LUBRICATION AND MAINTENANCE

CONTENTS

GENERAL INFORMATION

INDEX

INTRODUCTION

Lubrication and maintenance is divided into required and recommended service tasks. The required service tasks must be completed to verify the emission controls function correctly. The recommended service tasks should be completed to maintain safety and durability.

This information will assist the service personnel in providing maximum protection for each owner's vehicle.

Conditions can vary with individual driving habits. It is necessary to schedule maintenance as a time interval as well as a distance interval.

It is the owner's responsibility to determine the applicable driving condition. Also to have the vehicle serviced according to the maintenance schedule, and to pay for the necessary parts and labor.

Additional maintenance and lubrication information is listed in the Owner's Manual.

INTERNATIONAL SYMBOLS

Chrysler Corporation uses international symbols to identify engine compartment lubricant and fluid inspection and fill locations (Fig. 1).

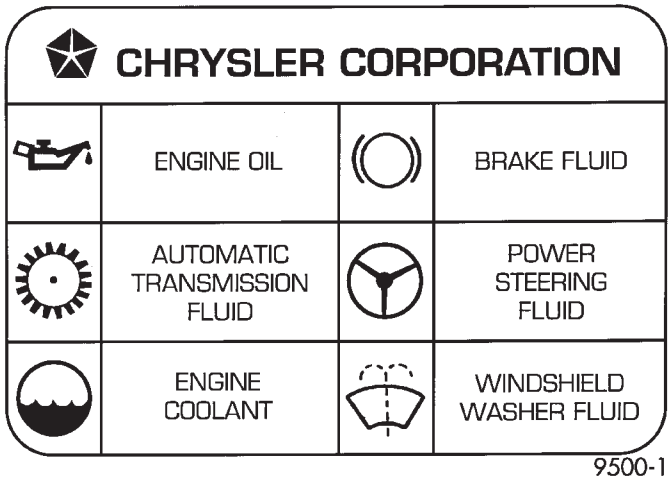


Fig. 1 International Symbols

FUEL REQUIREMENTS

All gasoline engines require the use of unleaded gasoline to reduce the potentially harmful effects of lead to the environment. Also unleaded fuel is necessary to prevent damage to the catalytic converter/O2 sensor. The fuel must have a minimum octane rating of 87 based on the (R + M)/2 calculation method.

CAUTION: UNLEADED FUEL ONLY must be used in vehicles equipped with a catalyst emission control system. All vehicles have reminders printed on the instrument panel below the fuel gauge and on the fuel filler door. The vehicles also have fuel filler tubes that are specially designed to accept only the small-diameter dispensing nozzles. It is illegal to bypass the design of an unleaded fuel filler tube and contaminate the fuel system.

CLASSIFICATION OF LUBRICANTS

Lubricating fluids and chassis lubricants are classified according to standards recommended by the:

- Society of Automotive Engineers (SAE)
- American Petroleum Institute (API)
- National Lubricating Grease Institute (NLGI)

ENGINE OIL

API CERTIFICATION MARK

For maximum engine protection during all driving conditions, install an engine oil that contains the API Certification Mark (Fig. 2). The API Certification Mark indicates that the oil is certified to meet the most critical requirements established by the manufacturer.

Conformance to API specifications is determined by tests that measure the ability of an oil to control:

- Engine wear.
- Bearing corrosion.
- Sludge.
- Varnish.
- Oil thickening.
- Rust.
- Piston deposits.

9400-9

Fig. 2 The API Engine Oil Certification Mark

SAE VISCOSITY GRADE

An SAE viscosity grade is used to specify the viscosity of engine oil. SAE 30 specifies a single viscosity engine oil. Engine oils also have multiple viscosities. These are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range.

API SERVICE GRADE CERTIFIED

The API Service Grade specifies the type of performance the engine oil is intended to provide. The API Service Grade specifications also apply to energy conserving engine oils.

Use an engine oil that is API Service Grade Certified or an oil that conforms to the API Service Grade SH or SH/CD. MOPAR provides engine oils that conform to all of these service grades.

GEAR LUBRICANTS

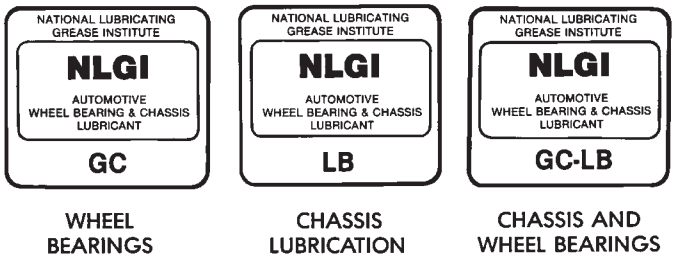
A dual grade is also used to specify the viscosity of multi-purpose gear lubricants.

The API grade designation identifies gear lubricants in terms of recommended usage.

CHASSIS COMPONENT AND WHEEL BEARING LUBRICANTS

The chassis and wheel bearing lubricants that are recommended are identified by the NLGI Certification Symbol. The symbol contains a coded designation. This identifies the usage and quality of the lubricant.

The letter G within the symbol designates wheel bearing lubricant. The letter L designates chassis lubricant. When the letters are combined, the lubricant can be used for dual applications. Use only lubricants that display the NLGI Certification Symbol (Fig. 3).



9200-7

Fig. 3 NLGI Lubricant Container Certification/ Identification Symbol

LUBRICATION AND REPLACEMENT PARTS RECOMMENDATION

Jeep vehicles are engineered to provide many years of dependable operation. However, lubrication service and maintenance are required for each vehicle. When necessary, MOPAR® brand lubricants and genuine replacement parts are highly recommended. Each MOPAR brand lubricant and replacement part is designed and to provide dependability and long service life.

COMPONENTS REQUIRING NO LUBRICATION

There are many components that should not be lubricated. The components that should not be lubricated are:

- Air pumps.
- Generator bearings.
- Distributors.
- Drive belts.
- Drive belt idler pulleys.
- Rubber bushings.
- Starter motor bearings.
- Suspension strut bearings.
- Throttle control cables.
- Throttle linkage ball joints.
- Water pump bearings.

FLUID CAPACITIES

Fuel Tank

XJ .....76.4 L (20.2 gal.)
YJ(Standard) .....56.8 L (15 gal.)
YJ(Optional) .....75.7 L (20 gal.)

Engine Oil

2.5L .....3.8 L (4.0 qts.)
4.0L .....5.7 L (6.0 qts.)

Cooling System

2.5L(XJ).....9.5 L* (10 qts.*)
2.5L(YJ) .....8.5 L** (9.0 qts.**)
4.0L(XJ).....11.4 L* (12.0 qts.*)
4.0L(YJ) .....9.9 L** (10.5 qts.**)

* Includes (2.2 L) (2.3 qts) for coolant recovery reservoir.

** Includes (0.9 L) (1.0 qt.) for coolant recovery reservoir.

Automatic Transmission

Dry fill capacity.*****
AW4 (XJ-4.0L).....8.0 L (16.9 pts.)
30RH (YJ-2.5L) .....8.2 L (17.5 pts.)
32RH (YJ-4.0L) .....8.2 L (17.5 pts.)

*****Depending on type and size of internal cooler, length and inside diameter of cooler lines, or use of an auxiliary cooler, these figures may vary. Refer to Group 21, Transmission for proper fluid fill procedure.

Manual Transmission

AX4/5 (4X2) .....3.3 L (3.5 qts.)
AX5 (4X4) .....3.2 L (3.3 qts.)
AX15 (4X2) .....3.1 L (3.2 qts.)
AX15 (4X4) .....3.15 L (3.32 qts.)
Fill to bottom of fill hole.

Transfer Case

SELEC-TRAC 242(XJ) .....1.4 L (3.0 pts.)
COMMAND-TRAC 231(XJ) .....1.0 L (2.2 pts.)
COMMAND-TRAC 231(YJ-Man Trans) ..1.5 L (3.25 pts.)
COMMAND-TRAC 231(YJ-Auto Trans)....1.0 L (2.2 pts.)

Front Axle

MODEL 30 (YJ).....1.65 L (3.76 pts.)
MODEL 30 (XJ).....1.48 L (3.13 pts.)

Rear Axle

MODEL 35 (XJ-YJ) .....1.6 L (3.38 pts.*)
8-1/4 (XJ) .....2.08 L (4.4 pts.*)

* When equipped with TRAC-LOK, include 2 ounces of Friction Modifier Additive.

MAINTENANCE SCHEDULES

INTRODUCTION

There are two maintenance schedules that show proper service intervals for Jeep Cherokee and Jeep Wrangler vehicles. Use the schedule that best describes the conditions the vehicle is operated under. When mileage and time is listed, follow the interval that occurs first.

Schedule—A lists all the scheduled maintenance to be performed under normal operating conditions.

Schedule—B is a schedule for vehicles that are usually operated under one or more of the following conditions.

- Frequent short trip driving less than 5 miles (8 km).
- Frequent driving in dusty conditions.
- Trailer towing or heavy load hauling.
- Frequent long periods of engine idling.
- Sustained high speed operation.
- Desert operation.
- Frequent starting and stopping.
- Cold climate operation.
- Off road driving.
- Commercial service.
- Snow plow operation.
- More than half of vehicle operation occurs in heavy city traffic during hot weather (above 90° F).

AT EACH STOP FOR GASOLINE

- Check engine oil level and add as required.
- Check windshield washer solvent and add as required.

ONCE A MONTH

- Check tire pressure and look for unusual tire wear or damage.
- Check fluid levels of coolant reservoir, brake master cylinder, power steering and transmission. Add fluid as required.
- Check all lights and other electrical items for correct operation.
- Inspect battery and clean and tighten terminals as required.
- Check rubber seals on each side of the radiator for proper fit.

AT EACH OIL CHANGE

- Inspect exhaust system.
- Inspect brake hoses.
- Rotate the tires at each oil change interval shown on Schedule—A: (7,500 Miles) or every other interval shown on Schedule—B: (6,000 Miles).
- Check engine coolant level, hoses, and clamps.
- Lubricate 4x4 steering linkage.
- Lubricate propeller shaft universal joints and slip spline, if equipped.

After completion of off-road (4WD) operation, the underside of the vehicle should be thoroughly inspected. Examine threaded fasteners for looseness.

HARSH SURFACE ENVIRONMENTS

After vehicle operation in a harsh surface environment, the following components should be inspected and cleaned as soon as possible:

- Brake drums.
- Brake linings.
- Front wheel bearings (2WD vehicles only).
- Axle coupling joints.

This will prevent wear and/or unpredictable brake action.

EMISSION CONTROL SYSTEM MAINTENANCE

The schedule emission maintenance listed in **bold type** on the following schedules, must be done at the mileage specified to assure the continued proper functioning of the emission control system. These, and all other maintenance services included in this manual, should be done to provide the best vehicle performance and reliability. More frequent maintenance may be needed for vehicles in severe operating conditions such as dusty areas and very short trip driving.

SCHEDULE—A

7,500 MILES (12 000 KM) OR AT 6 MONTHS

- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

15,000 MILES (24 000 KM) OR AT 12 MONTHS

- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.

22,500 MILES (36 000 KM) OR AT 18 MONTHS

- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Inspect brake linings.

30,000 MILES (48 000 KM) OR AT 24 MONTHS

- **Replace air cleaner element.**
- **Replace spark plugs.**
- Adjust belt tension on non-automatic tensioning drive belts.
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- Drain and refill automatic transmission.
- Drain and refill transfer case.

37,500 MILES (60 000 KM) OR AT 30 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill manual transmission.

45,000 MILES (72 500 KM) OR AT 36 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- Inspect brake linings.
- Flush and replace engine coolant, regardless of mileage.

52,500 MILES (84 500 KM) OR AT 42 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Flush and replace engine coolant if not done at 36 months.

60,000 MILES (96 500 KM) OR AT 48 MONTHS
- **Replace air cleaner element.**
- **Replace distributor cap and rotor.**
- **Replace ignition wires.**
- **Replace spark plugs.**
- Adjust or replace drive belts.
- Change engine oil.
- Replace engine oil filter.
- Replace fuel filter. (See Note #1)
- Lubricate steering linkage.
- Drain and refill automatic transmission.
- Drain and refill transfer case.

67,500 MILES (108 500 KM) OR AT 54 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Inspect brake linings.

75,000 MILES (120 500 KM) OR AT 60 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- Drain and refill manual transmission.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.

82,500 MILES (133 000 KM) OR AT 66 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.

90,000 MILES (145 000 KM) OR AT 72 MONTHS
- **Replace air cleaner element.**
- **Replace spark plugs.**
- Adjust drive belts.
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- Inspect brake linings.
- Drain and refill automatic transmission.
- Drain and refill transfer case.

97,500 MILES (157 000 KM) OR AT 78 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

105,000 MILES (169 000 KM) OR AT 84 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.

112,500 MILES (181 000 KM) OR AT 90 MONTHS
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Inspect brake linings.
- Drain and refill manual transmission.
- Flush and replace engine coolant if it has been 30,000 miles (48 000 km) or 24 months since last change.

120,000 MILES (193 000 KM) OR AT 96 MONTHS
- **Replace air cleaner element.**
- **Replace distributor cap and rotor.**
- Lubricate steering linkage.
- Drain and refill automatic transmission.
- Drain and refill transfer case.
- **Replace ignition wires.**
- **Replace spark plugs.**
- Adjust or replace drive belts.
- Change engine oil.
- Replace engine oil filter.
- Replace fuel filter. (See note #1)

SCHEDULE—B

3,000 MILES (4 800KM)
- Change engine oil.
- Replace engine oil filter.

6,000 MILES (9 600KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

9,000 MILES (14 400KM)
- Change engine oil.
- Replace engine oil filter.

12,000 MILES (19 200KM)
- Change engine oil.
- Replace engine oil filter.
- Drain and refill automatic transmission.
- Change front and rear axle fluid.*
- Lubricate steering linkage (4x4).
- Inspect brake linings.

15,000 MILES (24 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x2).
- Inspect air cleaner element, replace as necessary.

18,000 MILES (29 000KM)
- Change engine oil.
- Replace engine oil filter.
- Drain and refill Manual transmission fluid.
- Lubricate steering linkage (4x4).

21,000 MILES (34 000KM)
- Change engine oil.
- Replace engine oil filter.

24,000 MILES (38 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill automatic transmission.
- Change front and rear axle fluid.*
- Inspect brake linings.
- Inspect front wheel bearings, Clean and repack if required (4x2).

27,000 MILES (43 000KM)
- Change engine oil.
- Replace engine oil filter.

30,000 MILES (48 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage joints.
- **Replace spark plugs.**
- **Replace air cleaner element.**
- Adjust drive belts.
- Drain and refill transfer case fluid.

33,000 MILES (53 000KM)
- Change engine oil.
- Replace engine oil filter.

36,000 MILES (58 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill automatic transmission.
- Drain and refill manual transmission fluid.
- Change front and rear axle fluid.*
- Inspect brake linings.

39,000 MILES (62 000KM)
- Change engine oil.
- Replace engine oil filter.

42,000 MILES (67 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

45,000 MILES (72 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x2).
- Inspect air cleaner element, replace as necessary.

48,000 MILES (77 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill automatic transmission.
- Change front and rear axle fluid.*
- Inspect brake linings.

51,000 MILES (82 000KM)
- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant.

54,000 MILES (86 400KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill Manual transmission fluid.

57,000 MILES (91 000KM)
- Change engine oil.
- Replace engine oil filter.

60,000 MILES (96 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage joints.
- **Replace spark plugs.**

- Drain and refill automatic transmission fluid.
- Change front and rear axle fluid.*
- **Replace air cleaner element.**
- **Replace distributor cap and rotor.**
- **Replace ignition wires.**
- Adjust or replace drive belts.
- Replace fuel filter. See note #1.
- Inspect brake linings.
- Drain and refill transfer case.

63,000 MILES (102 000KM)
- Change engine oil.
- Replace engine oil filter.

66,000 MILES (105 600KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

69,000 MILES (110 000KM)
- Change engine oil.
- Replace engine oil filter.

72,000 MILES (115 200KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill Manual transmission fluid.
- Drain and refill automatic transmission.
- Change front and rear axle fluid.*
- Inspect brake linings.

75,000 MILES (120 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x2).
- Inspect air cleaner element, replace as necessary.

78,000 MILES (125 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

81,000 MILES (130 000KM)
- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant.

84,000 MILES (134 400KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill automatic transmission fluid.
- Change front and rear axle fluid.*
- Inspect brake linings.

87,000 MILES (140 000KM)
- Change engine oil.
- Replace engine oil filter.

90,000 MILES (144 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- **Replace spark plugs.**
- Drain and refill Manual transmission fluid.
- **Replace air cleaner element.**
- Adjust drive belts.
- Drain and refill transfer case fluid.

93,000 MILES (149 000KM)
- Change engine oil.
- Replace engine oil filter.

