

LUBRICATION AND MAINTENANCE

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GENERAL INFORMATION

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INTRODUCTION

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

This information will assist 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 applicable driving condition. Also to have vehicle serviced according to the maintenance schedule, and to pay for necessary parts and labor.

Vehicles with a Gross Vehicle Weight Rating (GVWR) of 3 855 kg (8,500 lbs.) or less must conform to light duty emission standards. Vehicles with a Gross Vehicle Weight Rating (GVWR) of 3 856 kg (8,501 lbs.) or more must conform to heavy duty emission standards.

The GVWR for each vehicle is listed on the Safety Certification Label. This label is affixed to driver side door pillar (Fig. 1).

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

MFD BY	CHRYSLER CORPORATION	DATE OF MFR	GVWR
GAWR FRONT	WITH TIRES	RIMS AT	PSI COLD
GAWR REAR	WITH TIRES	RIMS AT	PSI COLD

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

VIN:	TYPE:	SINGLE	DUAL
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BAR CODE

MDH:	VEHICLE MADE IN	4648503	J91IN-25
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Fig. 1 Vehicle Safety Certification Label

SEVERE DRIVING CONDITIONS

Vehicles subjected to severe driving conditions should decrease the interval between component maintenance. Severe driving conditions are defined as:

- Frequent short trip driving less than 24 km (15 miles)
- Frequent driving in dusty conditions
- Trailer towing
- Extensive engine idling
- Sustained high speed operation
- Desert operation
- Frequent starting and stopping
- Cold climate operation

- Commercial service

When a vehicle is continuously subjected to severe driving conditions, lubricate:

- Body components
- All driveline coupling joints
- Steering linkage

More often than normal driving conditions

DUSTY AREAS

With this type of severe driving condition, special care should be given to:

- Engine air cleaner filter
- PCV filter
- Crankcase ventilation system
- Brake booster control valve air filter.

OFF-ROAD (4WD) OPERATION

After off-road (4WD) operation, inspect underside of vehicle. Inspect:

- Tires
- Body structure
- Steering components
- Suspension components
- Exhaust system
- Threaded fasteners

HARSH SURFACE ENVIRONMENTS

After long operation in harsh environments, brake drums, brake linings, and rear wheel bearings should be inspected and cleaned.

ROUTINE MAINTENANCE

The following routine maintenance is recommended on a monthly basis:

TIRES—Inspect tires for unusual wear/damage.

BATTERY—Inspect and clean terminals. Determine acid level and add distilled water, if necessary.

FLUIDS—Determine if component fluid levels are acceptable. Add fluid, if necessary.

LIGHTS/ELECTRICAL—Test all electrical systems in vehicle for proper operation.

It is also recommended that engine oil and washer fluid level be determined at each fuel fill-up.

FUEL REQUIREMENTS

GASOLINE ENGINES

All engines require use of unleaded gasoline to reduce harmful effects of lead to the environment. Also unleaded fuel is necessary to prevent damage to the catalytic converter/O₂ sensor. Fuel must have a minimum octane rating of 87.

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 fuel gauge and on fuel filler

door. Vehicles also have fuel filler tubes that are specially designed to accept only small-diameter nozzles.

CLASSIFICATION OF LUBRICANTS

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

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

ENGINE OIL (FIG. 2)

SAE VISCOSITY GRADE

An SAE viscosity grade is used to specify 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 cold-to-hot temperature viscosity range.

API SERVICE GRADE

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

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

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

For maximum gasoline engine protection, use API Service Grade SG, SG/CD or SG/CE engine oil.

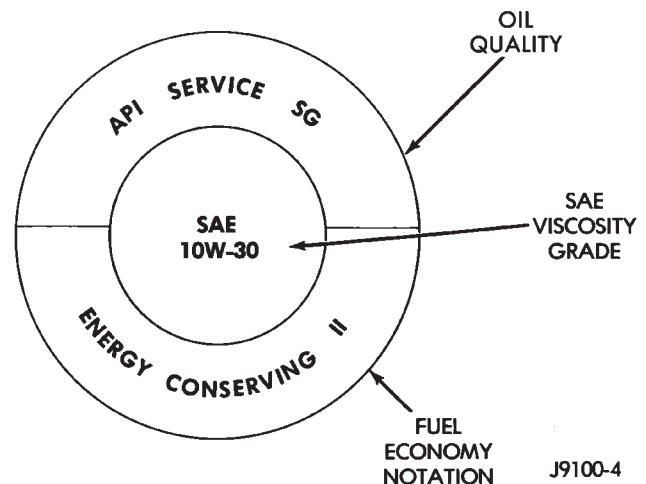


Fig. 2 SAE Oil Viscosity Grade & API Service Grade

GEAR LUBRICANTS

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

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

Mopar®Synthetic Gear lube is required for use in vehicles with a trailer towing package.

CHASSIS COMPONENT AND WHEEL BEARING LUBRICANTS

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

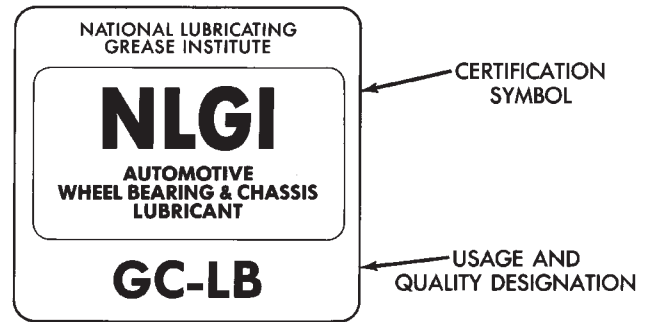
The letter G within the symbol designates wheel bearing lubricant. The letter L designates chassis lubricant. When the letters are combined, the lubricant can be used for dual applications.

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:



J9200-57

Fig. 3 NLGI Lubricant Container Certification/Identification Symbol

- Generator bearings
- Brake booster cylinder
- Distributors
- Drive belts
- Drive belt idler pulleys
- Idler arms
- Rubber bushings
- Starter motor bearings
- Suspension strut bearings
- Rear wheel bearings
- Throttle control cables
- Throttle linkage ball joints
- Water pump bearings

SCHEDULED MAINTENANCE —ZJ VEHICLES (EXCEPT CALIFORNIA)

Jeep SCHEDULED MAINTENANCE (Except California)

Item	Thousand	'Miles Kilometers	7.5	15	22.5	30	37.5	45	52.5	60
			12	24	36	48	60	72.5	84.5	96.5
EMISSION RELATED:										
Air Cleaner Air Filter – Replace						X				X
Distributor Cap and Rotor – Replace										X
Ignition Wires – Replace										X
Spark Plugs – Replace						X				X
NON-EMISSION RELATED:										
Drive Belt – Adjust						X				X
Drive Belt – Replace										X
Engine Coolant – Check – Level, Hoses, Clamps		X	X	X	X	X	X	X	X	X
Engine Coolant – Flush and Replace at 36 Months Thereafter – Flush and Replace every 24 Months									X	
Engine Oil – Change Every 6 Months or		X	X	X	X	X	X	X	X	X
Engine Oil Filter – Replace		X	X	X	X	X	X	X	X	X
Exhaust System – Check		X	X	X	X	X	X	X	X	X
Fuel Filter – Replace										X
MONTHS		6	12	18	24	30	36	42	48	
*Where both time and distance are indicated, follow the interval which occurs first. X – Scheduled maintenance for all vehicles.										

¹Where both time and distance are indicated, follow the interval which occurs first.

X = Scheduled maintenance for all vehicles.

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SCHEDULED MAINTENANCE —ZJ VEHICLES (EXCEPT CALIFORNIA)

Jeep SCHEDULED MAINTENANCE (Except California)

Item	Thousand	Miles	67.5	75	82.5	90	97.5	105	112.5	120
		Kilometers	108.5	120.5	133	145	157	169	181	193
EMISSION RELATED:										
Air Cleaner Air Filter – Replace						X				X
Distributor Cap and Rotor – Replace										X
Ignition Wires – Replace										X
Spark Plugs – Replace						X				X
NON-EMISSION RELATED:										
Drive Belt – Adjust						X				X
Drive Belt – Replace										X
Engine Coolant – Check – Level, Hoses, Clamps		X	X	X	X	X	X	X	X	X
Engine Coolant – Flush and Replace at 36 Months Thereafter – Flush and Replace every 24 Months					X				X	
Engine Oil – Change Every 6 Months or		X	X	X	X	X	X	X	X	X
Engine Oil Filter – Replace		X	X	X	X	X	X	X	X	X
Exhaust System – Check		X	X	X	X	X	X	X	X	X
Fuel Filter – Replace										X
MONTHS			54	60	66	72	78	84	90	96

¹Where both time and distance are indicated, follow the interval which occurs first.
X = Scheduled maintenance for all vehicles.

¹Where both time and distance are indicated, follow the interval which occurs first.

X = Scheduled maintenance for all vehicles.

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SCHEDULED MAINTENANCE —ZJ VEHICLES (CALIFORNIA)

Jeep SCHEDULED MAINTENANCE - CALIFORNIA

Item	Thousand	Miles	7.5	15	22.5	30	37.5	45
		Kilometers	12	24	36	48	60	72.5
EMISSION RELATED:								
Air Cleaner Air Filter – Replace						○		
Ignition Wires – Replace								
Spark Plugs – Replace						○		
NON-EMISSION RELATED:								
Drive Belt – Adjust						○		
Drive Belt – Replace								
Engine Coolant – Check – Level, Hoses, Clamps		X	X	X	X	X	X	X
Engine Coolant – Flush and Replace at 36 Months Thereafter – Flush and Replace every 24 Months								
Engine Oil – Change Every 6 Months or		○	○	○	○	○	○	○
Engine Oil Filter – Replace		○	○	○	○	○	○	○
Exhaust System – Check		X	X	X	X	X	X	X
MONTHS		6	12	18	24	30	36	
*Where both time and distance are indicated, follow the interval which occurs first. ○ = Required. X = Recommended.								

