

Buick V8 Engines

5-93

1968-73 350", 400", 430", 455" V8 ENGINES

GENERAL SPECIFICATIONS							
Year	Displ. Cu. Ins.	Carburetor	HP at RPM	Torque (Fr. Lbs. at RPM)	Compr. Ratio	Bore	Stroke
1968-69	350"	2-Bbl.	.....	.....	①7.6-1	3.800"	3.850"
		2-Bbl.	230@4400	350@2400	9.0-1	3.800"	3.850"
		4-Bbl.	280@4600	375@3200	10.25-1	3.800"	3.850"
	400" 430"	4-Bbl.	340@5000	440@3200	10.25-1	4.040"	3.900"
		4-Bbl.	.....	.....	8.75-1	4.1875"	3.900"
		4-Bbl.	360@5000	475@3200	10.25-1	4.1875"	3.900"
1970	350"	2-Bbl.	230@4400	350@2400	9.0-1	3.800"	3.850"
		4-Bbl.	285@4600	375@3200	9.0-1	3.800"	3.850"
		HC 4-Bbl.	315@4800	410@3200	10.25-1	3.800"	3.850"
	455"	4-Bbl.	350@4600	510@2600	10.0-1	4.3125"	3.900"
		4-Bbl.	370@4600	510@2800	10.0-1	4.3125"	3.900"
		Stage 1 4-Bbl.	360@4600	510@2600	10.5-1	4.3125"	3.900"
1971	350"	2-Bbl.	230@4400	350@2400	8.5-1	3.800"	3.850"
		4-Bbl.	260@4600	360@3000	8.5-1	3.800"	3.850"
	455"	4-Bbl.	315@4400	450@2800	8.5-1	4.3125"	3.900"
		4-Bbl.	330@4600	455@2800	8.5-1	4.3125"	3.900"
		4-Bbl.	345@5000	460@3000	8.5-1	4.3125"	3.900"
		4-Bbl.	.....	.....	.....	.....	.....
1972	350"	②2-Bbl.	150@3800	265@2400	8.5-1	3.800"	3.850"
		③2-Bbl.	155@3800	270@2400	8.5-1	3.800"	3.850"
		②4-Bbl.	175@3800	270@2400	8.5-1	3.800"	3.850"
		③4-Bbl.	180@3800	275@2400	8.5-1	3.800"	3.850"
		③④4-Bbl.	190@4000	285@2800	8.5-1	3.800"	3.850"
	455"	③4-Bbl.	225@4000	360@2600	8.5-1	4.3125"	3.900"
		4-Bbl.	250@4000	375@2800	8.5-1	4.3125"	3.900"
		⑥4-Bbl.	260@4400	380@2800	8.5-1	4.3125"	3.900"
		Stage 1 4-Bbl.	270@4400	390@3000	8.5-1	4.3125"	3.900"
		4-Bbl.	.....	.....	.....	.....	.....
1973	350"	2-Bbl.	150@3800	265@2400	8.5-1	3.800"	3.850"
		4-Bbl.	175@3800	270@2400	8.5-1	3.800"	3.850"
	455"	4-Bbl.	250@4000	375@2600	8.5-1	4.312"	3.900"
		4-Bbl.⑦	260@4400	380@2800	8.5-1	4.312"	3.900"
		4-Bbl.⑧	270@4400	390@3000	8.5-1	4.312"	3.900"
		4-Bbl.	.....	.....	.....	.....	.....

- ① - 1969 8.0-1. ③ - Auto. Trans. Exc. Calif. ⑤ - Dual Exhaust. ⑦ - Century Stage 1
 ② - Man. Trans & Auto. Trans. ④ - GS Dual Exhaust. ⑥ - Riviera GS Option. ⑧ - Riviera Stage 1

► **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.

VEHICLE IDENTIFICATION NUMBER

On 1968 models, Vehicle Identification Number is stamped on plate attached to left front door hinge pillar. On 1969-73 models, Vehicle Identification Number is stamped on plate attached to top of instrument panel on drivers side of car and visible from outside of vehicle.

1972-73

4L39T3X10001

- First Digit - Make.
 Second Digit - Model.
 Third & Fourth Digit - Style.
 Fifth Digit - Engine Code.
 Sixth Digit - Model Year.
 Seventh Digit - Assembly Plant.
 Remaining Digits - Sequence Built.