96,000 MILES (154 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill automatic transmission fluid.
- Change front and rear axle fluid.*
- Inspect brake linings.

99,000 MILES (158 400KM)
- Change engine oil.
- Replace engine oil filter.

102,000 MILES (163 000KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

105,000 MILES (168 000KM)
- Change engine oil.
- Replace engine oil filter.
- Inspect air cleaner element, replace as necessary.
- Lubricate steering linkage (4x2).

108,000 MILES (172 800KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).
- Drain and refill Manual transmission fluid.
- Drain and refill automatic transmission fluid.
- Change front and rear axle fluid.*
- Inspect brake linings.

111,000 MILES (177 600KM)
- Change engine oil.
- Replace engine oil filter.
- Flush and replace engine coolant.

114,000 MILES (182 400KM)
- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage (4x4).

117,000 MILES (187 200KM)
- Change engine oil.
- Replace engine oil filter.

120,000 MILES (192 000KM)

- Change engine oil.
- Replace engine oil filter.
- Lubricate steering linkage.
- **Replace spark plugs.**
- Drain and refill automatic transmission fluid.
- Change front and rear axle fluid.*
- Inspect brake linings.
- **Replace air cleaner element.**
- **Replace distributor cap and rotor.**
- **Replace ignition wires.**
- Adjust or replace drive belts.
- Replace fuel filter. See note #1.
- Drain and refill transfer case fluid.

NOTE 1: Not required for California vehicles, recommended for proper vehicle performance.

* Off-highway operation, trailer towing, taxi, limousine, bus, snow plowing, or other types of commercial service or prolonged operation with heavy loading, especially in hot weather, require front and rear axle service indicated with a * in Schedule—B. Perform these services if you usually operate your vehicle under these conditions.

Inspection and service should also be performed anytime a malfunction is observed or suspected.

JUMP STARTING, TOWING AND HOISTING

INDEX

JUMP STARTING PROCEDURE

WARNING: DO NOT ATTEMPT TO PUSH OR TOW A VEHICLE TO START THE ENGINE. UNBURNED FUEL COULD ENTER THE EXHAUST CATALYTIC CONVERTER AND IGNITE AFTER THE ENGINE IS STARTED. THIS COULD CAUSE THE CONVERTER TO OVERHEAT AND RUPTURE.

WARNING: REVIEW ALL SAFETY PRECAUTIONS AND WARNINGS IN GROUP 8A, BATTERY/STARTING/CHARGING SYSTEMS DIAGNOSTICS.

DO NOT JUMP START A FROZEN BATTERY, PERSONAL INJURY CAN RESULT.

DO NOT JUMP START WHEN MAINTENANCE FREE BATTERY INDICATOR DOT IS YELLOW OR BRIGHT COLOR.

DO NOT JUMP START A VEHICLE WHEN THE BATTERY FLUID IS BELOW THE TOP OF LEAD PLATES.

DO NOT ALLOW JUMPER CABLE CLAMPS TO TOUCH EACH OTHER WHEN CONNECTED TO A BOOSTER SOURCE.

DO NOT USE OPEN FLAME NEAR BATTERY.

REMOVE METALLIC JEWELRY WORN ON HANDS OR WRISTS TO AVOID INJURY BY ACCIDENTAL ARCING OF BATTERY CURRENT.

WHEN USING A HIGH OUTPUT BOOSTING DEVICE, DO NOT ALLOW BATTERY VOLTAGE TO EXCEED 16 VOLTS. REFER TO INSTRUCTIONS PROVIDED WITH DEVICE BEING USED.

CAUTION: When using another vehicle as a booster, do not allow vehicles to touch. Electrical systems can be damaged on either vehicle.

TO JUMP START A DISABLED VEHICLE:

(1) Raise hood on disabled vehicle and visually inspect engine compartment for:

- Battery cable clamp condition, clean if necessary.
- Frozen battery.
- Yellow or bright color test indicator, if equipped.
- Low battery fluid level.
- Generator drive belt condition and tension.
- Fuel fumes or leakage, correct if necessary.

CAUTION: If the cause of starting problem on disabled vehicle is severe, damage to booster vehicle charging system can result.

(2) When using another vehicle as a booster source, turn off all accessories, place gear selector in park or neutral, set park brake and operate engine at 1200 rpm.

(3) On disabled vehicle, place gear selector in park or neutral and set park brake. Turn off all accessories.

(4) Connect jumper cables to booster battery. RED clamp to positive terminal (+). BLACK clamp to negative terminal (-). DO NOT allow clamps at opposite end of cables to touch, electrical arc will result. Review all warnings in this procedure.

(5) On disabled vehicle, connect RED jumper cable clamp to positive (+) terminal. Connect BLACK jumper cable clamp to engine ground as close to the ground cable attaching point as possible (Fig. 1).

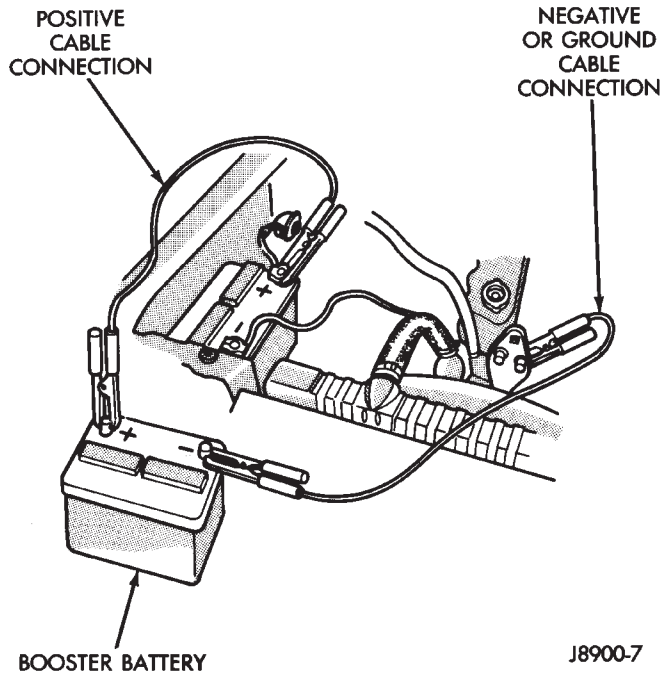


Fig. 1 Jumper Cable Connections—Typical

CAUTION: Do not crank starter motor on disabled vehicle for more than 15 seconds, starter will overheat and could fail.

(6) Allow battery in disabled vehicle to charge to at least 12.4 volts (75%charge) before attempting to start engine. If engine does not start within 15 seconds, stop cranking engine and allow starter to cool (15 min.), before cranking again.

DISCONNECT CABLE CLAMPS AS FOLLOWS:

- Disconnect BLACK cable clamp from engine ground on disabled vehicle.
- When using a Booster vehicle, disconnect BLACK cable clamp from battery negative terminal. Disconnect RED cable clamp from battery positive terminal.
- Disconnect RED cable clamp from battery positive terminal on disabled vehicle.

PORTABLE STARTING UNIT

There are many types of portable starting units available for starting engines. Follow the manufacturer's instructions and observe the listed precautions when involved in any engine starting procedure.

HOISTING RECOMMENDATIONS

Refer to the Owner's Manual for emergency vehicle lifting procedures.

FLOOR JACK

When properly positioned, a floor jack can be used to lift a Jeep vehicle (Fig. 2 and 3). Support the vehicle in the raised position with jack stands at the front and rear ends of the frame rails.

CAUTION: Do not attempt to lift a Jeep vehicle with a floor jack positioned under:

- An axle tube.
- A body side sill.
- A steering linkage component.
- A drive shaft.
- The engine or transmission oil pan.
- The fuel tank.
- A front suspension arm.

Use the correct sub-frame rail or frame rail lifting locations only (Fig. 2 and 3).

HOIST

A vehicle can be lifted with:

- A single-post, frame-contact hoist.
- A twin-post, chassis hoist.
- A ramp-type, drive-on hoist.

When a frame-contact type hoist is used, verify that the lifting pads are positioned properly (Fig. 2 and 3).

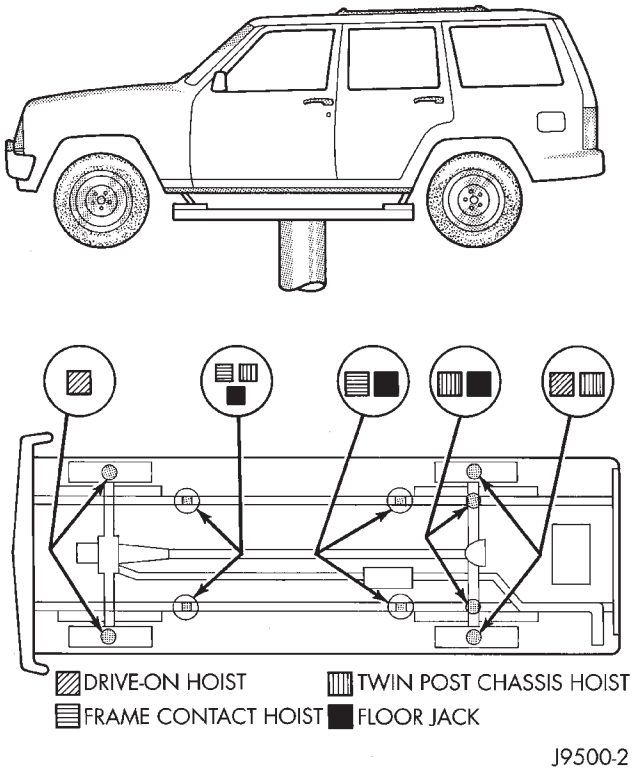


Fig. 2 Vehicle Lifting Locations—Typical

WARNING: THE HOISTING AND JACK LIFTING POINTS PROVIDED ARE FOR A COMPLETE VEHICLE. WHEN A CHASSIS OR DRIVETRAIN COMPONENT IS REMOVED FROM A VEHICLE, THE CENTER OF GRAVITY IS ALTERED MAKING SOME HOISTING CONDITIONS UNSTABLE. PROPERLY SUPPORT OR SECURE VEHICLE TO HOISTING DEVICE WHEN THESE CONDITIONS EXIST.

TOWING RECOMMENDATIONS

A vehicle equipped with SAE approved sling-type towing equipment can be used to tow all Jeep vehicles. When towing a 4WD vehicle using a wheel-lift towing device, use a tow dolly under the opposite end of the vehicle. A vehicle with flat-bed device can also be used to transport a disabled vehicle (Fig. 4).

A wooden crossbeam may be required for proper connection when using the sling-type, front-end towing method.

SAFETY PRECAUTIONS

- Secure loose and protruding parts.
- Always use a safety chain system that is independent of the lifting and towing equipment.
- Do not allow towing equipment to contact the disabled vehicle's fuel tank.
- Do not allow anyone under the disabled vehicle while it is lifted by the towing device.

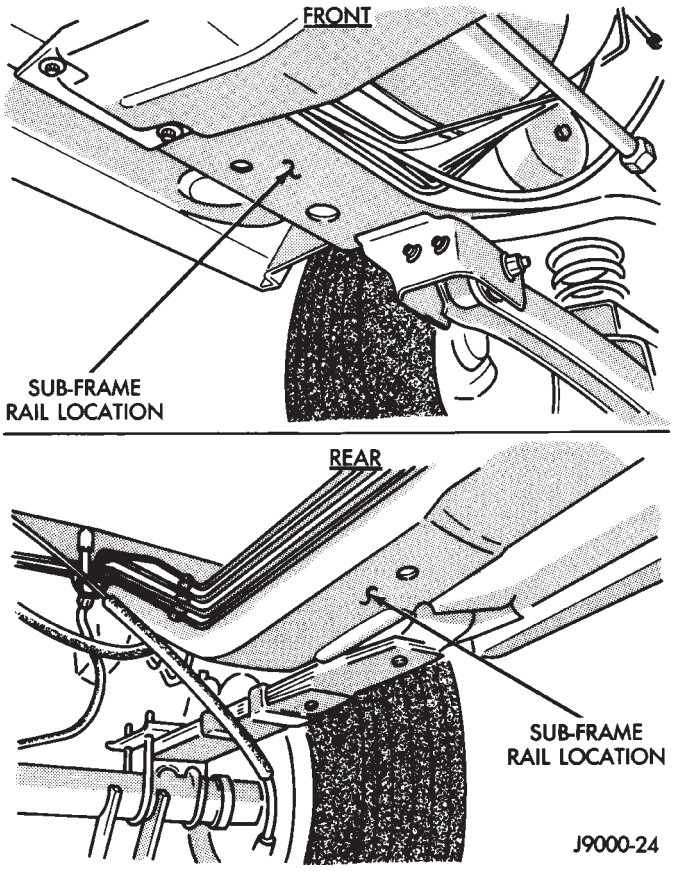


Fig. 3 Correct Vehicle Lifting Locations—Typical

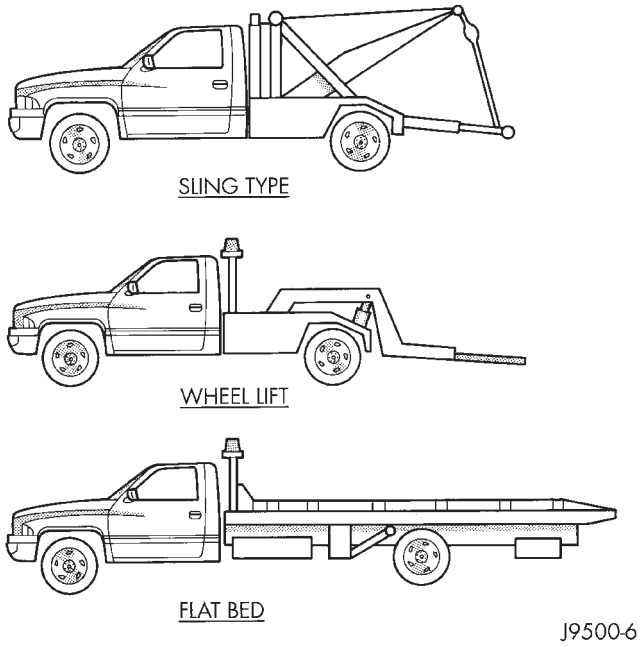


Fig. 4 Tow Vehicles With Approved Equipment.

- Do not allow passengers to ride in a vehicle being towed.
- Always observe state and local laws regarding towing regulations.
- Do not tow a vehicle in a manner that could jeopardize the safety of the operator, pedestrians or other motorists.
- Do not attach tow chains, T-hooks, J-hooks, or a tow sling to a bumper, steering linkage, drive shafts or a non-reinforced frame hole.

GROUND CLEARANCE AND RAMP ANGLE

GROUND CLEARANCE

CAUTION: If vehicle is towed with wheels removed, install lug nuts to retain brake drums.

A towed vehicle should be raised until lifted wheels are a minimum 100 mm (4 in) from the ground. Be sure there is adequate ground clearance at the opposite end of the vehicle, especially when towing over rough terrain or steep rises in the road. If necessary, remove the wheels from the lifted end of the vehicle and lower the vehicle closer to the ground, to increase the ground clearance at the opposite end of the vehicle. Install lug nuts on wheel attaching studs to retain brake drums.

FLAT-BED TOWING RAMP ANGLE

If a vehicle with flat-bed towing equipment is used, the approach ramp angle should not exceed 15 degrees.

TWO-WHEEL-DRIVE VEHICLE TOWING—XJ

Chrysler Corporation recommends that a vehicle be towed with the rear end lifted, whenever possible.

TOWING-REAR END LIFTED (SLING-TYPE)

CAUTION: Do not use steering column lock to secure steering wheel during towing operation.

2WD XJ vehicles can be towed with the front wheels on the surface for extended distances at speeds not exceeding 48 km/h (30 mph).

(1) Attach J-hooks around the axle shaft tube outboard of the shock absorber.

(2) Place the sling crossbar under and forward of the bumper.

(3) Attach safety chains around the frame rails.

(4) Turn the ignition switch to the OFF position to unlock the steering wheel.

(5) Secure steering wheel in the straight ahead position with a clamp device designed for towing.

(6) Verify that steering components are in good condition.

(7) Shift the transmission to NEUTRAL.

TOWING-FRONT END LIFTED (SLING-TYPE)

CAUTION: Many vehicles are equipped with air dams, spoilers, and/or ground effect panels. To avoid component damage, a wheel-lift towing vehicle or a flat-bed hauling vehicle is recommended.

If a 2WD XJ vehicle cannot be towed with the rear wheels lifted, it can be towed with the front wheels lifted.

(1) Attach a J-hook to the disabled vehicle at the left side of the axle.

(2) Position the sling crossbar close to the J-hook and below the front bumper.

(3) Secure a chain to the right side of vehicle by placing it over the axle shaft tube and attaching it to a structural member (Fig. 5).

(4) Attach the safety chains to the vehicle.

