

**PASSENGER
CAR**

1961  **CHEVROLET**

**SHOP
MANUAL**

1961 *Chevrolet* PASSENGER CAR SHOP MANUAL

• FOREWORD

This manual is designed to provide the service man with complete information on the maintenance and repair of various units of the 1961 model Chevrolet passenger car.

An effort has been made to produce a manual that will not only serve as a ready reference book for the experienced service man but also cover step-by-step procedure for the guidance of the less experienced man.

The Section Index on the title page enables the user to quickly locate any desired section. At the beginning of each section is a Table of Contents, which gives the page number on which each major subject begins and an Index is placed at the beginning of each major subject within the section. This arrangement, we believe, will make it easy for the service man to locate the desired information.

Summaries of Special Tools are found at the end of each major section, while Specifications covering vehicle Components are presented in Section 16.

This manual should be kept in a handy place for ready reference. If properly used, it will enable the mechanic to better serve the owners of Chevrolet passenger cars and thereby build or maintain a reputation for reliable service.

All information, illustrations and specifications contained in this literature are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

• CHEVROLET MOTOR DIVISION

General Motors Corporation
DETROIT, MICHIGAN

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SECTION 1

GENERAL INFORMATION

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MODEL IDENTIFICATION

	Biscayne		Bel Air		Impala	
	6 Cyl.	V-8	6 Cyl.	V-8	6 Cyl.	V-8
11—2 Door Sedan	1111	1211	1511	1611	1711	1811
11—2 Door Sedan	1311	1411*	—	—	—	—
21—Utility Sedan	1121	1221	—	—	—	—
37—2 Door Sport Coupe	—	—	1537	1637	1737	1837
39—4 Door Sport Sedan	—	—	1539	1639	1739	1839
67—Convertible	—	—	—	—	1767	1867
69—4 Door Sedan	1169	1269	1569	1669	1769	1869
69—4 Door Sedan	1369	1469*	—	—	—	—
	BROOKWOOD		PARKWOOD		NOMAD	
15—2 Door Station Wagon (6 Pass.)	1115	1215	—	—	—	—
35—4 Door Station Wagon (6 Pass.)	1135	1235	1535	1635	1735	1835
45—4 Door Station Wagon (9 Pass.)	1145	1245	1545	1645	1745	1845

*Biscayne Fleetmaster Series

ENGINE DATA

Engine and Carburetion		Cubic Inch Displacement	Horsepower	Compression Ratio	Bore	Stroke
6 Cyl. (235)—Hi Thrift	—1 Barrel	235	135 @ 4000	8.25:1	3.56	3.94
V-8 (283)—Turbo-Fire	—2 Barrel	283	170 @ 4200	8.5:1	3.875	3.0
—Super Turbo-Fire	—4 Barrel	283	230 @ 4800	9.5:1	3.875	3.0
V-8 (348)—Turbo-Thrust	—4 Barrel	348	250 @ 4400	9.5:1	4.125	3.25
—Turbo-Thrust Special	—3 x 2	348	280 @ 4800	9.5:1	4.125	3.25
V-8 (348)—Super Turbo-Thrust*	—4 Barrel	348	305 @ 5600	11.0:1	4.125	3.25
(With Special Cam)—Super Turbo-Thrust	—4 Barrel	348	320 @ 5600	11.25:1	4.125	3.25
—Super Turbo-Thrust Special—3 x 2		348	335 @ 5800	11.25:1	4.125	3.25

UNIT AND SERIAL NUMBER LOCATIONS

For the convenience of servicemen when writing up certain business papers such as L.&M.R.'s, D.B.M.R.'s, Product Information Reports, or reporting product failures in any way, we are showing below the location of the various unit numbers. These unit numbers and their prefixes are necessary on these papers for various reasons — such as accounting, follow-up on production, etc.

The prefixes on certain units identify the plant in which the unit was manufactured, and thereby permits proper follow-up of the plant involved to get corrections made when necessary.

Always include the prefix in the number.



Fig. 1—Vehicle serial number located on left front body hinge pillar.

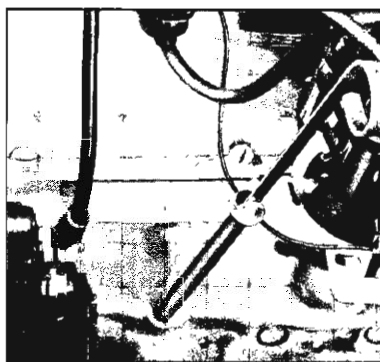


Fig. 2—Six cylinder engine unit number located on pad on right hand side of cylinder block at rear of distributor.



Fig. 3—Eight cylinder engine unit number located on pad at front, right hand side of cylinder block.

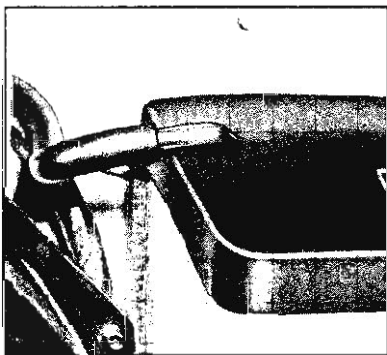


Fig. 4—Body style, body number, trim type and paint combination located on the upper right hand part of the dash panel.

