

# GROUP 1 MAINTENANCE

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## SECTION 1-A LUBRICARE INSTRUCTIONS

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## 1-1 ENGINE OIL RECOMMENDATIONS

### a. Engine Oil

Engine crankcase oils have a definite effect on ease of starting, oil economy, combustion chamber deposits and engine wear. It is recommended that you use an oil which, according to the label on the can, is: (1) intended for service MS and (2) passes car makers' tests or meets General Motors Standard GM 4745-M. Oils conforming to these types contain detergent additives.

### b. Grade or Viscosity

The grade or viscosity (SAE number) of engine oil should be selected for the lowest anticipated temperature at which cold engine starting will be required as recommended in the temperature-viscosity chart.

### c. Oil Level

Oil level should be checked more frequently during the break-in period since somewhat higher oil

### Engine Oil Change and Viscosity Recommendations

Anticipated Lowest Temperatures	S.A.E. Oil Viscosity Requirements	Oil Change Intervals*
Below 0°F.	S.A.E. 5W-20	Every 30 days**
Below Freezing and Above 0°F.	S.A.E. 10W S.A.E. 5W-20	Every 60 days**
Above Freezing	S.A.E. 10W-30 S.A.E. 20W	Every 60 days**
<p>*If there is danger of oil contamination by dust, water, or other foreign material during extreme operating conditions, the oil should be changed more frequently than shown in the table.</p> <p>**Under special high mileage driving conditions such as taxi cab operation or on extended trips, it is recommended that engine oil be changed if six thousand miles between regular oil change intervals is exceeded.</p>		

consumption is normal until piston rings become seated.

The oil level should be maintained between the "operating range" marks on the gauge rod; each space between marks represents one quart. Do not fill above the upper mark.

### d. Oil Color

The color of "Service MS" type oil does not indicate its condition since it normally becomes dark (black or gray) after only a few hundred miles of driving. This is because the detergent content envelops and holds in suspension