(5) Turn the ignition switch to the OFF position to unlock the steering wheel.

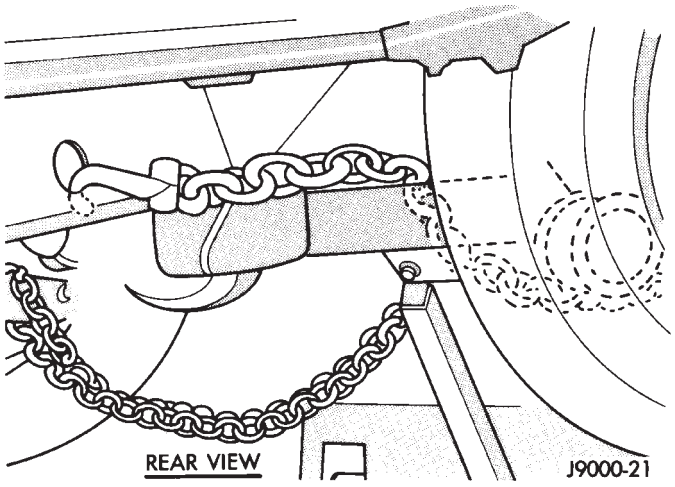


Fig. 5 Sling-Type, Front-End Towing (XJ Rear View)

2WD-AUTOMATIC TRANSMISSION

Provided the transmission is operable, tow only in **NEUTRAL** at speeds not to exceed 30 mph (50 km/h) and distances less than 15 miles (25km/h).

If the vehicle is to be towed more than 15 miles, the propeller shaft should be disconnected or place tow dollies under rear wheels.

2WD-MANUAL TRANSMISSION

To reduce the possible damage of transmission components, the propeller shaft must be removed or place tow dollies under the rear wheels before towing. Refer to Propeller Shafts, Group 16 for proper removal procedure.

FOUR-WHEEL-DRIVE VEHICLE TOWING

Chrysler Corporation recommends that a vehicle be transported on a flat-bed device. A Wheel-lift or Sling-type device can be used provided all the wheels are lifted off the ground using tow dollies.

TOWING-REAR END LIFTED (SLING-TYPE)

4WD XJ VEHICLES

(1) Raise the front of the vehicle off the ground and install tow dollies under front wheels.

(2) Attach J-hooks around the rear axle shaft tube outboard of the shock absorber.

(3) Place the sling crossbar under and forward of the bumper.

(4) Attach safety chains around the frame rails.

(5) Turn the ignition switch to the OFF position to unlock the steering wheel.

(6) Secure steering wheel in the straight ahead position with a clamp device designed for towing.

(7) Shift the transfer case to NEUTRAL.

4WD YJ VEHICLES

Use Wheel-Lift equipment and Tow Dollies when towing from the rear end of the vehicle.

TOWING-FRONT END LIFTED (SLING-TYPE)

4WD XJ VEHICLES

(1) Raise the rear of the vehicle off the ground and install tow dollies under rear wheels.

(2) Attach a J-hook to the disabled vehicle at the left side of front the axle.

(3) Position the sling crossbar close to the J-hook and below the front bumper (Fig. 6).

(4) Secure a chain to the right side of vehicle by placing it over the axle shaft tube and attaching it to a structural member

(4) Attach the safety chains to the vehicle.

(5) Turn the ignition switch to the OFF position to unlock the steering wheel.

(6) Shift transfer case to NEUTRAL.

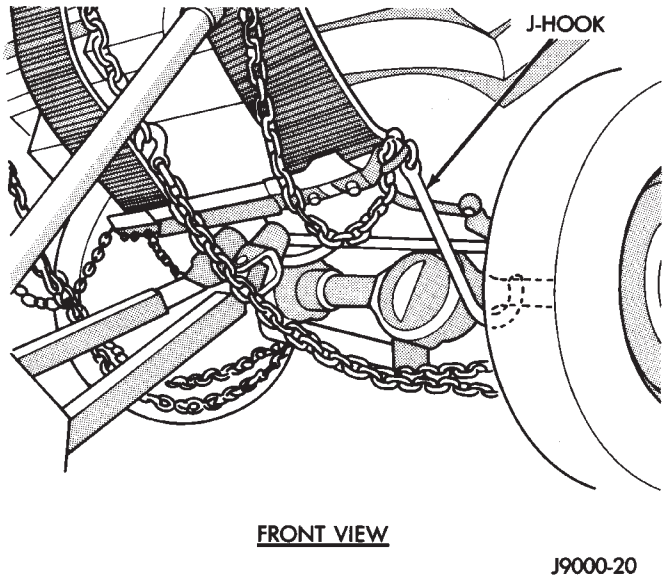


Fig. 6 Sling-Type, Front-End Towing (XJ Front View)

4WD YJ VEHICLES

(1) Raise the rear of the vehicle off the ground and install tow dollies under rear wheels.

CAUTION: Use tow chains with T-hooks for connecting to the disabled vehicle's frame rails. Never use J-hooks.

(2) Attach the T-hooks to the slots in the front end of each frame rail (Fig. 7).

(3) Position each safety chain over the top of each front spring and inboard of each front spring shackle.

(4) Double wrap each chain.

(5) Position the sling crossbar under the front bumper.

(6) Turn the ignition switch to the OFF position to unlock the steering wheel.

(7) Shift the transfer case to NEUTRAL.

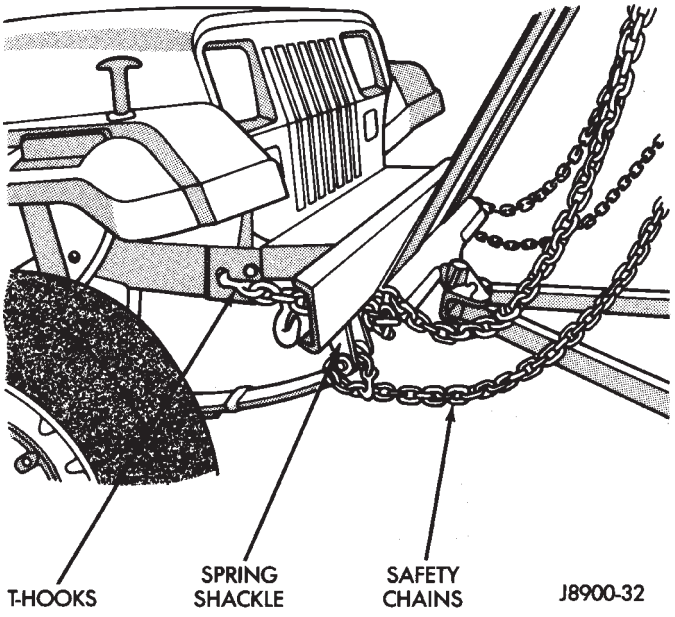


Fig. 7 Sling-Type, Front-End Towing (YJ Vehicles)

TOWING WHEN KEYS ARE NOT AVAILABLE

When the vehicle is locked and keys are not available, use a flat bed hauler. A Wheel-lift or Sling-type device can be used provided all the wheels are lifted off the ground using tow dollies (Fig. 8).

EMERGENCY TOW HOOKS

WARNING: REMAIN AT A SAFE DISTANCE FROM A VEHICLE THAT IS BEING TOWED VIA ITS TOW HOOKS. THE TOW STRAPS/CHAINS COULD BREAK AND CAUSE SERIOUS INJURY.

Some Jeep vehicles are equipped with front and rear emergency tow hooks (Fig. 9). The tow hooks should be used for **EMERGENCY** purposes only.

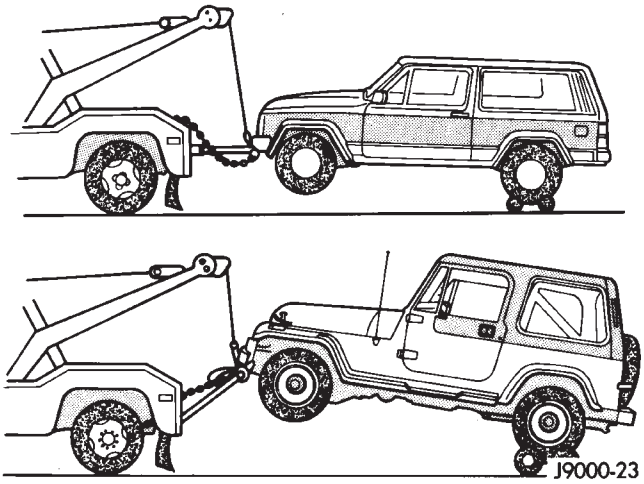


Fig. 8 Sling-Type, Front-End Towing With Rear Wheels On A Tow Dolly

CAUTION: DO NOT use emergency tow hooks for tow truck hook-up or highway towing.

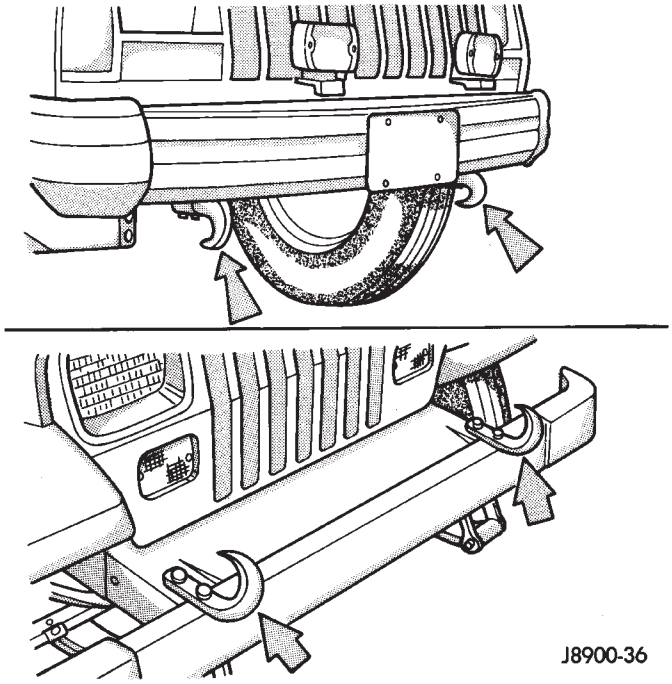


Fig. 9 Emergency Front Tow Hooks—XJ & YJ Vehicles

FLAT TOWING (4 TIRES/WHEELS ON SURFACE)

Tow a vehicle in this manner only when all four wheels will freely rotate. Prepare the vehicle according to the following procedures.

2WD VEHICLES

(1) Mark the drive shaft and the axle drive pinion gear shaft yoke for installation alignment reference.

(2) Remove the drive shaft. Install a protective covering over the drive shaft U-joints to retain them assembled and protected.

(3) Cover the open end of the transmission extension housing.

4WD VEHICLES—XJ

(1) Shift transfer case lever to NEUTRAL.
(2) Place ignition switch in the unlocked position.

4WD VEHICLES—YJ

CAUTION: Follow these steps to be certain that the transfer case is fully in N (NEUTRAL) and that the axle is completely disengaged before flat towing to prevent damage to internal parts.

(1) Shift transfer case into 2H and check that the 4WD light goes out.
(2) Start engine and drive the vehicle 3 mm (10 ft.) rearward and then 3 mm (10 ft.) forward to make sure the axle is disengaged.
(3) Shift transmission to Neutral.
(4) Turn off engine with the ignition key in the unlocked OFF position.
(5) Shift transfer case lever from 2H to N (NEUTRAL) position.
(6) Shift manual transmission into gear or automatic transmission into P (PARK).

WARNING: WITH THE TRANSFER CASE IN NEUTRAL POSITION, THE VEHICLE COULD ROLL UNEXPECTEDLY. THE PARKING BRAKE SHOULD ALWAYS BE APPLIED BEFORE THE TOW BAR IS ATTACHED.

(7) Attach vehicle to the tow vehicle with tow bar.

CAUTION: Do not use a bumper mounted clamp-on tow bar, damage to bumper face bar may occur.

ENGINE MAINTENANCE

INDEX

ENGINE BREAK-IN

CAUTION: Wide open throttle operation in low gears, before engine break-in period is complete, can damage engine.

After first starting a new engine, allow it to idle for 15 seconds before shifting into a drive gear. Also:

- Drive the vehicle at varying speeds less than 88 km/h (55 mph) for the first 480 km (300 miles).
- Avoid fast acceleration and sudden stops.
- Do not drive at full-throttle for extended periods of time.
- Do not drive at constant speeds.
- Do not idle the engine excessively.

A special break-in engine oil is not required. The original engine oil installed is a high quality, energy conserving lubricant. Special break-in oils are not recommended. These oils could interfere with the normal piston ring seating process.

New engines tend to consume more fuel and oil until after the break-in period has ended.

ENGINE OIL

WARNING: NEW OR USED ENGINE OIL CAN BE IRRITATING TO THE SKIN. AVOID PROLONGED OR REPEATED SKIN CONTACT WITH ENGINE OIL. CONTAMINANTS IN USED ENGINE OIL, CAUSED BY INTERNAL COMBUSTION, CAN BE HAZARDOUS TO YOUR HEALTH. THOROUGHLY WASH EXPOSED SKIN WITH SOAP AND WATER.

DO NOT WASH SKIN WITH GASOLINE, DIESEL FUEL, THINNER, OR SOLVENTS, HEALTH PROBLEMS CAN RESULT.

DO NOT POLLUTE, DISPOSE OF USED ENGINE OIL PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA.

ENGINE OIL SPECIFICATION

CAUTION: Do not use non-detergent or straight mineral oil when adding or changing crankcase lubricant. Engine failure can result.

API SERVICE GRADE CERTIFIED

Use an engine oil that is API Service Grade Certified or an oil that conforms to the API Service Grade SH or SH/CD. MOPAR provides engine oils that conform to all of these service grades.

SAE VISCOSITY

An SAE viscosity grade is used to specify the viscosity grade of engine oil. SAE 30 specifies a single viscosity engine oil. Engine oils also have multiple viscosities. These are specified with a dual SAE viscosity grade which indicates the cold-to-hot temperature viscosity range. Select an engine oil that is best suited to your particular temperature range and variation (Fig.1).

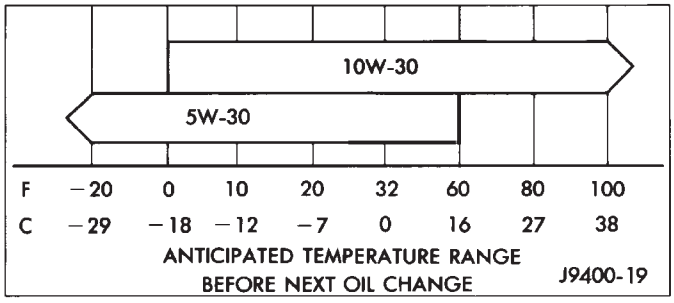


Fig. 1 Temperature/Engine Oil Viscosity

ENERGY CONSERVING OIL

An Energy Conserving type oil is recommeded for gasoline engines. They are designated as either ENERGY CONSERVING or ENERGY CONSERVING II.

CONTAINER IDENTIFICATION

Standard engine oil identification notations have been adopted to aid in the proper selection of engine oil. The identifying notations are located on the label of engine oil plastic bottles and the top of engine oil cans (Fig. 2).

9400-9

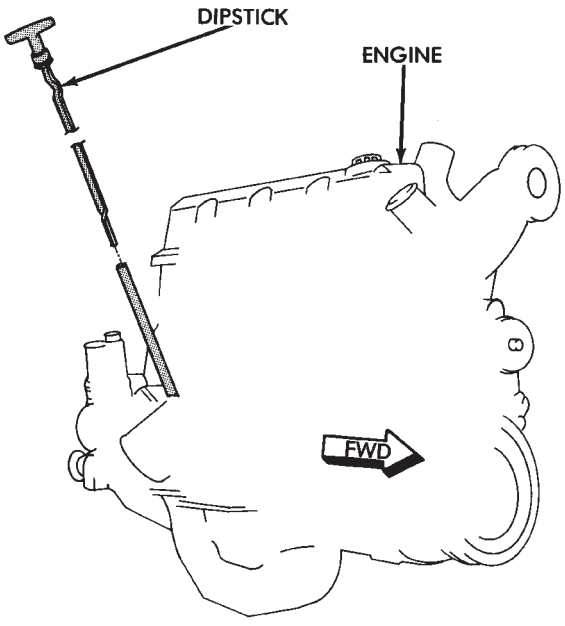
Fig. 2 API Certification Mark

ENGINE OIL ADDITIVES

In some instances, such as infrequent operation, short trip driving, and during break-in after a major overhaul, addition of special materials containing anti-rust and anti-scuff additives are beneficial. A suitable product for this purpose is MOPAR Engine Oil Supplement.

OIL LEVEL INDICATOR (DIPSTICK)

The engine oil level indicator (Dipstick) is located at the right rear of both 2.5L engines and 4.0L engines (Fig. 3).



