

International Harvester

Selected Engine Specifications

1937-1942

INTERNATIONAL

GASOLINE

ENGINES

Year	Engine Model	Number Cylinders and Valve Arrangement	Bore and Stroke	Displacement Cubic Inches	Compression Ratio	Taxable H. P.	Brake H. P. at R. P. M.	Maximum Torque at R. P. M. Pounds Feet	Oil Capacity Quarts
1942	BLD-250	6-I	3 $\frac{1}{16}$ x4 $\frac{1}{2}$	250.56	6.3	28.36	100@3200	200@800	7 $\frac{1}{4}$
1942	BLD-269	6-I	3 $\frac{1}{16}$ x4 $\frac{1}{2}$	269.10	6.3	30.46	103@3000	222@800	7 $\frac{1}{4}$
1942	BLD-269A	6-I	3 $\frac{1}{16}$ x4 $\frac{1}{2}$	269.10	6.3	30.46	103@3000	222@800	7 $\frac{1}{4}$
1937-40	FAB-241	6-I	3 $\frac{3}{8}$ x4 $\frac{1}{2}$	241.54	5.8	27.3	84@3200	176@800	6 $\frac{1}{2}$
1937-40	FAB-259	6-I	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	259.76	5.74	29.4	89@3200	192@800	6 $\frac{1}{2}$
1941-42	FAC-241	6-I	3 $\frac{3}{8}$ x4 $\frac{1}{2}$	241.54	5.8③	27.3	84@3200①	176@800②	6 $\frac{1}{2}$
1941-42	FAC-241A	6-I	3 $\frac{3}{8}$ x4 $\frac{1}{2}$	241.54	5.8	27.3	84@3200	176@1200	6 $\frac{1}{2}$
1941-42	FAC-259	6-I	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	259.76	5.74③	29.4	89@3200④	192@800④	6 $\frac{1}{2}$
1941-42	FAC-259A	6-I	3 $\frac{1}{2}$ x4 $\frac{1}{2}$	259.76	5.74③	29.4	89@3200⑥	192@800⑦	6 $\frac{1}{2}$
1937-40	FBB-298	6-I	3 $\frac{3}{4}$ x4 $\frac{1}{2}$	298.20	5.7	33.7	94@2800	218@1600	8 $\frac{1}{2}$
1937-40	FBB-298A	6-I	3 $\frac{3}{4}$ x4 $\frac{1}{2}$	298.20	5.7	33.7	94@2800	218@1600	8 $\frac{1}{2}$
1937-40	FBB-361	6-I	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	360.82	5.2	40.8	111@2700	268@1500	8 $\frac{1}{2}$
1937-40	FBB-361A	6-I	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	360.82	5.2	40.8	111@2700	268@1500	8 $\frac{1}{2}$
1937-40	FBB-401	6-I	4 $\frac{1}{8}$ x5	400.92	5.2	40.8	114@2600	308@800	8 $\frac{1}{2}$
1937-40	FBB-401A	6-I	4 $\frac{1}{8}$ x5	400.92	5.2	40.8	114@2600	308@800	8 $\frac{1}{2}$
1939-40	FBB-450A	6-I	4 $\frac{3}{8}$ x5	450.99	5.2	45.9	120@2400	331@800	8 $\frac{1}{2}$
1941-42	FBC-318	6-I	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	318.41	5.38	36.03	100@2800	241@800	8 $\frac{1}{2}$