1968-71

45269810001

- First Five Digits - Model Number.
 Sixth Digit - Model Year.
 Seventh Digit - Assembly Plant.
 Remaining Digits - Sequence Built.

PRODUCTION CODE NUMBER

First two letters in production code number identify engine displacement, carburetion, and compression ratio. Production code number is located on left side of block below front two spark plugs (350"); left side of block below rear two spark plugs (400", 430" & 455").

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1968-73 350", 400", 430", 455" V8 ENGINES (Cont.)

1968 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	9.0-1	PO
Export	7.6-1	PW
4-Bbl.	10.25-1	PP
400" 4-Bbl.	10.25-1	PR
430" 4-Bbl.	10.25-1	PD
Export	8.75-1	PE

1969 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	9.0-1	RO
Export	8.0-1	RW
350" 4-Bbl.	10.25-1	RP
400" 4-Bbl.	10.25-1	RR, RS
430" 4-Bbl.	10.25-1	RD
Export	8.75-1	RE

1970 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	9.0-1	SO
4-Bbl.	9.0-1	SB
4-Bbl.	10.25-1	SP
455" 4-Bbl.	10.0-1	SR
4-Bbl.	10.0-1	SF
4-Bbl. Stage 1	10.5-1	SS

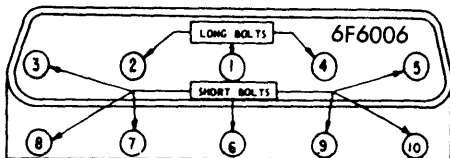
1971 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	8.5-1	TC
2-Bbl.	8.5-1	TO
4-Bbl.	8.5-1	TB
4-Bbl.	8.5-1	TP
455" 4-Bbl.	8.5-1	TR
4-Bbl.	8.5-1	TA
4-Bbl. Stage 1	8.5-1	TS

1972 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	8.5-1	WC
4-Bbl.	8.5-1	WB
455" 4-Bbl.	8.5-1	WF
4-Bbl.	8.5-1	WA
4-Bbl. Stage 1	8.5-1	WS

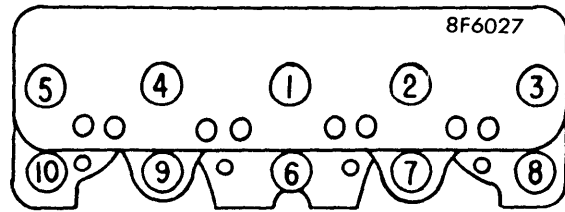
1973 Engine	Compression Ratio	Code Letters
350" 2-Bbl.	8.5-1	XC
4-Bbl.	8.5-1	XB
455" 4-Bbl.	8.5-1	XF
4-Bbl. Century Stg. 1	8.5-1	XS
4-Bbl. Riviera Stg. 1	8.5-1	XA

CYLINDER HEAD INSTALLATION

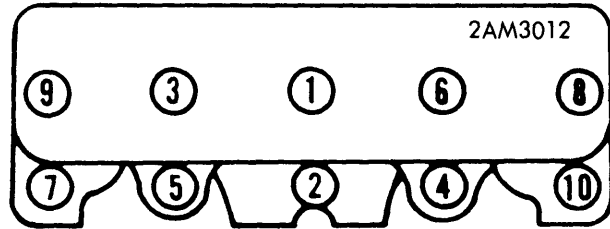
NOTE - See "Engine Notes" for cylinder head gasket installation and replacement cautions.



1968 400" & 430" CYLINDER HEAD TIGHTENING SEQUENCE



CYLINDER HEAD TIGHTENING SEQUENCE (1968 350" & 1969 350", 400", 430")

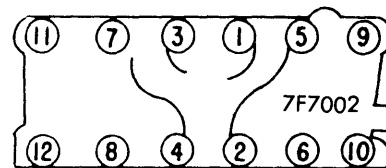


CYLINDER HEAD TIGHTENING SEQUENCE (1970-73 350" & 400")

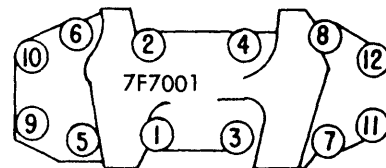
Clean cylinder head and block gasket surfaces along with bolt holes. Before installing head bolts, clean and lubricate bolts with "Perfect Seal" or equivalent. Tighten three times around in sequence shown in diagram, then torque to specifications.