## 1965 BUICK LUBRICATION CHART 49000

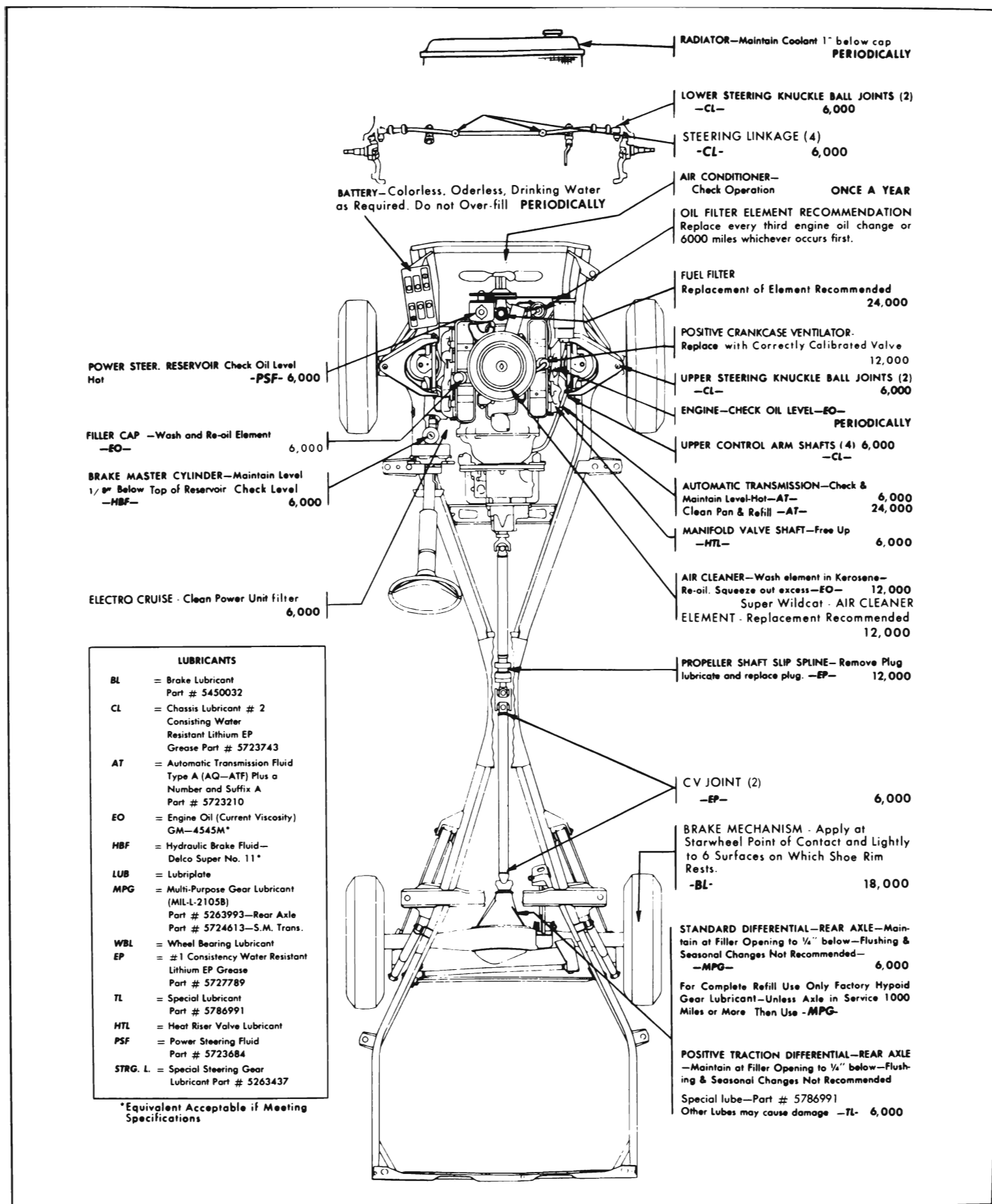


Figure 1-2—49000 Series Lubrication Chart

## 1965 BUICK LUBRICATION CHART 45000—46000—48000

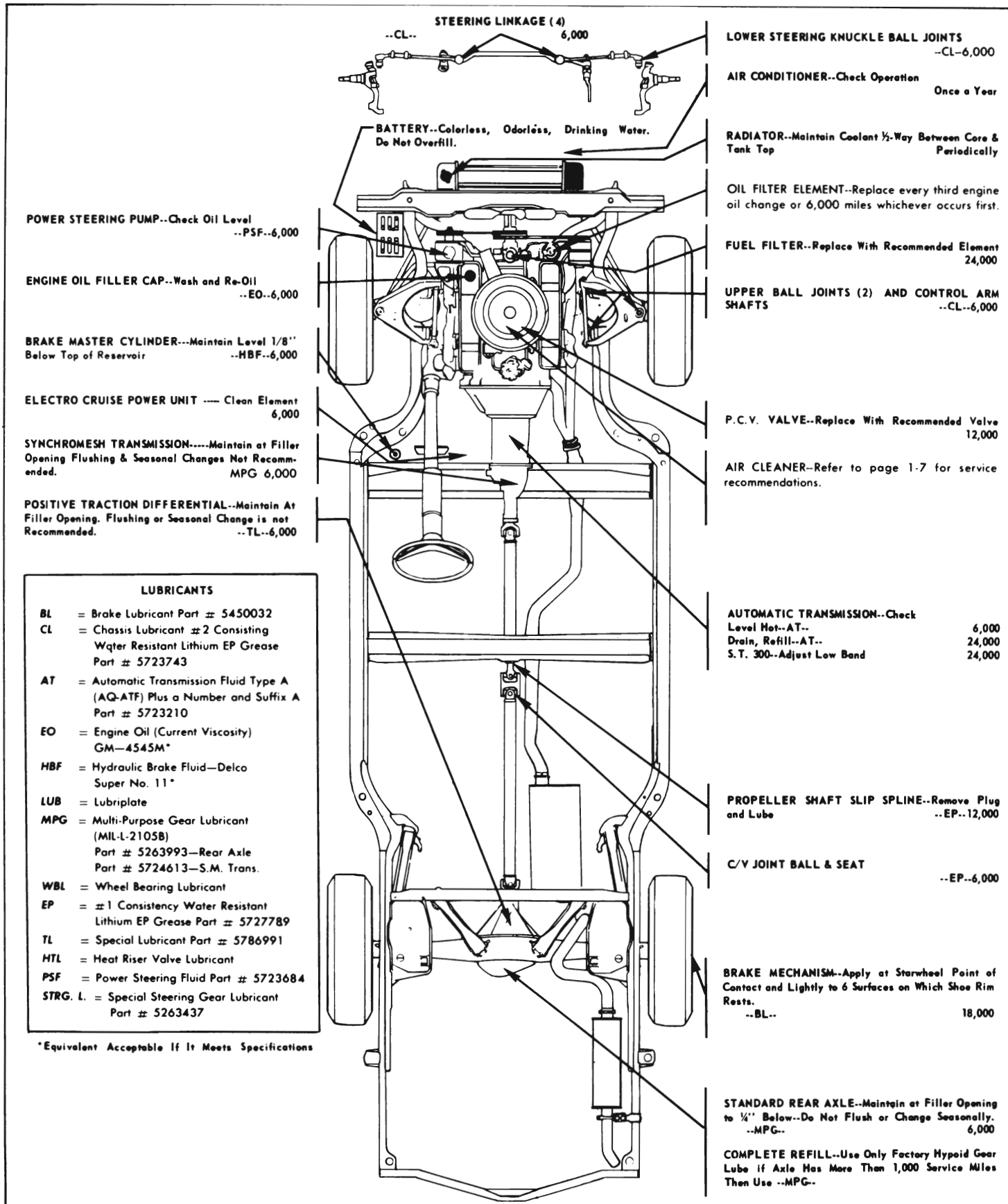


Figure 1-1--45, 46, and 48000 Series Lubrication Chart

be changed every 30 days in areas where temperatures even occasionally may drop below 0°F. See chart on page 1-1.

### b. Engine Oil Filter Change Recommendations

Replace engine oil filter at every third engine oil change or 6 thousand miles, whichever occurs first.

To change, screw filter off the filter base and discard. Wipe the gasket area of the base clean and install a new gasket in the groove of a new AC type PF-7 filter, or equivalent. Lubricate the gasket and screw the filter on the nipple of the base until the gasket just touches the base, tighten filter 2/3 turn more. Start engine.

Do not accelerate speed beyond normal idle until oil pressure is indicated. Check filter area for leaks after engine has run for five (5) minutes. See Figure 1-5.

### c. Oil Filler Cap

Remove oil filler cap, wash in suitable solvent, dry, and dip in engine oil. Allow to drain while performing rest of 6,000 mile checks. Just before installation



Figure 1-5—Oil Filter Installation

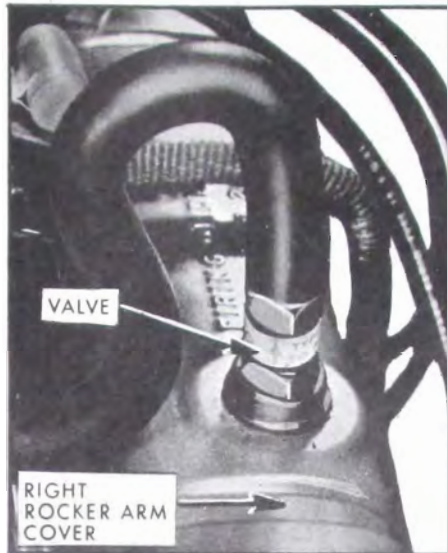


Figure 1-6—Positive Crankcase Valve

dip again in engine oil, allow to drain, and reinstall.

