

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES

GENERAL SPECIFICATIONS							
Year	Displ. Cu. Ins.	Carburetor	HP at RPM	Torque (Ft. Lbs. at RPM)	Compr. Ratio	Bore	Stroke
1965	283	2-Bbl.	195 @ 4800	285 @ 2400	9.25-1	3.875"	3.00"
	327	4-Bbl.	250 @ 4400	350 @ 2800	10.5-1	4.000"	3.25"
	327	4-Bbl.	300 @ 5000	360 @ 3200	10.5-1	4.000"	3.25"
	327	4-Bbl.	350 @ 5800	360 @ 3600	11.0-1	4.000"	3.25"
	327	4-Bbl.	365 @ 6200	350 @ 4000	11.0-1	4.000"	3.25"
	327	Fuel Inj.	375 @ 6200	350 @ 4600	11.0-1	4.000"	3.25"
1966	283	2-Bbl.	195 @ 4800	285 @ 2400	9.25-1	3.875"	3.00"
		4-Bbl.	220 @ 4800	295 @ 3200	9.25-1	3.875"	3.00"
	327	4-Bbl.	275 @ 4800	355 @ 3200	10.5-1	4.000"	3.25"
		4-Bbl.	300 @ 5000	360 @ 3200	10.5-1	4.000"	3.25"
		4-Bbl.	350 @ 5800	360 @ 3600	11.0-1	4.000"	3.25"
1967	283	2-Bbl.	195 @ 4600	285 @ 2400	9.25-1	3.875"	3.00"
	302	4-Bbl.	290 @ 5800	290 @ 4200	11.0-1	4.000"	3.00"
	327	2-Bbl.	210 @ 4600	320 @ 2400	8.75-1	4.000"	3.25"
		4-Bbl.	275 @ 4800	355 @ 3200	10.0-1	4.000"	3.25"
		4-Bbl.	300 @ 5000	360 @ 3400	10.0-1	4.000"	3.25"
		4-Bbl.	325 @ 5600	355 @ 3600	11.0-1	4.000"	3.25"
	350	4-Bbl.	350 @ 5800	360 @ 3400	11.0-1	4.000"	3.25"
4-Bbl.		295 @ 4800	380 @ 3200	10.25-1	4.000"	3.48"	
1968	302	4-Bbl.	290 @ 5800	290 @ 4200	11.0-1	4.000"	3.00"
	307	2-Bbl.	200 @ 4600	300 @ 2400	9.0-1	3.875"	3.25"
	327	2-Bbl.	210 @ 4600	320 @ 2400	8.75-1	4.000"	3.25"
		4-Bbl.	250 @ 4800	325 @ 3200	8.75-1	4.000"	3.25"
		4-Bbl.	275 @ 4800	355 @ 3200	10.0-1	4.000"	3.25"
		4-Bbl.	300 @ 5000	360 @ 3400	10.0-1	4.000"	3.25"
		4-Bbl.	325 @ 5600	355 @ 3600	11.0-1	4.000"	3.25"
		4-Bbl.	350 @ 5800	360 @ 3600	11.0-1	4.000"	3.25"
	350	4-Bbl.	295 @ 4800	380 @ 3200	10.25-1	4.000"	3.48"
	1969	302	4-Bbl.	290 @ 5800	290 @ 4200	11.0-1	4.000"
307		2-Bbl.	200 @ 4600	300 @ 2400	9.0-1	3.875"	3.25"
327		2-Bbl.	210 @ 4600	320 @ 2400	9.0-1	4.000"	3.25"
		2-Bbl.	235 @ 4800	325 @ 2800	9.0-1	4.000"	3.25"
350		4-Bbl.	225 @ 4800	365 @ 3200	9.0-1	4.000"	3.48"
		4-Bbl.	300 @ 4800	380 @ 3200	10.25-1	4.000"	3.48"
		4-Bbl.	350 @ 5600	380 @ 3600	11.0-1	4.000"	3.48"
		4-Bbl.	370 @ 5800	.....	11.0-1	4.000"	3.48"
1970	307	2-Bbl.	200 @ 4600	300 @ 2400	9.0-1	3.875"	3.25"
	350	2-Bbl.	250 @ 4800	345 @ 2800	9.0-1	4.000"	3.48"
		4-Bbl.	300 @ 4800	380 @ 3200	10.25-1	4.000"	3.48"
		4-Bbl.	350 @ 5600	380 @ 3600	11.0-1	4.000"	3.48"
		4-Bbl.	360 @ 6000	380 @ 4000	11.0-1	4.000"	3.48"
		4-Bbl.	370 @ 6000	380 @ 4000	11.0-1	4.000"	3.48"
	400	4-Bbl.	265 @ 4400	400 @ 2400	9.0-1	4.125"	3.75"
1971	307	2-Bbl.	200 @ 4600	300 @ 2400	8.5-1	3.875"	3.25"
	350	2-Bbl.	245 @ 4800	350 @ 2800	8.5-1	4.000"	3.48"
		4-Bbl.	270 @ 4800	360 @ 3200	8.5-1	4.000"	3.48"
		4-Bbl.	330 @ 5600	360 @ 4000	9.0-1	4.000"	3.48"
	400	2-Bbl.	255 @ 4400	390 @ 2400	8.5-1	4.125"	3.75"
1972	307	2-Bbl.	130 @ 4000	230 @ 2400	8.5-1	3.875"	3.25"
	350	2-Bbl.	165 @ 4000	280 @ 2400	8.5-1	4.000"	3.48"
		4-Bbl.	175 @ 4000	280 @ 2400	8.5-1	4.000"	3.48"
		4-Bbl.	200 @ 4400	300 @ 2800	8.5-1	4.000"	3.48"
		4-Bbl.	255 @ 5600	280 @ 4000	9.0-1	4.000"	3.48"
	400	2-Bbl.	170 @ 3400	325 @ 2000	8.5-1	4.125"	3.75"

(Continued)

Chevrolet V8 Engines

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1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

GENERAL SPECIFICATIONS (Cont.)							
Year	Displ. Cu. Ins.	Carburetor	HP at RPM	Torque (Ft. Lbs. at RPM)	Compr. Ratio	Bore	Stroke
1973	307"	2-Bbl.	115@4000	205@2000	8.5-1	3.875"	3.25"
		350"	2-Bbl.	145@4000	255@2400	8.5-1	4.000"	3.48"
	400"	4-Bbl.	175@4000	260@2800	8.5-1	4.000"	3.48"
		4-Bbl.	190@4000	270@2800	8.5-1	4.000"	3.48"
		4-Bbl.	245@5200	280@4000	9.0-1	4.000"	3.48"
		4-Bbl.	250@5200	285@4000	9.0-1	4.000"	3.48"
		4-Bbl.	150@3200	295@2000	8.5-1	4.125"	3.75"
		4-Bbl.					

