
TECHNICAL BULLETIN

OPERATOR AND FIELD MAINTENANCE AND REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) INSTRUCTIONS

FOR SYSTEMS

TRUCK, UTILITY: EXPANDED CAPACITY, ARMAMENT CARRIER,
IAP/ARMOR READY, M1151A1
(2320-01-540-2038)
(SERIAL NUMBERS 300000 AND ABOVE);

TRUCK, UTILITY: EXPANDED CAPACITY, ENHANCED, IAP/ARMOR READY, M1152A1
(2320-01-540-2007)
(SERIAL NUMBERS 300000 AND ABOVE);

TRUCK, UTILITY: COMMAND AND CONTROL/GENERAL PURPOSE VEHICLE,
IAP/ARMOR READY, M1165A1
(2320-01-540-2017)
(SERIAL NUMBERS 300000 AND ABOVE).

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**HEADQUARTERS, DEPARTMENTS OF THE ARMY
AND MARINE CORPS**

MAY 2008
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WARNING**EXHAUST GASES CAN KILL**

Brain damage or death can result from heavy exposure. Precautions must be followed to ensure crew safety when the personnel heater, main, or auxiliary engine of any vehicle is operated for any purpose.

1. Do not operate your vehicle engine in enclosed areas.
2. Do not idle vehicle engine with vehicle windows closed.
3. Be alert at all times for exhaust odors.
4. Be alert for exhaust poisoning symptoms. They are:
 - Headache
 - Dizziness
 - Sleepiness
 - Loss of muscular control
5. If you see another person with exhaust poisoning symptoms:
 - Remove person from area
 - Expose to open air
 - Keep person warm
 - Do not permit physical exercise
 - Administer artificial respiration, if necessary*
 - Notify a medic

* For artificial respiration, refer to 4-25.11.

6. BE AWARE, the field protective mask for Nuclear, Biological, or Chemical (NBC) protection will not protect you from exhaust poisoning.

THE BEST DEFENSE AGAINST EXHAUST POISONING IS ADEQUATE VENTILATION.

WARNING SUMMARY

- Changing tire pressures or wheel alignment out of the recommended specification may adversely affect the vehicle's handling characteristics. Loss of vehicle control may result, causing serious injury or death to personnel and damage to equipment.
- If vehicle has been operating, use extreme care to avoid being burned when removing geared fan drive fill plug. Use rags or heavy gloves to protect hands.
- Do not perform battery system checks or inspections while smoking or near fire, flames, or sparks. Batteries may explode causing damage to vehicle, and injury or death to personnel.
- Remove all jewelry such as rings, dog tags, bracelets, etc. If jewelry or disconnected battery ground cable contacts battery terminal, a direct short will result, causing injury to personnel or damage to equipment.
- Do not remove surge tank filler cap before releasing internal pressure when engine temperature is above 185°F (85°C). Steam or hot coolant under pressure will cause injury.
- Always use caution when approaching a hot engine. Failure to do so may result in serious burns.
- Do not drain oil when engine is hot. Severe injury to personnel may result.
- Diesel fuel is highly flammable. Do not perform any procedure near fire, flames, or sparks. Severe injury or death may result.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.)
- Allow transmission to cool before performing maintenance. Severe injury to personnel may occur.
- Always wear eye protection when bleeding brakes. Failure to do so may cause injury if brake fluid comes in contact with eyes.
- Ensure brake pads are installed with linings facing rotor. Failure to do this may cause injury to personnel or damage to equipment.
- Hood must be supported during removal and installation. Failure to support hood may cause injury to personnel or damage to equipment.
- Cylinder head must be supported during removal and installation. Failure to support cylinder head may cause injury to personnel or damage to equipment.
- Torque converter and transmission must be removed as an assembly. Keep transmission level. The converter may slide off front of transmission and cause injury to personnel or damage to converter.
- Do not use hands to free transmission/transfer case assembly of hang-ups or snags. Use prybar to avoid injury.
- Transfer case must be supported during removal and installation. Failure to do this may cause injury to personnel or damage to equipment.
- Differential is extremely heavy and must be supported during removal and installation. Failure to do so may result in injury to personnel or damage to equipment.
- Crossmember must be supported during removal and installation. Failure to do so may cause injury to personnel or damage to equipment.
- Front wheelwell armor is extremely heavy and must be supported during removal and installation. Failure to do so may result in injury to personnel or damage to equipment.

LIST OF EFFECTIVE PAGES

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HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE MARINE CORPS
WASHINGTON, D.C., 30 May 2008

TB 9-2320-335-13&P

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CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

a. The purpose of this Technical Bulletin is to provide advance operator's and maintenance instructions, and repair parts information for the REV vehicles (serial numbers 300000 and above). These instructions are provided as supplemental information to TM 9-2320-387-10, TM 9-2320-387-24, and TM 9-2320-387-24P. When combined with these manuals, this Technical Bulletin will provide you with comprehensive instructions for these vehicles.

b. This Technical Bulletin information will be included in the next change to TM 9-2320-387-10, TM 9-2320-387-24, and TM 9-2320-387-24P. The paragraph numbers used in this Technical Bulletin are the same numbers that will be used when these pages are inserted into the manuals with the next change.

1-2. TABULATED DATA

Vehicle performance data for the REV vehicles is listed in table 1-2. Information not covered can be found in TM-9-2320-387-24-1.

Table 1-1. Tabulated Data.

NOTE

Standard and metric measurements will be used in this table.
A list of their abbreviations is provided below.

TABULATED DATA ABBREVIATIONS

MEASUREMENT	ABBREVIATION	MEASUREMENT	ABBREVIATION
Ampere	A	Liters Per Minute	L/m
Celsius	C	Maximum	max
Centimeter	cm	Miles Per Gallon	mpg
Fahrenheit	F	Miles Per Hour	mph
Gallon	gal.	Millimeter	mm
Gallons Per Minute	gpm	Minimum	min
Horsepower	hp	Newton-Meter	N•m
Inch	in.	Pint	pt
Kilogram	kg	Pound	lb
Kilometers Per Hour	kph	Pound-Foot	lb-ft
Kilometers Per Liter	km/L	Pounds Per Square Inch	psi
KiloPascal	kPa	Quart	qt
KiloWatt	kW	Revolutions Per Minute	rpm
Liters	L	Volt	V

	STANDARD	METRIC
1. CAPACITIES		
Brake Master Cylinder (Serial Numbers 300000 and Above)	2.36 pt	1.12 L
2. COOLING SYSTEM		
Fan: (Serial Numbers 300000 and Above)		
Type	Nine Blade	
Diameter	23 in.	58.0 cm
3. TRANSFER CASE (Serial Numbers 300000 and Above)		
Manufacturer	Magna Powertrain	
Model	MP2226	
Gear Ratios:		
High and High Lock	1.0:1	
Low Lock	2.72:1	
4. SERVICE BRAKE CALIPER (FRONT AND REAR) (Serial Numbers 300000 and Above)		
Manufacturer	Wilwood	
Piston Diameter	1.870 in.	47.5 mm
5. SERVICE/PARKING BRAKE ROTOR (FRONT AND REAR) (Serial Numbers 300000 and Above)		
Manufacturer	Wilwood	
Diameter	12.08 in.	307 mm
Thickness	0.945 in.	24 mm

Table 1-1. Tabulated Data (Cont'd).

	STANDARD	METRIC
6. STEERING SYSTEM (Serial Numbers 300000 and Above)*		
Steering Gear:		
Manufacturer	Sheppard	
Type	Variable Ratio	
Ratio	13/16:1	
Power Steering Pump:		
Manufacturer	PSS, Inc.	
Model	125	
Output Pressure (max)	1,740 ± 72.5 psi	11,997 ± 500 kPa
Capacity (engine 1,500 rpm)	2.6 gpm	
Flow Rate (max)	3.5 gpm	13.2 L/m
Toe-In (Front/Rear @ Curb Weight):	0.375 in. ± 0.1875 in.	9.5 mm ± 4.8 mm

Table 1-2. Lubrication.

USAGE	FLUID/LUBRICANT	CAPACITIES	EXPECTED TEMPERATURE
Geared Fan Drive	GO 80/90	N/A	All Temperatures +40° to -65°F (+4° to -54°C)
	GO 75		
Brake System (Serial Numbers 300000 and Above)	Fluid Silicone BFS	Master Cylinder: 2.36 pt (1.12 L) Complete Systems 3.09 pt (1.46 L)	All Temperatures

*ALL HYDRAULIC SYSTEMS ARE CALCULATED APPROXIMATIONS

Section II. PRINCIPLES OF OPERATION

GENERAL

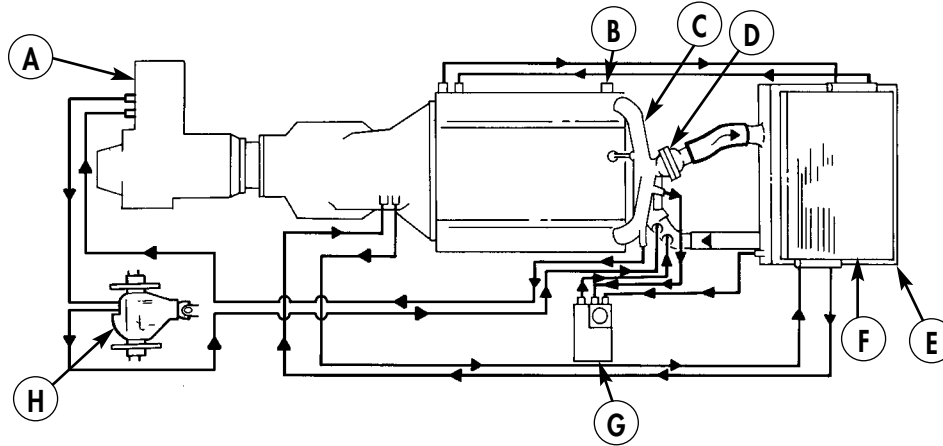
This section explains how components of the REV series vehicles work together. The systems (functional groups) covered are listed in the Principles of Operation Reference Index.

PRINCIPLES OF OPERATION REFERENCE INDEX

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1-26.	Service Brake System Operation	1-8
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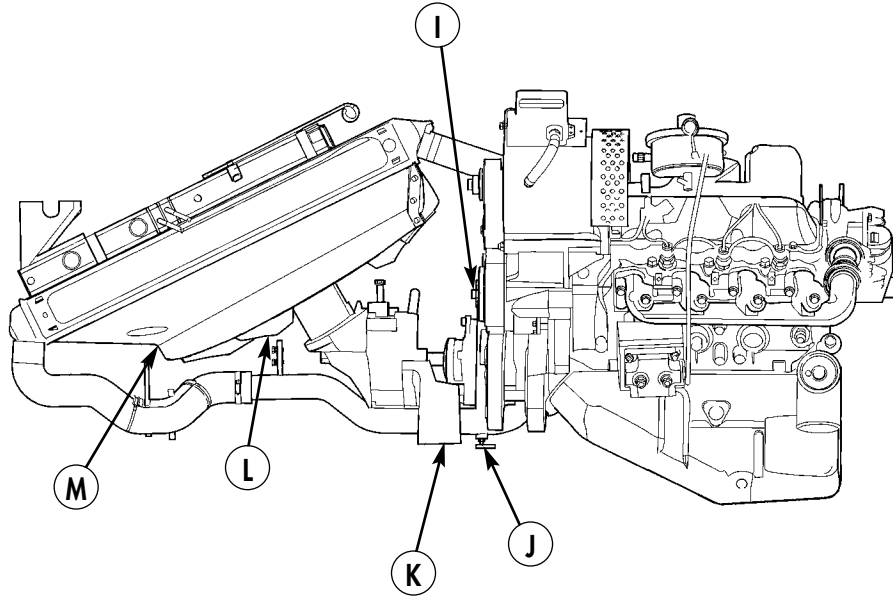
1-20.1. COOLING SYSTEM OPERATION (SERIAL NUMBERS 300000 AND ABOVE)

The cooling system removes excess heat from the engine, engine oil, transfer case oil, and transmission oil. Major components of the cooling system are:



- (A) TRANSFER CASE** – Directs engine coolant through a series of fins or baffles so coolant can remove heat from transfer case oil.
- (B) ENGINE TEMPERATURE SENDING UNIT** – Sends signal indicating coolant temperature to gauge on instrument cluster.
- (C) WATER CROSSOVER** – Collects coolant from cylinder heads and channels it to the thermostat housing where it is redirected through the cooling system.
- (D) THERMOSTAT** – Shuts off coolant return flow to radiator until temperature reaches 190°F (88°C). Coolant is then directed to the radiator through the radiator inlet hose.
- (E) RADIATOR** – Directs coolant through a series of fins and baffles so outside air can dissipate excess engine heat before the coolant is recirculated through the engine.
- (F) OIL COOLER** – Directs engine oil (lower half of cooler) and transmission oil (upper half of cooler) through a series of fins or baffles so outside air can remove heat from oil.
- (G) SURGE TANK** – Filling and expansion point for cooling system.
- (H) DIFFERENTIAL COOLER** – Directs engine coolant through a series of fins or baffles so coolant can remove heat from differential oil.

1-20.1. COOLING SYSTEM OPERATION (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

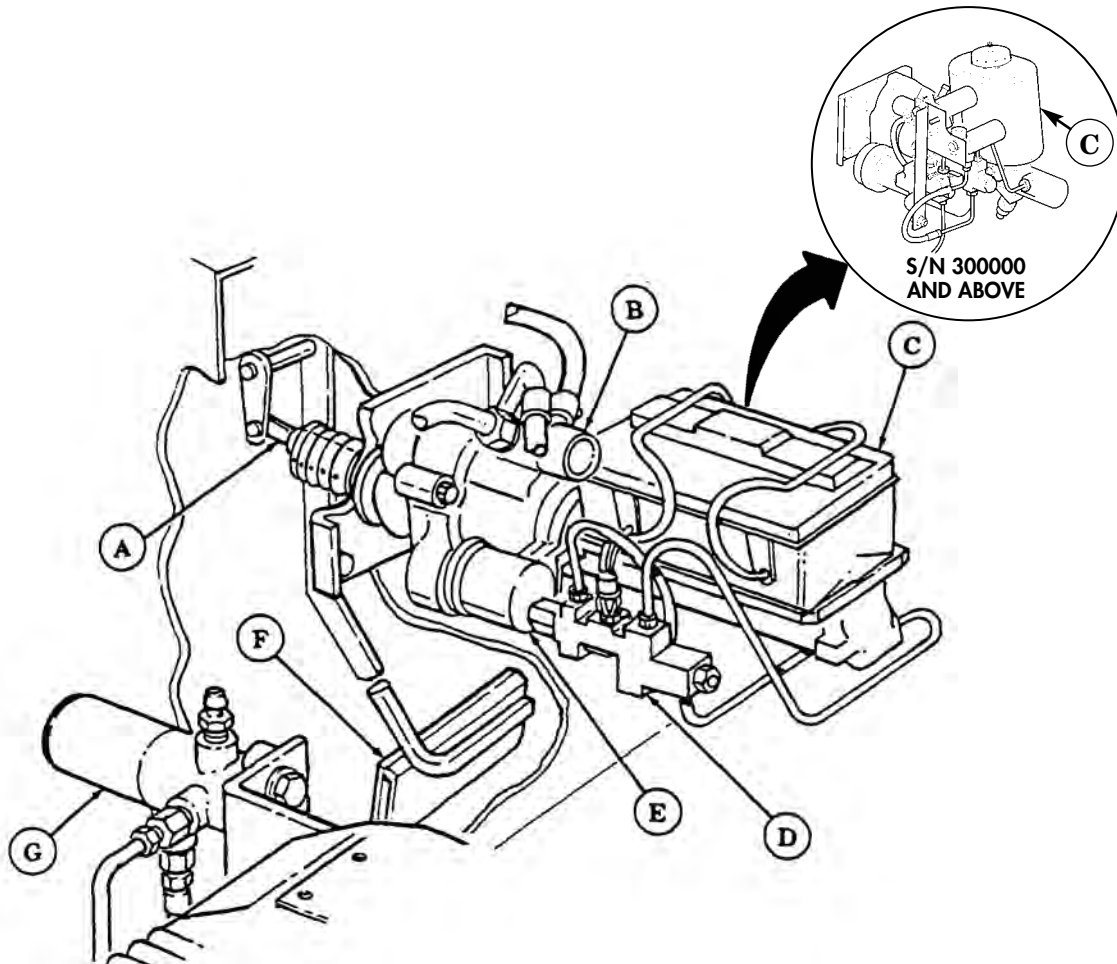


- I** **WATER PUMP** – Driven by serpentine belt, provides circulation of coolant through cooling system.
- J** **DRAIN VALVE** – Draining point for radiator and cooling system.
- K** **GEARED FAN DRIVE** – Transmits engine power and torque to drive the radiator cooling fan and clutch.
- L** **FAN** – Pulls outside air through radiator to remove heat from coolant.
- M** **TWO-PIECE RADIATOR SHROUD** – Permits a greater concentration of air to be pulled through the radiator.

1-26. SERVICE BRAKE SYSTEM OPERATION

The service brake system covered in this manual is an inboard-mounted, four-wheel, disc brake, hydraulically-assisted system. Major components of the braking system are:

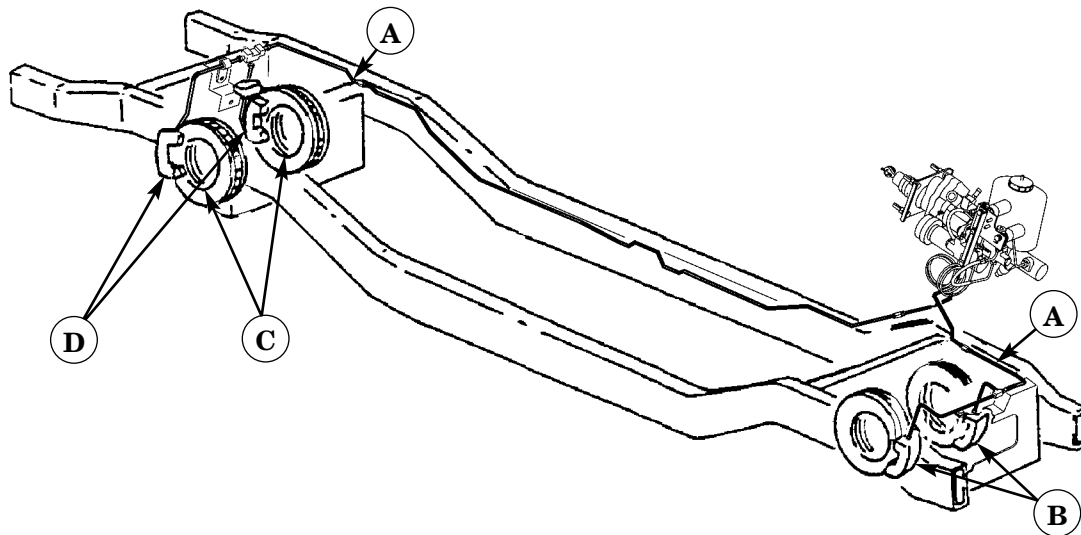
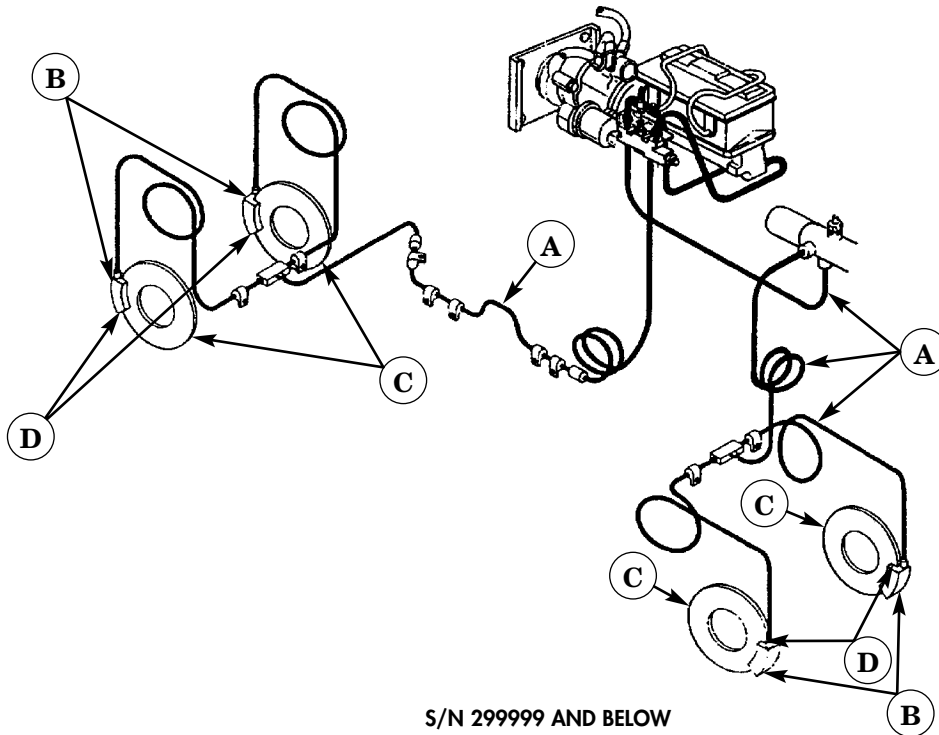
- (A) **BRAKE LINKAGE** – Directs brake pedal pressure to hydro-booster.
- (B) **HYDRO-BOOSTER** – Converts hydraulic power from the steering pump to mechanical power to the master cylinder, providing power assist during braking.
- (C) **MASTER CYLINDER/RESERVOIR** – Stores brake fluid and converts mechanical pedal pressure to hydraulic pressure.
- (D) **PROPORTIONING VALVE** – Provides balanced front-to-rear braking and activates brake warning lamp in case of brake system malfunction.
- (E) **ACCUMULATOR** – Stores hydraulic pressure for additional power-assisted braking in case of loss of pressure in steering system.
- (F) **BRAKE PEDAL** – Provides operator control for stopping vehicle.
- (G) **BRAKE PRESSURE LIMITER** – Limits front brake line pressure to prevent brake lockup.



S/N 299999 AND BELOW

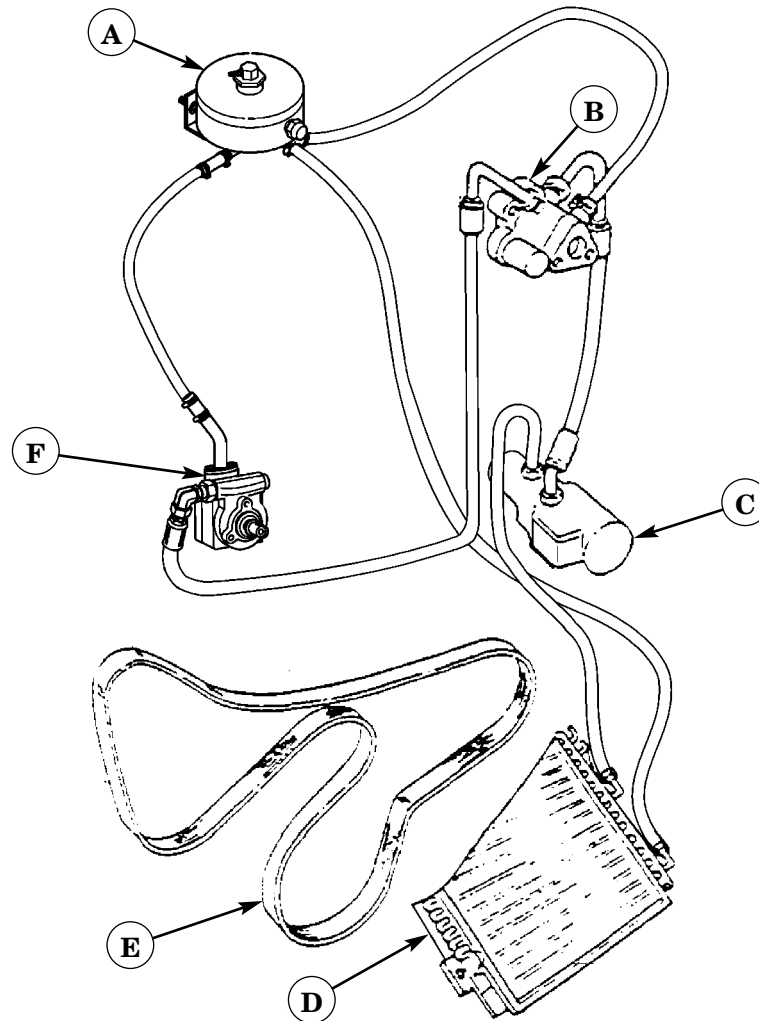
1-26. SERVICE BRAKE SYSTEM OPERATION (Cont'd)

- (A) HYDRAULIC BRAKE LINES** – Direct brake fluid under pressure to all four brake calipers from master cylinder.
- (B) BRAKE CALIPER** – Converts hydraulic pressure to mechanical force to compress brake pads against brake rotors.
- (C) BRAKE ROTOR** – Attached to output flange on front and rear differentials. Rotor prevents output flange from turning when brakes are applied.
- (D) BRAKE PADS** – Apply friction to brake rotor when brake pedal is depressed.



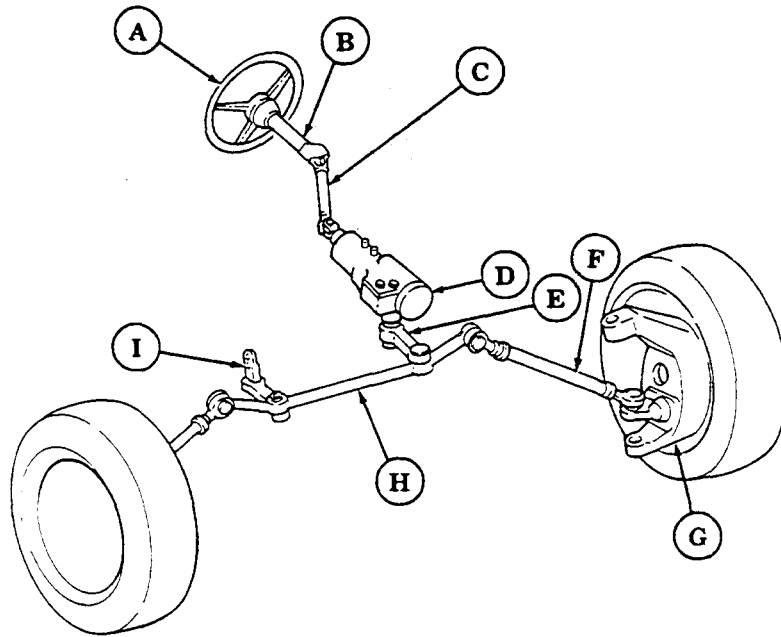
1-27.1. STEERING CONTROL SYSTEM OPERATION (SERIAL NUMBERS 30000 AND ABOVE)

Major components of the steering system are:



- (A) **OIL RESERVOIR** – The oil reservoir serves as an oil filling point.
- (B) **HYDRO-BOOSTER** – Converts hydraulic power from the steering pump to mechanical power to the master cylinder, providing power assist during braking.
- (C) **STEERING GEAR** – Converts hydraulic power from steering pump to mechanical power at pitman arm.
- (D) **POWER STEERING COOLER** – Directs power steering fluid through a series of fins or baffles so outside air can dissipate excess heat before the fluid is recirculated through the steering system.
- (E) **SERPENTINE BELT** – Transmits mechanical driving power from crankshaft drive pulley to steering pump pulley which drives the steering pump.
- (F) **STEERING PUMP** – Supplies the oil under pressure throughout the steering system.

1-27.1. STEERING CONTROL SYSTEM OPERATION (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- (A) **STEERING WHEEL** – Serves as manual steering control for the operator.
- (B) **STEERING COLUMN** – Transmits turning effort from steering wheel to intermediate steering shaft.
- (C) **INTERMEDIATE STEERING SHAFT** – Permits angle of torque from steering column to input shaft of power steering gear.
- (D) **STEERING GEAR** – Converts hydraulic power from steering pump to mechanical power at pitman arm.
- (E) **PITMAN ARM** – Transfers steering torque from power steering gear to center link.
- (F) **TIE ROD ASSEMBLY** – Transmits movement from center link to geared hub.
- (G) **GEARED HUB** – Serves as the pivot point and link for the front wheels via the tie rod assembly.
- (H) **CENTER LINK** – Transmits movement from pitman arm to tie rods.
- (I) **IDLER ARM** – Supports right side of center link.

CHAPTER 2

SERVICE AND TROUBLESHOOTING (UNIT) INSTRUCTIONS

Section I. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-1. GENERAL

The best way to maintain vehicles covered by this manual is to inspect them on a regular basis so minor faults can be discovered and corrected before they result in serious damage, failure, or injury. All intervals are based on normal operation. Hard time intervals may be shortened if lubricants are contaminated or if you are operating the equipment under adverse conditions, including longer-than-usual operating hours. Hard-time intervals may be extended during periods of low activity, though adequate preservation precautions must be taken. This section contains systematic instructions of inspection, adjustment, lubrication, and correction of vehicle components to avoid costly repairs or major breakdowns. This is Preventive Maintenance Checks and Services (PMCS).

2-2. INTERVALS

a. Unit maintenance, assisted by operator/crew, will perform checks and services contained in table 2-1 at the following intervals:

- (1) **Semiannually.** Every 6 months or 3,000 miles (4,828 km), whichever comes first.
- (2) **Annually.** Every 12 months or 6,000 miles (9,656 km), whichever comes first.
- (3) **Biennially.** Every 24 months or 12,000 miles (19,310 km), whichever comes first.

b. Refer to following steps when performing lubrication checks and services:

(1) **Intervals.** Lubrication services coincide with the vehicle's semiannual preventive maintenance service. For this purpose, a 10% tolerance (variation) in specified lubrication point mileage is permissible. Those vehicles not accumulating 1,000 mi (1,609 km) in a 6-month period will be lubricated at the time of semiannual preventive maintenance service.

(2) **For Operation of Equipment in Protracted Cold Temperatures Below -15°F (-26°C).** Remove lubricants prescribed in lubrication table for temperatures above -15°F (-26°C). Relubricate with lubricants specified in lubrication table for temperatures below -15°F (-26°C). If OEA lubricant is required, see the temperature ranges prescribed in the lubrication table. OEA lubricant is to be used in place of OE/HDO 10 lubricant for all temperature ranges where OE/HDO 10 is specified in the lubrication table.

c. Perform all semiannual inspections in addition to annual inspections at the time of the annual inspection. Perform all annual and semiannual inspections in addition to biennial inspections at the time of the biennial inspection.

2-3. REPORTING REPAIRS

All vehicle shortcomings will be reported on DA form 2404 (DA Pam 750-8), Equipment Inspection and Maintenance Worksheet, immediately after the PMCS, and before taking corrective action. All vehicle deficiencies will be reported in the equipment record.

2-4. GENERAL SERVICE AND INSPECTION PROCEDURES

- a. While performing specific PMCS procedures, ensure items are correctly assembled, secure, not worn, serviceable, not leaking, and adequately lubricated as defined below:
- (1) An item is **CORRECTLY ASSEMBLED** when it is in proper position and all parts are present.
 - (2) When wires, nuts, washers, hoses, or attaching hardware cannot be moved by hand, they are **SECURE**.
 - (3) An item is **WORN** if there is too much play between joining parts or when marking data, warning, and caution plates are not readable.
 - (4) An item is **UNSERVICEABLE** if it is worn beyond repair and is likely to fail before the next scheduled inspection.
 - (5) **LEAKS**. TM 9-2320-387-10 contains definitions of class I, II, and III leaks and their effect on vehicle operation.
 - (6) If an item meets the specified lubrication requirements, then it is **ADEQUATELY LUBRICATED**.
- b. Where the instruction tighten appears in a procedure, you must tighten with a wrench to the given torque value even when the item appears to be secure.

WARNING

Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and/or damage to equipment.

- c. Where the instruction clean appears in a procedure, you must use drycleaning solvent (appendix C, item 26) to clean grease or oil from metal parts. After the item is cleaned, rinsed, and dried, apply a light grade of oil to unprotected surfaces to prevent rusting.
- d. Clean rubber and plastic materials with soap and water. Refer to TM 9-2320-387-10 for general vehicle cleaning instructions.

2-5. SPECIFIC PMCS PROCEDURES

- a. The preventive maintenance for which you are responsible is provided in table 2-1. The checks and services listed are arranged in logical order, requiring minimal time and effort on your part.
- b. The following columns read across on the PMCS schedule:
- (1) **Item Number**. Provides logical order of PMCS performance and is used as a source number for DA Form 2404, on which your PMCS results will be recorded.
 - (2) **Interval**. Shows the interval next to each item number to indicate when that check is to be performed. The interval will be repeated when consecutive item numbers are to be inspected during the same interval. Interval columns include:
 - (a) Semiannual (six month) checks;
 - (b) Annual (yearly) checks; and
 - (c) Biennial (every two years) checks.
 - (3) **Item To Be Inspected**. Lists the system, common name, or location of the item to be inspected.
 - (4) **Procedures**. Provides instructions for servicing, inspection, lubrication, replacement, or adjustment and, in some cases, having item repaired at a higher level.

NOTE

Always do your preventive maintenance checks and services in the order prepared. Once it gets to be a habit, you will be able to spot anything wrong in a hurry.

- (5) **Not Fully Mission Capable If**. If vehicle meets criteria in this column, vehicle is Not Mission Capable (NMC).

Table 2-1. Unit Level Preventive Maintenance Checks and Services HMMWV.

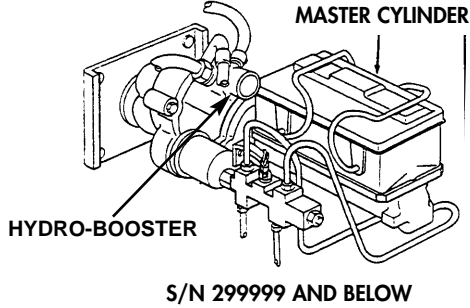
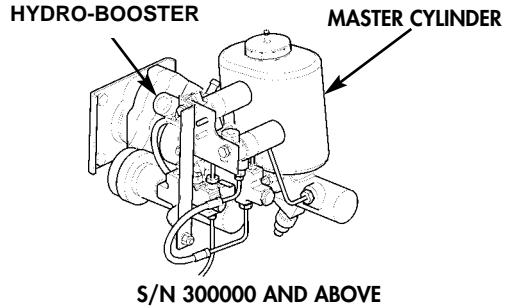
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURES	NOT FULLY MISSION CAPABLE IF:
1	Semi-annually	Brake System	<p>a. Inspect master cylinder, hydro-booster, proportioning valve, pressure limiter, lines, and fittings for leaks and damage.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>S/N 299999 AND BELOW</p> </div> <div style="text-align: center;">  <p>S/N 300000 AND ABOVE</p> </div> </div> <p style="text-align: center;">CAUTION</p> <ul style="list-style-type: none"> • Use MIL-B-46176, Brake Fluid Silicone (BFS) for filling master brake cylinder. Failure to use BFS may cause damage to brake cylinder. • Thoroughly clean exterior of master cylinder cover before removing cover. Dirt, water, or grease will contaminate brake fluid, causing brake system damage. • Do not use screwdriver to remove cover. Damage to bail wire may result (S/N 299999 and below). • To prevent excessive fluid spillage, ensure that rubber diaphragm is completely seated before installing cover to master cylinder. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Remove cover from brake master cylinder by moving bail wire using thumb pressure only (S/N 299999 and below). • Remove cover from brake master cylinder by turning cover counter clockwise (S/N 300000 and above). • Perform step b. for S/N 299999 and below and step b.1 for S/N 300000 and above. <p>b. Check master cylinder brake fluid level. Level should be 1/8 in. (3.2 mm) from top of master cylinder reservoir. Fill with BFS as necessary.</p> <p>b.1. Check master cylinder brake fluid level. Level should be 1/8 in. (3.2 mm) from “mid” line of master cylinder reservoir. Fill with BFS as necessary.</p>	<p>a. Any leak. Plugged, broken, or damaged lines and fittings.</p> <p>b. Level below 1/8 in. (3.2 mm) from top of master cylinder reservoir.</p> <p>b.1. Level below 1/8 in. (3.2 mm) from “mid” line of master cylinder reservoir.</p>

Table 2-1. Unit Level Preventive Maintenance Checks and Services HMMWV (Cont'd).

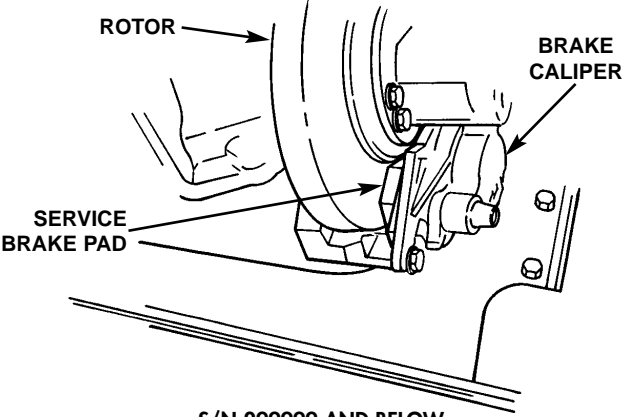
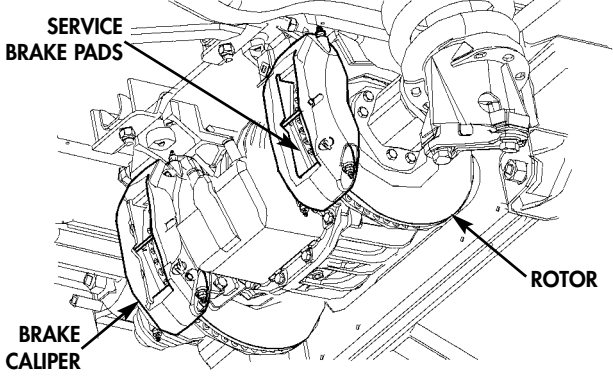
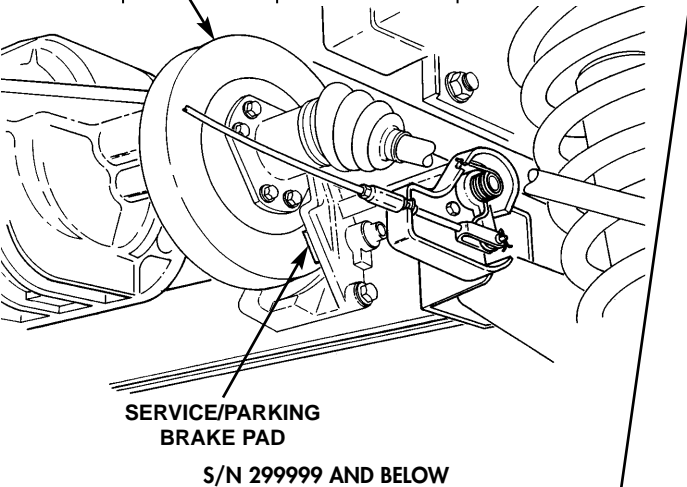
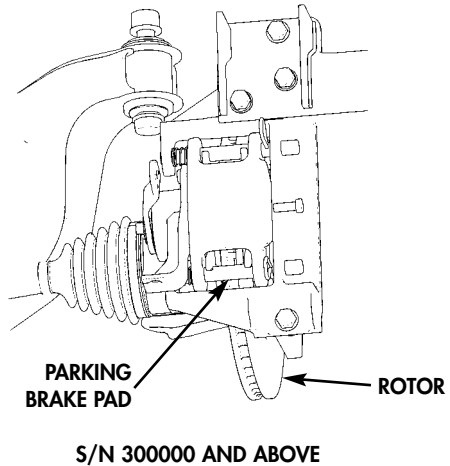
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURES	NOT FULLY MISSION CAPABLE IF:
1	Semi-annually	Brake System (Cont'd)	<p>c. Inspect service brake pads and service brake rotors for wear (para. 7-3.1).</p> <p>c.1. Inspect brake calipers for fluid leaks (para. 7-4.1).</p>	<p>c. Service brake pads less than 1/8-in. (3.2 mm) (S/N 299999 and below), or less than 3/16-in. (4.8 mm). (S/N 300000 and above).</p> <p>Service brake rotors less than 13/16-in. (20.7 mm) (S/N 299999 and below), or less than 29/32-in. (22.9 mm). (S/N 300000 and above).</p> <p>c.1. Any leaks.</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>S/N 299999 AND BELOW</p> </div> <div style="text-align: center;">  <p>S/N 300000 AND ABOVE</p> </div> </div>				
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>S/N 299999 AND BELOW</p> </div> <div style="text-align: center;">  <p>S/N 300000 AND ABOVE</p> </div> </div>				

Table 2-1. Unit Level Preventive Maintenance Checks and Services HMMWV (Cont'd).

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURES	NOT FULLY MISSION CAPABLE IF:
2	Semi-annually	Tires	<p style="text-align: center;"><u>WARNING</u></p> <p>Changing tire pressures or wheel alignment out of the recommended specification may adversely affect the vehicle's handling characteristics. Loss of vehicle control may result, causing serious injury or death to personnel and damage to equipment.</p> <p style="text-align: center;">NOTE</p> <p>Vehicle must be up on jack stands for the following checks.</p> <p>a. Check tread depth of tires with tire gauge. If tread depth is less than 1/16 in.(1.59 mm), replace tire. Radial tires will take approximately 1,300 miles (2,092 km) to wear 1/32 in. (0.79 mm). If mission will require the vehicle to travel this distance within a month, replace tire if it measures 3/32 in. (2.38 mm).</p> <p>b. Inspect tires for uneven wear and balance (TM 9-2320-387-24-1). The vehicle's alignment is optimally designed for GVW operation. Operating the vehicle without a load can cause excessive wear on the outer edge of the tread pattern. If this pattern develops, turn tires around on the rims (para. 8-4.1).</p> <p style="text-align: center;">NOTE</p> <p>If vehicle is new and has been driven less than 3,000 mi (4,800 km), it is not necessary to align wheels unless abnormal handling is reported.</p> <p>c. Check alignment of front and rear wheels (TM 9-2320-387-24-1).</p>	<p>a. Tread depth is less than 1/16 in. (1.59 mm).</p> <p>b. Tires exhibit excessive or uneven wear or balance.</p> <p>c. Front or rear wheels are out of alignment.</p>

Table 2-1. Unit Level Preventive Maintenance Checks and Services HMMWV (Cont'd).

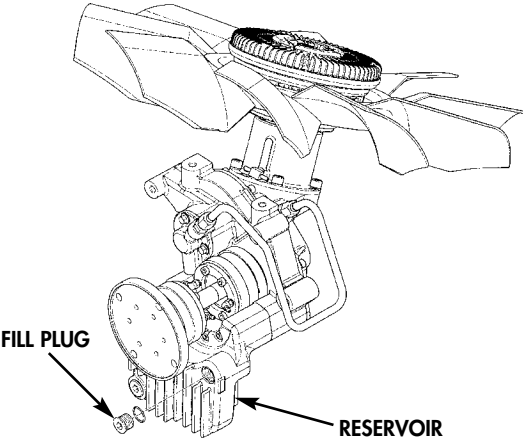
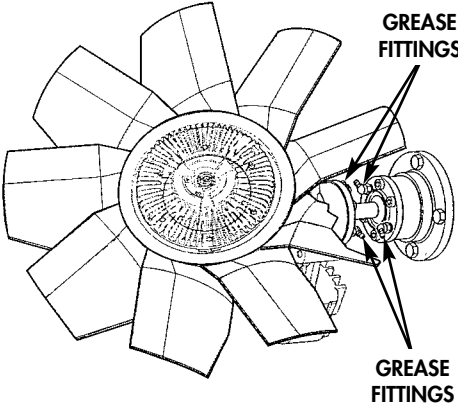
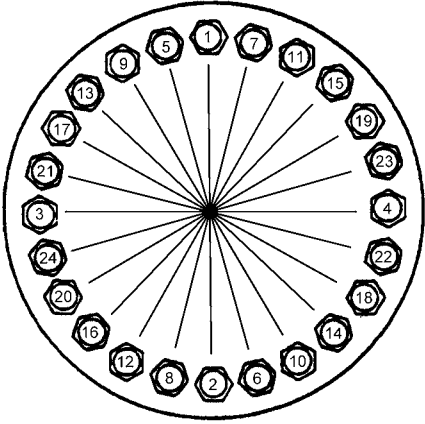
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURES	NOT FULLY MISSION CAPABLE IF:
3	Semi-annually	Geared Fan Drive (Serial Numbers 300000 and Above)	<p style="text-align: center;"><u>WARNING</u></p> <p>If vehicle has been operating, use extreme care to avoid being burned when removing geared fan drive fill plug. Use rags or heavy gloves to protect hands.</p> <p>a. Ensure fluid is even with bottom of fill plug hole.</p>	
			 <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • The coupler shaft has a CV joint at the geared fan drive end and one at the engine crankshaft end. • Each CV joint has two grease fittings. Only one fitting needs to be lubricated. Second fitting is used to give an optional location depending on the position of the shaft when engine is stopped. <p>b. Lubricate coupler shaft CV joints.</p>	
				

Table 2-1. Unit Level Preventive Maintenance Checks and Services HMMWV (Cont'd).

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURES	NOT FULLY MISSION CAPABLE IF:
4	Annually (6,000)	Tire/Rim	<p>Check for loose, missing, or broken wheel studs and locknuts.</p> <p>(1) Release air pressure from tire (para. 8-4.1).</p> <p style="text-align: center;"><u>WARNING</u></p> <p>If vehicle is new and has been driven less than 3,000 mi (4,800 km), it is not necessary to align wheels unless abnormal handling is reported.</p> <ul style="list-style-type: none"> • Always use an OSHA approved tire inflation cage for inflation purposes. Stand on one side of the cage during inflation; never directly in front. Keep hands out of cage during inflation. Inflate assembly to recommended pressure using a clip-on air chuck. Do not exceed 50 psi (345 kPa) cold-inflation pressure. Failure to follow these instructions may result in serious injury or death. • Never inflate a wheel assembly without having checked wheel locknut torques to ensure the wheel locknuts are tightened to specifications. An assembly with improperly tightened locknuts could separate under pressure, resulting in serious injury or death. <p style="text-align: center;"><u>CAUTION</u></p> <p>Tighten locknuts gradually to avoid bent and broken studs, or damage to wheel components will result.</p> <p>(2) Tighten locknuts to 85 lb-ft (115 N•m) in sequence shown; repeat torque sequence at 110 lb-ft (149 N•m).</p> <p>(3) Inflate tire to recommended tire pressure (TM 9-2320-387-10).</p> <div style="text-align: center;">  </div>	Any loose, missing or broken wheel stud and locknuts.

Section II. LUBRICATION INSTRUCTIONS

2-6. SCOPE

This appendix gives lubrication requirements for the REV vehicles which are the responsibility of the operator/crew.

2-7. GENERAL LUBRICATION REQUIREMENTS

a. Maintaining Lubricant Levels. Lubricant levels must be checked as specified in the PMCS and table 1-2, Lubrication. Steps must be taken to replenish and maintain lubricant levels.

WARNING

- Drycleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves, use only in well-ventilated area, avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat and flame. Never smoke when using solvent. The flashpoint for type I drycleaning solvent is 100°F (38°C), and for type II, is 138°F (59°C). Failure to comply may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention.

b. Cleaning Fittings Before Lubrication. Clean parts with drycleaning solvent P-D-680 or equivalent. Dry before lubricating.

NOTE

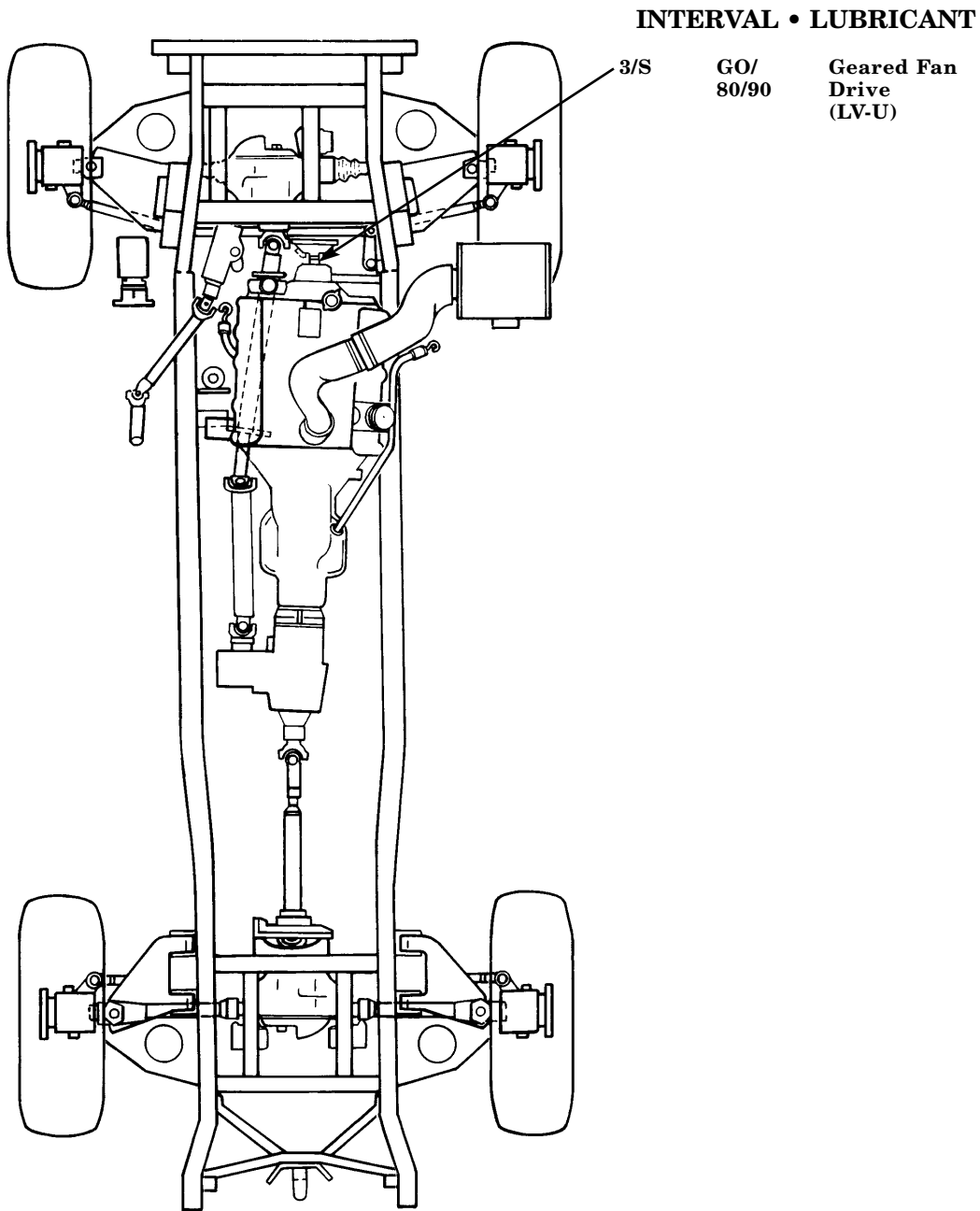
Dotted arrow points indicate lubrication on both sides of the equipment.

c. Lubrication After Fording. Following fording operation, lubricate all fittings below fording depth and check submerged gear boxes for presence of water.

d. Lubrication After High-Pressure Washing. After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

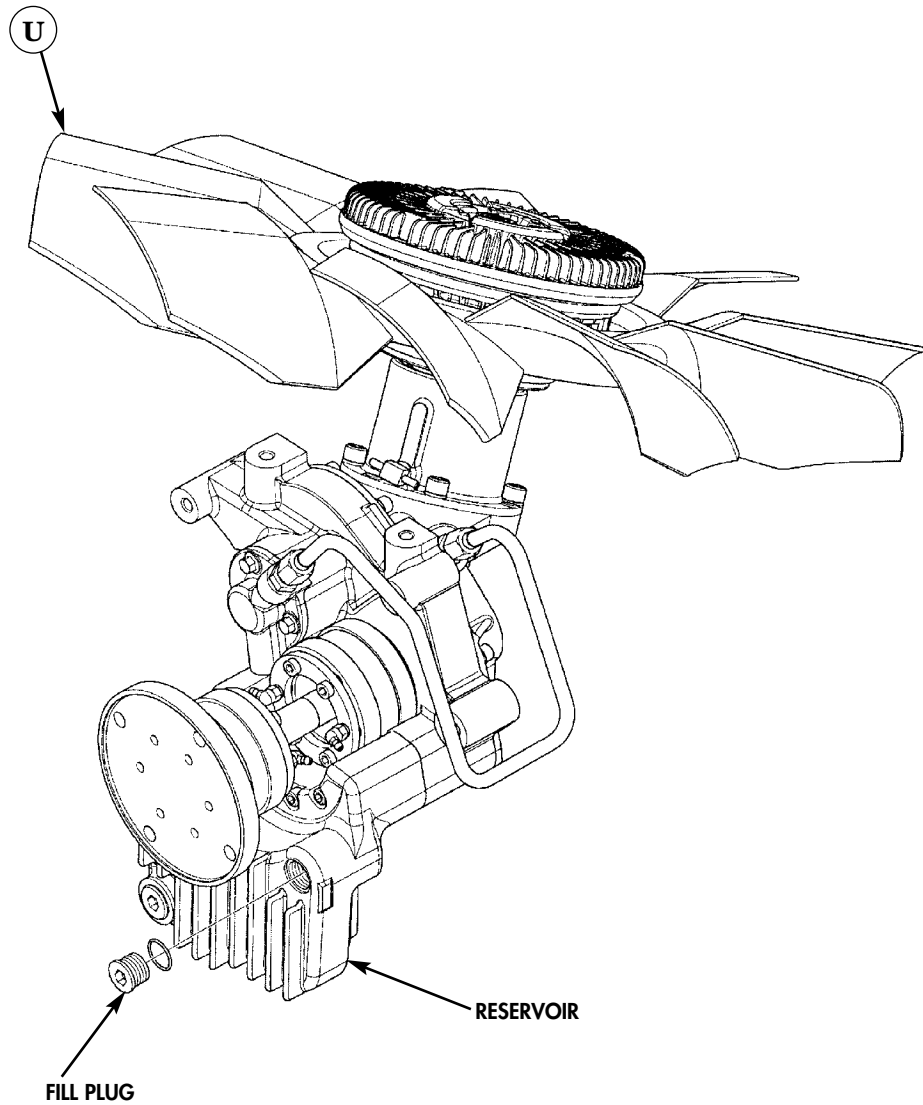
e. Localized Views. A reference to the appropriate localized view is given after most lubrication entries.

LUBRICATION POINTS



NOTE
A REFERENCE TO THE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, WHERE APPLICABLE.

LOCALIZED LUBRICATION POINTS



GEARED FAN DRIVE

WARNING

If vehicle has been operating, use extreme care to avoid being burned when removing geared fan drive fill plug. Use rags or heavy gloves to protect hands.

Section III. ENGINE COOLING TESTS

These engine cooling tests may be run any time you think you have an engine cooling problem or if you were sent here by another test chain. Just follow the path, answering the questions. Additional information and notes are given on the facing page when necessary. Please note that this paragraph is NOT for diagnoses of problems with the temperature sending unit or the gauge.

Once you are sure that the cooling system is OK, run the instruments test in TM 9-2320-387-24-1 to find out if the gauge is OK.

Fold-out page FP-1 in appendix F contains a functional diagram of the engine cooling system. This page may be left open for reference while testing.

The engine cooling system is a pressure-type cooling system with thermostatic control of coolant circulation. The cooling system dissipates heat generated from combustion and maintains the engine operating temperature at its most efficient level. When the engine is cold and the thermostat is closed, coolant is recirculated through the water pump and engine. As the engine coolant reaches 190°F (87.7°C), the thermostat opens, allowing coolant to flow through the radiator before returning to the water pump and engine. Any air or vapor in the cooling system will be forced to the surge tank under the liquid level and leave through a vent tube. As the system cools, the extra coolant in the tank will be drawn back to the radiator. Normally a 50-50 mixture of water and ethylene glycol-based antifreeze will be used. The fan is activated when coolant temperature reaches approximately 220° F (104°C). A separate oil cooler is mounted in front of the radiator. This cooler is divided into two parts. The top half is for transmission oil. The bottom half is for engine oil. When the cooling system pressure reaches approximately 15 psi (103 kPa), a valve in the surge tank cap opens and lets excess pressure escape to the atmosphere.

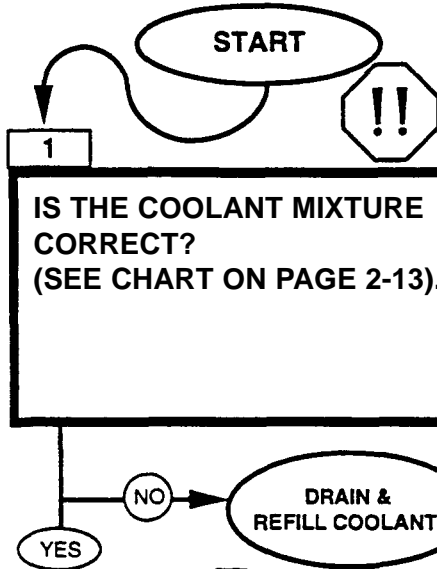
ETHYLENE-GLYCOL MIXTURE TABLE

LOWEST EXPECTED AMBIENT TEMPERATURE °F °C		ETHYLENE-GLYCOL (-60°F, -51°C) INHIBITED (A-A-52624)		ARCTIC GRADE ANTIFREEZE (-90°F) (-68°C) (A-A-52624)
		PINTS PER GALLON OF COOLANT CAPACITY	SPECIFIC GRAVITY (68°F) (20°C)	
+20	-7	1-1/2	1.022	Freezing point of -90°F (-68°C). Issued ready-for-use and must not be mixed with any other liquid.
+10	-12	2	1.036	
0	-18	2-3/4	1.047	
-10	-23	3-1/4	1.055	
-20	-29	3-1/2	1.062	
-30	-34	4	1.067	
-40	-40	4-1/4	1.073	
-50	-46	4-1/2		
-55	-48	4-3/4		
BELOW -60	BELOW -51	USE ARCTIC GRADE ANTIFREEZE (-90°F) (-68°C)		

ENGINE COOLING

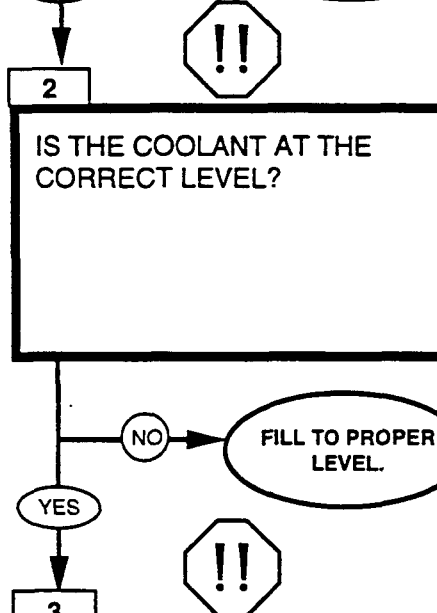
DIAGNOSTIC FLOWCHART

KNOWN INFO
NONE
POSSIBLE PROBLEMS
COOLING COMPONENTS SERPENTINE BELT WATER PUMP & PULLEY



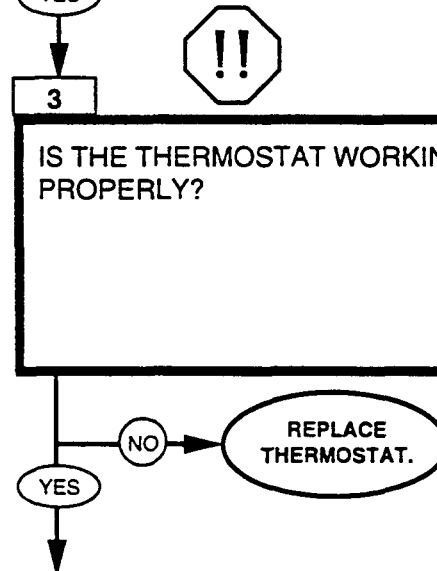
TEST OPTIONS
1. COOLANT MIXTURE TEST KIT NSN 6630-00-169-1506 2. COOLANT TESTER NSN 6630-00-105-1418
REASON FOR QUESTION
The cooling system will not operate properly if the mixture is incorrect.

KNOWN INFO
COOLANT QUALITY OK
POSSIBLE PROBLEMS
COOLANT LEVEL COOLING COMPONENTS SERPENTINE BELT WATER PUMP & PULLEY



TEST OPTIONS
VISUAL
REASON FOR QUESTION
Low coolant levels may cause overheating.

KNOWN INFO
COOLANT OK
POSSIBLE PROBLEMS
THERMOSTAT COOLING COMPONENTS SERPENTINE BELT WATER PUMP & PULLEY



TEST OPTIONS
FEEL FOR COOLANT IN UPPER RADIATOR HOSE WHEN ENGINE IS HOT, OR REMOVE THERMOSTAT, EXPOSE IT TO 190°F (88° C) TEMPERATURES. SEE IF IT OPENS.
REASON FOR QUESTION
An improperly functioning thermostat can cause operating temperatures that are either too hot or too cold.

GO TO 4, Page 2-16

REFERENCE INFORMATION

ENGINE COOLING



WARNING

Do not remove surge tank filler cap before releasing internal pressure when engine temperature is above 185°F (85°C). Steam or hot coolant under pressure will cause injury.

Drain and refill coolant (TM 9-2320-387-24-1).



WARNING

Do not remove surge tank filler cap before releasing internal pressure when engine temperature is above 185°F (85°C). Steam or hot coolant under pressure will cause injury.

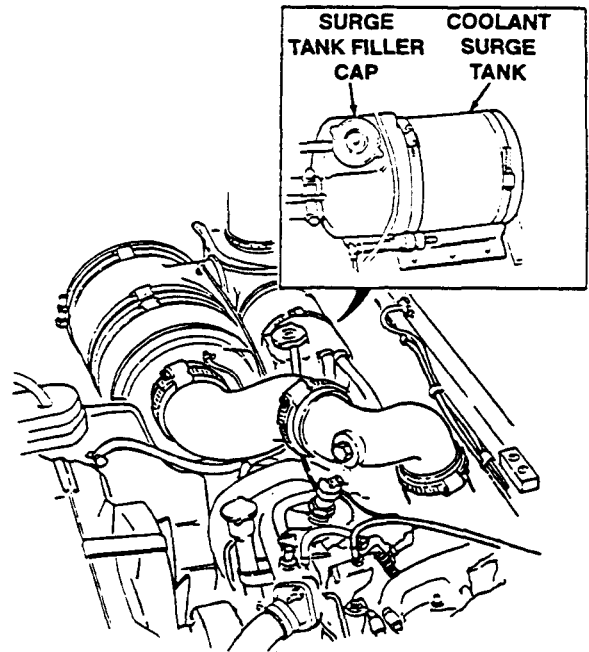
Drain and refill coolant (TM 9-2320-387-24-1).



WARNING

Always use caution when approaching a hot engine. Failure to do so may result in serious burns.

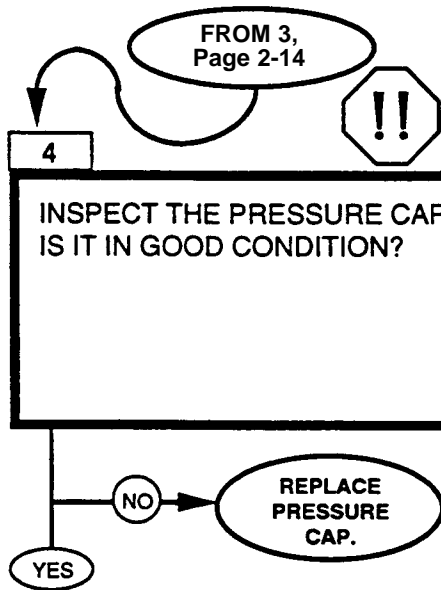
Remove and replace the thermostat (para. 3-76.1).



ENGINE COOLING

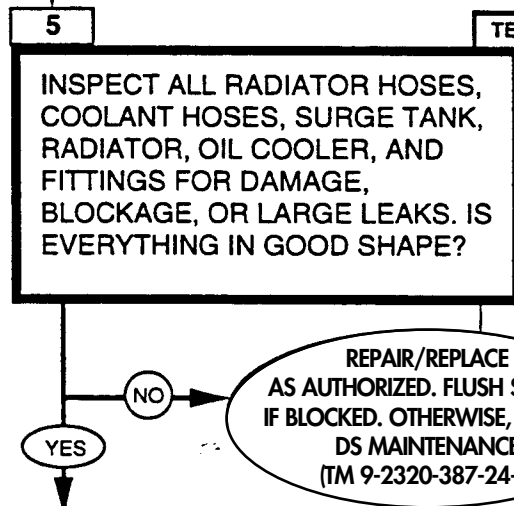
DIAGNOSTIC FLOWCHART

KNOWN INFO
COOLANT OK THERMOSTAT OK
POSSIBLE PROBLEMS
COOLING COMPONENTS SERPENTINE BELT WATER PUMP & PULLEY



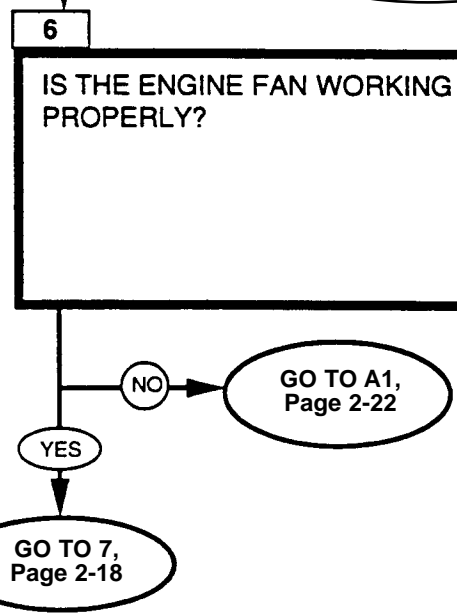
TEST OPTIONS
PRESSURE TESTER
REASON FOR QUESTION
A defective pressure cap may cause overheating.

KNOWN INFO
COOLANT OK PRESSURE CAP OK THERMOSTAT OK
POSSIBLE PROBLEMS
HOSES SURGE TANK RADIATOR THERMOSTAT ENGINE FAN WATER PUMP & PULLEY



TEST OPTIONS
LOOK.
REASON FOR QUESTION
Physical damage and blocked passages can cause cooling problems.

KNOWN INFO
COOLANT OK PRESSURE CAP OK THERMOSTAT OK HOSES OK SURGE TANK OK OIL COOLER OK
POSSIBLE PROBLEMS
RADIATOR ENGINE FAN WATER PUMP & PULLEY



TEST OPTIONS
LOOK -- SEE DESCRIPTION OF OPERATION AT RIGHT.
REASON FOR QUESTION
The engine fan helps cool the engine.

REFERENCE INFORMATION

**WARNING**

Do not remove surge tank filler cap before releasing internal pressure when engine temperature is above 190°F (88°C). Steam or hot coolant under pressure will cause injury.

Check seal and spring on pressure cap.

Replace pressure cap (TM 9-2320-387-24-1).

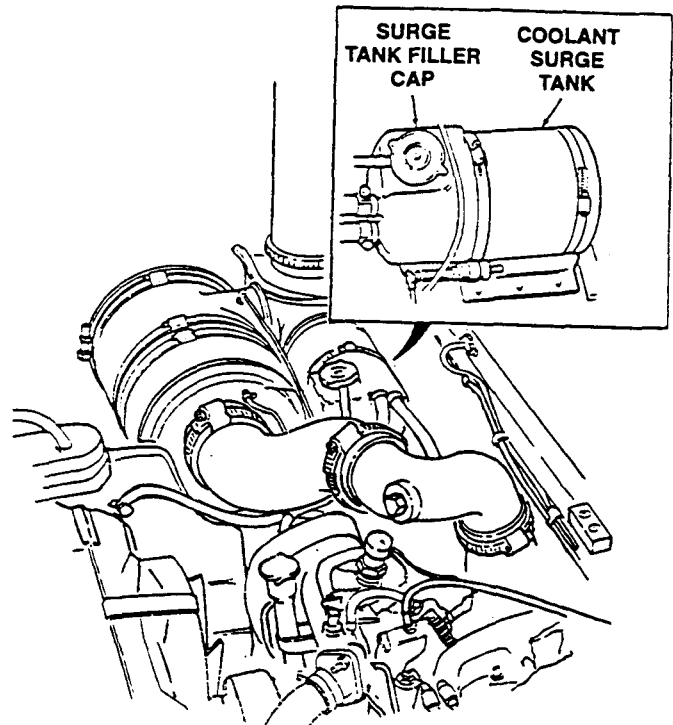
Flush cooling system (TM 9-2320-387-24-1).

For surge tank replacement procedures, refer to TM 9-2320-387-24-1. For radiator support procedures, refer to para. 3-64.1.

For oil cooler and oil cooler hose replacement procedures, refer to paras. 3-7.1 and 3-8.1.

Notify DS maintenance to repair radiator (TM 9-2320-387-24-2).

ENGINE COOLING

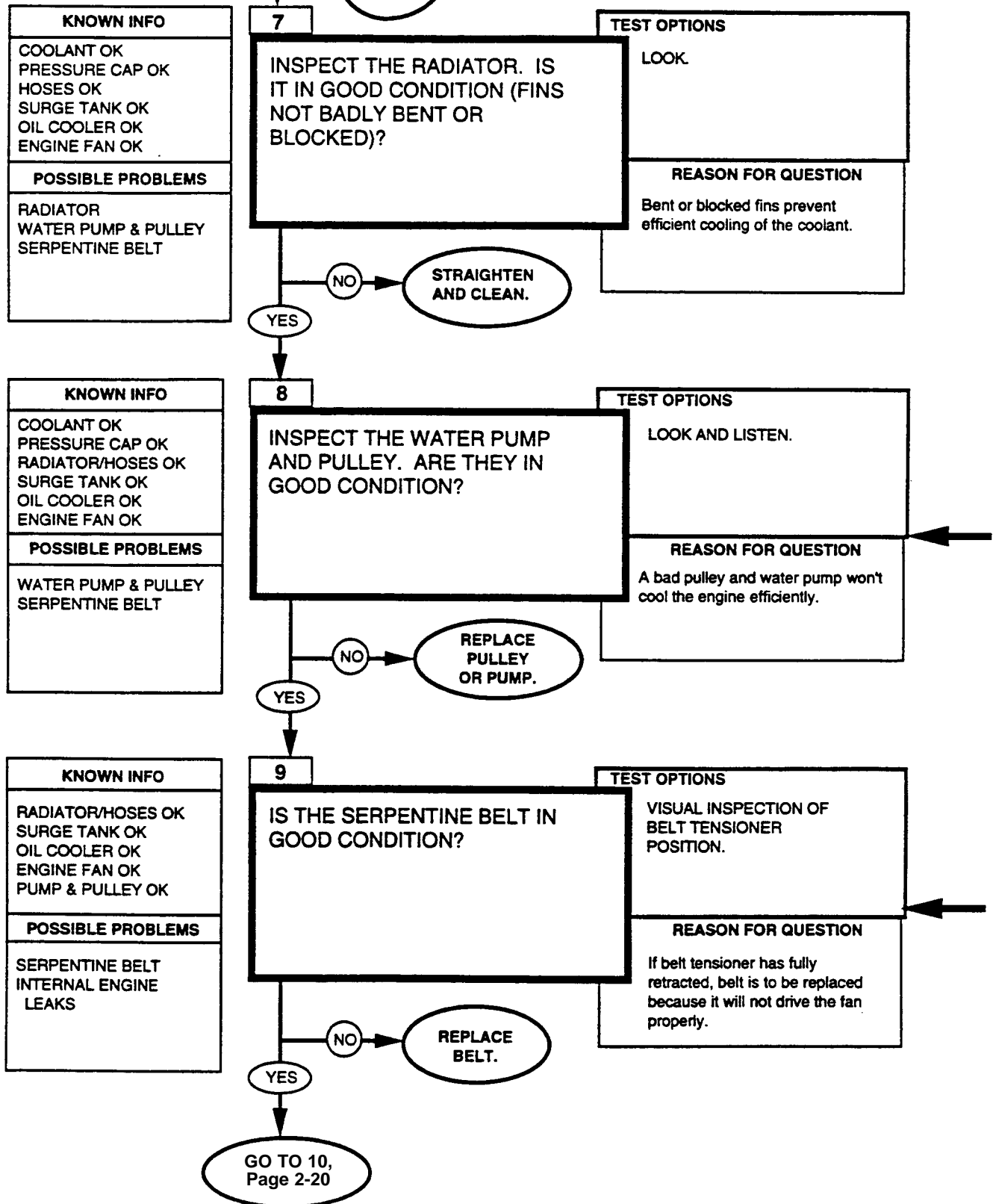
**ENGINE COOLING FAN DESCRIPTION OF OPERATION**

When the thermostat detects the coolant is hot, the thermostat opens, and allows the coolant to be pumped to the radiator where it is routed through a series of fins and tubes. A fan draws in the outside air to help dissipate the heat before the coolant is recirculated back through the engine.

The fan is driven from the engine crankshaft via the geared fan drive and a viscous drive. The geared fan drive unit is supported by the front rear crossmember, connects to the harmonic balancer of the engine and places the viscous drive and fan assembly on the same plane as, and close to, the radiator for maximum cooling efficiency. A helical gearset is utilized within the geared fan drive to change the drive angle from the crankshaft to the fan. Gear lube with friction modifier lubricates the internal components of the geared fan drive using an integral reservoir and pump. Two constant velocity joints and a torsional driveshaft connect the geared fan drive to the engine crankshaft at the harmonic balancer.

ENGINE COOLING

DIAGNOSTIC FLOWCHART



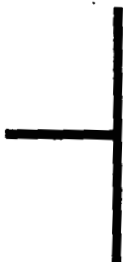
REFERENCE INFORMATION

ENGINE COOLING



Listen for noisy bearings in the water pump, or an in-and-out motion to the fan.
You can also check the pump and pulley by trying to move it in and out or laterally with the engine off.

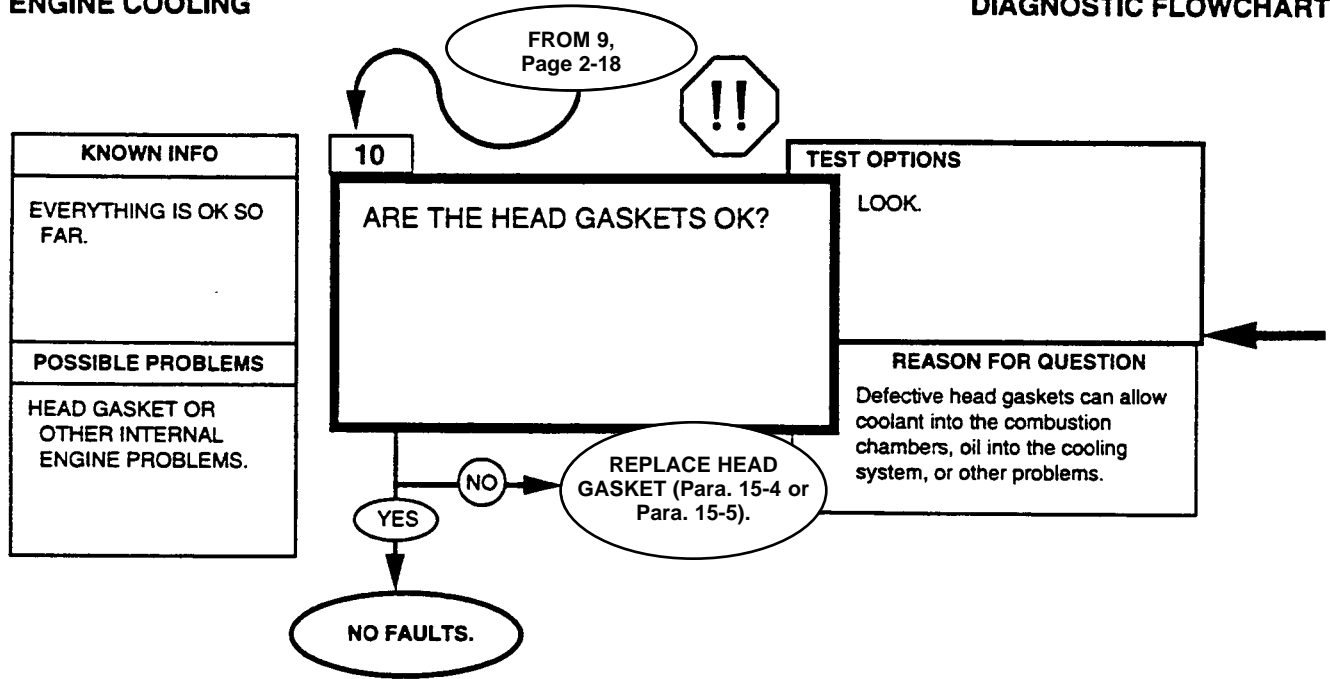
Replace the water pump pulley (TM 9-2320-387-24-1).
Replace the water pump (TM 9-2320-387-24-1).



Replace the serpentine belt (para. 3-81.2).

ENGINE COOLING

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

ENGINE COOLING

**WARNING**

Always use caution when approaching a hot engine. Failure to do so may result in serious burns.

Look for excessive white exhaust smoke, steam leaks in the engine compartment, and oil in the coolant. Other signs include excess condensation in the exhaust system, or white joints in the exhaust system. You can also feel the coolant hoses to see if they have high pressure caused by leaking combustion gasses. Also, if the glow plugs turn off very quickly after starting the engine, or if the engine overheats, or has excessive coolant consumption, you may have a head gasket problem.

ENGINE COOLING

DIAGNOSTIC FLOWCHART

KNOWN INFO
ENGINE FAN NOT WORKING PROPERLY
POSSIBLE PROBLEMS
FAN OR SERPENTINE BELT

A1

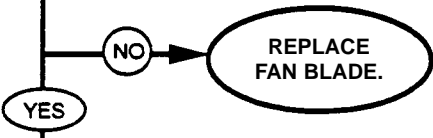
INSPECT THE COOLING FAN. ARE THE FAN BLADES ALL INTACT?

TEST OPTIONS

LOOK FOR CRACKED OR BROKEN BLADES.

REASON FOR QUESTION

A damaged fan does not cool efficiently and could be dangerous to bystanders.



KNOWN INFO
FAN OK
POSSIBLE PROBLEMS
SERPENTINE BELT

A2

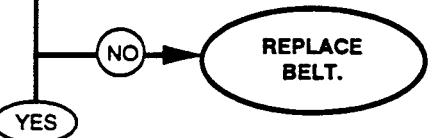
IS THE SERPENTINE BELT IN GOOD CONDITION?

TEST OPTIONS

VISUAL INSPECTION OF BELT TENSIONER POSITION.

REASON FOR QUESTION

If belt tensioner has fully retracted, belt is to be replaced because it will not drive the water pump properly.



KNOWN INFO
FAN OK SERPENTINE BELT OK
POSSIBLE PROBLEMS
FAN CLUTCH

A3

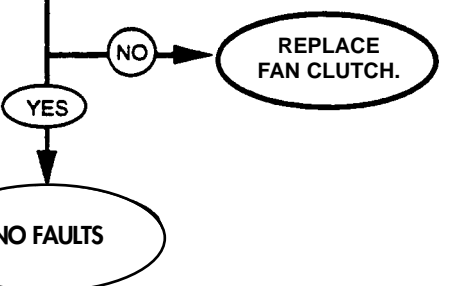
WITH THE VEHICLE OFF, TRY TO TURN THE FAN BY HAND. ARE YOU ABLE TO TURN IT?

TEST OPTIONS

TRY IT.

REASON FOR QUESTION

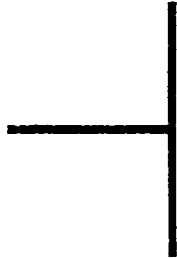
You should be able to turn the fan by hand. If you can't, the fan clutch is bad.



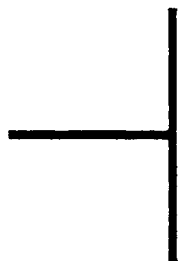
FROM 6, Page 2-16

REFERENCE INFORMATION


ENGINE COOLING



Replace fan blade (para 3-80.1).



Replace serpentine belt (para. 3-81.2).



Replace fan clutch (para. 3-80.1).
A NO answer to this question means that you were not able to turn the fan by hand.

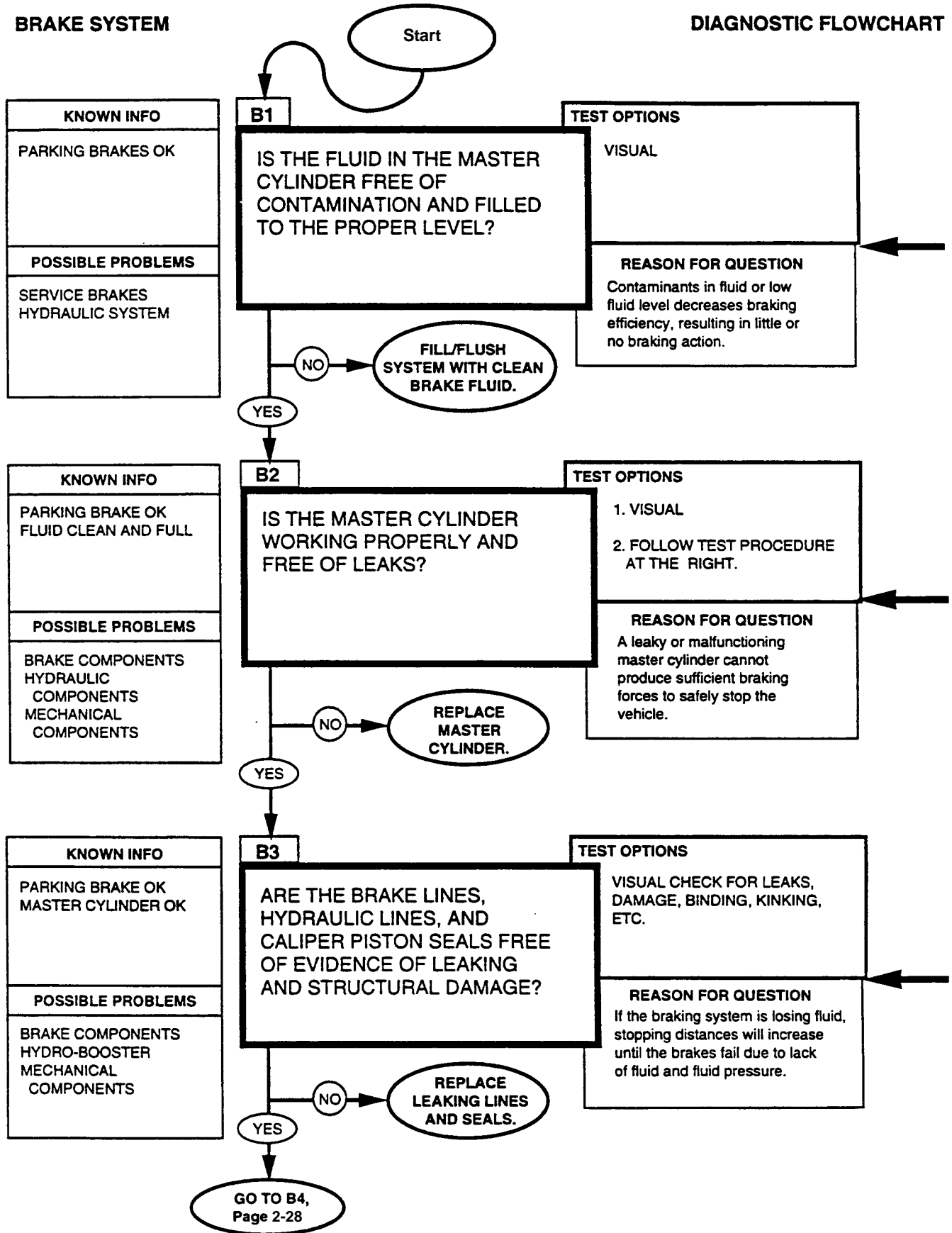
Section IV. BRAKE SYSTEM TESTS

These brake system tests may be run any time you think you have a braking problem or if you were sent here by another test chain. Just follow the path, answering the questions. Additional information and notes are given on the facing page when necessary.

Fold-out page FP-3 found in appendix F may be left open for reference while testing.

BRAKE SYSTEM

DIAGNOSTIC FLOWCHART



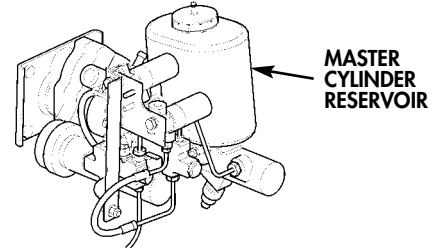
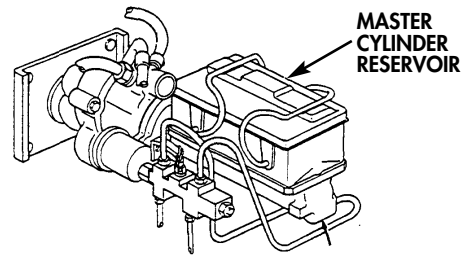
REFERENCE INFORMATION

BRAKE SYSTEM



Flush and bleed the brake system (para. 7-2.1).

(S/N 299999 AND BELOW)



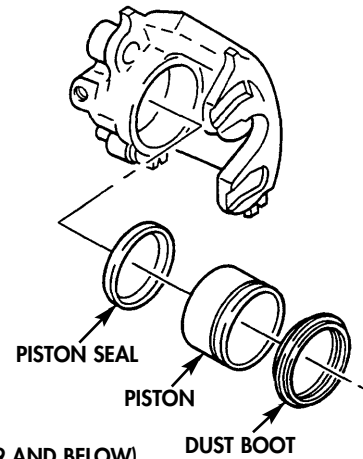
(S/N 300000 AND ABOVE)

Master cylinder test procedure:



1. With the engine off, pump the brake pedal six or seven times, or until the pedal becomes noticeably stiffer and harder to depress.
2. Press hard on the brake pedal. If the pedal keeps going down to the floor, either the master cylinder is bad or there is a leak in the hydraulic system.

Replace master cylinder (para. 7-5.1).

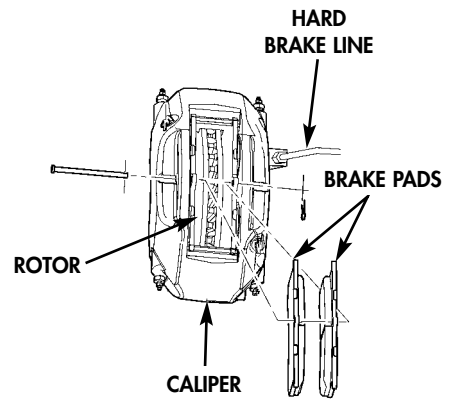


(S/N 299999 AND BELOW)

Check the individual lines going to each brake. Check the supply and return lines to the hydro-booster unit. Replace brake line (para. 7-7.1).

NOTE

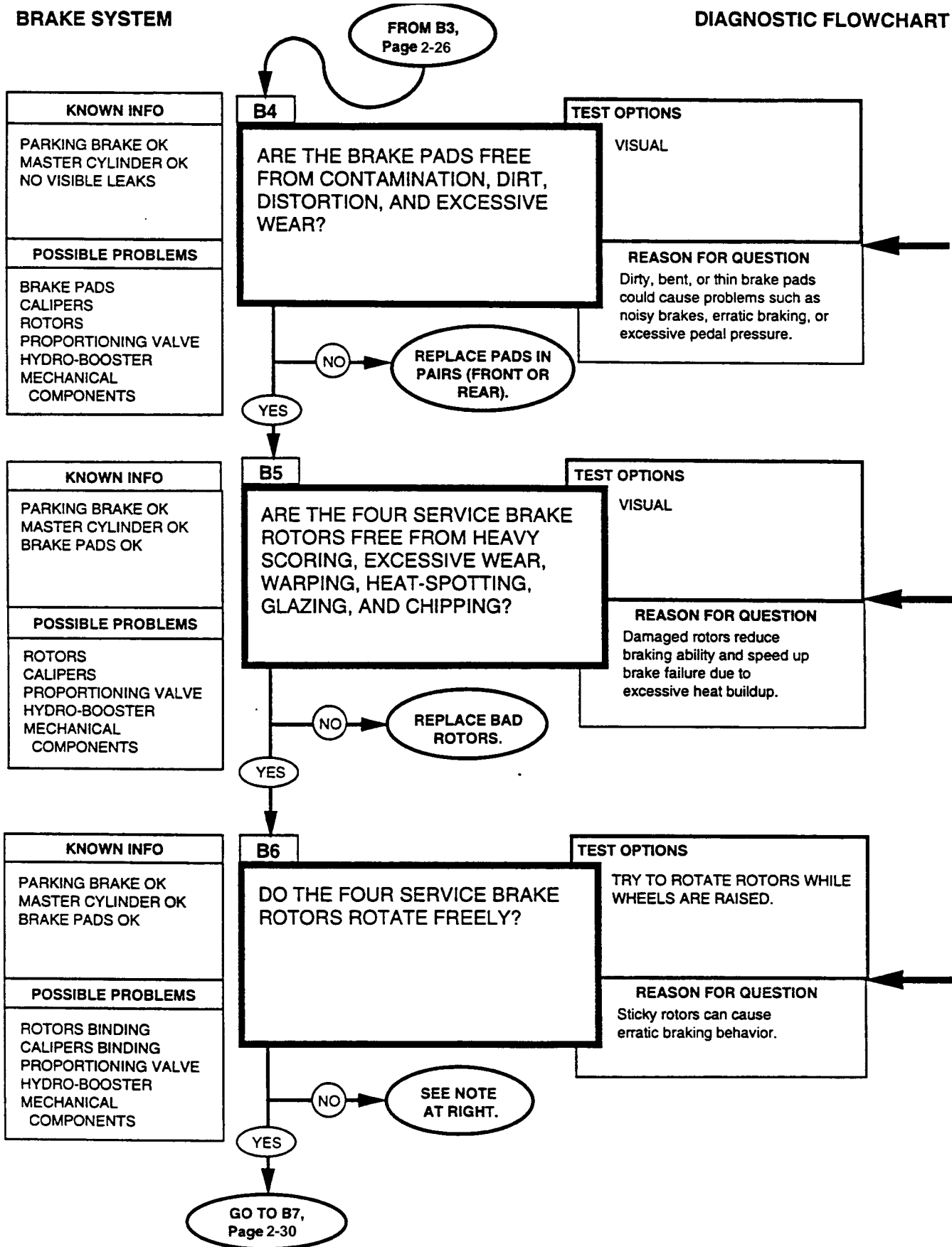
Brake hydraulic system must be bled of air whenever hydraulic lines are broken. Bleed service brake (para. 7-2.1).



(S/N 300000 AND ABOVE)

BRAKE SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

BRAKE SYSTEM

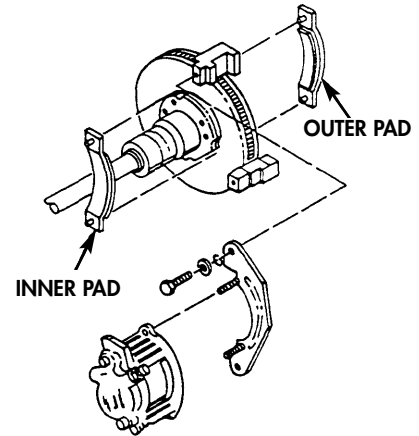
Replace brake pads (para. 7-3.1).
The minimum brake pad thickness is 3/16 in. (4.8 mm).

Replace service brake rotor(s) (para. 7-12.1).

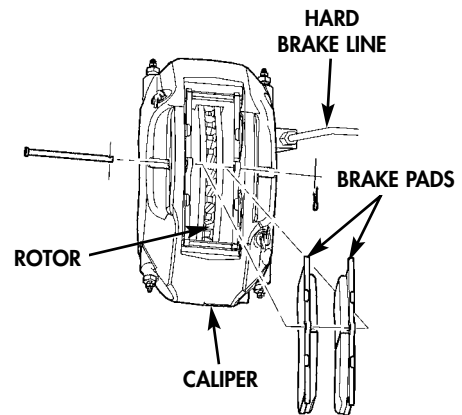
The only way the rotors can be sticking is if the calipers are not releasing fully.
Remove calipers. clean and lubricate guide pins with grease.
Replace and clean brake caliper (para. 7-4.1).

NOTE

When parking brake handle is pulled the parking brake is applied to the left and right rear brake service rotors.



(S/N 299999 AND BELOW)



(S/N 300000 AND ABOVE)

BRAKE SYSTEM

DIAGNOSTIC FLOWCHART

KNOWN INFO
PARKING BRAKE OK MASTER CYLINDER OK BRAKE PADS OK ROTORS OK CALIPERS OK
POSSIBLE PROBLEMS
PROPORTIONING VALVE HYDRO-BOOSTER MECHANICAL COMPONENTS

B7

DOES THE PROPORTIONING VALVE WORK PROPERLY?

TEST OPTIONS
SEE TEST EXPLANATION AT RIGHT.
REASON FOR QUESTION
This valve regulates the flow of hydraulic fluid. If it's broken, the brakes may behave erratically.

NO

REPLACE PROPORTIONING VALVE.

YES

FROM B6,
Page 2-28

KNOWN INFO
PARKING BRAKE OK MASTER CYLINDER OK BRAKE PADS OK ROTORS OK CALIPERS OK PROPORTIONING VALVE OK
POSSIBLE PROBLEMS
HYDRO-BOOSTER MECHANICAL COMPONENTS

B8

IS THE HYDRO-BOOSTER WORKING PROPERLY?

TEST OPTIONS
SEE INSTRUCTIONS AT RIGHT.
REASON FOR QUESTION
The hydro-boost器 is an integral part of the braking system.

NO

GP TO C1
Page 2-48.

YES

KNOWN INFO
PARKING BRAKE OK MOST BRAKE SYSTEM COMPONENTS OK
POSSIBLE PROBLEMS
PEDAL RETURN SPRING PEDAL BUSHING FRONT TOE-IN REAR TOE-OUT

B9

LOOK AT THE BRAKE PEDAL. DOES IT MOVE THROUGH ITS FULL OPERATING RANGE?

TEST OPTIONS
VISUAL INSPECTION - SPECIFICALLY CHECK PEDAL RETURN SPRING AND BUSHING.
REASON FOR QUESTION
A brake pedal that doesn't return to its normal position could cause the brakes to drag.

NO

REPAIR/REPLACE WORN PARTS.

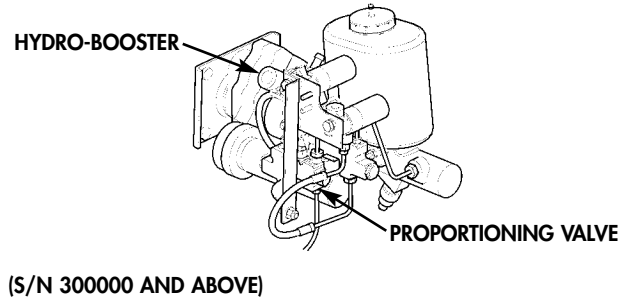
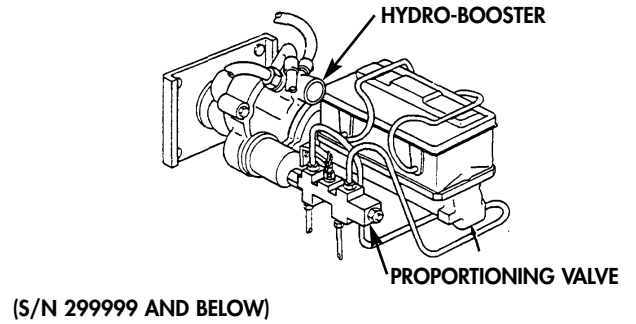
YES

GO TO STEERING,
Page 2-33

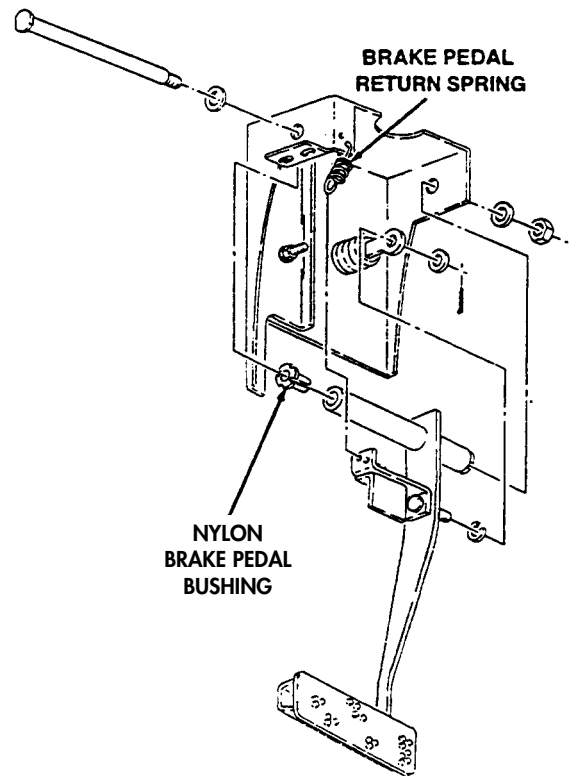
REFERENCE INFORMATION

BRAKE SYSTEM

Test for faulty proportioning valve:
 Drive the vehicle and have an assistant observe during the performance of this test.
 With vehicle at curb weight, decelerate vehicle from 45 to 40 mph (72 to 69 kph) on dry concrete road and apply sufficient pressure to lock up front brakes. If rear brakes lock up before front brakes, the proportioning valve should be replaced.
 Replace proportioning valve (TM 9-2320-387-24-1).



Method for checking hydro-booster:
 Depress brake pedal several items to exhaust accumulator pedal. Depress brake pedal and start engine. Brake pedal should fall, then push back against operator's foot.
 Replace hydro-booster (TM 9-2320-387-24-1).



Replace service brake pedal (TM 9-2320-387-24-1).
 The steering tests will check for suspension problems that will affect braking.

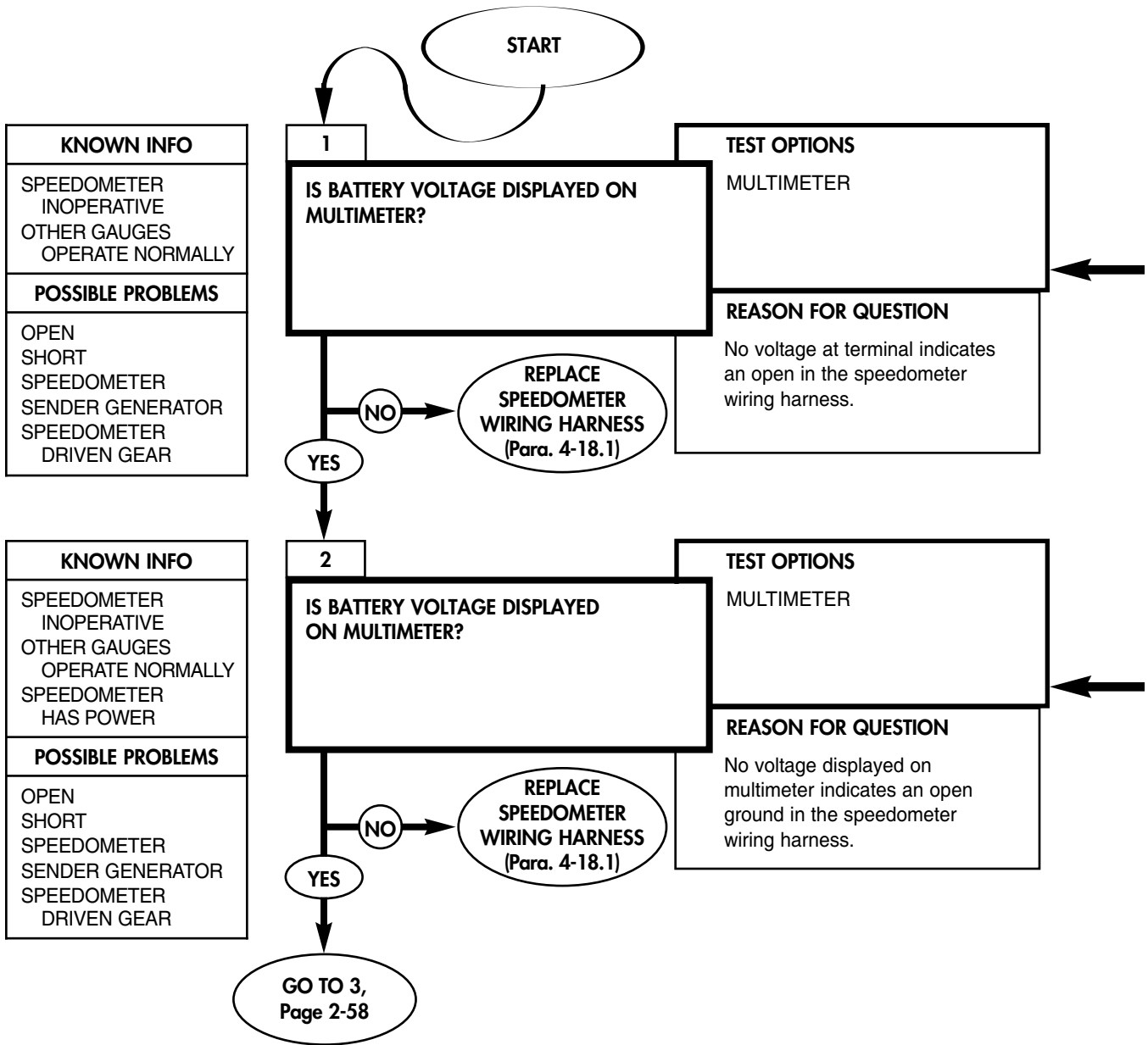
Section V. ELECTRONIC SPEEDOMETER SYSTEM TESTS

These electronic speedometer system tests may be run any time you think you have an electronic speedometer problem or if you were sent here by another test chain. Just follow the path and answer the questions. Additional information and notes are given on the facing page when necessary.

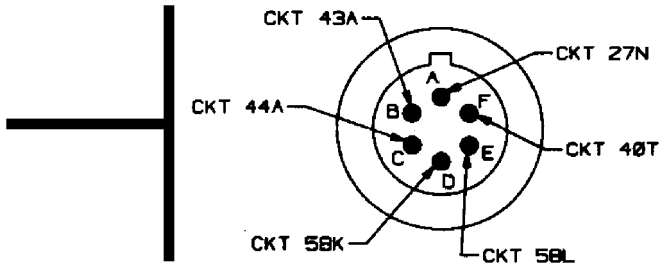
Fold-out page FP-9 in appendix F contains a schematic of the electronic speedometer. This page may be left open for reference while testing.

ELECTRONIC SPEEDOMETER SYSTEM

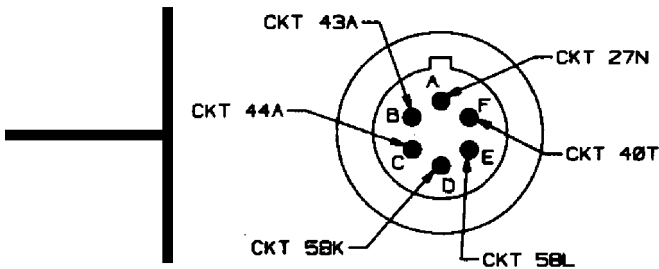
DIAGNOSTIC FLOWCHART



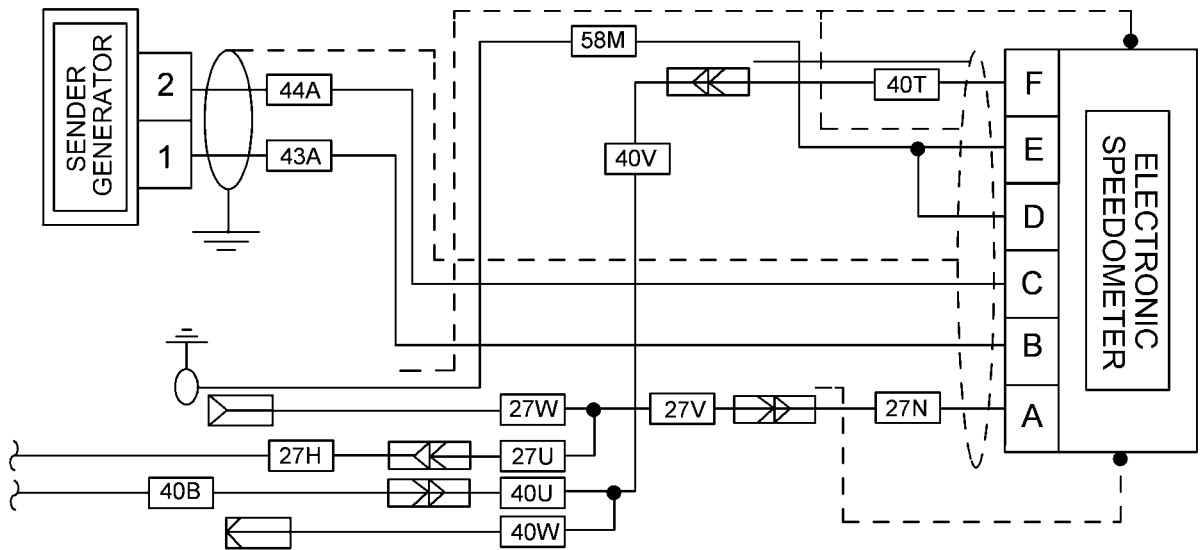
Remove instrument cluster from instrument panel (para. 4-14.1).



BATTERY VOLTAGE MULTIMETER	
1.	Set the multimeter to DC scale of at least 40 volts.
2.	Connect red lead to speedometer harness pin A and the black lead to good ground.
3.	Turn rotary switch to run position.

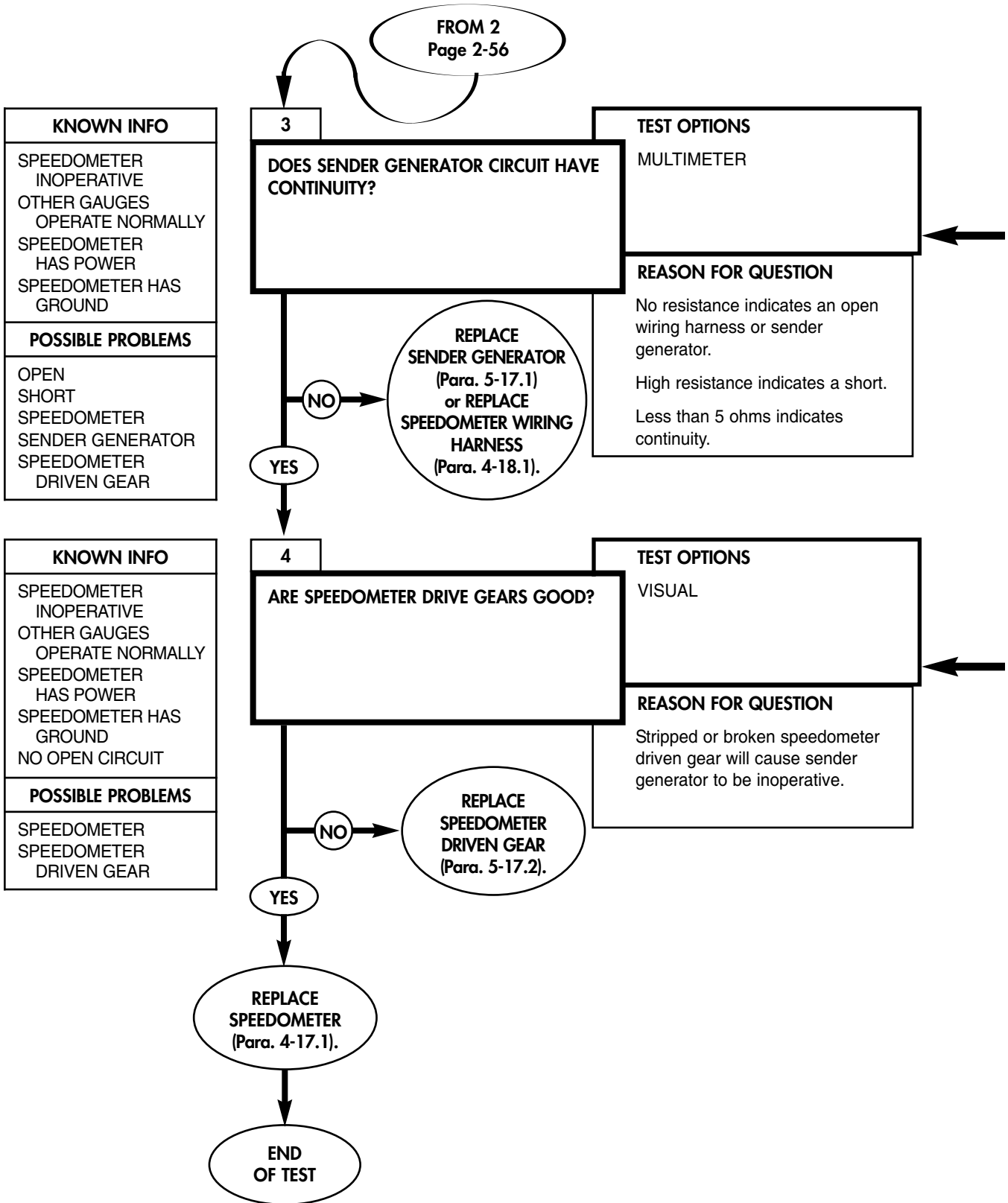


BATTERY VOLTAGE MULTIMETER	
Connect the red lead to the speedometer harness terminal A and the black lead to terminal D.	



ELECTRONIC SPEEDOMETER SYSTEM

DIAGNOSTIC FLOWCHART



Section VI. STEERING SYSTEM TESTS

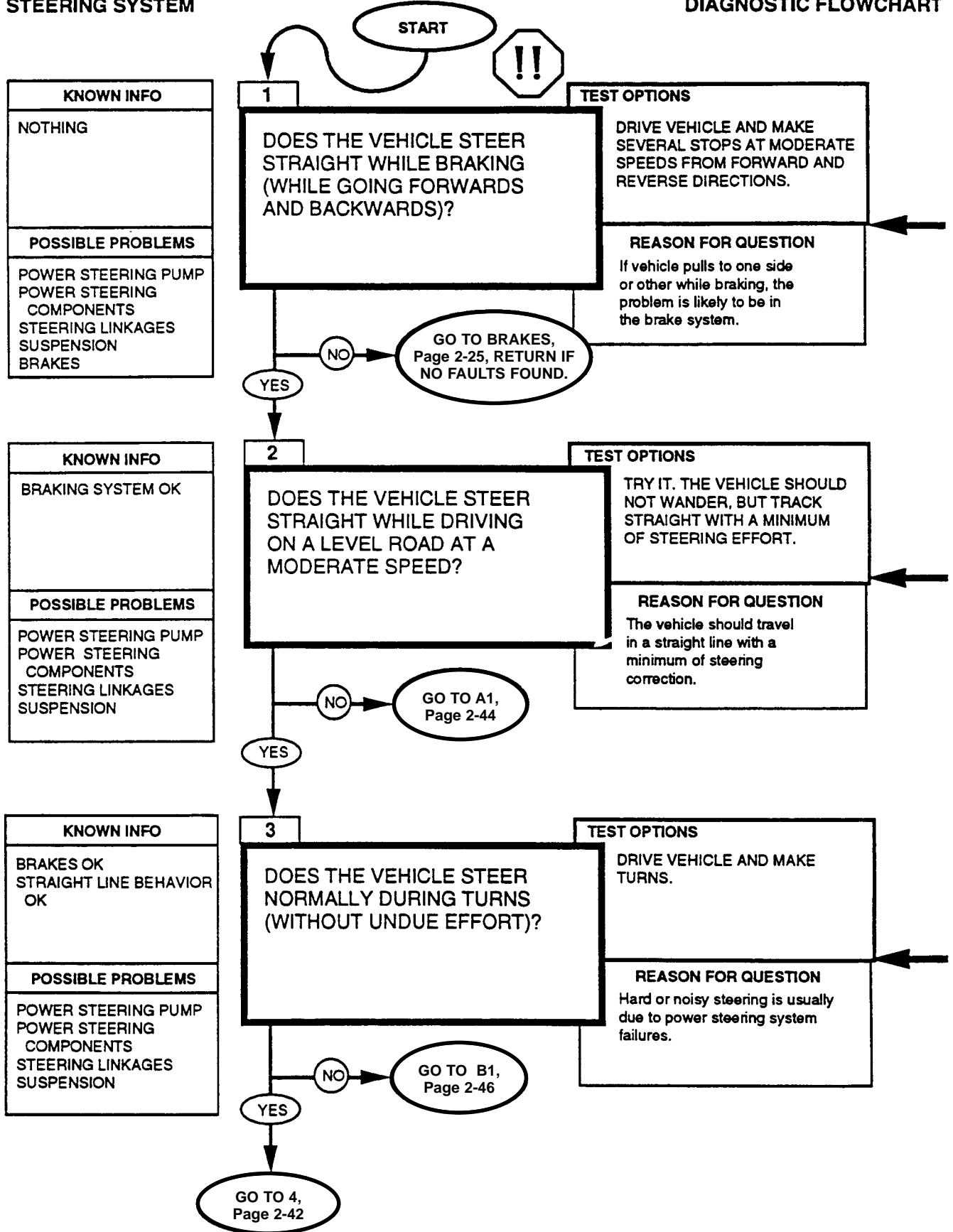
These steering system test may be run any time you have a steering problem or if you were sent here by another test chain. Just follow the path, answering the questions. Additional information and notes are given on the facing page when necessary.

The fold-out page shows the location of the major components of the steering in case you are not familiar with them. These parts are shown in a schematic manner. Illustrations of the actual components are given whenever applicable on the reference pages of the diagnostics.

Fold-out FP-5 in Appendix F may be left open for reference while testing. The functional flow diagram shows the mechanical and hydraulic parts of the system and how they interact. Even if the hydraulic system fails, you will still be able to steer the vehicle, although it will require more effort.

STEERING SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

STEERING SYSTEM

**WARNING**

Make sure that the area where you conduct these tests is free of natural and man-made obstructions. Failure to do so may result in serious injury.

PRIOR TO PERFORMING THESE TESTS:

Visually inspect steering components:

1. Check all four tires and rims for wear, inflation, damage, or warping.
 - a. Adjust tire pressure (TM 9-2320-387-10).
 - b. Replace any unserviceable rims (para. 8-4.1).
2. Check steering linkage for damage.
 - a. Replace any damaged steering linkage components (para. 8-20.1).
 - b. Lubricate steering linkage (TM 9-2320-387-10).
3. Check power steering fluid for contamination and level (TM 9-2320-387-10).
 - a. Drain and replace any fluid that appears black and smells burnt.
 - b. Bleed air from system where fluid appears milky white (TM 9-2320-387-24-1).
4. Check serpentine drivebelt for fraying, cracks, or damage.

Replace damaged serpentine drivebelt (TM 9-2320-387-24-1).

While travelling at a moderate speed (20 mph (32 kph)), apply the brakes while applying minimal pressure to the steering wheel. If pull to one side or the other occurs, make a note of the speed and on what side of the vehicle it occurs. Repeat this procedure for different speeds and braking forces. If the vehicle seems to steer straight while braking, there probably isn't a problem with the brakes (at least not one that affects the steering). If the braking action feels strange in any way, the brake diagnostics should be run to assure vehicle safety. This test will usually reveal problems with frozen brake calipers.

If the wheels are out of alignment or if the tires are worn unevenly, vehicle may wander.

Symptoms of bad steering characteristics include hard steering, excessive play in steering, a momentary increase in steering effort when turning wheel quickly, and jerking of the steering wheel when turning.

STEERING SYSTEM

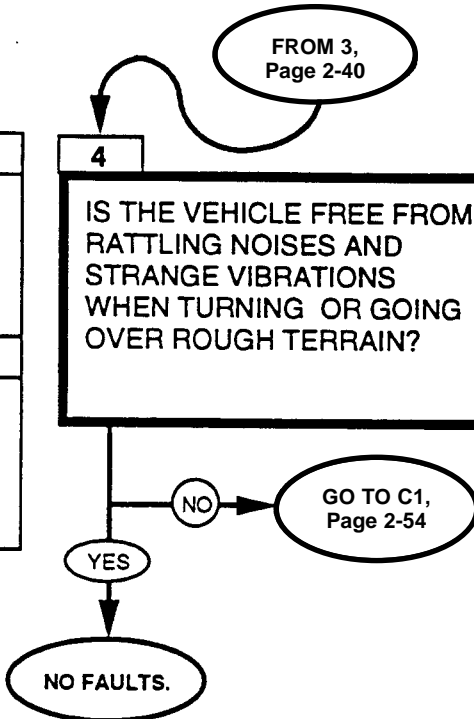
DIAGNOSTIC FLOWCHART

KNOWN INFO
BRAKES OK STRAIGHT LINE BEHAVIOR OK POWER STEERING SYSTEM OK
POSSIBLE PROBLEMS
SUSPENSION

4
IS THE VEHICLE FREE FROM
RATTLING NOISES AND
STRANGE VIBRATIONS
WHEN TURNING OR GOING
OVER ROUGH TERRAIN?

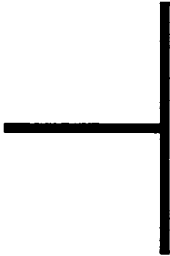
TEST OPTIONS
TEST DRIVE - LISTEN AND FEEL
FOR VIBRATION AND OTHER
NOISE.

REASON FOR QUESTION
If there was no noise on
smooth ground and there is
now, there is probably a
problem with the suspension.



REFERENCE INFORMATION

STEERING SYSTEM



Drive the vehicle until the tires warm up. If the condition goes away, it was probably caused by a burst lube pack or a flat spot on a tire. Both of these conditions are OK since the vehicle will operate normally after the tires warm up.

STEERING SYSTEM

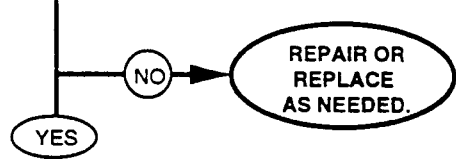
DIAGNOSTIC FLOWCHART

KNOWN INFO
VEHICLE EXHIBITS POOR STRAIGHT LINE STEERING
POSSIBLE PROBLEMS
TIRES ALIGNMENT SUSPENSION

A1

ARE THE TIRES AND WHEELS OK?

TEST OPTIONS
1. CHECK THE TIRES FOR PROPER INFLATION AND FOR UNEVEN OR EXCESSIVE WEAR. 2. CHECK THE WHEELS FOR LARGE DENTS OR WARPAGE.
REASON FOR QUESTION
You can't expect the vehicle to steer OK if the tires are not good.

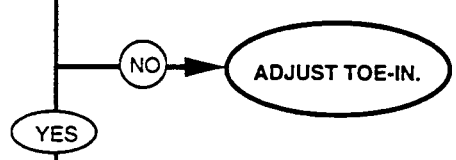


KNOWN INFO
WHEELS AND TIRES OK
POSSIBLE PROBLEMS
FRONT AND REAR WHEEL ALIGNMENT SUSPENSION

A2

DO THE FRONT WHEELS HAVE THE PROPER AMOUNT OF TOE-IN?

TEST OPTIONS
MEASURE TOE-IN.
REASON FOR QUESTION
Poorly adjusted toe-in could have an effect on directional stability.

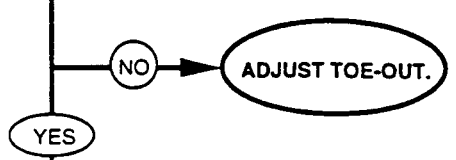


KNOWN INFO
WHEELS AND TIRES OK FRONT ALIGNMENT OK
POSSIBLE PROBLEMS
SUSPENSION REAR ALIGNMENT

A3

DO THE REAR WHEELS HAVE THE PROPER AMOUNT OF TOE-OUT?

TEST OPTIONS
MEASURE TOE-OUT.
REASON FOR QUESTION
Poorly adjusted toe-out could have an effect on directional stability.



GO TO C1, Page 2-54

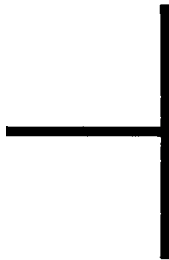
A FROM 2, Page 2-40

REFERENCE INFORMATION

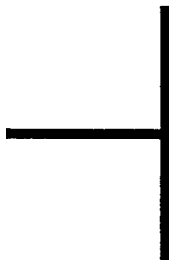
STEERING SYSTEM



Uneven tire wear can be caused by improper inflation, suspension misalignment or damage, hard service, or wheel imbalance. For wheel and tire replacement and maintenance procedures, refer to TM 9-2320-387-24-1.



For instructions on adjusting front wheel toe-in, refer to TM 9-2320-387-24-1.



For instructions on adjusting rear wheel toe-in, refer to TM 9-2320-387-24-1. Part C will test out the suspension parts to see if they are OK.

STEERING SYSTEM

DIAGNOSTIC FLOWCHART

KNOWN INFO
STRAIGHT LINE BEHAVIOR OK BRAKES OK HARD STEERING
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING COMPONENTS SUSPENSION

B1

IS THE SERPENTINE BELT IN GOOD CONDITION?

NO → ADJUST OR REPLACE BELTS.

YES → B2

TEST OPTIONS

LOOK AT BELT TENSIONER POSITION.

REASON FOR QUESTION

If belt tensioner has fully retracted, the power steering unit will not work properly.

KNOWN INFO
WHEELS AND TIRES OK BRAKES OK HARD STEERING SERPENTINE BELT OK
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING COMPONENTS SUSPENSION

B2

IS THE FLUID LEVEL NORMAL IN THE POWER STEERING RESERVOIR?

NO → ADD FLUID AND BLEED SYSTEM.

YES → B3

TEST OPTIONS

CHECK THE CAP/DIPSTICK FOR PROPER FLUID LEVEL.

REASON FOR QUESTION

Low fluid level may cause power steering pump to work improperly.

KNOWN INFO
WHEELS AND TIRES OK BRAKES OK HARD STEERING SERPENTINE BELT OK FLUID LEVEL OK
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING COMPONENTS SUSPENSION

B3

ARE THE POWER STEERING PUMP, PULLEY, AND BRACKET FIRMLY ATTACHED AND IN GOOD WORKING ORDER?

NO → REPAIR/REPLACE POWER STEERING COMPONENTS.

YES → GO TO C1, Page 2-54

TEST OPTIONS

CHECK THEM.

REASON FOR QUESTION

Loose or broken power steering components could cause power steering assist to work improperly.

B FROM 3, Page 2-40

REFERENCE INFORMATION

STEERING SYSTEM

Check serpentine belt tensioner position.



CAUTION

Do not overfill hydraulic fluid.

See TM 9-2320-387-10 for fluid replacement procedure.
For bleeding procedure, refer to (TM 9-2320-387-24-1).

Low fluid level could indicate a problem elsewhere in the system; either leaking hydraulic lines or a leaking or damaged power steering pump. If adding fluid seems to cure the problem, you should probably run the rest of the tests to make sure there aren't any other problems.

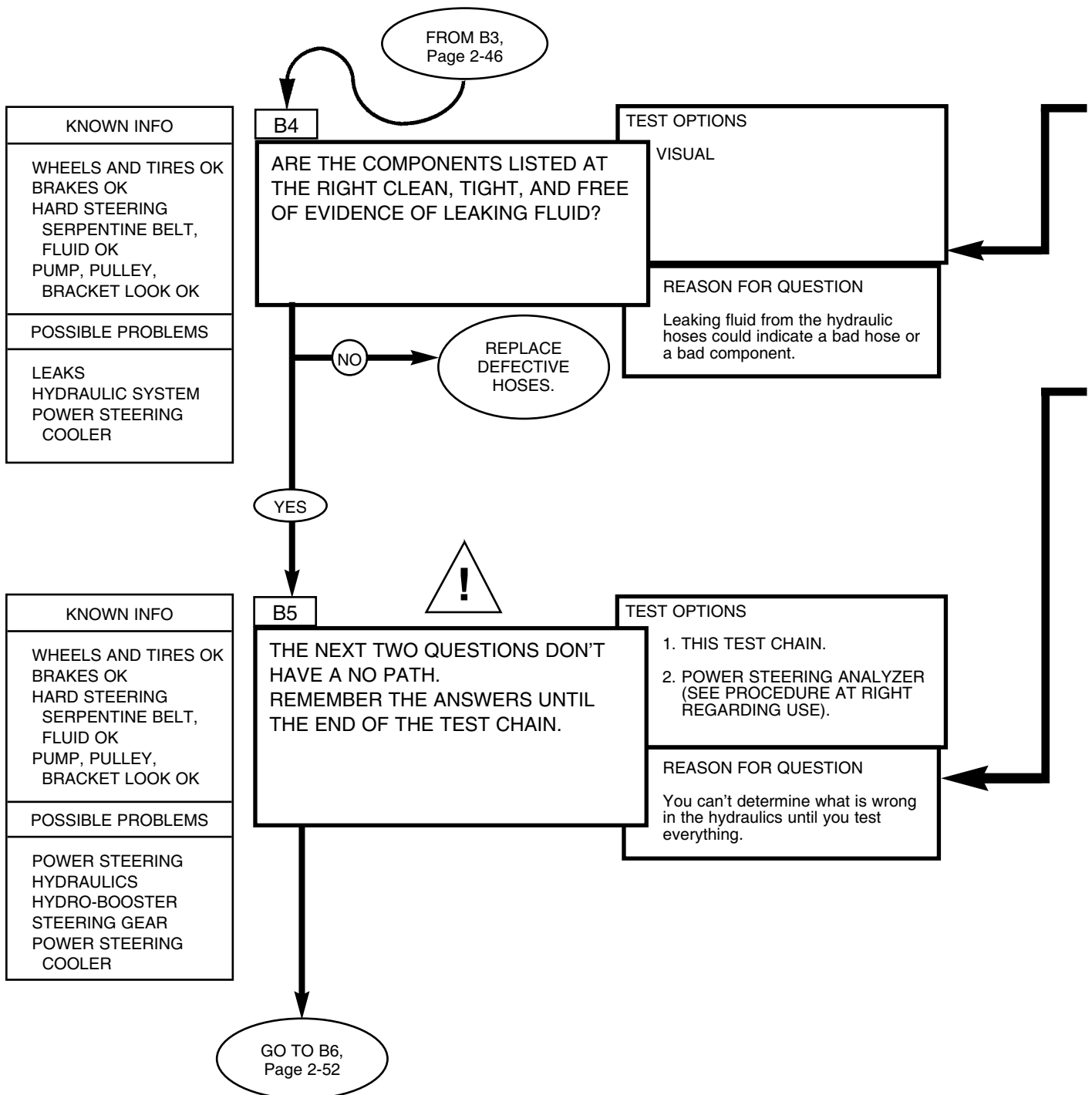


CAUTION

Serpentine belt failure (abnormal wear or belt dislodgement) can be caused by misalignment of pulleys, improper installation, or foreign objects introduced into belt path. Inspect water pump pulley for proper installation and ease of rotation. Any wobble or misalignment will cause belt failure. Refer to (TM 9-2320-387-24-1) for pulley alignment procedures. A loose pump, pulley, or bracket could cause excess noise, slipping belt, or other malfunctions. For appropriate repair or replacement procedures, refer to (TM 9-2320-387-24-1).

STEERING SYSTEM

DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

STEERING SYSTEM

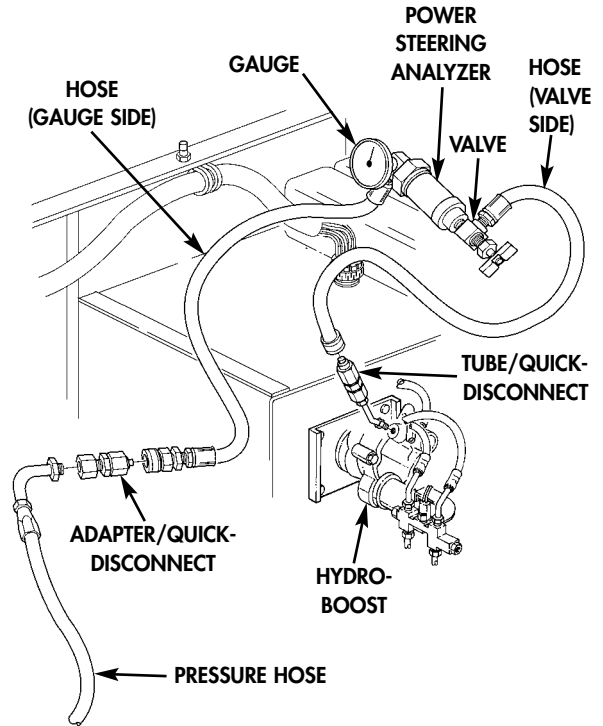
Check hydraulic hoses, power steering pump, power steering cooler, hydro-booster unit, and steering gear. See hose replacement procedures (refer to para. 8-24.2). Check power steering cooler for bent fins or any other airflow restrictions. Straighten fins or replace power steering cooler (refer to para. 3-8.1) if damaged beyond repair.

1. With engine off, disconnect pressure hose from hydro-boost and connect tube and quick-disconnect to hydro-boost.

NOTE

Have drainage container ready to catch fluid.

2. Connect adapter and quick-disconnect to pressure hose.
3. Connect hose from valve on power steering analyzer to tube and quick-disconnect on hydro-boost.
4. Connect hose from gauge side of power steering analyzer to adapter and quick-disconnect on pressure hose.
5. Connect STE/ICE-R to vehicle diagnostic connector and set for measuring RPM (refer to TM 9-2320-387-24-1).
6. Open analyzer valve to full open position.
7. Start engine (refer to TM 9-2320-387-10).
8. Remove power steering reservoir cap and turn steering wheel all the way left, hold in place for 3 seconds, then repeat process with steering wheel all the way right. This releases air from the system.



9. Return steering wheel to center position and shut engine off (refer to TM 9-2320-387-24-1).
10. Check and add power steering fluid to reach FULL COLD level in reservoir (refer to TM 9-2320-387-10).
11. Start engine (Refer to TM 9-2320-387-10) and allow engine to idle and reach operating temperature of 190° F to 230° F.
12. Check for proper engine idle speeds and adjust if necessary (refer to TM 9-2320-387-24-1).
6.5L engine 700±25 RPM
13. Ensure analyzer valve is in full open position and engine is at proper idle speed.
14. Initial pressure should be 250–400 psi and a flow of 4.00 gpm. If these specifications aren't present, check installation of analyzer and check power steering system (Refer to TM 9-2320-387-10).
15. With power steering system working properly, partially close analyzer valve until pressure reaches 700 psi. If flow rate varies more than 1 gpm from the initial reading, replace power steering pump (TM 9-2320-387-24-1).

CAUTION

Do not leave analyzer valve fully closed for more than 3 seconds. Severe damage may occur to power steering pump.

16. With engine at idle, close and open analyzer valve three times, recording pressure each time. All readings should be 1600 psi or higher, if pressure is lower, replace power steering pump (TM 9-2320-387-24-1).
17. With analyzer valve in the open position, increase engine rpm to 1500 and record fluid flow. If fluid flow varies more than 1 gpm from initial reading, replace power steering pump (TM 9-2320-387-24-1).

REFERENCE INFORMATION

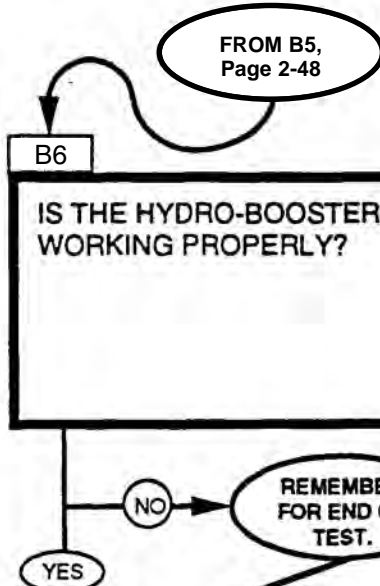
STEERING SYSTEM

18. With engine at idle, turn steering wheel all the way left, hold in place for 1–3 seconds, then repeat process with steering wheel all the way right and record flow rates. If flow rate does not drop to 1 gpm or less, replace steering gearbox (refer to para. 8-20.1).
19. With engine at idle, turn wheels slightly left and right and release quickly. If pressure does not increase and snap back within 2 seconds, check steering shaft and column for binding and repeat step 9. If pressure still does not increase and snap back, replace steering gearbox (refer to para. 8-20.1).
20. With engine at idle, push brake pedal down and hold. Record pressure. If pressure varies more than 100 psi from step 16, replace hydro-boost (refer to TM 9-2320-387-24-1).
21. With engine at idle, push brake pedal down and release quickly. If pressure does not increase and snap back within 2 seconds, replace hydro-boost (refer to TM 9-2320-387-24-1).
22. Shut off engine. Remove power steering analyzer and restore power steering system to original configuration.
23. Bleed power steering system (refer to TM 9-2320-387-24-1).

STEERING SYSTEM

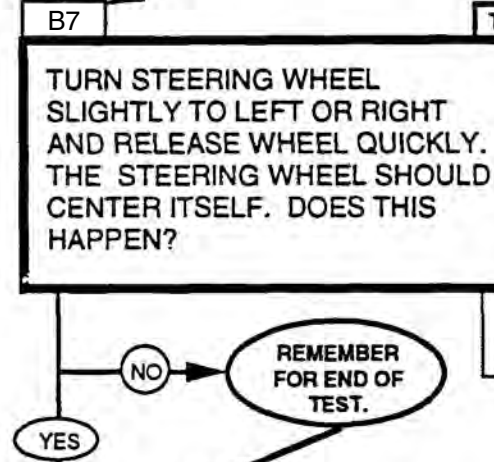
DIAGNOSTIC FLOWCHART

KNOWN INFO
HARD OR ABNORMAL STEERING
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING GEAR HYDRO-BOOSTER



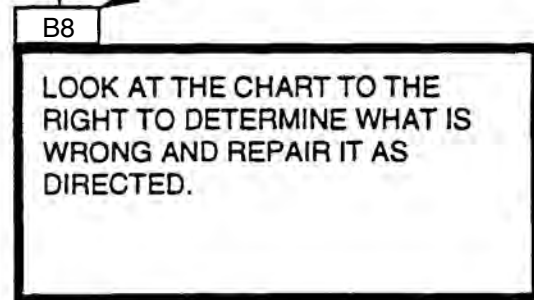
TEST OPTIONS
SEE PROCEDURES AT RIGHT.
REASON FOR QUESTION
The hydro-booster will affect the operation of the steering system.

KNOWN INFO
HARD OR ABNORMAL STEERING
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING GEAR HYDRO-BOOSTER



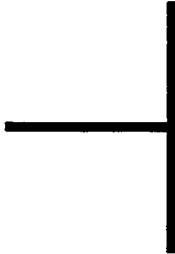
TEST OPTIONS
TRY IT.
REASON FOR QUESTION
The steering gear is working properly if this happens.

KNOWN INFO
HARD OR ABNORMAL STEERING
POSSIBLE PROBLEMS
POWER STEERING PUMP POWER STEERING GEAR HYDRO-BOOSTER



REFERENCE INFORMATION

STEERING SYSTEM



Method for checking hydro-booster: Depress brake pedal several times to exhaust accumulator. Depress brake pedal and start engine. Brake pedal should fall and then push back against operator's foot.

ANSWERS TO QUESTION:		COMPONENT TO REPLACE
B6	B7	
NO	NO	POWER STEERING PUMP
NO	YES	SEE NOTE BELOW
YES	NO	SEE NOTE BELOW
NO	YES	HYDRO-BOOSTER
YES	NO	STEERING GEAR
YES	YES	NO FAULTS

NOTE

To diagnose the second and third cases to one item, it is necessary to have a power steering analyzer. Additionally, for all cases, check the hoses for the particular part to make sure they are OK.

STEERING SYSTEM

DIAGNOSTIC FLOWCHART

KNOWN INFO
WHEELS AND TIRES OK BRAKES OK ALIGNMENT OK
POSSIBLE PROBLEMS
STEERING COMPONENTS SUSPENSION COMPONENTS

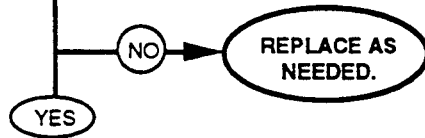
C1

CHECK THE TIE ROD ENDS, CENTER LINK PITMAN ARM AND IDLER ARM, AND ALL OF THE MOUNTING HARDWARE FOR THESE PARTS. ARE THEY ALL OK?

TEST OPTIONS

VISUAL INSPECTION - LOOK FOR BENT PARTS, LOOSE MOUNTINGS AND BAD BUSHINGS.

REASON FOR QUESTION
These are the parts that turn the front wheels in response to the steering wheel movements.



KNOWN INFO
WHEELS AND TIRES OK BRAKES OK STEERING LINKAGES OK
POSSIBLE PROBLEMS
SERPENTINE BELT & PULLEY CAPSCREWS SUSPENSION COMPONENTS

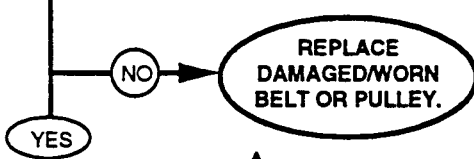
C2

CHECK POWER STEERING DRIVEBELT PULLEY FOR GROOVES AND SCORING, AND MAKE SURE BELT TENSIONER POSITION INDICATES SERPENTINE BELT IS OK. ARE THESE OK?

TEST OPTIONS

VISUAL INSPECTION OF PULLEY AND BELT TENSIONER.

REASON FOR QUESTION
A damaged pulley will ruin the serpentine belt. A damaged serpentine belt will slip, causing the power steering to lose power or fail.



KNOWN INFO
WHEELS AND TIRES OK BRAKES OK SERPENTINE BELT OK STEERING LINKAGES OK
POSSIBLE PROBLEMS
BALL JOINTS OTHER SUSPENSION COMPONENTS OTHER STEERING COMPONENTS

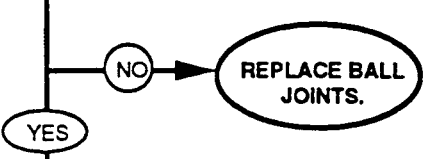
C3

ARE THE BALL JOINTS OK (NOT WORN)?

TEST OPTIONS

SEE PROCEDURE AT RIGHT.

REASON FOR QUESTION
Worn ball joints can result in difficult or noisy steering.



GO TO C4, Page 2-56

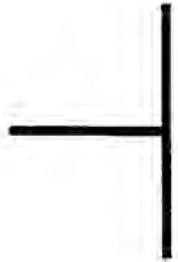
C
FROM 4, Page 2-42
OR A3, Page 2-44

REFERENCE INFORMATION

STEERING SYSTEM



Check for looseness in idler arm and pitman arm, refer to TM 9-2320-387-24-1. For replacing center link, refer to (para. 8-20.1). For replacing tie rods, refer to TM 9-2320-387-24-1.



For replacing the pulley, refer to TM 9-2320-387-24-1.

**CAUTION**

Do not loosen slotted nut to install cotter pin. Loosening the nut may result in damage to the equipment.

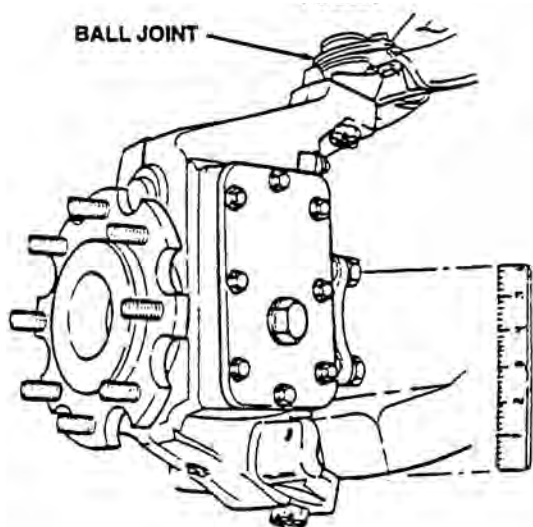
To check for proper operation of ball joints:

- (1) Chock rear wheels front and back.
- (2) Raise front wheels about two inches off the ground and support on a jack stand.

NOTE

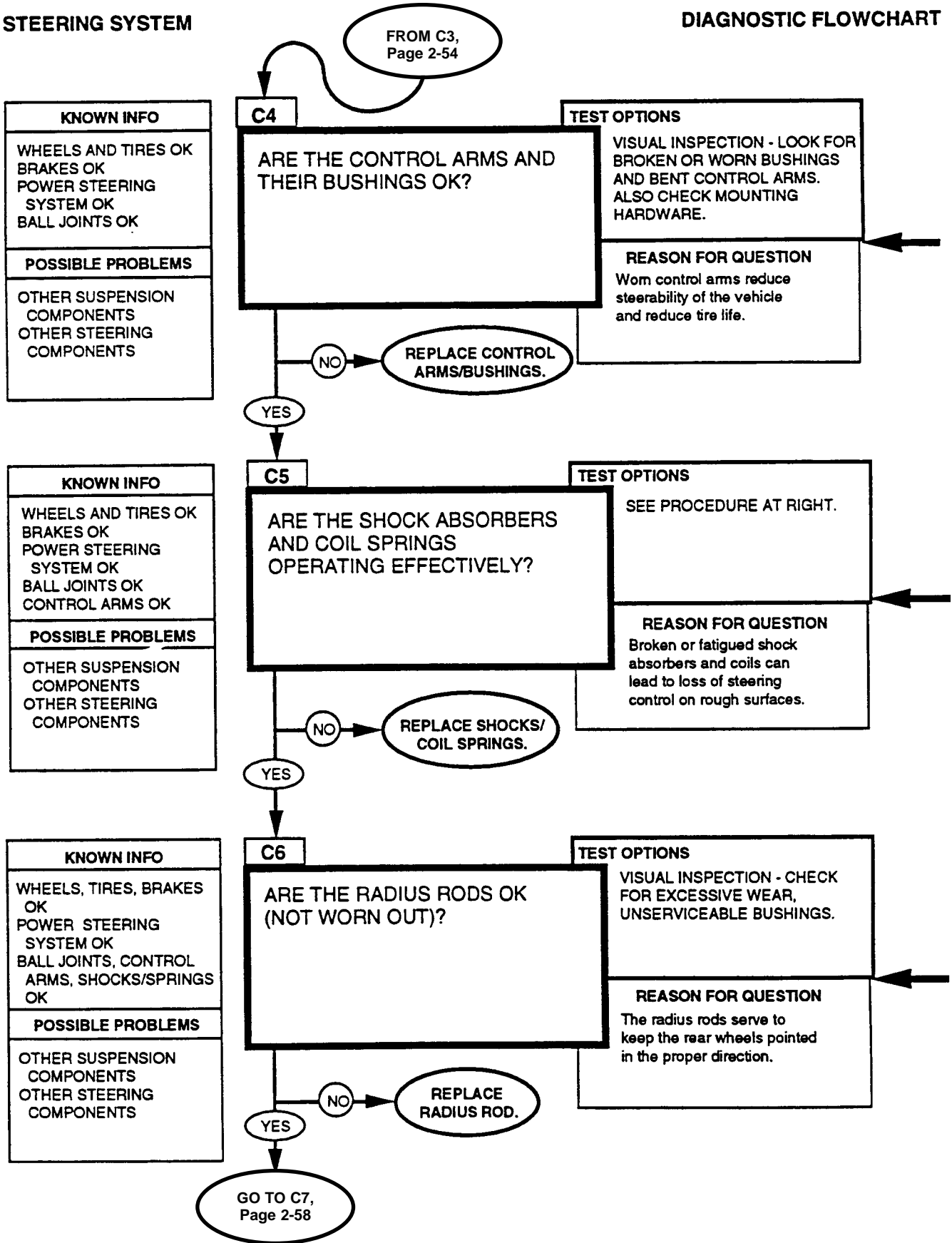
If ball joint boot is ripped or torn, ball joint is unservicable.

- (a) Lower ball joints.
 - (3) Mark a line across the head of the top bolt holding the steering arm cover. Make sure the mark is parallel to the lower control arm.
 - (4) Put a prybar between the cover control arm and gear hub.
 - (5) Set a 6-inch ruler upright between the lower control arm and the marked screw.
 - (6) Push down the prybar to try to move the hub.
 - (7) Measure movement in the hub assembly. If movement is more than 1/8 inch (3 mm), replace lower ball joint (refer to TM 9-2320-387-24-1).
- (b) Upper ball joints.
 - (8) Visually inspect ball joint boot, and replace upper ball joint if boot is ripped or torn.
 - (9) Grasp top of tire and attempt to move tire IN and OUT. Observe upper control arm and gear hub where upper ball joint is mounted. If lateral movement is observed, upper ball joint may be worn.
 - (10) Replace upper ball joint if movement is 1/8 in. (3 mm) or more (refer to TM 9-2320-387-24-1).



STEERING SYSTEM

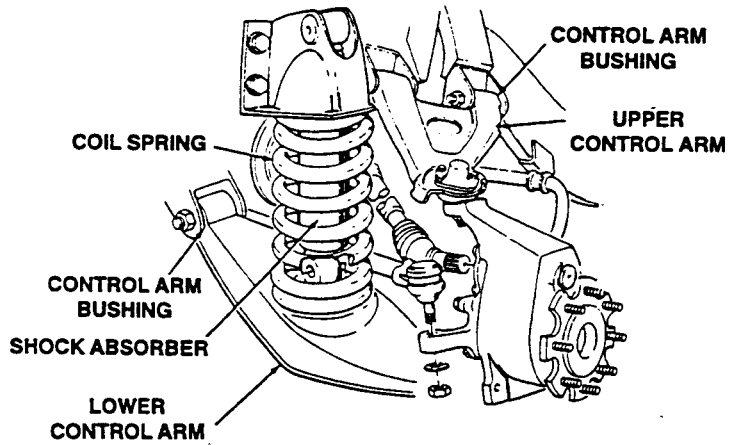
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

STEERING SYSTEM

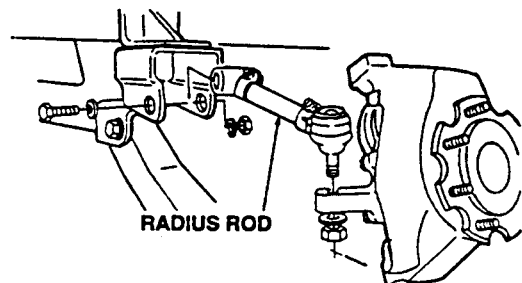
For upper and lower control arm and bushing replacement instructions, refer to TM 9-2320-387-24-1.



To test the shocks and springs, drive the vehicle over a variety of terrain. If the vehicle continues to bounce after hitting a bump, the shocks may be worn. If the vehicle bottoms out on the suspension, the shocks may be worn. If the vehicle sags when loaded, the springs may be worn. If the shock absorber bodies are not warm after driving the vehicle, the shocks are no good.