### d. Front Suspension and Steering Linkage

The Buick front suspension has been lubricated with a long-effectiveness lubricant at the factory and should be re-lubricated with #2 Consistency Water Resistant Lithium E.P. Grease available under Part #5723743 every 6,000 miles.

NOTE: If lubricants not intended for long-effectiveness application are used, the lubrication interval should be shortened and should not exceed 2,000 miles.

Wipe dirt from the lubrication fittings and apply the lubricant under pressure at the following points (Figure 1-1 and 1-2):

- Upper Control Arm Shafts (4 fittings)
- Upper Ball Joints (2 fittings)
- Lower Ball Joints (2 fittings)
- Steering Linkage (4 fittings)

### e. Manifold Valve Shaft

Place a few drops of "Heat Riser Valve Lubricant" or equivalent

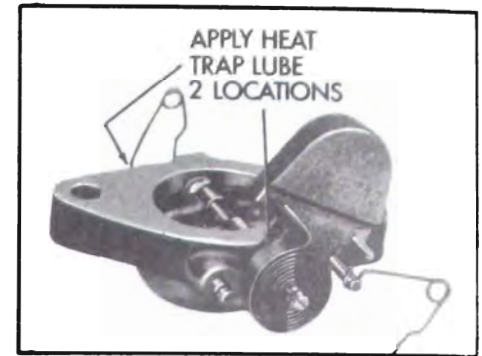


Figure 1-7—Manifold Valve

on shaft at each end and rotate shaft to work lubricant into bearings. See Figure 1-7. GM Heat Riser Valve Lubricant is available through GM Parts Warehouses under Part #5788399.

### f. Check Fluid Level

1. Brake Master Cylinder. On both manual and power brake jobs, the reservoir is under hood on left side. (On dash panel.)

Thoroughly clean filler cap nut before removal to avoid getting dirt into reservoir. Add fluid as required to bring level to 1/8" below top of filler opening. Use Delco Super No. 11 Hydraulic Brake Fluid or equivalent. Never use reclaimed fluid, mineral oil or brake fluids inferior to S.A.E. standard 70-R-1. See Figure 1-8.

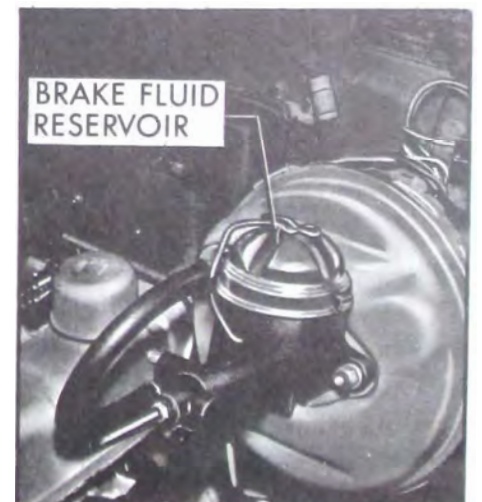


Figure 1-8—Brake Fluid Reservoir

extremely fine but harmless soot (soft carbon) and lead particles. The oil filter element does not remove this harmless material but it does remove harmful particles such as road dust, metal chips and hard carbon.

### e. Crankcase Flushing

Flushing the crankcase with oils or solutions other than a good grade of 10-W engine oil is not recommended. When flushing to remove contamination appears advisable, use 2-1/2 quarts 10-W oil (3 quarts if filter is drained) and idle the engine at 1000 RPM (equivalent to 20 MPH) until the oil is hot, then drain crankcase and oil filter immediately after stopping engine. Fill crankcase with correct quantity and seasonal grade of oil. Install new oil filter element.

### f. Use of "E.O.S." (Engine Oil Supplement)

"E.O.S." Concentrate, available through GM Parts Warehouses under Part #5789167 is a compound of the materials used by oil refiners to manufacture high detergent motor oils. It is intended for use in engines operating under aggravated conditions where engine deposits, rust and corrosion cannot be adequately retarded by motor oils readily available to the average motorist. It is especially recommended for engines operated under restricted conditions such as frequent stops, short trips and slow speeds where such symptoms as sticking valves, valve lifters and rings are noticed.

Although "E.O.S." Concentrate may be used continually it is normally unnecessary to use it with every crankcase refill. When used, the instructions on the container should be carefully observed.

## 1-2 MAINTENANCE— PERIODICALLY WHILE VEHICLE IS BEING REFUELED

### a. Battery

Check level. If necessary add distilled water to bring level to split ring at bottom of filler wells.

NOTE: Do not overfill. Clean top of battery; if wet with acid, neutralize with soda and wash clean. See Figure 1-3.

### b. Tires

For maximum tire life with corresponding softness of ride, maintain the tire pressures recommended in the User's Guide.

Tire pressures should be checked and corrected only when the car has been standing at least 3 hours or driven less than 1 mile. This insures that the air in the tires is cold and not expanded by heat generated by driving. This is important since tires do increase in pressure as much as 7 lbs. when warm. Because it is almost impossible to estimate how much warm tires have increased in pressure, any attempt to compensate for this increase can result in inaccurate pressures.