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SCHEDULED MAINTENANCE —ZJ VEHICLES (CALIFORNIA)

Jeep SCHEDULED MAINTENANCE - CALIFORNIA

Item	Thousand	'Miles	52.5	60	67.5	75	82.5	90	97.5
		Kilometers	84	96	108	120	132	144	156
EMISSION RELATED:									
Air Cleaner Air Filter – Replace				○				○	
Ignition Wires – Replace				○					
Spark Plugs – Replace				○				○	
NON-EMISSION RELATED:									
Drive Belt – Adjust								○	
Drive Belt – Replace				○					
Engine Coolant – Check – Level, Hoses, Clamps		X	X	X	X	X	X	X	X
Engine Coolant – Flush and Replace at 36 Months or Thereafter – Flush and Replace every 24 Months or		X					X		
Engine Oil – Change Every 6 Months or		○	○	○	○	○	○	○	○
Engine Oil Filter – Replace		○	○	○	○	○	○	○	○
Exhaust System – Check		X	X	X	X	X	X	X	X
MONTHS		52	60	67	75	82	90	97	
Where both time and distance are indicated, follow the interval which occurs first. ○ = Required, X = Recommended.									

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GENERAL MAINTENANCE SERVICES FOR PROPER VEHICLE PERFORMANCE

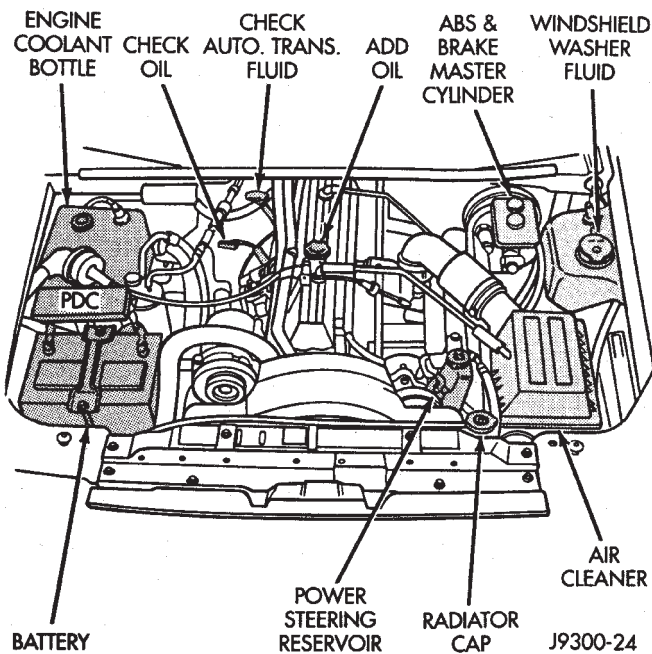
GENERAL MAINTENANCE SERVICES FOR PROPER VEHICLE PERFORMANCE

COMPONENT	SERVICE	MILEAGE (KILOMETERS) OR TIME INTERVAL
STEERING LINKAGE (4 X 4)	LUBRICATE	EVERY 7,500 MILES (12 000 km) OR 6 MONTHS
MANUAL TRANSMISSION	DRAIN & REFILL	
NORMAL SERVICE		EVERY 37,500 MILES (60 000 km)
SEVERE SERVICE		EVERY 18,000 MILES (29 000 km)
AUTOMATIC TRANSMISSION	DRAIN & REFILL	
NORMAL SERVICE		EVERY 30,000 MILES (48 000 km)
SEVERE SERVICE		EVERY 12,000 MILES (29 000 km)
TRANSFER CASE	DRAIN & REFILL	EVERY 30,000 MILES (48 000 km)
BRAKE HOSES	INSPECT	FOR DETERIORATION AND LEAKS WHENEVER BRAKE SYSTEM IS SERVICED AND EVERY OIL CHANGE. REPLACE IF NECESSARY.
PROP SHAFT UNIVERSAL JOINTS	LUBRICATE	
NORMAL SERVICE		EVERY 7,500 MILES (12 000 km)
SEVERE SERVICE		EVERY 3,000 MILES (4 800 km)
FRONT & REAR AXLES	DRAIN & REFILL	
NORMAL SERVICE		EVERY 30,000 MILES (48 000 km)
SEVERE SERVICE		EVERY 12,000 MILES (29 000 km)
AIR BAG SYSTEM	CHECK WARNING LIGHT	EVERY IGNITION 'START'

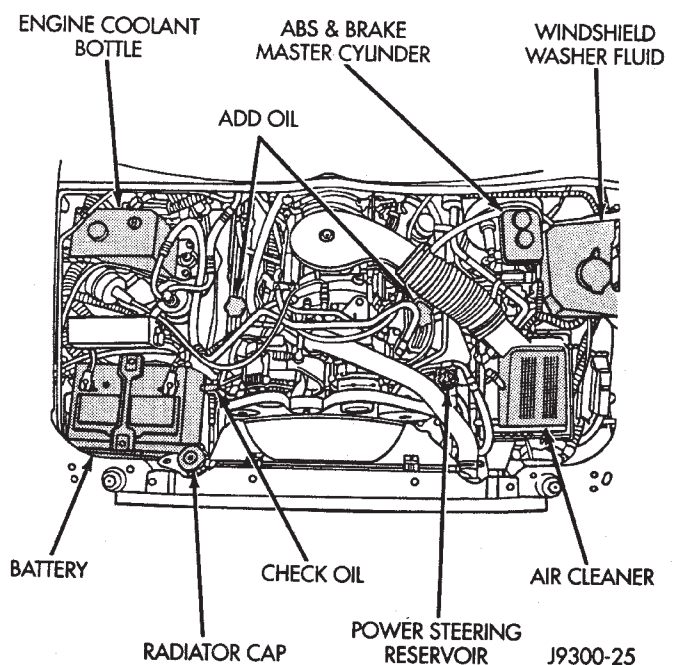
Severe service is defined as: Stop-and-go driving in dusty conditions, extensive idling, frequent short trips, operating at sustained high speeds during hot weather (above +90°F, +32°C), commercial type operation, or trailer towing.

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GENERAL MAINTENANCE 4.0L ENGINES



GENERAL MAINTENANCE 5.2L ENGINES



FLUID CAPACITIES

Gas Station Reference

Fuel Selection

Unleaded Gasoline – 87 octane or higher

Engine Oil – API Quality
SERVICE SG OR SG/CD
(SAE 10W-30 Preferred)



FLUID CAPACITIES

	U.S. Measure	Metric Measure
Fuel (approximate)	23 gal.	87.4 liters
Engine Oil -		
6-Cyl.	6 qt.*	5.7 liters
V-8	5 qt.*	4.7 liters
*with filter change		
Cooling System		
6-Cyl.	9.3 qts.	8.8 liters
V-8	14.9 qts.	14.1 liters
Automatic Transmission Fluid		
6-Cyl. Mopar Mercon/Dexron II preferred		
8-Cyl. Mopar ATF Plus (Type 7176) preferred		
Oil Filter		
Mopar 5281090 or equivalent		
Spark Plug, Gap, Ignition Timing		
Refer to "Vehicle Emission Control Information"		
label in engine compartment.		

TIRE PRESSURES (Full Load)

P215/75R15	33 psi (227 kPa)
P225/75R15	33 psi (227 kPa)
P225/70R15	33 psi (227 kPa)
	Front
P235/75R15	33 psi (227 kPa)
	Rear
	33 psi (227 kPa)

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STARTING ASSISTANCE (JUMP STARTING)

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.

BOOSTER BATTERY

WARNING: TO PREVENT PERSONAL INJURY, DO NOT ALLOW BATTERY ACID TO CONTACT EYES, SKIN OR CLOTHING. DO NOT LEAN OVER A BATTERY WHEN CONNECTING JUMPER CABLES. DO NOT ALLOW THE POSITIVE AND NEGATIVE CABLE CLAMPS TO CONTACT EACH OTHER. KEEP OPEN FLAMES AND SPARKS AWAY FROM THE BATTERY ACID VENT HOLES. ALWAYS WEAR EYE PROTECTION WHEN INVOLVED WITH VEHICLE BATTERIES.

If it becomes necessary to use a booster battery and jumper cables to start an engine, use the following procedure.

(1) Engage parking brake. Shift automatic transmission to PARK (if a manual transmission, shift to NEUTRAL).

(2) Turn off all lights, and all other electrical loads.

WARNING: ACID IN A DISCHARGED BATTERY CAN FREEZE. DO NOT ATTEMPT TO JUMP START AN ENGINE BEFORE CHECKING CONDITION OF BATTERY ACID. BATTERY COULD EXPLODE AND CAUSE SEVERE PERSONAL INJURY.

CAUTION: Do not permit metal surfaces on vehicles to contact. This could establish ground (negative) continuity between vehicle bodies. This could cause on-board computers to be damaged.

(3) Attach a red jumper cable connector clamp to positive (+) terminal on booster battery. Attach other red cable connector clamp to positive (+) terminal on discharged battery (Fig. 4).

CAUTION: Do not allow positive (+) and negative (-) cable clamps to contact each other.

WARNING: DO NOT CONNECT A JUMPER CABLE CONNECTOR CLAMP TO NEGATIVE POST OF DISCHARGED BATTERY.

(4) Connect a black jumper cable connector clamp to negative (-) terminal on booster battery. Connect

other black jumper cable connector clamp to a good ground source on engine that is to be started (Fig. 5).

Verify engine ground (negative) contact surface area is free of grease. Make sure there is a good connection to bare metal. The engine ground (negative) connection must provide good electrical continuity.

(5) Start engine.

WARNING: THE USE OF ANY JUMPER CABLE DISCONNECTION PROCEDURE OTHER THAN THAT DESCRIBED BELOW COULD RESULT IN:

- PERSONAL INJURY CAUSED BY BATTERY ACID SQUIRTING FROM BATTERY VENTS
- PERSONAL INJURY AND/OR PROPERTY DAMAGE CAUSED BY BATTERY EXPLOSION
- DAMAGE TO THE BOOSTER VEHICLE OR DISABLED VEHICLE CHARGING SYSTEM.