INTAKE MANIFOLD INSTALLATION

Before installing intake manifold seals, apply a suitable sealer to underside of seats. Place a manifold gasket and seals in position at front and rear rails of cylinder block, being sure pointed ends of seal fit snugly against block head. Set intake manifold in place and install manifold to cylinder head bolts and torque bolts to specifications.



INTAKE MANIFOLD TIGHTENING SEQUENCE (EXCEPT 1968 350")



INTAKE MANIFOLD TIGHTENING SEQUENCE (1968 350")

ENGINE REMOVAL

See Engine Removal at end of ENGINE Section.

OIL PAN REMOVAL

See Oil Pan Removal at end of ENGINE Section.

1968-73 350", 400", 430", 455" V8 ENGINES (Cont.)

PISTONS, PINS, RINGS						
Engine	PISTONS	PINS		RINGS		
	① Clearance	Piston Fit	Rod Fit	Rings	End Gap	Side Clearance
350" 1968	.0008-.0014"	.0001-.0004"	.0007-.0013"	1 & 2 3	.010-.020" .015-.035"	.003-.005" .004-.005"
1969-70	.0008-.0014"	.0001-.0004"	.0008-.0013"	1 & 2 3	.010-.020" .015-.035"	.003-.005" .0035-.0095"
1971-72	.0008-.0020"	.0004-.0007"	.0008-.0013"	1 & 2 3	.013-.023" .015-.035"	.003-.005" .0035-.0095"
1973	.0008-.0020"	.0004-.0007"	.0007-.0017"	1 & 2 3	.013-.023" .015-.035"	.003-.005" .0035-.0095"
400", 430" 1968	.0007-.0013"	.0001-.0004"	.0007-.0013"	1 & 2 3	.013-.023" .015-.055"	.003-.005" .004-.010"
400", 430", 455" 1969-70	.0007-.0013"	.0001-.0004"	.0008-.0013"	1 & 2 3	.013-.023" .015-.055"	.003-.005" .0035-.0095"
455" 1971-72	.0010-.0016"	.0004-.0007"	.0008-.0013"	1 & 2 3	.013-.023" .015-.035"	.003-.005" .0035-.0095"
1973	.0010-.0016"	.0004-.0007"	.0006-.0016"	1 & 2 3	.013-.023" .015-.035"	.003-.005" ②

① — Measured at top of skirt. ② — Not to exceed .035".

FITTING PISTONS

Measure piston at right angle to piston pin, just below oil ring groove. Measure cylinder 1½ - 2" from top of bore. See table for specifications.

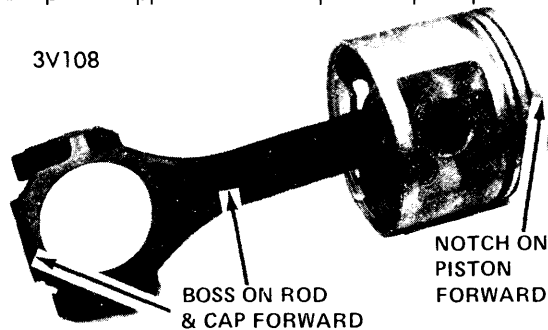
PISTON PINS

Pins are selected press fit in rod. Arbor press, driver tool and suitable piston support tool are required to press pin in or out

of piston and rod assembly. See specifications for proper pin fit in piston and rod. Pins should fit piston with light thumb press fit at room temperature (70°F).

PISTON & ROD ASSEMBLY

See accompanying illustrations for proper assembly of piston and rod.



PISTON & ROD ASSEMBLY (RIGHT BANK)



PISTON & ROD ASSEMBLY (LEFT BANK)

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS							
Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam.	Clearance	Thrust Bearing	Crankshaft Endplay	Journal Diam.	Clearance	Sideplay
350" 1968-72 1973	2.9995" 2.9995"	.0004-.0015" .0004-.0015"	No.3 No.3	.003-.009" .003-.009"	2.000" 2.000"	.0002-.0023" .0002-.0023"	.006-.014" .006-.020"
400", 430", & 455" 1968-72 1973	3.250" 3.250"	.0007-.0018" .0007-.0018"	No.3 No.3	.003-.009" .003-.009"	2.250" 2.250"	.0002-.0023" .0002-.0023"	.005-.012" .005-.019"

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CRANKSHAFT REAR OIL SEAL INSTALLATION

Crankshaft must be removed to replace fabric seal in crankcase. Place new seal in groove in cap and force down with hammer handle until seal projects above groove not more than 1/16". Cut ends of seal flush with cap surface. Replace seal in crankcase in same manner.