### c. Radiator Coolant

Radiator coolant level should be checked when the engine is cold

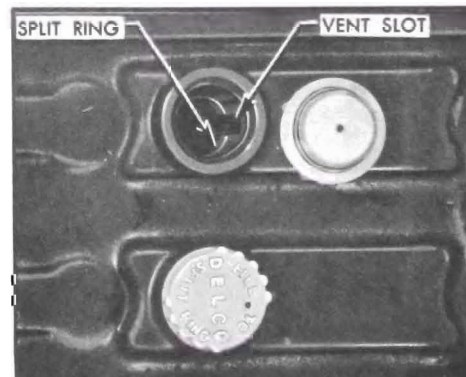


Figure 1-3—Battery Filler Well

if at all possible. If the radiator cap is removed when the system is at normal operating temperature the coolant will boil and spurt out due to the release of pressure. Coolant lost in this manner must of course be replaced. If coolant should be needed, fill radiator to approximately 1" below filler neck when cold. Do not overfill as loss of coolant due to expansion will result.

### d. Engine Oil

This check should be performed last to allow the oil to drain back into the pan. Adding oil between changes may be necessary but only if the level is below the lower mark on the dip stick. See Figure 1-4.

NOTE: Oil level should only be checked when the engine is warm as cold oil drains back to the oil pan very slowly.

## 1-3 MAINTENANCE— EVERY 6,000 MILES

### a. Engine Oil Change Recommendations

Change oil every 30 or 60 days, but never exceed 6,000 miles between oil changes. It is of extreme importance that engine oil

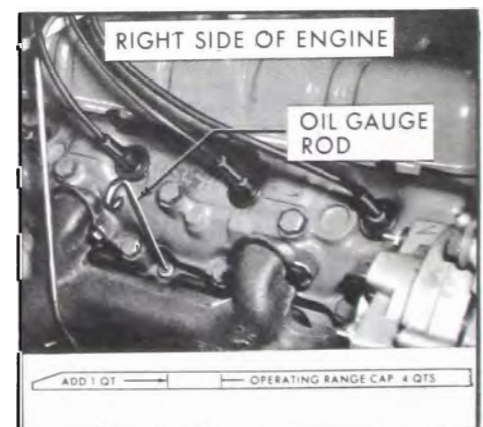


Figure 1-4—Engine Oil Gauge Rods

grease fitting away from the access hole. To correct, either the axle must be raised or the propeller shaft disconnected from the rear companion flange. **CAUTION:** Reassembly of the propeller shaft should be carefully done as instructed in Section 6.

**NOTE:** Multi-Purpose Grease EP #1 grade is the only lubricant applicable at this point. Do not use ordinary chassis lube. EP #1 lube is available under Part #5727789.

#### k. Electro-Cruise

Remove Electro-Cruise air filter element by bending back the four tabs on the power unit and removing the outer screen, element, and inner screen. See Figure 1-12.

Clean the screens and element in a suitable cleaner such as kerosene. Squeeze cleaner out of the element. **DO NOT OIL ELEMENT.** Reinstall inner screen, filter, and outer screen in the power unit and

reposition tabs to retain filter assembly.

### 1-4 MAINTENANCE— EVERY 12,000 MILES

(Suggested in addition to the 6,000 mile recommendations)

#### a. Tune-Care

Tune-Care includes: Clean and/or replace spark plugs and ignition points; check compression, battery, cranking system, charging system, fuel pump, choke, hose connections, belts, carburetor; set engine timing and adjust idle speed.

#### b. Engine Air Cleaner (Exc. Super Wildcat Engine)

Polyurethane Type - Recommendation is to normally service every 12,000 miles. If car is operated in dusty territory check condition of air cleaner element more frequently and clean if dirty. See Par. 1-10.

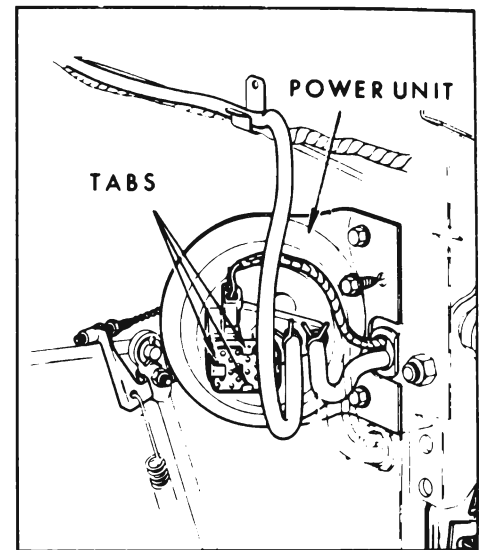


Figure 1-12—Electro-Cruise Power Unit

To clean the element, carefully remove from the mesh support, wash in kerosene and squeeze out.

**CAUTION:** Take precautions against the possibility of fire. Do not wring the element or it may be torn. Wrap the element in a dry cloth and squeeze to remove all possible solvent.

Oil the element liberally with engine oil and squeeze to evenly distribute the oil through the element and remove excess.

**NOTE:** The element should be only damp with oil, not dripping.

Reinstall the element on the mesh support taking care to have the edges of the element over the support to effect a good seal. See Figure 1-14. Clean any oil or accumulated dirt out of the air cleaner housing before installing element.

**NOTE:** If the element becomes damaged, replace with AC Type A96C or equivalent on LeSabres and AC Type A202C on all other models except those equipped with Super Wildcat engines.