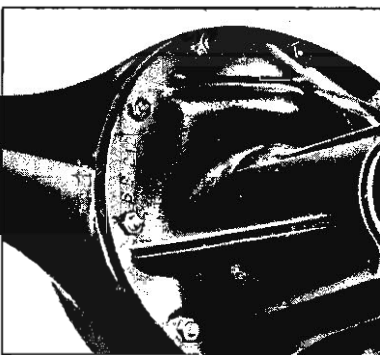


Fig. 5—Rear axle serial number located on front, right side of differential carrier.

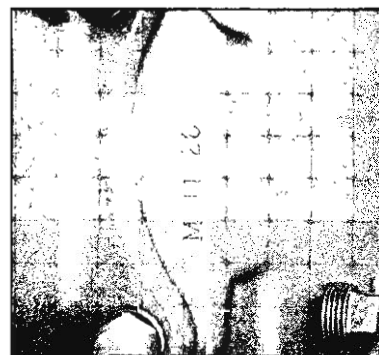


Fig. 6—Conventional transmission unit number located on rear face of case in the upper right corner. O.D. unit, same identification.



Fig. 7—Turboglide transmission unit number located on the bottom of the boss at the lower right rear of the transmission.

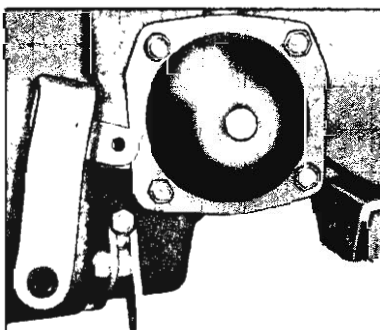


Fig. 8—Powerglide transmission unit number located on the rear flange of the governor cover.

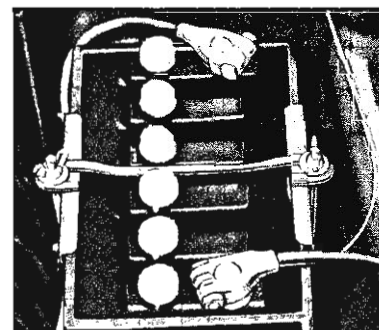


Fig. 9—Battery code number located on cell cover, top of battery.

AXLE RATIOS

	Engine		Transmission	Axle Ratio
6 Cyl. (235)	Hi Thrift	1 Barrel	3-Speed Overdrive Powerglide	3.55:1 3.70:1 3.36:1
V-8 (283)	Turbo-Fire	2 Barrel	3-Speed Overdrive Powerglide Turboglide	3.36:1 3.70:1 3.08:1 3.36:1
V-8 (283)	Super Turbo-Fire	4 Barrel	3-Speed Overdrive Powerglide Turboglide	3.36:1 3.70:1 3.08:1 3.36:1
V-8 (348)	Turbo-Thrust	4 Barrel	3-Speed 4-Speed Turboglide	3.36:1 3.08:1 3.08:1
V-8 (348)	Turbo-Thrust Special	3 x 2	3-Speed 4-Speed Powerglide	3.70:1 3.08:1 3.55:1
V-8 (348)	Super Turbo-Thrust	4 Barrel	3-Speed 4-Speed Turboglide	3.36:1 3.08:1 3.08:1
V-8 (348)	Super Turbo-Thrust Special	3 x 2	3-Speed 4-Speed	3.70:1 3.08:1

DIMENSIONS

Length	209.3 inches
Wheelbase	119.0 inches
Width	76.0 inches
Height—Sta. Wag. and Convertible	56.0 inches
All Others	55.5 inches

CAPACITIES

Fuel Tank				
Station Wagon	17 gal.			
Other Models	20 gal.			
Crankcase				
6 Cylinder	5 qt.			
8 Cylinder (283)	4 qt.			
8 Cylinder (348)	4 qt.			
For Oil Filter, Add.	8.	1 qt.		
Cooling System				
	6 Cyl.	283 V-8	348 V-8	
Without Heater	16.5 qt.	16 qt.	22 qt.	
With Heater	17.5 qt.	17 qt.	23 qt.	
Transmission				
Three-Speed	2 pt.			
Automatic (sump Refill)				
Powerglide	4½ qt.			
Turboglide	2 qt.			
Differential				
Regular	4 pt.			
Positraction	4 pt.			
Power Steering	1½ pt.			
Oil Bath Air Cleaner	1 pt.			

TIRE INFORMATION

Type: Tubeless

Size: Station Wagons and

 Convertible 8.00-14 4-ply.

 All other Models 7.50-14 4-ply.

The 1961 Chevrolet passenger car is designed to operate most efficiently at the inflation pressures shown in the following table. Nothing can be gained by exceeding the pressures shown, while excessive pressures can adversely affect riding comfort and quietness. Under inflation affects vehicle handling and tire life. Adhere closely to the following inflation recommendations.

Recommended Inflation Pressures:

	COLD		HOT	
	Front	Rear	Front	Rear
Station Wagons*	24 lb.	28 lb.	29 lb.	33 lb.
All Other Styles	24 lb.	24 lb.	29 lb.	29 lb.

COLD—After car has been parked for 3 hours or more or driven less than one mile.

HOT—Pressures can rise as much as 7 pounds above cold figures depending on loads carried, length of driving and car speed prior to checks.

*Station Wagons Only—When operating with heavy loads, improved handling will be obtained by decreasing above front tire pressures 2 pounds and increasing rear tire pressures 2 pounds.

SELECTION OF GASOLINE AND ENGINE OIL

In the selection of gasoline and engine oil to be used, it is best to consider the reputation of the refiner or

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marketer. This is the best means of obtaining gasoline and oil of high quality.

