

# MAINTENANCE

# B

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### GENERAL

This section describes the service procedures required to keep Jeep vehicles in good running condition. These services are based on changes in driving conditions, accumulated odometer mileage or time intervals (whichever comes first), or are unscheduled as required by changes in usage, handling or performance. The section is divided into three parts: (1) Maintenance Schedule, (2) Description of Services according to components (listed alphabetically), (3) Unscheduled Maintenance.

### Maintenance Schedule

Two maintenance schedules are listed: one for Engine Maintenance; one for Chassis Maintenance (including body).

The services listed are those which experience and testing have indicated are most likely needed at the time or distance intervals shown.

Perform the maintenance services as indicated in the **Engine Maintenance Schedule** and the **Chassis Maintenance Schedule**. The schedule tells you the component and required service, followed by the time and/or distance interval (mileage) at which the service should be performed, under both normal and heavy-duty operation.

For example:

	Each Fuel Fill	Miles (Thousands)		
		Kilometers (Thousands)		
		Months		
		5	12.5	20
		8	20	32
		5	12.5	20
1) Check Engine Oil	•			
2) Change Engine Oil		•	•	•

Number 1 tells you that the engine oil level should be checked at each fuel fill. Number 2 tells you to change the engine oil every five months or 5,000 miles (8 000 km), whichever comes first, **under normal use**. The

numbers appearing to the left of each component correspond with those on the **Engine and Chassis Illustrations** (figs. B-1, B-2, B-3 and B-4).

### Fuel Requirements

#### U.S. Models

All engines require the use of unleaded fuel to reduce exhaust emissions, and to protect the catalytic converters. Use a fuel with an antiknock index (AKI) of at least 87. A lower octane AKI is acceptable at elevations above 1,500 feet (450 meters).

#### Canadian Models

1981 Jeep model J-20 Truck vehicles only, sold in Canada, are equipped with a catalytic converter and must operate on unleaded fuel only. All Jeep CJ, Cherokee, Wagoneer and J-10 Truck models sold in Canada are designed to operate on regular, low-lead, or unleaded fuel. Select a fuel with a Research Octane Number of at least 91 and a Motor Octane Number of at least 83 (Antiknock Index of at least 87).

### Owner's Responsibility

It is the owner's responsibility to determine driving conditions (normal or heavy-duty operation), to have the vehicle serviced according to the **Maintenance Schedule**, and to pay for the necessary parts and labor.

**CAUTION:** *Failure to perform maintenance services at the proper intervals as outlined in the Maintenance Schedule constitutes negligence and may void provisions of the new-vehicle warranty.*

### Heavy-Duty Operation

Heavy-duty operation consists of off-road or dusty conditions for over thirty percent of use, commercial

load-carrying or delivery, snow plowing, pulling trailers weighing over 2,000 pounds (900 kg) loaded, or extended engine idling during normal use. If your vehicle is used in heavy-duty operation, perform the service listed in the **Engine Maintenance Schedule** and the **Chassis Maintenance Schedule** according to the intervals designated under heavy-duty. (If no heavy-duty service is indicated for a particular component, perform the service at the normal time and/or distance interval noted.)

**CAUTION:** Immediately after extended operation in sand, mud or water, thoroughly clean brakelinings, brakedrums and front axle U-joints and yokes, to prevent undue wear and unnecessary part failure.

**CAUTION:** If the vehicle is driven through water deep enough to cover the hubs, the wheel ends and axle differentials should be disassembled and inspected for water damage or contamination.

### After First 200 Miles (300 km)

Check and retighten wheel nuts securely, if necessary. Tighten CJ models to 80 foot-pounds (108 N•m) torque, Cherokee, Wagoneer and J-10 Truck models to 75 foot-pounds (102 N•m) torque. Tighten J-20 (6800, 7600, 8400 GVWR) Truck to 130 foot-pounds (176 N•m) torque.

### 1981 JEEP MAINTENANCE SCHEDULE

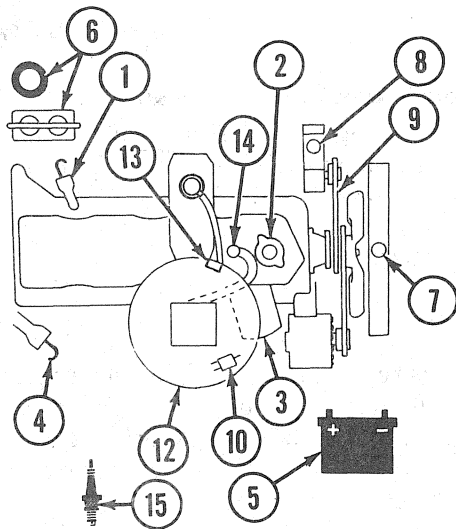


Fig. B-1 Four-Cylinder Engine

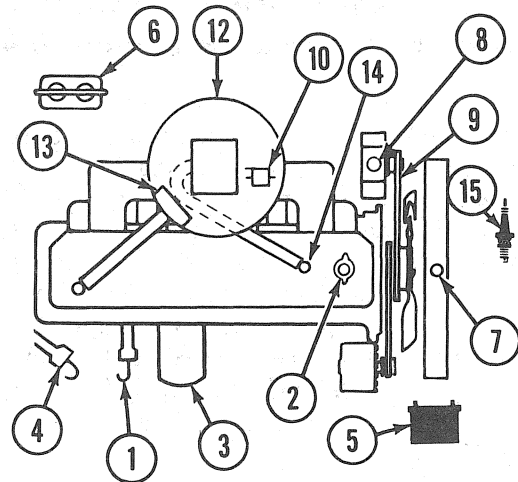


Fig. B-2 Six-Cylinder Engine

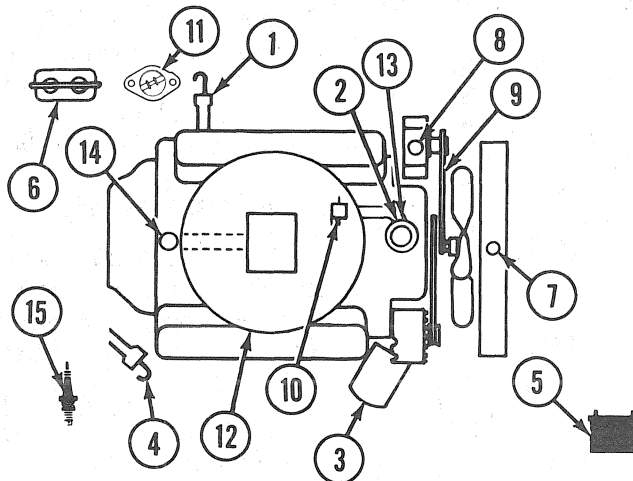


Fig. B-3 Eight-Cylinder Engine

## 1981 JEEP ENGINE MAINTENANCE SCHEDULE

	Miles (Thousands) Kilometers (Thousands) Months	Each Fuel Fill	5	12.5	20	27.5	30	35	42.5	50
			8	20	32	44	48	56	68	80
			5	12.5	20	27.5	30	35	42.5	50
1) Check Engine Oil		●								
2) Change Engine Oil			●	●	●	●		●	●	●
3) Change Engine Oil Filter (6 and 8 Cylinder)			●	●	●	●		●	●	●
3) Change Engine Oil Filter (4 Cylinder)			●	◆	●	◆		●	◆	●
4) Check Automatic Transmission Fluid			●	●	●	●		●	●	●
5) Check Battery			●	●	●	●		●	●	●
6) Check Brake Master Cylinder Fluid Level			●	●	●	●		●	●	●
6) Check Hydraulic Clutch Reservoir (4 Cylinder Manual Transmission)			●	●	●	●		●	●	●
7) Check Coolant Level			●	●	●	●		●	●	●
7) Drain, Flush and Change Coolant ①				●						
8) Check Power Steering Pump Fluid Level			●	●	●	●		●	●	●
9) Check Drive Belt Tension (California)			◆				●		◆	
9) Check Drive Belt Tension (49 State)			●				●		●	
10) Fuel Filter (California)				◆		◆			◆	
10) Fuel Filter (49 State)				●		●			●	
11) Lubricate Exhaust Heat Valve (8 Cylinder Only)							●			
12) Replace Air Cleaner Filter ②							●			
13) Replace PCV Filter (4 Cylinder)							●			
13) Clean PCV Filter (6 and 8 Cylinder) ③							●			
14) Replace PCV Valve (California)							◆			
14) Replace PCV Valve (49 State)							●			
14) Check PCV Hoses and Connections (California)							◆			
14) Check PCV Hoses and Connections (49 State 6 and 8 Cylinder)							●			
14) Check PCV Hoses and Connections (49 State 4 Cylinder)				●		●			●	
15) Tune-Up										
Check and Adjust Curb and Fast Idle Speed (California)			●				◆			
Check and Adjust Curb and Fast Idle Speed (49 State 6 Cylinder)			●				◆			
Check and Adjust Curb and Fast Idle Speed (49 State 4 and 8 Cylinder)			●				●			
Check Distributor Vacuum and Centrifugal Advance Mechanism (49 State 6 Cylinder and All California)							◆			
Check Distributor Vacuum and Centrifugal Advance Mechanism (49 State 8 Cylinder)							●			
Check Distributor Vacuum and Centrifugal Advance Mechanism (49 State 4 Cylinder)				●		●			●	
Check Distributor Cap and Rotor (California)							◆			
Check Distributor Cap and Rotor (49 State)							●			
Check and Adjust Carburetor Mounting Bolts (4 Cylinder)			●							
Clean Choke System (49 State)			●			●			●	
Clean Choke System (California)							●			
Check TAC Control System (49 State 6 and 8 Cylinder)							●			
Check TAC Control System (California)							◆			
Check TAC Control System (49 State 4 Cylinder)			●			●				
Check Fuel System Filler Cap, Tank, Lines, Hoses and Connections				●		●			●	
Check Air System Hoses (8 Cylinder)							●			
Check Vacuum Fittings, Hoses and Connections							◆			
Check Exhaust System			●	●	●	●		●	●	●
Check Coil and Spark Plug Wires				◆		◆			◆	
Check Ignition Timing (California)							◆			
Check Ignition Timing (49 State 4 and 6 Cylinder)							●			
Check Ignition Timing (49 State 8 Cylinder)				●		●			●	
Replace Spark Plugs							●			
Replace Oxygen Sensor (California 4 Cylinder)							●			
Reset Oxygen Sensor Signal (California 4 Cylinder)							●			
Inspect and Lubricate Exhaust Manifold Heat Valve (8 Cylinder)							●			
Replace Charcoal Canister Air Inlet Filter (49 State 4 and 8 Cylinder)							●			