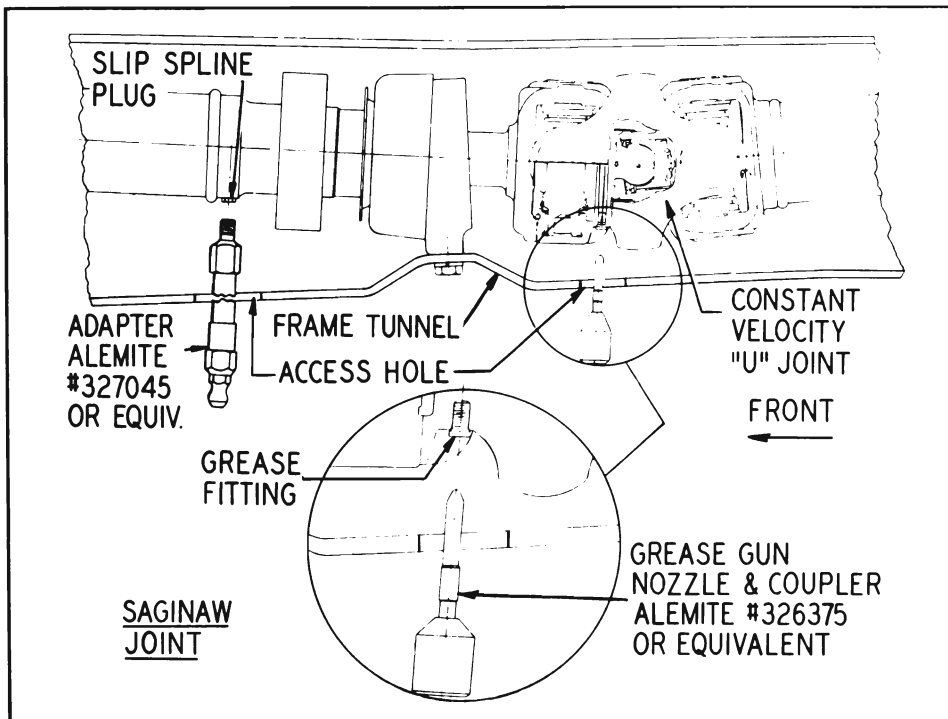


Figure 1-11—Propeller Shaft Slip Spline and Constant Velocity Universal Joint Lubrication Points

**2. Synchronmesh Transmission.**

Check oil level, after allowing time for oil to settle. Clean the surrounding area before removing filler plug. Level should be maintained at filler plug opening by adding S.A.E. 80 Multi-Purpose Gear Lubricant Part #5724613. NOTE: Draining and flushing transmission are not necessary unless the lubricant has become contaminated.

**3. Automatic Transmission.**

Check transmission oil lever, with transmission oil at operating temperature (180° approximate), transmission in park and engine idling.

Remove gauge rod located under right side of hood, wipe dry with clean cloth, then reinstall to full depth. Remove rod and note oil level.

If oil level is below the "ADD" mark on gauge rod, add oil specified in paragraph 1-6 but do not fill above the FULL mark. Distance between the FULL and ADD marks represents approximately one pint.

**4. Power Steering Gear.** Thoroughly clean dirt from reservoir cap on top of oil pump, then remove cap. With system warmed up, maintain level with GM power steering gear fluid Part #5723684 or equivalent. See Figure 1-9.

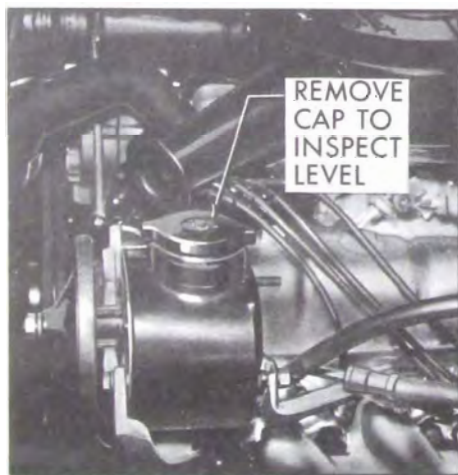


Figure 1-9—Power Steering Gear Reservoir

**5. Rear Axle**

**(a) Standard Differential Rear Axle.** Check lubricant level after allowing time for lube to settle. Clean the surrounding area before removing filler plug. Level should be maintained at filler plug opening to 1/4" below by adding S.A.E. 80 Multi-Purpose Gear Lubricant (MIL-L-2105B) Part #5263993.

NOTE: Draining and flushing is not recommended, unless the lubricant has become contaminated. When complete refilling is necessary, S.A.E. 80 Multi-Purpose Gear Lubricant may be used provided the axle has been in service for 1,000 miles or more. Axles with less than 1,000 miles must not be completely refilled with any lubricant other than Factory Hypoid Lubricant.

**6. Positive Traction Rear Axle -** On Wildcats, Electra 225's, and Rivas, this axle can be identified by a tag attached to the filler plug reading "Use Limited Slip Diff. Lube Only". On LeSabres, this same tag can be found attached to a bolt on the rear cover.

On all Positive Traction axles, check lubrication level after allowing time for lubricant to settle. Clean the surrounding area before removing filler plug. Level should be maintained at filler plug opening to 1/4" below. Add only lubricant Part #5786991. Also see Par. 1-9.

**g. Minor Lubrication**

Occasionally lubricate the pivot points of moving parts such as door and hood hinges and latches, door hold open, clutch, transmission, parking brake and folding top linkage with Lubriplate, or equivalent, or engine oil where applicable. A small quantity of lock lubricant occasionally applied to lock cylinders will prevent sticking. See details under Maintenance - As Required.



Figure 1-10—Identifying Positive Traction Differential

NOTE: Do not lubricate carburetor or throttle linkage.

**h. Body Rubber Parts**

Door, hood, and rear compartment rubber weatherstrips and bumpers, and door bottom drain hole sealing strips may be kept pliable and quiet by the application of a light coat of silicone lubricant Part #5798277.

**i. Tires**

For best tire mileage switch tires as recommended in paragraph 7-8.

**j. Constant Velocity Universal Joint Center Ball (49000)**

Rotate propeller shaft until fitting is visible through rear hole in frame tunnel. See Figure 1-11. Insert special grease gun nozzle (Alemite #326375 or equivalent) through frame tunnel to bear solidly against fitting. One or two shots from a lever type grease gun are sufficient.