► **NET HORSEPOWER & TORQUE NOTE** — Horsepower and Torque figures given for 1972 and later are NET. NET Horsepower and Torque represent power at the flywheel when the engine is installed in the vehicle, with wide open throttle and all systems operating such as; air cleaner, exhaust system, water pump, generator, oil pump and air conditioning.

MODEL IDENTIFICATION

ENGINE IDENTIFICATION

Engine identification number is located on pad attached to right side of cylinder block. Suffix (code) letters designate engine displacement as follows:

1965

Engine	Suffix Letters
283" V8 195 HP Chevy II	PD, PF, PL, PM, PN, PP
Chevelle	DA, DB, DE
Chevrolet	GA, GC, GF
327" V8 250 HP Chevy II	ZA, ZK, ZE, ZM
Chevelle	EA, EE
Chevrolet	HA, HC
Corvette	HE, HI, HO, HQ
300 HP Chevy II	ZB, ZL, ZF, ZN
Chevelle	EB, EF
Chevrolet	HB, HD
Corvette	HF, HJ, HP, HR
350 HP Chevelle	EC
Corvette	HT, HU, HV, HW
365 HP Corvette	HH, HK, HL, HM
375 HP Corvette	HG, HN

1966

Engine & Horsepower	Suffix Letters
283" V8 195 HP Chevy II	PD, PF, PL, PM, PN, PP PE, PG, PQ, PS, PU, PO
Chevelle	DI, DK, DJ, DA, DB, DE
Chevrolet	GA, GF, GC, GK, GT, GS
220 HP Chevy II	QC, QF, QD, QE, QA, QB, PK, PB
Chevelle	DL, DM, DG, DH
Chevrolet	GX, GZ, GW, GL
327" V8 275 HP Chevy II	ZB, ZA, ZK, ZE, ZM, ZD, ZC, ZF
Chevelle	EB, EC, EA, EE
Chevrolet	HB, HA, HF, HC
300 HP Corvette	HH, HR, HE, HO, HP
350 HP Chevy II	ZG, ZH, ZI, ZJ
Corvette	HD, HT, HK
396" V8 325 HP Chevelle	EH, EM, ED, EK
Chevrolet	IB, IC, IN, IA, IG, IV
360 HP Chevelle	EJ, EN, EF, EL
427" V8 390 HP Chevrolet	II, IH, IO, IJ
Corvette	IM, IL
425 HP Chevrolet	ID
Corvette	JP, IK

1967

Engine	Suffix Letters
283" 195 HP Chevelle	DA, DB, DE, DN, DI, DK, DJ
Chevy II	PD, PL, PM, PF, PN, PP, PE, PQ, PU
Chevrolet	GA, GC, GF, GU, GK, GS, GT
302" 290 HP Camaro	
327" 210 HP Camaro	ME, MA, MF, MB
275 HP Camaro	MM, MK, ML, MN
Chevelle	EE, EA, ED, EC, EB
Chevy II	ZK, ZA, ZE, ZM, ZD, ZB
Chevrolet	HC, HA, HF, HB, KM, KL, KE
300 HP Corvette	HO, HE, HR, HH
325 HP Chevelle	EP, ES, ER
350 HP Corvette	HT, HP, HD
350" 295 HP Camaro	MU, MS, MV, MT
396" 325 HP Chevelle	EK, ET, ED, EM, EV, EH
Chevrolet	IG, IV, IA, IC, IN, IB
350 HP Chevelle	EL, EU, EF, EN, EW, EJ
427" 385 HP Chevrolet	IJ, IH, IO, II, IS, IE, IF, IX
390 HP Corvette	IL, IQ, IR, IM
400 HP Corvette	JD, JC, JF, JG
435 HP Corvette	IT, IU, JE, JA, JH

1968

Engine	Suffix Letters
302"	MO
307"	DA, DB, DE, DN, DO, DP, DR, DS, DQ, DH.
327"	EA, EC, EH, EI, EJ, EE, EP, ES, HA, HB, HC, EO, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HT, MA, ME.
350"	MS, MU, MW, MY.

1969

Engine	Suffix Letters
302"	DZ
307"	DA, DC, DD, DE.
327"	FA, FB, FC, FG, FH, FJ, FK, FL, FY, FZ, GA, GB.
350"	GE, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HP, HR, HS, HT, HU, HY, IA, IL, IM, IN, IP, IQ, IR, IS, IT, IV, IW, IX, IY, IZ.

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

1970

Engine	Suffix Letters
307" 200 HP Camaro, Chevelle, Monte Carlo & Nova	CNC, CND, CNE, CNF
350" 250 HP Camaro & Nova Chevelle	CNI, CNM, CNN CNI, CNM
Chevrolet	CND, CNP, CNU, CNV, CNW, CNX
300 HP Camaro, Chevelle, Monte Carlo & Nova	CNJ, CNK, CRE
Chevrolet	CNQ, CNR, CNS, CNT
Corvette	CLT, CTM
360 HP Camaro & Nova	CTB, CTC
350 HP Corvette	CTN, CTO, CTP, CTQ
370 HP Corvette	CTR, CTU, CTV
400" 265 HP Chevelle & Monte Carlo Chevrolet	CZX, CRH CGR

1971

Engine	Suffix Letters
307" 200 HP Chevelle, Nova & Camaro	CCA, CCC
350" 245 HP Chevrolet & Monte Carlo	CGA, CGB, CGC, CGJ
270 HP Corvette	CGK, CGL, CJD, CJJ, CJB, CJH
330 HP Camaro & Corvette	CGR, CGP
400" 255 HP Chevrolet	CLK, CAJ