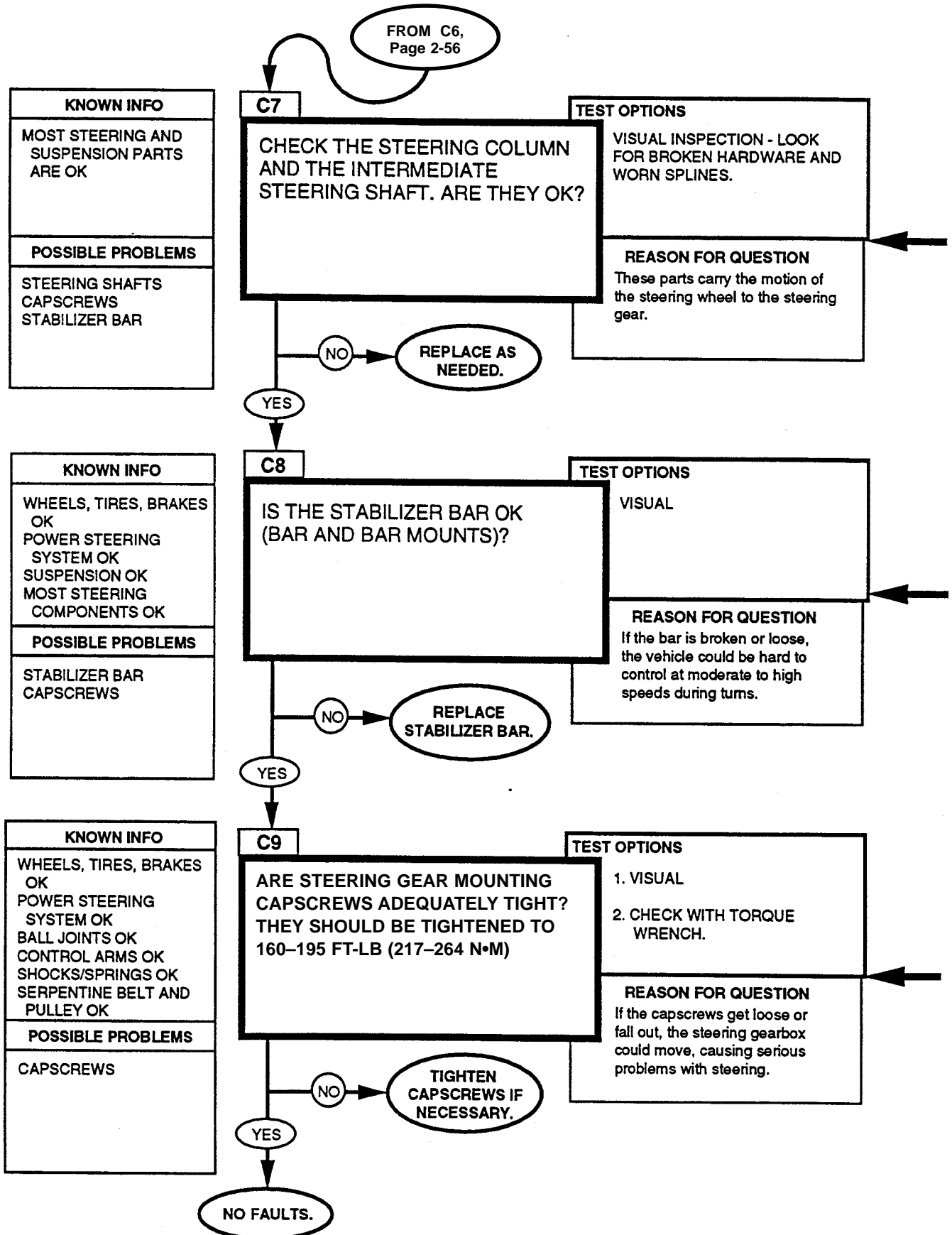
For coil spring and shock absorber replacement instructions, refer to TM 9-2320-387-24-1.

For instructions on replacing the radius rod, refer to TM 9-2320-387-24-1.



STEERING SYSTEM

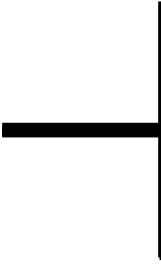
DIAGNOSTIC FLOWCHART



REFERENCE INFORMATION

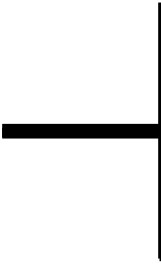
STEERING SYSTEM

NOTE

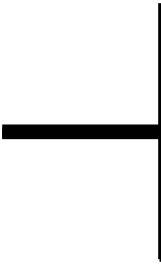


Inspect intermediate shaft U-joints for wear, binding, or missing/damaged grease fittings. Replace or lubricate as necessary. Refer to TM 9-2320-387-24-1 for replacement and TM 9-2320-387-10, for lubrication instructions.

Replace the steering column and intermediate shaft (TM 9-2320-387-24-1).



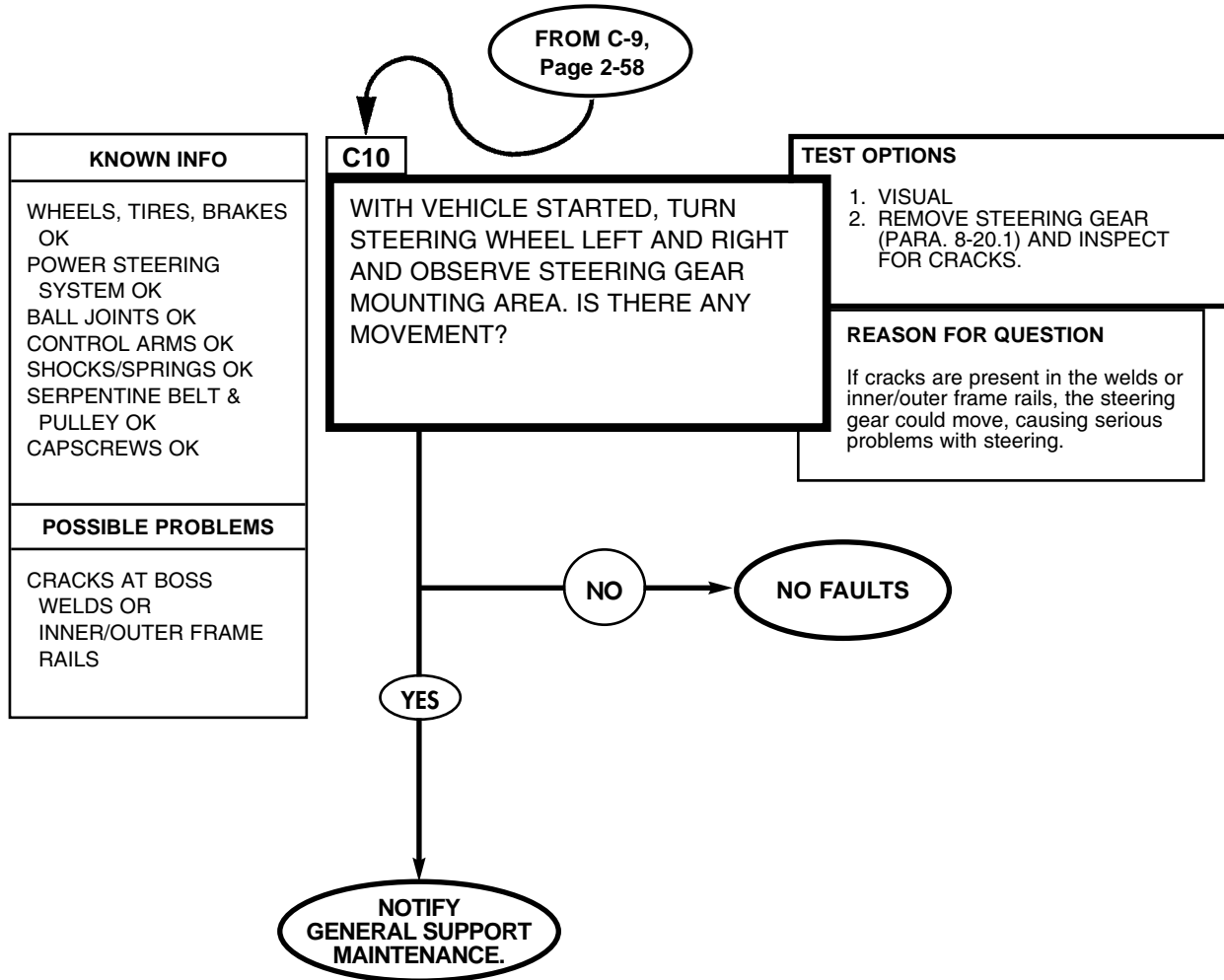
Replace the stabilizer bar (TM 9-2320-387-24-1).



If you still have a problem, rerun the test chain to make sure you didn't miss anything. If you didn't go down the A chain, you may want to run those tests in order to check out the hydraulic parts of the steering system.

STEERING SYSTEM

DIAGNOSTIC FLOWCHART



CHAPTER 3

ENGINE SYSTEMS (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the engine that are specific to your REV vehicle.

**3-7.1. ENGINE OIL COOLER SUPPLY AND RETURN LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Inspection

c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two lockwashers (Appendix A, Item 144)
 Two locknuts (Appendix A, Item 77)
 Three tiedown straps (Appendix A, Item 323)
 Lockwasher (Appendix A, Item 145)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Engine left splash shield removed (para. 10-23.1).
- Oil filter removed (TM 9-2320-387-24-1).

General Safety Instructions

Do not drain oil when engine is hot.

Maintenance Level

Unit

WARNING

Do not drain oil when engine is hot. Severe injury to personnel may occur.

CAUTION

Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

- Replacement procedures for engine oil cooler supply and return lines are basically the same. This procedure covers the supply line.
- Mark line connectors for installation.

a. Removal

NOTE

Have drainage container ready to catch oil.

1. Disconnect supply line connector (12) from adapter (11) and allow oil to drain.
2. Disconnect supply line connector (29) from oil cooler port (30).
3. Remove locknut (25), lockwashers (26), capscrew (1), oil and power steering lines bracket (3), and washers (2) and (27) from airlift bracket (4). Discard locknut (25) and lockwasher (26).
4. Remove capscrew (20), lockwasher (21), washer (22), and oil lines bracket (23) from steering gear case (24). Discard lockwasher (21).
5. Remove capscrew (14), two clamps (15) and (16), and oil line (13) from engine mount bracket (17).
6. Remove locknut (9), washer (8), capscrew (19), lockwasher (18), two clamps (6) and (7), and oil line (13) from oil lines bracket (23). Discard locknut (9) and lockwasher (18).
7. Remove three tiedown straps (5), (10), and (28) from engine oil and power steering lines.

b. Inspection

Inspect adapter (11) and oil cooler port (30) for damaged threads or cracks. If damaged, replace.

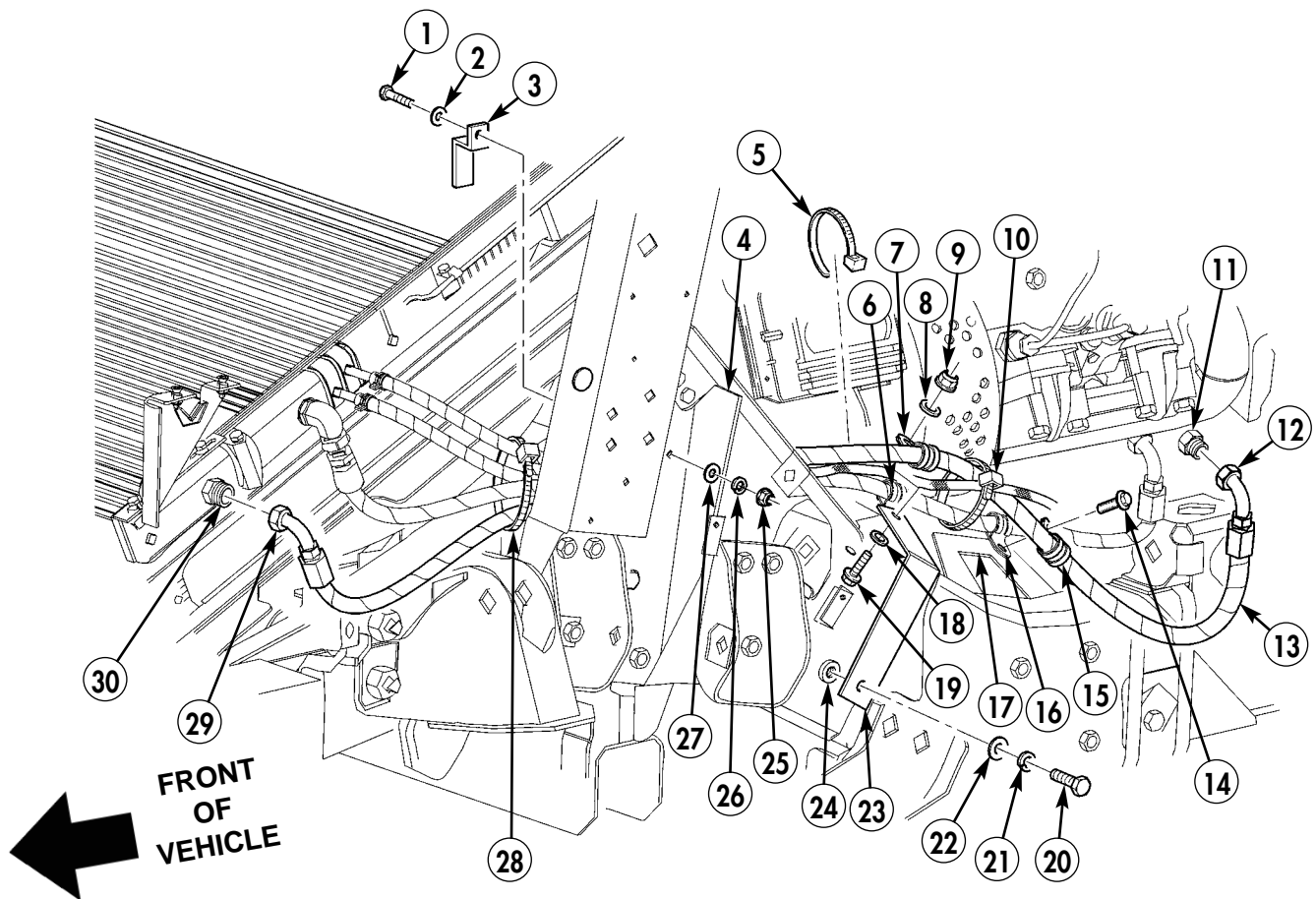
3-7.1. ENGINE OIL COOLER SUPPLY AND RETURN LINES MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

c. Installation

NOTE

Use of a longer capscrew may be necessary for installation of oil lines bracket.

1. Install three tiedown straps (5), (10), and (28) on engine oil and power steering lines.
2. Install oil line (13) on oil lines bracket (23) with two clamps (6) and (7), lockwasher (18), capscrew (19), washer (8), and locknut (9). Tighten locknut (9) to 6 lb-ft (8 N•m).
3. Install oil line (13) on engine mount bracket (17) with two clamps (15) and (16) and capscrew (14).
4. Install oil lines bracket (23) on steering gear case (24) with capscrew (20), lockwasher (21), and washer (22).
5. Install oil and power steering lines bracket (3) on airlift bracket (4) with capscrew (1), washers (2) and (27), lockwasher (26), and locknut (25).
6. Connect supply line connector (29) to oil cooler port (30).
7. Connect supply line connector (12) to adapter (11).



- FOLLOW-ON TASKS:
- Install oil filter (TM 9-2320-387-24-1).
 - Install engine left splash shield (para. 10-23.1).
 - Fill oil to proper level (TM 9-2320-387-10).
 - Start engine (TM 9-2320-387-10) and inspect for leaks at engine oil cooler, supply, and return lines.

3-8.1. ENGINE, TRANSMISSION, AND POWER STEERING OIL COOLER ASSEMBLY REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Eight anti-rotation washers
(Appendix A, Item 318.2)
Four lockwashers (Appendix A, Item 146)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Engine left splash shield removed (para. 10-23.1).
- Engine right splash shield removed (para. 10-24.1).

General Safety Instructions

Do not drain oil when engine is hot.

Maintenance Level

Unit

a. Removal

WARNING

Do not drain oil when engine is hot. Severe injury to personnel may result.

CAUTION

- Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.
- Do not bend transmission oil cooler fins. Damaged fins reduce cooling efficiency, which may damage engine or transmission.

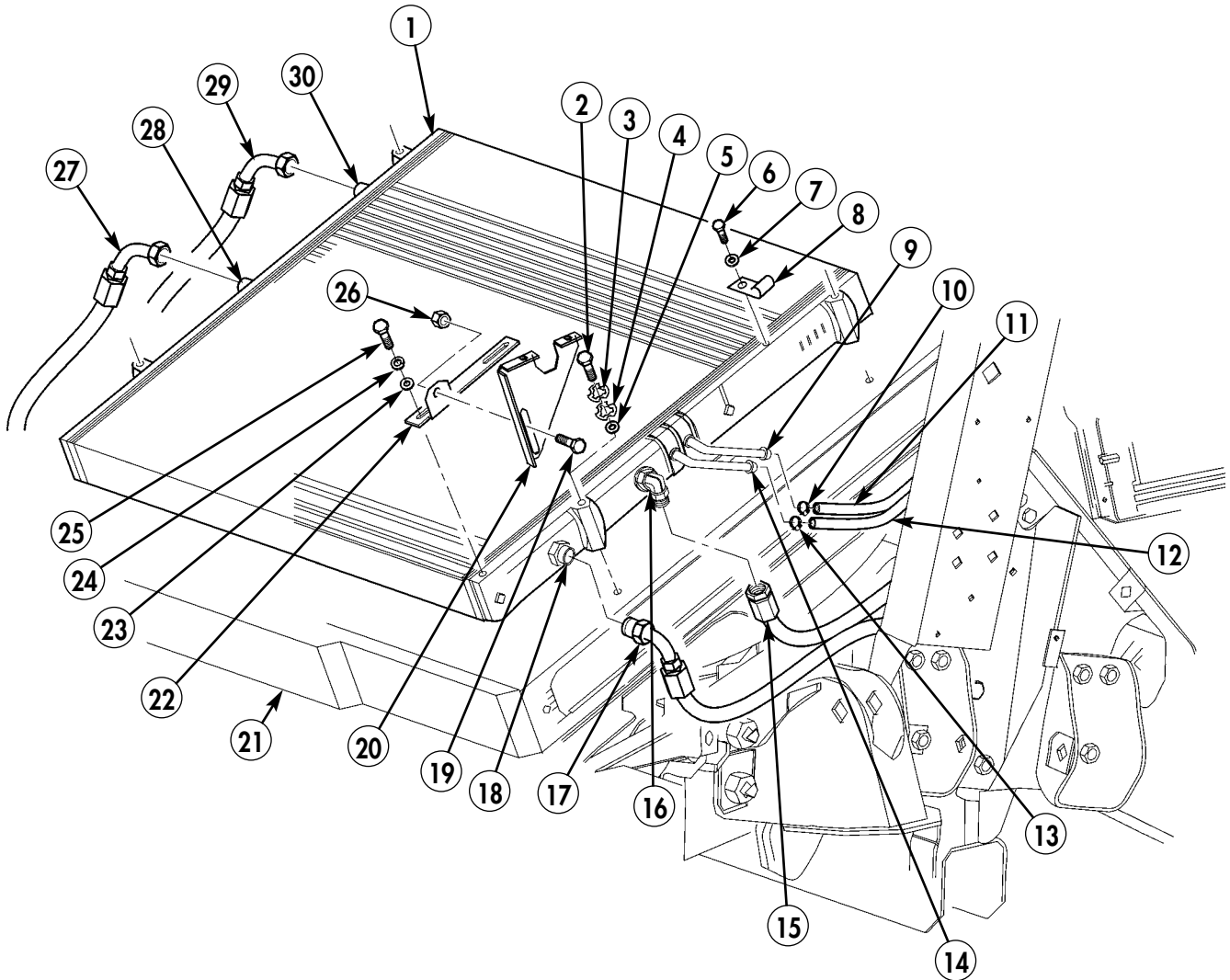
NOTE

- Have drainage container ready to catch oil.
 - Tag all hoses for installation.
1. Loosen hose clamps (10) and (13) and remove power steering fluid hose lines (11) and (12) from power steering cooler ports (9) and (14).
 2. Remove return line (15) and supply line (17) from oil cooler ports (16) and (18).
 3. Remove two transmission fluid lines (27) and (29) from transmission fluid cooler ports (28) and (30).
 4. Remove four capscrews (25), lockwashers (24), washers (23), and two hinges (22) from oil cooler (1).
 5. Remove capscrew (6), washer (7), and clip (8) from oil cooler (1).
 6. Remove four capscrews (2), eight anti-rotation washers (3) and (4), four washers (5), and oil cooler (1) from radiator (21). Discard anti-rotation washers (3) and (4).
 7. Remove two nuts (26), capscrews (19), and brackets (20) from two hinges (22).

b. Installation

1. Install two brackets (20) on hinges (22) with two capscrews (19) and nuts (26).
2. Install oil cooler (1) on radiator (21) with four washers (5), eight anti-rotation washers (3) and (4), and four capscrews (2).
3. Install clip (8) on oil cooler (1) with washer (7) and capscrew (6).
4. Install hinges (22) on oil cooler (1) with four washers (23), lockwashers (24), and capscrews (25).
5. Install transmission fluid lines (27) and (29) on transmission fluid cooler ports (28) and (30).
6. Install supply line (17) and return line (15) on oil cooler ports (16) and (18).
7. Install power steering fluid hose lines (12) and (11) on power steering cooler ports (14) and (9) with hose clamps (13) and (10).

3-8.1. ENGINE, TRANSMISSION, AND POWER STEERING OIL COOLER ASSEMBLY REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- FOLLOW-ON TASKS:
- Install engine right splash shield (para. 10-24.1).
 - Install engine left splash shield (para. 10-23.1).
 - Check and refill engine oil and transmission oil and power steering oil (TM 9-2320-387-10).
 - Bleed power steering system (TM 9-2320-387-24-1).

3-25. FUEL TANK AND SHIELD MAINTENANCE

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Draining b. Removal c. Disassembly | <ul style="list-style-type: none"> d. Cleaning and Inspection e. Assembly f. Installation |
|---|--|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 (Appendix B, Item 2)

Materials/Parts

Gasket (Appendix A, Item 37)
 Fourteen locknuts (Appendix A, Item 77)
 Three lockwashers (Appendix A, Item 144)
 Drycleaning solvent (Appendix C, Item 26)
 Adhesive (Appendix C, Item 2)
 Sealing compound (Appendix C, Item 62)
 Tiedown strap (Appendix A, Item 322)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24P

Equipment Condition

- Battery ground cables disconnected (TM 9-2320-387-24-1).
- Rear propeller shaft removed (TM 9-2320-387-24-1).
- Right rear upper underbody armor (integrated) removed (TM 9-2320-387-24-2).

General Safety Instructions

- Do not perform this procedure near fire, flames, or sparks.
- Drycleaning solvent is flammable and will not be used near an open flame.

Maintenance Level

Unit

WARNING

Diesel fuel is highly flammable. Do not perform this procedure near fire, flames, or sparks. Severe injury or death may result.

a. Draining

NOTE

Have drainage container ready to catch fuel.

1. Remove fuel tank filler cap (1).
2. Remove drainplug (3) from fuel tank (2) and allow fuel to completely drain into container.

CAUTION

Do not overtighten drainplug. Drainplug must not turn in hole. Sharp edge of hole may cut rubber.

3. Install drainplug (3) flush with bottom of fuel tank (2).

b. Removal

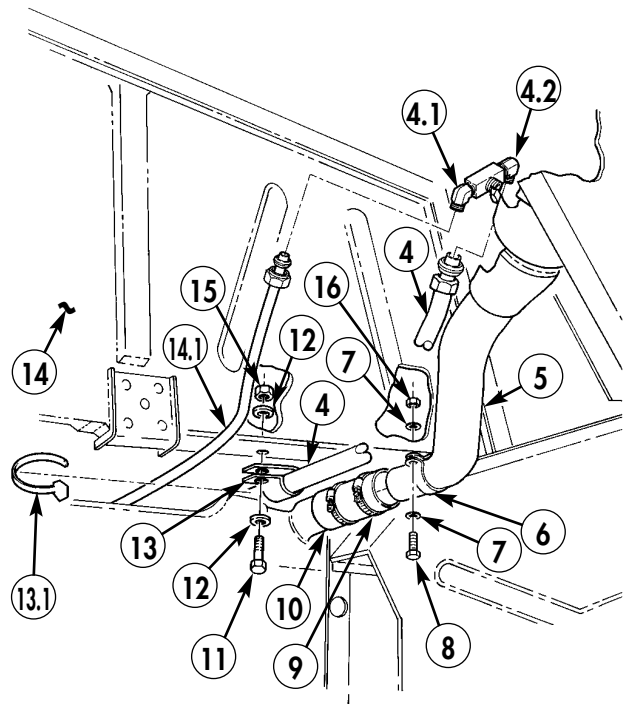
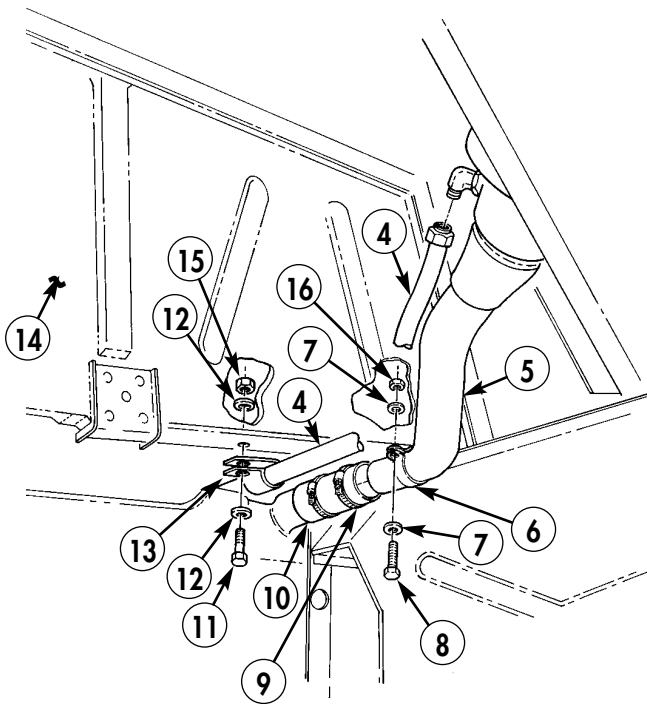
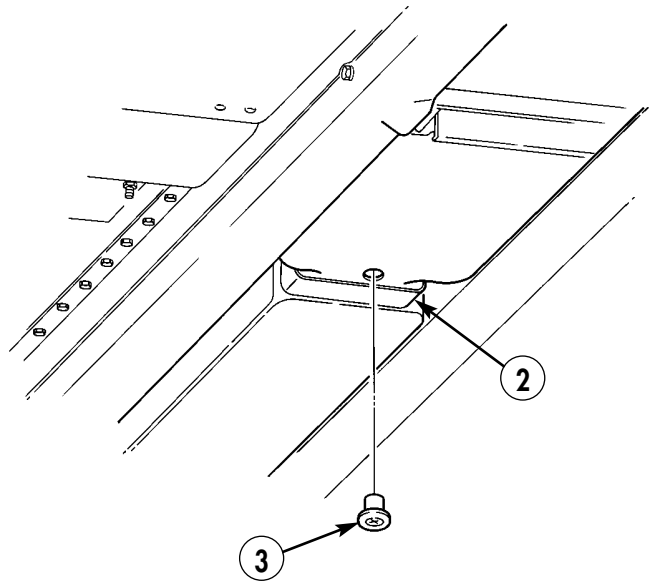
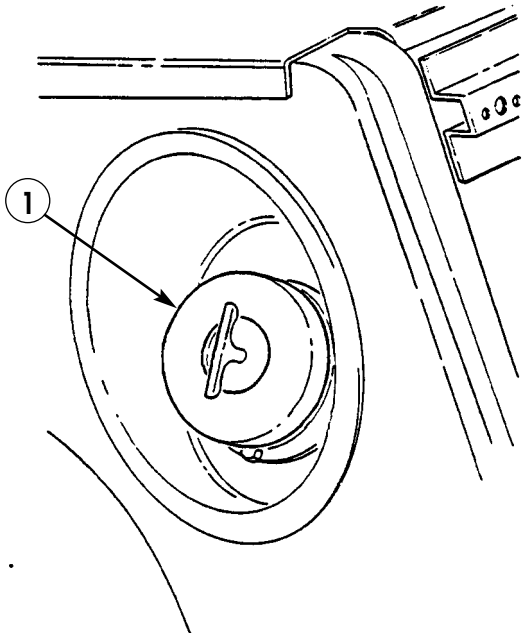
NOTE

Perform steps 1 through 1.2 if equipped with new vent line assembly.

1. Remove tiedown strap (13.1) from vent lines (14.1) and (4). Discard tiedown strap (13.1).
 - 1.1. Remove vent line (14.1) from elbow (4.1).
 - 1.2. Remove vent line (4) from elbow (4.2).
 - 1.3. Remove vent line (4) from filler spout (5).
2. Remove locknut (15), washer (12), capscrew (11), washer (12), and clamp (13) from vent line (4) and body (14). Discard locknut (15).

3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

3. Remove locknut (16), washer (7), capscrew (8), washer (7), and clamp (6) from filler spout (5). Discard locknut (16).
4. Loosen clamp (9) and remove hose (10) from spout (5).



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

5. Remove two nuts (15), washers (14), and capscrews (7) from fuel tank support straps (6) and (12) and remove lower straps (13).
6. Loosen two clamps (3) and disconnect fuel supply hoses (1) and (2) from fuel return line (4) and supply line (5).

NOTE

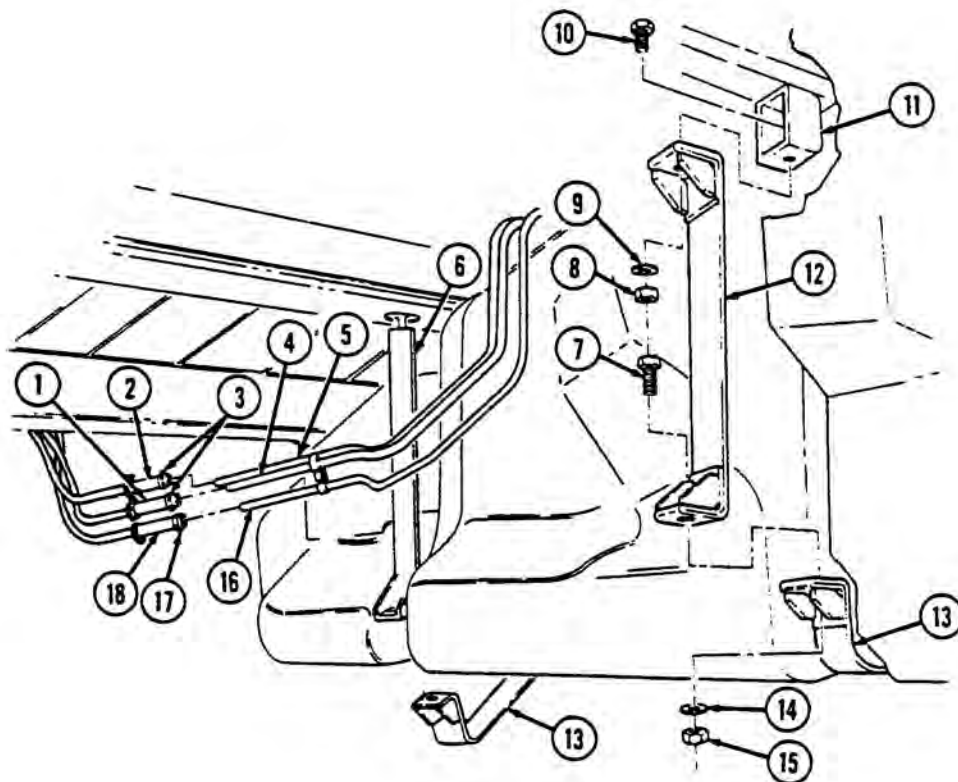
Perform step 7 if vehicle is equipped with vehicular heater.

7. Loosen clamp (17) and disconnect fuel supply hose (18) from vehicular heater fuel supply line (16).
8. Disconnect vent line (20) from tee (19).
9. Remove capscrew (22) and clamp (23) securing vent line (20) to body (24).
10. Remove nut (8), washer (9), capscrew (10), and rear strap (12) from strap bracket (11).
11. Lower fuel tank (21) for access to vent line (29) and clamp (28).
12. Disconnect vent line (20) from fitting (25) on fuel tank (21).
13. Remove locknut (26), washer (27), and clamp (28) from vent line (29) and fuel tank (21). Discard locknut (26).
14. Remove vent line (29) from vent line housing (30).

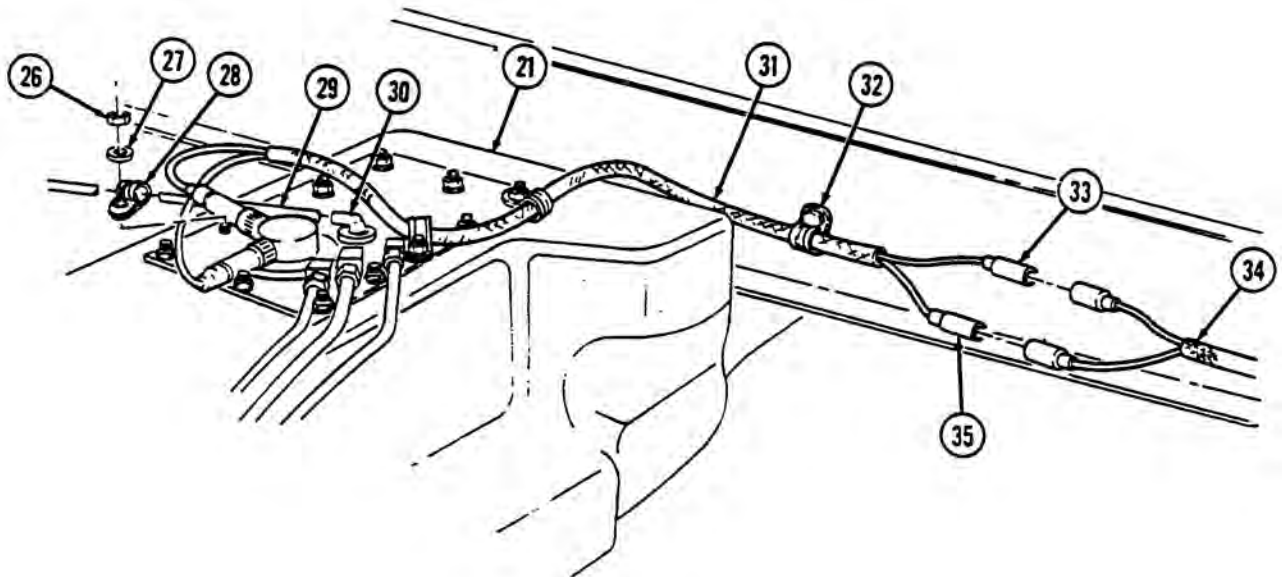
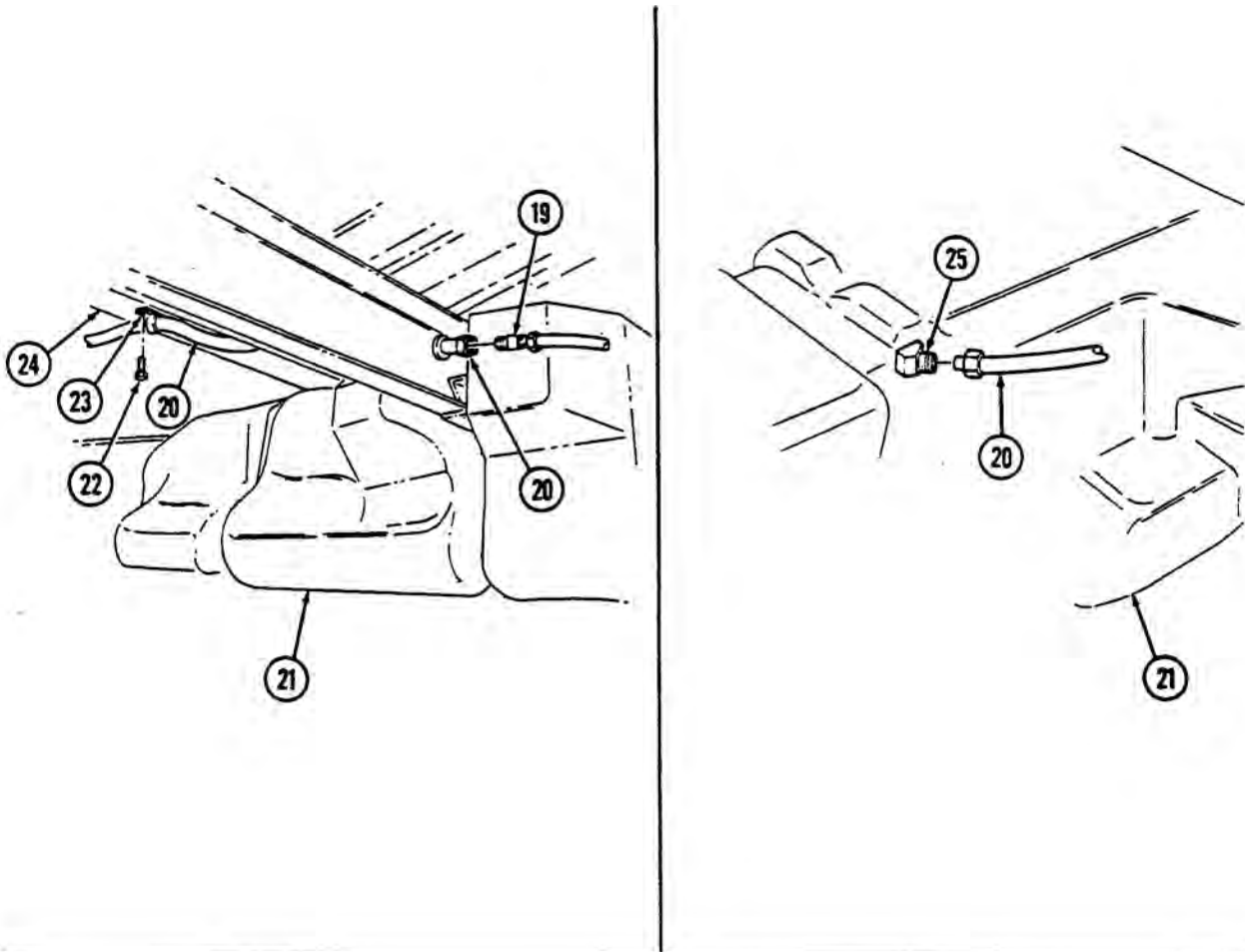
NOTE

Prior to removal, tag leads for installation.

15. Disconnect jumper leads 58J (33) and 28B (35) from body wiring harness (34).
16. Bend clamp (32) down and remove jumper harness (31).
17. Remove fuel tank (21) from vehicle.



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

c. Disassembly

1. Thoroughly clean outside of tank (18) to prevent dirt contamination.
2. Disconnect fuel supply line (31) from fuel supply tube (12) and fuel return line (30) from fuel return tube (34).

NOTE

Perform step 3 if vehicle is equipped with vehicular heater and auxiliary fuel line.

3. Disconnect auxiliary fuel supply and return lines (25) from fuel supply tubes (13).
4. Remove capscrew (27), clamp (29), fuel supply line (31), fuel return line (30), and shield (26) from fuel tank (18).
- 4.1 Remove auxiliary fuel supply and return lines (25) and clamp (28), if installed. Remove crossover hose (27.2) and two clamps (27.1), if installed.
5. Remove two locknuts (7), washers (8), clamps (6), and jumper harness (5) from access cover (11). Discard locknuts (7).

NOTE

Prior to removal, tag leads for installation.

6. Disconnect jumper harness leads 28B (1) and 58J (2) from fuel level sender (35) and remove jumper harness (5).
7. Remove nine locknuts (9) and washers (10) securing access cover (11) to fuel tank (18). Discard locknuts (9).
8. Remove access cover (11), gasket (15), and retainer (33) from fuel tank (18). Discard gasket (15).
9. Mark position of fuel tubes (12), (34), and (13) on access cover (11).

NOTE

Note position of fuel strainer for installation.

10. Remove fuel strainer (14) from fuel supply tube (12).
11. Remove fuel supply tube (12) from access cover (11).
12. Remove fuel return tube (34) from access cover (11).

NOTE

- Perform step 13 if vehicle is equipped with vehicular heater and auxiliary fuel line.
- Vehicles not equipped with a vehicular heater and auxiliary fuel line will have plugs instead of fuel supply tubes.

13. Remove two fuel supply tubes (13) from access cover (11).
14. Remove vent valve (4) and grommet (3) from access cover (11).
15. Remove vent line (19) from tee (20).
16. Loosen clamp (16) and remove filler spout hose (17) from tank (18).
17. Remove three capscrews (22), washers (24), lockwashers (23), and heat shield (21) from fuel tank (18). Discard lockwashers (23).

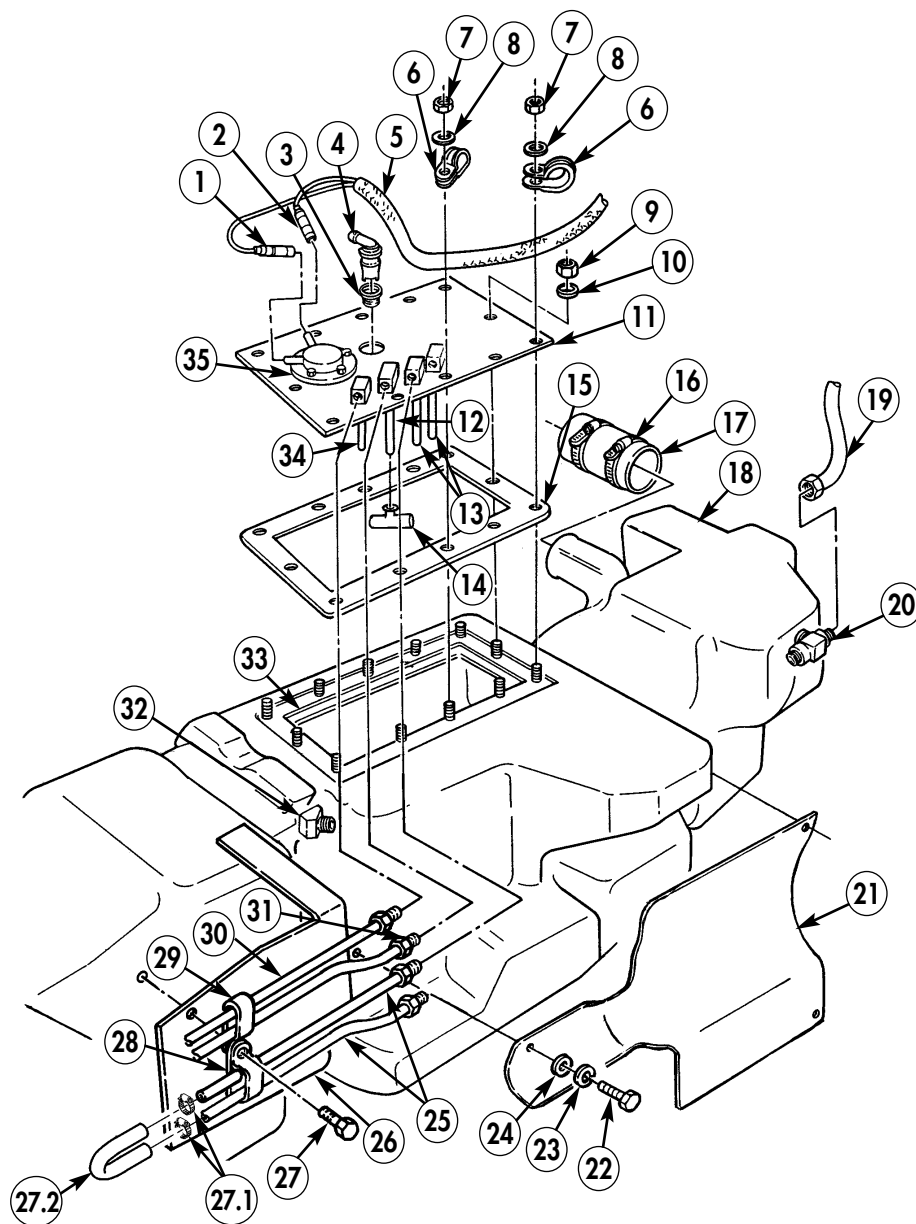
d. Cleaning and Inspection

WARNING

Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel or damage to equipment.

3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

1. Use drycleaning solvent to clean access cover (11), fuel supply line (31), fuel return line (30), auxiliary fuel supply and return lines (25), crossover hose (27.2), fuel supply tube (12), fuel return tube (34), fuel supply tubes (13), and inside of fuel tank (18).
2. Inspect access cover (11), fuel supply line (31), fuel return line (30), fuel supply tube (12), fuel return tube (34), strainer (14), tee (20), fitting (32), vent valve (4), and grommet (3) for cracks, wear, and breaks. Replace if cracked, worn, or broken.
3. Inspect auxiliary fuel supply and return lines (25), crossover hose (27.2), and fuel supply tubes (13) for cracks, wear, and breaks, if installed. Replace if cracked, worn, or broken.
4. Inspect fuel level sender (35) for damage. Replace if damaged.



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

e. Assembly

NOTE

- Use sealing compound on all vent line and fuel line connector threads before installation.
 - Use fittings from old tank if installing new tank.
1. Install heat shield (21) on fuel tank (18) with three lockwashers (23), washers (24), and capscrews (22).
 2. Install vent line (19) on tee fitting (20).
 3. Install filler spout hose (17) on tank (18) and tighten clamp (16).
 4. Apply sealing compound to threads of fuel supply tube (12). Install and align fuel supply tube (12) on access cover (11).
 5. Apply sealing compound to threads of fuel return tube (33). Install and align fuel return tube (33) on access cover (11).

NOTE

Perform step 6 if vehicle is equipped with vehicular heater and auxiliary fuel line.

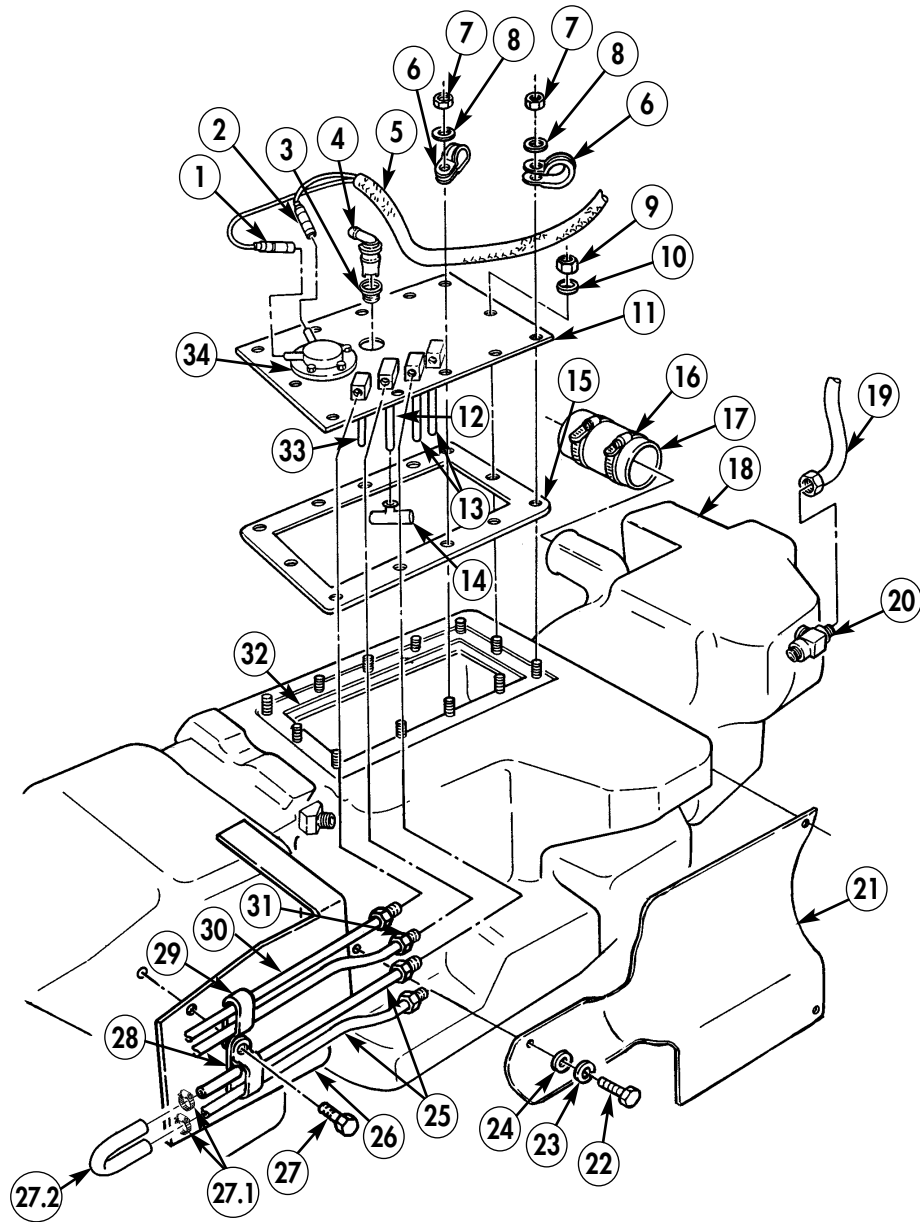
6. Apply sealing compound to threads of fuel supply tubes (13). Install and align two fuel supply tubes (13) on access cover (11).
7. Install grommet (3) and vent valve (4) on access cover (11).
8. Install fuel strainer (14) on fuel supply tube (12).
9. Apply adhesive to threads of nine locknuts (9). Install retainer (32), gasket (15), and access cover (11) on fuel tank (18) with nine washers (10) and locknuts (9). Tighten locknuts (9) to 72 lb-in. (8 N•m).
10. Connect jumper harness leads 28B (1) and 58J (2) to fuel level sender (34).
11. Apply adhesive to threads of two locknuts (7). Install jumper harness (5) on access cover (11) with two clamps (6), washers (8), and locknuts (7). Tighten locknuts (7) to 72 lb-in. (8 N•m).
12. Connect fuel supply line (31) to fuel supply tube (12), and fuel return line (30) to fuel return tube (33).

NOTE

Perform step 13 if vehicle is equipped with an vehicular heater and auxiliary fuel line.

13. Connect auxiliary fuel supply and return lines (25) to fuel supply tubes (13).
14. Connect crossover hose (27.2) to auxiliary fuel supply and return lines (25) and secure with two clamps (27.1)
15. Install shield (26), return line (30), supply line (31), clamp (29), and auxiliary fuel supply and return lines (25) and clamp (28), if installed, on fuel tank (18) with capscrew (27).

3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)

f. Installation

1. Position fuel tank (5) under vehicle.
2. Install jumper harness (6) in clamp (7) and bend clamp (7) up.
3. Connect jumper harness leads 58J (8) and 28B (10) to body wiring harness (9).

NOTE

Use sealing compound on all vent line connector threads before installation.

4. Connect vent line (4) to fuel tank (5) with clamp (3), washer (2), and locknut (1).
5. Connect vent line (12) to fitting (11) on fuel tank (5).

NOTE

Apply adhesive to threads of capscrews before installation.

6. Install rear strap (23) on strap bracket (22) with capscrew (21), washer (20), and nut (19). Tighten nut (19) to 23–27 lb-in. (2.6–3.1 N•m).

NOTE

Ensure front straps are flush with fuel tank and to right side of dimple in slot.

7. Raise fuel tank (5) and install two support straps (24) to straps (17) and (23) with two capscrews (18), washers (25), and nuts (26). Do not tighten nuts (26).
8. Connect vent line (12) to tee (31) on fuel tank (5).
9. Secure vent line (12) to body (34) with clamp (33) and screw (32).
10. Connect fuel supply hoses (13) and (30) to fuel return and supply lines (16) and (15) and tighten clamps (14).

NOTE

Perform step 11 if vehicle is equipped with vehicular heater.

11. Connect fuel supply hose (29) to vehicular heater fuel supply line (27) and tighten clamp (28).

NOTE

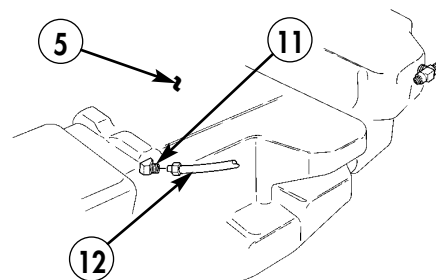
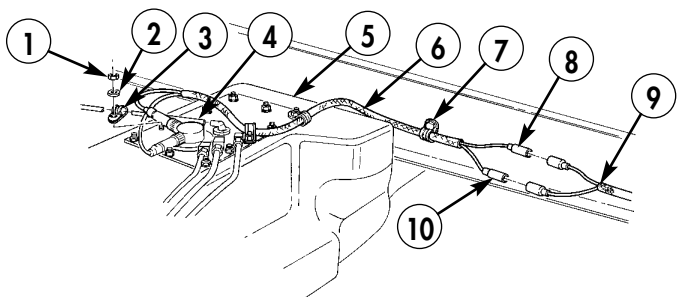
Ensure upper and lower straps are 1/2 in. (13 mm) apart after tightening nuts. Straps should not touch when properly installed. Straps must be replaced if upper or lower straps touch.

12. Tighten nuts (26) to 23–27 lb-in. (2.6–3.1 N•m).
13. Connect vent line (38) to filler spout (39).

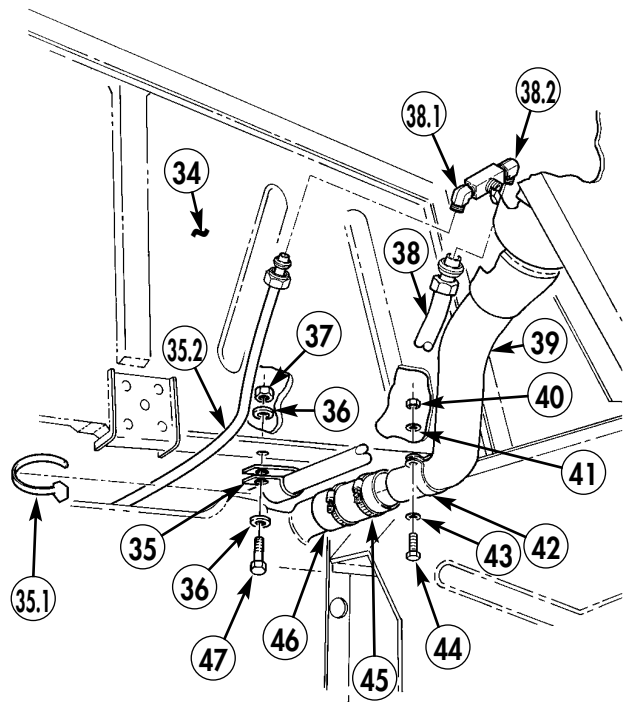
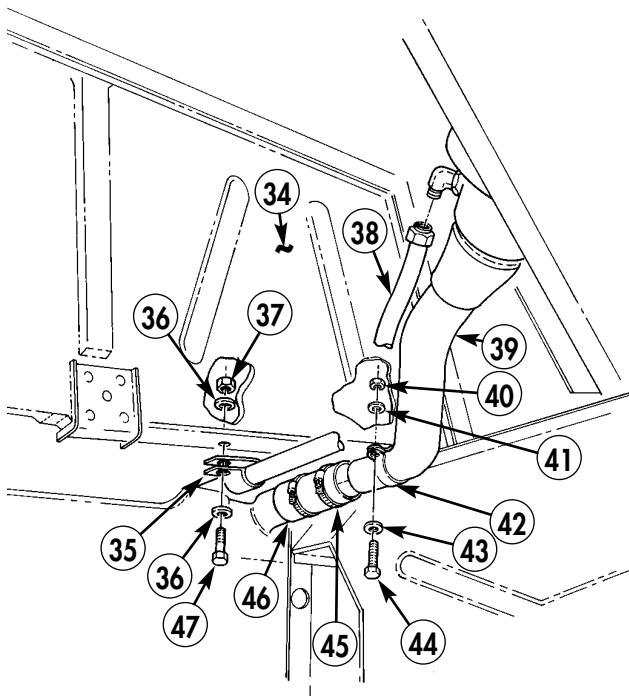
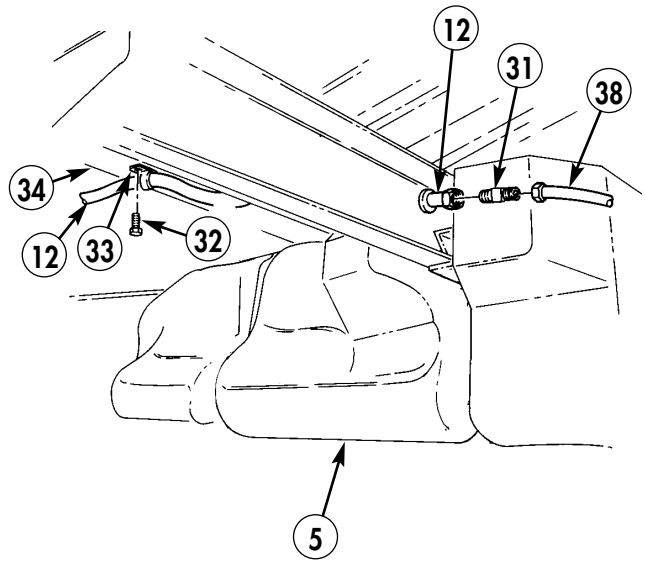
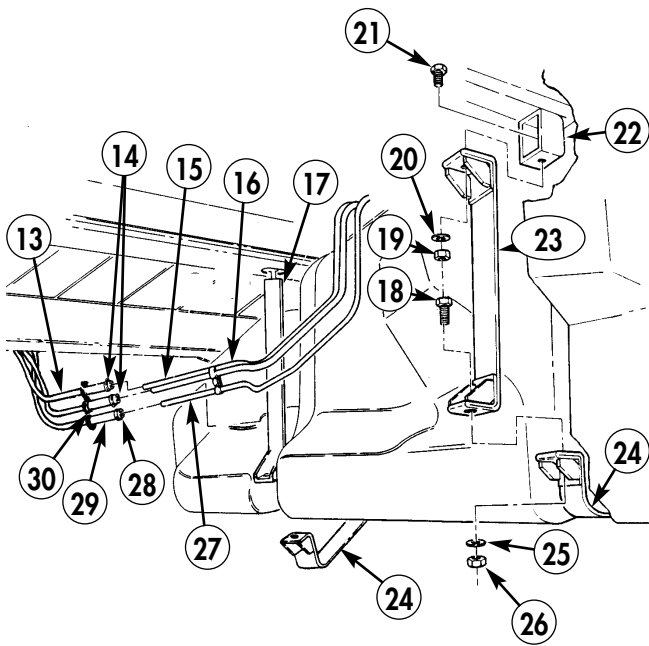
NOTE

Perform steps 14, 15, and 17 if vehicle is equipped with new vent line assembly.

14. Connect vent line (38) to elbow (38.2).
15. Connect vent line (35.2) to elbow (38.1).
16. Secure vent line (38) to body (34) with clamp (35), washer (36), capscrew (47), washer (36), and locknut (37).
17. Secure vent line (35.2) to vent line (38) with tiedown strap (35.1).
18. Install filler spout (39) into hose (46) and tighten clamp (45).
19. Install filler spout (39) to body (34) with clamp (42), washer (43), capscrew (44), washer (41), and locknut (40). Tighten locknut (40) to 6 lb-ft (8 N•m).



3-25. FUEL TANK AND SHIELD MAINTENANCE (Cont'd)



- FOLLOW-ON TASKS:**
- Install right rear underbody armor (M1114 only) (para. 11-109).
 - Install rear propeller shaft (TM 9-2320-387-24-1).
 - Connect battery ground cables (TM 9-2320-387-24-1).
 - Fill fuel tank (TM 9-2320-387-10) and check for leaks.

3-26. FUEL TANK SUPPLY AND RETURN LINES REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

Engine right splash shield removed
(para. 10-24.1).

Materials/Parts

Two locknuts (Appendix A, Item 77)

General Safety Instructions

Do not perform this procedure near fire, flames, or sparks.

Manual References

TM 9-2320-387-10
TM 9-2320-387-24P

Maintenance Level

Unit

WARNING

Diesel fuel is highly flammable. Do not perform this procedure near fire, flames, or sparks. Severe injury or death may result.

a. Removal

CAUTION

Cover or plug all open hoses and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

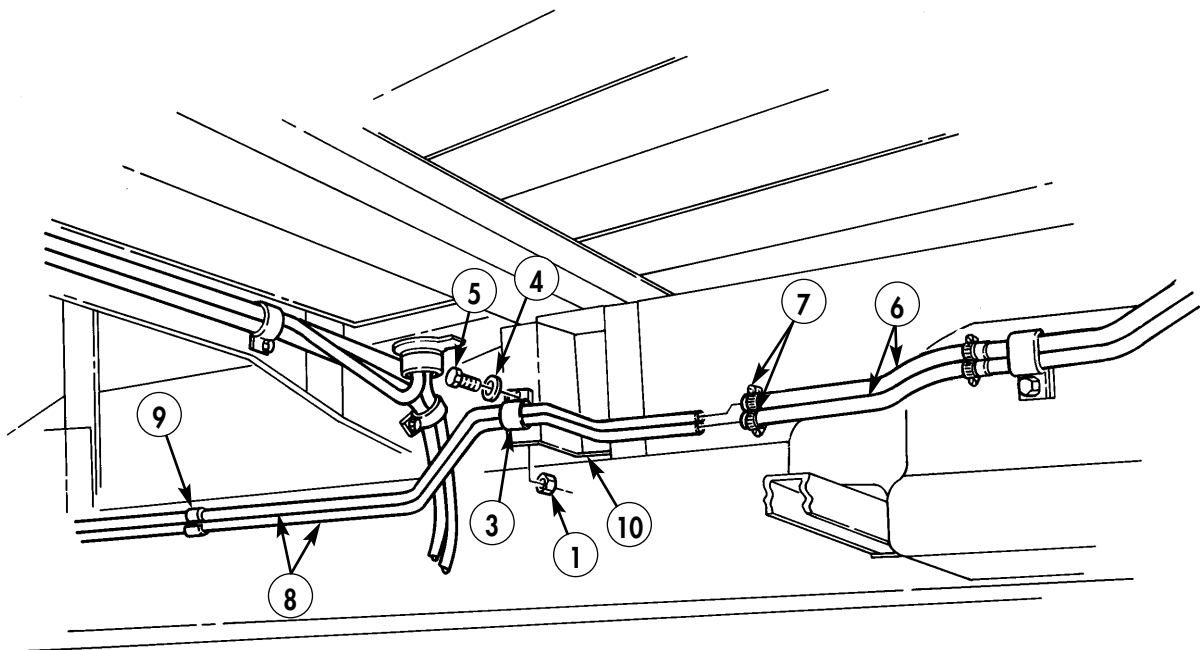
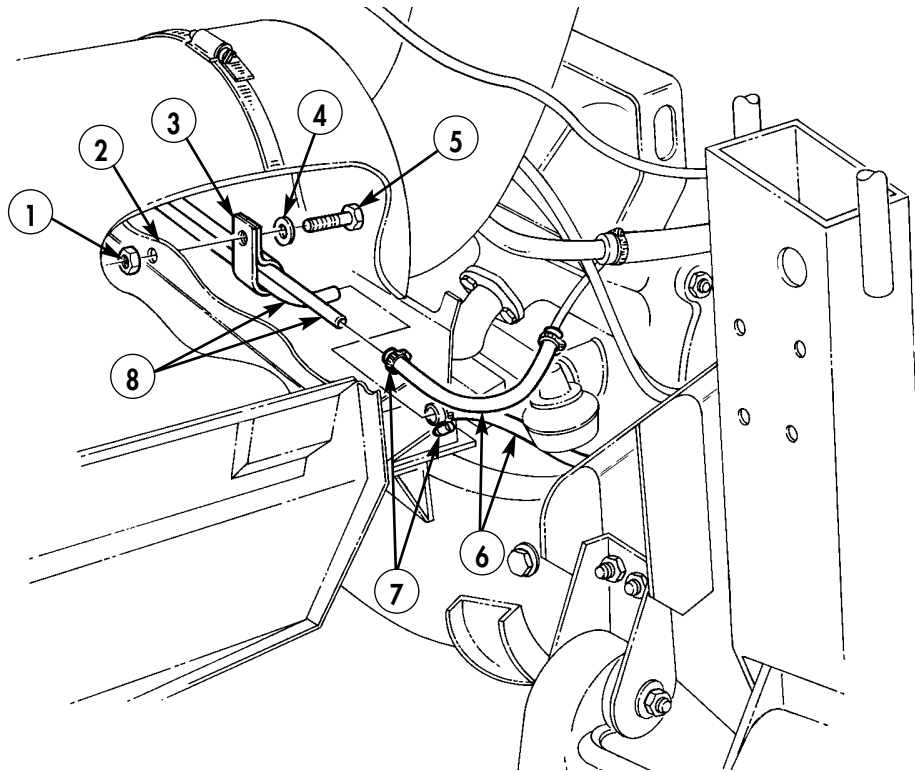
Have drainage container ready to catch fuel.

1. Loosen four clamps (7) and disconnect hoses (6) from fuel tank return and supply lines (8).
2. Remove two locknuts (1), capscrews (5), washers (4), clamps (3), and return and supply lines (8) from front body bracket (2) and rear body bracket (10). Discard locknuts (1).
3. Remove three clips (9) from fuel supply and return lines (8).

b. Installation

1. Install return and supply lines (8) on front body bracket (2) and rear body bracket (10) with two clamps (3), washers (4), capscrews (5), and locknuts (1).
2. Connect supply and return lines (8) to four hoses (6) and tighten clamps (7).
3. Secure fuel supply and return lines (8) together with three clips (9).

3-26. FUEL TANK SUPPLY AND RETURN LINES REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Install engine right splash shield (para. 10-24.1).
 - Fill fuel tank (TM 9-2320-387-10) and check for fuel leaks.

3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

- | | |
|---|------------------------|
| <p>a. Removal</p> <p>b. Cleaning and Inspection</p> | <p>c. Installation</p> |
|---|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Ten lockwashers (Appendix A, Item 146)
 Four locknuts (Appendix A, Item 106)
 Four lockwashers (Appendix A, Item 144)
 Five locknuts (Appendix A, Item 77)
 Locknut (Appendix A, Item 262.2)
 Six lockwashers (Appendix A, Item 145)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Cooling system drained (TM 9-2320-387-24-1).
- Oil cooler removed (para. 3-8.1).
- Airlift bracket-to-hood seal removed (para. 10-55).
- Hood removed (TM 9-2320-387-24-2)

General Safety Instructions

Compressed air used for cleaning purposes must not exceed 30 psi (207 kPa).

Maintenance Level

Unit

CAUTION

Do not bend radiator fins. Damaged fins reduce cooling efficiency, which may damage engine.

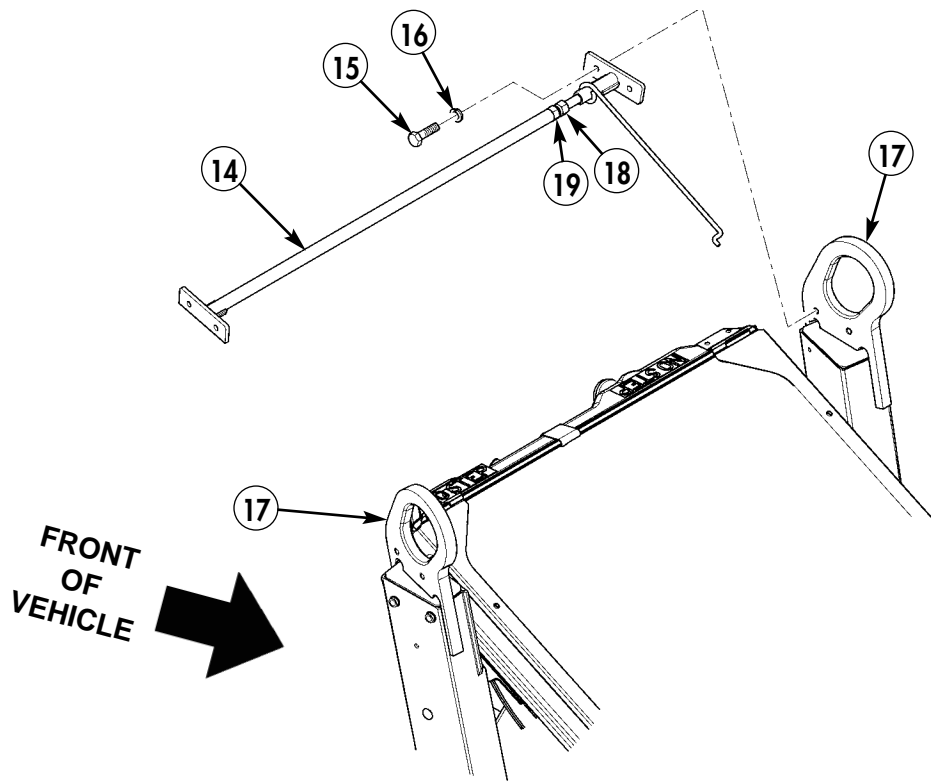
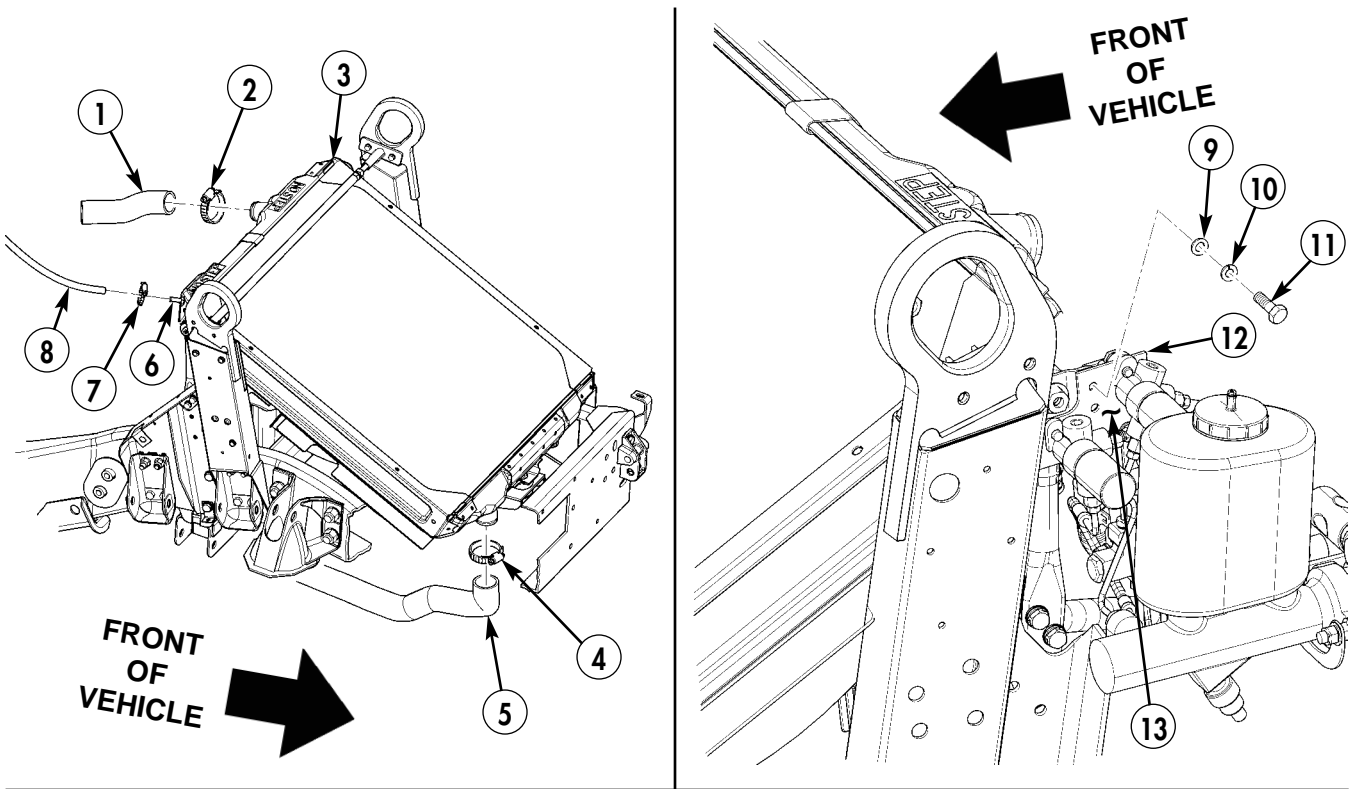
a. Removal

NOTE

The radiator and lower fan shroud are removed as a unit.

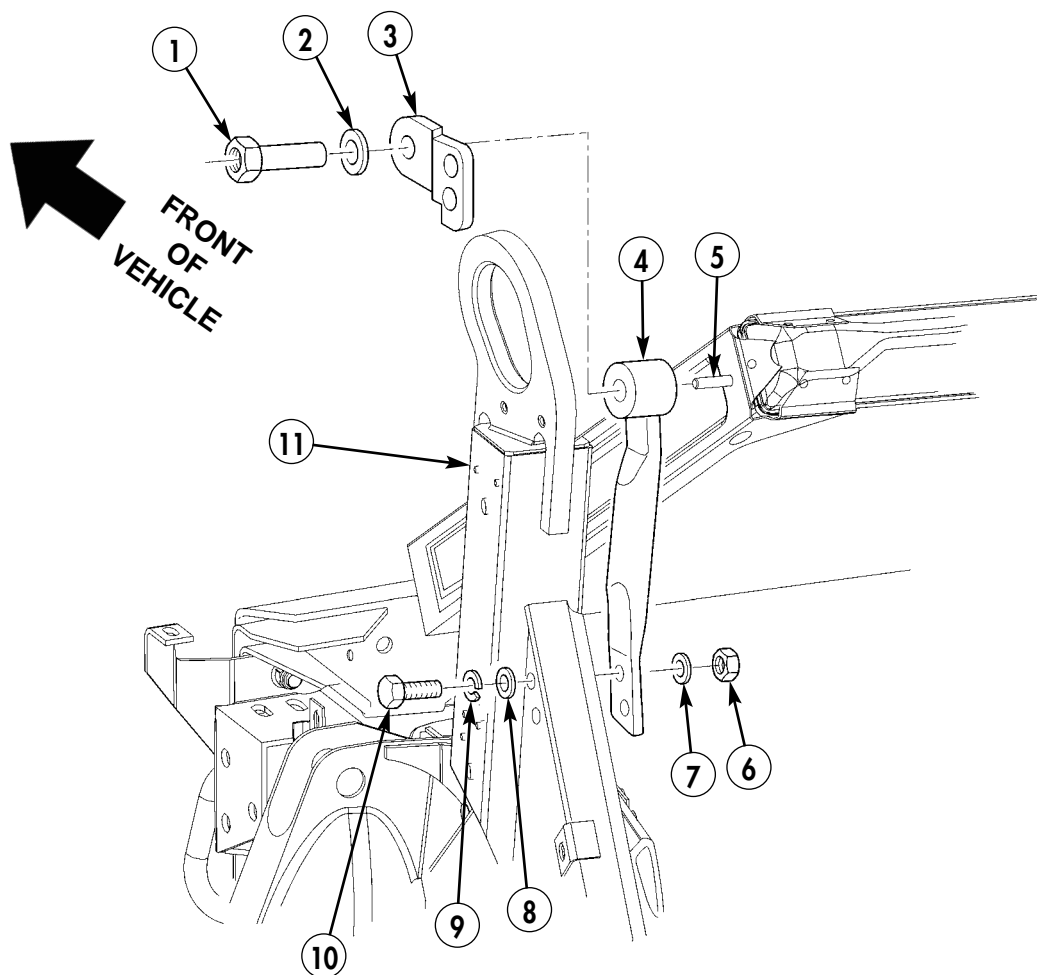
1. Loosen hose clamp (2) and remove inlet hose (1) from radiator (3).
2. Loosen hose clamp (4) and remove lower radiator hose (5) from radiator (3).
3. Loosen hose clamp (7) and remove surge tank-to-radiator vent hose (8) from adapter (6).
4. Remove two capscrews (11), lockwashers (10), washers (9), and pressure valve bracket (13) from bracket (12). Discard lockwashers (10).
5. Loosen outboard nut (18) and locknut (19), and release tension from crossbrace (14).
6. Remove four capscrews (15), lockwashers (16), and crossbrace (14) from two airlift brackets (17). Discard lockwashers (16).

**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

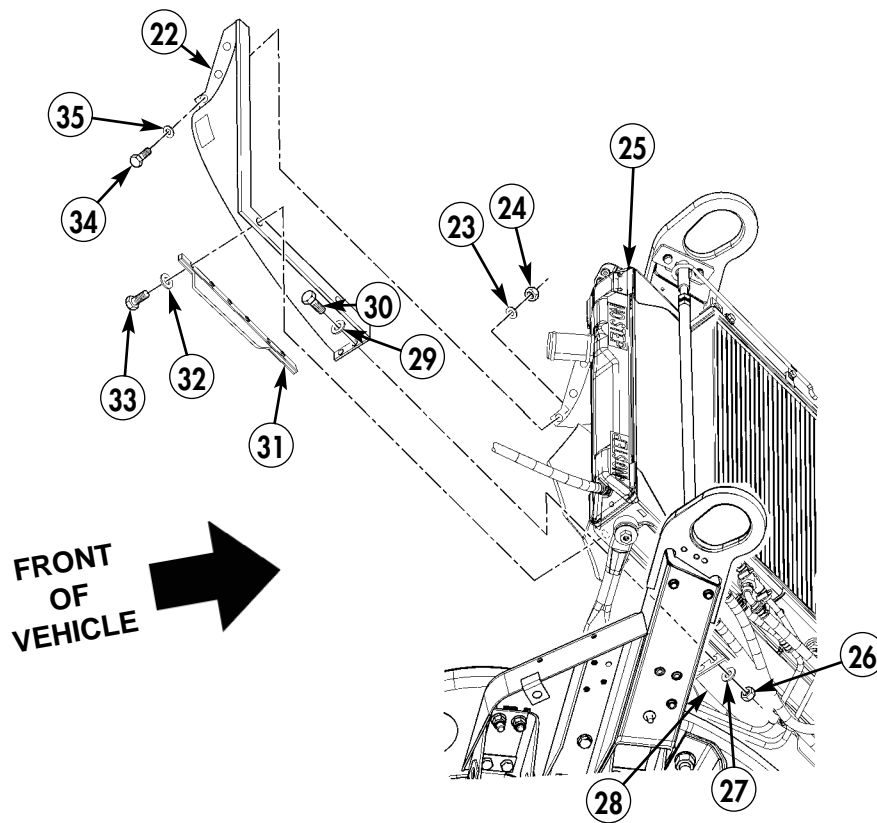
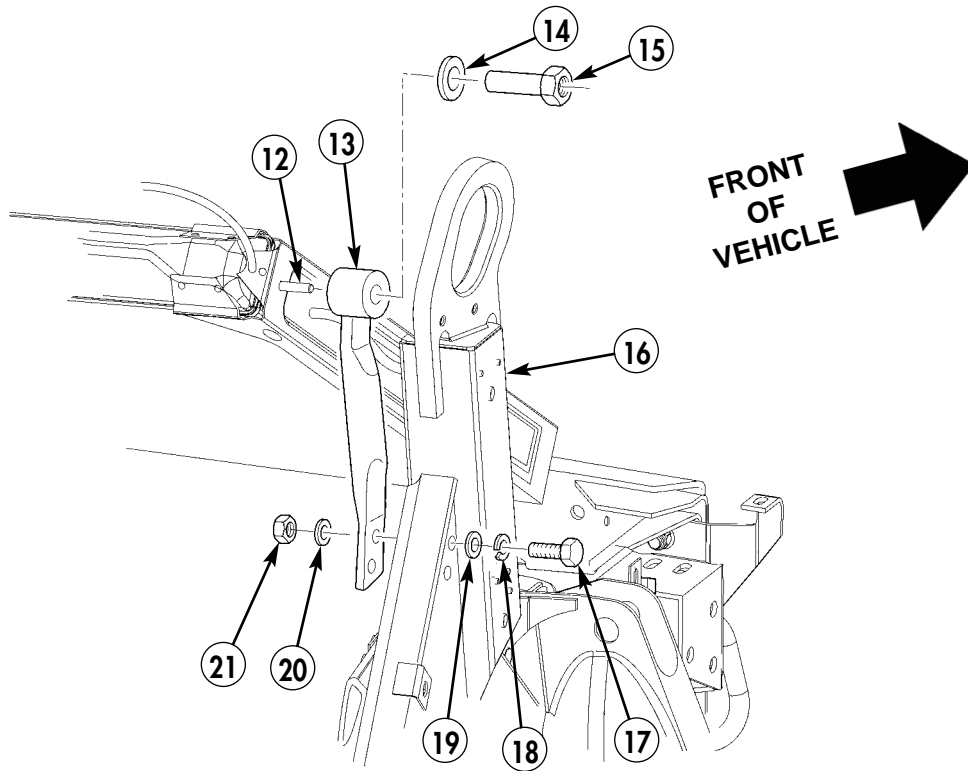


**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

7. Remove nut (1), washer (2), bracket (3), and left support bracket (4) from left radiator stud (5).
8. Remove two locknuts (6), washers (7), capscrews (10), lockwashers (9), washers (8), and left support bracket (4) from left airlift bracket (11). Discard locknuts (6) and lockwashers (9).
9. Remove nut (15), washer (14), and right support bracket (13) from right radiator stud (12).
10. Remove two locknuts (21), washers (20), capscrews (17), lockwashers (18), washers (19), and right support bracket (13) from right airlift bracket (16). Discard locknuts (21) and lockwashers (18).
11. Remove three locknuts (24), washers (23), capscrews (34), washers (35), and upper fan shroud (22) from lower fan shroud (28). Discard locknuts (24).
12. Remove two capscrews (33), lockwashers (32), and rubber shield (31) from upper fan shroud (22) and radiator (25). Discard lockwashers (32).
13. Remove two locknuts (26), washers (27), capscrews (30), washers (29), and upper fan shroud (22) from lower fan shroud (28). Discard locknuts (26).



**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

- (14. Remove locknut (2), capscrew (9), washer (8), large washer (7), spacer (6), large washer (3), and spacer (4) from radiator (1) and mounting bracket (5). Discard locknut (2).
15. Lift radiator (1) up and remove from vehicle.
16. Remove eight capscrews (10) and (13), lockwashers (11) and (14), fan shroud shields (12) and (15), and lower fan shroud (16) from radiator (1). Discard lockwashers (11) and (14).

b. Cleaning and Inspection

WARNING

Compressed air used for cleaning purposes must not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.). Failure to comply may result in injury to personnel.

1. Remove dirt, trash, and insects embedded in radiator fins using water and compressed air.
2. Inspect radiator adapter (18) for damage. Replace adapter (18) if damaged.
3. Inspect radiator (1) for breaks, punctures, cracks, and splits. Replace radiator (1) if broken, punctured, cracked, or split.
4. Inspect upper fan shroud (17) for cracks, splits, and breaks. Repair upper fan shroud (17) if cracked, split, or broken. Replace fan shroud if damaged.
5. Inspect lower fan shroud (16) for cracks, splits, and breaks. Repair lower fan shroud (16) if cracked, split, or broken. Replace lower fan shroud (16) if damaged.

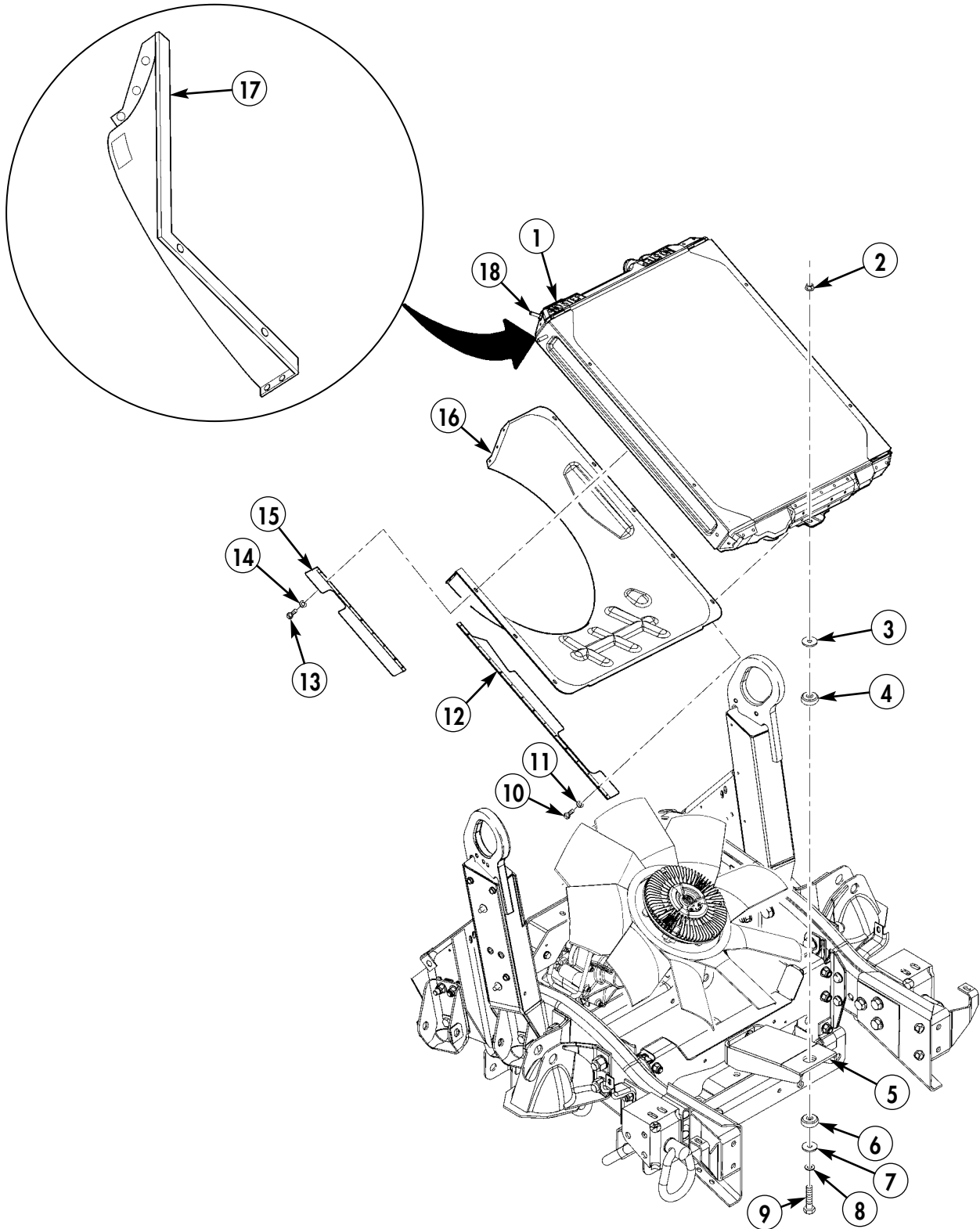
c. Installation

CAUTION

To ensure proper cooling of engine, upper edge of shroud must align with radiator top tank seam or damage to equipment may result.

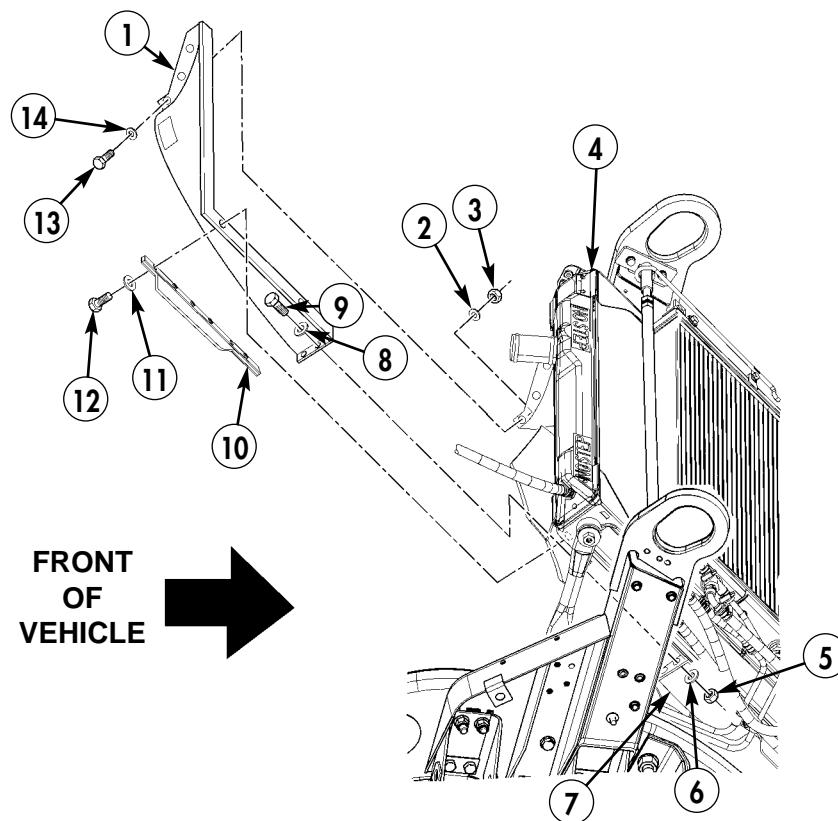
1. Install fan shroud shields (12) and (15) and lower fan shroud (16) on radiator (1) with eight lockwashers (14) and (11) and eight capscrews (13) and (10).
2. Install radiator (1), on mounting bracket (5) with large washer (7), washer (8), capscrew (9), spacer (4), large washer (3), spacer (6), and locknut (2).

**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

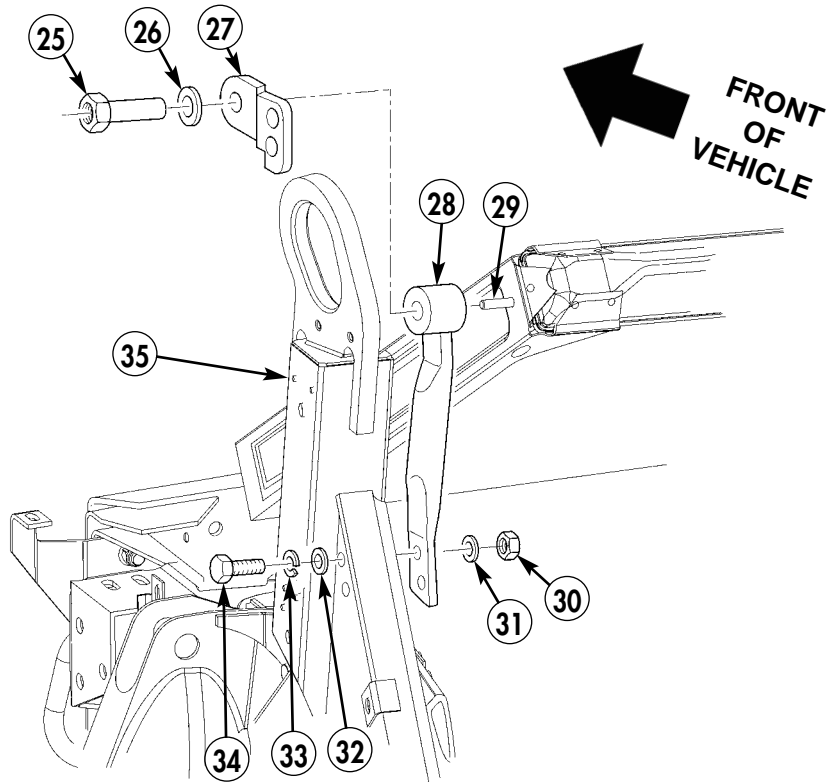
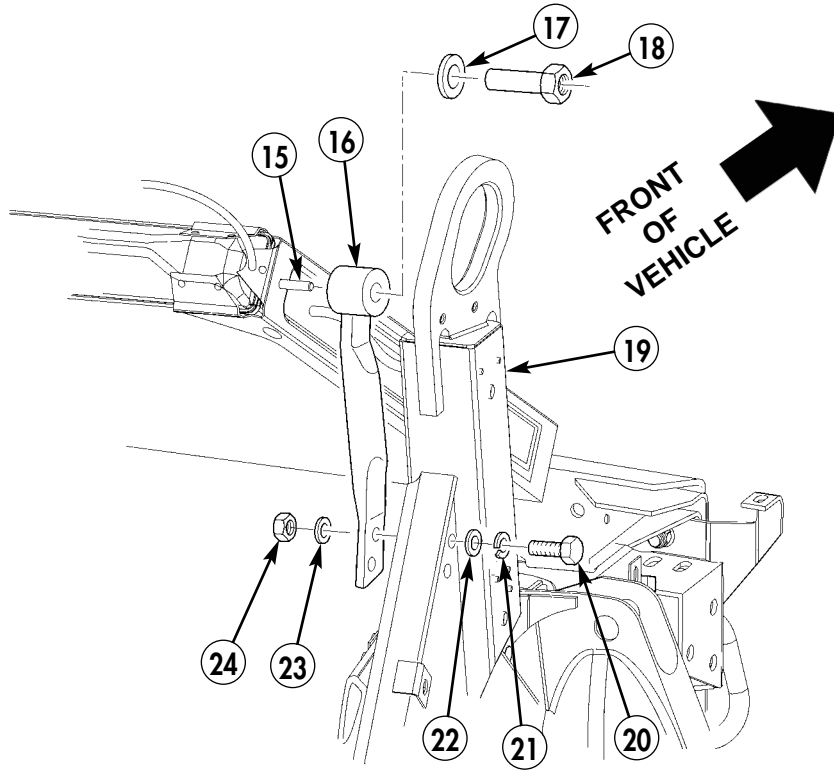


**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

3. Install upper fan shroud (1) on lower fan shroud (7) with two washers (8), capscrews (9), washers (6), and locknuts (5).
4. Install rubber shield (10) on upper fan shroud (1) and radiator (4) with two lockwashers (11) and capscrews (12).
5. Install upper fan shroud (1) on lower fan shroud (7) with three washers (14), capscrews (13), washers (2), and locknuts (3).
6. Install right support bracket (16) on right airlift bracket (19) with two washers (22), lockwashers (21), capscrews (20), washers (23), and locknuts (24).
7. Install right support bracket (16) on right radiator stud (15) with washer (17) and nut (18).
8. Install left support bracket (28) on left airlift bracket (35) with two washers (32), lockwashers (33), capscrews (34), washers (31), and locknuts (30).
9. Install left support bracket (28) on left radiator stud (29) with bracket (27), washer (26), and nut (25).



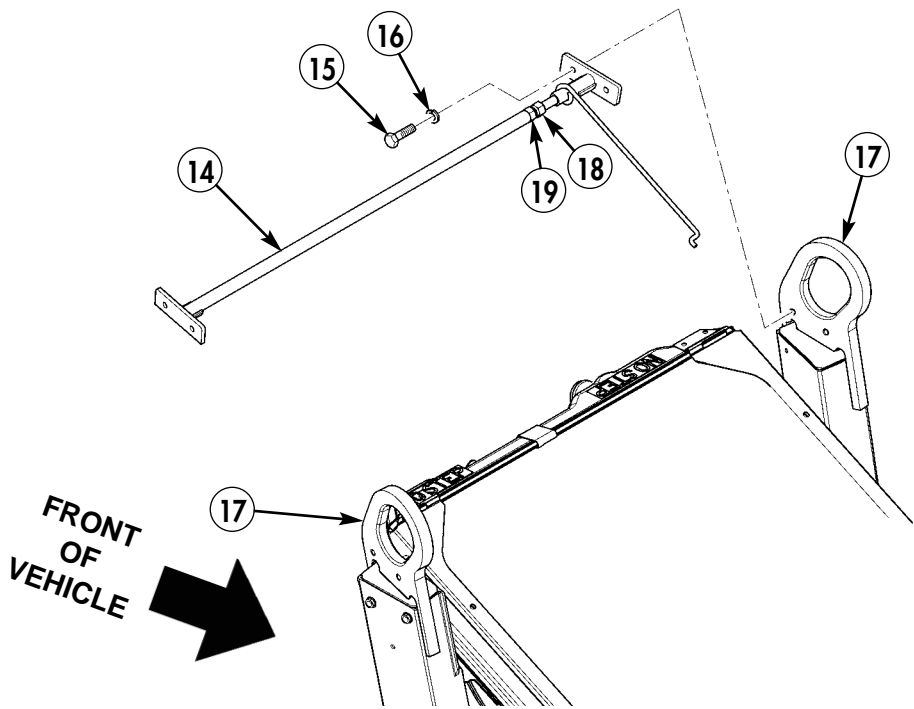
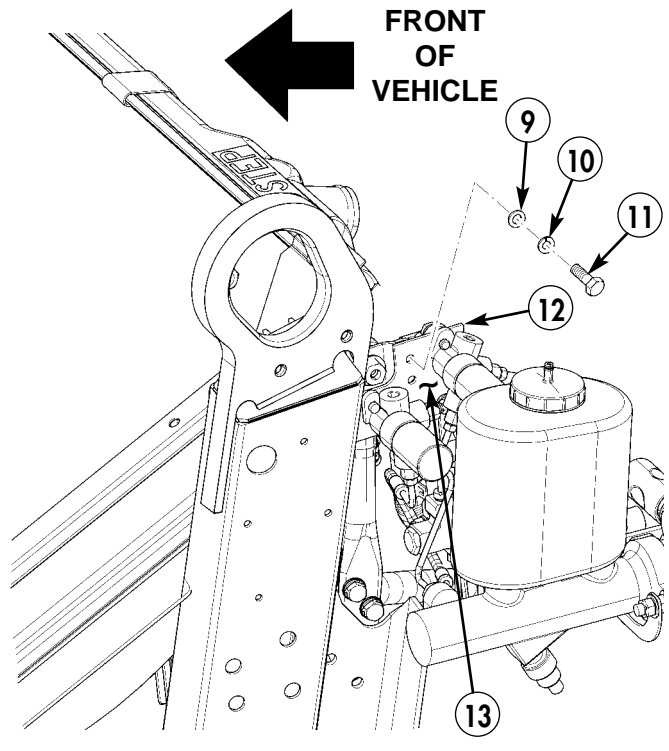
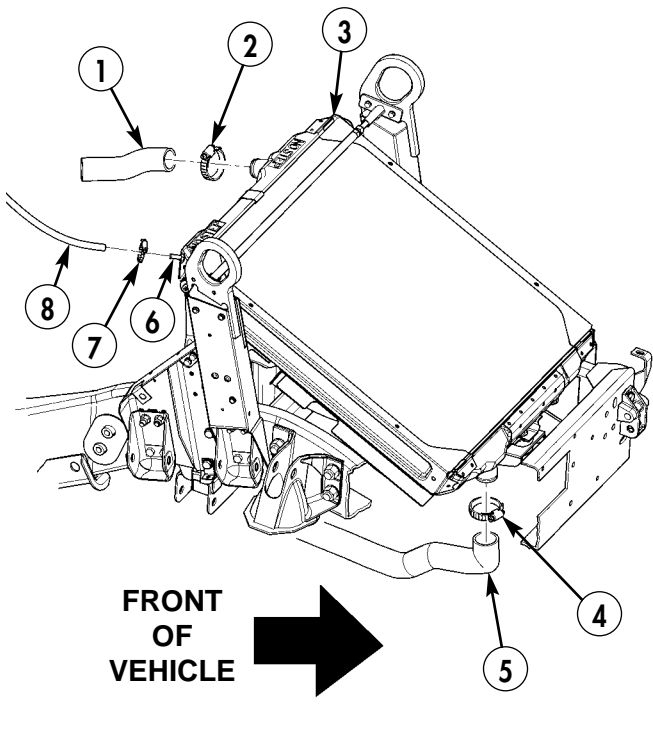
**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

10. Install crossbrace (14) on two airlift brackets (17) with four lockwashers (16) and capscrews (15).
11. Tighten outboard nut (18) and locknut (19) on crossbrace (14) until slack is removed.
12. Secure pressure valve bracket (13) to bracket (12) with two washers (9), lockwashers (10), and capscrews (11).
13. Install surge tank-to-radiator vent hose (8) on adapter (6) with hose clamp (7). Tighten hose clamp (7) to 10–20 lb-in. (1–2 N•m).
14. Install lower radiator hose (5) on radiator (3) with hose clamp (4). Tighten hose clamp (4) 85–95 lb-in. (9.6–10.7 N•m).
15. Install radiator inlet hose (1) on radiator (3) with hose clamp (2). Tighten hose clamp (2) 85–95 lb-in. (9.6–10.7 N•m).

**3-62.1. RADIATOR AND FAN SHROUD ASSEMBLY MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install hood (TM 9-2320-387-24-2)
 - Install airlift bracket-to-hood seal (para. 10-55).
 - Install oil cooler (para. 3-8.1).
 - Fill cooling system (TM 9-2320-387-24-1).

3-62.2. UPPER FAN SHROUD REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Five locknuts (Appendix A, Item 77)
Two lockwashers (Appendix A, Item 146)

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Right splash shield removed (para. 10-24.1).

Maintenance Level

Unit

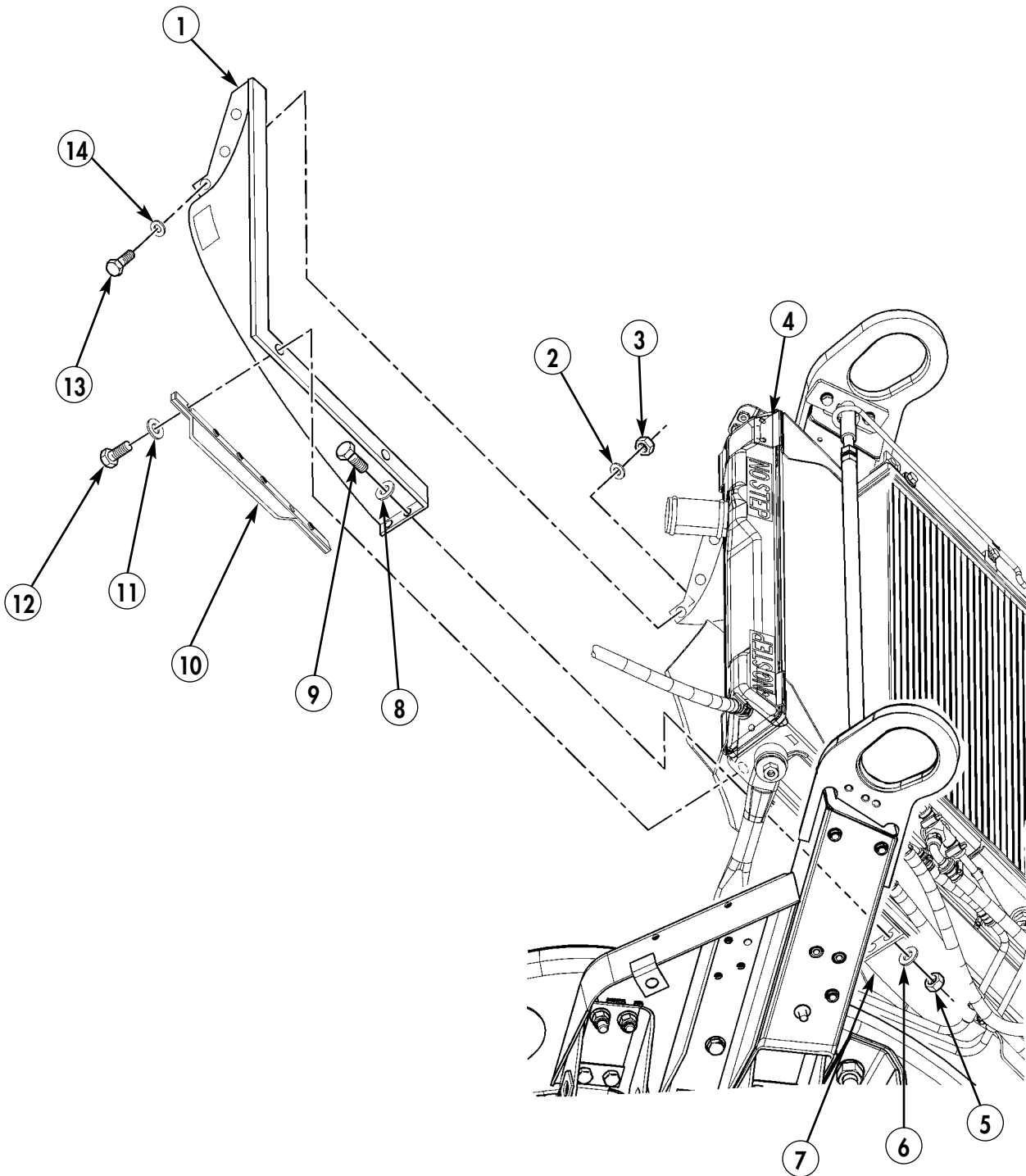
a. Removal

1. Remove three locknuts (3), washers (2), capscrews (13), and washers (14) from upper fan shroud (1) and lower fan shroud (7). Discard locknuts (3).
2. Remove two capscrews (12), lockwashers (11), and rubber shield (10) from upper fan shroud (1) and radiator (4). Discard lockwashers (11).
3. Remove two locknuts (5), washers (6), capscrews (9), washers (8), and upper fan shroud (1) from lower fan shroud (7). Discard locknuts (5).

b. Installation

1. Install upper fan shroud (1) on lower fan shroud (7) with two capscrews (9), washers (8), washers (6), and locknuts (5).
2. Install rubber shield (10) on upper fan shroud (1) and radiator (4) with two lockwashers (11) and capscrews (12).
3. Secure upper fan shroud (1) to lower fan shroud (7) with three washers (14), capscrews (13), washers (2), and locknuts (3).

3-62.2. UPPER FAN SHROUD REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASK: Install right splash shield (para. 10-24.1).

3-64.1. RADIATOR SUPPORTS REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two lockwashers (Appendix A, Item 144)
 Two locknuts (Appendix A, Item 106)
 Two lockwashers (Appendix A, Item 146)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Engine left splash shield removed (para. 10-23.1).
- Engine right splash shield removed (para. 10-24.1).

Maintenance Level

Unit

NOTE

Replacement procedures for left and right radiator support brackets are basically the same. This procedure shows the left side.

a. Removal

NOTE

Perform step 1 for left side only.

1. Remove two capscrews (14), lockwashers (13), washers (12), and pressure valve bracket (15) from bracket (3). Discard lockwasher (13).
2. Remove two locknuts (6), washers (7), capscrews (10), lockwashers (9), and washers (8) from airlift bracket (11). Discard locknuts (6) and lockwashers (9).
3. Remove nut (1), washer (2), bracket (3), and support bracket (4) from radiator support (5).

b. Installation

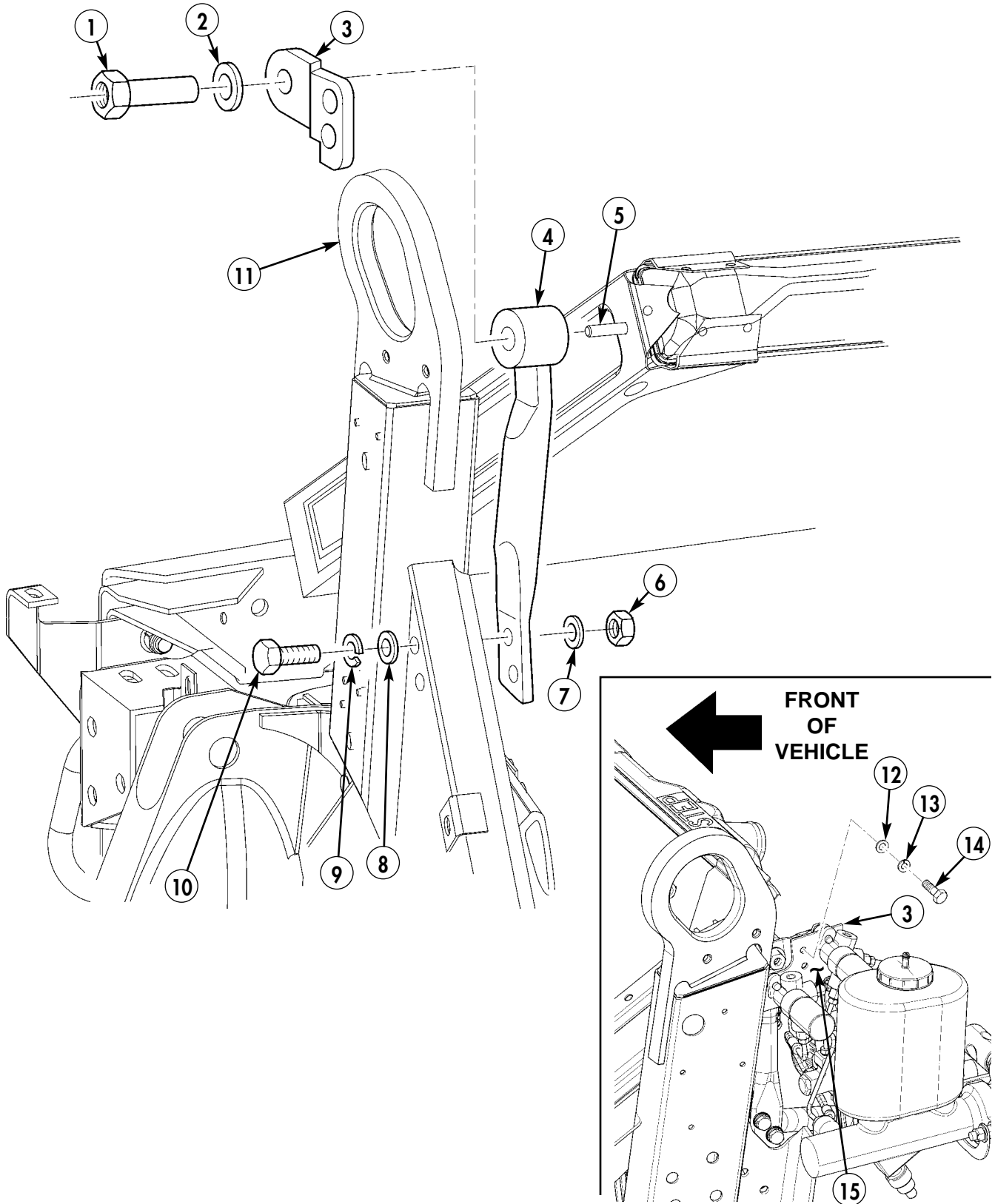
1. Install support bracket (4) on radiator support (5) with bracket (3), washer (2), and nut (1).
2. Secure support bracket (4) to airlift bracket (11) with two washers (8), lockwashers (9), capscrews (10), washers (7), and locknuts (6).

NOTE

Perform step 3 for left side only.

3. Install pressure valve bracket (15) on bracket with two washers (12), lockwashers (13), and capscrews (14).

3-64.1. RADIATOR SUPPORTS REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASKS:

- Install engine right splash shield (para. 10-24.1).
- Install engine left splash shield (para. 10-23.1).

3-68.1. THERMOSTAT BYPASS HOSE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

Cooling system drained, as required
(TM 9-2320-387-24-1).

Manual References

TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Maintenance Level

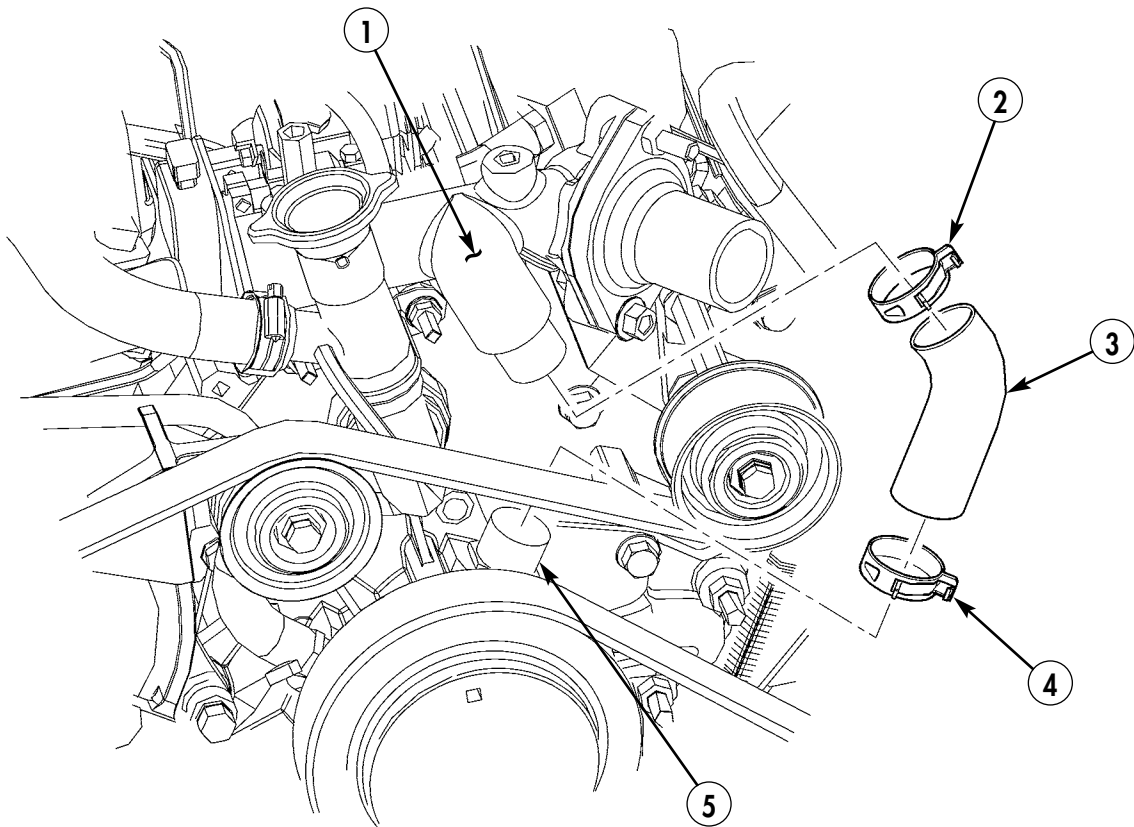
Unit

a. Removal

1. Loosen clamps (2) and (4) and remove thermostat bypass hose (3) from water pump (5) and water crossover (1).
2. Remove clamps (2) and (4) from thermostat bypass hose (3).

b. Installation

1. Install clamps (2) and (4) on thermostat bypass hose (3).
2. Install thermostat bypass hose (3) on water pump (5) and water crossover (1) with clamps (2) and (4).

**3-68.1. THERMOSTAT BYPASS HOSE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)
(Cont'd)**

FOLLOW-ON TASK: Fill cooling system (TM 9-2320-387-24-1).

**3-71.1. RADIATOR LOWER TUBE ASSEMBLY REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two locknuts (Appendix A, Item 77)
 Sealing compound (Appendix C, Item 62)

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Cooling system drained
 (TM 9-2320-387-24-1).

Maintenance Level

Unit

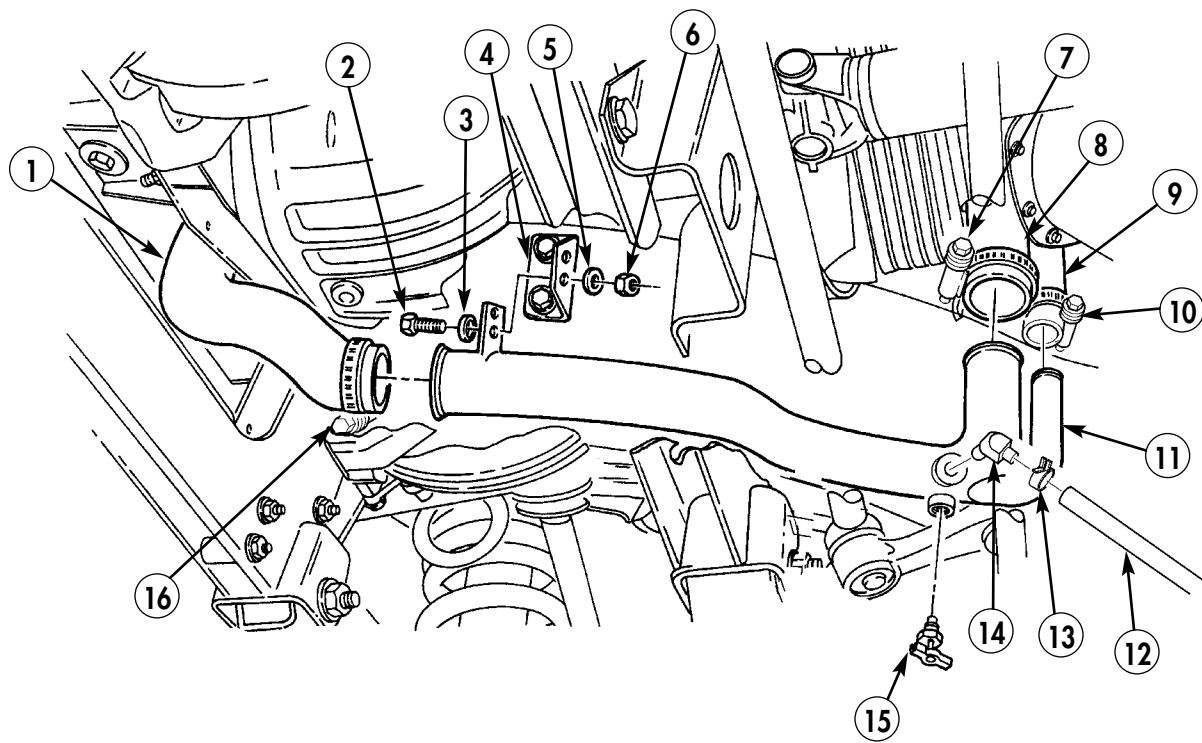
a. Removal

1. Remove drainvalve (15) from radiator lower tube assembly (11).
2. Loosen clamp (7) and disconnect water pump inlet hose (8) from radiator lower tube assembly (11).
3. Loosen clamp (10) and disconnect surge tank-to-lower radiator hose (9) from radiator lower tube assembly (11).
4. Loosen clamp (16) and disconnect lower radiator hose (1) from radiator lower tube assembly (11).
5. Loosen clamp (13) and disconnect transfer case coolant hose (12) from tee (14).
6. Remove two locknuts (6), washers (5), capscrews (2), washers (3), and radiator lower tube assembly (11) from frame bracket (4). Discard locknuts (6).
7. Remove tee (14) from radiator lower tube assembly (11).

b. Installation

1. Apply sealing compound to threads of tee (14) and install tee (14) on radiator lower tube assembly (11).
2. Install radiator lower tube assembly (11) on frame bracket (4) with two capscrews (2), washers (3), washers (5), and locknuts (6). Tighten locknuts (6) to 72 lb-in. (8 N•m).
3. Connect transfer case coolant hose (12) to tee (14) with clamp (13).
4. Connect lower radiator hose (1) to radiator lower tube assembly (11) and tighten clamp (16) to 85-95 lb-in. (10-11 N•m).
5. Connect surge tank-to-lower radiator hose (9) to radiator lower tube assembly (11) and tighten clamp (10) to 85-95 lb-in. (10-11 N•m).
6. Connect water pump inlet hose (8) to radiator lower tube assembly (11) and tighten clamp (7) to 85-95 lb-in. (10-11 N•m).
7. Apply sealing compound to threads of drainvalve (15) and install drainvalve (15) on radiator lower tube assembly (11).

**3-71.1. RADIATOR LOWER TUBE ASSEMBLY REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Fill cooling system (TM 9-2320-387-24-1).

3-76.1. THERMOSTAT REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Gasket (Appendix A, Item 41)
 Sealing compound (Appendix C, Item 61)
 Lockwasher (Appendix A, Item 185)

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Cooling system drained, as required
 (TM 9-2320-387-24-1).

Maintenance Level

Unit

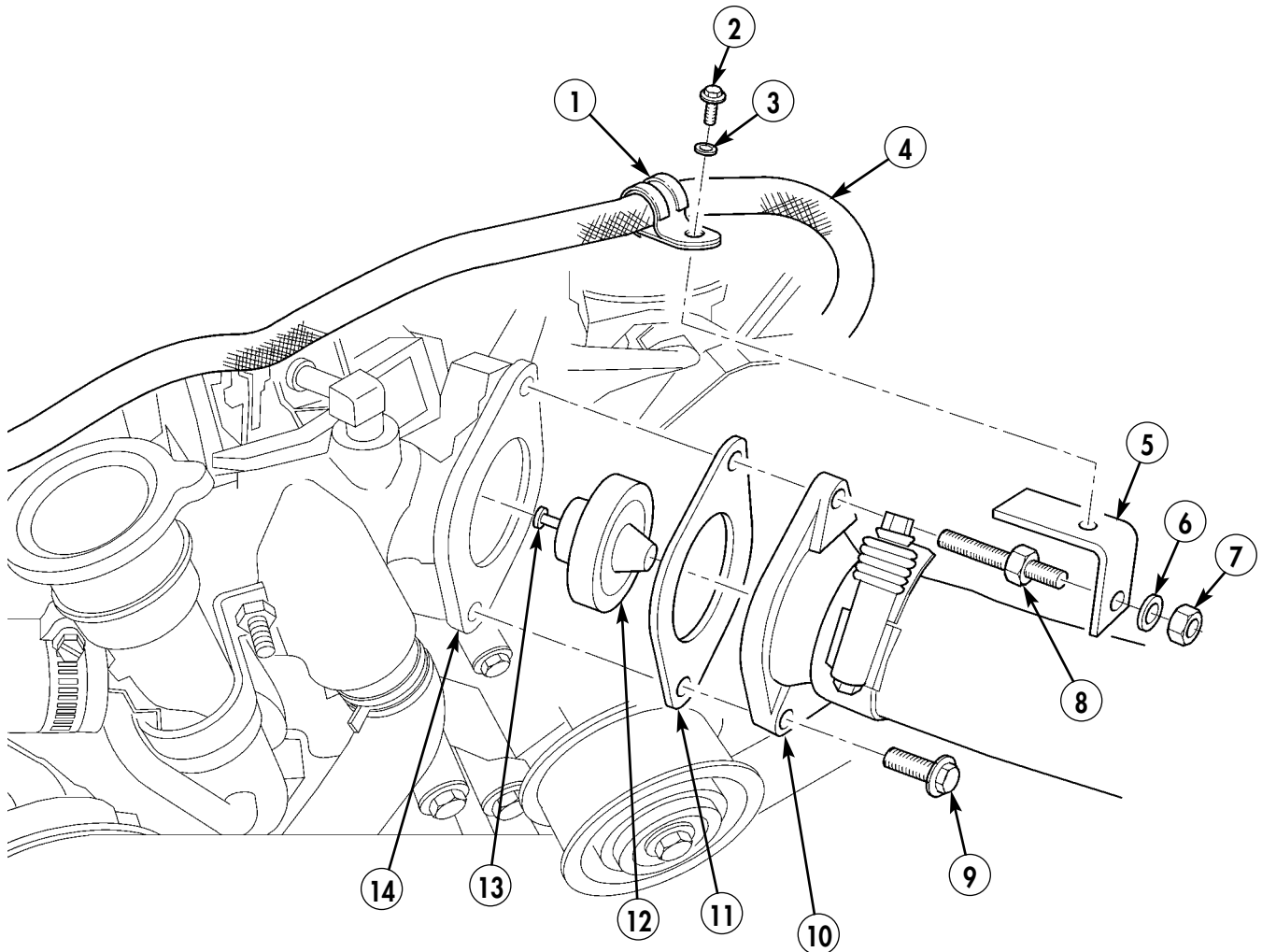
a. Removal

1. Remove capscrew (2), washer (3), wiring harness (4), and clamp (1) from bracket (5).
2. Remove nut (7), lockwasher (6), and bracket (5) from stud (8). Discard lockwasher (6).
3. Remove stud (8), capscrew (9), thermostat housing (10), gasket (11), and thermostat (12) from water crossover (14). Discard gasket (11).
4. Clean gasket surface on water crossover (14) and thermostat housing (10).

b. Installation

1. Install thermostat (12) into water crossover (14), ensuring valve sensor (13) points toward water crossover (14).
2. Position gasket (11) on thermostat housing (10). Apply sealing compound to fastener threads and insert capscrew (9) and stud (8) to align gasket (11).
3. Install thermostat housing (10) over thermostat (12) and on water crossover (14) with capscrew (9) and stud (8). Tighten capscrew (9) and stud (8) to 25 lb-ft (34 N•m).
4. Install bracket (5) on stud (8) with lockwasher (6) and nut (7).
5. Install clamp (1) and wiring harness (4) on bracket (5) with washer (3) and capscrew (2).

3-76.1. THERMOSTAT REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASK: Fill cooling system (TM 9-2320-387-24-1).

3-78. WATER PUMP AND ADAPTER PLATE MAINTENANCE

This task covers:

- | | |
|--|------------------------|
| <p>a. Removal</p> <p>b. Inspection</p> | <p>c. Installation</p> |
|--|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Gasket (Appendix A, Item 49)
 Pipe sealing compound (Appendix C, Item 62)
 Sealing compound (Appendix C, Item 63)
 Anaerobic gasket sealer (Appendix C,
 Item 58)

Manual References

TM 9-2320-387-24P

Equipment Condition

- Engine oil filler tube removed (TM 9-2320-387-24-1).
- Water pump inlet hose removed (TM 9-2320-387-24-1).
- Water pump pulley removed (para. 3-77.1).
- Thermostat bypass hose removed (para. 3-68.1).
- Tensioner, idler pulleys, and mounting hardware removed (TM 9-2320-387-24-1).
- Power steering pump removed (para. 8-23.1).

Maintenance Level

Unit

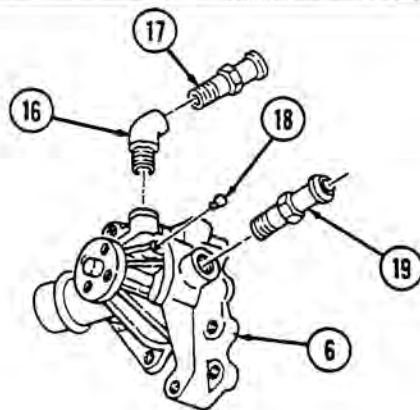
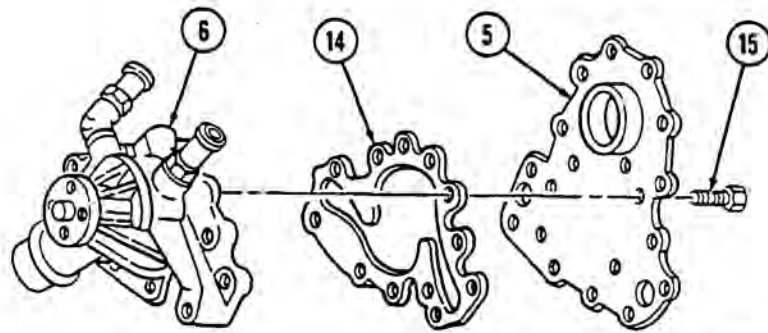
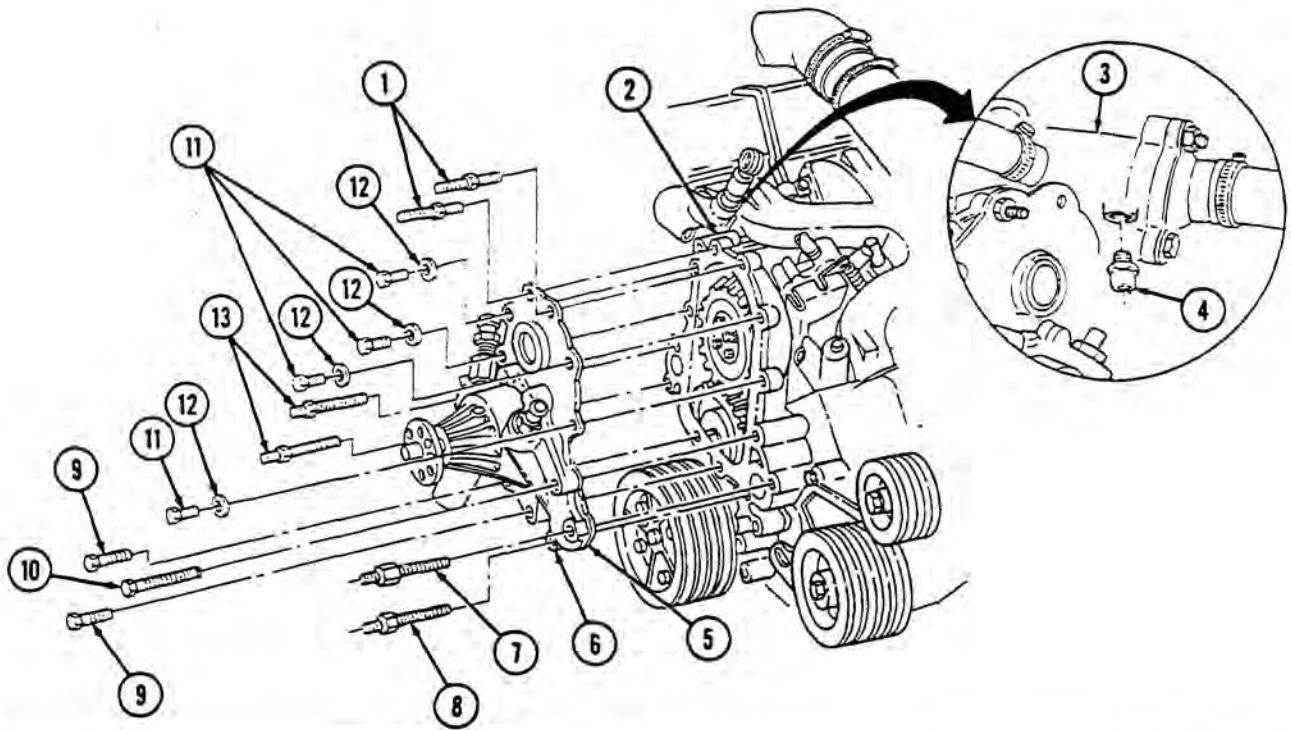
a. Removal

1. Remove bypass nipple (4) from water crossover (3).
2. Remove studs (1), (13), (8), and (7), four capscrews (11), washers (12), two capscrews (9), capscrew (10), water pump (6), and adapter plate (5) from timing gear cover (2).
3. Remove seven capscrews (15), adapter plate (5), and gasket (14) from water pump (6). Discard gasket (14).
4. Clean remaining gasket material and sealing compound from sealing surfaces on adapter plate (5), water pump (6), and timing gear cover (2).
5. Remove heater hose nipple (17), elbow (16), and bypass hose adapter (19) from water pump (6).

b. Inspection

1. Inspect water pump (6) for cracks, breaks, or loose impeller. Replace if cracked, broken, or impeller is loose.
2. Inspect adapter plate (5) for corrosion. If adapter plate (5) is excessively corroded, replace.
3. Inspect elbow (16), heater hose nipple (17), and bypass hose adapter (19) for stripped threads and breaks. If damaged, replace.
4. Inspect rivet (18) for damage or looseness. Replace if damaged or loose. Apply sealing compound to replacement rivet (18) prior to installation.

3-78. WATER PUMP AND ADAPTER PLATE MAINTENANCE (Cont'd)



3-78. WATER PUMP AND ADAPTER PLATE MAINTENANCE (Cont'd)

c. Installation

CAUTION

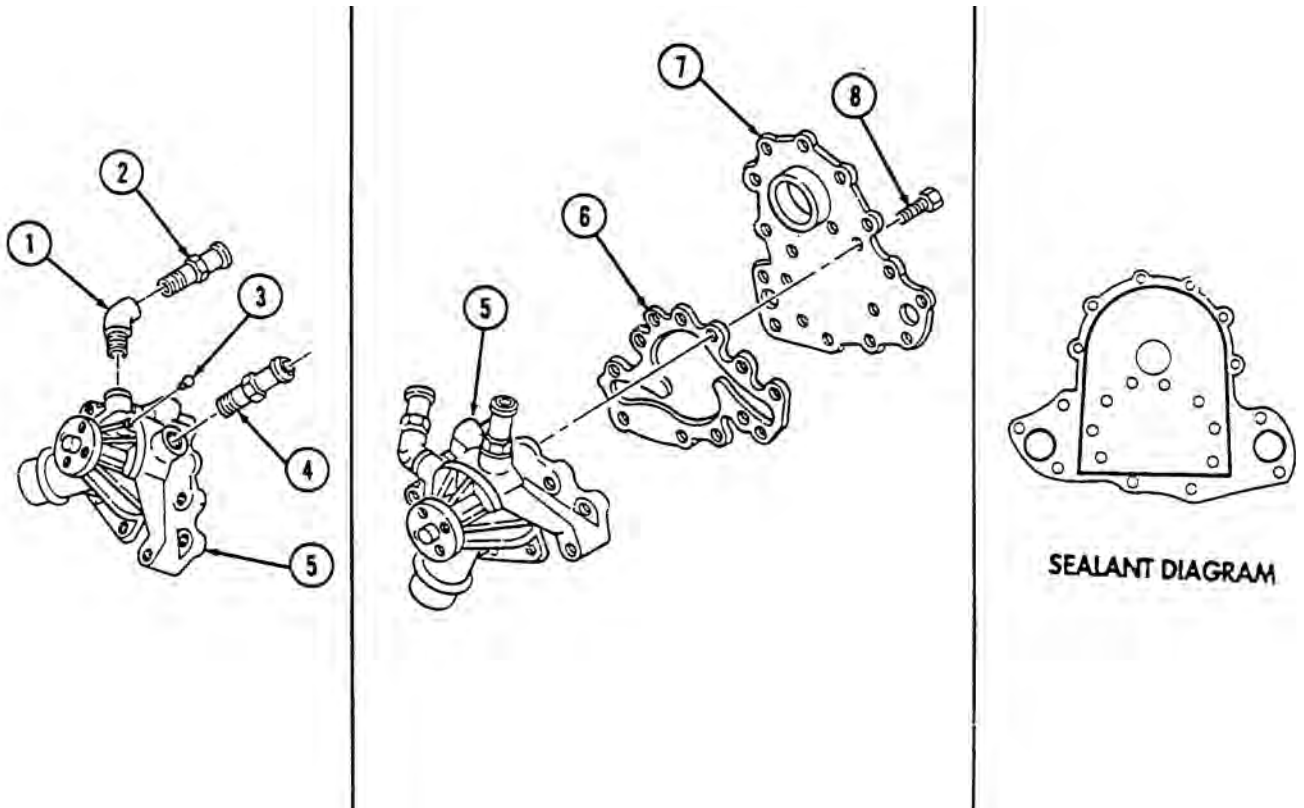
Ensure water pump P/N 23500085 is used on 6.5L engines or damage to equipment will result.

1. Install gasket (6) and adapter plate (7) on water pump (5) with seven capscrews (8). Tighten capscrews (8) to 13-20 lb-ft (18-27 N•m).

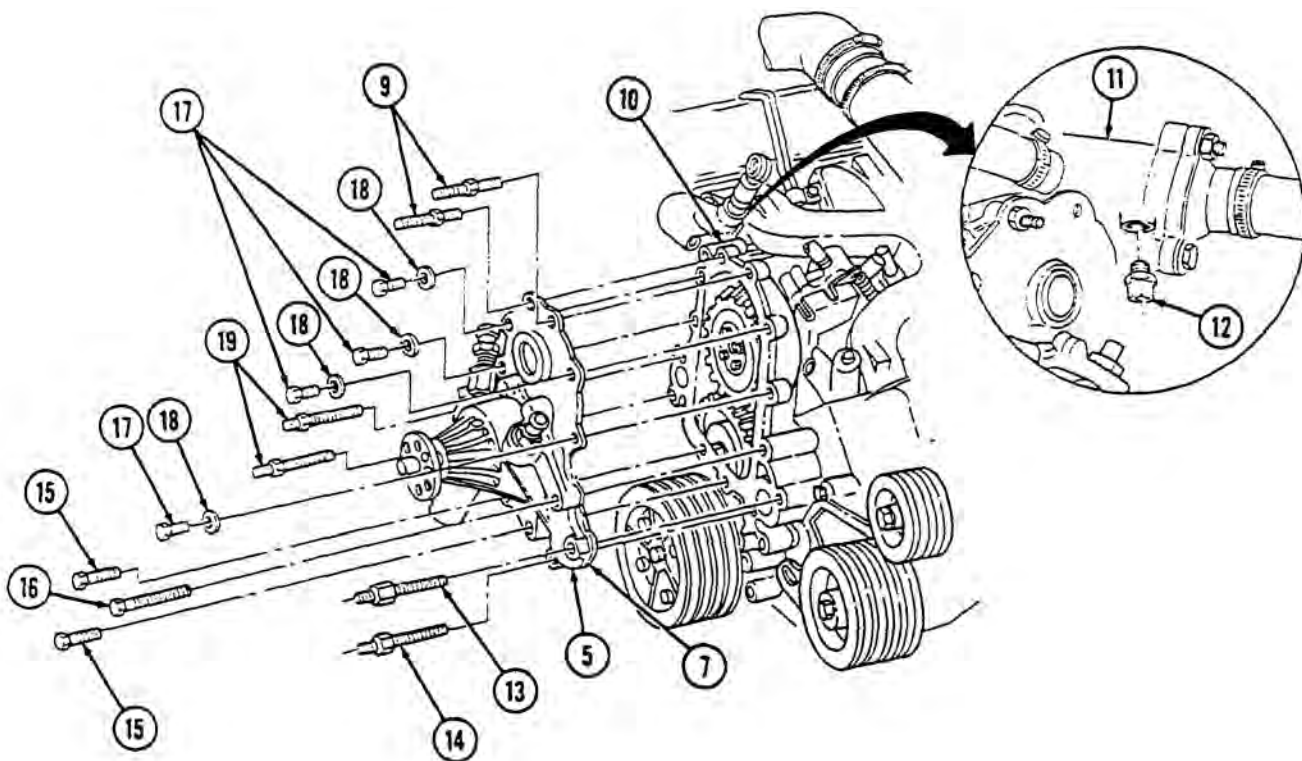
NOTE

Perform step 2 if a new water pump is being installed.

2. Apply sealing compound to rivet (3) and install in water pump (5).
3. Apply anaerobic gasket sealer to sealing surfaces on adapter plate (7) following diagram shown.
4. Apply pipe sealing compound to capscrew (16).
5. Install adapter plate (7) and water pump (5) on timing gear cover (10) with two long studs (19), stud (14), stud with thick hex (13), and capscrew (16).
6. Install two capscrews (15), studs (9), four washers (18), and capscrews (17). Tighten studs (9) and capscrews (15) and (17) to 13-20 lb-ft (18-27 N•m). Tighten studs (19), (14), and (13) to 25-37 lb-ft (34-50 N•m).
7. Apply pipe sealing compound to threads of elbow (1), heater hose nipple (2), and bypass hose adapter (4) and install in water pump (5).
8. Coat threads of bypass nipple (12) with pipe sealing compound and install in water crossover (11).



3-78. WATER PUMP AND ADAPTER PLATE MAINTENANCE (Cont'd)



- FOLLOW-ON TASKS:
- Install power steering pump (para. 8-23.1).
 - Install tensioner, idler pulleys, and mounting hardware (TM 9-2320-387-24-1).
 - Install water pump pulley (para. 3-77.1).
 - Install water pump inlet hose (TM 9-2320-387-24-1).
 - Install engine oil filler tube (TM 9-2320-387-24-1).
 - Install thermostat bypass hose (para. 3-68.1).

3-79.1. WATER CROSSOVER MAINTENANCE (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

- a. Removal
- b. Inspection

- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two gaskets (Appendix A, Item 44)
 Lockwasher (Appendix A, Item 185)

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Glow plug controller removed (TM 9-2320-387-24-1).
- Thermostat removed (para. 3-76.1).

Maintenance Level

Unit

a. Removal

1. Loosen hose clamps (2) and (19) and disconnect hoses (1) and (18) from water crossover (24).
2. Loosen hose clamp (15) and disconnect hose (16) from water crossover (24).
3. Remove cooling hose (23) from elbow (4).
4. Remove nut (5), lockwasher (6), washer (7), ground wire (8), and ground strap (9) from stud (10). Discard lockwasher (6).
5. Remove stud (10), washer (11), three capscrews (21), and water crossover (24) from cylinder heads (14) and (17).
6. Remove gaskets (13) and (20) from cylinder heads (14) and (17). Discard gaskets (13) and (20).
7. Remove elbow (4) from water crossover (24).

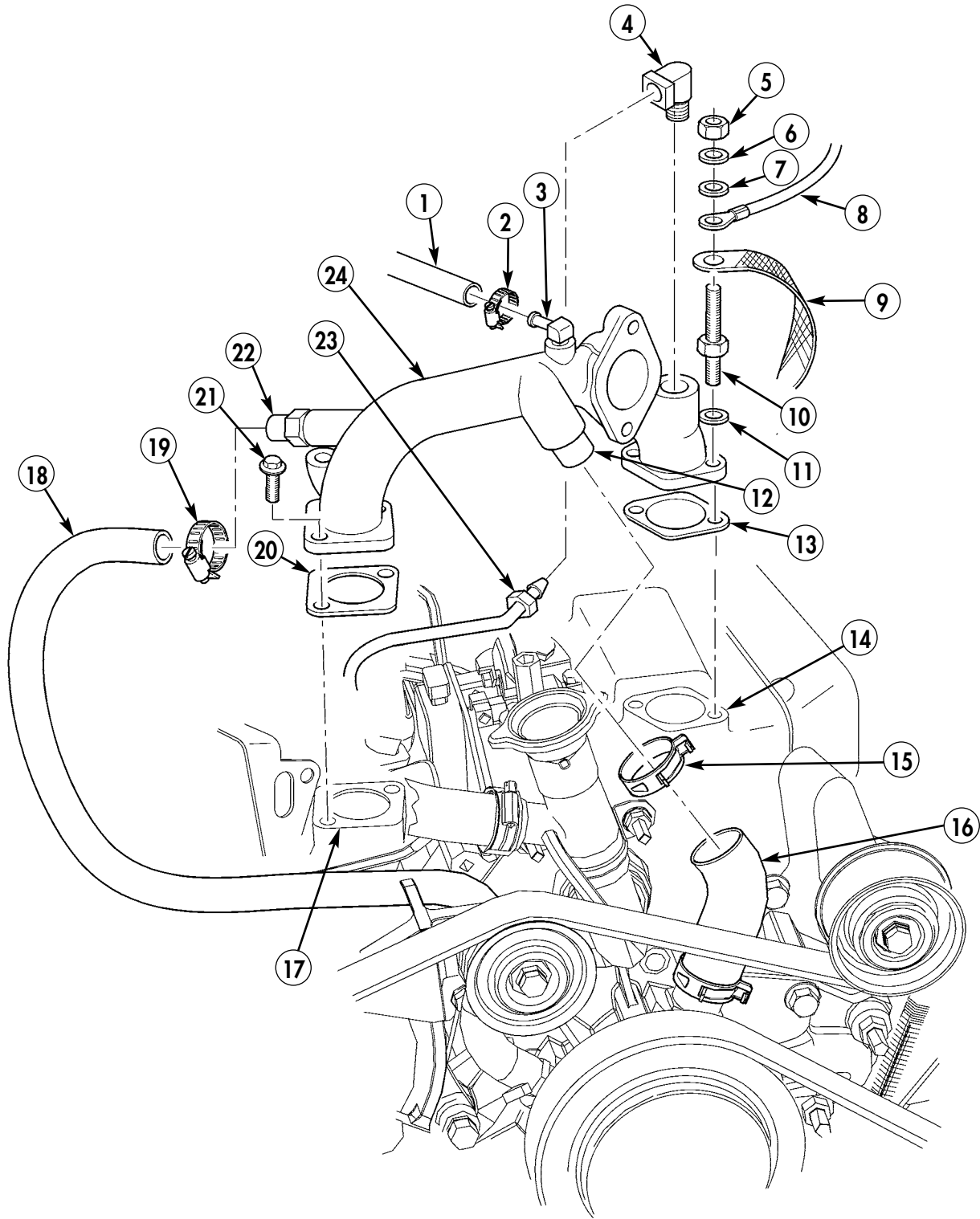
b. Inspection

1. Clean gasket surface on water crossover (24) and cylinder heads (14) and (17).
2. Inspect thermostat bypass nipple (22), surge tank hose nipple (3), and water pump hose adapter (12) for cracks or breaks. Replace if defective.

c. Installation

1. Install elbow (4) on water crossover (24).
2. Install gaskets (13) and (20) on cylinder heads (14) and (17).
3. Install water crossover (24) on cylinder heads (14) and (17) with stud (10), washer (11), and three capscrews (21). Tighten capscrews (21) and stud (10) to 25-35 lb-ft (34-48 N•m).
4. Install ground wire (8) and ground strap (9) on stud (10) with washer (7), lockwasher (6), and nut (5).
5. Install cooling hose (23) on elbow (4).
6. Connect hose (16) on water crossover (24) and install hose clamp (15).
7. Connect hoses (1) and (18) on water crossover (24) and tighten hose clamps (2) and (19).

3-79.1. WATER CROSSOVER MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- FOLLOW-ON TASKS:
- Install thermostat (para. 3-76.1).
 - Install glow plug controller (TM 9-2320-387-24-1).

**3-80.1. FAN BLADE AND FAN CLUTCH MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Removal b. Inspection | <ul style="list-style-type: none"> c. Installation |
|---|---|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Four lockwashers (Appendix A, Item 144)
 Sealing compound (Appendix C, Item 71)
 Six lockwashers (Appendix A, Item 145)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

Radiator and fan shroud assembly removed
 (para. 3-62.1).

Maintenance Level

Unit

a. Removal

1. Remove four capscrews (2), lockwashers (3), washers (4), and fan blade (5) from geared fan drive hub (6). Discard lockwashers (3).
2. Remove six capscrews (7), lockwashers (8), washers (9), and fan blade (5) from fan clutch (1). Discard lockwashers (8).

b. Inspection

Inspect fan blade (5), geared fan drive hub (6), and fan clutch (1) for damaged threads, cracks, bent blades or breaks. Replace if damaged.