● - Required    ◆ - Recommended, But Not Required

① Change engine coolant at 12,500 miles or 12-1/2 months, whichever comes first, then at the start of each winter season. Maintain a 50/50 mixture of coolant and water (-34°F/-36°C freezing point) for corrosion protection during summer.

② Replace air cleaner element once in between each normally scheduled change when driving under predominantly dusty conditions.

③ On 4- and 6-cylinder models, clean PCV filter in air cleaner assembly. On 8-cylinder models, clean PCV filter in oil filler cap.

### 1981 JEEP CHASSIS MAINTENANCE SCHEDULE

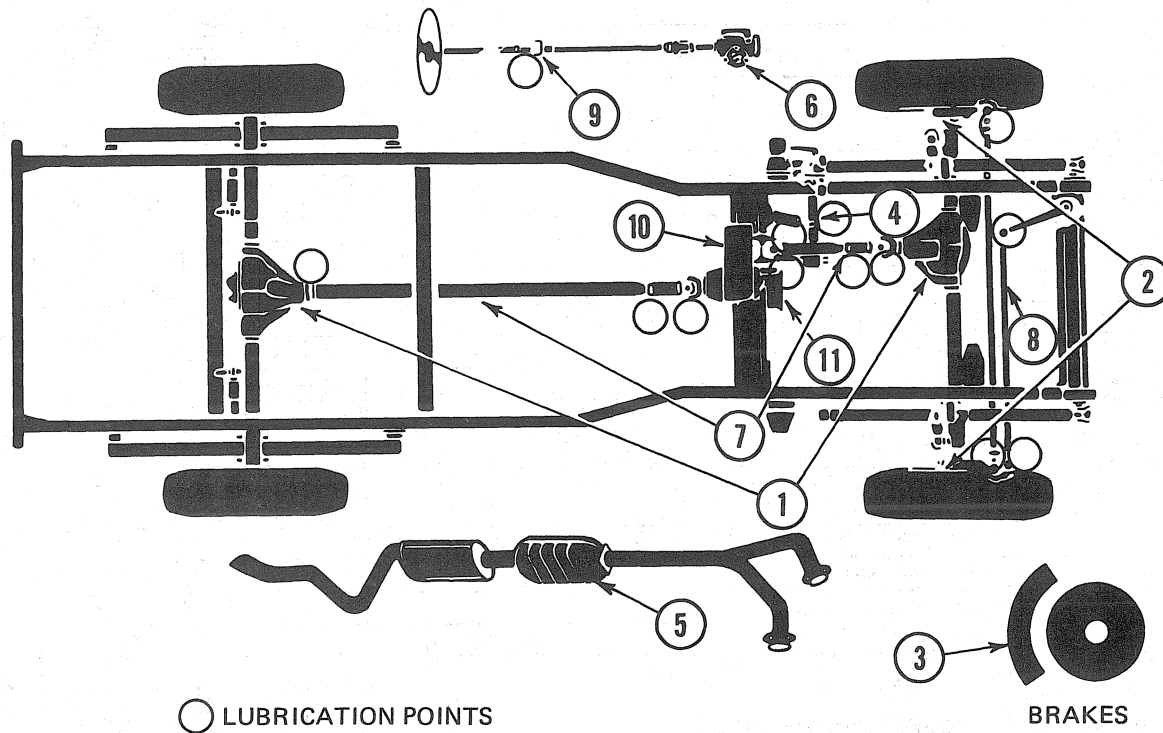


Fig. B-4 Chassis Illustration

Perform the maintenance services at the intervals shown. The symbol tells you what service is required, followed by the time and/or distance interval. For example: Front Wheel Bearings (Number 2) should be lubricated every 30,000 miles (48 000 km) under normal use, and every 15,000 miles (24 000 km) under heavy-duty operation. (The footnotes provide additional information about certain components and services.)

### 1981 JEEP CHASSIS MAINTENANCE SCHEDULE

	Miles (Thousands)	3	5	6	7.5	9	10	12	15	18	20	21	22.5	24	25	27	30	33	35	36	37.5	39	40	42	45	48	50	51
	Kilometers (Thousands)	5	8	10	12	14	16	19	24	29	32	34	36	38	40	43	48	53	56	58	60	62	64	67	72	77	80	82
	Months	3	5	6	7.5	9	10	12	15	18	20	21	22.5	24	25	27	30	33	35	36	37.5	39	40	42	45	48	50	51
1) Check Axle Differentials (Front & Rear)		HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD		HD	
1) Replace Axle Differential Fluid (Front & Rear)															•												•	
2) Lubricate Front Wheel Bearings <sup>②</sup>									HD								HD								HD			
2) Lubricate Manual Locking Hubs									HD								HD								HD			
3) Check Brakes & Chassis <sup>③</sup>			HD				HD	HD	HD		HD				HD	HD	HD		HD				HD	HD	HD		HD	
3) Lubricate Body Components <sup>④</sup>			HD				HD	HD	HD		HD				HD	HD	HD		HD				HD	HD	HD		HD	
4) Lubricate Clutch Lever & Linkage (CJ)		HD	•	HD		HD	•	HD	HD	•	HD				HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD	
4) Lubricate Clutch Lever & Linkage (Cherokee, Wagoneer, Truck)			HD				HD	HD	HD		HD				HD	HD	HD		HD				HD	HD	HD		HD	
5) Inspect Exhaust System <sup>⑤</sup>			HD				HD	HD	HD		HD				HD	HD	HD		HD				HD	HD	HD		HD	
6) Check Manual Steering Gear		HD	•	HD		HD	•	HD	HD	•	HD				HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD	
7) Lubricate Propeller Shafts (Front & Rear)(CJ) <sup>⑥</sup>		HD	•	HD		HD	•	HD	HD	•	HD				HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD	
7) Lubricate Propeller Shafts (Front & Rear) (Cherokee, Wagoneer, Truck) <sup>⑥</sup>			HD				HD	HD	HD		HD				HD	HD	HD		HD				HD	HD	HD		HD	

# 1981 JEEP CHASSIS MAINTENANCE SCHEDULE (Continued)

8) Check and Lubricate Steering Linkage (CJ)®		HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD
8) Check and Lubricate Steering Linkage (Cherokee, Wagoneer, Truck)®			HD			HD		HD			HD		HD		HD		HD		HD		HD		HD		HD
9) Lubricate Steering Shaft U-Joint			HD			HD		HD			HD		HD		HD		HD		HD		HD		HD		HD
10) Check Transfer Case Fluid		HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD
10) Replace Transfer Case Fluid (Model 208 & Model 300)																HD									
10) Replace Transfer Case Fluid (Quadra-Trac)®																HD									
11) Check Manual Transmission Fluid		HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD		HD	•	HD	HD	•	HD
11) Replace Manual Transmission Fluid																HD									
11) Replace Automatic Transmission Fluid & Filter						HD				HD				•	HD					HD				HD	
12) Check Windshield Washer Fluid			•			•		•		•			•		•		•			•		•		•	

®Replace spindle oil and bearing seals on front wheel bearings (rear wheel bearings do not require periodic or scheduled lubrication).

