mm (3.0315/3.0325 in.)	80.000/80.025 mm (3.1496/3.1506 in.)	82.988/83.013 mm (3.2672/3.2682 in.)
Max. Wear Limit	77.063 mm (3.0340 in.)	80.065 mm (3.1522 in.)	83.051 mm (3.2697 in.)
Max. Out-of-Round	0.12 mm (0.0047 in.)		
Max. Taper	0.05 mm (0.0020 in.)		

<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.

# Specifications

## CLEARANCE SPECIFICATIONS<sup>3</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Cylinder Head

Max. Out-of-Flatness	0.076 mm (0.003 in.)	0.1 mm (0.004 in.)
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### Governor

Governor Cross Shaft-to-Crankcase Running Clearance 6 mm Shaft 8 mm Shaft	0.013/0.075 mm (0.0005/0.0030 in.) 0.025/0.126 mm (0.0009/0.0049 in.)
Cross Shaft O.D. 6 mm Shaft New Max. Wear Limit 8 mm Shaft New Max. Wear Limit	5.975/6.012 mm (0.2352/0.2367 in.) 5.962 mm (0.2347 in.) 7.949/8.000 mm (0.3129/0.3149 in.) 7.936 mm (0.3124 in.)
Governor Gear Shaft-to-Governor Gear Running Clearance	0.015/0.140 mm (0.0006/0.0055 in.)
Gear Shaft O.D. New Max. Wear Limit	5.990/6.000 mm (0.2358/0.2362 in.) 5.977 mm (0.2353 in.)

### Ignition

Spark Plug Gap	0.76 mm (0.03 in.) for All Except NG with CD Fixed 0.51 mm (0.02 in.) for NG with CD Fixed
Module Air Gap	0.28/0.33 mm (0.011/0.013 in.)

### Piston, Piston Rings, and Piston Pin

Piston-to-Piston Pin Running Clearance	0.006/0.017 mm (0.0002/0.0007 in.)		
Pin Bore I.D. New Max. Wear Limit	17.006/17.012 mm (0.6695/0.6698 in.) 17.025 mm (0.6703 in.)		
Pin O.D. New Max. Wear Limit	16.995/17.000 mm (0.6691/0.6693 in.) 16.994 mm (0.6691 in.)		
Top Compression Ring-to-Groove Side Clearance	0.040/0.080 mm (0.0016/0.0031 in.)	0.030/0.076 mm (0.0012/0.0030 in.)	0.025/0.048 mm (0.0010/0.0019 in.)
Middle Compression Ring-to-Groove Side Clearance	0.040/0.080 mm (0.0016/0.0031 in.)	0.030/0.076 mm (0.0012/0.0030 in.)	0.015/0.037 mm (0.0006/0.0015 in.)
Oil Control Ring-to-Groove Side Clearance	0.060/0.202 mm (0.0024/0.0080 in.)	0.046/0.196 mm (0.0018/0.0077 in.)	0.026/0.176 mm (0.0010/0.0070 in.)
Top and Middle Compression Ring End Gap New Bore	0.25/0.45 mm (0.0098/0.0177 in.)	0.18/0.46 mm (0.0071/0.0181 in.)	0.25/0.56 mm (0.0100/0.0224 in.)
Used Bore (Max)	0.77 mm (0.030 in.)	0.80 mm (0.0315 in.)	0.94 mm (0.037 in.)
Thrust Face O.D. <sup>7</sup> New	76.943/76.961 mm (3.0292/3.0299 in.)	79.943/79.961 mm (3.1473/3.1480 in.)	82.949/82.967 mm (3.2656/3.2664 in.)
Max. Wear Limit	76.816 mm (3.0242 in.)	79.816 mm (3.1423 in.)	82.822 mm (3.2606 in.)
Piston Thrust Face-to-Cylinder Bore <sup>7</sup> Running Clearance New	0.039/0.082 mm (0.0015/0.0032 in.)		

<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.

<sup>7</sup> Measure 6 mm (0.24 in.) above bottom of piston skirt at right angles to piston pin.