350" Only – Neoprene seals are placed in sides of bearing caps. These seals are slightly longer than the grooves in cap; **do not cut seals to length**. Lubricate seals and install in cap with upper ends protruding about 1/16". After cap is installed, force the seals up into cap with a blunt instrument to provide seal at parting line between cap and case. **CAUTION** – Engine must be operated at a slow speed when first started after new braided seal is installed.

ENGINE FRONT COVER REMOVAL

Disconnect radiator and heater hoses at water pump. Disconnect and remove radiator, fan, fan pulleys and belts. Remove fan driving pulley and pulley reinforcement. Disconnect fuel lines and remove fuel pump. Disconnect and

remove generator, distributor cap, coil, spark plug wire retainers at rocker arm cover, and disconnect distributor primary lead. Remove distributor (note position of rotor for reinstallation), loosen and slide front clamp on thermostat by-pass hose rearward. Remove harmonic balancer and front cover.

FRONT OIL SEAL REPLACEMENT

All, Except 1968 400" & 430" – Use a punch to drive out the old seal and shedder from front to rear of the cover. To install, coil new packing at opening with ends at top. Drive shedder with punch. Stake shedder in place at least in three places. Use a hammer handle to size packing until balancer hub can be inserted through opening.

1968 400" & 430" – After removing fabric packing and the pressing steel shedder out of the chain cover, work new packing into shedder. Drive shedder into recess in cover with installer Tool J-5250-1. Push packing expander Tool J-5250-2 through seal to expand packing into place and size opening for crankshaft. Apply a thin coat of vaseline to packing.

VALVES							
Engine & Valve	Head Diam.	Face Angle	Seat Angle	① Seat Width	Stem Diameter	Stem Clearance	Valve Lift
350" 1968 Int.	1.875"	45°	45°	.0625"	.3725"	.0015-.0035"	.3766"
	1.500"	45°	45°	.0625"	.3730"	.0015-.0035"	.3840"
1969 Int.	1.875"	45°	45°	.0625"	.3725"	.0015-.0025"	.3766"
	1.500"	45°	45°	.0625"	.3723"②	.0015-.1032"	.3840"
1970 Int.	1.875"	45°	45°	.0625"	.3725"	.0015-.0025"	.3818"
	1.500"	45°	45°	.0625"	.3723"②	.0015-.0032"	.3984"
1971-73 Int.	1.875"	45°	45°	.0625"	.3725"	.0015-.0035"	.3818"③
	1.500"	45°	45°	.0625"	.3723"②	.0015-.0032"	.3984"③
400" & 430" 1968-69 Int.	2.000"	45°	45°	.0625"	.3725"	.0015-.0035"	.4187"
	1.625"	45°	45°	.0625"	.3725"②	.0015-.0035"	.4482"
455" 1970-73 Int.	2.000"	45°	45°	.0625"	.3725"	.0015-.0035"	.3873"④
	1.625"	45°	45°	.0625"	.3723"②	.0015-.0032"	.4560"④

① – Should not be over .0781". ③ – 1971-72 only.

② – .3730" Maximum. ④ – 1970-72 only.

VALVE ARRANGEMENT

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

VALVE GUIDE REMOVAL & INSTALLATION

Valve guides are integral with head. Remove cylinder head as previously described, and place on clean surface. Using a suitable spring compressor Tool J-8062, compress valve spring and remove cap retainers, release tool and remove spring and cap. Remove seals for intake and exhaust valve guides. **NOTE** – 1969-72 400", 430", 455" engines do not have exhaust valve guide seals. Discard seals, remove valves, place valves in numerical order for reinstallation

in original location. Clean carbon from combustion chambers, piston heads, valves and valve guide bores. If stem has excessive clearance, the guides should be reamed to .006" oversize. **NOTE** – .006" oversize valves are occasionally used in production, if clearance in valve guide exceeds .006", ream guide to .010" oversize. Oversize valves are identified by oversize marking stamped on valve head. The normal width of a valve seat is 1/16". If a valve seat is over 5/64" after truing, it should be narrowed to specified width by the use of 20° to 70° stones. If valve and seat have been refinished enough to allow end of valve stem to raise approximately .050" above normal position, it will be necessary to grind off end of valve stem or replace parts. Lap valves lightly with a fine grinding compound, do not lap excessively. Do not lap new valves. Remove any burrs from valve stem. Lubricate and reinstall

1968-73 350", 400", 430", 455" V8 ENGINES (Cont.)

valves. Start valve seal carefully over stem, push seal down until it touches guide. Use installation Tool J-22509 or equivalent to push seal over guide until upper inside of seal touches top of guide. Compress springs only enough to install keepers. Reinstall springs, cap and cap retainer. Reinstall cylinder head.