⑩Check the following items as indicated. Correct to specifications as necessary: BRAKES—Front and rear brake linings for wear; rear brake self-adjusting mechanism for proper operation; master cylinder, calipers, wheel cylinders and differential warning valves for leaks; brake lines, fittings and hoses for condition and leaks; parking brake for proper operation; overall brake condition and action. STEERING/SUSPENSION—Manual or power steering gear and linkage for leaks, looseness or wear; springs, shock absorbers, steering damper and bushings for leaks, looseness or wear; tire condition; overall steering/suspension condition and action. BODY LUBRICATION—Lubricate the following items with the recommended lubricants: ashtray slides; courtesy light buttons; door, hood, liftgate, tailgate latches and hinges; front seat tracks; glove box door latch and hinge; locks; windshield hinges and hold-down knobs (CJ only). ALSO—Adjust parking brake and manual transmission clutch free play, if necessary; adjust tire pressures to specifications; lubricate Model 300 transfer case linkage.

⑪Check exhaust system for leaks, damage, misalignment or grounding against body sheet metal or frame. Check catalytic converter for bulging or heat damage.

⑫Lubricate sleeve yokes (splines) and single and double cardan U-joints.

⑬Inspect and replace torn or ruptured grease seals, replace damaged steering components, and lubricate ball joints.

## DESCRIPTION OF SERVICES—ENGINE COMPONENTS

### 1. Oil Check

Check engine oil level at each fuel fill. Add oil as necessary.

### 2. Oil Change

Change engine oil after the first 5,000 miles (8 000 km) and every 5,000 miles (8 000 km) thereafter. As periods for oil changes are affected by a variety of conditions, no single mileage figure applies for all types of driving.

Five-thousand miles (8 000 km) is the maximum amount of miles that should elapse between changes; more frequent changes are beneficial, and for this reason, oil should be changed every five months even though 5,000 miles (8 000 km) may not have elapsed on the vehicle odometer.

Drain crankcase only after engine has reached normal operating temperature to ensure complete drainage of used oil.

For maximum engine protection under all driving conditions, fill crankcase only with engine oil meeting API Engine Oil Service Classification "SE." These letters must appear on the oil container singly or in combination with other letters. SE engine oils protect against oil oxidation, high-temperature engine deposits, rust and corrosion.

Single viscosity or multi-viscosity oils are equally acceptable. Oil viscosity number, however, should be determined by the lowest anticipated temperature before the next oil change.

## Engine Oil Viscosity

Lowest Temperature Anticipated	Recommended Single Viscosity	Recommended Multi-Viscosity
Above +40°F (+5°C)	SAE 30 or 40	SAE 10W-30, 20W-40, or 10W-40
Above 0°F (-18°C)	SAE 20W-20	SAE 10W-30 or 10W-40
Below 0°F (-18°C)	SAE 10W*	SAE 5W-20 or 5W-30

\*Sustained high speeds (above 55 mph, 88 km/h) should be avoided when using SAE 10W engine oil since oil consumption may be greater under this condition.

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Crankcase capacity is 3.0 quarts (2.84 liters) for four-cylinder engines, 4 quarts (3.8 liters) for six-cylinder engines, 4 quarts (3.8 liters) for eight-cylinder engines. Add one additional quart (1 liter) when the filter is changed. Do not add any additional oil when the filter is changed on four-cylinder engines.

### 3. Oil Filter

Change the oil filter every 5,000 miles (8 000 km) or every five months, whichever comes first, under normal conditions.

A full-flow oil filter is mounted on the lower center right side of six-cylinder engines, lower right side on four-cylinder engines and lower right side on eight-cylinder engines.

Remove the throwaway filter unit from the adapter with Oil Filter Removal Tool J-22700, or equivalent. To install, turn the replacement unit by hand until the gasket contacts the seat and then tighten an additional one-half turn.

**CAUTION:** Use only a short-type, full-flow oil filter (AMC/Jeep Part No. 8993146, or equivalent) for replacement. Filters exceeding 4-1/4 inches (108 mm) in length could be punctured by the engine support or frame rail resulting in loss of oil and possible engine damage.

#### 4. Automatic Transmission (Fluid Check)

Inspect fluid level at scheduled interval. Check while the transmission is at normal operating temperature. This occurs after at least 15 miles (25 km) of expressway driving or equivalent city driving. At normal operating temperature, the gauge end of the dipstick will be too hot to make an accurate fluid level check perform the following steps:

- (1) Bring transmission up to normal operating temperature as indicated above.
- (2) Place vehicle on level surface.
- (3) Have engine running at idle speed.
- (4) Apply parking brake.
- (5) Move gearshift lever through all positions, leaving it in Neutral.
- (6) Remove dipstick, located in fill tube at right rear of engine near dash panel, and wipe clean.
- (7) Insert dipstick until cap seats.
- (8) Remove dipstick and note reading. The fluid level should be between the ADD and FULL marks. If at or below the ADD mark, add sufficient fluid to raise level to FULL mark.

Use AMC/Jeep Automatic Transmission Fluid, or equivalent, labeled Dexron® or Dexron II®.

**CAUTION:** Do not overfill. Overfilling can cause foaming which can lead to overheating, fluid oxidation, or varnish formation. These conditions can cause interference with normal valve, clutch, and servo operation. Foaming can also cause fluid to escape from the transmission vent where it may be mistaken for a leak.

When checking fluid level, also check fluid condition. If fluid smells burned or is full of metal or friction material particles, a complete transmission overhaul may be needed. Examine the fluid closely. If doubtful about its condition, drain out a sample for a double check.

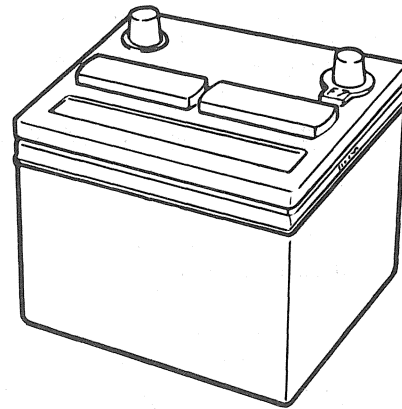
Refer to Chassis Components for procedures on changing automatic transmission fluid and linkage adjustment.

#### 5. Battery

**WARNING:** Wear safety glasses, rubber gloves and protective clothing when servicing the battery. Battery

fluid contains sulfuric acid and must be kept away from skin, eyes, clothing and the vehicle painted surfaces. If acid contacts any of these, **flush immediately with large amounts of water. If acid contacts skin or eyes get medical attention.** Do not smoke while checking or servicing the battery and keep open flames or sparks away from battery filler caps since explosive gas is always present.

Check electrolyte level at scheduled interval. Lift the battery cell caps (fig. B-5) and look into each filler well. Maintain the fluid level above the battery plates to the bottom of the filler well ring. Add distilled water or drinking water free of high mineral content. In freezing weather, add water before driving to assure mixing with acid and to prevent freezing.



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Fig. B-5 Battery

In addition to regular fluid checks, inspect overall battery condition before every winter season according to the following procedure:

- (1) Disconnect battery negative cable and then positive cable.
- (2) Clean cables and terminal posts with a wire-brush terminal cleaner.
- (3) Check battery fluid level and replenish if necessary (fig. B-4).
- (4) Remove battery holddown and clean battery case and battery tray, if necessary, with a solution of baking soda and water; then rinse thoroughly.
- (5) Position battery in tray and fasten holddown. Do not overtighten.
- (6) Attach positive cable and then the negative cable.
- (7) Apply a small amount of grease or protective coating to cable ends to minimize corrosion.



## 6. Brake Master Cylinder

Check fluid level at scheduled interval.

Clean the top of the cover and surrounding housing area. Unsnap the bail and remove the cover. The fluid should be 1/4 inch (6 mm) below the rim of each well in the reservoir. If not, add brake fluid as required and install cover. Use only Jeep Heavy-Duty Brake Fluid, or equivalent, meeting SAE Standard J1703, and Federal Standard No. 116, DOT 3 Fluid.

Refer to Chassis Components for procedures on brake and chassis inspection.

## 7. Coolant

Check coolant level at scheduled interval when the engine is cold. If coolant should be needed, fill radiator to approximately 1-1/2 to 2 inches (38 to 51 mm) below the filler neck when cold, or 1/2 to 1 inch (13 to 25 mm) at normal operating temperature. Add a 50/50 mixture of ethylene glycol antifreeze and pure water. In an emergency, water alone may be used. Check the freeze protection at the earliest opportunity, as the addition of water will reduce the antifreeze and corrosion protection afforded by the coolant mixture. Do not overfill, as loss of coolant—due to expansion—will result.

Year-round coolant is installed at the factory to last through two years of normal operation, if the coolant is maintained at the original concentration.