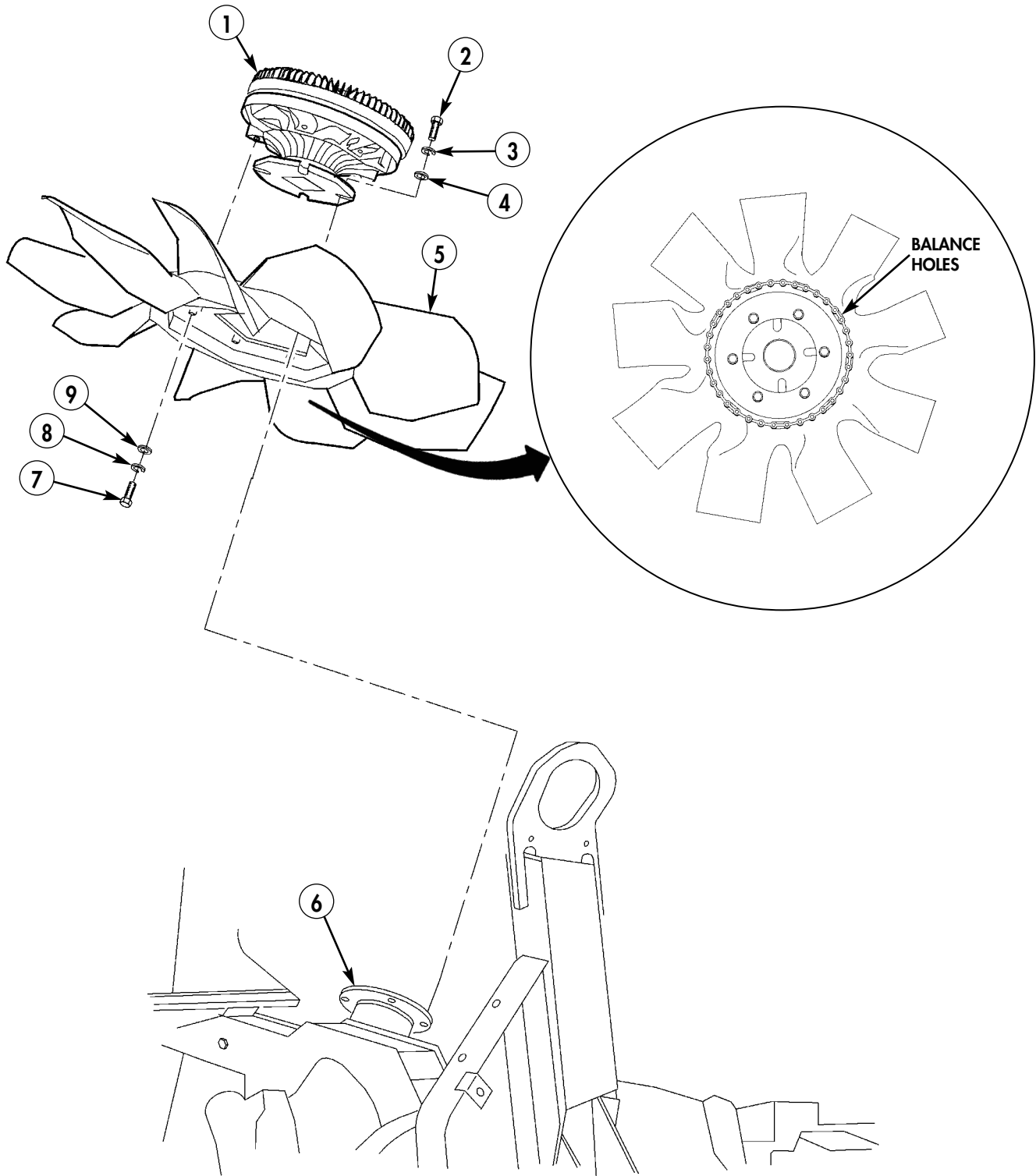
c. Installation

CAUTION

Balance holes must face down towards geared fan drive hub.

1. Apply sealing compound to capscrews (2) and (7).
2. Install fan clutch (1) on fan blade (5) with six washers (9), lockwashers (8), and capscrews (7). Tighten capscrew (7) to 13-16 lb-ft (18-22 N•m).
3. Install fan blade (5) on geared fan drive hub (6) with four washers (4), lockwashers (3), and capscrews (2). Tighten capscrew (2) to 37 lb-ft (50 N•m).

**3-80.1. FAN BLADE AND FAN CLUTCH MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install radiator and fan shroud assembly (para. 3-62.1).

3-80.2. GEARED FAN DRIVE AND UPPER FRONT REAR CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Five lockwashers (Appendix A, Item 144)
 Four locknuts (Appendix A, Item 106)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Fan blade and fan clutch removed (para. 3-80.1).
- Front differential vent line removed (para. 6-14.1).

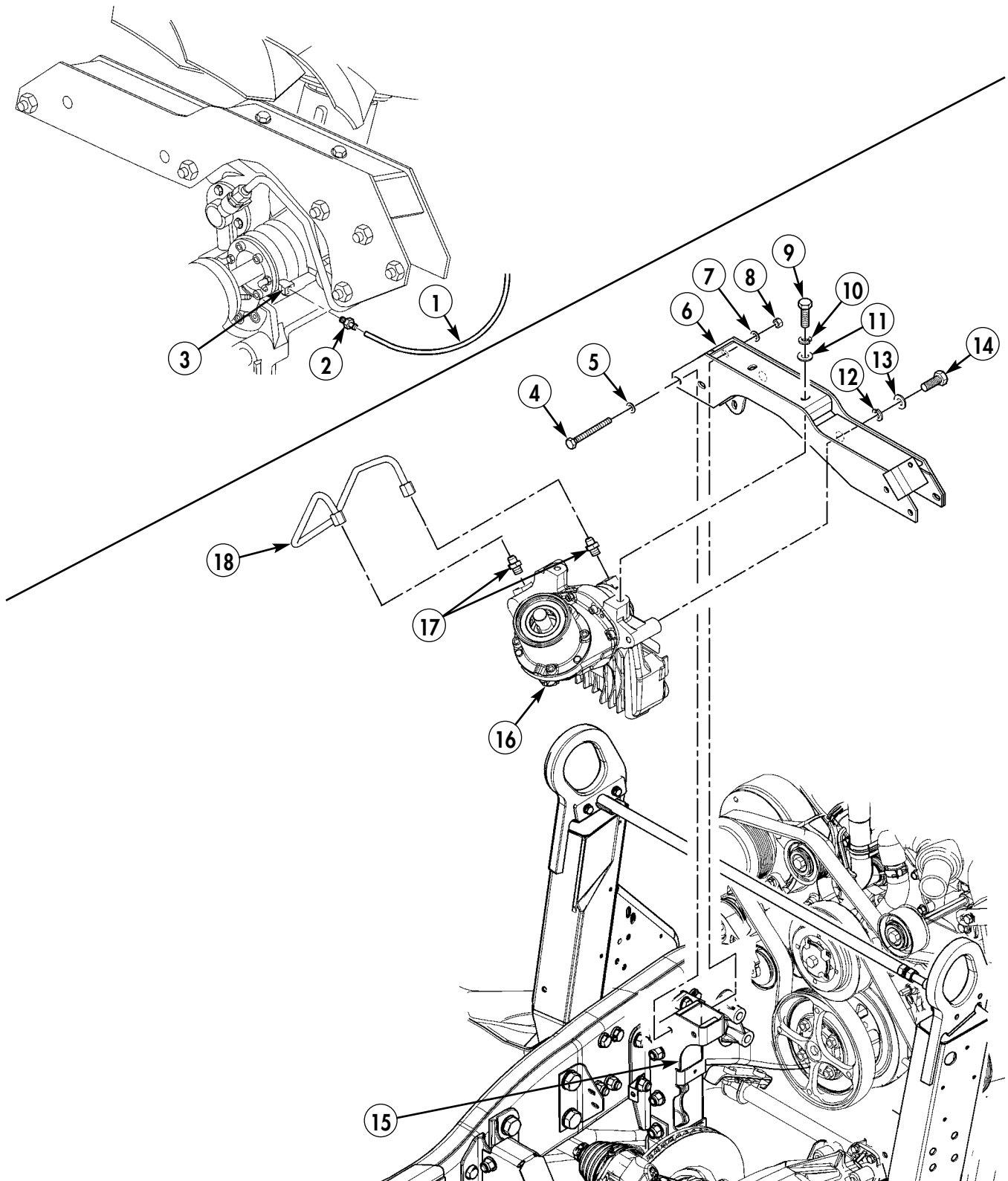
a. Removal

1. Remove vent line (1) from nipple (2).
2. Remove nipple (2) from angle adapter (3).
3. Remove four locknuts (8), washers (7), capscrews (4), washers (5), front rear crossmember (6), and geared fan drive (16) from two crossmember brackets (15). Discard locknuts (8).
4. Remove three capscrews (14), washers (13), and lockwashers (12) from front rear crossmember (6) and geared fan drive (16). Discard lockwashers (12).
5. Remove two capscrews (9), lockwashers (10), washers (11), and geared fan drive (16) from front rear crossmember (6). Discard lockwashers (10).
6. Remove oil feed tube (18) and two adapters (17) from geared fan drive (16).

b. Installation

1. Install two adapters (17) and oil feed tube (18) on geared fan drive (16).
2. Install geared fan drive (16) on front rear crossmember (6) with three washers (12), lockwashers (13), and capscrews (14). Do not tighten capscrews (14).
3. Secure geared fan drive (16) to front rear crossmember (6) with two washers (11), lockwashers (10), and capscrews (9). Tighten capscrews (9) to 37 lb-ft (50 N•m).
4. Tighten capscrews (14) to 37 lb-ft (50 N•m).
5. Install geared fan drive (16) and front rear crossmember (6) on two crossmember brackets (15) with four washers (5), capscrews (4), washers (7), and locknuts (8).
6. Install nipple (2) on angle adapter (3).
7. Install vent line (1) on nipple (2).

3-80.2. GEARED FAN DRIVE AND UPPER FRONT REAR CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASKS:

- Install front differential vent line (para. 6-14.1).
- Install fan blade and fan clutch (para. 3-80.1).

3-80.3. GEARED FAN DRIVESHAFT MAINTENANCE (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Removal b. Inspection | <ul style="list-style-type: none"> c. Installation |
|---|---|

INITIAL SETUP:Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Sealing compound (Appendix C, Item 71)

Manual References

TM 9-2320-387-10
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Upper fan shroud removed (para. 3-62.2).

Maintenance Level

Unit

NOTE

Rotate crankshaft pulley accordingly to access capscrews.

a. Removal

1. Remove six capscrews (1) and geared fan driveshaft (8) from geared fan drive (6).
2. Remove four capscrews (7) and geared fan driveshaft (8) from coupler plate (3).

NOTE

- Rotate crankshaft pulley accordingly to access capscrews.
 - Hold alternator clutch pulley adapter to keep crankshaft from rotating.
3. Remove four capscrews (4) and coupler plate (3) from lower crankshaft pulley assembly (5).
 4. Remove four grease fittings (2) from geared fan driveshaft (8).

b. Inspection

Inspect grease fittings (2). Replace if damaged.

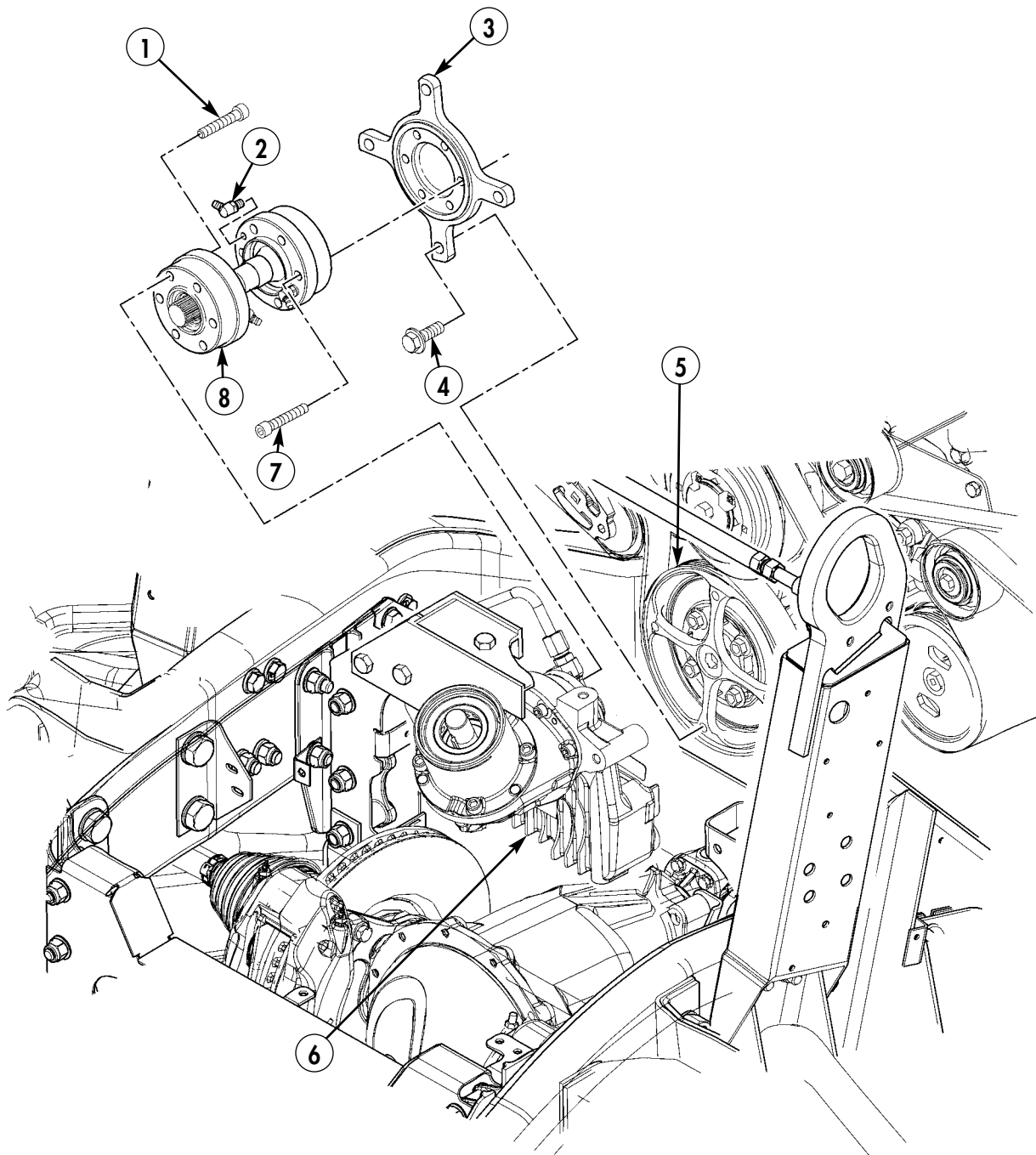
c. Installation

1. Install four grease fittings (2) on geared fan driveshaft (8).

NOTE

- Rotate crankshaft pulley accordingly to access capscrews.
 - Hold alternator clutch pulley adapter to keep crankshaft from rotating.
2. Install coupler plate (3) on lower crankshaft puller assembly (5) with four capscrews (4).
 3. Install geared fan driveshaft (8) on coupler plate (3) with four capscrews (7).
 4. Apply sealing compound to six capscrews (1). Install geared fan driveshaft (8) on geared fan drive (6) with six capscrews (1).

3-80.3. GEARED FAN DRIVESHAFT MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE)



FOLLOW-ON TASK: Lower and secure hood. (TM 9-2320-387-10).

**3-81.2. SERPENTINE DRIVEBELT MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|--|----------------------------|
| <p>a. Removal</p> <p>b. Installation</p> | <p>c. Alignment</p> |
|--|----------------------------|

INITIAL SETUP:

Tools

- General mechanic's tool kit:
automotive (Appendix B, Item 1)
- Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)
- Pulley alignment tool
(Appendix D, Fig. D-107)

Personnel Required

- One mechanic
- One assistant

Manual References

- TM 9-2320-387-10
- TM 9-2320-387-24P

Equipment Condition

Geared fan driveshaft removed (para. 3-80.3).

Maintenance Level

Unit

NOTE

200-AMP dual voltage regulator shown.

a. Removal

1. Position 3/8-in. breaker bar or, as appropriate, 1/2-in. ratchet wrench on belt tensioner (10) and move belt tensioner (10) clockwise to loosen drivebelt (2).
2. Remove drivebelt (2) from power steering pump pulley (6), idler pulley (5), alternator pulley (4), water pump pulley (8), crankshaft pulley (7), air conditioning compressor or idler pulley (1), two upper idler pulleys (3), and belt tensioner pulley (9). Release belt tensioner (10).

CAUTION

Serpentine drivebelt failure (abnormal wear or belt dislodgement) can be caused by misalignment of pulleys, improper installation, or foreign objects introduced into belt path.

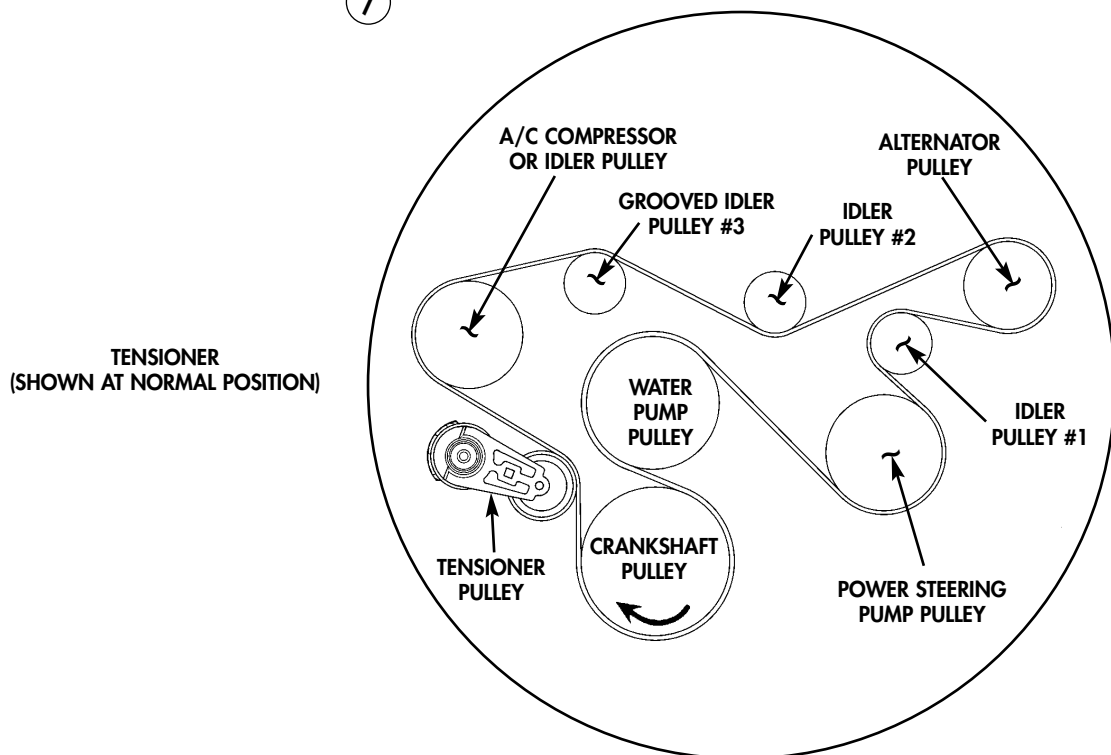
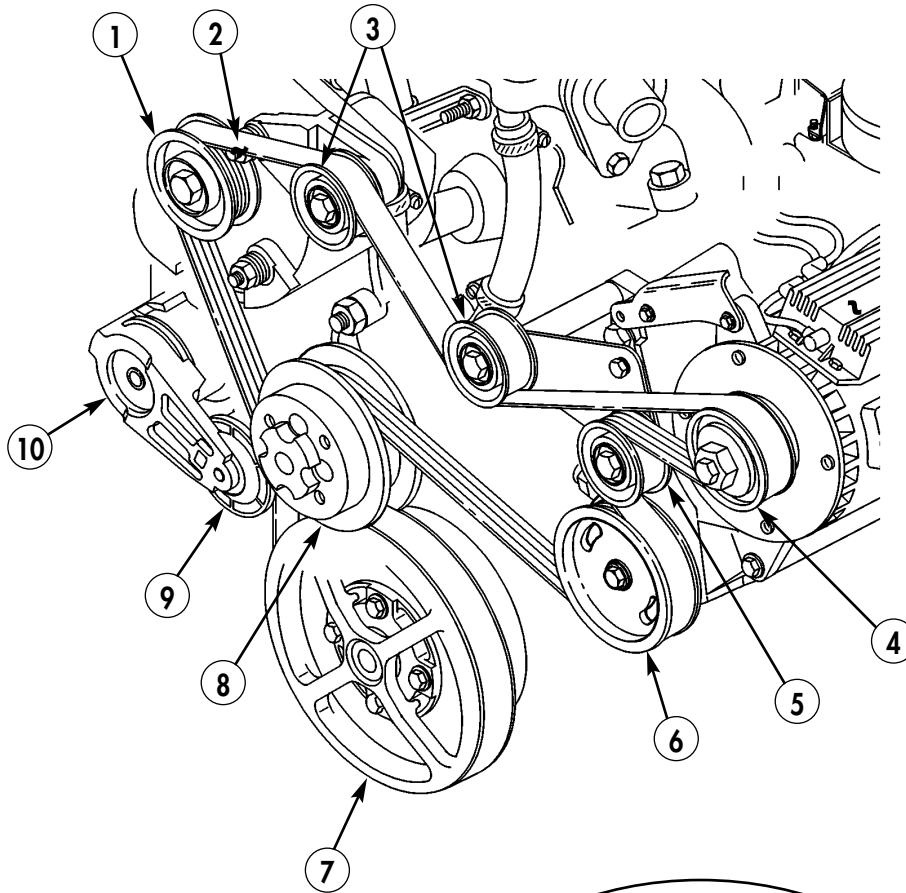
NOTE

Check pulley and pulley grooves for damage and debris prior to installing serpentine belt.

b. Installation

1. Position 3/8-in. breaker bar or, as appropriate, 1/2-in. ratchet wrench on belt tensioner (10) and move belt tensioner (10) clockwise to allow installation of drivebelt (2).
2. Feed drivebelt (2) into grooves on crankshaft pulley (7), air conditioning compressor or idler pulley (1), two upper idler pulleys (3), alternator pulley (4), idler pulley (5), power steering pump pulley (6), water pump pulley (8), and tensioner pulley (9). Release belt tensioner (10).

**3-81.2. SERPENTINE DRIVEBELT MAINTENANCE
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



**3-81.2. SERPENTINE DRIVEBELT MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

c. Alignment

CAUTION

Serpentine drivebelt failure (abnormal wear or belt dislodgement) can be caused by misalignment of pulleys, improper installation, or foreign objects introduced into belt path. Damage to equipment may result.

NOTE

Ensure tab of pulley alignment tool seats flush against back side of crankshaft pulley.

1. Position tab (1) on pulley alignment tool (4) behind crankshaft pulley (5) and place straightedge portion of pulley alignment tool (4) across power steering pump pulley (2) and alternator pulley (3). Tab (1) on pulley alignment tool (4) should seat flush against back side of crankshaft pulley (5). Straightedge portion of pulley alignment tool (4) should seat flush against power steering pump pulley (2) and alternator pulley (3). If pulley alignment is not flush, rotate engine and recheck alignment in several locations. Proceed to step 3 if pulleys are out of alignment.
2. Position straightedge portion of pulley alignment tool (4) against idler pulleys (7) and (8) and check for bent mounting bracket (9). If mounting bracket (9) is bent, refer to TM 9-2320-387-24-1 for replacement.

NOTE

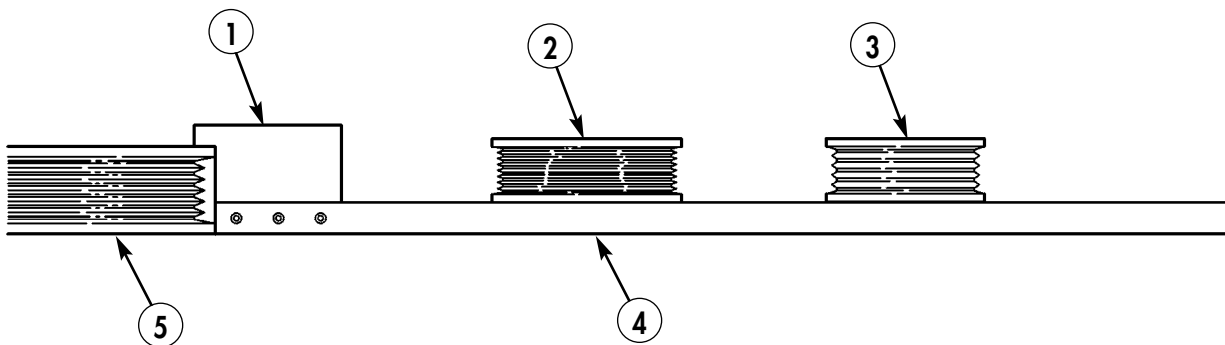
If any adjustments are made while performing steps 3 through 8, start engine and check for proper tracking of belt.

3. Check all pulleys (2), (3), (6), (7), (8) and (5) for mud or foreign objects lodged in grooves.

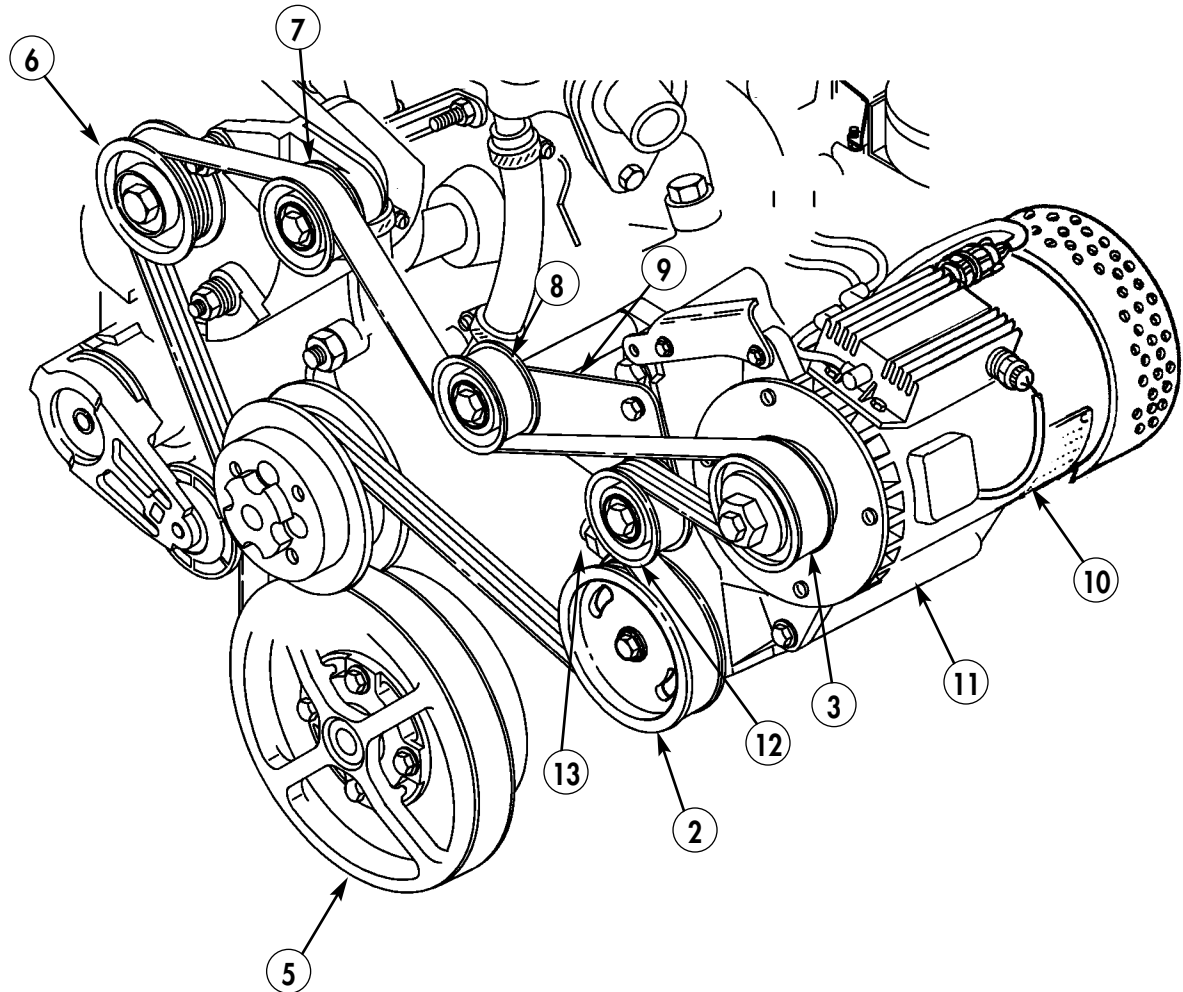
NOTE

Power steering pump pulley must be flush with end of power steering pump shaft.

4. Check power steering pump pulley (2) for proper installation. Refer to TM 9-2320-387-24-1.
5. Check power steering/alternator mounting bracket (11) for proper installation and security of mounting hardware. Refer to TM 9-2320-387-24-1.
6. Check alternator pulley (3) for proper installation. Refer to TM 9-2320-387-24-1.
7. Check alternator (10) for proper installation and security of mounting hardware. Refer to TM 9-2320-387-24-1.
8. Check idler pulleys (8) and (12) and mounting bracket (9) for proper installation and security of mounting hardware. Refer to TM 9-2320-387-24-1 .
9. Repeat steps 1 and 2 to verify alignment.



**3-81.2. SERPENTINE DRIVEBELT MAINTENANCE
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install geared fan driveshaft (para. 3-80.3).

**3-85.1. TRANSFER CASE COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|--------------------------------------|--|
| <p>a. Removal
b. Disassembly</p> | <p>c. Assembly
d. Installation</p> |
|--------------------------------------|--|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Two lockwashers (Appendix A, Item 144)

Manual References

TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Cooling system drained (as necessary)
(TM 9-2320-387-24-1).

Maintenance Level

Unit

a. Removal

1. Remove nut (3), lockwasher (4), washer (5), capscrew (13), washer (12), and hose assembly (14) from transfer case mount (6). Discard lockwasher (4).
2. Remove hose clamps (1) and (11) and hose assembly (14) from transfer case (2).
3. Remove hose clamps (7) and (10) and remove tubes (8) and (9) from hose assembly (14).

b. Disassembly

1. Remove hose clamps (15) and (18) and tubes (16) and (17) from coolant tubes (20) and (21).
2. Remove nut (23), lockwasher (24), washer (25), capscrew (29), and washer (28) from clamps (26) and (27). Discard lockwasher (24).
3. Remove clamps (19), (22), (26), and (27) from coolant hoses (20) and (21).

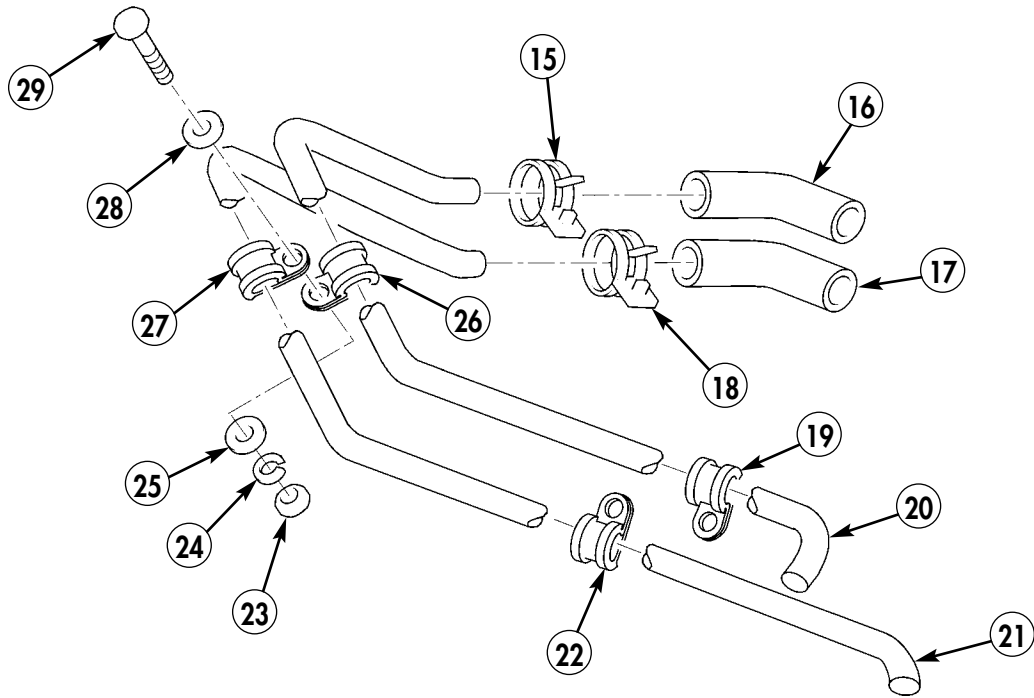
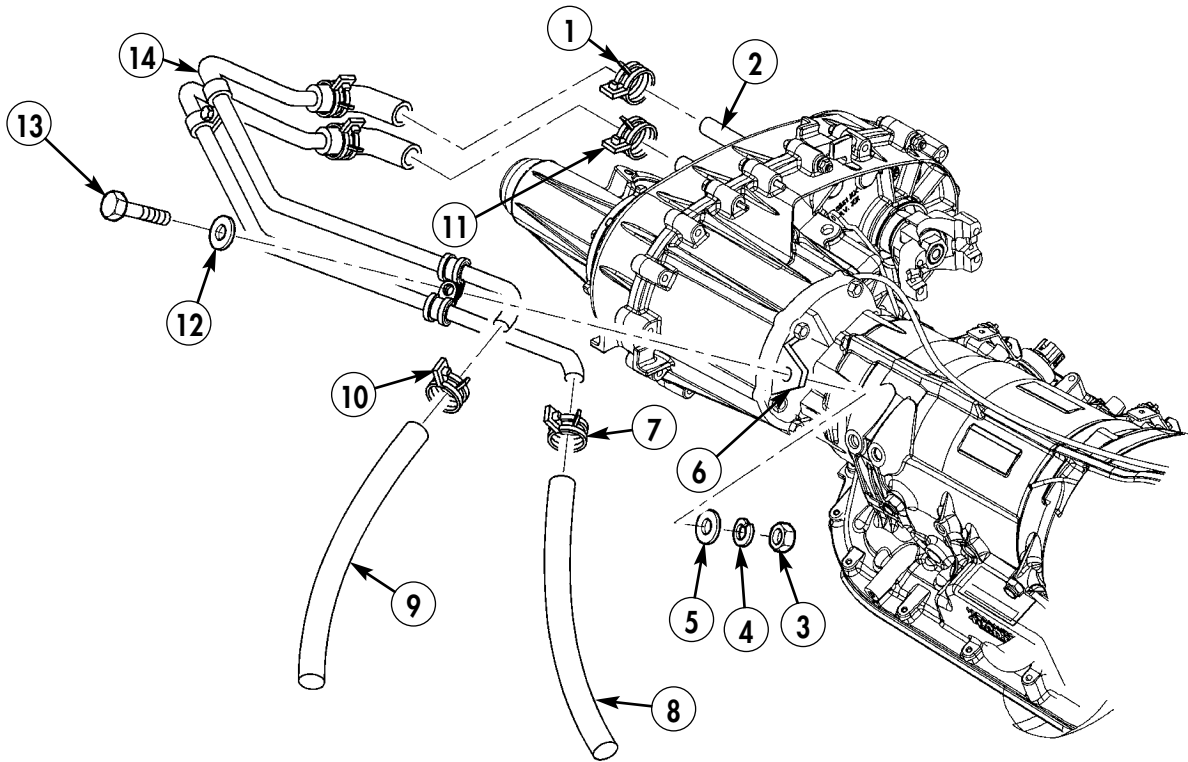
c. Assembly

1. Install clamps (27), (26), (22), and (19) on coolant hoses (21) and (20).
2. Install clamp (27) on clamp (26) with washer (28), capscrew (29), washer (25), lockwasher (24), and nut (23).
3. Install tubes (17) and (16) on coolant hoses (21) and (20) with hose clamps (18) and (15).

d. Installation

1. Install hose assembly (14) on tubes (9) and (8) with hose clamps (10) and (7).
2. Install hose assembly (14) on transfer case (2) with hose clamps (11) and (1).
3. Secure hose assembly (14) to transfer case mount (6) with washer (12), capscrew (13), washer (5), lockwasher (4), and nut (3).

**3-85.1. TRANSFER CASE COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW ON TASK: Fill cooling system (TM 9-2320-387-24-1).

CHAPTER 4

ELECTRICAL SYSTEM (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the electrical system that are specific to your REV vehicle.

4-14.1. INSTRUMENT CLUSTER (ELECTRONIC) REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Equipment Condition

Speedometer/odometer (electronic) removed
(para. 4-17.1).

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Maintenance Level

Unit

NOTE

Prior to removal, tag leads for installation.

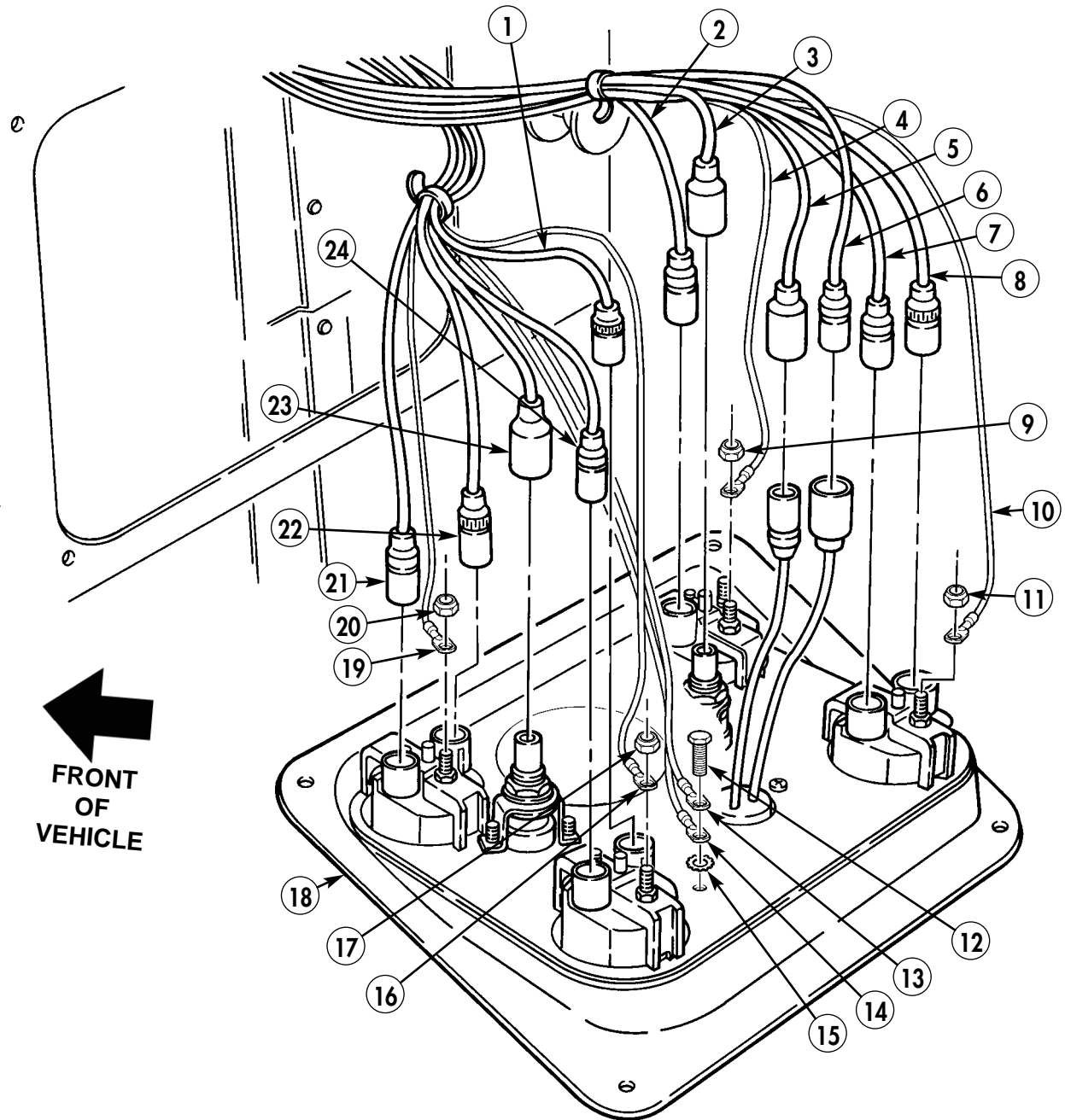
a. Removal

1. Remove capscrew (12), grounds 58M (13) and 57G (14), and washer (15) from instrument cluster (18).
2. Disconnect harness leads 36A (1), 567A (2), 40C (3), 57L (5), 17B (6), 27G (7), 33A (8), 27J (22), 40W (23), 28A (21), and 27W (24) from instrument cluster (18).
3. Remove four nuts (9), (11), (17) and (20), and ground wires 58E (4), 58F (10), 58G (16), and 58H (19) from instrument cluster (18).

b. Installation

1. Install four nuts (9), (11), (17) and (20), and ground wires 58E (4), 58F (10), 58G (16), and 58H (19) on instrument cluster (18).
2. Connect harness leads 36A (1), 567A (2), 40C (3), 57L (5), 17B (6), 27G (7), 33A (8), 27J (22), 28A (21), 40W (23), and 27W (24) to instrument cluster (18).
3. Install capscrew (12), grounds 58M (13) and 57G (14) and washer (15) on instrument cluster (18).

4-14.1. INSTRUMENT CLUSTER (ELECTRONIC) REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:
- Install speedometer/odometer (electronic) (para. 4-17.1).
 - Check operation of instrument cluster components (TM 9-2320-387-10).

4-17.1. SPEEDOMETER/ODOMETER (ELECTRONIC) REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Battery cables disconnected
 (TM 9-2320-387-24-1).

Maintenance Level

Unit

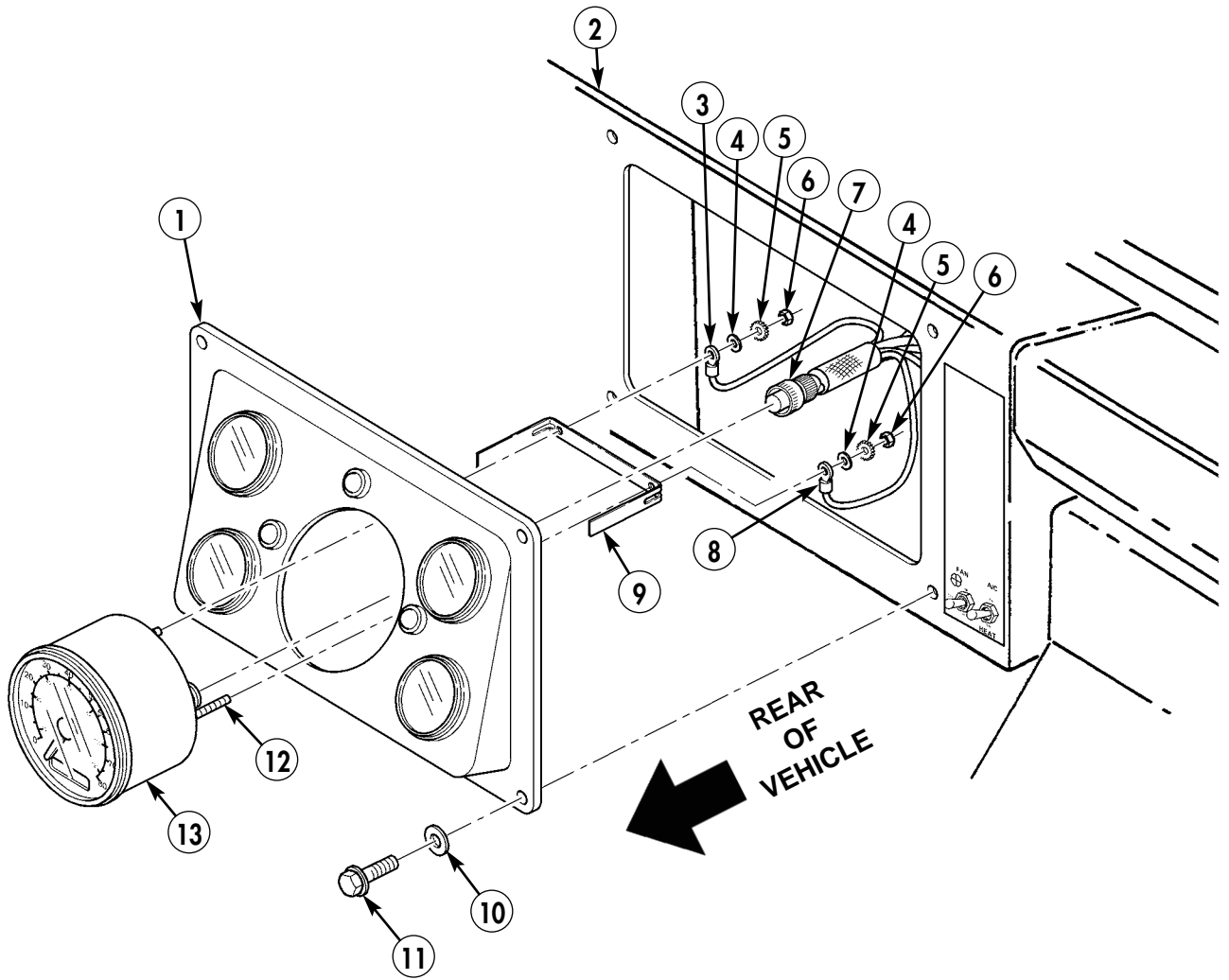
a. Removal

1. Remove four capscrews (11), washers (10), and instrument cluster (1) from instrument panel (2).
2. Remove harness assembly nut (7) from rear of speedometer (13).
3. Remove two nuts (6), washers (5), washers (4), ground wire 58M (3), and shielding ground wire (8) from retaining bracket (9) on rear of speedometer (13).
4. Remove retaining bracket (9) from two threaded studs (12) on rear of speedometer (13) and remove speedometer (13) from instrument cluster (1).

b. Installation

1. Install retaining bracket (9) on two threaded studs (12) on rear of speedometer (13).
2. Install ground wire 58M (3) and shielding ground wire (8) on two threaded studs (12) on rear of speedometer (13) with two washers (4), washers (5), and nuts (6). Tighten nuts (6) to 5 lb-in (0.6 N•m).
3. Install harness assembly nut (7) on rear of speedometer (6).
4. Install instrument cluster (1) into instrument panel (2) with four capscrews (11) and washers (10).

4-17.1. SPEEDOMETER/ODOMETER (ELECTRONIC) REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Connect battery ground cables (TM 9-2320-387-24-1).
 - Check operation of speedometer/odometer (TM 9-2320-387-10).

4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Two tiedown straps (Appendix A, Item 324)
Two locknuts (Appendix A, Item 73.1)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-2
TM 9-2320-335-13&P, Appendix E

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Instrument cluster (electronic) removed (para. 4-14.1).
- Sender generator (electronic) removed (para. 5-17.1).
- Engine access cover removed (TM 9-2320-387-24-2).

Maintenance Level

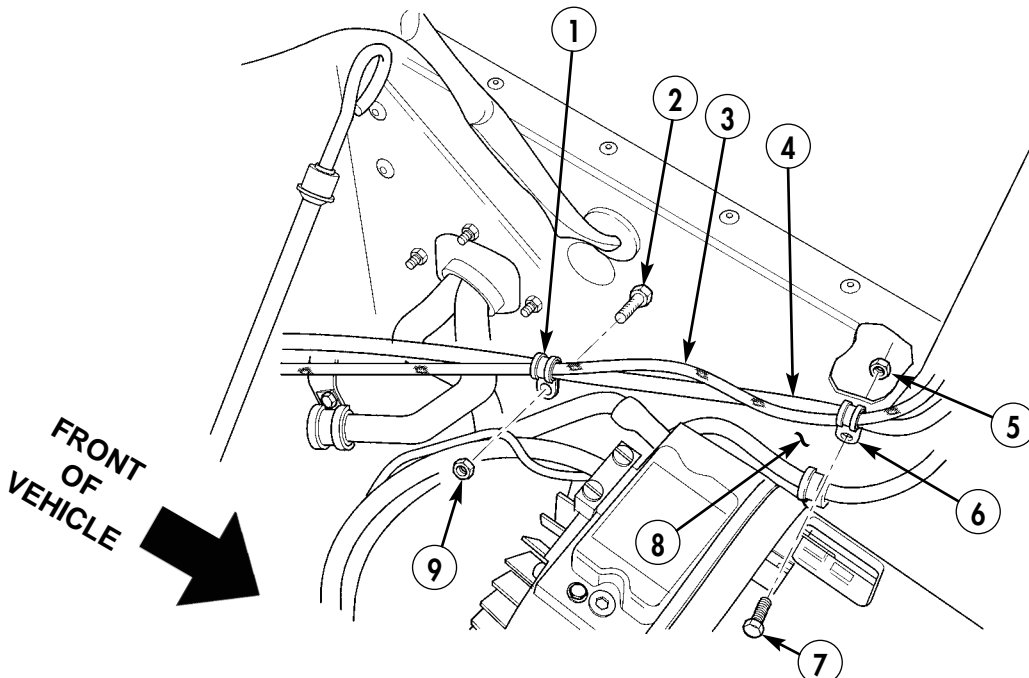
Unit

NOTE

- Prior to removal, tag leads for installation.
- Jumper wires on rear of instrument cluster can be replaced separately.
- Rotate speedometer harness under body harness to keep body harness from laying on transmission.

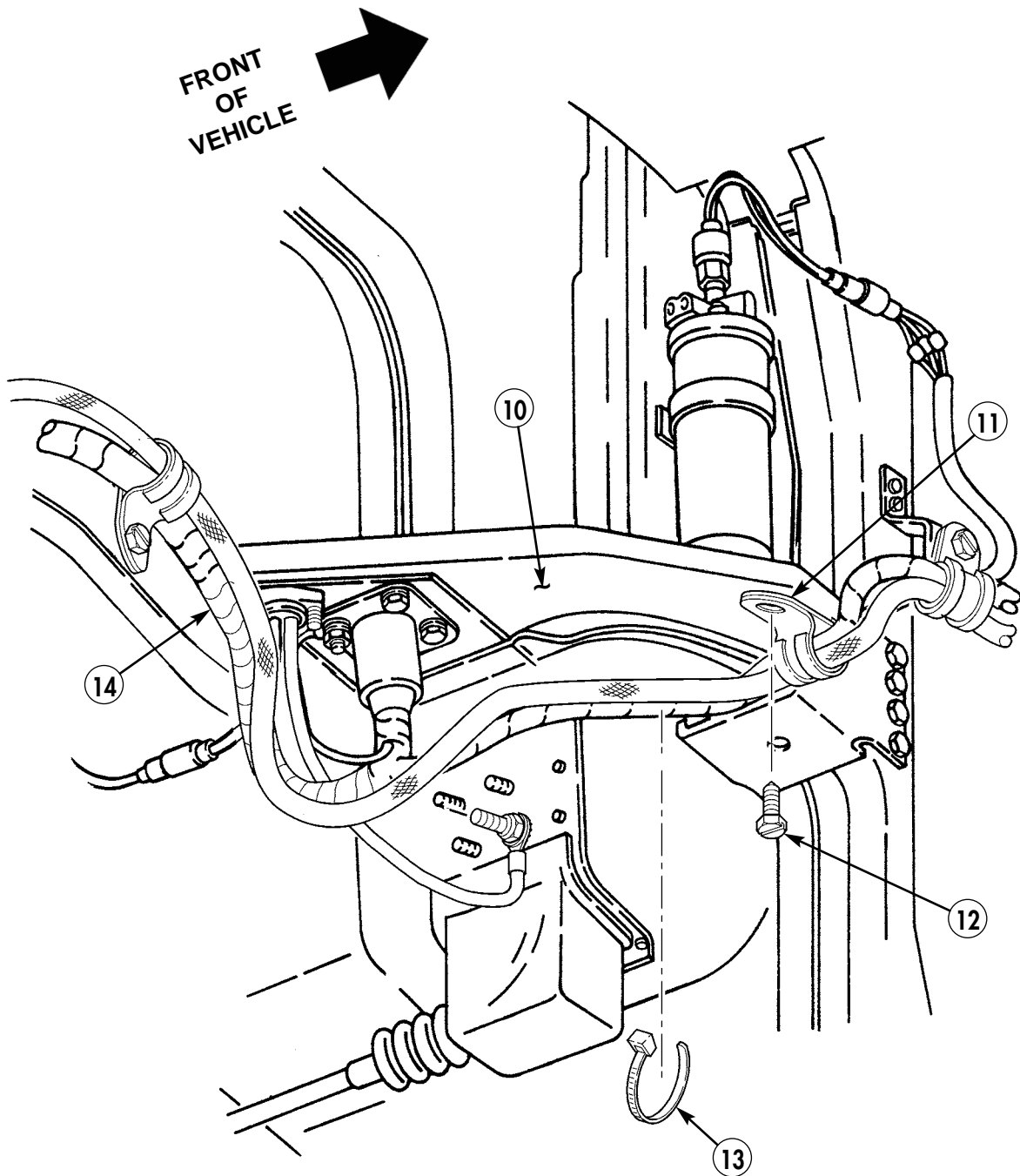
a. Removal

1. Remove locknut (5), capscrew (7), harnesses (3) and (4), and clamp (6) from cowl (8). Discard locknut (5).
2. Remove locknut (9), capscrew (2), clamp (1), and harnesses (3) and (4) from cowl (8). Discard locknut (9).



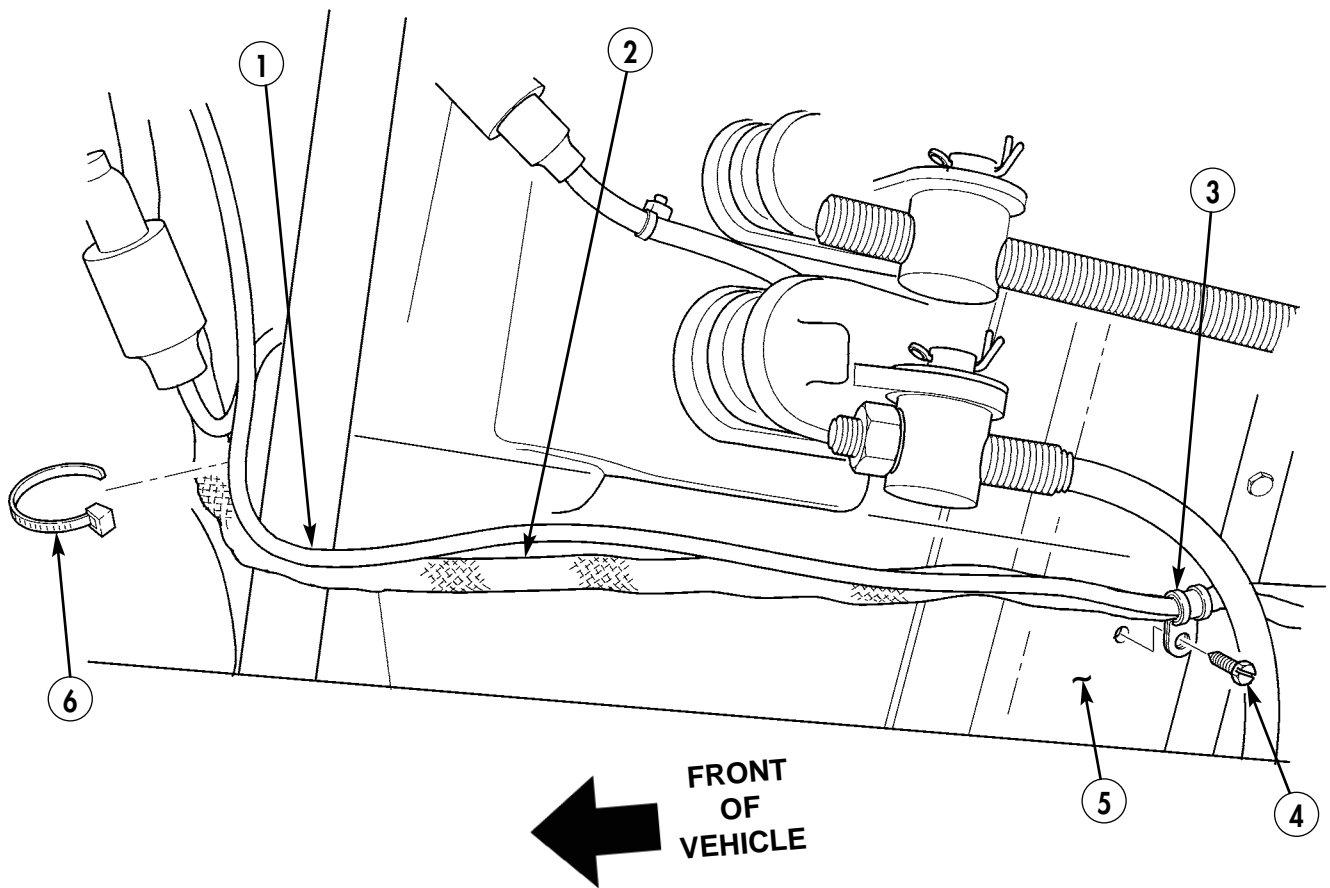
4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT (Cont'd)

3. Remove three capscrews (12), tiedown strap (13), and harness (14) from three clamps (11) on vehicle (10).



4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT (Cont'd)

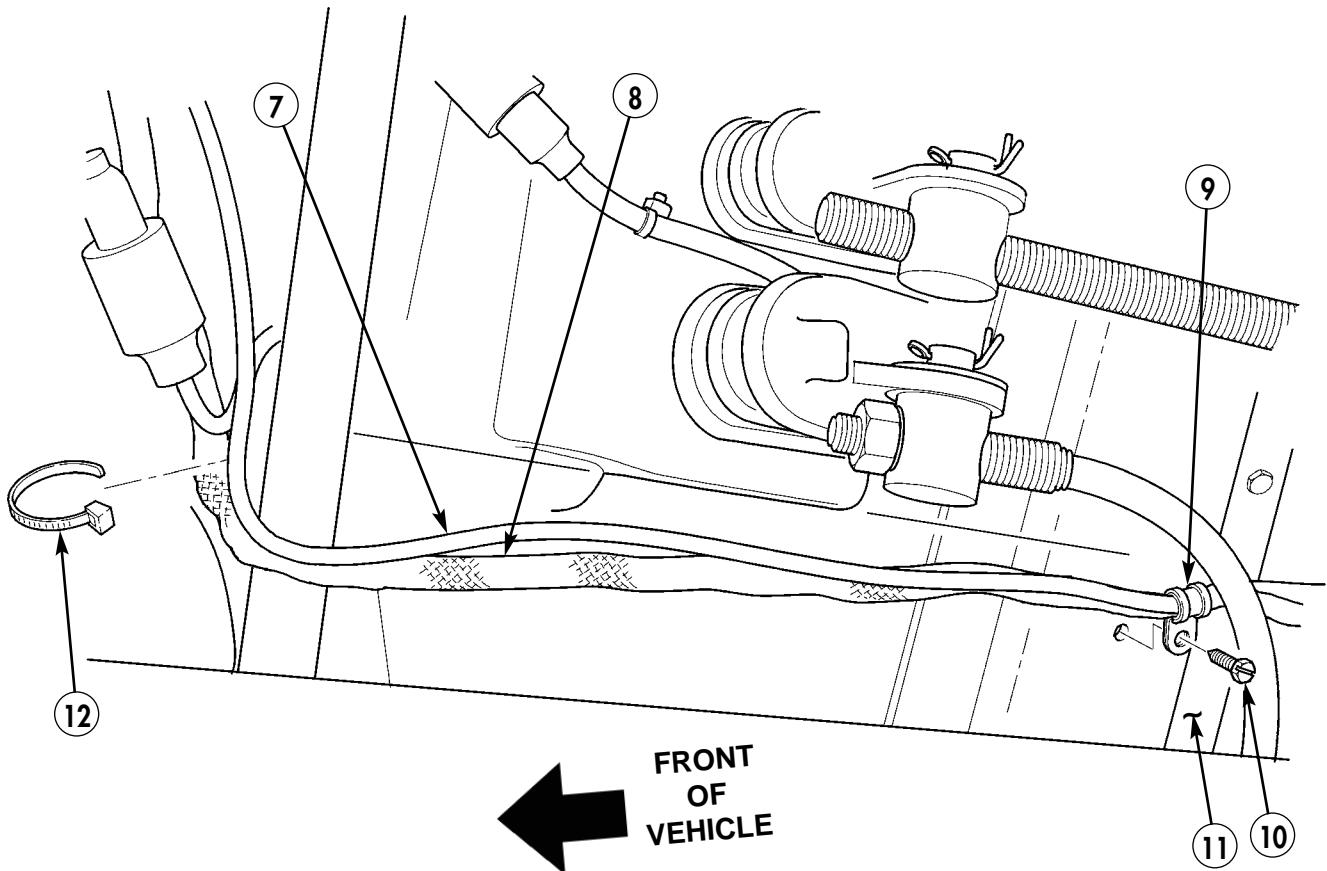
4. Remove tiedown strap (6) and harness (2) from harness (1).
5. Remove capscrew (4), clamp (3), and harness (2) from engine floor pan support (5).



4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT (Cont'd)**b. Installation****NOTE**

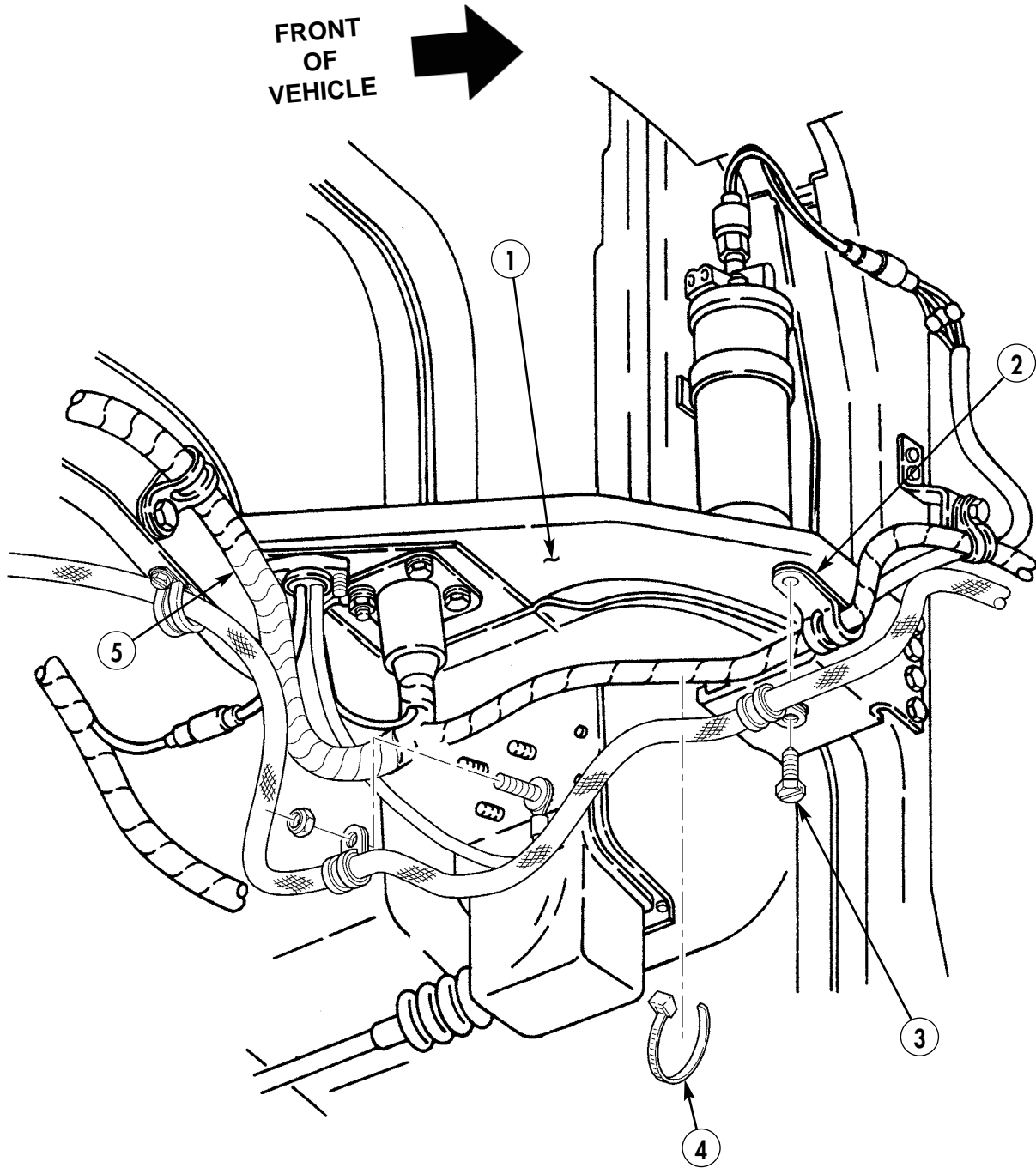
Ensure any excess harness assembly is secured to existing instrument cluster harness with tiedown strap(s), as needed.

1. Install harness (8) and clamp (9) on engine floor pan support (11) with capscrew (10).
2. Secure harness (8) on harness (7) with tiedown strap (12).



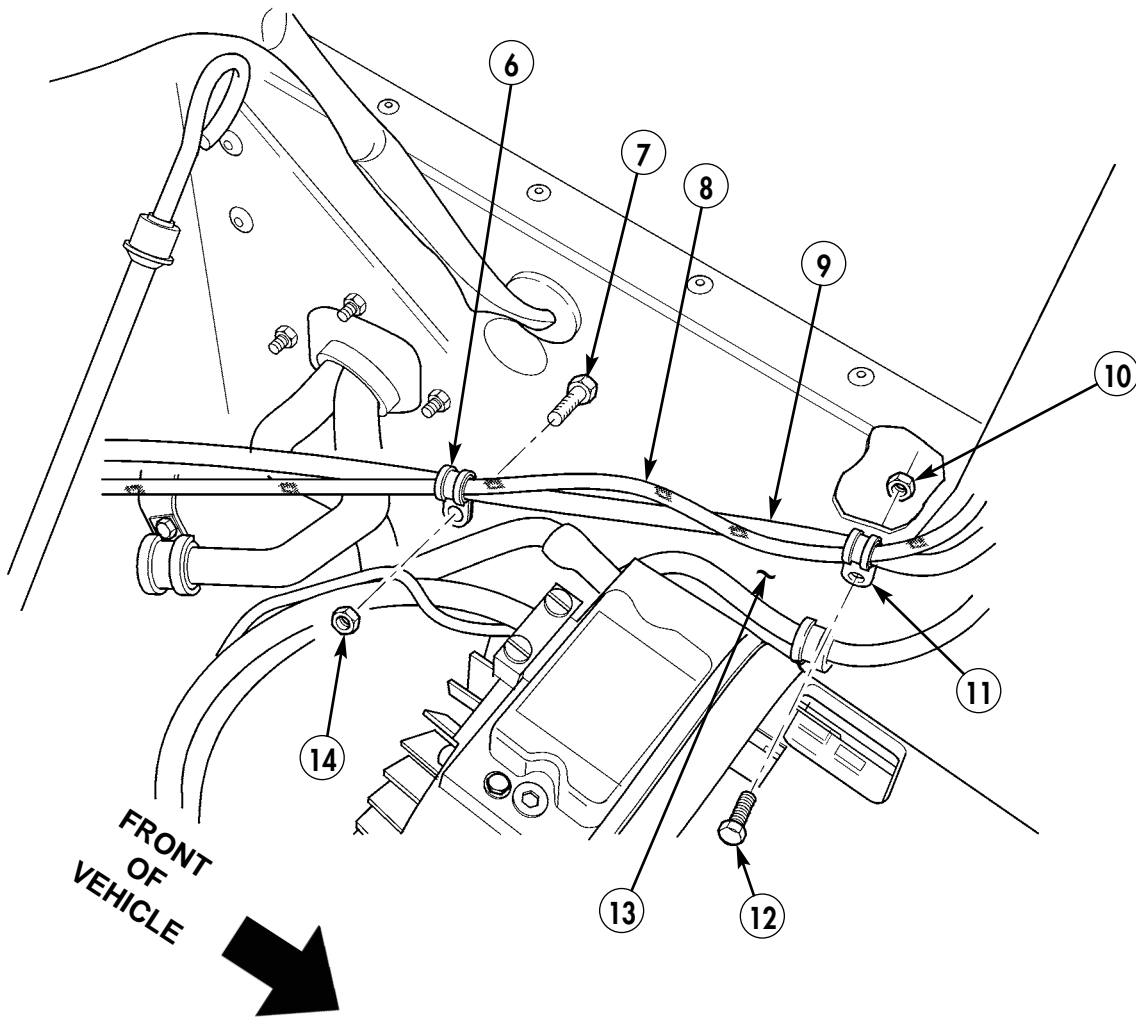
4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT (Cont'd)

3. Install harness (5) and three clamps (2) on vehicle (1) with tiedown strap (4) and three capscrews (3).



4-18.1. SPEEDOMETER HARNESS ASSEMBLY REPLACEMENT (Cont'd)

4. Install harnesses (8) and (9) and clamp (6) on cowl (13) with capscrew (7) and locknut (14).
5. Install harnesses (8) and (9) and clamp (11) on cowl (13) with capscrew (12) and locknut (10).



- FOLLOW-ON TASKS:**
- Install engine access cover (TM 9-2320-387-24-2).
 - Install sender generator (electronic) (para. 5-17.1).
 - Install instrument cluster (electronic) (para. 4-14.1).
 - Lower and secure hood (TM 9-2320-387-10).

4-26.1. HORN REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Two lockwashers (Appendix A, Item 146)

Manual References

TM 9-2320-387-24P

Equipment Condition

Battery cables disconnected (para. 4-68).

Maintenance Level

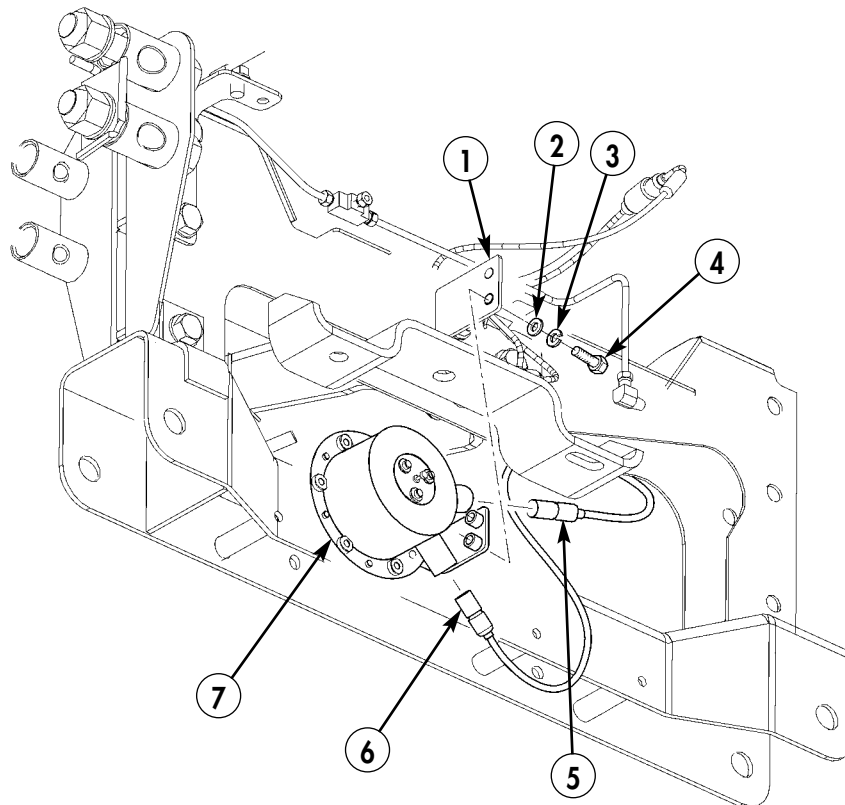
Unit

a. Removal

1. Disconnect wires 26A (6) and 25C (5) from horn (7).
2. Remove two capscrews (4), lockwashers (3), washers (2), and horn (7) from horn bracket (1). Discard lockwashers (3).

b. Installation

1. Install horn (7) on horn bracket (1) with two washers (2), lockwashers (3), and capscrews (4).
2. Connect wires 26A (6) and 25C (5) to horn (7).



FOLLOW-ON TASK: Connect battery cables (para. 4-68).

CHAPTER 5

TRANSMISSION AND TRANSFER CASE (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the transmission and transfer case systems that are specific to your REV vehicle.

5-3.1. TRANSMISSION OIL COOLER LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

- | | |
|-----------------------------|----------------------------|
| a. Front Lines Removal | c. Rear Lines Removal |
| b. Front Lines Installation | d. Rear Lines Installation |

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Lockwasher (Appendix A, Item 144)
Locknut (Appendix A, Item 106)

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Engine right splash shield removed
(front lines) (para. 10-24.1).

General Safety Instructions

Allow transmission to cool before performing
this task.

Maintenance Level

Unit

WARNING

Allow transmission to cool before performing this procedure.
Severe injury to personnel may occur.

CAUTION

Cover or plug all open lines and connections immediately after
disconnection to prevent contamination. Remove all plugs prior to
connection. Failure to comply may result in equipment damage.

NOTE

Geared fan vent tube may need to be removed before removing
front transmission oil cooler lines.

a. Front Lines Removal

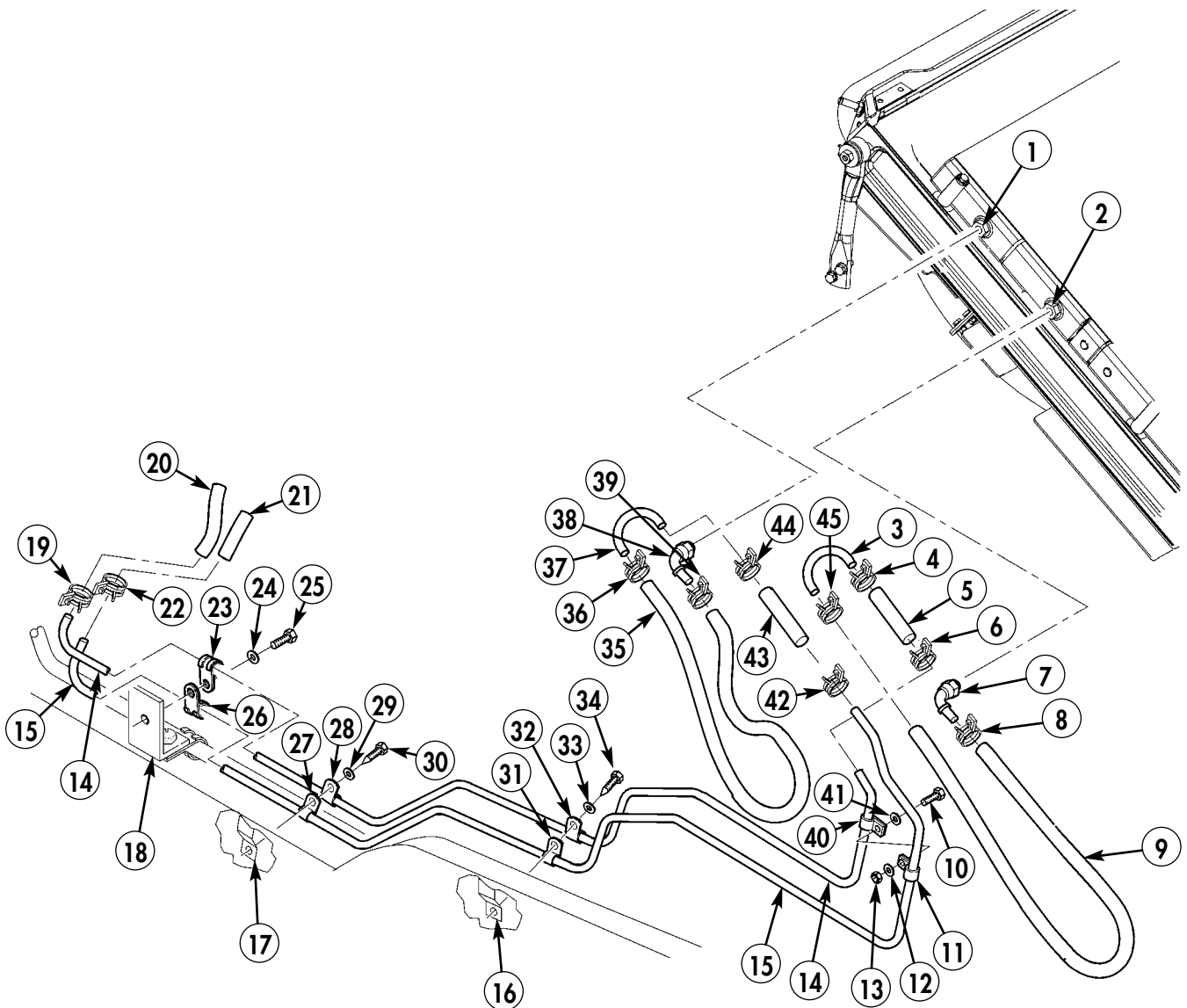
1. Remove hose clamp (22) from hose (21) and line (15).
2. Remove capscrew (25), lockwasher (24), clamps (23) and (26), and lines (14) and (15) from bracket (18). Discard lockwasher (24).
3. Remove capscrew (30), washer (29), clamps (28) and (27), and lines (14) and (15) from bracket (17).
4. Remove capscrew (34), washer (33), clamps (32) and (31), and lines (14) and (15) from bracket (16).
5. Remove locknut (13), washers (12) and (41), capscrew (10), and clamps (11) and (40) from lines (14) and (15). Discard locknut (13).
6. Remove hose clamp (42) and hose (43) from line (15).
7. Remove hose clamps (36) and (44) and tube (37) from hoses (35) and (43).
8. Remove hose clamp (39) and hose (35) from adapter (38).
9. Remove adapter (38) from oil cooler connector (1).
10. Remove hose clamp (6) and hose (5) from line (14).
11. Remove hose clamps (4) and (45) and tube (3) from hoses (5) and (9).
12. Remove hose clamp (8) and hose (9) from adapter (7).
13. Remove adapter (7) from oil cooler connector (2).
14. Remove hose clamp (19) from hose (20) and line (14).

b. Front Lines Installation

1. Install hose (21) on line (15) with hose clamp (22).
2. Install hose (20) on line (14) with hose clamp (19).
3. Install clamps (23) and (26) and lines (14) and (15) on bracket (18) with capscrew (25) and lockwasher (24).

**5-3.1. TRANSMISSION OIL COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

4. Install clamps (28) and (27) and lines (14) and (15) on bracket (17) with capscrew (30) and washer (29).
5. Install clamps (32) and (31) and lines (14) and (15) on bracket (16) with capscrew (34) and washer (33).
6. Install adapter (7) on oil cooler connector (2).
7. Install adapter (7) on hose (9) with hose clamp (8).
8. Install hoses (5) and (9) on tube (3) with hose clamps (4) and (45).
9. Install hose (5) on line (14) with hose clamp (6).
10. Install adapter (38) on oil cooler connector (1).
11. Install hose (35) on adapter (38) with hose clamp (39).
12. Install hoses (35) and (43) on tube (37) with hose clamps (36) and (44).
13. Install hose (43) on line (15) with hose clamp (42).
14. Install clamps (11) and (40) on lines (14) and (15) with capscrew (10), washers (12) and (41), and locknut (13).



**5-3.1. TRANSMISSION OIL COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

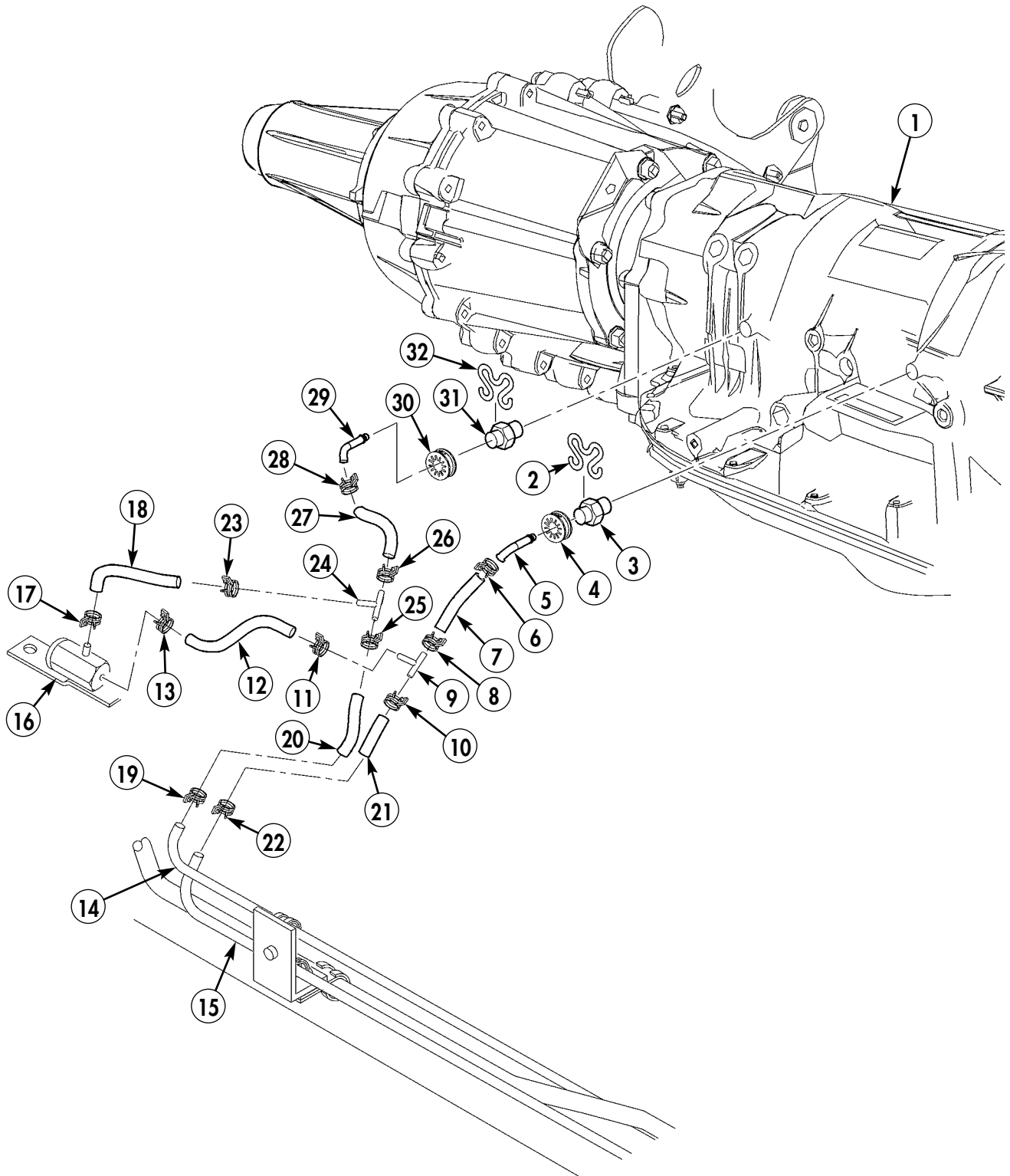
c. Rear Lines Removal

1. Remove fitting cover (30), clamp (32), and tube (29) from adapter (31).
2. Remove fitting cover (4), clamp (2), and tube (5) from adapter (3).
3. Remove hose clamps (13) and (17) and hoses (12) and (18) from bypass valve (16).
4. Remove hose clamps (19) and (22) and hoses (20) and (21) from lines (14) and (15).
5. Remove hose clamps (8), (10), and (11) and hoses (7), (12), and (21) from tee (9).
6. Remove hose clamp (6) and hose (7) from tube (5).
7. Remove adapter (3) from transmission (1).
8. Remove hose clamps (23), (25), and (26) and hoses (18), (20), and (27) from tee (24).
9. Remove hose clamp (28) and hose (27) from tube (29).
10. Remove adapter (31) from transmission (1).

d. Rear Lines Installation

1. Install adapter (31) on transmission (1).
2. Install clamp (32), tube (29), and sitting cover (30) on adapter (31).
3. Install hose (27) on tube (29) with hose clamp (28).
4. Install hoses (18), (20), and (27) on tee (24) with hose clamps (23), (25), and (26).
5. Install adapter (3) on transmission (1).
6. Install clamp (2), tube (5), and sitting cover (4) on adapter (3).
7. Install hose (7) on tube (5) with hose clamp (6).
8. Install hoses (7), (12), and (21) on tee (9) with hose clamps (8), (10), and (11).
9. Install hoses (12) and (18) on bypass valve (16) with hose clamps (13) and (17).
10. Install hoses (20) and (21) on lines (14) and (15) with hose clamps (19) and (22).

**5-3.1. TRANSMISSION OIL COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install engine right splash shield (front lines) (para. 10-24.1).
 - Refill transmission and check for leaks (TM 9-2320-387-10).

5-10.1. TRANSMISSION VENT LINE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Three cable ties (Appendix A, Item 329.5)

Manual References

TB 9-2320-335-13&P, Appendix E

Maintenance Level

Unit

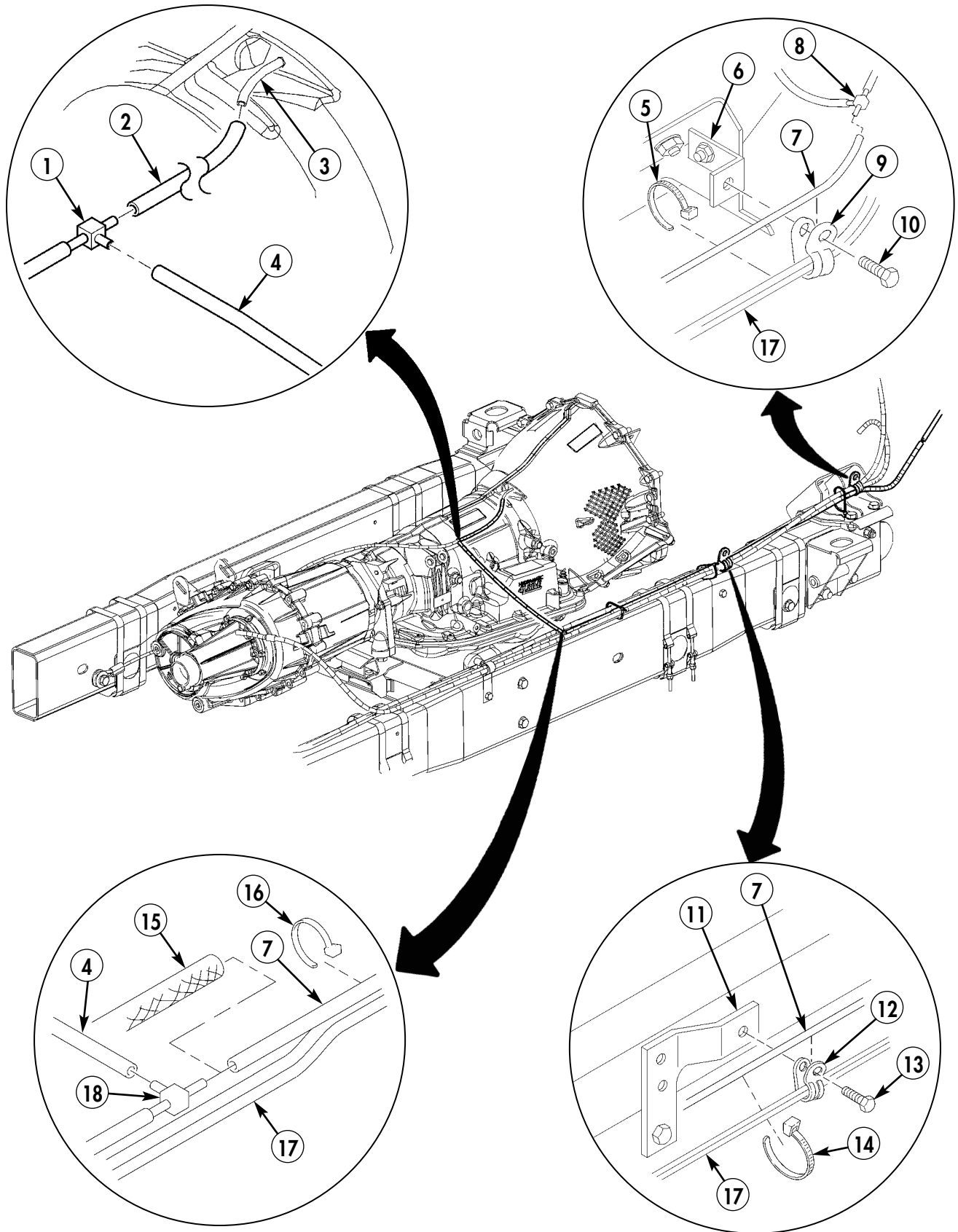
a. Removal

1. Disconnect vent line (2) from transmission vent tube (3) and tee fitting (1).
2. Disconnect vent line (4) from tee fittings (1) and (18).
3. Remove cable ties (5), (14), and (16) from vent lines (7) and (17). Discard cable ties (5), (14), and (16).
4. Remove capscrew (10), clamp (9), and vent line (7) from engine mount bracket (6).
5. Remove capscrew (13), clamp (12), and vent line (7) from bracket (11).
6. Disconnect vent line (7) from tee fittings (18) and (8).
7. Remove vent line (7) from heat sleeve (15).

b. Installation

1. Insert vent line (7) into heat sleeve (15).
2. Install vent line (7) on tee fittings (8) and (18).
3. Install vent line (7) and clamp (12) on bracket (11) with capscrew (13).
4. Install vent line (7) and clamp (9) on engine mount bracket (6) with capscrew (10).
5. Install vent line (4) on tee fittings (18) and (1).
6. Install vent line (2) on tee fitting (1) and transmission vent tube (3).
7. Secure vent line (7) to vent lines (17) with cable ties (16), (14), and (5).

5-10.1. TRANSMISSION VENT LINE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



5-17.1. SENDER GENERATOR (ELECTRONIC) REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Two tiedown straps (Appendix A, Item 324)

Manual References

TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Battery cables disconnected (TM 9-2320-387-24-1).

Maintenance Level

Unit

a. Removal

1. Remove tiedown strap (9) and shielding sleeve (10) from sender generator (4). Discard tiedown strap (9).
2. Remove tiedown strap (8) and excess wiring (3) from sender generator (4). Discard tiedown strap (8).
3. Disconnect speedometer harness connector (1) from sender generator harness connector (2).
4. Remove sender generator (4) from pinion adaptor (5) on transfer case (6).

NOTE

Sender generator drive tang can be removed if necessary to replace.

5. Remove sender generator drive tang (7) from sender generator (4).

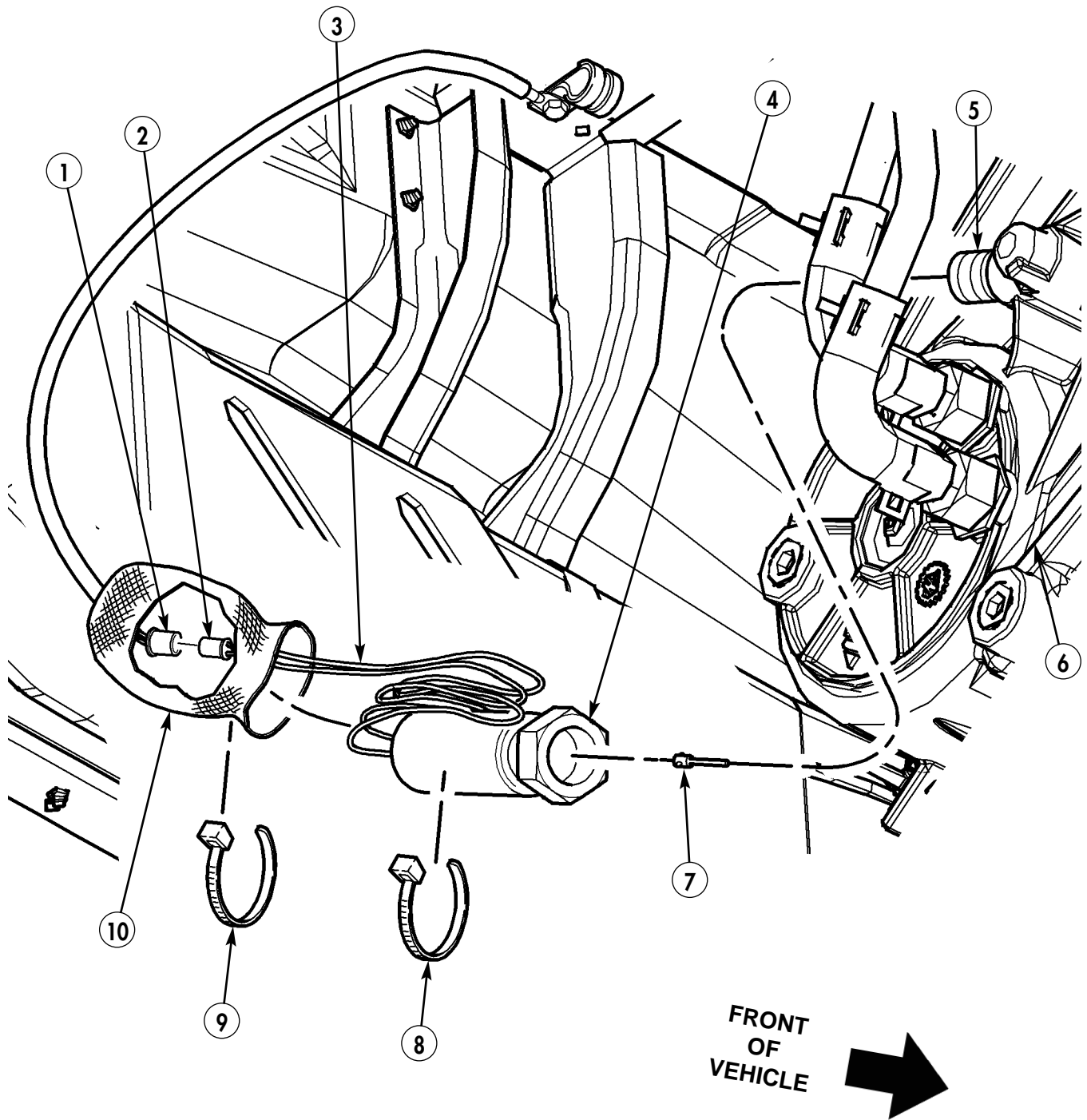
b. Installation

NOTE

Place any excess wiring inside sender generator shielding sleeve.

1. Install sender generator tang (7) in sender generator (4).
2. Install sender generator (4) on pinion adapter (5) on transfer case (6).
3. Connect speedometer harness connector (1) to sender generator harness connector (2).
4. Install excess wiring (3) on sender generator (4) with tiedown strap (8).
5. Install shielding sleeve (10) on sender generator (4) with tiedown strap (9).

5-17.1. SENDER GENERATOR (ELECTRONIC) REPLACEMENT (Cont'd)



FOLLOW-ON TASK: Connect battery cables (TM 9-2320-387-24-1).

5-17.2. SPEEDOMETER DRIVEN GEAR (ELECTRONIC) REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipmentL
 automotive (Appendix B, item 2)

Materials/Parts

O-ring (Appendix G, Item 219)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24P

Equipment Condition

Sender generator (electronic) removed
 (para. 5-17.1).

Maintenance Level

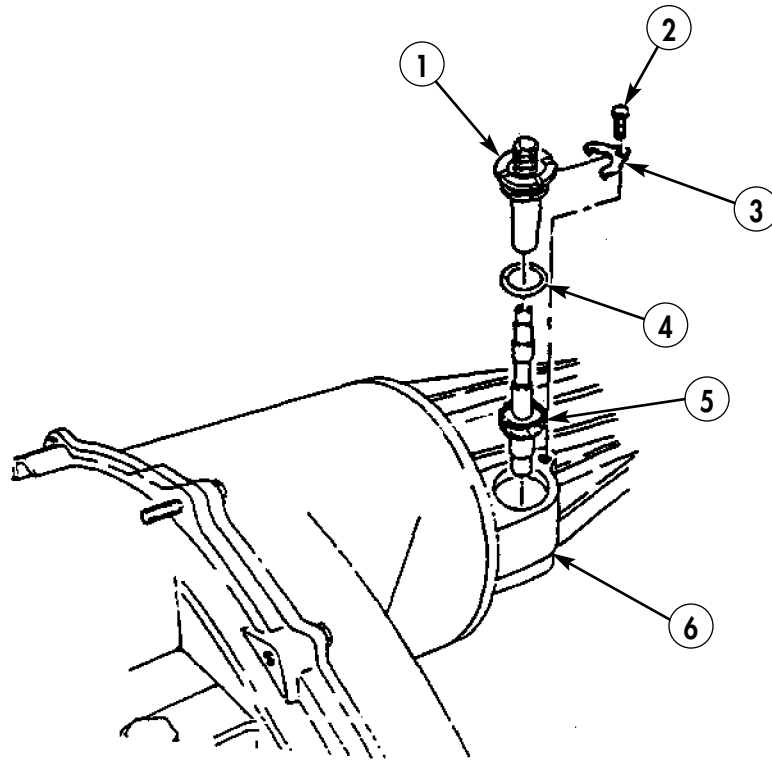
Unit

a. Removal

1. Remove capscrew (2) and clamp (3) from pinion adapter (1) and transfer case (6).
2. Pull pinion adapter (1) out of transfer case (6).
3. Remove O-ring (4) from pinion adapter (1). Discard O-ring (4).
4. Remove driven gear (5) from transfer case (6).

b. Installation

1. Install O-ring (4) on pinion adapter (1).
2. Install driven gear (5) into pinion adapter (1).
3. Install and align pinion adapter (1) into transfer case (6) with clamp (3) and capscrew (2). Tighten capscrew (2) to 15 lb-ft (20 N•m).

5-17.2. SPEEDOMETER DRIVEN GEAR (ELECTRONIC) REPLACEMENT (Cont'd)

- FOLLOW-ON TASKS:
- Install sender generator (para. 5-17.1).
 - Check speedometer for proper operation (TM 9-2320-387-10).

5-18.1. TRANSFER CASE OIL SEALS REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

- | | |
|--------------------------------|-------------------------------|
| a. Front Oil Seal Removal | c. Rear Oil Seal Removal |
| b. Front Oil Seal Installation | d. Rear Oil Seal Installation |

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Front seal installer (Appendix B, Item 96)
 Rear seal installer (Appendix B, Item 95)
 Drive handle (Appendix B, Item 60)

Materials/Parts

Four lockwashers (Appendix A, Item 145)
 Seal, lockwasher (Appendix A, Item 298)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Rear propeller shaft removed
 (TM 9-2320-387-24-1).

Maintenance Level

Unit

a. Front Oil Seal Removal

1. Remove four nuts (3), lockwashers (2), two U-bolts (5), and front propeller shaft (1) from output yoke (4). Discard lockwashers (2).

NOTE

Have drainage container ready to catch fluid.

2. Remove nut (6), lockwasher seal (7), output yoke (4), and output seal (8) from transfer case (9). Discard lockwasher seal (7).

b. Front Oil Seal Installation

1. Using front seal installer and drive handle, install output seal (8) on transfer case (9).
2. Install output yoke (4) on transfer case (9) with lockwasher seal (7) and nut (6). Tighten nut (6) to 110 lb-ft (149 N•m).
3. Install front propeller shaft (1) on output yoke (4) with two U-bolts (5), four lockwashers (2), and nuts (3). Tighten nuts (3) to 13–18 lb-ft (12–24 N•m).

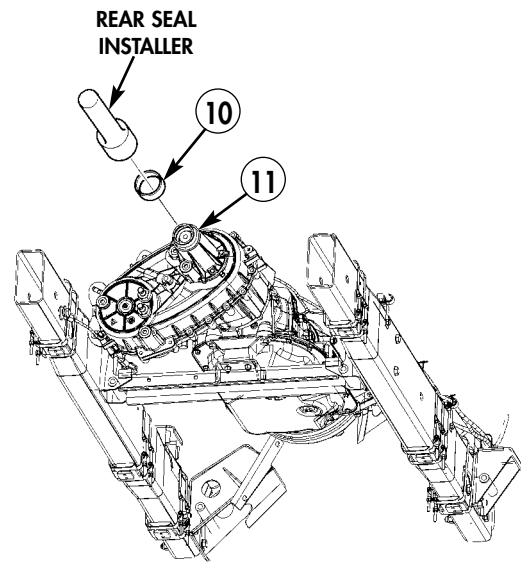
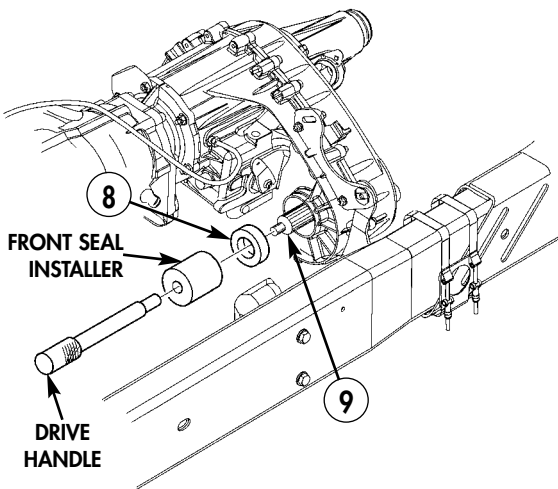
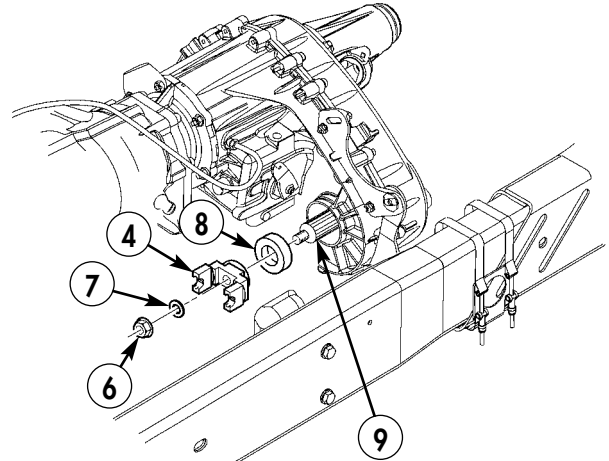
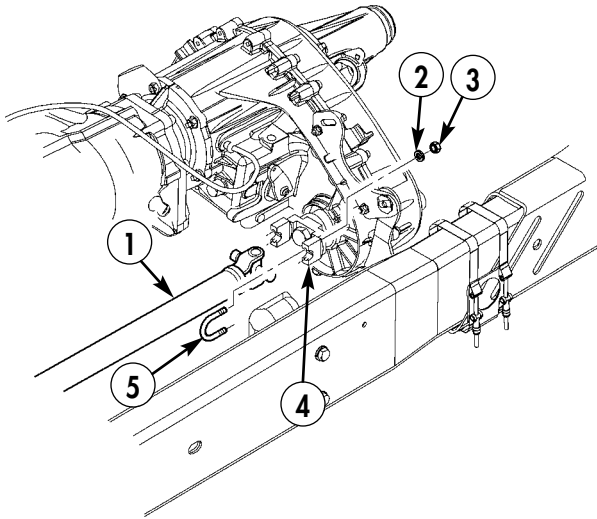
c. Rear Oil Seal Removal

Remove oil seal (10) from transfer case extension (11).

d. Rear Oil Seal Installation

Using rear seal installer, install oil seal (10) on transfer case extension (11).

5-18.1. TRANSFER CASE OIL SEALS REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASKS:

- Install rear propeller shaft (TM 9-2320-387-24-1).
- Fill transfer case fluid to proper level (TM 9-2320-387-10).

**5-20. TRANSFER CASE VENT LINE REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TB 9-2320-335-13&P, Appendix E

Maintenance Level

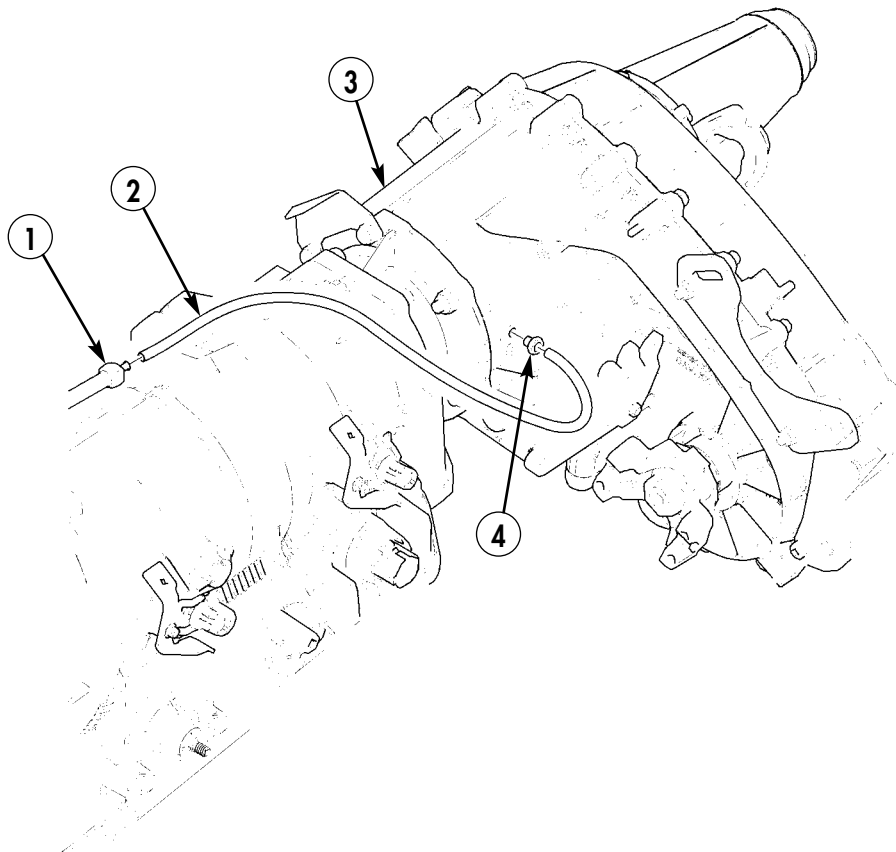
Unit

a. Removal

1. Disconnect vent line (2) from tee fitting (1) and vent line adapter (4).
2. Remove vent line adapter (4) from transfer case (3).

b. Installation

1. Install vent line adapter (4) on transfer case (3).
2. Connect vent line (2) to vent line adapter (4) and tee fitting (1).



CHAPTER 6

PROPELLER SHAFTS, AXLES, AND SUSPENSION (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the propeller shafts, axles and suspension systems that are specific to your REV vehicle.

6-2. FRONT PROPELLER SHAFT ASSEMBLY MAINTENANCE

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Removal b. Inspection | <ul style="list-style-type: none"> c. Installation |
|---|---|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Cotter pin (Appendix A, Item 21)
 Two locknuts (Appendix A, Item 128)
 Four lockwashers (Appendix A, Item 145)
 (Serial numbers 300000 and above)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24P

Maintenance Level

Unit

NOTE

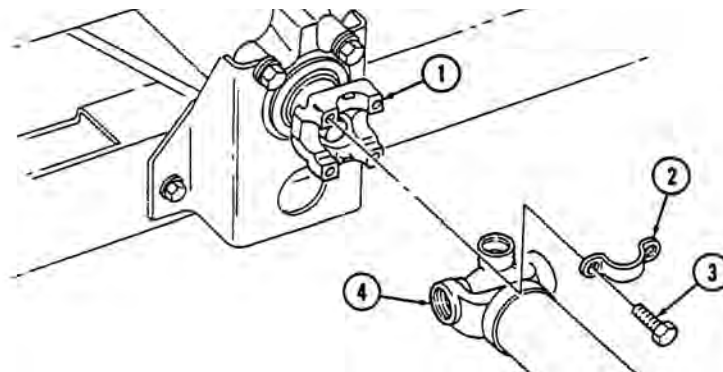
Propeller shaft bearing caps should be taped together to prevent loss of bearings.

a. Removal

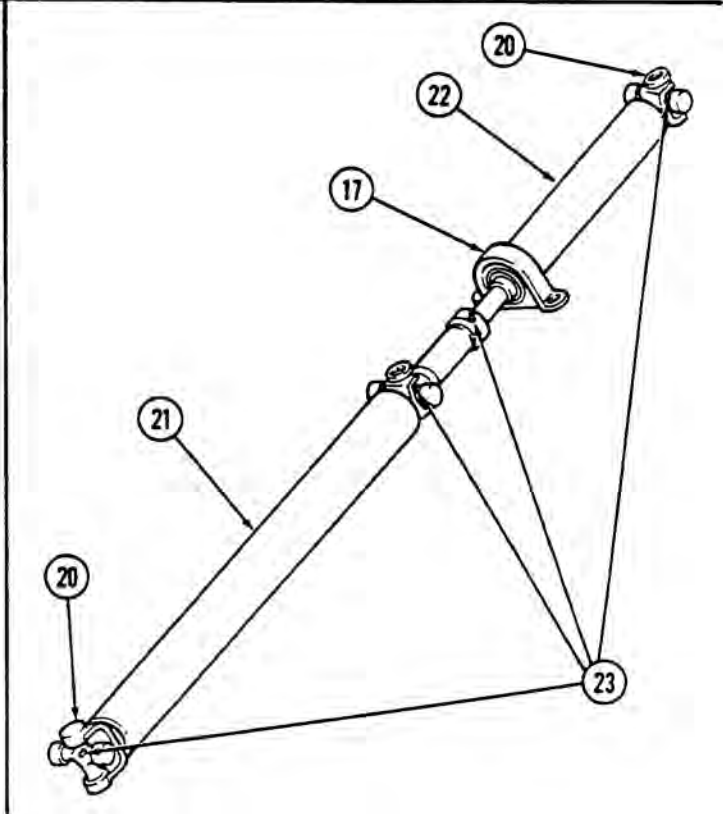
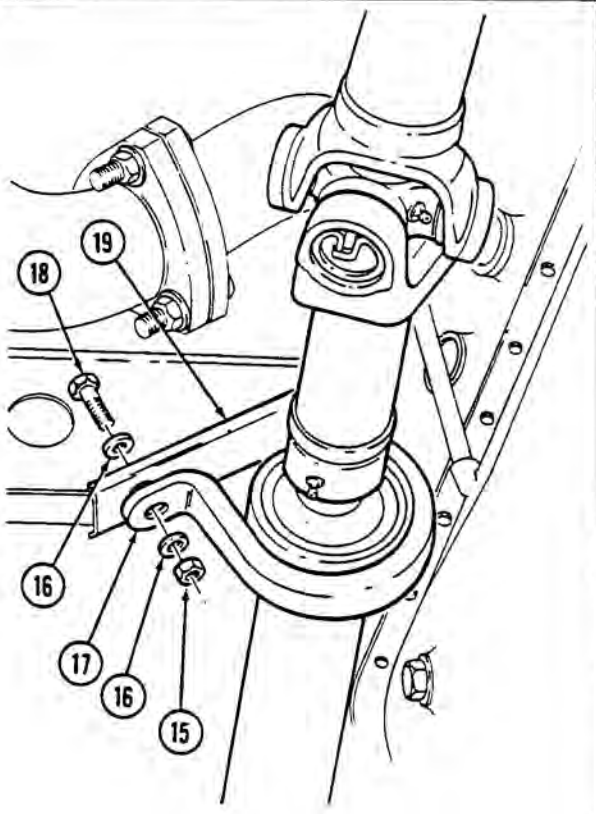
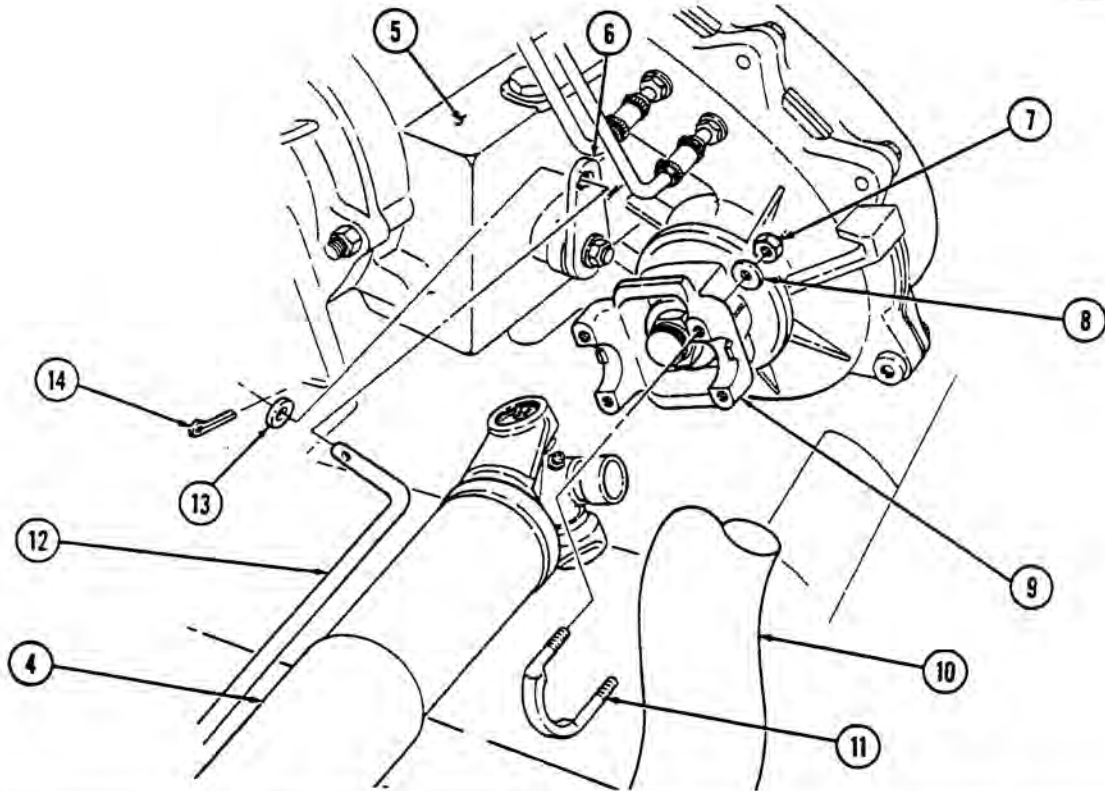
1. Remove four capscrews (3) and two bearing straps (2) from front propeller shaft assembly (4) and differential pinion yoke (1).
2. Remove four nuts (7), lockwashers (8), and two U-bolts (11) from front propeller shaft assembly (4) and transfer case output yoke (9). Discard lockwashers (8).
3. Remove cotter pin (14), washer (13), and transfer case shift rod (12) from transfer case shift lever (6). Discard cotter pin (14).
4. Remove two locknuts (15), washers (16), capscrews (18), washers (16), and center bearing (17) from engine mount (19). Discard locknuts (15).
5. Move front propeller shaft assembly (4) forward, then rearward, over top of transfer case (5) and exhaust pipe (10). Remove front propeller shaft assembly (4).

b. Inspection

1. Inspect driveshaft (21) and coupling shaft (22) for cracks and damage. Replace either if cracked or damaged (para. 6-3).
2. Inspect grease fittings (23) and universal joints (20) for serviceability. Replace universal joints (20) or grease fittings (23) if unserviceable (para. 6-3).
3. Inspect center bearing (17) for roughness or damage. Replace coupling shaft (22) if center bearing (17) is rough or damaged (para. 6-3).



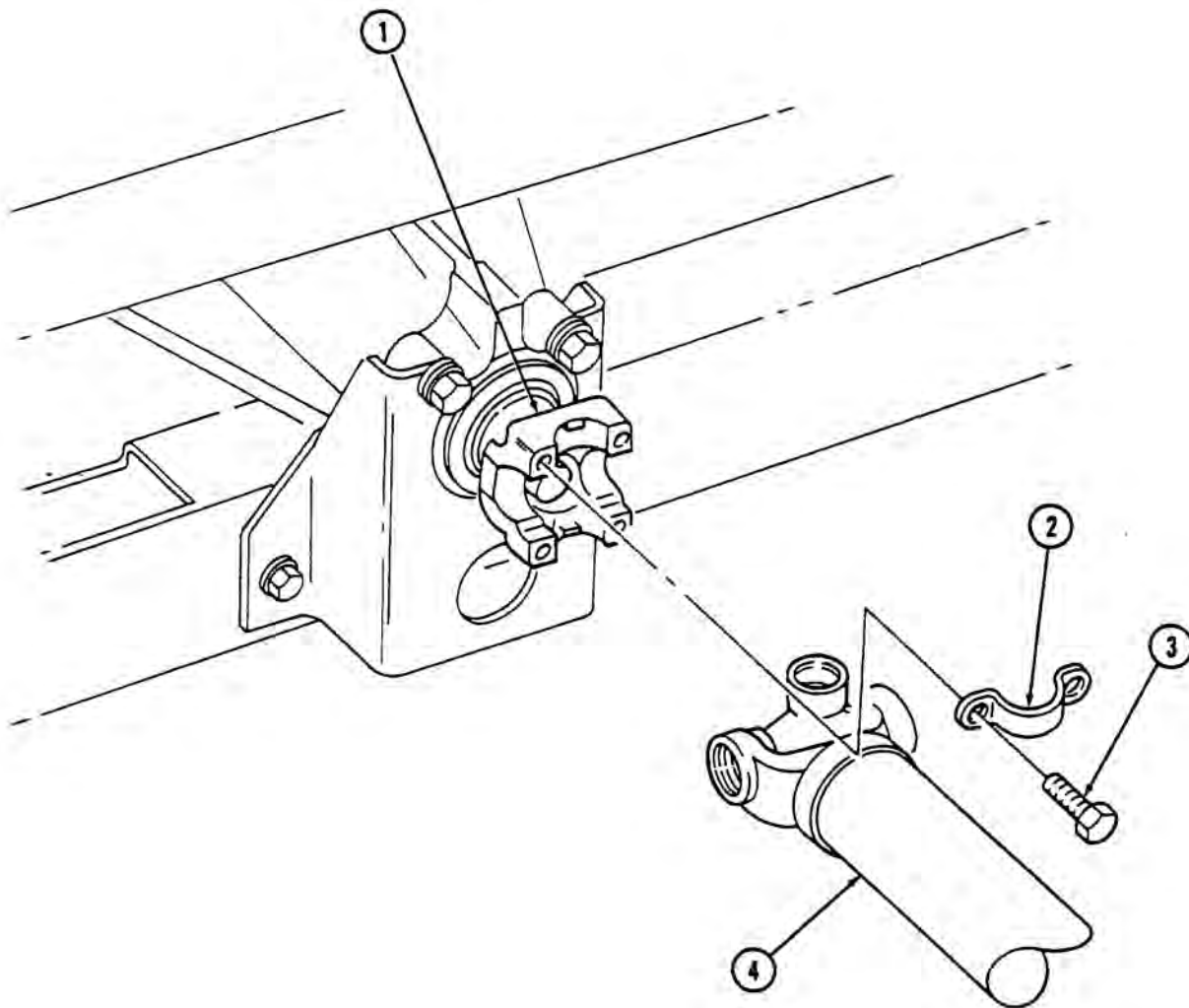
6-2. FRONT PROPELLER SHAFT ASSEMBLY MAINTENANCE (Cont'd)



6-2. FRONT PROPELLER SHAFT ASSEMBLY MAINTENANCE (Cont'd)

c. Installation

1. Position front propeller shaft assembly (4) over exhaust pipe (10) and over top of transfer case (5).
2. Install front propeller shaft assembly (4) on differential pinion yoke (1) with two bearing straps (2) and four capscrews (3). Tighten capscrews (3) to 13-18 lb-ft (18-24 N•m).
3. Install center bearing (17) on engine mount (19) with two washers (16), capscrews (18), washers (16), and locknuts (15). Tighten capscrews (18) to 60 lb-ft (81 N•m).
4. Install transfer case shift rod (12) on transfer case shift lever (6) with washer (13) and cotter pin (14).
5. Install front propeller shaft assembly (4) on transfer case output yoke (9) with two U-bolts (11), four lockwashers (8), and nuts (7). Tighten nuts (7) to 13-18 lb-ft (18-24 N•m).



6-7. HALFSHAFT MAINTENANCE

This task covers:

- | | |
|----------------------------|-----------------------------|
| a. Removal | d. Wear Sleeve Installation |
| b. Disassembly | e. Assembly |
| c. Cleaning and Inspection | f. Installation |

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Boot service kit (Appendix A, Item 4)
 Clip (Appendix A, Item 11)
 Cotter pin (Appendix A, Item 19)
 Six two-piece lockwashers
 (Appendix A, Item 191)
 Lockwasher (Appendix A, Item 156)
 Drycleaning solvent (Appendix C, Item 26)
 Lithium grease (Appendix C, Item 36)
 Sealing compound (Appendix C, Item 63)
 Wear sleeve (Appendix A, Item 311.1)

Manual References

TM 9-2320-387-24P

Equipment Condition

- Wheel removed (TM 9-2320-387-24-1).
- Brake protection guards removed (para. 7-11.1).

General Safety Instructions

Drycleaning solvent is flammable and will not be used near an open flame.

Maintenance Level

Unit

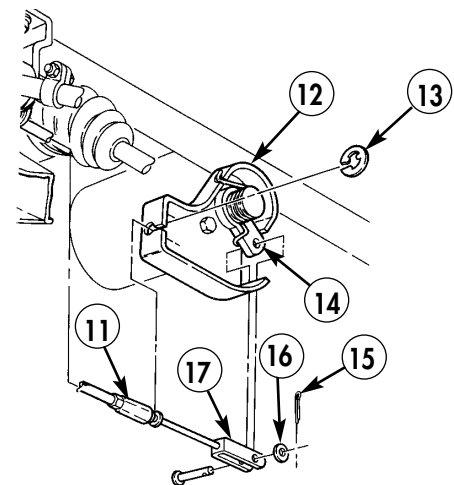
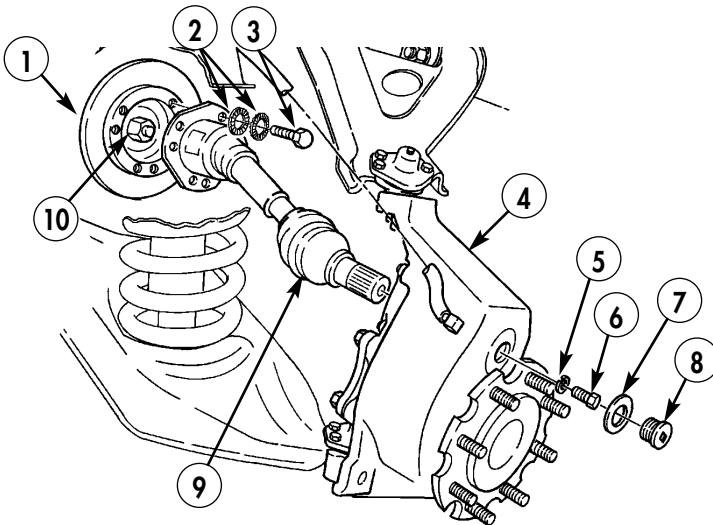
a. Removal

1. Remove access plug (8) and washer (7) from geared hub (4).
2. Remove halfshaft retaining capscrew (6) and lockwasher (5) from halfshaft (9) and geared hub (4). Discard lockwasher (5).
3. Remove six capscrews (3), two-piece lockwashers (2), and halfshaft (9) from rotor (1) and output flange (10). Discard two-piece lockwashers (2).

NOTE

Perform steps 4 and 5 for rear halfshafts only.

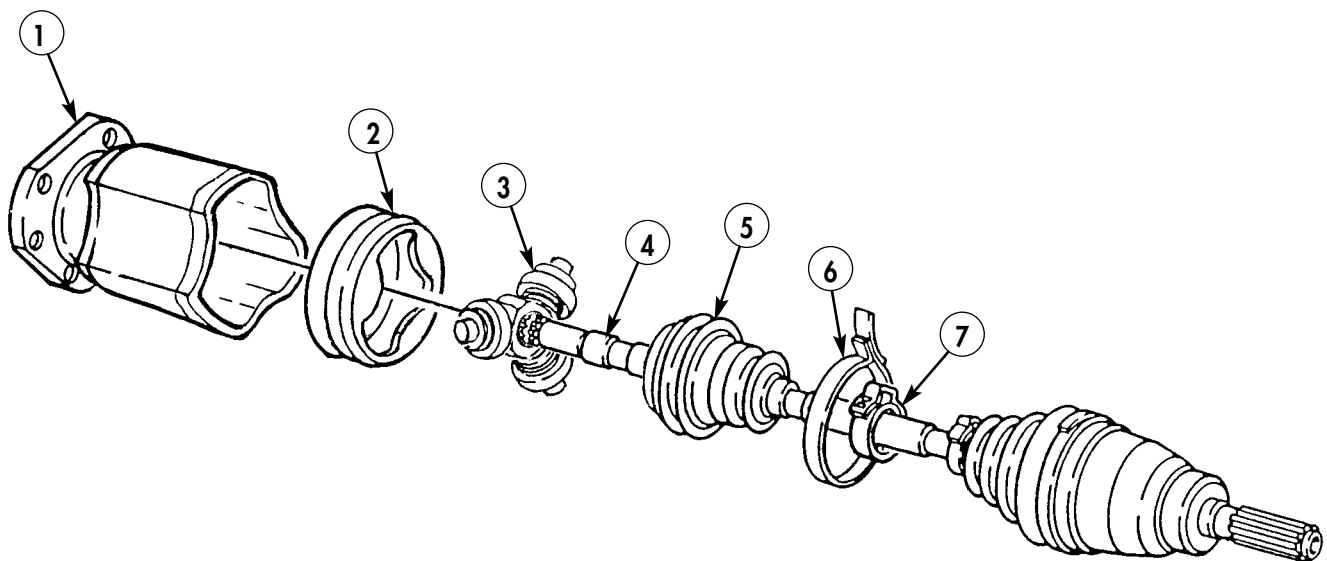
4. Remove cotter pin (15), washer (16), clevis pin (18), and parking brake clevis (17) from lever (14). Discard cotter pin (15).
5. Remove clip (13) and disconnect cable (11) from caliper cable bracket (12). Discard clip (13).



6-7. HALFSHAFT MAINTENANCE (Cont'd)

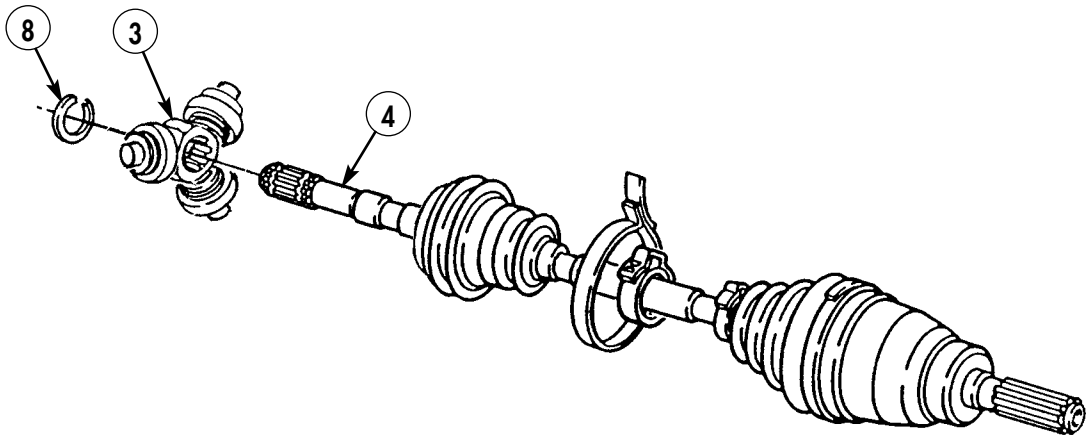
b. Disassembly

1. Loosen clamps (6) and (7) securing inner boot (5) to inner joint (1), insert (2), and shaft (4).
2. Clamp shaft (4) in soft-jawed vise.
3. Remove inner boot (5) from insert (2) and slide up on shaft (4).
4. Remove inner joint (1) and insert (2) from spider assembly (3) and shaft (4).
5. Remove insert (2) from inner joint (1). Discard insert (2).



6-7. HALFSHAFT MAINTENANCE (Cont'd)

6. Remove retainer ring (8) from shaft (4). Discard retainer ring (8).
7. Remove spider assembly (3) from shaft (4).



6-7. HALFSHAFT MAINTENANCE (Cont'd)

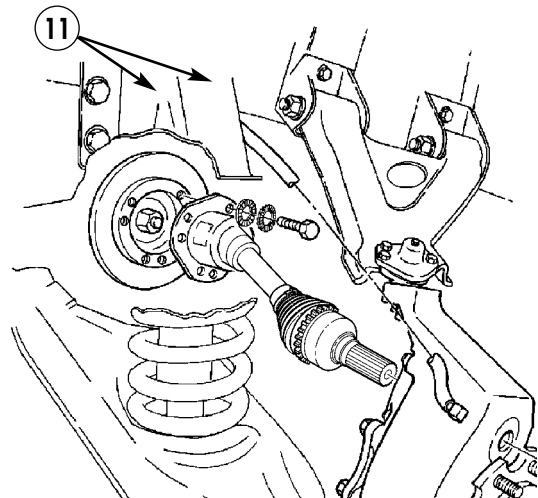
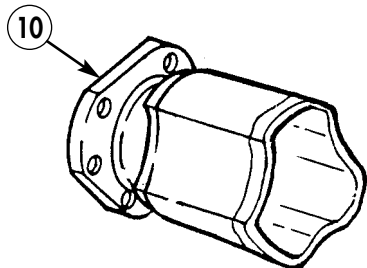
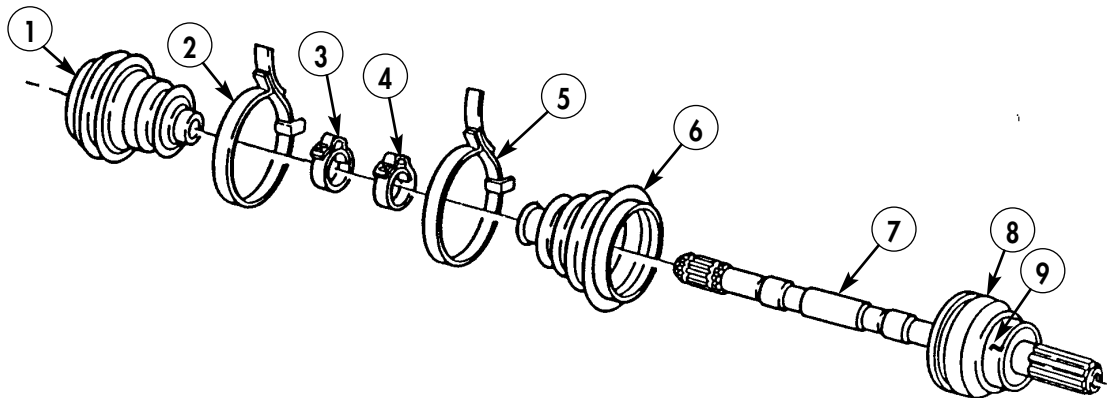
8. Remove inner boot (1) and clamps (2) and (3) from shaft (7). Discard boot (1) and clamps (2) and (3).
9. Remove shaft (7) from soft-jawed vise.
10. Remove boot clamps (4) and (5) and outer boot (6) from outer joint (8) and shaft (7). Discard boot (6) and clamps (5) and (4).

c. Cleaning and Inspection

WARNING

Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and/or damage to equipment.

1. Clean all metallic parts with drycleaning solvent.
2. Inspect shaft (7) for cracks and distortion. Replace shaft (7) if cracked or distorted.
3. Inspect splined end of shaft (7) for damage. Replace shaft (7) if damaged.
4. Inspect inner joint (10) for pitting or rough joint operation. Replace inner joint (10) if pitted or unserviceable.
5. Clean output flange threaded holes (11) with a 10-mm tap to remove old sealing compound.
6. Inspect halfshaft end (9) for burrs or grooves. If burrs or grooves are present, carefully sand or grind down burrs on halfshaft end (9).



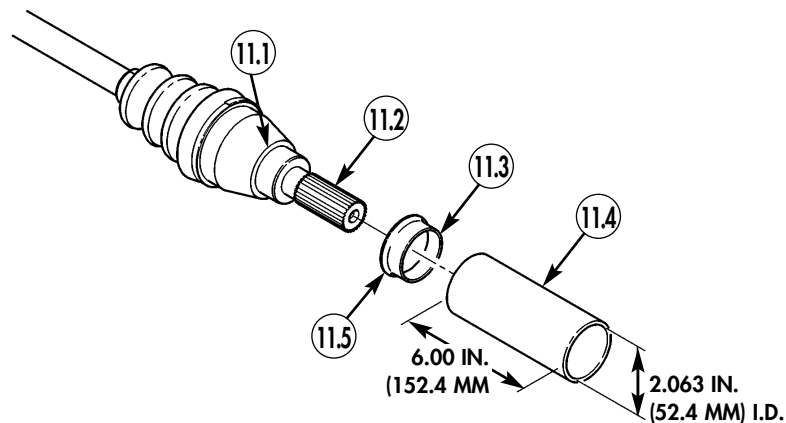
6-7. HALFSHAFT MAINTENANCE (Cont'd)

d. Wear Sleeve Installation

NOTE

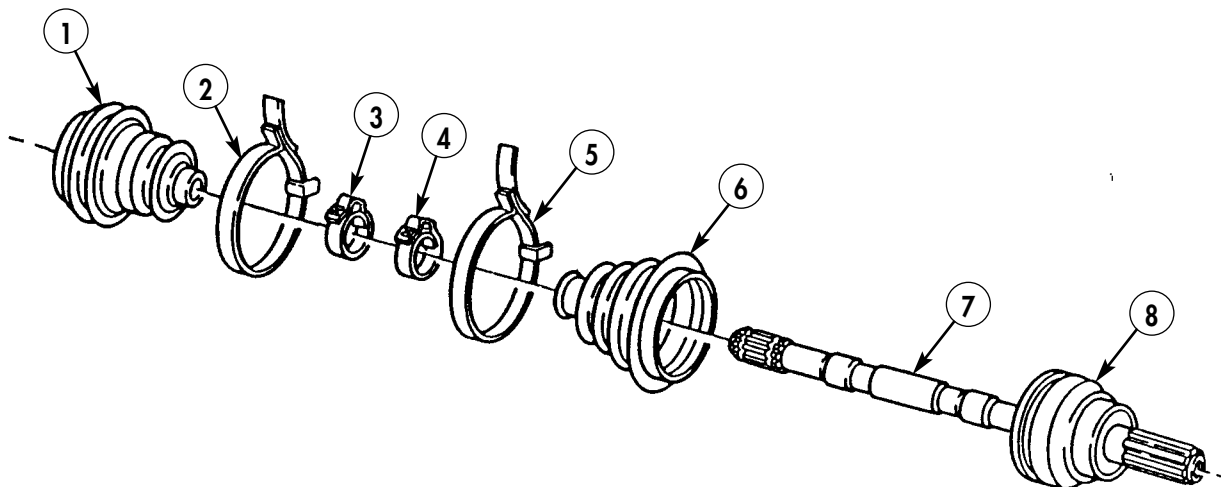
When installing wear sleeve over halfshaft spline, ensure wear sleeve does not come into contact with splines.

Using a pipe or like item (11.4), slide wear sleeve (11.3) over halfshaft spline (11.2) until flange (11.5) of wear sleeve (11.3) contacts shoulder adjacent to halfshaft seal surface (11.1).



e. Assembly

1. Pack outer joint (8) with lithium grease.
2. Install outer boot (6) on shaft (7). Ensure boot (6) seats in groove of shaft (7).
3. Secure outer boot (6) on shaft (7) with clamp (4).
4. Install outer boot (6) on joint (8). Ensure boot (6) seats in groove of joint (8).
5. Secure outer boot (6) on joint (8) with clamp (5).
6. Clamp shaft (7) in soft-jawed vise.
7. Position clamps (3) and (2) on shaft (7).
8. Install inner boot (1) on shaft (7). Push boot (1) past groove on shaft (7).

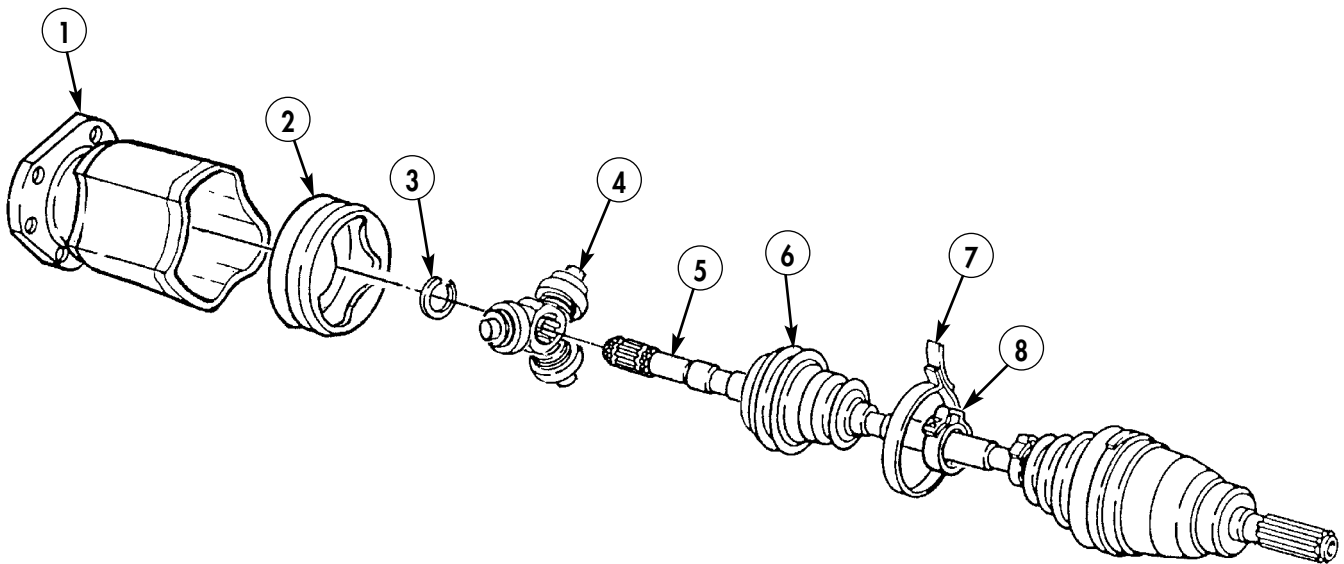


6-7. HALFSHAFT MAINTENANCE (Cont'd)

NOTE

Adhere spider assembly with lithium grease before installing on shaft.

9. Align splines of spider assembly (4) with spline on shaft (5). Use press to install spider assembly (4) on shaft (5) until spider assembly (4) seats into place.
10. Install retainer ring (3) in upper groove of shaft (5).
11. Pack inner joint (1) with lithium grease.
12. Install insert (2) on inner joint (1).
13. Install inner joint (1) and insert (2) on spider assembly (4) and shaft (5).
14. Move inner boot (6) on shaft (5) until inner boot (6) seats in groove of shaft (5).
15. Secure inner boot (6) on shaft (5) with clamp (8).
16. Install inner boot (6) on inner joint (1). Ensure boot (6) seats in groove of inner joint (1).
17. Secure inner boot (6) on inner joint (1) with clamp (7).



f. Installation

1. Install halfshaft (18) into geared hub (13).
2. Apply sealing compound to halfshaft retaining capscrew (15) and install halfshaft (18) on geared hub (13) with lockwasher (14) and halfshaft retaining capscrew (15). Tighten halfshaft retaining capscrew (15) to 37 lb-ft (50 N•m).
3. Install washer (16) and access plug (17) into geared hub (13). Tighten access plug (17) to 8-13 lb-ft (11-18 N•m).

6-7. HALFSHAFT MAINTENANCE (Cont'd)

NOTE

- Ensure all six capscrew holes in the rotor align with holes in output flange.
 - New capscrews come with preapplied thread-locking compound, however, still apply sealing compound to threads of new capscrews. If old capscrews are to be used, mating threads must be cleaned and sealing compound applied to threads of capscrews.
 - Two-piece lockwashers must be installed in sets of two with serrated sawtooth threads facing each other.
4. Apply sealing compound to six capscrews (12). Install halfshaft (18) on rotor (10) and output flange (19) with six two-piece lockwashers (11) and capscrews (12). Tighten capscrews (12) to 58 lb-ft (79 N•m).

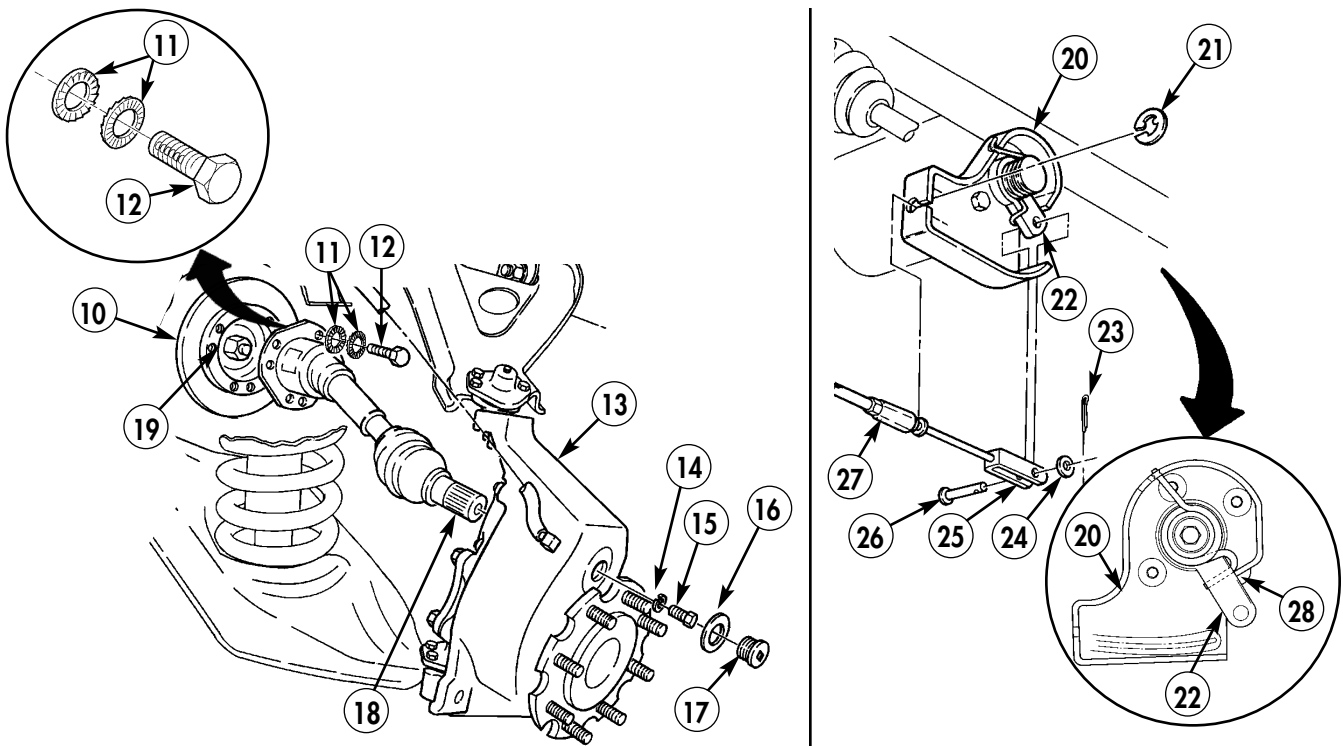
NOTE

Perform steps 5 through 7 for rear halfshafts only.

5. Install parking brake cable (27) on caliper cable bracket (20) with clip (21).

CAUTION

- Ensure lever is in contact with caliper cable bracket stop. Damage to equipment and poor performance may result if not aligned properly.
 - Ensure that clevis and clevis pin are aligned in lever. Do not move lever to accommodate misadjusted clevis. Damage to equipment and poor performance may result.
6. Install parking brake clevis (25) on lever (22) with clevis pin (26), washer (24), and cotter pin (23). Check position of lever (22) and ensure it is in contact with caliper cable bracket stop (28).
7. If lever (22) is not in contact with caliper cable bracket stop (28), adjust rear dual service parking brake (para. 7-19).



- FOLLOW-ON TASKS:
- Install brake protection guards (para. 7-11.1).
 - Install wheel (TM 9-2320-387-24-1).

**6-14.1. FRONT DIFFERENTIAL VENT LINE REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Lockwasher (Appendix A, Item 144)

Manual References

TB 9-2320-335-13&P, Appendix E

Maintenance Level

Unit

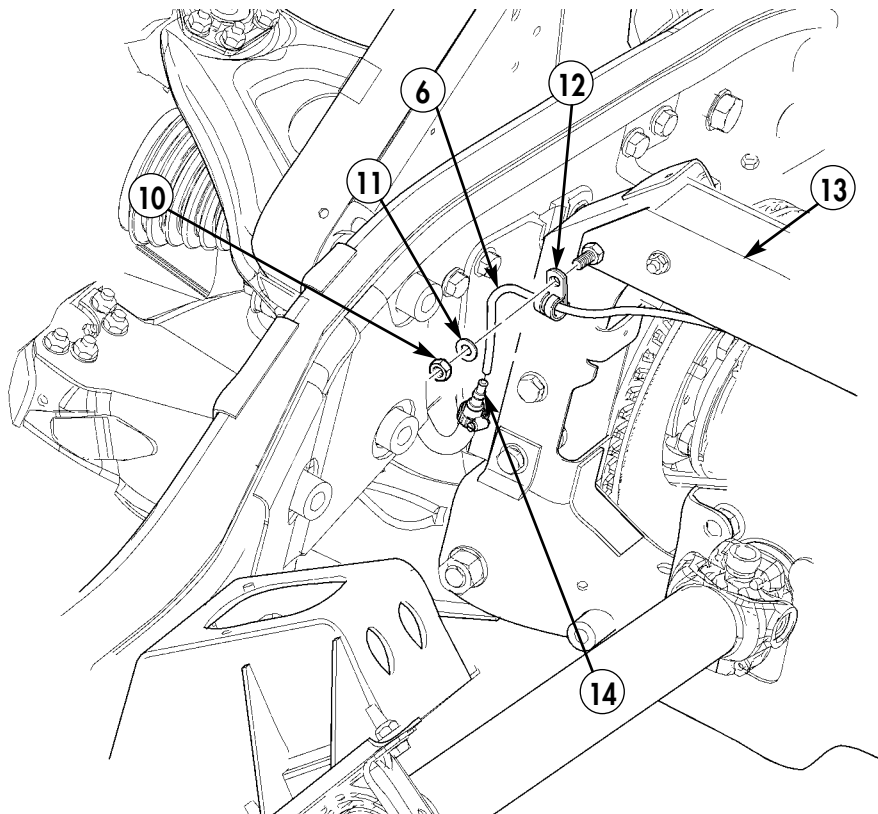
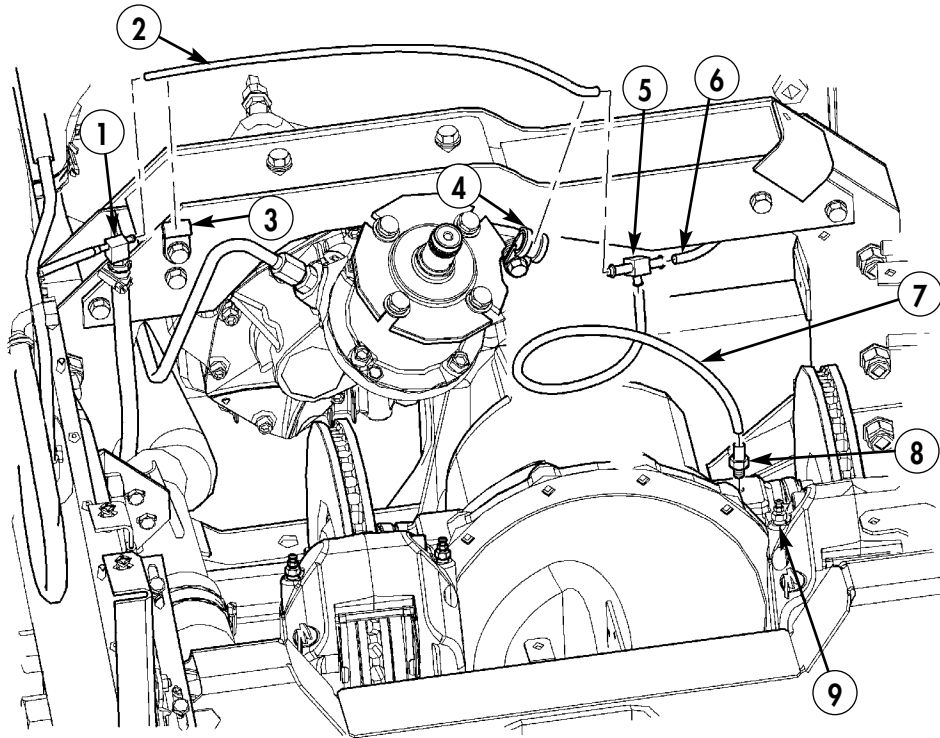
a. Removal

1. Disconnect vent line (2) from tee fittings (1) and (5).
2. Pull vent line (2) through clamps (3) and (4).
3. Disconnect vent line (7) from tee fitting (5) and vent line adapter (8).
4. Remove vent line adapter (8) from differential (9).
5. Disconnect vent line (6) from tube adapter (14) and tee fitting (5).
6. Remove nut (10), lockwasher (11), clamp (12), and vent line (6) from crossmember (13). Discard lockwasher (11).

b. Installation

1. Install clamp (12) and vent line (6) on crossmember (13) with lockwasher (11) and nut (10).
2. Connect vent line (6) to tube adapter (14) and tee fitting (5).
3. Install vent line adapter (8) on differential (9).
4. Connect vent line (7) to vent line adapter (8) and tee fitting (5).
5. Pull vent line (2) through clamps (4) and (3).
6. Connect vent line (2) to tee fittings (5) and (1).