(7) After engine is started, jumper cables must be disconnected in following order:

- Black (negative) cable connector clamp from engine ground contact
- Black (negative) cable connector clamp from negative terminal (-) on booster battery
- Red (positive) cable connector clamps from positive (+) terminals on both batteries

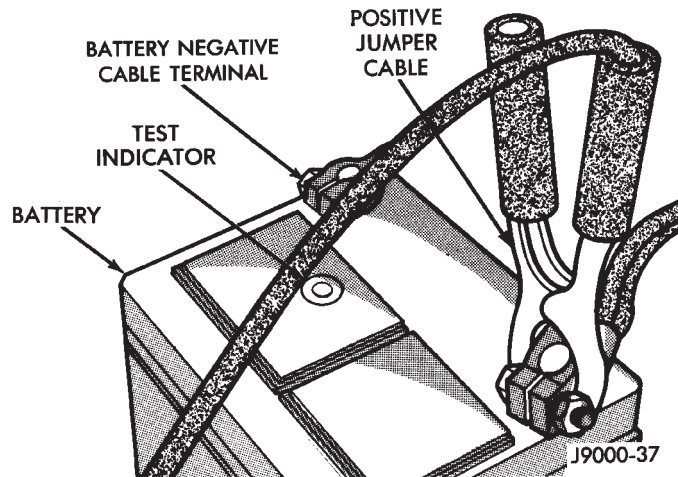


Fig. 4 Positive Jumper Cable Connection

PORTABLE STARTING UNIT

There are many types of portable starting units available for starting engines. Follow manufacturer's instructions.

VEHICLE LIFTING RECOMMENDATIONS

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

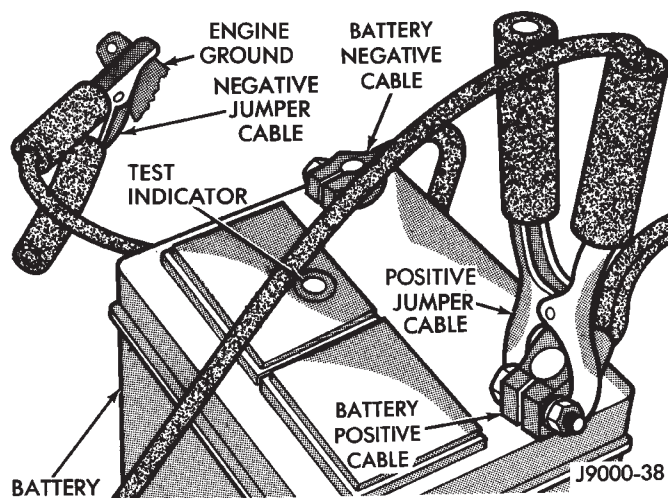


Fig. 5 Both Jumper Cables Connected On Disabled Vehicle

FLOOR JACK

When properly positioned, a floor jack can be used to lift a vehicle (Fig. 6). Support vehicle in raised position with jack stands at front and rear ends of frame rails.

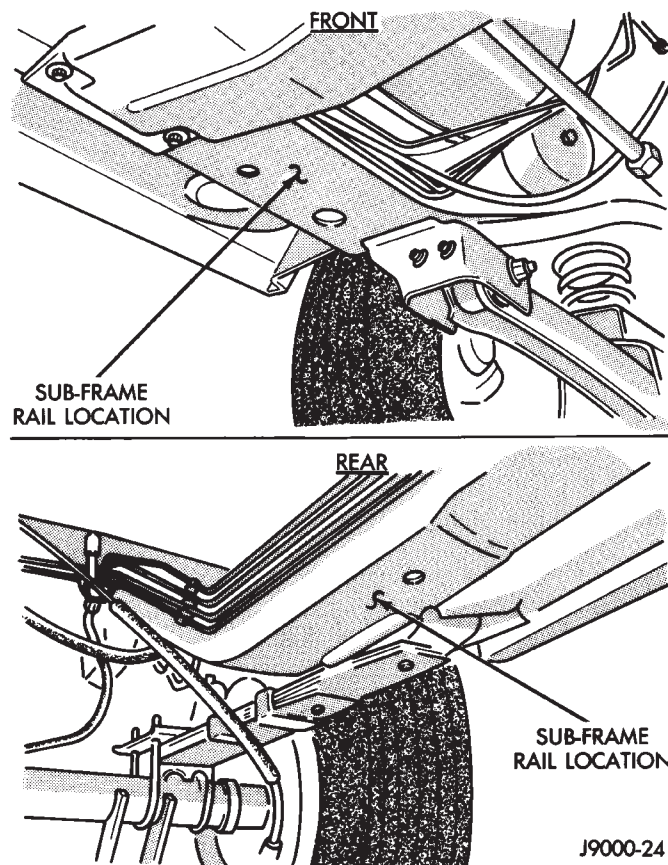


Fig. 6 Correct Vehicle Lifting Locations—Typical

CAUTION: Do not attempt to lift a 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 correct frame rail lifting locations only (Fig. 6).

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 lifting pads are positioned properly (Fig. 6).

WARNING: WHEN A SERVICE PROCEDURE REQUIRES THE REMOVAL OF REAR AXLE, FUEL TANK, OR SPARE TIRE, EITHER:

- PLACE ADDITIONAL WEIGHT ON REAR END OF VEHICLE
- ATTACH VEHICLE TO HOIST
- PLACE JACK STANDS UNDER VEHICLE FOR SUPPORT TO PREVENT TIPPING WHEN CENTER OF BALANCE CHANGES

4WD VEHICLES

A standard hoist can be used to lift a 4WD vehicle. Hoist should be inspected for adequate clearance. The lift arms, pads or ramps should be adjusted to ensure that there is adequate clearance (Fig. 7).

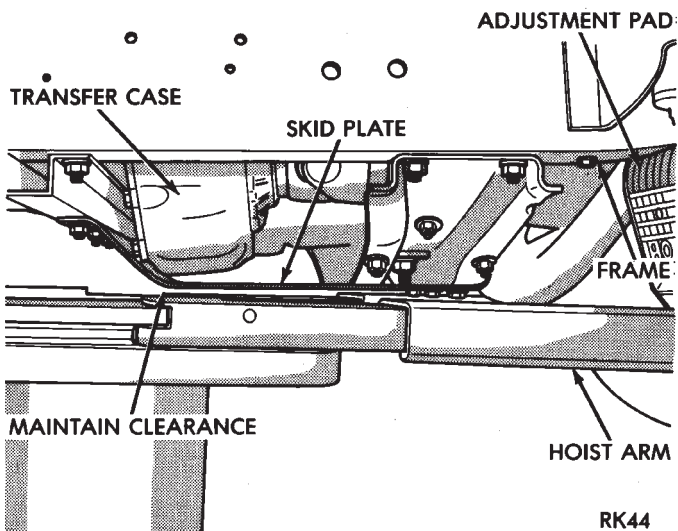


Fig. 7 Lifting 4WD Vehicle With Single-Post Hoist—Typical

When a twin-post hoist is used, a 4 x 4 x 12-inch wood spacer also could be required. Place wood spacer under front axle. This will maintain balance and level lifting.

CAUTION: The block that is used must be secured in a safe manner. This will ensure that it will not unbalance vehicle.

VEHICLE TOWING RECOMMENDATIONS

When it is necessary to tow a vehicle, recommended method is either:

- sling-type, rear-end raised towing method; or
- wheel-lift towing method with a tow dolly located under front wheels.

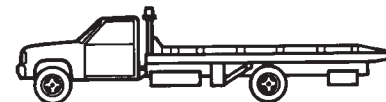
A vehicle with flat-bed hauling equipment can also be used to transport a disabled vehicle.



SLING-TYPE



WHEEL LIFT



FLAT BED

RR00D29

Fig. 8 Tow Vehicles With Approved Equipment

A vehicle equipped with SAE approved sling-type towing equipment can be used. However, many vehicles are equipped with air dams, spoilers, and/or ground effect panels. In this case a wheel-lift towing vehicle or a flat-bed hauling vehicle is recommended. If a flat bed device is used, approach angle should not exceed 15 degrees.

GROUND CLEARANCE

The lifted wheels of disabled vehicle should be a minimum of 10 cm (4 in.) off ground. Make sure there is enough clearance at opposite end. This is critical when towing over rough terrain. If rear wheels are removed, secure brake drums. A 20 cm (8 in.) ground clearance must be maintained between brake drums or rotors and ground.

SAFETY PRECAUTIONS

The following safety precautions must be considered when preparing for and during a vehicle towing operation:

- Remove exhaust pipe tips that interfere with tow sling and crossbar
- Padding should be placed between tow sling/crossbar and any painted surfaces
- If vehicle is damaged, secure loose parts
- Always use a safety chain system that is independent of lifting and towing equipment

- When placing tow hooks on rear axle, position them so they do not damage brake tubing or hoses
- Do not allow any of towing equipment to contact fuel tank
- Do not tow vehicle by connecting to front or rear shock absorbers
- The operator should not go under a vehicle while it is lifted by towing equipment. The vehicle should first be supported by safety stands
- Do not allow passengers in a vehicle being towed
- Observe all state and local laws involving warning signals, night illumination, speed, etc.
- Do not exceed a towing speed of 48 km/h (30 mph)
- Avoid towing distances of more than 24 km (15 miles) whenever possible
- Do not attach tow chains or a tow sling to a bumper, steering linkage, universal joints, or a drive shaft

REAR-END RAISED TOWING

It is recommended that rear-end raised towing method be used. Vehicles can be towed with front wheels on ground for extended distances at speeds not exceeding 48 km/h (30 mph).

- (1) Attach J-hooks around axle shaft tubes outboard of rear springs.
- (2) Position and center sling under and forward of rear bumper.
- (3) Attach safety chains (with pads) at each end of rear bumper.
- (4) Turn ignition switch to OFF position to unlock steering wheel.
- (5) Clamp steering wheel with front wheels in straight ahead position.

CAUTION: Do not use steering column lock to secure front wheels in straight-ahead position.