VALVE STEM INSTALLED HEIGHT

Normal height of valve stem tips above spring seat on head must be 1.926" on all 350" engines and 2.257" on 400", 430", and 455" engines. If height is more than .050" over specifications, grind end of stem or replace valve.

VALVE SPRINGS & LIFTERS					
Engine & Year	Free Length	Pressure (Lbs.)		Lifters	
		Valve Closed	Valve Open	Diameter	Clearance
350" 1968-73	----	75±5 @ 1.727"	180±7 @ 1.340"	.8422-.8427"	.0008-.0023"
400",430",455" 1968-73	----	72±5 @ 1.890"	177±7 @ 1.450"	.8422-.8427"	.0008-.0023"

VALVE SPRING INSTALLATION

If valve spring has close wound coils on one end, install spring with close wound coil end against cylinder head.

VALVE SPRING INSTALLED HEIGHT

Measure from spring seat on head to underside of valve spring retainer. See "Valve Closed" spring length in specification table.

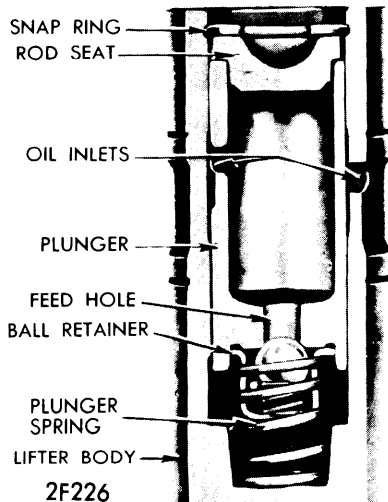
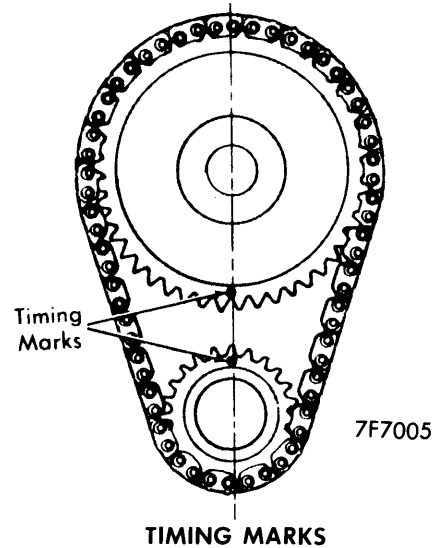
HYDRAULIC LIFTER SERVICE

If lifter or any components of lifter are damaged, replace complete lifter.

Leakdown Rate Test – Using a suitable lifter leakdown test fixture and lifter test fluid, test lifter as follows: Place lifter (top side up) in sleeve of tester. Lifter must be completely immersed in fluid during test. Lower arm of tester until ram rests on push rod seat of lifter. Operate arm of tester until air is removed from lifter and definite pressure is felt, then operate arm vigorously ten times and lift off of lifter and allow lifter plunger to return to its retainer. Lower arm until ram contacts push rod seat. When pointer on tester starts moving up scale,

start rotating fluid cup one rotation every two seconds. Require time for pointer to move up scale is 12 to 60 seconds. Replace any doubtful lifters.

Installation – Oil lifter and insert in lifter bore in cylinder block. Lifter should drop of its own weight into bore.



HYDRAULIC VALVE LIFTER

CAMSHAFT			
Engine	Journal Diam.	Clearance ①	Lobe Lift
All	1.785-1.786"	.005-.0035"	.....

① – #1 (.005-.0025").

CAMSHAFT END THRUST

Thrust is to rear and taken by sprocket hub.