**6-14.1. FRONT DIFFERENTIAL VENT LINE REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



6-14.2. REAR DIFFERENTIAL VENT LINE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

Parking brake pads removed (para. 7-22).

Maintenance Level

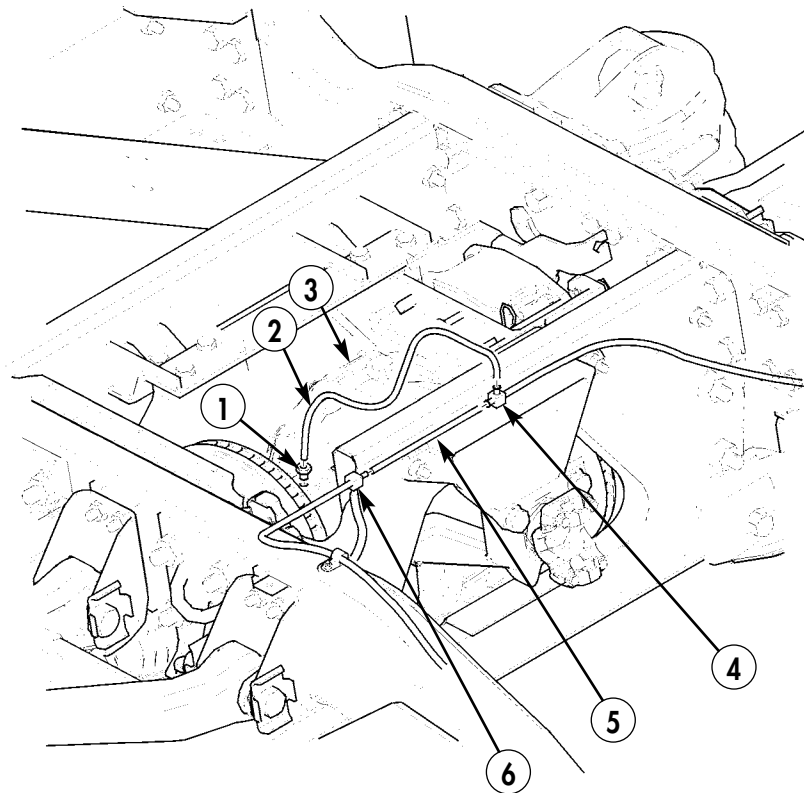
Unit

a. Removal

1. Disconnect vent line (5) from tee fittings (4) and (6).
2. Disconnect vent line (2) from vent line adapter (1) and tee fitting (4).
3. Remove vent line adapter (1) from differential (3).

b. Installation

1. Install vent line adapter (1) on differential (3).
2. Connect vent line (2) to vent line adapter (1) and tee fitting (4).
3. Connect vent line (5) to tee fittings (6) and (4).



FOLLOW-ON TASK: Install parking brake pads (para. 7-22).

6-20.1. STABILIZER BAR REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

Stabilizer bar link removed
 (TM 9-2320-387-24-1)

Maintenance Level

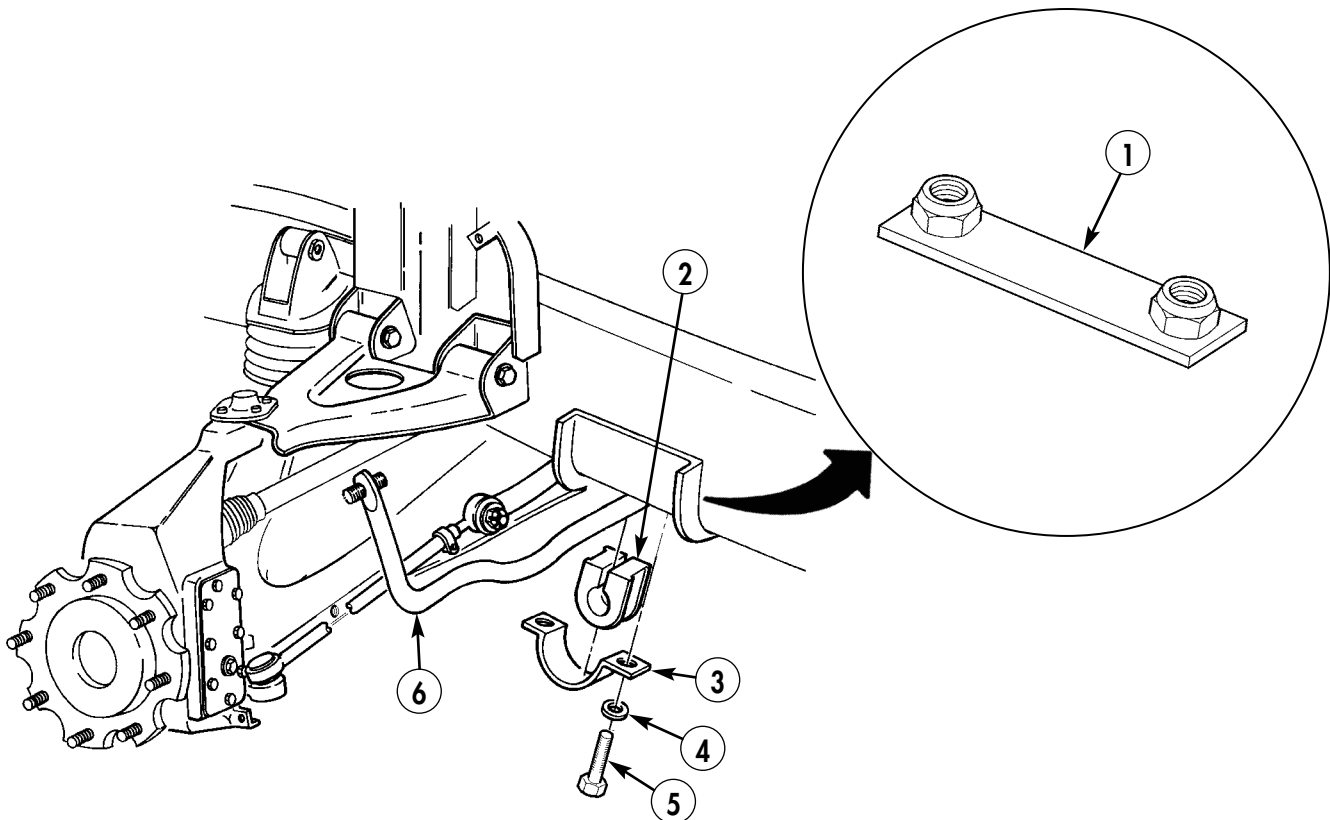
Unit

a. Removal

1. Remove four capscrews (5), washers (4), two clamps (3), and stabilizer bar (6) from two frame brackets (1).
2. Remove two stabilizer bar bushings (2) from stabilizer bar (6).

b. Installation

1. Install two stabilizer bar bushings (2) on stabilizer bar (6).
2. Install stabilizer bar (6) on two frame brackets (1) with two clamps (3), four washers (4), and capscrews (5). Tighten capscrews (5) to 39–47 lb-ft (53–63 N•m).



CHAPTER 7

BRAKE SYSTEM (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the brake system that are specific to your REV vehicle.

**7-2.1. SERVICE BRAKE SYSTEM BLEEDING INSTRUCTIONS
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|---|------------------------------------|
| <p>a. Pressure Bleeding</p> <p>b. Manual Bleeding</p> | <p>c. Master Cylinder Bleeding</p> |
|---|------------------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Brake fluid (Appendix C, Item 18)

Personnel Required

One mechanic
One assistant (task b. only)

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Master cylinder filled to proper level (Table 2-1, Item 2).

General Safety Instructions

Always wear eye protection when bleeding brakes.

Maintenance Level

Unit

WARNING

Always wear eye protection when bleeding brakes. Failure to do so may cause injury if brake fluid comes in contact with eyes.

CAUTION

Both sides of each caliper will need to be bled. Do not bleed only one side of brake caliper or brakes may not operate properly.

NOTE

- If only the front or rear half of the system has been serviced, it is usually necessary to bleed only that half of the system. However, if a firm brake pedal cannot be obtained after bleeding, it will be necessary to bleed the entire system.
- Bleed brakes in the following order: right rear, left rear, right front, left front.
- Bleeding procedures for all four brake calipers are basically the same. These procedures cover bleeding of right rear caliper. Repeat procedure for each caliper, as necessary.
- Bleed calipers (pressure and manual) from top bleeder screws only, bottom bleeder screws are for universal caliper replacement.

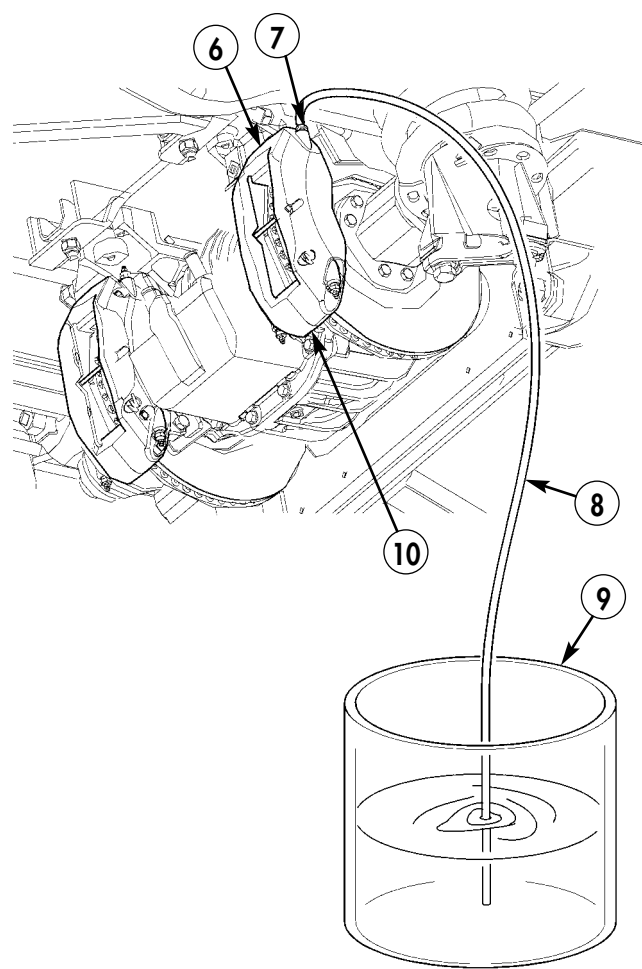
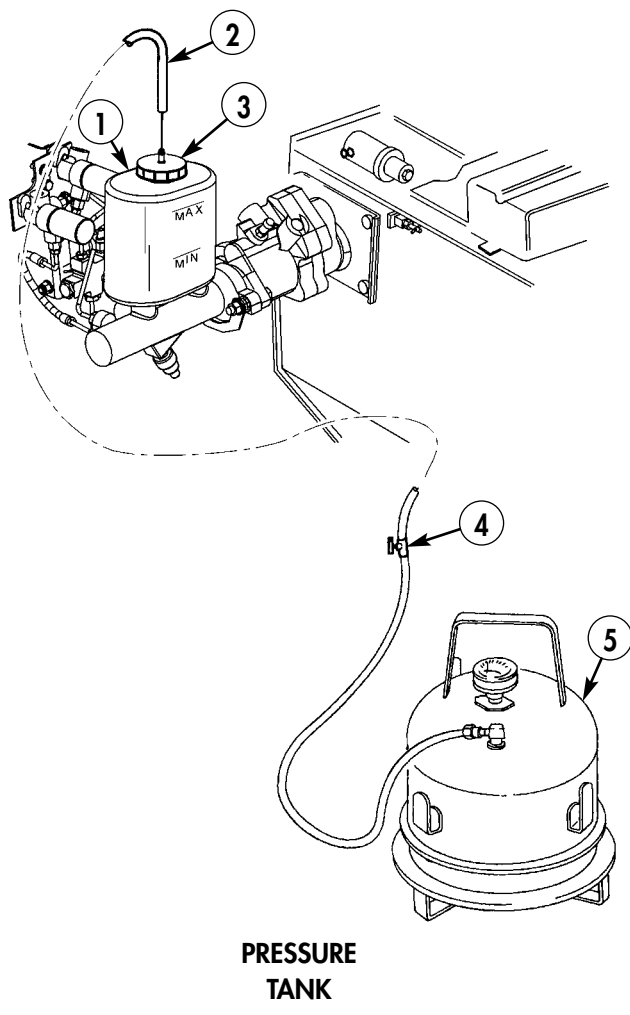
a. Pressure Bleeding

CAUTION

- When using a pressure tank, follow the manufacturer's instructions for its use. Do not exceed the recommended working pressure when pressurizing the tank. A tank pressure of 12-15 psi (103-138 kPa) is sufficient to bleed the brake hydraulic system. Release all air pressure from the tank after using it.
- Check the master cylinder fluid level frequently during the pressure bleeding procedure and refill the reservoir as necessary. Do not allow the master cylinder to run out of fluid at any time or additional air will be drawn into the system.

7-2.1. SERVICE BRAKE SYSTEM BLEEDING INSTRUCTIONS (SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)

1. Install pressure tank hose (2) on master cylinder reservoir cap (3).
2. Connect short piece of hose (8) to bleeder screw (7) on brake caliper (10) and place other end of hose (8) in container $\frac{3}{4}$ full of brake fluid (9).
3. Open valve (4) on line (2) from pressure tank (5) to master cylinder reservoir (1) allowing pressurized brake fluid to enter system.
4. Open bleeder screw (7) $\frac{3}{4}$ turn and observe brake fluid in container (9). Close bleeder screw (7) when brake fluid flows free of bubbles.
5. Disconnect hose (8) from bleeder screw (7).
6. Close valve (4) on line (2) from pressure tank (5) to master cylinder reservoir (1).
7. Disconnect pressure tank hose (2) from master cylinder reservoir cap (3).
8. Repeat pressure bleeding for opposite side (6) of same brake caliper (10).
9. Fill master cylinder reservoir (1) with silicone brake fluid to MAX line.



**7-2.1. SERVICE BRAKE SYSTEM BLEEDING INSTRUCTIONS
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

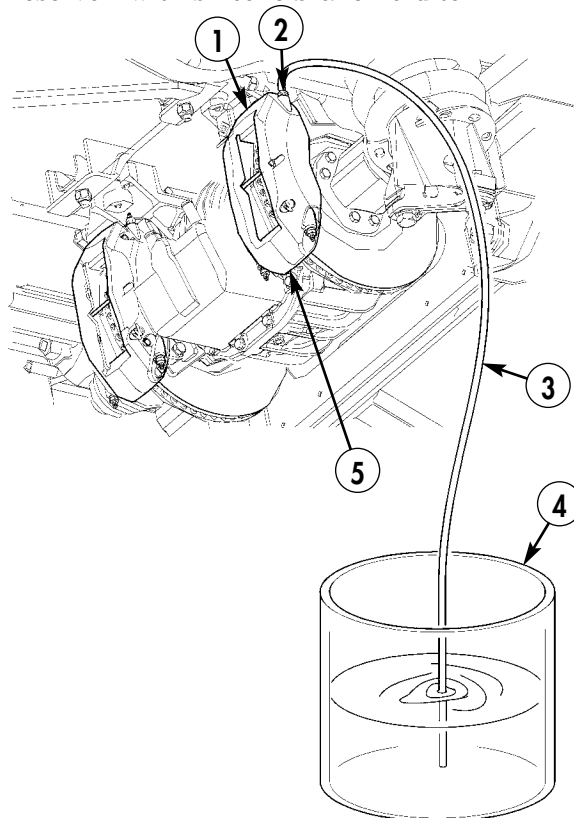
b. Manual Bleeding

CAUTION

- Check the master cylinder fluid level frequently during the bleeding operation and refill the reservoir as necessary. Do not allow the master cylinder to run out of fluid at any time or additional air will be drawn into the system.
- After adding silicone brake fluid to master cylinder, let cylinder sit undisturbed for 30 minutes minimum to ensure all visible as well as minute air bubbles are gone.

NOTE

- This procedure covers bleeding at one caliper. Repeat bleeding task for remaining calipers.
 - Assistant is required to depress the brake pedal when manually bleeding brakes while mechanic opens and closes bleeder screw.
1. Connect short piece of hose (3) to bleeder screw (2) on brake caliper (5) and place other end of hose in container $\frac{3}{4}$ full of brake fluid (4).
 2. Have assistant pump brake pedal toward floor and hold it there. Open bleeder screw (2) $\frac{3}{4}$ turn.
 3. When pedal reaches floor, tighten bleeder screw (2) and have assistant slowly release brake pedal.
 4. Repeat steps 2 and 3 until fluid flows clear and free of air bubbles.
 5. Disconnect hose (3) from bleeder screw (2).
 6. Repeat manual bleeding for opposite side (1) of same caliper (5).
 7. Fill master cylinder reservoir with silicone brake fluid to MAX line.



7-2.1. SERVICE BRAKE SYSTEM BLEEDING INSTRUCTIONS (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

c. Master Cylinder Bleeding

NOTE

Perform this procedure prior to installing master cylinder on vehicle.

1. Secure master cylinder flange (7) in vise (5).
2. Install threaded plug (4) in brake line opening in master cylinder flange (7).
3. Attach threaded plug (3) to end of bleeder hose (2) and install in brake line opening in master cylinder flange (7).
4. Install opposite end of bleeder hose (2) in master cylinder reservoir (1).
5. Fill master cylinder reservoir (1) with silicone brake fluid to MAX line.

NOTE

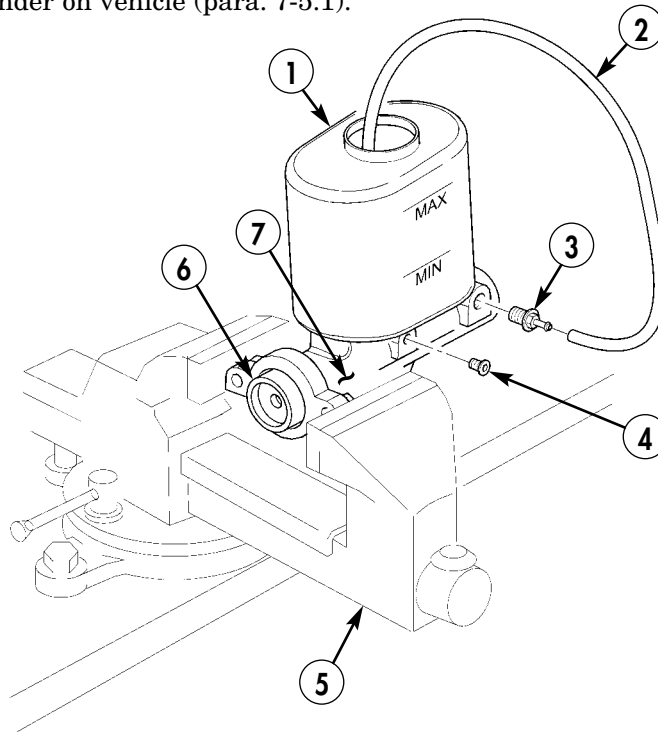
Whenever the master cylinder is filled with silicone brake fluid, let cylinder sit undisturbed for 30 minutes minimum to ensure all visible as well as minute air bubbles are gone.

6. Slowly push piston (6) into master cylinder flange (7). While holding piston (6) in master cylinder flange (7) pinch bleeder hose (2) off and release piston (6). Piston will return automatically.
7. Repeat step 6 until no air bubbles remain in brake fluid.
8. Remove bleeder hose (2) from master cylinder reservoir (1).
9. Install cover on master cylinder reservoir (1) and remove from vise (5).
10. Remove two threaded plugs (3) and (4) from brake line openings in master cylinder flange (7).

NOTE

All calipers will need to be bled after installing master cylinder on vehicle to remove remaining air from brake system.

11. Install master cylinder on vehicle (para. 7-5.1).



- FOLLOW-ON TASKS:**
- Lower and secure hood (TM 9-2320-387-10).
 - Operate vehicle (TM 9-2320-387-10) and check for proper operation.

**7-3.1. SERVICE BRAKE PAD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Cleaning and Inspection
- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Clamp (Appendix B, Item 153)

Manual References

TB 9-2320-335-13&P, Appendix E

General Safety Instructions

Ensure brake pads are installed with linings facing rotor.

Maintenance Level

Unit

CAUTION

Ensure master cylinder brake fluid is no higher than half full when seating caliper pistons or over-flow of master cylinder brake fluid may occur.

NOTE

- Replacement procedures for service brake pads are basically the same. This procedure covers the right front service brake pads.
- To ensure proper brake function, replace brake pads in pairs on both sides of differential.

a. Removal

1. Remove spring clip (3) and guide pin (1) from brake caliper (2).
2. Remove inner and outer brake pads (4) from brake caliper (2).

b. Cleaning and Inspection

Inspect brake pads for glazing, oil saturation, and excessive wear. If brake pad thickness is less than 3/16-in. (4.8 mm), replace brake pads and brake pads on opposite brake caliper.

c. Installation

WARNING

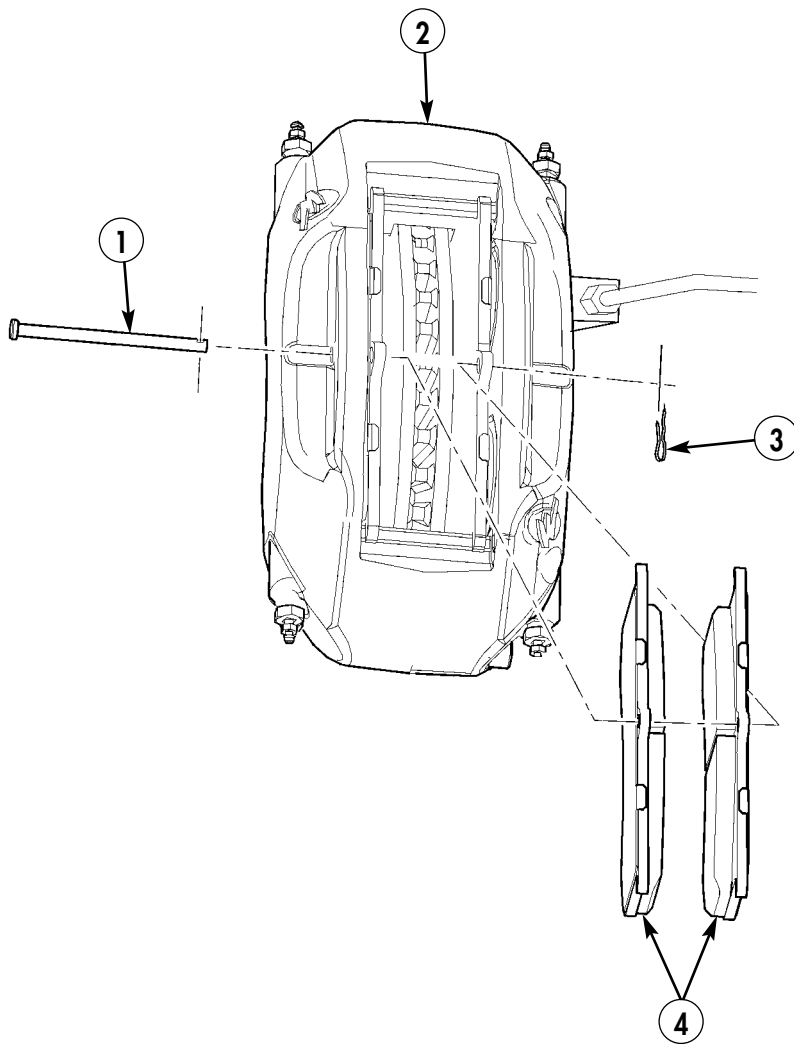
Ensure brake pads are installed with linings facing rotor. Failure to do this may cause injury to personnel or damage to equipment.

NOTE

When installing brake pads, use a C-clamp and a block of wood to seat caliper pistons.

1. Install inner and outer brake pads (4) in brake caliper (2).
2. Install guide pin (1) through brake caliper (2) and brake pads (4). Secure guide pin (1) with spring clip (3).

**7-3.1. SERVICE BRAKE PAD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**7-4.1. SERVICE BRAKE CALIPER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|---|------------------------|
| <p>a. Removal</p> <p>b. Cleaning and Inspection</p> | <p>c. Installation</p> |
|---|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair equipment:
 automotive (Appendix B, Item 2)
 Clamp (Appendix B, Item 153)

Materials/Parts

Sealing compound (Appendix C, Item 62)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Brake pads removed (para. 7-3.1).
- Brake protection guards removed (front only) (para. 7-11.1).
- Horn removed (front only) (para. 4-26.1).

Maintenance Level

Unit

CAUTION

Cover or plug all open brake lines and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connecting brake lines.

NOTE

- Replacement procedures for brake calipers are basically the same. This procedure covers the right front brake caliper.
- Have drainage container ready to catch brake fluid.
- Front calipers will need to be removed through front crossmember.

a. Removal

1. Remove brake line (5) from fitting (4) on brake caliper (6).
2. Remove two capscrews (1) and washers (2) from brake caliper (6) on anchor plate (3).
3. Remove brake caliper (6) from rotor (7).

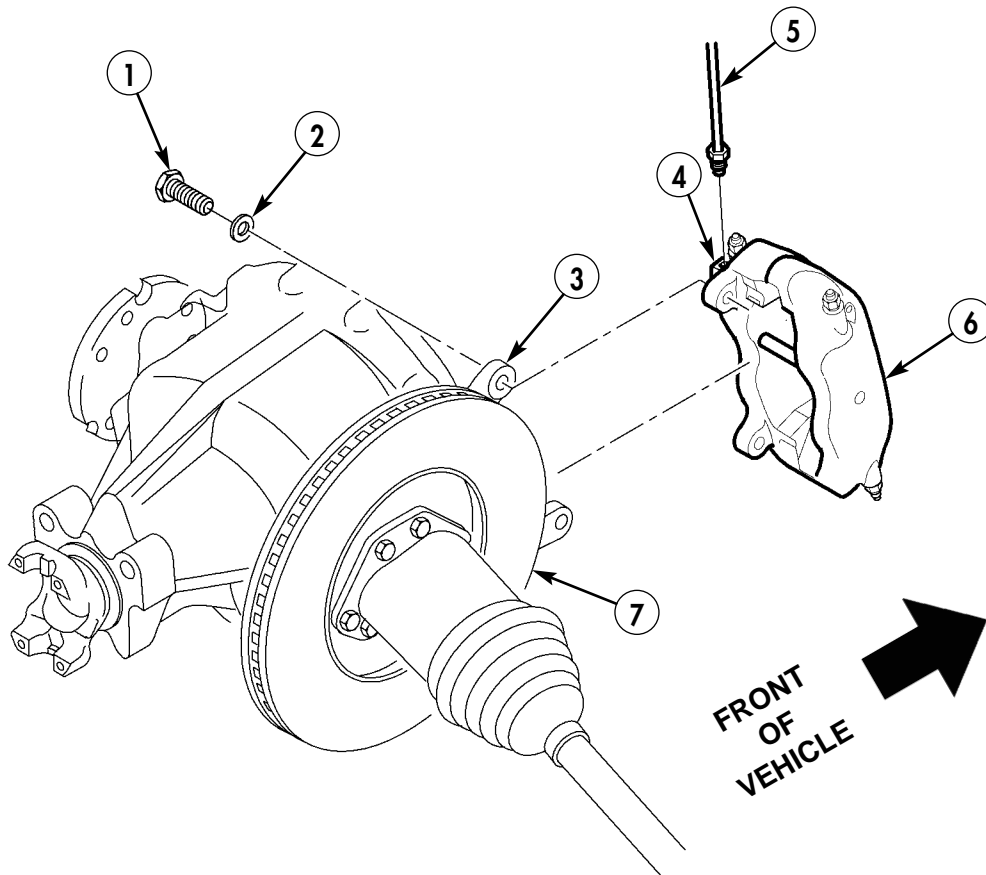
b. Cleaning and Inspection

1. Inspect caliper (6) for cracks, pitting, or damage. Replace caliper (6) if necessary.
2. Inspect rotor (para. 7-12.1).
3. Inspect inside of brake caliper for rust. Remove all rust.

7-4.1. SERVICE BRAKE CALIPER MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

c. Installation

1. Install brake caliper (6) on rotor (7).
2. Apply sealing compound to capscrews (1) and secure brake caliper (6) to anchor plate (3) with two washers (2) and capscrews (1). Tighten capscrews (1) to 40 lb-ft (54 N•m).
3. Install brake line (5) on fitting (4) on brake caliper (6).



- FOLLOW-ON TASKS:**
- Install horn (front only) (para. 4-26.1).
 - Install brake protection guards (front only) (para. 7-11.1).
 - Install brake pads (para. 7-3.1).
 - Bleed brake system (para. 7-2.1).

**7-5.1. MASTER CYLINDER REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

O-ring (Appendix A, Item 228.6)
 Lockwasher (Appendix A, Item 144)
 Two locknuts (Appendix A, Item 106)
 Two locknuts (Appendix A, Item 132.1)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Battery ground cables disconnected (TM 9-2320-387-24-1).
- Left splash shield removed (para. 10-23.1).

Maintenance Level

Unit

CAUTION

Cover or plug all open brake lines and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connecting brake lines.

a. Removal

NOTE

Have drainage container ready to catch brake fluid.

1. Remove vent hose (2) from reservoir cap (3).
2. Loosen and remove left and right front brake lines (5) from proportioning valve (9) and master cylinder (4).
3. Remove capscrew (8), lockwasher (7), washer (6), and bracket (10) from bracket (13). Discard lockwasher (7).

CAUTION

Do not lean on master cylinder or damage to master cylinder may occur.

NOTE

O-ring may fall when master cylinder is removed from hydro-booster.

4. Remove two locknuts (11), washers (12), two locknuts (14), bracket (13), O-ring (16), splash shield bracket (1), and master cylinder (4) from hydro-booster (15). Discard locknuts (11) and O-ring (16).

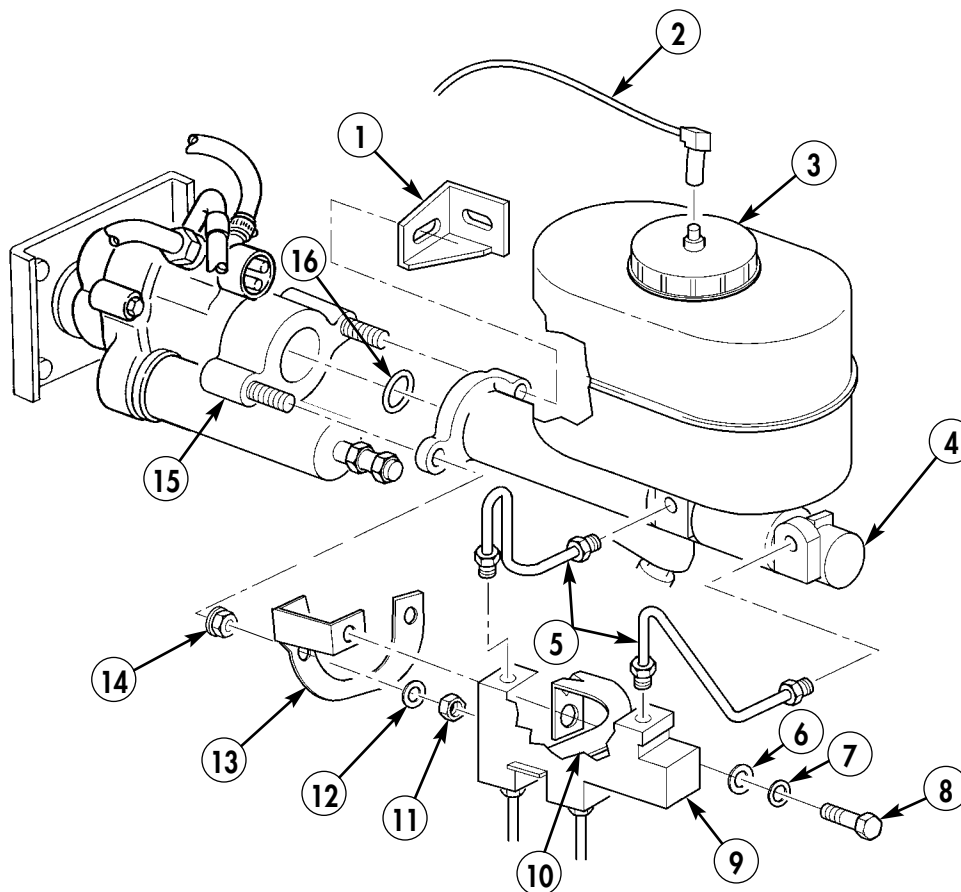
7-5.1. MASTER CYLINDER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

b. Installation

CAUTION

- Perform master cylinder bleeding procedure before installing master cylinder on vehicle. Damage to master cylinder may result if bleeding is not done properly (para. 7-2.1).
- Ensure O-ring is properly seated in master cylinder prior to installation or damage to master cylinder may occur.

1. Install master cylinder (4) on hydro-booster (15) with O-ring (16), splash shield bracket (1), two locknuts (14), bracket (13), two washers (12), and locknuts (11). Tighten locknuts (11) and (14) to 22 lb-ft (30 N•m).
2. Install bracket (10) on bracket (13) with capscrew (8), lockwasher (7), and washer (6).
3. Install left and right front brake lines (5) on proportioning valve (9) and master cylinder (4).
4. Install vent hose (2) on reservoir cap (3).



- FOLLOW-ON TASKS:**
- Install left splash shield (para. 10-23.1).
 - Connect battery ground cables (TM 9-2320-387-24-1).
 - Bleed brake system master cylinder (para. 7-2.1).

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

- | | |
|--|--|
| a. Front Caliper Brake Line Removal | g. Rear Brake Line Removal |
| b. Front Caliper Brake Line Installation | h. Rear Brake Line Installation |
| c. Rear Caliper Brake Line Removal | i. Proportioning Valve Brake Line Removal |
| d. Rear Caliper Brake Line Installation | j. Proportioning Valve Brake Line Installation |
| e. Front Brake Line Removal | k. Differential Valve Brake Line Removal |
| f. Front Brake Line Installation | l. Differential Valve Brake Line Installation |

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Manual References

TM 9-2320-387-10
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Radiator removed (para. 3-62.1).
- Parking brake access cover removed (para. 10-58.4).

Maintenance Level

Unit

CAUTION

Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

NOTE

Have drainage container ready to catch brake fluid.

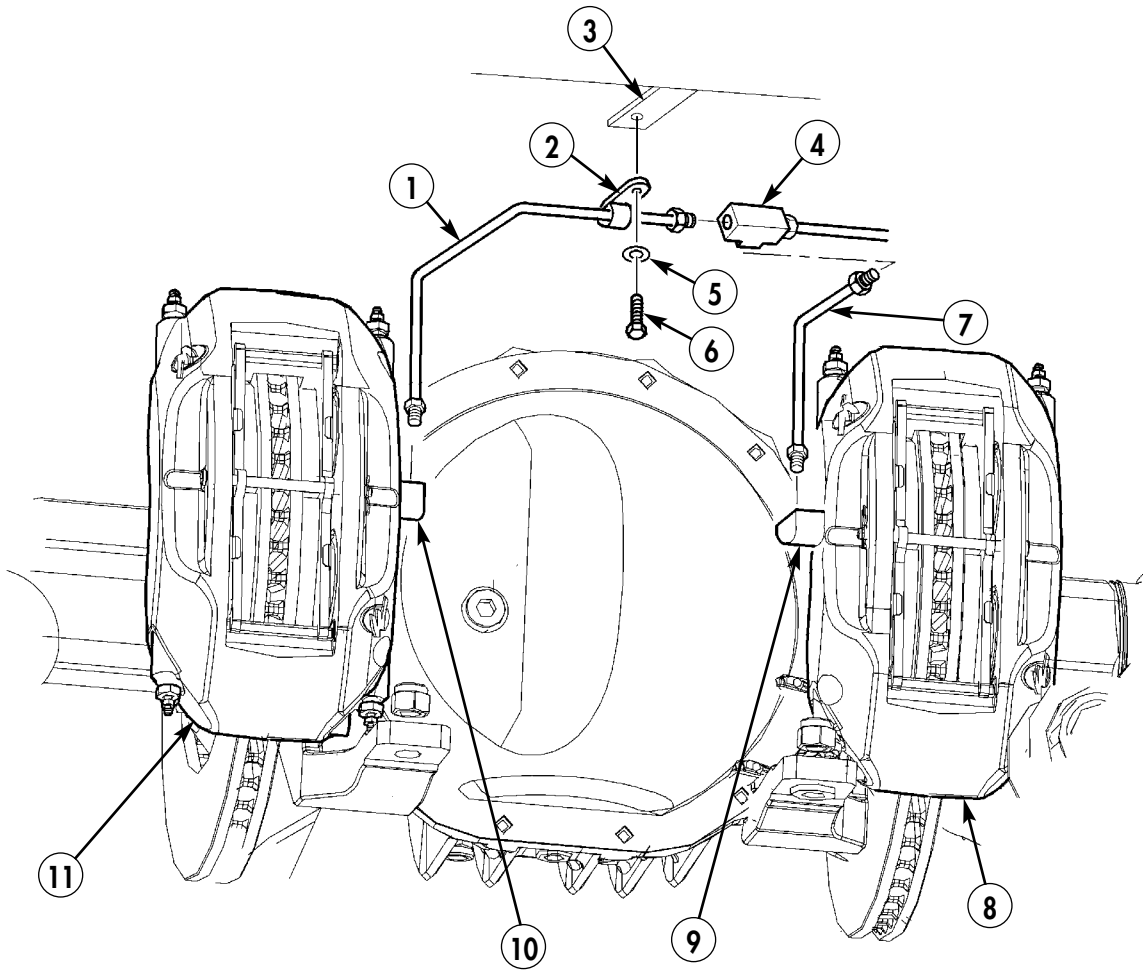
a. Front Caliper Brake Line Removal

1. Disconnect brake line (1) from caliper fitting (10) on right caliper (11).
2. Disconnect brake line (1) from tee fitting (4).
3. Remove capscrew (6), washer (5), clamp (2), and brake line (1) from front crossmember bracket (3).
4. Disconnect brake line (7) from tee fitting (4).
5. Disconnect brake line (7) from caliper fitting (9) on left caliper (8).

b. Front Caliper Brake Line Installation

1. Connect brake line (7) to caliper fitting (9) of left caliper (8). Tighten to 8 lb-ft (11 N•m).
2. Connect brake line (7) to tee fitting (4).
3. Install brake line (1) on front crossmember bracket (3) with clamp (2), washer (5), and capscrew (6).
4. Connect brake line (1) to tee fitting (4).
5. Connect brake line (1) to caliper fitting (10) of right caliper (11). Tighten to 8 lb-ft (11 N•m).

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FRONT OF VEHICLE

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

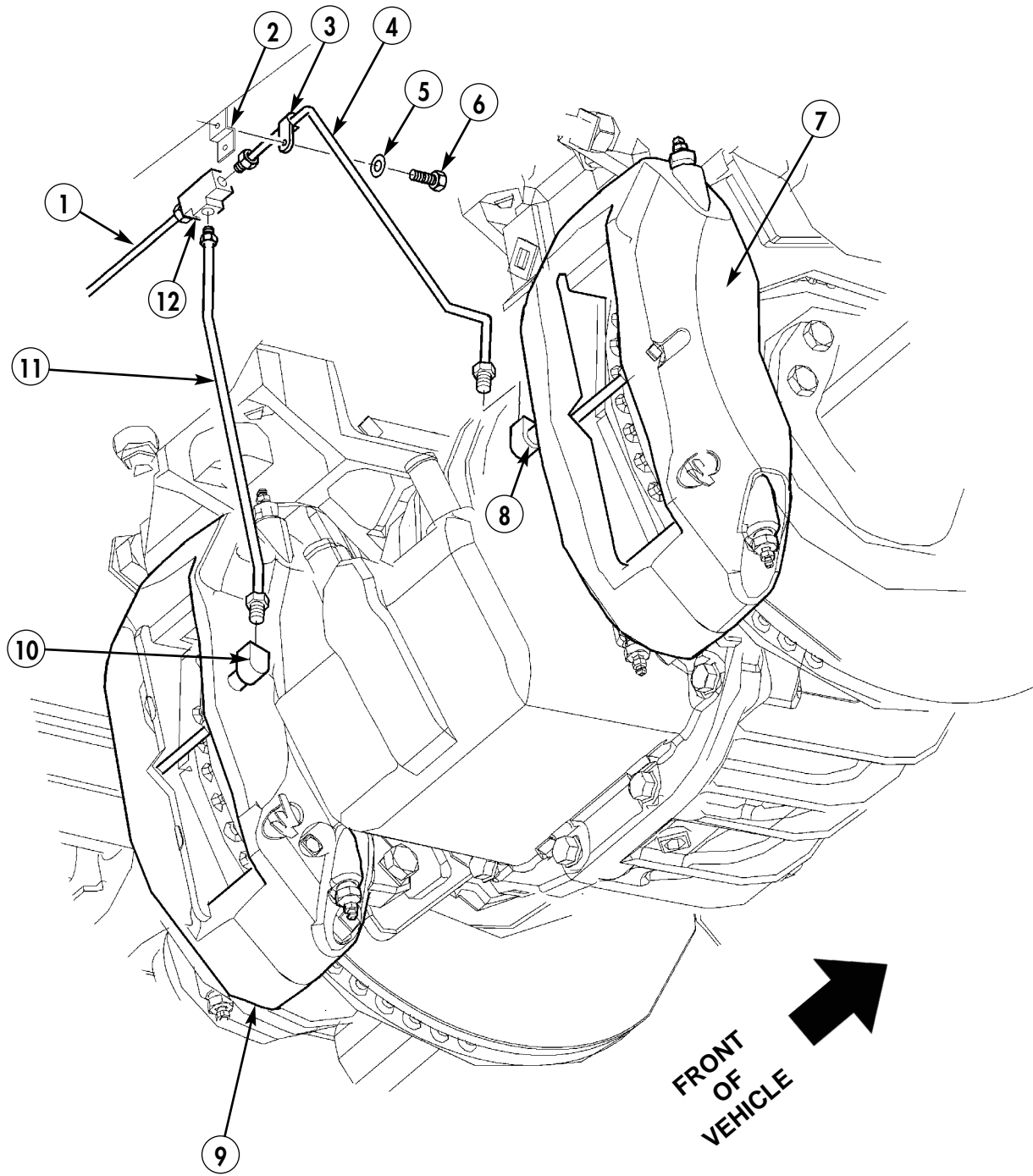
c. Rear Caliper Brake Line Removal

1. Disconnect brake line (4) from caliper fitting (8) on right caliper (7).
2. Disconnect brake line (4) from tee fitting (12) on brake line (1).
3. Remove capscrew (6), washer (5), clamp (3), and brake line (4) from rear crossmember bracket (2).
4. Disconnect brake line (11) from caliper fitting (10) on left caliper (9).
5. Disconnect brake line (11) from tee fitting (12).

d. Rear Caliper Brake Line Installation

1. Connect brake line (11) to tee fitting (12).
2. Connect brake line (11) to caliper fitting (10) of left caliper (9). Tighten to 8 lb-ft (11 N•m).
3. Install brake line (4) on rear crossmember bracket (2) with clamp (3), capscrew (6), and washer (5).
4. Connect brake line (4) to tee fitting (12) on brake line (1).
5. Connect brake line (4) to caliper fitting (8) of right caliper (7). Tighten to 8 lb-ft (11 N•m).

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

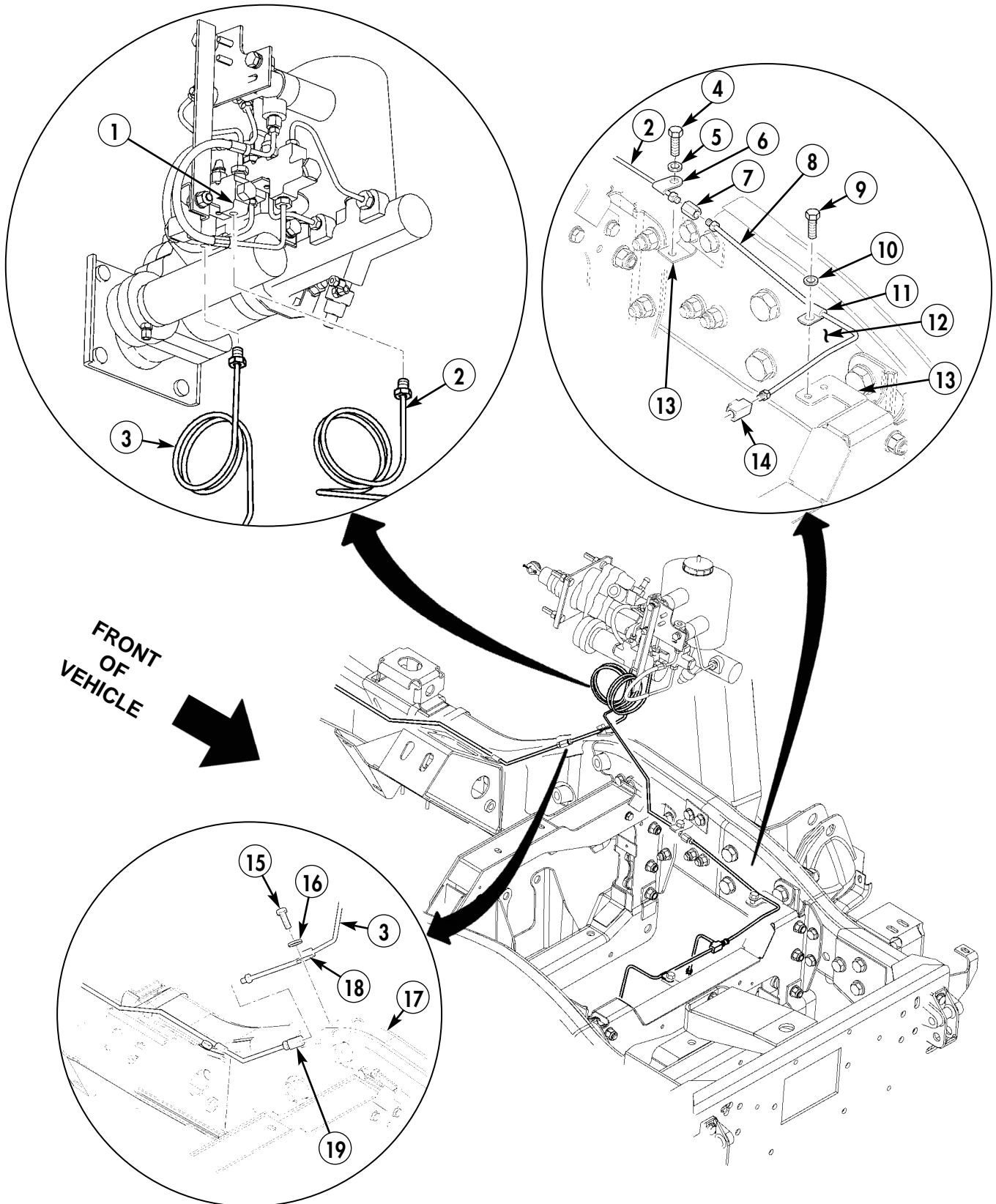
e. Front Brake Line Removal

1. Disconnect front and rear brake lines (2) and (3) from proportioning valve (1).
2. Remove two capscrews (4) and (9), washers (5) and (10), clamps (6) and (11), and brake lines (2) and (8) from two left-hand frame rail support brackets (13) on left-hand frame rail (12).
3. Disconnect brake line (8) from front tee union (14).
4. Disconnect brake lines (2) and (8) from front union (7).
5. Disconnect brake line (3) from front union (19).
6. Remove capscrew (15), washer (16), clamp (18), and brake line (3) from frame rail (17).

f. Front Brake Line Installation

1. Install brake line (3) on frame rail (17) with clamp (18), washer (16) and capscrew (15).
2. Connect brake line (3) to front union (19).
3. Connect brake lines (2) and (8) to front union (7).
4. Connect brake line (8) to front tee union (14).
5. Install brake lines (2) and (8) on two left-hand frame rail support brackets (13) on left hand frame rail (12) with two clamps (6) and (11), washers (5) and (10), and capscrews (4) and (9).
6. Connect front and rear brake lines (2) and (3) to proportioning valve (1).

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)(Cont'd)

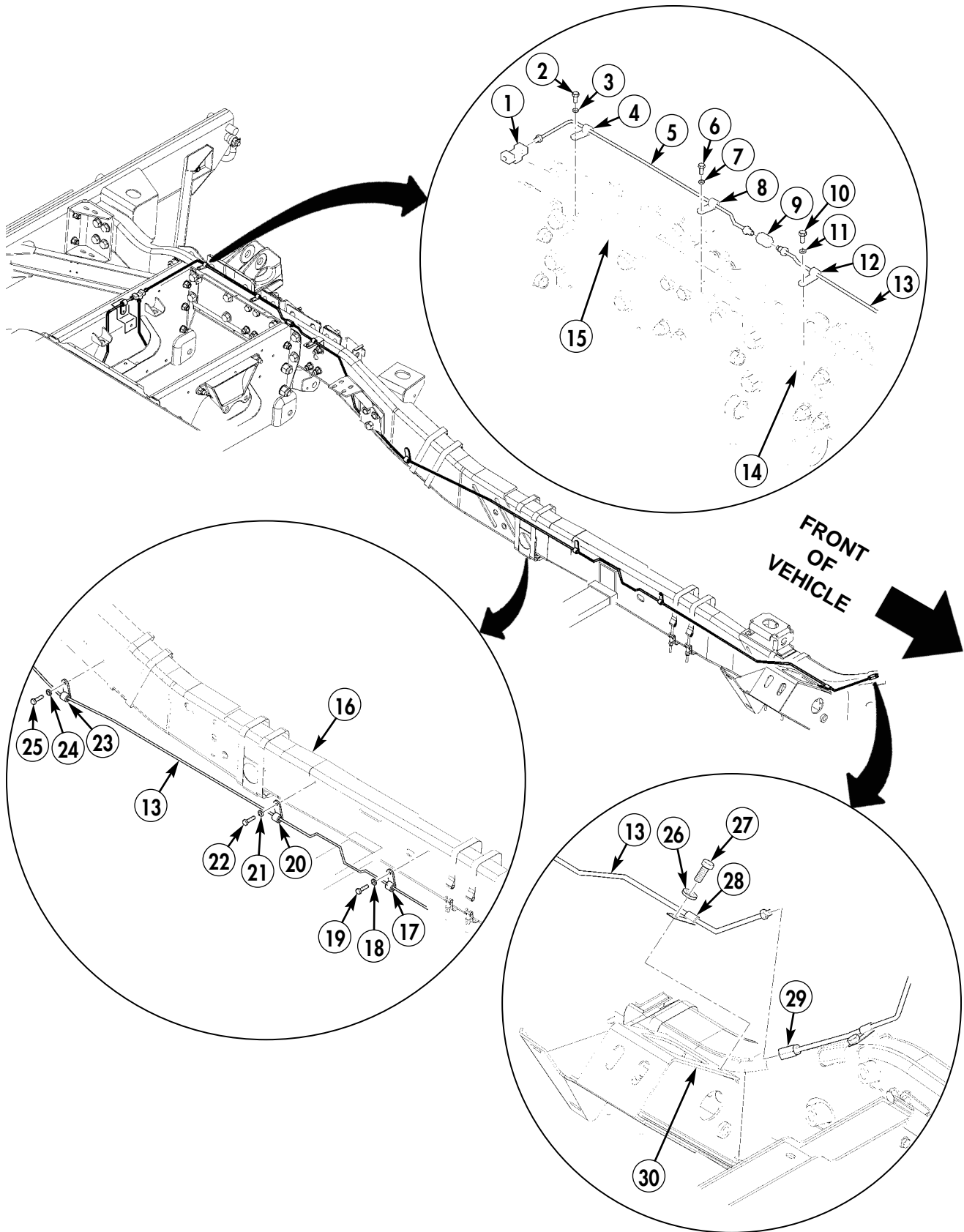
g. Rear Brake Line Removal

1. Disconnect brake line (5) from rear tee union (1).
2. Disconnect brake line (5) from rear union (9).
3. Remove two capscrews (2) and (6), washers (3) and (7), clamps (4) and (8), and brake line (5) from left frame rail support bracket (15).
4. Disconnect brake line (13) from rear union (9).
5. Disconnect brake line (13) from rear union (29).
6. Remove capscrew (10), washer (11), clamp (12), and brake line (13) from left frame rail support bracket (14).
7. Remove three capscrews (25), (22), and (19), washers (24), (21), and (18), clamps (23), (20), and (17), and brake line (13) from left frame rail (16).
8. Remove capscrew (27), washer (26), clamp (28), and brake line (13) from engine mount bracket (30).

h. Rear Brake Line Installation

1. Install brake line (13) on engine mount bracket (30) with clamp (28), washer (26), and capscrew (27).
2. Install brake line (13) on left frame rail (16) with three clamps (23), (20), and (17), washers (24), (21), and (18), and capscrews (25), (22), and (19).
3. Install brake line (13) on left frame rail support bracket (14) with clamp (12), washer (11), and capscrew (10).
4. Connect brake line (13) to rear union (9).
5. Connect brake line (13) to rear union (29).
6. Install brake line (5) on left frame rail support bracket (15) with two clamps (4) and (8), washers (3) and (7), and capscrews (2) and (6).
7. Connect brake line (5) to rear union (9).
8. Connect brake line (5) to rear tee union (1).

7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



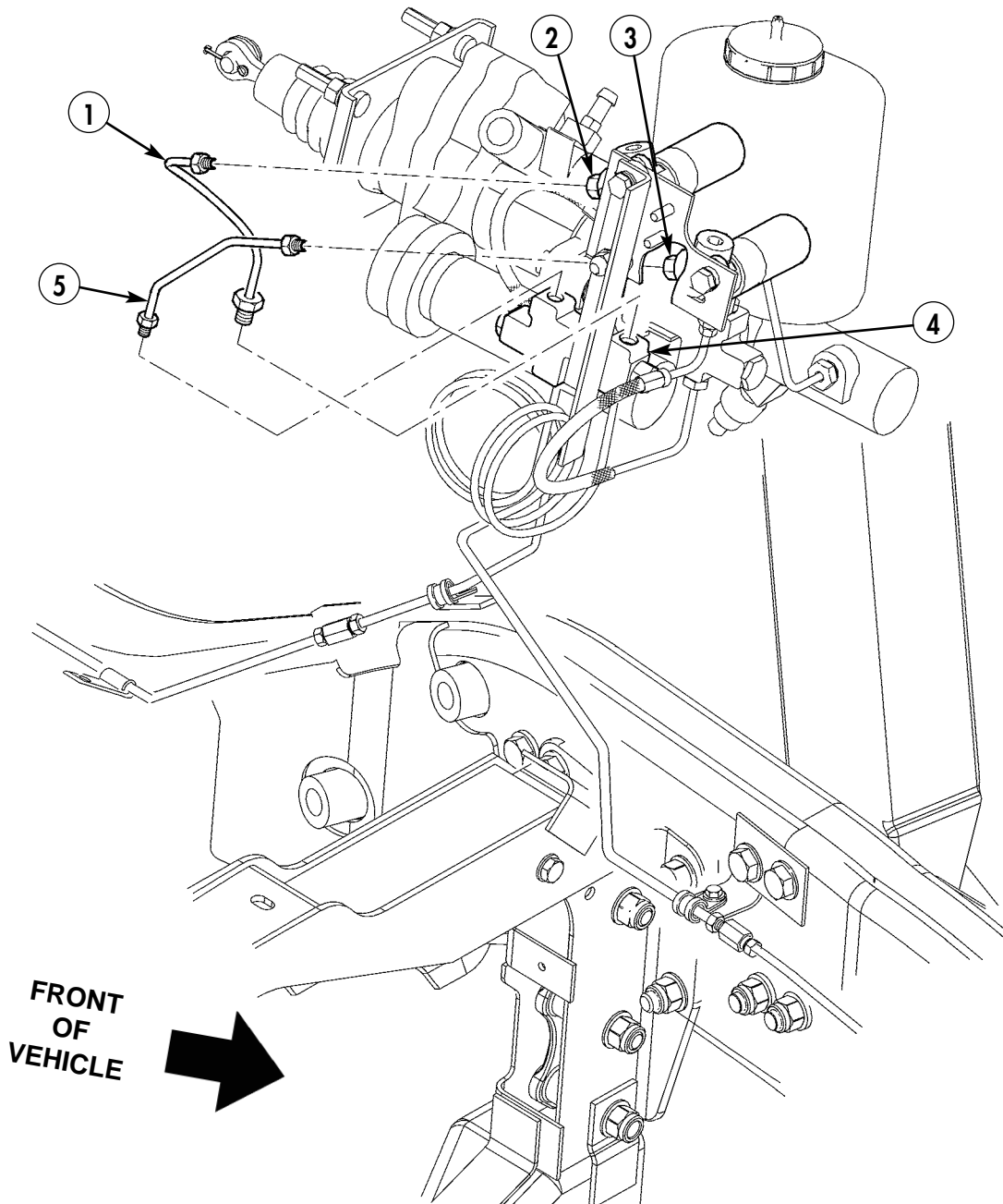
7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)(Cont'd)

i. Proportioning Valve Brake Line Removal

1. Disconnect brake line (1) from proportioning valve (4) and pressure limiter valve (2).
2. Disconnect brake line (5) from proportioning valve (4) and pressure limiter valve (3).

j. Proportioning Valve Brake Line Installation

1. Connect brake line (5) to proportioning valve (4) and pressure limiter valve (3).
2. Connect brake line (1) to proportioning valve (4) and pressure limiter valve (2).



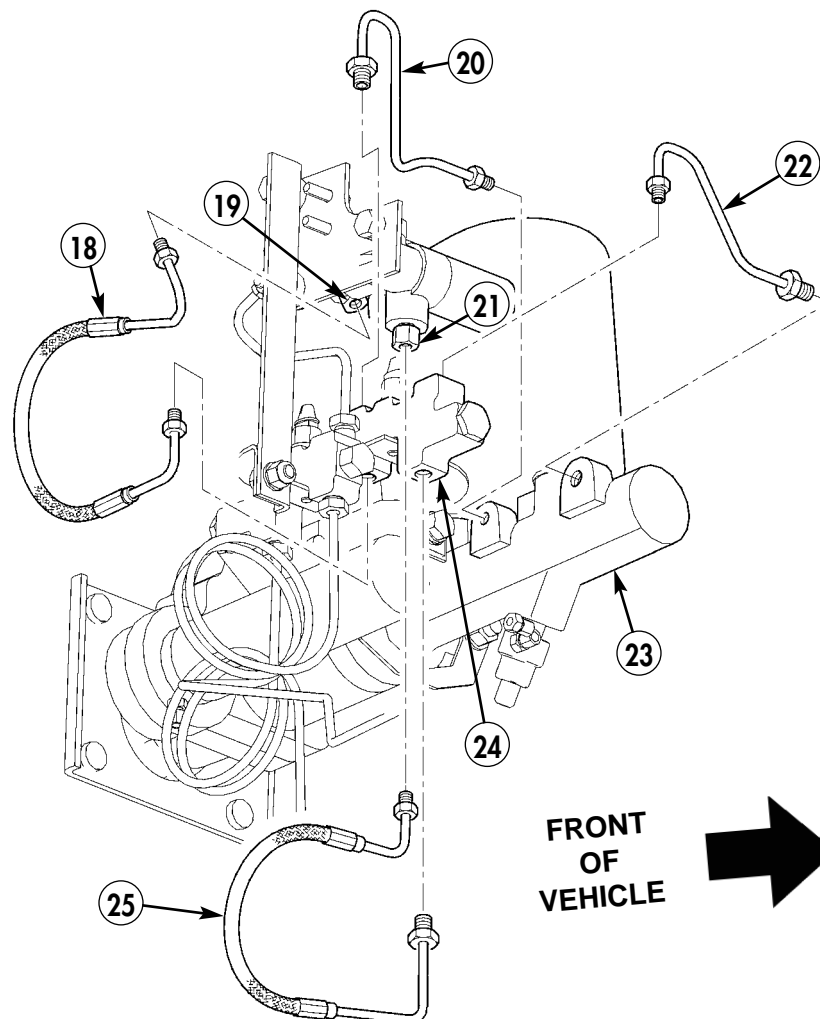
7-7.1. BRAKE LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

k. Differential Valve Brake Line Removal

1. Disconnect brake line (18) from differential valve (24) and pressure limiter valve (19).
2. Disconnect brake line (25) from differential valve (24) and pressure limiter valve (21).
3. Disconnect brake line (20) from differential valve (24) and master cylinder (23).
4. Disconnect brake line (22) from differential valve (24) and master cylinder (23).

l. Differential Valve Brake Line Installation

1. Connect brake line (22) to differential valve (24) and master cylinder (23).
2. Connect brake line (20) to differential valve (24) and master cylinder (23).
3. Connect brake line (25) to differential valve (24) and pressure limiter valve (21).
4. Connect brake line (18) to differential valve (24) and pressure limiter valve (19).



- FOLLOW-ON TASKS:
- Install parking brake access cover (para. 10-58.4).
 - Install radiator (para. 3-62.1).
 - Bleed brake system (para. 7-2.1).

7-8. BRAKE PRESSURE LIMITER VALVE REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Two lockwashers (Appendix A, Item 185)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-1
TM 9-2320-387-24P

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Battery ground cables disconnected (TM 9-2320-387-24-1).

Maintenance Level

Unit

a. Removal

CAUTION

Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.

NOTE

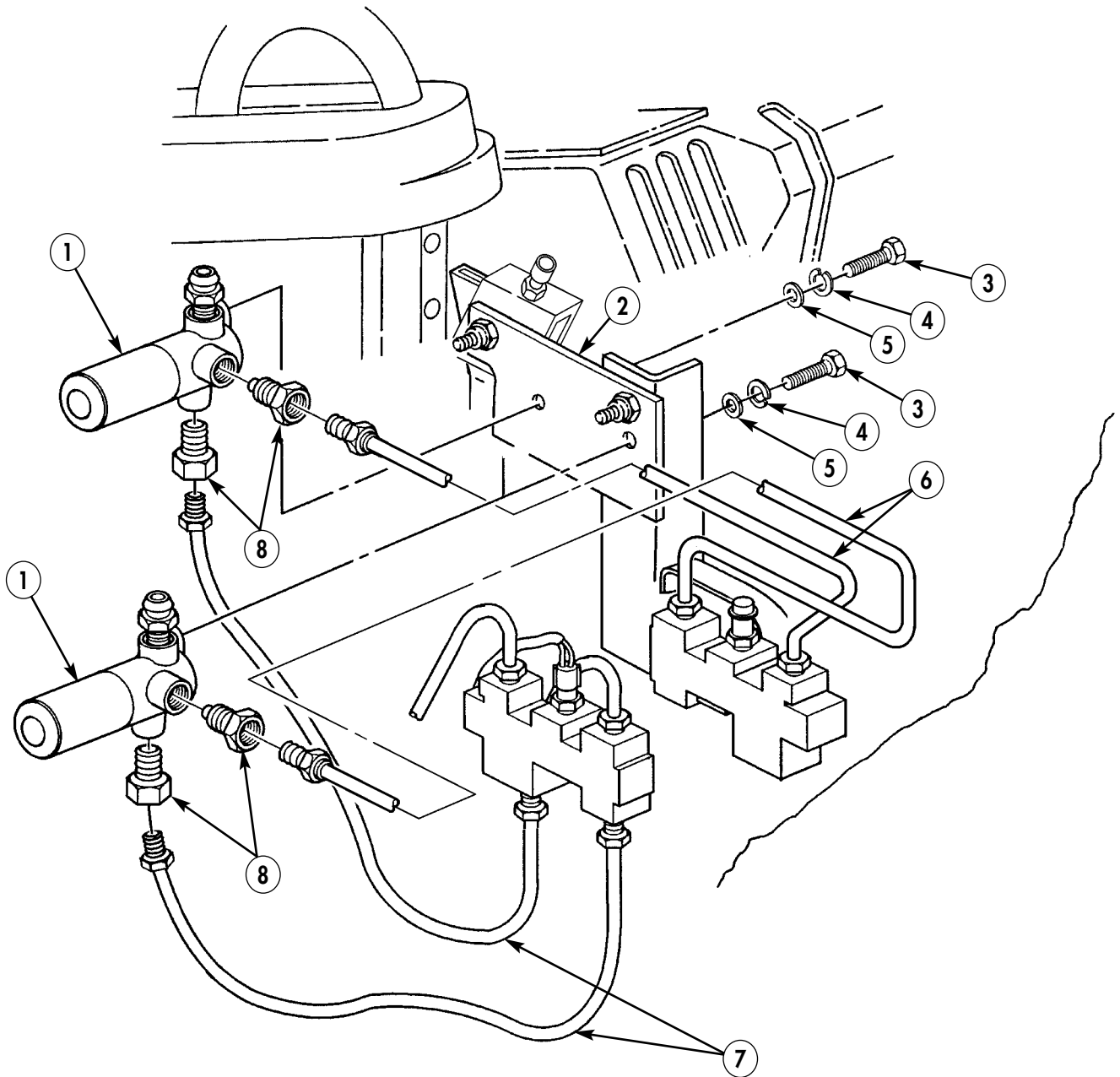
Have drainage container ready to catch brake fluid.

1. Disconnect brake lines (6) and (7) from adapter fittings (8) on brake pressure limiter valves (1).
2. Remove four adapter fittings (8) from two pressure limiter valves (1).
3. Remove two capscrews (3), lockwashers (4), washers (5), and pressure limiter valves (1) from bracket (2). Discard lockwashers (4).

b. Installation

1. Install two pressure limiter valves (1) on bracket (2) with two washers (5), lockwashers (4), and capscrews (3).
2. Install four adapter fittings (8) on two pressure limiter valves (1).
3. Connect brake lines (6) and (7) to adapter fittings (8) on brake pressure limiter valves (1).

7-8. BRAKE PRESSURE LIMITER VALVE REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Bleed brake system (para. 7-2.1).
 - Lower and secure hood (TM 9-2320-387-10).
 - Connect battery ground cables (TM 9-2320-387-24-1).

7-10. PROPORTIONING VALVE AND DIFFERENTIAL VALVE REPLACEMENT

This task covers:

- a. Differential Valve Removal
- b. Differential Valve Installation

- c. Proportioning Valve Removal
- d. Proportioning Valve Installation

INITIAL SETUP:)

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Locknut (Appendix A, Item 78)
 Locknut (Appendix A, Item 106)
 Lubricating oil (Appendix C, Item 46)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TM 9-2320-387-24P

Equipment Condition

- Battery ground cables disconnected (TM 9-2320-387-24-1).
- Hood raised and secured (TM 9-2320-387-10).

Maintenance Level

Unit

CAUTION

- Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.
- Do not attempt to disassemble proportioning valve. Damage to equipment will result.

NOTE

Have drainage container ready to catch brake fluid.

a. Differential Valve Removal

1. Disconnect electrical connector (2) from differential valve (4).
2. Disconnect two brake lines (3) from differential valve (4).
3. Disconnect two brake lines (5) from differential valve (4).
4. Remove locknut (6), washer (7), and differential valve (4) with differential valve bracket (8) from hydro-boost (1). Discard locknut (6).

b. Differential Valve Installation

1. Install differential valve (4) and differential valve bracket (8) on hydro-boost (1) with washer (7) and locknut (6). Tighten locknut (6) to 22 lb-ft (30 N•m).
2. Connect two brake lines (5) to bottom of differential valve (4).
3. Connect two brake lines (3) to top of differential valve (4).
4. Apply lubricating oil to pins (9) of differential valve (4).
5. Connect electrical connector (2) to differential valve (4).

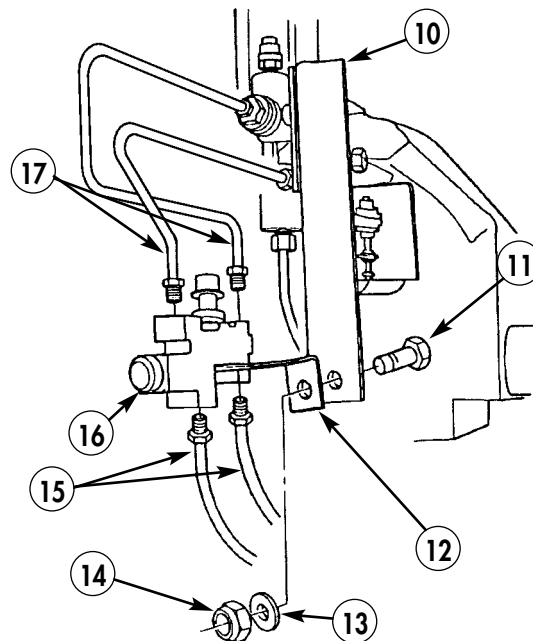
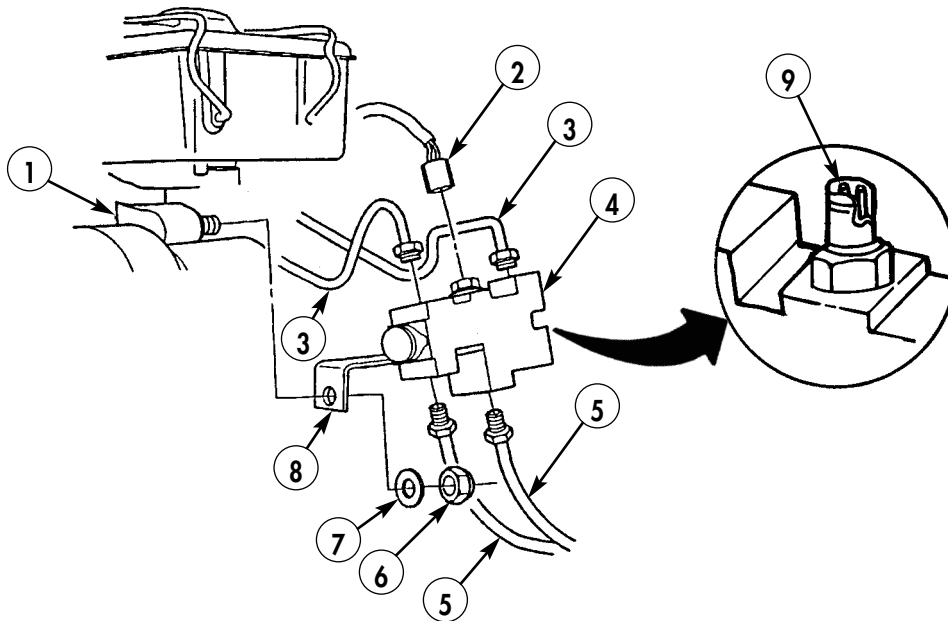
c. Proportioning Valve Removal

1. Disconnect two brake lines (17) from proportioning valve (16).
2. Disconnect two brake lines (15) from proportioning valve (16).
3. Remove locknut (14), washer (13), screw (11), and proportioning valve (16) with proportioning valve bracket (12) from bracket (10). Discard locknut (14).

7-10. PROPORTIONING VALVE AND DIFFERENTIAL VALVE REPLACEMENT (Cont'd)

d. Proportioning Valve Installation

1. Install proportioning valve (16) and proportioning valve bracket (12) on bracket (10) with screw (11), washer (13), and locknut (14). Tighten locknut (14) to 22 lb-ft (30 N•m).
2. Connect two brake lines (15) to bottom of proportioning valve (16).
3. Connect two brake lines (17) to top of proportioning valve (16).



- FOLLOW-ON TASKS:**
- Lower and secure hood (TM 9-2320-387-10).
 - Connect battery ground cables (TM 9-2320-387-24-1).
 - Bleed brake system (para. 7-2.1).

**7-11.1. BRAKE PROTECTION GUARDS REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Manual References

TM 9-2320-387-24P

Maintenance Level

Unit

Materials/Parts

Ten locknuts (Appendix A, Item 82)
 Fourteen locknuts (Appendix A, Item 106)
 Locknut (Appendix A, Item 128)
 Three lockwashers (Appendix A, Item 145)

a. Removal

NOTE

Perform steps 1 and 2 for rear brake protection guards removal.

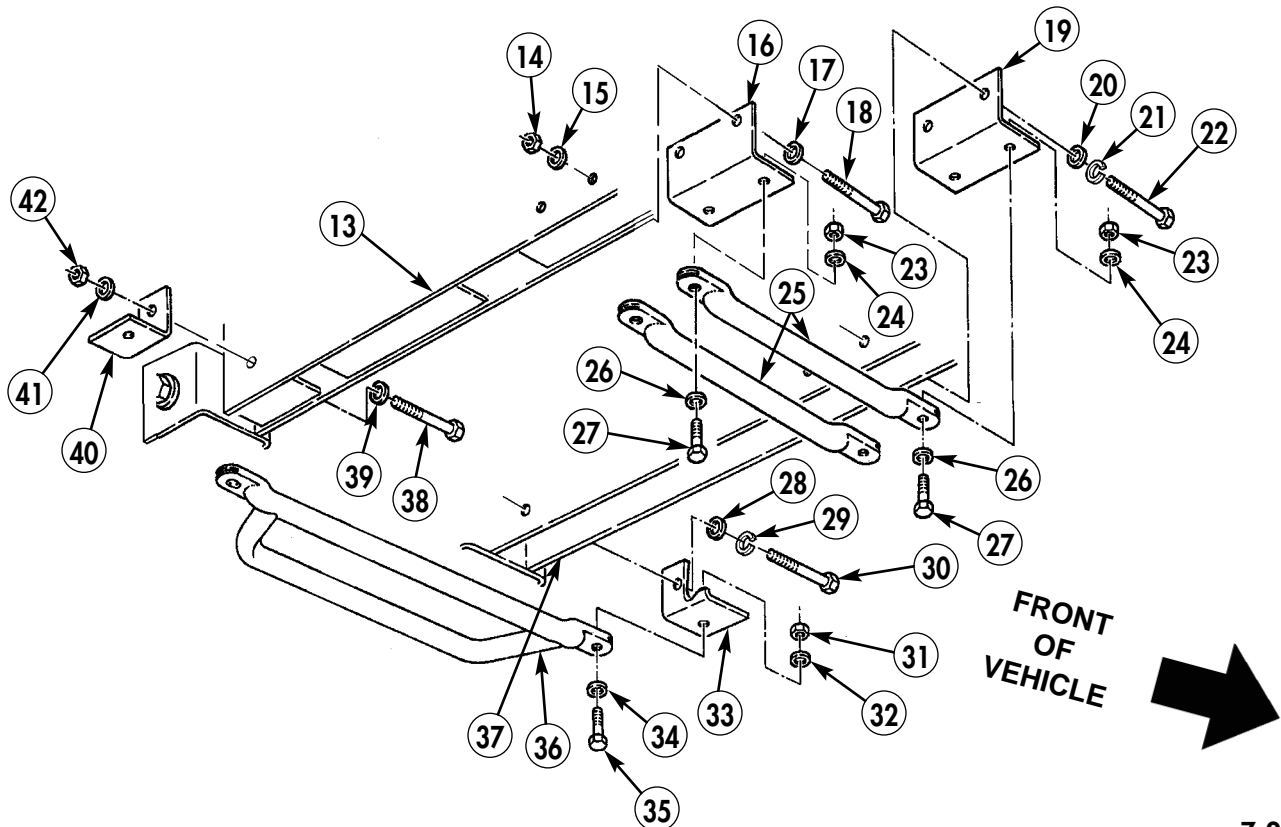
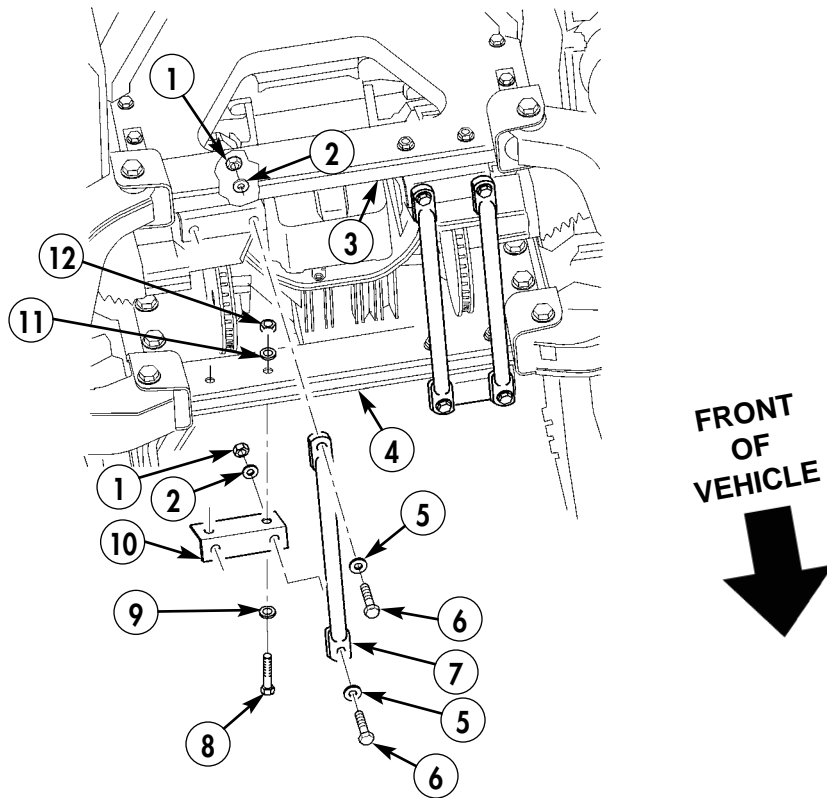
1. Remove eight locknuts (1), washers (2), capscrews (6), washers (5), and four brake guards (7) from brackets (10). Discard locknuts (1).
2. Remove eight locknuts (12), washers (11), capscrews (8), washers (9), and four brackets (10) from crossmembers (3) and (4). Discard locknuts (12).

NOTE

Perform steps 3 through 8 for front brake protection guards removal.

3. Remove two locknuts (31), washers (32), capscrews (35), washers (34), and left front brake guard (36) from brackets (33) and (40). Discard locknuts (31).
4. Remove four locknuts (23), washers (24), capscrews (27), washers (26), and two right front brake guards (25) from brackets (16) and (19). Discard locknuts (23).
5. Remove two locknuts (14), washers (15), capscrews (18), washers (17), and bracket (16) from rear crossmember (13). Discard locknuts (14).
6. Remove two capscrews (22), lockwashers (21), washers (20), and bracket (19) from front crossmember (37). Discard lockwashers (21).
7. Remove locknut (42), washer (41), capscrew (38), washer (39), and bracket (40) from rear crossmember (13). Discard locknut (42).
8. Remove capscrew (30), lockwasher (29), washer (28), and bracket (33) from front crossmember (37). Discard lockwasher (29).

**7-11.1. BRAKE PROTECTION GUARDS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**7-11.1. BRAKE PROTECTION GUARDS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

b. Installation

NOTE

Perform steps 1 through 6 for front brake protection guards installation only.

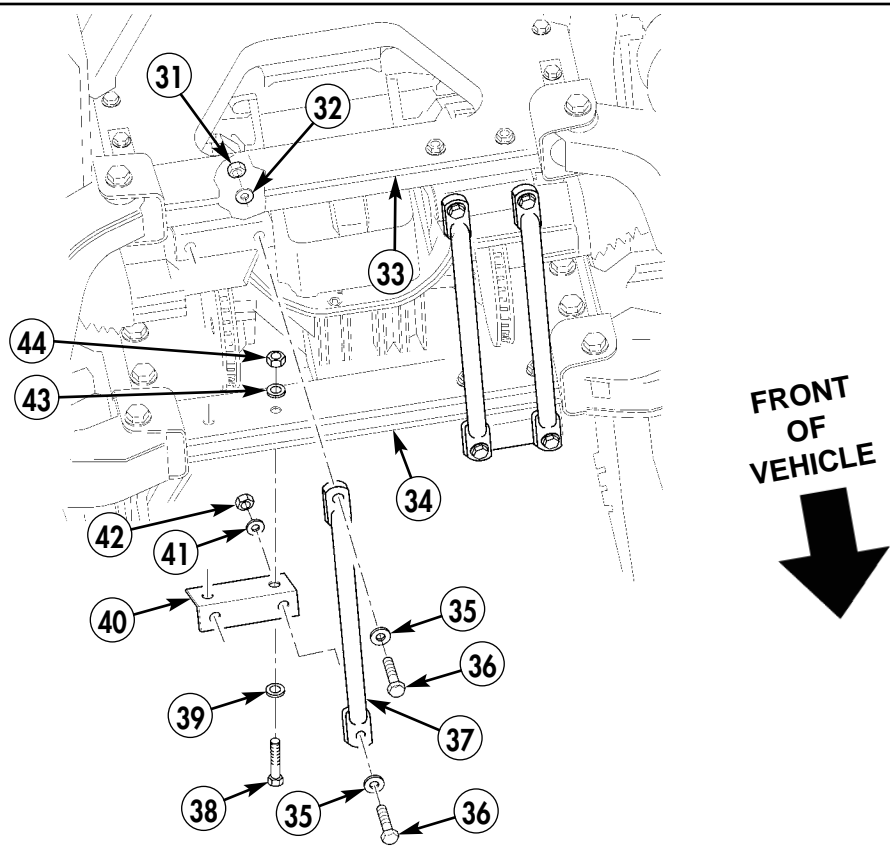
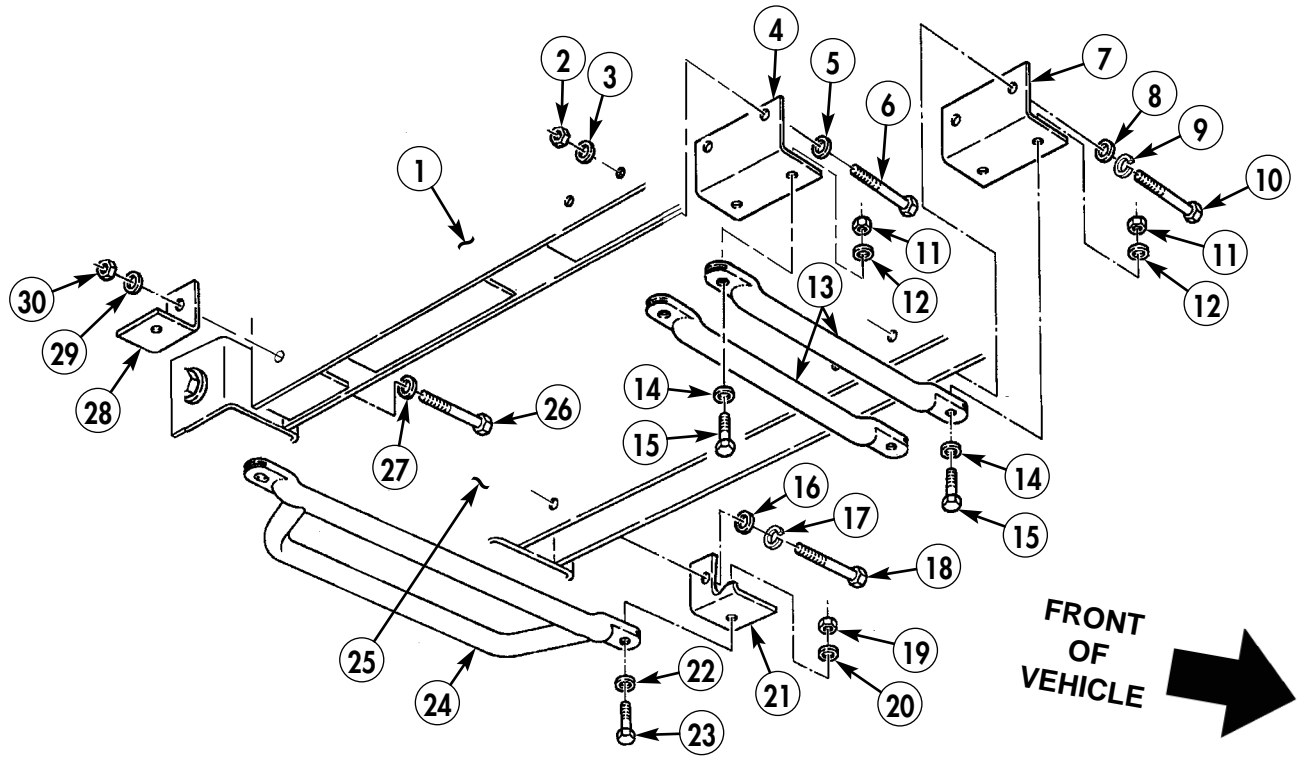
1. Install bracket (21) on front crossmember (25) with washer (16), lockwasher (17), and capscrew (18).
2. Install bracket (28) on rear crossmember (1) with washer (27), capscrew (26), washer (29), and locknut (30).
3. Install bracket (7) on front crossmember (25) with two washers (8), lockwashers (9), and capscrews (10).
4. Install bracket (4) on rear crossmember (1) with two washers (5), capscrews (6), washers (3), and locknuts (2).
5. Install two right front brake guards (13) on brackets (7) and (4) with four washers (14), capscrews (15), washers (12), and locknuts (11).
6. Install left front brake guard (24) on brackets (28) and (21) with two washers (22), capscrews (23), washers (20), and locknuts (19).

NOTE

Perform steps 7 and 8 for rear brake protection guards installation only.

7. Install four brackets (40) on crossmembers (34) and (33) with washers (39), capscrews (38), washers (41), and locknuts (42).
8. Install four brake protection guards (37) on brackets (40) with eight washers (35), capscrews (36), washers (32), and locknuts (31).

**7-11.1. BRAKE PROTECTION GUARDS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**7-12.1. SERVICE BRAKE ROTOR REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Sealing compound (Appendix C, Item 62)
Six two-piece lockwashers
(Appendix A, Item 191)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Service brake caliper removed (para. 7-4.1).
- Parking brake pad removed (rear only) (para. 7-22).

Maintenance Level

Unit

NOTE

Replacement procedures for all rotors are basically the same. This procedure covers the front rotor.

a. Removal

1. Remove six capscrews (5) and two-piece lockwashers (4) from halfshaft (3), rotor (2), and output flange (1). Discard two-piece lockwashers (4).

NOTE

Clean excess sealant from output flange threaded holes with a 10 mm tap.

2. Disconnect halfshaft (3) and remove rotor (2) from output flange (1).

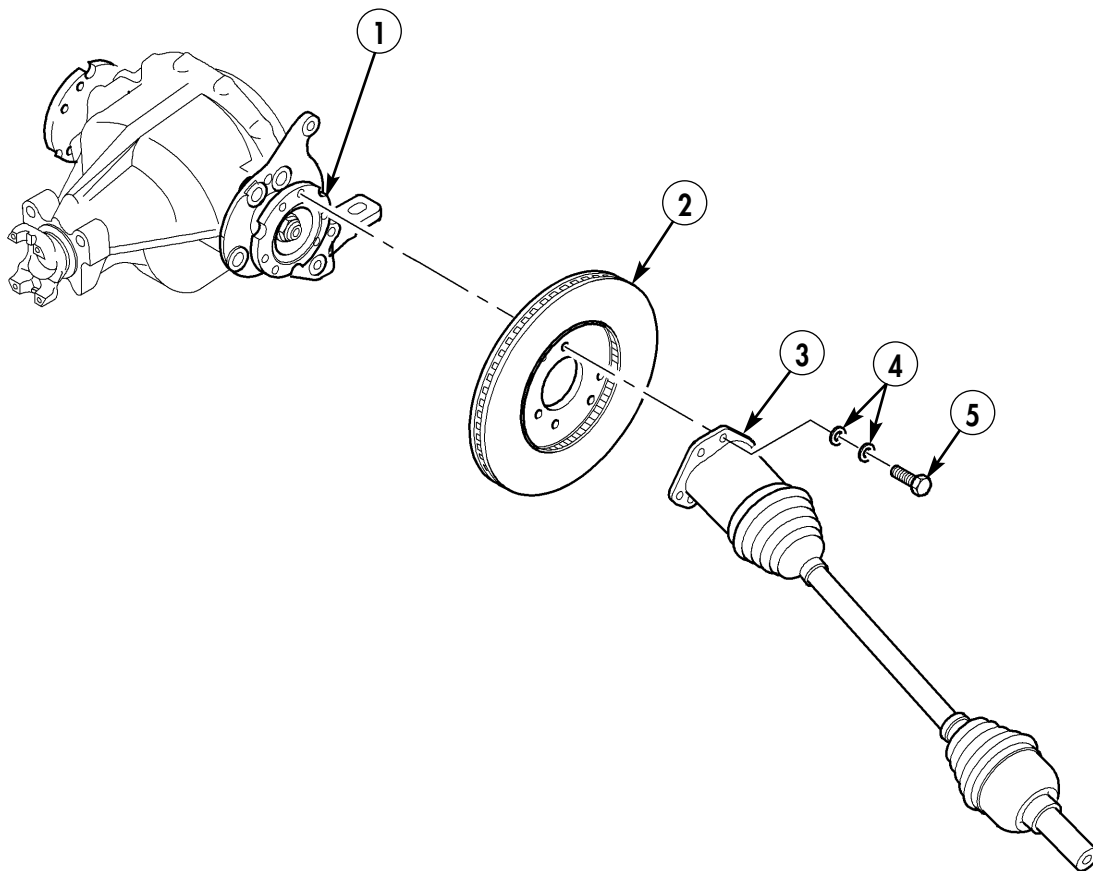
b. Installation

NOTE

- Use capscrew to align rotor to mounting holes until halfshaft is installed.
- New capscrews come with pre-applied thread-locking compound, however, still apply sealing compound to threads of new capscrews. If old capscrews are to be used, mating threads must be cleaned and sealing compound applied to threads of capscrews.
- Two-piece lockwashers must be installed in sets of two with serrated sawtooth threads facing each other.

1. Install rotor (2) on output flange (1).
2. Install halfshaft (3) on rotor (2) with six two-piece lockwashers (4) and capscrews (5). Tighten capscrews (5) to 58 lb-ft (79 N•m).

**7-12.1. SERVICE BRAKE ROTOR REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**



FOLLOW-ON TASKS:

- Install parking brake pad (rear only) (para. 7-22).
- Install service brake caliper (para. 7-4.1).

7-22. PARKING BRAKE PAD MAINTENANCE

This task covers:

- | | |
|---|------------------------|
| <p>a. Removal</p> <p>b. Cleaning and Inspection</p> | <p>c. Installation</p> |
|---|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials and Parts

Two cotter pins (Appendix A, item 25.2)
Four cotter pins (Appendix A, item 25.1)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

Access cover removed (para. 10-58.4).

Maintenance Level

Unit

a. Removal

1. Remove return spring (1) from caliper arm (2).
2. Remove cotter pin (8), clevis bolt (4), washers (5) and (9), and clevis (3) from caliper arm (2). Discard cotter pin (8).

NOTE

Use 1/2 in. line wrench for removing parking brake cable from caliper bracket.

3. Remove parking brake cable (6) from cable bracket (7).
4. Remove two cotter pins (18), bars (17), and springs (10) from assembly mount (15). Discard cotter pins (18).
5. Lift parking brake subassembly (13) up and away from vehicle (16).
6. Remove parking brake pads (14) from parking brake subassembly (13).

NOTE

Perform step 4 if replacing parking brake cable bracket.

7. Remove two capscrews (12) and parking brake cable adapter (11) from parking brake subassembly (13).

b. Cleaning and Inspection

NOTE

- Replace brake pads in sets on both sides of differential.
- Replace brake pads if thickness is less than 1/8 in. (3.2 mm) and operation in wet and muddy conditions is expected.

Inspect brake pads (14) for glazing, oil saturation, or wear. If glazed, oil saturated, or if brake pad thickness is less than 1/8 in. (3.2 mm), replace both pads (14) and pads on opposite caliper.

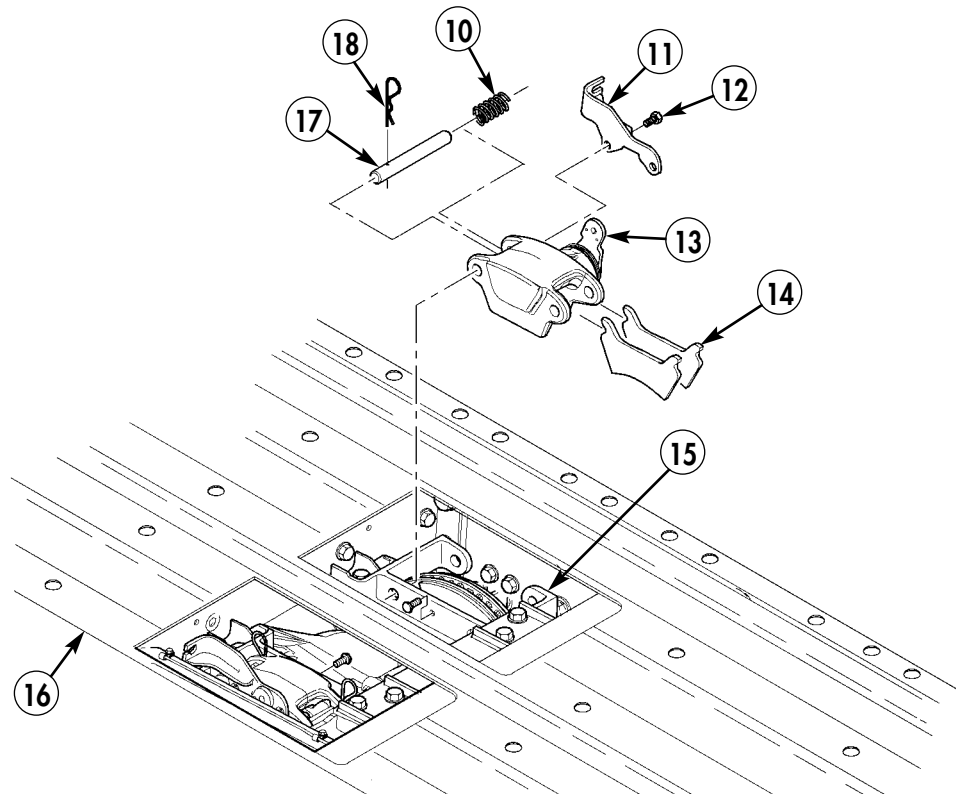
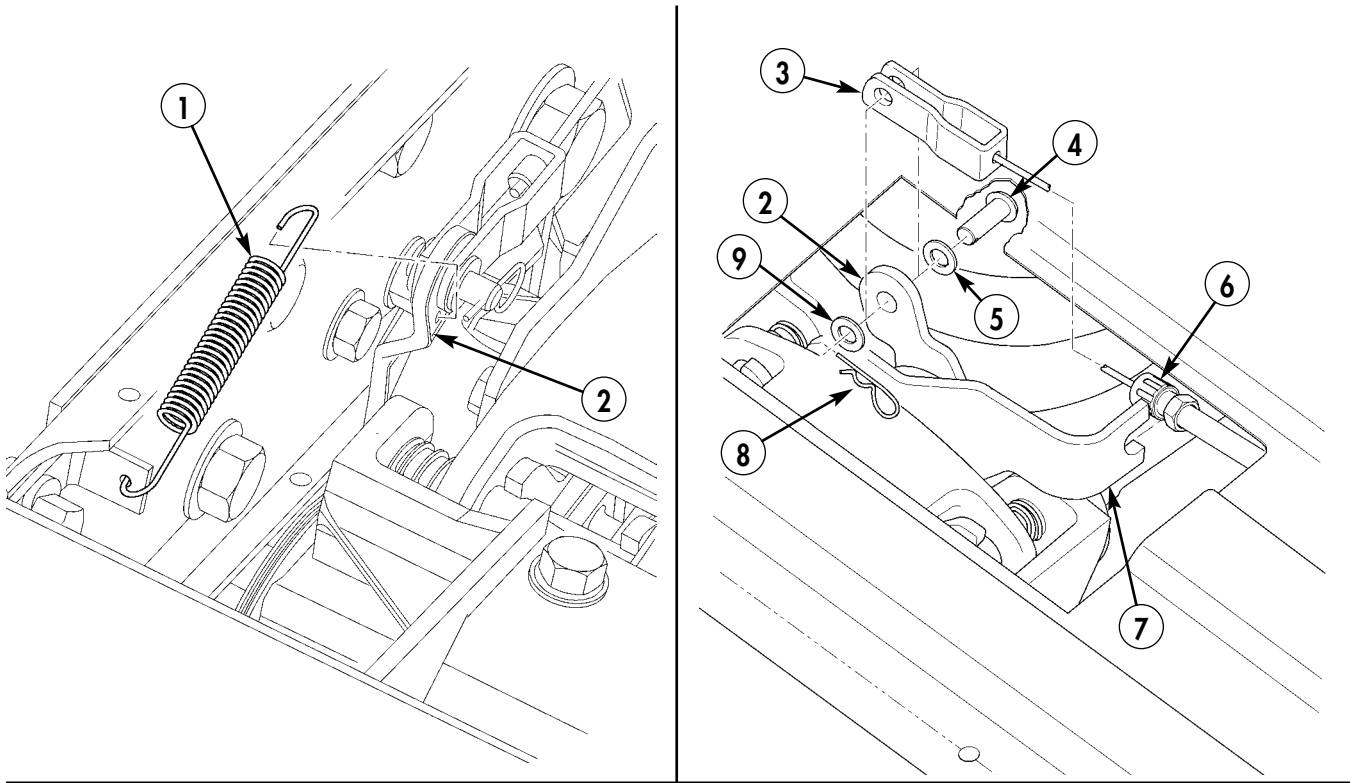
c. Installation

NOTE

Perform step 1 if parking brake cable bracket (11) was replaced.

1. Install parking brake cable bracket (11) on parking brake subassembly (13) with two capscrews (12).
2. Install parking brake pads (14) on parking brake subassembly (13).
3. Install parking brake subassembly (13) on assembly mount (15) with two springs (10), bars (17), and cotter pins (18).
4. Install parking brake cable (6) on cable bracket (7).
5. Install clevis (3) on caliper arm (2) with washer (5), clevis bolt (4), washer (9), and cotter pin (8).
6. Install return spring (1) on caliper arm (2).

7-22. PARKING BRAKE PAD MAINTENANCE (Cont'd)



FOLLOW-ON TASKS:

- Adjust parking brake (para. 7-25).
- Install access cover (para. 10-58.4).

7-23. PARKING BRAKE CABLE REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Wheels chocked and parking brake released (TM 9-2320-387-10).
- Access cover removed (para. 10-58.4).
- Muffler and catalytic converter removed (TM 9-2320-387-24-1).
- Rear propeller shaft removed (TM 9-2320-387-24-1).

Maintenance Level

Unit

NOTE

Replacement procedures for left and right side parking brake cables are basically the same. This procedure covers the left side.

a. Removal

1. Remove clevis pin (6), clevis bolt (2), washers (3) and (7), and clevis (1) from caliper lever (8).
2. Remove parking brake cable (4) from cable bracket (5).

NOTE

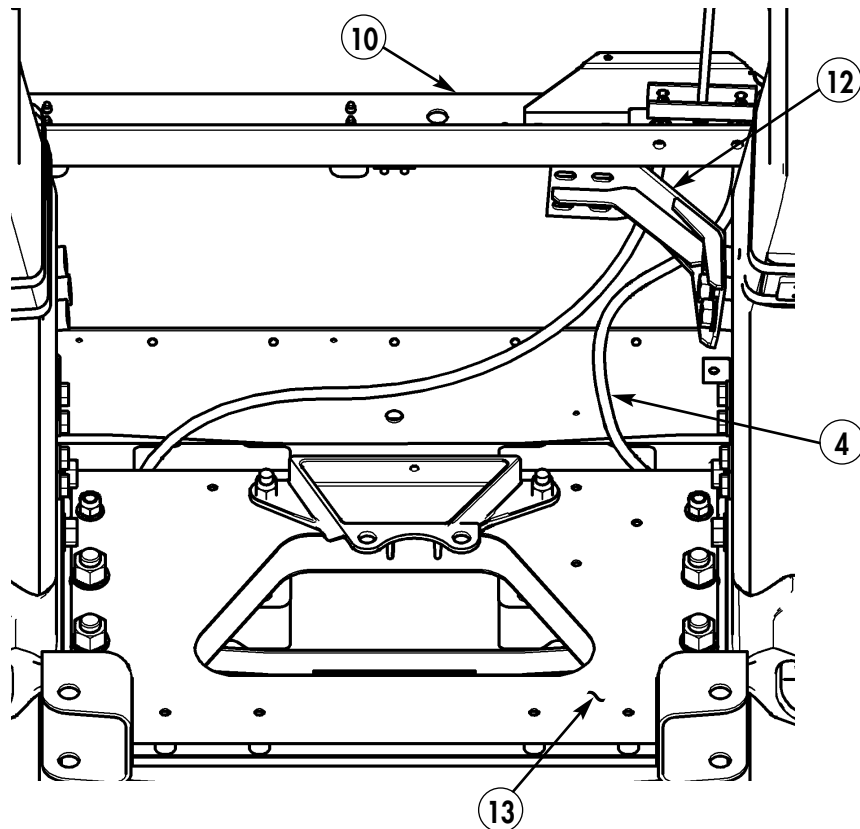
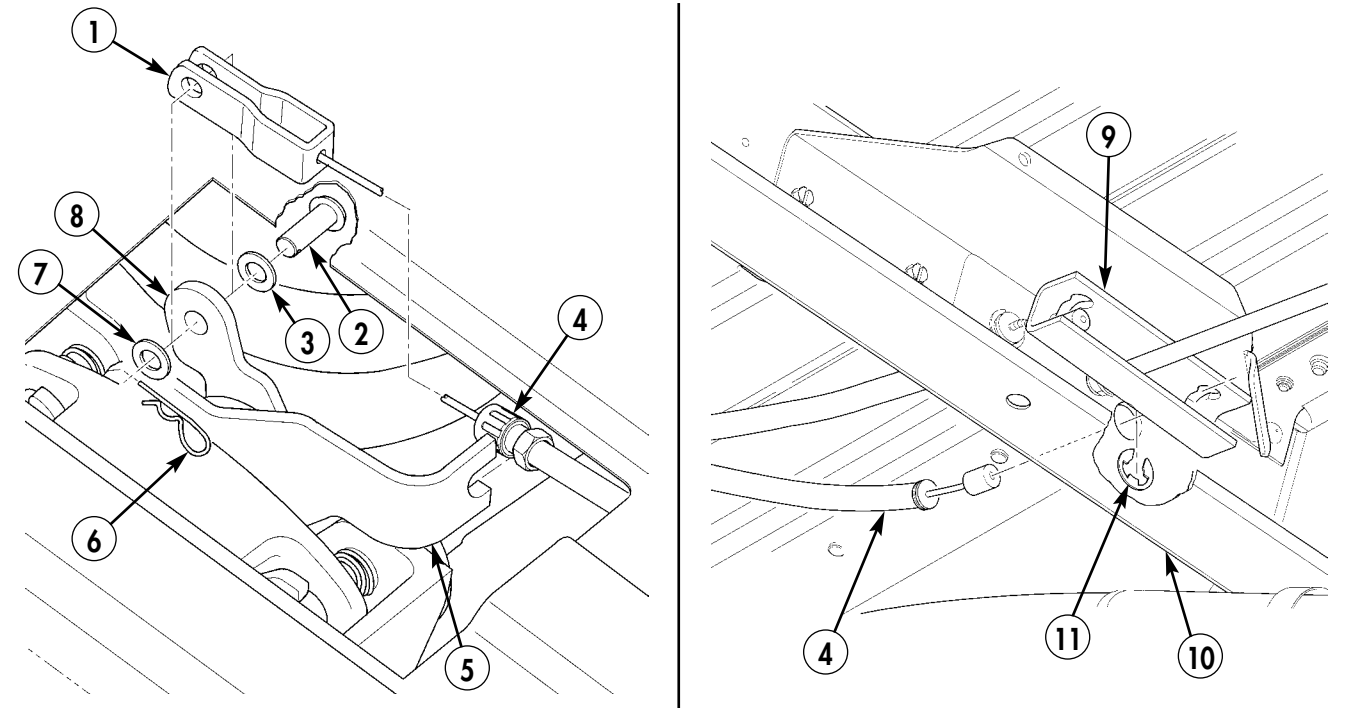
Use 1/2 in. line wrench for removing parking brake cable from caliper bracket.

3. Remove retaining ring (11) from parking brake cable (4).
4. Remove parking brake cable (4) from equalizer cable bar (9) and C-beam (10).
5. Pull parking brake cable (4) forward and remove from vehicle.

b. Installation

1. Install parking brake cable (4) over rear front crossmember (13) and muffler bracket (12).
2. Slide parking brake cable (4) through C-beam (10) and install on equalizer cable bar (9).
3. Secure parking brake cable (4) to C-beam (10) with retaining ring (11).
4. Install parking brake cable (4) on cable bracket (5).
5. Install clevis (1) on caliper lever (8) with washer (3), clevis bolt (2), washer (7), and clevis pin (6).

7-23. PARKING BRAKE CABLE REPLACEMENT



- FOLLOW-ON TASKS**
- Install rear propeller shaft (TM 9-2320-387-24-1).
 - Install muffler and catalytic converter (TM 9-2320-387-24-1).
 - Adjust parking brake lever (TM 9-2320-387-10).
 - Install access cover (para. 10-58.4).

7-24. PARKING BRAKE ROD REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Cotter pin (Appendix A, Item 19)
Locknut (Appendix A, Item 82)
Locknut (Appendix A, Item 87)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Wheels chocked and parking brake released (TM 9-2320-387-10).
- Muffler and catalytic converter removed (TM 9-2320-387-24-1).
- Rear propeller shaft removed (TM 9-2320-387-24-1).
- Access cover removed (para. 10-58.4).

Maintenance Level

Unit

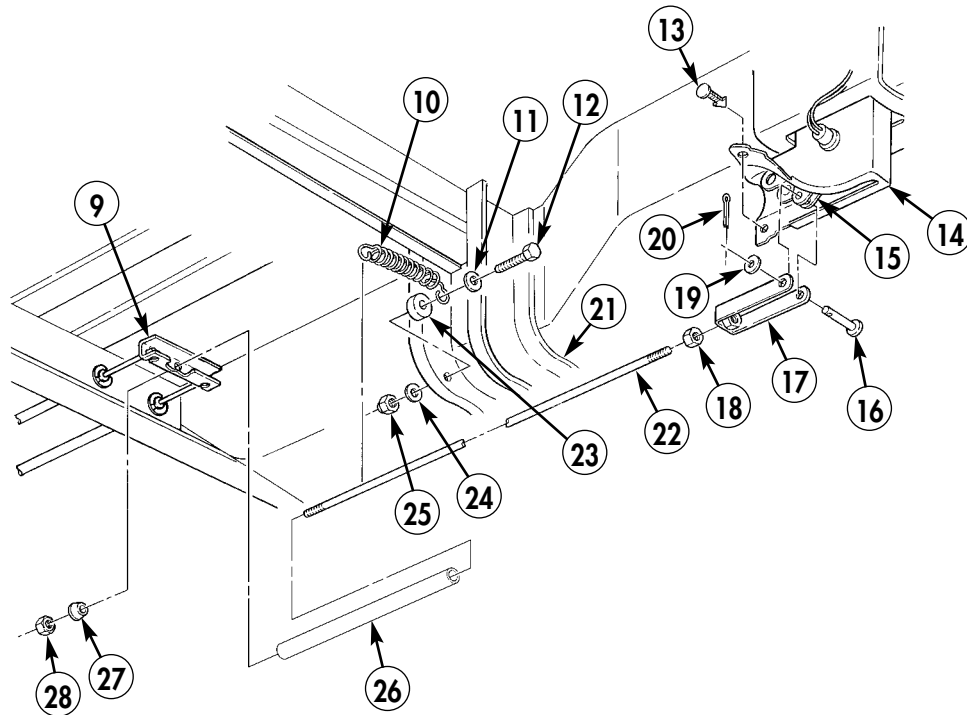
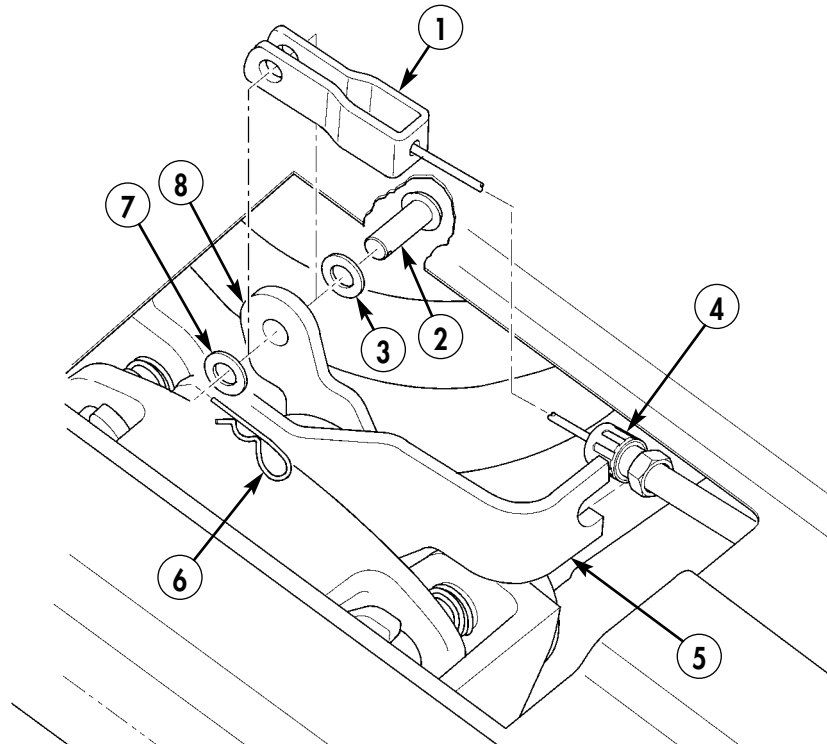
a. Removal

1. Remove clevis pin (6), clevis bolt (2), washers (3) and (7), and clevis (1) from caliper lever (8).
2. Remove parking brake cable (4) from cable bracket (5).
3. Remove clip (13) and spread boot (14) to allow access to cotter pin (20).
4. Remove cotter pin (20), washer (19), clevis bolt (16), and clevis (17) from bellcrank (15). Discard cotter pin (20).
5. Remove locknut (25), washer (24), capscrew (12), washer (11), spring (10), and spacer (23) from body (21). Discard locknut (25).
6. Remove locknut (28) and convex washer (27) from parking brake rod (22) and brake cable equalizer bar (9). Discard locknut (27).
7. Remove parking brake rod (22) from brake cable equalizer bar (9) by sliding parking brake rod (22) forward.
8. Remove clevis (17), nut (18), and insulater rod (26) from parking brake rod (22).

b. Installation

1. Install spring (10) and spacer (23) on body (21) with washer (11), capscrew (12), washer (24), and locknut (25).
2. Install nut (18), clevis (17), and insulater rod (26) on parking brake rod (22).
3. Slide parking brake rod (22) rearward through spring (10).
4. Install parking brake rod (22) on brake cable equalizer bar (9) with convex washer (27) and locknut (28). Tighten locknut (27) far enough to expose 3 to 5 threads on end of parking brake rod (22).
5. Spread boot (14) and install clevis (17) on bellcrank (15) with clevis pin (16), washer (19), and cotter pin (20).
6. Install clip (13) on boot (14).
7. Install parking brake cable (4) on cable bracket (5).
8. Install clevis (1) on caliper lever (8) with washer (3), clevis bolt (2), washer (7), and clevis pin (6).

7-24. PARKING BRAKE ROD REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Install rear propeller shaft (TM 9-2320-387-24-1).
 - Install muffler and catalytic converter (TM 9-2320-387-24-1).
 - Adjust parking brake (para. 7-25).
 - Install access cover (para. 10-58.4).
 - Unchock wheels (TM 9-2320-387-10).

7-25. PARKING BRAKE ADJUSTMENT

This task covers:

a. Adjustment

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Wheels chocked and parking brake released (TM 9-2320-387-10).
- Parking brake access cover removed (para. 10-58.4).

Maintenance Level

Unit

NOTE

- Parking brakes are adjusted semi-annually, when pads are replaced, or when running clearance reaches a total of 0.100 in. per side.
- Parking brake adjustment procedures are basically the same. This procedure covers the right parking brake. Rotate caliper arm counterclockwise for left side of vehicle.
- It may require several attempts to properly adjust parking brake.

a. Adjustment

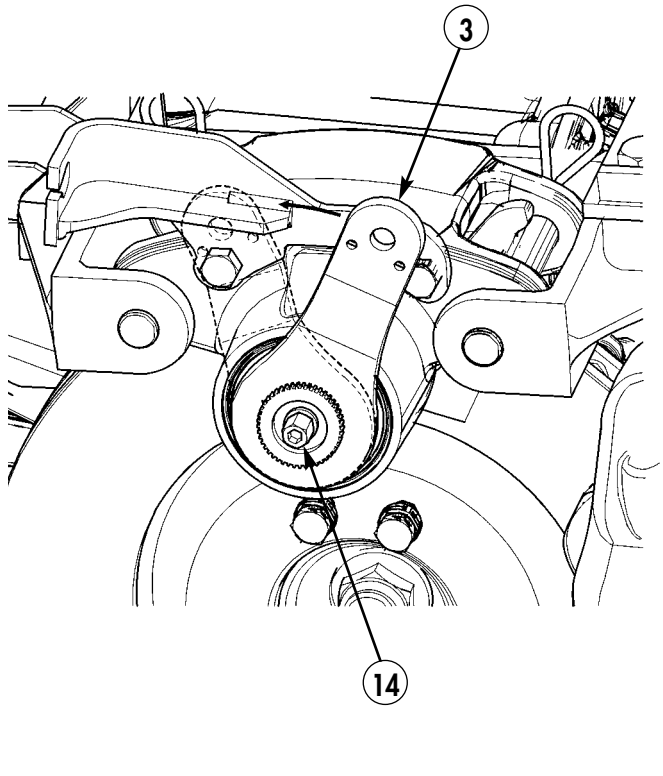
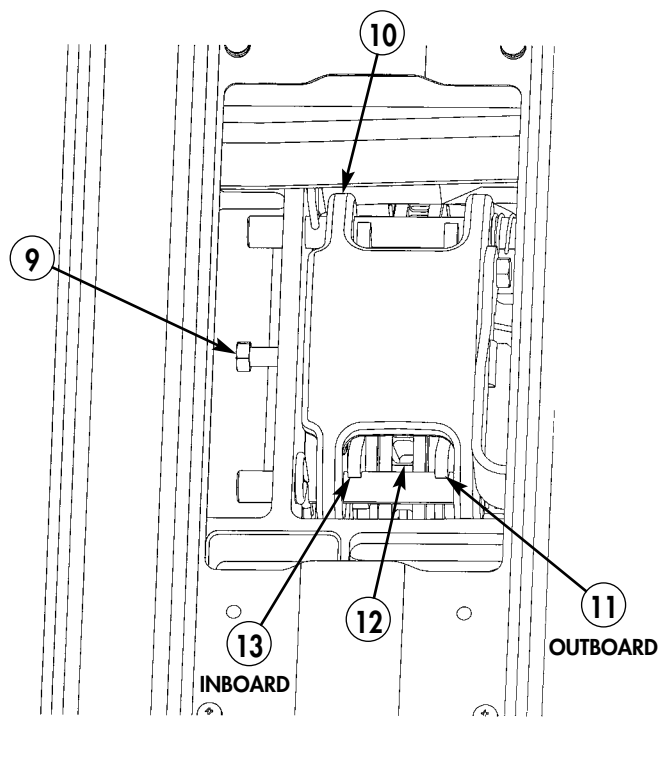
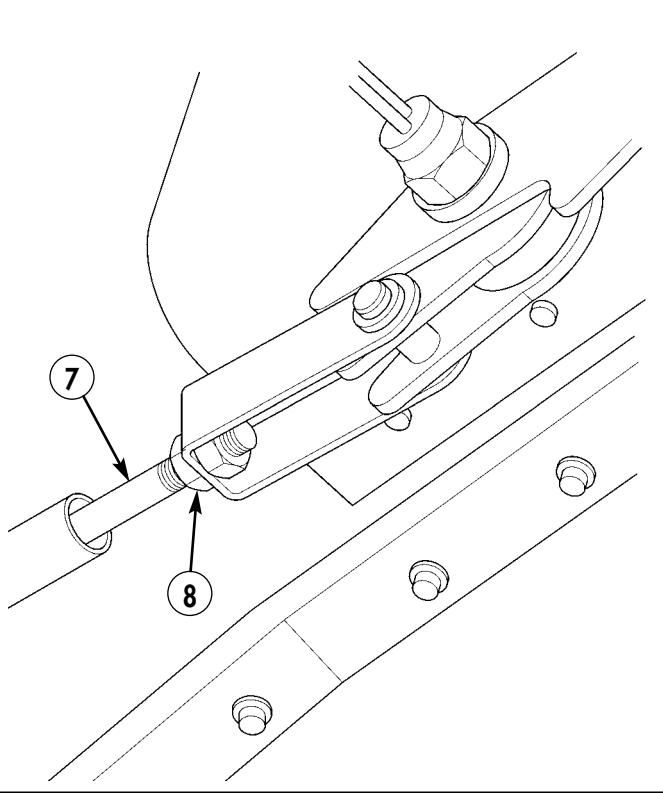
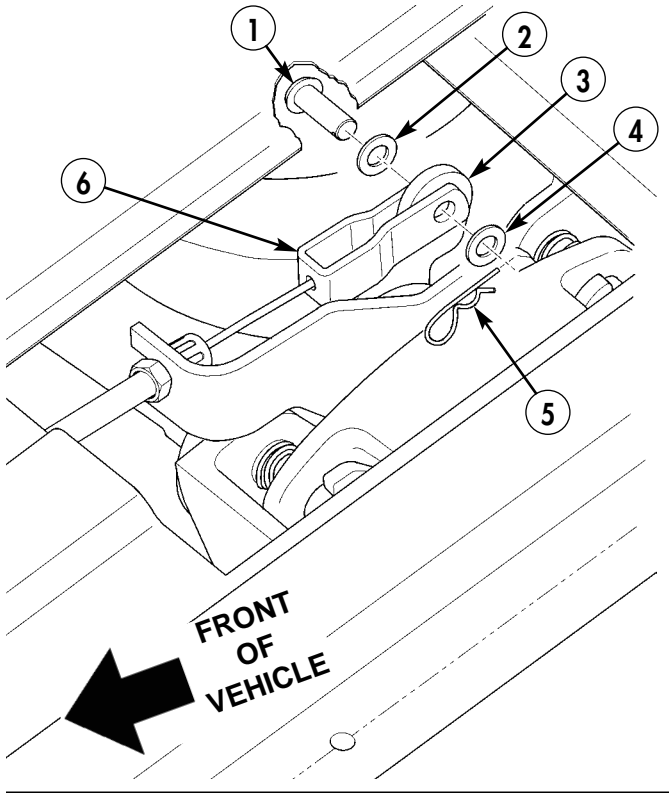
1. Hole in clevis (6) should line up with hole in caliper arm (3).

NOTE

Perform step 2 if clevis hole does not line up with caliper arm hole.

2. Adjust nut (8) on parking brake rod (7) until hole in clevis (6) lines up with hole in caliper arm (3).
3. Install clevis (6) on caliper arm (3) with washer (2), clevis pin (1), washer (4), and cotter pin (5).
4. Back off stop bolt (9) counterclockwise from parking brake caliper (10).
5. Rotate adjusting screw (14) clockwise until outboard pad (11) is lightly clamped on brake rotor (12).
6. Rotate caliper arm (3) clockwise until it stops and back off adjusting screw (14) counterclockwise 1/2 turn (3 flats), resulting in 0.025 in. of running clearance.
7. Rotate stop bolt (9) clockwise until inboard pad (13) touches brake rotor (12).
8. Back off stop bolt (9) counterclockwise 1/6 turn (1 flat) resulting in 0.010 in. of running clearance.

7-25. PARKING BRAKE ADJUSTMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Adjust parking brake lever (TM 9-2320-387-10).
 - Install parking brake access cover (para. 10-58.4).

CHAPTER 8

WHEELS AND STEERING (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the wheels and steering systems that are specific to your REV vehicle.

8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD)

This task covers:

- | | |
|--|--|
| <ul style="list-style-type: none"> a. Disassembly b. Inspection and cleaning | <ul style="list-style-type: none"> c. Repair d. Assembly |
|--|--|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Runflat compressor (Appendix B, Item 115)
 Torque adapter, 9/16-in. (Appendix B, Item 133)
 Socket adapter (Appendix B, Item 135)

Materials/Parts

Twenty-four locknuts (Appendix A, Item 84)
 O-ring seal (Appendix A, Item 280.3)
 Locknut (Appendix A, Item 86)
 O-ring (Appendix A, Item 232)
 Lubricant (Appendix A, Item 192)
 Detergent (Appendix C, Item 25)
 Sealing compound, if required (Appendix C, Item 61)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TM 9-2610-200-14
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Wheel removed (TM 9-2320-387-24-1).

General Safety Instructions

- Do not use tire machine.
- Ensure tire is totally deflated before removing wheel locknuts.
- Never use tubes in wheel assemblies.
- Rim surfaces must be kept clean and free of rust and dirt.
- Never use wheel assemblies with damaged studs.
- Never inflate a wheel assembly with the wheel locknuts removed.
- Never inflate a wheel assembly without first checking wheel locknut torques.
- Do not exceed recommended tire inflation pressure.
- Always use an OSHA approved tire inflation cage and a clip-on air chuck for tire inflation.
- Ensure runflat compressor strap is centered around runflat.
- Never install radial tire on eight-bolt wheel.

Maintenance Level

Unit

WARNING

- Do not use tire machine. Injury to personnel or damage to equipment may result.
- In all disassembly operations, ensure the tire is totally deflated before removing wheel locknuts. Failure to follow proper safety precautions could cause serious injury or death to personnel.

a. Disassembly

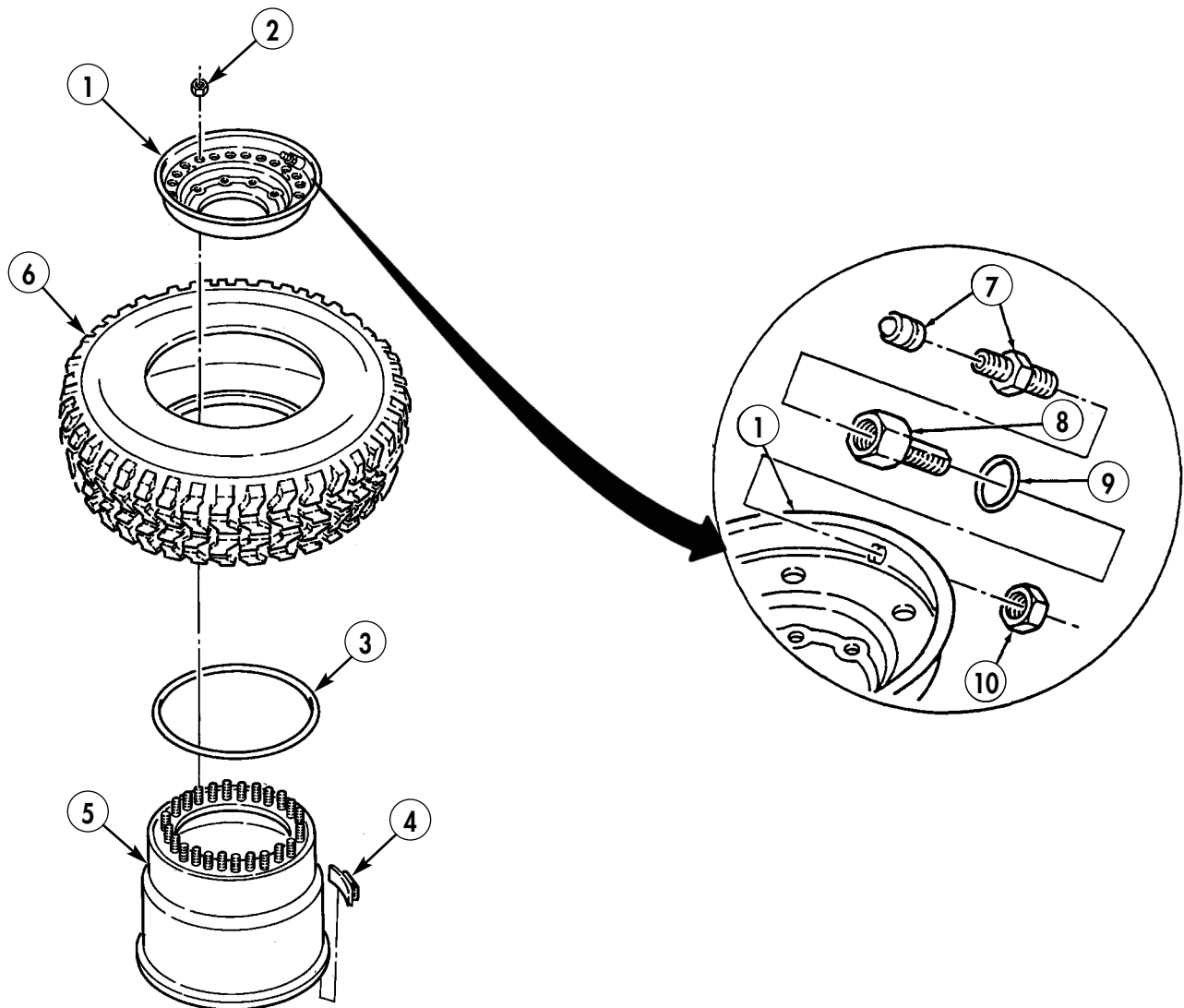
1. Remove valve core (7) from insert (8) and deflate tire (6).
2. Use a circular pattern and loosen twenty-four wheel locknuts (2) securing rim halves (1) and (5) together. If you hear escaping air, do not proceed. Wait until sound stops. When tire (6) is fully deflated, remove wheel locknuts (2). Discard locknuts (2).

8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

WARNING

Never inflate a wheel assembly with the wheel locknuts removed in an attempt to separate inner and outer rim halves. The assembly will separate under pressure, resulting in serious injury or death.

3. Remove outer rim half (1) from tire (6).
4. Remove insert (8) and locknut (10) from outer rim (1). Discard locknut (10).
5. Remove O-ring (9) from insert (8). Discard O-ring (9).
6. Remove O-ring seal (3) from inner rim half (5). Cut O-ring seal (3) in two to make sure it cannot be reused. Discard O-ring seal (3).
7. Remove tire (6) from inner rim half (5).
8. Remove balance weights (4) from rim halves (1) and (5), if present. Discard balance weights (4).



8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

9. Lay tire (1) flat.

WARNING

Do not use compressor strap if it is frayed or damaged. Ensure runflat is free of grease and runflat compressor strap is centered around runflat. Failure to do so may cause injury to personnel.

NOTE

Perform steps 10 and 11 when using runflat compressor P/N J39250. Perform steps 12 and 13 when using runflat compressor P/N 528236.

10. Position runflat compressor (3) on runflat (2) so that runflat compressor hex-drive (4) is facing up and strap (5) is centered around runflat (2).

NOTE

Compress runflat by rotating hex-drive in either direction. Rotate hex-drive the opposite direction to loosen.

11. Using runflat compressor (3), compress runflat (2).
12. Position runflat compressor (6) on outer edge of runflat (2) with handle assembly (7) facing up and strap (8) centered around runflat (2).

NOTE

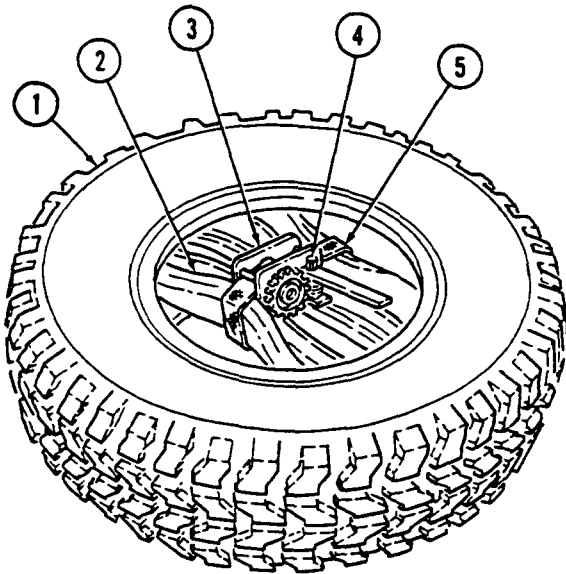
Compress runflat by rotating handle assembly in a clockwise direction. Rotate handle assembly counterclockwise to loosen.

13. Using runflat compressor (6), compress runflat (2).

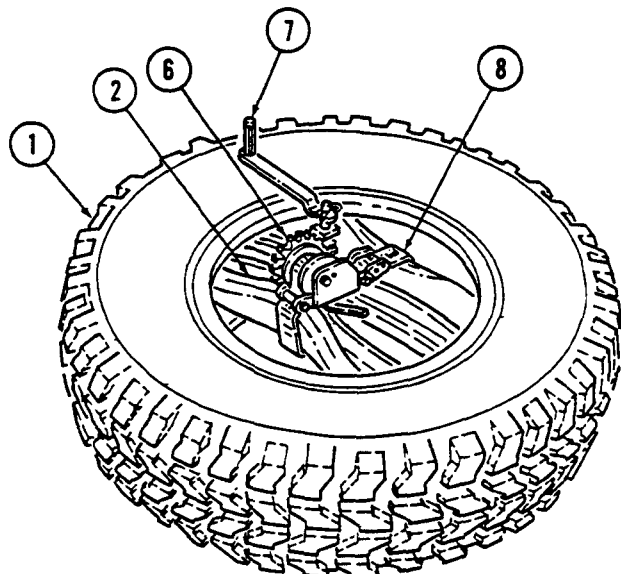
NOTE

- It may be necessary to use a tire spoon and tire soap to remove runflat from tire.
- When using runflat compressor P/N 528236, handle may need to be removed before removing runflat.

14. Remove runflat (2) from tire (1) and remove runflat compressor (3) or (6) from runflat (2).



RUNFLAT COMPRESSOR (P/N J39250)

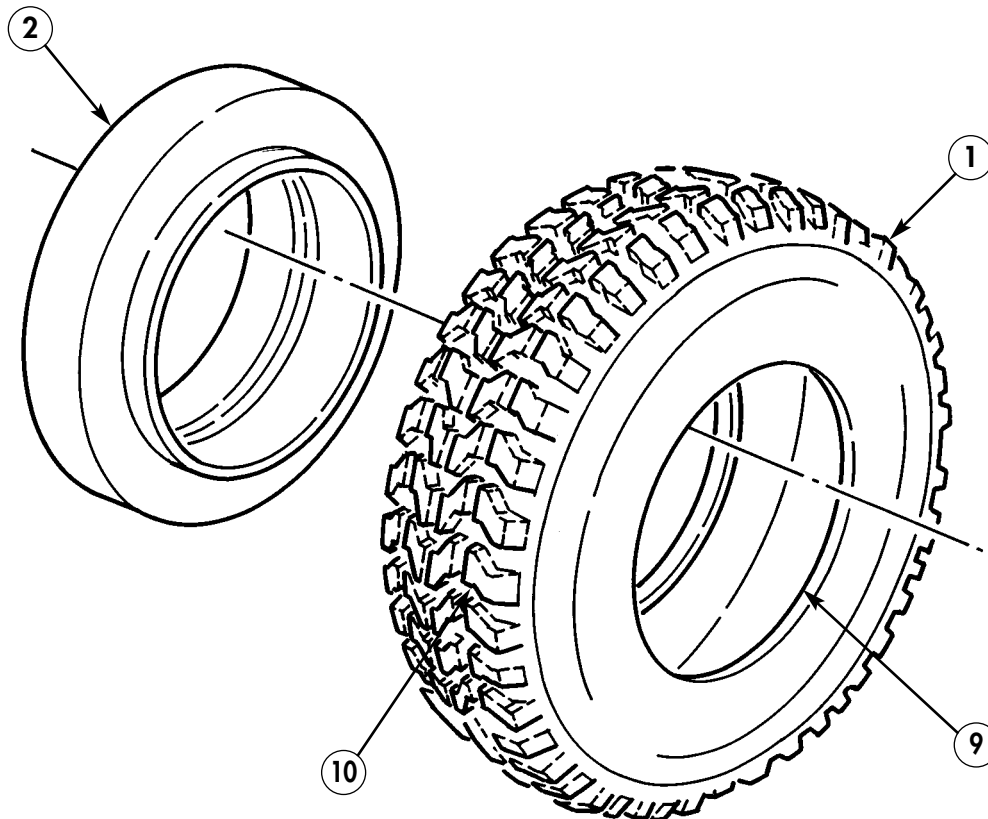


RUNFLAT COMPRESSOR (P/N 528236)

8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)**b. Inspection and Cleaning****CAUTION**

Do not reuse a tire which has been run flat without thoroughly inspecting for damage. Failure to follow these instructions may result in damage to equipment.

1. Inspect inside of tire (1) for cord or belt separation and inner liner damage. Replace tire (1) if damaged.
2. Inspect tire bead (9) for abrasions caused from runflat (2). Replace tire (1) if damaged.
3. Check for protruding objects inside tire (1) which may not be visible from outside. Repair tire (1) if damaged.
4. Check tread depth on tire (1). Tread should not be worn below level of wear bars (10). Replace tire (1) if tread is worn below wear bars (10) or 1/16 in. (1.59 mm).
5. Clean all grease, dirt, and foreign material from the runflat (2) with soap and water and allow to air-dry. Inspect runflat (2) for splitting, wear, or excessive chafing. Replace runflat (2) if damaged.



8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

WARNING

O-ring sealing surfaces and pressure relief grooves must be kept clean and free of rust and dirt. Failure to do so may cause the wheel assembly to separate under pressure, causing serious injury or death.

6. Using wire brush, clean studs (4). Clean all dirt and foreign material from rim halves (1) and (2) with soap and water and allow to air-dry. Ensure O-ring sealing surfaces (5) and pressure relief grooves (3) on rim halves (1) and (2) are smooth and clean.
7. Inspect rim halves (1) and (2) for cracks, bent sealing surfaces (5), or oversized mounting holes. Replace rim halves (1) or (2) if cracked, bent, or if mounting holes are oversized.

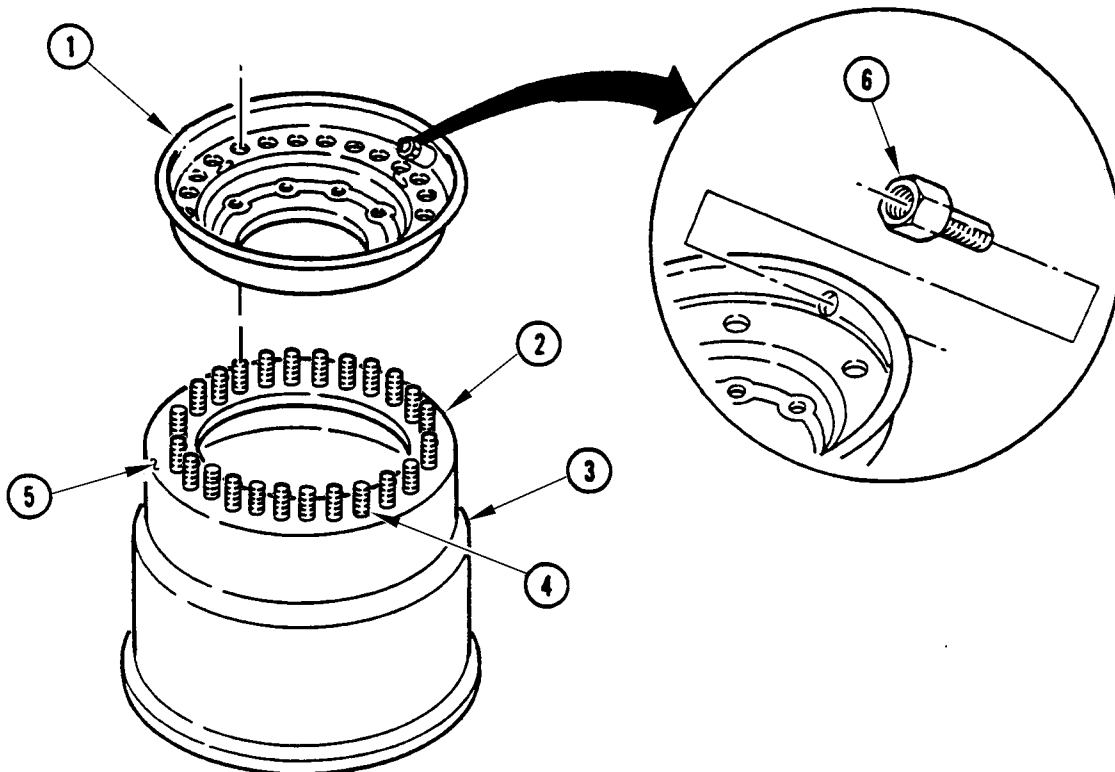
WARNING

Never use wheel assemblies with studs which are damaged, loose, or have damaged threads. Damaged studs can cause improper assembly, which may cause individual fasteners to fail. Any of these situations may cause serious injury or death.

8. Inspect inner rim half (2) for cracked, broken, rusted, pitted, bent, or loose studs (4) and studs (4) with damaged, mutilated, or deformed threads. Replace studs (4) (TM 9-2320-387-24-1) if damaged, loose, or threads are damaged.
9. Inspect insert (6) for damage. Replace insert (6) if damaged.

c. Repair

Refer to TM 9-2610-200-14 for maintenance and repair of tires.



8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

d. Assembly

WARNING

- Never use tubes in wheel assemblies. Use of a tube defeats built-in safety features, and may allow the wheel to come apart under pressure, resulting in serious injury or death.
- Use only replacement parts specified in TM 9-2320-387-24P for radial tires. Never install radial tire components on eight-bolt rims. Wheels assembled with components not specified for radial tires could cause the assembly to separate under pressure, resulting in serious injury or death.
- Do not use compressor strap if it is frayed or damaged. Ensure runflat is free of grease and runflat compressor strap is centered on runflat. Failure to do so could cause injury to personnel.

NOTE

Perform steps 1 and 2 when using runflat compressor P/N J39250. Perform steps 3 and 4 when using runflat compressor P/N 528236.

1. Position runflat compressor (8) on runflat (7) so that runflat compressor hex-drive (9) is facing up and strap (10) is centered around runflat (7).

NOTE

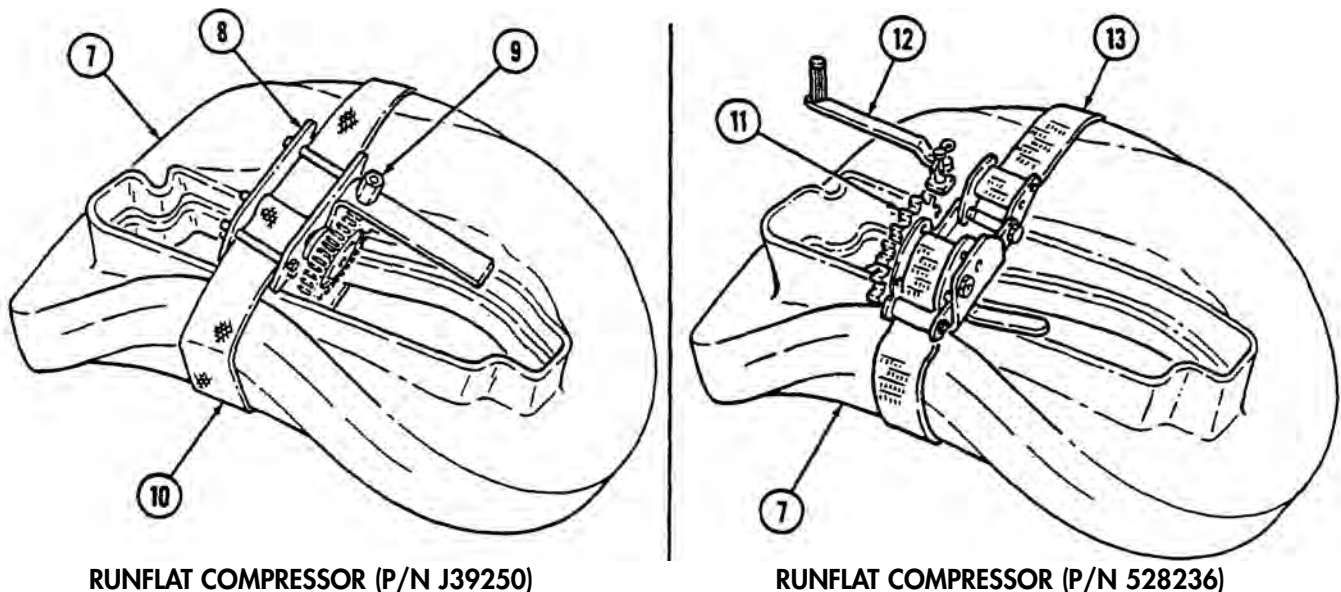
Compress runflat by rotating hex-drive in either direction. Rotate hex-drive opposite to loosen.

2. Using runflat compressor (8), compress runflat (7).
3. Position runflat compressor (11) on an outer edge of runflat (7) with handle assembly (12) facing up and strap (13) centered around runflat (7).

NOTE

Compress runflat by rotating the handle assembly in a clockwise direction. Rotate handle assembly counterclockwise to loosen.

4. Using runflat compressor (11), compress runflat (7).



8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

WARNING

Always wear eye protection and rubber gloves when applying runflat lubricant. Failure to do so may result in injury to personnel.

NOTE

The radial tire is a bidirectional tire and the tread may be positioned in either direction.

5. Using 2- to 6-inch paint brush, apply entire 11-oz tube of lubricant evenly (depth of 1/8 to 3/16 in. (0.32 to 0.475 cm) on inside of tire (1).

WARNING

Runflat compressor belt and handle may be greasy, which could slip and cause damage to equipment or injury to personnel.

NOTE

It may be necessary to remove handle assembly on runflat compressor P/N 528236 before inserting runflat into tire.

6. Insert runflat (2), compressor side first, as far as possible into tire (1).
7. Lay tire (1) flat on protruding runflat side. Loosen compressor (4). Runflat (2) should insert itself inside tire (1). If not, repeat steps 5 through 7 and/or use a tire spoon to assist in installation.

NOTE

If required, clean and lubricate bearing assembly on runflat compressor P/N 528236 after removal.

8. Loosen runflat compressor (4) and remove from tire (1).
9. Lubricate tire bead (3) and rim bead seat areas with tire soap.

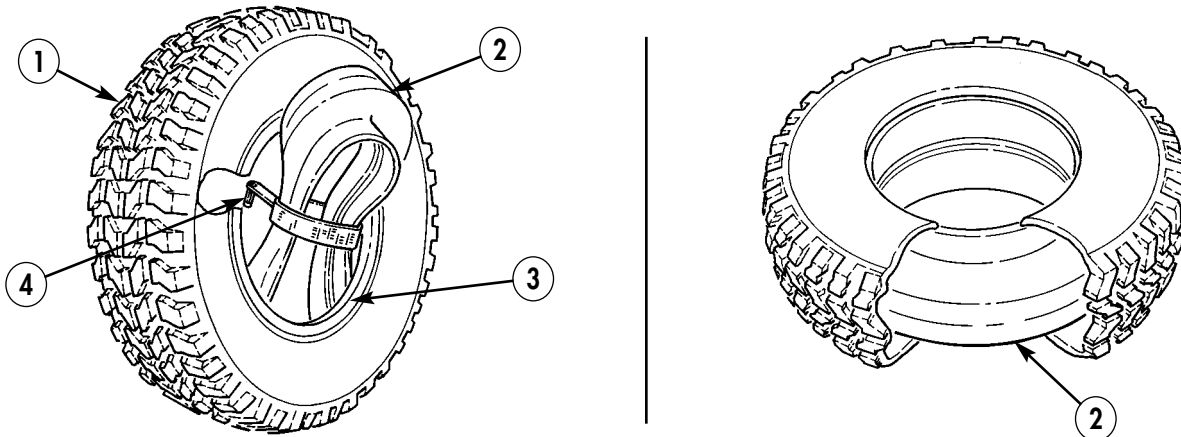
WARNING

Never install radial tire on eight-bolt wheel. Damage to equipment may result, causing injury to personnel.

NOTE

Before installing tire on inner rim half, inspect tire sidewalls for a paint dot. Paint dots are often painted on tires to indicate the tire's light spot for balancing purposes. If paint dot is present, position tire on rim halves so that paint dot is aligned with insert hole on outer rim half.

10. Center runflat (2) in tire (1). Carefully lower tire (1) over inner rim half (8).
11. Ensure runflat (2) is not binding on flat portion of inner rim half (8). Runflat (2) should clear inner rim half (8).