- (6) Shift transmission to NEUTRAL.

FRONT-END RAISED TOWING

If a vehicle cannot be towed from rear, front-end raised towing method normally can be used.

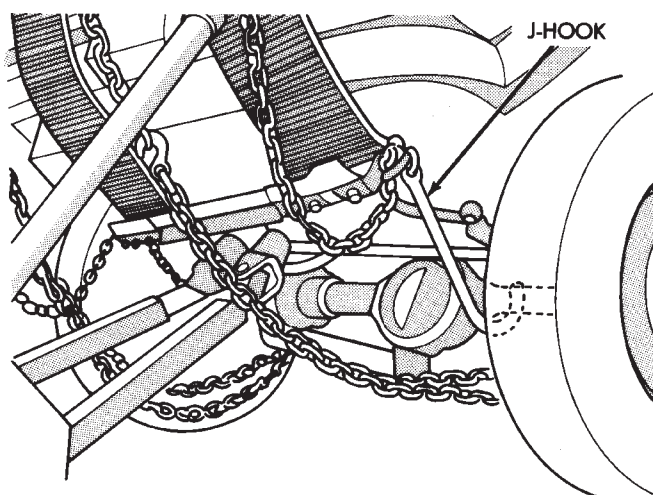
- (1) Center sling with bumper and position it at frame front crossmember.

CAUTION: Use tow chains with J-hooks for connecting to disabled vehicle's lower suspension arms. Never use T-hooks.

- (2) Route J-hooks and tow chains over steering linkage outboard of coil spring.
- (3) Attach J-hooks to outer end of lower suspension arms.
- (4) Raise vehicle.
- (5) Attach safety chains to disabled vehicle at frame rails.

Vehicles equipped with a MANUAL TRANSMISSION can be towed with rear wheels on ground. Do not exceed speeds of 48 km/h (30 mph) or a distance of 24 km (15 miles). **The transmission must be in neutral.**

Front-end raised towing for a vehicle equipped with an AUTOMATIC TRANSMISSION is not recommended.



FRONT VIEW

J9000-20

Fig. 9 Front-End Raised Towing—Typical

CAUTION: It is not recommended to flat tow a vehicle.

LOCKED VEHICLE TOWING

When a locked vehicle must be towed, use a tow dolly or flat bed hauler.

ENGINE MAINTENANCE

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ENGINE BREAK-IN

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

- Drive vehicle at varying speeds less than 88 km/h (55 mph) for 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 engine excessively

A special break-in engine oil is not required. The original engine oil installed is a high quality, energy conserving lubricant.

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

ENGINE OIL

SPECIFICATIONS

API SERVICE GRADE

Use an engine oil that conforms to API Service Grade S, SG/CD or SG/CE. MOPAR® provides engine oils that conform to all of these service grades.

SAE VISCOSITY

An SAE viscosity grade is used to specify 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 cold-to-hot temperature viscosity range. Select an engine oil that is best suited to your particular temperature range and variation (Fig. 1).

ENERGY CONSERVING OIL

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

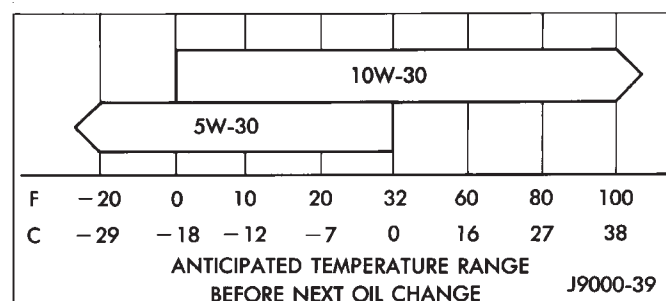


Fig. 1 Temperature/Engine Oil Viscosity—Gasoline Engines

OIL LEVEL INDICATOR (DIPSTICK)

4.0L ENGINES 5.2L ENGINES

The engine oil level indicator is located at right rear of engine on 4.0L engines.

The engine oil level indicator is located at the right front of the engine on 5.2L engines.

ACCEPTABLE OIL LEVEL

To maintain proper lubrication of an engine, engine oil must be maintained at an acceptable level. The acceptable level is indicated between ADD and FULL marks on engine oil level dipstick.

The oil level should be checked periodically. The vehicle should be on a level surface. Wait for five minutes after stopping engine or after vehicle has remained parked overnight. For 4.0 engines, add engine oil only when level indicated on dipstick is at or below ADD mark.

CAUTION: Do not overfill an engine crankcase with oil.

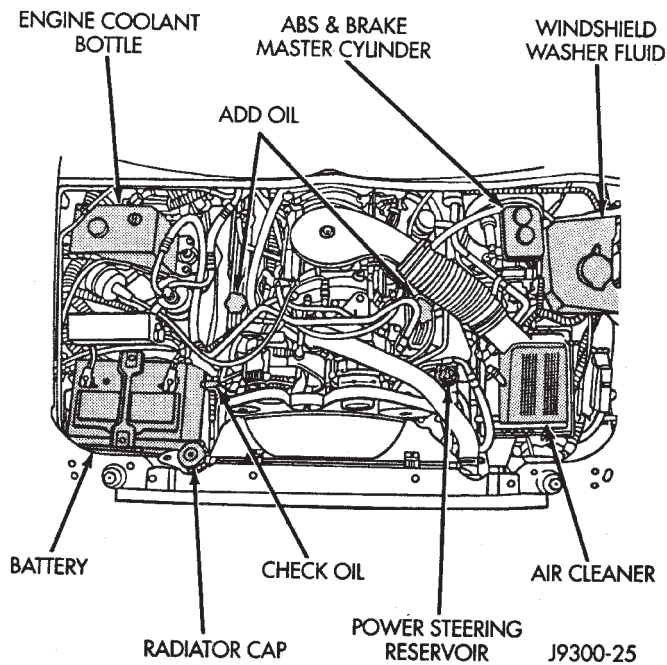


Fig. 2 Engine Oil Dipstick Location 5.2L Engine—Typical

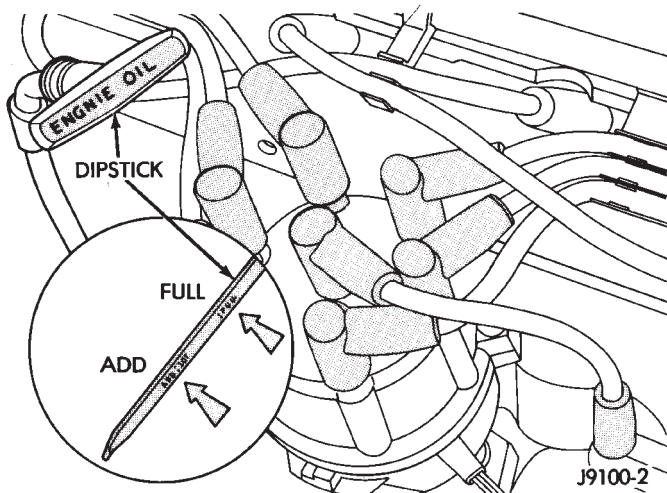


Fig. 3 Engine Oil Dipstick—4.0L Engine

ENGINE OIL CHANGE AND FILTER REPLACEMENT

WARNING: CARE SHOULD BE EXERCISED WHEN CHANGING ENGINE OIL TO MINIMIZE THE LENGTH OF EXPOSURE TIME TO USED ENGINE OIL. PROTECTIVE CLOTHING AND GLOVES SHOULD BE WORN. EXPOSED SKIN SHOULD BE THOROUGHLY WASHED WITH SOAP AND WATER TO REMOVE ANY USED ENGINE OIL. DO NOT USE GASOLINE, THINNER, OR SOLVENTS TO REMOVE USED ENGINE OIL FROM SKIN. 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 FILTER

All engines are equipped with a high quality full-flow, throw-away type oil filter. The same type of filter is recommended when filter is changed.

OIL CHANGE AND FILTER REPLACEMENT

Bring engine up to normal operating temperature. A more complete drainage of oil will result.

(1) Remove drain hole plug. Drain engine oil from crankcase.

(2) Install drain hole plug with a replacement gasket.

For gasoline engines, oil filter should be replaced during every second engine oil change.

(3) Rotate oil filter counterclockwise to remove it.

(4) Clean engine cylinder block oil filter boss.

(5) Apply a light coat of new engine oil to rubber seal on oil filter.

(6) Install and hand tighten oil filter 1/2 to 3/4 of a turn clockwise beyond point where seal first contacts cylinder block boss.

(7) Add specified quantity of new engine oil at fill hole location on top of engine cylinder head cover. Wipe off any spilled oil.

(8) Observe oil level on dipstick. Adjust as necessary.

(9) Start engine. Observe oil pressure gauge or warning lamp (as applicable). If oil pressure does not increase, stop engine immediately and determine cause of malfunction.

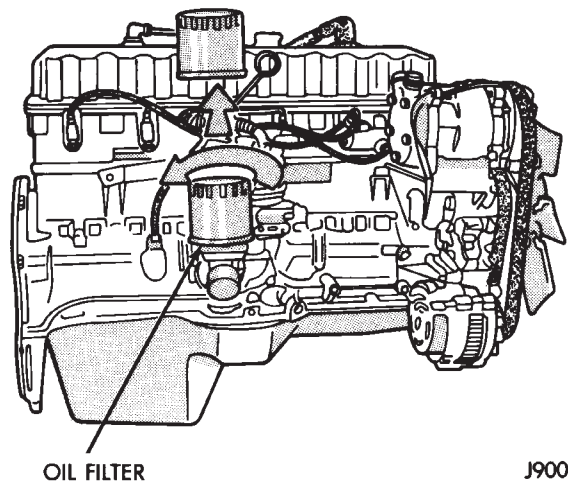


Fig. 4 Oil Filter—4.0L Engine

COOLING SYSTEM

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

INSPECTION SCHEDULE

Determine coolant level. Inspect cooling system hoses/clamps after each service interval has elapsed.

COOLANT LEVEL

It is recommended that engine coolant level be inspected at least once a month during periods of hot weather.