Gasoline

The Chevrolet Hi-Thrift 6-Cylinder and Turbo-Fire V-8 engines with 2-barrel carburetion are designed to operate efficiently on Regular grade gasolines. All Chevrolet high performance V-8 engines, both 283 and 348, are designed to operate efficiently only on Premium or Super-Premium gasolines. Use of Regular-grade gasolines in the high performance engines may result in excessive knocking which constitutes misuse of the engine.

The above recommendations for gasoline apply only to operation in the United States and Canada. Customer inquiries relative to the availability of suitable fuels in foreign countries may be referred to:

**Chevrolet Motor Division
General Motors Corporation
Technical Service Department
Detroit 2, Michigan**

For operation in foreign countries, where antiknock quality is below U.S. Standards, the following precautions should be observed.

1. Six-cylinder and 2-barrel V-8 engines should be operated on the highest grade of fuel available.
2. High performance V-8 engines may have to be adjusted for satisfactory operation on foreign fuels. Recommendations for such adjustments may be obtained from authorized Chevrolet dealers in the foreign country.

In all cases excessive knocking should be avoided as much as possible in order to avoid possible engine damage.

Oil Viscosity Numbers

The following table may be used as a guide to the selection of the proper viscosity engine oil for use in Chevrolet engines during the various seasons of the year. Only oils designated "For Service MS" or "For Service DG" are recommended.

		Recommended SAE Viscosity Oil	Recommended SAE Multi- Viscosity Oil
Lowest Anticipated Temperature During Time Oil Will Be in the Crankcase	32° F.	SAE 20 or 20W	SAE 10W-30
	0° F.	SAE 10W	SAE 10W-30
	Below 0° F.	SAE 5W	SAE 5W-20
For sustained high speed driving when the temperature is above 90° F., S.A.E. 30 oil may be used.			

Engine Lubrication Periods

	Every Month	Every 2 Months	First 1000 Miles	First 5000 Miles	Every 1000 Miles	Every 4000 Miles
Initial Drain Period			●			
Favorable Operations—(over 10 miles average per trip)						●
Summer (over 32° F. aver.) Less than 10 miles aver. per trip [△]		●				
Winter (Below 32° F. aver.) Less than 10 miles aver. per trip [△]	●*				●*	
Dusty Driving Conditions					●	
Change Oil Filter Element (if car is so equipped)				●		●

*Whichever comes first.

[△]and less than 1000 miles per month.

KEYS AND LOCKS

Lock cylinders are furnished for service uncoded, this necessitates the coding of all replacement lock cylinders.

The side bar type lock (fig. 10) is used for the ignition, door and trunk lid on passenger cars. Glove compartment locks are wafer tumbler single bitted type having 4 tumblers on passenger cars. These locks are all coded the same allowing a usage of one key for all locks on the vehicle. To protect owners, automobile lock manufacturers stamp the lock number on the lock core, shaft, etc. where they will not show until the lock is removed.

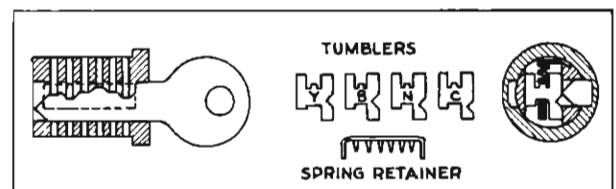


Fig. 10—Side Bar Lock

To obtain the code number remove the door lock, the key number may be obtained from the lock core, shaft, etc., which will be the same on all of the other locks.

In addition, when a lock cylinder requires replace-

ment the lock code number may be obtained either from the key, if available, or from the old lock cylinder which is being replaced.

Once the code number of the lock is obtained, look up this number in a key cutting book. There are two types of code booklets in general use, one which lists the cutting code by letter C, N, B and Y. Numbers or letters are always recorded from the head of the key to the end.

Numbers may be transposed to letters to numbers as follows:

Code Book—Numbers	Code Book—Letters
1	C
2	N
3	B
4	Y

All side bar locks furnished to the field by the Parts Department are uncoded, that is, they are furnished without tumblers, springs or spring retainers; these parts are serviced separately. The tumblers come in four different depths indicated by colors "C" for copper, "N" for nickel, "B" for black and "Y" for yellow.

The side bar locks have six tumbler positions, and in looking up the cutting code, the following may be used as an example. After key code number is determined, either from key or from number stamped on lock cylinder refer to your code book and record the key cutting information as follows:

Key of lock code Number	Key cutting code Numerical	Key cutting code Alphabetical
8109	2-3-2-1-2-4	N-B-N-C-N-Y
Cutting or Tumbler position from head of lock.	1-2-3-4-5-6	1-2-3-4-5-6

The numbers or letters (depending on code book) which are written above the cutting or tumbler position indicate the different color tumblers which are to be dropped into each tumbler slot of the lock: "C"—copper, "N"—nickel, "B"—black, "Y"—yellow.

NOTE: If code book used lists the key cutting code numerically, the numbers must be transposed to letters as previously stated in order to select proper color tumblers for installation into the lock.

In cases where a code book is not available, the diagram as shown in figure 11 may be used to deter-

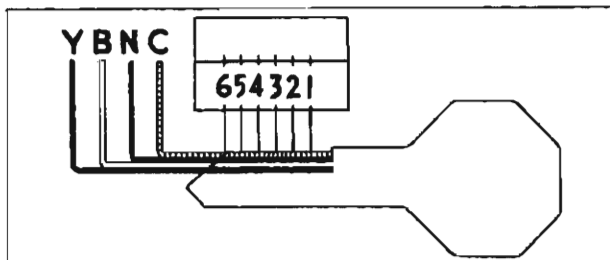


Fig. 11—Tumbler Requirement Diagram

mine the tumblers required to assemble an uncoded lock cylinder.