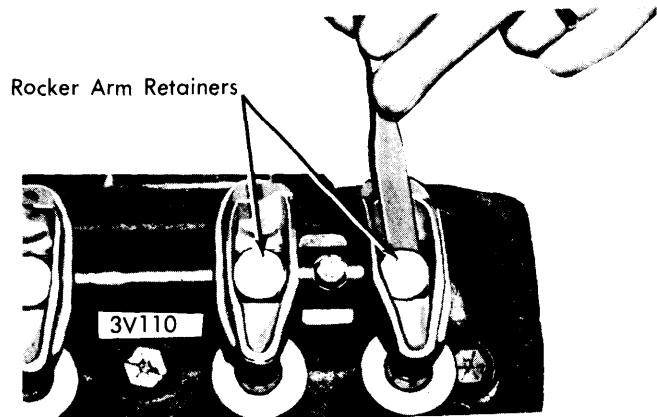
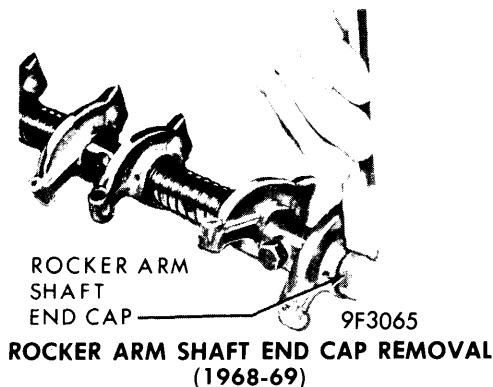
CAMSHAFT BEARING REPLACEMENT

Slightly scored camshaft bearings are usable if clearance with camshaft is not excessive (see specifications). Polish camshaft journals and remove burrs from bearings before checking clearance. If clearance is excessive, bearings must be replaced. Early model engines will require line-boring of bearings after installation.

1968-73 350", 400", 430", 455" V8 ENGINES (Cont.)

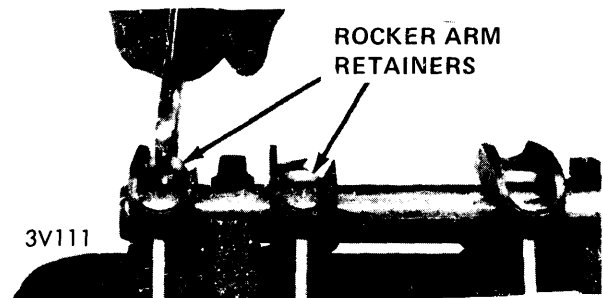
ROCKER ARM REPLACEMENT

1968-69 – With valve cover removed, remove rocker arm assembly from cylinder head and place on a clean surface. Using a chisel, remove end cap from rocker arm shaft and remove rocker arms and springs. Replace any components with signs of wear or damage. To assemble rocker arm assembly, lubricate components and reverse disassembly procedure. When assembling, note that individual rocker arms are offset and each pair of rocker arms per cylinder must be installed with offset toward outside. Install new end caps on shaft ends.
CAUTION – When installing rocker arm assemblies, make certain that drill mark on shaft is up and toward rear on left side and up and toward front on right side.



ROCKER ARM NYLON RETAINER REMOVAL (1970-72)

1973 – Follow same procedure as outlined in 1970-72 procedure noting the following: Remove nylon retainers by prying off with a pair of channel locks. Production rocker arm can be installed in any sequence on rocker arm shaft. If rocker arm(s) are replaced for any reason, note that replacement rocker arms are marked left and right and must be installed in correct sequence on rocker arm shaft. Install new nylon retainers.



ROCKER ARM NYLON RETAINER REMOVAL (1973)

1970-72 – With valve cover removed, remove rocker arm assembly from cylinder head and place on clean surface. Remove nylon retainers on individual rocker arms with a chisel. Remove rocker arms from shaft and retainer pieces from shaft. Thoroughly clean and inspect all components and replace as necessary. To assemble rocker arm assembly, lubricate all components and install on rocker arm shaft with rib on rocker arm toward outside of shaft retaining bolt. Center rocker arm on retaining hole of shaft and install new nylon retainers.

ENGINE OILING

Oil Pressure – All, except 1972-73 455", 40 psi @ 2400 RPM. 1972-73 455" 60 psi @ 2400 RPM.

Crankcase Capacity – 4 qts. (5 with filter change).

Pressure Regulator Valve – Located in oil pump cover. Nonadjustable.