With engine at normal operating temperature, check coolant level in coolant reserve tank. Coolant level must be at least above ADD mark and preferably at FULL mark. Add coolant to coolant reserve tank only.

COOLANT FREEZE PROTECTION

Cooling systems contain a 50/50 mixture of anti-freeze and distilled water. This is the recommended coolant mixture. The factory installed anti-freeze is formulated to prevent corrosion on all cooling system metal surfaces.

It is recommended that degree of coolant protection be tested every 12 months. If coolant is contaminated or rusty, cooling system should be drained and flushed. Refill with a 50/50 mixture of fresh coolant. Refer to Group 7—Cooling Systems for additional information.

SYSTEM INSPECTION

WARNING: IF THE ENGINE HAS BEEN RECENTLY OPERATED, DO NOT REMOVE RADIATOR CAP.

(1) Test radiator cap for proper vacuum sealing and operation. Use caution when removing radiator cap to avoid contact with hot coolant. Place a heavy rag or towel over cap and turn to first stop. Do not press down. Pause to allow pressure to release through overflow tube. Then press down and turn counter-clockwise to remove cap.

(2) Inspect coolant overflow tubing and connections at coolant reserve tank and at radiator.

(3) Inspect entire cooling system for leaks. A black-light detector can be used as an aid in detecting source of coolant leaks.

(4) Inspect radiator and air conditioner condenser fins for an accumulation of debris.

(5) If necessary, refer to Group 7—Cooling Systems for additional information and service procedures.

RADIATOR CAP

The radiator cap must be completely tightened to provide proper pressure release and coolant recovery.

DRAIN, FLUSH AND FILL

WARNING: ANTI-FREEZE IS POISONOUS. KEEP OUT OF REACH OF CHILDREN.

Drain, flush, and fill cooling system with correct coolant mixture at interval specified in maintenance schedule.

HOSES AND FITTINGS

It is recommended that rubber hoses be periodically inspected. Inspect all hose fittings for looseness and corrosion. Inspect rubber hoses for brittleness and cracks.

ENGINE AIR CLEANER FILTER ELEMENT

MAINTENANCE SCHEDULE

With normal driving conditions, engine air cleaner filter element should be replaced:

- Light-Duty Cycle—after each 48 000 km (30,000 miles) interval has elapsed
- Heavy-Duty Cycle—after each 38 000 km (24,000 miles) interval has elapsed

When vehicle is operated in dusty areas, filter element should be replaced more often.

SERVICE/REPLACEMENT

- (1) Remove air cleaner cover.
- (2) Remove air cleaner filter (Fig. 5).

CAUTION: Do not tap filter or immerse filter medium in liquid to remove trapped debris.

(3) Clean filter by gently blowing trapped debris from filter medium with compressed air. Direct air in opposite direction of normal intake air flow. Keep air nozzle at least two inches away from filter element.

(4) If filter medium has become partially saturated with oil, replace filter element. Inspect crankcase ventilating system for proper operation.

(5) Wash air cleaner cover and body with cleaning solvent. Wipe it dry.

(6) Install air cleaner filter element. Attach cover to body (Fig. 5).

EMR LAMP AND TIMER SERVICE INFORMATION

Refer to Group 25—Emission Control Systems for timer reset and other related information.

CRANKCASE VENTILATION SYSTEM

All Jeep® engines are equipped with a crankcase ventilation (CCV) system. The vapor is routed back to be burned in engine combustion chambers (Fig. 6).

SYSTEM OPERATION

The 4.0L engine closed crankcase ventilation (CCV) system has a vapor-transfer fitting located on the cylinder head cover. A molded hose is connected between the intake manifold and the fitting.

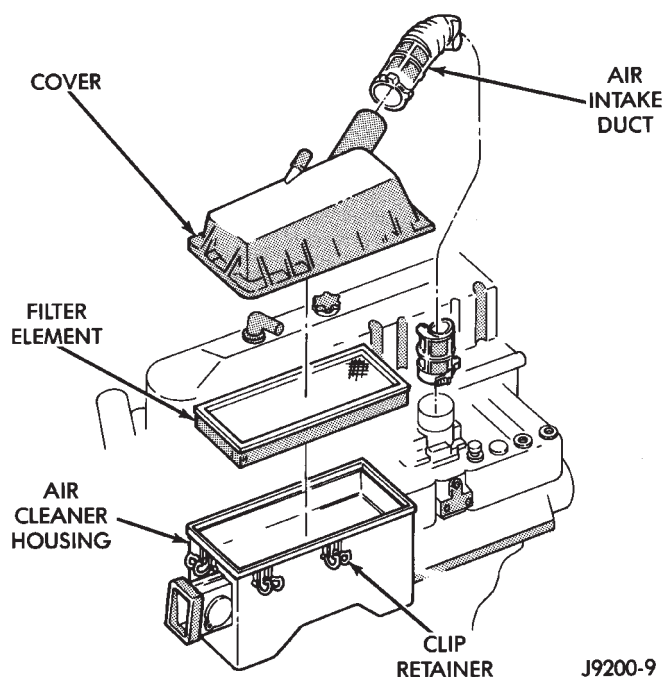


Fig. 5 Engine Air Cleaner

RECOMMENDED MAINTENANCE

Crankcase ventilation (CCV) systems should be tested, inspected and serviced at the same time as the air filter.

Refer to Group 25—Emission Control Systems for additional serviced information.

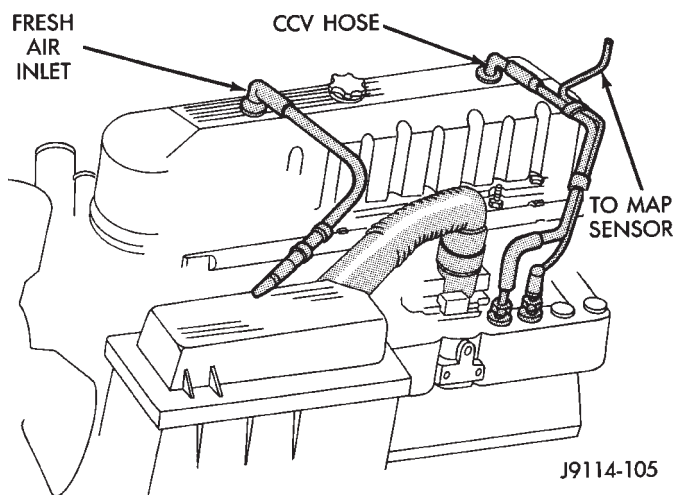


Fig. 6 CCV System—4.0L Engine

FUEL SYSTEM

INSPECTION

The fuel system filler cap, nozzle, tubes, hoses, and connections should be inspected periodically.

FUEL FILTER

Replace fuel filter at interval specified in maintenance schedule. For proper diagnosis and service procedures refer to Group 14, Fuel System.

GASOLINE ENGINE FUEL REQUIREMENTS

All gasoline engines require fuel that has a minimum octane rating of 87 determined by (R + M)/2 calculation method.

In addition, use of a brand of unleaded gasoline that contains detergent, corrosion and stability additives is recommended. Gasoline with these type of additives will improve fuel economy and reduce emissions.

ALCOHOL/GASOLINE BLENDS

Many brands of blended unleaded gasoline are now available. This type of blended fuel is sometimes referred to as reformulated gasoline.

Unleaded gasoline is blended with oxygenated-type fuels to produce a clean air gasoline in many areas. The use of this type of blended fuel is recommended.

ETHANOL—Unleaded gasoline and ethanol blended fuels are a mixture of 10 percent ethanol and 90 percent unleaded gasoline. This is an acceptable blend of fuel.

MTBE—MTBE blended fuels are a mixture of unleaded gasoline and up to 15 percent MTBE (Methyl Tertiary Butyl Ether). Unleaded gasoline blended with MTBE is acceptable.

ETBE—This fuel is a mixture of unleaded gasoline and up to 17 percent ETBE (Ethyl Tertiary Butyl Ether). Unleaded gasoline blended with ETBE is acceptable.

METHANOL—Do not use unleaded gasoline blended with methanol. The use of this type of alcohol can result in engine performance deterioration and damage to critical components.

Engine problems that result from use of methanol possibly will not be covered by new vehicle warranty.

ADDITIVES MIXED WITH GASOLINE

Use of fuel system cleaning additives should be avoided. Many of these solutions could contain highly active solvents.

VACUUM OPERATED, EMISSION CONTROL COMPONENTS

The vacuum operated emission control components should be serviced at interval specified in maintenance schedule.

Refer to Group 25—Emission Control Systems for additional information.

EXHAUST GAS RECIRCULATION (EGR) SYSTEM

Replace EGR valve and tube, and clean passages at interval specified in applicable maintenance schedule. If necessary, refer to Group 25—Emission Control Systems for additional information.

OXYGEN (O₂) SENSOR

Replace O₂ sensor at interval specified in applicable maintenance schedule.

IGNITION CABLES, DISTRIBUTOR CAP AND ROTOR

Replace ignition cables, distributor cap, and rotor at interval specified in applicable maintenance schedule. Refer to Group 8D—Ignition Systems for additional information.

IGNITION TIMING

Test and adjust, if necessary, ignition timing at interval specified in applicable maintenance schedule. Refer to specifications listed on engine Emission Control Information label. Refer to Group 8D—Ignition Systems and to Group 25—Emission Control Systems for additional service information.

SPARK PLUGS

Replace spark plugs at interval specified in applicable maintenance schedule. Refer to Group 8D—Ignition Systems for additional information.

BATTERY

Replace battery at interval specified in applicable maintenance schedule.

RECOMMENDED MAINTENANCE

The battery acid level should be checked and the cable clamps should be inspected for corrosion. This should be done when the engine oil is changed and the oil filter is replaced.

The battery cables should be inspected for abnormal clamp and battery terminal post corrosion. Service the terminals and cable clamps as necessary.

INSPECTION/SERVICE

WARNING: WEAR SAFETY GLASSES, RUBBER GLOVES AND PROTECTIVE CLOTHING WHEN HANDLING/SERVICING A BATTERY. THE BATTERY 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.