1. Lay the key on the diagram (fig. 11) with the bottom of the key flush with the edge of the drawing, head and point carefully lined up.
2. Read the code in letters C-N-B-Y from the head of key to the end from positions 1 to 6 inclusive. As each depth is determined write that letter in the blank space provided above the position numbers (1-2-3-4-5-6).
3. With the key properly lined up on the diagram, all cuts that show in the first section are to be marked "C".
4. Cuts that fall in the first black section, mark "N."
5. Cuts that fall in the White section, mark "B."
6. Cuts that fall in the second black section, mark "Y."

After the letters (C-N-B-Y) have been determined and written above the cutting positions the lock cylinder should be assembled as follows:

Lock Cylinder Assembly

1. Hold cylinder with head of cylinder away and starting at the head of the cylinder, insert the tumblers in their proper slots in the order called for by the code, ribbed side toward you and long point down (fig. 12).

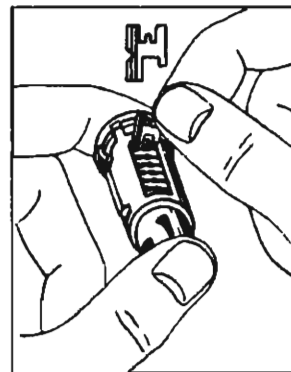


Fig. 12—Inserting Tumblers

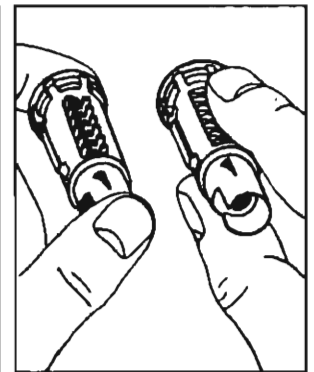


Fig. 13—Checking With Code



Fig. 14—Inserting Tumbler Springs

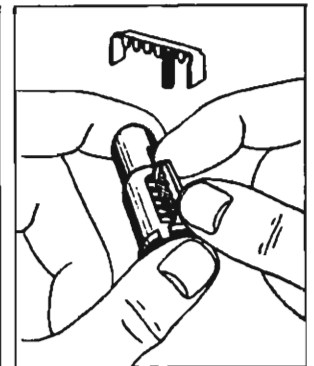


Fig. 15—Inserting Spring Retainer

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2. After all tumblers are in place, check for correctness with the code. Then press tumblers down with one finger (fig. 13).
3. Insert one tumbler spring in the space provided above each tumbler (fig. 14).

CAUTION: If the springs are tangled, do not pull them apart—unscrew them.

4. Reverse the lock cylinders so that the head of the cylinder is now toward you. Insert the spring retainer so that one of its six prongs enters into each of the springs and the two large end prongs slide into the slots at either end of the cylinder (fig. 15). Press the retainer down with one finger.
5. To check, insert proper key and if tumblers are installed properly the side bar will be allowed to drop down. If bar does not drop down, remove the key, spring retainer, springs and tumblers and reassemble correctly.

NOTE: If the tumblers have not been assembled correctly and not according to the code, the tumblers can be removed from the cylinder by holding it with the tumbler slots down, pulling the side bar out with the fingers and jarring the cylinder to shake the tumblers out. This procedure is necessary because after the tumblers have been pressed down into the cylinder they are held in their slots by the cross bar.

6. If after checking it is found that the lock is assembled properly, remove key and place cylinder in a vise using leather or wood on each side to prevent damage to the cylinder.
7. Stake the retainer securely in place by staking the cylinder metal over both edges of the retainer ends using a suitable staking tool at right angles to the top of the retainer and from the cast metal of the cylinder over the retainer at each corner.