1972

Engine	Suffix Letters
307" Chevelle, Camaro & Nova	CKG, CKH
350" Chevrolet & Monte Carlo Chevelle Nova Camaro Corvette	CSJ, CKB, CAR, CSH CDA, CDB, CKA CGB, CKB, CKA, CKK CGB, CKB, CKT, CKK, CKD, CKS CKW, CDH, CKX, CDJ, CKY, CKZ, CRT, CRS
400" Chevrolet	CKP

1973

Engine	Suffix Letters
307" 115 HP Chevelle, Camaro & Nova	CHA, CHB, CHC CHD, CHH, CHK, CHJ
350" 145 HP Chevrolet, Nova, Camaro & Chevelle	CKS, CKK, CLT, CLU CLX, CKA, CKC, CKW CKL, CLW, CKX, CKY
350" 175 HP Chevrolet, Nova Camaro & Chevelle	CKR, CKD, CKJ CHB, CKH, CKU
350" 190 HP Corvette	CKZ, CLA, CLB, CLC
350" 245 HP Camaro	CLJ, CLK, CLL, CLM
350" 250 HP Corvette	CLR, CLS, CLD, CLH
400" 150 HP Chevrolet	CSA, CSB, CSC CSD, CSK, CSL, CSM

ENGINE REMOVAL

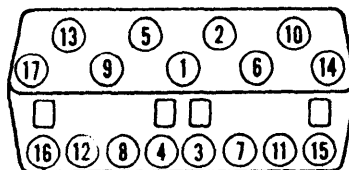
See Engine Removal at end of ENGINE Section.

OIL PAN REMOVAL

See Oil Pan Removal at end of ENGINE Section.

CYLINDER HEAD

► **CYLINDER HEAD GASKET CAUTION** (Corvette): On 340 & 360 HP engines TWO cylinder head gaskets are used on each head. DO NOT use gasket cement between the head gaskets.



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CYLINDER HEAD TIGHTENING SEQUENCE

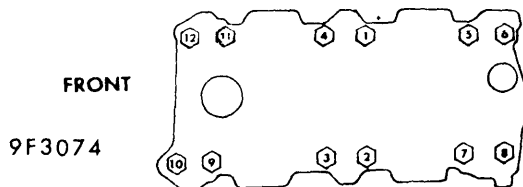
Removal - Remove intake and exhaust manifolds, remove valve mechanism, drain cooling system. Remove cylinder heads.

Installation - **NOTE** - Use sealer on **STEEL** gaskets only. Coat both sides of gaskets. Do not use sealer on composition **STEEL-ABESTOS** gaskets.

Use gasket sealer, install head on dowel pins in block, coat all cylinder head bolt threads with suitable oil and water sealing compound (Molykote), tighten all bolts finger tight. **NOTE** - On 302", 327" & 350" engines, intermediate length bolts are used in Nos. 14 & 17 positions. Torque all bolts evenly, a little at a time, in sequence shown in diagram to correct torque listed. Retorque head bolts after engine is warmed up.

INTAKE MANIFOLD INSTALLATION

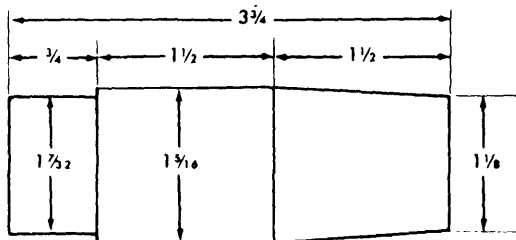
Install end seals on block. On 283" and 327" engines, ridges in seals must engage edge of block with tabs extending outward. Install side gaskets on cylinder heads using sealing compound around water passages. Install manifold being careful not to displace gaskets and seals (see 283", 327" Engine Tool Note below), tighten manifold bolts evenly in sequence shown in diagram to correct torque as listed.



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INTAKE MANIFOLD TIGHTENING SEQUENCE

► **283" and 327" ENGINE INTAKE MANIFOLD INSTALLING TOOL:** A wooden dowel can be installed in distributor mounting hole to guide manifold straight down on block which will prevent displacing of end seals and gaskets. Make this tool as shown in illustration below from 1 5/16" round stock. The 1 1/8" tapered upper end should engage mounting hole in manifold. Remove dowel after manifold installed.



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INTAKE MANIFOLD INSTALLING TOOL

Chevrolet V8 Engines

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1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

PISTON, PINS, RINGS						
Engine	PISTONS	PINS			RINGS	
	①Clearance	Piston Fit	Rod Fit	Ring	End Gap	Side Clearance
283"						
1965	.0005-.0011"	.00015-.00025"	Press Fit	1 & 2 3	.010-.020" .015-.055"	.0012-.0032" .0012-.005"
1966	.0005-.0011"	.00015-.00025"	Press Fit	1 & 2 3	.010-.020" .015-.055"	.0012-.0032" .000-.005"
1967-69	.0005-.0011"	.00015-.00025"	Press Fit	1 & 2 3	.010-.020" .015-.055"	.0012-.0032" .000-.005"
327"						
1965						
250, 300 HP	.0005-.0011"	.00015-.00025"	Press Fit	1 & 2 3	.013-.023" .015-.055"	.0012-.0032" .0012-.005"
350, 365, 375 HP	.0039-.0045"	.00045-.00055"	Press Fit	1 & 2 3	.013-.023" .015-.055"	.0012-.0032" .0012-.005"
1966						
275, 300 HP	.0005-.0011"	.00015-.00025"	Press Fit	1 & 2 3	.013-.023" .015-.055"	.0012-.0032" .0012-.005"
350 HP	.0024-.003"	.00045-.00055"	Press Fit	1 & 2 3	.013-.023" .015-.055"	.0012-.0032" .0012-.005"
1967-69						
210, 275, 300 HP	.0005-.0011"	.00015-.00025"	Press Fit	1 2 3	.013-.023" .013-.025" .015-.055"	.0012-.0027" .0012-.0032" .000-.005"
325, 350 HP	.0024-.003"	.00045-.00055"	Press Fit	1 2 3	.010-.020" .013-.020" .015-.055"	.0012-.0032" .0012-.0032" .000-.005"
302"						
1968-69	.0024-.003"	.00015-.00025"	Press Fit	1 & 2 3	.013-.025" .015-.055"	.0012-.0032" .000-.005"
307"						
1970-73	.0005-.0011"	.00015-.00025"	Press Fit	1 2 3	.010-.020" .010-.020" .015-.055"	.0012-.0027" .0012-.0032" .000-.005"
350"						
1967-69						
255, 300 HP	.0005-.0011"	.00015-.00025"	Press Fit	1 2 3	.010-.020" .013-.023" .015-.055"	.0012-.0032" .0012-.0027" .000-.005"
350, 370 HP	.0024-.003"	.00045-.00055"	Press Fit	1 2 3	.010-.020" .013-.023" .015-.055"	.0012-.0032" .0012-.0027" .000-.005"
1970						
250 HP	.0007-.0013"	.00015-.00025"	Press Fit	1 2 3	.010-.020" .013-.025" .015-.055"	.0012-.0032" .0012-.0032" .002-.007"
300 HP	.0007-.0013"	.00015-.00025"	Press Fit	1 2 3	.010-.020" .013-.025" .015-.055"	.0012-.0032" .0012-.0027" .000-.005"
350 HP	.002-.0026"	.00045-.00055"	.0008-.0016"	1 2 3	.010-.020" .013-.023" .015-.055"	.0012-.0032" .0012-.0027" .000-.005"
360, 370 HP	.0036-.0042"	.00045-.00055"	.0008-.0016"	1 2 3	.010-.020" .013-.023" .015-.055"	.0012-.0032" .0012-.0027" .000-.005"