In normal operation, flush and refill the cooling system at the **Maintenance Schedule** interval.

When replacing coolant use a 50/50 mixture of high-quality, ethylene glycol antifreeze and water. Use this mixture year-round for protection against corrosion, boiling and engine damage.

## 8. Power Steering Pump

Check fluid level at scheduled interval.

Lubricant level can be checked with fluid either hot or cold. If below the FULL HOT or FULL COLD marking on the dipstick attached to the reservoir cap (fig. B-6), add AMC/Jeep Power Steering Fluid, or equivalent.

## 9. Drive Belts

Check belts driving fan, air pump, alternator, power steering pump and air conditioning compressor for cracks, fraying, wear, and general condition at scheduled interval. Use Tension Gauge J-23600 to check drive belt tension. Compare reading obtained against the tension specified for used belts in the following chart. If installing a new belt, use the new belt setting shown in the chart. Refer to Chapter 1C—Cooling for replacement or adjustment procedures.

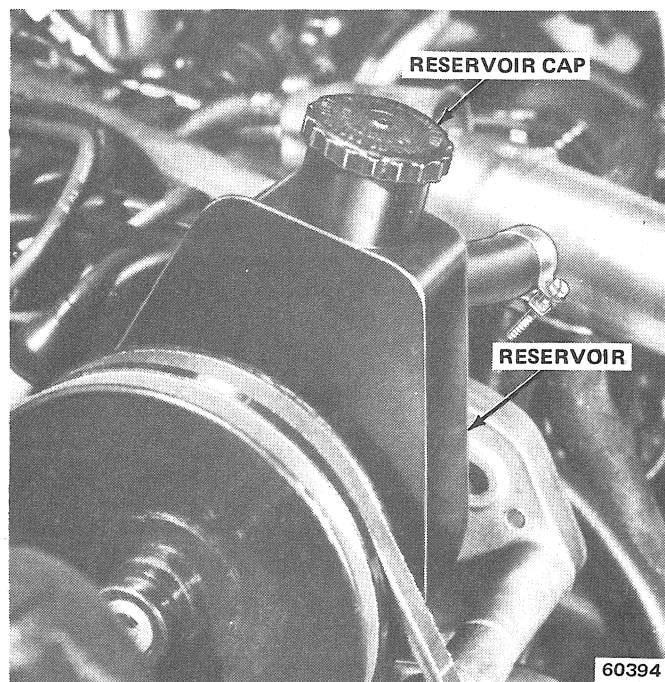


Fig. B-6 Power Steering Pump Dipstick Location

Drive Belt Tension

	Initial Newtons New Belt	Reset Newtons Used Belt	Initial Pounds New Belt	Reset Pounds Used Belt
Air Conditioner				
Six-Cylinder	556-689	400-512	125-155	90-115
Eight-Cylinder	556-689	400-512	125-155	90-115
Air Pump				
Six-Cylinder w/PS	289-334	267-311	65-75	60-70
Other Six-Cylinder and all Eight- Cylinder	556-689	400-512	125-155	90-115
Fan — All Engines	556-689	400-512	125-155	90-115
Power Steering — All Engines	556-689	400-512	125-155	90-115
Serpentine				
Six-Cylinder Calif.	800-890	623-712	180-200	140-160

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## 10. Fuel Filter

Replace the fuel filter at scheduled interval. Be sure to position the fuel return line at the top of the filter (fig. B-7).

For more detailed procedures on fuel filter replacement, refer to Chapter 1J—Fuel Systems.

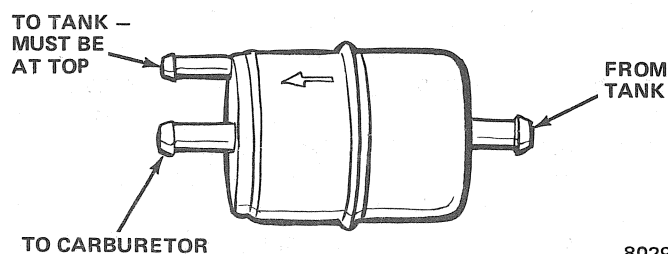


Fig. B-7 Correct Fuel Filter Installation

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### 11. Exhaust Heat Valve

Check exhaust heat valve (eight-cylinder only) for free movement and lubricate at scheduled interval.

### 12. Air Cleaner (Filter)

Procedures for air cleaner servicing and replacement are located in Chapter 1J—Fuel Systems.

### 13. PCV Filter

Clean the PCV Filter at scheduled interval. Refer to Chapter 1A—General Service and Diagnosis for detailed procedure.

### 14. PCV Valve

Replace PCV valve at scheduled interval. Refer to Chapter 1J—Fuel Systems for detailed procedures.

### 15. Tune-Up

Certain items (such as the choke system and ignition timing) must be checked and serviced between regularly scheduled complete tune-ups on some models. Refer to the Engine Maintenance Schedule for details.

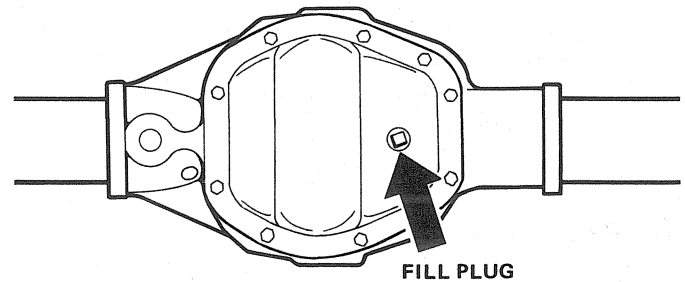
Perform a complete precision tune-up at the scheduled interval. Perform a precision electronic diagnosis whenever questionable engine performance occurs between scheduled tune-ups.

Refer to Chapter 1A—General Service and Diagnosis for detailed procedures and specifications.

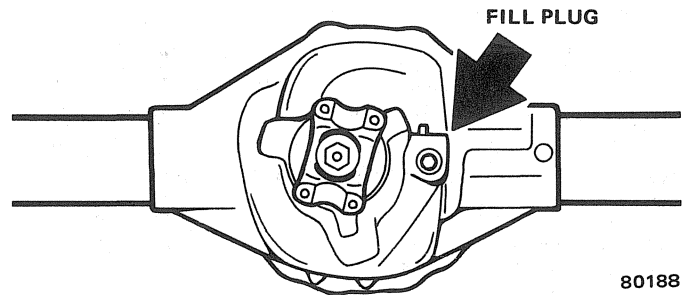
(6) Tighten cover bolts to 15 to 25 foot-pounds (20 to 34 N•m) torque.

(7) Remove fill plug and add new lubricant to fill hole level (fig. B-8).

(8) Install fill plug.



ALL FRONT AXLES AND J-20 TRUCK REAR AXLE



ALL REAR AXLES EXCEPT J-20 TRUCK

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Fig. B-8 Axle Fill Plug Locations

## DESCRIPTION OF SERVICES—CHASSIS COMPONENTS

### 1. Axle Differentials (Front and Rear)

Check fluid levels at scheduled interval.

The lubricant level of all differentials should be at the level of the fill hole (fig. B-8). If not, bring to level by adding the recommended lubricant.

Change fluid as recommended in the Chassis Maintenance Schedule. Fluid type and quantity required are listed in the Recommended Fluids and Lubricants chart and the Fluid Capacities chart at the end of this chapter by axle model. To change fluid:

(1) Remove axle differential housing cover.

(2) Allow lubricant to drain completely.

(3) On all differentials except Trac-Loc, flush the differential with a flushing oil or light engine oil to clean out the housing (do not use water, steam, kerosene or gasoline for flushing). Trac-Loc differentials may be cleaned only by disassembling the unit and wiping with clean, lint-free rags. Do not flush the unit.

(4) Check condition of differential housing cover gasket. Replace if necessary.

(5) Install gasket and differential housing cover.

### 2. Bearings—Front Wheel

Lubricate front wheel bearings as scheduled using a high quality wheel bearing lubricant (see Recommended Fluids and Lubricants chart). Be sure to force grease between rollers. Check the bearing races for signs of pitting, brinelling or overheating. Wipe the spindle clean and apply a small amount of grease to prevent rust. Wipe the wheel hub clean and apply a small amount of grease inside the hub.

**CAUTION:** Do not overfill the wheel hub. Too much grease can cause overheating and bearing damage, or it can leak and contaminate brakelinings.

Install the inner bearing and a new grease seal. Assemble the hub assembly and adjust bearings as described in Chapter 2F—Axles.

Inspect bearings, and clean and repack if necessary, when they are removed for other services.

### Manual Locking Hubs

Inspect and lubricate manual locking hubs as scheduled using chassis lubricant. For a more detailed procedure, refer to Chapter 2F—Axles.



## Brake and Chassis Inspection

### Brakes

Inspect linings for wear, cracks, charred surfaces or broken rivets, and for contamination by brake fluid, axle lubricant or other contaminants. Refer to the following inspection procedures.