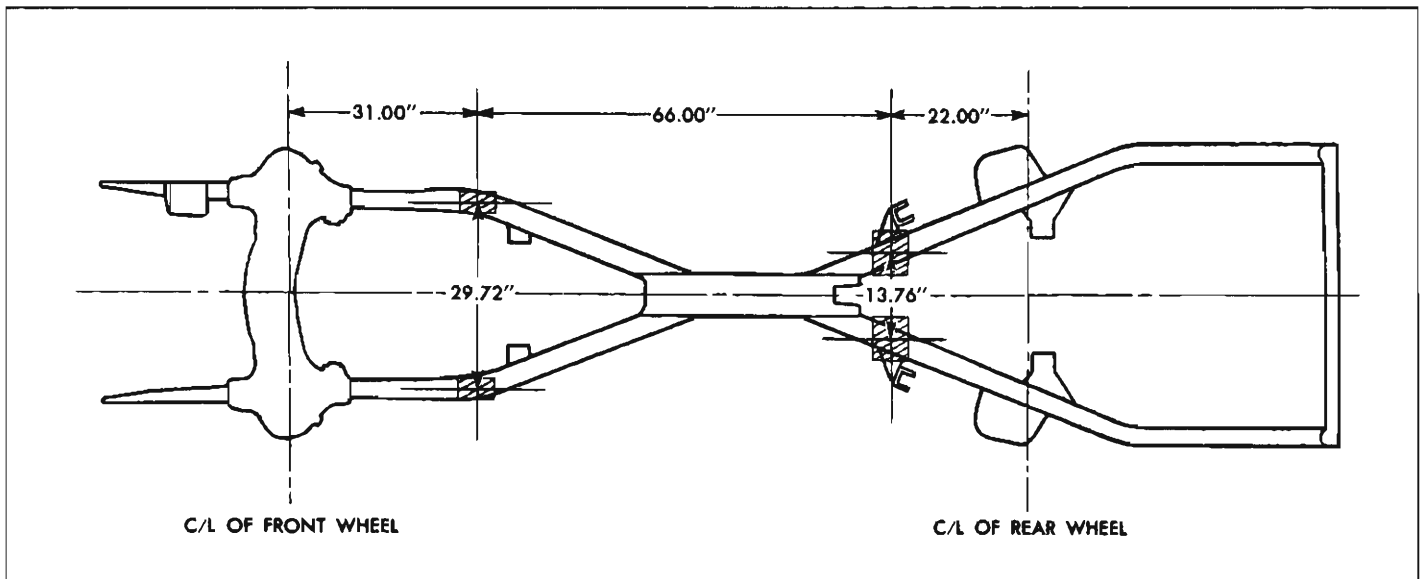


Fig. 16—Lifting Points for 1961 Passenger Car Frames

LIFTING CAR WITH DRIVE-ON HOIST

Many dealer service facilities and service stations are now equipped with a type of automotive hoist

which must bear upon some part of the frame in order to lift the vehicle. In Figure 16, the shaded areas show the points which are recommended for hoist contact when this type of equipment is used.

SECTION 2

GENERAL LUBRICATION

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GENERAL LUBRICATION

The selection of the proper lubricant and its correct application at regular intervals does much to increase the life and operation of all moving parts of the vehicle. Consequently, it is important that the correct grade of oil or grease, as noted in the following pages, be used.

ENGINE CRANKCASE OIL

Crankcase Capacities

6 Cylinder Engine	5 qt.
8 Cylinder Engine (283).....	4 qt.
(348).....	4 qt.
For Oil Filter, add.....	1 qt.

Lubrication—First 1000 Miles

The engine crankcase of all new vehicles is filled with a light body, heavy duty oil. This oil will assure

the proper “mating-in” of the engine components. Use this oil only during the first 1000 miles. Check frequently and maintain the proper level. If it is necessary to add oil, use one of the light body oils described under “SAE Viscosity Oils.” At the end of the first 1000 miles, drain the original oil when hot and refill with an oil of the Viscosity Number and Type indicated below.

Lubrication—After 1000 Miles

After the first 1000 miles the crankcase oil should be selected to give the best performance under the climatic and driving conditions in the territory in which the vehicle is driven.

During warm or hot weather, an oil which will provide adequate lubrication under high operating temperatures is required.

During the colder months of the year, an oil which

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will permit easy starting at the lowest atmospheric temperature likely to be encountered, should be used.

When the crankcase is drained and refilled, the crankcase oil should be selected, not on the basis of the existing temperature at the time of the change, but on the lowest temperature anticipated for the period during which the oil is to be used.

Unless the crankcase oil is selected on the basis of viscosity or fluidity at the anticipated temperature, difficulty in starting will be experienced at each sudden drop in temperature.

SAE Viscosity Oils

SAE Viscosity Numbers indicate only the viscosity or body of the oil, that is, whether an oil is a light or a heavy body oil, and do not consider or include other properties or quality factors.

The lower SAE Viscosity Numbers, such as SAE 5W and SAE 10W which represent the light body oils, are recommended for use during cold weather to provide easy starting and instant lubrication. The higher SAE Viscosity Numbers such as SAE 20 and SAE 20W, which represents heavier body oils, are recommended for use during warm or hot weather to provide improved oil economy and adequate lubrication under high operating temperatures.

Oils are available which are designed to combine the easy starting characteristics of the lower SAE Viscosity Number with the warm weather operating characteristics of the higher SAE Viscosity Number. These are termed "multi-viscosity oils," SAE 5-10W, SAE 5W-20, SAE 10W-20W, and SAE 10W-30.

The following chart will serve as a guide for the selection of the correct SAE Viscosity Number for use under different atmospheric temperature ranges, and suggests the appropriate SAE Viscosity Numbers when multi-viscosity oils are used.

If the lowest anticipated temperature, during the interval in which the oil will remain in the crankcase, is:	The following SAE Viscosity Oils are RECOMMENDED:	Multi-Viscosity Oils RECOMMENDED:
32°F	SAE 20W or SAE 20	SAE 10W-30 or SAE 10W-20
0°F	SAE 10W	SAE 10W-20 or SAE 10W-30
Below 0°F	SAE 5W	SAE 5W-10 or SAE 5W-20

NOTE: For sustained high speed driving, when the prevailing daylight temperature is above 90°F., S.A.E. 30 may be used.

Types of Oils

In service, crankcase oils may form sludge and varnish and under some conditions, corrosive acids

unless protected against oxidation. To minimize the formation of these harmful products and to supply the type of oil best suited for various operating conditions, the oil industry markets several types of crankcase oils. These types have been defined by the American Petroleum Institute as follows:

"Service ML" (Comparable to former Regular Type)—Generally suitable for use in internal combustion engines operating under light and favorable service conditions.

"Service MM" (Comparable to former Premium Type)—Oil having the characteristics necessary to make it generally suitable for use in internal combustion engines operating under moderate to severe service conditions which present problems of sludge, varnish or bearing corrosion control when crankcase oil temperatures are high.