Lubricating the Constant Velocity joint on certain hoists such as the frame contact type can be difficult as they allow the axle to drop and thus remove the CV joint

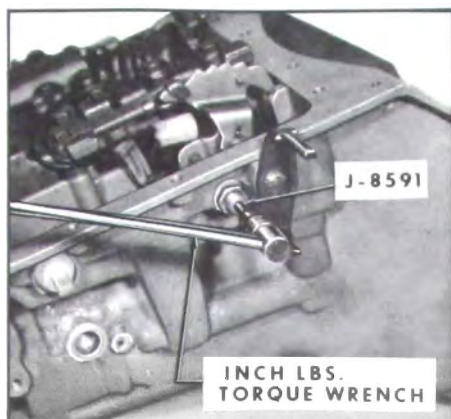


Figure 1-16—Torquing Low Band Screw

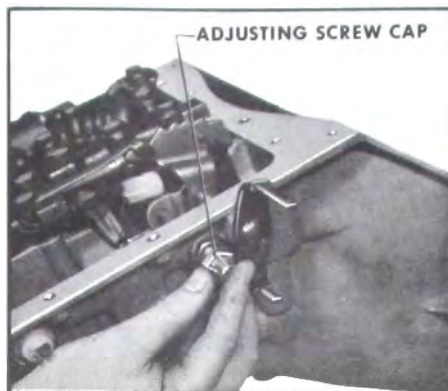


Figure 1-18—Installing Adjusting Screw Cap

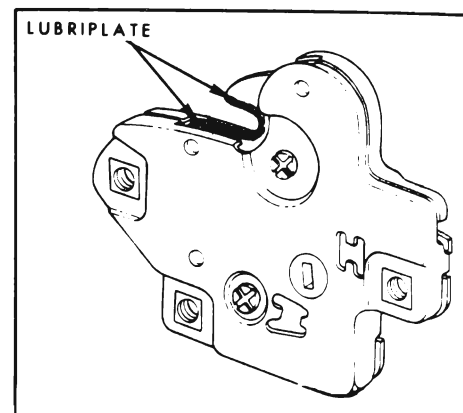


Figure 1-19—Rear Compartment Lid Lock Bolt

no damage is obvious, save seal for installation on new filter.

d. Place seal on new filter. Use an AC Type PF-162 or equivalent on Super Turbine "300" transmissions and an AC Type PF-160 or equivalent on Super Turbine "400" transmissions.

e. Carefully install new filter on transmission, being careful not to cut or tear the seal at the end of the pipe.

f. Clean the oil pan and re-install on transmission. Torque pan bolts to 8-12 ft. lbs.

### 3. Re-fill Procedure

a. Fill transmission with 5 pints of transmission fluid.

b. Start engine and allow to idle. **DO NOT RACE ENGINE.**

c. Finish filling transmission until fluid level showing on the gauge rod is within 1/2" of Full mark.



Figure 1-17—Backing Off Low Band Screw

### 4. Low Band Adjustment - Super Turbine "300" Only.

a. Adjust low band adjusting screw to 40 in. lbs. torque. See Figure 1-16.

b. Back off adjusting screw four (4) turns and lock nut. See Figure 1-17.

c. Replace adjusting screw cap. Refer to Figure 1-18.

### c. Manual Steering Gear (LeSabres and Wildcats Only)

At this interval the manual steering gear lubricant level should be checked. Remove bolt on gear cover marked "Lube". Add Steering Gear Lubricant Part #5263437 or equivalent.

## 1-7 MAINTENANCE—SEASONAL (Cooling System and Air Conditioner Services)

### a. Coolant

The Buick cooling system is filled at the factory with a glycol-based coolant which is designed to protect the cooling system from freezing and corrosion for a period of 24 months. The coolant level should be checked regularly and the level maintained one inch below the filler cap.

For maximum protection against corrosion the cooling system should be drained and flushed after each 24 months of operation and refilled with a solution of fresh water and fresh glycol-based coolant, such as GM Part No. 1772508 (or any coolant concentrate which is represented as meeting General Motors Specification GM 1899M). Sufficient strength should be used to protect against the lowest expected temperature.

If it becomes necessary to add coolant to compensate for losses or to increase the amount of protection for lower temperature operation, only a glycol-based coolant meeting the above requirement should be used. If water alone is used or if the solution in the cooling system contains glycol-based coolant with less than 0°F. freezing protection, it will be necessary to add a corrosion inhibitor and water pump lubricant which is represented to meet General Motors Specification GM 1894M.

Such a product may be obtained through GM Parts Warehouses under Part No. 5731587.

### b. Air Conditioner-Equipped Models

It is recommended that the air conditioner be checked by your



### c. Engine Air Cleaner Element—Super Wildcat Engine

Dry and Oil-Wetted Paper Element Type - Replacement of element is recommended every 12,000 miles, oftener under severe dust conditions. Service with correct element or equivalent for maximum engine protection. Element must not be washed, oiled, tapped or blown with an air hose.

### d. Positive Crankcase Ventilator Valve

Replace with a correctly calibrated valve such as AC Type CV-683.

### e. Engine Belts

Inspect belts for cracks and for proper tension.