1941-42	FBC-318A	6-I	3 $\frac{1}{8}$ x4 $\frac{1}{2}$	318.41	5.38	36.03	100@2800	241@800	8 $\frac{1}{2}$
1941-42	FBC-361	6-I	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	360.82	5.2	40.08	111@2700	268@1500	8 $\frac{1}{2}$
1941-42	FBC-361A	6-I	4 $\frac{1}{8}$ x4 $\frac{1}{2}$	360.82	5.2	40.08	111@2700	268@1500	8 $\frac{1}{2}$
1941-42	FBC-401	6-I	4 $\frac{1}{8}$ x5	400.92	5.2	40.08	114@2600	308@800	8 $\frac{1}{2}$
1941-42	FBC-401A	6-I	4 $\frac{1}{8}$ x5	400.92	5.2	40.08	114@2600	308@800	8 $\frac{1}{2}$
1941-42	FBC-450A	6-I	4 $\frac{3}{8}$ x5	450.99	5.2	45.9	120@2400	331@800	8 $\frac{1}{2}$
1936-38	FC-132	4-L	3 $\frac{1}{4}$ x4	132.73	6.0	16.8	33@2800	90@1200	4
1936-38	FC-132A	4-L	3 $\frac{1}{4}$ x4	132.73	6.0	16.8	33@2800	90@1200	4
1936-42	FEB-648	6-I	5x5 $\frac{1}{2}$	648	4.4	60.0	140@2100	460@1000	22
1941-42	GRD-175	6-L	3x4 $\frac{1}{8}$	174.93	6.7	21.6	64@3400	120@1000	5
1941-42	GRD-175A	6-L	3x4 $\frac{1}{8}$	174.93	6.7	21.6	64@3400	120@1000	5
1941-42	GRD-214	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	82@3400	160@1200	5
1941-42	GRD-214A	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	82@3400	160@1200	5
1941-42	GRD-233	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{2}$	232.65	6.3	26.3	93@3400	181@1000	5
1941-42	GRD-233A	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{2}$	232.65	6.3	26.3	93@3400	181@1000	5
1937-40	HD-174	6-L	3x4 $\frac{1}{8}$	174.93	6.0	21.6	46@3000	107@800	6
1937-40	HD-174A	6-L	3x4 $\frac{1}{8}$	174.93	6.0	21.6	46@3000	107@800	6
1937-40	HD-174B	6-L	3x4 $\frac{1}{8}$	174.93	6.0	21.6	46@3000	107@800	6
1937-40	HD-174C	6-L	3x4 $\frac{1}{8}$	174.93	6.0	21.6	46@3000	107@800	6
1937-40	HD-213	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	78@3400	155@1000	6
1937-40	HD-213A	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	78@3400	155@1000	6
1937-40	HD-213B	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	78@3400	155@1000	6
1937-40	HD-213C	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{8}$	213.24	6.3	26.3	78@3400	155@1000	6
1937-40	HD-232	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{2}$	232.65	6.0	26.3	81@3200	170@1000	6
1937-40	HD-232A	6-L	3 $\frac{5}{16}$ x4 $\frac{1}{2}$	232.65	6.0	26.3	81@3200	170@1000	6