J9200-25

Fig. 3 Engine Oil Dipstick Location—Typical

CRANKCASE OIL LEVEL INSPECTION

CAUTION: Do not overfill crankcase with engine oil, oil foaming and oil pressure loss can result.

Inspect engine oil level approximately every 800 kilometers (500 miles). Unless the engine has exhibited loss of oil pressure, run the engine for about five minutes before checking oil level. Checking engine oil level on a cold engine is not accurate.

To ensure proper lubrication of an engine, the engine oil must be maintained at an acceptable level. The acceptable levels are indicated between the ADD and SAFE marks on the engine oil dipstick (Fig. 4 and 5).

(1) Position vehicle on level surface.

(2) With engine OFF, allow approximately ten minutes for oil to settle to bottom of crankcase, remove engine oil dipstick.

(3) Wipe dipstick clean.

(4) Install dipstick and verify it is seated in the tube.

(5) Remove dipstick, with handle held above the tip, take oil level reading (Figs.4 and 5).

(6) Add oil only if level is below the ADD mark on dipstick.

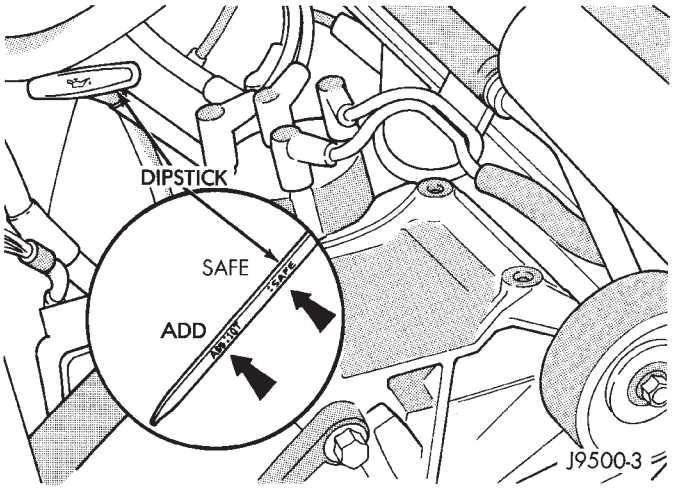


Fig. 4 Engine Oil Dipstick—2.5L Engine

ENGINE OIL CHANGE AND FILTER REPLACEMENT

ENGINE OIL CHANGE

Change engine oil at mileage and time intervals described in Maintenance Schedules.

TO CHANGE ENGINE OIL

Run engine until achieving normal operating temperature.

(1) Position the vehicle on a level surface and turn engine off.

(2) Hoist and support vehicle on safety stands. Refer to Hoisting and Jacking Recommendations in this group.

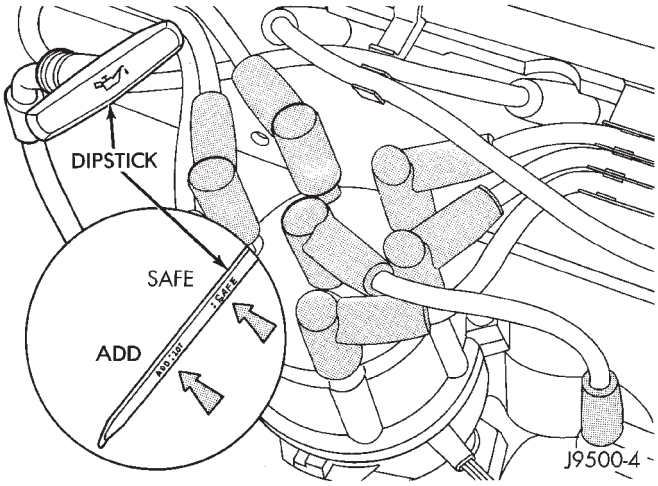


Fig. 5 Engine Oil Dipstick — 4.0L Engine

(3) Remove oil fill cap.

(4) Place a suitable drain pan under crankcase drain.

(5) Remove drain plug from crankcase and allow oil to drain into pan. Inspect drain plug threads for stretching or other damage. Replace drain plug and gasket if damaged.

(6) Install drain plug in crankcase.

(7) Lower vehicle and fill crankcase with specified type and amount of engine oil described in this section.

(8) Install oil fill cap.

(9) Start engine and inspect for leaks.

(10) Stop engine and inspect oil level.

ENGINE OIL FILTER

FILTER SPECIFICATION

CAUTION: Do not use oil filter with metric threads. The proper oil filter has SAE type 3/4 X 16 threads. An oil filter with metric threads can result in oil leaks and engine failure.

All Jeep engines are equipped with a high quality full-flow, throw-away type oil filter. Chrysler Corporation recommends a Mopar or equivalent oil filter be used.

OIL FILTER REMOVAL

(1) Position a drain pan under the oil filter.

(2) Using a suitable oil filter wrench loosen filter.

(3) Rotate the oil filter counterclockwise to remove it from the cylinder block oil filter boss (Fig. 6 and 7).

(4) When filter separates from adapter nipple, tip gasket end upward to minimize oil spill. Remove filter from vehicle.

(5) With a wiping cloth, clean the gasket sealing surface (Fig. 8) of oil and grime.

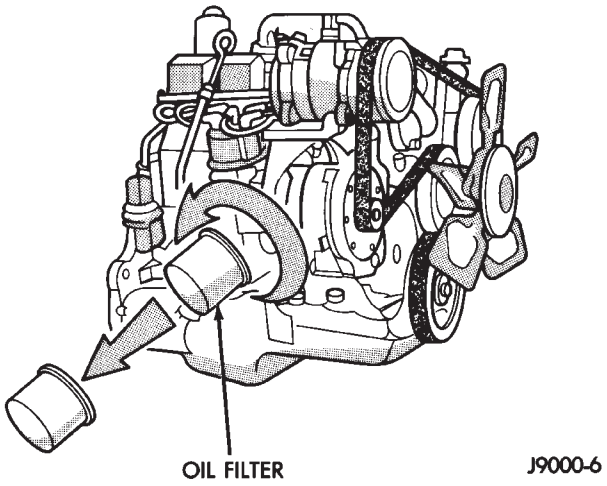


Fig. 6 Oil Filter—2.5L Engine

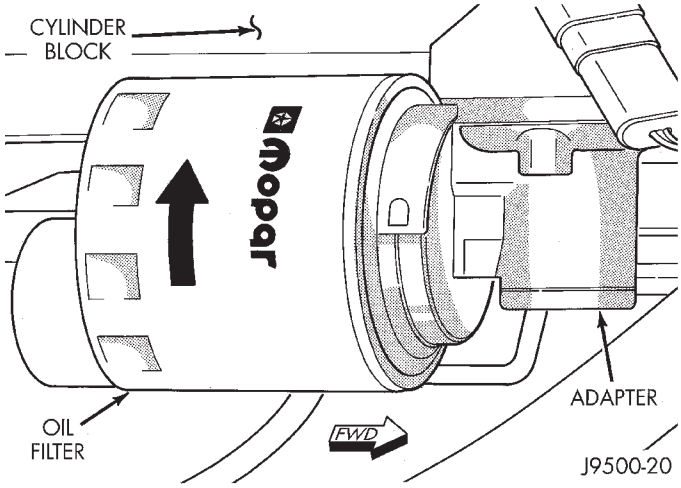


Fig. 7 Oil Filter — 4.0L Engine

OIL FILTER INSTALLATION

(1) Lightly lubricate oil filter gasket with engine oil or chassis grease.

(2) Thread filter onto adapter nipple. When gasket makes contact with sealing surface, (Fig. 8) hand tighten filter one full turn, do not over tighten.

(3) Add oil, verify crankcase oil level and start engine. Inspect for oil leaks.

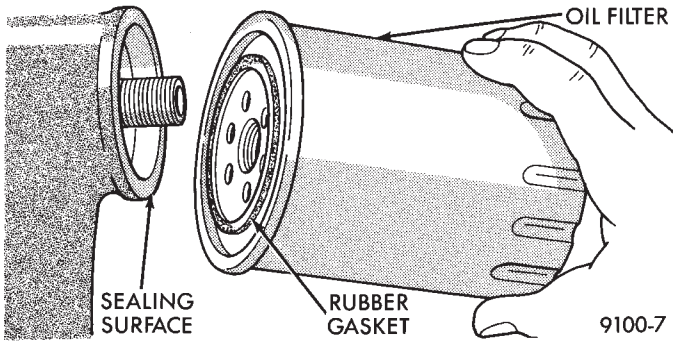


Fig. 8 Oil Filter Sealing Surface—Typical

USED ENGINE OIL DISPOSAL

Care should be exercised when disposing used engine oil after it has been drained from a vehicle engine. Refer to the WARNING listed above.

ENGINE COOLING SYSTEM

WARNINGS AND PRECAUTIONS

WARNING: ANTIFREEZE IS AN ETHYLENE GLYCOL BASE COOLANT AND IS HARMFUL IF SWALLOWED OR INHALED. IF SWALLOWED, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING. IF INHALED, MOVE TO FRESH AIR AREA. SEEK MEDICAL ATTENTION IMMEDIATELY. DO NOT STORE IN OPEN OR UNMARKED CONTAINERS. WASH SKIN AND CLOTHING THOROUGHLY AFTER COMING IN CONTACT WITH ETHYLENE GLYCOL. KEEP OUT OF REACH OF CHILDREN.

DISPOSE OF GLYCOL BASE COOLANT PROPERLY, CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA.

DO NOT OPEN A COOLING SYSTEM WHEN THE ENGINE IS AT RUNNING TEMPERATURE, PERSONAL INJURY CAN RESULT.

AVOID RADIATOR COOLING FAN WHEN ENGINE COMPARTMENT RELATED SERVICE IS PERFORMED, PERSONAL INJURY CAN RESULT.

CAUTION: Do not use straight antifreeze as engine coolant, inadequate engine running temperatures can result.

Do not operate vehicle without proper concentration of recommended ethylene glycol coolant, high running temperatures and cooling system corrosion can result.

The engine cooling system will develop internal pressure of 97 to 123 kPa (14 to 18 psi) at normal operating temperature. Allow the vehicle approximately one half hour to cool off before opening the cooling system. As an indicator of pressure, squeeze the upper radiator hose between index finger and thumb. If it collapses with little effort the system would have low internal pressure and should be safe to open to the first safety notch of the radiator cap. Refer to Group 7, Cooling System.

COOLING SYSTEM INSPECTION

Coolant level should be inspected when other engine compartment service is performed or when coolant leak is suspected. With the engine at normal operating temperature, observe the coolant level in the **coolant recovery bottle**. The coolant level must be at least above the ADD mark and preferably at the FULL mark. Add coolant to the coolant recovery bottle **only**, if necessary.

Cooling system freeze protection should be tested at the onset of the winter season or every 12 months. Service is required if coolant is low, contaminated, rusty or freeze protection is inadequate. To properly test cooling system, see Group 7, Cooling System.

The cooling system factory fill is a mixture of 50% Ethylene Glycol based antifreeze and 50% water. Using a suitable hydrometer, measure antifreeze concentration in the radiator when the engine is cool. If the cooling system has recently been serviced, allow coolant to circulate for at least 20 minutes before taking hydrometer reading. Properly mixed coolant will protect the cooling system to -37°C (-35°F). If the freeze protection is above -28°C (-20°F), drain enough coolant from the cooling system to allow room to add antifreeze to achieve adequate protection. A mix table on the coolant container indicates the amount of antifreeze required to winterize the cooling system based on the capacity, see Capacity Chart in General Information section of this group.

ANTIFREEZE SPECIFICATION

Chrysler Corporation recommends the use of Mopar Antifreeze/Coolant or a high quality, ethylene glycol base antifreeze/coolant, with a silicate inhibitor.

COOLING SYSTEM SERVICE

The cooling system should be drained, flushed and filled with the proper coolant mixture at the intervals described in the Lubrication and Maintenance Schedules. Refer to General Information section of this group. For proper service instructions see Group 7, Cooling System.

AIR CLEANER ELEMENT

The air cleaner element should be serviced at the intervals described in the Lubrication and Maintenance Schedules sections of this group. Additional information can be found in Group 14, Fuel System and Group 25, Emission System. Inspect all air cleaner hoses or tubes for damage or leaks when other engine compartment service is performed. Replace faulty components.

FILTER ELEMENT SERVICE/REPLACEMENT

CAUTION: The air cleaner cover must be installed properly for the emissions system and engine controller to function correctly.

Do not immerse paper air filter element in cleaning solvents, damage can result.

(1) Remove the air cleaner cover from the body/housing (Fig. 9).

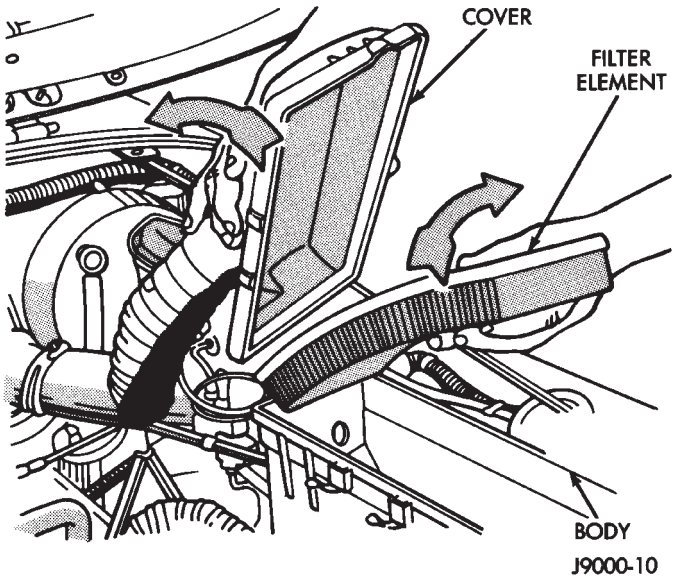


Fig. 9 Air Cleaner & Filter Element—2.5L and 4.0L Engines

(2) Remove the air cleaner element from the body/housing.

(3) Hold a shop light on throttle body side of element. Inspect air intake side of element. If element is saturated with oil or light is not visible, replace filter. If element is saturated with oil, perform crankcase ventilation system tests.

(4) Wash the air cleaner cover and body/housing (Fig. 10) with cleaning solvent and wipe dry.

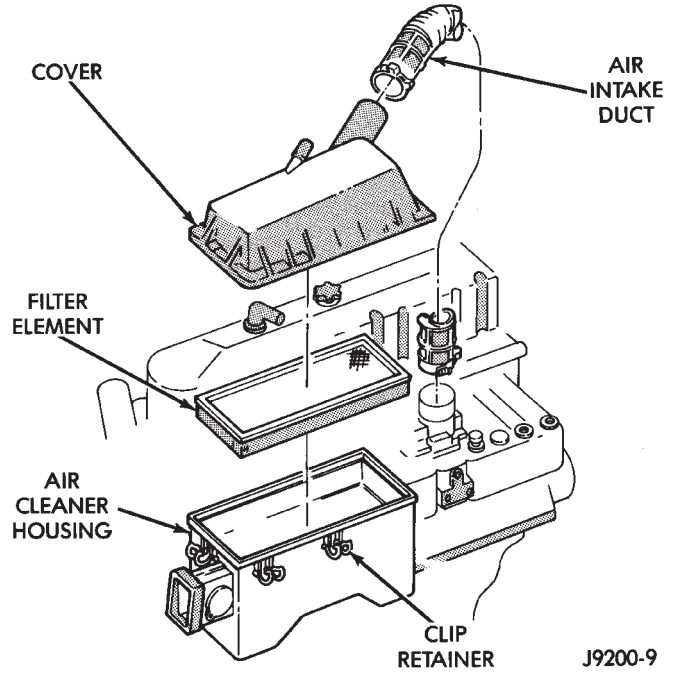


Fig. 10 Air Cleaner Body/Housing & Cover

(5) Install the air cleaner element and attach the cover to the body/housing.

CRANKCASE VENTILATION SYSTEM

All Jeep 2.5L and 4.0L engines are equipped with a crankcase ventilation (CCV) system. Refer to Group 25 Emissions, for additional information.

FUEL FILTER

The fuel filter requires service only when a fuel contamination problem is suspected. For proper diagnostic and service procedures refer to Group 14, Fuel System.

FUEL USAGE STATEMENT—GAS ENGINES

Jeep vehicles are designed to meet all emission regulations and provide excellent fuel economy using high quality unleaded gasoline. Only use unleaded gasolines having a minimum posted octane of 87.

If a Jeep vehicle develops occasional light spark knock (ping) at low engine speeds, this is not harmful. However, **continued heavy knock at high speeds can cause damage and should be checked immediately.**

In addition to using unleaded gasoline with the proper octane rating, **those that contain detergents, corrosion and stability additives are recommended.** Using gasolines that have these additives will help improve fuel economy, reduce emissions and maintain vehicle performance.