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

PISTON, PINS, RINGS (Cont.)						
Engine	PISTONS	PINS			RINGS	
	① Clearance	Piston Fit	Rod Fit	Ring	End Gap	Side Clearance
1971 245, 270 HP	.0007-.0013"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.025"	.0012-.0032"
				3	.015-.055"	.000-.005"
	.0036-.0042"	.00045-.00055"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.023"	.0012-.0027"
				3	.015-.055"	.000-.005"
1972 165 HP	.0007-.0013"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.025"	.0012-.0032"
				3	.015-.055"	.002-.007"
	.0007-.0013"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.025"	.0012-.0027"
				3	.015-.055"	.000-.005"
.0036-.0042"	.00045-.00055"	Press Fit	1	.010-.020"	.0012-.0032"	
			2	.013-.023"	.0012-.0027"	
			3	.015-.055"	.000-.005"	
1973 145 HP	.0007-.0013"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.025"	.0012-.0032"
				3	.015-.055"	.002-.007"
	.0007-.0013"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0032"
				2	.013-.025"	.0012-.0027"
				3	.015-.055"	.000-.005"
.0036-.0042"	.00045-.00055"	Press Fit	1	.010-.020"	.0012-.0032"	
			2	.013-.023"	.0012-.0027"	
			3	.015-.055"	.000-.005"	
400" 1970-73	.0014-.002"	.00015-.00025"	Press Fit	1	.010-.020"	.0012-.0027"
				2	.010-.020"	.0012-.0032"
				3	.015-.055"	.000-.005"

① - Measured at center of skirt (except 302" engine which is measured 2.20" from top of piston).

FITTING PISTONS

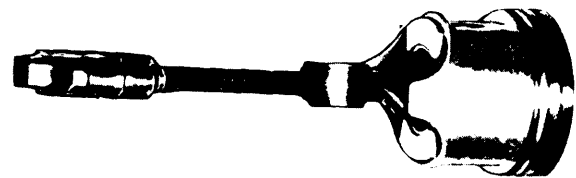
To check piston fit, measure cylinder bore diameter with a telescoping gauge approximately 2 1/2" from top of bore. Measure the skirt diameter at piston pin centerline height and see specifications to check clearance.

PISTON & ROD INSTALLATION

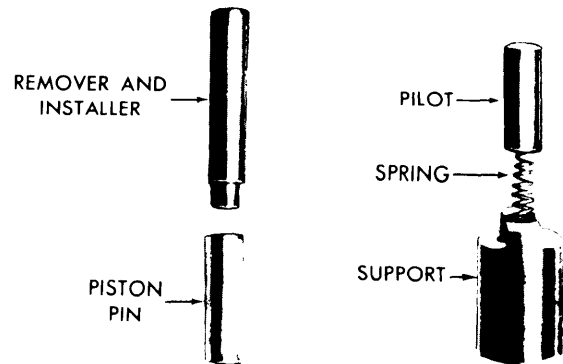
Rods are numbered. Install rod so that flange or heavy side of rod at bearing end will be toward FRONT of piston (marked by notch in piston head) on Nos. 1, 3, 5, 7. Flange of rod at bearing end must face to REAR of piston head on Nos. 2,4,6,8. Install piston and rod assembly with notch in piston head to front of engine (oil holes in rods will face center of engine, bearing tang slots will face away from center of engine).

PISTON PIN REPLACEMENT

Measure piston pin and bore in piston. If clearance is in excess of .001", replace piston and pin. Use suitable tool set and arbor press (see illustration) to press pin in and out of rod. Check freedom of piston on pin after pressing operation.



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PISTON PIN REMOVAL & INSTALLATION