#### Front Brakelinings—CJ Models

Check both ends of the outboard lining by looking in at each end of the caliper (fig. B-9). These are the points at which the highest rate of wear normally occurs. At the same time, check the lining thickness of the inboard shoe to make sure that it has not worn prematurely. Look through the inspection port to view the inboard shoe and lining. Whenever the thickness of any lining is worn to the approximate thickness of the metal shoe, all shoe and lining assemblies on both brakes should be replaced.

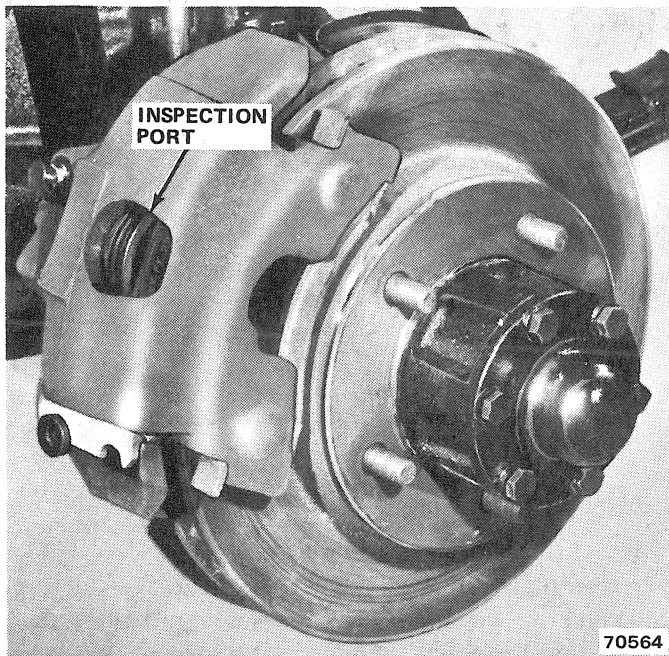


Fig. B-9 Disc Brake Assembly—CJ Models

#### Front Brakelinings—Cherokee-Wagoneer-Truck Models

Check brakelining thickness through caliper inspection port (fig. B-10).

A wear sensor is attached to the brakeshoes. When brakelining wears to the point that replacement is necessary, the sensor contacts the disc, making a screeching or scraping noise to warn the driver that brakeshoes need replacement.

#### Rear Brakelinings—All Models

Replace linings worn to within 1/32 inch (.78 mm) of rivet head.

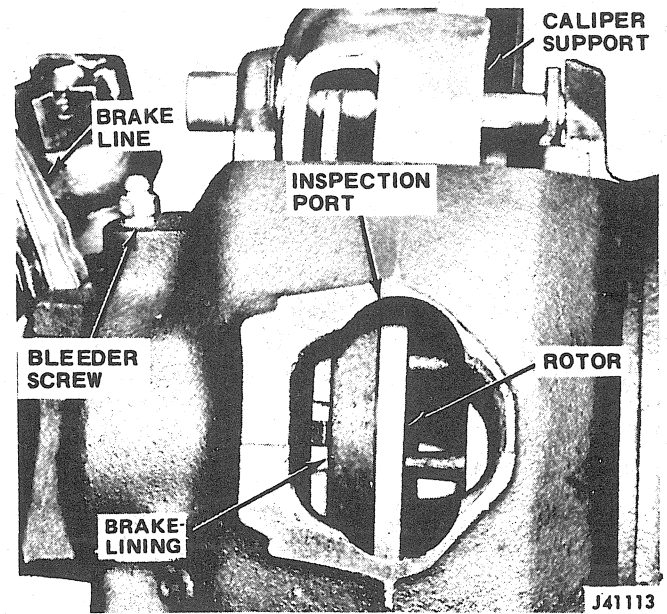


Fig. B-10 Caliper Inspection Port—Cherokee-Wagoneer-Truck Models

### Rear Self-Adjusting Mechanism

Operate the adjuster cable (CJ) or adjuster lever and pivot (Cherokee, Wagoneer and Truck). Check for ease of operation of the adjuster screw assembly. Check condition of the adjuster components for bending, frayed cables, loose or overheated springs, or binding.

### Master Cylinder

Inspect the cap bail for proper tension and fit. The cap should maintain a tight seal. Check the rubber diaphragm seal for cracks, cuts or distortion. Check fittings and housing for signs of leakage. If internal leaks are suspected or if fluid loss occurs but a leak is not evident, check for leaks at the rear of the master cylinder. Correct as required.

### Disc Brake Calipers

Check dust boot for correct installation, tears or signs of leakage. Check slide surfaces (CJ) or bushings and pins (Cherokee, Wagoneer and Truck) for binding, corrosion or tears.

### Rear Wheel Cylinders

Pull the dust boot back and inspect for leaks. Check the condition of the pistons and cylinder bores.

### Differential Warning Valve

Check the valve and housing for signs of leaks, kinked lines or loose fittings.

**Brakelines, Fitting and Hoses**

Check for cracks, swelling, kinks, distortion or leaks. Also inspect position to be sure no lines are rubbing against exhaust system parts or other components.

**Parking Brake**

Operate the parking brake pedal and release and check for smooth operation and brake holding ability. Inspect cables for binds, kinks or frays. With the brake released, the rear wheels should turn freely. Adjust the parking brake, if necessary, as described in Chapter 2G—Brakes.

**Overall Brake Condition and Action**

Check for improper brake action, performance complaints or signs of overheating, dragging or pulling. Correct as required.

**Chassis**

Inspect spring bushings and mountings for looseness or wear. Check shock absorbers and bushings for loose mountings, wear or leaks. Correct as required.

Check for improper steering action or suspension noises, performance complaints or signs of shimmy, pulling, rubbing or undue tire wear.

Check tires for visible signs of wear which may indicate underinflation or need for front-end alignment, tire rotation or wheel balancing. Also check for bulging, cracks or other road hazard damage. Check and adjust inflation pressures according to the specifications listed in the tire pressure sticker on the glove box door.

**3. Body Lubrication**

Lubricate the items listed at scheduled interval using lubricant specified in the Recommended Fluids and Lubricants chart at the end of this section. Refer to figures B-11 through B-18 for application of lubricant. When lubricating weatherstrips and seals, apply the lubricant to a rag and wipe it on the seal to avoid dust-collecting overspray which can soil passenger clothing.

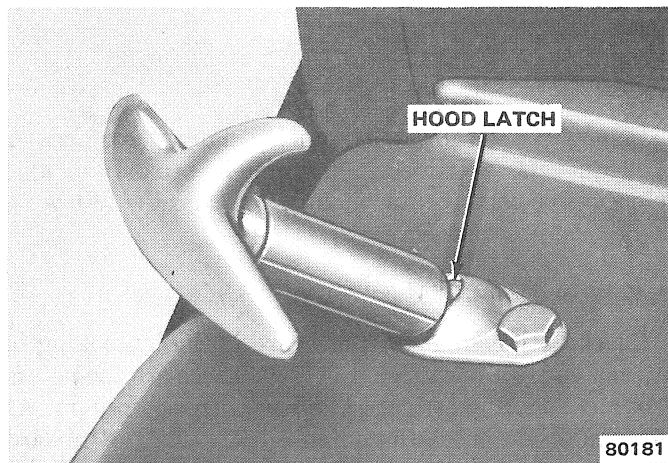
**4. Clutch Lever and Linkage**

Lubricate at scheduled interval. Apply AMC/Jeep All-Purpose Lubricant, or equivalent, or multi-purpose chassis lubricant (lithium base) to the one lube fitting on the clutch bell crank.

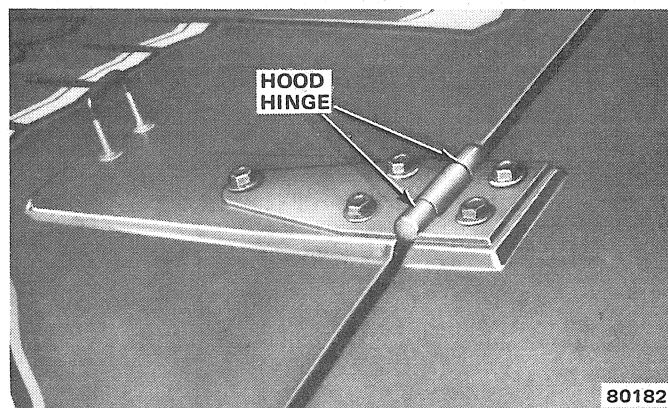
**5. Exhaust System Inspection**

Inspect the exhaust system at scheduled interval for the following conditions. Correct as required.