Poor quality gasoline can cause problems such as hard starting, stalling and stumble. If these problems occur, use another brand of gasoline before considering servicing the vehicle.

GASOLINE/OXYGENATE BLENDS

Some fuel suppliers blend unleaded gasoline with materials that contain oxygen such as alcohol, MTBE and ETBE. The type and amount of oxygenate used in the blend is important. The following are generally used in gasoline blends:

ETHANOL

Ethanol (Ethyl or Grain Alcohol) properly blended, is used as a mixture of 10 percent ethanol and 90 percent gasoline. **Gasoline with ethanol may be used in your vehicle.**

METHANOL

CAUTION: Do not use gasolines containing methanol. Use of methanol/gasoline blends may result in starting and driveability problems. In addition, damage may be done to critical fuel system components.

Methanol (Methyl or Wood Alcohol) is used in a variety of concentrations blended with unleaded gaso-

line. You may encounter fuels containing 3 percent or more methanol along with other alcohols called cosolvents.

Problems that are the result of using methanol/gasoline blends are not the responsibility of Chrysler Corporation. They may not be covered by the vehicle warranty.

MTBE/ETBE

Gasoline and MTBE (Methyl Tertiary Butyl Ether) blends are a mixture of unleaded gasoline and up to 15 percent MTBE. Gasoline and ETBE (Ethyl Tertiary Butyl Ether) are blends of gasoline and up to 17 percent ETBE. Gasoline blended with MTBE or ETBE may be used.

CLEAN AIR GASOLINE

Many gasolines are now being blended that contribute to cleaner air, especially in those areas of the country where air pollution levels are high. These new blends provide a cleaner burning fuel and some are referred to as **Reformulated Gasoline**.

In areas of the country where carbon monoxide levels are high, gasolines are being treated with oxygenated materials such as MTBE, ETBE and ethanol.

Chrysler Corporation supports these efforts toward cleaner air and recommends the use of these gasolines as they become available.

IGNITION CABLES, DISTRIBUTOR CAP AND ROTOR

Inspect and test ignition cables, distributor cap and rotor when the spark plugs are replaced. Oil and grime should be cleaned from the ignition cables and distributor cap to avoid possible spark plug fouling. Mopar Foamy Engine Degreaser or equivalent is recommended for cleaning the engine compartment. For proper service and diagnostic procedures refer to Group 8D, Ignition System.

IGNITION TIMING

The ignition timing for 2.5L and 4.0L engines is not adjustable. Refer to the specifications listed on the engine Emission Control Information Label. Refer to Group 25, Emission Control Systems for additional information.

SPARK PLUGS

Ignition spark plugs should be replaced at the mileage interval described in the Lubrication and Maintenance Schedules. Refer to the General Information section of this group. For proper service procedures refer to Group 8D, Ignition Systems.

BATTERY

WARNING: WEAR SAFETY GLASSES, RUBBER GLOVES AND PROTECTIVE CLOTHING WHEN HANDLING/SERVICING A BATTERY. THE BATTERY ELECTROLYTE CONTAINS SULFURIC ACID AND WILL CAUSE HARM IF IT CONTACTS SKIN, EYES OR CLOTHING. IT WILL ALSO DAMAGE PAINTED (AS WELL AS UN-PAINTED) SURFACES OF A VEHICLE. IF SULFURIC ACID CONTACTS ANY OF THESE, FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER. IF SULFURIC ACID CONTACTS SKIN OR EYES, GET IMMEDIATE MEDICAL ATTENTION. DO NOT SMOKE IN THE VICINITY OF A BATTERY. KEEP OPEN FLAMES AND SPARKS AWAY FROM BATTERY FILLER CAPS BECAUSE EXPLOSIVE GAS IS ALWAYS PRESENT.

Inspect battery tray, hold down and terminal connections when other under hood service is performed. For proper diagnostic procedures refer to Group 8A, Battery/Starting/Charging System Diagnostics. For service and cleaning procedures refer to Group 8B, Battery/Starter Service.

Care should be taken when disposing a battery after removal from a vehicle. Lead-acid batteries are highly poisonous and, when indiscriminately disposed, could create a problem for the environment. Contact the applicable local city or county government agency to determine where automobile (lead-acid) batteries can be properly disposed in the local area.

RUBBER AND PLASTIC COMPONENT INSPECTION

CAUTION: Plastic hoses or wire harness covers will melt or deform when exposed to heat from exhaust system or engine manifolds.

Position plastic or rubber components away from moving parts in engine compartment or under vehicle, or damage will result.

Do not allow rubber engine mounts or other components to become oil contaminated, repair cause of oil contamination and clean area.

All rubber and plastic components should be inspected when engine compartment or under vehicle service is performed. When evidence of deterioration exists, replacement is required. To reduce deterioration of rubber components, Chrysler Corporation recommends Mopar Foamy Engine Degreaser or equivalent be used to clean engine compartment of oil and road grime.

EMISSION CONTROL SYSTEM

Inspect all emission control components and hoses when other under hood service is performed. Refer to emission system Vacuum Hose Label located on the inside of the hood in the engine compartment and Group 25, Emission Control Systems for proper service procedures.

ENGINE SUPPORTS

The general condition of the engine supports should be inspected when engine compartment or under vehicle service is performed.

INSPECTION

(1) Test the hardware that attaches the engine cylinder block to the engine support brackets (Figs. 11 and 12) for the specified tightening torque.

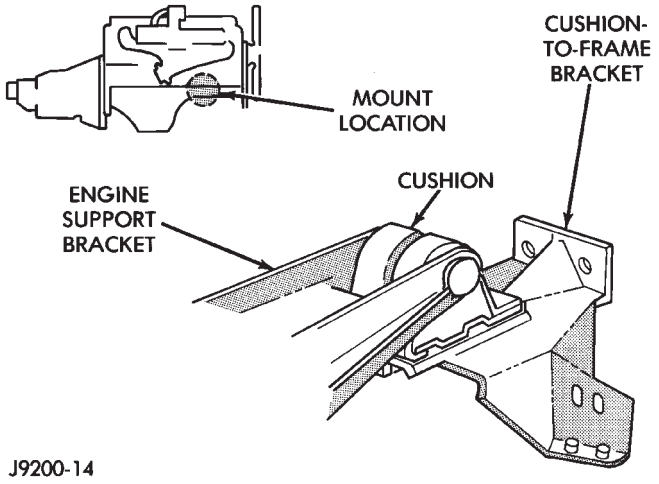


Fig. 11 Front Engine Support—Typical

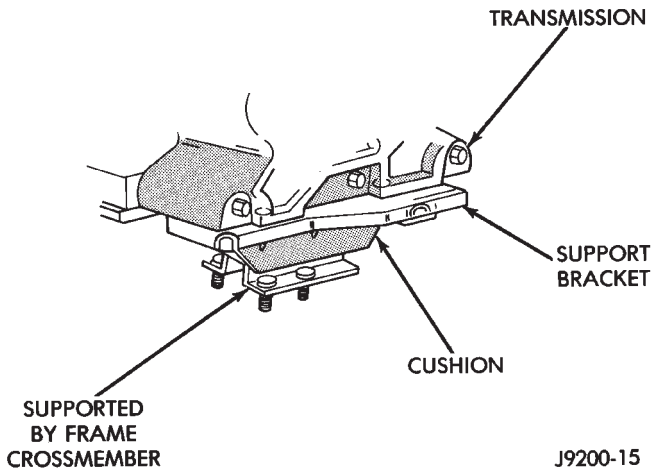


Fig. 12 Rear Engine Support—Typical

(2) Inspect the rubber in the engine support cushions for softening and swelling. Slight surface deterioration and wear at the ends will not affect the functioning of an engine support.

ACCESSORY DRIVE BELT

Inspect and adjust drive belts at the interval described in the Lubrication and Maintenance Schedules. Refer to General Information section of this group. For proper inspection and adjustment procedures, see Group 7, Cooling System.

EXHAUST SYSTEM

The exhaust system should be inspected when under vehicle service is performed or as specified in the Lubrication and Maintenance Schedules.

INSPECTION

When inspecting an exhaust system, inspect for cracked or loose joints, stripped screw/bolt threads, corrosion damage, and worn or broken hangers (Slight cracking in rubber isolator or hanger is acceptable). Replace all components that are corroded or damaged. Do not attempt repair. Also, inspect for the following obvious conditions and correct as necessary:

- Exhaust system leaks, damage, misalignment.
- Contact with body panels metal or the frame.
- Catalytic converter bulging or excessive heat damage.

CAUTION: A catalytic converter will become contaminated if leaded gasoline is burned in the engine. If this occurs, the complete converter must be replaced.

For proper service procedures see Group 11, Exhaust System and Intake Manifold.

AIR-CONDITIONER COMPRESSOR

LUBRICANT AND REFRIGERANT

The lubricant level in the air-conditioner compressor should be checked if there are indications that oil was lost. Loss of lubricating oil usually accompanies a loss of refrigerant.

For additional information involving the A/C system, refer to Group 24, Heater And Air Conditioning.

DRIVETRAIN

INDEX

CLUTCH AND BRAKE PEDAL BUSHINGS

If the clutch and brake pedal mechanism squeaks, the pivot bushings should be lubricated. Use Mopar Multi-Purpose Lubricant, or an equivalent. Refer to Group 5, Brakes for location of bushings.

CLUTCH MASTER CYLINDER

LEVEL INSPECTION

WARNING: DO NOT ALLOW PETROLEUM OR WATER BASE LIQUIDS TO CONTAMINATE CLUTCH FLUID, SEAL DAMAGE AND CLUTCH FAILURE CAN RESULT.

The clutch reservoir level should be inspected when other underhood service is performed. (Fig. 1)

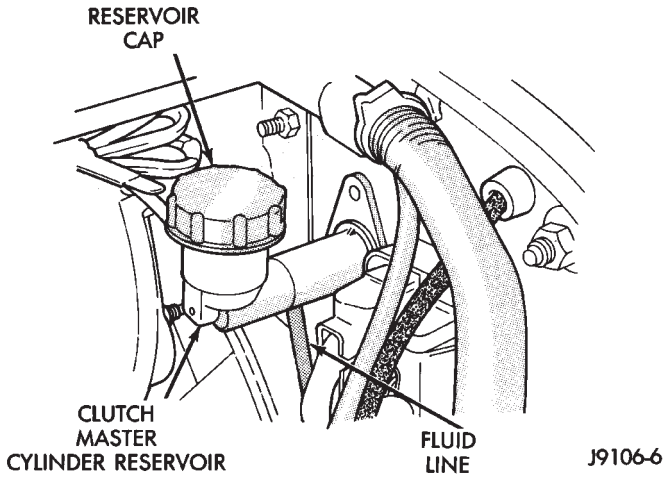


Fig. 1 Clutch Reservoir Location—Typical

The fluid level is determined by its height in relation to the level indicator ring (Fig. 2) located inside the reservoir. Add fluid until the height is level with the indicator ring.

FLUID SPECIFICATION

Use Mopar, Brake And Hydraulic Clutch Fluid or equivalent. Use only brake fluid conforming to DOT 3, Federal, Department of Transportation specification. To avoid fluid contamination, use fluid from a properly sealed container.

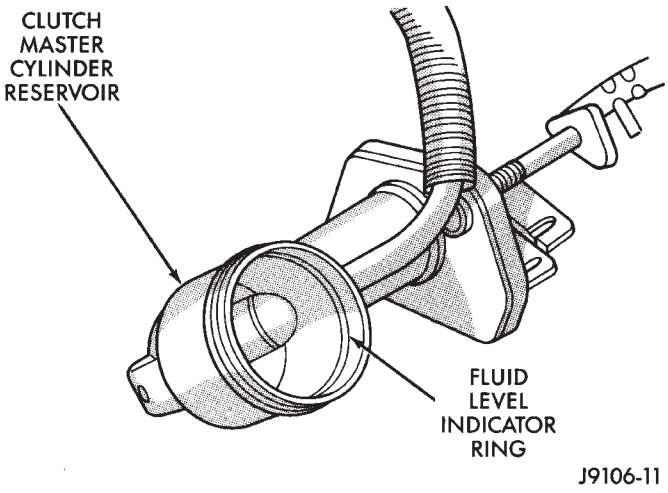


Fig. 2 Hydraulic Clutch Fluid Level—Typical

CAUTION: Never use reclaimed brake fluid or fluid from an unsealed container. In addition, do not use fluid from a container that has been opened and allowed to stand for an extended length of time. Moisture in the air can be absorbed by the fluid, which causes dilution with loss of effectiveness.

MANUAL TRANSMISSION

The manual transmission should be inspected for oil leaks and proper oil level when other under vehicle service is performed.

LUBRICANT SPECIFICATION

When it becomes necessary to add to or change the lube oil in a Jeep manual transmission, use SAE 75W-90, API Quality Grade GL-5 gear lubricant.

LUBRICANT LEVEL

The fill-hole plug for all manual transmissions is located on the right side of the case (Fig. 3). Determine the lubricant level according to the following procedure.

(1) Remove the fill-hole plug (Fig. 3) from the transmission. The lube oil should be level with the bottom edge of the fill hole. The level can be slightly below the bottom edge of the fill hole if the lube oil is cold.

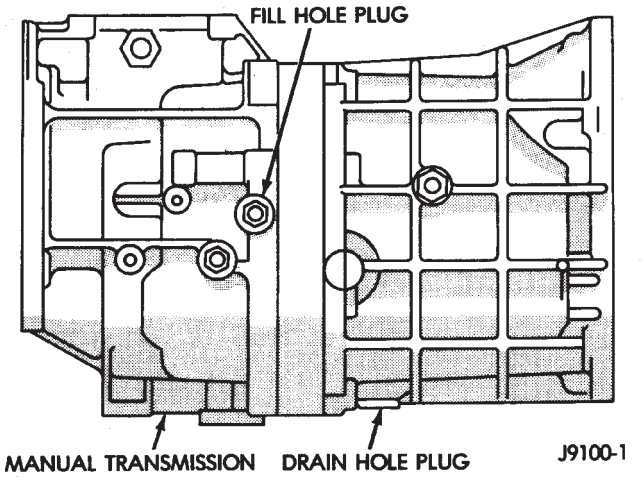


Fig. 3 Manual Transmission Fill- & Drain-Hole Plugs—Typical

If the transmission is warm, lube oil could drip out of the fill hole. This is acceptable but the lube oil should not gush out of the fill hole.

(2) If not acceptable, raise the lube oil level to the bottom edge of the transmission fill hole.

Add lube oil in small amounts to raise the level.

(3) Install the fill-hole plug in the transmission. Tighten the plug with 37 N·m (27 ft. lbs.) torque.

LUBE OIL CHANGE

When it becomes necessary to change manual transmission lube oil, use the following procedure.

(1) Raise and support the vehicle.

(2) Remove the fill-hole plug from the transmission.

(3) Place a container to collect the lube oil under the transmission drain-hole plug.

(4) Remove the drain-hole plug and drain the lube oil from the transmission into the container.

Care should be exercised when disposing used lube oil after it has been drained from a transmission.

(5) Install the drain-hole plug in the transmission. Tighten the plug with 37 N·m (27 ft. lbs.) torque.

(6) Fill the transmission until the lube oil begins to drip out of the fill hole.

(7) Install the fill-hole plug in the transmission. Tighten the plug with 37 N·m (27 ft. lbs.) torque.

(8) Remove the support and lower the vehicle.

AUTOMATIC TRANSMISSION

The automatic transmission fluid should be changed and bands adjusted at the intervals described in the Maintenance Schedules section of this Group. The automatic transmission should be inspected for fluid leaks and proper fluid level when other under hood service is performed. Refer to Group 21, Transmission for proper service procedures.

CAUTION: To minimize fluid contamination, verify that dipstick is seated in the fill tube after fluid level reading is taken.

TO INSPECT THE TRANSMISSION FLUID LEVEL

WARNING: USE EXTREME CAUTION WHEN THE ENGINE IS OPERATING. DO NOT PUT YOUR HANDS NEAR THE DRIVE BELT, PULLEYS OR FAN BLADE. DO NOT STAND IN A DIRECT LINE WITH THE FAN BLADE.

(1) Be sure transmission fluid is at normal operating temperature. Normal operating temperature is reached after approximately 15 miles (25km) of operation.

(2) Position the vehicle on a level surface. This is important for an accurate fluid level check.

(3) While sitting in driver seat, apply brakes and place gear selector in each position, then move the selector to:

- XJ vehicles-P (Park).
- YJ vehicles-N (Neutral).

(4) Apply parking brake.

(5) Raise hood and wipe off dipstick handle to prevent dirt from entering fill tube. Then remove transmission fluid level indicator (dipstick) and wipe clean with a wiping cloth.

(6) Install dipstick and verify it is seated in fill hole or tube.