NOTE—Engine models with suffix letter "A" indicate updraft carburetion.

① After Eng. No. 2400, 95 at 3200.

② After Eng. No. 2400, 192 at 1200.

③ After Eng. No. 2400, 6.2.

④ After Eng. No. 3300, 101 at 3000.

⑤ After Eng. No. 750, 101 at 3000.

⑥ After Eng. No. 3300, 211 at 1600.

⑦ After Eng. No. 750, 211 at 1600.

⑧ After Eng. No. 3300, 6.2.

⑨ After Eng. No. 750, 6.2.

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TUNE UP CHART

Year	Engine Model	Firing Order	Spark Plug Gap	Breaker Gap	Cam Angle, Degrees	Timing Mark Location	Spark Timing, Degrees	Tappet Clearance			Battery Terminal Grounded
								For Running, Hot		For Timing, Intake	
								Int.	Exh.		
1942	BLD-250	153624	.028-.032	.018-.024	35	Vib. Damp.	3BTDC	.015	.015	.023	Positive
1942	BLD-269(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	3BTDC	.015	.015	.023	Positive
1937-40	FAB-241	153624	.020-.025	.018-.024	35	Vib. Damp.	3BTDC	.015	.015	.024	Positive
1937-40	FAB-259	153624	.020-.025	.018-.024	35	Vib. Damp.	3BTDC	.015	.015	.024	Positive
1941-42	FAC-241(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	3BTDC	.018	.018	.023	Positive
1941-42	FAC-259(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	3BTDC ①	.018	.018	.023	Positive
1937-40	FBB-298(A)	153624	.020-.025	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.016	Positive
1937-40	FBB-361(A)	153624	.020-.025	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.016	Positive
1937-41	FBB-401(A)	153624	.020-.025	.018-.024	35	Vib. Damp.	6BTDC	.015	.015	.016	Positive
1939-40	FBB-450A	153624	.020-.025	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.016	Positive
1941-42	FBC-318(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.0167	Positive
1941-42	FBC-361(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.0167	Positive
1941-42	FBC-401(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	6BTDC	.015	.015	.0167	Positive
1941-42	FBC-450A	153624	.028-.032	.018-.024	35	Vib. Damp.	10BTDC	.015	.015	.0167	Positive
1936-38	FC-132(A)	1342	.020-.025	.018-.024	51	Flywheel	TDC	.006	.011	.005	Positive
1936-42	FEB-648	153624	.025-.028	.018-.024	35	Flywheel	5BTDC	.011	.013	.011	Positive
1941-42	GRD-175(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	4BTDC	.015	.015	.020	Positive
1941-42	GRD-214(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	4BTDC	.015	.015	.020	Positive
1941-42	GRD-233(A)	153624	.028-.032	.018-.024	35	Vib. Damp.	4BTDC	.015	.015	.020	Positive
1937-40	HD-174	153624	.020-.025	.018-.024	35	Vib. Damp.	10BTDC	.008	.010	.010	Positive
1937-40	HD-213	153624	.020-.025	.018-.024	35	Vib. Damp.	4BTDC	.008	.010	.010	Positive
1937-40	HD-232(A)	153624	.020-.025	.018-.024	35	Flywheel	TDC	.008	.010	.010	Positive

① After Eng. No. 3300 on FAC-259 or Eng. No. 750 on FAC-259A, 7BTDC.

VALVE SYSTEM

Year	Engine Model	Stem Clearance		Tappet Guide Clearance	Tappet Clearance				Valve Spring Pressure Test		Valve Seat Angle Degrees
		Intake	Exhaust		Running, Hot		Timing		Free Length, Inches	Pounds at Inches, Length	
					In-take	Ex-haust	In-take	Ex-haust			
1942	BLD-250	.0015-.0035	.002-.004	.001-.003	.015	.015	.023	.023	2 ³³ / ₆₄	116 @ 1 ⁴⁵ / ₆₄	45
1942	BLD-269(A)	.0015-.0035	.002-.004	.001-.003	.015	.015	.023	.023	2 ³³ / ₆₄	116 @ 1 ⁴⁵ / ₆₄	45
1937-40	FAB-241	.0015-.0025	.003-.004	.0005-.003	.015	.015	.024	.024	2 ³³ / ₆₄	93 @ 1 ⁴⁵ / ₆₄	45
1937-40	FAB-259	.0015-.0025	.003-.004	.0005-.003	.015	.015	.024	.024	2 ³³ / ₆₄	93 @ 1 ⁴⁵ / ₆₄	45
1941-42	FAC-241(A)	.0015-.0035	.002-.004	.0005-.003	.018	.018	.023	.023	2 ³³ / ₆₄	116 @ 1 ⁴⁵ / ₆₄	45
1941-42	FAC-259(A)	.0015-.0035	.002-.004	.0005-.003	.018	.018	.023	.023	2 ³³ / ₆₄	116 @ 1 ⁴⁵ / ₆₄	45
1937-40	FBE-298(A)	.0015-.0025	.002-.004	.0005-.0015	.015	.015	.016	.016	I 2 ³³ / ₆₄ O 2 ¹⁵ / ₃₂	I 46 @ 1 ¹⁹ / ₃₂ O 90 @ 1 ²⁵ / ₃₂	45
1937-40	FBB-361(A)	.0015-.0025	.002-.004	.0005-.0015	.015	.015	.016	.016	I 2 ³³ / ₆₄ O 2 ¹⁵ / ₃₂	I 46 @ 1 ¹⁹ / ₃₂ O 90 @ 1 ²⁵ / ₃₂	45
1937-41	FBB-401(A)	.0015-.0025	.002-.004	.0005-.0015	.015	.015	.016	.016	I 2 ³³ / ₆₄ O 2 ¹⁵ / ₃₂	I 46 @ 1 ¹⁹ / ₃₂ O 90 @ 1 ²⁵ / ₃₂	45