- Exhaust system leaks, damage, misalignment
- Grounding against body sheet metal or frame
- Catalytic converter "bulging" or heat damage



**Fig. B-11 Hood Latch—CJ Models**



**Fig. B-12 Hood Hinge—CJ Models**

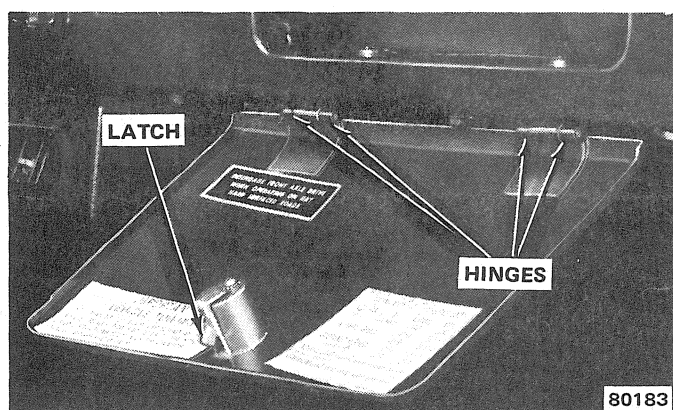
**6. Manual Steering Gear**

Check at scheduled interval by removing the side cover bolt opposite the adjuster screw (fig. B-19). Lubricant should be to level of bolt hole. If not, add make-up fluid such as AMC/Jeep All-Purpose Lubricant or multi-purpose lithium base chassis lubricant.

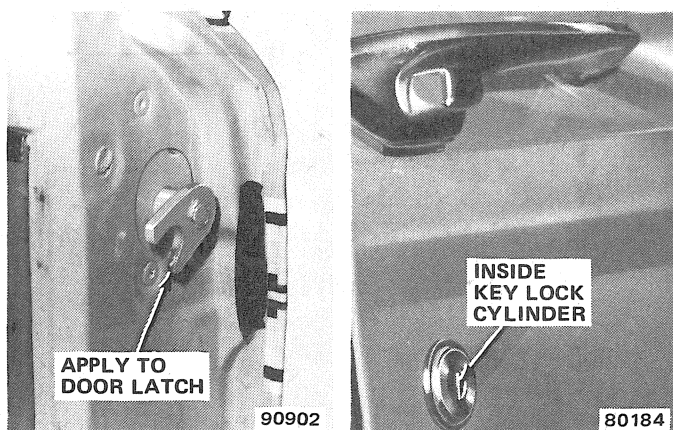
**7. Propeller Shafts (Front and Rear)**

Lubricate propeller shafts, single and double cardan U-joints, during the scheduled chassis lubrication with AMC/Jeep All-Purpose Lubricant or multi-purpose lithium base chassis lubricant grease.

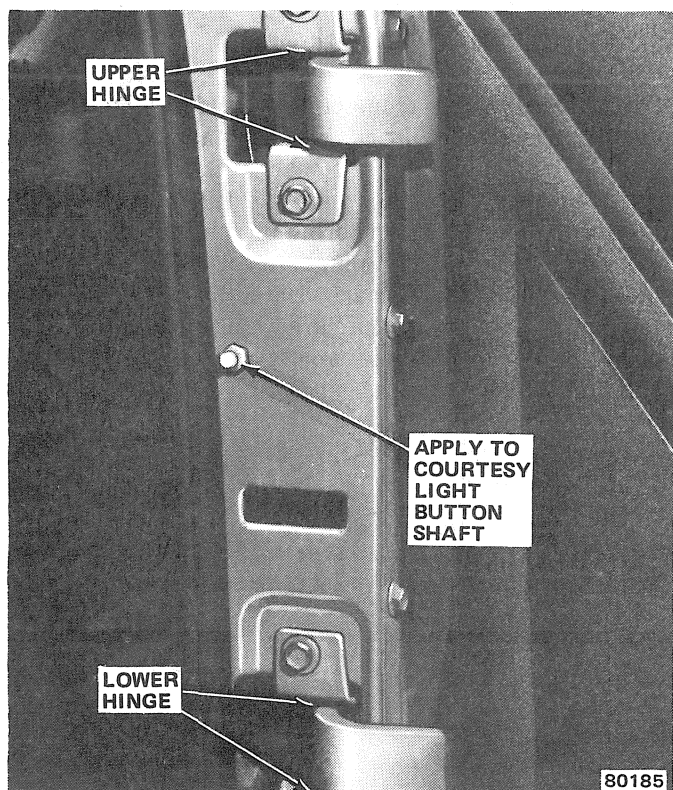
**NOTE:** Undercoating or rustproofing compounds could unbalance the propeller shafts and cause drivetrain vibrations. Remove any such compounds using the appropriate solvent.



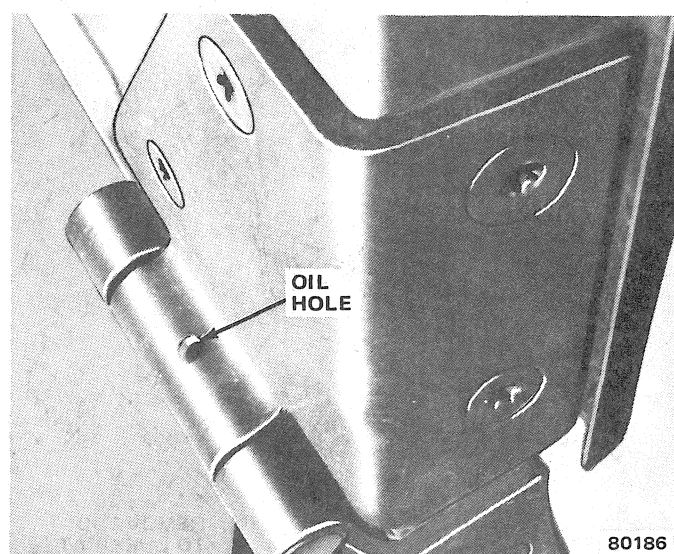
**Fig. B-13 Glove Box Latch and Hinge—CJ Models**



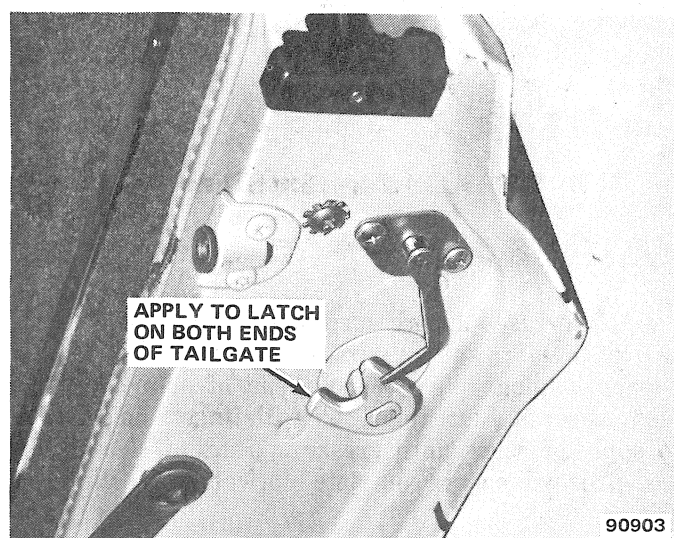
**Fig. B-14 Door Latch and Lock—Cherokee-Wagoneer-Truck Models**



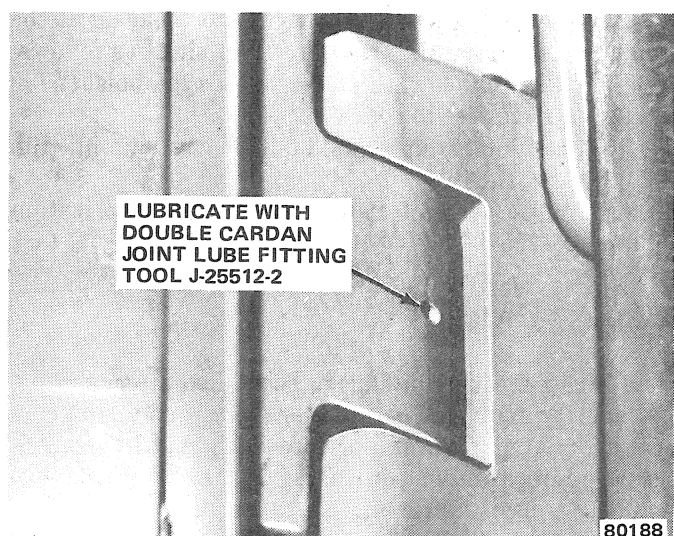
**Fig. B-15 Door Hinges and Courtesy Light Button—Cherokee-Wagoneer-Truck Models**