(7) Remove dipstick, with handle above tip, take fluid level reading. If the vehicle has been driven for at least 15 minutes before inspecting fluid level, transmission can be considered hot and reading should be in the OK area. If vehicle has run for less than 15 minutes and more than 60 seconds transmission can be considered warm and reading should be above MIN mark. Add fluid only if level is below MIN mark on dipstick when transmission is warm (Fig. 4).

CAUTION: Do not overfill automatic transmission, leakage or damage can result.

AUTOMATIC TRANSMISSION FLUID SPECIFICATION

When it becomes necessary to add fluid or when the ATF is replaced, use:

- MOPAR Dexron IIE/Mercon ATF **only** for AW-4 automatic transmissions (XJ vehicles).
- MOPAR ATF PLUS type 7176 (YJ vehicles).

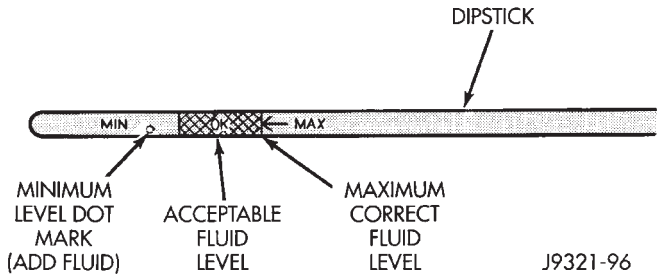


Fig. 4 Dipstick & ATF Level

SPECIAL ADDITIVES

The addition of any special-type fluid to a Jeep automatic transmission is not recommended. The only exception is the addition of black-light detection dye to aid in detecting the source of ATF leaks. The use of transmission sealing additives should also be avoided.

Black-light detection dye is factory-installed in automatic transmissions and, unless the ATF has been drained and re-placed, it is not necessary to add dye.

FLUID AND FILTER CHANGE

The automatic transmission fluid and filter should be changed at the intervals described in the Maintenance Schedules section of this Group. Refer to Group 21, Transmission for proper service procedures.

TRANSFER CASE (4WD VEHICLES)

The transfer case should be inspected for fluid leaks and proper fluid level when other under vehicle service is performed.

FLUID LEVEL

The transfer case fill hole plug is located at the rear of the housing (Fig. 5).

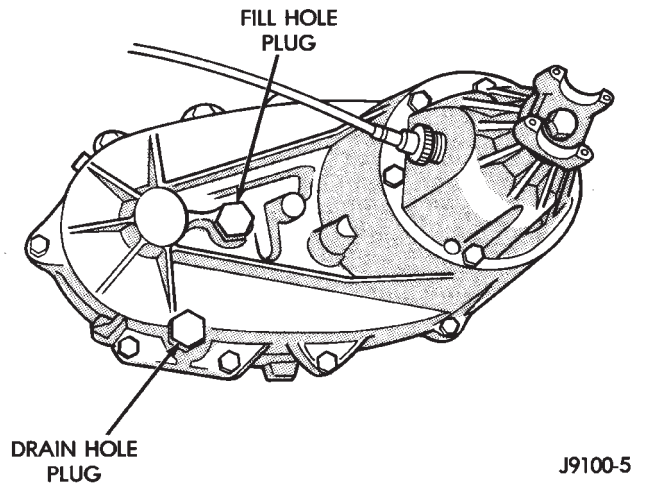


Fig. 5 Transfer Case—Typical

Determine the transfer case fluid (ATF) level according to the following procedure.

(1) Raise and support the vehicle.

(2) Remove the fill hole plug from the transfer case (Fig. 5). The fluid (ATF) level should be at the bottom edge of the fill hole. The level can be slightly below the bottom edge of the fill hole if the fluid is cold.

(3) If the level is not acceptable, raise the fluid level to the bottom edge of the fill hole.

(4) Install the fill hole plug (Fig. 5). Tighten the fill hole plug to 48 N·m (35 ft-lbs) torque.

(5) Remove the support and lower the vehicle.

FLUID DRAIN AND REFILL

The Transfer Case should be serviced as specified in the Lubrication and Maintenance Schedules.

(1) Raise and support the vehicle.

(2) Remove the fill hole plug (Fig. 5) from the transfer case.

(3) Place an appropriate container under the transfer case drain hole plug (Fig. 5).

(4) Remove the drain hole plug and drain the ATF from the transfer case into the container.

CAUTION: Do not over-tighten the drain and fill hole plugs. Over-tightening can strip the hole threads and/or crack the aluminum housing.

(5) Install the drain hole plug in the transfer case. Tighten the drain hole plug to 27 N·m (20 ft-lbs) torque.

(6) Fill the transfer case to the bottom edge of the fill hole.

(7) Install the fill hole plug in the transfer case Tighten the plug to 27 N·m (20 ft-lbs) torque.

(8) Remove the support and lower the vehicle.

FLUID SPECIFICATION

If it is necessary to add fluid to a transfer case (or when the fluid is changed), use MOPAR ATF PLUS type 7176 or an equivalent Mercon/Dexron III ATF.

FRONT AND REAR AXLES

The front and rear axles should be inspected for fluid leaks and proper fluid level when other under vehicle service is performed. Refer to the Lubrication and Maintenance Schedule service intervals.

LUBRICANT SPECIFICATIONS

For normal vehicle operation, use SAE 75W-90, API Quality Grade GL-5 gear lubricant in all Jeep front (4WD only) and rear axles. Vehicles equipped with a Trac-Lok rear axle also require a friction modifier additive included with the gear lubricant.

When involved in trailer towing applications use SAE 80W-140, API Quality Grade GL-5 gear lubricant in the rear axle. XJ Vehicles equipped with a class III trailer hitch require SAE 75W-140 synthetic gear lubricant in the rear axle.

LUBRICANT LEVEL

Determine the axle differential housing lubricant level according to the following procedure.

(1) Raise and support the vehicle.

(2) Remove the fill-hole plug (Fig. 6 and 7) from the axle differential housing cover. The gear lubricant should be 13 mm (1/2 inch) below the bottom edge of the fill hole.

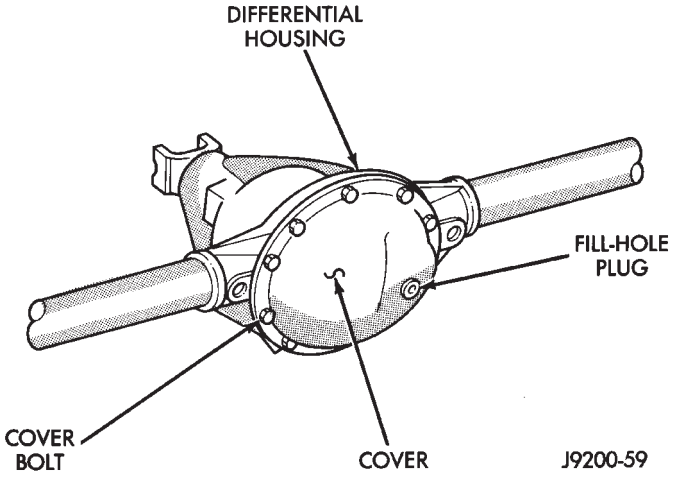


Fig. 6 Rear Axle—Typical

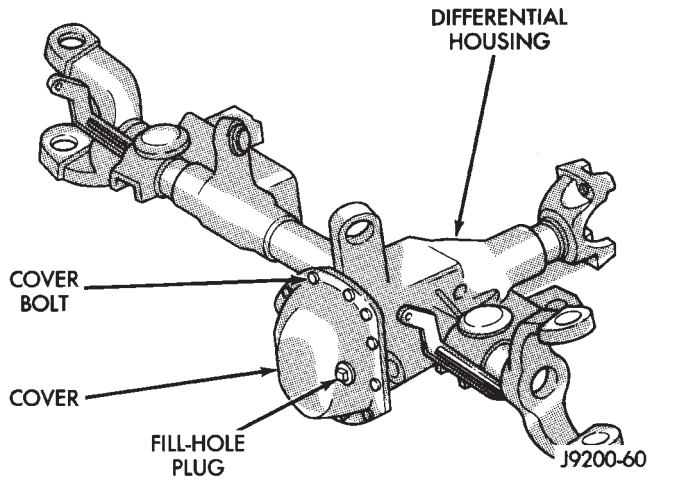


Fig. 7 Front Axle (4WD)—Typical

(3) If not acceptable, raise the lubricant level to 13 mm (1/2 inch) below the bottom edge of the fill hole. **Add lubricant in small amounts to raise the level.**

(4) Install the fill-hole plug in the differential housing cover. Tighten the plug with 34 N°m (25 ft. lbs.) torque.

(5) Remove the support and lower the vehicle.

LUBRICANT CHANGE

When it becomes necessary to change the axle lubricant in a Jeep front or rear axle, use the following procedure.

(1) Raise and support the vehicle.

(2) Place a container under the axle differential housing.

(3) Remove the axle differential housing cover bolts. Remove the housing cover.

(4) Allow the axle gear lubricant to completely drain into the container.

CAUTION: Do not flush a rear axle Trac-Lok differential. Trac-Lok differentials may be cleaned only by disassembling the unit and wiping the components with clean, lint-free cloth.

(5) Flush the inside of the differential housing with a flushing oil. **Do not use water, steam, kerosene or gasoline for flushing.**

(6) Remove any residual RTV sealant/gasket material from the differential housing and cover. Thoroughly clean the contact surfaces with mineral spirits and dry the surfaces completely.

(7) Apply a bead of MOPAR RTV Sealant, or an equivalent sealant, around the bolt circle on the housing and on the cover (Fig. 8).

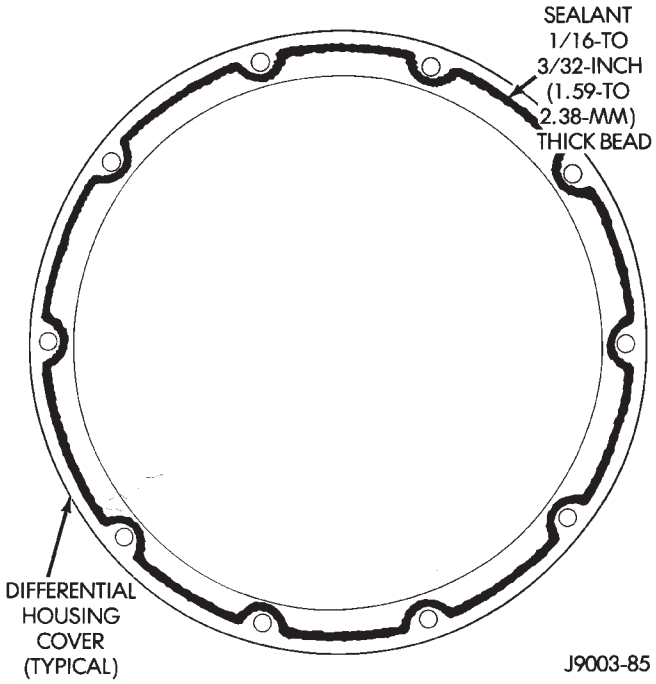


Fig. 8 RTV Sealant Application—Typical

If differential housing cover is not installed within 20 minutes after applying sealant, the sealant must be removed and another bead applied.

(8) Install the cover on the differential housing with the attaching bolts (Fig. 9). Tighten the cover bolts with 47 N·m (35 ft. lbs.) torque.

(9) Remove the fill-hole plug and add the replacement gear lubricant to the differential housing. Refer to Specifications above.

(10) Install the fill-hole plug. Tighten the plug with 34 N°m (25 ft. lbs.) torque.

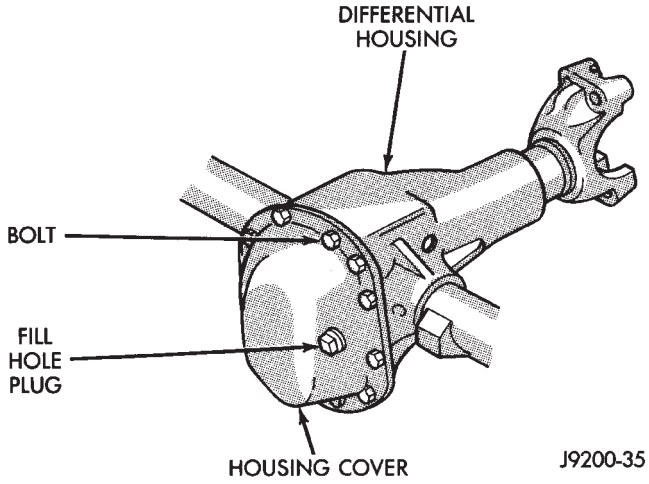


Fig. 9 Differential Housing Cover Installed

(11) Remove the support and lower the vehicle.

DRIVE SHAFTS

Lubricate at the intervals described in the Maintenance Schedule section of this Group. Refer to Group 16, Propeller Shafts for proper service procedures.

CAUTION: It is very important that drive shafts be lubricated at periodic intervals and that the specified type of lubricant be used. Failure to properly lubricate could result in premature wear of drive shaft components.

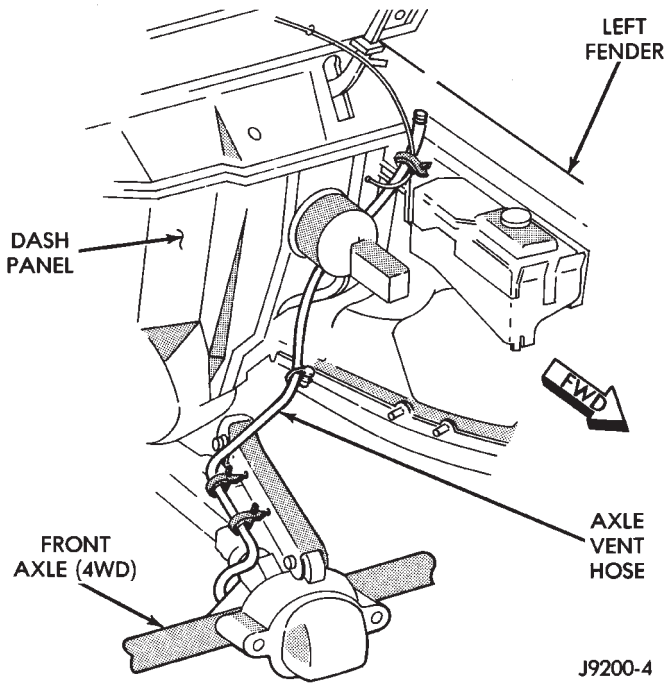


Fig. 10 Front Axle Vent Hose (4WD)—XJ Vehicles

LUBRICANT SPECIFICATION

Use Mopar, Multi-purpose Grease or any lubricate that is identified as NLGI GC-LB lubricant.

RUBBER AND PLASTIC HOSES/TUBING

The condition of underbody rubber hose and plastic tubing should be inspected whenever underbody service is performed.

Rubber hoses and plastic tubing should be replaced immediately if there is any evidence of failure.

HOSE/TUBING INSPECTION

(1) Inspect all hose and tubing fittings for looseness and corrosion. Inspect the rubber hoses for brittleness and cracks. Thoroughly inspect the hose ends (those that are slipped over nipple connectors) for splits (Fig. 10, 11, 12, 13, 14, 15 and 16).

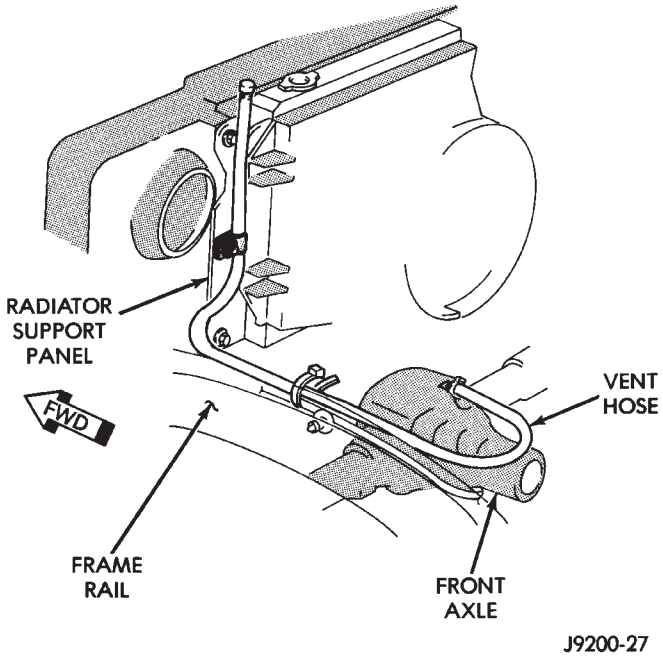


Fig. 11 Front Axle Vent Hose—YJ Vehicles

(2) Inspect the surface of hoses and tubing for heat and mechanical damage. Hose and tubing located close to an exhaust pipe should be given special attention.

(3) Inspect the rubber hose routing to ensure that the hoses do not contact any heat source, moving component, etc., that would potentially cause heat or mechanical damage.