VALVE SYSTEM

Year	Engine Model	Stem Clearance		Tappet Guide Clearance	Tappet Clearance				Valve Spring Pressure Test		Valve Seat Angle, Degrees
		Intake	Exhaust		Running Hot		Timing		Free Length, Inches	Pounds at Inches, Length	
					Intake	Exhaust	In-take	Ex-haust			
1937-40	FBB-450A	.0015-.0025	.002-.004	.0005-.0015	.015	.015	.016	.016	I 2 ³ / ₃₂ O 2 ¹⁵ / ₃₂	I 46@1 ¹⁹ / ₃₂ O 90@1 ²⁵ / ₃₂	45
1942	FBC-318(A)	.0015-.0035	.002-.004	.001-.003	.015	.015	.0167	.0167	I 2 ³ / ₃₂ O 2 ¹⁵ / ₃₂	I 60@1 ³³ / ₆₄ O 108@1 ²³ / ₃₂	45
1942	FBC-361(A)	.0015-.0035	.002-.004	.001-.003	.015	.015	.0167	.0167	I 2 ³ / ₃₂ O 2 ¹⁵ / ₃₂	I 60@1 ³³ / ₆₄ O 108@1 ²³ / ₃₂	45
1942	FBC-401(A)	.0015-.0035	.002-.004	.001-.003	.015	.015	.0167	.0167	I 2 ³ / ₃₂ O 2 ¹⁵ / ₃₂	I 60@1 ³³ / ₆₄ O 108@1 ²³ / ₃₂	45
1942	FBC-450A	.0015-.0035	.002-.004	.001-.003	.015	.015	.0167	.0167	I 2 ³ / ₃₂ O 2 ¹⁵ / ₃₂	I 60@1 ³³ / ₆₄ O 108@1 ²³ / ₃₂	45
1938	FC 132(A)	.0015-.0025	.003-.004	.0005-.002	.006	.011	.005	.010	2 ¹ / ₄	74@1 ⁵ / ₈	45
1942	FEB-648	.0015-.0025	.002-.004	.001-.003	.011	.013	.011	.013	---	I 79@1 ²⁵ / ₃₂ O 140@2 ¹ / ₁₆	45
1942	GRD-175(A)	.0015-.0035	.002-.004	.0005-.0015	.015	.015	.020	.020	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45
1942	GRD-214(A)	.0015-.0035	.002-.004	.0005-.0015	.015	.015	.020	.020	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45
1942	GRD-233(A)	.0015-.0035	.002-.004	.0005-.0015	.015	.015	.020	.020	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45
1937-40	HD-174, A, B, C	.0015-.0025	.003-.004	.0005-.0015	.008	.010	.010	.012	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45
1937-40	HD-213, A, B, C	.0015-.0025	.003-.004	.0005-.0015	.008	.010	.010	.012	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45
1937-40	HD-232(A)	.0015-.0025	.003-.004	.0005-.0015	.008	.010	.010	.012	2 ¹¹ / ₁₆	85 ¹ / ₂ @1 ¹⁵ / ₁₆	45