### f. Propeller Shaft Slip Spline

Each 12,000 miles, rotate propeller shaft so plug in propeller shaft is accessible through front hole in frame tunnel. See Figure 1-10. Remove plug and install grease fitting. Apply multi-purpose grease EP #1 Grade Part #5727789. Do not use ordinary

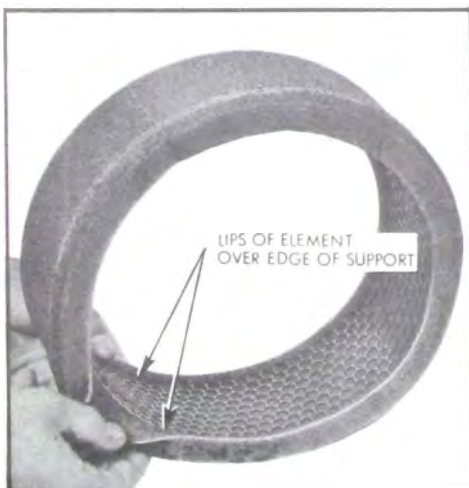


Figure 1-14—Installing Element On Support

chassis lube. Remove grease fitting and reinstall plug. EP #1 lube is available through many oil companies.

NOTE: Special extended length grease fittings to make this operation simple and fast are available from lubrication equipment jobbers.

## 1-5 MAINTENANCE—EVERY 18,000 MILES

### a. Brakes

Examine brake linings for wear, and the self-adjusting mechanism for proper functioning. Although linings may not be excessively worn, this check will indicate when another inspection should be made. If required, use Buick Factory Engineered replacement linings or equivalent. Lubricate the self-adjusting mechanism adjusting screw with Delco Moraine Special Brake Lubricant Part #5450032 or equivalent.

### b. Front Wheel Bearings

There is no periodic lubrication schedule for front wheel bearings. They may be relubricated whenever brake drums are removed. Always follow with the correct bearing adjustment as outlined in paragraph 7-10.

## 1-6 MAINTENANCE—EVERY 24,000 MILES

(Suggested in addition to the 6,000 and 12,000 mile recommendations)

### a. Fuel Filter

Replacement of the disposable filter is recommended. More frequent replacement may be necessary if contaminants have entered the fuel system. Replace with filter type GF-94 or equivalent on non-air conditioned cars

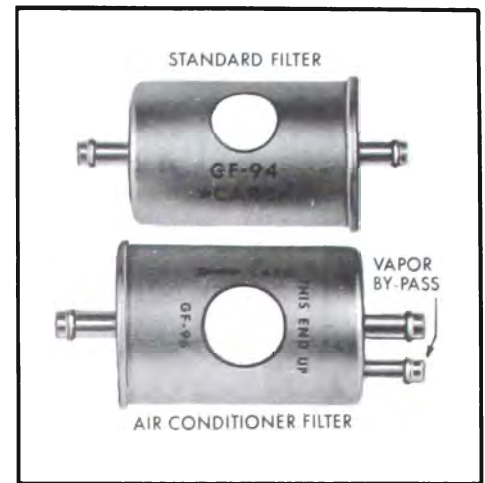


Figure 1-15—Fuel Filters

and type GF-96 or equivalent for air conditioned cars.

### b. Automatic Transmission

At this interval the automatic transmission should be drained, the oil pan cleaned, the oil filter changed, new oil added, and the low band adjusted (on Super Turbine "300" transmissions only.)

1. Approved Oils For Buick Automatic Transmissions - The following oils are approved for Buick Automatic Transmissions and no other fluid should be used:

GM Automatic Transmission Fluid - available through GM Parts Warehouses under Part #5723210.

Automatic Transmission Fluid Type A - available through petroleum suppliers. This fluid must have AQ-ATF and an identification number, suffix A, embossed on the lid of the can.

### 2. Installing New Filter

a. Remove bolts from transmission oil pan, remove pan, and allow transmission to drain.

b. Carefully remove filter and pipe assembly from transmission.

c. Inspect seal near end of pipe. If it is damaged in any way discard it along with the filter. If

Draining and flushing is not recommended unless the lubricant has become contaminated. When complete refilling is necessary, Multi-Purpose Gear Lubricant (conforming to specification MIL-L-2105B) may be used provided the axle has been in service for 1,000 miles or more. Axles with less than 1,000 miles service must not be completely refilled with any lubricant other than Factory Hypoid Lubricant.

The lube is packaged with replacement ring and pinion gear sets and is also available through the GM Parts Department under Part #5263993.

#### **b. Positive Traction Differential Axle**

Buick Positive Traction Differential Axles are filled at the Factory with a special lubricant Part #5786991. It is not necessary to remove the lubricant at

any time except when it has become contaminated or when it is required for inspection or parts or for repairs. There is no drain hole in the rear axle housing.

In all cases of adding lubricant to bring to proper level or complete refilling of Positive Traction Rear Axle, only lubricant Part #5786991 should be used. This lubricant may be obtained from any GM Parts Warehouse.

To identify a Positive Traction rear axle, a tag stating "Use Limited Slip Diff. Lube Only", is attached to the filler plug of the rear axle on Wildcats, Electra 225's and Rivieras. On LeSabres this same tag is attached to the lower right bolt on the rear axle rear cover. See Figure 1-10.

### **1-10 VEHICLE OPERATION UNDER DUSTY CONDITIONS**

When cars are operated in adverse dusty climates or conditions, the following precautions

should be taken to prevent dirt and other foreign materials from entering the engine.

a. Change Engine Oil - Change more often than is recommended in Par. 1-1. The severity of the conditions should determine the frequency of oil changes.

b. Oil Filter - Change each time that the oil is changed under these conditions.

c. Oil Filler Cap - Check for presence of dust and dirt each time car is refueled. Wash and re-oil if necessary.

d. Air Cleaner Element - If amount of dirt and foreign materials is excessive, element should be replaced on Super Wildcat engines and cleaned on all other engines.