(4) Inspect all the hose connections to ensure that they are secure and there is no fluid leakage. Actual dripping of hot fluid should be noted and the clamps tightened in an attempt to stop the leakage before replacing the hose.

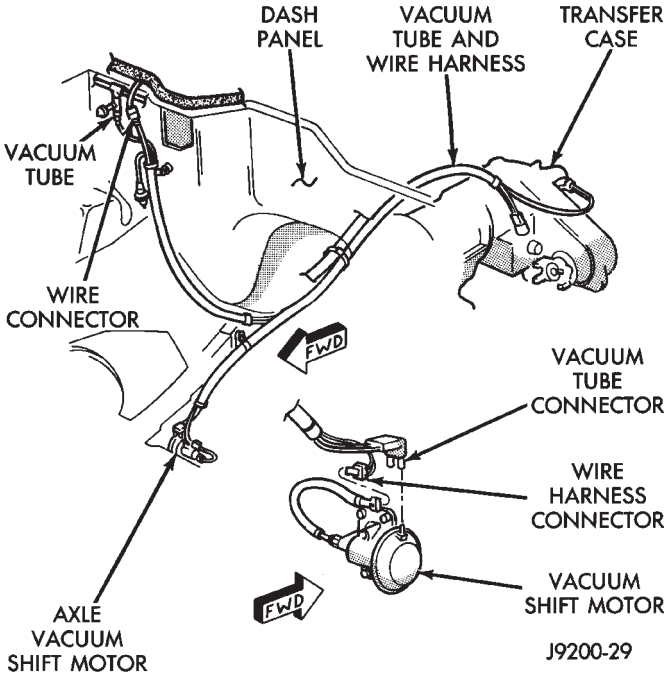


Fig. 12 Front Axle Vacuum Shift Tubing

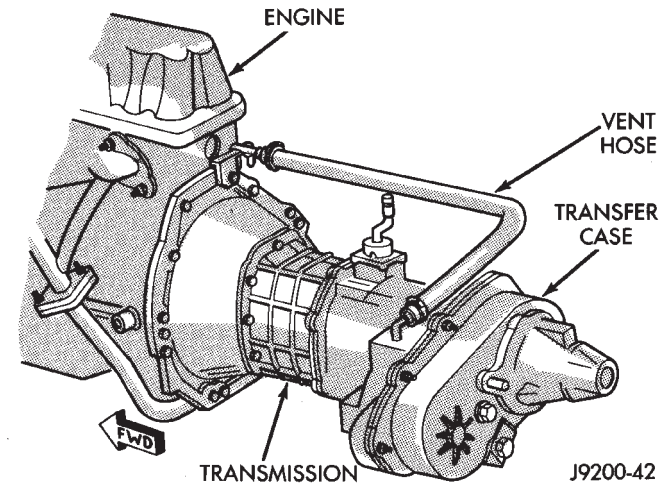


Fig. 13 Transfer Case Vent Hose (4WD)—Typical

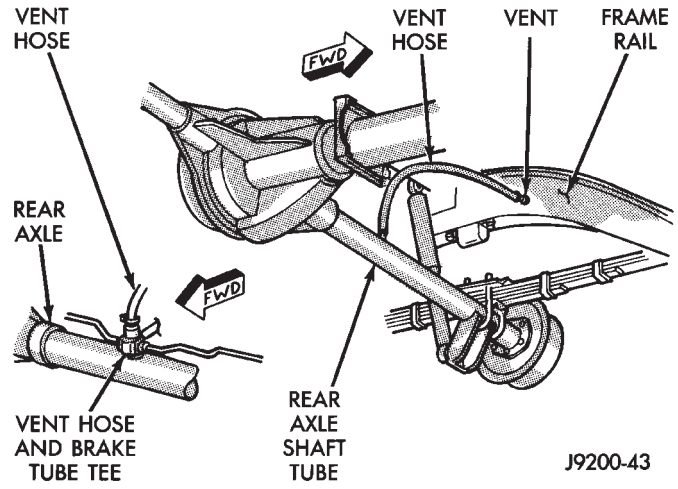


Fig. 14 Rear Axle Vent Hose—XJ Vehicles

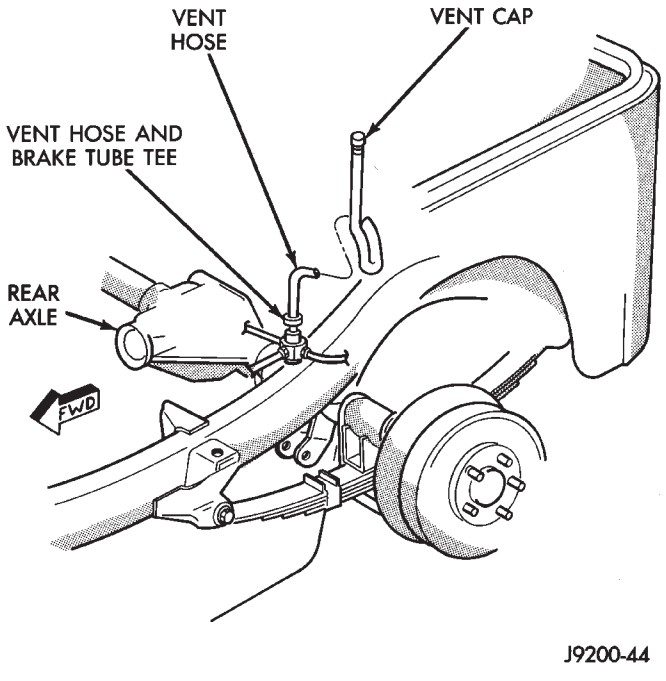


Fig. 15 Rear Axle Vent Hose—YJ Vehicles

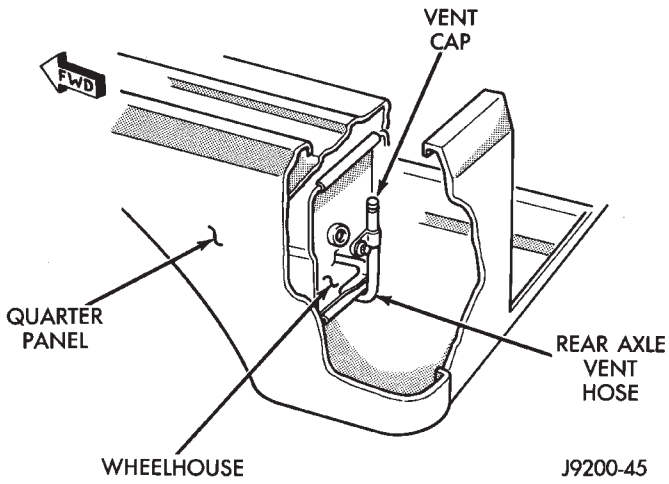


Fig. 16 Rear Axle Vent Hose At Wheelhouse—YJ Vehicles

CHASSIS AND BODY COMPONENTS

INDEX

CHASSIS COMPONENT AND WHEEL BEARING LUBRICANTS

The chassis component and wheel bearing lubricants that are recommended for Jeep vehicles are identified by the NLGI Certification Symbol (Fig. 1). The symbol contains a coded designation that identifies the usage and quality of the lubricant.

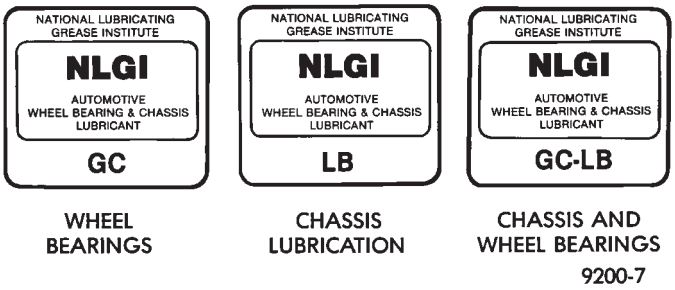


Fig. 1 NLGI Lubricant Container Certification/ Identification Symbol

The letter **G** designates wheel bearing lubricant. Letter **L** designates chassis lubricant. When the letters are combined the lubricant can be used for dual applications. The suffix letters **C** and **B** designate the level of the lubricant for the application. The letter **C** represents level available for wheel bearing lubricant (G) and the letter **B** represents level available for chassis lubricant (L).

STEERING LINKAGE

The steering linkage (Fig. 2) should be lubricated and inspected at the intervals described in the Maintenance Schedules section of this Group. Refer to Group 2, Front Suspension and Axles for proper service procedures.

LUBRICANT SPECIFICATION

Use Mopar, Multi-purpose Grease or NLGI GC-LB lubricant equivalent to lubricate the steering linkage.

INSPECTION

(1) Inspect the steering linkage. Examine the tie rods and the drag link for bending, and the ball studs for looseness and excessive wear.

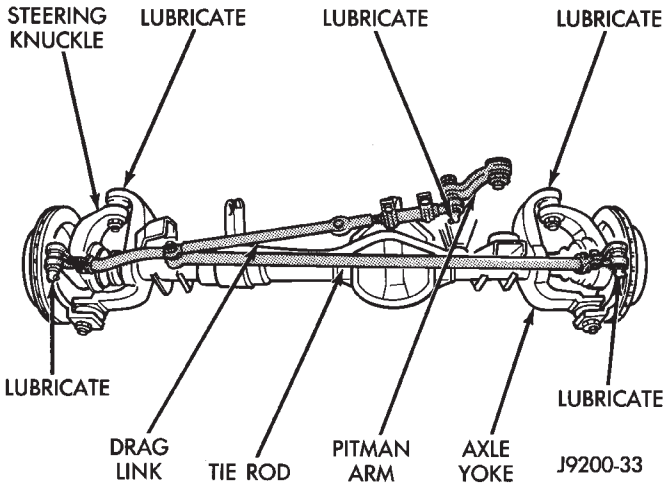


Fig. 2 Steering Components (XJ)—Typical

(2) Replace, as necessary, all torn/ruptured ball-stud seals and damaged/defective steering linkage components.

CAUTION: Use care to prevent lubricant from contacting the brake rotors.

FRONT WHEEL BEARINGS

Some 2WD XJ vehicles are equipped with serviceable front wheel bearings. XJ 4WD vehicles have semi-floating axle shafts and axle shaft bearings that are lubricated via differential lube oil.

RECOMMENDED MAINTENANCE—2WD XJ VEHICLES

If equipped, the serviceable front wheel bearings should be lubricated (re-packed) at the same time as front brake pad/caliper service is conducted.

LUBRICANT SPECIFICATION

Wheel bearings should be lubricated with a lubricant that is identified as NLGI GC-LB lubricant.

INSPECTION/LUBRICATION

(1) Remove the wheel/tire and the disc brake caliper. **Do not disconnect the caliper brake fluid**

hose unless the caliper must also be removed for maintenance.Support the caliper with a hanger to prevent brake fluid hose damage.

(2) Remove the dust cap, the cotter pin, the nut retainer, the adjustment nut, and the thrust washer from the spindle (Fig. 3). Discard the cotter pin.

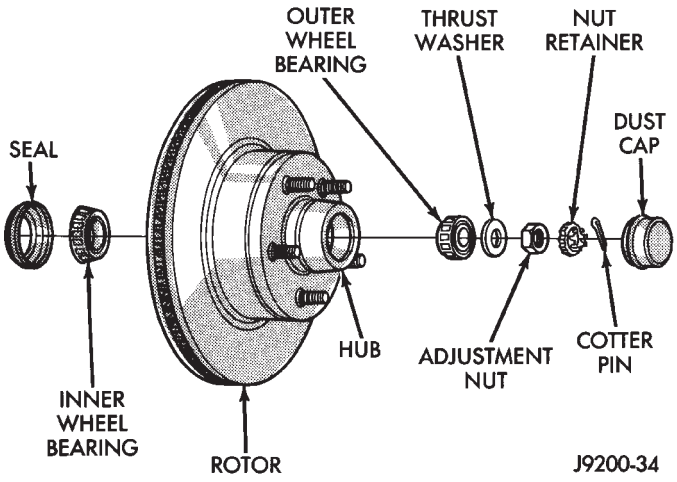


Fig. 3 2WD Front Wheel Bearings—XJ Vehicles

(3) Remove the wheel outer bearing from the hub.

(4) Remove the wheel hub/disc brake rotor from the spindle.

(5) Remove the seal and the inner wheel bearing from the hub cavity.

(6) After removal, inspect both front wheel bearing races for indications of pitting, brinelling and excessive heat.

(7) Wipe the spindle clean and apply a small amount of chassis/wheel bearing lubricant (NLGI GC-LB lubricant) to prevent rust. Wipe the wheel hub cavity clean.

CAUTION: Do not over-fill the wheel hub cavity with lubricant. Excessive lubricant can cause overheating and bearing damage. Also, excessive lubricant can be forced out of the wheel hub cavity and contaminate the brake rotor/pads.

(8) Partially fill the wheel hub cavity with chassis/wheel bearing lubricant (NLGI GC-LB lubricant).

(9) Pack the wheel bearings with chassis/wheel bearing lubricant (NLGI GC-LB lubricant). Ensure that sufficient lubricant is forced between the bearing rollers.

(10) Install the wheel inner bearing in the wheel hub and install a replacement seal.

(11) Clean the disc brake rotor contact surfaces, if necessary.

(12) Install the wheel hub/disc brake rotor on the spindle.

(13) Install the wheel outer bearing, the thrust washer, and the spindle nut.

(14) Tighten the spindle nut with 28 N·m (21 ft. lbs.) torque while rotating the disc brake rotor to seat the bearings.

(15) Loosen the spindle nut 1/2 turn. While rotating the disc brake rotor, tighten the spindle nut with 2 N·m (19 in. lbs.) torque.

(16) Install the nut retainer and a replacement cotter pin.

(17) Clean the dust cap and apply wheel bearing lubricant to the inside surface. **Do not fill the dust cap with lubricant.**

(18) Install the dust cap.

(19) Install the disc brake caliper.

POWER STEERING SYSTEM

The power steering fluid level should be inspected when other under hood service is performed. For proper service procedures, refer to Group 19, Steering.

Inspect the power steering system (Fig. 4, and 5) for the sources of fluid leaks, steering gear housing cracks and ensure that the steering gear is securely attached to the vehicle frame rail. Inspect the steering damper for leaks and loose connections.

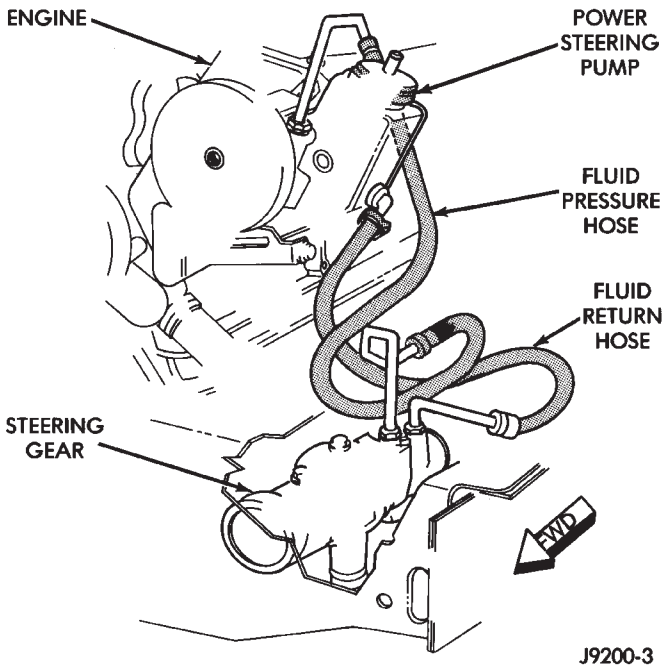


Fig. 4 Power Steering System—XJ Vehicles

FLUID SPECIFICATION

Use MOPAR Power Steering Fluid, or an equivalent product.

POWER STEERING FLUID INSPECTION

WARNING: ENGINE MUST NOT BE RUNNING WHEN INSPECTING POWER STEERING FLUID LEVEL, PERSONAL INJURY CAN RESULT.