PISTON AND RING CLEARANCES

Year	Engine Model	Piston Skirt, Inches		Fitting Pistons with Shim and Spring Scale		Ring End Gap, Inch ①		Ring and Groove, Inch	
		Top	Bottom	Shim Thickness	Pounds Pull on Scale	Compression	Oil	Compression	Oil
1942	BLD-250	.0015	.0015	.0015	5 to 12	.010-.020	.010-.018	.0015-.003	.0015-.003
1942	BLD-269(A)	.0015	.0015	.0015	5 to 12	.013-.023	.013-.021	.0015-.003	.0015-.003
1937-40	FAB-241	.004②	.004②	.004②	5 to 9②	.007-.015	.007-.015	.0015	.0005-.0015
1937-40	FAB-259	.004②	.004②	.004②	5 to 9②	.007-.015	.007-.015	.0015	.0005-.0015
1941-42	FAC-241(A)	.004	.004	.004	5 to 12	.010-.020	.010-.018	.0025-.004④	.0015-.003
1941-42	FAC-259(A)	.004	.004	.004	5 to 12	.013-.023	.013-.021	.0025-.004④	.0015-.003
1937-40	FBB-298(A)	.004	.004	.0015	5 to 12	.007-.015	.007-.015	.0015	.0005-.0015
1937-40	FBB-361(A)	.0015-.002	.0015-.002	.0015	5 to 12	.007-.015	.007-.015	.0015	.0005-.0015
1937-41	FBB-401(A)	.0015-.002	.0015-.002	.0015	5 to 12	.007-.015	.007-.015	.0015	.0005-.0015
1939-40	FBB-450A	.0015-.002	.0015-.002	.0015	5 to 12	.007-.015	.007-.015	.0015	.0005-.0015

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PISTON AND RING CLEARANCES

Year	Engine Model	Piston Skirt, Inches		Fitting Pistons with Shim and Spring Scale		Ring End Gap, Inch ①		Ring and Groove, Inch	
		Top	Bottom	Shim Thickness	Pounds Pull on Scale	Com-pression	Oil	Com-pression	Oil
1941-42	FBC-318(A)	.0015-.002	.0015-.002	.0015	5 to 12	.010-.020	.010-.020	.0025-.004⑥	.0015-.003
1941-42	FBC-361(A)	.0015-.002	.0015-.002	.0015	5 to 12	.013-.023	.013-.021	.0015-.003	.0015-.0035
1941-42	FBC-401(A)	.0015-.002	.0015-.002	.0015	5 to 12	.013-.023	.013-.021	.0015-.003	.0015-.0035
1941-42	FBC-450A	.0015-.002	.0015-.002	.0015	5 to 12	.013-.023	.013-.021	.0015-.003	.0015-.0035
1936-38	FC-132(A)	.003-.004	.003-.004	.0035	5 to 12	.007-.015	.007-.015	.0015	.001-.0025
1936-42	FEB-648	.005	.005	.005	5 to 12	.015-.020	.015-.020	.0015-.003	.0015-.0035
1941-42	GRD-175(A)	.0035	.0035	.0035	5 to 12	.007-.017	.007-.015	.0015-.003③	.001-.0025
1941-42	GRD-214(A)	.0035	.0035	.0035	5 to 12	.007-.017	.013-.021	.002-.0035④	.001-.0025
1941-42	GRD-233(A)	.0035	.0035	.0035	5 to 12	.007-.017	.007-.017	.002-.0035④	.001-.0025
1937-40	HD-174, A, B, C	.0035	.0035	.0035	5 to 12	.007-.015	.007-.015	.0015	.001-.0025
1937-40	HD-213, A, B, C	.0035	.0035	.0035	5 to 12	.007-.015	.007-.015	.0015	.001-.0025
1937-40	HD-232(A)	.004	.004	.004	5 to 12	.007-.015	.007-.015	.0015	.001-.0025

① End gaps are for cylinder bores without taper. Fit rings in tapered bores with not less than the maximum dimension given.

② For cast iron pistons, .0035" clearance with a 5 to 12 pound pull.

③ For top ring only; 2nd and 3rd rings, .001"-.0025".

④ For top ring only; 2nd and 3rd rings, .0015"-.003".

⑤ For top ring only; 2nd and 3rd rings, .002"-.0035".