(1) Disconnect the battery negative cable and then the positive cable.

(2) Clean the battery cable clamps and terminal posts with a wire brush and a battery terminal cleaner.

(3) Pry the battery cell filler caps upward to remove them and inspect each filler well. It could possibly be necessary to loosen the battery holddown clamp to remove the caps. Maintain the acid level above the battery plates and at the bottom of the filler well ring. Add distilled water or low - mineral content drinking water, if necessary. In freezing weather (below 0°C/32°F), add the water just before driving to ensure that it mixes. This will prevent it from freezing.

(4) Remove the battery holddown strap and clean the battery case/battery tray. Clean with a bicarbonate of soda and water. Rinse and dry the battery case/tray thoroughly after cleaning.

(5) Position the battery in the tray and install the holddown strap. **Do not over-tighten the nuts.**

(6) Connect the battery positive cable and then the negative cable to the battery.

(7) Apply a small amount of chassis lubricant (or an equivalent protective coating) to the cable terminals to minimize corrosion.

RUBBER/PLASTIC COMPONENTS**INSPECTION**

It is recommended that following listed components be inspected at same time as scheduled underhood maintenance is conducted. Rubber/plastic components should be replaced immediately if there is any evidence of deterioration.

Inspect exterior surface of rubber hoses and nylon tubing for evidence of heat damage. The rubber hose and nylon tubing located close to an exhaust manifold should be given attention. Verify nylon tubing located at these areas has not collapsed.

Inspect rubber hose routing to ensure that hoses do not contact any heat source or moving component.

Inspect all hose connections. Verify they are secure and there is no fluid leakage.

ENGINE MOUNTS

Inspect rubber in the engine mounts for excessive wear. Slight wear at ends will not affect functioning of an engine mount. If excessive engine movement is detected, engine mount(s) should be replaced.

SERPENTINE DRIVE BELT

Replace drive belt and adjust drive tension at interval specified in applicable maintenance schedule. If necessary, refer to Group 7—Cooling Systems for replacement and adjustment and procedures.

INSPECTION

It is recommended that serpentine drive belt be routinely inspected for cracks, fraying and excessive wear.

EXHAUST SYSTEM

An exhaust system must be properly aligned to prevent stress, leakage, and vehicle body contact.

Inspect exhaust system at interval specified in applicable maintenance schedule.

INSPECTION

Inspect for cracked or loose joints, corrosion damage, and worn or broken hangers. Replace all components that are damaged. Do not attempt repair.:

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

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

AIR-CONDITIONER COMPRESSOR*LUBRICANT AND REFRIGERANT*

The lubricant level in air-conditioner compressor should be checked if there are indications that oil was lost. Loss of lubricating oil usually accompanies a loss of refrigerant. The presence of bubbles in filter/drier sight glass indicates that loss of refrigerant has occurred.

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

DRIVETRAIN

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CLUTCH AND BRAKE PEDAL BUSHINGS

If clutch and brake pedal mechanism squeaks, pivot bushings should be lubricated. Use MOPAR®Multi-Purpose Lubricant, or an equivalent.

CLUTCH MASTER CYLINDER*HYDRAULIC FLUID LEVEL*

The clutch master cylinder fluid level should be inspected at same time as scheduled underhood maintenance is conducted. The fluid level should be at internal indicating line (Fig. 1). If fluid level is low, locate and correct any possible leaks. Fill reservoir with clean, moisture-free brake fluid.

CAUTION: Do not allow any petroleum base fluids to contaminate clutch hydraulic system because seal damage will result.

FLUID SPECIFICATION

The only fluid recommended for use is MOPAR®Brake Fluid, or an equivalent product. The product is identified as SAE J-1703 or DOT 3 fluid. **Do not use any other type of fluid.**

CAUTION: Never use reclaimed brake fluid or fluid from an unsealed container. Do not use fluid that has been opened and allowed to stand for an extended length of time.

TRANSMISSIONS*SPECIAL ADDITIVES*

Chrysler Motors does not recommend addition of any special additives to a transmission. Black light detection dye can be used as an aid in detecting fluid leaks.

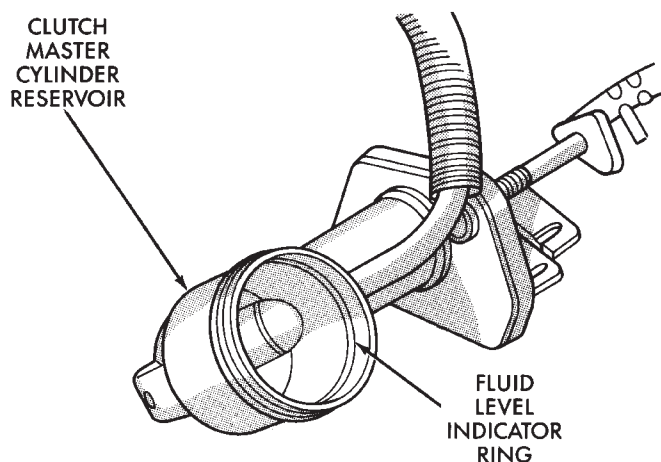
GEAR SHIFTER BOOTS

Inspect shifter boots periodically for stone and heat damage. Replace, if necessary.

SEVERE DRIVING CONDITIONS

The interval between transmission drain and refill maintenance should be decreased to:

- AX15 manual transmission—every 29 000 km (18,000 miles)



J9106-11

Fig. 1 Fluid Level Indicating Ring

- Automatic transmission—every 19 000 km (12,000 miles)

A severe driving condition includes:

- Extended operation with heavy cargo loads
- Driving in deep mud or snow
- Off-road operation (4WD)
- Trailer towing
- Operation as a commercial vehicle
- Snow plowing

*MANUAL TRANSMISSIONS**INSPECTION/LUBE OIL LEVEL*

The manual transmission should be inspected for leakage whenever other service is necessary under vehicle. To check lube oil level, remove fill hole plug (Fig. 2). If level is below bottom of fill hole, raise level to bottom of fill hole with:

- SAE 75W90, API Quality Grade GL-5 gear lubricant

DRAIN AND FILL

The AX15 transmission fluid should be changed according to interval listed in Maintenance Schedule. Also, refer to Fluid Capacities chart.

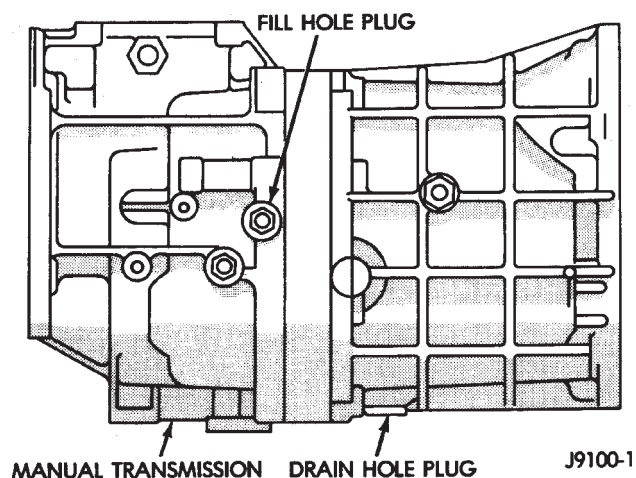


Fig. 2 Manual Transmission Fill/Drain Hole Plugs
AUTOMATIC TRANSMISSIONS

FLUID LEVEL

It is recommended that fluid (ATF) level in automatic transmissions be checked while involved with other underhood maintenance.

Vehicle operation with an incorrect ATF level will greatly reduce life of transmission.

The condition of ATF also should be determined. If ATF is dark in color and has a strong odor, fluid should be changed. Also filter should be replaced and bands adjusted.

The following procedure must be used to check automatic transmission fluid (ATF) level.

- (1) Position vehicle on level ground.
- (2) Operate engine at idle speed.
- (3) Apply parking brake.
- (4) Place gear selector in N (neutral).
- (5) Remove dipstick from tube. Wipe it clean and determine if ATF is hot or warm.

Hot ATF has a temperature of approximately 82°C (180°F). Warm ATF is when its temperature is between 29-52°C (85-125°F).

- (6) Wipe dipstick clean and completely insert it into tube. Remove dipstick from tube and observe ATF level.

- (7) If ATF is hot, level should be in crosshatched area that is marked OK.

- (8) If ATF is warm, level should be between two dimples.

CAUTION: Do not overfill transmission.

- (9) Adjust level of ATF accordingly.

It is important to use correct fluid in AW4 automatic transmission. Mercon™ ATF should be used.

- (10) Insert dipstick into tube.

DRAIN, FILTER CHANGE, BAND ADJUSTMENT AND REFILL

The Maintenance Schedule chart lists intervals at which transmission should be serviced. Also, refer to Fluid Capacities chart for fill capacity.

The torque converter does not have a drain plug. No attempt should be made to drain converter. Refer to Group 21—Transmissions for transmission drain and refill procedures.

TRANSFER CASE (4WD VEHICLES)

INSPECTION

The transfer case fluid level should be checked whenever maintenance is necessary under vehicle.

FLUID LEVEL

The vehicle must be level when fluid level is checked.

The transfer case drain/fill hole plugs are located at rear of housing (Fig. 3).

Determine transfer case fluid level according to following procedure.

- (1) Raise and support vehicle.
- (2) Remove fill hole plug (Fig. 3). The fluid level should be at bottom edge of fill hole. The level can be slightly below bottom edge of fill hole if fluid is cold.
- (3) If level is not acceptable, raise fluid level to bottom edge of fill hole with:

- MOPAR®ATF PLUS or an equivalent Dexron II® ATF.

Add fluid in small amounts to raise level.

- (4) Install fill hole plug (Fig. 3). Tighten fill hole plug to 27 N•m (20 ft-lbs) torque.

- (5) Remove support and lower vehicle.