# Specifications

## CLEARANCE SPECIFICATIONS<sup>3</sup>

CH18/CH20/  
CH640

CH23

CH25/  
CH730/CH740

### Valves and Valve Lifters




Hydraulic Valve Lifter to Crankcase Running Clearance	0.0241/0.0501 mm (0.0009/0.0020 in.)
Intake Valve Stem-to-Valve Guide Running Clearance	0.038/0.076 mm (0.0015/0.0030 in.)
Exhaust Valve Stem-to-Valve Guide Running Clearance	0.050/0.088 mm (0.0020/0.0035 in.)
Intake Valve Guide I.D. New Max. Wear Limit	7.038/7.058 mm (0.2771/0.2779 in.) 7.134 mm (0.2809 in.)
Exhaust Valve Guide I.D. New Max. Wear Limit	7.038/7.058 mm (0.2771/0.2779 in.) 7.159 mm (0.2819 in.)
Valve Guide Reamer Size Standard 0.25 mm O.S.	7.048 mm (0.2775 in.) 7.298 mm (0.2873 in.)
Intake Valve Minimum Lift	8.07 mm (0.3177 in.)
Exhaust Valve Minimum Lift	8.07 mm (0.3177 in.)
Nominal Valve Seat Angle	45°

<sup>3</sup> Values are in Metric units. Values in parentheses are English equivalents.








# Specifications

## GENERAL TORQUE VALUES

English Fastener Torque Recommendations for Standard Applications				
Bolts, Screws, Nuts and Fasteners Assembled Into Cast Iron or Steel				Grade 2 or 5 Fasteners Into Aluminum
Size	 Grade 2	 Grade 5	 Grade 8	
<b>Tightening Torque: N·m (in. lb.) ± 20%</b>				
8-32	2.3 (20)	2.8 (25)	—	2.3 (20)
10-24	3.6 (32)	4.5 (40)	—	3.6 (32)
10-32	3.6 (32)	4.5 (40)	—	—
1/4-20	7.9 (70)	13.0 (115)	18.7 (165)	7.9 (70)
1/4-28	9.6 (85)	15.8 (140)	22.6 (200)	—
5/16-18	17.0 (150)	28.3 (250)	39.6 (350)	17.0 (150)
5/16-24	18.7 (165)	30.5 (270)	—	—
3/8-16	29.4 (260)	—	—	—
3/8-24	33.9 (300)	—	—	—

Tightening Torque: N·m (ft. lb.) ± 20%				
5/16-24	—	—	40.7 (30)	—
3/8-16	—	47.5 (35)	67.8 (50)	—
3/8-24	—	54.2 (40)	81.4 (60)	—
7/16-14	47.5 (35)	74.6 (55)	108.5 (80)	—
7/16-20	61.0 (45)	101.7 (75)	142.5 (105)	—
1/2-13	67.8 (50)	108.5 (80)	155.9 (115)	—
1/2-20	94.9 (70)	142.4 (105)	223.7 (165)	—
9/16-12	101.7 (75)	169.5 (125)	237.3 (175)	—
9/16-18	135.6 (100)	223.7 (165)	311.9 (230)	—
5/8-11	149.5 (110)	244.1 (180)	352.6 (260)	—
5/8-18	189.8 (140)	311.9 (230)	447.5 (330)	—
3/4-10	199.3 (147)	332.2 (245)	474.6 (350)	—
3/4-16	271.2 (200)	440.7 (325)	637.3 (470)	—

Metric Fastener Torque Recommendations for Standard Applications						
Size	Property Class					Noncritical Fasteners Into Aluminum
	 4.8	 5.8	 8.8	 10.9	 12.9	
<b>Tightening Torque: N·m (in. lb.) ± 10%</b>						
M4	1.2 (11)	1.7 (15)	2.9 (26)	4.1 (36)	5.0 (44)	2.0 (18)
M5	2.5 (22)	3.2 (28)	5.8 (51)	8.1 (72)	9.7 (86)	4.0 (35)
M6	4.3 (38)	5.7 (50)	9.9 (88)	14.0 (124)	16.5 (146)	6.8 (60)
M8	10.5 (93)	13.6 (120)	24.4 (216)	33.9 (300)	40.7 (360)	17.0 (150)
<b>Tightening Torque: N·m (ft. lb.) ± 10%</b>						
M10	21.7 (16)	27.1 (20)	47.5 (35)	66.4 (49)	81.4 (60)	33.9 (25)
M12	36.6 (27)	47.5 (35)	82.7 (61)	116.6 (86)	139.7 (103)	61.0 (45)
M14	58.3 (43)	76.4 (56)	131.5 (97)	184.4 (136)	219.7 (162)	94.9 (70)

Torque Conversions	
N·m = in. lb. x 0.113	in. lb. = N·m x 8.85
N·m = ft. lb. x 1.356	ft. lb. = N·m x 0.737