ENGINE BEARING SPECIFICATIONS

Year	Engine Model	Camshaft		Connecting Rod			Mains				
		Journal Diameter	Clear-ance	Journal Diameter	Clear-ance	Bear- ing Bolt Ten- sion Lb. Ft.	Journal Diameter	Clear-ance	Bear- ing Bolt Ten- sion Lb. Ft.	Thrust on No.	End- play
1942	BLD-250	①	.002-.0035	2.122-2.123	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1942	BLD-269(A)	①	.002-.0035	2.122-2.123	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1937-40	FAB-241	①	.002-.0035	2.122-2.123	.0015-.0035	60	2.372-2.373	.0015-.004	⑥	7	.0035-.0075
1937-40	FAB-259	①	.002-.0035	2.122-2.123	.0015-.0035	60	2.372-2.373	.0015-.004	⑥	7	.0035-.0075
1941-42	FAC-241(A)	①	.002-.0035	2.122-2.123	.0015-.0035	56-70	2.372-3.373	.0015-.004	⑥	7	.0035-.0075
1941-42	FAC-259(A)	①	.002-.0035	2.122-2.123	.0015-.0035	56-70	2.372-2.373	.0015-.004	⑥	7	.0035-.0075
1937-40	FBB-298(A)	②	.002-.0035	2.247-2.248	.0015-.0035	60	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1937-40	FBB-361(A)	②	.002-.0035	2.247-2.248	.0015-.0035	60	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1937-41	FBB-401(A)	②	.002-.0035	2.247-2.248	.0015-.0035	60	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1939-40	FBB-450A	②	.002-.0035	2.247-2.248	.0015-.0035	60	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1941-42	FBC-318(A)	②	.002-.0035	2.247-2.248	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1941-42	FBC-361(A)	②	.002-.0035	2.247-2.248	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1941-42	FBC-401(A)	②	.002-.0035	2.247-2.248	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1941-42	FBC-450A	②	.002-.0035	2.247-2.248	.0015-.0035	56-70	2.7005-2.7015	.0015-.004	⑥	7	.0035-.0075
1936-38	FC-132(A)	③	.001-.0025	1.749-1.750	.001-.003	60	2.124-2.125	.001-.0025	⑥	2	.0025-.0065
1936-42	FEB-648	⑤	.002-.0035	2.749-2.750	.0025-.0045	60	3.245-3.246	.003-.005	⑥	---	.0035-.0075
1941-42	GRD-175(A)	④	.001-.0025	2.000-2.001	.001-.0025	56-70	2.635-2.636	.0015-.003	⑥	1	.0035-.0075

ENGINE BEARING SPECIFICATIONS

Year	Engine Model	Camshaft		Connecting Rod			Mains				
		Journal Diameter	Clearance	Journal Diameter	Clearance	Bearing Bolt Tension Lb. Ft.	Journal Diameter	Clearance	Bearing Bolt Tension Lb. Ft.	Thrust on No.	End-play
1941-42	GRD-214(A)	④	.001-.0025	2.000-2.001	.001-.0025	56-70	2.635-2.636	.0015-.003	⑥	1	.0035-.0075
1941-42	GRD-233(A)	④	.001-.0025	2.000-2.001	.001-.0025	56-70	2.635-2.636	.0015-.003	⑥	1	.0035-.0075
1937-40	HD-174, A B C	④	.001-.0025	2.000-2.001	.001-.0025	60	2.635-2.636	.0015-.003	⑥	1	.0035-.0075
1937-40	HD-213, A B C	④	.001-.0025	2.000-2.001	.001-.0025	60	2.635-2.636	.0015-.003	⑥	1	.0035-.0075
1937-40	HD-232(A)	④	.001-.0025	2.000-2.001	.001-.0025	60	2.635-2.636	.0015-.003	⑥	1	.0035-.0075

① No. 1—1.811"—1.812". No. 2—1.577"—1.578". No. 3—1.562"—1.563". No. 4—1.499"—1.500".

② No. 1—2.109"—2.110". No. 2—2.089"—2.090". No. 3—2.069"—2.070". No. 4—1.4995"—1.5005".

③ No. 1—2.1230"—2.1235". No. 2—1.8730"—1.8735". No. 3—1.4980"—1.4985".

④ No. 1—2.1855"—2.1860". Nos. 2 and 3—1.9335"—1.9340". No. 4—1.6220"—1.6225".

⑤ No. 1—2.745". No. 2—2.558". No. 3—2.495". No. 4—2.058".

⑥ For $\frac{1}{2}$ " and $\frac{3}{16}$ " bolts, 75 to 85 pounds feet; for $\frac{5}{16}$ " bolts, 90 to 100 pounds feet.