8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

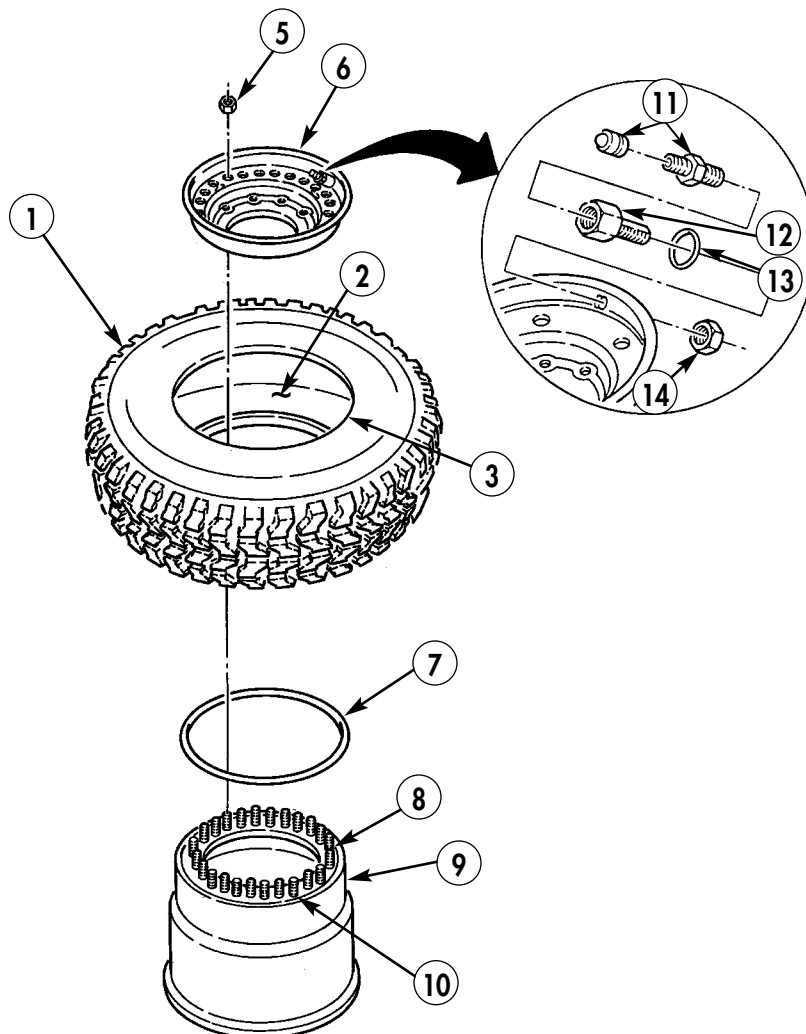
NOTE

- Ensure longer lip of runflat seats against outer rim half.
 - Align air notch in runflat with valve stem in the rim.
12. Lubricate O-ring seal (7) with tire soap. Install O-ring seal (7), in groove (9) on top of inner rim half (8), around studs (10). Ensure O-ring seal (7) is not twisted and that it is uniformly positioned in groove (9). Do not overstretch O-ring seal (7).
 13. Install insert (12) and O-ring (13) on outer rim half (6) with locknut (14). Tighten locknut (14) to 40-60 lb-in. (5-7 N•m).
 14. Install valve core (11) in insert (12).
 15. Install outer rim half (6) on inner rim half (8).

CAUTION

Tighten locknuts gradually to avoid bent and broken studs or damage to wheel components.

16. Secure outer rim half (6) to inner rim half (8) with twenty-four locknuts (5). Do not tighten locknuts (5).

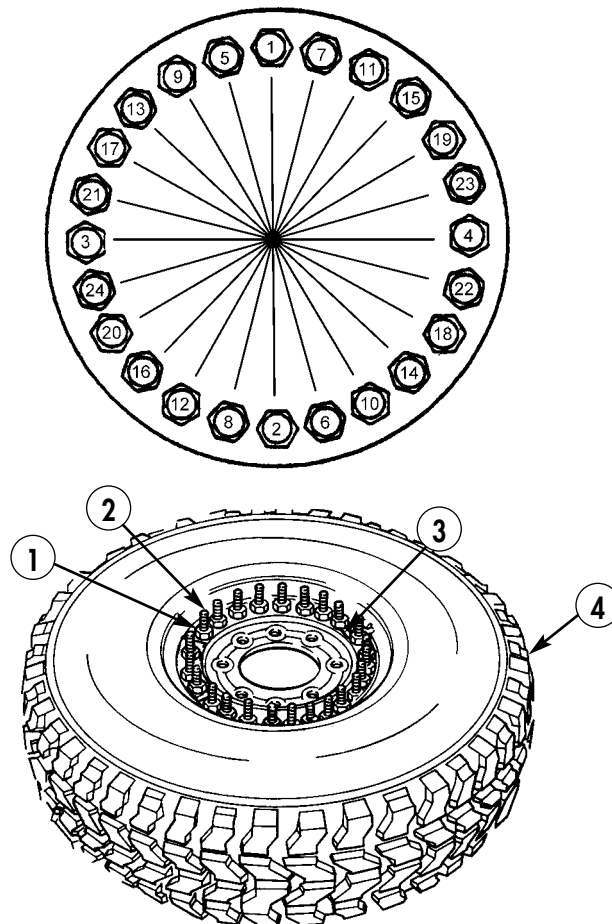


8-4.1. RADIAL TIRE, WHEEL, AND RUBBER RUNFLAT MAINTENANCE (24-STUD) (Cont'd)

17. Tighten locknuts (1) to 85 lb-ft (115 N•m) in tightening sequence shown.
18. Tighten locknuts (1) to 110 lb-ft (149 N•m) in tightening sequence shown.
19. Check wheel assembly (4) for gaps at each stud (2). Use 0.0015 in. (0.038 mm) thickness gauge to detect gaps. If gaps are detected, disassemble and reassemble wheel assembly (4) and recheck for gaps. If gaps are still detected, replace outer rim half (3).

WARNING

- Always use an OSHA approved tire inflation cage for inflation purposes. Stand on one side of the cage during inflation; never directly in front. Keep hands out of cage during inflation. Inflate assembly to recommended pressure using a clip-on air chuck. Do not exceed 50 psi (345 kPa) cold-inflation pressure. Failure to follow these instructions may result in serious injury or death.
 - Never inflate a wheel assembly without having checked wheel locknut torques to ensure the wheel locknuts are tightened to specifications. An assembly with improperly tightened locknuts could separate under pressure, resulting in serious injury or death.
20. Place wheel assembly (4) in safety cage and inflate tire to recommended tire pressure (TM 9-2320-387-10).



FOLLOW-ON TASK: Balance tire (TM 9-2320-387-24-1).

8-7.1. INNER RIM STUD MAINTENANCE (24-STUD)

This task covers:

- | | |
|---|------------------------|
| <p>a. Removal</p> <p>b. Cleaning and Inspection</p> | <p>c. Installation</p> |
|---|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Twenty-four locknuts (Appendix A, Item 84)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24-1
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Wheel removed (TM 9-2320-387-24-1).

General Safety Instructions

- Always wear eye protection when replacing wheel studs.
- Ensure tire is totally deflated before removing wheel locknuts.
- Never use wheel assemblies with damaged studs.
- Never inflate a wheel assembly without first checking wheel locknut torques.
- Always use an OSHA approved tire inflation cage and a clip-on air chuck for tire inflation.

Maintenance Level

Unit

WARNING

Always wear eye protection when replacing wheel studs. Severe eye injury may result if metal chips contact eyes.

a. Removal

NOTE

Perform steps 1 through 4 for stud removal without disassembly of wheel. Perform steps 5 and 6 for stud removal with disassembled wheel.

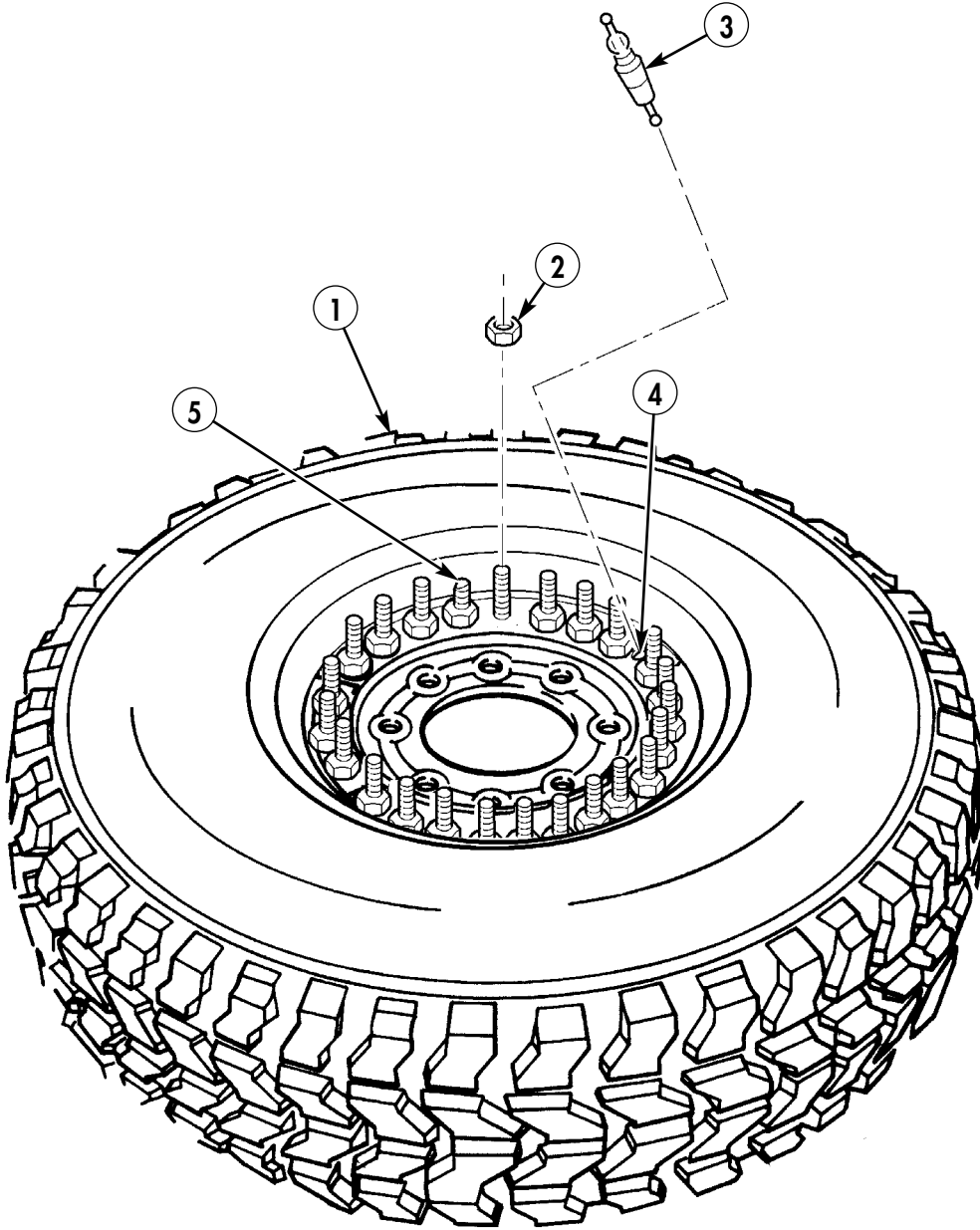
1. Place wheel assembly in OSHA approved tire inflation cage.

WARNING

In all assembly operations, ensure the tire is totally deflated before removing wheel locknuts. Failure to follow proper safety precautions may result in serious injury or death.

2. Remove valve core (3) from valve bore (4) and deflate tire (1). Run a wire through valve bore (4) to ensure it is not plugged.
3. When tire (1) is fully deflated, loosen wheel locknut (2) from each side of the broken stud(s) (5). If you hear escaping air, do not proceed. Wait until the sound stops and recheck valve bore (4). When you are certain tire is fully deflated, proceed to remove wheel locknut (2). Discard locknut (2).

8-7.1. INNER RIM STUD MAINTENANCE (24-STUD) (Cont'd)



8-7.1. INNER RIM STUD MAINTENANCE (24-STUD) (Cont'd)

NOTE

When replacing broken rim stud(s), replace studs on both sides of the broken stud(s).

4. Drive studs (1) out of inner rim (2). Discard studs (1).
5. Disassemble wheel and runflat (para. 8-4.1).
6. Drive stud (3) out of inner rim half (4). Discard stud (3).

b. Cleaning and Inspection

1. Using wire brush, clean studs. Clean all dirt and foreign material from rim with soap and water and allow to air-dry.

WARNING

Never use wheel assemblies with studs which are damaged, loose, or have damaged threads. Damaged studs can cause improper assembly, which could cause individual fasteners to fail. Any of these situations may result in serious injury or death.

2. Inspect inner rim (4) for cracked, broken, rusted, pitted, bent, or loose studs (3), and studs (3) with damaged, mutilated, or deformed threads.

c. Installation

NOTE

Perform steps 1 and 2 for stud installation with disassembled wheel. Perform steps 3 through 11 for stud installation without disassembly of wheel.

1. Align splines on stud (3) with splines in inner rim (4) and drive stud (3) into inner rim (4) until stud shoulder seats against inner rim (4).
2. Assemble wheel and runflat (para. 8-4.1).
3. Align splines on stud (1) with splines in inner rim (2) and drive stud (1) into inner rim (2) until shoulder of stud (1) seats against inner rim (2).
4. Repeat step 3 for all studs (1) being replaced.

CAUTION

Tighten locknuts gradually to avoid bent and broken studs or damage to wheel components will result.

5. Install locknuts (6) on studs (1).

NOTE

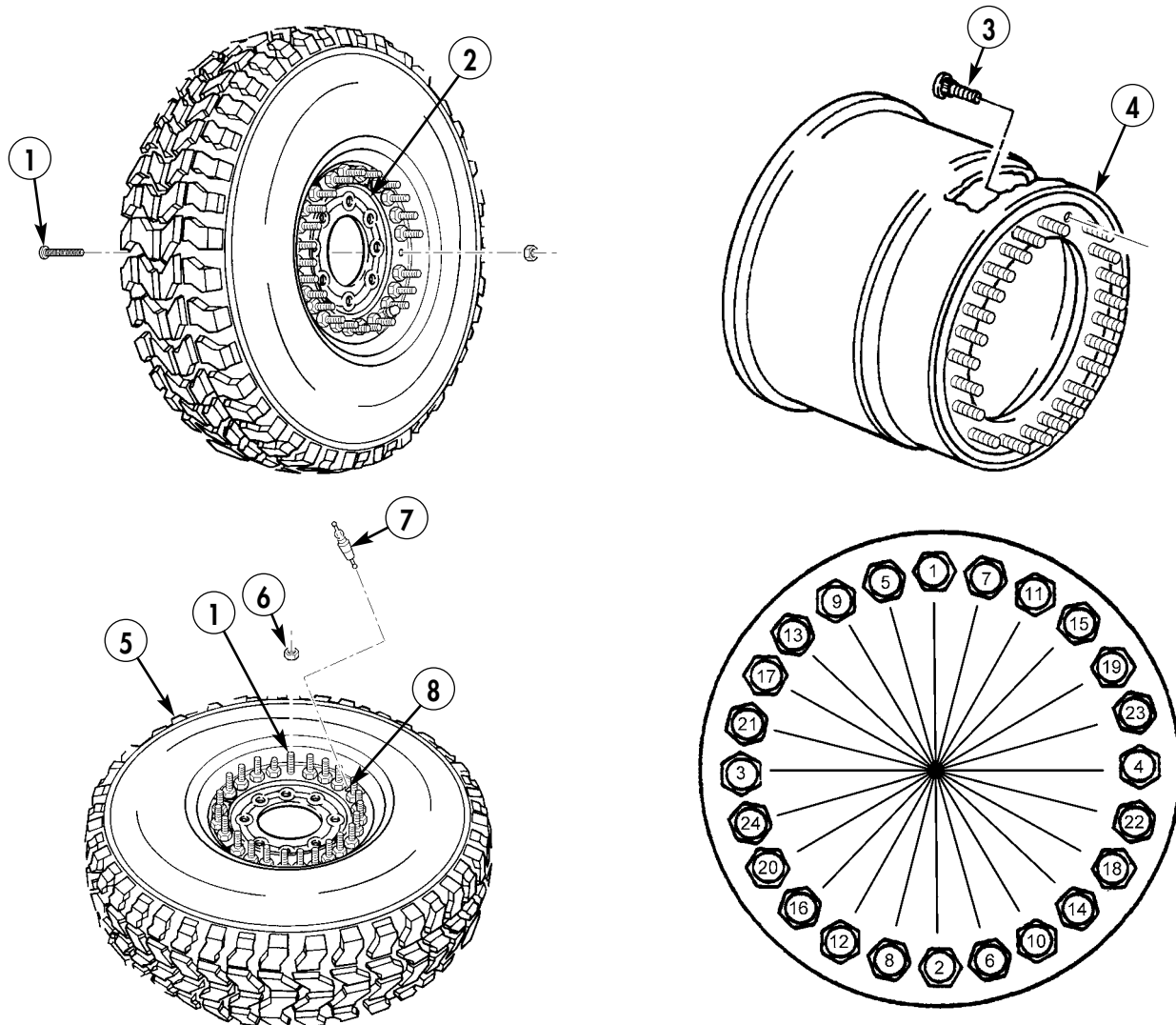
After replacing broken stud(s), all rim nuts must be retorqued.

6. Tighten locknuts (6) to 85 lb-ft (115 N•m) in sequence shown.
7. Tighten locknuts (6) to 110 lb-ft (149 N•m) in sequence shown.
8. Check wheel assembly for gaps at each stud. Use a 0.0015 in. (0.038 mm) thickness gauge to detect gaps. If gaps are detected, disassemble and reassemble wheel assembly and recheck for gaps. If gaps are still detected, replace outer rim half (para. 8-4.1).
9. Install valve core (7) in valve bore (8).

8-7.1. INNER RIM STUD MAINTENANCE (24-STUD) (Cont'd)

WARNING

- Never inflate a wheel assembly before checking wheel locknut torques to ensure the wheel locknuts are tightened to specifications. An assembly with improperly tightened locknuts could separate under pressure, resulting in serious injury or death.
 - Always use an OSHA approved tire inflation cage for inflation purposes. Stand on one side of the cage during inflation, never directly in front. Keep hands out of cage during inflation. Inflate assembly to recommended pressure, using a clip-on air chuck. Do not exceed 50 psi (345 kPa) cold inflation pressure. Failure to follow these instructions may result in serious injury or death.
10. Place tire assembly (5) in safety cage and inflate front and rear tires to recommended tire pressure (TM 9-2320-387-10).
 11. Check for leaks around rim edges, insert, and valve bore (8) with soapy solution.



FOLLOW-ON TASK: Install wheel (TM 9-2320-387-24-1).

**8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT
(SERIAL NUMBERS 246890 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Four cotter pins (Appendix A, Item 22)
 Two locknuts (Appendix A, Item 114.4)
 Locknut (Appendix A, Item 133.17)
 Three lockwashers (Appendix A, Item 190.8)
 Two O-rings (Appendix A, Item 220)
 Sealing compound
 (Appendix C, Item 63)
 Anti-seize compound (Appendix C, Item 16)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Left splash shield removed (para. 10-23.1).
- Left front wheel removed (TM 9-2320-387-24-1).
- Stabilizer bar removed (para. 6-20.1).

General Safety Instructions

- Do not use hammer or apply heat to the pitman arm.
- Proper pitman arm installation is critical to safe operation of vehicle.
- Do not back off torque value to align locking tabs.

Maintenance Level

Unit

a. Removal

CAUTION

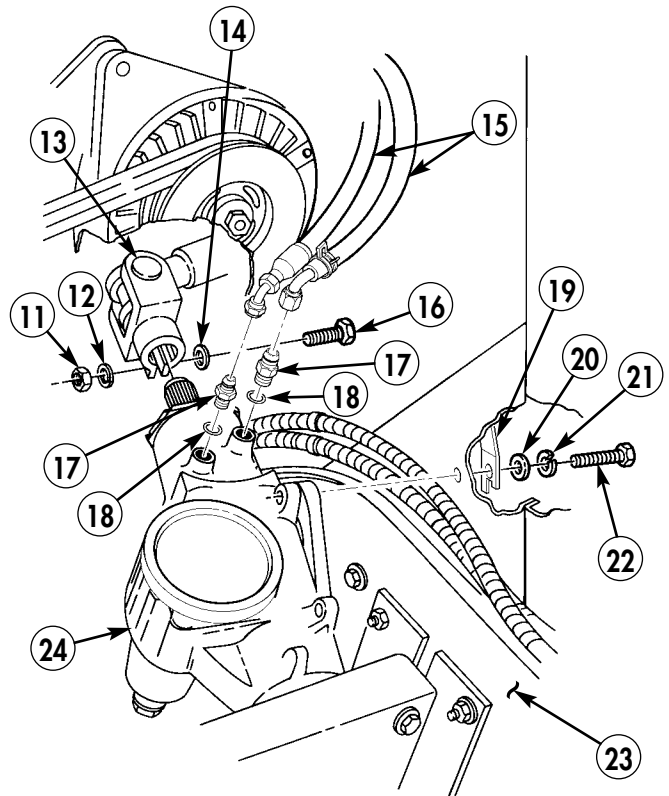
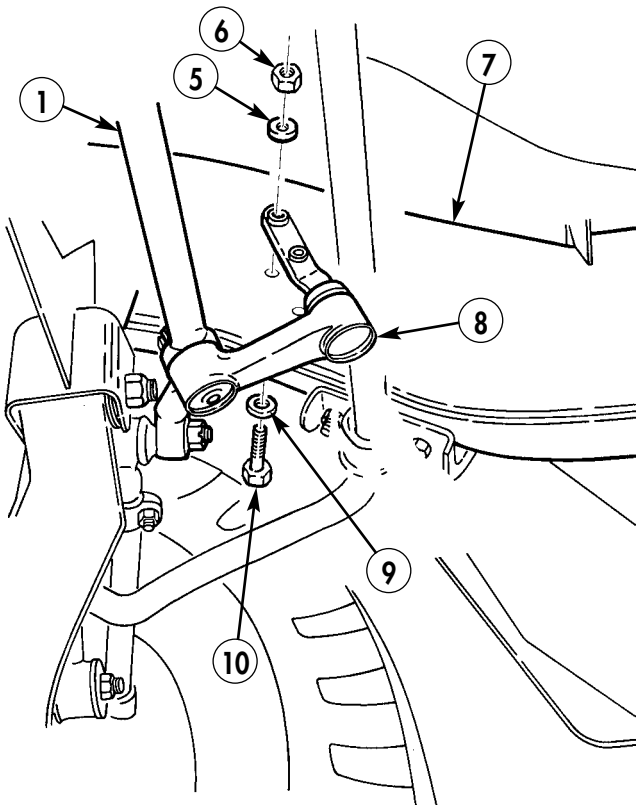
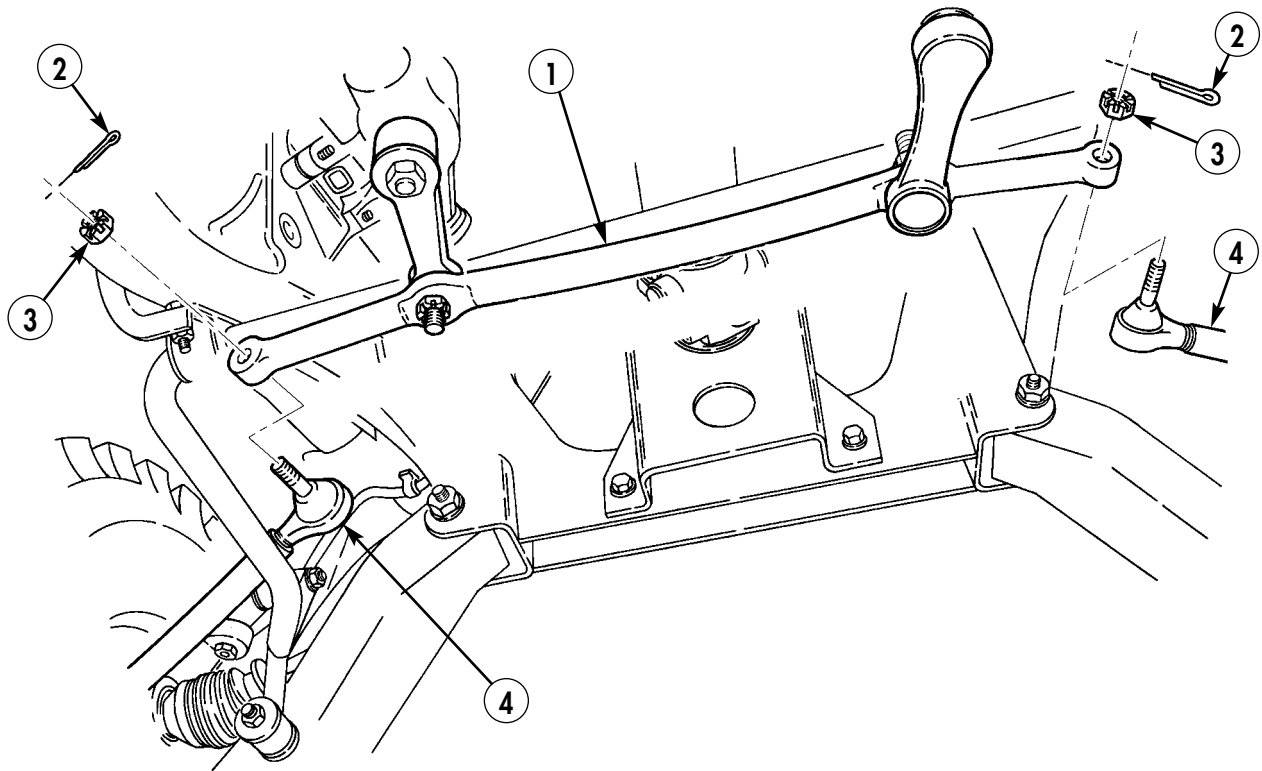
- Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.
- Using a pickle fork instead of a puller may damage serviceable components.

NOTE

Use suitable container to catch power steering fluid.

1. Remove two cotter pins (2) and slotted nuts (3) from two tie rods (4) and center link (1). Discard cotter pins (2).
2. Disconnect two tie rods (4) from center link (1).
3. Remove two locknuts (6), washers (5), capscrews (10), washers (9), and idler arm (8) from frame (7). Discard locknuts (6).
4. Remove two power steering lines (15) from steering gear (24).
5. Remove two power steering lines adapters (17) and O-rings (18) from steering gear (24). Discard O-rings (18).
6. Remove lower steering shaft locknut (11), washer (12), capscrew (16), and washer (14) and disconnect lower steering shaft (13) from steering gear (24). Discard locknut (11).
7. Remove three capscrews (22), lockwashers (21), washers (20), bracket (19), and steering gear (24) from frame (23). Discard lockwashers (20).

**8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT
(SERIAL NUMBERS 246890 AND ABOVE) (Cont'd)**



8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT (SERIAL NUMBERS 246890 AND ABOVE) (Cont'd)

WARNING

Do not use a hammer or apply heat to the pitman arm. Failure to comply may result in injury to personnel or damage to equipment.

8. Remove two cotter pins (2) and slotted nuts (3) from idler arm (5), pitman arm (4), and center link (1). Discard cotter pins (2).
9. Disconnect center link (1) from idler arm (5) and pitman arm (4).
10. Using screwdriver, bend locking tab (9) on lock ring (10) away from slot (7) in bolt (8).
11. Remove bolt (8) and lock ring (10) from pitman arm (4).
12. Using press (11) and support plate (12) remove pitman arm (4) from steering gear (13).

b. Installation

WARNING

Proper pitman arm installation is critical to safe operation of vehicle.

1. Install pitman arm (4) onto the steering gear (13) taking care to match alignment marks (14).

WARNING

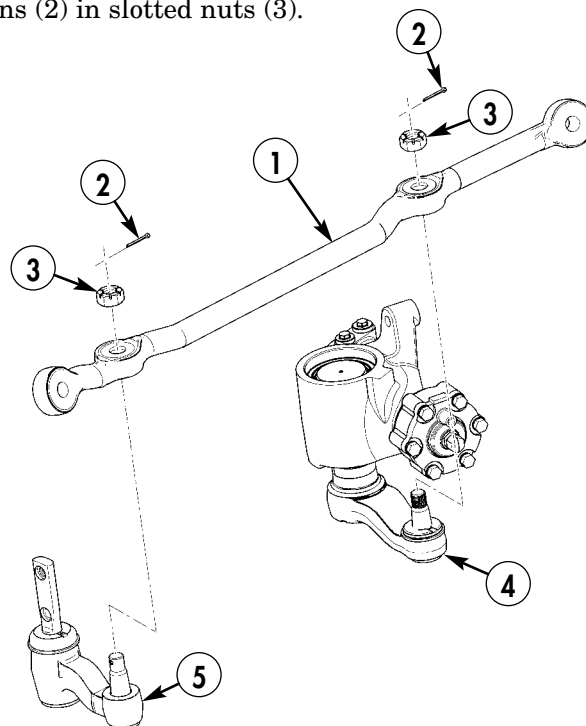
Do not back off torque value to align locking tabs.

2. Secure pitman arm (4) to steering gear (13) with bolt (8) and lock ring (10). Tighten bolt (8) to 225 lb-ft (305 N•m),
3. Continue to torque bolt (8) past specified value until one locking tab (9) aligns with pitman arm (4) and one locking tab (9) aligns with bolt (8).
4. Bend locking tabs (9) into the slot (7) of bolt (8).
5. Install center link (1) on pitman arm (4) and idler arm (5) with two slotted nuts (3). Tighten slotted nuts (3) to 110–130 lb-ft (149–176 N•m).

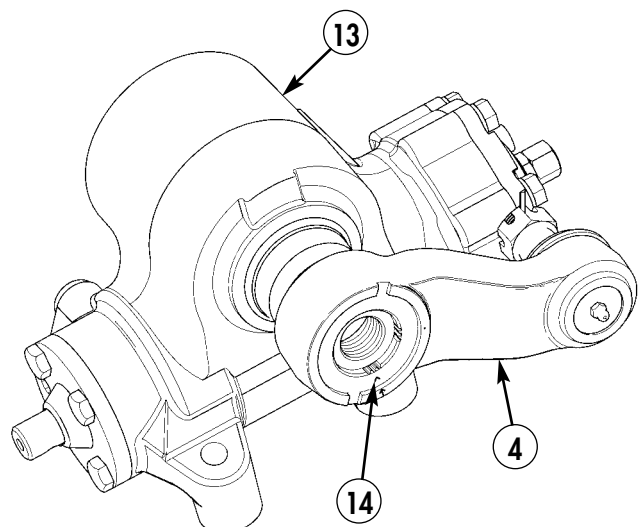
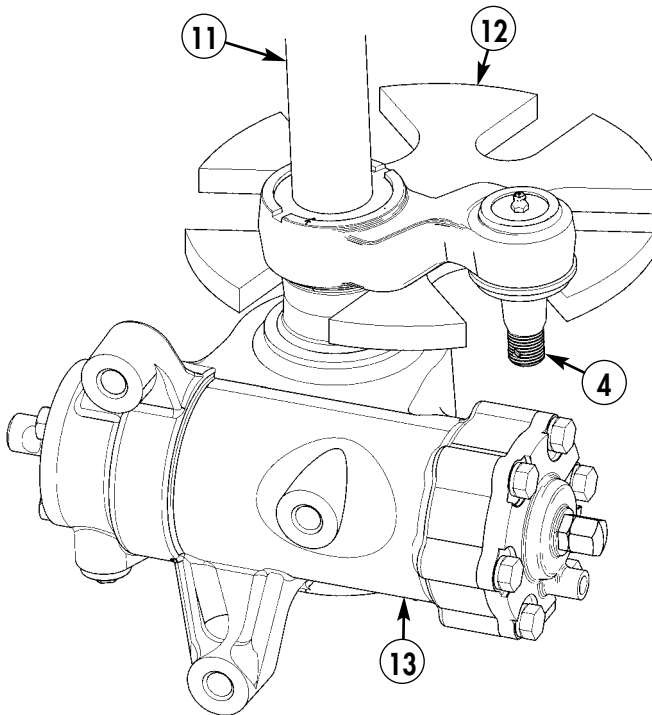
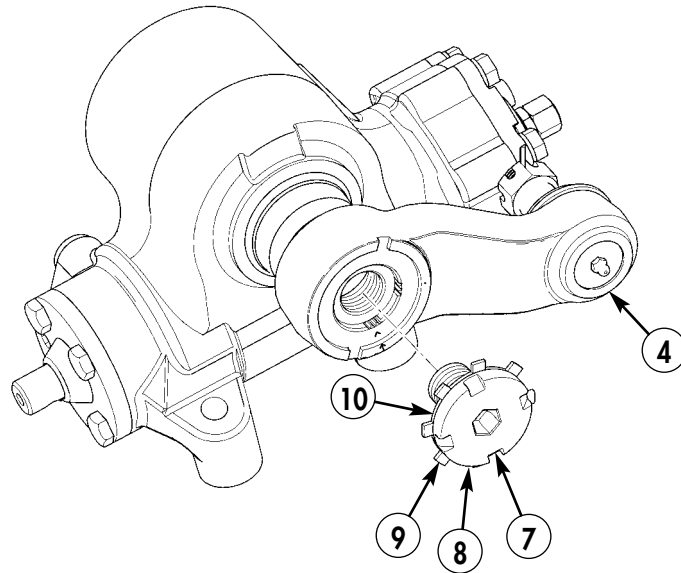
CAUTION

Do not loosen slotted nuts to install cotter pins. Doing this may result in damage to equipment.

6. Install two cotter pins (2) in slotted nuts (3).

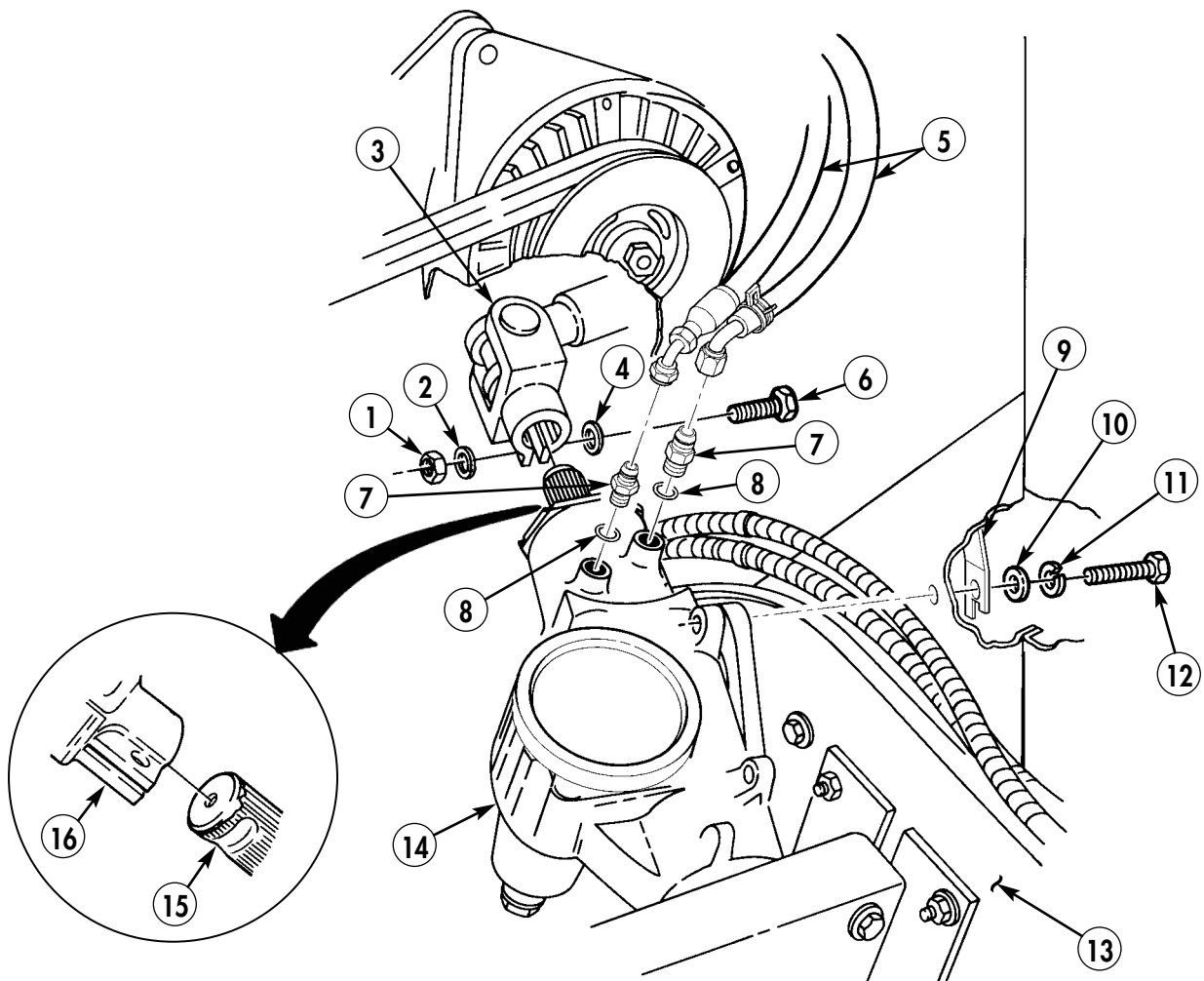


**8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT
(SERIAL NUMBERS 246890 AND ABOVE) (Cont'd)**

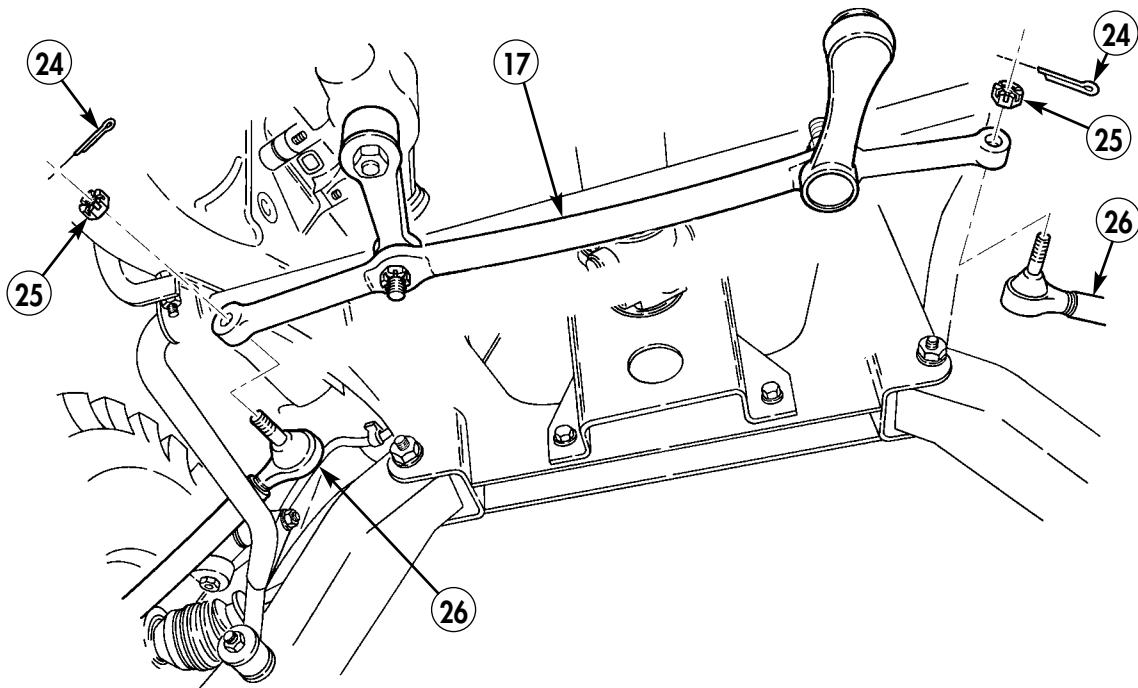
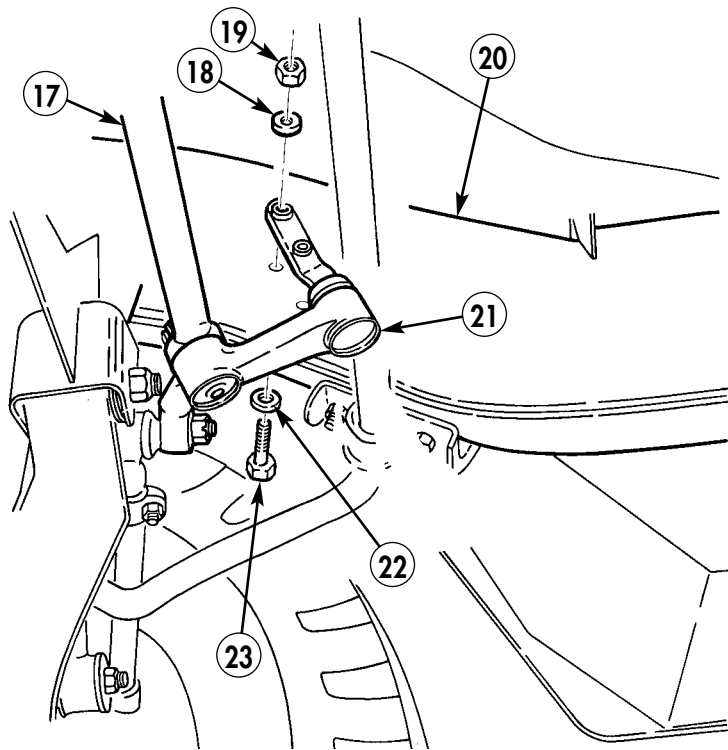


**8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT
(SERIAL NUMBERS 246890 AND ABOVE) (Cont'd)**

7. Apply sealing compound to three capscrews (12).
8. Install steering gear (14) on frame (13) with three washers (10), lockwashers (11), bracket (9), and capscrews (12). Tighten capscrews (12) to 160–195 lb-ft (217–264 N•m).
9. Install idler arm (21) on frame (20) with two washers (22), capscrews (23), washers (18), and locknuts (19). Tighten capscrews (23) to 85 lb-ft (115 N•m).
10. Install two tie rods (26) on center link (17) with two slotted nuts (25). Tighten slotted nuts (25) to 70 lb-ft (95 N•m).
11. Install two cotter pins (24) on slotted nuts (25).
12. Align hole in yoke (16) with notch on steering gear splines (15) and slide lower steering shaft (3) on steering gear splines (15).
13. Install lower steering shaft (3) on steering gear (14) with washer (4), capscrew (6), washer (2), and lower steering shaft locknut (1). Tighten locknut (1) to 40–50 lb-ft (54–68 N•m).
14. Install two power steering lines adapters (7) on steering gear (14).
15. Install two power steering lines (5) and O-rings (8) on two adapters (8).



**8-20.1. STEERING GEAR, CENTER LINK, AND PITMAN ARM REPLACEMENT
(SERIAL NUMBERS 246890 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Fill power steering reservoir (TM 9-2320-387-10).
 - Bleed power steering system (TM 9-2320-387-24-1).
 - Install front wheels (TM 9-2320-387-24-1).
 - Install stabilizer bar (para. 6-20.1).
 - Install left splash shield (para. 10-23.1).
 - Close and secure hood (TM 9-2320-387-10).

8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Four O-rings (Appendix A, Item 220)
 Two lockwashers (Appendix A, Item 145)
 Nut and washer assembly
 (Appendix A, Item 194)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Engine left splash shield removed (para. 10-23.1).

General Safety Instructions

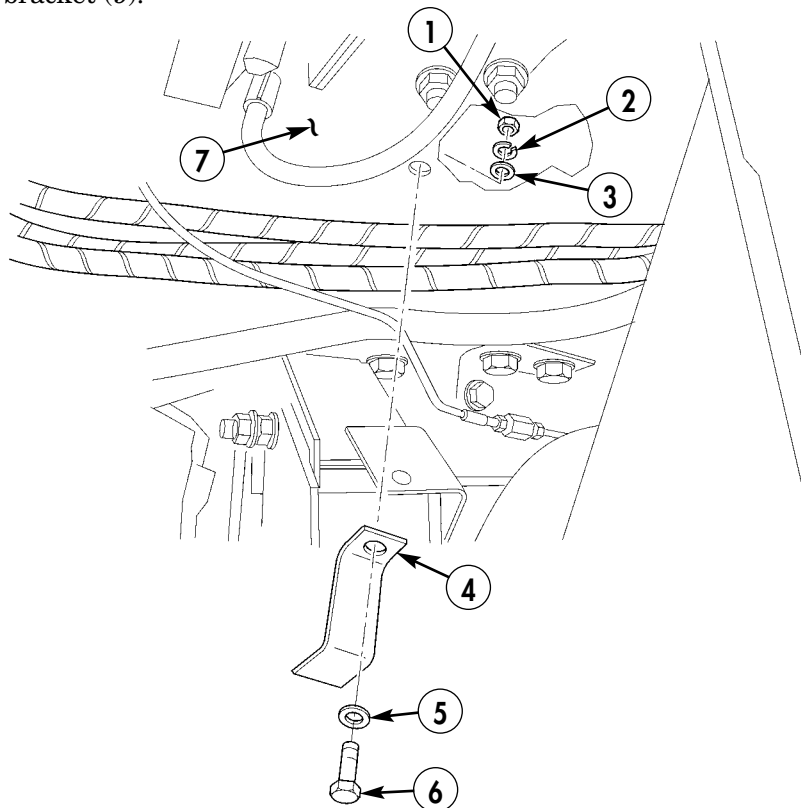
Do not drain fluid when engine is hot.

Maintenance Level

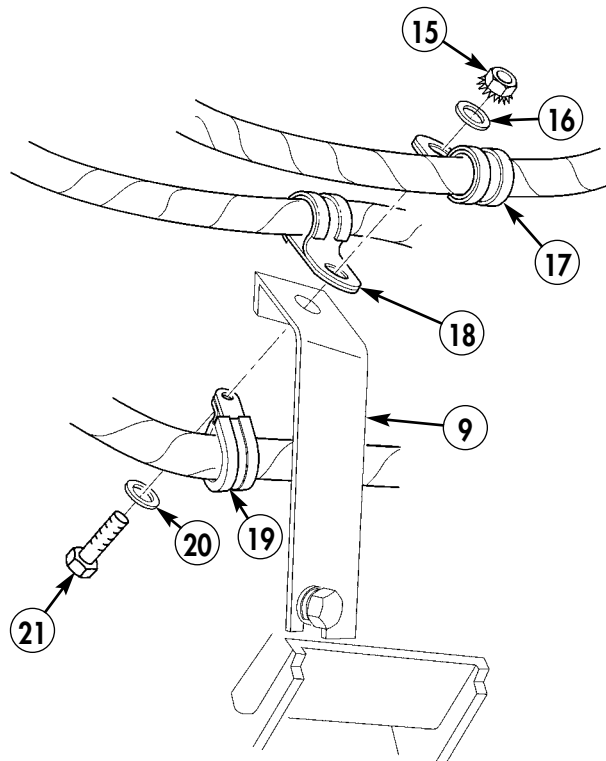
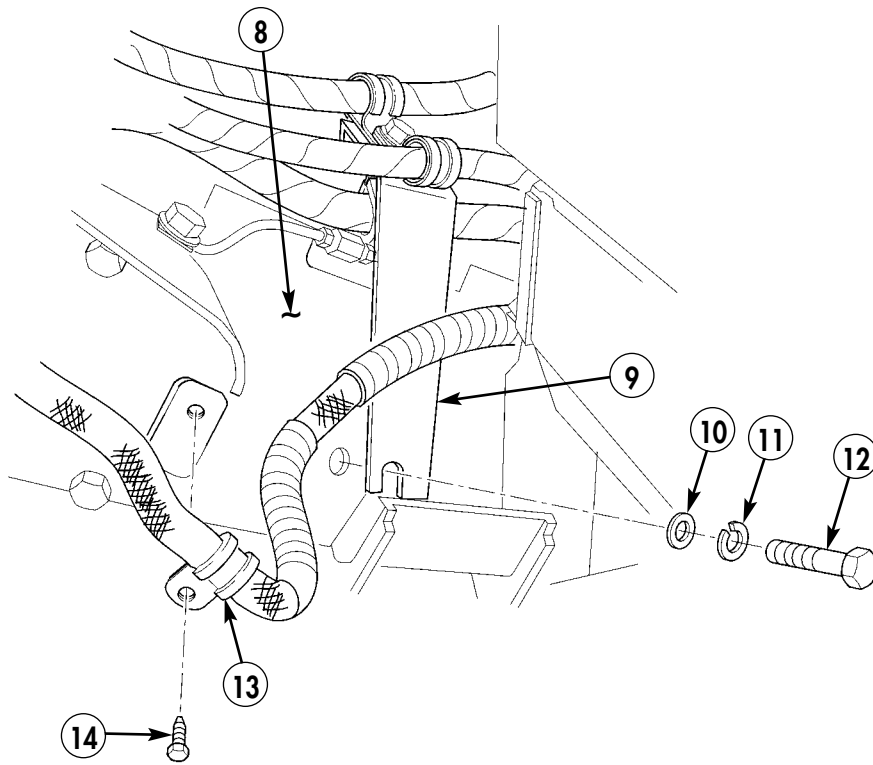
Unit

a. Removal

1. Remove nut (1), lockwasher (2), washer (3), capscrew (6), washer (5), and bracket (4) from airlift bracket (7). Discard lockwasher (2).
2. Remove capscrew (14) and clamp (13) from frame (8).
3. Remove capscrew (12), lockwasher (11), washer (10), and bracket (9) from frame (8). Discard lockwasher (11).
4. Remove nut and washer assembly (15), capscrew (21), washers (16) and (20), and clamps (17), (18), and (19) from bracket (9).



**8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES
REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES
REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

WARNING

Do not drain fluid when engine is hot. Severe injury to personnel may result.

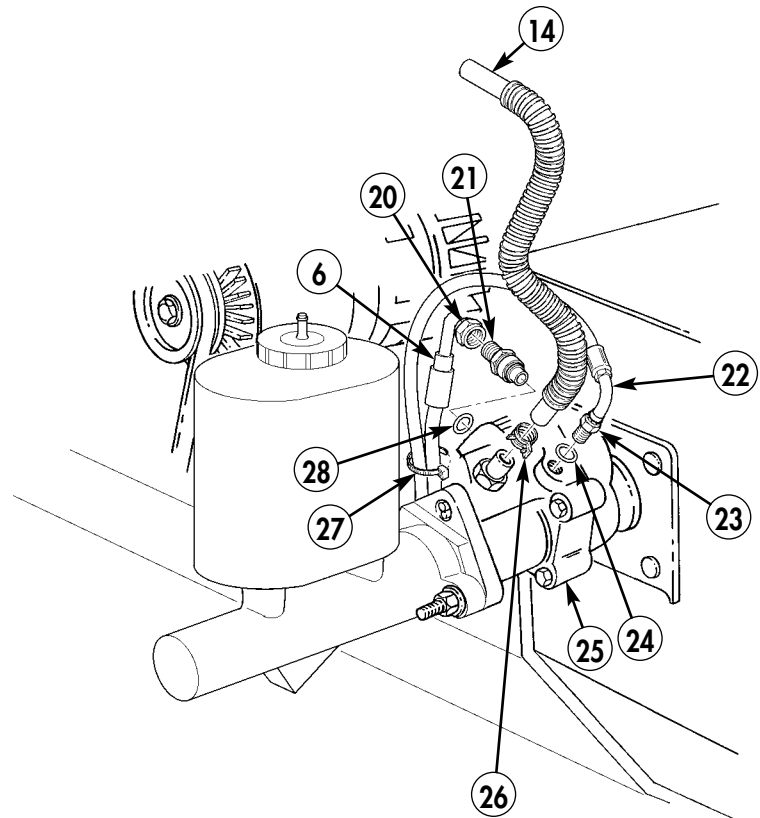
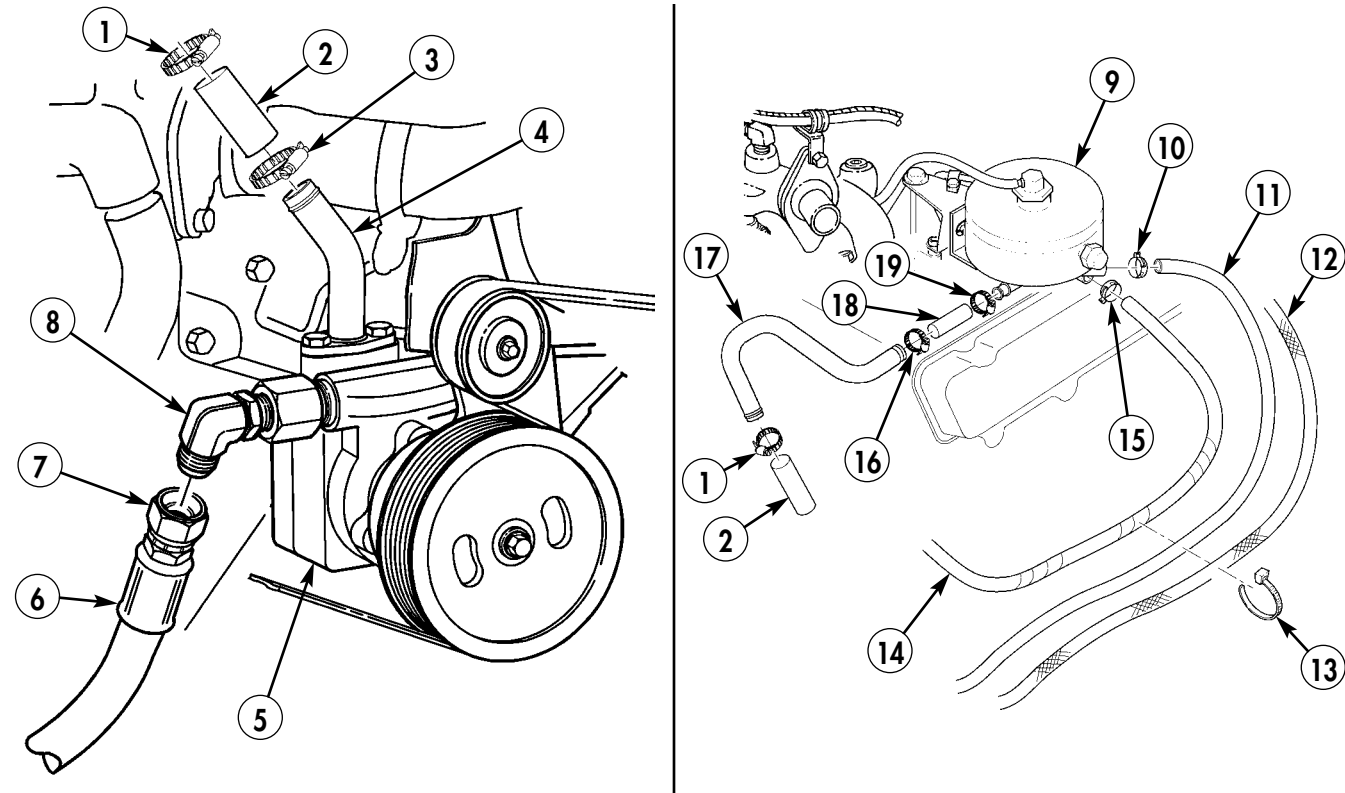
CAUTION

Cover or plug all hoses and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.

NOTE

- Use suitable container to catch power steering fluid.
 - Mark return hoses for installation.
5. Loosen nut (7) and disconnect pressure hose (6) from elbow (8) on power steering pump (5). Drain power steering fluid.
 6. Loosen clamp (3) and disconnect return hose (2) from tube (4) on power steering pump (5).
 7. Loosen clamp (1) and disconnect return hose (2) from return tube (17).
 8. Loosen clamp (10) and remove return hose (11) from reservoir (9).
 9. Loosen clamp (15) and remove return hose (14) from reservoir (9).
 10. Loosen clamps (16) and (19) and remove return hose (18) from reservoir (9) and return tube (17).
 11. Remove tie strap (13) from return hose (11), return hose (14), and wiring harness (12).
 12. Loosen nut (20) and disconnect pressure hose (6) from hydro-boost (25).
 13. Remove tie strap (27) from pressure hoses (6) and (22).
 14. Remove adapter (21) and O-ring (28) from hydro-boost (25). Discard O-ring (28).
 15. Loosen nut (23) and disconnect pressure hose (22) from hydro-boost (25).
 16. Remove O-ring (24) from hydro-boost (25). Discard O-ring (24).
 17. Loosen clamp (26) and remove return hose (14) from hydro-boost (25).

8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



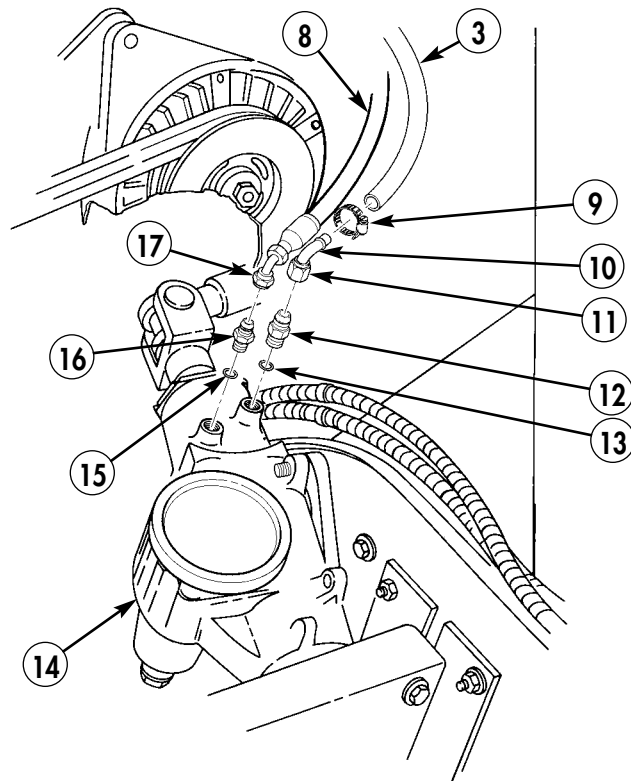
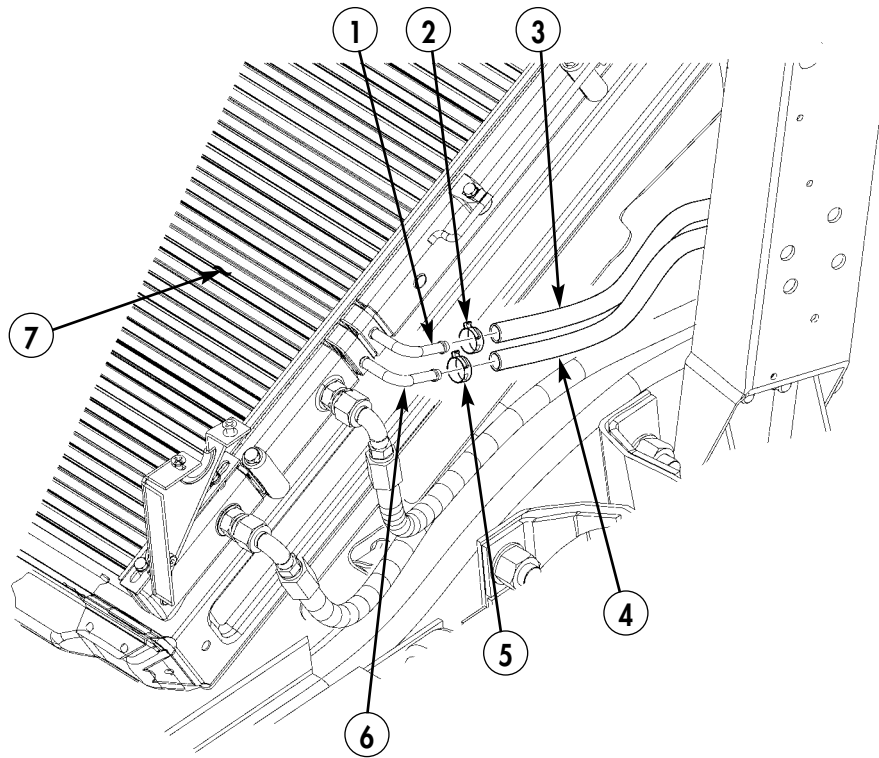
**8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES
REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

18. Loosen clamp (2) and remove return hose (3) from outlet tube (1) of oil cooler (7).
19. Loosen clamp (5) and remove return hose (4) from inlet tube (6) of oil cooler (7).
20. Loosen nut (17) and disconnect pressure hose (8) from steering gear inlet adapter (16).
21. Remove steering gear inlet adapter (16) and O-ring (15) from steering gear (14). Discard O-ring (15).
22. Loosen nut (11) and disconnect return hose (3) from steering gear outlet adapter (12).
23. Remove steering gear outlet adapter (12) and O-ring (13) from steering gear (14). Discard O-ring (13).
24. Loosen clamp (9) and disconnect return hose (3) from 90° fitting (10).

b. Installation

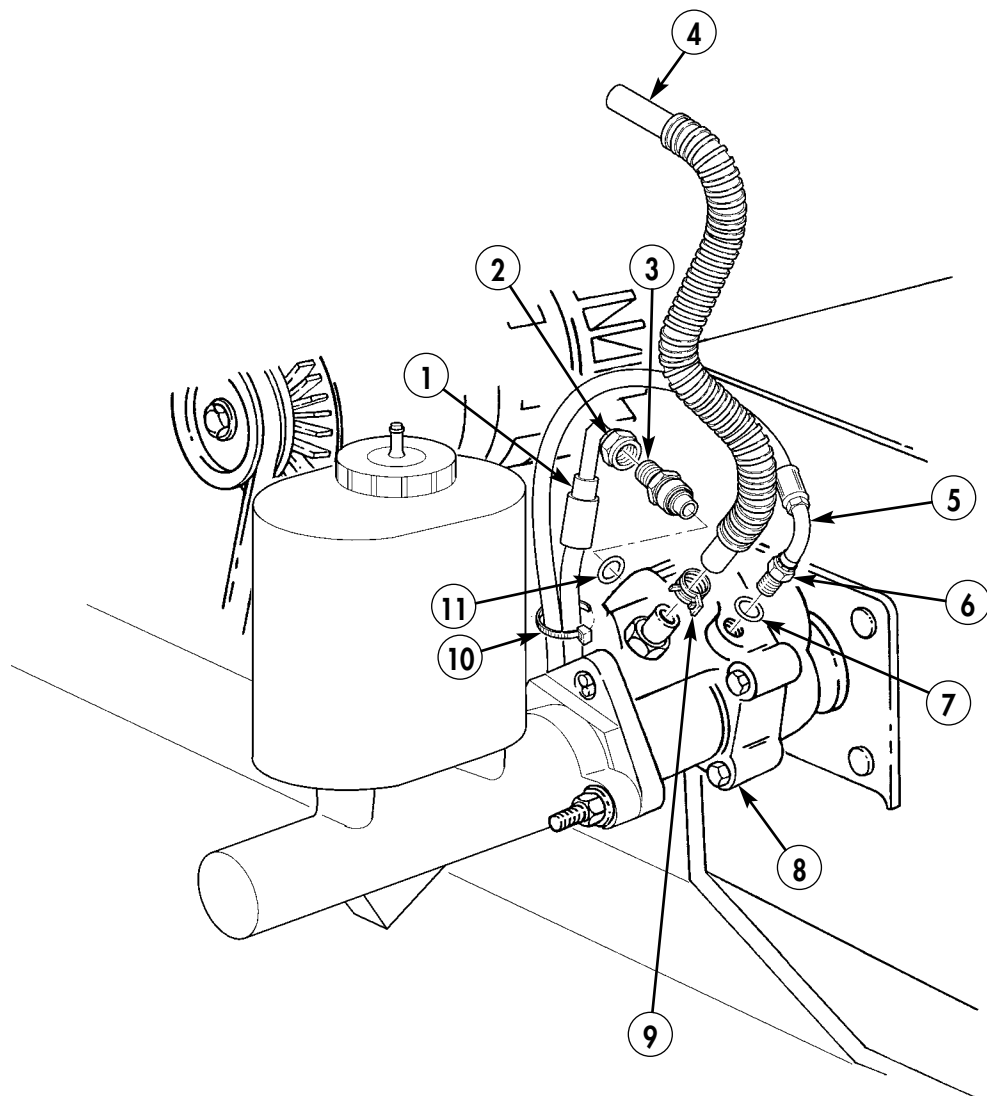
1. Connect return hose (3) on 90° fitting (10) with clamp (9).
2. Install steering gear outlet adapter (12) and O-ring (13) on steering gear (14).
3. Connect return hose (3) on steering gear outlet adapter (12) and tighten nut (11).
4. Install steering gear inlet adapter (16) and O-ring (15) on steering gear (14).
5. Connect pressure hose (8) on steering gear inlet adapter (16) and tighten nut (17).
6. Install return hose (4) on inlet tube (6) of oil cooler (7) and tighten clamp (5).
7. Install return hose (3) on outlet tube (1) of oil cooler (7) and tighten clamp (2).

8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

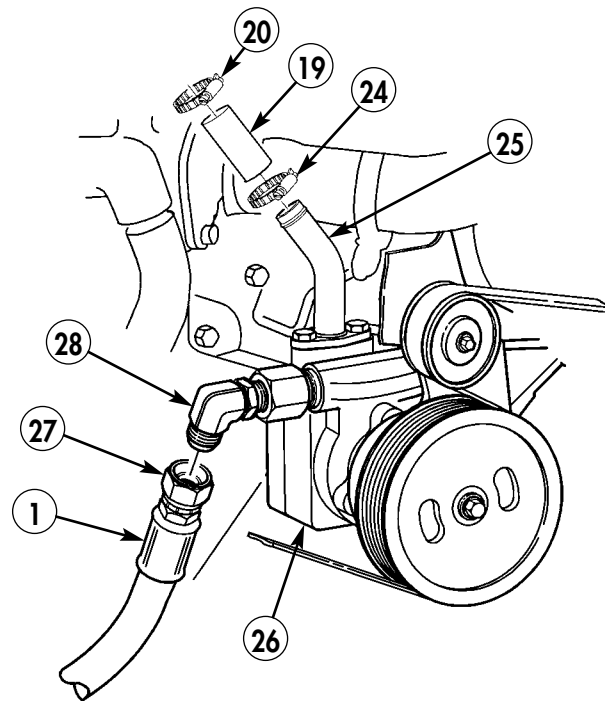
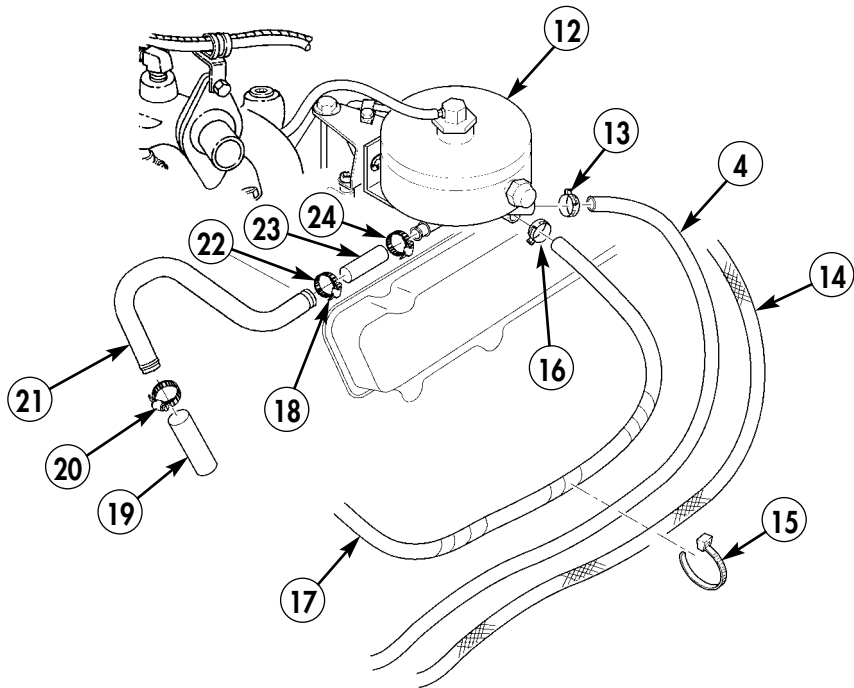


8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

8. Install return hose (4) on hydro-boost (8) and tighten clamp (9).
9. Install O-ring (7) on hydro-boost (8).
10. Connect pressure hose (5) on hydro-boost (8) and tighten nut (6).
11. Install O-ring (11) and adapter (3) on hydro-boost (8).
12. Connect pressure hose (1) on adapter (3) and tighten nut (2).
13. Install tie strap (10) on pressure hoses (1) and (5).
14. Install tie strap (15) on return hoses (4) and (17) and harness (14).
15. Install return hose (22) on reservoir (12) and return tube (21) and tighten clamps (18) and (23).
16. Install return hose (4) on reservoir (12) and tighten clamp (13).
17. Install return hose (17) on reservoir (12) and tighten clamp (16).
18. Connect return hose (19) to return tube (21) and return tube (25) of power steering pump (26) and tighten clamps (20) and (24).
19. Connect pressure hose (1) to elbow (28) of power steering pump (26) and tighten nut (27).

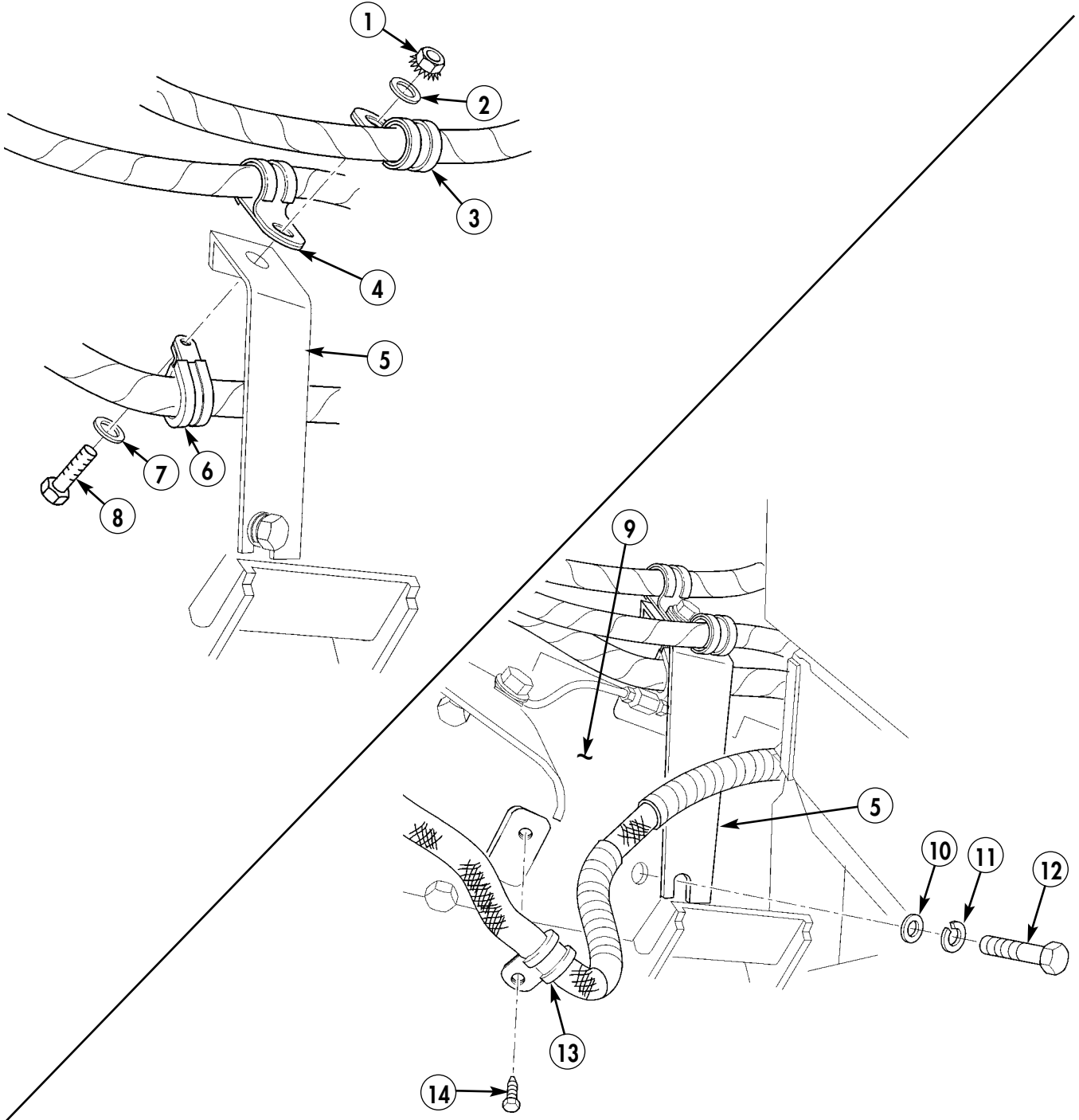


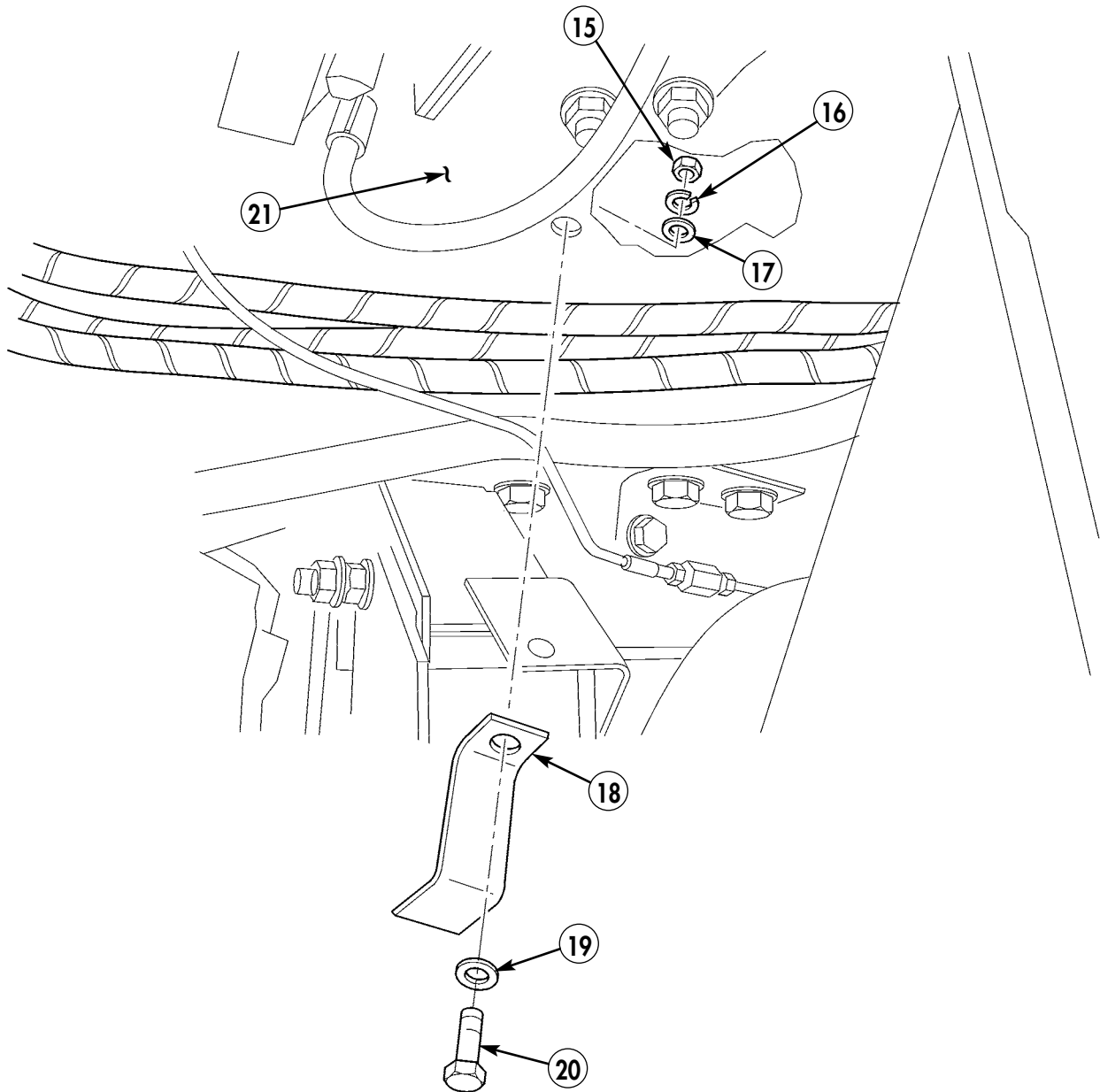
8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

20. Install clamps (6), (4), and (3) on bracket (5) with capscrew (8), washers (7) and (2), and nut and washer assembly (1).
21. Install bracket (5) on frame (4) with washer (10), lockwasher (11), and capscrew (12).
22. Install clamp (13) on frame (9) with capscrew (14).
13. Install bracket (18) on airlift bracket (21) with washer (19), capscrew (20), washer (17), lockwasher (16), and nut (15).



**8-24.2. POWER STEERING HYDRAULIC SYSTEM PRESSURE AND RETURN HOSES
REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

- FOLLOW-ON TASKS:**
- Bleed power steering system (TM 9-2320-387-24-1).
 - Connect battery ground cables (TM 9-2320-387-24-1).
 - Lower and secure hood (TM 9-2320-387-10).

CHAPTER 9

FRAME (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the frame system that are specific to your REV vehicle.

9-5.1. RADIATOR FRONT MOUNT BRACKET REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two locknuts (Appendix A, Item 114.4)
 Locknut (Appendix A, Item 114.3)

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

Horn removed (para. 4-26.1).

Maintenance Level

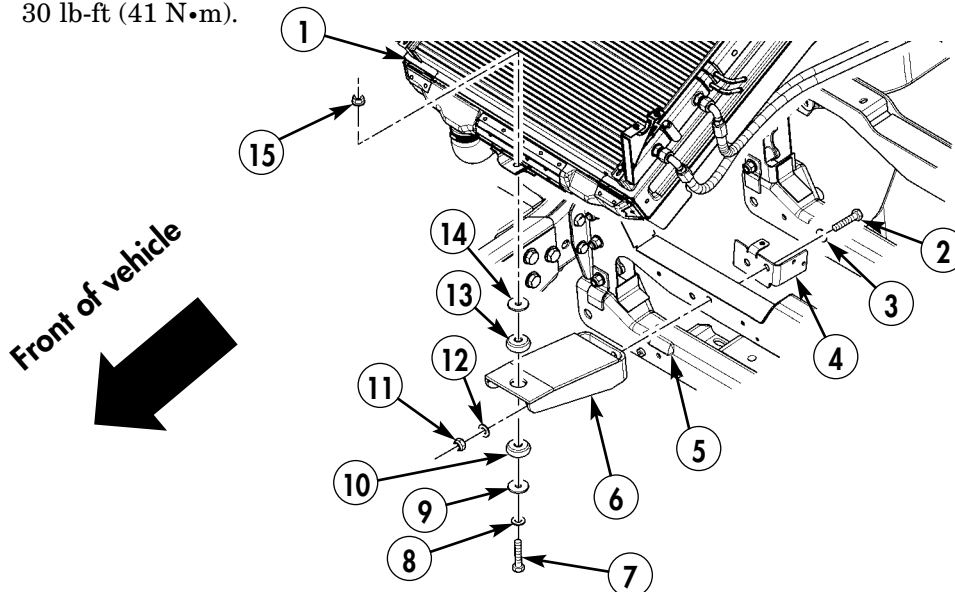
Unit

a. Removal

1. Remove locknut (15), capscrew (7), washer (8), washer (9), insulator (10), washer (14), and insulator (13) from radiator (1) and front mount bracket (6). Discard locknut (15).
2. Remove two locknuts (11), washers (12), capscrews (2), washers (3), front mount bracket (6), and bracket (4) from front suspension crossmember (5). Discard locknuts (11).

b. Installation

1. Install bracket (4) and front mount bracket (6) on front suspension crossmember (5) with two washers (3), capscrews (2), washers (12), and locknuts (11). Tighten locknut (11) to 90 lb-ft (122 N•m).
2. Secure front mount bracket (6) to radiator (1) with insulator (10), washer (9), washer (8), capscrew (7), insulator (13), washer (14), and locknut (15). Tighten locknut (15) to 30 lb-ft (41 N•m).



FOLLOW-ON TASK: Install horn (para. 4-26.1).

9-7. REAR BUMPER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Sixteen locknuts (Appendix A, Item 85)
 Six assembled locknuts (Appendix A, Item 134)
 Two cotter pins (Appendix A, Item 22)
 Two cotter pins (Appendix A, Item 24)
 Two spring washers (Appendix A, Item 318.1)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24P

Equipment Condition

- Spare tire carrier removed (para. 10-96).
- Towing pintle removed (para. 9-9.1).

Maintenance Level

Unit

a. Removal

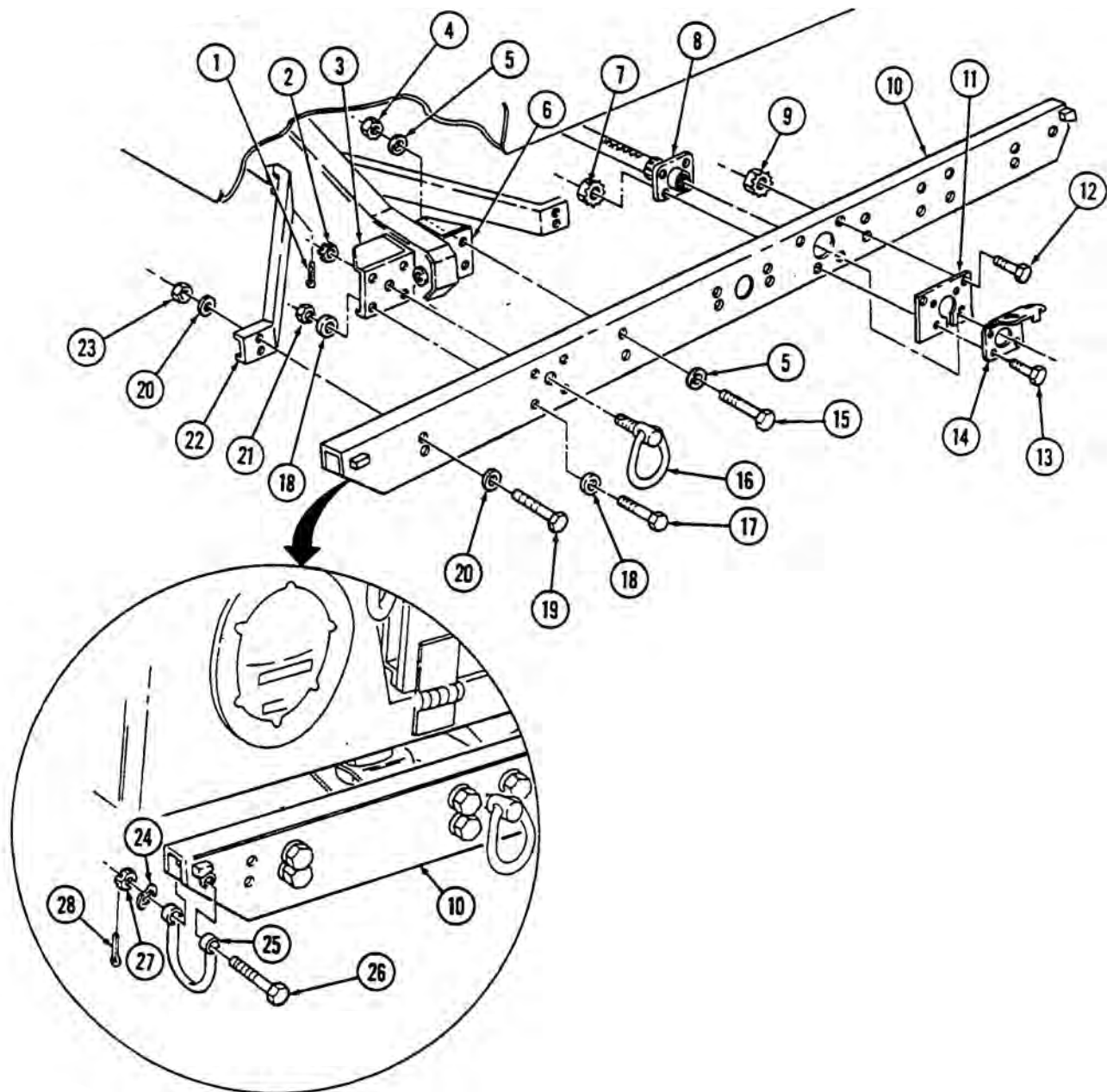
1. Remove four assembled locknuts (7), capscrews (13), and trailer receptacle cover (14) from trailer receptacle (8). Discard assembled locknuts (7).
2. Remove two assembled locknuts (9), capscrews (12), plate (11), and trailer receptacle (8) from rear bumper (10). Discard assembled locknuts (9).
3. Remove four locknuts (23), washers (20), capscrews (19), and washers (20) from rear bumper (10) and two braces (22). Discard locknuts (23).
4. Remove two cotter pins (1), nuts (2), and tiedown rings (16) from rear bumper (10) and two mounting brackets (3). Discard cotter pins (1).
5. Remove two cotter pins (28), nuts (27), spring washers (24), capscrews (26), and shackles (25) from rear bumper (10). Discard cotter pins (28) and spring washers (24).
6. Remove eight locknuts (21), washers (18), capscrews (17), and washers (18) from rear bumper (10) and two mounting brackets (3). Discard locknuts (21).
7. Remove four locknuts (4), washers (5), capscrews (15), washers (5), and rear bumper (10) from two inner mounting brackets (6). Discard locknuts (4).

b. Installation

1. Install rear bumper (10) on two inner mounting brackets (6) with four washers (5), capscrews (15), washers (5), and locknuts (4). Tighten locknuts (4) to 90 lb-ft (122 N•m).
2. Install rear bumper (10) on two mounting brackets (3) with eight washers (18), capscrews (17), washers (18), and locknuts (21). Tighten locknuts (21) to 90 lb-ft (122 N•m).
3. Install two shackles (25) on rear bumper (10) with two capscrews (26), spring washers (24), and slotted nuts (27). Tighten slotted nuts (27) to 15-20 lb-ft (20-27 N•m).
4. Back off two slotted nuts (27) to align with hole in capscrews (26) and install two cotter pins (28) in slotted nuts (27).

9-7. REAR BUMPER REPLACEMENT (Cont'd)

5. Install two tiedown rings (16) on rear bumper (10) and two mounting brackets (3) with nuts (2). Tighten nuts (2) to 16 lb-ft (22 N•m), back off to the nearest cotter pin (1) slot, and install two cotter pins (1).
6. Install rear bumper (10) on two braces (22) with four washers (20), capscrews (19), washers (20), and locknuts (23). Tighten locknuts (23) to 90 lb-ft (122 N•m).
7. Install plate (11) and trailer receptacle (8) on rear bumper (10) with two capscrews (12) and assembled locknuts (9). Tighten assembled locknuts (9) to 8 lb-ft (11 N•m).
8. Install trailer receptacle cover (14) on trailer receptacle (8) and rear bumper (10) with four capscrews (13) and assembled locknuts (7). Tighten assembled locknuts (7) to 8 lb-ft (11 N•m).



- FOLLOW-ON TASKS:
- Install towing pintle (para. 9-9.1).
 - Install spare tire carrier (10-96).

9-9.1. TOWING PINTLE MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Removal b. Disassembly c. Cleaning | <ul style="list-style-type: none"> d. Assembly e. Installation |
|---|--|

INITIAL SETUP:

Tools

- General mechanic's tool kit:
 - automotive (Appendix B, Item 1)
- Maintenance and repair shop equipment:
 - automotive (Appendix B, Item 2)

Materials/Parts

- Two locknuts (Appendix A, Item 86)
- Two cotter pins (Appendix A, Item 25)
- Drivescrew (Appendix A, Item 30)
- Eight locknuts (Appendix A, Item 114.4)
- Drycleaning solvent (Appendix C, Item 26)

Manual References

- TM 9-2320-387-10
- TM 9-2320-387-24P

General Safety Instructions

- Drycleaning solvent is flammable and will not be used near an open flame.

Maintenance Level

- Unit

a. Removal

1. Remove cotter pin (18), slotted nut (17), washer (16), and towing pintle (7) from rear bumper (3). Discard cotter pin (18).
2. Remove four locknuts (15), washers (14), capscrews (8), washers (9), two support plates (12) and (6), backing plate (13), and safety chain plate (5) from rear bumper (3). Discard locknuts (15).
3. Remove four locknuts (1), washers (2), capscrews (10), washers (11), and reinforcement plate (4) from rear bumper (3). Discard locknuts (1).

b. Disassembly

1. Remove grease fitting (19) from backing plate (13).
2. Remove cotter pin (21) from towing pintle latch (26).
3. Remove locknut (27), capscrew (25), pintle latch lock (23), and spring (22) from towing pintle latch (26). Discard locknut (27).
4. Remove locknut (31), capscrew (24), and pintle latch (26) from towing pintle hook (28). Discard locknut (31).
5. Remove cotter pin (21) from pintle lock chain hook (20). Discard cotter pin (21).
6. Remove drivescrew (30) and pintle lock chain (29) from towing pintle hook (28). Discard drivescrew (30).

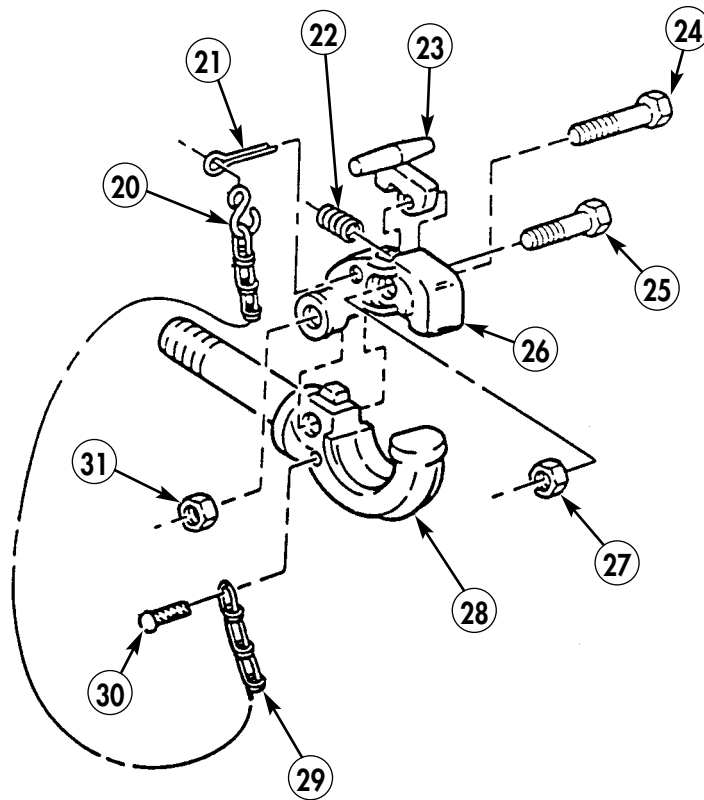
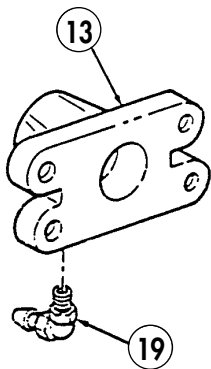
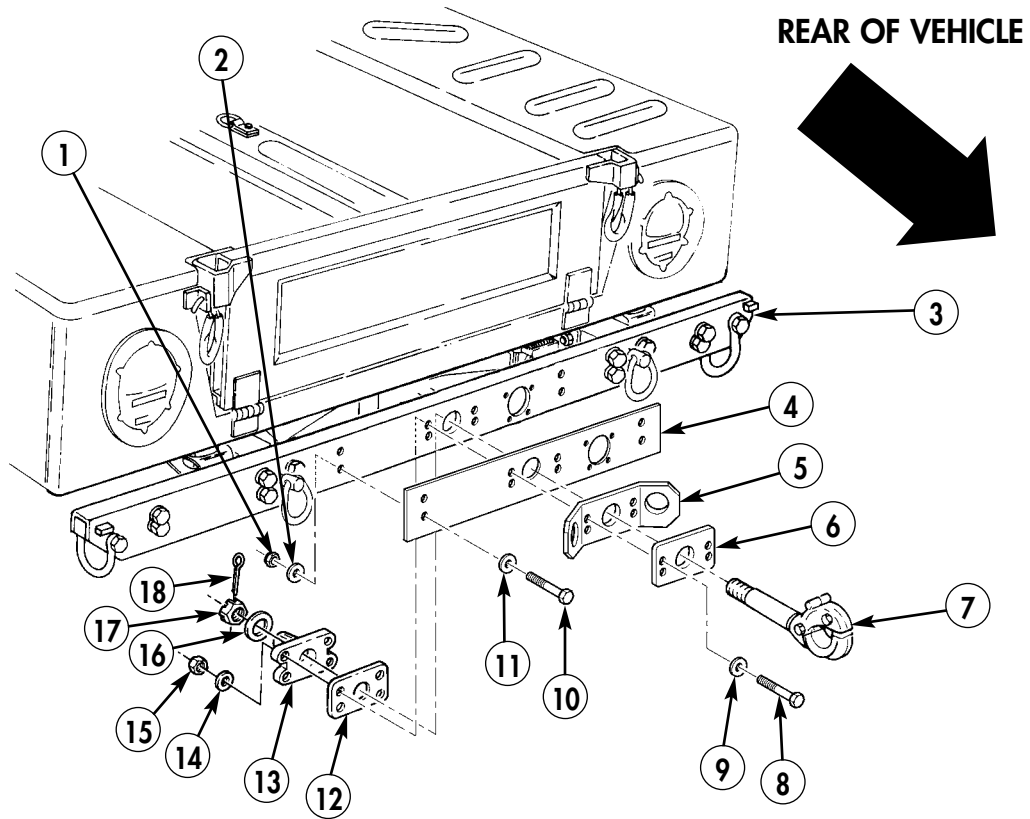
c. Cleaning

WARNING

Drycleaning solvent is flammable and must not be used near an open flame. A fire extinguisher must be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to comply may result in injury to personnel or damage to equipment.

Clean all metallic parts with drycleaning solvent.

9-9.1. TOWING PINTLE MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



9-9.1. TOWING PINTLE MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

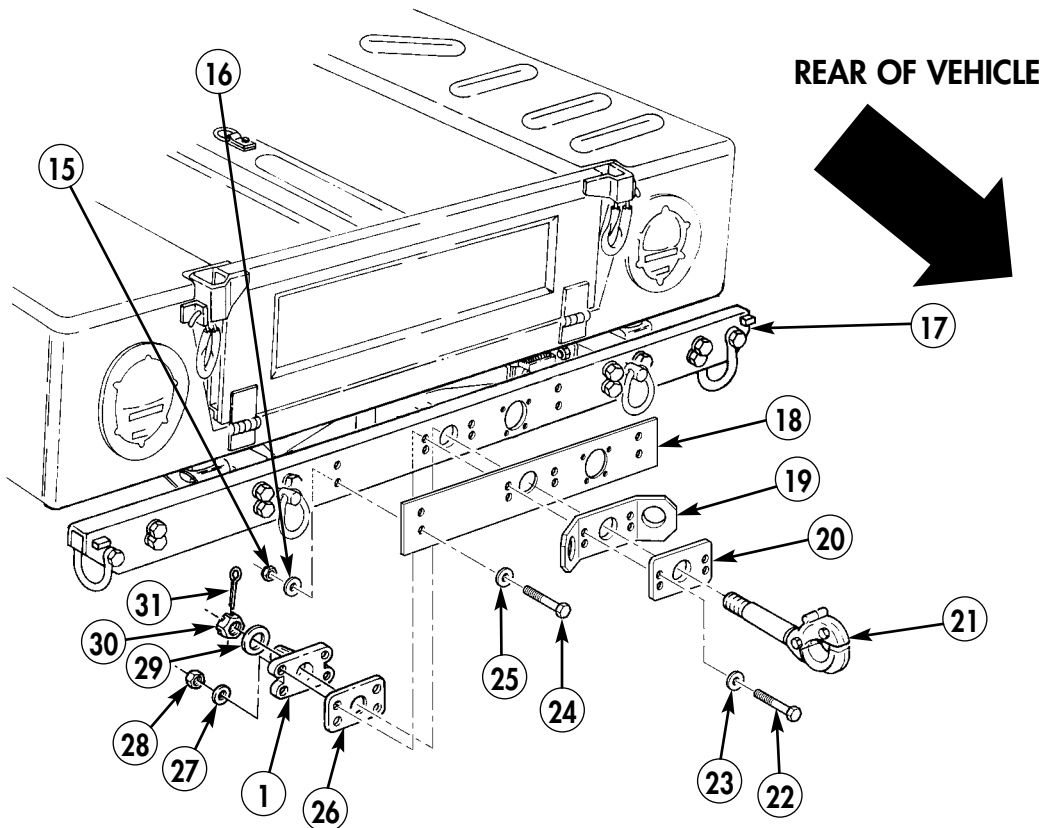
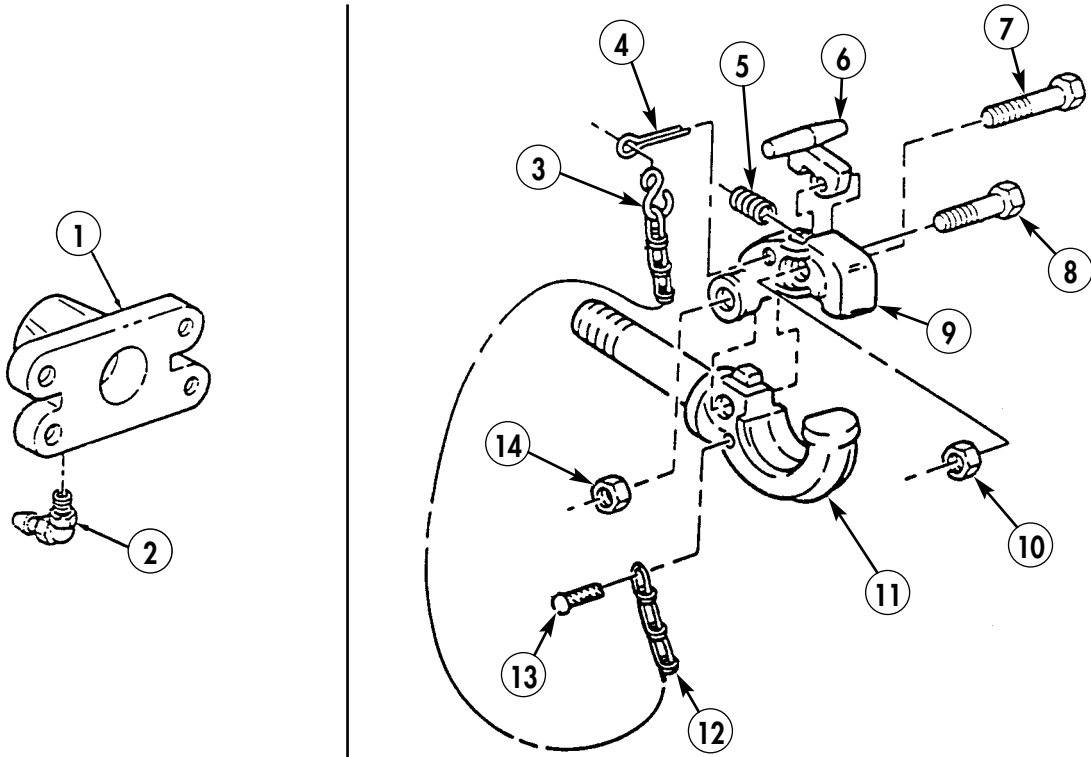
d. Assembly

1. Install pintle lock chain (12) on towing pintle hook (11) with drivescrew (13).
2. Install cotter pin (4) on pintle lock chain hook (3).
3. Install towing pintle latch (9) on towing pintle hook (11) with capscrew (8) and locknut (14). Tighten locknut (14) to 15 lb-ft (20 N•m).
4. Install pintle latch lock (6) on towing pintle latch (9) with spring (5), capscrew (7), and locknut (10). Tighten locknut (10) to 15 lb-ft (20 N•m).
5. Install pintle lock chain hook (3) on towing pintle latch (9) with cotter pin (4).
6. Install grease fitting (2) on backing plate (1).

e. Installation

1. Install reinforcement plate (18) on rear bumper (17) with four washers (25), capscrews (24), washers (16), and locknuts (15).
2. Install safety chain plate (19), support plate (20), support plate (26), and backing plate (1) on rear bumper (17) with four washers (25), capscrews (24), washers (27), and locknuts (28). Tighten locknuts (28) to 90 lb-ft (122 N•m).
3. Install towing pintle (21) on rear bumper (17) with washer (29), and slotted nut (30).
4. Loosen slotted nut (30) if towing pintle (21) will not rotate easily. Install cotter pin (31) in slotted nut (30).

9-9.1. TOWING PINTLE MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



FOLLOW-ON TASK: Lubricate rear-mounted towing pintle (TM 9-2320-387-10).

CHAPTER 10

BODY AND ACCESSORIES (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the body system that are specific to your REV vehicle.

10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

- a. Removal
- b. Disassembly

- c. Assembly
- d. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Eight locknuts (Appendix A, Item 76)
 Nut and lockwasher assembly
 (Appendix A, Item 134)
 Four rivets (Appendix A, Item 262.1)
 Locknut (Appendix A, Item 106)
 Three locknuts (Appendix A, Item 82)
 Four lockwashers (Appendix A, Item 172)
 Lockwasher (Appendix A, Item 145)

Manual References

TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Battery ground cables disconnected (TM 9-2320-387-24-1).
- Hood prop rod and bracket removed (TM 9-2320-387-24-1).

General Safety Instructions

Hood must be supported during removal and installation.

Maintenance Level

Unit

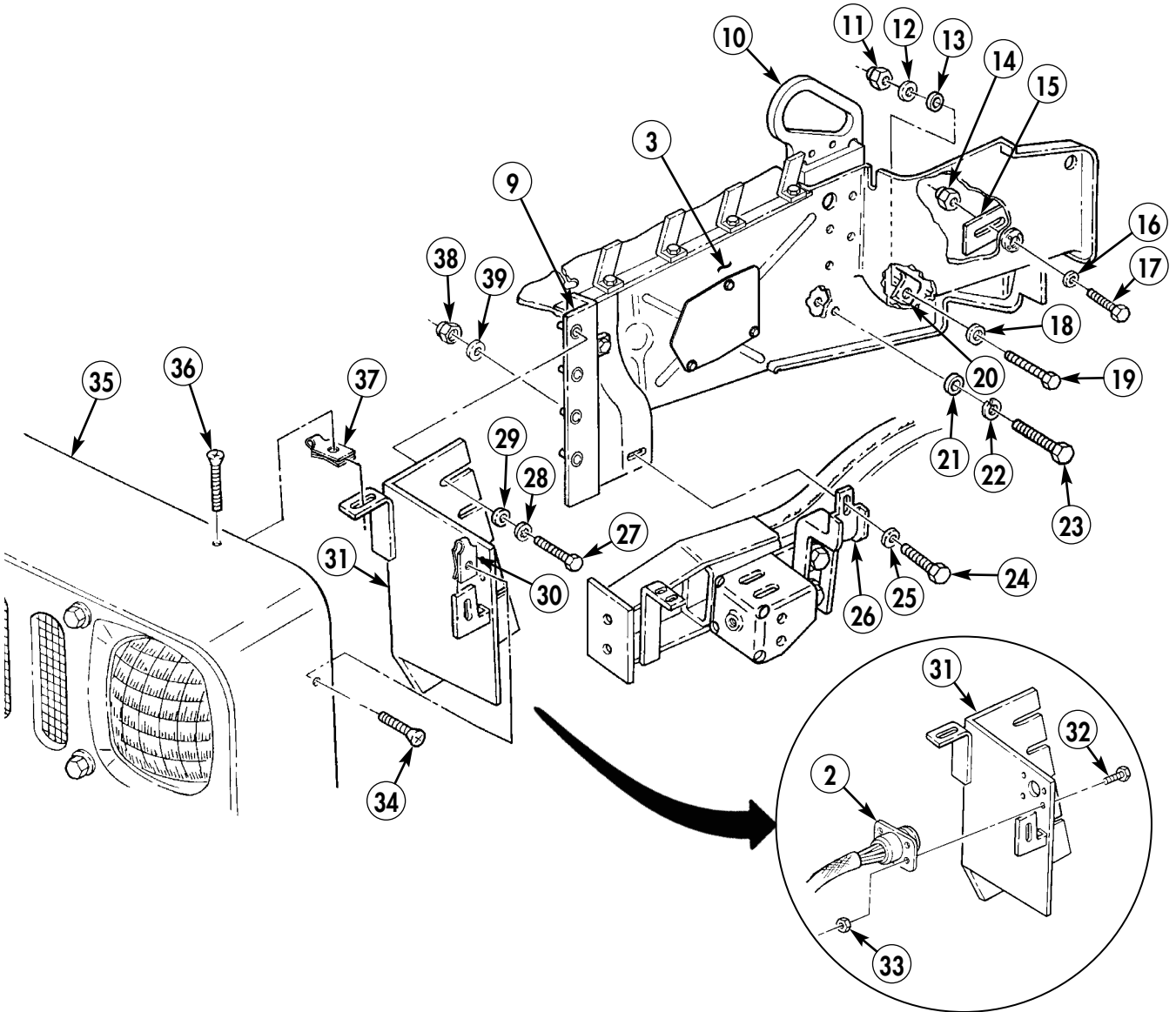
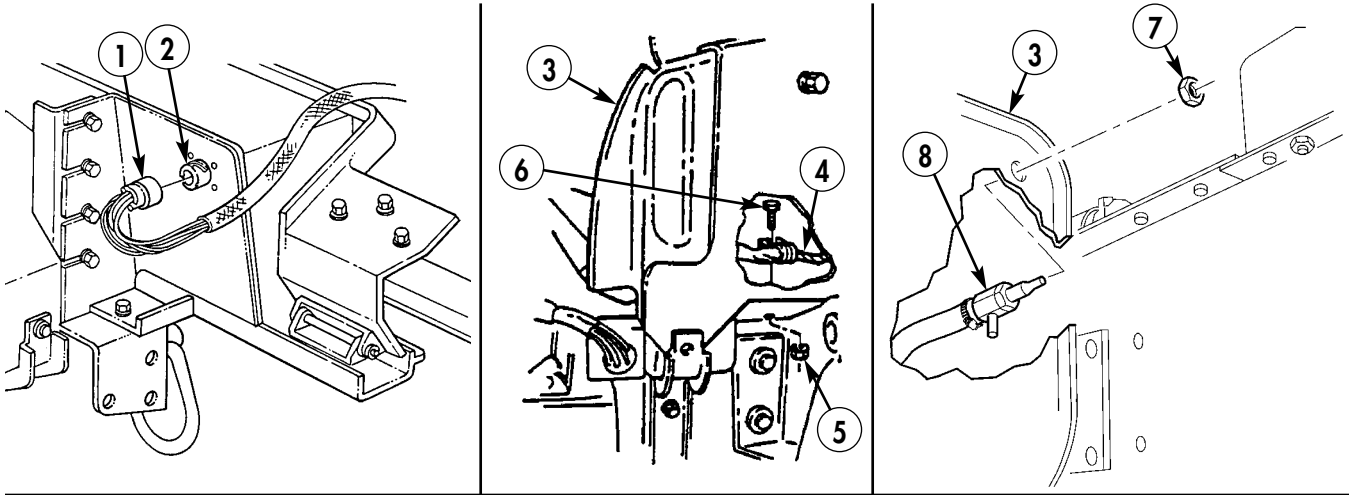
WARNING

Hood must be supported during removal and installation. Failure to support hood may cause injury to personnel or damage to equipment.

a. Removal

1. Disconnect hood harness (1) from connector (2).
2. Remove four capscrews (27), lockwashers (28), and washers (29) from plate (31) and splash shield bracket (9). Discard lockwashers (28).
3. Remove capscrews (34) and (36), plate (31), and spring nuts (30) and (37) from headlight housing (35).
4. Remove four nuts (33), capscrews (32), and connector (2) from plate (31).
5. Remove nut and lockwasher assembly (5), capscrew (6), and harness and clamp assembly (4) from splash shield (3). Discard nut and lockwasher assembly (5).
6. Remove nut (7) and valve (8) from splash shield (3).
7. Remove locknut (38), washer (39), capscrew (24), and washer (25) from support bracket (26) and splash shield (3). Discard locknut (38).
8. Remove capscrew (23), lockwasher (22), and washer (21) from airlift bracket (10) and splash shield (3). Discard lockwasher (22).
9. Remove locknut (11), washers (12) and (13), capscrew (19), and washer (18) from lower airlift bracket (20) and splash shield (3). Discard locknut (11).
10. Remove locknut (14), capscrew (17), and washer (16) from master cylinder bracket (15). Discard locknut (14) and remove splash shield (3) from vehicle.

**10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

b. Disassembly

1. Remove three locknuts (11), washers (12), capscrews (14), and bracket (13) from splash shield (1). Discard locknuts (11).
2. Remove five locknuts (10), washers (9), capscrews (17), four rubber guards (18), seal retainer (16), and seal (15) from splash shield (1). Discard locknuts (10).
3. Remove three capscrews (5), washers (6), cover (7), and spring nuts (8) from splash shield (1).
4. Remove four rivets (4), support (3), and reinforcement (2) from splash shield (1). Discard rivets (4).

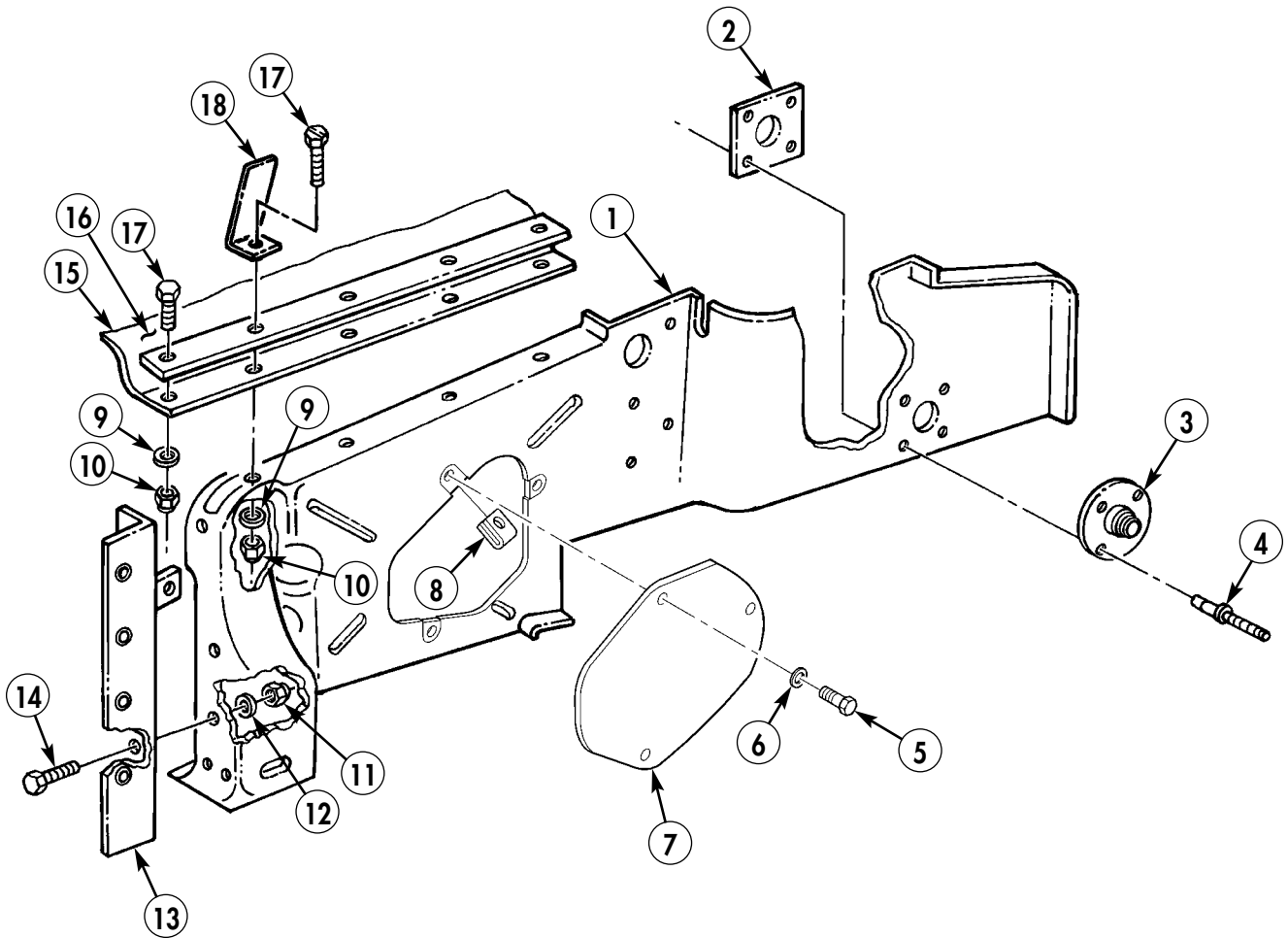
c. Assembly

NOTE

For rivet replacement instructions, refer to TM 9-2320-387-24-1.

1. Install support (3) and reinforcement (2) on splash shield (1) with four rivets (4).
2. Install cover (7) on splash shield (1) with three washers (6), capscrews (5), and spring nuts (18).
3. Install seal (15), seal retainer (16), and four rubber guards (18) on splash shield (1) with five capscrews (17), washers (9), and locknuts (10).
4. Install bracket (13) on splash shield (1) with three capscrews (14), washers (12), and locknuts (11).

**10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

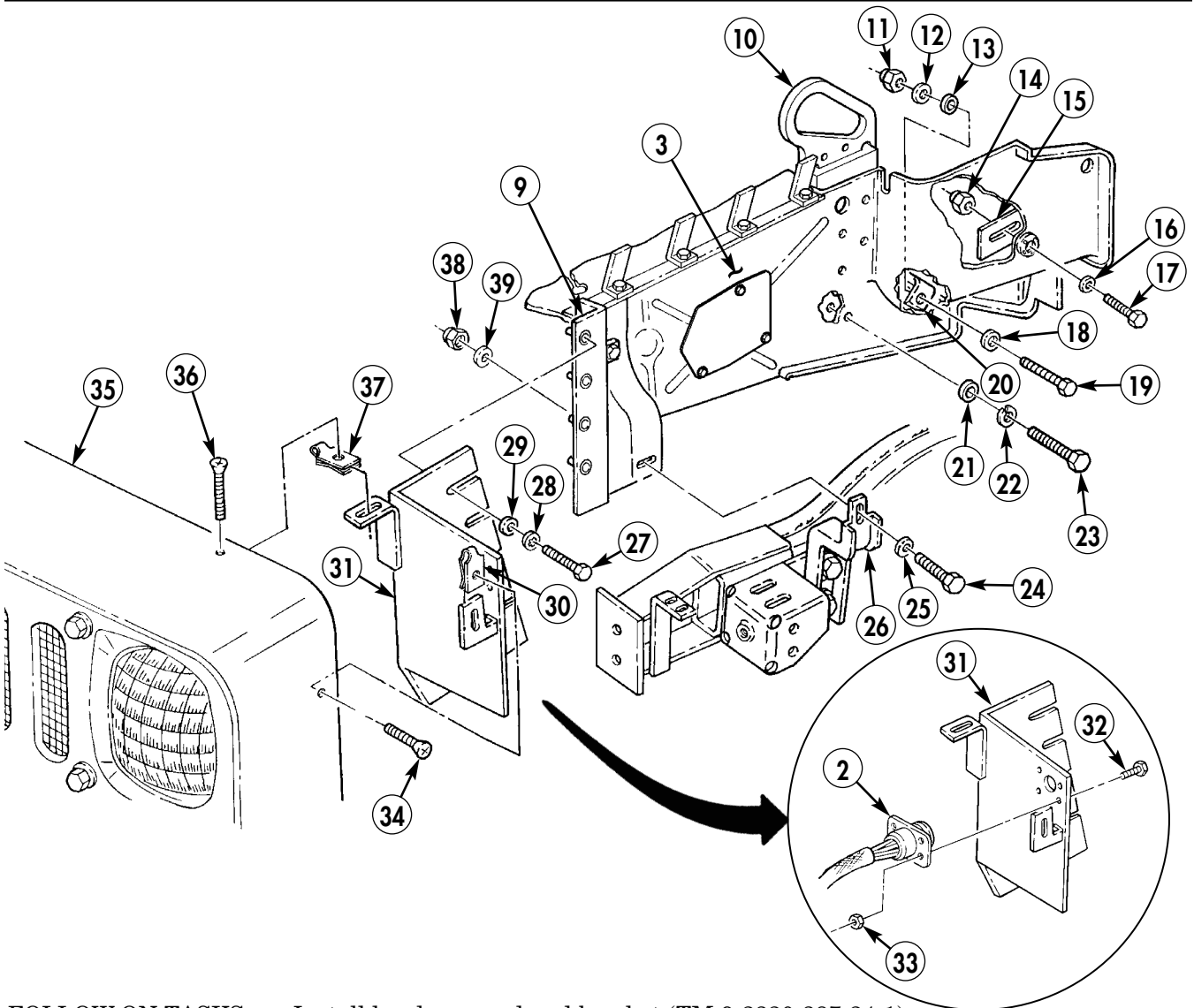
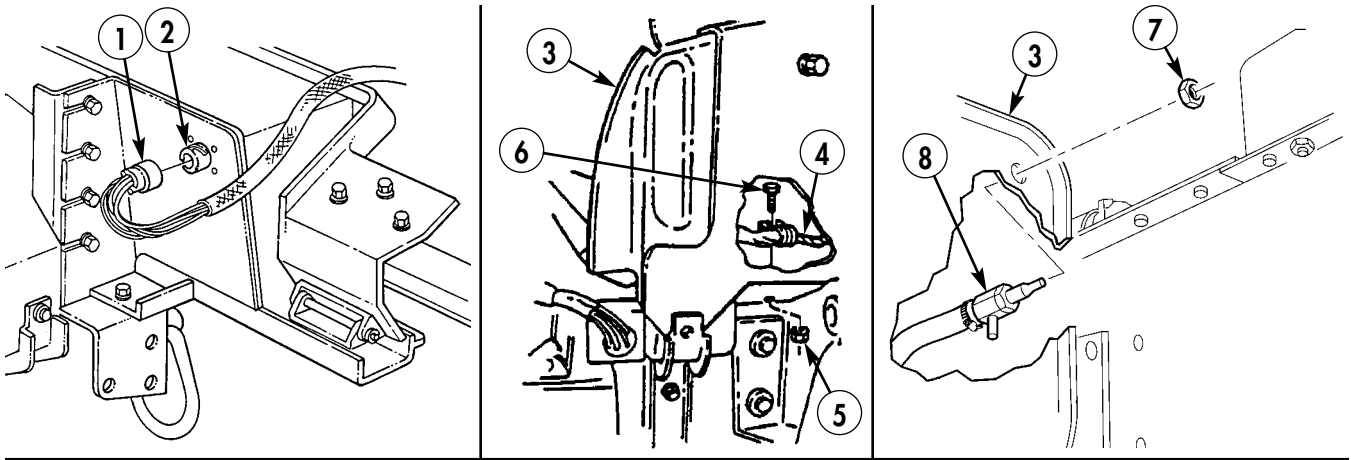


**10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

d. Installation

1. Install splash shield (3) on master cylinder bracket (15) with washer (16), capscrew (17), and locknut (14).
2. Install splash shield (3) on lower airlift bracket (20) with washer (18), capscrew (19), washers (13) and (12), and locknut (11).
3. Install splash shield (3) on airlift bracket (10) with washer (21), lockwasher (22), and capscrew (23).
4. Install splash shield (3) on support bracket (26) with washer (25), capscrew (24), washer (39), and locknut (38).
5. Install valve (8) on splash shield (3) with nut (7).
6. Install harness and clamp assembly (4) on splash shield (3) with capscrew (6) and nut and lockwasher assembly (5).
7. Install connector (2) on plate (31) with four capscrews (32) and nuts (33).
8. Install spring nuts (37) and (30) on plate (31).
9. Install plate (31) on headlight housing (35) with hex-head screws (36) and (34).
10. Install plate (31) on splash shield bracket (9) with four washers (29), lockwashers (28), and capscrews (27).
11. Connect hood harness (1) to connector (2).

**10-23.1. ENGINE LEFT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install hood prop rod and bracket (TM 9-2320-387-24-1).
 - Connect battery ground cables (TM 9-2320-387-24-1).

**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Disassembly

- c. Assembly
- d. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Eight locknuts (Appendix A, Item 76)
 Locknut (Appendix A, Item 77)
 Two locknuts (Appendix A, Item 82)
 Two lockwashers (Appendix A, Item 145)
 Four lockwashers (Appendix A, Item 172)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TB 9-2320-335-13&P, Appendix E

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Battery ground cables disconnected (TM 9-2320-387-24-1).

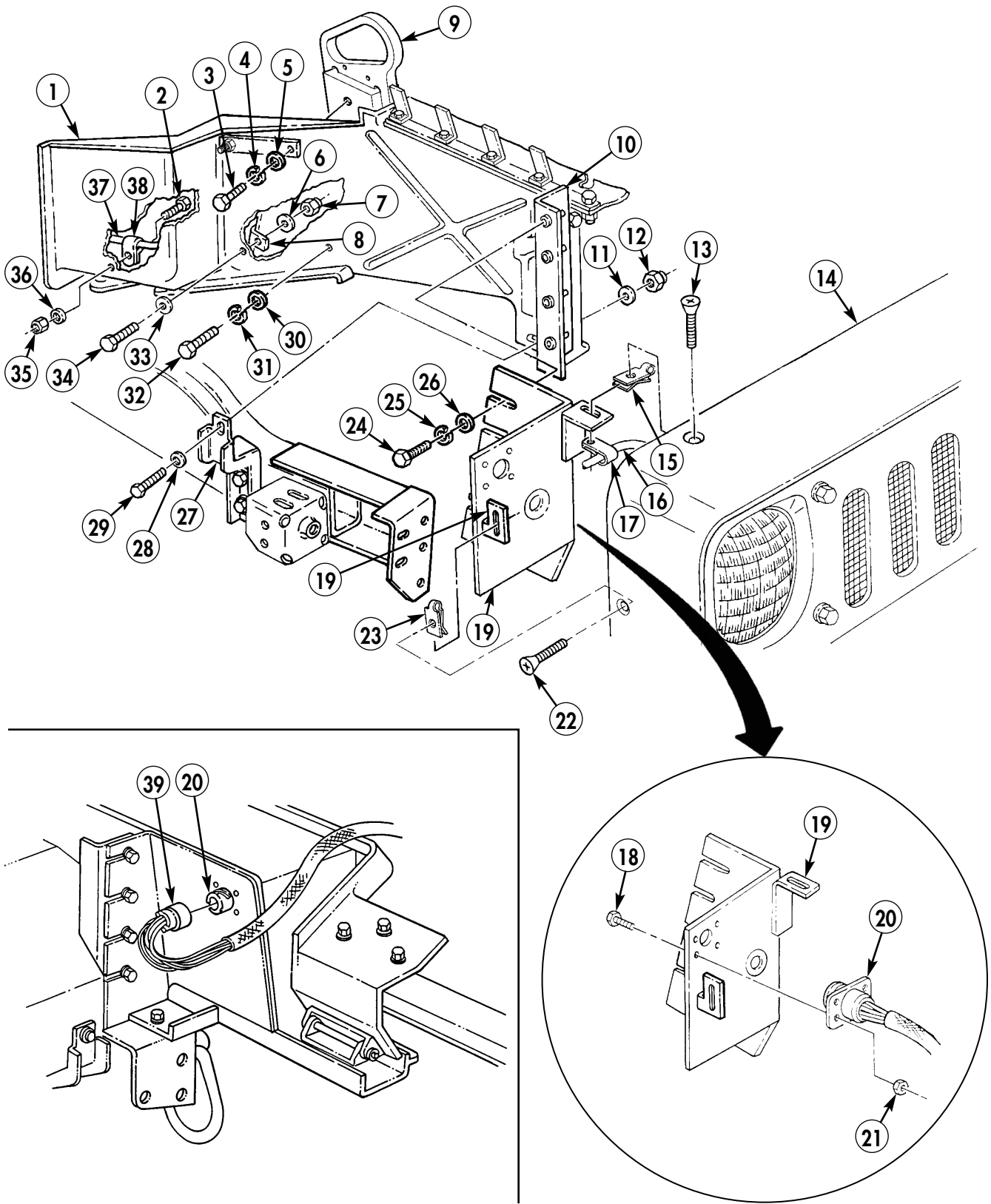
Maintenance Level

Unit

a. Removal

1. Disconnect hood harness (39) from connector (20).
2. Remove four capscrews (24), lockwashers (25), and washers (26) from splash shield bracket (10) and plate (19). Discard lockwashers (25).
3. Remove capscrews (13) and (22), harness (16), clamp (17), and plate (19) from headlight housing (14).
4. Remove four nuts (21), capscrews (18), and connector (20) from plate (19).
5. Remove locknut (12), washer (11), capscrew (29), and washer (28) from splash shield (1) and support bracket (27). Discard locknut (12).
6. Remove capscrew (32), lockwasher (31), and washer (30) from splash shield (1) and airlift bracket (9). Discard lockwasher (31).
7. Remove locknut (7), washer (6), capscrew (34), and washer (33) from splash shield (1) lower airlift bracket (8). Discard locknut (7).
8. Remove locknut (35), washer (36), capscrew (2), harness (37), and clamp (38) from splash shield (1). Discard locknut (35).
9. Remove capscrew (3), lockwasher (4), and washer (5) from airlift bracket (9). Discard lockwasher (4).

**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

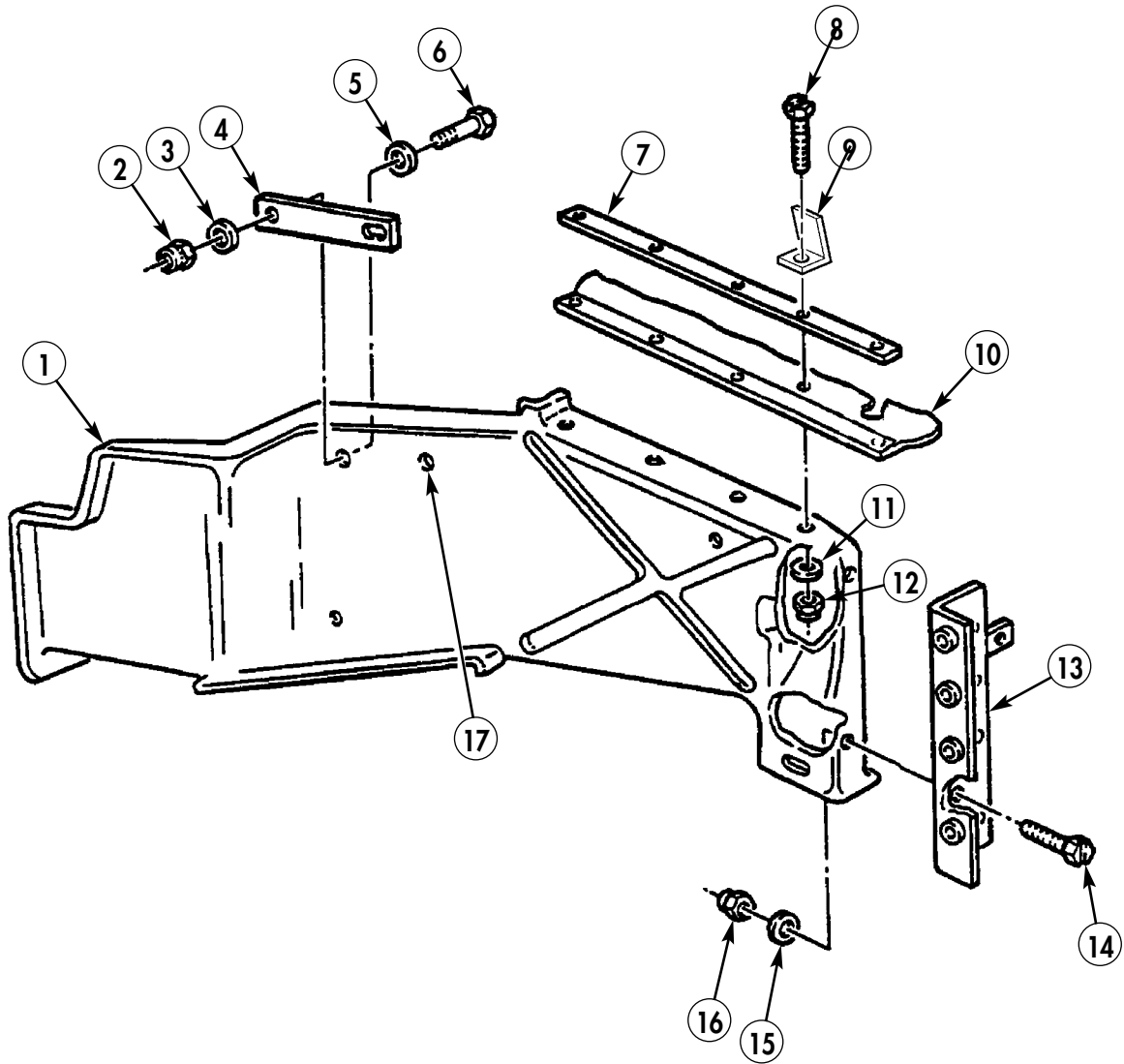
b. Disassembly

1. Remove locknut (2), washer (3), capscrew (6), washer (5), and bracket (4) from splash shield (1). Discard locknut (2).
2. Remove three locknuts (16), washers (15), capscrews (14), and support bracket (13) from splash shield (1). Discard locknuts (16).
3. Remove five locknuts (12), washers (11), capscrews (8), four rubber guards (9), seal retainer (7), and seal (10) from splash shield (1). Discard locknuts (12).

c. Assembly

1. Install seal (10), seal retainer (7), and four rubber guards (9) on splash shield (1) with five capscrews (8), washers (11), and locknuts (12).
2. Install support bracket (13) on splash shield (1) with three capscrews (14), washers (15), and locknuts (16).
3. Install bracket (4) on splash shield (1) with washer (5), capscrew (6), washer (3), and locknut (2). Ensure second hole in bracket (4) aligns with hole (17) in splash shield (1).

**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

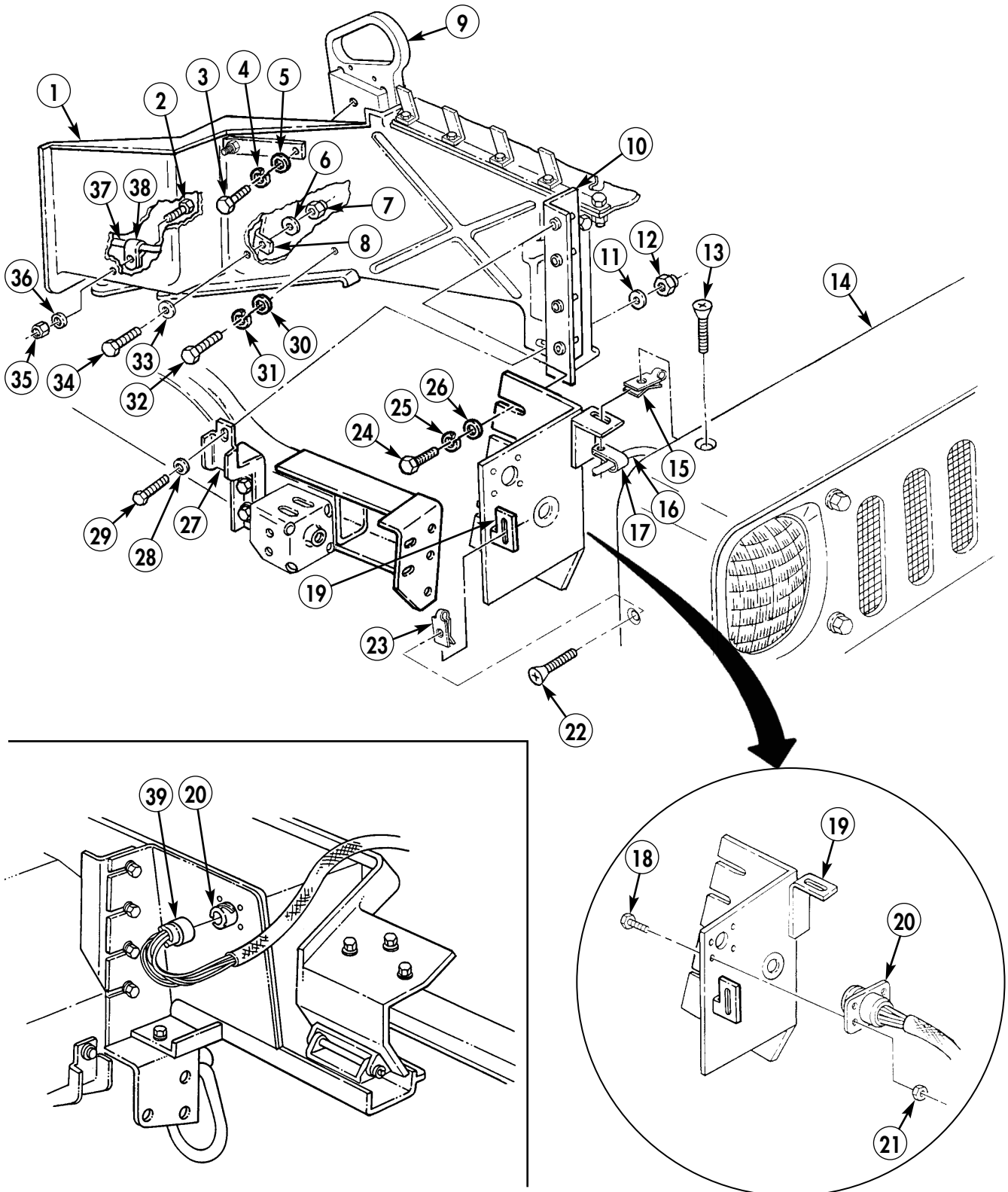


**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

d. Installation

1. Install splash shield (1) on airlift bracket (9) with washer (5), lockwasher (4), and capscrew (3).
2. Install harness (37) and clamp (38) on splash shield (1) with capscrew (2), washer (36), and locknut (35).
3. Install splash shield (1) on lower airlift bracket (8) with washer (33), capscrew (34), washer (6), and locknut (7).
4. Secure splash shield (1) to airlift bracket (9) with washer (30), lockwasher (31), and capscrew (32). Tighten capscrew (32) to 15 lb-ft (20 N·m).
5. Install splash shield (1) on support bracket (27) with washer (28), capscrew (29), washer (11), and locknut (12).
6. Install connector (20) on plate (19) with four capscrews (18) and nuts (21).
7. Install spring nuts (15) and (23) on plate (19).
8. Install plate (19) on headlight housing (14) with hex-head screws (13) and (22), harness (16), and clamp (17).
9. Install plate (19) on splash shield (1) with four washers (26), lockwashers (25), and capscrews (24).
10. Connect hood harness (39) to connector (20).

**10-24.1. ENGINE RIGHT SPLASH SHIELD MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASKS:

- Connect battery ground cables (TM 9-2320-387-24-1).
- Lower and secure hood (TM 9-2320-387-10).

**10-58.4. PARKING BRAKE ACCESS COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Inspection
- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Four lockwashers (Appendix G, Item 146)

Manual References

TB 9-2320-335-13&P, Appendix E

Equipment Condition

Shelter removed (if applicable)
(TM 9-2320-387-24-2)

Maintenance Level

Unit

a. Removal

Remove four capscrews (2), lockwashers (3), washers (1), and access cover (4) from body (6). Discard lockwashers (3).

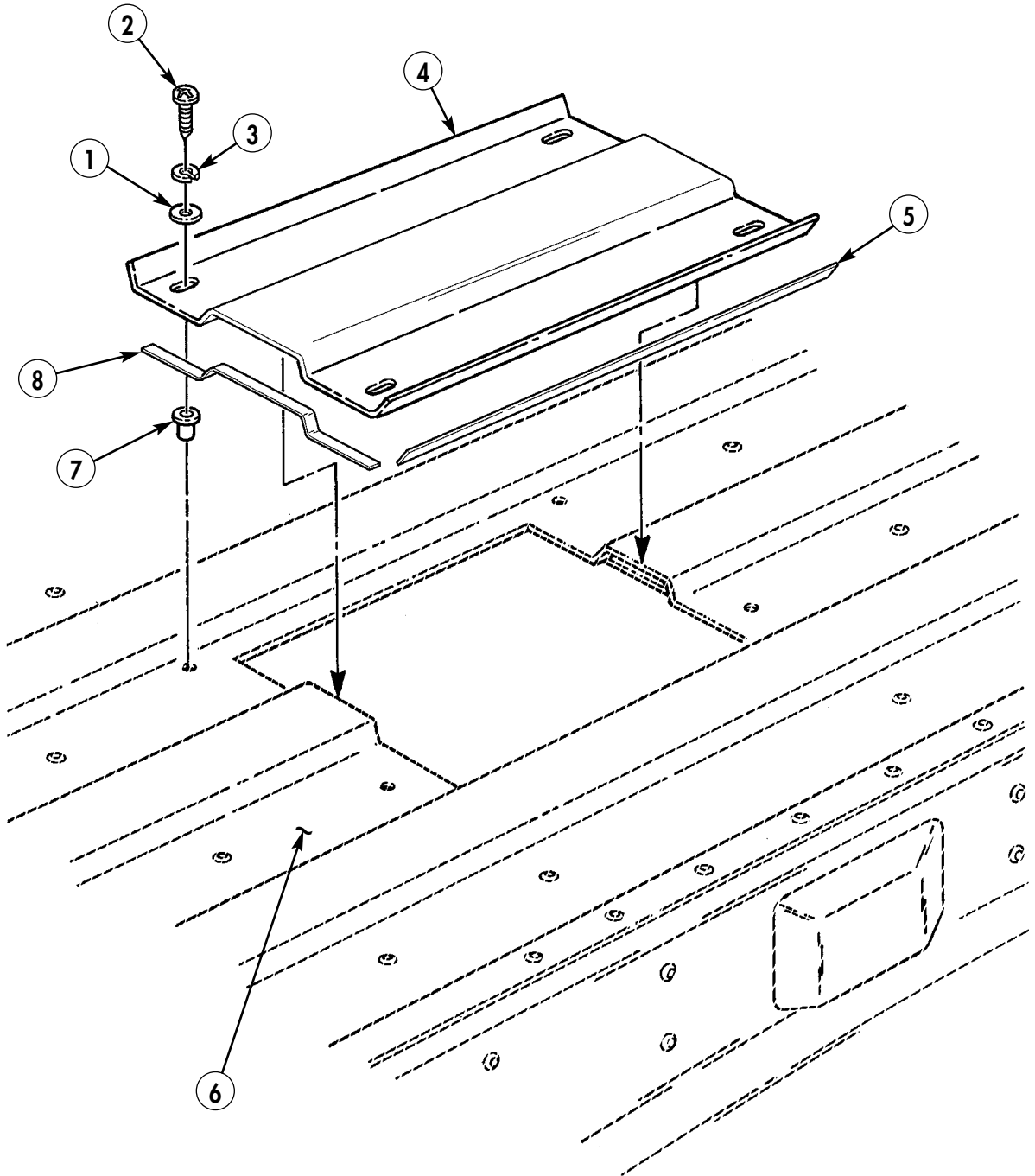
b. Inspection

Refer to TM 9-2320-387-24-2 for nut insert (7) inspection and replacement.

c. Installation

Install access cover (4) on body (6) with four washers (1), lockwashers (3), and capscrews (2).

**10-58.4. PARKING BRAKE ACCESS COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install shelter (if applicable) (TM 9-2320-387-24-2).

10-75.3. HEATER FAN MOTOR RESISTOR ASSEMBLY (ELECTRONIC) REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-10
TB 9-2320-335-13&P, Appendix E

Equipment Condition

Instrument cluster (electronic) removed
(para. 4-14.1).

Maintenance Level

Unit

a. Removal

1. Remove four capscrews (17), washers (16), and instrument cluster (1) from instrument panel (2).
2. Remove two nuts (4) and (6) and resistor (8) from threaded studs (12) on instrument panel (2).

NOTE

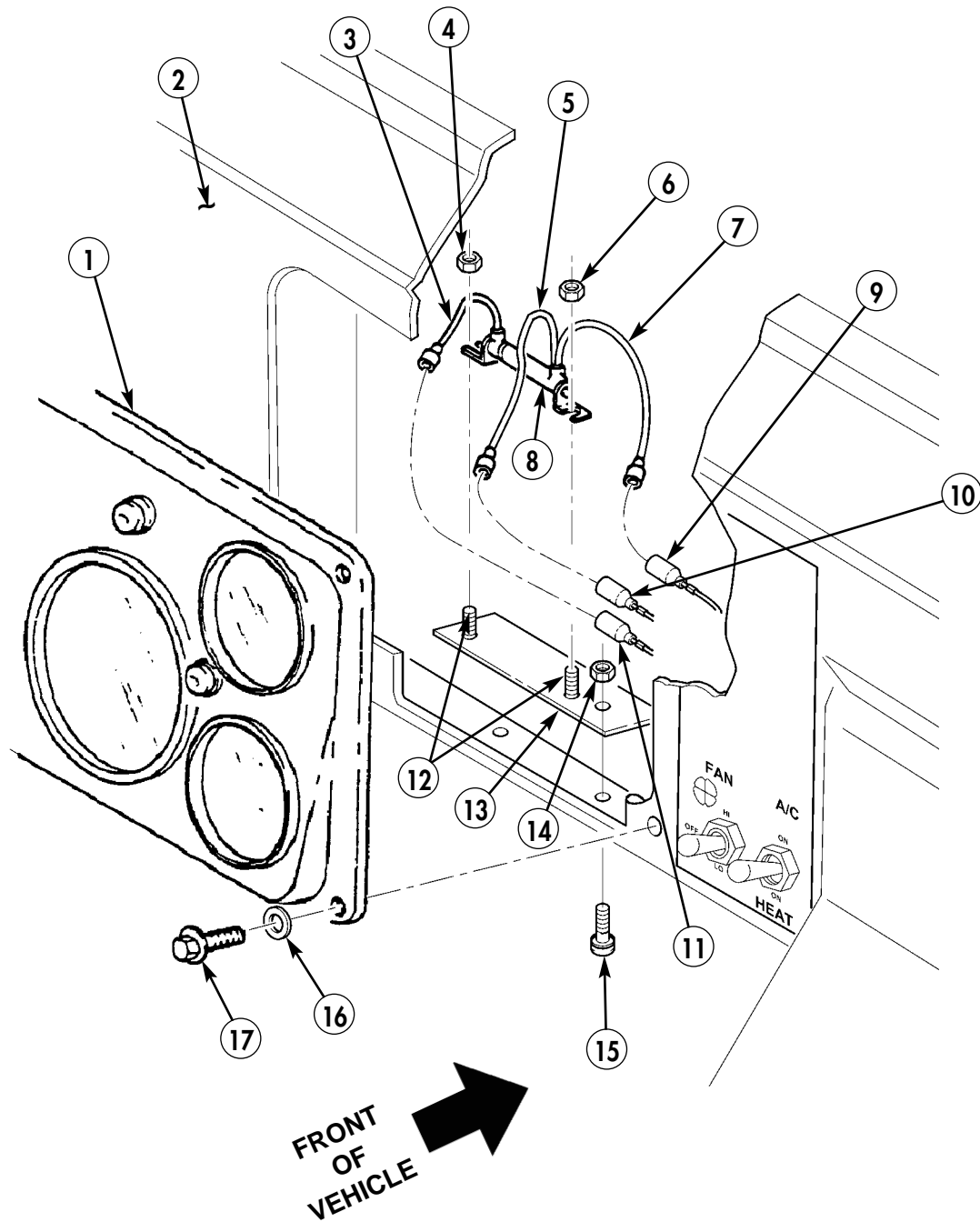
Prior to removal, tag leads for installation.

3. Disconnect harness lead 399 (3) from harness lead 399A (11).
4. Disconnect harness lead 400 (5) from harness lead 400D (10).
5. Disconnect harness lead 400 (7) from harness lead 400A (9).
6. Remove nut (14), capscrew (15), and resistor plate (13) from instrument panel (2).

b. Installation

1. Install resistor plate (13) on instrument panel (2) with capscrew (15) and nut (14).
2. Connect harness lead 400 (7) to harness lead 400A (9).
3. Connect harness lead 400 (5) to harness lead 400D (10).
4. Connect harness lead 399 (3) to harness lead 399A (11).
5. Install resistor (8) on threaded studs (12) on instrument panel (2) with two nuts (4) and (6).
6. Install instrument cluster (1) on instrument panel (2) with four capscrews (17) and washers (16).

10-75.3. HEATER FAN MOTOR RESISTOR ASSEMBLY (ELECTRONIC) REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Install instrument cluster (electronic) (para. 4-14.1).
 - Check heater fan for proper operation (TM 9-2320-387-10).