Chevrolet V8 Engines

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1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS							
Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam.	Clearance	Thrust Bearing	Crankshaft Endplay	Journal Diam.	Clearance	ⓈSideplay
1965							
283"	2.300"	.0003-.0029"	No.5	.002-.006"	1.9995"	.0007-.0027"	.009-.013"
327"	2.300"	.0008-.0034"	No.5	.002-.006"	1.9995"	.0007-.0028"	.009-.013"
1966							
283"	②2.2990" ③2.2983"	②.0003-.0029" ③.001-.0036"	No.5	.003-.011"	1.9995"	.0007-.0027"	.009-.013"
327"	②2.2990" ③2.2983"	②.0003-.0034" ③.001-.0036"	No.5	.003-.011"	1.9995"	.0007-.0028"	.009-.013"
1967							
283", 327"	②2.2989" ③2.2983"	②.0008-.0022" ③.0015-.0031"	No.5	.002-.006"	1.9995"	.0007-.0028"	.009-.013"
302"	②2.3004" ③2.3009"	②.0008-.0022" .0015-.0031"	No.5	.002-.006"	1.9995"	.0007-.0028"	.009-.013"
350"	②2.4488" ③2.4483"	②.0008-.002" ③.0008-.0034"	No.5	.003-.011"	1.9995"	.0007-.0028"	.009-.013"
1968							
302"	2.2989"	.0008-.003"	No.5	.003-.011"	1.9995"	.0007-.0028"	.009-.013"
307", 327"	②2.4489" ③2.479"	②.0008-.002" ③.0018-.0034"	No.5	.003-.011"	2.0995"	.0007-.0027"	.009-.013"
350"	②2.4488" ③2.4483"	②.0008-.002" ③.0018-.0034"	No.5	.003-.011"	2.000"	.0007-.0028"	.009-.013"
1969							
302"	2.4483"	.0008-.003"	No.5	.003-.011"	2.0995"	.0007-.0028"	.009-.013"
307", 327"	2.4483"	②.0008-.002" ③.0018-.0034"	No.5	.003-.011"	2.0995"	.0007-.0027"	.009-.013"
350"	②2.4488" ③2.4483"	②.0008-.002" ③.0018-.0034"	No.5	.003-.011"	2.000"	.0007-.0028"	.009-.013"
1970							
307", 350"	②2.4489" ③2.4483"	④.0003-.0015" ⑤.0006-.0018" ③.0008-.0023"	No.5	.002-.006"	2.0995"	.0007-.0028"	.008-.014"
400"	④2.6503" ⑤2.6506" ③2.6509"	④.0008-.002" ⑤.0006-.0018" ③.0017-.0023"	No.5	.002-.006"	2.0995"	.0009-.003"	.008-.014"
1971							
307", 350"	④2.4489" ⑤2.4486" ③2.4484"	④.0014" ⑤.0017" ③.0023"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (330 HP) Auto. Trans.	④2.7480" ⑤2.7486" ③2.7478"	④.0025" ⑤.0019" ③.0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (330 HP) Man. Trans.	②2.7486" ③2.7478"	②.0019" ③.0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
1972							
307", 350"	④2.4489" ⑤2.4486" ③2.4484"	④.0014" ⑤.0017" ③.0023"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (255 HP) Auto. Trans.	④2.4489" ⑤2.4486" ③2.4484"	④.0025" ⑤.0019" ③.0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (255 HP) Man. Trans.	④2.4489" ⑤2.4486" ③2.4484"	②.0019" ③.0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS (Cont.)							
Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam.	Clearance	Thrust Bearing	Crankshaft Endplay	Journal Diam.	Clearance	① Sideplay
1973 307", 350"	④ 2.4489" ⑤ 2.4486" ③ 2.4484"	④ .0014" ⑤ .0017" ③ .0023"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (245 & 250 HP) Auto. Trans.	④ 2.4489" ⑤ 2.4486" ③ 2.4484"	④ .0025" ⑤ .0019" ③ .0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
350" (245 & 250 HP) Man. Trans.	④ 2.4489" ⑤ 2.4486" ③ 2.4484"	② .0019" ③ .0028"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"
1971-73 400"	② 2.6489" ③ 2.6484"	④ .0014" ⑤ .0017" ③ .0023"	No.5	.002-.006"	2.0995"	.0013-.0035"	.008-.014"

- ① — Total two rods.
② — No. 1, 2, 3, 4 Journals.
③ — No. 5 Journal.

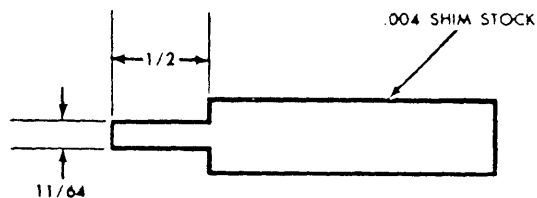
- ④ — No. 1 Journal.
⑤ — No. 2, 3, 4 Journals.

REAR MAIN BEARING OIL SEAL

Removal — Remove rear main bearing cap and pry out old seal. Remove upper half of seal by tapping end with brass punch until end of seal protrudes enough to be removed with pliers.

Installation — Fabricate installing tool as shown in illustration. Coat seal lips and seal bead of upper seal with engine oil. *Keep oil off mating ends of seal.* Position tool between crankshaft and seal seat in cylinder block and position seal between tip of tool and crankshaft. Roll seal around crankshaft, using tool as a "shoehorn" to protect seal from sharp corner of seal seat surface. Make sure that oil seal lip is positioned towards front of engine. **NOTE** — *Installation tool must remain in position until seal is positioned with both ends flush with block. Remove tool being careful not to withdraw seal.*

Install lower half of seal in bearing cap, using tool as a "shoehorn". Feed seal into cap using light pressure with thumb and finger. Install bearing cap with sealant applied to face, being careful to keep sealant off the seal split line.



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REAR MAIN OIL SEAL INSTALLATION TOOL

VIBRATION DAMPER

Removal (All Engines) — Remove battery, fan belt, fan and pulley. Remove radiator and fan shroud. Remove pulley from

damper (on Corvette, remove engine front mount bolts and raise engine for clearance to pulley bolts). Using a suitable puller, remove damper from engine. **NOTE** — *On vehicles equipped with automatic transmission, oil cooler lines must be removed.*

Installation (Exc. Corvette) — Coat seal contact surface on damper with engine oil and position damper on crankshaft. Using a suitable installing tool, pull damper into position on crankshaft.

Installation (Corvette) — Coat seal contact surface on damper with motor oil and position on crankshaft. On 250 and 300 HP engines, drive damper onto crankshaft until it bottoms out on crank gear. On 365 and 375 HP engines, pull damper into position on crankshaft with a suitable tool.

FRONT COVER REMOVAL

Remove water pump, oil pan and vibration damper, then remove front cover.

FRONT COVER OIL SEAL REPLACEMENT

With Cover Installed — Remove crankshaft pulley and vibration damper. Pry seal from cover with a suitable tool. Install seal in cover, with open end of seal toward inside of front cover, with a suitable seal installation tool.

With Cover Removed — Pry old seal from cover, toward front, with a suitable tool. Support cover at seal area and drive seal into cover with open end of seal toward inside of front cover.