**Fig. B-16 Windshield Hinge Lubrication Hole—CJ Models**

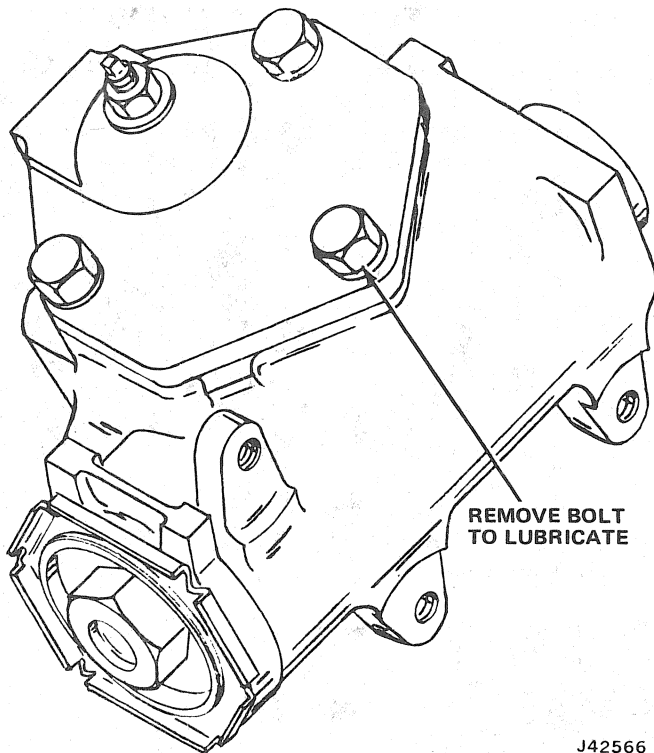


**Fig. B-17 Tailgate Lubrication Points—Cherokee-Wagoneer Models**



**Fig. B-18 Tailgate Hinge Lubrication Hole—Cherokee-Wagoneer Models**





**Fig. B-19 Manual Steering Gear Fill Hole Location**

#### **Sleeve Yokes (Splines)**

Apply grease gun pressure to sleeve yoke grease fitting until lubricant appears at pressure relief hole in expansion plug at sleeve yoke end of spline. At this point, cover pressure relief hole with finger and continue to apply pressure until grease appears at sleeve yoke seal. This will ensure complete lubrication of spline.

#### **Double Cardan Joint**

Lubricate the constant velocity center bearing at the transfer case end of the front propeller shaft as follows:

- (1) Raise vehicle on frame-contact type hoist (front wheels must be free to rotate).
- (2) Clean dirt from around double cardan joint (fig. B-20).
- (3) Lubricate joint using needle-type Lubrication Adapter J-225512-2.

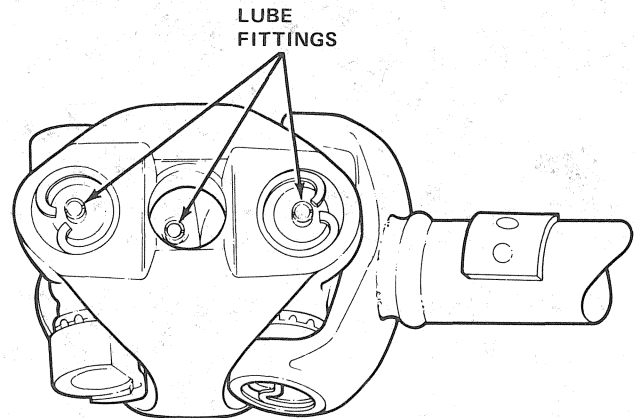
#### **8. Steering Linkage**

Lubricate steering linkage at scheduled interval.

Clean the four lube fittings on tie-rod ends and connecting rod ends, and lubricate with AMC/Jeep All-Purpose Lubricant, or equivalent, or multi-purpose lithium base chassis lubricant.

Also, inspect and replace as needed torn or ruptured grease seals, replace damaged steering components and lubricate ball joints.

Check manual or power steering gear assembly for leaks, housing cracks or loose frame mounting. Inspect steering damper for leaks or loose mounting. Also, check steering tie rods and connecting rod for bending, looseness or wear.



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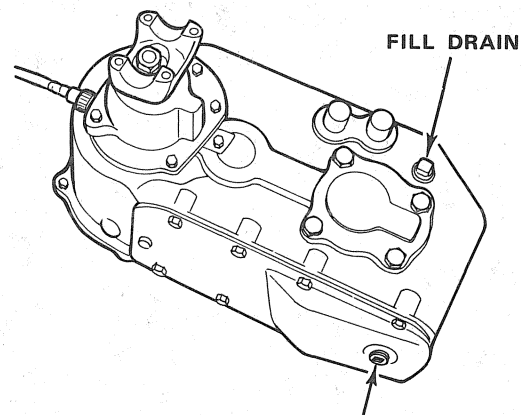
**Fig. B-20 Double Cardan Joint**

#### **9. Steering Shaft U-Joint**

Lubricate steering shaft U-joint at scheduled interval. (On Cherokee, Wagoneer and Truck models only.)

#### **10. Transfer Case—Fluid Level Check**

Fluid levels in the transfer case must be checked as scheduled. To check lubricant level, remove the transfer case fill plug located on the rear of the transfer case. Lubricant should be level with the fill plug hole (figs. B-21 through B-23). If not, bring up level with specified lubricant and install fill plug. Refer to Recommended Fluids and Lubricants chart located at the end of this chapter for lubricant specification and to Fluid Capacities chart for transfer case capacity.



**Fig. B-21 Transfer Case Drain and Fill Plugs—Model 300**

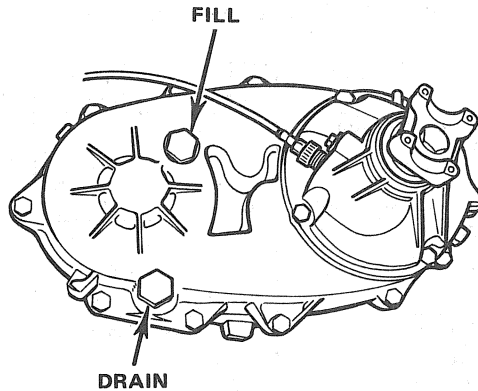


Fig. B-22 Transfer Case Drain and Fill Plugs—Model 208

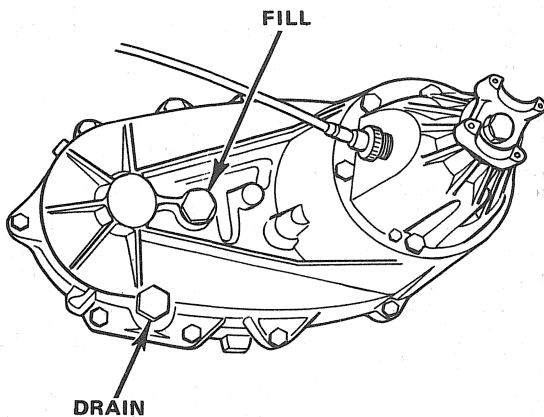


Fig. B-23 Transfer Case Drain and Fill Plugs—Quadra-Trac

## Transfer Case—Fluid Change

Drain and change transfer case at scheduled interval.  
To change fluid:

- (1) Remove fill plugs then drain plugs.
- (2) Allow transfer case to drain completely.
- (3) Install drain plugs.
- (4) Fill with specified lubricant to level of fill hole.
- (5) Install fill plugs.

**CAUTION:** Do not overtighten fill and drain plugs. Tighten plugs to 15 to 25 foot-pounds (20.3 to 33.9 N•m) torque. Overtightening can strip threads or break the aluminum case.

## 11. Transmission

Refer to Engine Components for procedure on checking fluid level for automatic transmission.

Fluid levels in the transfer case and manual transmission must be checked at the same time, as scheduled. Fill plugs for all manual transmissions are located on the right side of the assembly.

To check lubricant level, remove the transmission fill plug. Lubricant should be level with each fill plug hole. If not, bring up to level with specified lubricant and install fill plug. Refer to Recommended Fluids and Lubricants chart and Fluid Capacities chart at the end of this chapter.

## Automatic Transmission Fluid Changes

Drain and refill the automatic transmission every 25,000 miles (40 000 km) for vehicles in normal service and every 10,000 miles (16 000 km) for vehicles in heavy-duty service. Change fluid immediately after vehicle operation, before it cools.

- (1) Remove transmission pan screws, pan, and gasket.
- (2) Remove and discard oil filter (fig. B-24).
- (3) Remove and discard O-ring seal from pick-up pipe.
- (4) Install new O-ring seal on pick-up pipe and install strainer and pipe assembly.
- (5) Clean pan thoroughly and position new gasket on pan. Use petroleum jelly, or equivalent, to position gasket.
- (6) Install pan. Secure with attaching screws and tighten to 10 to 13 foot-pounds (14 to 18 N•m) torque.
- (7) Pour approximately 5 quarts (4.71 liters) of Dexron® or Dexron II® automatic transmission fluid into filler pipe. Be sure container spout, funnel, or other items in contact with fluid are clean.
- (8) Start engine and allow it to idle a few minutes.
- (9) Apply brake pedal and parking brake. Shift transmission into all positions then place the selector lever in N (Neutral).
- (10) With transmission at operating temperature, check fluid level. Add fluid, if necessary, to bring level to FULL mark.