10-96. SPARE TIRE CARRIER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Lockwasher (Appendix A, Item 174)
Six locknuts (Appendix A, Item 114.4)

Manual References

TB 9-2320-335-13&P, Appendix E

Maintenance Level

Unit

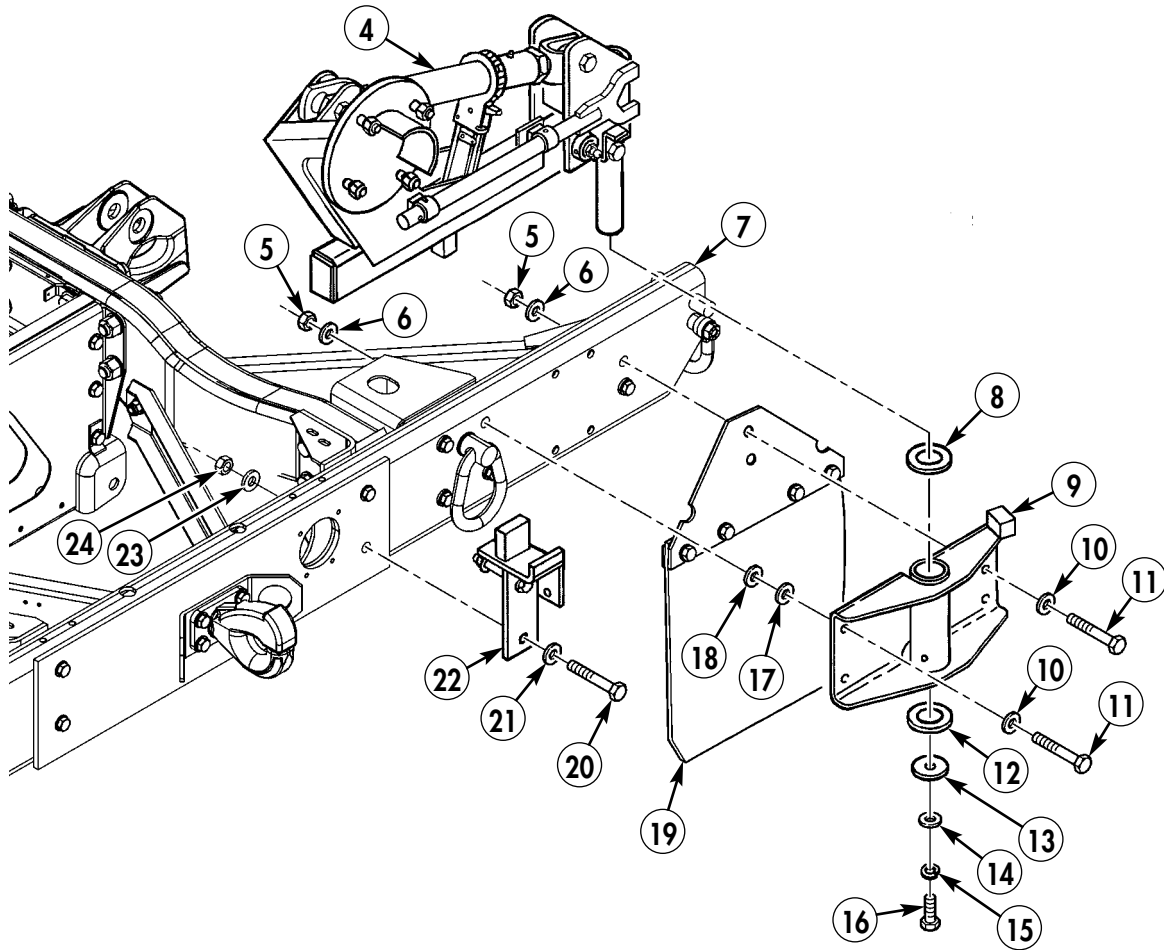
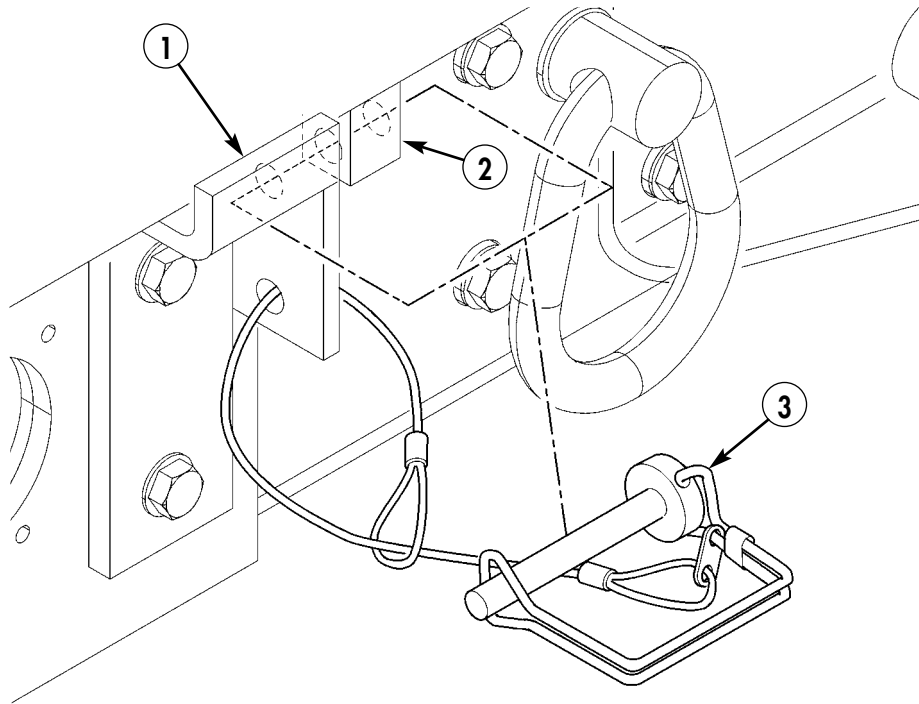
a. Removal

1. Remove pin (3) from locking block (2) and bumper lock (1).
2. Remove capscrew (16), lockwasher (15), washer (14), retainer washer (13), thrust bushing (12), tire carrier subassembly (4), and thrust bushing (8) from pivot mount (9). Discard lockwasher (15).
3. Remove four locknuts (5), washers (6), capscrews (11), washers (10), large washers (17) and (18), pivot mount (9), and mud flap (19) from bumper (7). Discard locknuts (5).
4. Remove two locknuts (24), washers (23), capscrews (20), washers (21), and bumper lock (22) from bumper (7). Discard locknuts (24).

b. Installation

1. Install bumper lock (22) on bumper (7) with two washers (21), capscrews (20), washers (23), and locknuts (24). Tighten locknuts (24) to 90 lb-ft (122 N•m).
2. Install mud flap (19) and pivot mount (9) on bumper (7) with four large washers (17) and (18), washers (10), capscrews (11), washers (6), and locknuts (5). Tighten locknuts (5) to 90 lb-ft (122 N•m).
3. Install tire carrier subassembly (4) on pivot mount (9) with thrust busing (8), thrust bushing (12), retainer washer (13), washer (14), lockwasher (15), and capscrew (16). Tighten capscrew (16) to 75 lb-ft (102 N•m).
4. Install pin (3) on locking block (2) and bumper lock (1).

10-96. SPARE TIRE CARRIER REPLACEMENT (Cont'd)



10-97. MUD FLAP MAINTENANCE

This task covers:

- a. Removal
- b. Disassembly
- c. Assembly
- d. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Six locknuts (Appendix A, Item 85)

Manual References

TB 9-2320-335-13&P, Appendix E

Maintenance Level

Unit

a. Removal

Remove two locknuts (1), washers (2), capscrews (5), washers (4), and mud flap assembly (3) from bumper (6). Discard locknuts (1).

b. Disassembly

Remove four locknuts (8), washers (9), capscrews (13), washers (12), mud flap (10), and mud flap retainer (7) from mounting bracket (11). Discard locknuts (8).

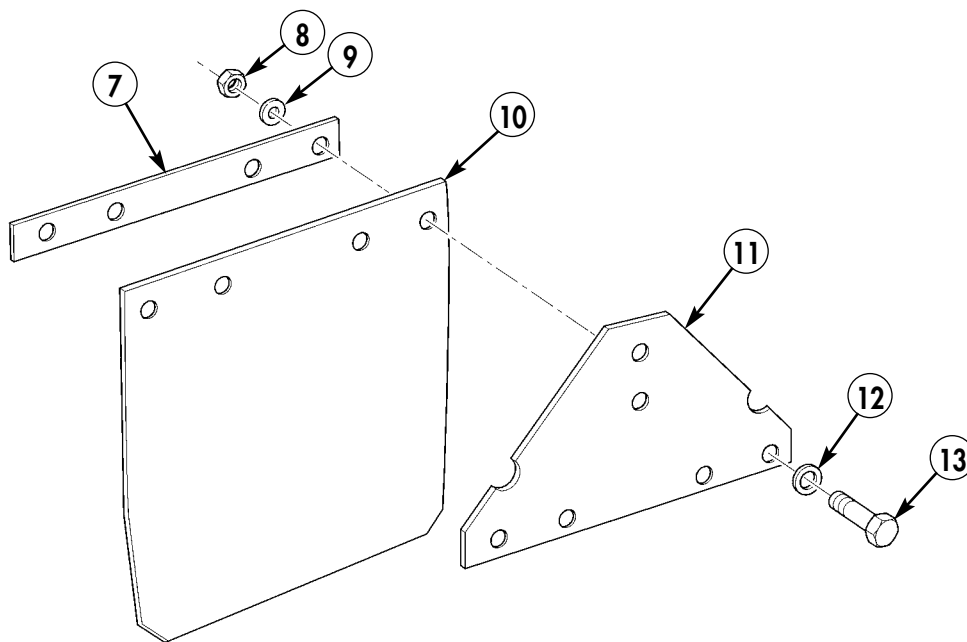
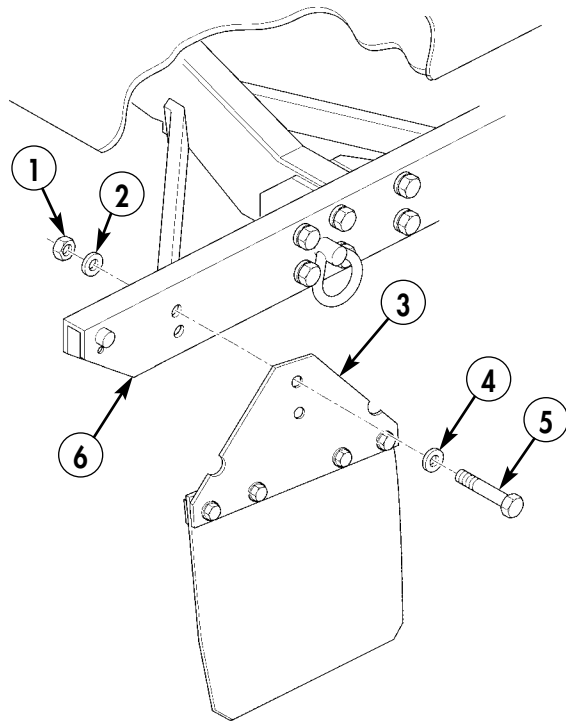
c. Assembly

Install mud flap retainer (7) and mud flap (10) on mounting bracket (11) with four washers (12), capscrews (13), washers (9), and locknuts (8).

d. Installation

Install mud flap assembly (3) on bumper (6) with two washers (4), capscrews (5), washers (2), and locknuts (1).

10-97. MUD FLAP MAINTENANCE (Cont'd)



CHAPTER 11

SPECIAL PURPOSE BODIES (UNIT) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with special purpose bodies that are specific to your REV vehicle.

11-99. A/C AND FAN TOGGLE SWITCHES AND JUMPER WIRES REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

All models except M1113, M1114

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24P

Equipment Condition

Instrument cluster removed (para. 4-14.1).

Maintenance Level

Unit

a. Removal

NOTE

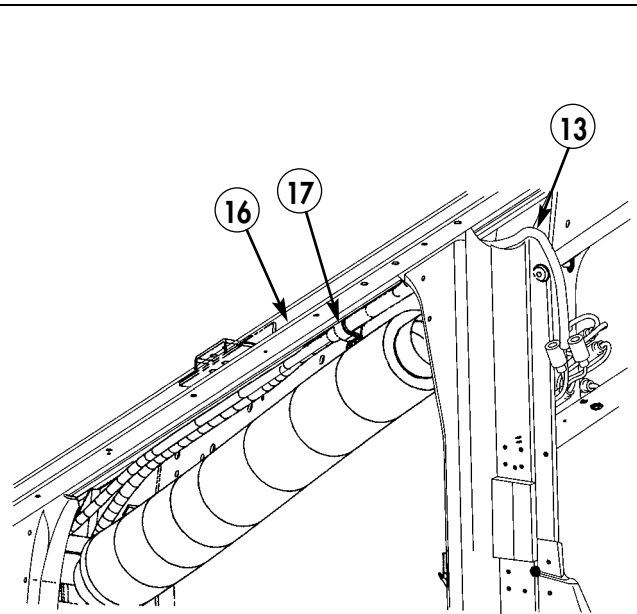
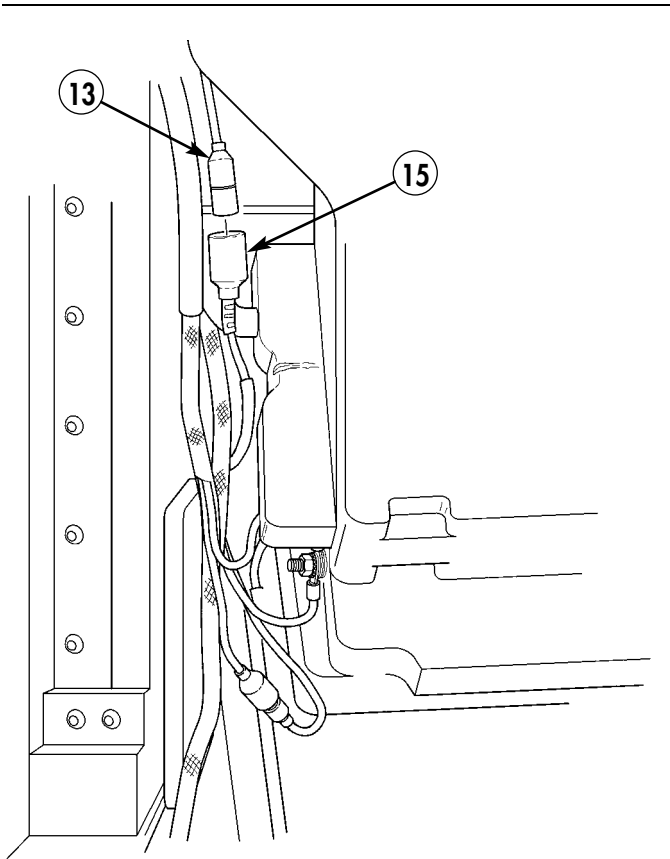
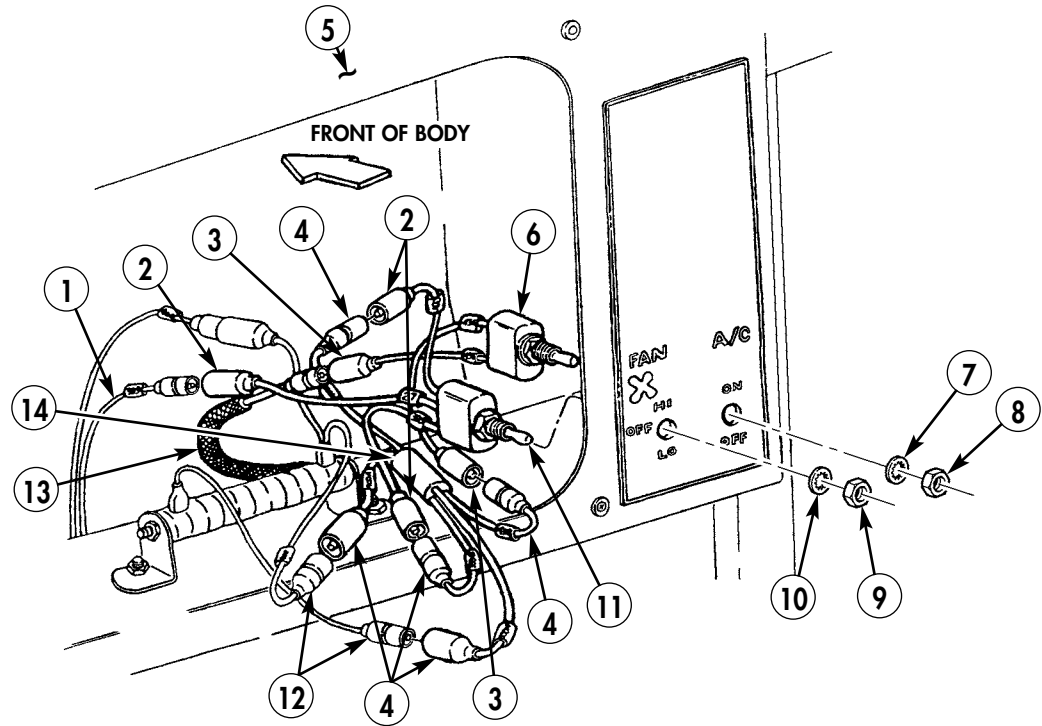
- Prior to removal, tag all leads for installation.
 - Attaching hardware is part of switch assembly.
 - Perform steps 1 through 4 if removing toggle switches only.
 - Perform steps 3 through 7 if removing A/C jumper wires only.
1. Remove nut (8) and lockwasher (7) from A/C toggle switch (6) and remove A/C toggle switch (6) from instrument panel (5). Discard nut (8) and lockwasher (7).
 2. Remove nut (9) and lockwasher (10) from fan toggle switch (11) and remove fan toggle switch (11) from instrument panel (5). Discard nut (9) and lockwasher (10).
 3. Disconnect two A/C toggle switch leads (3) from A/C toggle switch wiring harness (13) and jumper harness lead (4).
 4. Disconnect three fan toggle switch leads (2) from wiring harness (1) and jumper harness leads (4).
 5. Disconnect two resistor leads (12) from A/C switch jumper wiring harness leads (4) and remove A/C switch jumper wire (14) from instrument panel (5).
 6. Disconnect A/C toggle switch jumper wiring harness (13) from A/C wiring harness (15).
 7. Remove A/C toggle switch jumper wiring harness (13) from "A" beam (16) and P-clamp (17).

b. Installation

NOTE

- Perform steps 1 through 5 if installing A/C jumper wires only.
 - Perform steps 4 through 7 if installing toggle switches only.
1. Route A/C toggle switch jumper wiring harness (13) through "A" beam (16) securing with existing P-clamp (17).
 2. Connect A/C toggle switch jumper wiring harness (13) to A/C wiring harness (15).
 3. Connect two resistor leads (12) to jumper harness leads (4) and install A/C switch jumper wire (14) on instrument panel (5).
 4. Connect three fan toggle switch leads (2) to wiring harness (1) and A/C switch jumper harness leads (4).
 5. Connect two A/C toggle switch leads (3) to A/C toggle switch wiring harness (13) and jumper harness leads (4).
 6. Install fan toggle switch (11) on instrument panel (5) with lockwasher (10) and nut (9).
 7. Install A/C toggle switch (6) on instrument panel (5) with lockwasher (7) and nut (8).

11-99. A/C AND FAN TOGGLE SWITCHES AND JUMPER WIRE REPLACEMENT (Cont'd)



- FOLLOW-ON TASKS:**
- Install instrument cluster (para. 4-14.1).
 - Start vehicle, run A/C system, and check toggle switches (TM 9-2320-387-10).

11-104.2. DRIVER'S CLOSEOUT PANEL REPLACEMENT
--

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Maintenance Level

Unit

Manual References

TM 9-2320-387-24P

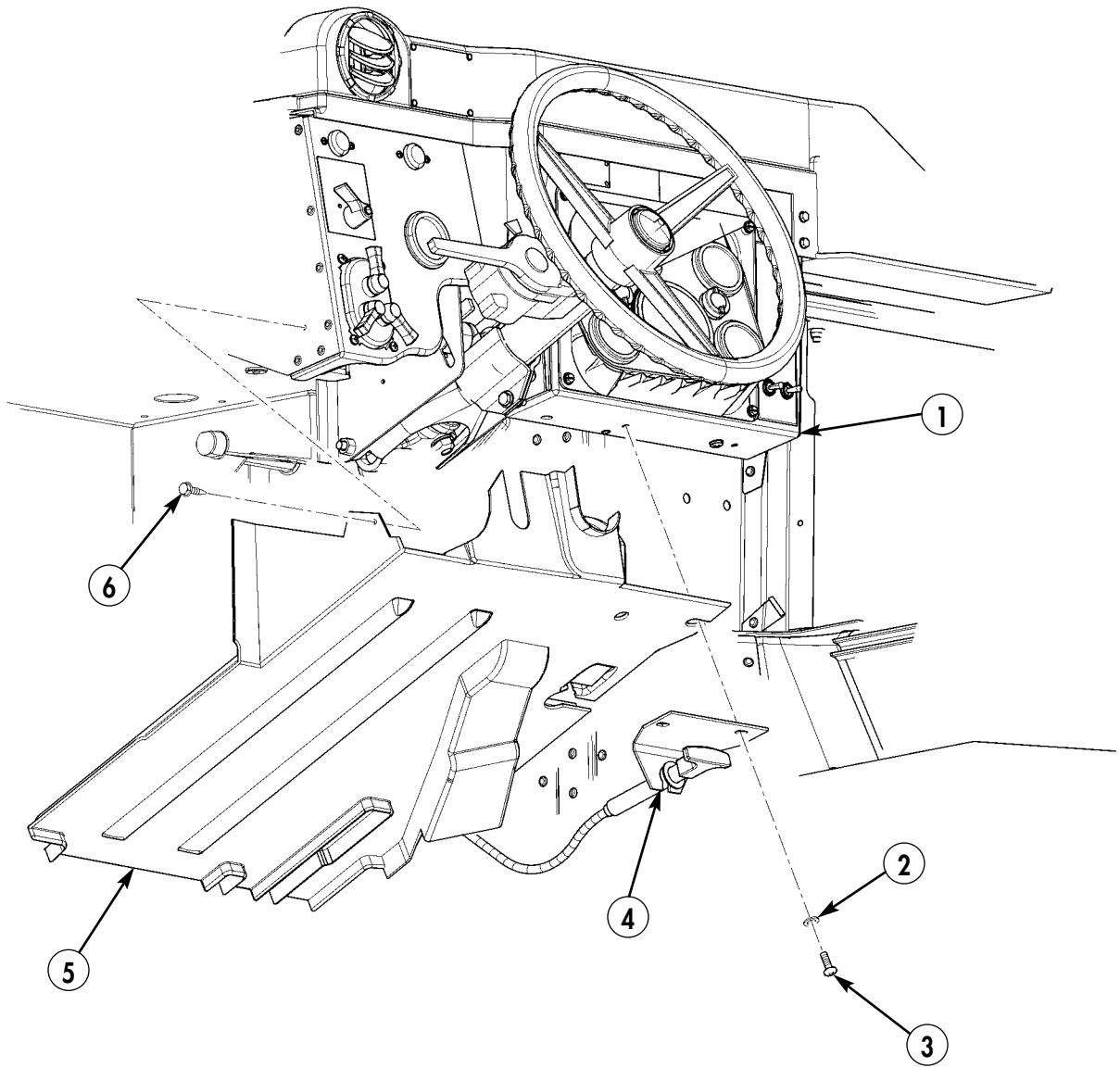
a. Removal

1. Remove capscrew (6) from instrument panel (1) and drivers close out panel (5).
2. Remove two capscrews (3), washers (2), throttle handle (4), and drivers close out panel (5) from instrument panel (1).

b. Installation

1. Install throttle handle (4) and drivers close out panel (5) on instrument panel (1) with two washers (2) and capscrews (3).
2. Secure drivers close out panel (5) to instrument panel (1) with capscrew (6).

11-104.2. DRIVER'S CLOSEOUT PANEL REPLACEMENT (Cont'd)



CHAPTER 12

DEEP WATER FORDING (UNIT) MAINTENANCE

The following procedure provides you with the instructions you will need to maintain or replace deep water fording hydro boost vent line on your REV vehicle.

12-45. HYDRO-BOOST VENT LINE REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Applicable Models

All except M1114

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Locknut (Appendix A, Item 77)
Nut and lockwasher assembly
(Appendix A, Item 197)

Manual References

TM 9-2320-387-24P

Equipment Condition

Engine left splash shield removed
(para. 10-23 or para. 10-23.1).

Maintenance Level

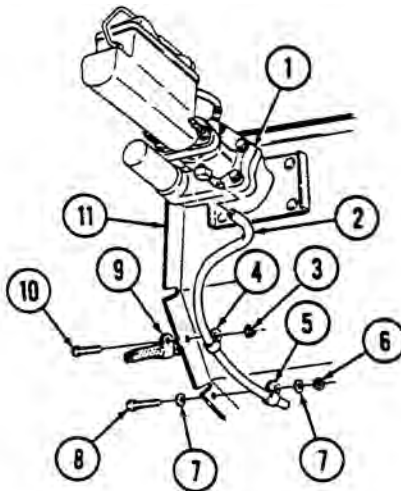
Unit

a. Removal

1. Disconnect hydro-boost vent line (2) from hydro-boost (1).
2. Remove nut and lockwasher assembly (3), capscrew (10), clamp (4), harness clamp (9), and vent line (2) from body (11). Discard nut and lockwasher assembly (3).
3. Remove locknut (6), washer (7), capscrew (8), washer (7), clamp (5), and vent line (2) from body (11). Discard locknut (6).
4. Remove two clamps (4) and (5) from vent line (2).

b. Installation

1. Install two clamps (4) and (5) on vent line (2).
2. Install vent line (2) and clamp (5) on body (11) with washer (7), capscrew (8), washer (7), and locknut (6). Tighten capscrew (8) to 6 lb-ft (8 N•m).
3. Install vent line (2), harness clamp (9), and clamp (4) on body (11) with capscrew (10) and nut and lockwasher assembly (3).
4. Connect vent line (2) to hydro-boost (1).



FOLLOW-ON TASK: Install engine left splash shield (para. 10-23 or para. 10-23.1).

CHAPTER 13 PREPARATION FOR STORAGE OR SHIPMENT

Refer to TM 9-2320-387-24-2 for information regarding preparation for storage or shipment.

CHAPTER 14

MECHANICAL TROUBLESHOOTING (DS)/(GS)

Refer to TM 9-2320-387-24-2 for information regarding troubleshooting procedures.

CHAPTER 15

ENGINE (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the engine system that are specific to your REV vehicle.

15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE

This task covers:

- | | |
|--|--|
| <ul style="list-style-type: none"> a. Removal b. Disassembly | <ul style="list-style-type: none"> c. Assembly d. Installation |
|--|--|

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Crowfoot, 5/8-in. (Appendix B, Item 138)
 Torque adapter, 9/16-in.
 (Appendix B, Item 133)
 Torque adapter, 3/4-in.
 (Appendix B, Item 134)
 Adapter, 3/8-1/2-in. (Appendix B, Item 135)
 Engine lifting sling (Appendix B, Item 24)

Materials/Parts

Three lockwashers (Appendix A, Item 144)
 Eight locknuts (Appendix A, Item 106)
 Two locknuts (Appendix A, Item 85)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24-1
 TM 9-2320-387-24P

Equipment Condition

- Fuel pump removed (right engine mount only) (TM 9-2320-387-24-1).
- Engine right splash shield removed (para. 10-24.1).
- Engine access cover removed (TM 9-2320-387-24-1).
- Front propeller shaft removed (left engine mount only) (para. 6-2).
- Glow plug controller removed (TM 9-2320-387-24-1).
- Air horn support and engine lift bracket removed (TM 9-2320-387-24-1).

General Safety Instructions

Direct all personnel to stand clear during hoisting operation.

Maintenance Level

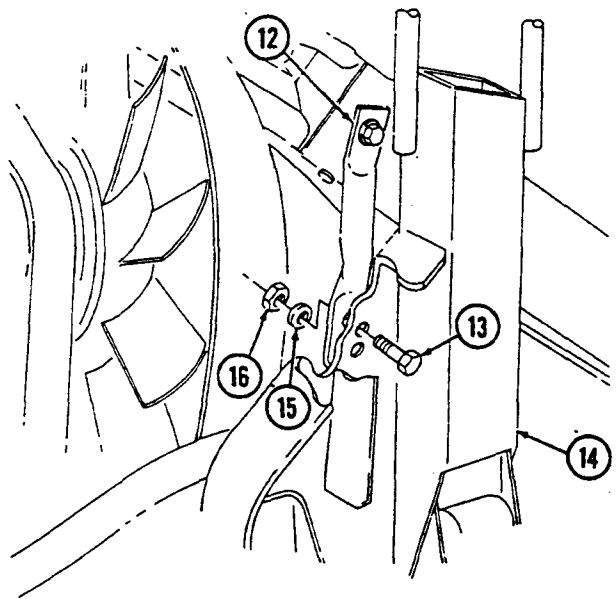
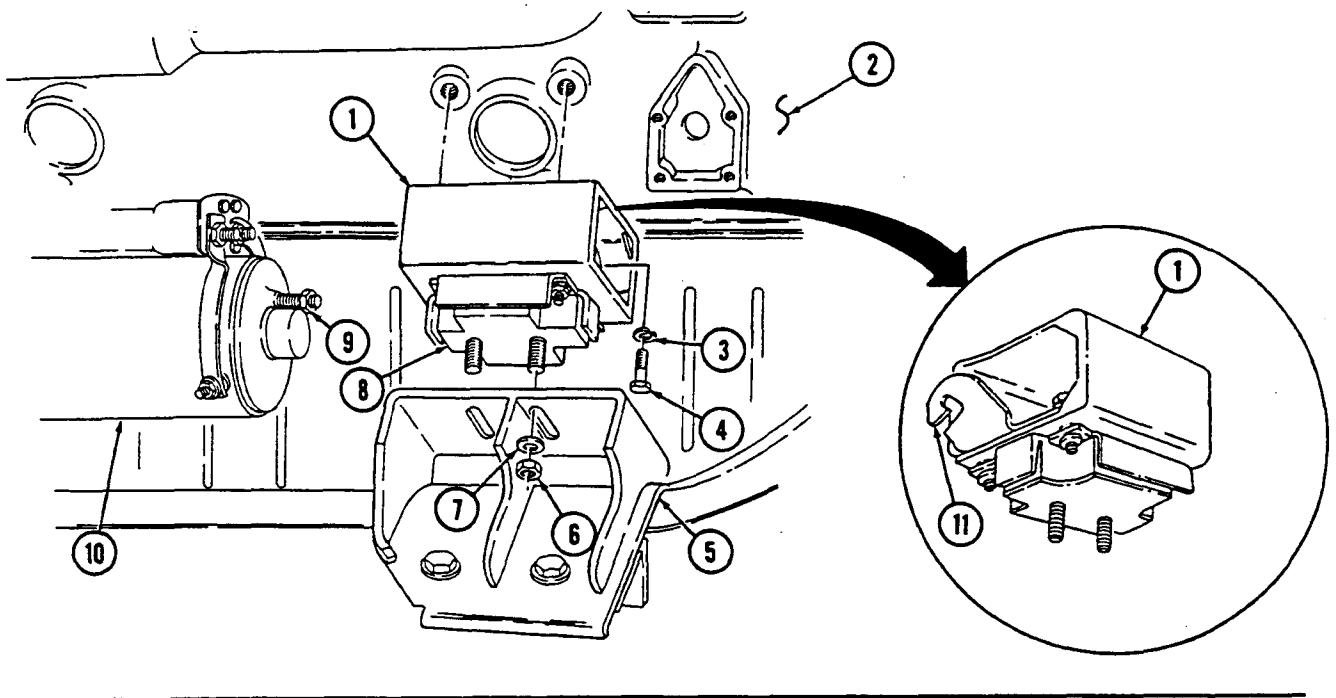
Direct support

a. Removal

NOTE

- Left and right engine mounts are removed basically the same.
 - Left and right engine mounts are not interchangeable with each other.
1. Remove two locknuts (6) and washers (7) from insulator (8) on engine mount bracket (5). Discard locknuts (6).
 2. Loosen nut (9) securing starter (10) to starter support bracket (11).
 3. Remove three capscrews (4) and lockwashers (3) from right engine mount (1) and cylinder block (2). Discard lockwashers (3).
 4. Remove four locknuts (16), washers (15), and capscrews (13) from two radiator supports (12) and airlift brackets (14). Discard locknuts (16).

15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE (Cont'd)



15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE (Cont'd)

NOTE

- Install sling bracket on rear of engine first.
 - Use four 15x25-mm capscrews to install lifting sling on engine.
5. Install engine lifting sling on engine (2) and right cylinder head (7) with two capscrews (6).
 6. Install sling bracket (4) on left cylinder head (5) with two capscrews (3). Tighten capscrews (6) and (3) and install bracket (4) on engine lifting sling with pin (1).

WARNING

Direct all personnel to stand clear during hoisting operation.
Failure to do this may cause injury to personnel.

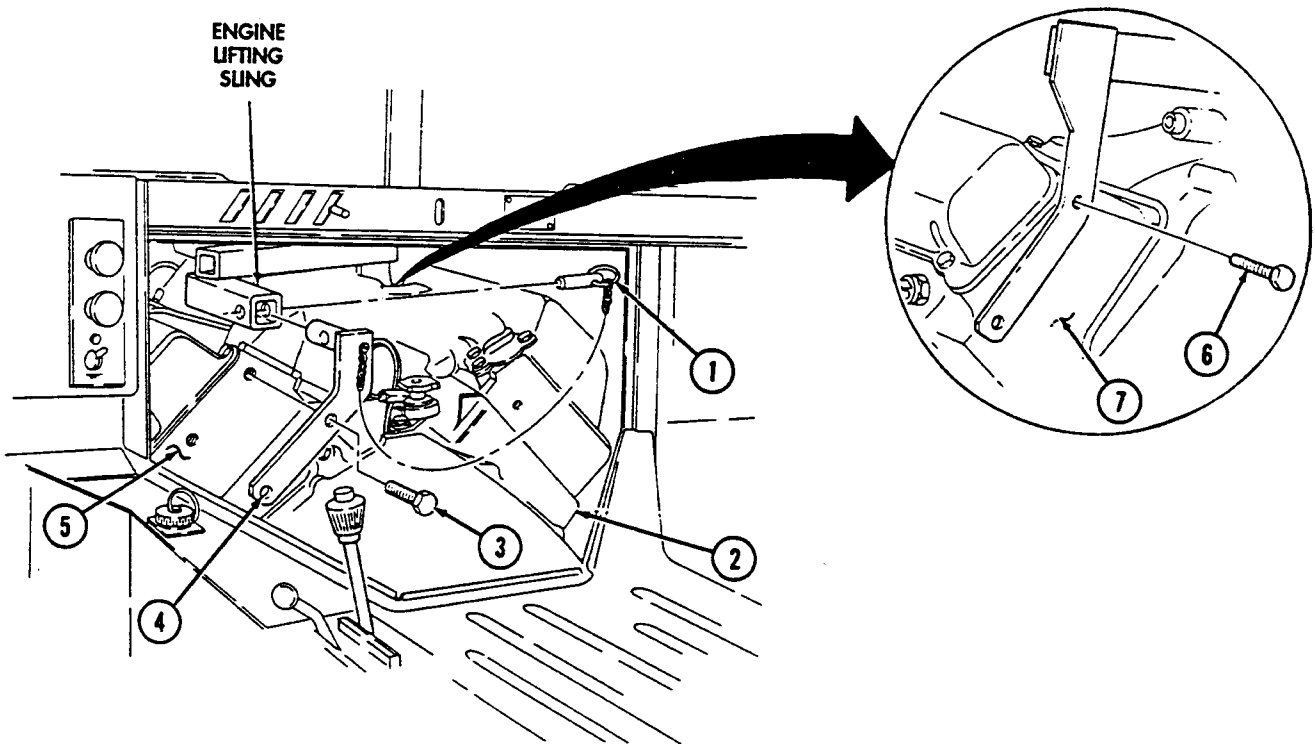
7. Attach hoist to engine lifting sling. Slowly raise engine (2) enough to remove engine mount (8) and insulator (10) from engine mount bracket (9).
8. Remove engine mount (8) and insulator (10) from engine mount bracket (9).

b. Disassembly

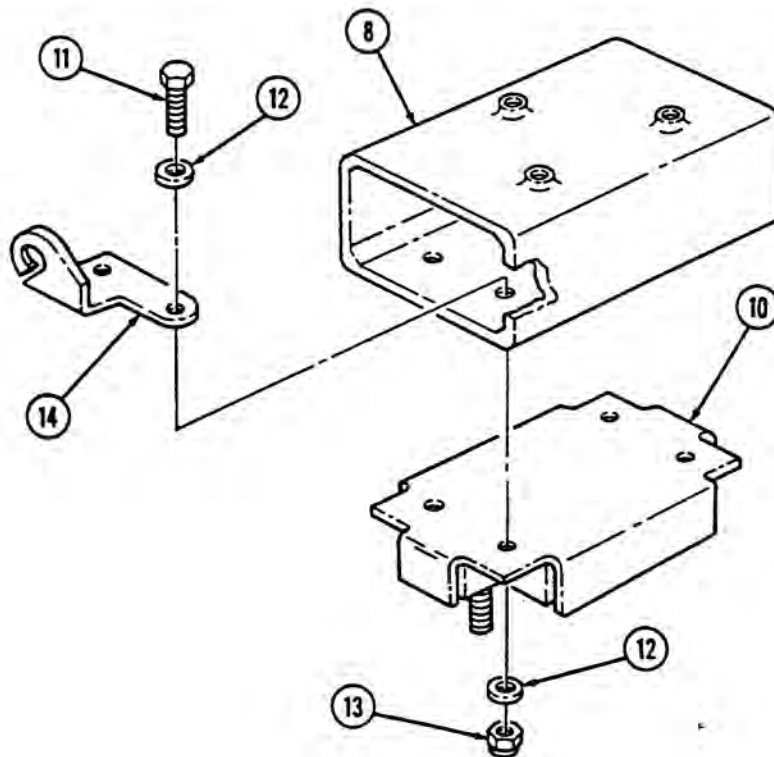
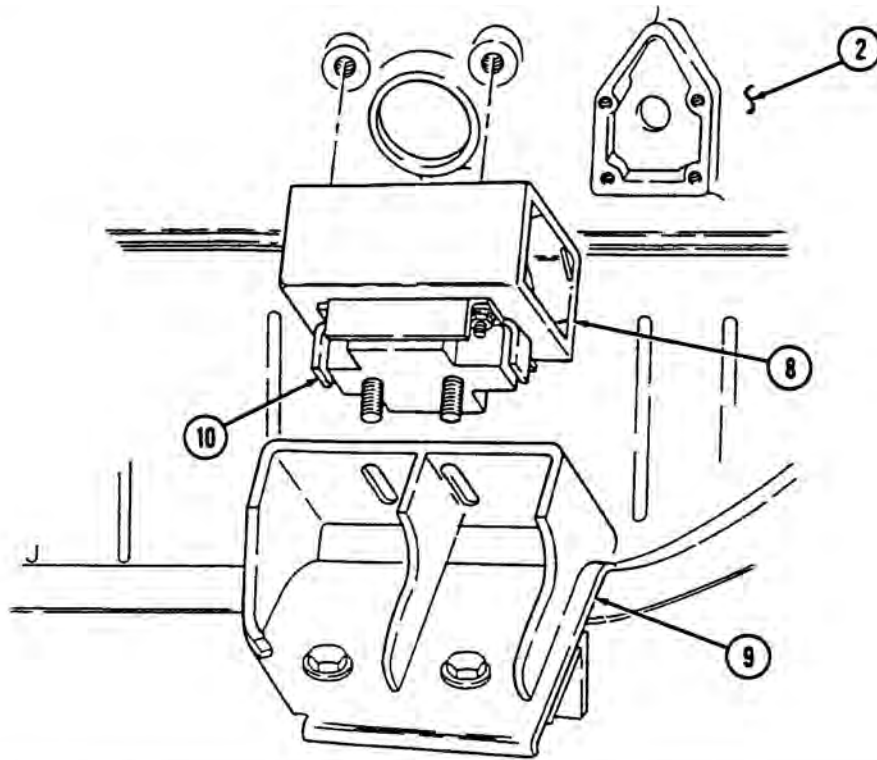
Remove four locknuts (13), washers (12), capscrews (11), washers (12), starter bracket (14) (for right mount), and insulator (10) from engine mount (8). Discard locknuts (13).

c. Assembly

Install insulator (10) and starter bracket (14) (for right mount) on engine mount (8) with four washers (12), capscrews (11), washers (12), and locknuts (13). Tighten locknuts (13) to 37 lb-ft (50 N•m).



15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE (Cont'd)



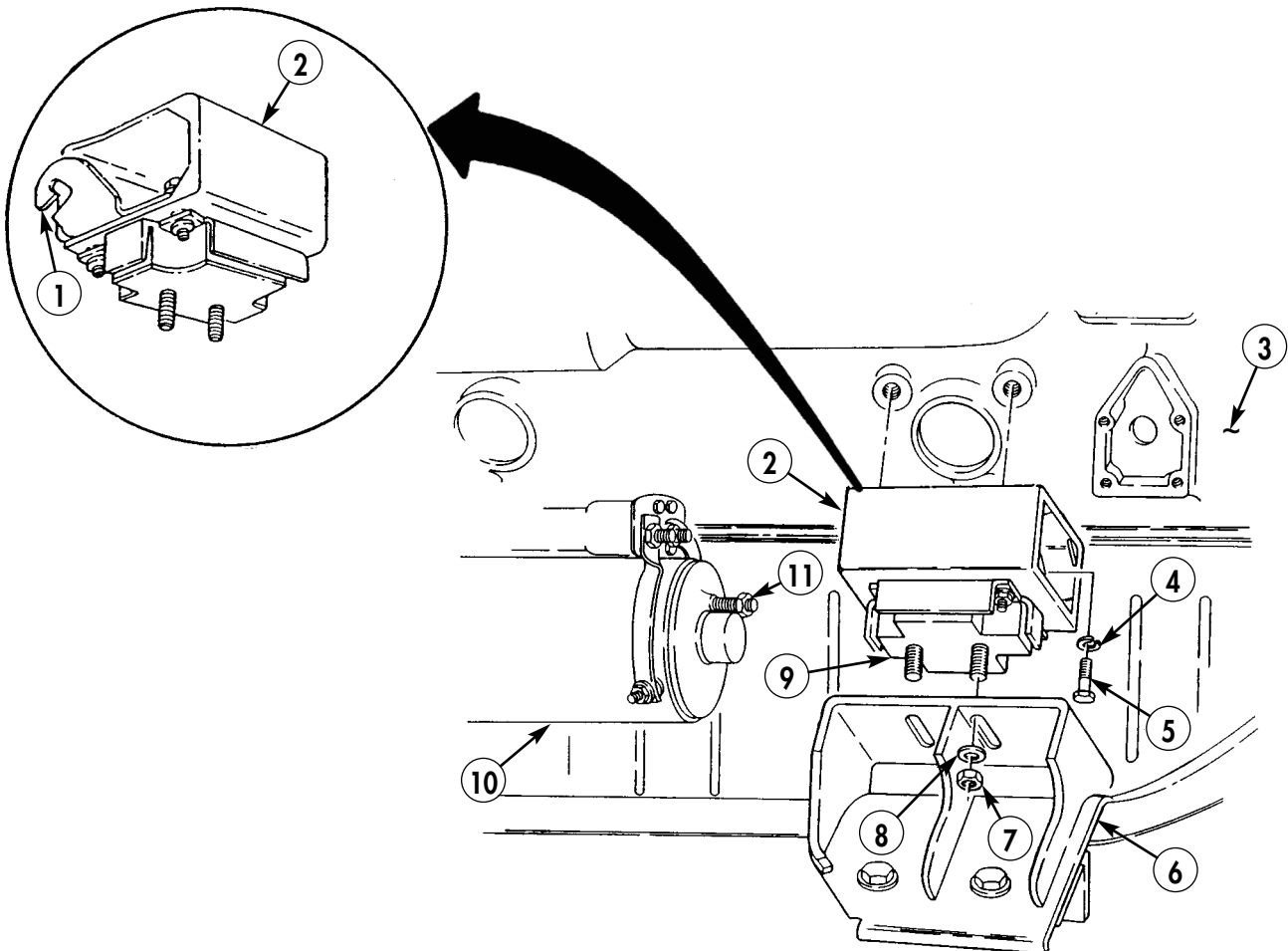
15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE (Cont'd)

d. Installation

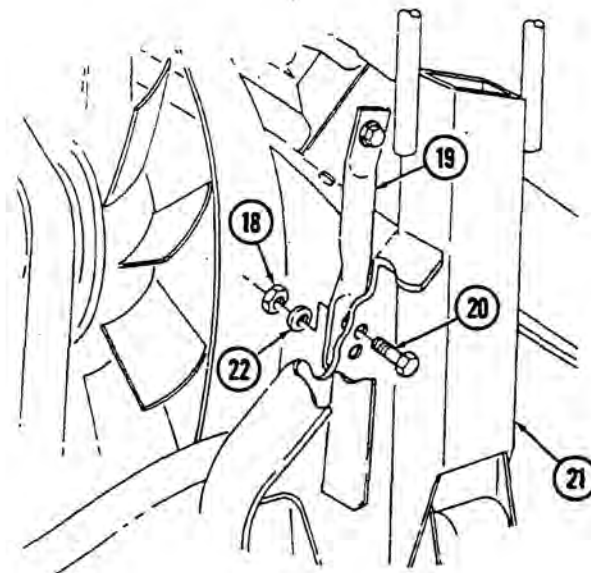
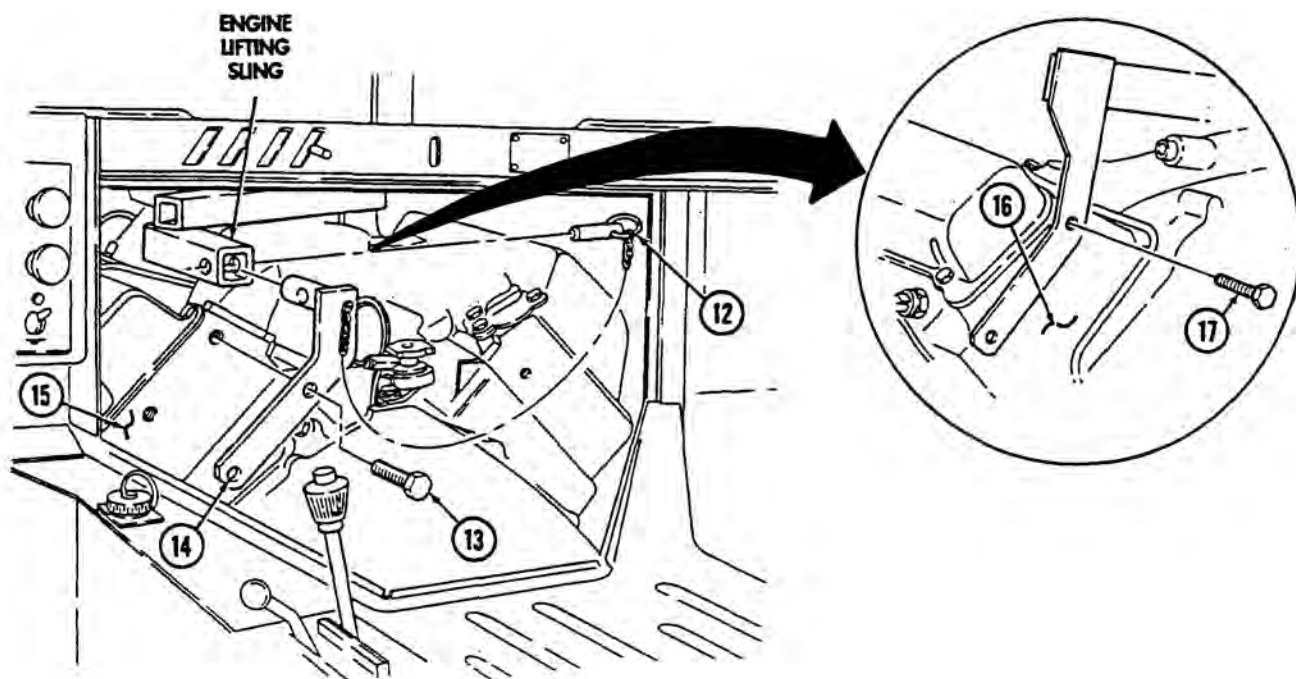
NOTE

Left and right engine mounts are not interchangeable with each other.

1. Install engine mount (2) and insulator (9) on engine (3) with three lockwashers (4) and capscrews (5). Using 9/16-in. torque adapter, tighten capscrews (5) to 30-40 lb-ft (41-54 N•m).
2. Using crowfoot and adapter, tighten nut (11) to 24 lb-ft (33 N•m) on starter support bracket (1) and starter (10).
3. Lower engine (3) until insulator (9) is aligned and resting on engine mount bracket (6). Install two washers (8) and locknuts (7) on insulator (9) and engine mount bracket (6). Using 3/4-in. torque adapter, tighten locknuts (7) to 90 lb-ft (122 N•m).
4. Remove pin (12) from sling bracket (14) and engine lifting sling.
5. Remove two capscrews (13) and sling bracket (14) from left cylinder head (15).
6. Remove two capscrews (17) and engine lift sling from right cylinder head (16).
7. Install two radiator supports (19) on airlift brackets (21) with four capscrews (20), washers (22), and locknuts (18). Tighten capscrews (20) to 37 lb-ft (50 N•m).



15-3. ENGINE MOUNT AND INSULATOR MAINTENANCE (Cont'd)



- FOLLOW-ON TASKS:**
- Install fuel pump (right engine mount only) (TM 9-2320-387-24-1).
 - Install air horn support and engine lift bracket (TM 9-2320-387-24-1).
 - Install engine right splash shield (para. 10-24.1).
 - Install engine access cover (TM 9-2320-387-24-2).
 - Install front propeller shaft (left engine mount only) (para. 6-2).
 - Install glow plug controller (TM 9-2320-387-24-1).

15-4. LEFT CYLINDER HEAD REPAIR

This task covers:

- a. Removal
- b. Repair

- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Gasket (Appendix A, Item 53)
 Antiseize compound (Appendix C, Item 16)
 Pipe sealing compound (Appendix C, Item 62)
 Cylinder head lifting device
 (Appendix D, Fig D-111) (Optional)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24-1
 TM 9-2320-387-24P
 TM 9-2815-237-34

Equipment Condition

- Fuel drain-back tube removed (TM 9-2320-387-24-1)
- Alternator/power steering mounting bracket removed (TM 9-2320-387-24-1)

Equipment Condition (Contd)

- Left exhaust manifold removed (TM 9-2320-387-24-1).
- Left intake manifold removed (TM 9-2320-387-24-2).
- Water crossover removed (para. 3-79.1).
- Rocker arm shafts and pushrods removed (TM 9-2320-387-24-2).
- Fuel injection return hoses removed (TM 9-2320-387-24-1).
- Fuel injection nozzles removed (TM 9-2320-387-24-2).
- Glow plugs removed (TM 9-2320-387-24-1).
- Oil pressure sending unit removed (TM 9-2320-387-24-1).

General Safety Instructions

Cylinder head must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Cylinder head must be supported during removal and installation. Failure to support cylinder head may cause injury to personnel or damage to equipment.

a. Removal

1. Disconnect harness lead 33B (5) from engine temperature sending unit (4).

CAUTION

Cover or plug all hoses, connections, and openings immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.

2. Remove seventeen capscrews (2) from cylinder head (1) and cylinder block (6). Discard capscrews (2).

NOTE

Use of cylinder head lifting device is optional.

- 2.1. Install cylinder head lifting device (2.1) on center of cylinder head (1) with two washers (2.3) and capscrews (2.2).
3. Remove cylinder head (1) and gasket (3) from cylinder block (6). Discard gasket (3).
- 3.1. Remove two capscrews (2.2), washers (2.3), and cylinder head lifting device (2.1) from cylinder head (1), if installed.
4. For cylinder head (1) and valve repair procedures, notify general support (TM 9-2815-237-34).

b. Repair

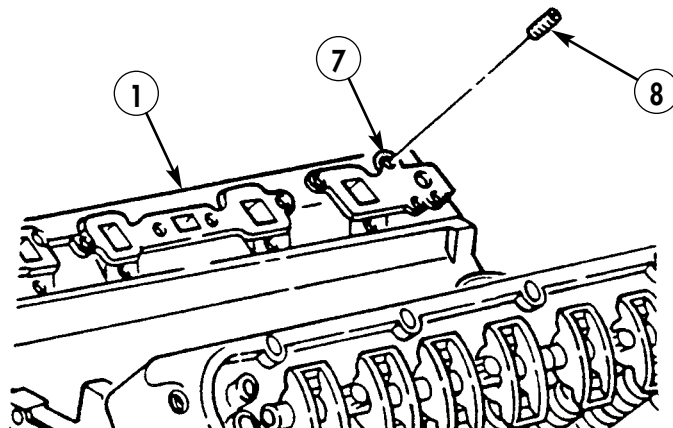
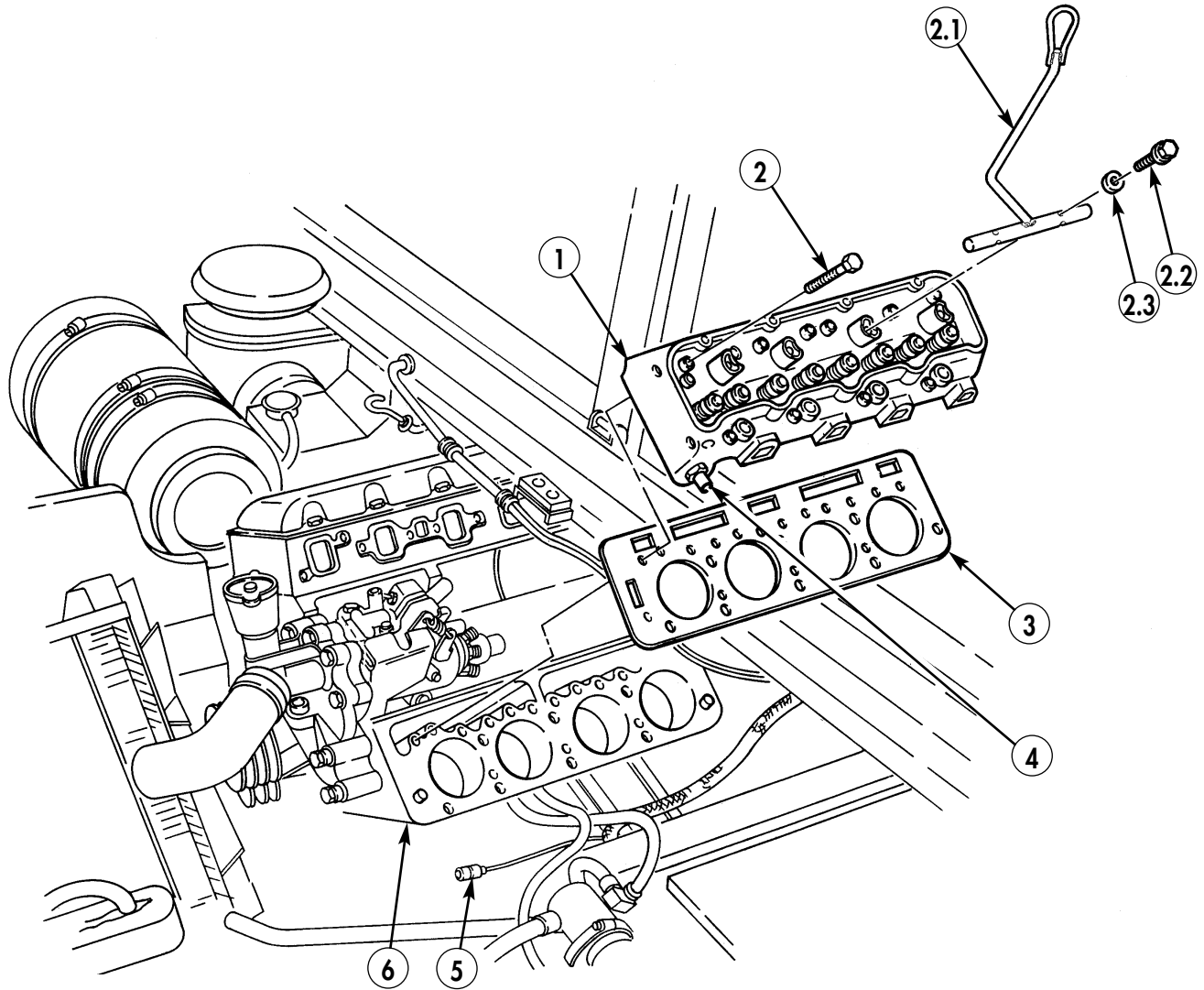
1. Extract broken portion of bolt (8) from cylinder head (1).

15-4. LEFT CYLINDER HEAD REPAIR (Cont'd)

NOTE

If threaded hole cannot be repaired, the left cylinder head can be interchanged with the right cylinder head.

2. If threads are unserviceable, use threaded inserts to repair threaded hole (7) in cylinder head (1).



15-4. LEFT CYLINDER HEAD REPAIR

c. Installation

CAUTION

Head gasket must be used without a sealer. Sealant may cause leaks or damage to engine.

1. Install head gasket (3) over dowel pins (5) on cylinder block (6).

NOTE

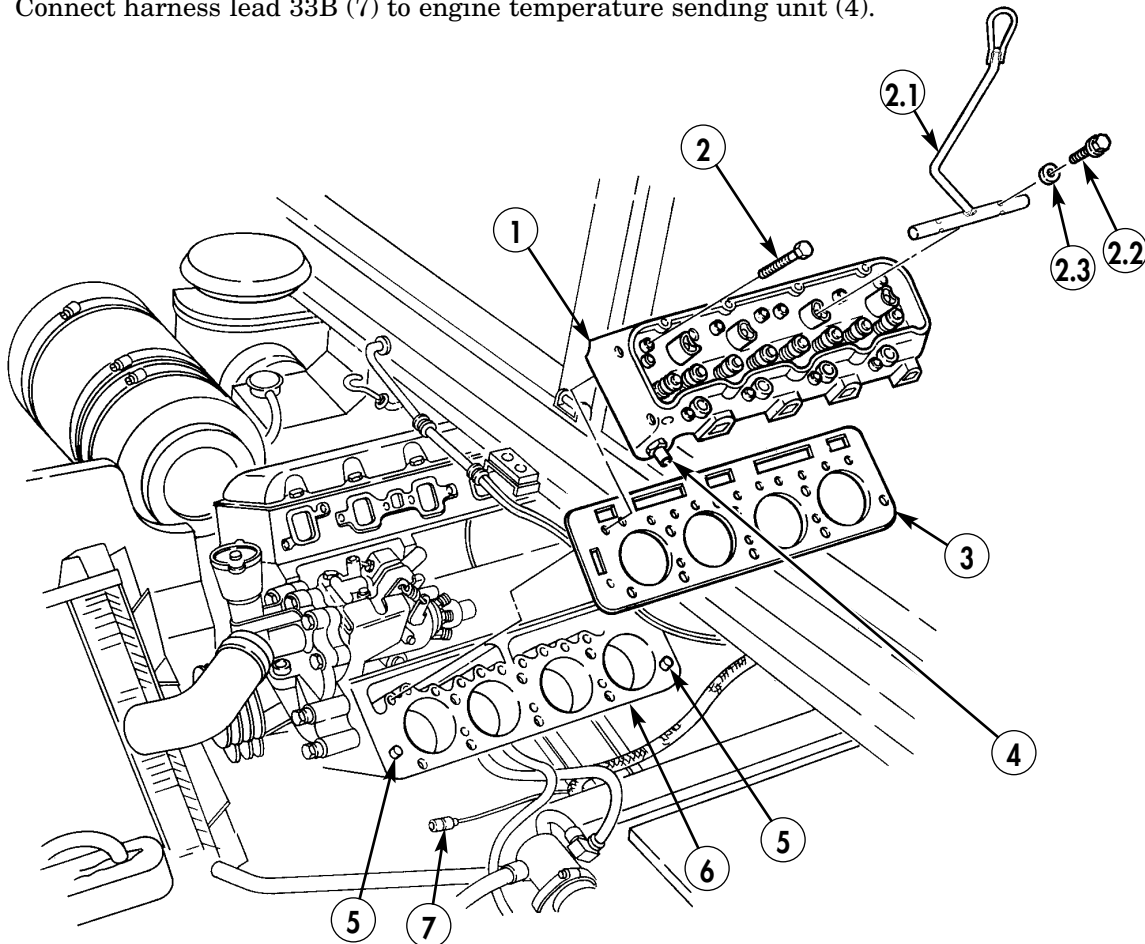
Use of cylinder head lifting device is optional.

- 1.1. Install cylinder head lifting device (2.1) on center of cylinder head (1) with two washers (2.3) and capscrews (2.2).
- 1.2. Install cylinder head (1) on cylinder block (6) and remove two capscrews (2.2), washers (2.3), and cylinder head lifting device (2.1) from center of cylinder head (1).
2. Apply pipe sealing compound to threads and under heads of seventeen capscrews (2).

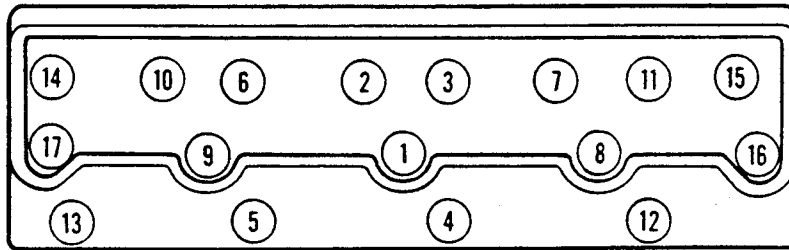
CAUTION

Failure to tighten cylinder head capscrews in proper torque sequence may result in leaks or damage to cylinder head.

3. Secure cylinder head (1) to cylinder block (6) with seventeen capscrews (2). Tighten capscrews (2) to 20 lb-ft (27 N•m) following torque sequence.
4. Tighten seventeen capscrews (2) to 55 lb-ft (75 N•m) following torque sequence.
5. Retighten seventeen capscrews (2) to 55 lb-ft (75 N•m) following torque sequence.
6. Tighten seventeen capscrews (2) an additional 90° following torque sequence and mark capscrews (2).
7. Connect harness lead 33B (7) to engine temperature sending unit (4).



15-4. LEFT CYLINDER HEAD REPAIR (Cont'd)



TORQUE SEQUENCE

- FOLLOW-ON TASKS:**
- Install oil pressure sending unit (TM 9-2320-387-24-1).
 - Install glow plugs (TM 9-2320-387-24-1).
 - Install fuel injection nozzles (TM 9-2320-387-24-2).
 - Install fuel injection return hoses (TM 9-2320-387-24-1).
 - Install rocker arm shafts and pushrods (TM 9-2320-387-24-2).
 - Install water crossover (para. 3-79.1).
 - Install left intake manifold (TM 9-2320-387-24-2).
 - Install left exhaust manifold (TM 9-2320-387-24-1).
 - Install alternator/power steering mounting bracket (TM 9-2320-387-24-1).

15-5. RIGHT CYLINDER HEAD REPAIR

This task covers:

- a. Removal
- b. Repair

- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Gasket (Appendix a, Item 53)
Pipe sealing compound (Appendix C, Item 62)
Cylinder head lifting device
(Appendix D, Fig. D-111) (Optional)

Personnel Required

One mechanic
One assistant

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24-2
TM 9-2350-387-24P
TM 9-2815-237-34

Equipment Condition

- Right exhaust manifold removed (TM 9-2320-387-24-1).
- Water crossover removed (para. 3-79.1).
- Right intake manifold removed (TM 9-2320-387-24-2).
- Rocker arm shafts and pushrods removed (TM 9-2320-387-24-2).
- Fuel injection return hoses removed (TM 9-2320-387-24-1).
- Fuel injection nozzles removed (TM 9-2320-387-24-2).
- Glow plugs removed (TM 9-2320-387-24-1).

General Safety Instructions

Cylinder head must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Cylinder head must be supported during removal and installation. Failure to support cylinder head may cause injury to personnel or damage to equipment.

a. Removal

CAUTION

Cover or plug all hoses, connections, and openings immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.

1. Remove cold-advance switch (2) from cylinder head (1).
2. Remove seventeen capscrews (3) from cylinder head (1) and cylinder block (5). Discard capscrews (3).

NOTE

Use of cylinder head lifting device is optional.

- 2.1. Install cylinder head lifting device (1.3) on center of cylinder head (1) with two washers (1.2) and capscrews (1.1).
3. Remove cylinder head (1) and gasket (6) from cylinder block (5). Discard gasket (6).
- 3.1. Remove two capscrews (1.1), washers (1.2), and cylinder head lifting device (1.3) from cylinder head (1), if installed.
4. For cylinder head (1) and valve repair procedures, notify general support (TM 9-2815-237-34).

b. Repair

Refer to TM 9-2320-387-24-1, for extraction of broken bolts.

c. Installation

CAUTION

Head gasket must be used without a sealer. Sealant may cause leaks or damage to engine.

1. Install head gasket (6) over dowel pins (4) on cylinder block (5).

15-5. RIGHT CYLINDER HEAD REPLACEMENT (Cont'd)

NOTE

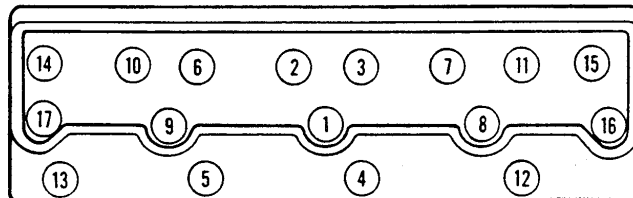
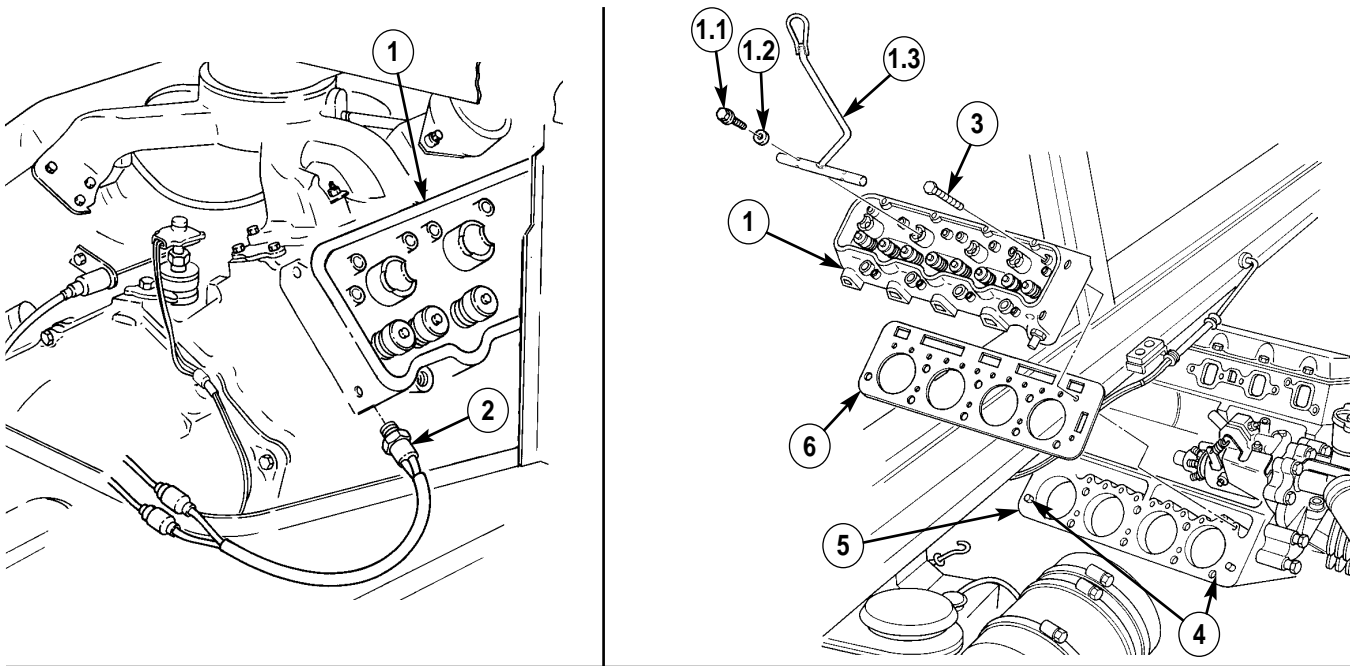
Use of cylinder head lifting device is optional.

- 1.1. Install cylinder head lifting device (1.3) on center of cylinder head (1) with two washers (1.2) and capscrews (1.1).
- 1.2. Install cylinder head (1) on cylinder block (5) and remove two capscrews (1.1), washers (1.2), and cylinder head lifting device (1.3) from center of cylinder head (1).
2. Apply pipe sealing compound to threads and under heads of seventeen capscrews (3).

CAUTION

Failure to tighten cylinder head capscrews in proper torque sequence may result in leaks or damage to cylinder head.

3. Secure cylinder head (1) to cylinder block (5) with seventeen capscrews (3). Tighten capscrews (3) to 20 lb-ft (27 N•m) following torque sequence.
4. Tighten seventeen capscrews (3) to 55 lb-ft (75 N•m) following torque sequence.
5. Retighten seventeen capscrews (3) to 55 lb-ft (75 N•m) following torque sequence.
6. Tighten seventeen capscrews (3) an additional 90° following torque sequence and mark capscrews (3).
7. Install cold-advance switch (2) on cylinder head (1).



TORQUE SEQUENCE

- FOLLOW-ON TASKS:**
- Install fuel injection return hoses (TM 9-2320-387-24-1).
 - Install rocker arm shafts and pushrods (TM 9-2320-387-24-2).
 - Install right intake manifold (TM 9-2320-387-24-2).
 - Install right exhaust manifold (TM 9-2320-387-24-1).
 - Install water crossover (para. 3-79.1).
 - Install glow plugs (TM 9-2320-387-24-1).
 - Install fuel injection nozzles (TM 9-2320-387-24-2).

15-6. CRANKSHAFT PULLEY REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Sealing compound (Appendix C, Item 69)

Manual References

TM 9-2320-387-10
TM 9-2320-387-24P

Equipment Condition

- Hood raised and secured (TM 9-2320-387-10).
- Geared fan drive shaft removed (para. 3-80.3).

Maintenance Level

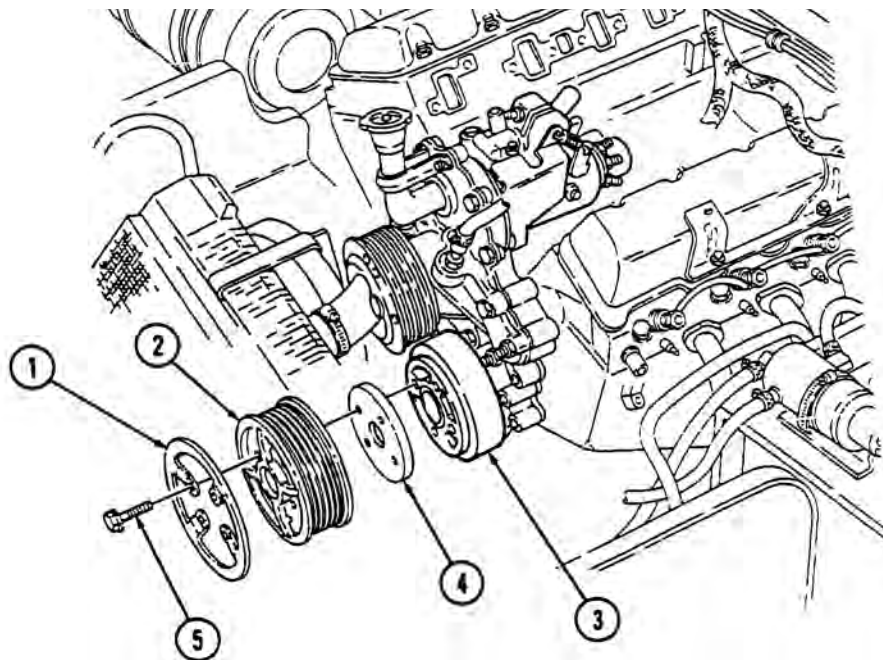
Direct support

a. Removal

1. Remove serpentine belt (para. 3-81.2).
2. Remove four capscrews (5), mudshield (1), crankshaft pulley (2), and spacer (4) from torsional damper (3).

b. Installation

1. Apply sealing compound to four capscrews (5).
2. Install spacer (4), crankshaft pulley (2), and mudshield (1) on torsional damper (3) with four capscrews (5). Tighten capscrews (5) to 48 lb-ft (65 N•m).
3. Install serpentine belt (para. 3-81.2).



- FOLLOW-ON TASK:**
- Install geared fan drive shaft (para. 3-80.3).
 - Lower and secure hood (TM 9-2320-387-10).

15-22. GLOW PLUG TIP REMOVAL (DAMAGED OR BROKEN)

This task covers:

Removal

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Needlenose pliers (Appendix B, Item 31)

Special Tools

Socket, 3/8-in. (Appendix B, Item 144)

Manual References

TM 9-2320-387-24-1
 TM 9-2320-387-24P

Personnel Required

One mechanic
 One assistant

Equipment Condition

- Fuel injector nozzle removed (TM 9-2320-387-24-2).
- Geared fan driveshaft removed (para. 3-80.3).

General Safety Instructions

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa).

Maintenance Level

Direct support

Removal

NOTE

Affected cylinder piston must be brought to Top Dead Center (TDC) position to ensure intake and exhaust valves are closed.

1. Using socket wrench and breaker bar on torsion damper bolt (3), rotate crankshaft to bring piston (in affected cylinder) to TDC position.

NOTE

Perform steps 2 and 3 if failed glow plug is still installed in cylinder head. Perform step 4 if failed glow plug has been removed from the cylinder head and glow plug tip is broken off in cylinder head prechamber. Perform steps 5 and 6 if failed glow plug tip is swollen.

2. Insert needlenose pliers through injector nozzle opening (1), grasp glow plug tip, break off expanded tip, and remove piece from prechamber.
3. Remove glow plug (TM 9-2320-387-24-1).

WARNING

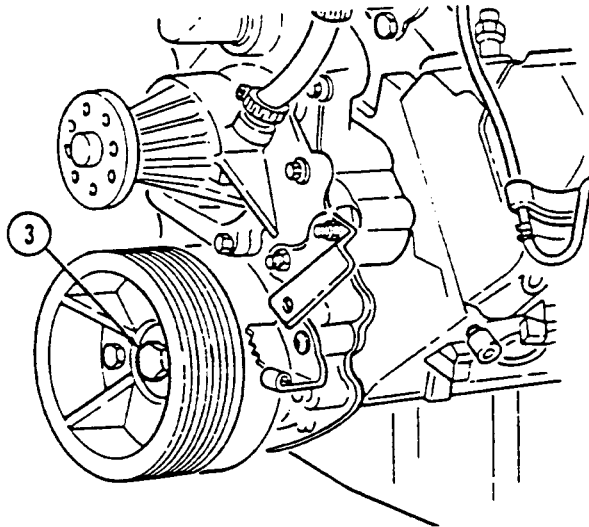
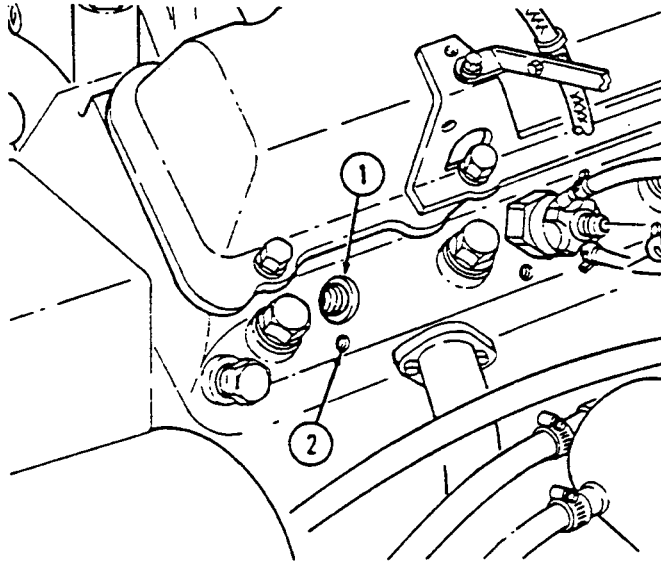
Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personnel protective equipment (goggles, shield, gloves, etc.).

4. Direct compressed air into glow plug port (2) to expel broken tip from prechamber through injector nozzle opening (1).
5. Coil one end of an 18-in. piece of tie wire the size of the injector nozzle opening (1). Place flat coil end over preheater to combustion chamber hole.

NOTE

In some cases it may be necessary to remove cylinder head to remove expanded glow plug tip.

6. Using needlenose pliers with a 90 degrees bend, insert pliers through injector nozzle opening (1), grasp glow plug tip, break off expanded tip, and remove piece from prechamber.
7. Install new glow plug (TM 9-2320-387-24-1).

15-22. GLOW PLUG TIP REMOVAL (DAMAGED OR BROKEN) (Cont'd)

- FOLLOW-ON TASKS:
- Install geared fan driveshaft (para. 3-80.3).
 - Install fuel injector nozzle (TM 9-2320-387-24-2).

CHAPTER 16

FUEL SYSTEM (DS) MAINTENANCE

Refer to TM 9-2320-387-24-2 for information regarding fuel system (DS) maintenance.

CHAPTER 17

COOLING SYSTEM (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the cooling system that are specific to your REV vehicle.

**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- | | |
|---|---|
| <p>a. Removal</p> <p>b. Disassembly</p> | <p>c. Assembly</p> <p>d. Installation</p> |
|---|---|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24-2
TM 9-2320-387-24P

Equipment Condition

- Right underbody extension armor (integrated) removed (TM 9-2320-387-24-2).
- Fuel tank removed (TM 9-2320-387-24-1).
- Right front underbody armor (integrated) removed (TM 9-2320-387-24-2).
- Right side body mounts loosened (TM 9-2320-387-24-2).

Maintenance Level

Direct support

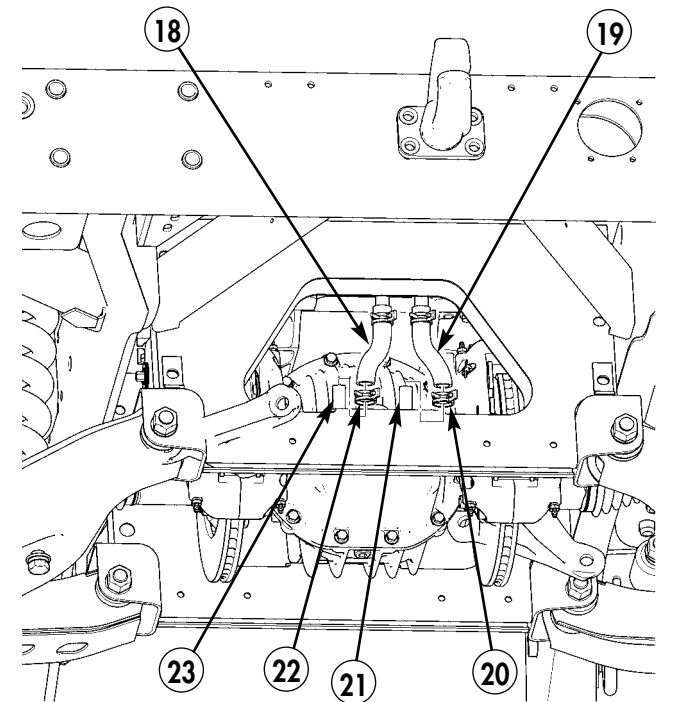
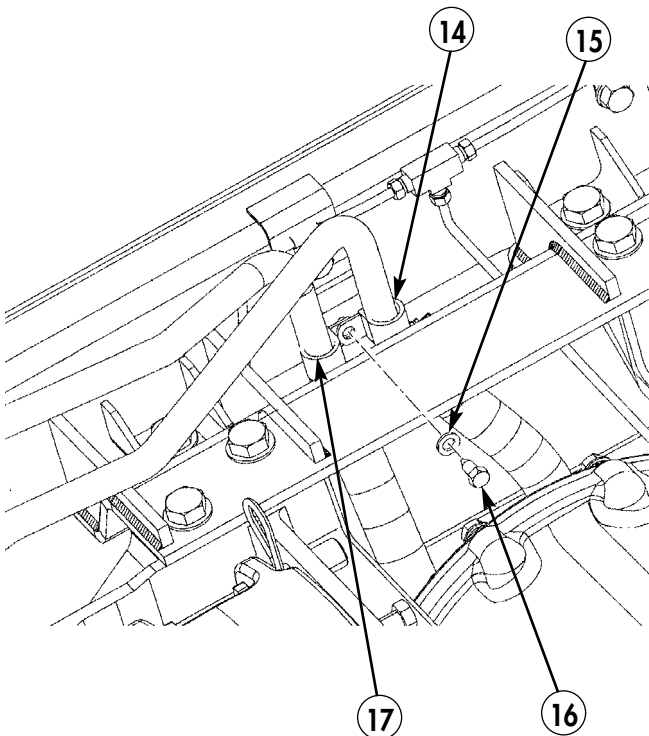
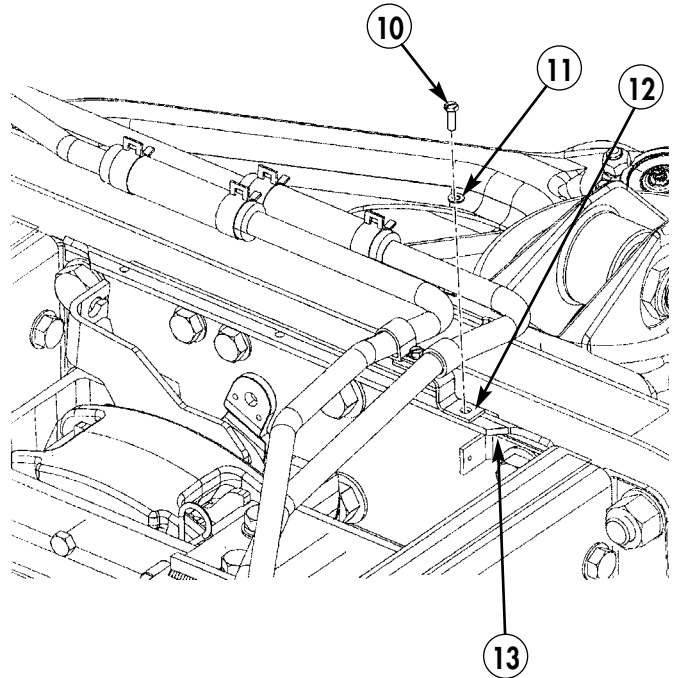
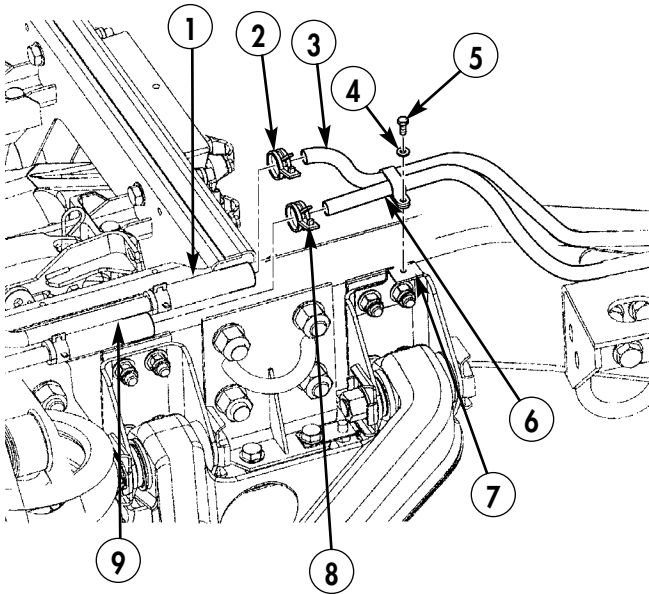
a. Removal

NOTE

It may be necessary to jack right side of body up slightly in order to access cooler lines.

1. Remove capscrew (5), washer (4), and coolant hoses (3) and (6) from bracket (7).
2. Loosen hose clamps (2) and (8) and remove coolant hoses (3) and (6) from tubes (1) and (9).
3. Remove capscrew (10), washer (11), and bracket (12) from reinforcement plate (13).
4. Remove capscrew (16) and washer (15) from clamps (14) and (17).
5. Loosen hose clamps (20) and (22) and remove tubes (18) and (19) from differential hose fittings (21) and (23).

**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

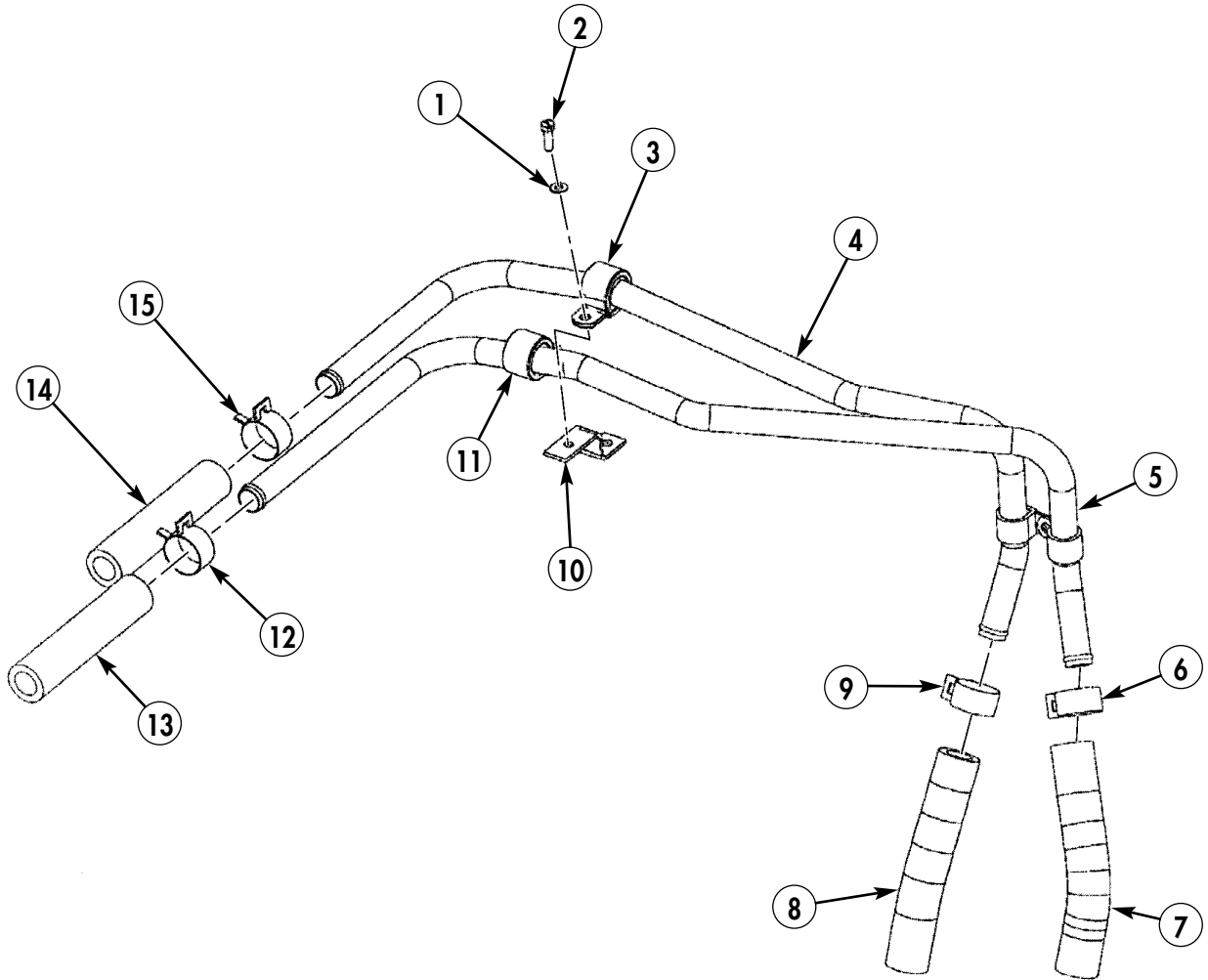
b. Disassembly

1. Remove capscrew (2), washer (1), and clamps (3) and (11) from bracket (10).
2. Loosen hose clamps (6) and (9) and remove tubes (7) and (8) from coolant hoses (4) and (5).
3. Loosen hose clamps (12) and (15) and remove tubes (13) and (14) from coolant hoses (4) and (5).
4. Remove clamps (3), (6), (9), and (11) from coolant hoses (4) and (5).

c. Assembly

1. Install clamps (11), (9), (6), and (3) on coolant hoses (5) and (4).
2. Install tubes (14) and (13) on coolant hoses (5) and (4) with hose clamps (15) and (12).
3. Install tubes (8) and (7) on coolant hoses (5) and (4) with hose clamps (9) and (6).
4. Install clamps (11) and (3) on bracket (10) with washer (1) and capscrew (2).

**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

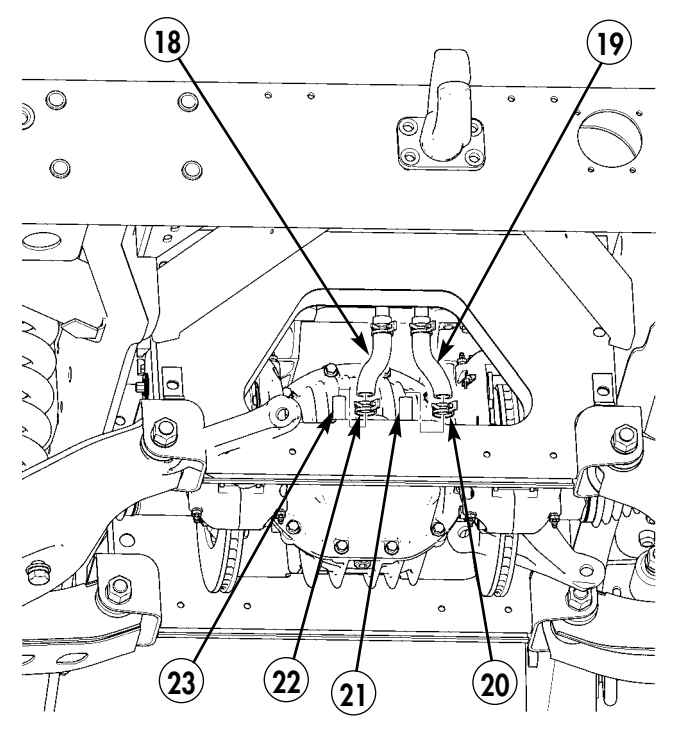
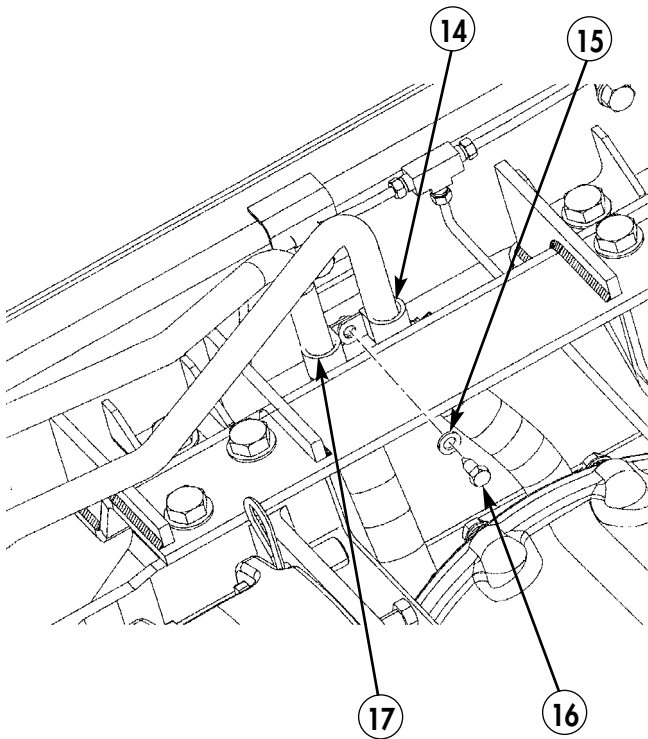
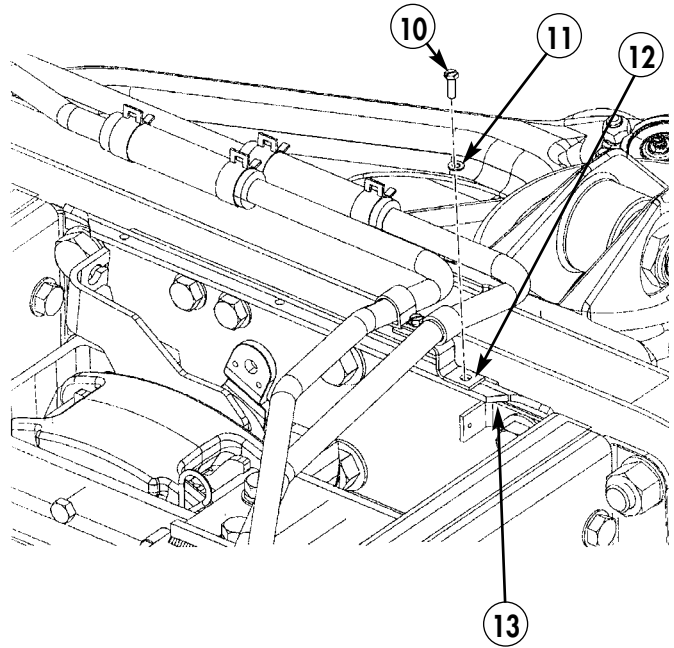
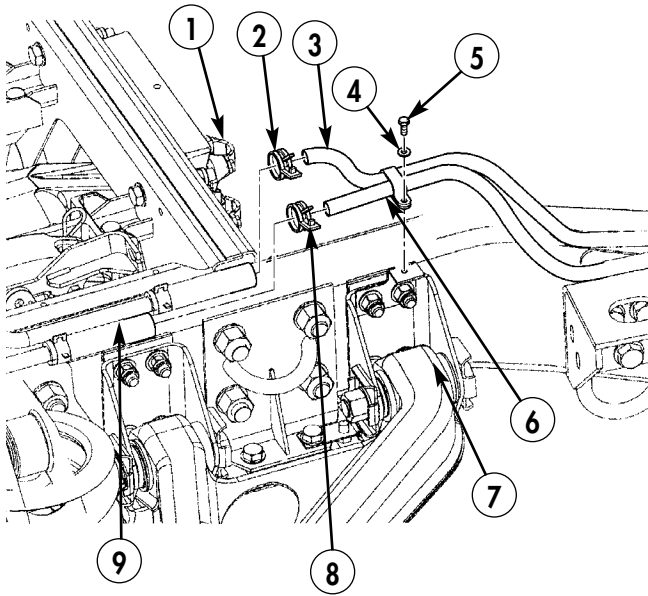
b. Installation

NOTE

It may be necessary to jack right side of body up slightly in order to access cooler lines.

1. Install tubes (19) and (18) on differential hose fittings (23) and (21) with hose clamps (22) and (20).
2. Install clamp (14) on clamp (17) with washer (15) and capscrew (16).
3. Install bracket (12) on reinforcement plate (13) with washer (11) and capscrew (10).
4. Install coolant hoses (3) and (6) on tubes (9) and (1) with hose clamps (8) and (2).
5. Install coolant hoses (3) and (6) on bracket (7) with washer (4) and capscrew (5).

**17-4. DIFFERENTIAL COOLER LINES MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Tighten right side body mount (TM 9-2320-387-24-2).
 - Install right front underbody armor (integrated) (TM 9-2320-387-24-2).
 - Install fuel tank (TM 9-2320-387-24-1).
 - Install right underbody extension armor (integrated) (TM 9-2320-387-24-2).

**17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Disassembly

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Manual References

TM 9-2320-387-24P

Equipment Condition

- Cooling system drained (TM 9-2320-387-24-1).
- Right underbody extension armor (integrated) removed (TM 9-2320-387-24-2).

Equipment Condition (cont'd)

- Fuel tank removed (TM 9-2320-387-24-1).
- Right front underbody armor (integrated) removed (TM 9-2320-387-24-2).
- Right side body mounts loosened (TM 9-2320-387-24-2).

Maintenance Level

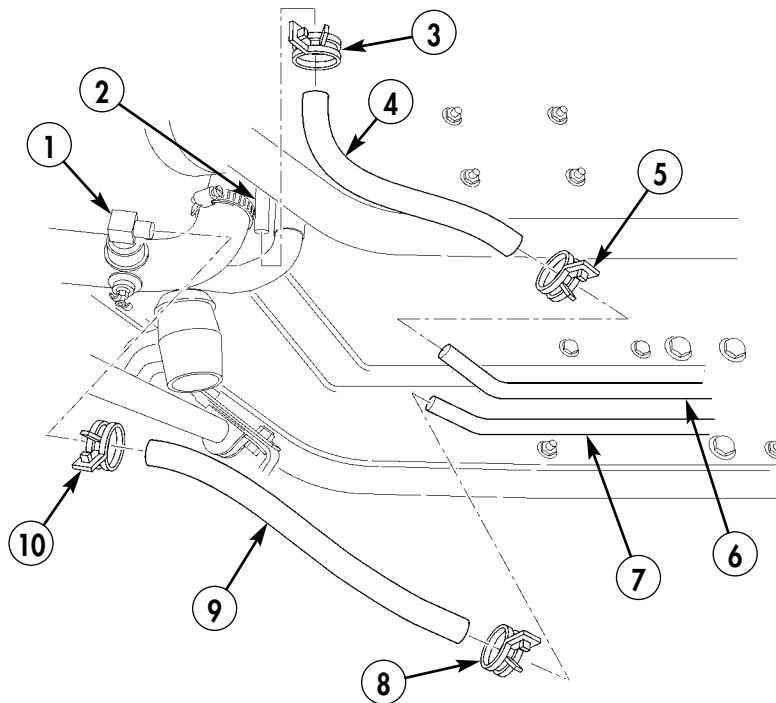
Direct support

NOTE

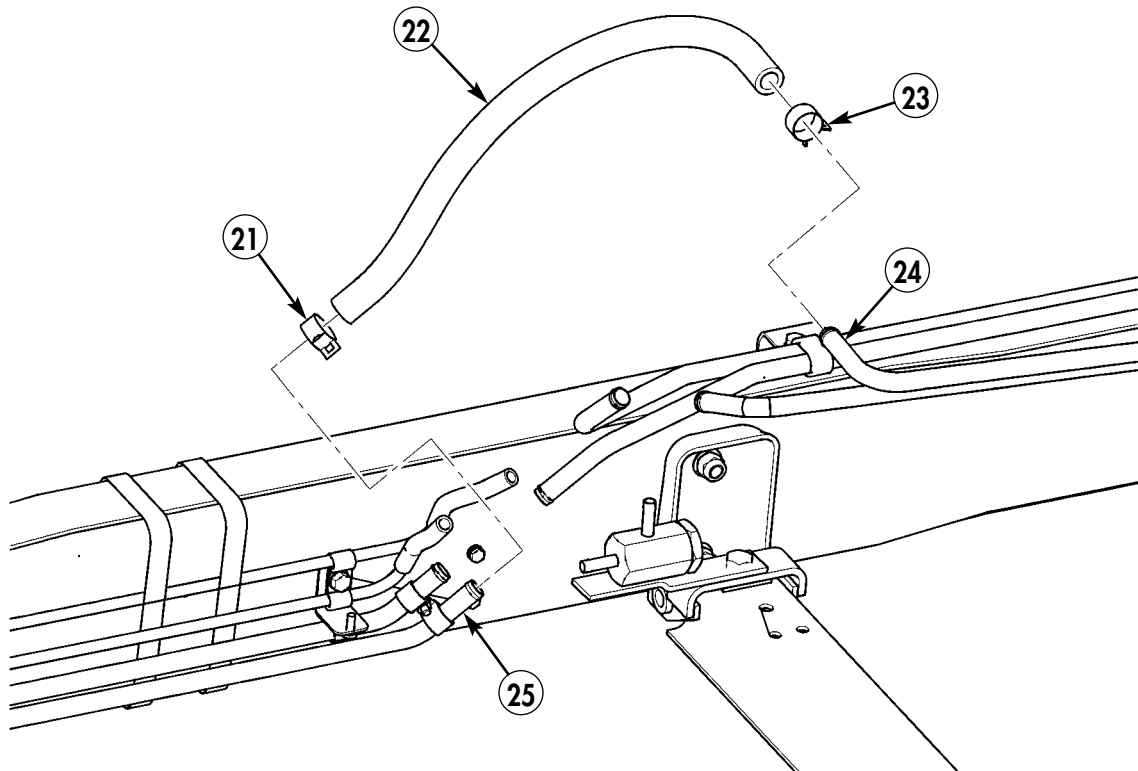
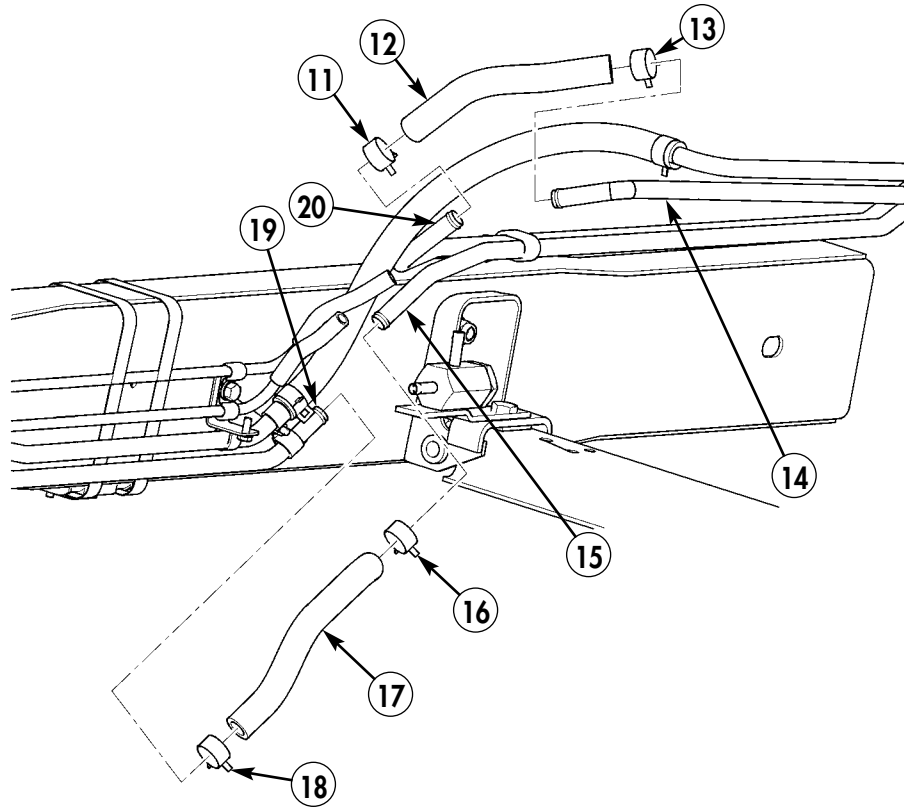
It may be necessary to jack right side of body up in order to access cooler lines.

a. Removal

1. Remove hose clamps (3) and (5) and hose (4) from tubes (2) and (6).
2. Remove hose clamps (8) and (10) and hose (9) from tubes (7) and elbow (1).
3. Remove hose clamps (11) and (13) and hose (12) from tubes (14) and (20).
4. Remove hose clamps (16) and (18) and hose (17) from tubes (15) and (19).
5. Remove hose clamps (21) and (23) and hose (22) from tubes (24) and (25).



**17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

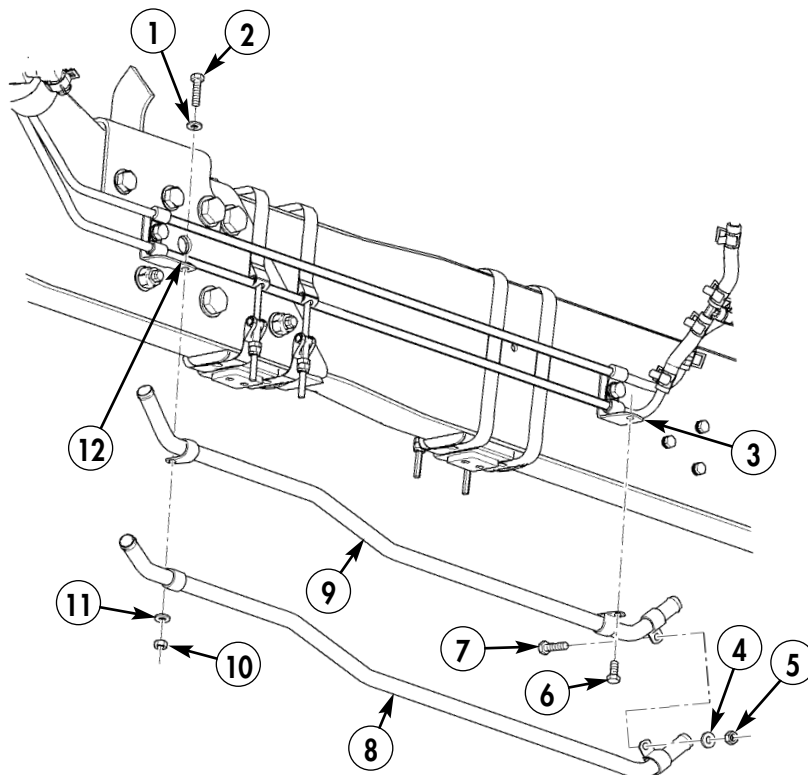


**17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

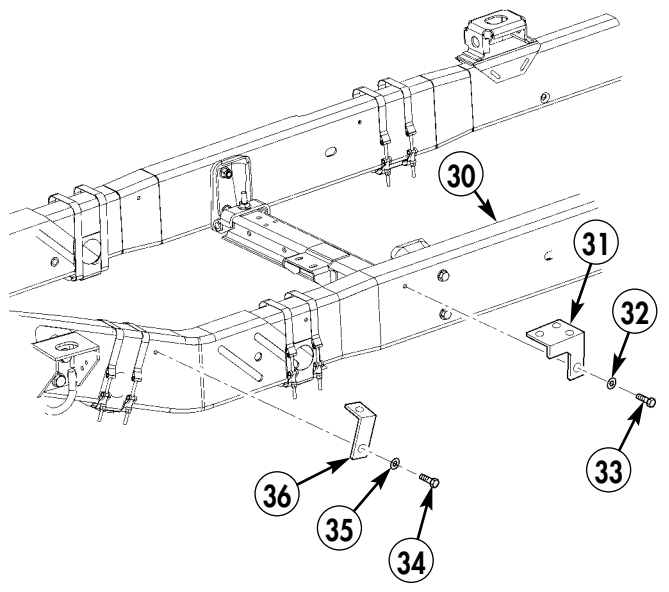
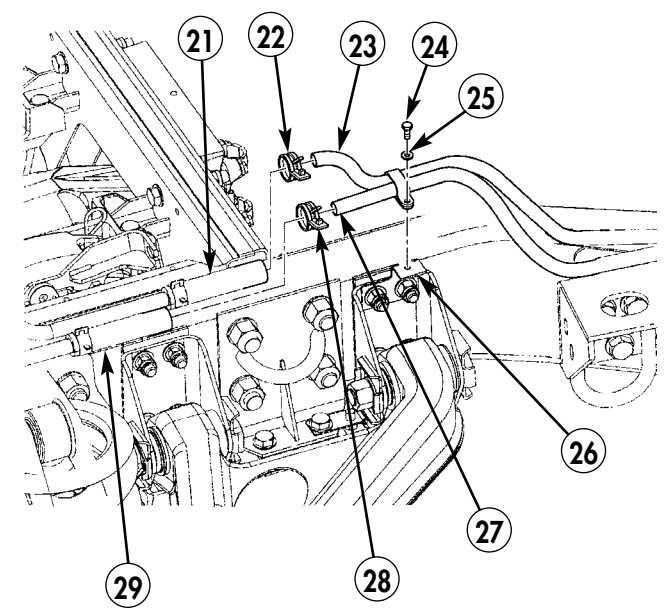
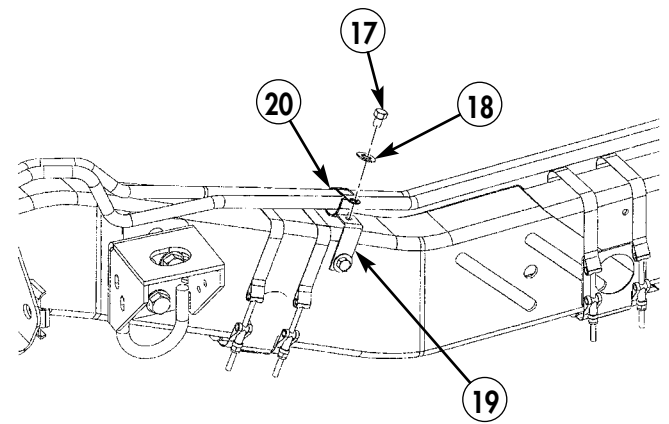
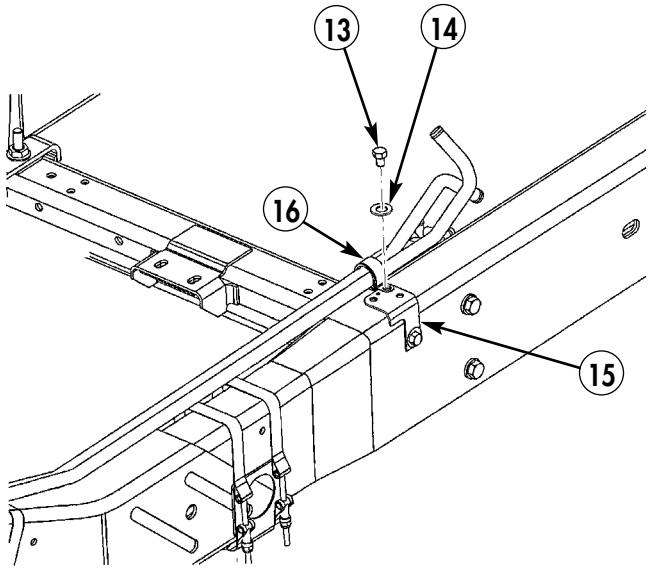
6. Remove nut (10), washer (11), capscrew (2), and washer (1) from bracket (12).
7. Remove capscrew (6) and tubes (8) and (9) from bracket (3).
8. Remove nut (5), washer (4), capscrew (7), and tube (8) from tube (9).
9. Remove capscrew (13), washer (14), and clamp (16) from bracket (15).
10. Remove capscrew (17), washer (18), and clamp (20) from bracket (19).
11. Remove capscrew (24), washer (25), and tubes (23) and (27) from bracket (26).
12. Remove hose clamps (22) and (28) and tubes (23) and (27) from hoses (21) and (29).
13. Remove capscrews (33) and (34), washers (32) and (35), and brackets (31) and (36) from frame (30).

B. Installation

1. Install brackets (36) and (31) on frame (30) with washers (35) and (32) and capscrews (36) and (31).
2. Install tubes (27) and (23) on hoses (29) and (21) with hose clamps (28) and (22).
3. Install tubes (27) and (23) on bracket (26) with washer (25) and capscrew (24).
4. Install clamp (20) on bracket (19) with washer (18) and capscrew (17).
5. Install clamp (16) on bracket (15) with washer (14) and capscrew (13).
6. Install tube (9) on tube (8) with capscrew (7), washer (4), and nut (5).
7. Install tubes (9) and (8) on bracket (3) with capscrew (6).
8. Install tubes (9) and (8) on bracket (12) with washer (1), capscrew (2), washer (11), and nut (10).

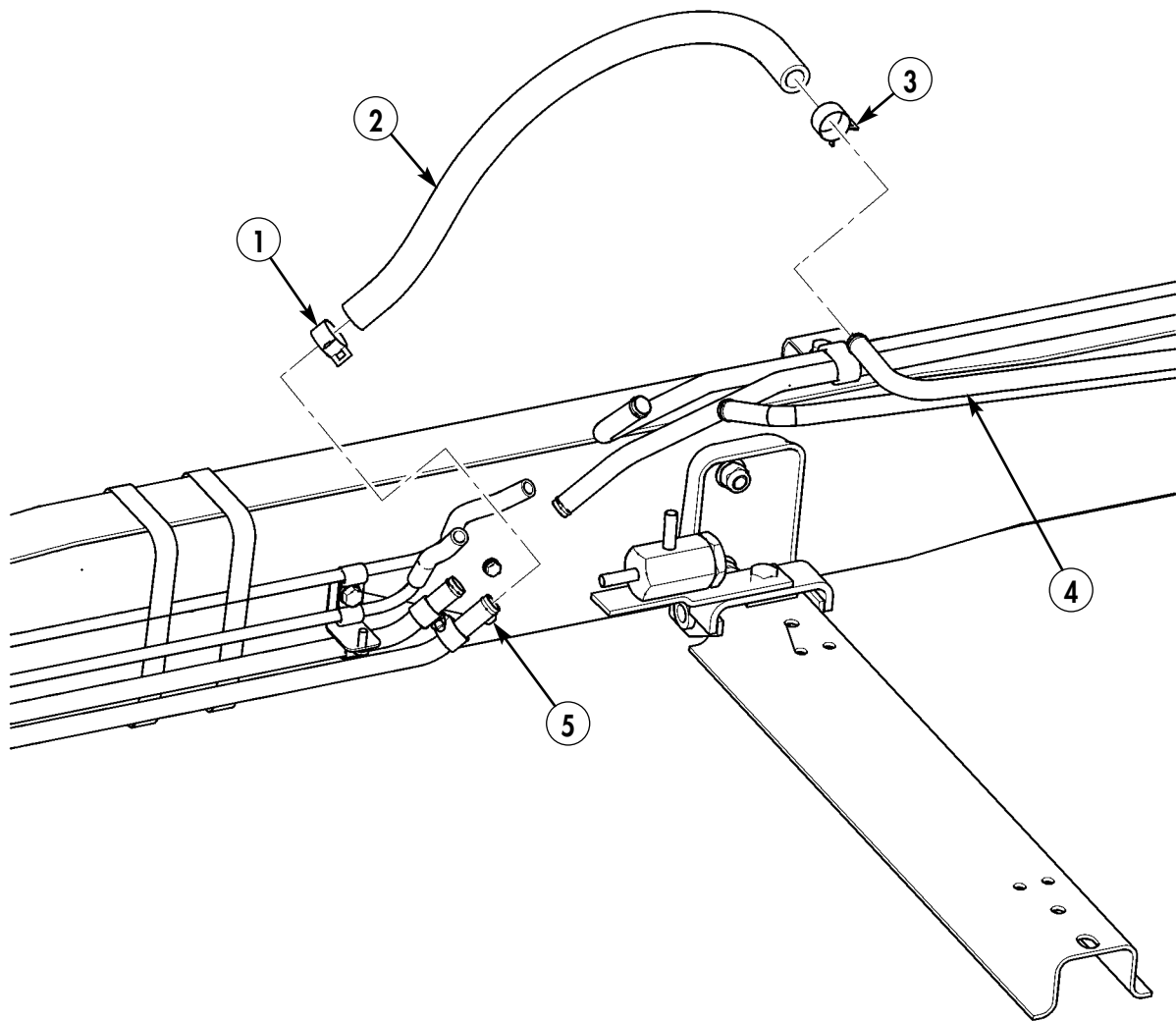


**17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

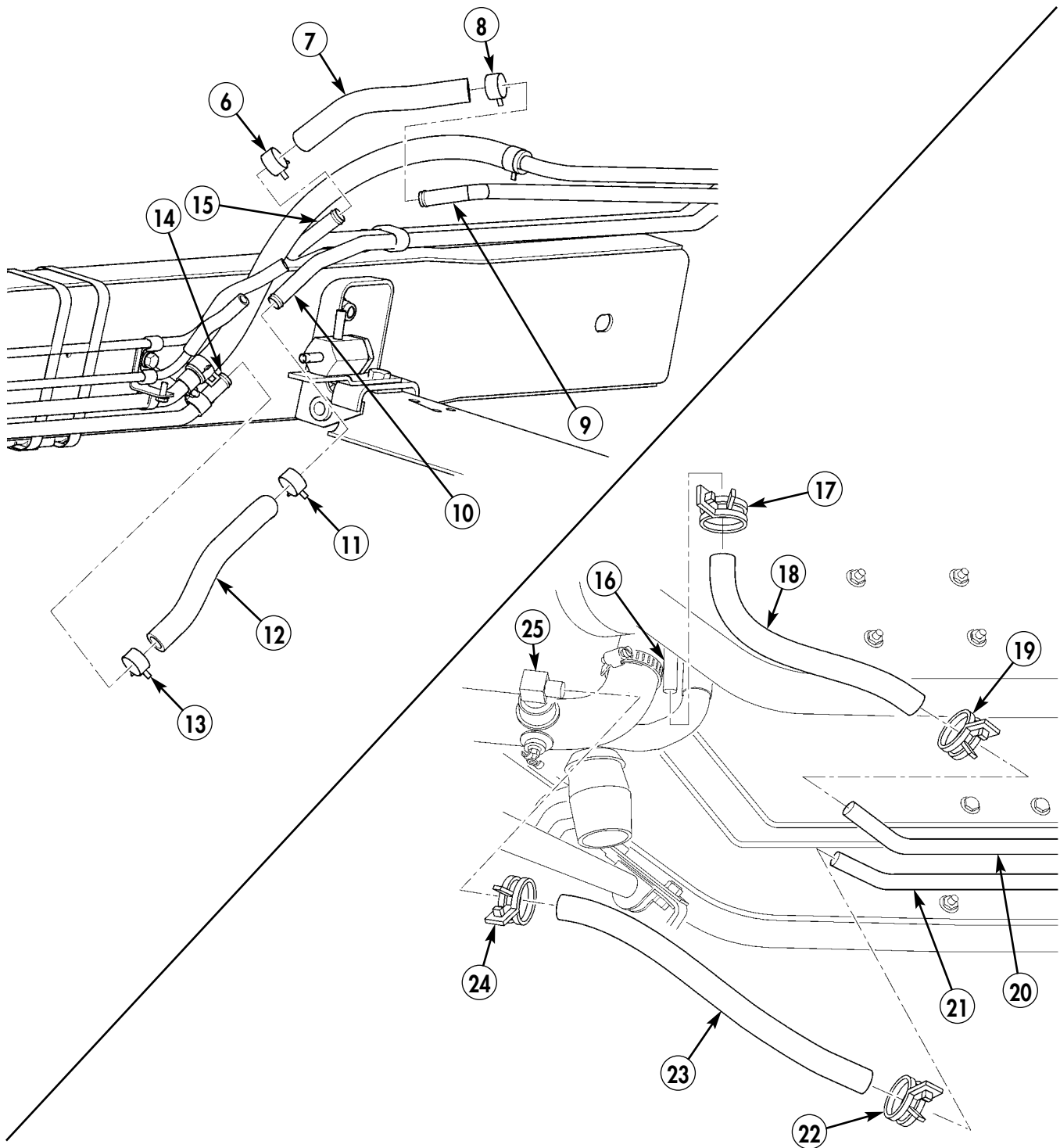


**17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

9. Install hose (2) on tubes (5) and (4) with hose clamps (3) and (1).
10. Install hose (12) on tubes (14) and (10) with hose clamps (13) and (11).
11. Install hose (7) on tubes (15) and (9) with hose clamps (8) and (6).
12. Install hose (23) on tube (21) and elbow (25) with hose clamps (24) and (22).
13. Install hose (18) on tubes (20) and (16) with hose clamps (19) and (17).



17-5. DIFFERENTIAL/TRANSFER CASE COOLER LINES REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- FOLLOW-ON TASKS:**
- Tighten right side body mounts (TM 9-2320-387-24-2).
 - Install right front underbody armor (integrated) (TM 9-2320-387-24-2).
 - Install fuel tank (TM 9-2320-387-24-1).
 - Install right underbody extension armor (integrated) (TM 9-2320-387-24-2).
 - Fill cooling system (TM 9-2320-387-24-1).

CHAPTER 18

ELECTRICAL SYSTEM (DS) MAINTENANCE

Refer to TM 9-2320-387-24-2 for information regarding electrical system (DS) maintenance.

CHAPTER 19

TRANSMISSION (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the transmission system that are specific to your REV vehicle.

19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

Removal

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Engine/transmission support sling
(TM 9-2320-387-24-2, Appendix D, Figs. 81-97)
(Optional)

Personnel Required

One mechanic
One assistant

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24-2
TM 9-2320-387-24P

Equipment Condition

- Engine access cover removed (TM 9-2320-387-24-2).
- Muffler support bracket removed (TM 9-2320-387-24-1).
- Rear propeller shaft removed (TM 9-2320-387-24-1).

Equipment Condition (Cont'd)

- Sealed converter housing covers removed (TM 9-2320-387-24-1).
- Cooling system drained (TM 9-2320-387-24-1).
- Transmission oil dipstick removed (TM 9-2320-387-24-1).
- Front propeller shaft removed (TM 9-2320-387-24-1).
- Transfer case guide cable removed (TM 9-2320-387-24-2).

General Safety Instructions

- Allow transmission/transfer case to cool before performing this task.
- Torque converter and transmission must be removed as an assembly and transmission must be level.
- Do not use hands to free transmission/transfer case assembly of hangups or snags.

Maintenance Level

Direct support

Removal

WARNING

Allow transmission/transfer case to cool before performing this task. Failure to do this may cause injury.

CAUTION

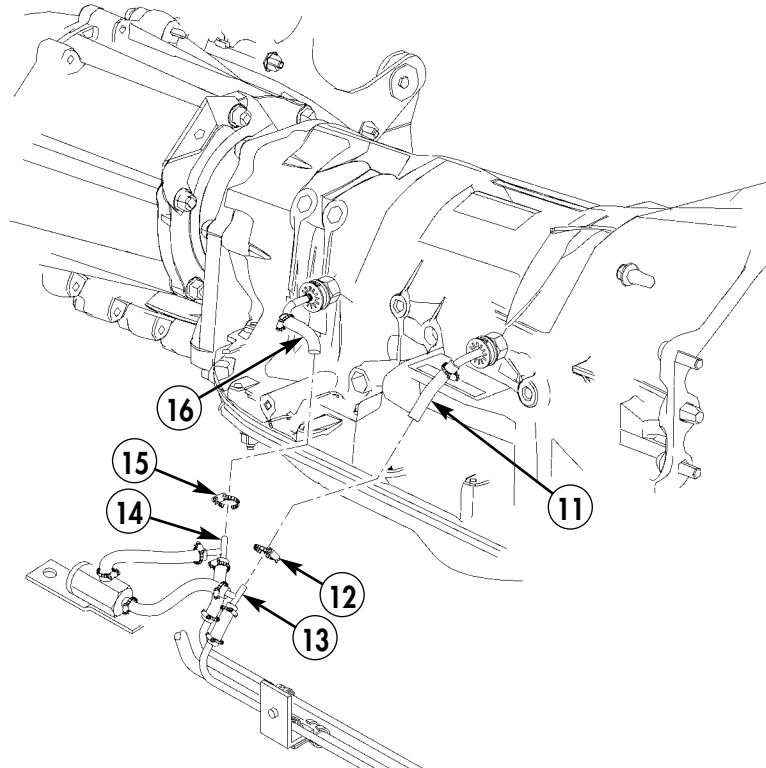
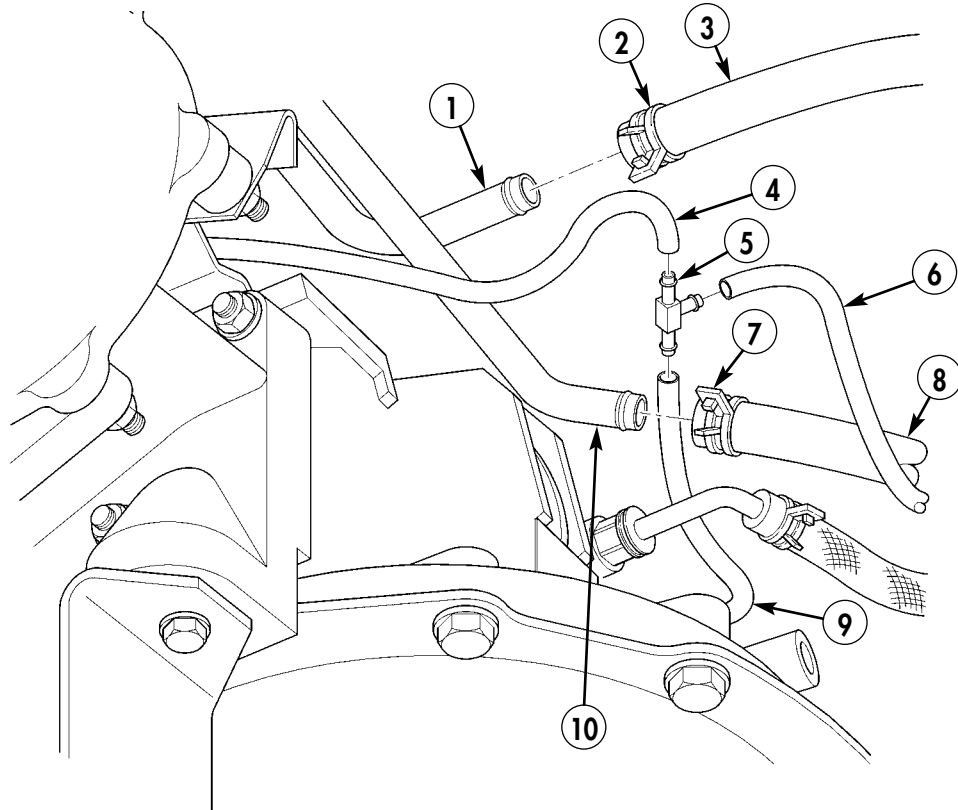
Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all covers or plugs prior to connection.

1. Raise and support rear of vehicle (TM 9-2320-387-24-1)

NOTE

- Have drainage container ready to catch fluid.
 - Tag hoses for installation.
2. Disconnect transmission vent line (9), transfer case vent line (4), and main vent line (6) from vent tee (5).
 3. Loosen clamp (2) and remove coolant hose (3) from transfer case inlet tube (1).
 4. Loosen clamp (7) and remove coolant hose (8) from transfer case outlet tube (10).
 5. Loosen hose clamp (15) and disconnect outlet hose (16) from oil cooler line tee (14).
 6. Loosen hose clamp (12) and disconnect inlet hose (11) from oil cooler line tee (13).

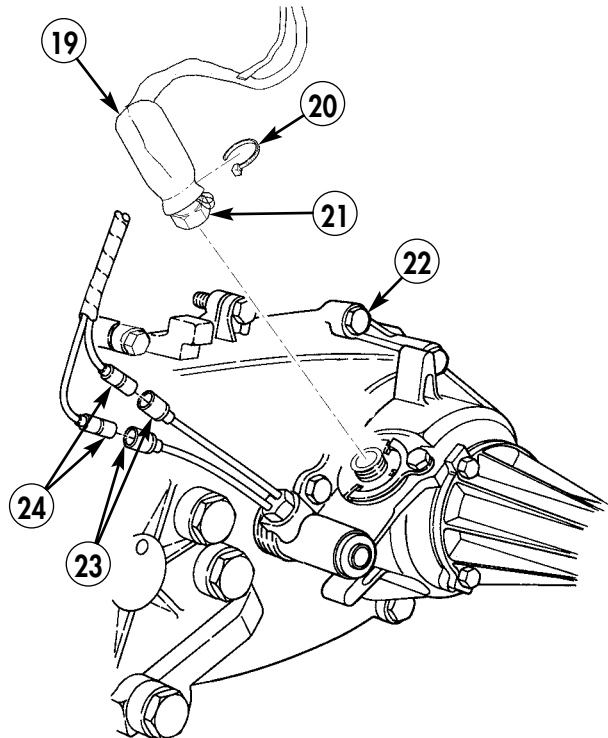
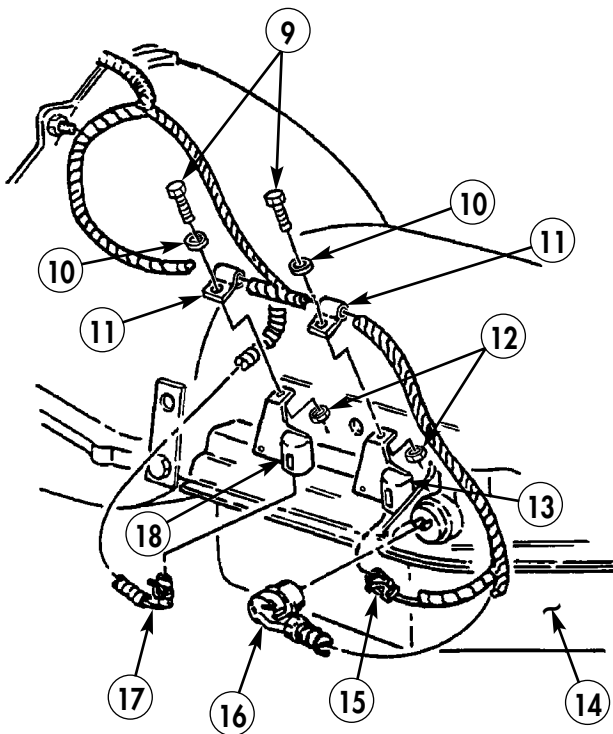
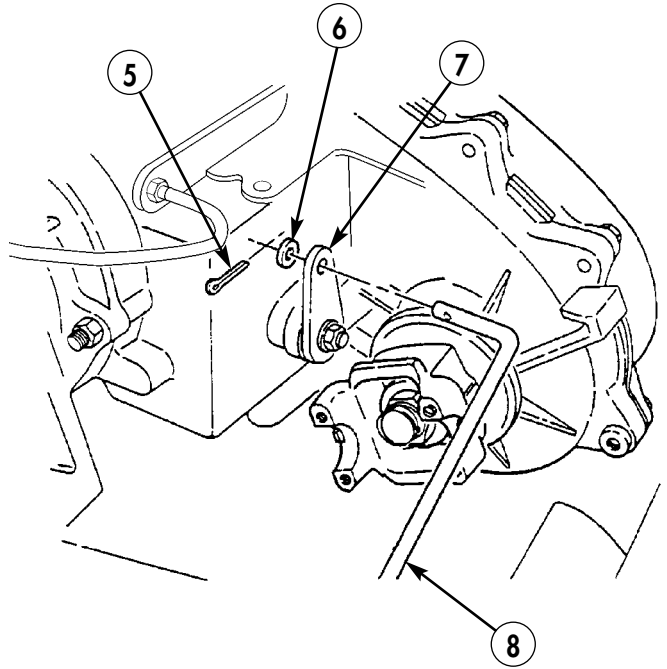
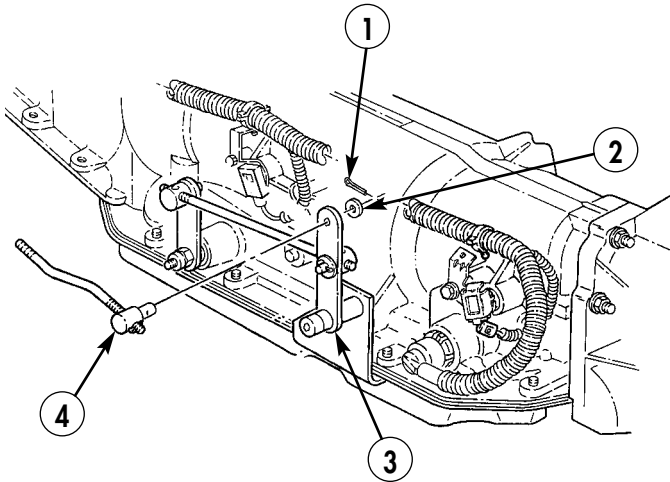
**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

7. Remove cotter pin (1), washer (2), and shift rod and trunnion (4) from relay lever (3). Discard cotter pin (1).
8. Remove cotter pin (5), washer (6), and transfer case shift rod (8) from transfer case shift lever (7). Discard cotter pin (5).
9. Disconnect wiring harness connector (16) from transmission (14).
10. Disconnect connectors 495/496 (17) and 497/498 (15) from input speed sensor (13) and output speed sensor (18).
11. Remove two nuts (12), capscrews (9), washers (10), and clamps (11) from sensors (13) and (18).
12. Remove tie strap (20) from speedometer sensor (19). Discard tie strap (20).
13. Loosen nut (21) and remove speedometer sensor (19) from transfer case (22).
14. Disconnect two leads (24) from transfer case switch leads (23) on transfer case (22).

**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

NOTE

It will be necessary to rotate flywheel clockwise from capscrew in front of crankshaft to gain access to capscrews securing torque converter.

15. Remove six capscrews (2) from torque converter (1) and flywheel (3) and slide torque converter (1) away from flywheel (3).

CAUTION

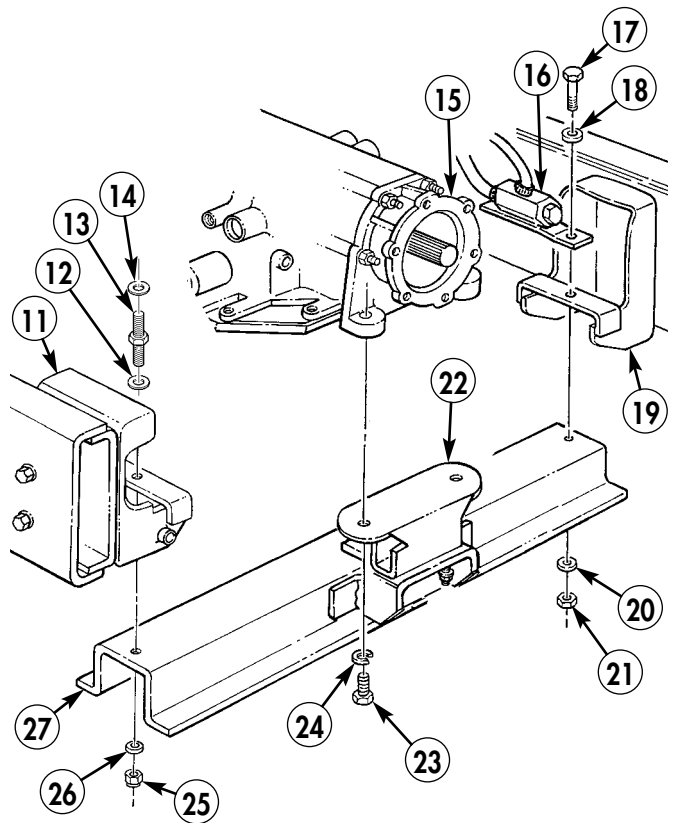
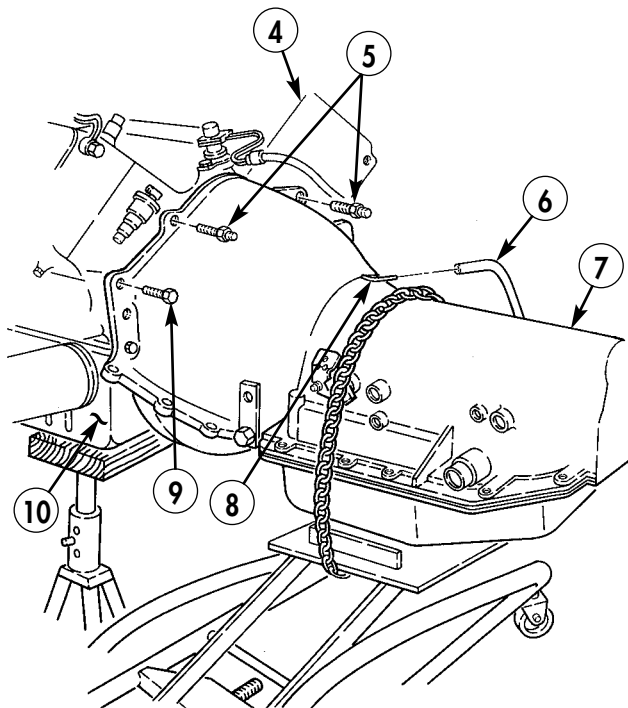
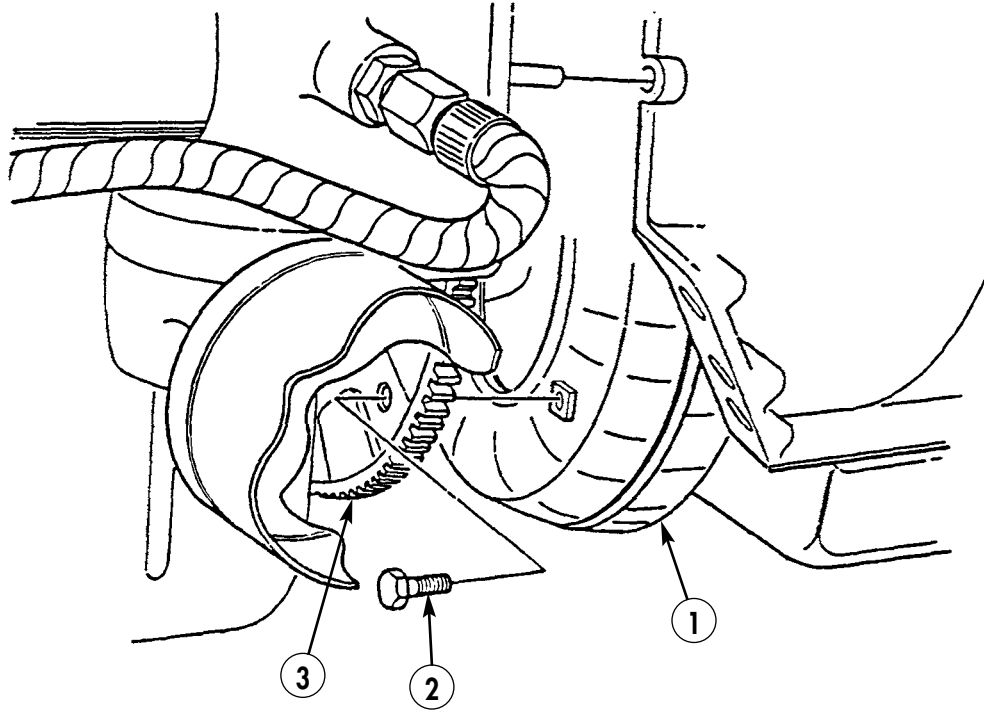
Safety chain must be routed under transmission oil cooler lines or damage may result.

16. Support transmission (7) with transmission jack and secure with safety chain.
17. Remove two capscrews (23) and lockwashers (24) from transmission adapter (15) and mount (22).
18. Remove locknut (21), washer (20), capscrew (17), washer (18), and bypass valve (16) from right side of crossmember (27) and support bracket (19). Discard locknut (21).
19. Remove locknut (25), washer (26), washer (14), stud (13), and washer (12) from left side of crossmember (27) and support bracket (11) and lower crossmember (27). Discard locknut (25).

CAUTION

- If transmission is lowered too far, geared fan drive damage will result.
 - Wood block must completely cover bottom of engine oil pan or oil pan damage will result.
20. Lower transmission (7) slightly and support engine under oil pan (10) with block and stand.
 21. Disconnect main vent line (6) from transmission/transfer case vent line (8).
 22. Remove four capscrews (9) and two studs (5) from transmission (7) and engine (4).

**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



**19-3.1. TRANSMISSION/TRANSFER CASE ASSEMBLY REMOVAL
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

WARNING

Torque converter and transmission must be removed as an assembly. Keep transmission level. The converter may slide off front of transmission and cause injury to personnel or damage to converter.

Do not use hands to free transmission/transfer case assembly of hang-ups or snags. Use prybar to avoid injury.

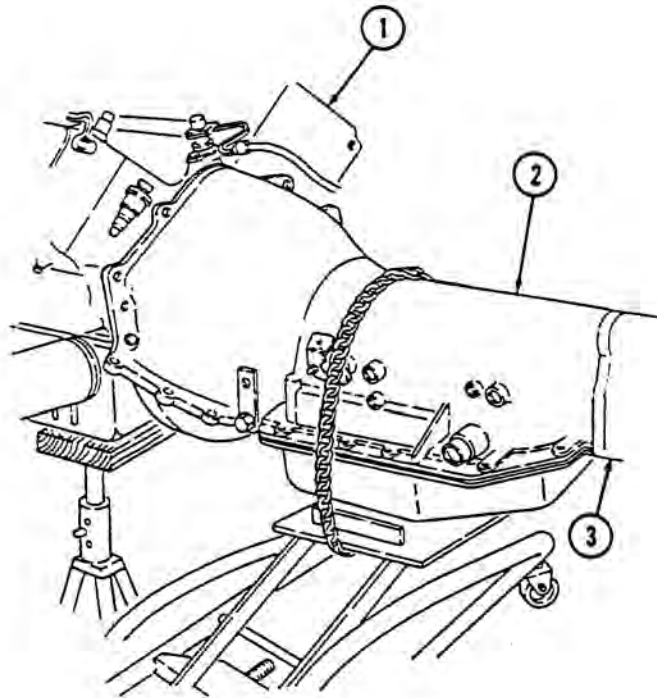
CAUTION

Always remove transmission/transfer case assembly slowly and watch for binding or hang-ups. Something may still be connected and must be removed. Ensure wiring, lines, cables, and rods are not in the path of the removal.

23. Move transmission (2) and transfer case (3) rearward to clear engine (1).
24. Lower transmission (2) and transfer case (3) slowly.
25. Remove transmission (2) and transfer case (3) from under vehicle.

CAUTION

If vehicle is moved because of limited shop space or tactical movement, damage to engine and vehicle may occur. To prevent damage, engine/transmission support sling can be installed.



19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a.. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Material/Parts

Two lockwashers (Appendix A, Item 174)
 Two cotter pins (Appendix A, Item 19)
 Two locknuts (Appendix A, Item 102)
 Tiedown strap (Appendix A, Item 324)
 Silicon compound (Appendix A, Item 74)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24-1
 TM 9-2320-387-24-2
 TM 9-2320-387-24P

Equipment Condition

Transmission/transfer case assembly prepared for installation (TM 9-2320-387-24-2).

General Safety Instructions

- Do not use hands to free transmission/transfer case assembly of hang-ups or snags.
- Torque converter and transmission must be removed as an assembly and transmission must be level.

Maintenance Level

Direct support

a. Installation

WARNING

- Torque converter and transmission must be installed as an assembly. Keep transmission level. The converter may slide off front of transmission and cause injury to personnel or damage to converter.
- Do not use hands to free transmission/transfer case assembly of hang-ups or snags. Use prybar to avoid injury.

CAUTION

- Always install transmission/transfer case assembly slowly and watch for binding or hang-ups.
 - Raise into chassis carefully, and closely observe all components to prevent damage.
 - Ensure wiring, lines, cables, and rods are not in the path of the installation.
1. Place transmission (4) and transfer case (5) on transmission jack and secure with safety chains.
 2. Position transmission (4) and transfer case (5) under vehicle and raise into place, aligning converter housing pilot holes (27) with engine dowels (26).

NOTE

Ensure torque converter rotates freely.

3. Move transmission (4) forward onto engine dowels (26). Install transmission (4) on engine (1) with four capscrews (7) and two studs (2). Tighten capscrews (7) and studs (2) to 35 lb-ft (47 N•m).
4. Apply RTV silicone compound to transmission/transfer case vent line (6) and connect main vent line (3) to transmission/transfer case vent line (6).

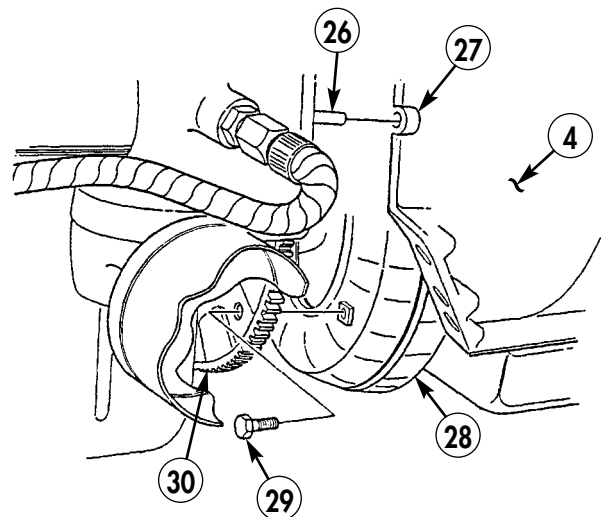
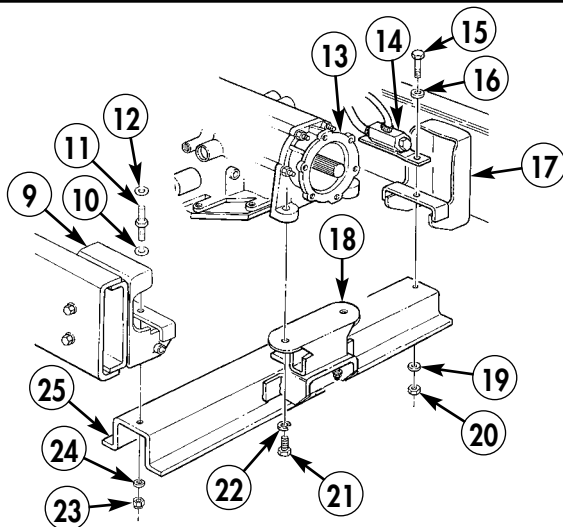
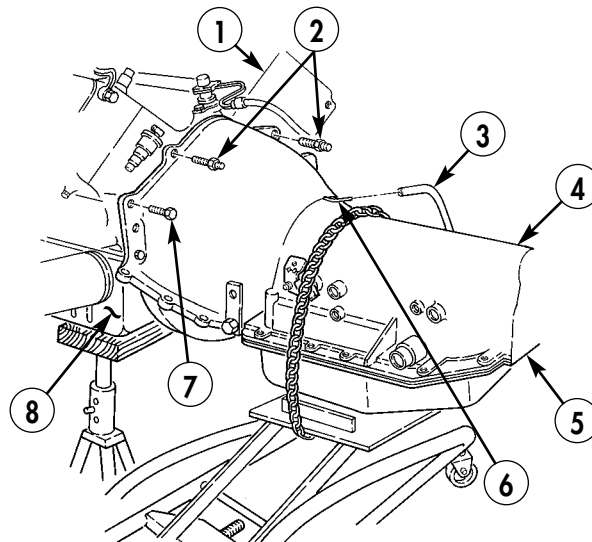
19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

5. Lower transmission (4) and transfer case (5) and remove stand and wood block from under oil pan (8).
6. Install mount (18) and crossmember (25) on transmission adapter (13) with two lockwashers (22) and capscrews (21). Tighten capscrews (21) to 65 lb-ft (88 N•m).
7. Install left side of crossmember (25) on support bracket (9) with washer (10), stud (11), washer (12), washer (24), and locknut (25).
8. Install bypass valve (14) and right side of crossmember (25) on support bracket (17) with washer (16), capscrew (15), washer (17), and locknut (20).
9. Remove safety chain and lower transmission (4).
10. Tighten locknuts (22) and (20) to 65 lb-ft (88 N•m).

NOTE

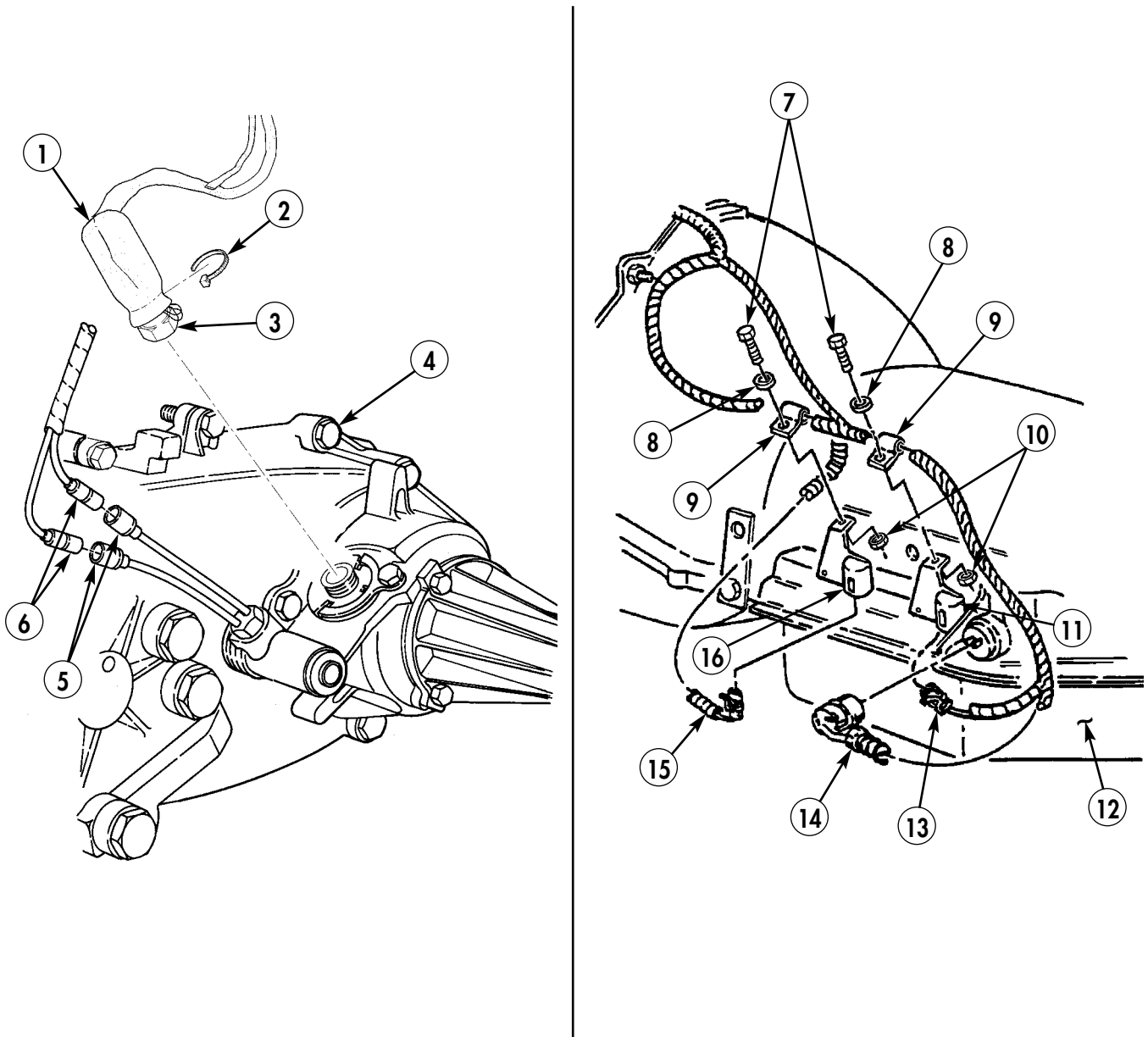
It will be necessary to rotate flywheel clockwise from capscrew in front of crankshaft to gain access to capscrews securing torque converter.