"Service MS" and "Service DG" (Comparable to former Heavy-Duty Types)—Oils having the characteristics to make them generally suitable for use in internal combustion engines operating under unfavorable or severe types of service conditions.

For maximum engine protection under all driving conditions, oils designated "For Service MS" or "For Service DG" are recommended.

Maintaining Oil Level

The oil gauge rod is marked "Full" and "Add Oil." These notations have broad arrows pointing to the level lines. The oil level should be maintained between the two lines, neither going above the "Full" line nor under the "Add Oil" line.

Check the oil level frequently and add oil when necessary.

NOTE: It is advisable, when taking a long trip, to recheck the oil level after the first 100 miles of the trip. This is a precautionary measure, due to the possibility of crankcase dilution which would give a false oil level reading. The diluents which are usually the result of incomplete engine warm-up (traveling short distances) are driven out of the crankcase with high speed driving or sustained normal engine operating temperatures.

When to Change Crankcase Oil

Normal Conditions

Oils have been greatly improved, driving conditions have changed and improvements in engines, such as the crankcase ventilating system, have greatly lengthened the life of good lubricating oils. However, to insure continuation of best performance, low maintenance cost and long engine life, it is necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials. Under normal driving conditions draining the crankcase and refilling with fresh oil every 4000 miles is recommended.

It is always advisable to drain the crankcase only after the engine has become thoroughly warmed up or reached normal operating temperature. The benefit of draining is, to a large extent, lost if the crankcase is drained when the engine is cold, as some of the suspended foreign material will cling to the sides of the oil pan and will not drain out readily with the cold, slower moving oil.

Adverse driving conditions or short trip winter driving (less than 10 miles average per trip), make it advisable to change oil every month. Similar short trips in the summer make it advisable to change oil every two months.

Favorable Operations

(Over 10 mi. avg./trip).....Every 4000 miles

Summer—with avg.

daytime temp. over 32°F.—Short trips

(less than 10 mi. avg./trip).....Every 2 months

Dusty Conditions.....Every 1000 miles

Winter—with avg.

daytime temp. below

32°F.—Short trips

(less than 10 mi. avg./trip).....Every month

AIR CLEANER

All Except 283 2BBL

Every 15,000 miles or more often in dusty areas, either replace paper air cleaner element or test element on an AC Air Cleaner Tester.

Before using an AC Air Cleaner Tester inspect for holes or breaks in the element, as these defects require immediate replacement. If testing indicates that the element restriction is satisfactory at 15,000 miles, the element need not be replaced but should be retested every 5000 miles thereafter.

283 2BBL Only

Remove this air cleaner every 5000 miles and immerse in clean solvent. Remove from solvent and wring dry. Re-immerses in clean engine oil (SAE 10W-30) remove and wring out almost all oil. Reinstall air cleaner.

Crankcase Dilution

Probably the most serious phase of engine oil deterioration is that of crankcase dilution which is the thinning of the oil by fuel vapor leaking by pistons and rings and mixing with the oil and by condensation of water on the cylinder walls and crankcase.

Leakage of fuel, or fuel vapors, into the oil pan occurs mostly during the "warming up" period when the fuel is not thoroughly vaporized and burned. Water vapor enters the crankcase through normal engine ventilation and through exhaust gas blow-by. When the engine is not completely warmed up, these vapors

condense, combine with the condensed fuel and exhaust gases and form acid compounds in the crankcase.

As long as the gases and internal walls of the crankcase are hot enough to keep water vapor from condensing, no harm will result. However, when the engine is run in low temperatures moisture will collect and unite with the gases formed by combustion resulting in an acid formation. The acid thus formed is likely to cause serious etch or pitting which will manifest itself in excessively rapid wear on piston pins, camshaft bearings and other moving parts of the engine, oftentimes causing the owner to blame the car manufacturer or the lubricating oil when in reality the trouble may be traced back to the character of fuel used, or a condition of the engine such as excessive blowby or improper carburetor adjustment.

Automatic Control Devices to Minimize Crankcase Dilution

The Chevrolet engine is equipped with automatic devices which aid greatly in minimizing the danger of crankcase dilution.

The thermostat, mounted in the cylinder head water outlet, restricts the flow of water to the radiator until a predetermined temperature is reached, thus minimizing the length of time required to reach efficient operating temperature, reducing the time that engine temperatures are conducive to vapor condensation.

A water by-pass is included in the cooling system, utilizing a hole in the front of the cylinder block. This allows a limited circulation of coolant, by-passing the thermostat until thermostat opening temperatures are reached. This system provides a uniform coolant temperature throughout the engine, eliminating localized hot-spots, improving exhaust valve life, provides fast warm-up of lubricating oil and fast temperature rise in the coolant which provides fast heater operation in cold weather.

A thermostatic heat control on the exhaust manifold during the warming up period, automatically directs the hot exhaust gases against the center of the intake manifold, greatly aids in proper vaporization of the fuel.

An automatic choke reduces the danger of raw or unvaporized fuel entering the combustion chamber and leaking into the oil reservoir.

An efficient crankcase ventilating system drives off fuel vapors and aids in the evaporation of the raw fuel and water which may find its way into the oil pan.

OIL FILTER—V-8 ENGINE

A full flow oil filter, provided as optional equipment, filters all of the oil delivered by the oil pump; for this reason the interval of cartridge change is very important. The oil filter cartridge should be replaced after the first 5000 miles and every 4000 miles thereafter.