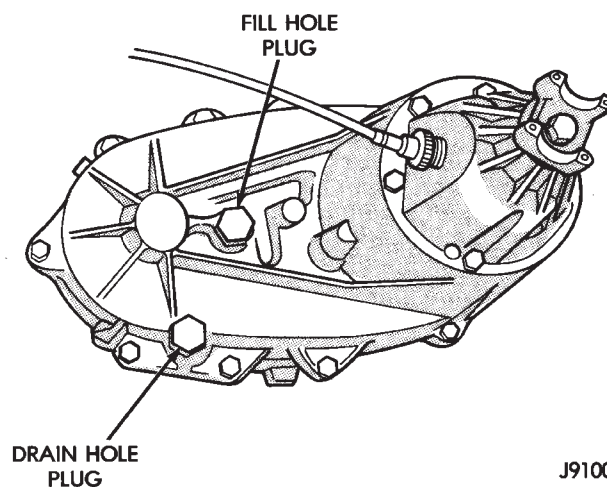


Fig. 3 Transfer Case—Typical

FLUID DRAIN AND REFILL

- (1) Raise and support vehicle.
- (2) Remove fill hole plug (Fig. 3) from transfer case.
- (3) Place an appropriate container under transfer case drain hole plug (Fig. 3).

(4) Remove drain hole plug. Drain fluid from transfer case into container.

CAUTION: Do not over-tighten drain and fill hole plugs.

(5) Install drain hole plug (Fig. 3). Tighten drain hole plug to 27 N•m (20 ft-lbs) torque.

(6) Fill transfer case to bottom edge of fill hole with:

- MOPAR®ATF PLUS or an equivalent Dexron II® ATF

(7) Install fill hole plug. Tighten plug to 27 N•m (20 ft-lbs) torque.

(8) Remove support and lower vehicle.

FLUID SPECIFICATION

- MOPAR®ATF PLUS or an equivalent Dexron II® ATF

SHIFT MECHANISM

The transfer case shift mechanism should be cleaned and lubricated as necessary to maintain ease of operation.

Lubricate pivot, sliding contact areas and shift linkage pivot ends with light-weight engine oil (Fig. 4).

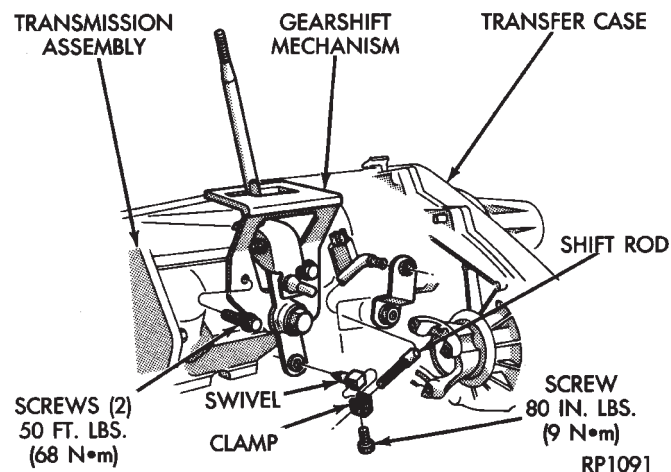


Fig. 4 Shift Mechanism Lubrication—Typical AXLES

INSPECTION

For normal vehicle operation, periodic axle lubricant level checks are not necessary. However, exterior of axle housing should be inspected for leakage. Check lubricant level to confirm leakage.

LUBRICANT LEVEL

(1) Raise vehicle with an axle or wheel type hoist. Support vehicle.

(2) The rear axle differential housings have a rubber, PRESS-IN type fill plug (Fig. 5). Pry fill plug from differential housing. The front axle (4WD ve-

hicles) differential housings have a threaded-type fill plug (Fig. 5). Remove fill plug from differential housing.

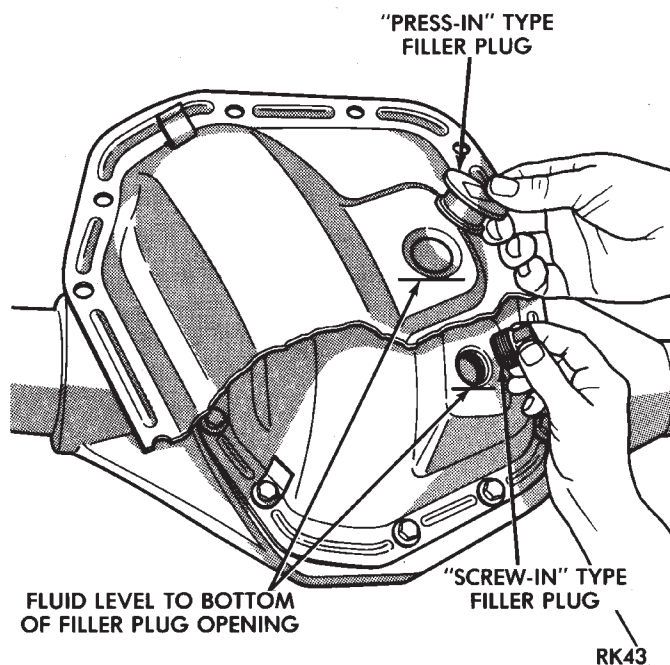


Fig. 5 Axle Fill Plug Location—Typical

(3) The lubricant level should be within 12 mm (1/2 in) of fill hole.

(4) If necessary, add lubricant.

(5) Install fill hole plug in differential housing (Fig. 5).

DRAIN AND REFILL

Periodic axle lubricant change for normal vehicle operation is not necessary. However, lubricant should be changed if it is contaminated. Refer to chart below. **All axles contain SAE 80W-90 multi-purpose type hypoid gear lubricant when delivered from factory.**

Use same maintenance procedures for rear axles equipped with a limited-slip differential.

LUBRICANT VISCOSITIES FOR ANTICIPATED TEMPERATURE RANGES

Anticipated Temp. Range	Recommended SAE Grade
Above 32°C (90°F)	SAE 140 SAE 80W-140 SAE 85W-140
-23°C to 32°C (-10°F to 90°F)	SAE 90 SAE 80W-90 SAE 80W-140 SAE 85W-140
Below -23°C (-10°F)	SAE 75W SAE 75W-90 SAE 80W SAE 80W-140

CAUTION: Water contaminated gear lubricant will result in possible failure of axle differential components. Operation of vehicle in water, will require that:

- The lubricant be drained
- The differential housing flushed (except limited-slip differentials)
- The differential refilled with fresh lubricant

LUBRICANT SPECIFICATION

A multi-purpose, hypoid gear lubricant should be used in all axles equipped with either a standard or a limited-slip differential. The use of MOPAR® Synthetic Axle Lube is necessary with trailer towing package. Trac—Loc axles require a friction additive.

FRONT AXLE PIVOT BEARINGS (4 W/D)

The front axle universal joint and pivot bearings are permanently lubricated and normally do not require service.

DRIVE SHAFTS

SLIP-YOKE LUBRICATION

When equipped with lube fittings, it is recommended that slip-yoke splines be lubricated every 9 600 km (6,000 miles). For severe usage, lubricate splines every 1 600 km (1,000 miles).

The method described below will ensure complete lubrication of slip-yoke splines.

- (1) Clean Zerk type lubrication fittings.
- (2) Use a lubricant dispenser to force lubricant into slip yoke Zerk type lubrication fittings.
- (3) Continue lubricating until it appears at pressure relief hole in expansion plug located at slip-yoke end.

- (4) Cover pressure relief hole with a finger. Continue to force lubricant into fitting until it appears at slip-yoke seal.

U-JOINT/CV-JOINT LUBRICATION

Lubrication of u-joint couplers that are not equipped with lube (Zerk) fittings is not necessary. Replacement U-joints are equipped with lube fittings. If installed, lubricate them according to information provided below.

Lubricate U-joint and CV-joints every 12 000 km (7,500 miles) for LIGHT DUTY CYCLE vehicles. For HEAVY DUTY CYCLE vehicles, couplers should be lubricated every 9 600 km (6,000 miles). If vehicle is operated in water, U-joint/CV-joint couplers should be lubricated daily.

If a vehicle, is used in a severe driving condition, lubricate U-joint/CV-joints every 4 800 km (3,000 miles).

A severe driving condition includes:

- Off-road driving
- Driving in deep mud or snow
- When 1/3 or more of vehicle operation involves driving with a full-load.

LUBRICANT SPECIFICATION

Drive shaft slip yokes and U-joint/CV-joint couplers should be lubricated with, NLGI GC-LB lubricant. The U-joints/CV-joint couplers should be lubricated with MOPAR® Multipurpose Lubricant, NLGI GC-LB).

CHASSIS AND BODY

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STEERING LINKAGE

INSPECTION

Whenever a vehicle is raised for lubrication/general maintenance under vehicle, all steering components should be inspected.

LUBRICATION SCHEDULE

The steering linkage is lubricated during manufacture with a long-life chassis lubricant. However, it is recommended that linkage be inspected and lubricated after each:

- 24 000 km (15,000 miles) interval or every 6 months, for 2WD vehicles subject to LIGHT DUTY CYCLE Maintenance Schedule
- 9 600 km (6,000 miles) interval or every 6 months, for 2WD vehicles subject to HEAVY DUTY CYCLE Maintenance Schedule
- 12 000 km (7,500 miles) interval or every 6 months, for 4WD vehicles subject to LIGHT DUTY CYCLE Maintenance Schedule
- 9 600 km (6,000 miles) interval or every 6 months, for 4WD vehicles subject to HEAVY DUTY CYCLE Maintenance Schedule.

LUBRICATION

- (1) Inspect steering linkage for looseness and excessive wear.
- (2) Replace, all ruptured seals and damaged steering linkage components.

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

- (3) Lubricate steering linkage:
 - Clean Zerk type lubrication fittings on tie-rod and center link ball-stud ends
 - Lubricate ball studs with MOPAR®Multi-Mileage Lubricant
 - Wipe excess lubricant from exterior surfaces of ball joints

FRONT SUSPENSION BALL JOINTS

INSPECTION

When a vehicle is raised for lubrication/general maintenance, ball joints should be inspected.