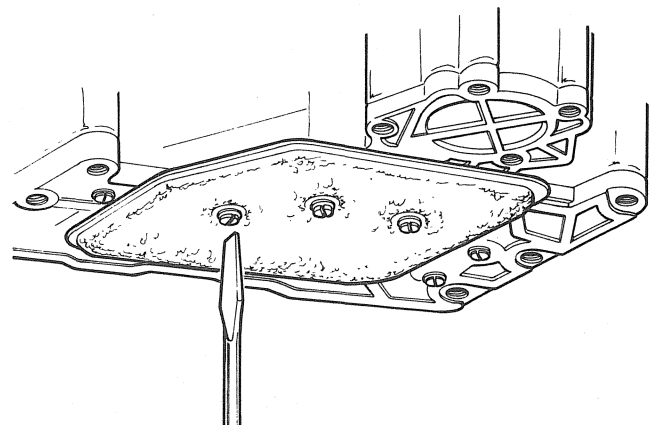


Fig. B-24 Removing Automatic Transmission Filter

### Manual Transmission Fluid Change

Manual transmission and transfer case lubricating fluid should be changed at the same time, as scheduled. See Recommended Fluids and Lubricants at the end of this chapter for fluid specification, and the Fluid Capacities Chart for quantity. To change fluid:

- (1) Remove fill plugs then drain plugs.
- (2) Allow units to drain completely.
- (3) Install drain plugs.
- (4) Fill to level of fill holes.
- (5) Install fill plugs.

### UNSCHEDULED MAINTENANCE

#### General

Services detailed in this subsection are not listed in the Maintenance Schedule for performance at a specified interval. They are to be performed as required to restore vehicle to original specifications. Unscheduled maintenance services include such items as fuel system cleaning; engine carbon deposit removal; retightening loose parts and connections; replacement of manual transmission clutch components, brakelinings, shock absorbers, light bulbs, wiper blades, belts or hoses; replacement of interior trim, bright metal trim, painted parts and other appearance items or rubber-like parts. Need for these unscheduled services is usually indicated by a change in performance, handling, or the appearance of the vehicle or a particular component. Owners, users and service mechanics should be alert for indications that service or replacement is needed.

#### Catalytic Converter

The catalytic converter(s) used on 1981 Jeep models will become contaminated if leaded gas is used, or if the engine or emission controls are not maintained as scheduled. If this occurs, the catalyst—the alumina-coated beads in the converter—or the entire converter must be replaced. Refer to the catalyst replacement procedure in Chapter 1K—Exhaust Systems.

### Fluid Capacities

CAPACITIES Approximate Refill	U.S. Measure	Imperial Measure	Metric Measure
<b>Engine Oil (includes 1 quart for filter change)</b>			
151 CID Engine	3.0 quarts	2.52 quarts	2.84 liters
258 CID Engine	5.0 quarts	4.2 quarts	4.7 liters
304 CID & 360 CID Engines	5.0 quarts	4.2 quarts	4.7 liters
<b>Cooling System (includes 1 quart for heater)</b>			
151 CID Engine	7.8 quarts	6.5 quarts	7.4 liters
258 CID Engine	10.5 quarts	8.7 quarts	9.9 liters
304 CID Engine	13.0 quarts	10.8 quarts	12.3 liters
360 CID Engine	14.0 quarts	11.6 quarts	13.2 liters
<b>Transfer Case</b>			
Model 300	4.0 pints	3.3 pints	1.9 liters
Model 208	6.0 pints	5.0 pints	2.8 liters
Quadra-Trac	4.0 pints	3.3 pints	1.9 liters
<b>Transmission</b>			
Manual 4-Speed—SR-4	3.0 pints	2.5 pints	1.4 liters
Manual 4-Speed—T-176	3.5 pints	2.9 pints	1.7 liters
Manual 4-Speed—T-18	6.5 pints	5.5 pints	3.1 liters
Automatic—Model 999 (Change Only)	8.5 pints	7.1 pints	4.0 liters
Automatic—Model 999 (At Overhaul)	17.0 pints	14.1 pints	8.0 liters
Automatic—Model 727 (Change Only)	8.5 pints	7.1 pints	4.0 liters
Automatic—Model 727 (At Overhaul)	17.0 pints	14.1 pints	8.0 liters
<b>Axles</b>			
CJ Front Axle	2.5 pints	2.1 pints	1.9 liters
CJ Rear Axle	4.8 pints	4.0 pints	2.3 liters
Cherokee Front Axle	3.0 pints	2.5 pints	1.4 liters
Cherokee Rear Axle	4.8 pints	4.0 pints	2.3 liters
Wagoneer Front Axle	3.0 pints	2.5 pints	1.4 liters
Wagoneer Rear Axle	4.8 pints	4.0 pints	2.3 liters
J-10 Truck Front Axle	3.0 pints	2.5 pints	1.4 liters
J-10 Truck Rear Axle	4.8 pints	4.0 pints	2.3 liters
J-20 Truck Front Axle	3.0 pints	2.5 pints	1.4 liters
J-20 Truck Rear Axle	6.0 pints	5.0 pints	2.8 liters
<b>Gas Tanks (Approximate Capacity)</b>			
CJ Models	14.8 gallons	12.3 gallons	56.0 liters
Cherokee Models	20.3 gallons	16.9 gallons	76.8 liters
Wagoneer Models	20.3 gallons	16.9 gallons	76.8 liters
Truck Models	19.0 gallons	15.8 gallons	71.9 liters



# Recommended Fluids and Lubricants

ENGINE	
COMPONENT	SPECIFICATION
Distributor rotor tip*	AMC/Jeep Silicone Dielectric Compound or equivalent.
Engine coolant	High quality ethylene glycol (permanent antifreeze) and clean water mixture.
Engine oil	API classification "SE" or "SF", if available. Refer to oil viscosity chart for correct SAE grade.
Exhaust manifold heat valve	AMC/Jeep Heat Valve Lubricant or equivalent.
CHASSIS	
COMPONENT	SPECIFICATION
Automatic transmission	AMC/Jeep Automatic Transmission Fluid or equivalent labeled Dexron® or Dexron II®.
Brake master cylinder*	AMC/Jeep Brake Fluid or equivalent marked FMVSS No. 116, DOT-3 and SAE J-1703. CAUTION: Use only recommended brake fluids.
Caliper Slide Rails (CJ only)	AMC/Jeep Brake Support Plate Lubricant or equivalent molydisulfide lubricant.
Clutch lever and linkage	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Conventional axle differentials	AMC/Jeep Rear Axle Lubricant or gear lubricant of SAE 85W-90 (API-GL5) quality.
Drum brake support plate ledges*	AMC/Jeep Brake Support Plate Lubricant or equivalent molydisulfide lubricant.
Front suspension ball joints, steering linkage, propeller shafts, single and double cardan joints and yokes	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Front wheel bearings	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Gearshift linkage-transmission and transfer case	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Manual locking hubs	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.

CHASSIS (Continued)	
COMPONENT	SPECIFICATION
Manual steering gear*	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Manual transmission	SAE 85W-90 gear lubricant (API-GL5).
Model 208 transfer case	10W-30 motor oil.
Model 300 transfer case	SAE 85W-90 gear lubricant (API-GL5).
Parking brake pedal mechanism*	3-M Spray Lube 8902 or equivalent.
Power steering pump and gear*	AMC/Jeep Power Steering Fluid or equivalent.
Quadra-Trac transfer case	10W-30 motor oil.
Steering shaft U-joint	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Trac-Lok axle differential	AMC/Jeep Rear Axle Lubricant or limited-slip gear lubricant of SAE 85W-90 (API-GL5) quality.
BODY	
COMPONENT	SPECIFICATION
Ashtray slides	3-M Spray Lube 8902 or equivalent.
Front seat tracks	3-M Spray Lube 8902 or equivalent.
Hinges: door, hood, liftgate, tailgate, glove box	3-M Spray Lube 8902 or equivalent.
Hinges: tailgate (Cherokee, Wagoneer)	AMC/Jeep All-Purpose Lubricant or equivalent lithium base chassis lubricant.
Key lock cylinders	Powdered graphite, AMC/Jeep Silicone Lubricant Spray or light oil.
Latches: door, hood, liftgate, tailgate, glove box	3-M Spray Lube 8902 or equivalent.
Moon roof	Petroleum Jelly
Weatherstrips: door, window, liftgate, tailgate	AMC/Jeep Silicone Lubricant Spray or equivalent.
Windshield hinges and holddown knobs (CJ)	3-M Spray Lube 8902 or equivalent.

\*No routine drain and refill or application of lubricant is required. Specification is for maintaining fluid levels or reassembling components. Refer to the Maintenance Schedules for intervals.