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

VALVES							
Engine & Valve	Head Diam.	Face Angle	Seat Angle	Seat Width	Stem Diameter	Stem Clearance	Valve Lift
1965 283" Int. Exh. 327" (250,300 HP) Int. Exh. (350,365, 375 HP) Int. Exh.	1.720"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	2.020"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.600"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
1966 283" Int. Exh. 327" (275 ,300 HP) Int. Exh. (350 HP) Int. Exh.	1.720"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	2.065"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0033"	.....
	1.720"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
1967 283" Int. Exh. 302" Int. Exh. 327" (210,275, 300 HP) Int. Exh. (325,350 HP) Int. Exh. 350" Int. Exh.	1.720"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0027"	.....
	2.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	2.020"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0027"	.....
	1.600"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	2.020"	45°	46°	.031-.063"	.3404-.3417"	.0010-.0027"	.....
	1.600"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
1968-69 307",327" Int. Exh. 350" Int. Exh.	1.720"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
1970 307" Int. Exh. 350" (250,300 HP) Int. Exh. (350,360, 370 HP) Int. Exh. 400" Int. Exh.	1.720"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0029"	.....
	2.020"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.600"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0029"	.....
	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0027"	.....
1971 307" Int. Exh. 350" Int. Exh. 400" Int. Exh.	1.720"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....
	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0010-.0027"	.....

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

VALVES (Cont.)								
Engine & Valve	Head Diam.	Face Angle	Seat Angle	Seat Width	Stem Diameter	Stem Clearance	Valve Lift	
1972-73 307"	Int.	1.720"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	Exh.	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0029"	.....
350"	Int.	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	Exh.	1.500"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0029"	.....
400"	Int.	1.940"	45°	46°	.031-.063"	.3410-.3417"	.0010-.0027"	.....
	Exh.	1.600"	45°	46°	.063-.094"	.3410-.3417"	.0012-.0027"	.....

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (both banks, front to rear).

VALVE GUIDES

Integral with cylinder head. Ream to next oversize and install valve with oversize stem if valve stem clearance is excessive (see "Valves" table).

VALVE STEM OIL SEAL

Either "O" ring or "Umbrella" seals used on all engines. Set valve spring, damper, valve shield and valve cap in place with closed coil end of spring against cylinder head. Compress spring with a suitable valve spring compressor and install oil seal in second groove of valve stem. Install valve locks and release spring by removing tool. Locks should seat in upper groove in valve stem.

ROCKER ARM STUD REPLACEMENT

Removal - Remove old stud by placing Spacer Tool J-5802-1 over stud, adding flat washer and nut and turning nut down to remove stud.

Installation - Ream stud hole for correct size stud using Reamer J-5715 for .003" Oversize or J-6036 for .013" Oversize stud. Coat press fit part of stud with

hypoid lubricant and use Tool J-6880 to install stud in head. Tool should bottom on head.

HYDRAULIC LIFTER ADJUSTMENT (AT ENGINE OVERHAUL)

With No. 1 cylinder at TDC firing position, adjust Exhaust Valves 1-3-4-8 and Intake Valves 1-2-5-7 as follows:

- 1) Back off rocker arm stud adjusting nut until there is play in pushrod, then tighten nut until pushrod-to-rocker arm clearance is just removed.
- 2) Tighten nut **an additional 1 turn** (places lifter plunger in center of its travel).
- 3) Crank engine 1 complete revolution so No. 6 cylinder is at TDC firing position and adjust Exhaust Valves 2-5-6-7 and Intake Valves 3-4-6-8 in same manner.

VALVE TAPPET CLEARANCE

302" (1967-69).....	.030"
327" (1964-65) 365", 375 HP.....	.030"
350" (1970-72) 255, 330, 360, 370 HP.....	Ⓢ .030"
400" (402") 300 HP.....	One Turn Down From Zero Lash
Ⓢ - Intake .024".	

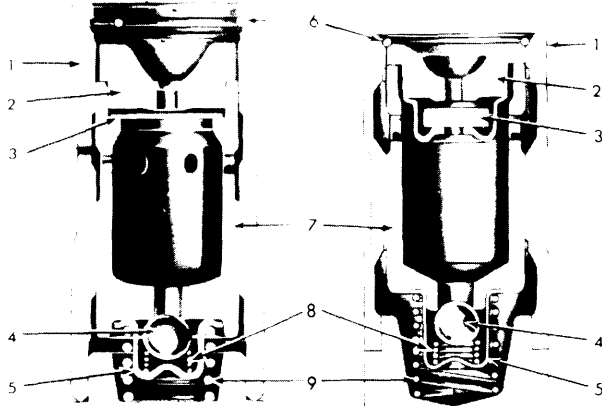
VALVE LIFT SPECIFICATIONS

Year	Engine	Valve	Lift	Year	Engine	Valve	Lift	
1965.....	283".....	Int. ....	.399"	1968-69	302".....	Int. ....	.485"
		Exh. ....	.399"			Exh. ....	.485"
	327" (250, 300 HP).....	Int. ....	.399"		307", 327" & 350".....	Int. ....	.390"
		Exh. ....	.399"			Exh. ....	.410"
	327" (350, 375 HP).....	Int.447"		1970.....	307".....	Int.390"
		Exh.447"				Exh.410"
327" (365 HP).....	Int. ....	.485"	350" (250, 300 HP).....	Int. ....	.390"		
	Exh. ....	.485"		Exh. ....	.410"		
1966.....	283".....	Int. ....	.399"	350" (360, 370 HP).....	Int. ....	.459"	
		Exh. ....	.399"		Exh. ....	.485"	
	327" (275, 300 HP).....	Int. ....	.399"	350" (350 HP).....	Int. ....	.458"	
		Exh. ....	.399"		Exh. ....	.460"	
	327" (350 HP).....	Int. ....	.447"	400".....	Int. ....	.390"	
		Exh. ....	.447"		Exh. ....	.410"	
1967.....	283".....	Int. ....	.390"	1971.....	307".....	Int. ....	.390"
		Exh. ....	.410"			Exh. ....	.410"
	302".....	Int. ....	.485"	350".....	Int. ....	.390"	
		Exh. ....	.485"		Exh. ....	.410"	
	327" (210, 275, 300 HP).....	Int. ....	.390"	400".....	Int. ....	.398"	
		Exh. ....	.410"		Exh. ....	.430"	
	327" (325, 350 HP).....	Int. ....	.447"	1972-73	307".....	Int. ....	.390"
		Exh. ....	.447"			Exh. ....	.410"
	350".....	Int. ....	.390"		350".....	Int. ....	.390"
		Exh. ....	.410"			Exh. ....	.410"
	350".....	Int. ....	.390"		400".....	Int. ....	.390"
		Exh. ....	.410"			Exh. ....	.410"

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

HYDRAULIC VALVE LIFTERS

Two types of lifters are used. Complete lifter assemblies are interchangeable but parts from one lifter are not interchangeable with another. Type "B" uses an inertia valve and retainer instead of a metering valve as in lifter "A". This inertia valve and retainer should not be removed from push rod seat. To check type "B", shake the rod seat and inertia valve assembly; valve should move. Replace lifter if any parts are worn or damaged. When reassembling, fill lifter with SAE 10 oil. **CAUTION** - Do not force plunger or work plunger up and down during reassembly. Coat bottom of new lifters with Molykote before installing.