ENGINE OILING SYSTEM

See illustration. Gear oil pump located in timing chain cover, draws oil through screen and pipe assembly (or over top of screen if clogged) and a drilled passage in crankcase connecting to drilled passage in timing chain cover. All oil is discharged from pump to cover assembly. Spring loaded relief valve (in cover) limits oil pressure to a maximum of 40 lbs. per square inch. A bypass valve (in cover) opens when filter becomes clogged (15 lbs. pressure difference between filter inlet and outlet) to bypass unfiltered oil directly to oil galleries in engine. Filter (mounted on oil pump cover) supplies oil through oil pump cover and drilled passages in crankcase to two main oil galleries that run full length of the crankcase.

Connecting Rod & Pistons – Main bearing supplies oil through drilled passages in crankshaft to connecting rod bearings. Pistons and cylinder walls are lubricated by oil forced through small notch in connecting rod bearing parting surface that registers with hole in crankshaft every revolution. Piston pins are lubricated by splash.

Crankshaft & Camshaft – Both crankshaft and camshaft are supplied oil through drilled passages in crankcase, from right main oil gallery.

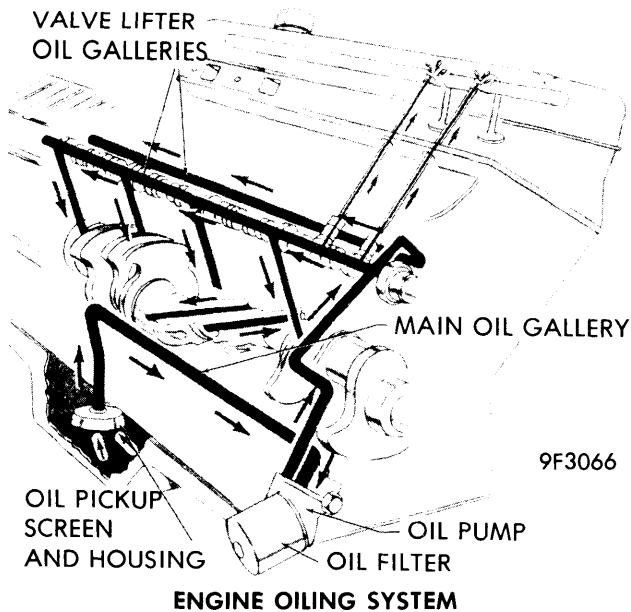
Rocker Arms, Valves and Pushrods – These items receive oil from main oil galleries through drilled holes in front of cylinder block and head, leading up from forward end of corresponding main oil gallery.

Timing Chain & Sprockets – Drilled holes in camshaft connect front camshaft bearing to key slot in front of camshaft.

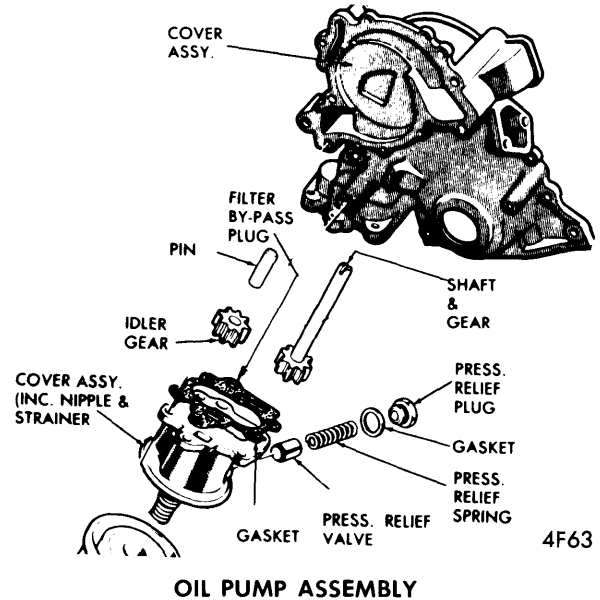
Hydraulic Lifters – Full pressure lubrication is supplied hydraulic lifters from cutouts in lifter bores in main oil galleries.

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ENGINE OILING (Cont.)



Installation - Oil relief valve before installation and tighten to specifications. Place straightedge across gears; clearance should be .0023 - .0058". If less, check timing chain cover for wear. Remove gears and pack gear pocket full of petroleum jelly. Reinstall gears, place gasket in position and tighten bolts to specifications. *NOTE - Unless pump is packed with petroleum jelly, it may not prime itself when engine is started. Do not use chassis lube.*



OIL PUMP INSTALLATION

Removal - **CAUTION** - Oil filter bypass valve has threaded hole for installation of oil pressure switch. This valve is staked in place and must not be removed.