LUBRICATION SCHEDULE

The front suspension ball joints are semi-permanently lubricated during manufacture with a special, long-life chassis lubricant. However, it is recommended that ball joints be inspected and studs lubricated:

- At each 36 000 km (22,500 miles) interval or every 2 years, for vehicles subject to LIGHT DUTY CYCLE Maintenance Schedule
- At each 9 600 km (6,000 miles) interval or every 2 years, for vehicles subject to HEAVY DUTY CYCLE Maintenance Schedule.

4WD vehicles that are frequently driven off-road should be lubricated at every engine oil change.

LUBRICATION

- (1) Inspect front suspension.
- (2) Replace all torn ball-stud seals and damaged ball joints. Damaged seals should be replaced to prevent leakage and contamination.

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

- (3) Lubricate ball studs:
 - Clean Zerk type lubrication fittings on ball-stud ends
 - Lubricate ball studs with MOPAR®Multi-Mileage Lubricant
 - Wipe excess lubricant from exterior surfaces of ball joints

POWER STEERING SYSTEM

FLUID LEVEL

WARNING: THE POWER STEERING FLUID LEVEL SHOULD ALWAYS BE DETERMINED WITH THE ENGINE OFF TO PREVENT PERSONAL INJURY FROM ROTATING ENGINE COMPONENTS.

The power steering fluid should be checked whenever engine is being serviced for other reasons. Clean outside of cap before removing. The fluid should be at proper level indicated on cap dipstick (Fig. 2).

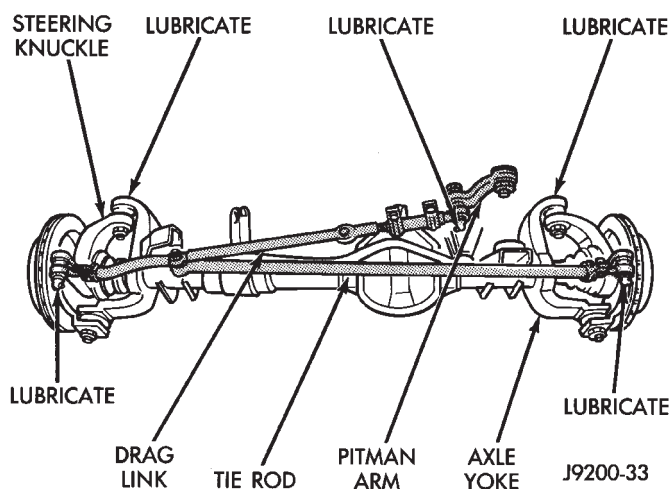


Fig. 1 Steering Components—Typical

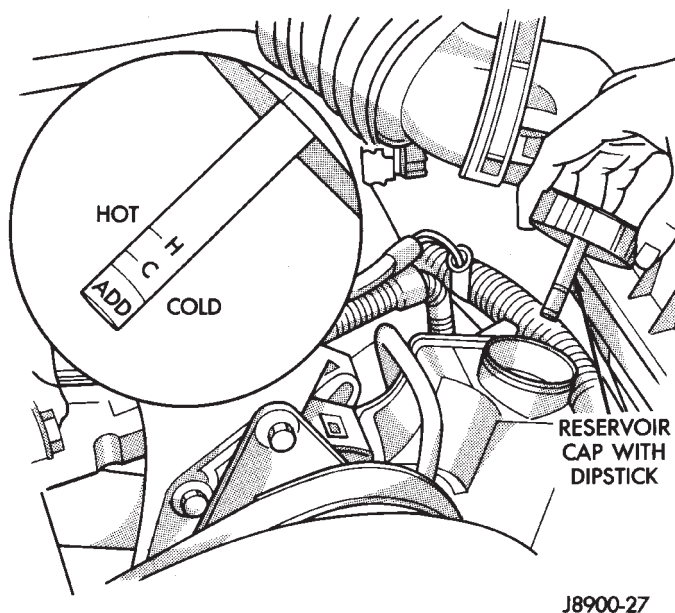


Fig. 2 Power Steering Reservoir & Cap—Typical

The reservoir fluid level can be determined with fluid either hot or cold. If fluid level is below FULL HOT or FULL COLD marks on dipstick, add power steering fluid. The dipstick is attached to reservoir cap (Fig. 2).

FLUID SPECIFICATION

Use only MOPAR®Power Steering Fluid.

FRONT WHEEL BEARINGS

The front wheel bearings on a ZJ vehicle are permanently lubricated. If service is necessary refer to Group 2—Front Suspension And Axle.

LOWER AND UPPER SUSPENSION ARM BUSHINGS

INSPECTION SCHEDULE

The lower and upper suspension arm bushings should be inspected each time underside of vehicle is serviced.

INSPECTION

The lower suspension arm bushings can be visually inspected by raising vehicle on a hoist and inspecting from underneath. The upper suspension arm bushings can be inspected after removing front wheels. If failure exists, replace bushing (refer to Group 2—Front Suspension for proper procedures).

The suspension arm bushings never should be lubricated.

GUIDELINES

- (1) Faulty bushings are detected by bushing being off-center in relation to outer sleeve.
- (2) Total failure is evident by excessive movement within bushing.
- (3) Small cracks in outer, non-confined rubber does not indicate failure of rubber.

POWER BRAKE SYSTEM

Vehicles are equipped with power disc brakes at front wheels and drum brakes at rear wheels.

FLUID SPECIFICATION

Power brake systems require MOPAR®Heavy-Duty Brake Fluid.

The use of an equivalent product identified with FMVSS No. 116, DOT-3 and SAE J-1703 Standard designations is permissible.

Use fresh brake fluid only when adding fluid to reservoir. Never use fluid that does not conform to DOT/SAE Standards, or fluid from a container that has been left open.

CAUTION: The use of a substandard brake fluid could result in sudden brake failure during hard, prolonged braking.

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

BRAKE FLUID LEVEL

ANTI-LOCK BRAKE SYSTEM

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

- (1) Clean cover before removing it.

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

(2) The brake fluid level should be no lower than MIN arrow indicator on side of reservoir. If not, add brake fluid as necessary. Raise fluid level to MAX arrow indicator only. Do not over-fill reservoir.

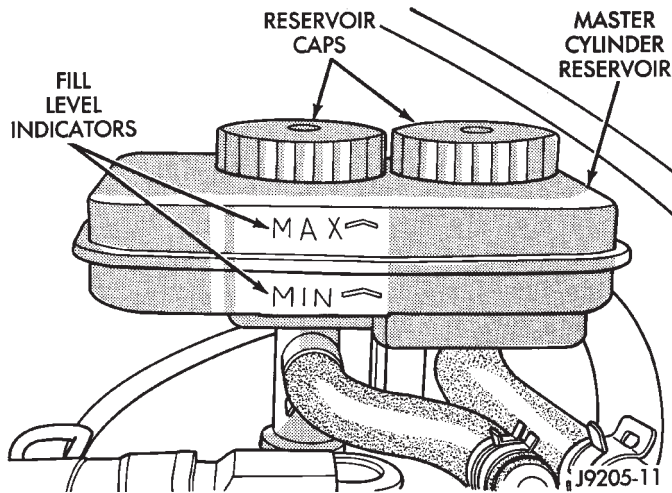


Fig. 3 Reservoir Fluid Level—Anti-Lock Brake System

BRAKE SYSTEM INSPECTION

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

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

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

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

(5) Inspect self-adjuster components for frayed cables. Inspect for loose or overheated springs, or a binding condition.

(6) Inspect caliper dust boots for damage or tears. Inspect for an indication of brake fluid leakage. Inspect bushings and pins for corrosion. Inspect for tears or a binding condition.

(7) Inspect rear wheel cylinder dust boots for fluid leaks. Inspect pistons and cylinder bores for proper appearance.

(8) Inspect brake differential warning valve and housing for indications of leakage, kinked hoses and loose fittings.

BRAKE HOSES/TUBING

The rubber brake hoses should be inspected for:

- Correct length
- Severe surface cracking
- Swelling

- Pulling
- Scuffing
- Excessively worn areas

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

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

PARK BRAKE

(1) Engage park brake lever and then release it.

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

(3) Inspect park brake cables for kinks, fraying and a binding condition.

(4) With park brake released, rear wheels should rotate without restriction. Adjust park brake cable tension at equalizer. Refer to Group 5—Brakes, for component information.

(5) Repair any park brake malfunctions.

BRAKE OPERATIONAL TEST

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

(2) Note any indication of brake overheating, wheel dragging or vehicle pulling to one side.

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

(4) Repair brake system as necessary (refer to Group 5—Brakes for additional information and service procedures).

BODY COMPONENT MECHANISMS

LUBRICATION REQUIREMENTS

All operating mechanisms and linkages should be lubricated when necessary. This will maintain ease of operation and provide protection against rust and excessive wear. 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
- All pivoting/sliding contact areas on mechanisms should then be lubricated.

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

LUBRICATION

(1) When necessary, lubricate body component operating mechanisms with specified lubricants.

BODY LUBRICANT SPECIFICATIONS

COMPONENT	SERVICE INTERVAL	LUBRICANT
Door Hinges	As Required	Engine Oil
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		

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

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

(4) The hood latch, latch release mechanism, latch striker and safety latch should be lubricated periodically.

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

TIRES

RECOMMENDED MAINTENANCE

The condition of tires should be inspected. The inflation pressures tested/corrected at same time as engine oil is changed and oil filter is replaced.

The tires/wheels should be rotated periodically to ensure even tread wear. The tires/wheels should be

rotated at first 12 000 km (7,500-miles) interval. Thereafter, at each 24 000 km (15,000-miles) interval.

INSPECTION

Inspect tires for excessive wear, damage. Test tires for recommended inflation pressure. Refer to Group 22—Tires And Wheels for tire pressure charts, tire replacement, and treadwear indicators.

ROTATION

Tires/wheels should be rotated according to recommended interval.

Refer to Group 22—Tires And Wheels for recommended method of tire/wheel rotation.

HEADLAMPS

Every six months check headlamp beams to ensure that 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 or erratic cables, refer to Group 8E—Instrument Panel and Gauges.