- | | | | |
|-----------------------------|-----------------|-------------------|---------------------|
| LIFTER "A" | | LIFTER "B" | |
| 1 Lifter Body | 6 Push Rod Seat | 7 Plunger | 8 Check Ball Spring |
| 2 Push Rod Seat | Retainer | 9 Plunger Spring | |
| 3 Metering Valve (Lifter A) | | | |
| Inertia Valve (Lifter B) | | | |
| 4 Check Ball | | | |
| 5 Check Ball Retainer | | | |
- 8F6011

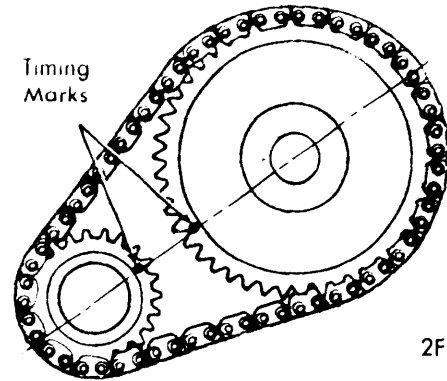
HYDRAULIC VALVE LIFTER ASSEMBLIES

VALVE SPRING INSTALLED HEIGHT

Measure from spring seat (or top of shim) to top of valve shield. If specifications exceeded, (see Valve Springs Table for "Valve Closed" specification), install a 1/16" spacer under spring to bring within limits. **CAUTION** - Never shim spring to give installed height less than minimum specifications.

VALVE SPRINGS			
Engine	Free Length	① PRESSURE (LBS.)	
		Valve Closed	Valve Open
1965 283", 327"	2.08"	78-86@1.66"	170-180@1.26"
1966 283"	1.94"	78-86@1.66"	170-180@1.26"
327"	1.94"	78-86@1.66"	170-180@1.26"
(350 HP)	1.94"	78-86@1.66"	180-185@1.21"
1967-72 All	2.03"	76-84@1.70"	194-206@1.25"
1973 Int.	2.03"	76-84@1.70"	194-206@1.25"
Exh.	1.91"	76-84@1.61"	183-195@1.20"

① - Includes damper if used.



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VALVE TIMING MARKS

CAM LOBE LIFT

Engine & Year	LIFT	
	Intake	Exhaust
1965		
283"2658"	.2658"
327" (250, 300 HP) .....	.2658"	.2658"
(350, 365, 375 HP)	①	①
1966		
283" .....	.2658"	.2658"
327" (275, 300 HP) .....	.2658"	.2658"
(350 HP) .....	.2981"	.2981"
1967		
283" & 350" .....	.2600"	.2733"
327" (210, 275, 300 HP) .....	.2600"	.2733"
(325, 350 HP) .....	.2981"	.2981"
1968		
302" .....	.3234"	.3234"
307" & 350" .....	.2600"	.2733"
327" (210, 235, 250, 275, 300 HP) .....	.2600"	.2733"
(325, 350 HP) .....	.2981"	.2981"
1969		
302" .....	.3234"	.3234"
307" .....	.2600"	.2733"
327" (210, 235, 250, 275, 300 HP) .....	.2600"	.2733"
(325, 350 HP) .....	.2981"	.2981"
350" (255, 300 HP) .....	.2600"	.2733"
(350 HP) .....	.3000"	.3060"
(370 HP) .....	.3234"	.3234"
1970-71		
307" .....	.2600"	.2733"
350" All (Exc. 330 HP) .....	.2600"	.2733"
(330 HP) .....	.3057"	.3234"
400" .....	.2235"	.2411"
1972		
②307" .....	.2600"	.2733"
②350" (165, 175 HP) .....	.2600"	.2733"
(255 HP) .....	.3057"	.3234"
②400" .....	.2235"	.2411"
1973		
307" .....	.2600"	.2733"
350" (145, 175, 190 HP) .....	.2600"	.2733"
(245, 250 HP) .....	.3000"	.3070"
400" .....	.2235"	.2411"

① - Chevlele & Chevrolet .2981"; Corvette .3233".

② - California Camshafts, Intake .2671, Exhaust .2733"

Chevrolet V8 Engines

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

CHECKING CAMSHAFT LOBE LIFT

Remove rocker arm and balls. Attach a dial indicator to rocker arm stud or rocker arm cover mounting hole and adjust dial indicator to seat in push rod cup. **NOTE** - Be sure push rod is seated in lifter socket. Rotate crankshaft slowly until lifter is on heel of cam lobe (push rod will be at lowest position). Zero dial indicator and slowly "bump" engine over until push rod is fully raised. **CAUTION** - Ground primary wire on coil, when cranking engine. Compare total lift on dial indicator with specifications (see Cam Lobe Lift table). Continue to rotate engine until indicator reads zero.

CAMSHAFT REMOVAL & INSTALLATION

Removal - Install two bolts in camshaft bolt holes and pull camshaft through front of block. **NOTE** - Support shaft to avoid damage to bearings.

Installation - Coat camshaft lobes with Molykote or equivalent. Lubricate camshaft and reverse removal procedure to install.

CAMSHAFT BEARING REPLACEMENT

Install front and rear bearings first. Front and rear bearings act as a guide for installation tool. Center the No. 2 and 3 bearings being pulled into place. **CAUTION** - Make sure oil holes in bearings line up with oil holes in cylinder block. When installing end plug, install flush to 1/32" deep to maintain level surface on rear of cylinder block.