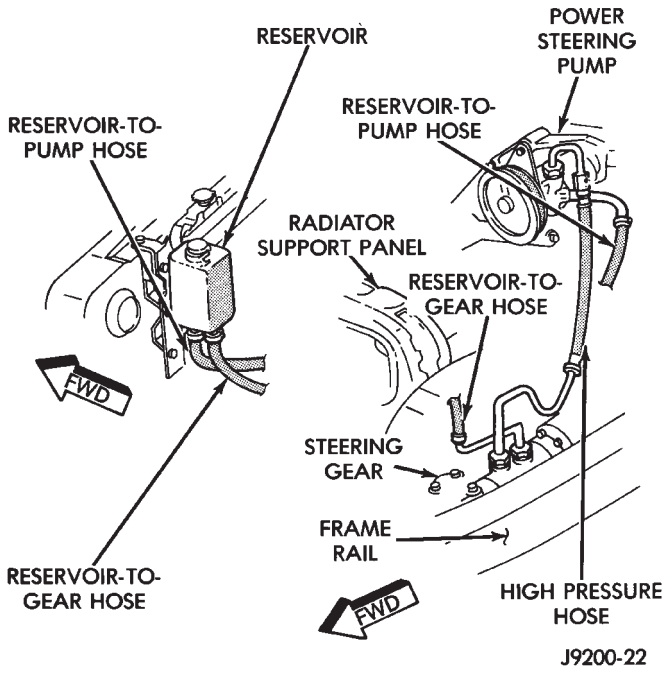


Fig. 5 Power Steering System—YJ Vehicles

FLUID LEVEL

The fluid level indicator (dipstick) is attached to the reservoir cap (Fig. 6). The fluid level in the reservoir can be determined with the fluid either hot or cold.

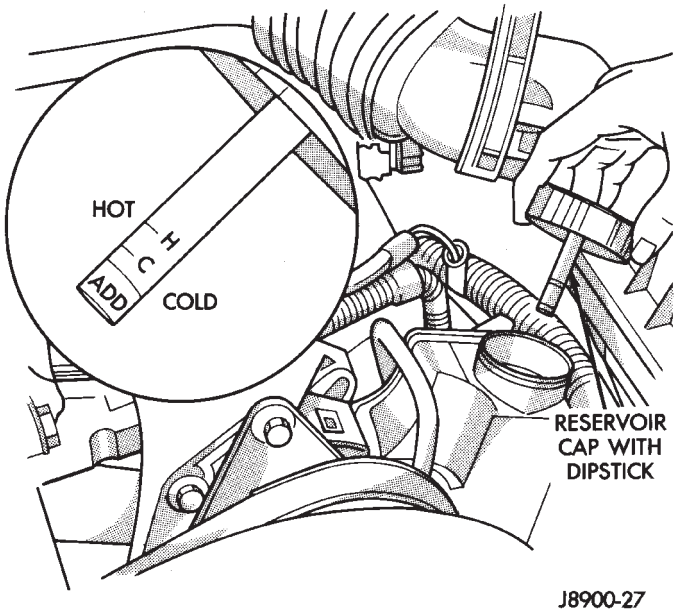


Fig. 6 Power Steering Fluid Reservoir Dipstick—Typical

(1) Remove the cap from the reservoir.

(2) Depending on fluid temperature, if the level is below the FULL HOT mark or the FULL COLD mark on the dipstick, add power steering fluid.

(3) Install the cap on the reservoir.

CAUTION: Do not over fill power steering reservoir when adding fluid, seal damage and leakage can result.

MANUAL STEERING GEAR

The manual steering gear should be inspected for damage at the same time as the engine oil is changed and the oil filter is replaced. Refer to Group 19, Steering for additional information and service procedures.

POWER BRAKE SYSTEM

RECOMMENDED MAINTENANCE

The brake fluid level (Fig. 8) should be inspected when other underhood service is done. With disc-brakes, the fluid level can be expected to fall as the brake pads wear. However, a low fluid level can also be caused by a leak, and repair will then be necessary. Refer to Group 5, Brakes for proper service procedures.

In addition, the brake system should be operationally tested periodically to ensure that it is functioning normally.

FLUID SPECIFICATION

Jeep power brake systems require MOPAR Heavy-Duty Brake Fluid, or an equivalent product identified as conforming to FMVSS No. 116, DOT-3 and SAE J-1703 specifications.

Use brake fluid from properly sealed container when adding fluid to the reservoir. Never use reclaimed fluid or fluid that does not conform to the DOT/SAE Standards.

CAUTION: Use of a brake fluid that has a lower initial boiling point then specified by FMVSS No. 116, DOT 3 and SAE J-1703 could result in sudden brake failure during hard, prolonged braking.

Do not allow petroleum base fluids to contaminate the brake fluid. Seal damage will result.

BRAKE FLUID LEVEL

STANDARD POWER BRAKE SYSTEM

(1) Clean the cover and the sides of the brake fluid reservoir.

(2) Detach the bail retainer from the reservoir cover and remove the cover from the reservoir.

(3) The brake fluid level should be 6 mm (1/4 in) below the rim of each reservoir well for XJ and YJ Vehicles (Fig. 7 and 8). If not, add brake fluid as necessary.

(4) Inspect the reservoir cover bail retainer for tension and the cover for proper fit. The cover should fit tight and have a good seal.

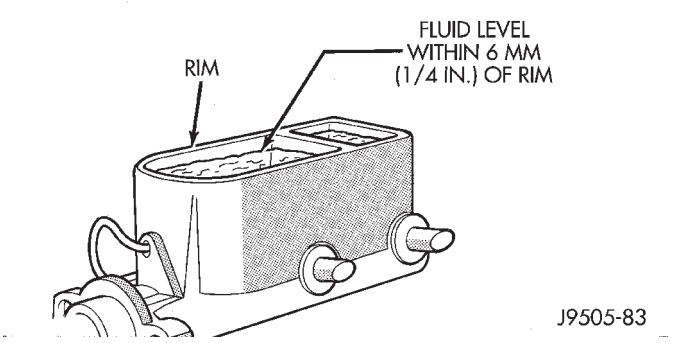


Fig. 7 Reservoir Fluid Level—YJ (2.5L)

(5) Inspect the reservoir rubber diaphragm seal for cracks, cuts and distortion.

(6) Inspect the brake fluid tubing fittings and the master cylinder housing for indications of fluid leakage. Repair as necessary.

(7) Install the brake fluid reservoir cover.

ANTI-LOCK BRAKE SYSTEM—XJ VEHICLES

The anti-lock brake system fluid reservoir for XJ Vehicles is located in the engine compartment at the left side of the dash panel.

(1) Turn the ignition switch ON and allow the pump motor to operate until it automatically de-energizes.

(2) Clean the cover before removing it.

CAUTION: Over-filling could cause fluid overflow and possible reservoir damage when the pump motor energizes.

(3) The brake fluid level should be no lower than the ADD indicator on the side of the reservoir (Fig. 8). If not, add brake fluid as necessary. Raise the fluid level to the FULL indicator only. Do not over-fill the reservoir.

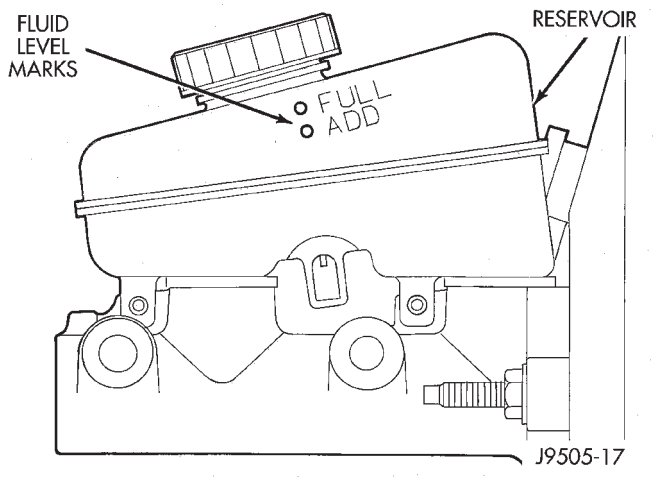


Fig. 8 Reservoir Fluid Level—YJ-XJ and Anti-Lock Brake System

(4) Turn the ignition switch OFF.

BRAKE SYSTEM INSPECTION

A brake system inspection should be included with all brake service procedures, and also each time the vehicle is lubricated.

(1) Inspect the brake pads and linings for excessive wear, cracks, charred surfaces and broken rivets.

(2) Inspect brake pads and linings for contamination from brake fluid, and/or other fluids.

(3) Replace the brake pads linings if they are worn to within 0.78 mm (1/32 in) of the rivet head.

(4) Operate the rear brake self-adjuster lever and pivot. Test the operation of the self-adjuster screw for ease of movement.

(5) Inspect the self-adjuster components for wear or damage.

(6) Inspect the disc brake caliper dust boot for damage and indications of brake fluid leakage. Inspect the bushings and pins for corrosion, tears and a binding condition.

(7) Pull the rear wheel cylinder dust boot back to expose the wheel cylinder housing. Inspect for fluid leaks. Inspect the pistons and cylinder bores.

(8) Inspect the brake differential warning valve and housing for indications of leakage.

BRAKE FLUID HOSES/TUBING

The rubber brake fluid hoses should be inspected for:

- Correct length
- Severe surface cracking
- Swelling
- Pulling
- Scuffing
- Excessively worn areas

If the hose has cracks or abrasions in the rubber cover, the hose should be replaced.

(1) Inspect all the hoses for kinks, a distorted condition and fluid leakage.

(2) Inspect the hose and tubing routing under the vehicle. Verify that no hose/tubing is rubbing against any exhaust or other underbody components.

PARKING BRAKE

(1) Engage the parking brake pedal and then release it.

(2) Test it for smooth operation and vehicle-holding capability.

(3) Inspect the parking brake cables.

(4) With the parking brake released, the rear wheels should

rotate without restriction. Adjust the parking brake cable tension, if necessary (Fig. 9 and 10).

(5) Repair any parking brake malfunctions.

BRAKE OPERATIONAL TEST

(1) Drive the vehicle and test for proper brake action.

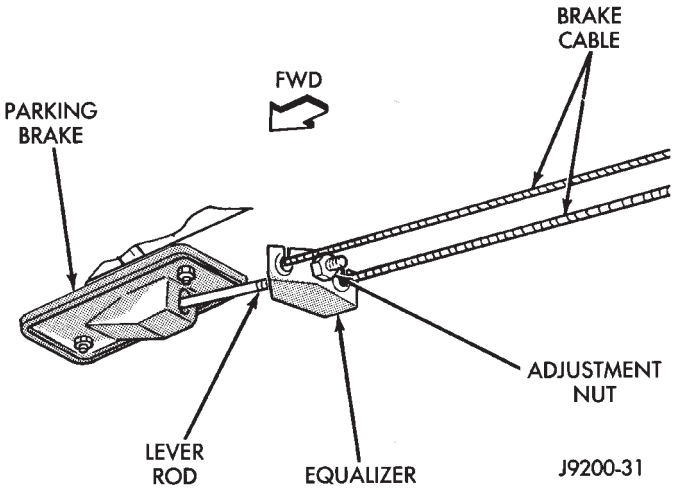


Fig. 9 Park Brake Equalizer (XJ)—Typical

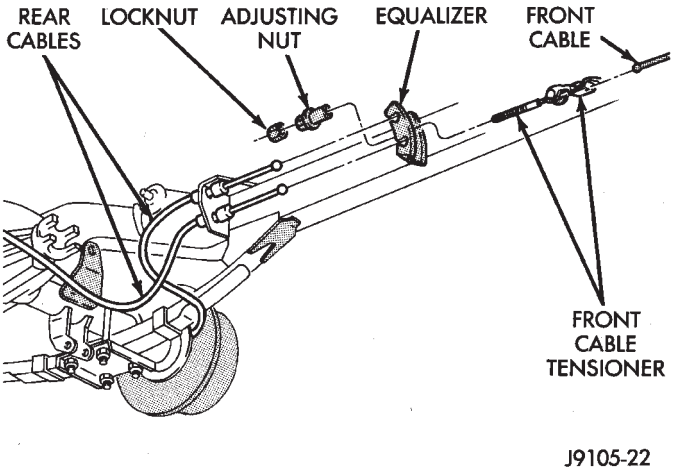


Fig. 10 Park Brake Equalizer (YJ)—Typical

(2) Note any indication of drum/rotor overheating, wheel dragging or the vehicle pulling to one side when the brakes are applied.

(3) Evaluate any performance complaints received from the owner/operator.

(4) Repair the brake system as necessary. Refer to Group, 5 Brakes for additional information and service procedures.

TIRES

RECOMMENDED MAINTENANCE

The general condition of the tires and the inflation pressures should be inspected at the same time the engine oil is changed and the oil filter is replaced.

In addition, the tires/wheels should be rotated at the intervals described in the Maintenance Schedules section of this group.

INSPECTION

Inspect the tires for excessive wear, damage, etc. Test the tires for the recommended inflation pressure. Refer to the tire inflation pressure decal located on the inside of the glove box door, and also to Group 22, Tires And Wheels.

ROTATION

Refer to Group 22, Tires And Wheels for the recommended method of tire/wheel rotation for a Jeep vehicle.

BODY COMPONENTS

LUBRICATION REQUIREMENTS

All Jeep operating mechanisms and linkages should be lubricated when necessary. The door weatherstrip seals should be lubricated to prolong their life as well as to improve door sealing.

LUBRICANT SPECIFICATIONS

All applicable exterior and interior vehicle operating mechanisms should be:

- Inspected
- Cleaned
- Pivot/sliding contact areas on the mechanisms should then be lubricated.

Multi-purpose NLGI GC-LB MOPAR Multi-Mileage Lubricant or an equivalent, should be used to lubricate the mechanisms. The door weatherstrip seals should be lubricated with silicone lubricant spray. Refer to the Body Lubricant Specifications chart below for additional lubricant applications.

LUBRICATION

All pivoting and sliding contact areas, should be lubricated periodically to ensure quiet, easy operation and to protect against wear and corrosion. Areas include:

- Seat tracks.
- Door hinges/latches/strikers.
- Liftgate/tailgate/hood hinges (Fig. 11).

(1) As required, lubricate the body components with the specified lubricants.

(2) Apply silicone lubricant to a cloth and wipe it on door seals to avoid over-spray that can soil passenger clothing.

(3) Before applying lubricant, the component should be wiped clean. After lubrication, any excess lubricant should be removed.

(4) The door lock cylinders should be lubricated 2 times each year (preferably autumn and spring):

- Spray a small amount of lock cylinder lubricant directly into the lock cylinder.
- Apply a small amount to the key and insert it into the lock cylinder.
- Rotate it to the locked position and then back to the unlocked position several times.
- Remove the key. Wipe the lubricant from it with a clean cloth to avoid soiling of clothing.

BODY LUBRICANT SPECIFICATIONS

COMPONENT	SERVICE INTERVAL	LUBRICANT
Door Latches	As Required	Multi-Purpose Grease NLGI GC-LB (Water Resistant) (1)
Hood Latch Release Mechanism & Safety Latch	As Required (When Performing Other Underhood Services)	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Hood Hinges	As Required	Engine Oil
Seat Regulator & Track Release Mechanism	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Tailgate Hinge	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Tailgate Support Arms	As Required	Engine Oil
Tailgate Latches	As Required	White Spray Lubricant (3)
Tailgate Release Handle (Pivot & Slide Contact Surfaces)	As Required	Multi-Purpose Grease NLGI GC-LB 2 EP (2)
Window System Components (Regulators, Tracks, Rods & Channel Areas — Except Glass Run Weatherstrips and Felt Lubricator, if Equipped)	As Required	White Spray Lubricant (3)
Lock Cylinders	Twice/Year	Lock Cylinder Lubricant (4)
Parking Brake Mechanism	As Required	Multi-Purpose Grease NLGI GC-LB (1)
1. Mopar Wheel Bearing Grease (High Temperature) 2. Mopar Multi-Mileage Lubricant 3. Mopar Spray White Lube 4. Mopar Lock Cylinder Lubricant		

J9400-5

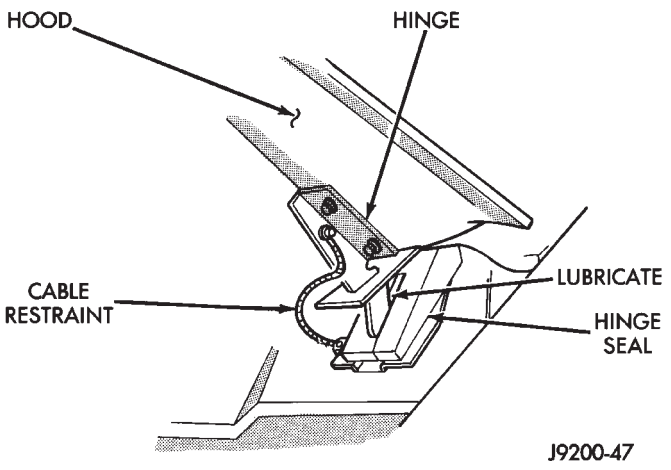


Fig. 11 Hood Hinge Lubrication—XJ Vehicles

(5) Extra close attention should also be given to the hood latch components to ensure proper functioning.

HEADLAMPS

MAINTENANCE SCHEDULE

Every six months check the headlamp beams to ensure that the headlamp beams are correctly positioned.

AIM ADJUSTMENT

Refer to Group 8L, Lamps for headlamp aim adjustment procedures.

SPEEDOMETER CABLE

SERVICE INFORMATION

Speedometer cable lubrication is not necessary. For service information involving noisy cables, refer to Group 8E, Instrument Panel and Gauges.