11. Align torque converter (28) with holes in flywheel (30).
12. Install torque converter (28) on flywheel (30) with six capscrews (29). Tighten capscrews (29) to 32 lb-ft (43 N•m).

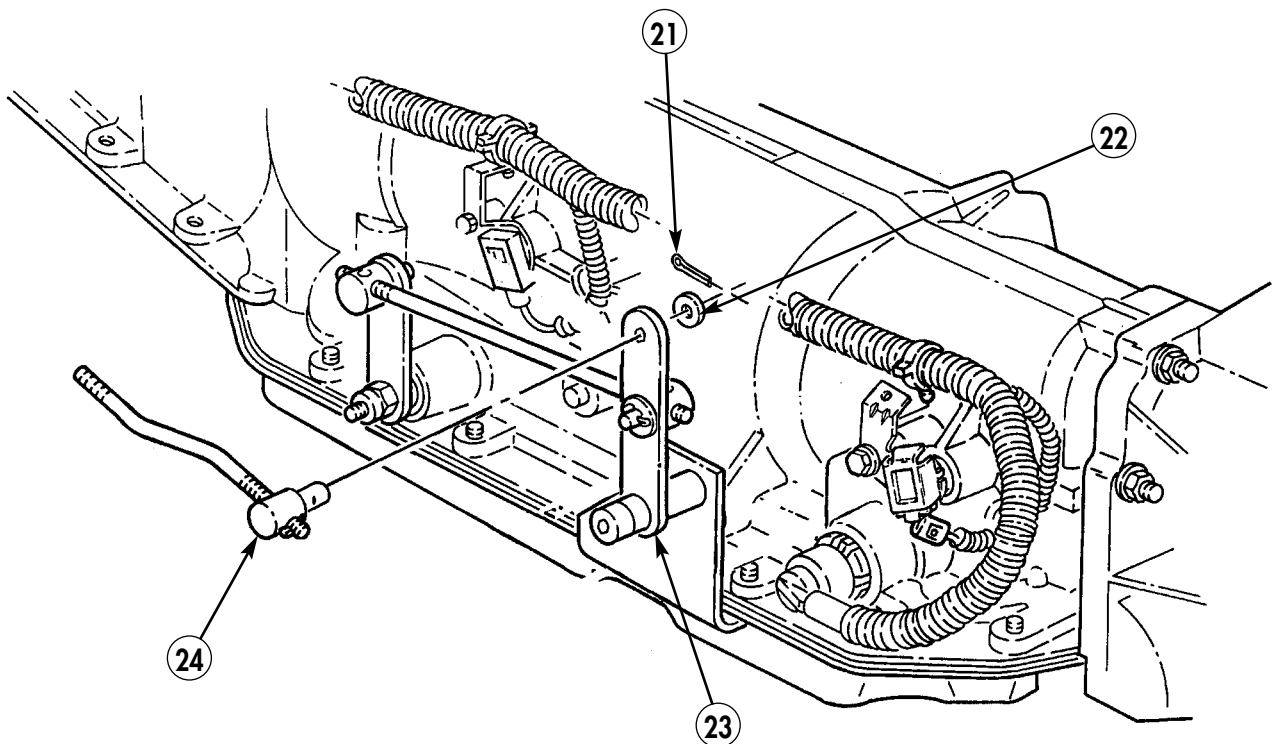
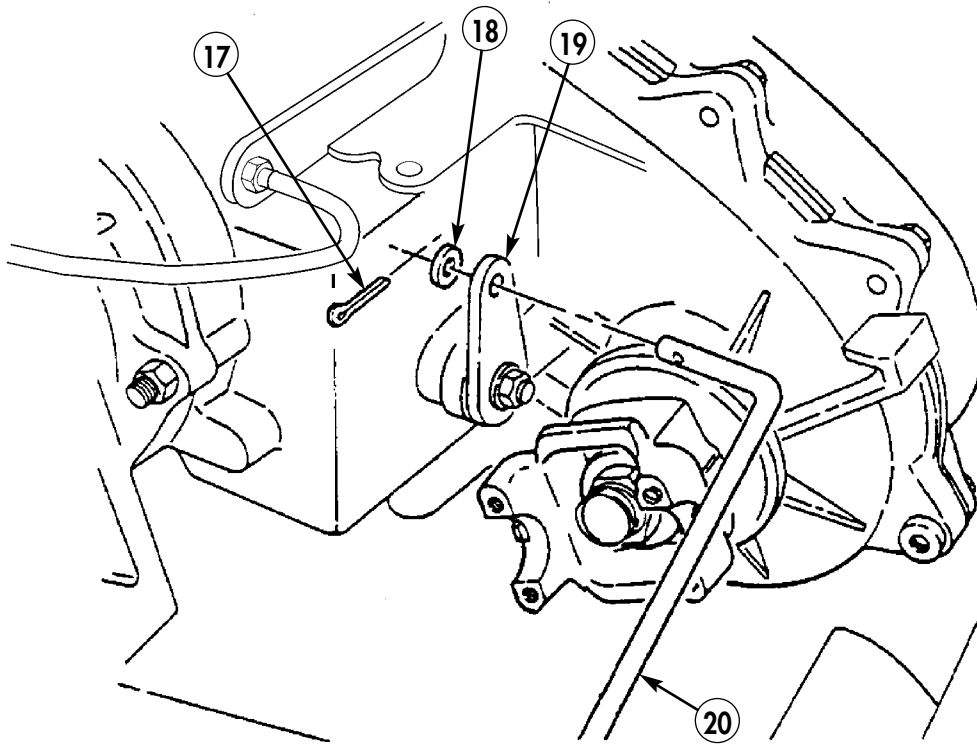


**19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

13. Connect two leads (6) to transfer case switch leads (5) on transfer case (4).
14. Install speedometer sensor (1) on transfer case (4) and tighten nut (3).
15. Install tie strap (2) on speedometer sensor (1).
16. Install clamps (9) on sensors (11) and (16) with two washers (8), capscrews (7), and nuts (10).
17. Connect connectors 495/496 (15) and 497/498 (13) on input speed sensor (11) and output speed sensor (16).
18. Connect wiring harness connector (14) on transmission (12).
19. Install transfer case shift rod (20) on transfer case shift lever (19) with washer (18) and cotter pin (17).
20. Install shift rod and trunnion (24) on relay lever (23) with washer (22) and cotter pin (21).

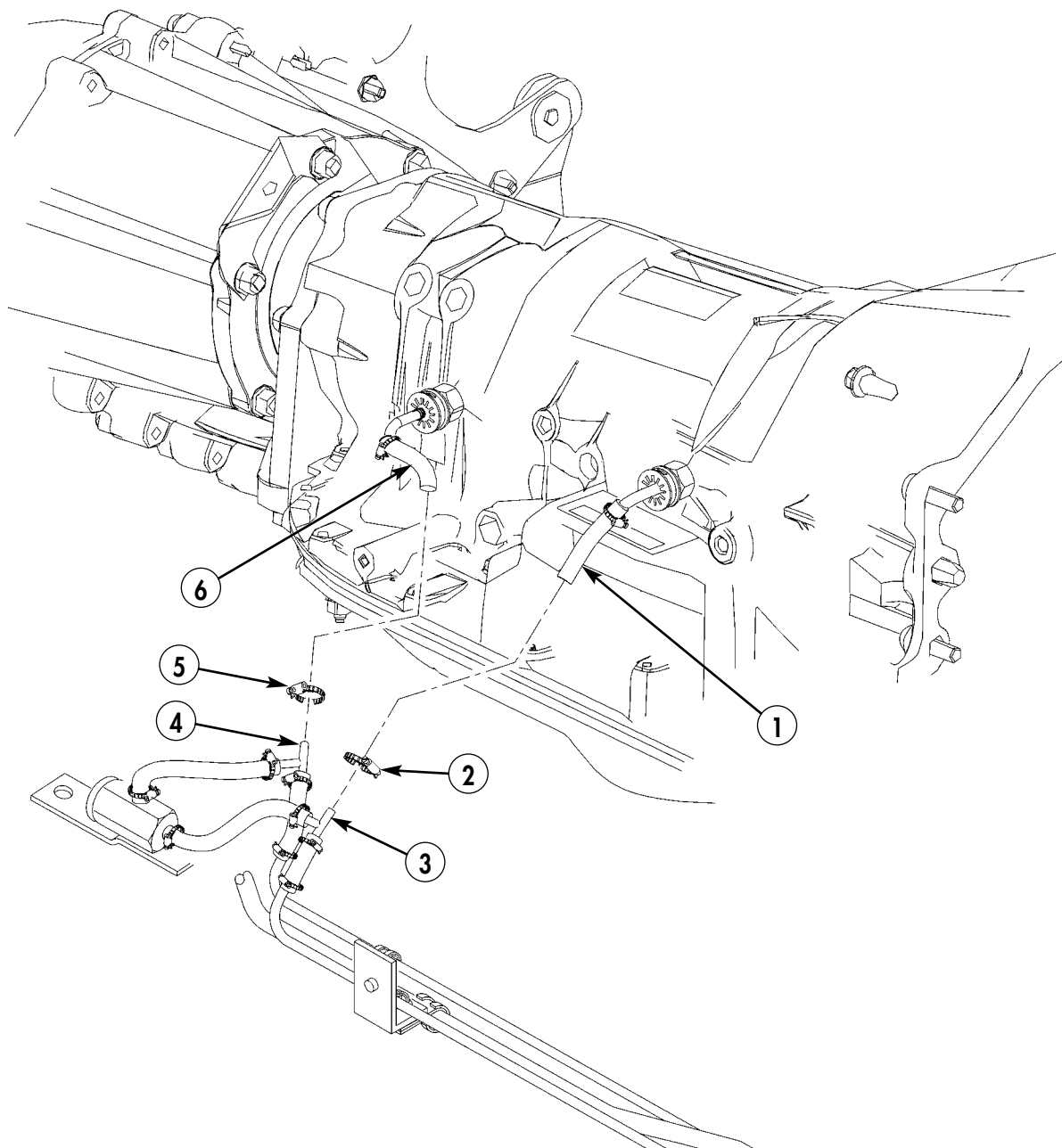


**19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

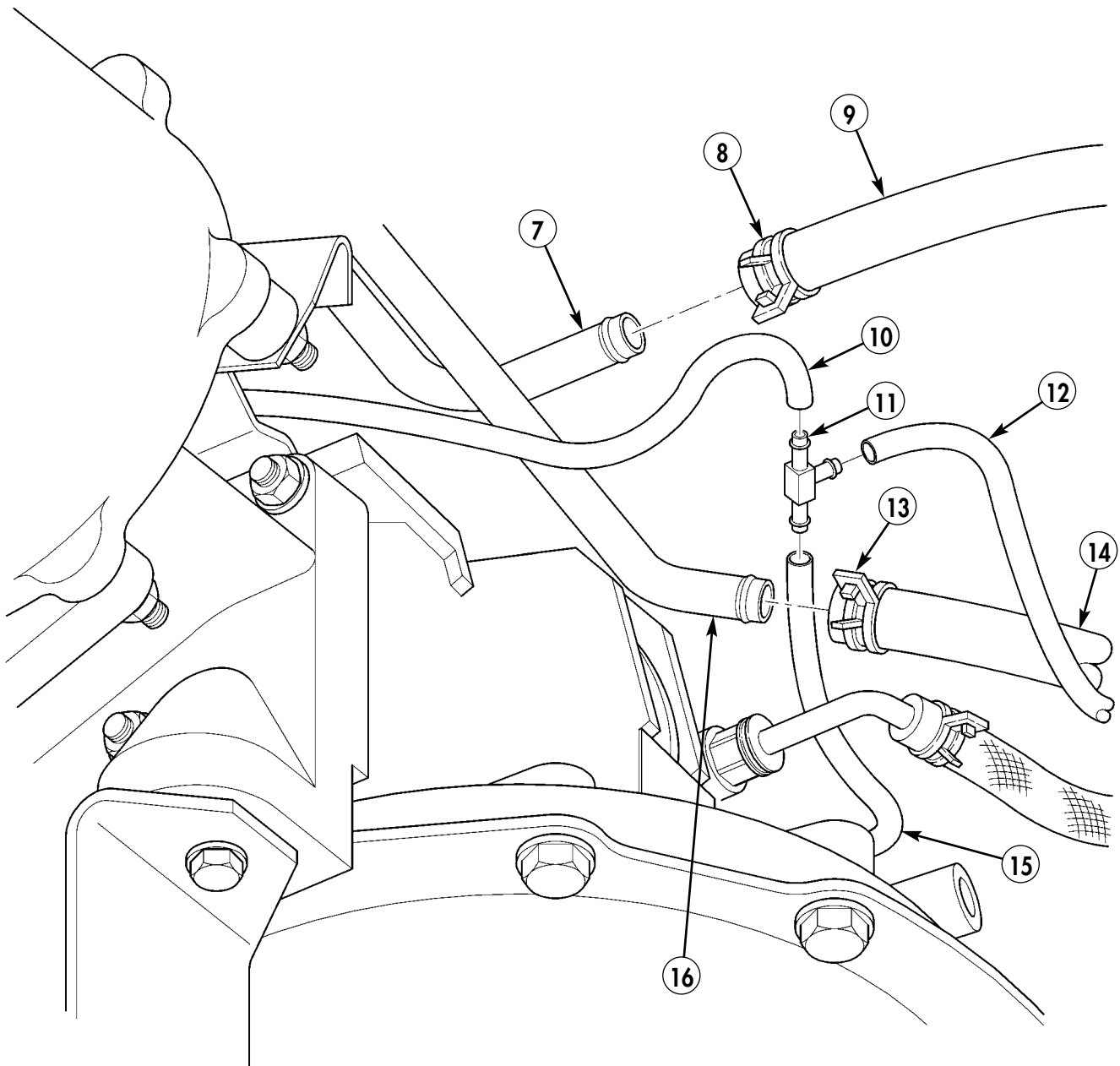


**19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

21. Connect inlet hose (1) to oil cooler line tee (3) and tighten hose clamp (2).
22. Connect outlet hose (6) to oil cooler line tee (4) and tighten hose clamp (5).
23. Install coolant hose (14) on transfer case outlet tube (16) and tighten clamp (13).
24. Install coolant hose (9) on transfer case inlet tube (7) and tighten clamp (8).
25. Connect transmission vent line (15), transfer case vent line (10), and main vent line (12) to vent tee (11).
26. Lower rear of vehicle (TM 9-2320-387-24-1).



**19-4.1. TRANSMISSION/TRANSFER CASE ASSEMBLY INSTALLATION
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install transfer case guide cable (TM 9-2320-387-24-2).
 - Install front propeller shaft (para. 6-2).
 - Install transmission oil dipstick (TM 9-2320-387-24-1).
 - Install sealed converter housing covers (TM 9-2320-387-24-1).
 - Install rear propeller shaft (TM 9-2320-387-24-1).
 - Install muffler support bracket (TM 9-2320-387-24-1).
 - Install engine access cover (TM 9-2320-387-24-2).
 - Fill transmission to proper fluid level (TM 9-2320-387-10).
 - Start engine (TM 9-2320-387-10) and inspect for leaks.
 - Road test vehicle and check for proper transmission/transfer case operation (TM 9-2320-387-24-1).

CHAPTER 20

TRANSFER CASE (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the transfer case system that are specific to your REV vehicle.

20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Special Tools

Torque adapter, 9/16-in.
(Appendix B, Item 133)

Materials/Parts

Six locknuts (Appendix A, Item 114.2)
Four lockwashers (Appendix A, Item 145)
Cotter pin (Appendix A, Item 21)
Tiedown strap (Appendix A, Item 324)
Anaerobic gasket sealer
(Appendix C, Item 58)

Personnel Required

One mechanic
One assistant

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24P

Equipment Condition

- Muffler and catalytic converter removed (TM 9-2320-387-24-1).
- Muffler support bracket removed (TM 9-2320-387-24-1).
- Transfer case guide cable removed (TM 9-2320-387-24-2).

General Safety Instructions

- Allow transfer case to cool before performing this task.
- Transfer case must be supported during removal and installation.

Maintenance Level

Direct support

a. Removal

WARNING

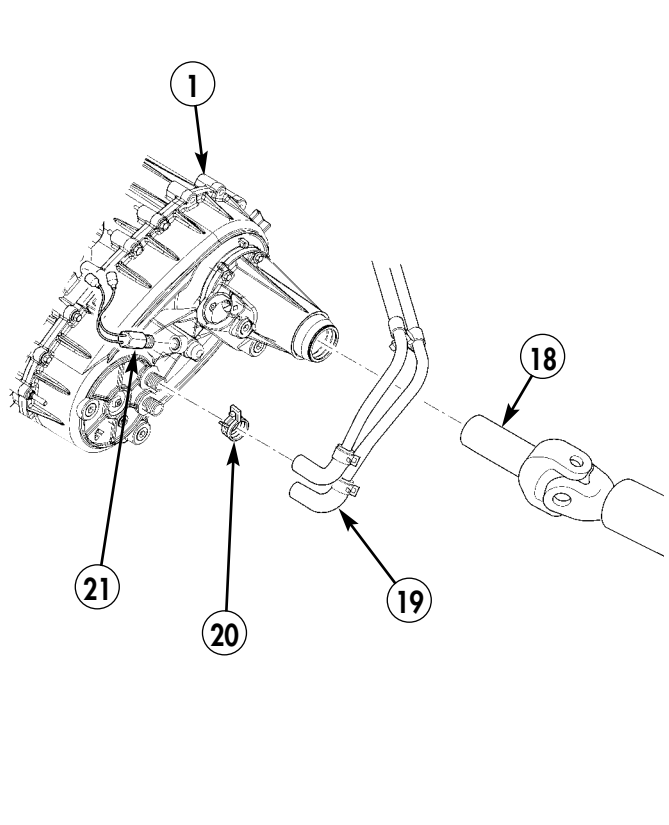
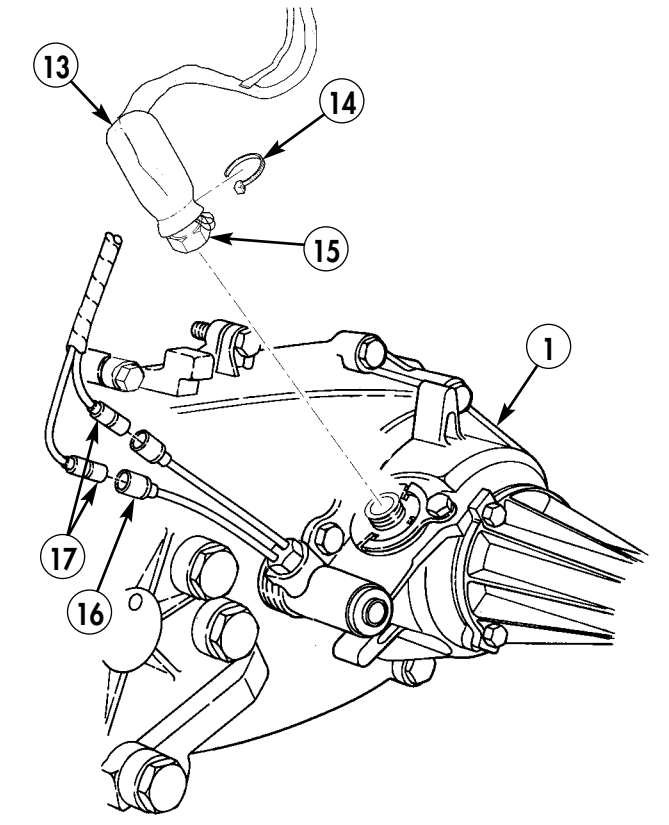
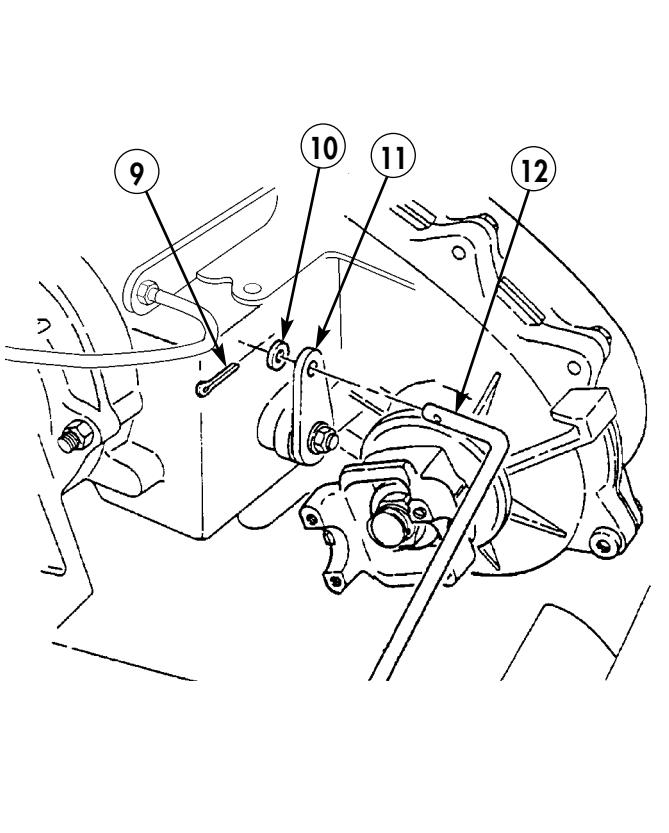
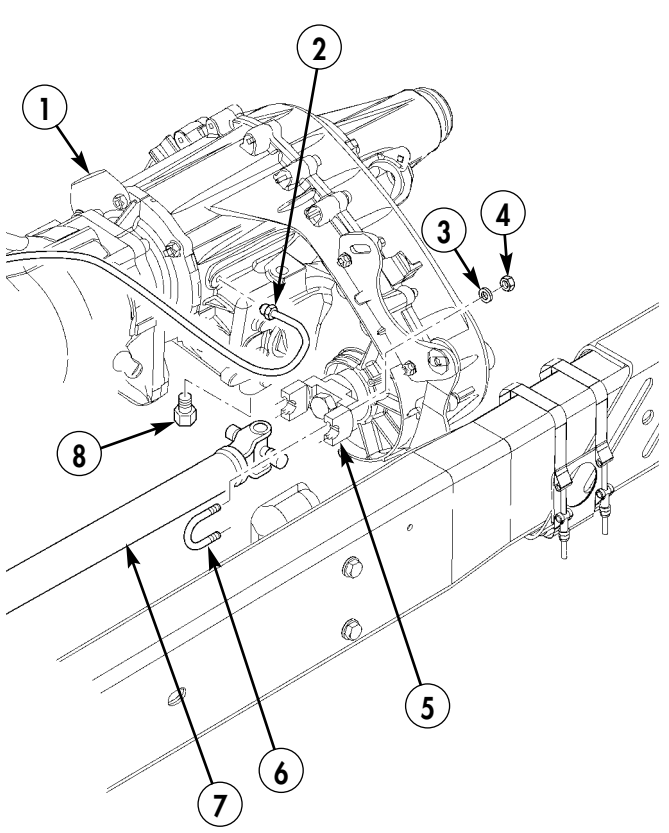
Allow transfer case to cool before performing this task. Failure to do this may cause injury to personnel.

CAUTION

Cover or plug all open lines and connections immediately after disconnection to prevent contamination. Remove all plugs prior to connection.

1. Remove drain plug (8) from transfer case (1). Allow fluid to drain.
2. Disconnect vent line (2) from transfer case (1).
3. Remove four nuts (4), lockwashers (3), two U-bolts (6), and front propeller shaft (7) from transfer case yoke (5). Discard lockwashers (3).
4. Remove cotter pin (9), washer (10), and shaft linkage (12) from transfer case lever (11). Discard cotter pin (9).
5. Remove tiedown strap (14) from sender generator (13). Discard tiedown strap (14).
6. Loosen nut (15) and remove sender generator (13) from transfer case (1).
7. Disconnect two leads (17) from transfer case switch leads (16).
8. Remove rear propeller shaft (18) from transfer case (1).
9. Loosen two clamps (20) and remove coolant hoses (19) from transfer case (1).
10. Remove transfer case switch (21) from transfer case (1).

20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

WARNING

Transfer case must be supported during removal. Failure to do this may cause injury to personnel or damage to equipment.

11. Place transmission jack under transfer case for support.
12. Remove two locknuts (5) and transfer case cooler hose bracket (4) from studs (2) of transfer case (1). Discard locknuts (5).
13. Remove four locknuts (7) from studs (6) of transfer case (1). Discard locknuts (7).
14. Slide transfer case (1) away from transfer case adapter (3). Lower transfer case (1) to clear vehicle and remove transfer case (1).
15. Clean old sealant from transfer case adapter (3) and transfer case (1).

b. Installation

WARNING

Transfer case must be supported during installation. Failure to do this may cause injury to personnel or damage to equipment.

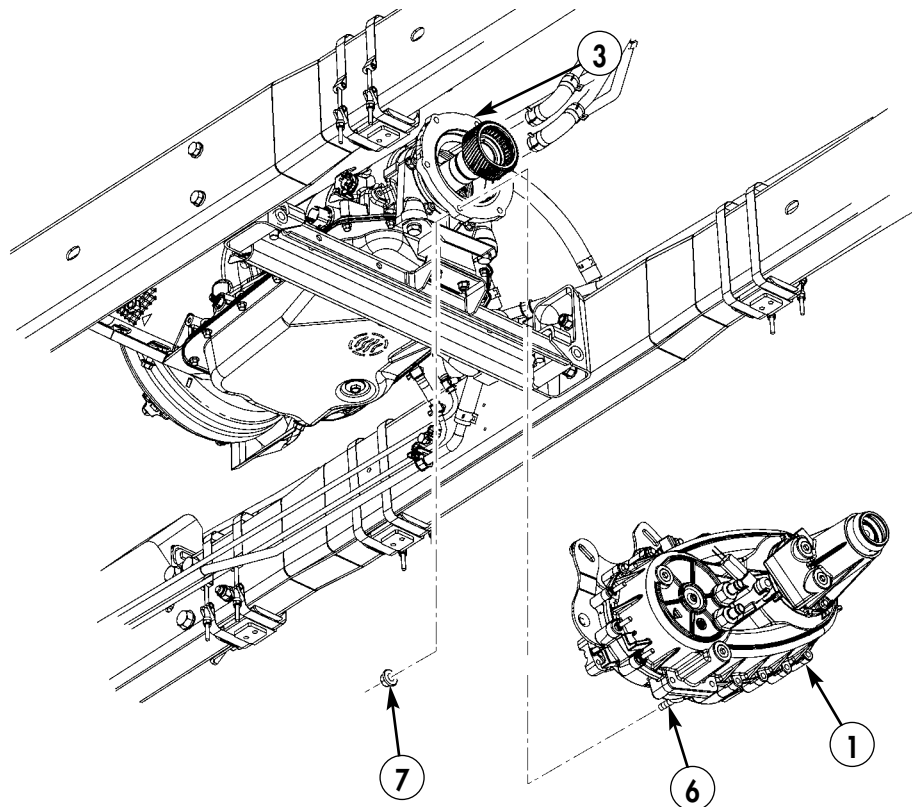
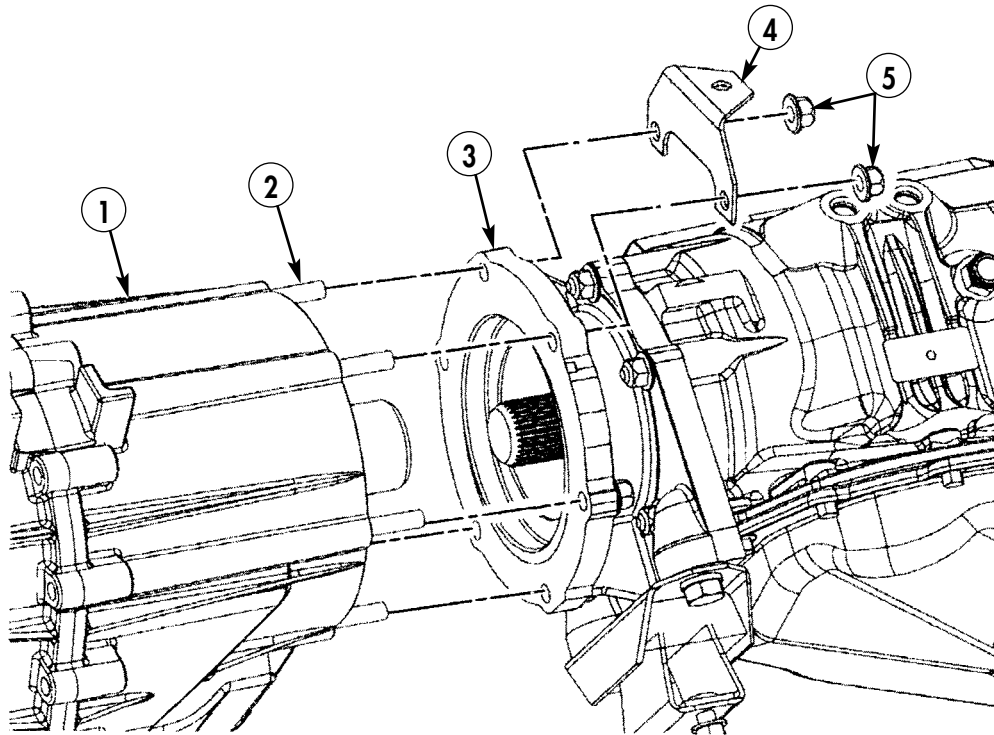
1. Place transfer case (1) on transmission jack.

NOTE

Immediately install transfer case after application of sealer.

2. Apply anaerobic gasket sealer to mounting surface of transfer case (1).
3. Raise transfer case (1) and slide studs (2) and (6) into transfer case adapter (3).
4. Secure transfer case (1) to transfer case adapter (3) with four locknuts (7).
5. Install transfer case cooler hose bracket (4) with two locknuts (5).
6. Tighten locknuts (5) and (7) to 26 lb-ft (35 N•m).
7. Remove transmission jack from transfer case.

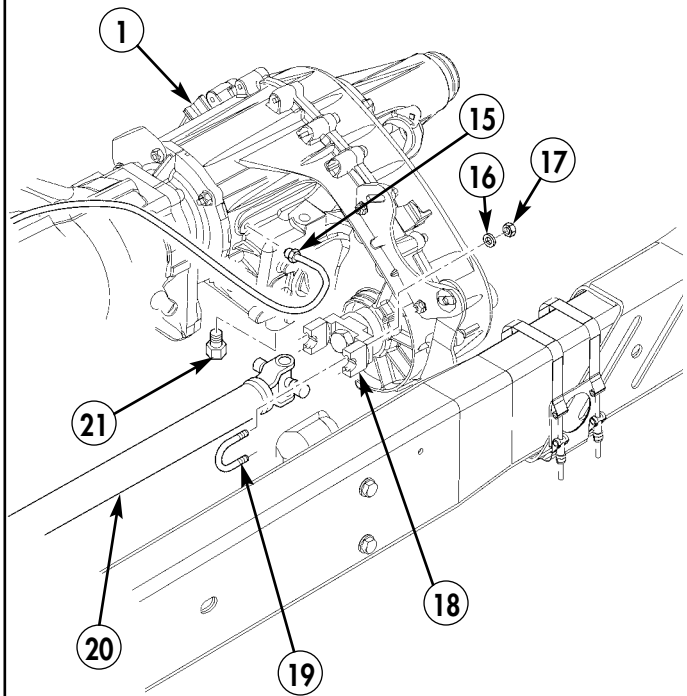
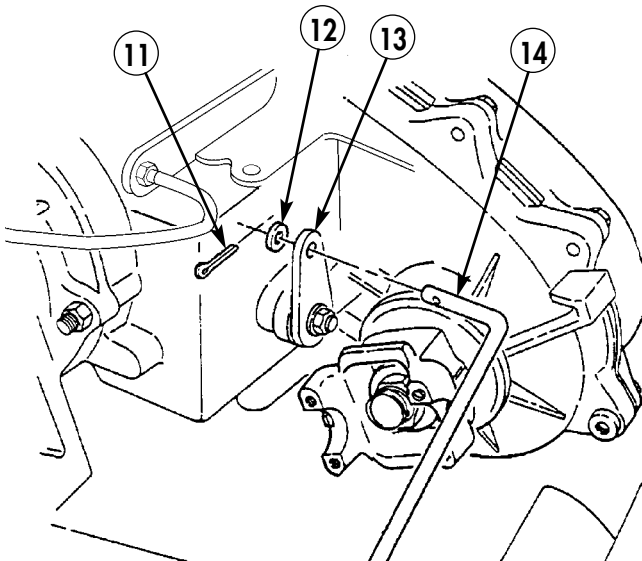
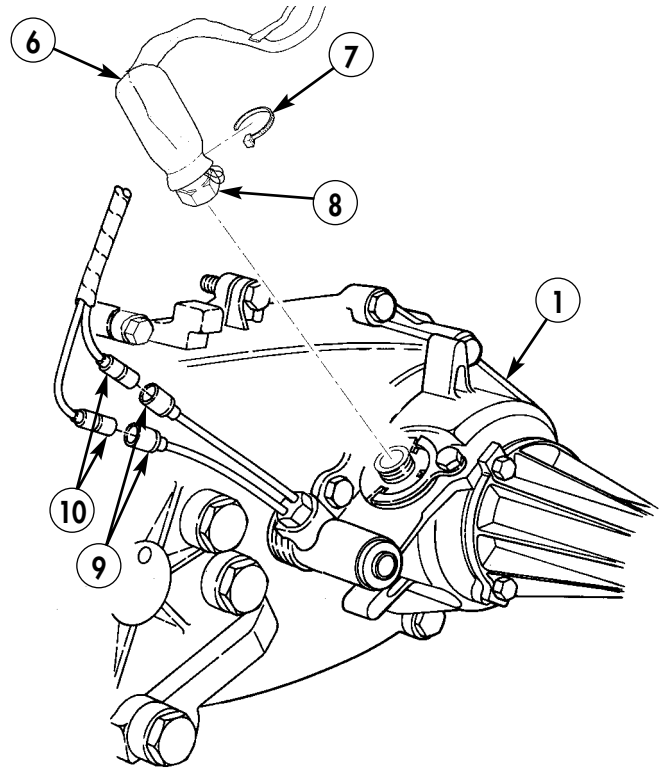
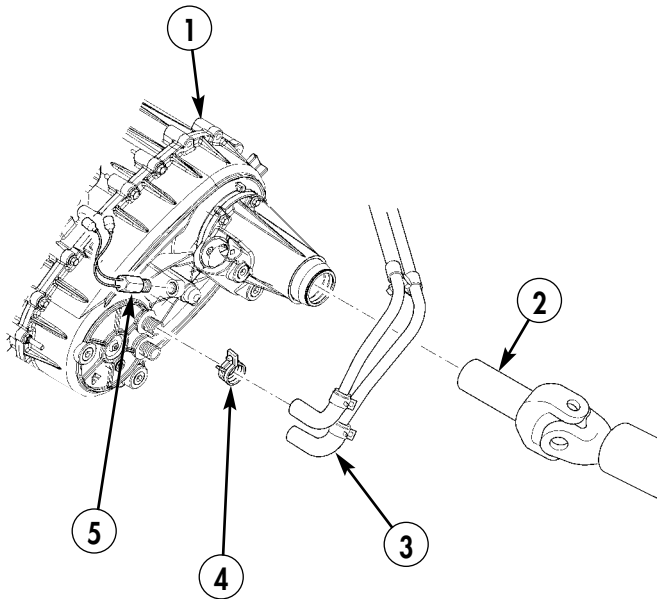
20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

8. Install transfer case switch (5) on transfer case (1).
9. Install coolant hoses (3) on transfer case (1) with two clamps (4).
10. Install rear propeller shaft (2) on transfer case (1).
11. Connect two leads (10) on transfer case switch leads (9) of transfer case switch (1).
12. Install sender generator (6) on transfer case (1) and tighten nut (8).
13. Install tie strap (7) on sender generator (6).
14. Install shaft linkage (14) on transfer case lever (13) with washer (12) and cotter pin (11).
15. Install front propeller shaft (20) on transfer case yoke (18) with two U-bolts (19), four washers (16), and locknuts (17).
16. Connect vent line (15) to transfer case (1).
17. Install drain plug (21) on transfer case (1). Tighten drain plug (21) to 35 lb-ft (47 N•m).

20-3.1. TRANSFER CASE REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- FOLLOW-ON TASKS:**
- Transfer case guide cable installed (TM 9-2320-387-24-2).
 - Muffler support bracket removed (TM 9-2320-387-24-1).
 - Muffler and catalytic converter removed (TM 9-2320-387-24-1).

20-5. TRANSFER CASE GUIDE CABLE MAINTENANCE (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

- | | |
|--|------------------------|
| <p>a. Removal</p> <p>b. Inspection</p> | <p>c. Installation</p> |
|--|------------------------|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Lockwasher (Appendix A, Item 174)
Locknut (Appendix A, Item 128)
Locknut (Appendix A, Item 102)
Locknut (Appendix A, Item 106)

Manual References

TM 9-2320-387-24P

Maintenance Level

Direct support

a. Removal

1. Remove locknut (6), washer (5), capscrew (17), washer (3), and washer (16) from muffler mounting bracket (2) and guide cable bracket (4). Discard locknut (6).
2. Remove locknut (13) and guide cable bracket (4) from capscrew (15) on transfer case (1). Discard locknut (13).
3. Remove capscrew (7), lockwasher (8), washer (9), guide cable (10), and washer (11) from frame (14). Discard lockwasher (8).
4. Remove locknut (22), washer (21), guide cable (10), and washer (20) from stud (18) on crossmember support bracket (19). Discard locknut (22).

b. Inspection

Refer to TM 9-2320-387-24-1 for nut insert (12) inspection and replacement.

c. Installation

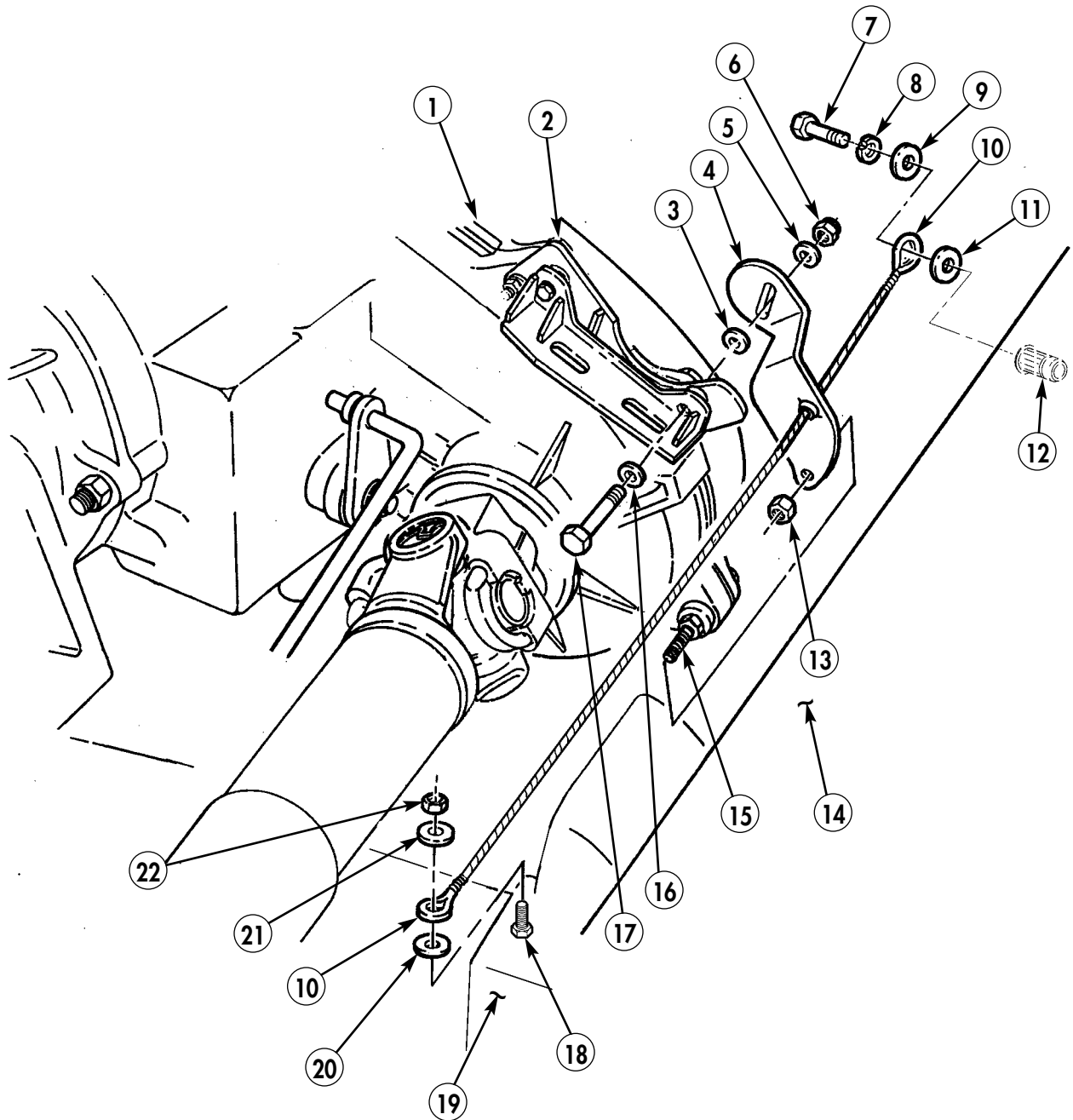
1. Install guide cable (10) and washer (20) on stud (18) on crossmember support bracket (19) with washer (21) and locknut (22).

CAUTION

Use grade 5 torque value when installing capscrews into nut inserts. Failure to do so may damage equipment or components.

2. Install guide cable (10) and washer (11) on frame (14) with washer (9), lockwasher (8), and capscrew (7).
3. Install guide cable bracket (4) on capscrew (15) on transfer case (1) with locknut (13).
4. Install washer (16), washer (3), capscrew (17), washer (5), and locknut (6) on muffler mounting bracket (2) and guide cable bracket (4).

20-5. TRANSFER CASE GUIDE CABLE MAINTENANCE (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



CHAPTER 21

PROPELLER SHAFTS, AXLES, AND SUSPENSION (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the differential system that are specific to your REV vehicle.

21-3.1. REAR DIFFERENTIAL OUTPUT SHAFT SEAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Axle shaft and seal installer
 (Appendix B, Item 99)

Materials/Parts

O-ring (Appendix A, Item 215)
 Locknut (Appendix A, Item 108)
 Sealing compound (Appendix C, Item 63)

Manual References

TM 9-2320-387-24P

Equipment Condition

Service brake rotors removed (para. 7-12.1).

Maintenance Level

Direct support

NOTE

Replacement procedures for right and left rear differential output shaft seals are basically the same. This procedure covers the right side output shaft seals.

a. Removal

1. Remove locknut (3), O-ring (4), and output flange (5) from output shaft (8). Discard O-ring (4) and locknut (3).
2. Remove two capscrews (2) and brake adapter (1) from differential (9).
3. Remove output shaft seal (7) from differential (9).

b. Installation

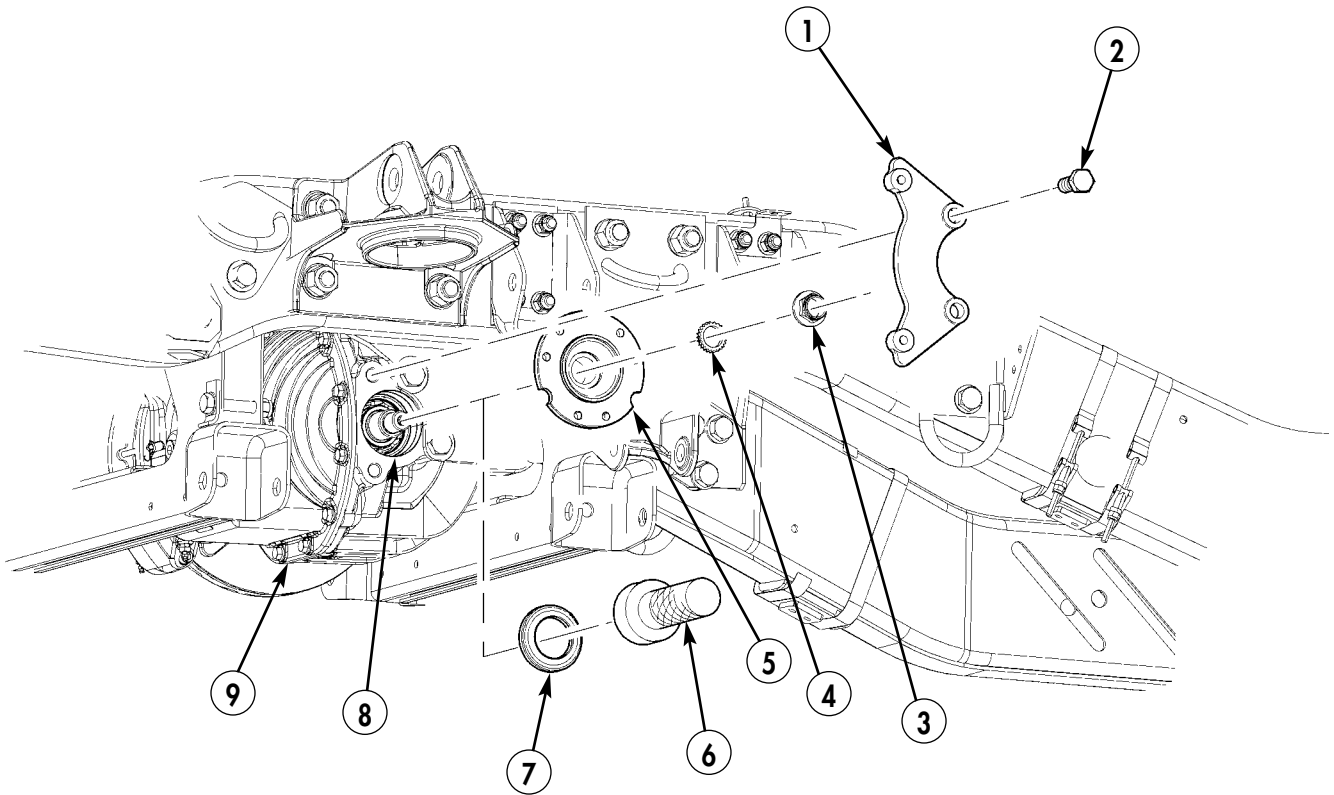
1. Using axle shaft and seal installer (6), install output shaft seal (7) on differential (9).

CAUTION

Apply a liberal amount of thread sealing compound to the tapped holes of differential. To allow adequate coating of threads, install capscrews shortly after applying thread sealing compound. Failure to do this could allow capscrews to loosen and cause damage to differential.

2. Apply sealing compound to tapped holes of differential (9) and install brake adapter (1) on differential (9) with two capscrews (2). Tighten capscrews (2) to 125–150 lb-ft (170–203 N•m).
3. Install output flange (5), O-ring (4), and locknut (3) on output shaft (8). Tighten locknut (3) to 170 lb-ft (231 N•m).

**21-3.1. REAR DIFFERENTIAL OUTPUT SHAFT SEAL REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install service brake rotors (para. 7-12.1).

21-3.2. FRONT DIFFERENTIAL OUTPUT SHAFT SEAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Axle shaft and seal installer
 (Appendix B, Item 99)

Materials/Parts

O-ring (Appendix A, Item 215)
 Locknut (Appendix A, Item 108)
 Locknut (Appendix A, Item 114.4)
 Sealing compound (Appendix C, Item 63)

Manual References

TM 9-2320-387-24P

Equipment Condition

Service brake rotors removed (para. 7-12.1).

General Safety Instructions

Differential is extremely heavy and must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Differential is extremely heavy and must be supported during removal and installation. Failure to do so may result in injury to personnel or damage to equipment.

NOTE

Replacement procedures for right and left front differential output shaft seals are basically the same. This procedure covers the left side output shaft seal.

a. Removal

1. Remove locknut (12), washer (11), capscrew (9), and washer (8) from suspension crossmember (10). Discard locknut (12).
2. Remove locknut (6), O-ring (5), and output flange (4) from output shaft (14). Discard locknut (6) and O-ring (5).
3. Remove four capscrews (7) and brake adapter (3) from differential (13).
4. Remove output shaft seal (1) from differential (13).

b. Installation

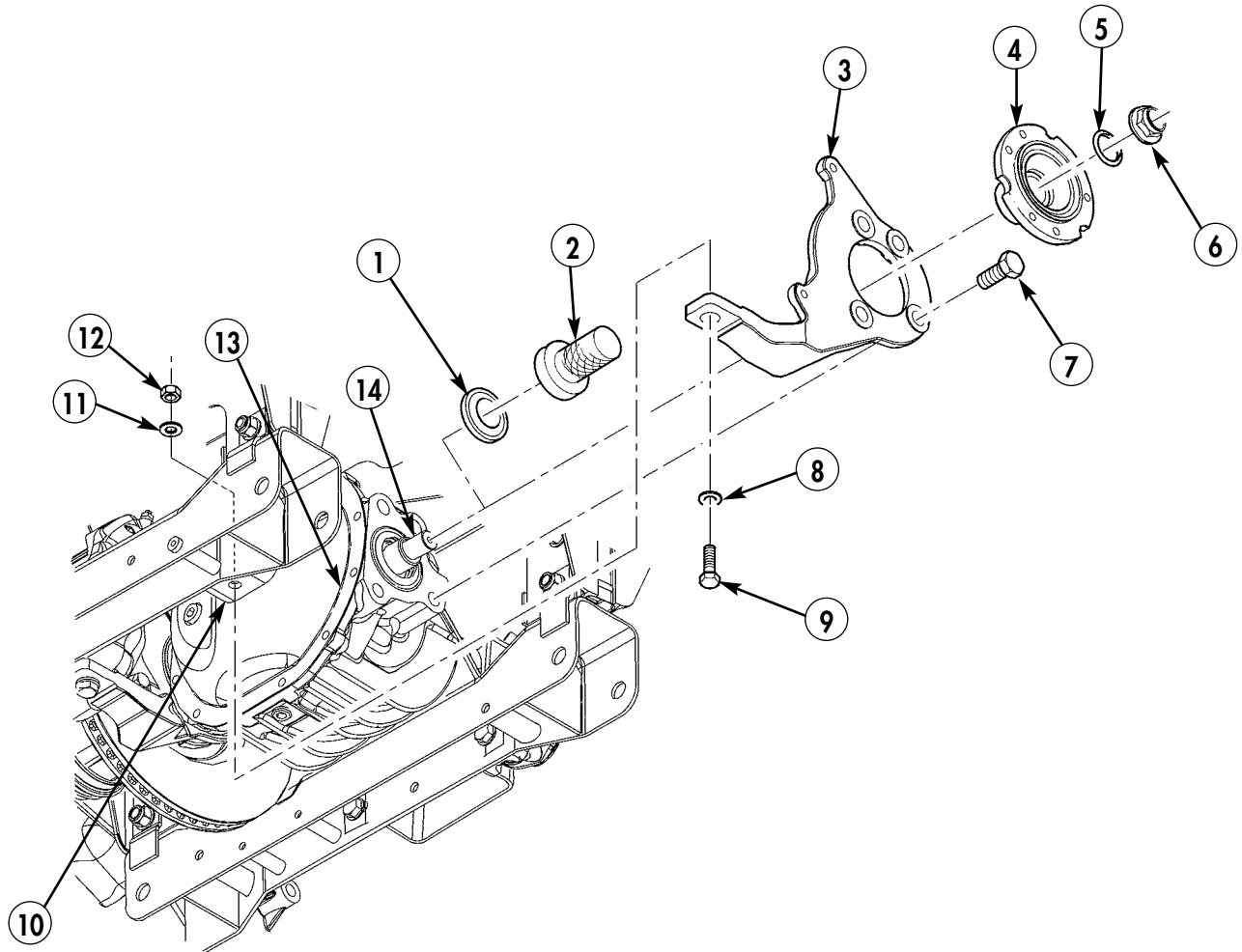
1. Using axle shaft and seal installer (2), install output shaft seal (1) on differential (13).

CAUTION

Apply a liberal amount of thread sealing compound to the tapped holes of differential. To allow adequate coating of threads, install capscrews shortly after applying thread sealing compound. Failure to comply may allow capscrews to loosen and cause damage to differential.

2. Apply sealing compound to tapped holes of differential (13). Install mounting bracket (3) on differential (13) with four capscrews (7). Tighten capscrews to 125-150 lb-ft (170-203 N•m).
3. Install output flange (4) on output shaft (14) with O-ring (5) and locknut (6). Tighten locknut (6) to 170 lb-ft (231 N•m).
4. Secure differential (13) to suspension crossmember (10) with washer (8), capscrew (9), washer (11), and locknut (12). Tighten locknut (12) to 90 lb-ft (122 N•m).

**21-3.2. FRONT DIFFERENTIAL OUTPUT SHAFT SEAL REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install service brake rotors (para. 7-12.1).

21-4. PINION SEAL REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Yoke seal installer
 (Appendix B, Item 82)

Manual References

TM 9-2320-387-24P

Equipment Condition

Service brake rotors removed (para. 7-12.1).

Maintenance Level

Direct support

NOTE

The replacement procedure for pinion seals is basically the same for front and rear differential. This procedure covers the rear differential pinion seal.

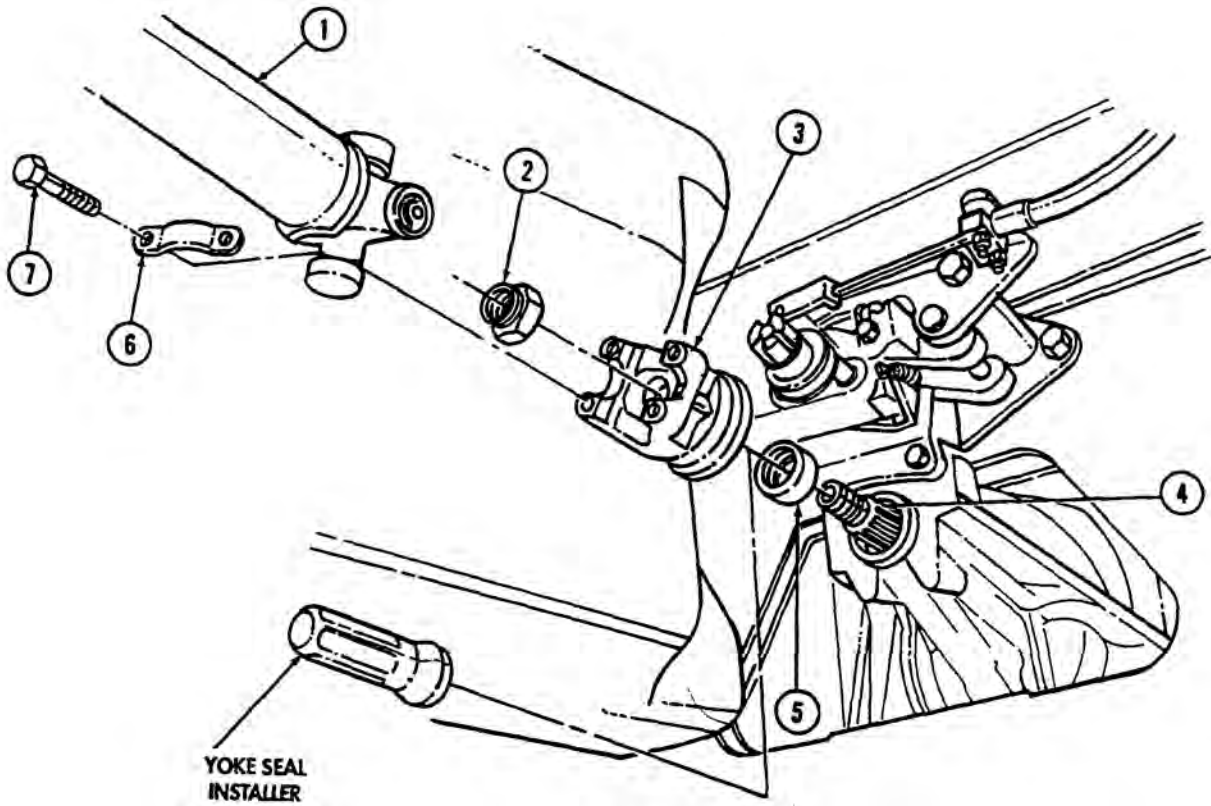
a. Removal

1. Remove four capscrews (7), two straps (6), and rear propeller shaft (1) from pinion flange (3).
2. Using a lb-in. torque wrench, measure torque required to rotate pinion (4), and record measurement.
3. Count and record number of exposed threads on end of pinion (4) and mark locknut (2) and pinion (4) for assembly.
4. Remove locknut (2) and pinion flange (3) from pinion (4).
5. Remove pinion seal (5) from pinion (4).

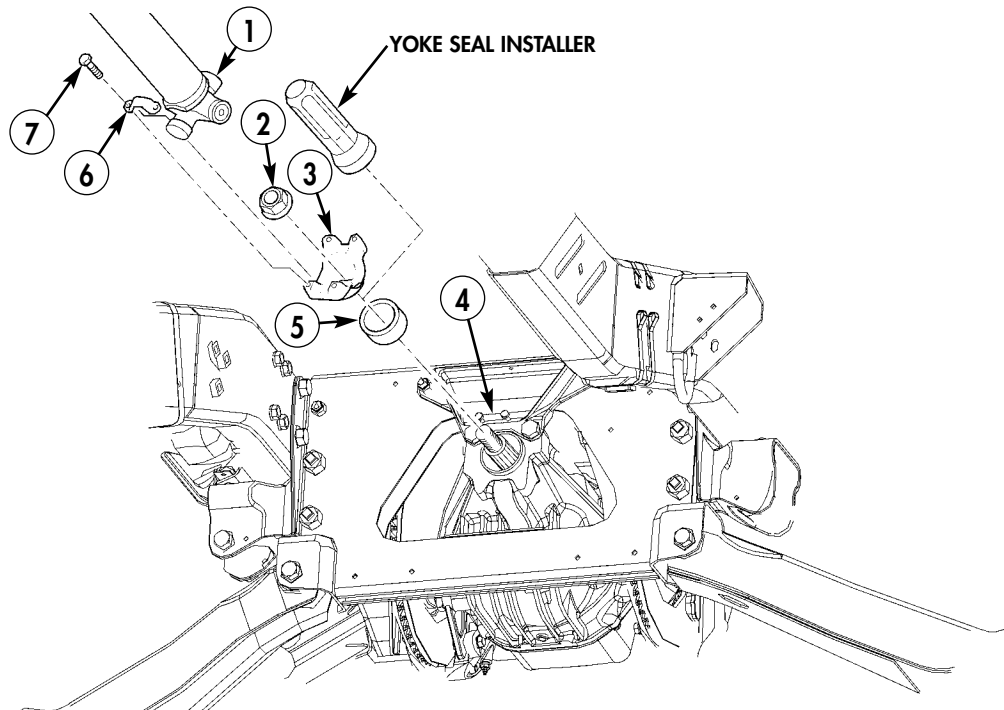
b. Installation

1. Using seal installer, install pinion seal (5) on pinion (4).
2. Install pinion flange (3) on pinion (4) with locknut (2).
3. Tighten locknut (2) to original position.
4. Tighten locknut (2) in small increments, until torque required to rotate pinion (4) exceeds original measurement by 2 lb-in. (0.2 N•m).
5. Install rear propeller shaft (1) on pinion flange (3) with two straps (6) and four capscrews (7). Tighten capscrews (7) to 60 lb-ft (81 N•m).

21-4. PINION SEAL REPLACEMENT (Cont'd)



SERIAL NUMBERS 299999 AND BELOW



SERIAL NUMBERS 300000 AND ABOVE

FOLLOW-ON TASK: Install service brake rotors (para. 7-12.1).

21-4.1. FRONT DIFFERENTIAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Special Tools

Two locknuts (Appendix A, Item 108)
 Four locknuts (Appendix A, Item 114.4)
 Two O-rings (Appendix A, Item 215)
 Sealing compound (Appendix C, Item 63)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24P

Equipment Condition

- Service brake rotors removed (para. 7-12.1).
- Front differential vent line removed (para. 6-14.2).

General Safety Instructions

Differential must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Differential must be supported during removal and installation. Failure to do this may cause injury to personnel or damage to equipment.

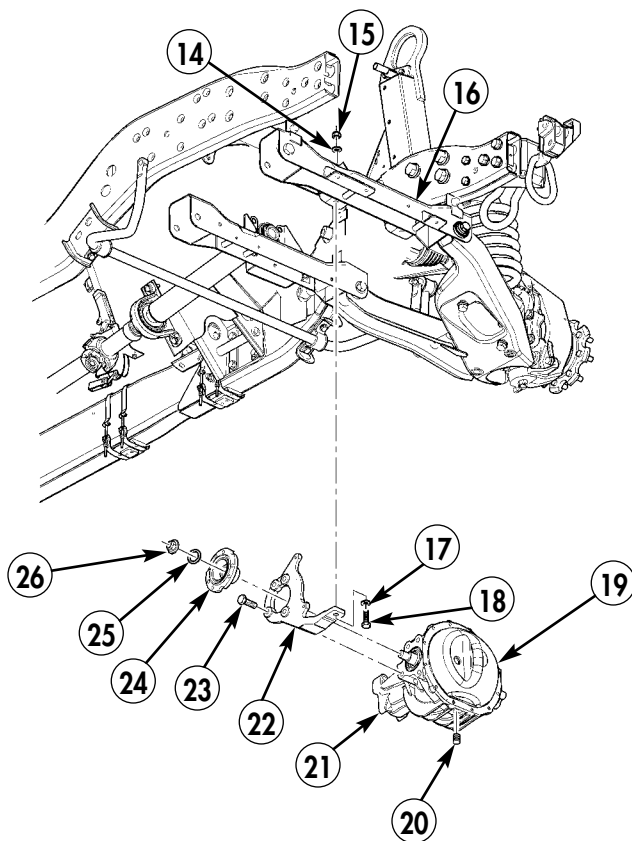
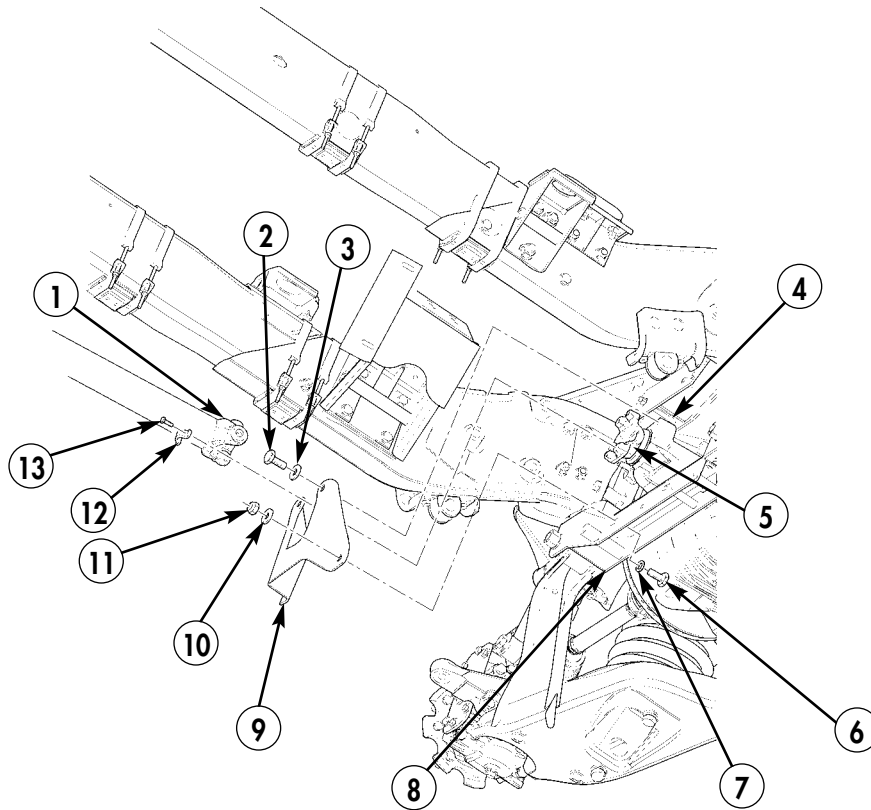
NOTE

Have drainage container ready to catch oil.

a. Removal

1. Remove drainplug (20) from differential (19). Allow oil to drain and install drainplug (20).
2. Remove four capscrews (13), two straps (12), and propeller shaft (1) from pinion flange (5).
3. Remove two capscrews (2) and washers (3) from differential (4).
4. Remove two locknuts (11), washers (10), capscrews (6), washers (7), and mounting bracket (9) from rear crossmember (8). Discard locknuts (11).
5. Remove two locknuts (26), O-rings (25), and output flanges (24) from differential (19). Discard locknuts (26) and O-rings (25).
6. Remove two locknuts (15), washers (14), capscrews (18), and washers (17) from front crossmember (16) and lower differential (19) from vehicle. Discard locknuts (15).
7. Remove eight capscrews (23) and two brake caliper adapters (22) from differential (19).

21-4.1. FRONT DIFFERENTIAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

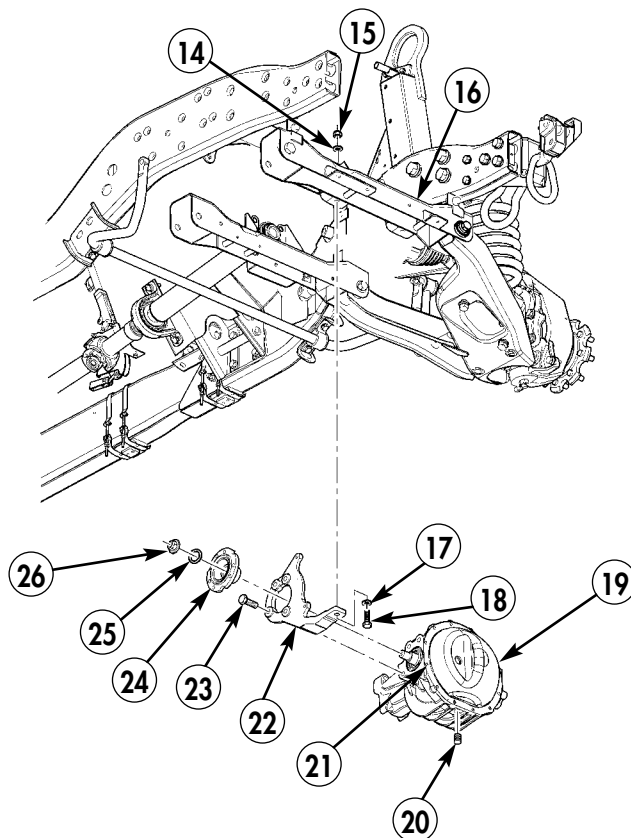
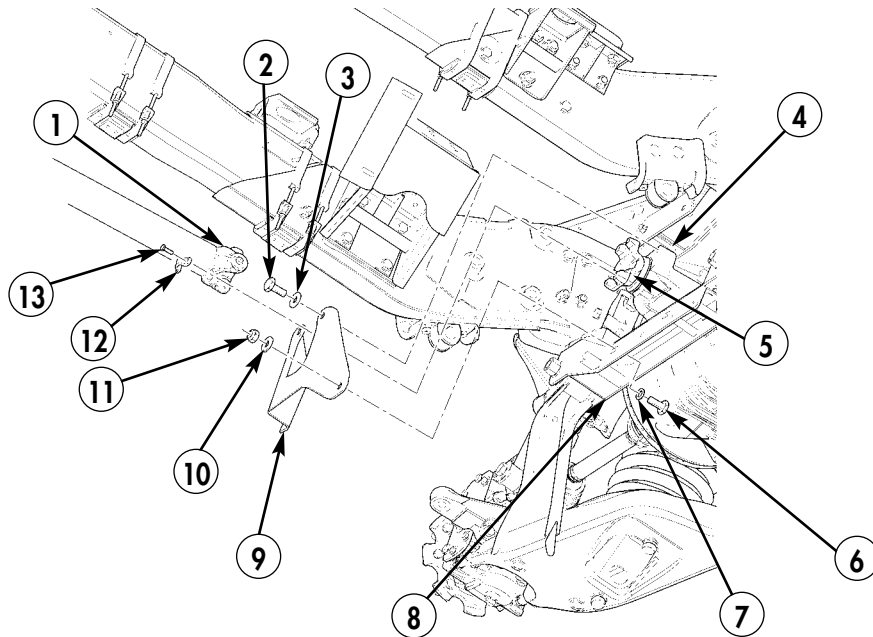


21-4.1. FRONT DIFFERENTIAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**b. Installation****CAUTION**

Apply a liberal amount of thread sealing compound to the tapped holes of differential. To allow adequate coating of threads, install capscrews shortly after applying thread sealing compound. Failure to do this could allow capscrews to loosen and cause damage to differential.

1. Apply sealing compound to tapped holes (21) in differential (19). Install two brake caliper adapters (22) on differential (19) with eight capscrews (23). Tighten capscrews (23) to 125-150 lb-ft (170-203 N•m).
2. Raise differential (19) into place and install on front crossmember (16) with two washers (17), capscrews (18), washers (14), and locknuts (15).
3. Install mounting bracket (9) on rear crossmember (8) with two washers (7), capscrews (6), washers (10), and locknuts (11). Tighten locknuts (11) to 90 lb-ft (122 N•m).
4. Apply sealing compound to capscrews (2). Secure differential (19) to mounting bracket (9) with two washers (3) and capscrews (2). Tighten capscrews (2) to 125-150 lb-ft (170-203 N•m).
5. Install propeller shaft (1) on pinion flange (5) with two straps (12) and four capscrews (13). Tighten capscrews (13) to 13-18 lb-ft (18-24 N•m).
6. Install output flange (24) on differential (19) with O-ring (25) and locknut (26). Tighten locknuts (26) to 165-195 lb-ft (224-264 N•m).

21-4.1. FRONT DIFFERENTIAL REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)



- FOLLOW-ON TASKS:**
- Install front differential vent lines (para. 6-14.2).
 - Install service brake rotors (para. 7-12.1).
 - Fill differential and check for leaks (TM 9-2320-387-10).

**21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment
 automotive (Appendix B, Item 1)

Materials/Parts

Two locknuts (Appendix G, Item 108)
 Two locknuts (Appendix G, Item 114.5)
 Four lockwashers (Appendix G, Item 174)
 Two locknuts (Appendix G, Item 114.4)
 Two O-rings (Appendix G, Item 215)
 Sealing compound (Appendix C, Item 63)

Personnel Required

One mechanic
 One assistant

Manual References

TM 9-2320-387-24P

Equipment Condition

Parking brake pads removed (para. 7-22).
 Service brake rotors removed (para. 7-12.1).
 Rear differential vent line removed (para. 6-14.2).

General Safety Instructions

Differential must be supported during removal and installation.

Maintenance Level

Direct Support

WARNING

Differential must be supported during removal and installation. Failure to do this may cause injury to personnel or damage to equipment.

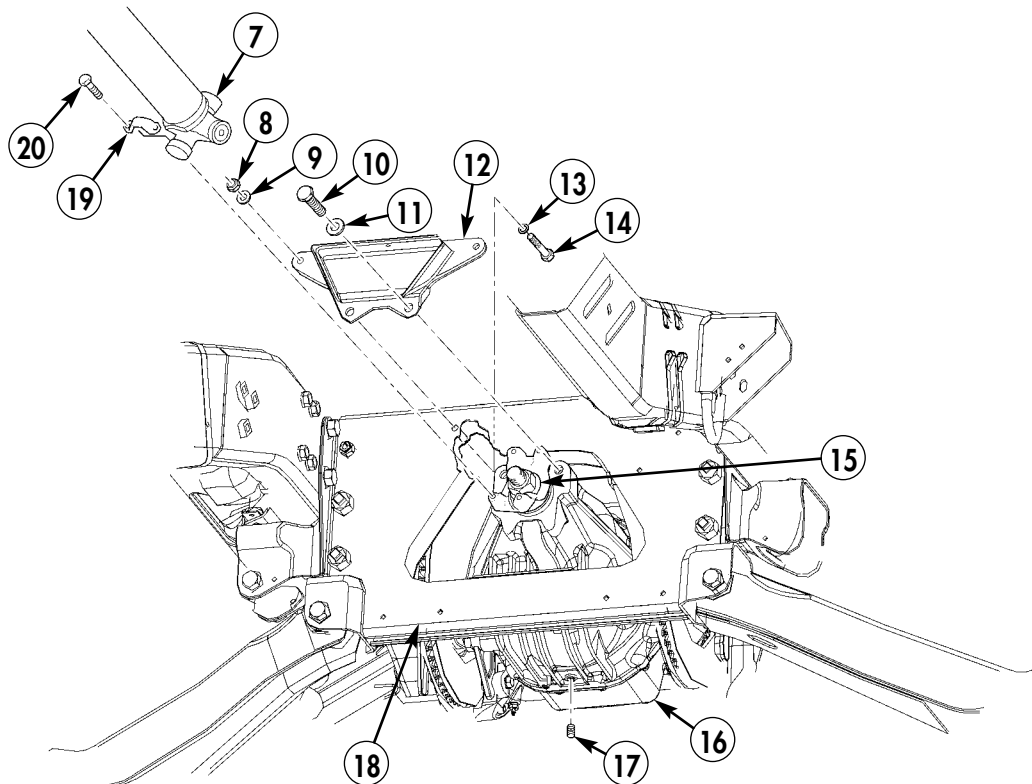
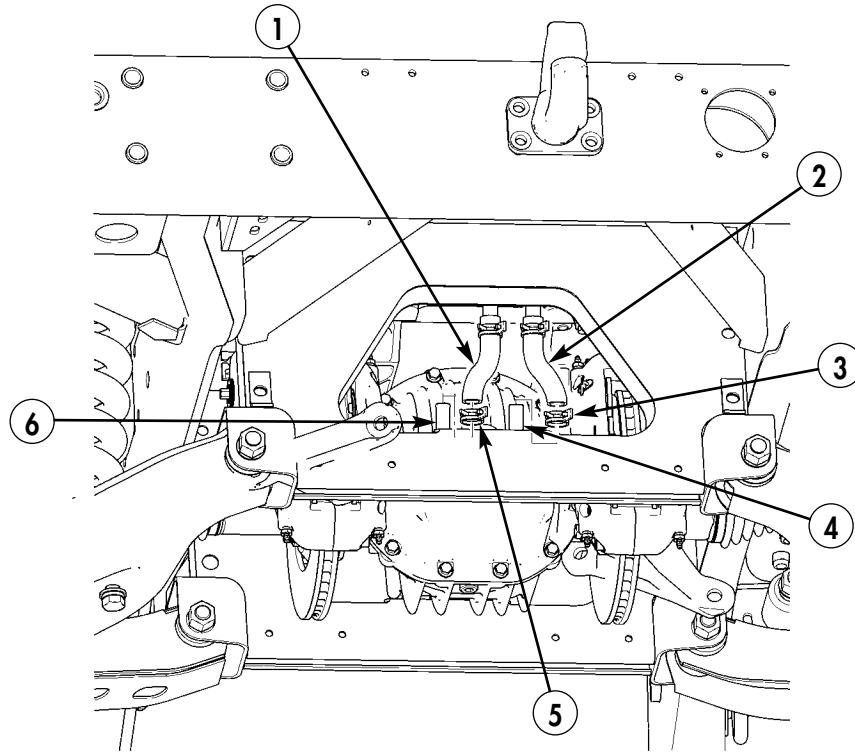
NOTE

- Have drainage container ready to catch oil.
- Mark brackets and rear mount for installation.

a. Removal

1. Remove two clamps (3) and (5) and coolant hoses (1) and (2) from differential adapters (4) and (6).
2. Remove drainplug (17) from differential (16). Allow oil to drain and install drainplug (17).
3. Remove four capscrews (20), two straps (19), and propeller shaft (7) from pinion flange (15).
4. Remove two locknuts (8), washers (9), capscrews (14), and washers (13) from crossmember (18). Discard locknuts (8).
5. Remove two capscrews (10), washers (11), and mounting bracket (12) from crossmember (18).

**21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

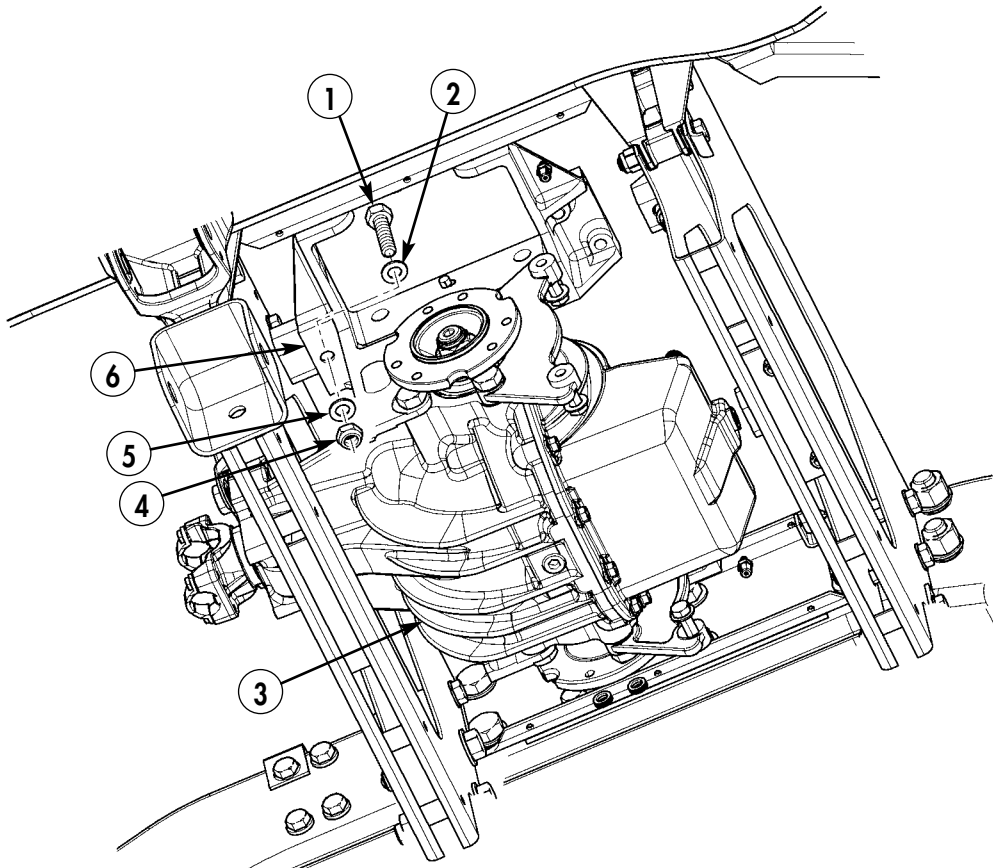


21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

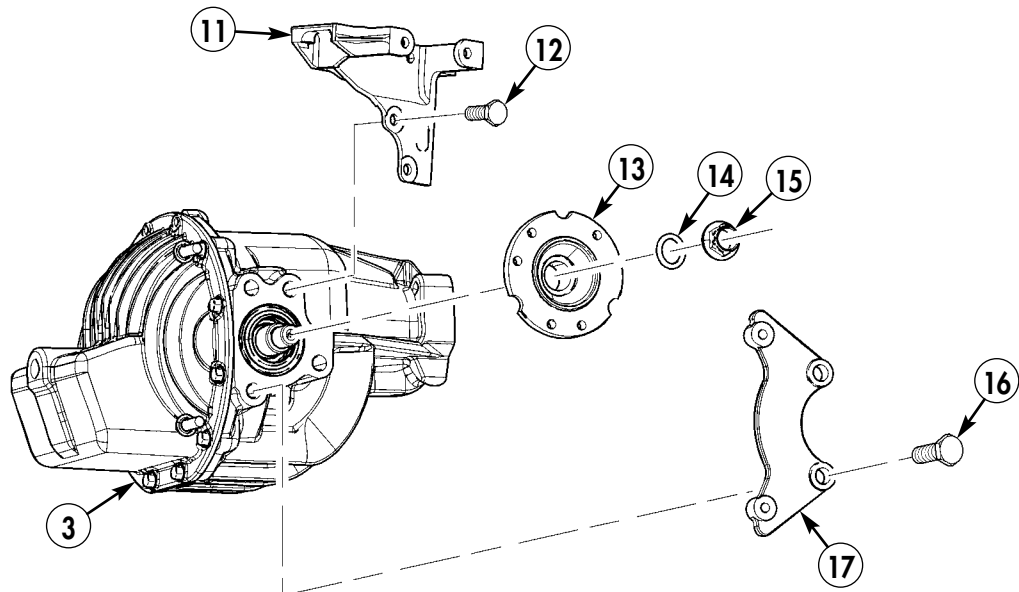
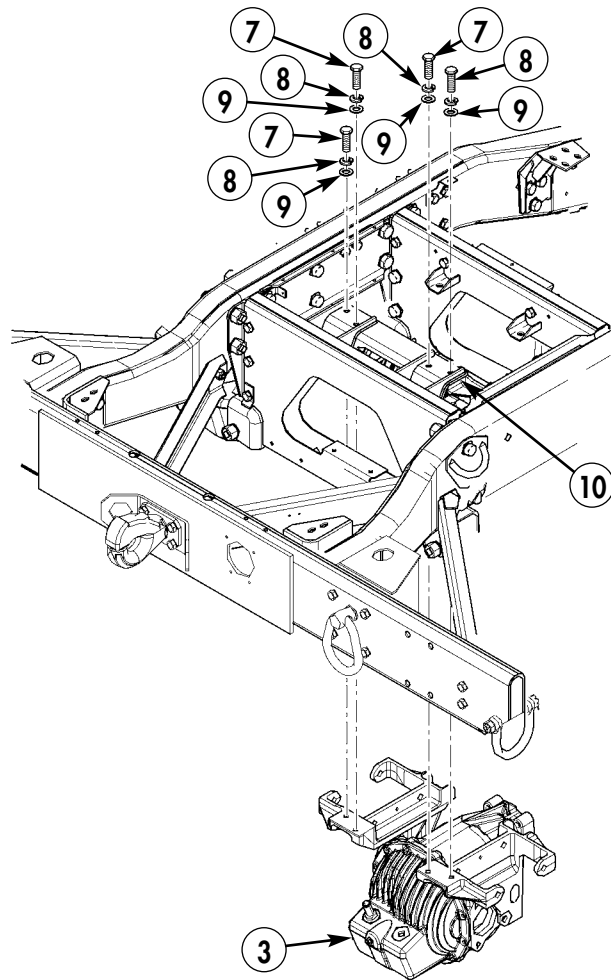
6. Remove two locknuts (4), washers (5), capscrews (1), and washers (2) from differential mount (6).
7. Remove four capscrews (7), lockwashers (8), and washers (9) from rear mounting plate (10) and lower differential (3) from vehicle.
8. Remove two locknuts (15), O-rings (14), and output flanges (13) from differential (3). Discard locknuts (15) and O-rings (14).
9. Remove two capscrews (16) and caliper bracket (17) from differential (3).
10. Remove two capscrews (12) and differential support bracket (11) from differential (3).

b. Installation

1. Apply sealing compound to capscrews (12) and install differential support bracket (11) on differential (3). Tighten capscrews (12) to 125-150 lb ft. (169-203 N•m).
2. Apply sealing compound to capscrews (16) and install caliper bracket (17) on differential (3). Tighten capscrews (16) to 125-150 lb ft. (169-203 N•m).
3. Install two output flanges (13) on differential (3) with O-rings (14) and locknuts (15). Tighten locknuts (15) to 165-195 lb-ft. (223-264 N•m).
4. Raise differential (3) and install on rear mounting plate (10) with four washers (9), lockwashers (8), and capscrews (7).
5. Secure differential (3) to rear crossmember (6) with two washers (2), capscrews (1), washers (5), and locknuts (5). Tighten locknuts (5) to 90 lb-ft. (122 N•m).

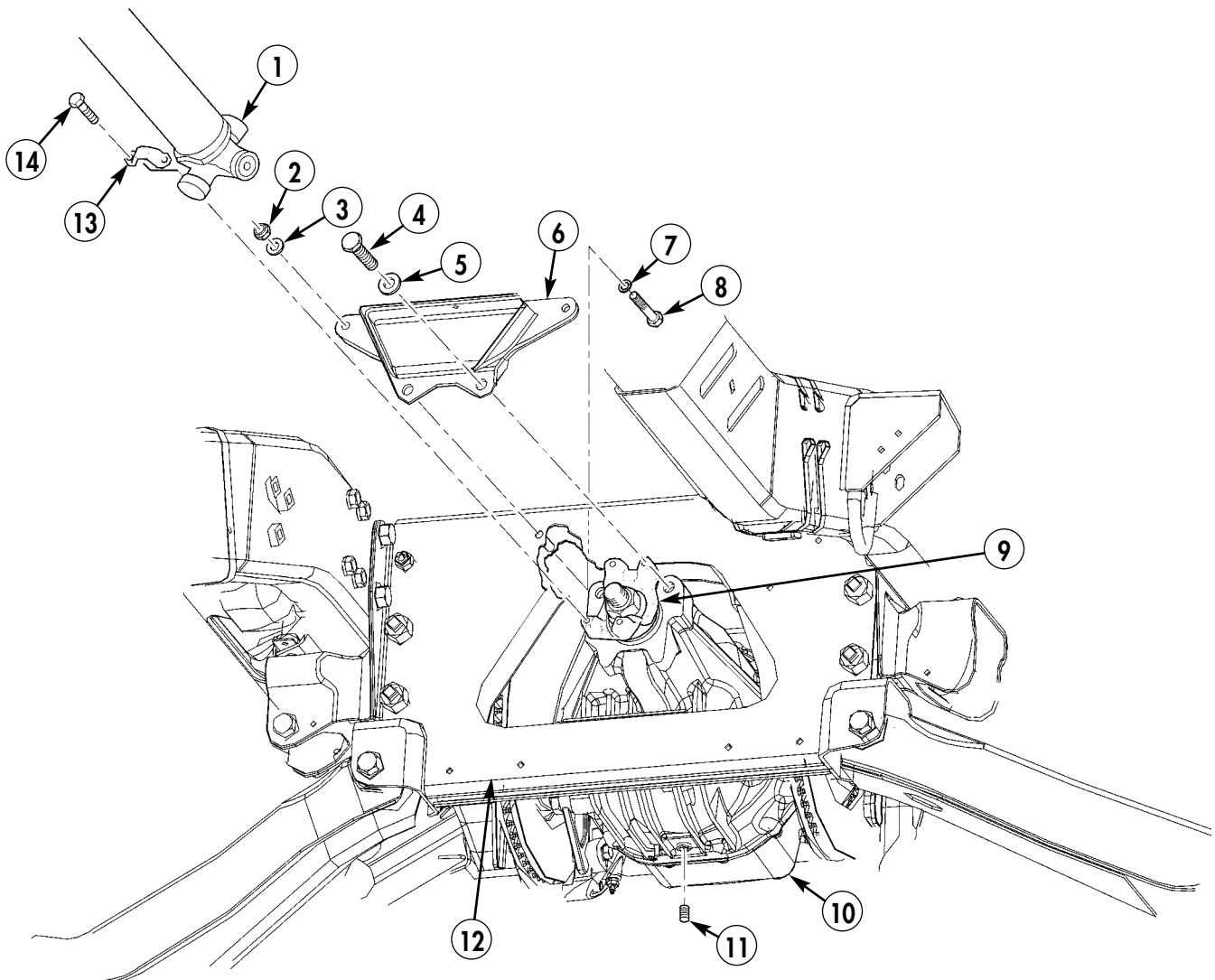


**21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

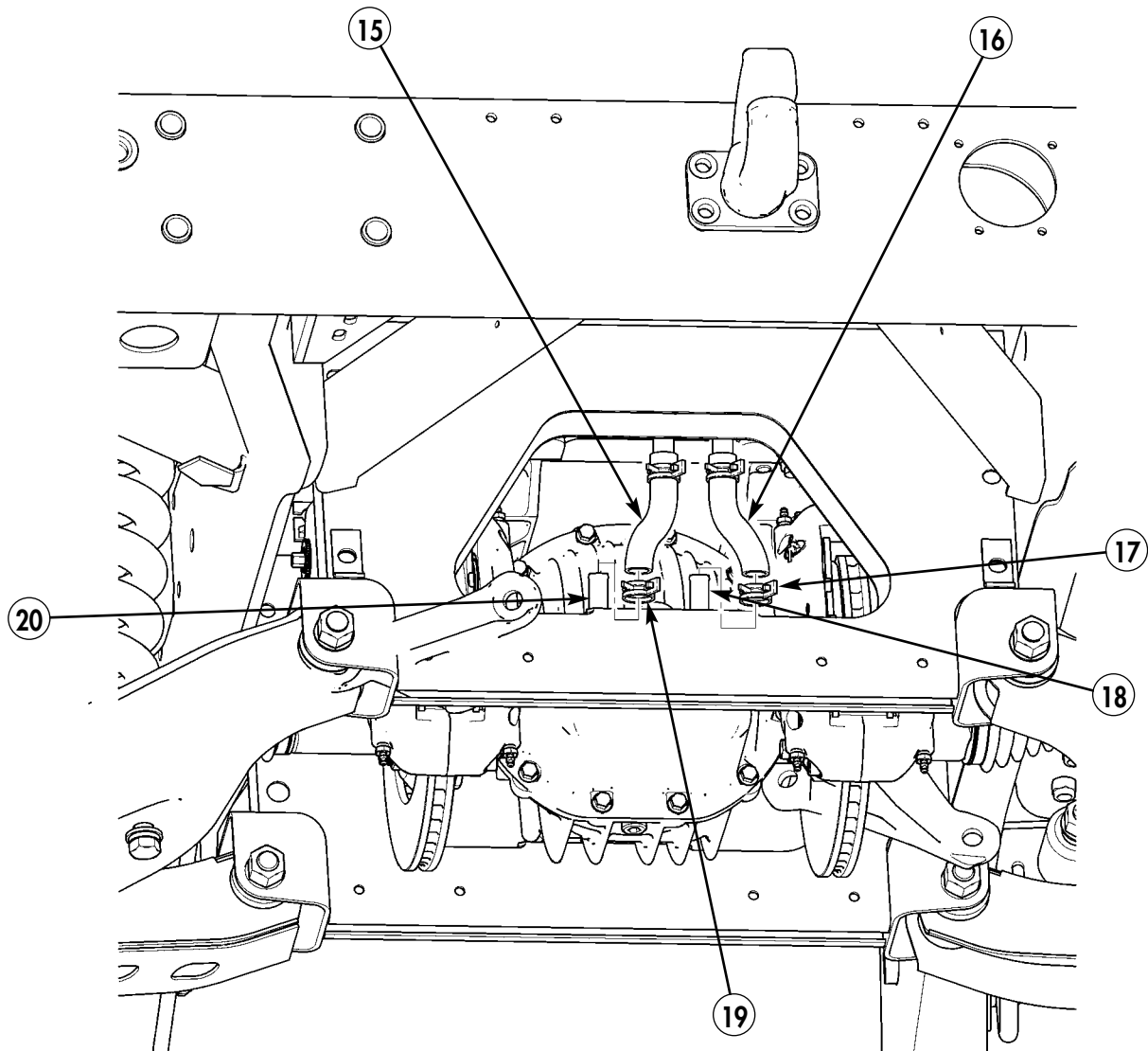


**21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

6. Install mounting bracket (12) on crossmember (18) with two washers (11) and capscrews (10). Tighten capscrews (10) to 125-150 lb-ft (170-203 N•m).
7. Secure mounting bracket (12) to crossmember (18) with two washers (13), capscrews (14), washers (9), and locknuts (8). Tighten locknuts (8) to 90 lb-ft (122 N•m).
8. Install propeller shaft (7) on pinion flange (15) with two straps (19) and four capscrews (20).
9. Install two coolant hoses (2) and (1) on differential adapters (6) and (4) with hose clamps (5) and (3).



**21-4.2. REAR DIFFERENTIAL AND SUPPORT BRACKETS REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Rear differential vent line installed (para. 6-14.2)
 - Service brake rotors installed (para. 7-12.1).
 - Parking brake pads installed (para. 7-22).

**21-4.3. FRONT DIFFERENTIAL COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Cleaning and Inspection
- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

RTV silicone compound (Appendix C, Item 74)
Drycleaning solvent (Appendix C, Item 26)

Equipment Condition

Front differential removed (para. 21-4.1).

Manual References

TM 9-2320-387-24P

General Safety Instructions

Drycleaning solvent is flammable and will not be used near an open flame.

Maintenance Level

Direct support

a. Removal

Remove twelve capscrews (2) and cover (1) from differential (3).

b. Cleaning and Inspection

NOTE

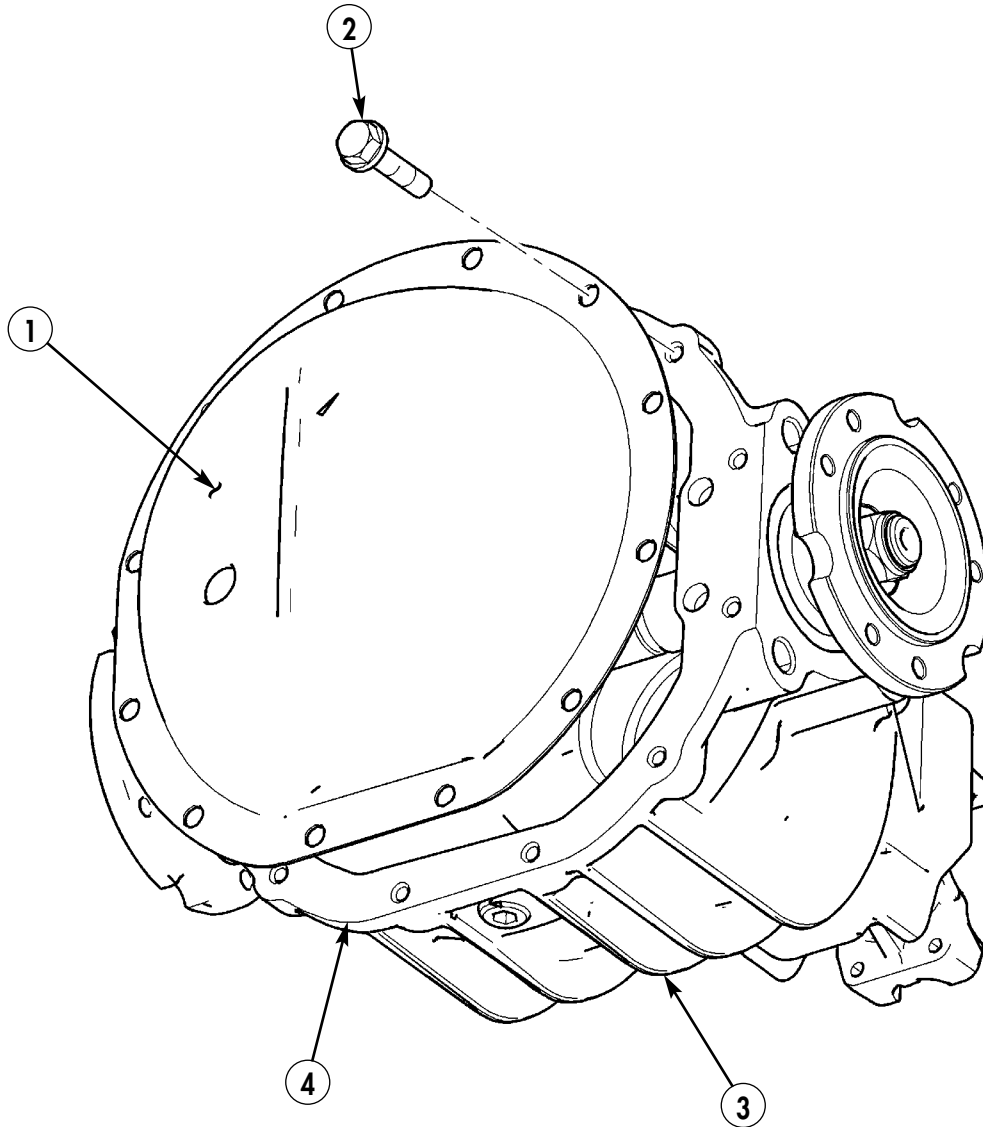
Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel or damage to equipment.

1. Using drycleaning solvent, clean cover (1), twelve capscrews (2), and differential (3).
2. Inspect cover (1) for cracks, wear, or breaks. Replace cover (1) if cracked, worn, or broken.

c. Installation

1. Apply RTV silicone compound to face of differential (4)
2. Install cover (1) on differential (3) with twelve capscrews (2).

**21-4.3. FRONT DIFFERENTIAL COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install front differential (para. 21-4.1).

**21-4.4. REAR DIFFERENTIAL COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

- a. Removal
- b. Cleaning and Inspection
- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

RTV silicone compound (Appendix C, Item 74)
Drycleaning solvent (Appendix C, Item 26)

Equipment Condition

Rear differential removed (para. 21-4.2).

Manual References

TM 9-2320-387-24P

General Safety Instructions

Drycleaning solvent is flammable and will not be used near an open flame.

Maintenance Level

Direct support

a. Removal

Remove twelve capscrews (4) and cover (3) from differential (1).

b. Cleaning and Inspection

NOTE

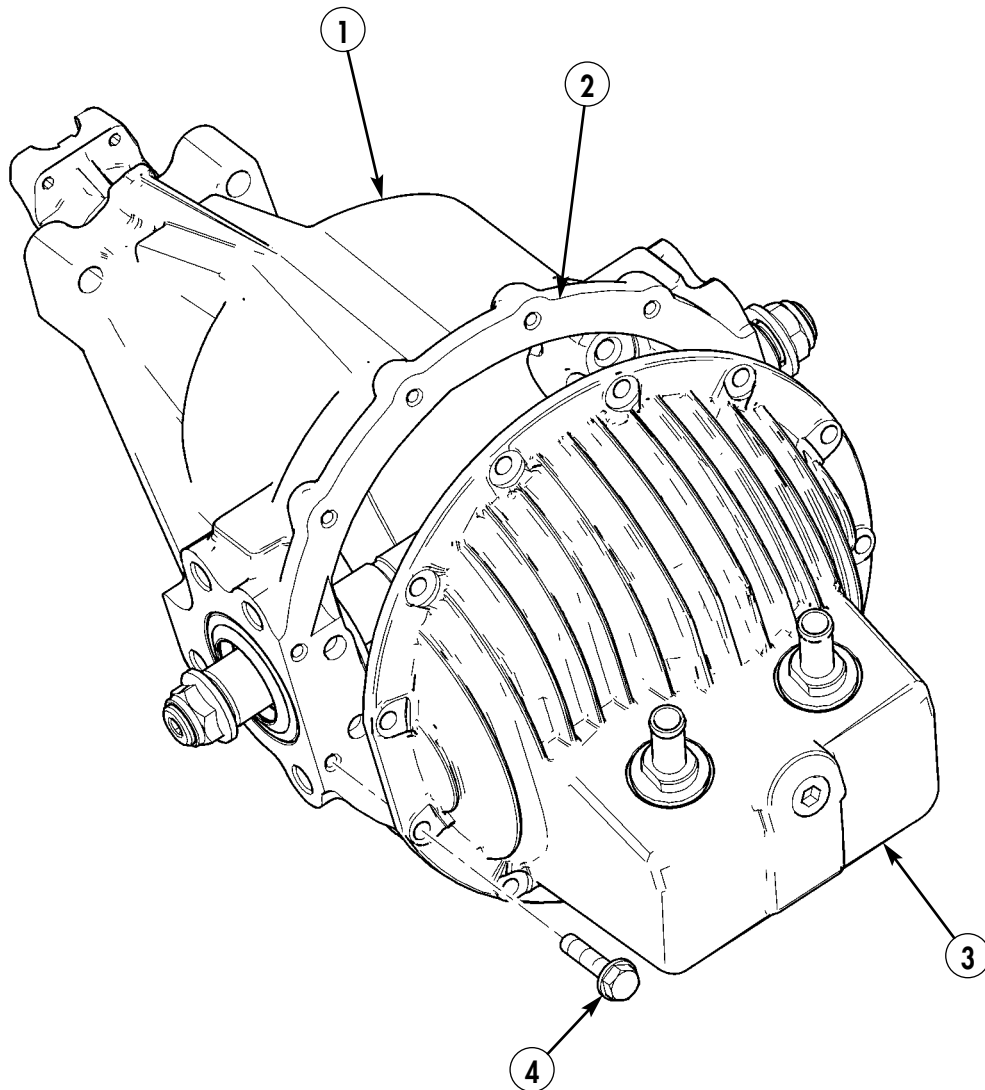
Drycleaning solvent is flammable and will not be used near an open flame. A fire extinguisher will be kept nearby when the solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel or damage to equipment.

1. Using drycleaning solvent, clean cover (3), twelve capscrews (4), and face of differential (2).
2. Inspect cover (3) and internal cooler for cracks, wear, or breaks. Replace cover (3) if cracked, worn, or broken.

c. Installation

1. Apply RTV silicone compound to face of differential (2)
2. Install cover (3) on differential (1) with twelve capscrews (4).

**21-4.4. REAR DIFFERENTIAL COVER MAINTENANCE
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install rear differential (para. 21-4.2).

CHAPTER 22

SERVICE BRAKE SYSTEM (DS) MAINTENANCE

There are no Direct Support service brake system procedures for REV vehicles.

CHAPTER 23

STEERING SYSTEM (DS) MAINTENANCE

There are no Direct Support steering system procedures for REV vehicles.

CHAPTER 24

FRAME (DS) MAINTENANCE

The following procedures provide you with the instructions you will need to maintain or replace any of the components associated with the frame system that are specific to your REV vehicle.

24-4. SPLASH SHIELD SUPPORT BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Three locknuts (Serial numbers 299999 and below) (Appendix A, Item 85)
 Three locknuts (Serial numbers 300000 and above) (Appendix A, Item 114.4)

Manual References

TM 9-2320-387-10
 TM 9-2320-387-24P

Equipment Condition

Hood raised and secured (TM 9-2320-387-10).

Maintenance Level

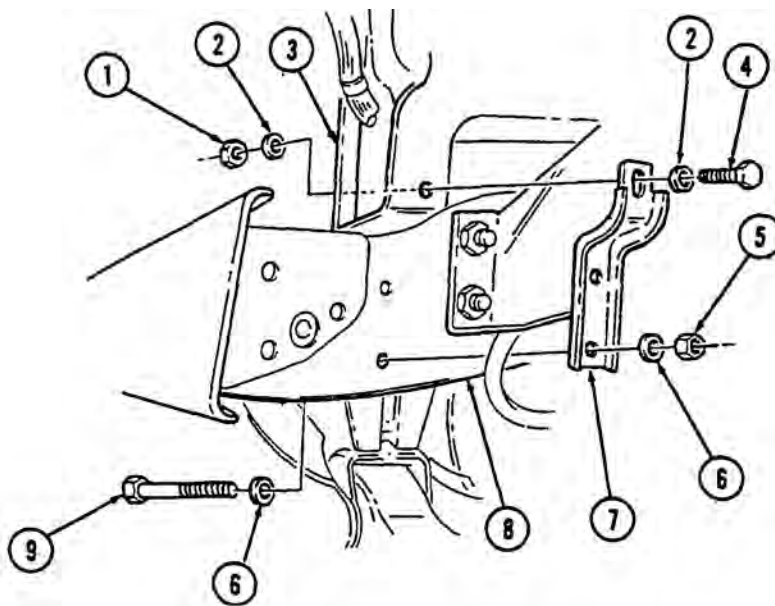
Direct support

a. Removal

1. Remove locknut (1), washer (2), capscrew (4), washer (2), and splash shield (3) from bracket (7). Discard locknut (1).
2. Remove two locknuts (5), washers (6), capscrews (9), washers (6), and bracket (7) from frame rail (8). Discard locknuts (5).

b. Installation

1. Install bracket (7) on frame rail (8) with two washers (6), capscrews (9), washers (6), and locknuts (5). Tighten locknuts (5) to 90 lb-ft (122 N•m).
2. Install splash shield (3) on bracket (7) with washer (2), capscrew (4), washer (2), and locknut (1). Tighten capscrew (4) to 15 lb-ft (20 N•m).



FOLLOW-ON TASK: Lower and secure hood (TM 9-2320-387-10).

24-7.1. LEFT AIRLIFT BRACKET AND FRONT UPPER CONTROL ARM BRACKETS REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two lockwashers (Appendix G, Item 144)
 Two locknuts (Appendix G, Item 88)
 Ten locknuts (Appendix G, Item 114.4)
 Two locknuts (Appendix G, Item 106)

Manual References

TM 9-2320-387-24-1
 TM 9-2320-387-24-2
 TM 9-2320-387-24P

Equipment Condition

- Airlift crossbrace removed (TM 9-2320-387-24-1).
- Engine left splash shield removed (para. 10-23.1).
- Hood prop rod removed (TM 9-2320-387-24-2).

Maintenance Level

Direct support

a. Removal

1. Raise and support front of vehicle.
2. Remove two locknuts (29), washers (28), clip (11), two washers (12), and capscrews (13) from airlift bracket (7) and frame rail (27). Discard locknuts (29).
3. Remove three screws (16), clamps (14), and harness (15) from airlift bracket (7).
4. Remove two locknuts (4), washers (5), capscrews (10), lockwashers (9), and washers (8) from radiator support (6) and airlift bracket (7). Discard locknuts (4) and lockwashers (9).
5. Remove two locknuts (20), washers (19), capscrews (26), and washers (24) and disconnect upper control arm (22) from two control arm brackets (23). Discard locknuts (20).

NOTE

- Control arm bracket towards front of vehicle contains bolt and bracket assembly.
 - Note direction of capscrews for installation.
6. Remove six locknuts (18), washers (17), capscrews (1), washers (2), and bracket (3) from two control arm brackets (23), airlift bracket (7), and frame rail (27). Discard locknuts (18).
 7. Remove two locknuts (31), washers (30), bolt and bracket assembly (21), control arm bracket (23), shim(s) (25), if present, and airlift bracket (7) from frame rail (27). Discard locknuts (31).

b. Installation

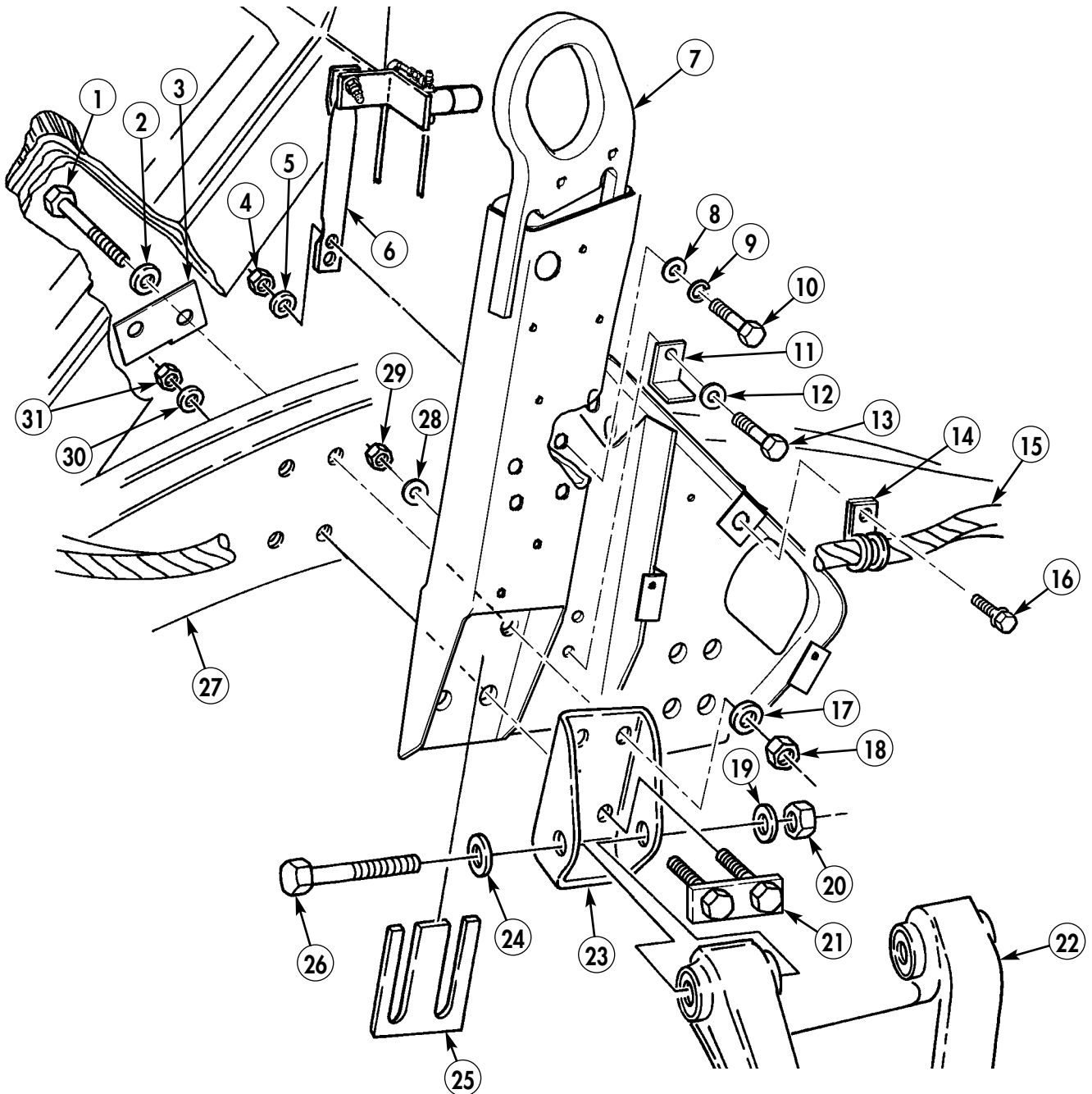
NOTE

Control arm bracket towards front of vehicle contains bolt and bracket assembly.

1. Install airlift bracket (7), shim(s) (25), if removed, and two control arm brackets (23) on frame rail (27) with six capscrews (1), washers (2) and (17), bracket (3), and locknuts (18). Tighten locknuts (18) to 90 lb-ft (122 N•m).
2. Apply sealing compound to threads of bolt and bracket assembly (21).
3. Secure airlift bracket (7) and control arm bracket (23) on frame rail (27) with bolt and bracket assembly (21), two washers (30), and locknuts (31).
4. Install upper control arm (22) on two control arm brackets (23) with two capscrews (26), washers (24) and (19), and locknuts (20). Tighten locknuts (20) to 260 lb-ft (353 N•m).

24-7.1. LEFT AIRLIFT BRACKET AND FRONT UPPER CONTROL ARM BRACKETS REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)

5. Install radiator support (6) on airlift bracket (7) with two capscrews (10), lockwashers (9), washers (8) and (5), and locknuts (4). Tighten locknuts (4) to 37 lb-ft (50 N•m).
6. Secure airlift bracket (7) to frame rail (27) with two capscrews (13), washers (12), clip (11), washers (28), and locknuts (29).
7. Install harness (15) on airlift bracket (7) with three clamps (14) and capscrews (16).
8. Lower front of vehicle.



- FOLLOW-ON TASKS:**
- Install left engine splash shield (TM 9-2320-387-24-2).
 - Install airlift crossbrace (TM 9-2320-387-24-1).
 - Install hood prop rod (TM 9-2320-387-24-2).

24-8.1. RIGHT AIRLIFT BRACKET AND FRONT UPPER CONTROL ARM BRACKETS REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Two lockwashers (Appendix A, Item 144)
 Ten locknuts (Appendix A, Item 114.4)
 Two locknuts (Appendix A, Item 88)
 Two locknuts (Appendix A, Item 106)

Manual References

TM 9-2320-387-24-1
 TM 9-2320-387-24-2
 TM 9-2320-387-24P

Equipment Condition

- Airlift crossbrace removed (TM 9-2320-387-24-1).
- Engine right splash shield removed (para. 10-24.1).

Maintenance Level

Direct support

a. Removal

1. Raise and support front of vehicle.
2. Remove two locknuts (9), washers (8), clip (4), two washers (2), and capscrews (1) from airlift bracket (7) and frame rail (17). Discard locknuts (9).
3. Remove two locknuts (12), washers (11), capscrews (3), lockwashers (5), and washers (6) from radiator support (10) and airlift bracket (7). Discard locknuts (12).
4. Remove two locknuts (24), washers (25), capscrews (18), washers (20), and upper control arm (22) from two control arm brackets (21). Discard locknuts (24).

NOTE

- Control arm bracket towards front of vehicle contains bolt and bracket assembly.
 - Note direction of capscrews for installation.
5. Remove six locknuts (26), washers (27) and (13), and capscrews (14) from two control arm brackets (22), airlift bracket (7), and frame rail (17). Discard locknuts (26).
 6. Remove two locknuts (15), washers (16), bolt and bracket assembly (23), control arm brackets (21), shim(s) (19), if present, and airlift bracket (7) from frame rail (17). Discard locknuts (15).

b. Installation

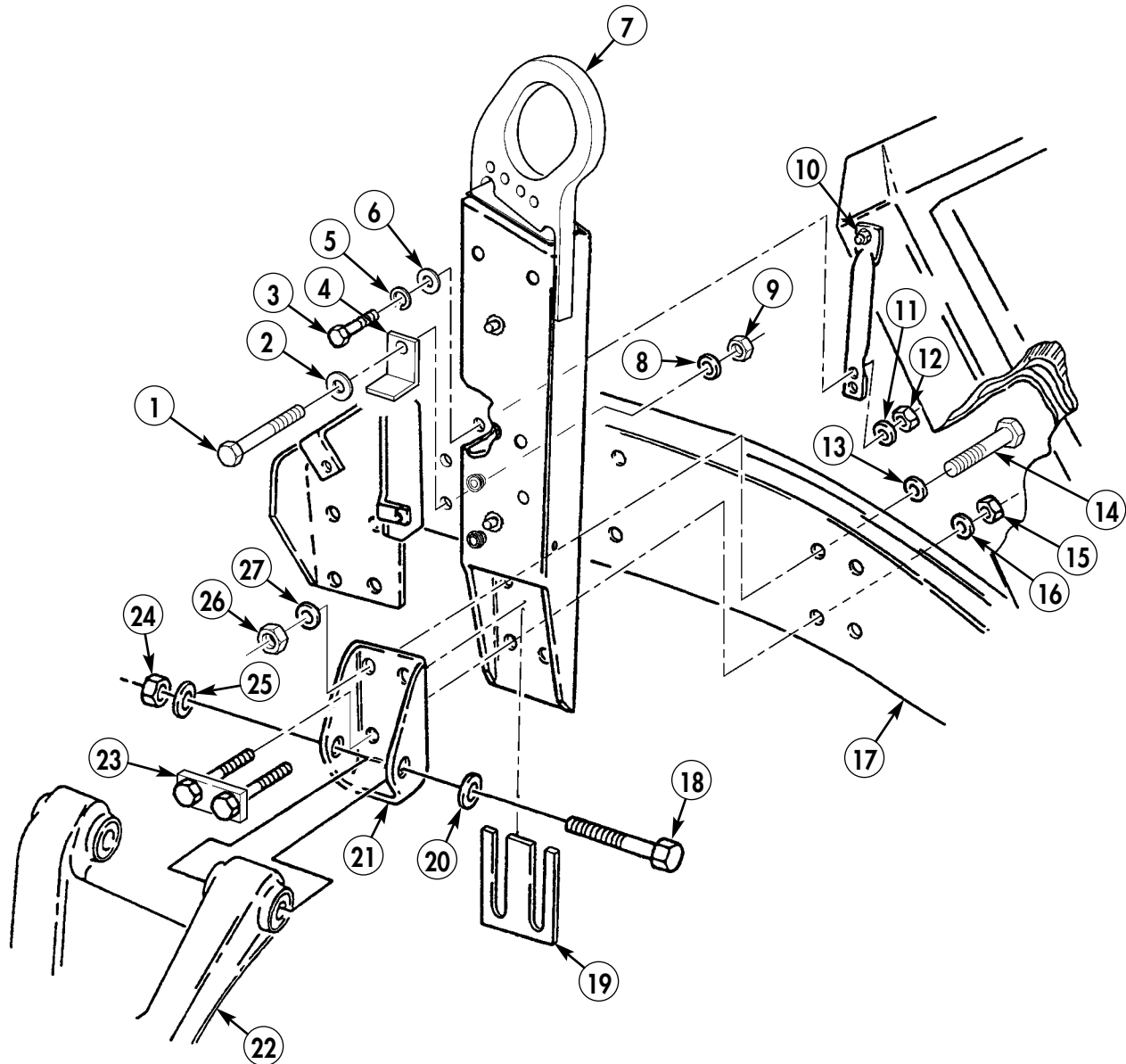
NOTE

Control arm bracket towards front of vehicle contains bolt and bracket assembly.

1. Install airlift bracket (7), shim(s) (19), if removed, and two control arm brackets (21) on frame rail (17) with six capscrews (14), washers (13) and (27), and locknuts (26). Tighten locknuts (26) to 90 lb-ft (122 N•m).
2. Apply sealing compound to threads of bolt and bracket assembly (23).
3. Secure airlift bracket (7) and control arm brackets (21) on frame rail (17) with bolt and bracket assembly (23), two washers (16), and locknuts (15).
4. Install upper control arm (22) on two control arm brackets (21) with two capscrews (18), washers (20) and (25), and locknuts (24). Tighten locknuts (24) to 260 lb-ft (353 N•m).

24-8.1. RIGHT AIRLIFT BRACKET AND FRONT UPPER CONTROL ARM BRACKETS REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)

5. Install radiator support (10) on airlift bracket (7) with two capscrews (3), lockwashers (5), washers (6) and (11), and locknuts (12). Tighten locknuts (12) to 37 lb-ft (50 N•m).
6. Secure airlift bracket (7) to frame rail (17) with two capscrews (1), washers (2), clip (4), two washers (8), and locknuts (9).
7. Lower front of vehicle.



- FOLLOW-ON TASKS:
- Install right engine splash shield (TM 9-2320-387-24-2)
 - Install airlift crossbrace (TM 9-2320-387-24-1).

24-9. RIGHT ENGINE MOUNT BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Five locknuts (Serial numbers 299999 and below) (Appendix A, Item 85)
 Five locknuts (Serial numbers 300000 and above) (Appendix A, Item 114.4)

Manual References

TM 9-2320-387-24P

Equipment Condition

Engine right mount and insulator removed (para. 15-3).

Maintenance Level

Direct support

NOTE

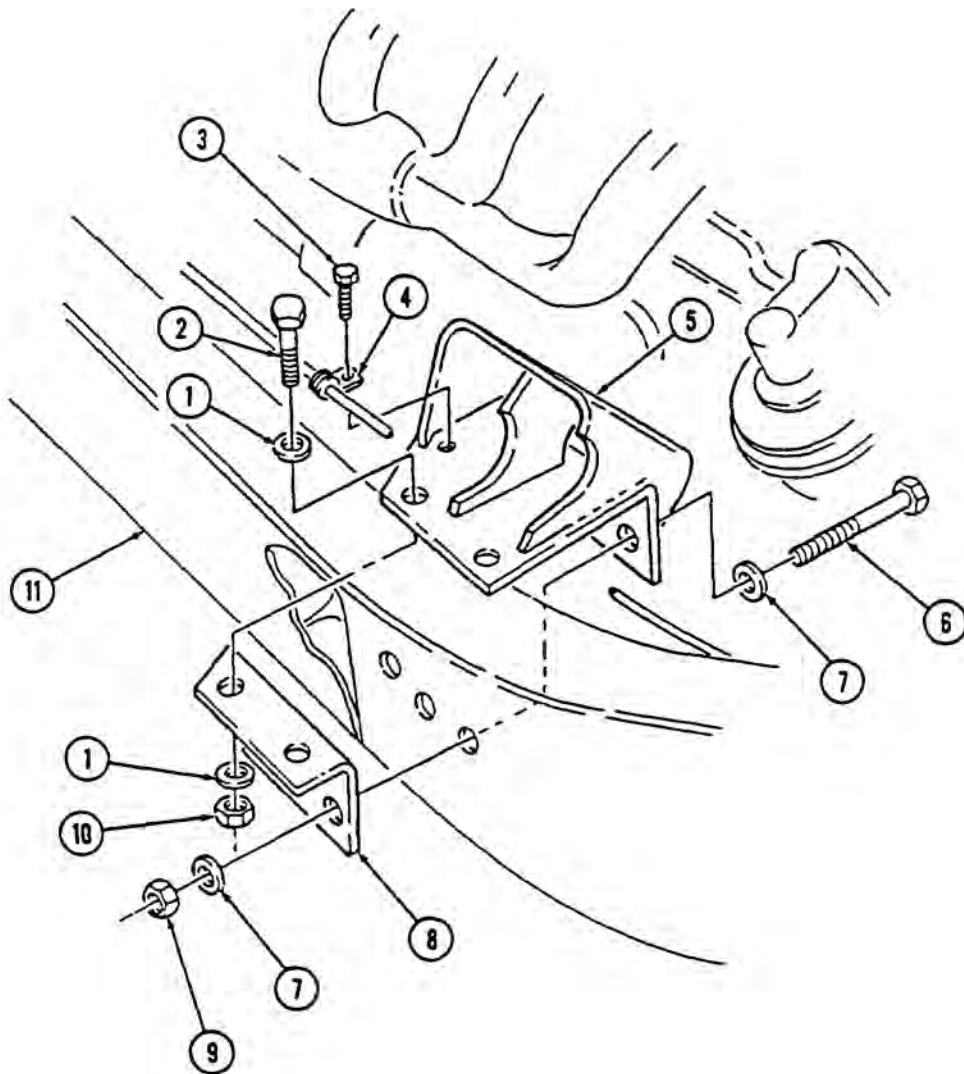
Tag engine mounts for installation. The left and right engine mounts are not interchangeable with each other.

a. Removal

1. Remove two locknuts (10), washers (1), capscrews (2), and washers (1) from support bracket (8) and engine mount bracket (5). discard locknuts (10).
2. Remove capscrew (3) and vent tube clamp (4) from engine mount bracket (5).
3. Remove three locknuts (9), washers (7), capscrews (6), washers (7), support bracket (8), and engine mount bracket (5) from frame rail (11). Discard locknuts (9).

b. Installation

1. Install support bracket (8) and engine mount bracket (5) on frame rail (11) with three washers (7), capscrews (6), washers (7), and locknuts (9).
2. Secure support bracket (8) on engine mount bracket (5) with two washers (1), capscrews (2), washers (1), and locknuts (10). Tighten locknuts (10) and (9) to 90 lb-ft (122 N•m).
3. Install vent tube clamp (4) on engine mount bracket (5) with capscrew (3).

24-9. RIGHT ENGINE MOUNT BRACKET REPLACEMENT (Cont'd)

FOLLOW-ON TASK: Install engine right mount and insulator (para. 15-3).

24-10. LEFT ENGINE MOUNT BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Manual References

TM 9-2320-387-24P

Maintenance Level

Direct support

Materials/Parts

Six locknuts (Appendix A, Item 85)
 (Serial numbers 299999 and below)
 Six locknuts (Appendix A, Item 114.4)
 (Serial numbers 300000 and above)

NOTE

Tag engine mounts for installation. Left and right engine mounts are not interchangeable with each other.

a. Removal

1. Remove two capscrews (2), brake line clamp (1), and oil line clamp (3) from engine mount bracket (4).
2. Remove two locknuts (7) and washers (6) from insulator (5) and engine mount bracket (4). Discard locknuts (7).

CAUTION

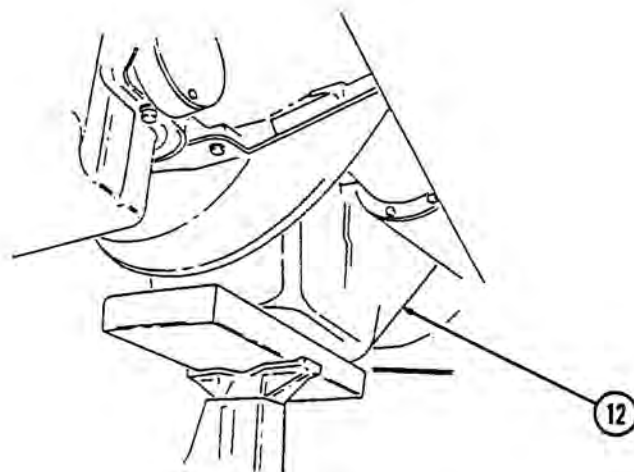
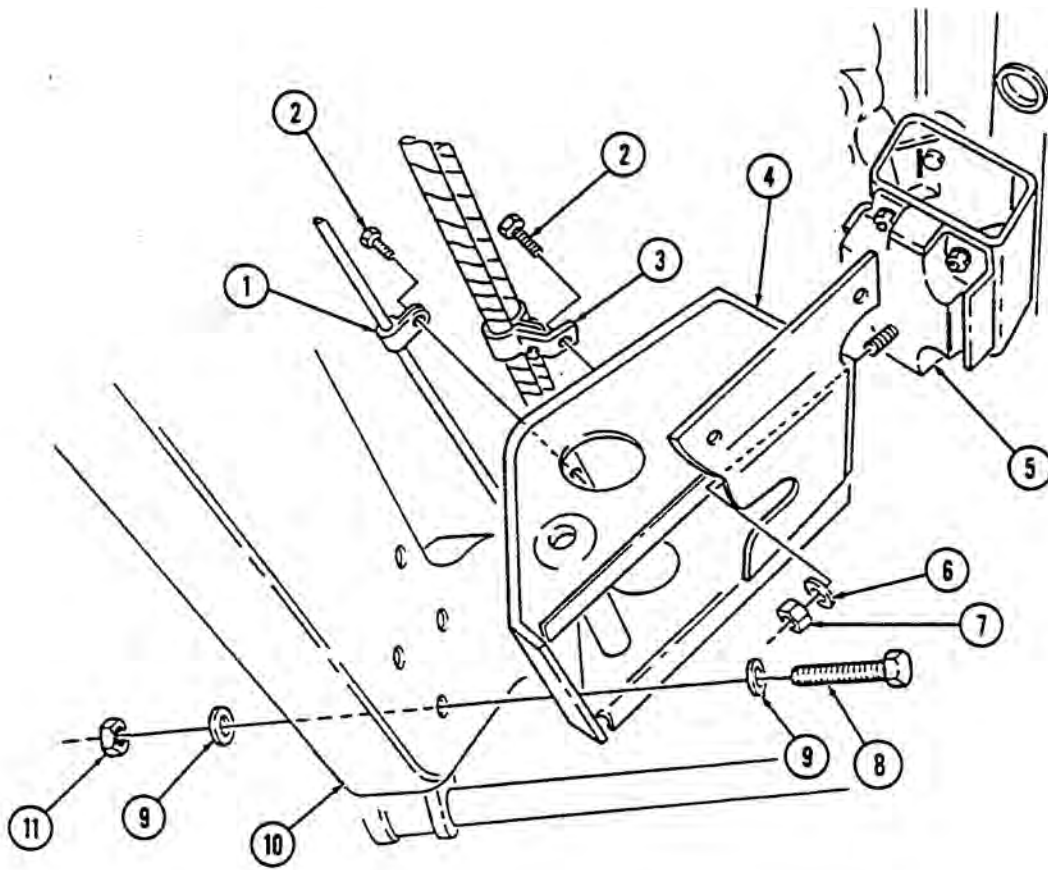
Wood block must completely cover bottom of engine oil pan or damage to oil pan may result.

3. Support engine under engine oil pan (12) with wood block and jack.
4. Remove four locknuts (11), washers (9), capscrews (8), washers (9), and engine mount bracket (4) from frame rail (10). Discard locknuts (11).

b. Installation

1. Install engine mount bracket (4) on frame rail (10) with four washers (9), capscrews (8), washers (9), and locknuts (11). Tighten locknuts (11) to 90 lb-ft (122 N•m).
2. Remove support from engine oil pan (12).
3. Install engine mount bracket (4) on insulator (5) with two washers (6) and locknuts (7). Tighten locknuts (7) to 90 lb-ft (122 N•m).
4. Install brake line clamp (1) and oil line clamp (3) on engine mount bracket (4) with two capscrews (2).

24-10. LEFT ENGINE MOUNT BRACKET REPLACEMENT (Cont'd)



24-11. REAR UPPER CONTROL ARM BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Four locknuts (Appendix A, Item 88)
 (Serial numbers 299999 and below)
 Two locknuts (Appendix A, Item 85)
 (Serial numbers 299999 and below)
 Four locknuts (Appendix A, Item 114.4)
 (Serial numbers 300000 and above)
 Two locknuts (Appendix A, Item 88)
 (Serial numbers 300000 and above)

Manual References

TM 9-2320-387-24P

Equipment Condition

Wheel removed (TM 9-2320-387-24-1).

Maintenance Level

Direct support

NOTE

The replacement procedure for four rear upper control arm brackets is basically the same. This procedure covers the right rear upper control arm front bracket.

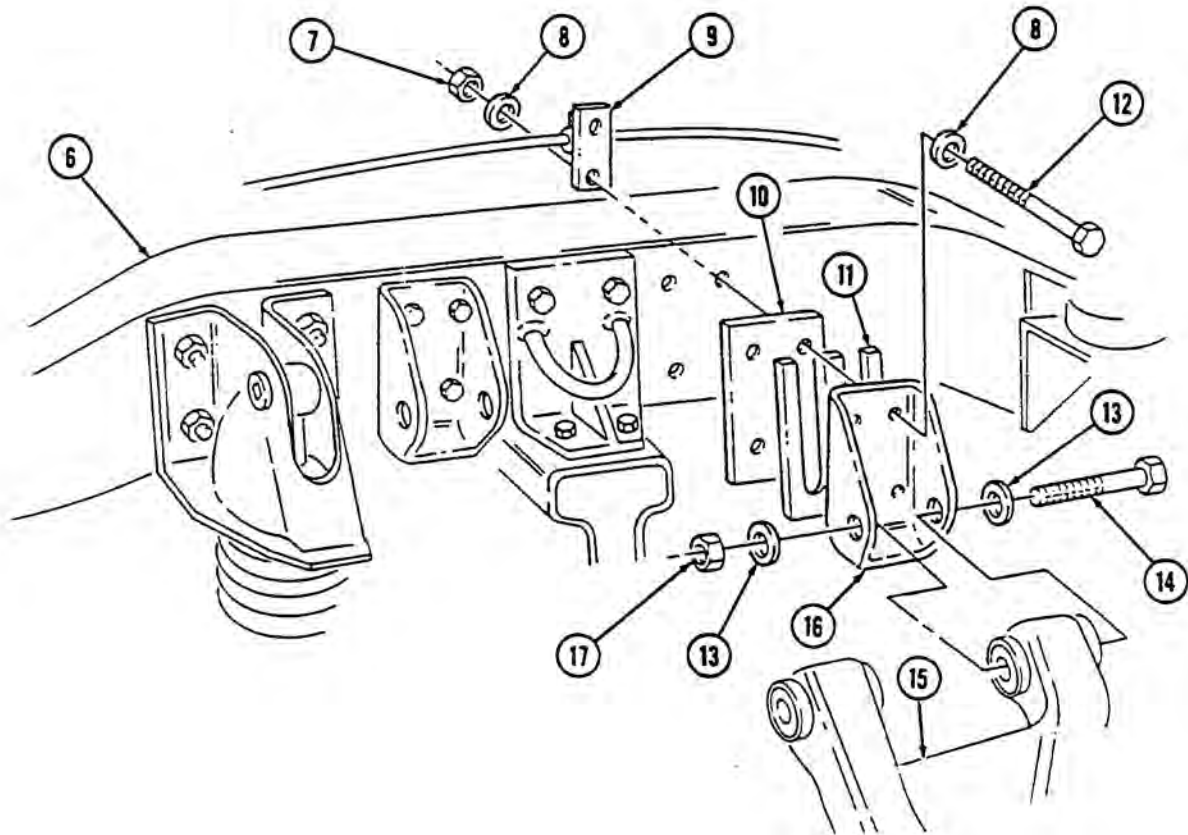
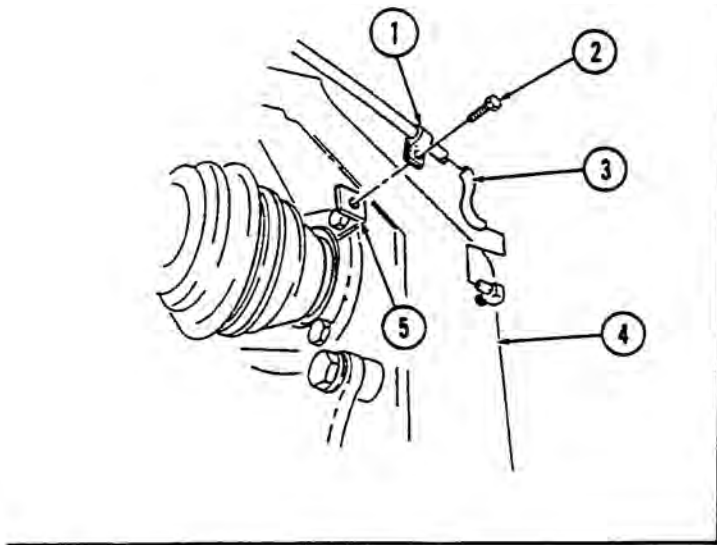
a. Removal

1. Remove capscrew (2) and clamp (1) from bracket (5) and disconnect vent line (3) from geared hub (4).
2. Remove two locknuts (17), washers (13), capscrews (14), washers (13), and upper control arm (15) from two upper control arm brackets (16). Discard locknuts (17).
3. Remove four locknuts (7), washers (8), capscrews (12), washers (8), spacer (10), shim(s) (11), if present, vent line mounting bracket (9), and control arm bracket (16) from frame rail (6). Discard locknuts (7).

b. Installation

1. Install shim(s) (11), if removed, spacer (10), vent line mounting bracket (9), and control arm bracket (16) on frame rail (6) with four washers (8), capscrews (12), washers (8), and locknuts (7). Tighten locknuts (7) to 90 lb-ft (122 N•m).
2. Install upper control arm (15) on two upper control arm brackets (16) with two washers (13), capscrews (14), washers (13), and locknuts (17). Tighten locknuts (17) to 260 lb-ft (353 N•m).
3. Connect vent line (3) to geared hub (4) and install clamp (1) on bracket (5) with capscrew (2).

24-11. REAR UPPER CONTROL ARM BRACKET REPLACEMENT (Cont'd)



FOLLOW-ON TASK: Install wheel (TM 9-2320-387-24-1).

24-14. REAR-FRONT TIEDOWN BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Four locknuts (Appendix A, Item 88)
 Two locknuts (Appendix A, Item 85)
 (Serial numbers 299999 and below)
 Two locknuts (Appendix A, Item 114.4)
 (Serial numbers 300000 and above)

Manual References

TM 9-2320-387-24P

Equipment Condition

Wheel removed (TM 9-2320-387-24-1).

Maintenance Level

Direct support

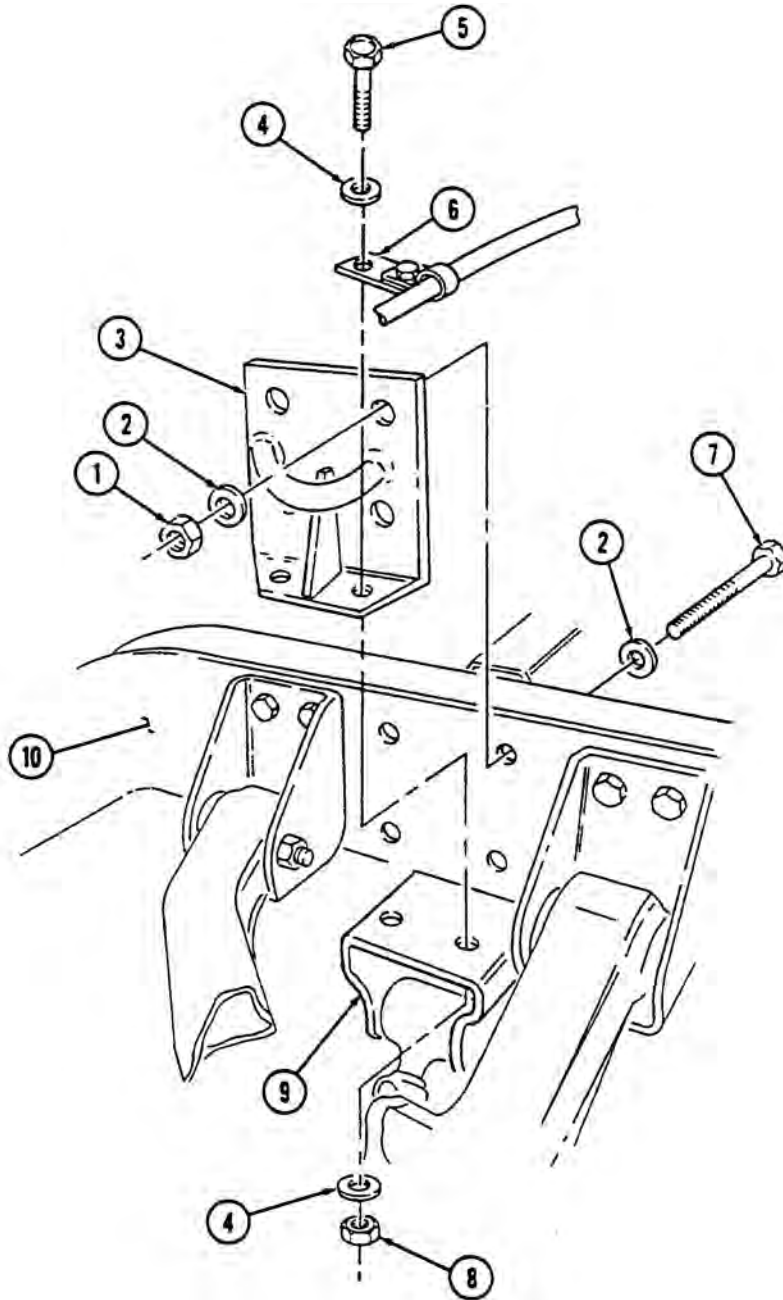
a. Removal

1. Remove four locknuts (1), washers (2), capscrews (7), and washers (2) from tiedown bracket (3) and frame rail (10). Discard locknuts (1).
2. Remove two locknuts (8), washers (4), capscrews (5), washers (4), vent tube mounting bracket (6), and tiedown bracket (3) from rear suspension front crossmember mounting bracket (9). Discard locknuts (8).

b. Installation

1. Install tiedown bracket (3) on frame rail (10) with four washers (2), capscrews (7), washers (2), and locknuts (1). Tighten locknuts (1) to 260 lb-ft (353 N•m).
2. Install tiedown bracket (3) and vent tube mounting bracket (6) on rear suspension front crossmember mounting bracket (9) with two washers (4), capscrews (5), washers (4), and locknuts (8). Tighten locknuts (8) to 90 lb-ft (122 N•m).

24-14. REAR-FRONT TIEDOWN BRACKET REPLACEMENT (Cont'd)



FOLLOW-ON TASK: Install wheel (TM 9-2320-387-24-1).

24-15.1. FRONT DIFFERENTIAL SUPPORT BRACKET/BRAKE ADAPTER REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

O-ring (Appendix A, Item 215)
 Locknut (Appendix A, Item 85)
 Locknut (Appendix A, Item 114.4)
 Sealing compound (Appendix C, Item 63)

Manual References

TM 9-2320-387-24P

Equipment Condition

Service brake rotors removed (para. 7-12.1).

General Safety Instructions

Differential is extremely heavy and must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Differential is extremely heavy and must be supported during removal and installation. Failure to do so may result in injury to personnel or damage to equipment.

NOTE

Replacement procedures for all differential support brackets/brake adapters are basically the same. This procedure covers the left front differential support bracket/brake adapter.

a. Removal

1. Remove locknut (12), washer (11), capscrew (9), and washer (8) from suspension crossmember (10). Discard locknut (12).
2. Remove locknut (6), O-ring (5), and output flange (4) from output shaft (2). Discard locknut (6) and O-ring (5).
3. Remove four capscrews (7) and brake adapter (3) from differential (1).

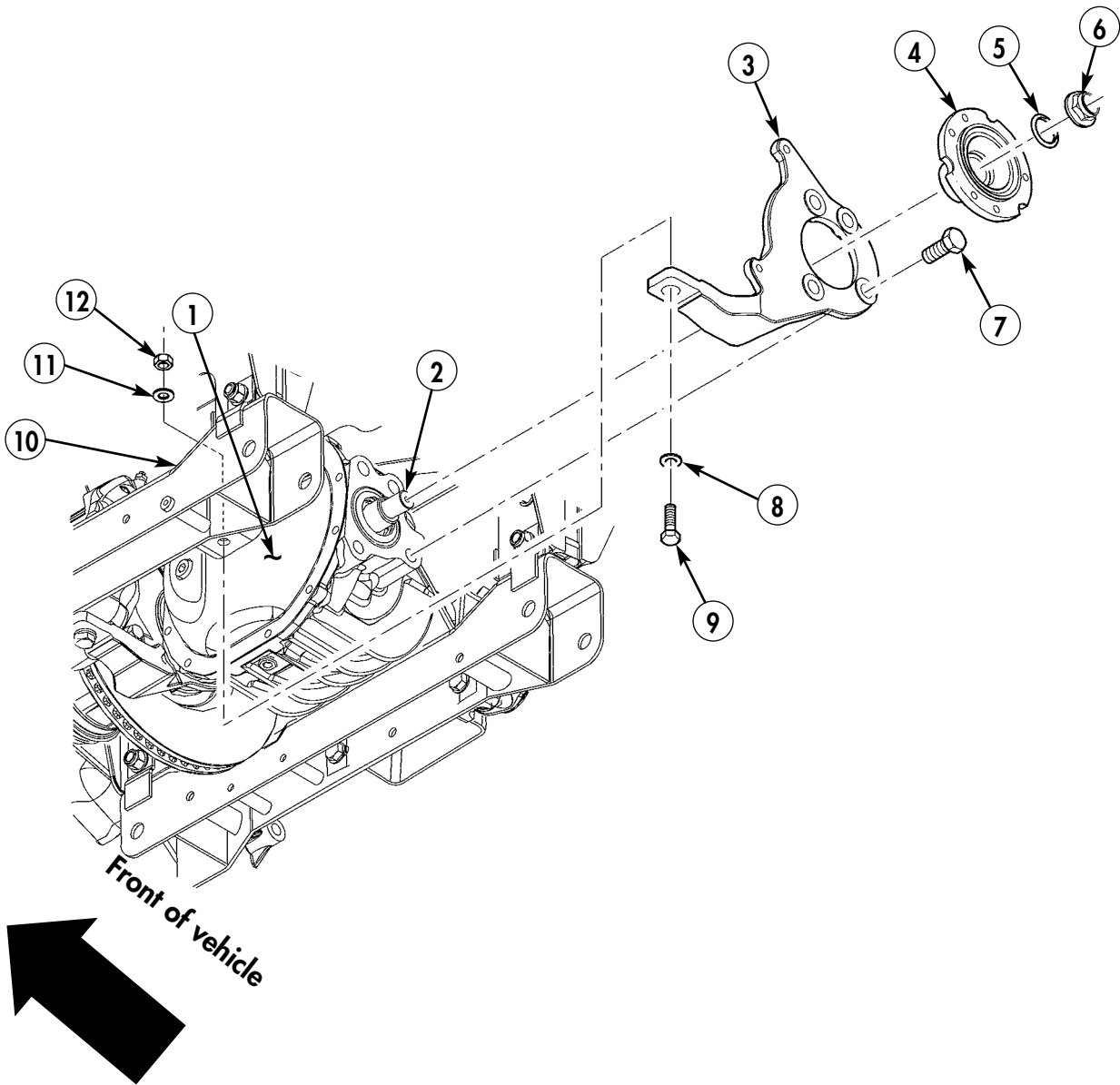
b. Installation

CAUTION

Apply a liberal amount of thread sealing compound to the tapped holes of differential. To allow adequate coating of threads, install capscrews shortly after applying thread sealing compound. Failure to comply may allow capscrews to loosen and cause damage to differential.

1. Apply sealing compound to tapped holes of differential (1). Install brake adapter (3) on differential (1) with four capscrews (7). Tighten capscrews (7) to 125-150 lb-ft (170-203 N•m).
2. Install output flange (4) and O-ring (5) on output shaft (2) with locknut (6). Tighten locknut (6) to 170 lb-ft (231 N•m).
3. Secure brake adapter (3) to suspension crossmember (10) with washer (8), capscrew (9), washer (11), and locknut (12).

**24-15.1. FRONT DIFFERENTIAL SUPPORT BRACKET/BRAKE ADAPTER REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASK: Install service brake rotors (para. 7-12.1).

**24-15.2. REAR MOUNTING PLATE/BRAKE ADAPTER REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Two locknuts (Appendix A, Item 114.4)

Personnel Required

One mechanic
One assistant

Manual References

TM 9-2320-387-10
TM 9-2320-387-24P

Equipment Condition

Rear differential removed (para. 21-4.2).