GENERAL LUBRICATION 2-4

Changing of Oil Filter Cartridge (V-8 Engine)

Unscrew cartridge container center bolt to remove filter cartridge.

Before installing new cartridge clean out cartridge container and place new seal in position in oil filter body casting.

NOTE: Oil filter center bolt should be tightened 20-25 ft. lbs. of torque.

GENERATOR

Every 1000 miles the oiler on each end of the generator should be filled to the top of the cap with a light engine oil.

NOTE: Over oiling at the front oiler may result in damage to the generator.

STARTING MOTOR

Starting motor end frames are equipped with oil-less bearings which do not require lubricant.

BATTERY TERMINAL WASHERS

Battery terminals have felt washers between top of case and cable connections to minimize corrosive action of battery acid. These felt washers should be saturated with engine oil every 1000 miles.

DISTRIBUTOR

6-Cylinder Models

Lubricant cup located on side of housing is filled with chassis lubricant. Turn cup down one turn every 1,000 miles.

Distributor cap should be removed every 5,000 miles. Apply a small amount of Delco-Remy cam and ball bearing lubricant or other suitable high melting point non-bleeding grease on distributor cam surface. Add a few drops of light engine oil to the breaker lever pivot.

8-Cylinder Models

An oil cup on the side of the distributor housing should be filled with light engine oil every 1,000 miles.

Apply ½ drop of light engine oil on the breaker lever pivot.

NOTE: Do not use any lubricant on the cam lubricator wick. Replace wick whenever contact points are replaced or at 25,000 miles

REAR AXLE, CONVENTIONAL TRANSMISSION AND OVERDRIVE

The passenger car operates under the most severe lubrication conditions at high speed and requires a hypoid lubricant which will meet this condition.

Recommended Lubricants

Standard Rear Axles—S.A.E. 90 "Multi-Purpose" gear lubricant.

Positraction Rear Axles—G.M.No. 3758790 or 3758791 lubricant.

CAUTION: Straight Mineral Oil gear lubricants must not be used in hypoid rear axles.

Transmissions—S.A.E. 90 Straight Mineral Oil gear lubricant.

S.A.E. 90 "Multi-Purpose" gear lubricant.

The S.A.E. 90 viscosity grade is recommended for year round use. However, when extremely low temperatures are encountered for protracted periods during the winter months, the S.A.E. 80 viscosity grade may be used.

"Multi-Purpose" Gear Lubricants

Gear lubricants that will satisfactorily lubricate hypoid rear axles have been developed and are commonly referred to as "Multi-Purpose" gear lubricants.

These lubricants can also be satisfactorily used in manual transmissions and steering gears requiring a fluid lubricant.

CAUTION: With Positraction rear axles use only G.M. No. 3758790 or 3758791 lubricant.

"Multi-Purpose" gear lubricants must be manufactured under carefully controlled conditions and the lubricant manufacturer must be responsible for the satisfactory performance of his product. His reputation is the best indication of quality.

Lubricant Additions

The lubricant level in the axle and transmission housings should be checked periodically. (Every 1,000 miles.)

It is recommended that any additions required to bring up the lubricant level be made using the same type lubricant already in the housing.

When checking lubricant level in transmission or rear axle the unit being checked should be at operating temperature. With unit at operating temperature the lubricant should be level with bottom of the filler plug hole. If the lubricant level is checked with the unit cold the lubricant level should be ½ inch below the filler plug hole.

Lubricant Changes

The rear axle assembly should be drained and refilled every 10,000 miles or seasonally. When refilling is necessary, refill with lubricants recommended above.

NOTE: The rear axle, when received from the factory, is filled with a special lubricant which should be drained at the end of 1000 miles.

PARKING BRAKE

The parking brake pulley bearing area, parking brake cable at the pulley, and the parking brake cable guides just behind the frame cross-member should be lubricated with Lubriplate at 1000 miles intervals.

Every 10,000 miles the following items should be lubricated with Lubriplate or equivalent:

1. Rear cable at equalizer.
2. Idler lever rod at lever.
3. Idler lever rod at swivel bracket.
4. Lever at swivel assembly.
5. Lever at bracket on frame.
6. Equalizer bolt at lever.

CLUTCH LEVER SHAFT LUBRICATION

A lubrication fitting has been provided on the clutch lever shaft to permit proper lubrication at this point for ease of clutch pedal operation. Accessible from beneath the vehicle, this fitting should be serviced with chassis lube during dealer new car make-ready and every 1000 miles thereafter.

GEARSHIFT IDLER LEVER BUSHING

A few drops of light engine oil should be used on the gearshift idler lever bushing every 1000 miles. Lubrication of this point will facilitate shifting of second and high gear.

POWERGLIDE TRANSMISSION

Check oil level every 1,000 miles, with engine idling, parking brake set, transmission warm and control lever in Neutral (N) position. Add only Automatic Transmission Fluid Type "A," bearing an AQ-ATF mark when level reaches "add 1 qt." mark on oil level rod. Do not allow dirt to enter filler tube.

TURBOGLIDE TRANSMISSION

Check transmission oil level every 1,000 miles, with transmission warm, transmission selector in Neutral and engine idling. Remove gauge rod located under right side of the hood, wipe dry with a clean cloth, then reinstall to full depth. Remove rod and note oil level.