ENGINE

CYLINDER HEAD

1936-42: Tighten cylinder head nuts or cap-screws in the order shown in illustrations. Recommended tension when using a tension indicating wrench is 60 lbs. ft. for L-head engines and 77 lbs. ft. for overhead valve engines. Increase tension evenly and after cylinder head has been tightened run the engine for a few minutes to bring it to operating temperature, then retighten to recommended tension.

NOTE—Be sure cylinder head and block are smooth and clean. Coat both sides of gasket with clear sealing compound such as shellac and allow to dry until tacky. Install gaskets on GRD and HD engines to control water circulation by placing the small graduated water holes toward the valve side of the engine and the large water holes toward the rear of the engine.

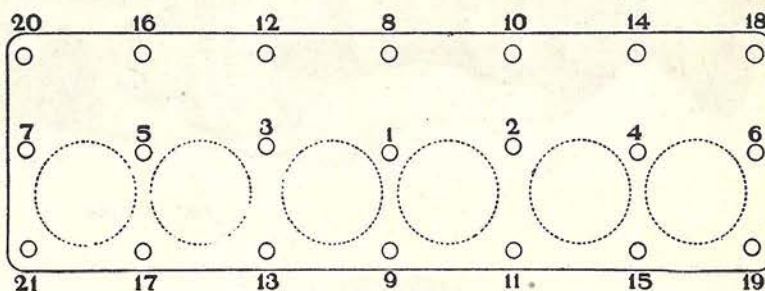
ROCKER ARMS & SHAFTS

1936-42: When a rocker arm bushing or end contact surface becomes worn, it is recommended that rocker arm and bushing be replaced as a unit. Rocker arm bushing are burnished and are reamed at assembly to .875"-.876". See that oil holes in bushings line up with holes in rocker arms.

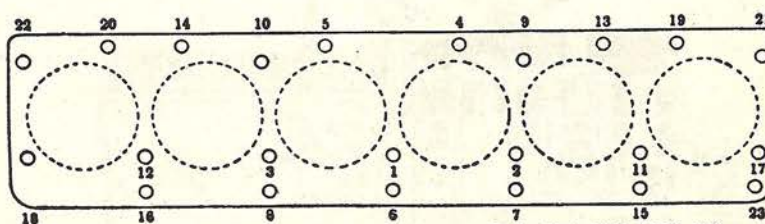
In some cases it is possible to touch up the valve stem and rocker arm end surfaces to obtain correct contact, as illustrated, for quiet operation at maximum clearance.

The valve stem end must be square with the valve stem. The radius on the rocker arm end must be held to .485"-.515" as shown and under no circumstances should the end be ground off more than .010". Valve stem and rocker arm ends are case-hardened; hence, if too much metal is removed, the contact surfaces will be soft

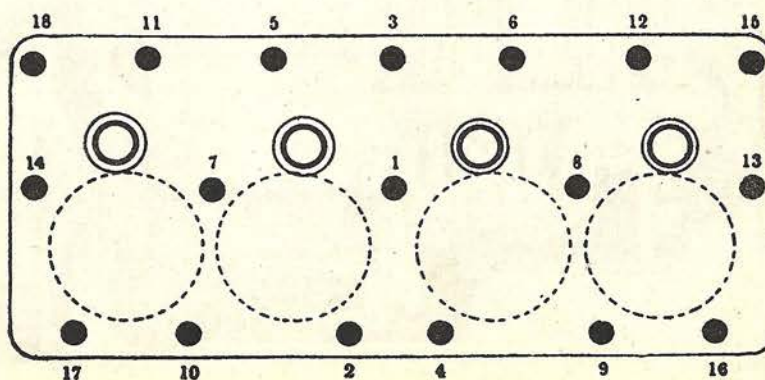
(Continued on page 121)



Cylinder Head Tightening Sequence. Engine GRD.



Cylinder Head Tightening Sequence. Engines FAB, FAC, FBB, FBC, HD.



Cylinder Head Tightening Sequence. Engine FC.