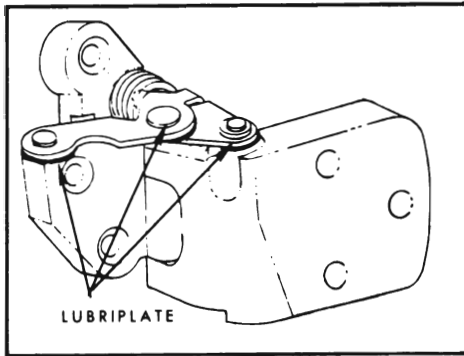


Figure 1-20—Front Door Hinge Hold-Down

Buick dealer each Spring in preparation for Summer operation.

It is good practice to occasionally remove insects and dirt from the air conditioner condenser.

## 1-8 MAINTENANCE—AS REQUIRED

### a. Body Lubrication

1. Lubricate the following areas with Lubriplate.
  - a. Front Door Hinge Hold-Open.
  - b. Rear Door Hinge Hold-Open.
  - c. Rear Compartment Lid and Tail Gate Locks. See Figure 1-19.
  - d. Rear Compartment Lid Hinges and Torque rods.

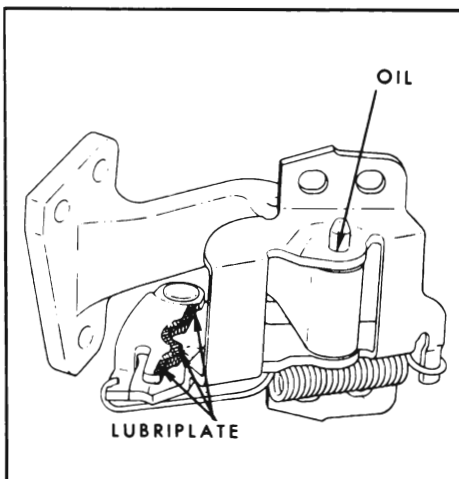


Figure 1-21—Rear Door Hinge Hold-Open

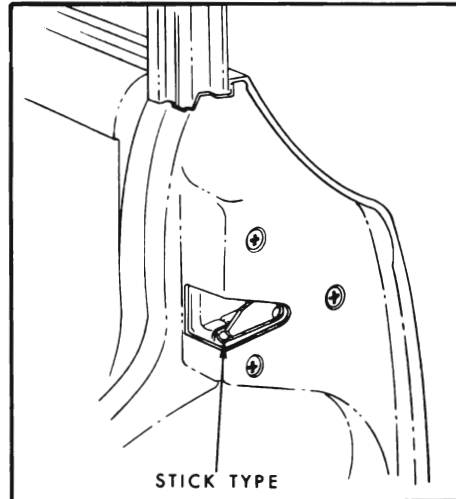


Figure 1-23—Door Lock Striker Fork Bolt

- e. Door Jamb Switch.
2. Lubricate the following areas with a dripless oil.
  - a. Instrument Panel Glove Box Door.
  - b. Gas Tank Filler Door. See Figure 1-25.
  - c. Tail Gate Hinge.
  - d. Folding Top Linkage. See Figure 1-24.

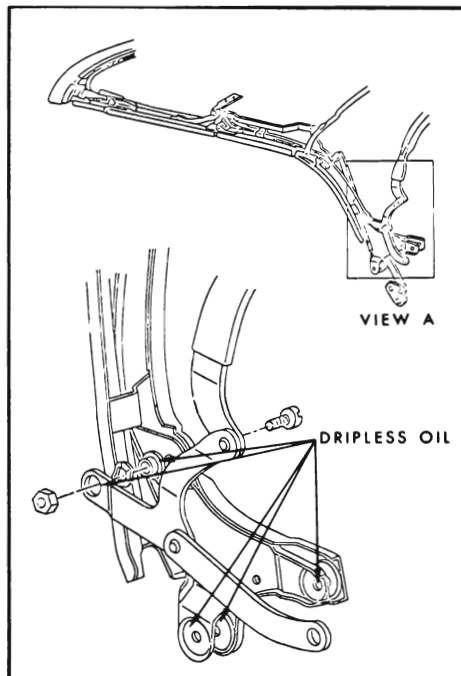


Figure 1-24—Folding Top Linkage

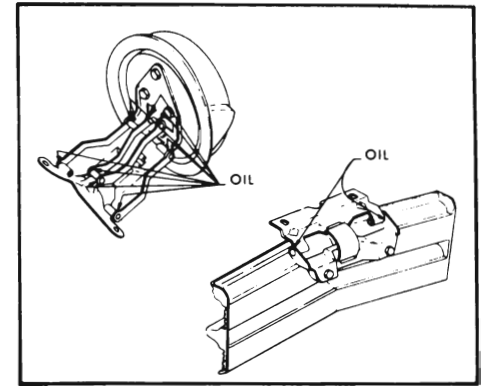


Figure 1-25—Gas Tank Filler Door

3. Lubricate the following areas with the lubricant specified.

- a. Door Lock Striker Fork Bolt - Stick Type Lubricant. See Figure 1-23.
- b. Door and Rear Compartment Lock Cylinders - Lock Lubricant.
- c. Folding Top Lift Cylinder Piston Rods - Cloth dampened in brake fluid.
- d. Windshield Wiper Cams - Silicone Lube.

### b. Chassis Lubrication

1. Hood Latches and Hinges - Lubricate lightly with Lubriplate or equivalent.
2. Shift Linkage - Lubricate with wheel bearing grease.
3. Clutch Linkage - Lubricate with wheel bearing grease.

## 1-9 REAR AXLE LUBRICANT RECOMMENDATIONS

### a. Standard Differential Axle

Buick standard rear axles are filled at the factory with a special hypoid gear lubricant. It is not necessary to remove the original lubricant at any time except when it has become contaminated, or when it is required for inspection of parts or for repairs. Therefore there is no drain hole in the rear axle housing.