CAMSHAFT SPECIFICATIONS

Engine	Journal
1964-66	
All	1.8682-1.8692"
1967	
283", 302", 327" (210, 275, 300 HP).....	1.8682-1.8692"
327" (325, 350 HP) & 350"	1.9482-1.9492"
1968-69	
All	1.8682-1.8692"
1970	
307" & 350"	1.8682-1.8692"
400"	1.9487-1.9497"
1971-73	
307" & 350"	1.8682-1.8692"
400"	1.9482-1.9492"

ENGINE OILING

Crankcase Capacity - All engines 4 Qts. Add 1 Qt. with oil filter change.

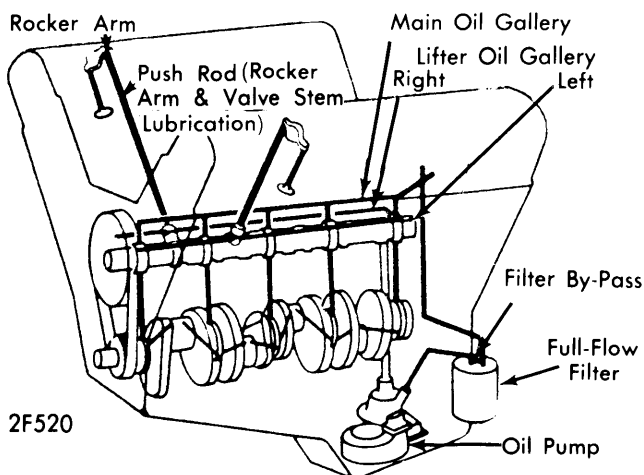
Filter Replacement - Replace filter every 5000 miles or sooner under severe conditions.

Engine & Year	Oil Pressure	Lbs. at RPM
283" & 302" 1964-69		30-45 at 1500
307", 327", & 350" 1964-69		50-65 at 2000
All 1970-73		40 at 2000

located in "V" at center of engine distribute oil under pressure to all parts. See illustration.

Valve Lifters - Oil passage from rear camshaft bearing supplies oil to lifter galleries. Both mechanical and hydraulic lifters intersect the gallery. Recess in mechanical lifter permits oil to pass into lower end of pushrod. A larger passage in rear camshaft bearing permits more oil pressure for lubrication of hydraulic lifters. Hydraulic lifters contain an inertial valve which opens permitting oil to pass to hollow pushrods.

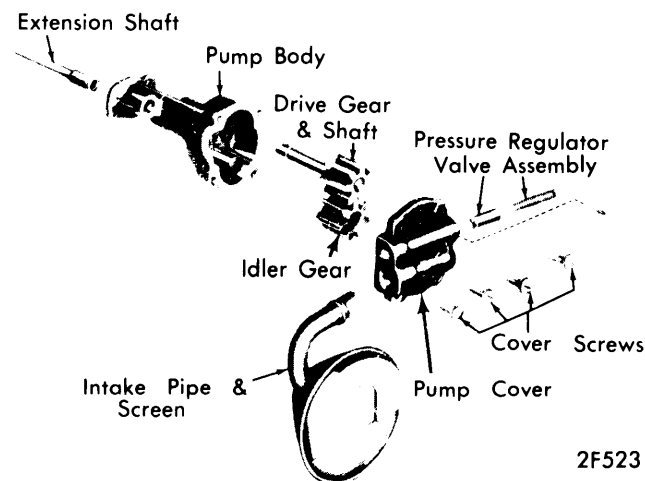
Rocker Arms and Valve Stems - Oil passes up through hollow pushrods to a hole in upper end that matches hole in rocker arm. Oil sprayed out this hole and across rocker arm lubricates valve stem tip.



ENGINE OILING SYSTEM

ENGINE OILING SYSTEM

Description - Positive pressure lubrication provided to all main, camshaft, and connecting rod bearings and to all valve lifters and rocker arms. Three horizontal oil galleries



ENGINE OIL PUMP (TYPICAL)

1965-73 283", 302", 307", 327", 350", 400" V8 ENGINES (Cont.)

ENGINE OILING (Cont.)

ENGINE OIL PUMP ASSEMBLY

Removal - Mark gears so they may be reassembled with same teeth indexing. Do not disturb pickup screen on pipe. Screen is serviced as an assembly. *NOTE* - If pump gears or body are damaged or worn, replacement of entire pump assembly is necessary.

Installation - Apply sealer to end of pipe and tap in place. Install idler gear in pump body with smooth side of gear towards cover opening. *NOTE* - Bottom of screen must be parallel with bottom of pan.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Cylinder Head	
1965	60-70
1966-73	65
Main Bearings	
1965-66	60-70
1967-72	65-75
1973	①75
Connecting Rod Bolts	
1965-68	35
1969-73	45
Flywheel	55-65
Camshaft Sprocket	20
Intake Manifold	25-35
Exhaust Manifold	②18-22
Water Pump	25-35
Oil Pump	60-70
Oil Pan	
1/4" Bolts	7
5/16" Bolts	6

- ① - Outer bolts on 4 bolt caps 65.
- ② - Two center bolts 25-30.

ENGINE NOTES

- ▶ **RADIATOR REMOVAL CAUTION** (*Automatic Transmission*): Transmission oil cooler is part of radiator lower tank and must be tightly sealed after or during repairs to avoid entrance of foreign matter.
- ▶ **V8 CYLINDER HEAD IDENTIFICATION NOTE**: "Low Boss" & "High Boss" heads may be identified by placing a straight edge across rocker cover gasket surfaces. The low stud boss (early head) will be approximately flush with the lower edge of scale while the high stud boss (later head) will be approximately 1/4" above lower edge of scale.
- ▶ **STUD INSTALLER TOOL J-5801 REWORK** (*For installing stud to 1 3/4" height*): Grind 3/32" off bottom of tool. When installing studs in "High Boss" (later type head), use installer Tool J-5801 to drive stud into the 1 3/4" height, after which studs will have to be pressed in further to the 1 41/64" height.
- ▶ **1965 CORVETTE 283" & 327" 365 HP & 375 HP ENGINES OIL PRESSURE NOTE & OIL PUMP NON-INTERCHANGEABILITY CAUTION**: Normal oil pressure for 327" 365 & 375 HP engine is 80-95 p.s.i. at 2000 RPM, while pressure for 283" Corvette engine is 65 p.s.i. at 2000 RPM. To prevent serious engine damage, DO NOT interchange these pumps.