TIGHTENING SPECIFICATIONS

(FT. LBS.)

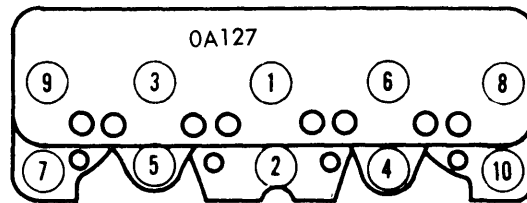
Location	350"	400", 430"	455"	Location	350"	400", 430"	455"
Crankshaft Bearing Caps to Block				Oil Gallery Plugs (All)	25		25
1968	110		110	Oil Pressure Switch to Block			
1969-73	95		110	1968	25		25
Connecting Rods (All)	35		45	1969-73	23		23
Cylinder Head to Block				Filter Assy. to Pump Cover			
1968	75		100	1968	12		13
1969-73	75		100	1969-73	13		13
Vibration Damper to Crankshaft				Timing Chain Cover to Block			
1968	140 Min.		200 Min.	1968	30		30
1969-73	120 Min.		200 Min.	1969-73	29		29
Fan Pulley to Vibration Damper				Water Pump Cover to Timing Chain Cover			
1968	22		22	1968	8		8
1969-73	23		23	1969-73	7		7
Flywheel to Crankshaft				Fan Driven Pulley (All)	20		20
1968	60		60	Thermostatic Hsg. to Intake			
1969-73	60		58	Manifold (All)	20		20
Oil Pan Block (All)	14		14	Intake Manifold to Cyl. Head			
Drain Plug (All)	30		30	1968	50		50
Pump Cover to Timing Chain				1969-73	55		65
Cover (All)	10		10	Exhaust Manifold to Cyl.			
Pump Pressure Regulator				Head (All)	18		18
Retainer (All)	35		35	Flywheel Hsg. to Cyl.			
Oil Screen Hsg. To Block (All)	8		8	Block (All)	35		35
Oil Pan Baffle to Block							
1968	11		8				
1969-73	11		13				

Buick V8 Engines

1968-73 350", 400", 430", 455" V8 ENGINES (Cont.)

ENGINE NOTES

- ▶ **1968 BUICK 350" V8 ENGINE REAR MAIN BEARING SEAL INSTALLATION NOTE** – This engine has laminated neoprene asbestos composition seals installed in grooves in sides of rear main bearing cap. Due to variations, groove in bearing cap could be oversize. To insure proper sealing, dip seals in penetrating oil or kerosene and install immediately. This will cause seal to swell, sealing any oversize condition.
- ▶ **1968 BUICK 350", 400" & 430" V8 ENGINES CYLINDER HEAD GASKET INSTALLATION & GASKET REPLACEMENT CAUTION:** On these engines with series code PD-600, 700, 800 or 900, a .045" composition head gasket was installed on both banks. Composition gaskets must be used for replacement on these engines. Head bolts must be torqued to 80 ft. lbs. (350"), 115 ft. lbs. (400" & 430") in sequence shown. **NOTE** – When replacing steel head gasket on these engines, to correct a coolant leak, install composition gasket, Part No. 1385204 (350"), No. 1384094 (400" & 430"). Replace only the leaking gasket, it is not necessary to replace both gaskets.



**BUICK V8 ENGINES CYLINDER HEAD
TIGHTENING SEQUENCE (COMPOSITION GASKET)**

- ▶ **1969 BUICK 350", 400 & 430" ENGINES IN HEAVY DUTY OPERATION OIL PRESSURE CHANGE:** Engines used for sustained high speeds, trailer towing, police use, etc., should have new oil pump relief valve spring (Part No. 1233892) installed. Spring raises oil pressure from 50 psi to 60 psi. Manufacturer advises that increased oil viscosity is necessary to maintain adequate engine oil pressure at high engine operating temperatures due to heavy duty service.

1970-71 BUICK-ALL MODELS SEMI-CLOSED ENGINE COOLING SYSTEM: Coolant is checked and added to a separate reservoir bottle (at operating temperature) and not at the radiator. However, if a quantity of coolant is needed, coolant should be added directly to the radiator to insure system is filled.