If oil level is below the "FULL" mark on the gauge rod, add enough oil to raise the fluid level to the "FULL" mark. Use only "Automatic Transmission Fluid Type "A" bearing an AQ-ATF mark embossed in the lid of the can. DO NOT OVERFILL.

UNIVERSAL JOINTS

The universal joints are lubricated and sealed at the factory. It is recommended that they be disassembled, cleaned and lubricated every 25,000 miles with a high-melting point, wheel bearing type lubricant.

FRONT WHEEL BEARINGS

It is necessary to remove the wheel and hub assembly to lubricate the bearings. The bearing assemblies should be cleaned before repacking with lubricant. Do not pack the hub between the inner and outer bearing assemblies or the hub caps, as this excessive lubrication results in the lubricant working out into the brake drums and linings.

Front wheels of all passenger car models are equipped with tapered roller bearings and should be packed with a high melting point water resistant front wheel bearing lubricant every 10,000 miles.

CAUTION: "Long fibre" or "viscous" type lubricant should not be used. Do not mix wheel bearing lubricants. Be sure to thoroughly clean bearings and hubs of all old lubricant before repacking.

The proper adjustment of front wheel bearings is one of the important service operations that has a definite bearing on safety. A car with improperly adjusted front wheel bearings lacks steering stability, has a tendency to wander or shimmy and may have increased tire wear. The adjustment of these bearings is very critical. The procedure is covered in Section 3 of this manual under Front Wheel Bearings—Adjust.

REAR WHEEL BEARINGS

No special attention or lubrication is required.

STEERING GEAR

The steering gear is filled at the factory with a special all-season gear lubricant. Seasonal change of this lubricant is unnecessary and the housing should not be drained. Whenever required, additions should be made using a lubricant which, at low temperatures, is fluid and will not "channel" or cause "hard steering" and which will provide satisfactory lubrication under extreme summer conditions. Steering gear lubricants are marketed by many oil companies.

Lubricate the steering gear shaft coupling with Chassis Lube when required.

On models equipped with power steering gear, check fluid in pump reservoir. Add Automatic Transmission Fluid "Type A" bearing an AQ-ATF mark to bring level to full mark on dipstick.

CHASSIS LUBRICATION

For chassis lubrication, consult the lubrication chart. It shows the points to be lubricated and how often the lubricant should be applied.

The term "chassis lubricant" as used in this manual, describes a semi-fluid lubricant designed for application by commercial pressure gun equipment. It is composed of mineral oil (300 to 500 seconds Saybolt Universal viscosity at 100°F) combined with approximately 8% soap, or soaps which are insoluble in water.

BODY LUBRICATION

Many of the annoying squeaks and noises that occur in closed bodies are due to neglecting a very important maintenance service which all bodies should receive regularly.

The movable mechanical parts of the body are lubricated at the factory for easy operation and to eliminate squeaks caused by frictional contact. This lubrication should be maintained and replenished at periodic intervals.

Most body lubrication points do not carry heavy loads like the chassis, and for this reason many of the points do not require as heavy nor as frequent lubrication as the chassis points.

For body lubrication, a specific kind of lubricant, the one best suited for individual points, should be used. Knowing what to use and where to use it, together with a little care and cleanliness, will bring many returns in the satisfaction and pleasure of driving a car properly serviced.

The following parts should be lubricated twice a year.

Application	Lubricant
Instrument Compartment	
Door Hinge	Dripless
Front Door Hold Open Clips	Lubriplate or Equivalent
Door Jamb Light Switch.....	Lubriplate or Equivalent
Door Lock Bolt Housing.....	Stick Type Lubricant
Door Lock Striker Teeth.....	Stick Type Lubricant
Rear Door Hinge and Hold Open	Lubriplate
Deck Lid Hinge and Torque Rod Ends.....	Lubriplate or its Equivalent
Deck Lid Lock Bolt.....	Lubriplate or its Equivalent
Lift Gate and Tail Gate.....	Lubriplate or its Equivalent
Gas Filler Door Hinge.....	Dripless Oil
Folding Top Linkage Bearing Points.....	No. 10 Engine Oil

Application	Lubricant
Side Roof Rail Mechanical Sealing Strip Gasket.....	Silicone Emulsion
Weather Strips.....	Silicone Rubber Lubricant
Drain Hole Sealing Strips.....	Silicone Rubber Lubricant
Torque Rod Silencers.....	Liquid Soap
Rear Door Window Frame Sash Channel (Sport Sedan).....	Silicone Rubber Lubricant
Folding Rear Seat Back Support.....	Lubriplate or Equivalent
Tail Gate Hinges.....	Dripless Oil

Parts to be lubricated when access to parts can be obtained.

Windshield Wiper Motor and Linkage....	Lubriplate
Door Lock Parts.....	Lubriplate
Window Regulator Rack and Cam Channels	Lubriplate
Seat Adjusters and Seat Track	Lubriplate
Door Handle Push Button Shaft.....	Lubriplate

Wipe off all lubrication points before applying new lubricant. Remove all excess lubricant to prevent staining of trim parts where necessary.

Overlubrication

Excessive lubrication of body parts usually causes more complaints than lack of lubrication. If a soft, dark grease is applied to a door lock bolt or a dovetail wedgeplate on the exposed face of the door, a slight brush across this soft grease may ruin a gown and spoil the entire evening for the owner and others. Too much lubrication applied to exposed parts serves no good purpose. It is not only a waste of material but is a contribution to serious complaints.

Lubricate only where squeaks develop, or where conditions indicate that the addition of lubricant is desirable for easier operation of individual units or points.