Maintenance Level

Direct support

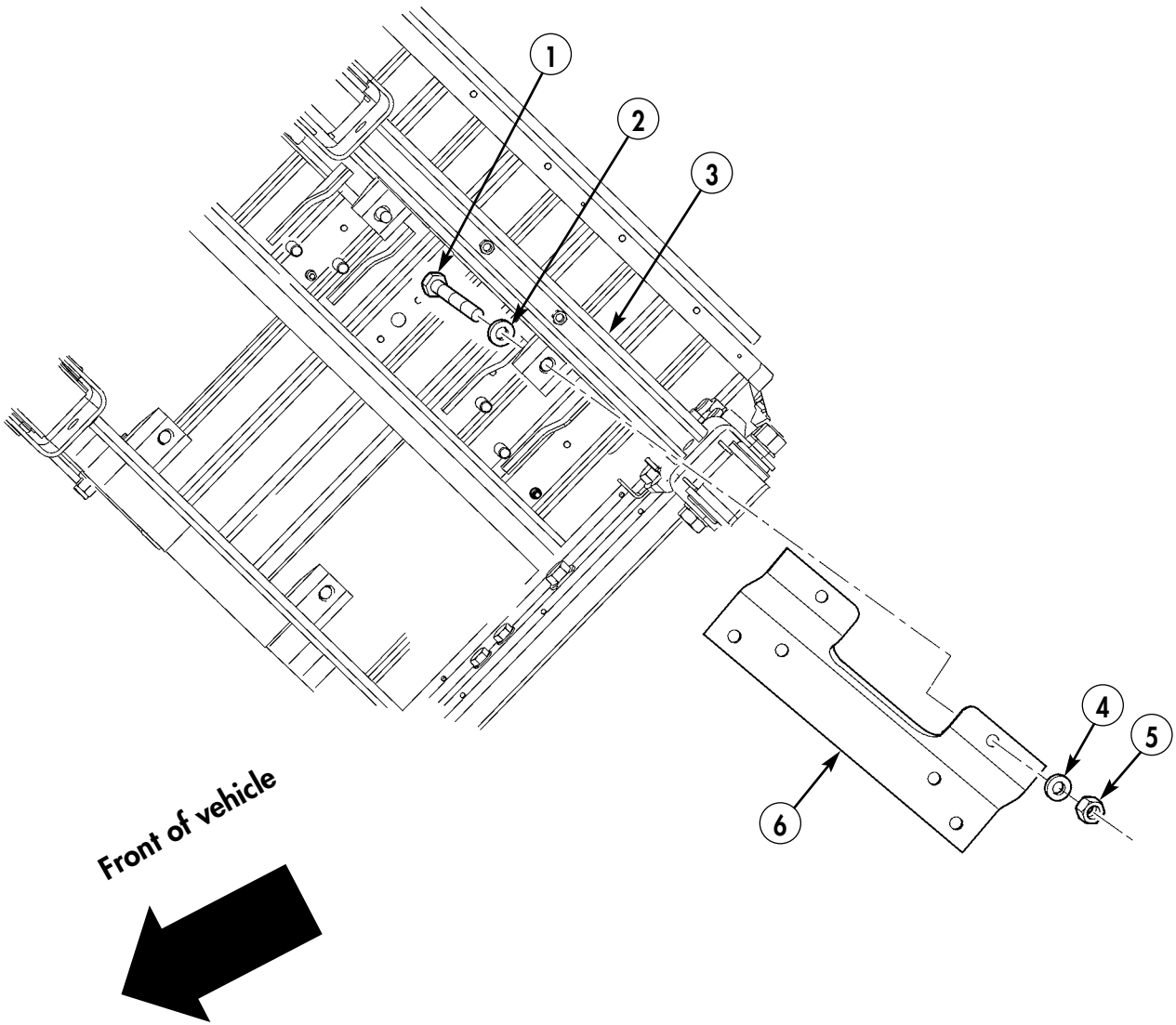
a. Removal

Remove two locknuts (5), washers (4), capscrews (1), washers (2), and rear brake adapter mounting plate (6) from rear crossmember (3). Discard locknuts (5).

b. Installation

Install rear brake adapter mounting plate (6) on rear crossmember (3) with two washers (2), capscrews (1), washers (4), and locknuts (5). Tighten locknuts (5) to 90 lb-ft (122 N•m).

**24-15.2. REAR MOUNTING PLATE/BRAKE ADAPTER REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



FOLLOW-ON TASKS: Install rear differential (para. 21-14.2).

24-16.1. FRONT SUSPENSION FRONT CROSSMEMBER MAINTENANCE (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

- a. Removal
- b. Inspection

- c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Fifteen locknuts (Appendix A, Item 114.4)

Manual References

TM 9-2320-387-24-1

Equipment Condition

- Radiator removed (para. 3-62.1).
- Front lower control arms removed (TM 9-2320-387-24-1).
- Horn removed (para. 4-26.1).
- Front differential removed (para. 21-4.1)
- Differential support brackets and side mounting brackets removed (para. 24-15.1).
- Front brake lines removed (para. 7-7.1).

a. Removal

1. Remove four locknuts (4), washers (5), capscrews (13), washers (12), and two splash shield brackets (3) from frame rails (23). Discard locknuts (4).
2. Remove locknut (22), washer (21), screw (17), clamp (18), and harness (16) from front crossmember (20). Discard locknut (22).
3. Remove four locknuts (2), washers (1), capscrews (9), and washers (11) from front crossmember (20) and two frame rails (23). Discard locknuts (2).
4. Remove six locknuts (6), washers (7), capscrews (15), washers (14), and brake line brackets (8) from front crossmember (20) and left and right front crossmember mounting brackets (10). Discard locknuts (6).
5. Slide crossmember (20) and mounting brackets (10) down and out from under vehicle.

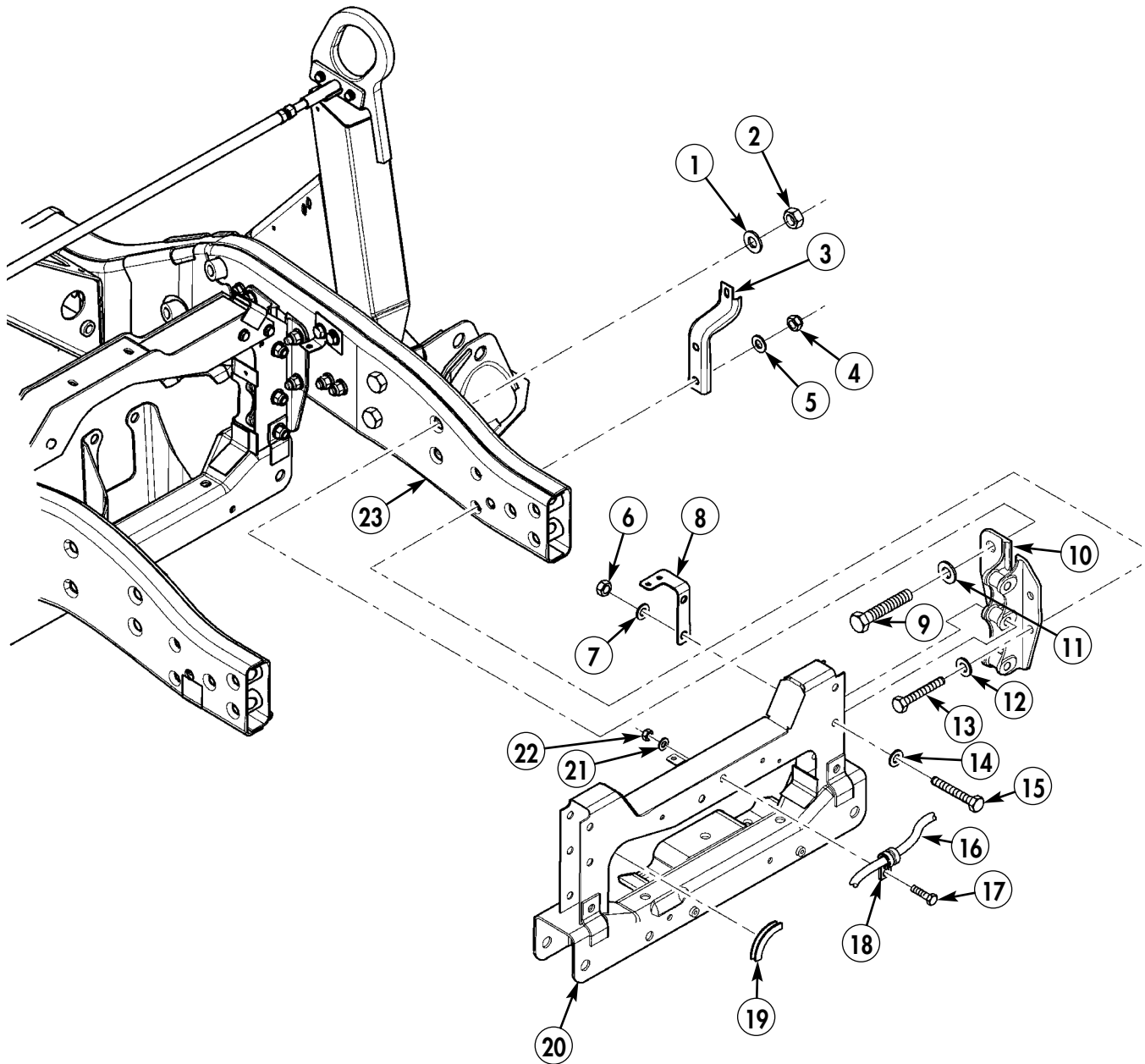
b. Inspection

Inspect edge protector (19). Replace if damaged.

b. Installation

1. Install left and right crossmember mounting brackets (10) on front crossmember (20).
2. Install front crossmember (20) and two mounting brackets (10) on frame rails (23) with four washers (11), capscrews (9), washers (1), and locknuts (2).
3. Install brake line brackets (8) and left and right crossmember mounting brackets (10) on front crossmember with six washers (7), locknuts (6), washers (14) and capscrews (15).
4. Install two splash shield brackets (3) on frame rails (23) with four washers (12), capscrews (13), washers (5), and locknuts (4).
5. Install harness (16) on front crossmember (20) with clamp (18) and screw (17), washer (21), and locknut (22).
6. Tighten four locknuts (2).
7. Tighten four locknuts (4) and six locknuts (6).

**24-16.1. FRONT SUSPENSION FRONT CROSSMEMBER MAINTENANCE
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install front brake lines (para. 7-7.1).
 - Install differential support brackets and side mounting brackets (para. 24-15.1).
 - Install front differential (para. 21-4.1).
 - Install horn (para. 4-26.1).
 - Install front lower control arms (TM 9-2320-387-24-1).
 - Install radiator (3-62.1).

24-17.1. FRONT SUSPENSION REAR CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
 automotive (Appendix B, Item 1)
 Maintenance and repair shop equipment:
 automotive (Appendix B, Item 2)

Materials/Parts

Three lockwashers (Appendix A, Item 190.8)
 Fourteen locknuts (Appendix A, Item 114.4)
 Sealing compound (Appendix C, Item 69)

Manual References

TM 9-2320-387-24P

Equipment Condition

- Geared fan drive and upper front rear crossmember removed (para. 3-80.2).
- Right front upper control arm removed (TM 9-2320-387-24-1).
- Lower radiator tube removed (para. 3-71.1).
- Right front caliper-to-tee brake line removed (para. 7-7.1).
- Lower control arms removed (TM 9-2320-387-24-1).
- Front differential removed (para. 21-4.1).
- Differential support brackets and side mounting brackets removed (para. 24-15.1).

Maintenance Level

Direct support

a. Removal

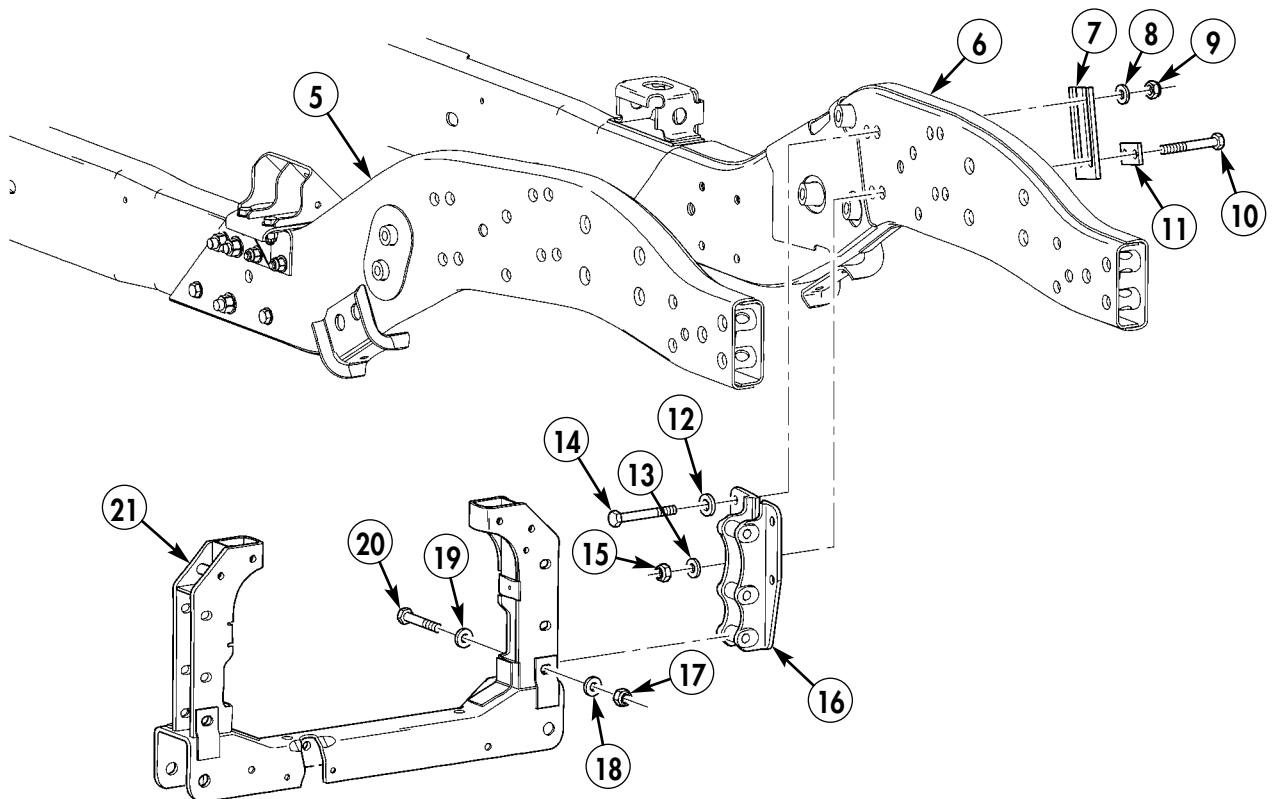
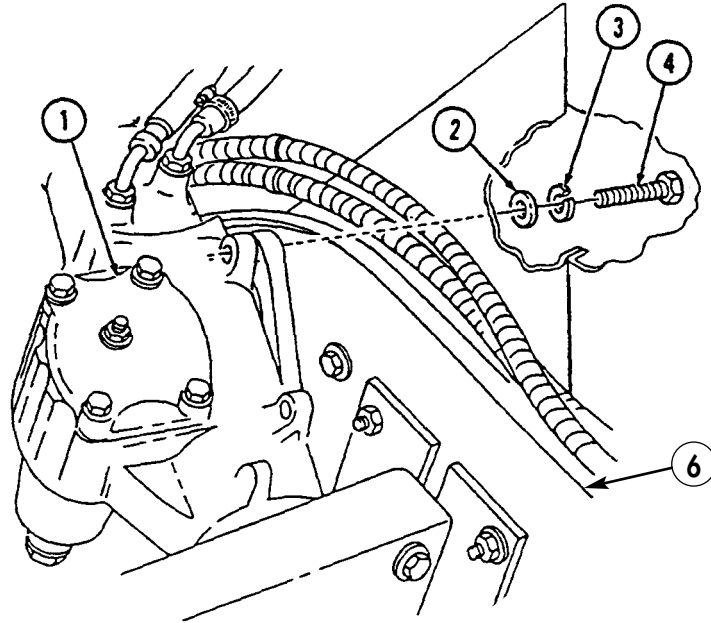
1. Remove three capscrews (4), lockwashers (3), and washers (2) and pull steering gear (1) away from left frame rail (6). Discard lockwashers (3).

NOTE

Note direction of capscrews for installation.

2. Remove six locknuts (15), washers (13), capscrews (10), and brackets (11) from left and right rear crossmember mounting brackets (16), frame rails (5) and (6), and shims (7). Discard locknuts (15).
3. Remove two locknuts (9), washers (8), shims (7), capscrews (14), and washers (12) from left and right rear crossmember mounting brackets (16) and frame rails (5) and (6). Discard locknuts (9).
4. Remove six locknuts (17), washers (18), capscrews (20), and washers (19) from rear crossmember (21) and left and right rear crossmember mounting brackets (16). Discard locknuts (17).
5. Slide rear crossmember (21) and left and right crossmember mounting brackets (16) down and out from under vehicle.
6. Remove left and right crossmember mounting brackets (16) from rear crossmember (21).

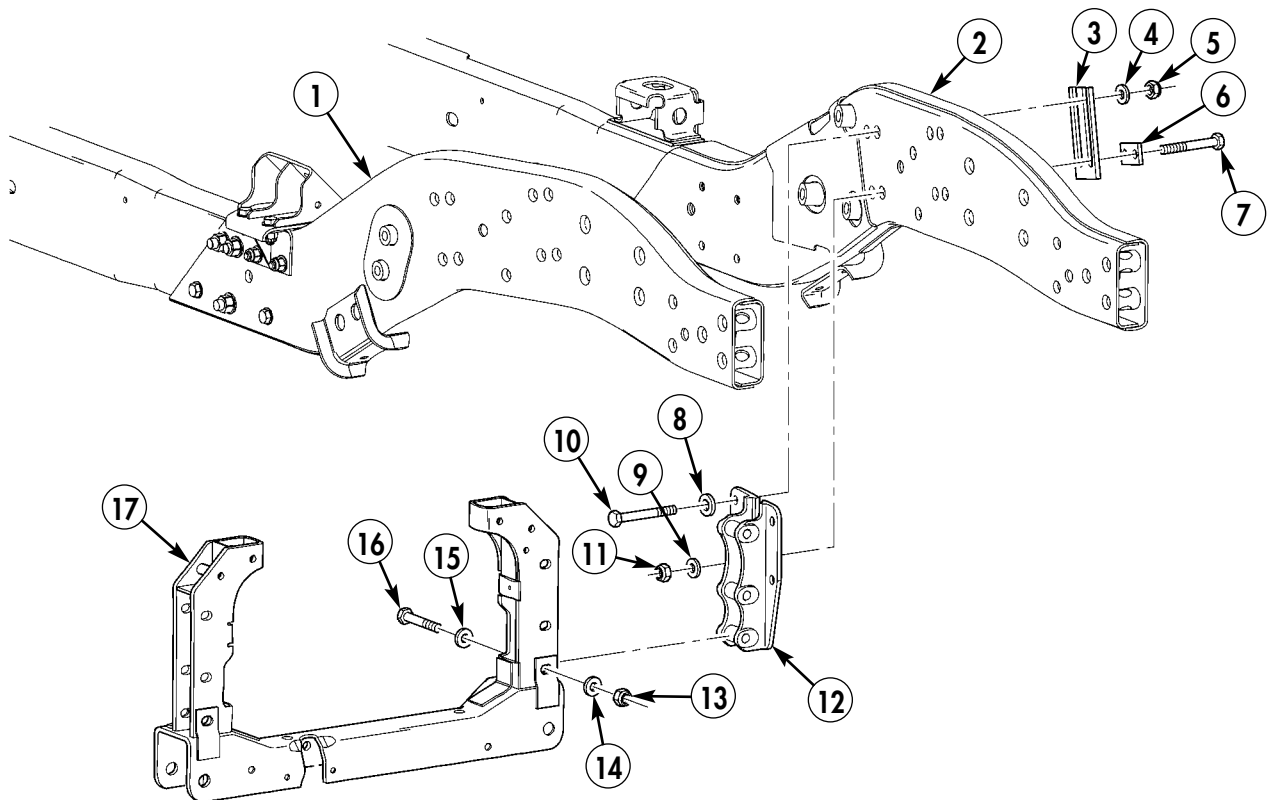
**24-17.1. FRONT SUSPENSION REAR CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



**24-17.1. FRONT SUSPENSION REAR CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

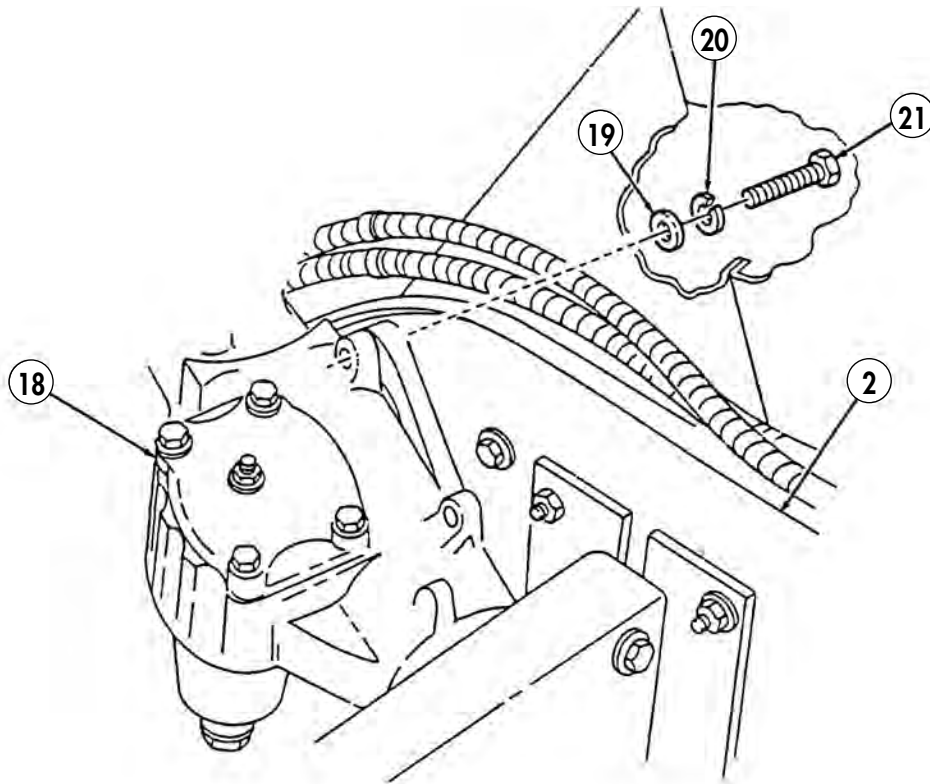
b. Installation

1. Install left and right rear crossmember mounting brackets (12) on rear crossmember (17).
2. Install rear crossmember (17) and left and right rear crossmember mounting brackets (12) on frame rails (1) and (2).
3. Apply sealing compound to two capscrews (10) and secure left and right rear crossmember mounting brackets (12) on frame rails (1) and (2) with two washers (8), capscrews (10), shims (3), washers (4), and nuts (5).
4. Secure rear crossmember (17) on frame rails (1) and (2) with six brackets (6), capscrews (7), washers (9), and nuts (11).
5. Secure rear crossmember (17) on left and right rear crossmembers (12) with six washers (15), capscrews (16), washers (14), and nuts (13).



24-17.1. FRONT SUSPENSION REAR CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)

6. Tighten two capscrews (10) to 65-78 lb-ft (88-106 N•m).
7. Tighten six capscrews (7) to 90 lb-ft (122 N•m).
8. Tighten six capscrews (16) to 90 lb-ft (122 N•m).
9. Install steering gear (18) on frame rail (2) with three washers (19), lockwashers (20), and capscrews (21). Tighten capscrews (21) to 60 lb-ft (81 N•m).



- FOLLOW-ON TASKS:**
- Install differential support brackets and side mounting brackets (para. 24-15.1).
 - Install front differential (para. 21-4.1).
 - Install lower control arms (TM 9-2320-387-24-1).
 - Install right front caliper-to-tee brake line (para. 7-7.1).
 - Install lower radiator tube (para. 3-71.1).
 - Install right front upper control arm (TM 9-2320-387-24-1).
 - Install geared drive and upper front rear crossmember (para. 3-80.2).

24-18.1. REAR SUSPENSION FRONT CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 300000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Seven locknuts (Appendix A, Item 88)
Three locknuts (Appendix A, Item 114.4)

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24P

Equipment Condition

- Rear differential removed (para. 21-4.2).
- Rear differential support brackets and side mounting brackets removed (para. 24-15.2).

Equipment Condition (Cont'd)

- Rear upper control arms removed (TM 9-2320-387-24-1).
- Rear lower control arms removed (TM 9-2320-387-24-1).
- Rear-front tiedown brackets installed (para. 24-14).
- Rear brake protection guards removed (para. 7-11.1).

General Safety Instructions

Crossmember must be supported during removal and installation.

Maintenance Level

Direct support

WARNING

Crossmember must be supported during removal and installation. Failure to do so may cause injury to personnel or damage to equipment.

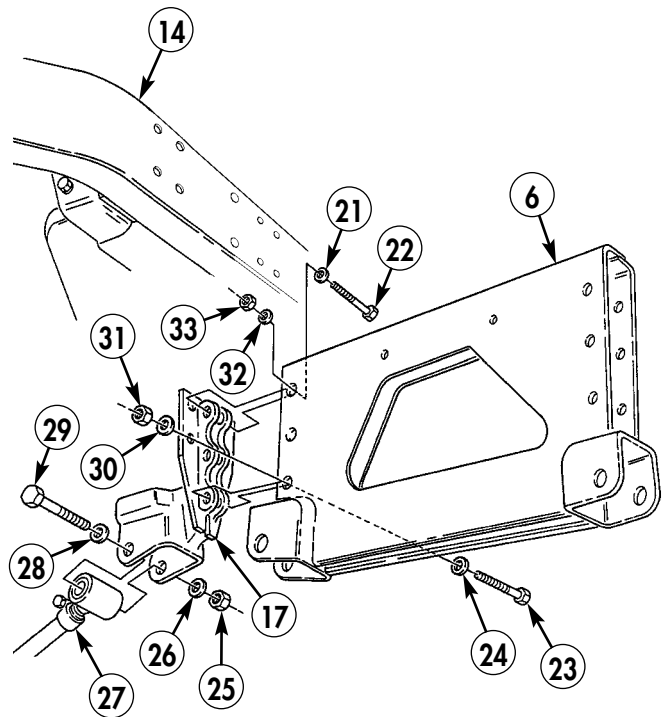
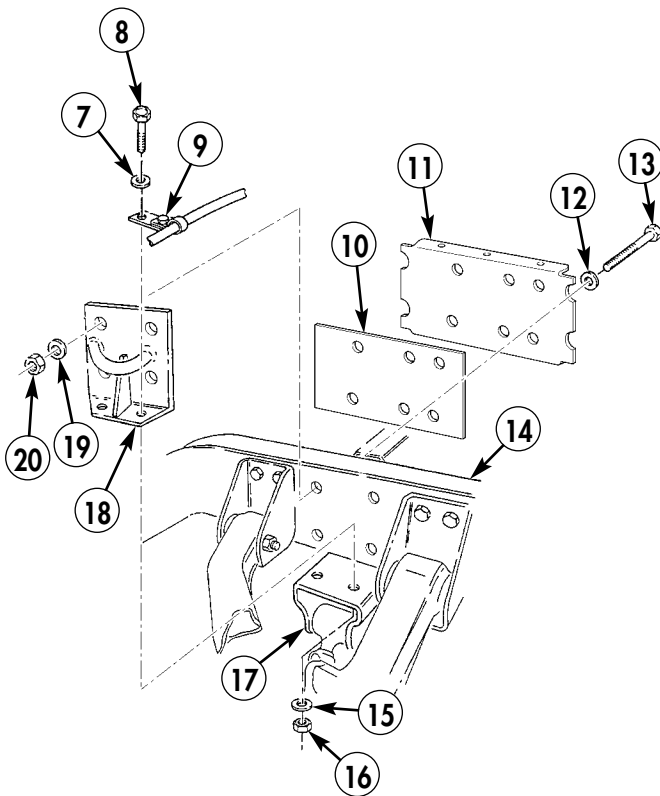
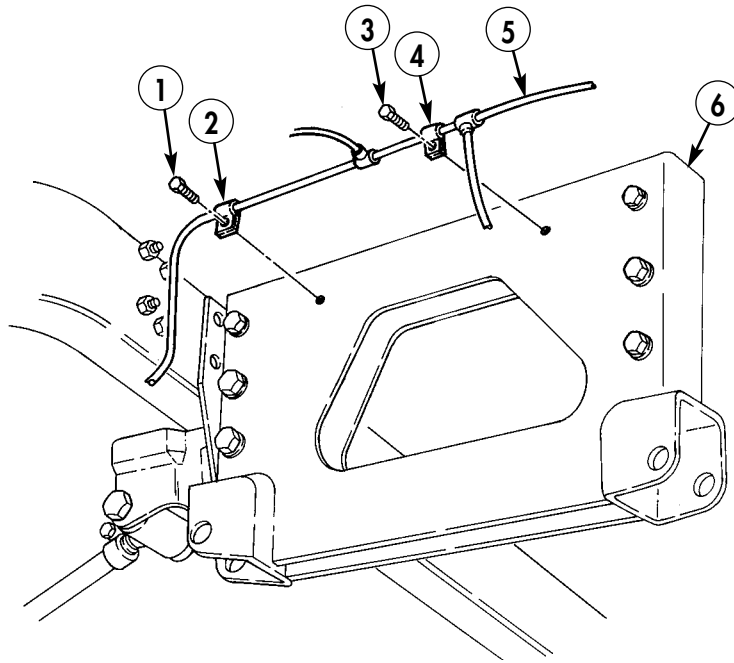
NOTE

Replacement procedures for left and right assemblies are basically the same. This procedure covers the right side assembly.

a. Removal

1. Remove two capscrews (1) and (3), clamps (2) and (4), and vent line (5) from crossmember (6).
2. Remove two locknuts (16), washers (15), capscrews (8), washers (7), and vent line bracket (9) from crossmember mount (17). Discard locknuts (16).
3. Remove four locknuts (20), washers (19), capscrews (13), washers (12), tiedown bracket (18), and reinforcement plates (10) and (11) from frame (14). Discard locknuts (20).
4. Remove locknut (25), washer (26), capscrew (29), washer (28), and radius rod (27) from crossmember mount (17). Discard locknut (25).
5. Slide crossmember mount (17) and crossmember (6) down and out from vehicle.
6. Remove locknut (33), washer (32), capscrew (22), and washer (21) from crossmember (6). Discard locknut (33).
7. Remove two locknuts (31), washers (30), capscrews (23), washers (24), and crossmember mount (17) from crossmember (6). Discard locknuts (31).

**24-18.1. REAR SUSPENSION FRONT CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

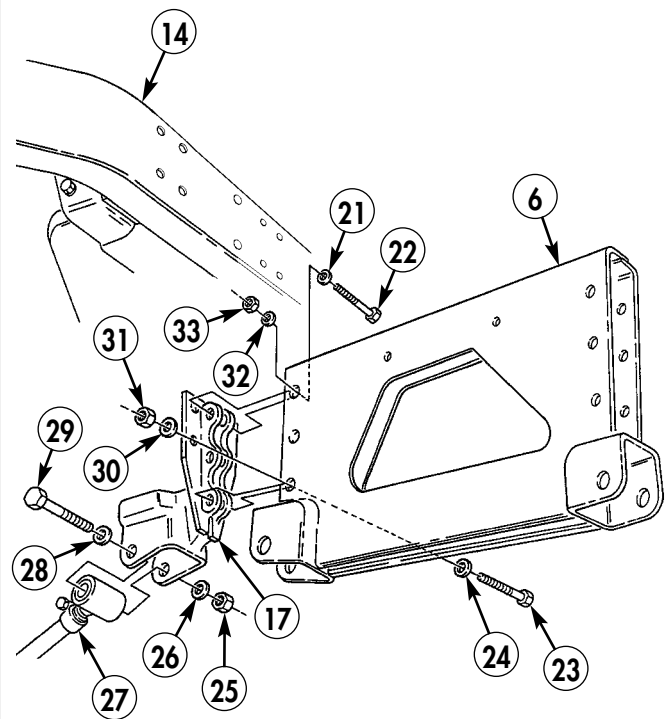
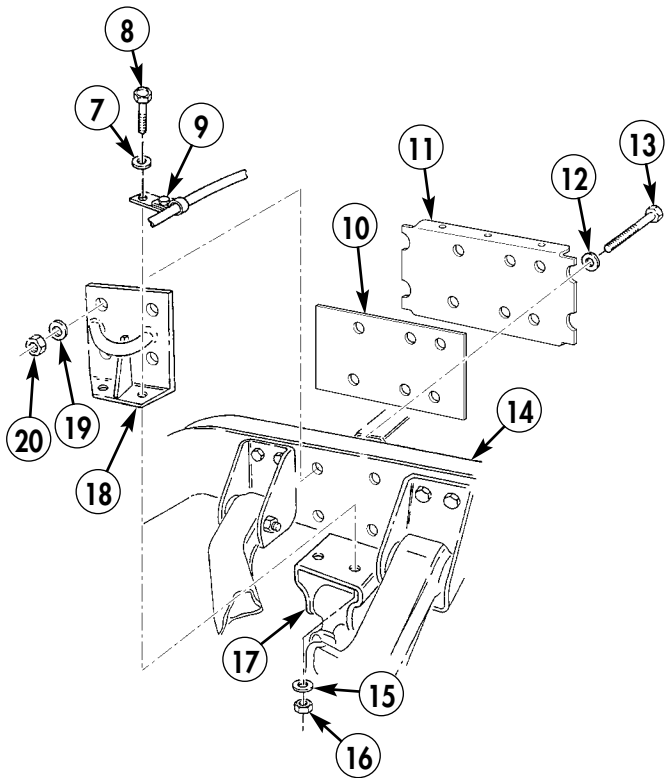
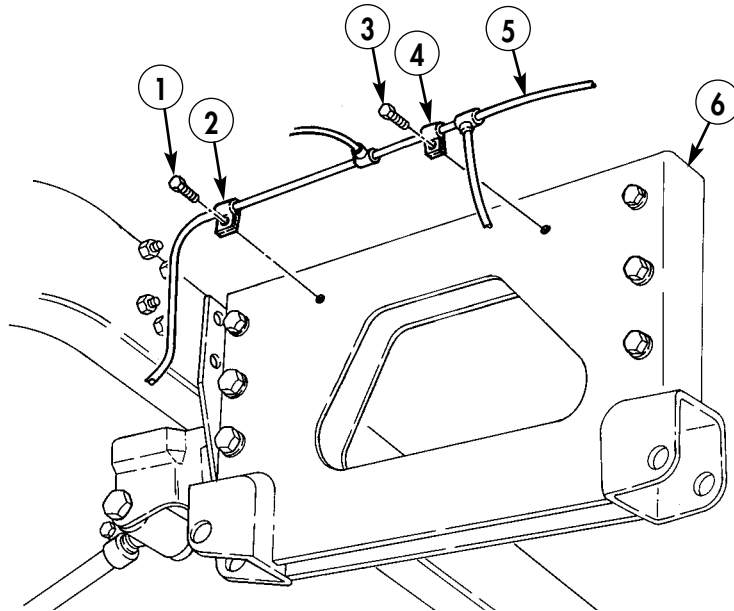


**24-18.1. REAR SUSPENSION FRONT CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

b. Installation

1. Install crossmember mount (17) on crossmember (6) with two washers (24), capscrew (23), washers (30), and locknuts (31). Tighten locknuts (31) to 260 lb-ft (353 N•m).
2. Secure crossmember mount (17) to crossmember (6) with washer (21), capscrews (22), washers (32), and locknuts (33). Tighten locknuts (33) to 90 lb-ft (122 N•m).
3. Slide crossmember mount (17) and crossmember (6) onto frame (14).
4. Install reinforcement plates (10) and (11) and tiedown bracket (18) on frame (14) with four washers (12), capscrews (13), washers (19), and locknuts (20).
5. Install radius rod (27) on crossmember mount (17) with washer (28), capscrew (29), washer (26), and locknut (25). Tighten locknuts (25) to 260 lb-ft (353 N•m).
6. Secure tiedown bracket (18) to crossmember mount (17) with vent line bracket (9), two washers (7), capscrews (8), washers (15), and locknuts (16).
7. Install vent line (5) on crossmember (6) with two clamps (4) and (2) and capscrews (3) and (1).

**24-18.1. REAR SUSPENSION FRONT CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install rear brake protection guards (para. 7-11.1).
 - Install rear front tiedown brackets (para. 24-14).
 - Install rear lower control arms (TM 9-2320-387-24-1).
 - Install rear upper control arms (TM 9-2320-387-24-1).
 - Install rear differential support brackets and side mounting brackets (para. 24-15.2).
 - Install rear differential (para. 21-4.2).

24-19.1. REAR SUSPENSION REAR CROSSMEMBER REPLACEMENT (SERIAL NUMBERS 30000 AND ABOVE)

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)
Maintenance and repair shop equipment:
automotive (Appendix B, Item 2)

Materials/Parts

Eight locknuts (Appendix A, Item 88)
Six locknuts (Appendix A, Item 114.4)

Manual References

TM 9-2320-387-24-1
TM 9-2320-387-24-2
TM 9-2320-387-24P

Equipment Condition

- Rear brake adapter mounting plate removed (para. 24-15.1).
- Rear-rear tiedown brackets removed (TM 9-2320-387-24-2).
- Rear lower control arms removed (TM 9-2320-387-24-1).

General Safety Instructions

Crossmember must be supported during removal.

Maintenance Level

Direct support

a. Removal

WARNING

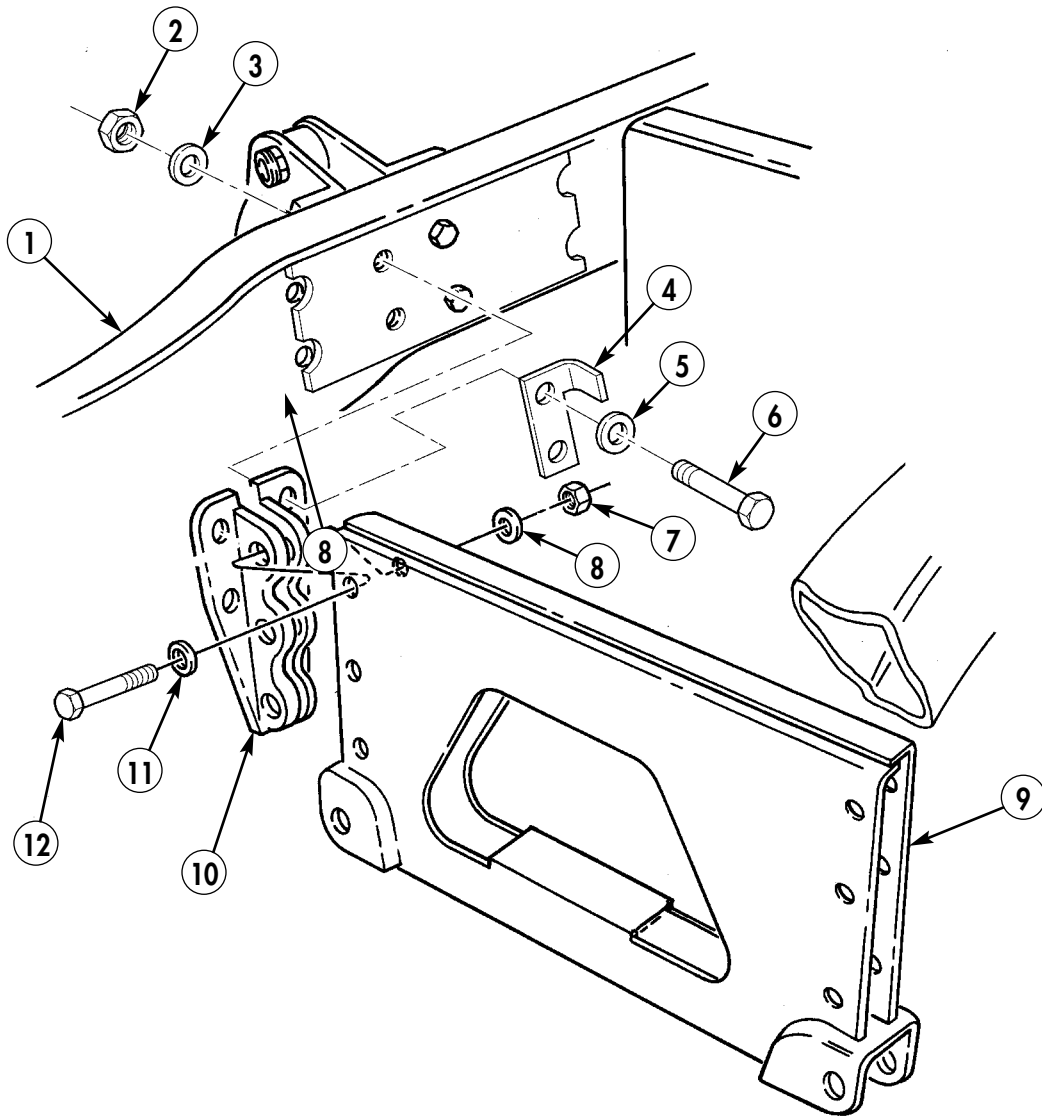
Crossmember must be supported during removal. Failure to support crossmember during removal may cause injury to personnel or damage to equipment.

1. Remove eight locknuts (2), washers (3), capscrews (6), washers (5), and two brackets (4) from rear crossmember (9) and two frame rails (1). Discard locknuts (2).
2. Loosen six locknuts (7) on two rear crossmember mounting brackets (10) and rear crossmember (9).
3. Slide rear crossmember (9) down and out from under vehicle.
4. Remove six locknuts (7), washers (8), capscrews (12), washers (11), and two rear crossmember mounting brackets (10) from rear crossmember (9). Discard locknuts (7).

b. Installation

1. Install two crossmember mounting brackets (10) on rear crossmember (9) with six washers (11), capscrews (12), washers (8), and locknuts (7).
2. Install rear crossmember (9) and two brackets (4) on two frame rails (1) with four washers (5), capscrews (6), washers (3), and locknuts (2).

**24-19.1. REAR SUSPENSION REAR CROSSMEMBER REPLACEMENT
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**



- FOLLOW-ON TASKS:**
- Install rear lower control arms (TM 9-2320-387-24-1).
 - Install rear-rear tiedown brackets (TM 9-2320-387-24-2).
 - Install rear brake adapter mounting plate (para. 24-15.1).

**24-23. REAR BUMPER MOUNTING BRACKET AND TIEDOWN BRACKET REPLACEMENT
(SERIAL NUMBERS 300000 AND ABOVE)**

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

- General mechanic's tool kit:
 - automotive (Appendix B, Item 1)
- Maintenance and repair shop equipment:
 - automotive (Appendix B, Item 2)

Materials/Parts

- Four locknuts (Appendix A, Item 83)
- Four locknuts (Appendix A, Item 114.4)

Manual References

- TM 9-2320-387-24-1
- TM 9-2320-387-24-2
- TM 9-2320-387-24P

Equipment Condition

- Rear body mount removed (TM 9-2320-387-24-2).
- Tiedown ring removed (TM 9-2320-387-24-1).

Maintenance Level

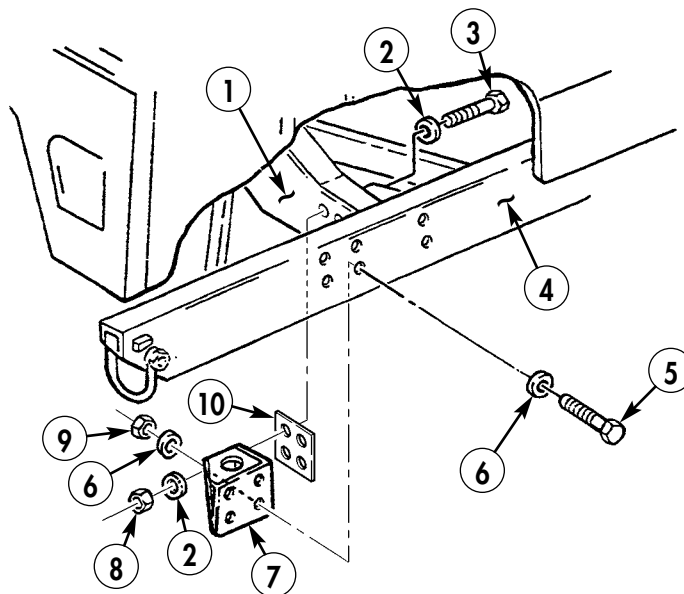
Direct support

a. Removal

1. Remove four locknuts (9), washers (6), capscrews (5), and washers (6) from bumper mounting bracket (7) and bumper (4). Discard locknuts (9).
2. Remove four locknuts (8), washers (2), capscrews (3), washers (2), bumper mounting bracket (7), and spacer (10) from frame rail (1). Discard locknuts (8).

b. Installation

1. Install spacer (10) and bumper mounting bracket (7) on frame rail (1) with four washers (2), capscrews (3), washers (2), and locknuts (8).
2. Install bumper mounting bracket (7) on bumper (4) with four washers (6), capscrews (5), washers (6), and locknuts (9).



- FOLLOW-ON TASKS:
- Install tiedown ring (TM 9-2320-387-24-1).
 - Install rear body mount (TM 9-2320-387-24-2).

CHAPTER 25

SPECIAL PURPOSE BODIES (DS) MAINTENANCE

Refer to TM 9-2320-387-24-2 for information regarding special purpose bodies (DS) maintenance.

CHAPTER 26

SPECIAL PURPOSE KITS (DS) MAINTENANCE

Refer to TM 9-2320-387-24-2 for information regarding special purpose kits (DS) maintenance.

CHAPTER 27

ELECTRICAL SYSTEM (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding electrical system (GS) repair.

CHAPTER 28

TRANSMISSION (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding transmission (GS) repair.

CHAPTER 29 TRANSFER CASE (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding transfer case (GS) repair.

CHAPTER 30

DIFFERENTIAL (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding differential (GS) repair.

CHAPTER 31

STEERING SYSTEM (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding steering system (GS) repair.

CHAPTER 32

FRAME (GS) REPAIR

The following procedures contain references that are specific to your REV vehicle.

32-4. FRAME INSPECTION AND REPAIR

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. General Information b. Powertrain Lift Sling Installation c. Inspection c.1. Steering Gear Mounting Area Inspection | <ul style="list-style-type: none"> d. Preparation and Materials e. Repair Procedures f. Powertrain Lift Sling Removal |
|---|--|

INITIAL SETUP:

Tools

General mechanic's tool kit:
automotive (Appendix B, Item 1)

Materials/Parts

Cotter pin (Appendix A, Item 16)
Powertrain lift sling
(TM 9-2320-387-24-2, Appendix D, Figs. 72, 73)

Manual References

TB 750-98-23
TM 9-2320-387-10
TM 9-2320-387-24-1
TM 9-2320-387-24-2
TM 9-2320-387-24P
TC 9-237
TM 43-0139

Equipment Condition

- Vehicle mission equipment removed and stowed (TM 9-2320-387-10).
- Vehicle undercarriage clean and free of mud and debris (TM 9-2320-387-10).
- Battery ground cables disconnected (TM 9-2320-387-24-1).
- Transmission control module removed (TM 9-2320-387-24-1).

Equipment Condition (Cont'd)

- Engine left splash shield removed (para. 10-23.1).
- Stabilizer bar removed (para. 6-20.1).
- Pitman arm disconnected from center link (TM 9-2320-387-24-1).
- Steering shaft disconnected from steering gear (TM 9-2320-387-24-1).
- Oil cooler/brake line bracket removed (para. 3-7.1).
- Steering gear removed (para. 8-20.1).

General Safety Instructions

- When using power-driven equipment to straighten frames, all personnel must stand clear.
- Shim material must be under jackstands.
- Ensure shoulder bolts have a raised metal 10.9 material strength indicator on the head of the bolts.
- Do not bulk heat frame rails to remove bends and/or buckles.

Maintenance Level

General support

a. General Information

1. Frame rails are constructed by arc-welding two C-channels of preformed steel together to form a box-cross section.
2. Frame rails are internally reinforced at bolt hole locations by bushings or full cross-section spacers to prevent channels from collapsing from attaching load.

NOTE

Crossmembers and crossmember brackets must be replaced if damaged.

3. The frame is made by bolting two non-identical frame rails to crossmembers. Crossmembers are held to more stringent dimensional tolerances and must be replaced if damaged.
4. The type of repairs attempted will vary considerably depending on equipment, type of facilities, and skill of available personnel. Also the choice of procedures will be influenced by parts supply status and the operational situation.
5. Mechanical forces involved in frame straightening can lead to safety problems, which all personnel must constantly consider.
6. The removal of frame constraints (loosening of crossmember and bracket fastenings) is critical to allow enough freedom of movement when straightening frame.

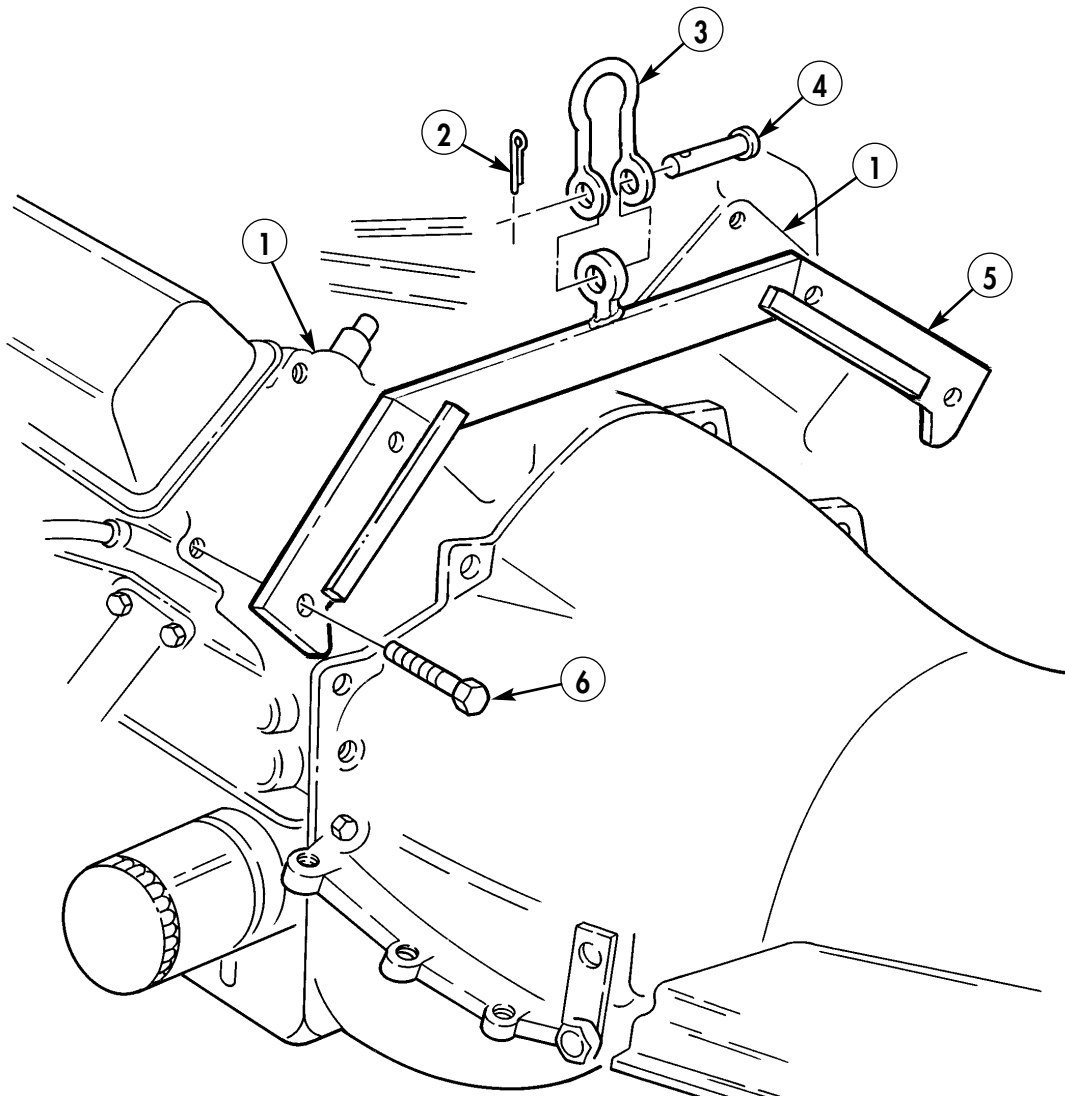
32-4. FRAME INSPECTION AND REPAIR (Cont'd)

7. The objective of a repair procedure is to return the vehicle to a mission-safe (operationally and mechanically) condition within a reasonable time and cost expenditure.
8. For ease of frame maintenance, use powertrain lift sling. (Refer to task b.)

b. Powertrain Lift Sling Installation

WARNING

- To avoid possible injury to personnel and damage to equipment, ensure shoulder bolts have a raised metal 10.9 material strength indicator on the head of the bolts.
 - Rope lift slings are awkward and potentially hazardous to personnel and can cause damage to equipment. Replace rope lift sling with powertrain lift sling.
1. Install powertrain lift sling (5) on cylinder heads (1) with four shoulder bolts (P/N 11502788) (6).
 2. Install shackle (P/N NAS1042-14) (3) on powertrain lift sling (5) with pin (4) and cotter pin (2).



32-4. FRAME INSPECTION AND REPAIR (Cont'd)

c. Inspection

1. Visual inspection: This is the first and most critical step in deciding whether to repair or replace a damaged frame component. Factors to be noted in visual inspection:
 - (a) Transverse tears, cracks, and breaks that extend over one tangent or radius and into 5/32 in. (3.97 mm) of an associated tangent or radius must be replaced.
 - (b) Transverse tears, cracks, or breaks that extend over the tangent or radius can be repaired by welding and reinforcing, providing the crack does not extend into 5/32 in. (3.97 mm) of an associated tangent or radius.
 - (c) Tears, cracks, or breaks on the inside face of the frame rail that extend to within 3 in. (76.2 mm) of a bolted-on crossmember are unrepairable, and frame rail must be replaced.
 - (d) Tears, cracks, or breaks that extend into a hole or from a hole in the frame rails must first have a dye penetrant test performed at the hole to determine if secondary cracks exist (refer to TC 9-237). Secondary cracks are repairable. (See task c.1.)
 - (e) Tears, cracks, or breaks that extend into a hole or from a hole that does not have any existing secondary cracks may be repaired by welding with the use of a pre-drilled reinforcement (dutchman/fishplate) (refer to task e.).
 - (f) Short longitudinal cracks (up to 6 in. (15.2 cm)) or split welds can be repaired by installing a reinforcement (dutchman/fishplate) and heli-arc welding.
 - (g) Twisted frame rails are unrepairable; replace.
2. Measurements: Select a smooth, level surface with area 1-1/2 times the size of the vehicle.
 - (a) Vertical (or side view) measurement:
 - (1) Raise vehicle at four points until all four wheels are off the surface (TM 9-2320-387-24-1).

WARNING

Shim material must be under jackstand. Do not use shims on top of jackstand. Vehicle could be knocked off jackstand, causing personnel injury or damage to equipment.

- (2) Measure height to bottom of frame near each jackstand. Place shim(s) under jackstands as necessary until all four heights are equal.

NOTE

Measurements must be taken at identical locations on left and right frame rails. Failure to do so will result in faulty indication.

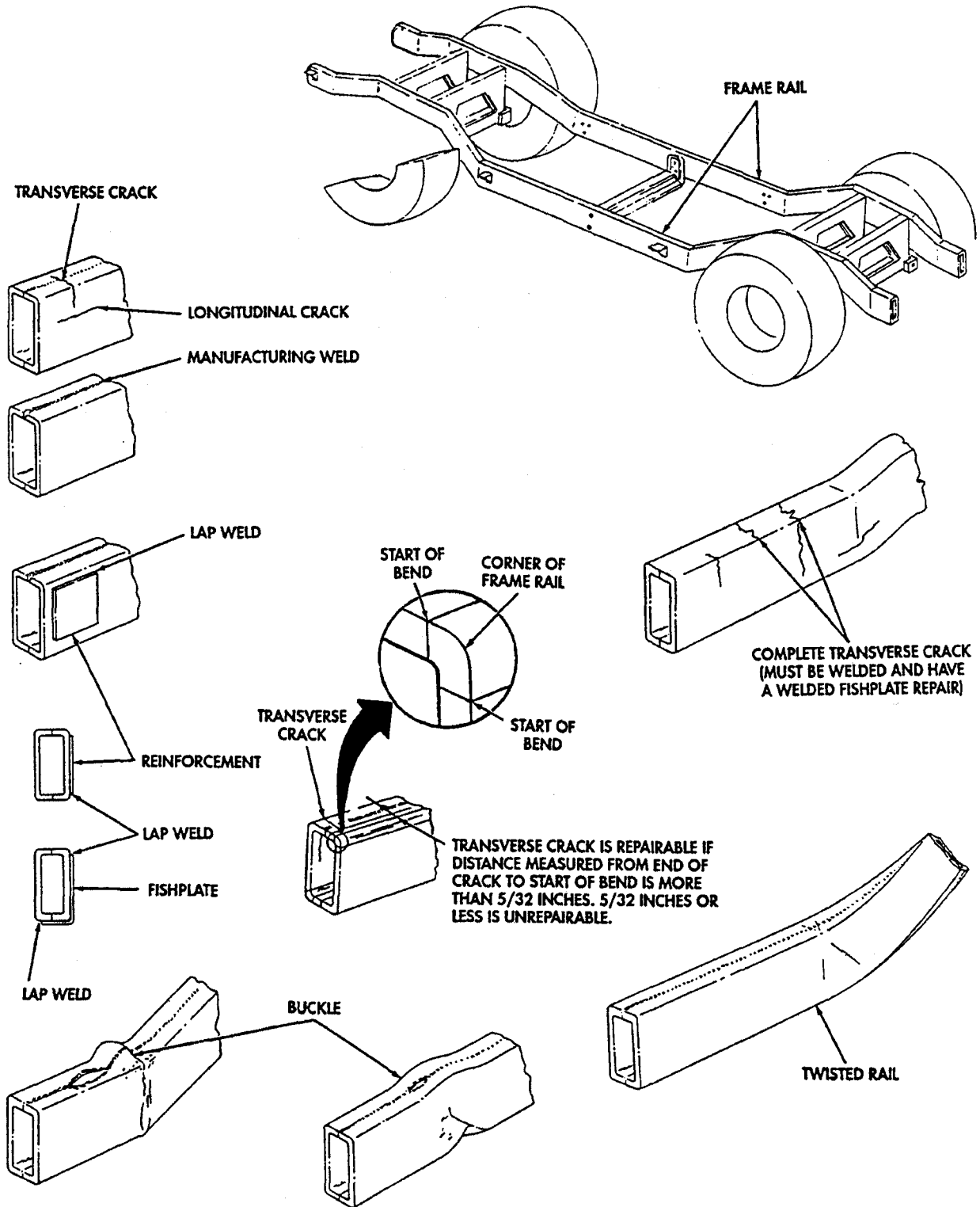
- (3) Select, measure, and record frame rail height at several different positions on either frame rail.
- (4) Measure and record frame rail height at corresponding points on opposite frame rail.
- (5) Right and left frame rail comparable points deviating more than 1/8 in. (3 mm) for each 2 ft (.6 m) linear distance indicate a vertically bent frame. Record deviations.

NOTE

If measured frame rails are out of tolerance, notify supervisor. If frame rails are verified to be out of tolerance, vehicle will be classified as unserviceable.

- (6) Lower vehicle from jackstands (TM 9-2320-387-24-1).

32-4. FRAME INSPECTION AND REPAIR (Cont'd)



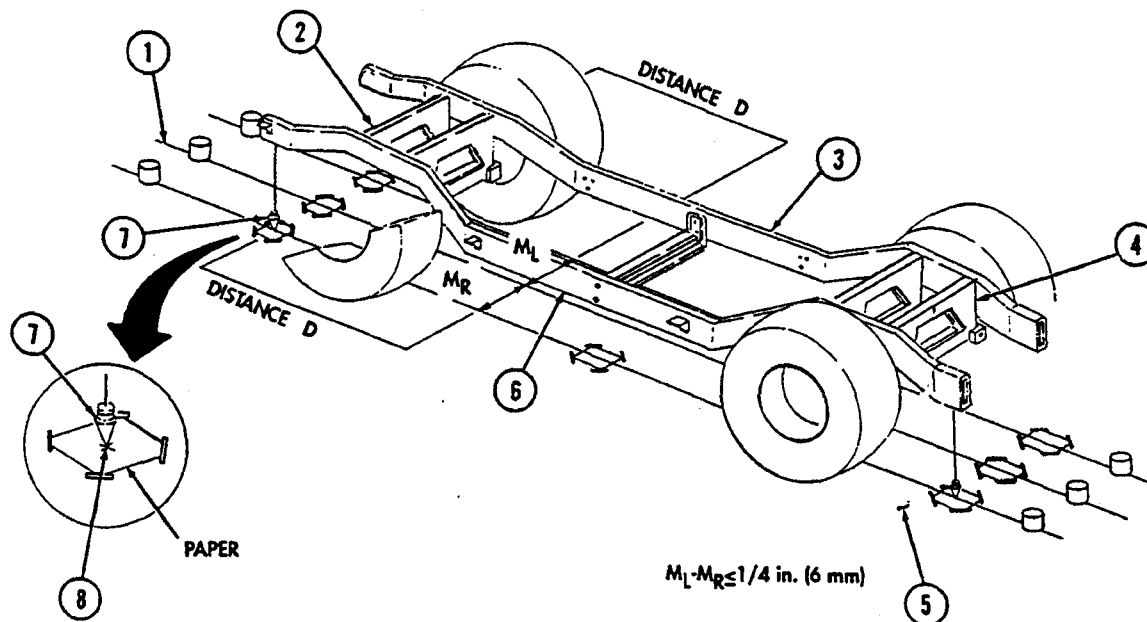
32-4. FRAME INSPECTION AND REPAIR (Cont'd)

(b) Horizontal (bowing) measurement.

- (1) Select a smooth, level surface and drive vehicle into position from a 12 ft (3.7 m) straight line of travel. Apply parking brake gently to bring vehicle to a stop. Chock wheels (TM 9-2320-387-10) and release parking brake.
- (2) Measure height of frame rails (3) and (6) at each end near center of crossmembers (2) and (4). If heights vary by more than 1/8-5/16 in. (3-8 mm), raise and install jackstands to bring frame to leveling tolerance (step 2a (1) and (2)).
- (3) Hold a string with plumb bob (7), as shown, along frame rail (6) at intersection of crossmember (2). Mark location (8) where plumb bob (7) stops moving. Repeat for other three corners of frame.

NOTE

- Strings used for horizontal bow measurement will remain in place until procedure 2(c), frame skew, is completed.
 - To ensure measurements are precise, string must be pulled tight and secured.
- (4) Stretch string tightly on ground (5) between front and rear plumb bob (7) marks under each frame rail (3) and (6).
 - (5) Measure front (2) and rearmost (4) crossmembers to determine center point. Drop a plumb bob (7) from these points to the ground. Mark location where plumb bob (7) stops moving.
 - (6) Stretch string tightly on ground (5) between front and rear plumb bob (7) marks under crossmembers (2) and (4) to determine centerline (1).
 - (7) Measure an equal distance (D) along right and left strings to select your measure points and measure from these right and left points to center string. Mark these points on string. The distance from right and left points to center string should be within 1/4 in. (6 mm) of being equal. If not, one frame rail is bowed. Repeat this procedure for several other points along frame. Record deviations.



32-4. FRAME INSPECTION AND REPAIR (Cont'd)

(c) Diagonal (skew) measurement.

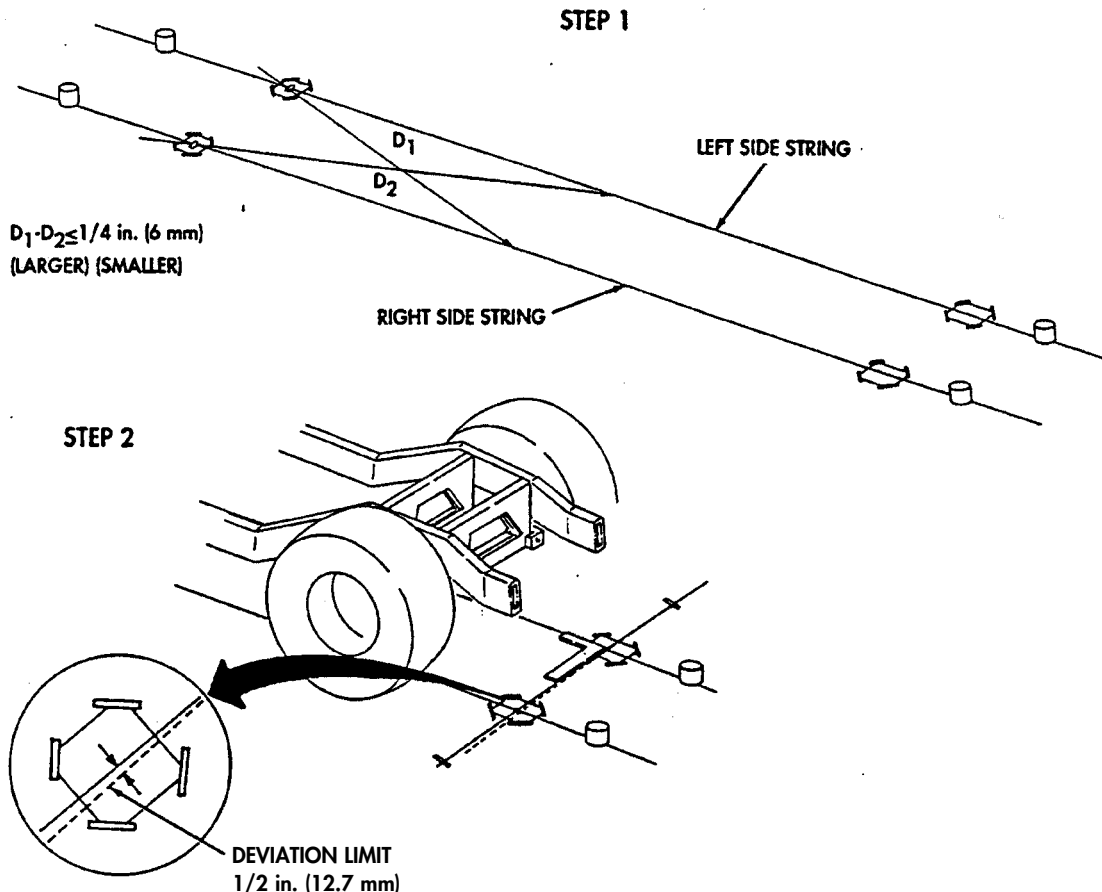
NOTE

The following two steps are alternate procedures to determine if frame rails are skewed.

- (1) Measure diagonally from one point on right or left string to adjacent point on opposite side string. Compare to the opposite diagonal measurement. If these two measurements differ by more than 1/4 in. (6 mm), the two frame rails are skewed. Repeat this procedure at other sets of four measuring points to confirm skew. Record deviations.
- (2) Position a string across two plumb bob points at corresponding (or end) points of frame rail string. Place a square with one leg coincident with frame rail string. Run a line or string along other side of square as far as opposite frame rail string. Measure deviation of end string and square side line at opposite frame rail string. Any deviation means the two frame rails are skewed and, consequently, the crossmembers are not at square angles to frame rails. A deviation of 1/2 in. (12.7 mm) makes a vehicle dog track and it is difficult to align wheels. Record deviations.

NOTE

If measured frame rails are out of tolerance, notify supervisor. If frame rails are verified to be out of tolerance, vehicle will be classified as unserviceable.



32-4. FRAME INSPECTION AND REPAIR (Cont'd)

- (d) Decisions as to whether or not to repair frame will be made in accordance to the following factors:
- (1) Provisions of TB 750-98-23 regarding time and materials versus replacement.
 - (2) Supply and operational considerations.
 - (3) Appropriate facilities available.
 - (4) Personnel skill levels.
 - (5) Influence of other collateral repairs that may be required to return the vehicle to a serviceable condition.
 - (6) Buckled frame rails with both vertical and horizontal bending are extremely difficult to repair; item should be replaced.
 - (7) Twisted frame rails generally are unrepairable; replace item.
 - (8) Frame rails that are bent upward, resulting in torn metal in bottom of rail, must be welded and have a welded-on fishplate repair. If fishplate would block mounting parts and bolt holes, replace frame rail.

c.1. Steering Gear Mounting Area Inspection

NOTE

The inspection criteria is focused on the area surrounding the steering gear mounting tubes, commonly referred to below as bosses. They are located on the front left-hand frame rail. Tubes are welded in holes through the frame rail, accommodating the steering gear mounting bolts. Inside and outside frame rails in this area have experienced stress-cracking stemming from the steering gear mounting tubes. Stress cracks can be radial, tangential, transverse, and/or longitudinal, with some cases in the boss welds themselves.

1. Inspect steering gear mounting area as follows:
 - (a) Inspect all welds around bosses on inside and outside frame rails. Ensure boss welds are not undercut or undersized.
 - (b) Inspect surface between all bosses on inside, outside, top, and bottom of frame rails.
 - (c) It may be necessary on suspect cracks to remove all paint.
 - (d) Perform dye penetration test on any cracks found to locate ends of cracks and secondary cracks.

NOTE

Cracks in boss welds are repairable. Secondary cracks are repairable, provided they meet criteria outlined in steps a and b.

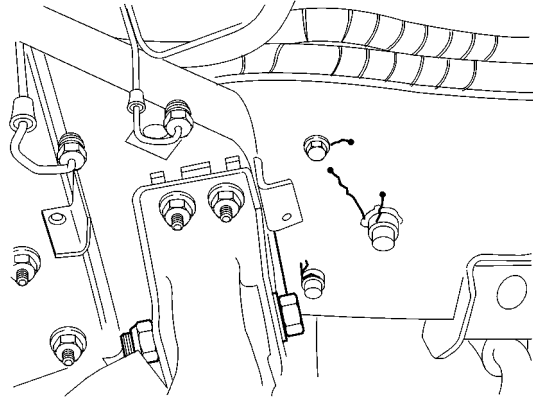
2. Identify cracks in steering gear mounting area as follows:
 - (a) Tangential or radial cracks extending from/to any bosses and completely accessible are repairable if four inches long or less.
 - (b) Vertical and longitudinal cracks extending between any bosses are repairable if six inches long or less.

NOTE

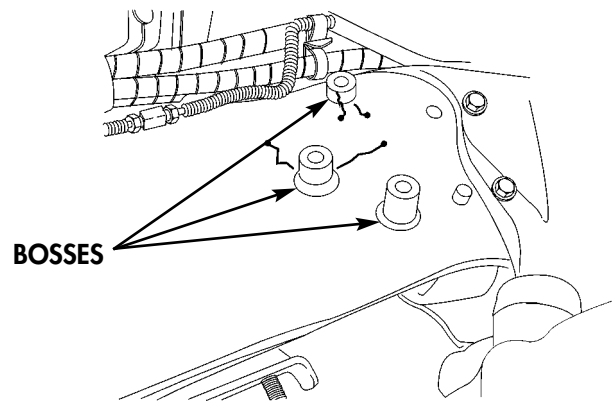
Frame rails are not repairable if they have secondary cracks that exceed the repair criteria, or cracks are present where the frame was previously repaired using a fish plate/support plate/repair plate.

- (c) For any cracks found on top or bottom surface of frame rail, refer to task c.

32-4. FRAME INSPECTION AND REPAIR (Cont'd)



OUTSIDE OF FRAME RAIL



INSIDE OF FRAME RAIL

32-4. FRAME INSPECTION AND REPAIR (Cont'd)

d. Preparation and Materials

1. To perform a repair on the frame, a plan is needed due to the large variability of steps and methods to be employed. This plan is influenced by:
 - (a) Bending-type repair:
 - (1) Suitable vehicle restraints.
 - (2) Solid anchors for pulling or seating snatch blocks.
 - (3) Pulling (pushing) power source, either mechanical or hydraulic.
 - (b) Frame rail (and possibly one or more crossmembers) replacement requires a quantity of suitable blocking material.
 - (c) Patches, dutchman, fishplates, and reinforcements:
 - (1) Bulk steel plate of grade SAE 950 or equivalent (of equal or greater thickness).
 - (2) Scrap material of like metal from salvage or cannabilization.
 - (3) Heli-arc welding rods of type AWS A5.20 (E 707-1) or equivalent.
 - (d) In critical situations, 1/4-in. (6-mm) construction grade steel angle or plate may be used.
2. Based on factors of subtasks b and c, prepare a plan to return the vehicle to mission-serviceable status.

e. Repair Procedures

CAUTION

Bulk heating of frame rails to remove bends and buckles is not an approved procedure. The strength characteristics of the metal are affected. The repair may fail, causing damage to equipment.

NOTE

The repair or replacement procedure will vary with type(s) and location(s) of failure(s). For this reason, much of the repair work depends on skill of the mechanics, supply status, and operational situation. The removal/replacement of parts, bolts, and brackets affecting the repair are left to the discretion of the mechanics and will be governed by the instructions in this manual and repair parts manual.

1. Transverse tears, cracks, and breaks repairs (all welding on frame) will use reinforcements (dutchman/fishplate), and be heli-arc type as given in TC 9-237, providing tears, cracks, or breaks are repairable (refer to task c.).
 - (a) Stop-drill crack with 1/8-in. (3-mm) drill hole.
 - (b) Vee-notch crack.
 - (c) Heli-arc weld crack with approved welding rod.
 - (d) Grind-weld flush to the surface of the rail.
 - (e) Install reinforcement (dutchman/fishplate) and lap-weld.
2. Welded reinforcements or fishplates will not be less than 6 in. (15.2 cm) in length along frame rail.
3. All puncture holes may be repaired as follows:
 - (a) Heli-arc weld fill holes.
 - (b) Grind-weld flush to surface.
 - (c) Install reinforcement (dutchman/fishplate) and lap-weld.

32-4. FRAME INSPECTION AND REPAIR (Cont'd)

4. Bending repair:

WARNING

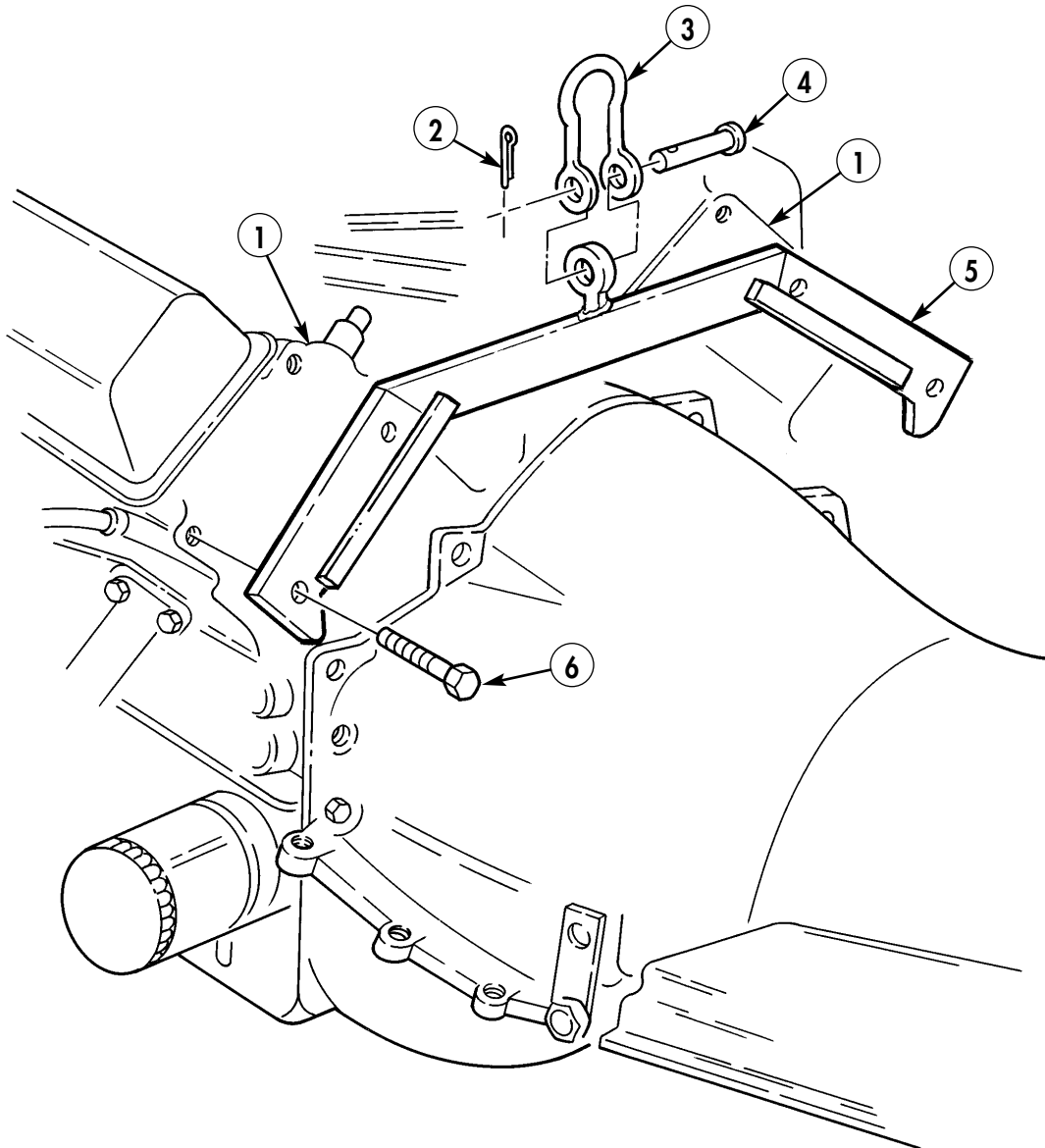
When performing frame rail straightening repairs accomplished with power-driven mechanical or hydraulic means, all personnel will stand clear of vehicle. Failure or malfunction of equipment may cause injury to personnel.

- (a) Do not attempt to repair a bend when:
 - (1) Buckling to a height of 1/4 in. (6 mm) on any one face of frame box is involved. If more than one face of frame box is involved with bending, replace part.
 - (2) Bending also includes more than very minor twisting.
 - (3) Part is bent in two directions, replace part.
 - (4) Bending involves a collapse of one or more faces of frame box at a suspension or body attachment point, replace part.
 - (b) When performing straightening repair with frame on vehicle:
 - (1) Use spreader plates or wood blocking to distribute chain force to avoid damage to frame box section.
 - (2) Be sure to loosen sufficient length of frame to allow frame force points to move without causing other damage.
 - (3) Restrain vehicle movement in both directions along line of force application.
 - (c) Vertical bends, except at end sections, require removal of frame rail or crossmember from vehicle. Straightening is done by using before and after dimensional measurements.
 - (d) Application of bulk heating to frame components is not authorized; metal properties are irreversibly degraded.
 - (e) At the conclusion of a bend repair, carefully inspect welds in vicinity of repair and area of force application. Any evidence of cracking or chipping of welds must be repaired. (Refer to step 1.)
 - (f) Spot-paint repaired areas using Chemical Agent Resistant Coating (CARC), following TM 43-0139, Painting Instructions for Field Use.
5. Front and rear wheel alignment checks (TM 9-2320-387-24-1) will be made after all frame repairs are completed.

32-4. FRAME INSPECTION AND REPAIR (Cont'd)

f. Powertrain Lift Sling Removal

1. Remove cotter pin (2), pin (4), and shackle (P/N NAS1042-14) (3) from powertrain lift sling (5).
2. Remove four shoulder bolts (P/N 11502788) (6) and powertrain lift sling (5) from cylinder heads (1).



- FOLLOW-ON TASKS:**
- Install steering gear (para. 8-20.1).
 - Install oil cooler/brake line bracket (para. 3-7.1).
 - Connect steering shaft (TM 9-2320-387-24-1).
 - Install pitman arm (TM 9-2320-387-24-1).
 - Install stabilizer bar (para. 6-20.1).
 - Install engine left splash shield (para. 10-23.1).
 - Install transmission control module (TM 9-2320-387-24-1).
 - Connect battery ground cables (TM 9-2320-387-24-1).

CHAPTER 33

BODY (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding body (GS) repair.

CHAPTER 34

SUSPENSION (GS) REPAIR

Refer to TM 9-2320-387-24-2 for information regarding suspension (GS) repair.

APPENDIX A

MANDATORY REPLACEMENT PARTS

Section I. INTRODUCTION

A-1. SCOPE

This appendix lists mandatory replacement parts you will need to maintain ECV series vehicles.

A-2. EXPLANATION OF COLUMNS

- a. Column (1) – Item Number.** This number is assigned to each entry in the listing and is referenced in the Initial Setup of applicable tasks under the heading of Materials/Parts.
- b. Column (2) – Nomenclature.** Name or identification of the part.
- c. Column (3) – Part Number.** The manufacturer's part number.
- d. Column (4) – National/NATO Stock Number.** The national stock number of the part.

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO.	(2) PART NOMENCLATURE	(3) NATIONAL/NATO NUMBER	(4) STOCK NUMBER
1	AVK Fastener	ALS7-616-150	5325-01-474-9732
2	Balance Weights	5595966	6670-01-261-6844
3	Bearing Sleeve	12L18F	3120-00-485-1017
4	Boot Service Kit	57K3515	2530-01-457-1337
5	Bracket, Battery Holddown, Front	12339904	5340-01-470-7135
6	Bracket, Battery Holddown, Rear	12339905	5340-01-470-7160
6.1	Bracket, Mounting, LH	2005207-1	5340-01-542-3351
6.2	Bracket, Mounting, RH	2005207-2	5340-01-542-4800
7	Capscrew	9423557	5306-01-360-1123
8	Capscrew	5597349	5306-01-276-1621
9	Capscrew	4797000-013	5306-01-433-9185
10	Center Parts Kit	CPL6N8	2520-00-352-2168
11	Clip	MS16633-1050	5365-00-442-5845
12	Clip	M36-0790-10	5325-01-257-0801
13	Closed-Cell Foam Rubber	4668987-001	2540-01-474-8719
14	Copper Washer	5582366	5310-01-189-8476
15	Copper Washer	983-0062	5310-01-495-8564
16	Cotter Pin	10166	5315-01-284-9812
16.1	Cotter Pin	MS24665-319	5315-01-267-7570
17	Cotter Pin	4397007-008	5315-01-433-8419
18	Cotter Pin	MS24665-134	5315-00-839-5820
19	Cotter Pin	MS24665-283	5315-00-842-3044
20	Cotter Pin	MS24665-281	5315-00-839-2326
21	Cotter Pin	MS24665-351	5315-00-839-5821
22	Cotter Pin	MS24665-355	5315-00-012-0123
23	Cotter Pin	PK379	5315-00-816-1794
24	Cotter Pin	MS24665-513	5315-00-239-8032
25	Cotter Pin	MS24665-628	5315-00-846-0126
25.1	Cotter Pin	43-9200	
25.2	Cotter Pin	6043116	5315-01-190-0430
26	Cotter Pin	A82-1	5315-00-839-2325
26.1	Cotter Ring	6030302	
27	Coupler, Tube	12339235	4730-01-184-6971
28	Door Seal	RCSK 18037-2	5330-01-460-9004
29	Door Seal	RCSK 18047	5330-01-460-8997
30	Drivescrew	MS21318-47	5305-00-253-5626
31	Dust Cap	211121X	5340-01-188-1017
31.1	Edge Protector	6020920	
32	Fiber Washer	12500	5310-00-830-7825
32.1	Filter	870889A	4330-01-506-2918
33	Filter Assembly	8684221	2520-01-398-4589
33.1	Flat Washer	130998	5310-00-013-0998
34	Flat Washer	4397005-010	5310-01-435-7784
35	Flat Washer	MS27183-14	5310-00-080-6004

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
35.1	Fuel Pump Gasket	SC202494	5330-01-393-9101
35.2	Foam Washer	6019898	
36	Fuel/Water Filter Element Kit	A910044	4330-01-190-3579
37	Gasket	12338585	5330-01-194-0473
38	Gasket	MA128-21182	5330-01-037-0663
39	Gasket	12338339	5330-01-200-0466
40	Gasket	12342105	5330-01-315-1609
41	Gasket	10137490	5330-01-445-5459
42	Gasket	7539072	5330-00-753-9072
43	Gasket	DC8226	5330-01-076-6172
44	Gasket	10137488	5330-01-149-0874
45	Gasket	5577933	5330-01-184-6500
46	Gasket	12339379	5330-01-188-0911
47	Gasket	8677743	5330-01-360-5271
48	Gasket	12338462	5330-01-211-5856
49	Gasket	12553488	5330-01-476-3866
50	Gasket	24204253	5330-01-478-5993
51	Gasket	12460095	5330-01-413-2118
52	Gasket	10137486	5330-01-150-5944
53	Gasket	12554979	5330-01-442-2876
54	Gasket	14964	5330-01-306-7887
55	Gasket	14022649	5330-01-156-5147
56	Gasket	14025557	5330-01-150-1215
56.1	Gasket	12356789	5330-01-319-7302
57	Gasket, Governor Cover	3921950	5330-01-234-2615
58	Gasket, Intake Manifold	12531704	5330-01-437-9216
59	Gasket, Intake Manifold	10211661	5331-01-437-0547
60	Gasket, Oil Pan	0534400	5330-01-310-6780
61	Gasket, Oil Pump	8677782	5330-01-409-1665
62	Gasket, Servo Cover	8675728	5330-01-478-4797
63	Gasket, Turbocharger Oil	12461306	5330-01-484-1471
64	Gasket, Valve Cover	91599	5330-01-372-0636
65	Gasket Kit, Commutator End Head	MES-955	5330-00-138-0251
66	Gasket Set	36-630	5330-01-190-7510
67	Gasket Set	SAT-32	5330-00-193-0850
68	Gasket Set	90-2206	2920-00-302-6342
68.1	Grommet, Nonmetallic	12340526	5325-01-437-4175
69	Hex-Nut	7063812	5310-00-126-3842
70	Hex-Nut	N9098	5310-01-225-0701
71	Hex-Nut	4397002-001	5310-01-417-8614
72	Journal and Bearing Kit	5-213X	2520-01-180-2135
72.1	Keyed Washer	5584462	5310-01-213-4185

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO.	(2) PART NOMENCLATURE	(3) NATIONAL/NATO NUMBER	(4) STOCK NUMBER
72.2	Kit, Pressure Relief Valve	5716414	4820-01-510-6041
72.3	Lockbolt	5589067	5306-01-204-2139
73	Locknut	12339206	5310-01-439-1154
73.1	Locknut	M45913/4-4CG82	5310-01-548-1269
73.2	Locknut	190254	5310-01-269-9245
74	Locknut	M21245-L12	5310-00-419-0876
75	Locknut	9422279	5310-01-462-4393
76	Locknut	SN-104-NM-22	5310-00-208-1918
77	Locknut	M45913/3-4CG8C	5310-00-061-4650
78	Locknut	MS21245-L10	5310-00-449-2381
79	Locknut	9422295	5310-01-119-3668
80	Locknut	5593035	5310-01-255-2695
81	Locknut	M45913/3-4FG8C	5310-00-935-9022
82	Locknut	M45913/3-5CG8C	5310-00-814-0673
83	Locknut	M45913/1-10CG8C	5310-00-061-4651
84	Locknut	12339501	5310-01-198-7585
85	Locknut	M45913/4-8CG8Z	
86	Locknut	MS21245-8	5310-00-449-2376
87	Locknut	MS51943-34	5310-00-241-6658
88	Locknut	M45913/3-12CG8C	5310-00-409-3333
89	Locknut	9411893	5310-00-251-4503
90	Locknut	8712289-4	5310-00-840-6222
91	Locknut	21NE083	5310-00-020-0358
92	Locknut	9442939	5310-01-149-4407
93	Locknut	8712289	5310-00-044-3340
94	Locknut	N9265	5310-01-136-4888
94.1	Locknut	9424215	5310-01-398-0319
94.2	Locknut	MS4397020-023	5340-01-513-4903
94.3	Locknut	B18241B100F	5310-01-395-8747
95	Locknut	5593048	5310-01-252-0481
96	Locknut	12338899	5340-01-185-8619
97	Locknut	9419476	5310-00-984-3807
98	Locknut	454749	5310-00-164-1790
99	Locknut	92-00065	5310-01-420-8727
100	Locknut	ALS7-616-312	5325-01-459-5008
101	Locknut	M45913/1-4CG5C	5310-00-088-1251
101.1	Locknut	M45913/3-5CG8Z	5310-01-500-3204
101.2	Locknut	NAS1022-N08	5310-00-721-5447
101.3	Locknut	MS210-83-N08	5310-00-941-6019
101.4	Locknut	5592958	5310-01-253-1615
101.5	Locknut	9411807	5310-01-461-8043

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO.	(2) PART NOMENCLATURE	(3) NATIONAL/NATO NUMBER	(4) STOCK NUMBER
101.6	Locknut	MS17829-4F	5310-00-483-8791
101.7	Locknut	131245	5310-00-013-1245
101.8	Locknut	5590556	5310-01-208-5252
101.9	Locknut	454748	5310-00-013-1245
101.10	Locknut	192481	5310-01-058-3353
102	Locknut	8712289-5	5310-00-044-3342
103	Locknut	12339501	5310-01-198-7585
104	Locknut	MS51943-36	5310-00-935-3569
105	Locknut	21NE-40	5310-01-066-6759
106	Locknut	MS51943-35	5310-00-935-9021
107	Locknut	22FT832	5310-00-582-5765
108	Locknut	5579442	5310-01-175-0617
109	Locknut	6779	5310-01-213-4174
110	Locknut	4397073-003	5310-01-439-8180
111	Locknut	4397064-005	5310-01-439-8177
112	Locknut	4397003-001	
113	Locknut	M45912/3-6FG8C	5310-00-814-0672
114	Locknut	MS51988-8	5310-00-447-8774
114.1	Locknut	MS51988-7	5310-00-930-8214
114.2	Locknut	5934802	
114.3	Locknut	MS51988-11	5310-00-849-3589
114.4	Locknut	MS51943-39	5310-00-488-3889
114.5	Locknut	MS51943-40	5310-00-488-3888
115	Locknut	N9416	5310-01-348-8360
115.1	Locknut	N9092	5310-01-390-5105
116	Locknut	N9099	5310-01-165-1312
117	Locknut	9419477	5310-01-466-4852
118	Locknut	MS51943-13	5310-01-315-7311
119	Locknut	4397064-008	5310-01-439-8178
120	Locknut	9422305	5310-01-130-4274
121	Locknut	9442938	5310-01-315-3403
122	Locknut	4397064-013	5310-01-439-7064
123	Locknut	4397012-072	5305-01-438-1201
124	Locknut	9418969	5310-00-458-2382
125	Locknut	M45913/4-7CG8Z	5310-00-241-6659
126	Locknut	4397000-64	5305-01-436-6377
127	Locknut	4397064-001	5310-01-439-8173
128	Locknut	9422299	5310-01-150-4003
129	Locknut	4397064-003	5310-01-439-8172
130	Locknut	4397064-014	
131	Locknut	4397068-003	5310-01-437-3836
132	Locknut	9422277	5310-01-126-9404
132.1	Locknut	2770827	
133	Locknut	9419471	5310-01-432-6727
133.1	Locknut	274209	5310-00-420-9713

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
133.2	Locknut	4397021-023	5310-01-419-2951
133.3	Locknut	12339730	5310-01-254-4284
133.4	Locknut	12339728-3	5310-01-198-3487
133.5	Locknut	5584710	5310-01-203-3217
133.6	Locknut	MS21042L5	5310-00-807-1476
133.7	Locknut	MS21042L6	5310-00-807-1477
133.8	Locknut	MS21042L4	5310-00-807-1475
133.9	Locknut	5591514	5310-01-217-0715
133.10	Locknut	MS21044-N3	5310-00-877-5797
133.11	Locknut	M45913/3-4FG8C	5310-00-935-9022
133.12	Locknut	190171	5310-00-774-9073
133.13	Locknut	9419456	5310-01-318-5237
133.14	Locknut	272739	5310-01-317-8164
133.15	Locknut	190139	5310-00-088-0553
133.16	Locknut	4397064-006	5310-01-437-3845
133.17	Locknut	9422300	5310-01-315-3403
133.18	Locknut	4397064-006	5310-01-437-3845
133.19	Locknut	4397064-018	
133.20	Lockwasher	9422303	5310-00-044-3342
134	Locknut, Assembled	271172	5310-01-152-0598
135	Lockwasher	MS35338-141	5310-00-984-7042
136	Lockwasher	454542	5305-00-499-7694
137	Lockwasher	MS35337-22	5310-00-596-7674
138	Lockwasher	120382	5310-00-012-0382
139	Lockwasher	MS35333-38	5310-00-559-0070
140	Lockwasher	4397004-005	5310-01-434-1385
141	Lockwasher	4397004-007	5310-01-417-9942
142	Lockwasher	4397037-006	5310-01-419-4436
143	Lockwasher	MS122031	5310-00-285-7037
144	Lockwasher	MS35338-46	5310-00-637-9541
145	Lockwasher	MS35338-45	5310-00-407-9566
146	Lockwasher	MS35338-44	5310-00-582-5965
147	Lockwasher	MS35338-42	5310-00-045-3299
148	Lockwasher	MS51415-9	5310-01-216-7390
149	Lockwasher	MS35338-43	5310-00-045-3296
150	Lockwasher	120217	5310-00-922-2017
151	Lockwasher	11503962	5310-01-444-3084
152	Lockwasher	2239H	5310-00-209-1218
153	Lockwasher	MS35338-103	5310-00-184-8971
154	Lockwasher	MS35338-49	5310-00-167-0680
155	Lockwasher	MS35333-44	5310-00-194-1483
156	Lockwasher	5573688	5310-01-231-0596
157	Lockwasher	12446954	5310-01-472-3763
158	Lockwasher	MS35333-43	5310-00-685-3228
158.1	Lockwasher	4397004-006	5310-01-433-0941

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO.	(2) PART NOMENCLATURE	(3) NATIONAL/NATO NUMBER	(4) STOCK NUMBER
159	Lockwasher	4397004-008	5310-01-417-7273
160	Lockwasher	4397004-042	5310-01-436-5682
161	Lockwasher	MS35340-47	5310-00-655-9370
162	Lockwasher	B18212HRCZ080	5310-01-478-5620
163	Lockwasher	12460095	5330-01-413-2118
164	Lockwasher	MS35333-76	5310-00-180-0277
165	Lockwasher	MS45904-76	5310-00-061-1258
166	Lockwasher	MS45904-72	5310-00-889-2527
167	Lockwasher	85031	5310-01-186-7066
168	Lockwasher	MS45904-60	5310-00-080-9786
169	Lockwasher	MS35338-65	5310-00-011-5093
170	Lockwasher	5584462	5310-01-213-4185
171	Lockwasher	MS35338-50	5310-00-820-6653
172	Lockwasher	MS35333-40	5310-00-550-1130
173	Lockwasher	MS45904-68	5310-00-889-2528
174	Lockwasher	MS35338-48	5310-00-584-5272
175	Lockwasher	MS35340-48	5310-00-834-7606
176	Lockwasher	MS35340-43	5310-00-721-7809
177	Lockwasher	N9018	5310-01-032-4827
178	Lockwasher	N9265	5310-01-136-4888
179	Lockwasher	N9459	5310-01-348-8393
180	Lockwasher	N9461	5310-01-348-8392
181	Lockwasher	N9015	5310-01-046-0186
182	Lockwasher	MS35338-47	5310-00-209-0965
183	Lockwasher	120384	5310-00-482-9493
184	Lockwasher	121841	5310-00-764-5694
185	Lockwasher	11500207	5310-01-206-7306
186	Lockwasher	5550554	5310-01-144-2779
187	Lockwasher	MS35338-67	5310-00-011-6121
188	Lockwasher	92-2923	5310-01-214-4955
189	Lockwasher	MS35338-100	5310-00-261-8278
190	Lockwasher	12338062	5310-01-148-2687
190.1	Lockwasher	120214	5310-00-012-0214
190.2	Lockwasher	120423	5310-00-012-0423
190.3	Lockwasher	9424258	5310-01-199-3440
190.4	Lockwasher	120380	5310-00-209-2946
190.5	Lockwasher	MS35335-33	5310-00-209-0786
190.6	Lockwasher	95060A400	5310-01-476-2608
190.7	Lockwasher	91114A029	
190.8	Lockwasher	MS35338-145	5310-00-937-0453
190.9	Lockwasher	MS90728-58	5305-00-543-4372
190.10	Lockwasher	MS90728-32	5305-01-359-8002
191	Lockwasher, Two-Piece	NL-10	5310-01-457-3292
192	Lubricant, Run Flat	D528234-H1	2640-01-419-6200

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
193	Mounting Plate Gasket	12551502	5330-00-830-1745
194	Nut and Lockwasher Assembly	5593033	5310-01-252-2999
194.1	Nut, Insert	12446871-1	5310-01-413-3276
194.2	Nut, Insert	12446871-8	5325-01-476-3041
194.3	Nut, Insert	12446871-11	5325-01-505-3122
194.4	Nut, Insert	12446871-17	
194.5	Nut, Insert	12446871-18	
195	Nut, Plain Assembled	G-00271166	5310-01-251-0760
196	Nut, Plain Assembled	134530	5310-01-186-7702
197	Nut, Plain Assembled	271169	5310-00-124-9265
197.1	Nut, Plain Assembled	271184	5310-00-933-4310
198	Nylon Thrust Washer	30277	3120-01-447-8663
199	Oil Filter	PF1218	4330-01-398-8484
200	Deleted		
201	Oil Filter	8684221	2520-01-398-4589
201.1	Oil Filter	24210955	
202	Oil Seal	30275	5330-01-446-4696
203	O-Ring	M83461/1-236	5331-01-183-0971
204	O-Ring	33-00778	5331-01-419-7754
205	O-Ring	33-00779	5331-01-460-2442
206	O-Ring	33-00781	5331-01-419-7755
207	O-Ring	33-00777	5331-01-420-1795
208	O-Ring	4397059-016	5331-01-439-8821
209	O-Ring	5741062	5330-01-209-7726
210	O-Ring	3921936	5331-01-232-2145
211	O-Ring	33-00780	5331-01-421-4960
212	O-Ring	MS28775-110	5331-00-585-6663
213	O-Ring	8658110	5330-01-043-5572
214	O-Ring	24201388	5330-01-456-7886
215	O-Ring	5939517	5330-01-487-7129
216	O-Ring	274244	5331-00-935-9136
217	O-Ring	M83461/1-020	5331-01-107-4950
218	O-Ring	299C413P3	5331-00-676-8062
219	O-Ring	12339002	5331-01-195-8889
220	O-Ring	12340395	5331-00-580-6586
221	O-Ring	1249-4	5331-00-805-2966
222	O-Ring	5740436	5330-01-157-1884
223	O-Ring	983-110.01	
224	O-Ring	983-9537044DO	
225	O-Ring	983-WH11-105	
226	O-Ring	11639519-1	5331-00-463-0200
227	O-Ring	11639519-2	5310-00-462-0907
228	O-Ring	22405A	
228.1	O-Ring	PS18022	5330-01-495-0145

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
228.2	O-Ring	7700242	
228.3	O-Ring	6006173	5331-01-520-6192
228.4	O-Ring	6006174	
228.5	O-Ring	6006175	
228.6	O-Ring	2-032	5331-00-752-8885
229	O-Ring, Crossover	12456133	5331-01-472-8177
230	O-Ring, Door Handle	MS28775-114	5331-00-618-0801
231	O-Ring, Drum End	983-AS5680357	
232	O-Ring, Insert	12342794	5331-01-346-3806
233	O-Ring, Pinion	XA744Z	5331-00-137-3450
234	O-Ring Seal	8661760	5330-01-414-6607
235	O-Ring Seal	12447172	5330-01-447-4762
236	O-Ring Seal	5688049	5330-00-848-4439
237	O-Ring Seal	91610	5331-01-417-1043
237.1	Parts Kit	90-2206	2920-00-302-6342
238	Parts Kit, Bearing	90-2840	3120-01-191-4637
239	Parts Kit, Engine	90-2225	2920-01-068-7182
240	Parts Kit, Engine	90-2841	2920-01-191-6534
241	Parts Kit, Engine	90-2837	2920-01-192-2956
242	Parts Kit, Hydraulic	24210468	
243	Parts Kit, Seal	57K0241	5330-01-361-8015
244	Parts Kit, Seal	57K0240	5330-01-361-8014
245	Parts Kit, Seal	57K3489	5330-01-459-6477
246	Parts Kit, Solenoid	90-816	2920-01-192-2959
246.1	Pin, Spring	9412281	5315-01-173-3397
247	Pin, Tapered Drive	91386	5315-00-576-0265
247.1	Platenut	MS51941-10	5310-01-025-6444
248	Plug	24200224	4730-01-460-5520
249	Pushnut	12340258	5340-01-232-7599
250	Pushnut	C183-012-4	5310-01-213-1333
251	Pushnut	12339313	5310-01-188-6861
252	Rear Brake Caliper Kit	57K3512	2530-01-455-9330
253	Retainer, Oil Seal	23502587	5330-01-378-8572
254	Retaining Ring	012351	5365-01-135-4290
254.1	Retaining Ring	MS16633-1050	5325-00-442-5845
255	Rivet	BALM-6BP-14	5320-01-254-2283
256	Rivet	CR-213-4-2	5230-01-258-2576
257	Rivet	CR-213-4-4	5230-01-220-0596
257.1	Rivet	CR-213-6-8	5320-01-086-1144
258	Rivet	NAS9301BNS-4-04	5320-01-143-5079
259	Rivet	5593050	5320-01-254-4251

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
260	Rivet	NAS9301BNS-6-04	5320-01-136-1782
262	Rivet	12339355-1	5320-01-271-6357
262.1	Rivet	12339355-2	5320-01-264-5978
262.2	Rivet	M24243/1-A404	5320-01-023-2529
263	Rivet	NAS9302BNS-6-04	5320-01-136-1785
264	Rivet	NAS9301BNS-4-02	5320-01-151-1061
265	Rivet	M24243/1-A403	5320-00-083-5009
266	Rivet	4397042-621	5320-01-436-5552
267	Rivet	4397081-011	5320-01-439-9728
268	Rivet	BAPKTR-64	5320-01-275-1998
269	Rivet	CR3243-6-3	5320-01-033-8638
269.1	Rivet	CR3243-6-5	5320-01-034-1884
270	Rivet	96-00034	5320-01-474-9677
271	Rivet	96-00035	5320-01-422-1712
271.1	Rivet	4397044-019	
271.2	Rivet	4397081-009	
271.3	Rivet, Blind	CR-213-4-5	5320-01-259-7423
271.4	Rivet, Blind	AD42BS	5320-00-899-0981
271.5	Rivet, Blind	CR-213-6-3	5320-01-135-7319
272	Rivet, CSK	4397044-021	5320-01-473-2768
272.1	Rivnut, Blind	MS27130-CR31	5310-01-283-8482
273	Rivet, Protruding	4397042-022	5320-01-434-0758
273.1	Rubber Washer	33-00748	5325-01-462-6391
274	Rubber Washer	12447149	5310-01-465-9727
275	Runflat Belt Repair Kit	J-39295	2530-01-338-3056
276	Runflat Belt Repair Kit	528240	4310-01-345-5723
277	Screw, Assembled Lockwasher	5593313	5305-01-254-2459
278	Screw, Assembled Lockwasher	12340515	5305-01-215-5174
278.1	Screw, Assembled Washer	454542	5305-00-499-7694
279	Screw, Insert	12446871-10	5325-01-460-8350
279.1	Screw, Machine	MS51957-64B	5305-01-083-1591
279.2	Screw, Machine	MS35206-245	5305-00-984-6193
280	Screw, Tapping	DR-T10X3/4	5305-01-006-5736
280.1	Seal	6005193	5330-01-456-8823
280.2	Seal	MT161A	5330-01-282-2213
280.3	Seal	12460338	5331-01-417-1043
281	Seal	4668948	5330-01-421-4967
282	Seal	8661894	5330-01-468-3604
283	Seal	8661639	5330-01-470-6543
284	Seal	5584836	
285	Seal	24205833	5331-01-477-6762

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) PART NOMENCLATURE	(3) NATIONAL/NATO NUMBER	(4) STOCK NUMBER
286	Seal	8671647	5330-01-251-1607
287	Seal	10196040	5330-01-398-3777
288	Seal	8654716	5330-01-324-0906
289	Seal	24210605	
290	Seal	CR535094-60	5330-01-203-6551
291	Seal	12342886	5330-01-381-1810
292	Seal	19016	5330-01-413-37
293	Seal	8HB315	3220-01-480-3998
294	Seal, Door	4668918	5330-01-419-4425
295	Seal, Drainplug	27609	5330-01-233-2778
296	Seal, Input	5740017	5330-01-168-3870
297	Seal, Input	534059	5330-01-456-3884
298	Seal, Lockwasher	12338062	5310-01-148-2687
298.1	Seal, Nonmetallic ST	12342343	5330-01-318-1998
299	Seal, Oil Pump	8661602	5330-01-379-1139
300	Seal, Oil Tube	16214	5330-01-358-9541
301	Seal, Output	6009472	5330-01-174-8145
301.1	Seal, Plain	18771	5330-01-358-9532
302	Seal, Pinion	41292	5330-10-174-8146
303	Seal, Poppet Spring	15715	5331-01-358-9545
304	Seal, Rear Output	15896	5330-01-415-9613
305	Seal, Washer	5939517	5330-01-487-7129
306	Seal, Washer	33-00811	5310-01-420-4522
307	Seal, Washer	33-00822	5310-01-419-5091
307.1	Seal, Washer	6015624	
307.2	Seal, Washer	6015625	
308	Seal Kit (95-96 only)	24205251	5330-01-442-2874
309	Seal Kit (97-00 only)	24210954	3010-01-480-7597
310	Seal Ring	8661789	5331-01-462-7294
311	Seal Service Kit	7848522	5330-01-044-0703
311.1	Sleeve, Wear	99199	3120-01-424-0735
312	Seat Kit	24206749	5340-01-608-8525
313	Service Brake Caliper Kit	11021	2530-01-179-7511
314	Sheet Metal	QQA250-11	9535-00-541-7194
314.1	Sound Dampener	5591149	2540-01-192-5918
314.2	Socket, Turnbutton Fastener	91-BS-78403-1E	5325-00-281-8642
314.3	Sound Dampener	12339029-1	2540-01-192-9716
314.4	Sound Dampener	12339029-1	2540-01-192-5948
315	Spacer, Collapsible	5579450	5365-01-180-2585

Section II. MANDATORY REPLACEMENT PARTS (Cont'd)

(1) ITEM NO	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL/NATO STOCK NUMBER
315.1	Spacer Ring	15624	5365-01-358-4642
315.2	Spacer Plate, Hinge	5584436	5365-01-201-4749
315.3	Spacer Plate, 0.063	12339379	5365-01-253-8980
315.4	Spacer Plate	5584299	5365-01-197-9383
316	Spring	2-300.P5	5360-01-282-9316
316.1	Spring	4397100-003	
317	Spring Pin	MS16562-256	5315-00-753-3895
318	Spring Pin	NAS561C4-18	5315-00-559-7467
318.1	Spring Washer	7716721	5310-00-595-7486
318.2	Spring Washer	6042658	
319	Spring Washer	4004616	5310-01-189-8485
319.1	Strip, Rubber	12342344	5330-01-318-9780
319.2	Strip, Rubber	12342345	5330-01-317-5393
319.3	Strip, Rubber	12342248	5330-01-317-5392
320	Thrust Washer	30277	3120-01-447-8663
321	Tiedown Strap	MS3367-7-9	5975-00-570-9598
322	Tiedown Strap	MS3367-7	5340-01-205-5379
323	Tiedown Strap	MS3367-3-0	5975-00-985-6630
324	Tiedown Strap	MS3367-1-0	5975-00-984-6582
325	Tiedown Strap	MS3367-5-9	5975-00-111-3208
326	Tiedown Strap	MS3367-3-9	5975-00-451-5001
327	Tiedown Strap	MS3367-7-0	5975-01-034-5871
328	Tiedown Strap	SST1CM-0	5975-00-903-2284
329	Tiedown Strap	MS3367-6-0	5975-01-048-2922
329.1	Tiedown Strap	MS3367-5-0	5975-00-133-8687
329.2	Tiedown Strap	MS3367-1-9	5975-00-071-2507
329.3	Tiedown Strap	4662065-027	
329.4	Tiedown Strap	MS3367-2-0	5975-00-899-4606
329.5	Tiedown Strap	6005929	
330	Tray, Battery	12338765	6160-01-470-4172
330.1	Turnbutton, Clinch Plate	BS78505	5325-00-371-8108
330.2	Washer, Spring Tension	B0625-022-S	5310-01-203-3230
331	Woodruff Key	106751	5315-01-304-9173
332	Woodruff Key	MS35756-17	5315-00-012-4553

APPENDIX B MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. THE ARMY MAINTENANCE SYSTEM (MAC)

a. This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System Concept.

b. This MAC designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component levels, which are shown on the MAC in column (4) as:

Field – includes two columns, Unit maintenance and Direct Support maintenance. The Unit maintenance column is divided again into two more subcolumns, C for Operator or Crew and O for Unit maintenance.

Sustainment – includes two subcolumns, general support (H) and depot (D).

c. The tools and test equipment requirements list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

d. The remarks contain supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS

Maintenance functions are limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gagings and evaluation of cannon tubes.

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following are examples of service functions:

1. Unpack. To remove from packing box for service or when required for the performance of maintenance operations.
2. Repack. To return item to packing box after service and other maintenance operations.
3. Clean. To rid the item of contamination.
4. Touch up. To spot paint scratched or blistered surfaces.
5. Mark. To restore obliterated identification.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Paint. To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.

i. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the 3d position code of the Source, Maintenance and Recoverability (SMR) code.

j. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services. Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly. The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned a SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

k. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

l. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II

a. Column (1)-Group Number. Column 1 lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

b. Column (2)-Component/Assembly. Column 2 contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column (3)-Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, refer to "Maintenance Functions: outlined above.)

d. Column (4)-Maintenance Level. Column 4 specifies each level of maintenance authorized to perform the function listed in Column 3. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time) troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC chart. The symbol designations for the various maintenance levels are as follows:

Field:

- C Operator or Crew maintenance
- O Unit maintenance
- F Direct Support maintenance

Sustainment:

- L Specialized Repair Activity
- H General Support maintenance
- D Depot maintenance

NOTE

The “L” maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by work time figure in the “H” column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

e. Column (5)-Tools and Equipment Code. Column 5 specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

f. Column (6)-Remarks Code. When applicable, this column contains a letter code, in alphabetic order, which is keyed to the remarks table entries.

**Section II. MAINTENANCE ALLOCATION CHART B
(SERIAL NUMBERS 300000 AND ABOVE)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01	ENGINE								
0100	Engine Assembly	Inspect Test Service Adjust Replace Repair	0.2	0.7	1.0			1,21,25 1,2 26,27 1,2,24,134,145 1,2,28,133,139 145	G
	Mount, Engine	Inspect Replace		0.1		16.0		2,133,134 1,2,24,133- 135,138	
0101	Cylinder Head	Replace Repair			3.0		5.0	1,2,6 1,2,6,8	
	Block, Cylinder	Repair					10.0	1,2,6-8, 12-18	
0102	Crankshaft	Replace					4.0	1,2	
	Pulley, Crankshaft	Replace			0.5			1,2	
	Damper, Vibration	Replace			0.5			1,2,6	
	Bearings, Crankshaft	Replace				4.0		1,2	
	Oil Seals, Crankshaft, Front	Replace			2.0			1,2	
	Oil Seals, Crankshaft, Rear	Replace				2.0		1,6,29	
0103	Flywheel	Replace			3.5			1,6	
0104	Pistons, Connecting Rod								
	Rods, Connecting	Replace				8.0		1,6	
	Bearings, Connecting Rod	Replace				2.0		1,6	
	Pistons	Replace				8.0		1,6	
	Rings, Piston	Replace				7.0		1,6,10	
0105	Valves, Camshaft, and Timing System								
	Cover, Rocker Arm	Replace			1.0			1,6	
	Valves, Intake and Exhaust	Replace Repair					3.0 3.0	1,6 1,6,8	
	Rocker Arm Assembly	Replace			2.1			1,6	
	Springs, Valve	Test Replace			0.5 2.3			1,8 1,6	
	Rods, Push	Replace			3.0			1	
	Lifters	Replace			6.0			1,2,23	
	Gears and Chain, Timing	Replace			4.0			1,2,6,10,113	
	Camshaft	Replace				4.0		1,6,10	
	Bearings, Camshaft	Replace				4.0		1,6,30	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0106	Engine Lubrication System								
	Pan, Oil	Replace		2.0				1,2	
	Pump, Oil	Replace			2.5			1,2	
	Filter, Oil	Replace		0.5				1,2	
	Dipstick and Tube	Replace		0.2				1,2	
	Oil Cooler Assembly	Inspect		0.1					
		Replace		0.5				1,2	
		Repair			1.0			1	
	Lines, Oil Cooler	Inspect		0.2					
		Replace		1.8				1,2	
	Valve, Crankcase Depression Regulator	Inspect		0.1					
		Test		0.3					
		Service		0.3				1	
		Replace		0.3				1,2	
0108	Manifold, Intake	Replace			3.0			1,2	
	Manifold, Exhaust	Replace		3.0				1,2	
	Crossover Intake	Replace			3.0			1,2	
03	FUEL SYSTEM								
0301	Injector Nozzle, Fuel	Test			0.5			1,9	
		Replace			0.7			1,2,32,137, 142	
0302	Lines, Injection Pump	Inspect		0.1					
		Replace			2.0			1,136,137	
	Pump, Injection	Inspect		0.1					
		Calibrate				A		1,9,42-47	
		Replace			4.0			1,2,136	
		Repair			0.6	5.0		1,9,33-40, 147-150	
	Fuel Pump	Test		0.3				1,2	
		Replace		1.0				1,2	
0304	Cleaner Assembly, Air	Inspect	0.2						
		Service	0.2	0.5				1,2	
		Replace		0.2				1,2	
	Horn, Air Induction	Inspect	0.1						
		Replace		0.3				1,2	
0305	Turbocharger Assembly	Replace			4.0			1,2	
0306	Lines and Fittings, Fuel	Inspect		0.2					
		Replace		3.2				1,2	
	Tank, Fuel	Inspect		0.1					
		Replace		2.6				1,2	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 300000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0309	Filter Assembly, Fuel	Inspect Service Replace	0.1	0.1 0.5 0.5				1 1,2	B
0311	Glow Plugs	Test Replace		0.3 0.7				2 1,2,144	
0312	Accelerator Linkage	Inspect Adjust Replace		0.2 0.2 0.8				1 1,2	
	Hand Throttle	Inspect Adjust Replace	0.1	0.1 0.2 0.5				1 1,2	
04	EXHAUST SYSTEM								
0401	Muffler	Inspect Replace		0.2 1.9				1,2	
	Exhaust Pipe	Inspect Replace		0.2 1.2				1,2	
	Tailpipe	Inspect Replace		0.2 0.5				1,2	
05	COOLING SYSTEM								
0501	Radiator	Inspect Test Replace Repair	0.1	0.2 0.5 4.3	3.0			2,49 1,2 1	
	Surge Tank	Inspect Service Replace	0.1 0.1	0.5 0.6				1 1	C
0502	Shroud, Fan	Inspect Replace Repair		0.1 4.4 F				1,2	F,M
0503	Hoses, Lines, and Clamps	Inspect Replace	0.1	0.1 2.5				1	
	Thermostat	Test Replace		0.2 0.3				1,2	
0504	Pump, Water	Replace		3.5				1	
0505	Fan and Fan Drive	Inspect Replace Repair	0.1	0.1 1.0	4.7			1,2,150 1,6	
	Pulley, Water Pump	Replace		4.8				1,2,146	
	Belt, Drive	Inspect Replace	0.1	1.0				1	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0601	Alternator	Inspect Test Adjust Replace Repair		0.2 0.3 1.1 0.3	1.2			2,155 1,2 1,2 1,2,9,54	
	Pulley, Alternator	Replace		1.2		4.0		1,2,157,	
0603	Starter	Inspect Test Replace Repair		0.2 0.3 1.9			8.3	2,155 1,2,134, 135,139 1,2,9,51- 53,55,155	
0607	Instrument Panel								
	Switches	Replace		0.3				1	
	Instruments, Gauges	Inspect Replace	0.1	0.5				1	
	Circuit Breakers	Replace		0.5				1,2	
0608	Control, Directional Signal	Inspect Replace	0.1	0.3				1,2	
	Protective Control Box	Inspect Replace		0.1 0.3				1,2	
0609	Headlight	Inspect Adjust Replace	0.1	0.2 0.5				1,2 1	
	Lights, Composite, Front and Rear	Inspect Replace	0.1	0.1				1	
0610	Sending Units and Warning Switches	Test Replace		0.1 0.1				2 1	
0611	Horn Assembly	Inspect Test Replace	0.1	0.2 0.3				2 1,2	
	Switch, Horn	Test Replace		0.2 0.2				2 1	
0612	Battery	Inspect Test Service Replace	0.1	0.5 0.2 1.6				2 1 1,2	
	Cables, Battery	Inspect Replace Repair	0.2	0.8 0.5				1,2 1,2	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0613	Wiring Harnesses								
	Wiring Harness, Engine	Inspect Replace Repair		0.3 4.5 0.5				1,2 1,2,154	
	Wiring Harness, STE/ICE-R	Inspect Replace Repair		0.3 3.7 0.5				1,2 1,2,154	
	Wiring Harness, Body	Inspect Replace Repair		0.4 0.5	3.5			1,2 1,2,154	
	Wiring Harness, Hood	Inspect Replace Repair		0.2 1.0 0.5				1,2 1,2,154	
	07	TRANSMISSION							
	0705	Shift Control and Linkage	Inspect	0.1	0.2				
			Adjust		0.5			1	
			Replace		1.5			1,2	
			Repair		1.0			1,2	
			Throttle Position Sensor		Adjust Replace	0.1 0.6			1,2 1,2
	Switch, Neutral Start	Replace	0.5			1			
	0708	Torque Converter	Replace			1.0		1,2	
	0710	Transmission Assembly	Inspect	0.1					
			Test		0.5			2,6,79,80,134	
Service			0.2				1,2		
Replace			5.8				1,2,133		
Repair					4.0		1,2,57,62		
Overhaul					13.5		1,2,10,57-81		
Transmission Mount			Inspect Replace		0.2 1.0			1,2	
Gear Unit	Replace			1.5		1,2,65			
	Repair			1.3		1,2,65			
0713	Forward Clutch	Replace			2.0		1,2,67-69		
		Repair			0.6		1,2,68,69		
Direct Clutch	Replace				2.0		1,2,66-69		
	Repair				0.8		1,2,68,69		
Intermediate Clutch	Replace				2.0		1,2,65		
	Repair				0.8		1,2,65		
Fourth Clutch	Replace				2.0		1,2,66-69		
	Repair				0.8		1,2,67		

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0714	Turbine Shaft and Overdrive Carrier	Replace Repair				2.0 0.8	1,2 1,2,66,68,71		
	Rear Servo	Replace Repair				1.0 0.3	1,2,73,74 1,2,73,74		
	Front Servo	Replace Repair				1.0 1.0	1,2 1,2		
	Band, Front and Rear Governor	Replace Inspect Replace			0.2 0.5	2.5	1,2 1,2		
	Control Valve	Replace Repair				1.3 1.0	1,2 1,2,10		
	0721	Oil Pump, Transmission	Replace Repair				1.0 1.6	1,2,64,67 1,2,72	
	Seal, Oil Pump	Replace			0.3		1,2,61		
	Oil Filter, Transmission	Replace		1.5			1,2		
	Oil Cooler Lines	Inspect Replace		0.2 1.0			1		
08 0801	TRANSFER Transfer Case	Inspect Service Replace Repair Overhaul		0.1 0.5	5.2	5.7 10.0	1,2 1,2,133 1,2,85-92, 94-96 1,2,10,60, 94-96,127	P	
	Seal, Oil, Input Shaft	Replace		1.3			1,2,94		
	Seal, Oil, Output Shaft	Replace	1.3				1,2,60,95, 96		
	Yokes, Front and Rear Bearings, Output Shaft	Replace Replace		1.2		3.0	1,2 1,2,60,82, 87,93		
0803	Gear, Speedometer Driven Shift Control and Linkage	Replace Inspect Adjust Replace Repair	0.1	0.5 0.2 0.5 1.0	1.0		1,2 1 1,2 1,2	D	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
09 0900	PROPELLER SHAFTS Shaft, Propeller, Front	Service Replace Repair		0.2 1.0			1.2	1,2 1,2 1,2,6,160	E
	Shaft, Propeller, Rear	Service Replace Repair		0.2 1.0			1.2	1,2 1,2 1,2,160	
	Joints, Universal	Inspect Service Replace		0.1 0.3 1.5				2 1,2,160	
10 1000	FRONT AXLE Halfshaft	Inspect Replace Repair		0.2 2.2 1.0				1,2 1,2	
1002	Differential Assembly	Inspect Service Replace Repair		0.1 0.5	5.0		10.2	1,2 1,2 1,7,60,82, 99-106	
	Seal, Output Shaft, Differential	Replace				1.0		1,2,99	
	Seal, Pinion, Differential	Replace				0.3		1,2,82	
	Differential Cover	Replace		0.5				1,2	H
1004	Knuckle and Geared Hub	Inspect Service Replace Repair		0.1 0.5 2.0			1.2	1,2 1,2,157 1,2,60, 107,109, 113	K
	Bearing, Spindle, Geared Hub	Adjust		0.9				1,2,108	
	Seal, Input, Geared Hub	Replace		2.0				1,2,60,107, 108	
	Seal, Spindle, Geared Hub	Replace		1.0				1,2,60,107, 108	I
	Steering Stop	Adjust Replace		0.5 0.3				1,2 1,2	
	Upper Control Arm	Inspect Adjust Replace Repair		0.1 1.0			4.0	113.1 1,2,157 1,2	
	Lower Control Arm	Inspect Replace Repair		0.1 2.6		1.0		1,2 1,2	
	Ball Joint, Upper and Lower	Replace		0.6				1,2,135, 140, 157	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
11	REAR AXLE								
1100	Halfshaft	Inspect Replace Repair		0.2 1.8 1.0			1,2 1,2		
1102	Differential Assembly	Inspect Service Replace Repair		0.1 0.5	5.0	10.0	1,2 1,2 1,7,60,82, 99-106		
	Seal, Output Shaft, Differential	Replace			1.0		1,2,99		
	Seal, Pinion, Differential	Replace			0.3		1,2,82		
1104	Differential Cover	Replace		0.5			1,2	H	
	Knuckle and Geared Hub	Inspect Service Replace Repair		0.1 0.5 2.0		1.2	1,2 1,2,157 1,2,60,107, 109,113	K	
	Bearing, Spindle, Geared Hub	Adjust		0.9			1,2,108		
	Seal, Input, Geared Hub	Replace		2.0			1,2,60,107, 108		
	Seal, Spindle, Geared Hub	Replace		1.0			1,2,60,107, 108	I	
	Upper Control Arm	Inspect Adjust Replace Repair		0.1 1.0		4.0	113.1 1,2,157 1,2		
	Lower Control Arm	Inspect Replace Repair		0.1 2.6		1.0	1,2 1,2		
	Ball Joint, Upper and Lower	Replace		0.6			1,2,135, 140,157		
12	BRAKES								
1201	Parking Brake Lever	Adjust Replace	0.3	1.0			1		
	Dual Service/Parking Brake Cable, Right Rear	Adjust Replace		0.5 0.7			1 1		
	Dual Service/Parking Brake Cable, Left Rear	Adjust Replace		0.5 0.5			1 1		
	Dual Service/Parking Calipers, Rear	Inspect Replace	0.1	1.0			1,2,141,151		
	Dual Service/Parking Pads, Rear	Inspect Replace		0.2 1.0			1,2,141		

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
1202	Service Brakes	Test	0.1						
	Calipers, Front and Rear	Replace		1.0				1,2,141,151	
		Repair			0.5			1,6	
	Pads, Front and Rear	Inspect		0.2					
		Replace		1.0				1,2,141,153	
	Rotor, Front and Rear	Inspect		0.1				1,113,156	
		Replace		1.2				1,2	
		Repair				1.5		1,6	
1204	Master Cylinder	Inspect	0.1						
		Service		0.2				1,2	
		Replace		0.5				1,2	
	Brake Lines	Inspect		0.2					
		Replace		1.5				1	
	Proportioning Valve	Replace		0.6				1,2	
1205	Hydro-Booster	Replace		1.3				1,2	
1206	Pedal, Brake	Replace		1.0				1,2,135,142	
13	WHEELS AND TIRES								
1301	Front Wheel Toe-In	Align		0.5				1,2	
	Rear Wheel Toe-Out	Align		0.5				1,2	
1311	Wheel and Tire Assembly	Inspect	0.1	0.1					
		Service	0.2						
		Replace	0.4	0.1				1,2	
		Repair		0.5				1,2,114, 115,133,135	
	Runflat Assembly	Replace		2.2				1,2,115	
14	STEERING								
1401	Mechanical Steering								
	Wheel, Steering	Replace		0.7				1,2	
	Column	Inspect		0.1					
		Replace		1.8				1,2	
	Intermediate Shaft, Steering	Service		0.2				2	
		Replace		0.5				1,2	
	Tie Rod Assembly	Inspect		0.1					
		Service		0.2				1,2	
		Adjust		0.5				1,2,157	
		Replace		0.5				1,2,110	
	Center Link	Inspect		0.1					
		Replace		0.3				1,2,157	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
1407	Pitman Arm	Inspect Replace		0.1 1.0				1,2,157	
	Idler Arm	Inspect Replace		0.1 0.3				1,2	
	Gear, Power Steering	Inspect		0.2				1,2	
		Replace		0.5			3.7	1,2,116-119	
		Repair							
1410	Pump, Power Steering	Inspect Test Service Replace Repair	0.1	0.1 0.5 0.2 1.0			1.0	1,2,120-122 1,2 1,2 1,6	
1411	Pulley, Power Steering Pump	Replace		0.5				1,2,121	
	Hoses, Lines, and Fittings, Power Steering	Inspect Replace		0.2 1.0				1	
15	FRAME								
1501	Frame Assembly	Inspect Repair		0.5			F	1,5	F
1503	Crossmember, Transmission	Replace			2.0			1,2	
	Crossmember, Front, Brackets, and Supports	Inspect		0.2				1,2	
		Replace Repair				4.5	2.0	1,2 1,2	
	Crossmember, Rear	Replace			2.0			1,2	
	Bumpers	Replace		0.5				1,2	
1503	Pintle, Towing	Inspect	0.1						
		Service		0.1				1	
		Replace		1.0				1,2	
		Repair		0.2				1,2	
16	SPRINGS AND SHOCK ABSORBERS								
1601	Springs	Inspect Replace		0.1 1.0				1,2	
1604	Absorbers, Shock	Inspect Replace	0.1	0.1 0.8				1,2,158	
1605	Rod, Stabilizer	Replace		1.5				1,2	
	Rod, Radius	Inspect		0.1				1,2	
		Replace Repair			1.0 0.5			1,2 1,2	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
18	BODY AND HOOD								
1801	Body	Inspect Service Replace Repair	0.1	1.0		F F	1 1,6 1,2,5,123, 124	F F	
	Hood	Inspect Replace Repair	0.1	1.3		F	1,2 1,5,6	F	
	Cover, Engine Access	Inspect Replace Repair	0.1	0.1	F		1 1,5,123	F	
	Doors, Rear	Inspect Replace Repair	0.1	0.2	F		1 1,5,139	F	
	Door, Rear, Fixed	Inspect Replace Repair	0.1	0.2	F		1 1,5,123	F	
	Door Assembly, Armor	Inspect Replace	0.1	1.0			1,2		
	Door Handle and Latch, Armor	Inspect Replace	0.1	0.8			1		
	Door Window, Armor	Inspect Service Replace	0.1 0.2	0.2 1.5			1		
	Footwell, Armor	Inspect Replace	0.1	0.6			1		
	B-Beam Armor	Replace		0.5			1,2,123		
	Rear Partition Assembly	Inspect Replace	0.1		2.0		1,6		
	Firewall Armor	Inspect Replace	0.1	0.5			1 1,2		
	Side Armor	Inspect Replace	0.1	2.0			1		
	Underbody Armor	Inspect Replace	0.1		F		1,2	F	
	Turret Hatch Door	Inspect Replace	0.1	0.2			1,2		
	Turret Pintle Mount	Replace		1.0			1,2		
	Turret Assembly	Inspect Replace	0.1	1.5			1,2		
	Turret Frame	Replace		1.0			1,6		

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
1802	Door, Cargo Shell	Inspect Adjust Replace Repair	0.1		0.3 1.0 F			2 1,6 1,6	F
	Gunner's Platform	Inspect Replace	0.1		0.5			1,2	
	Tailgate	Inspect Replace Repair	0.1		0.4	1.0		1 1,5,123	
	Windshield Assembly, Folding	Inspect Replace Repair	0.1		2.0	F		1 1,5,6,123	F
	Windshield Assembly, Fixed	Inspect Replace Repair	0.1			2.0 F		1,6 1,5,139	F
	Windshield Assembly, Armor	Inspect Replace Repair	0.1			2.0 F		1,6 1,5,123	F
	Windshield Glass, Armor	Inspect Replace	0.1		1.0			1,2	
1806	Windshield Glass	Inspect Replace	0.1		1.0				
	Seats	Inspect Replace Repair	0.1		1.0 1.0			1,2 1,2	
1808	Seatbelts	Inspect Replace	0.1		0.8			1,2	
	Stowage Racks, Boxes, and Straps	Inspect Replace Repair	0.1		F F			1,2 1,2	F F
1812	Tailgate	Inspect Replace Repair	0.1		0.4	1.0		1,2 1,5,139	
	Armanent Carrier Doors, Crew	Inspect Adjust Replace Repair	0.1		0.3 0.2	F		1,2 1 1,5,139	
	Door, Cargo Shell	Inspect Adjust Replace Repair	0.1		0.3 2.5 F			1,2 1,2 1,2,139	F
	Glass, Door	Inspect Replace	0.1		1.0			1	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
20 2001	Weapon Station	Inspect Replace	0.1	1.5				1,6	
	Gunners Platform	Inspect Replace	0.1	0.5				1	
	S250 Shelter Carrier Support, Shelter	Inspect Replace	0.1	2.0				1,2	
	Sling, Tiedown	Inspect Replace	0.1	0.3				1	
	WINCH								
	Front Winch Assembly	Service Replace Repair		0.2 0.6			4.0	1,2 1,2	
	Rear Winch Assembly	Service Replace Repair		0.2 1.5			4.0	1,2 1,2	
	Cable, Winch	Inspect Service Replace	0.5	0.5 0.4				1 1	
	Control Assembly, Winch	Inspect Replace	0.1	0.1				1,2	
	BODY ACCESSORY ITEMS								
22 2201	Bows	Inspect Service Replace Repair	0.5	0.1 1.0 0.5				1 1	
	Cover, 4-Door Cab	Inspect Service Replace Repair	0.5	0.1 1.5		F		1 1,7	F
	Cover, 2-Door Cargo	Inspect Service Replace Repair	0.5	0.1 1.0		F		1 1,7	F
	Cover, 4-Door Cargo	Inspect Service Replace Repair	0.5	0.1 1.0		F		1 1,7	F
	Cover, Rear Door	Inspect Service Replace Repair	0.1 0.1	0.2		F		1 1,7	F

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
2202	Curtain, Body Cover	Inspect Service Replace Repair	0.5	0.1 1.0	F			1 1,7	F
	Cover, 2-Door Cab	Inspect Service Replace Repair	0.1 0.5	0.5	F			1 1,7	F
	Door, Front	Inspect Service Adjust Replace Repair	0.1 0.1	0.4 0.2	F			1,2 1 1	F
	Motor, Windshield Wiper	Test Replace		0.3 0.5				2 1	
	Arm Assembly, Wiper	Inspect Replace	0.1	0.2				1	
	Linkage, Wiper	Replace		0.5				1,2	
	Motor and Reservoir Assembly, Washer	Test Service Replace		0.2 0.2 0.1				2 1 1,2	
	Nozzle, Washer	Replace		0.5				1	
	Mirror, Rearview	Inspect Adjust Replace	0.1 0.1	0.2				1,2	
	Reflectors	Replace		0.2				1	
	Ducting, Defroster and Heater	Replace		1.0				1	
	Controls, Defroster and Heater	Replace		1.0				1	
	Heater Assembly	Replace		1.4				1,2	
	2210	Data Plates	Replace		0.5				1,123
33	SPECIAL PURPOSE KITS								
3303	Engine/Crew Compartment Heater Kit	Install			8.0			1,6, 123-126	
	Pump and Lines, Fuel	Inspect Replace	0.1	0.2 1.0				1	
	Pump, Circulating	Replace		0.5				1	
	Harness, Wiring	Replace		0.2				1	
	Inlet Pipe	Replace		0.2				1	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
3305	Circuit Breaker	Replace		0.5				1	
	Heater	Inspect Replace	0.1	0.2				1	
	Control Assembly, Heater	Replace		0.5				1	
	Arctic 2-Man Crew Top Kit	Install			2.0			123	
	Arctic Cover, 2-Door Cab	Inspect Replace Repair	0.1	0.5		F		1 1,7	F
	Deep Water Fording Kit	Install		4.0				1,2	
	Snorkel, Intake and Exhaust	Inspect Install Replace	0.2 2.0	0.2 1.5				1,2 1,2	
	Venting	Inspect Replace	0.1	0.1 1.0				1,2	
	3307 Communications Kit	Install Replace		3.0 F				1,2 1,2	F
	S250 Shelter Carrier	Troop Seat Kit	Inspect Install Replace Repair	0.1	2.0 0.8 1.0			1,2 2 4	
3307	Support, Shelter	Inspect Replace	0.1	2.0				1,2	
	Sling, Tiedown	Inspect Replace	0.1	0.3				1	
47	GAUGES (NON-ELECTRICAL)								
4701	Speedometer	Replace		0.2				1,2	
	Cable and Housing	Replace		0.5				1	
4702	Gauge, Air Restriction	Inspect Replace	0.1	0.1				1	
	52	AIR CONDITIONER							
5203	Compressor, A/C	Replace			1.5			1	
	Air Conditioner System	Inspect Test Service	0.1 0.3		1.6			1,128-132	
	Cover, Access Hole	Inspect Replace		0.1	0.5			1,6	

**Section II. MAINTENANCE ALLOCATION CHART
(SERIAL NUMBERS 30000 AND ABOVE) (Cont'd)**

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) MAINTENANCE LEVEL					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
5217	Covers, Lines	Inspect Replace		0.1	0.5			1,6	
	Receiver Dryer	Replace			0.3			1,6	
	A/C Lines and Fittings	Inspect Replace		0.1	1.5			1,6	
	Harness and Cable	Replace			0.5			1,6	
	Relays	Replace			0.5			1,6	
5241	Condenser Assembly	Replace			1.6			1,6	
	Evaporator/Heater Assembly	Replace Repair			2.0 0.4			1,6,123 1	

APPENDIX C EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

C-1. SCOPE

This appendix lists expendable/durable supplies and materials you will need to maintain the ECV series vehicles. These items are authorized by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. EXPLANATION OF COLUMNS

a. Column (1) – Item Number. This number is assigned to each entry in the listing and is referenced in Initial Setup of applicable tasks under the heading of Materials/Parts.

b. Column (2) – Level. This column identifies the lowest level of maintenance that requires the listed item.

C — Operator/Crew

O — Unit maintenance

F — Direct support maintenance

H — General support maintenance

c. Column (3) – National Stock Number. This is the national stock number assigned to the item; use it to request or requisition the item.

d. Column (4) – Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item listing indicates the Commercial and Government Entity Code (CAGEC) in parentheses followed by the part number.

e. Column (5) – Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by an alphabetical abbreviation (QT, GAL.). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	H		ACETONE, TECHNICAL: (81348) O-A-51	
		6810-00-223-2739	1 Pint Can	PT
2	O		ADHESIVE: plastic cement (04963) 1099	
		8040-01-126-1422	1 Quart Can	QT
2.1	O		ADHESIVE: 20251 (05972)	
		8040-01-154-0038	25 CC Can	CC
3	O		ADHESIVE: ethyl-2-cyanoacrylate, low-viscosity (80244) A-A-3097 TY2CL2	
		8040-00-826-3535	16 Ounce Bottle	OZ
3.1	F		ADHESIVE SEALANT: anaerobic AN0321, type II, grade N (05972) 24231	
		8030-01-014-5869	50 milliliter	ML
4	O		ADHESIVE: silicone rubber, black (01139) RTV-103	
		8040-00-865-8991	12 Ounce Cartridge	OZ
5	O		ADHESIVE: synthetic, rubber GA100AJ1	
		8040-00-165-8614	1 Quart Can	QT
6	O		ADHESIVE: silicone rubber (81349) MIL-A-46146 Type 1	
		8040-00-938-1535	12 Ounce Cartridge	OZ
7	O		ADHESIVE: plumbing, solvent cement (81349) MIL-A-22010	
		8040-00-573-1502	1 Pint Container	PT
7.1	O		ADHESIVE: sealing compound (00333) M6325-11	
		8030-01-347-0964	11 Ounce Container	OZ
8	O		ADHESIVE: type II, class I (80244) A-A-3097 TY2CL1	
		8040-01-167-2613	4 Ounce Bottle	OZ
		8040-01-090-9320	1 Pint	PT
		8040-01-043-7537	1 Pound Container	LB

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
9	O		ADHESIVE: general trim, spray (04963) 051135 08080	
		8040-01-215-3426	24 Ounce Can	OZ
9.1	O		ADHESIVE: (71984) 732 RTV	
		8040-00-078-9774	6 Ounce Cartridge	OZ
10	O		ADHESIVE: RTV silicone rubber, clear (71984) SILASTIC 738 RTV	
		8040-00-118-2695	3 Ounce Tube	OZ
11			Deleted	
12	O		ADHESIVE: silicone rubber, general purpose (80244) MIL-A-46106, type I	
		8040-00-833-9563	5 Ounce Tube	OZ
13	F		ADHESIVE: (71984) 732 RTV	
		8040-00-078-9774	6 Ounce Cartridge	OZ
14	C		ANTIFREEZE: arctic-type (58536) A-A-52624	
		6850-01-464-9096	55 Gallon Drum	GAL.
15	C		ANTIFREEZE: ethylene glycol, inhibited heavy-duty, single package (58536) A-A-52624	
		6850-01-464-9125	1 Gallon Container	GAL.
		6850-01-464-9137	5 Gallon Container	GAL.
		6850-01-464-9152	55 Gallon Container	GAL.
16	O		ANTISEIZE COMPOUND: conductive (81349) MIL-A-907	
		8030-00-059-2761	1 Pound Can	LB
17	F		ANTISEIZE COMPOUND: mica-base (81349) MIL-A-13881	
		8030-00-753-4953	1 Pound Can	LB
18	C		BRAKE FLUID: silicone, automotive, all-weather, operational and preservative (81349) MIL-B-46176	
		9150-01-102-9455	1 Gallon Can	GAL.
		9150-01-123-3152	5 Gallon Can	GAL.
19	F		CALIBRATING FLUID: (33287) J-26400-5B	
		4910-00-779-6851	5 Gallon Drum	GAL.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
20	O		CHALK, MARKING (81348) SS-C-255	
		7510-00-223-6701	1 Gross	GR
20.1	O		CLEANING COMPOUND (58536) A-A-59601	
		6850-01-331-3349	5 Gallon Drum	GAL.
21	O		CLEANING AND LUBRICATING COMPOUND: electrical (81349) MIL-C-83360	
		6850-00-003-5295	16 Ounce Can	OZ
22	F		CLOTH: abrasive, crocus (58536) A-A-1206	
		5350-00-221-0872	50 Sheet Package	SH
		5350-00-268-3116	50 Yard Roll	YD
23	F		COATING COMPOUND: plastic, waterproof (0B629) 11603	
		8030-01-398-6809	14 Ounce Can	OZ
24	F		CORD, FIBROUS: tying, neoprene (81349) MIL-Y-1140	
		4020-00-008-6037	668 Yard Tube	YD
25	C		DETERGENT: general purpose, liquid (81349) MIL-D-16791	
		7930-00-282-9699	1 Gallon Container	GAL.
26	C		DRYCLEANING SOLVENT: (81348) P-D-680, type II	
		6850-00-110-4498	1 Pint Can	PT
		6850-00-274-5421	5 Gallon Drum	GAL.
		6850-00-285-8011	55 Gallon Drum	GAL.
		6850-00-637-6135	Bulk	GAL.
27	C		FUEL OIL: diesel, regular, DF-2 (81348) VV-F-800	
		9140-00-286-5295	5 Gallon Can	GAL.
		9140-00-286-5296	55 Gallon Drum	GAL.
28	C		FUEL OIL: diesel, winter, DF-1 (81348) VV-F-800	
		9140-00-286-5287	5 Gallon Drum	GAL.
		9140-00-286-5288	55 Gallon Drum	GAL.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
29	C		FUEL OIL: diesel, arctic, DF-A (81348) VV-F-800	
		9140-00-286-5282	5 Gallon Can	GAL.
30	F	9140-00-286-5284	55 Gallon Drum	GAL.
		6830-00-281-3036	200 Pound Drum	LB
31	H		FLUSHING AGENT: R-111 (81348) BBF1421	
		5210-00-640-6177	Box	BX
32	F		GREASE: aircraft, general purpose, wide, temperature range (81349) MIL-G-81322	
		9150-00-181-7724	8 Ounce Tube	OZ
		9150-00-944-8953	1 Pound Can	LB
		9150-00-145-0268	5 Pound Can	LB
33	F	9150-00-935-5851	35 Pound Can	LB
			GREASE: aircraft and instrument, gear and actuator screw (81349) MIL-G-23827	
		9150-00-985-7246	1-3/4 Pound Can	LB
34	C		GREASE: automotive and artillery (81349) MIL-G-10924	
		9150-00-935-1017	14 Ounce Cartridge	OZ
		9150-01-197-7689	6-1/2 Pound Can	LB
35	O		GREASE: ball and roller bearing (73219) 18901	
		9150-01-095-5512	Case, 24/14 Ounce Cans	OZ
36	O		GREASE: lithium base w/molybdenum disulfide (60218) LS 2267	
		9150-01-015-1542	14.5 Ounce Cartridge	OZ
37	C		HYDRAULIC FLUID: transmission or power steering (24617) Dexron® VI	
		9150-01-353-4799	1 Quart Can	QT
		1950-01-114-9968	55 Gallon Drum	GAL.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
38	F	5970-00-186-6529	INSULATING COMPOUND: (76381) Scotchcase No. 10 Resin Kit	KT
39	F	5970-00-740-2971	INSULATION: (81349) MIL-I-23053	N/A
40	F	5970-00-583-0401	INSULATION VARNISH: (08800) 1201 1 Quart Can	QT
41	C	9150-01-035-5390	LUBRICATING OIL: gear, multipurpose, GO 80/90 (81349) MIL-L-2105 1 Quart Can	QT
		9150-01-035-5391	5 Gallon Drum	GAL.
42	C	9150-01-035-5392	LUBRICATING OIL: gear, multipurpose, GO 80/90 (81349) MIL-L-2105 1 Quart Can	QT
		9150-01-035-5393	5 Gallon Drum	GAL.
43	C	9150-00-402-4478	LUBRICATING OIL: internal combustion engine, arctic, OEA (81349) MIL-L-46167 1 Quart Can	QT
		9150-00-402-2372	5 Gallon Drum	GAL.
		9150-00-491-7197	55 Gallon Drum	GAL.
44	C	9150-00-189-6727	LUBRICATING OIL: internal combustion engine, tactical service, OE/HDO 10 (81349) MIL-L-2104 1 Quart Can	QT
		9150-00-186-6668	5 Gallon Can	GAL.
		9150-00-191-2772	55 Gallon Drum	GAL.
45	C	9150-00-186-6681	LUBRICATING OIL: internal combustion engine, tactical service, OE/HDO 30 (81349) MIL-L-2104 1 Quart Can	QT
		9150-00-188-9858	5 Gallon Drum	GAL.
		9150-00-189-6729	55 Gallon Drum	GAL.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
46	O		LUBRICATING OIL: general purpose, corrosion resistant and oxidation resistant (92895) PQRUSTPREVENTIVENO172	
		9150-00-185-0629	2 Ounce Can	OZ
		9150-00-273-2389	4 Ounce Can	OZ
47	C		LUBRICATING OIL: internal combustion engine, tactical service, OE/HDO 15/40 (81349) MIL-L-2104	
		9150-01-152-4117	1 Quart Can	QT
		9150-01-152-4118	5 Gallon Drum	GAL.
		9150-01-152-4119	55 Gallon Drum	GAL.
48	F		LUBRICATING OIL: refrigerant, compressor (1LLR3) PAG-150	
		9150-01-514-3508	1 Quart Can	QT
49	H		LUBRICANT: oil seal (87460) 22204	
		N/A	8 Ounce Bottle	OZ
50	F		METAL STRIP: hot-rolled finish (81346) ASTM A569	
		9515-00-204-3988	10 Ft Roll	FT
51	F		NITROGEN: (81348) BB-N-411	
		6830-01-124-3351	Cylinder	N/A
52	H		PETROLATUM: technical (81348) VV-P-236	
		9150-00-250-0926	1-3/4 Pound Can	LB
		9150-00-250-0933	7-1/2 Pound Can	LB
53	H		PIGMENT, PAINT PRODUCTS: ultramarine, blue (96906)	
		8010-00-060-6020	1/2 Pint Can	PT
54	F		PRIMER: Weld-through (81349) MIL-P-46105	
		8010-01-296-7851	1 Gallon Container	GAL.
54.1	C		PRIMER, ADHESIVE: spray (81349) MIL-A-46050 C	
		8010-01-826-3535	15 Ounce Can	OZ

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
55	C		RAG: wiping, cotton and cotton-synthetic (58536) A-A-531	
		7920-00-205-1711	50 Pound Bale	LB
56	F		REFRIGERANT R-134a (25827) HFC-134A	
		6830-01-370-6207	43 Pound Cylinder	LB
57	O		REPAIR KIT, Glass Reinforcement Plastic Laminate (81349) MIL-R-19907D	
		2090-00-372-6064	1 Kit	KT
58	O		SEALING COMPOUND: anaerobic gasket (05972) 51831	
		8030-01-374-3504	50 Milliliter Tube	ML
		8030-01-374-2338	300 Milliliter Cartridge	ML
59	O		SEALING COMPOUND: adhesive, elastomeric (00333) M6325-11OZ	
		8030-01-347-0964	11 Ounce Cartridge	OZ
60	O		SEALING COMPOUND: anaerobic, adhesive/sealant (05972) 272-40	
		8030-01-171-7628	50 CC Bottle	CC
60.1	O		SEALING COMPOUND: canvas (81349) MIL-A-46106	
		8040-01-010-8758	1 Quart	QT
61	O		SEALING COMPOUND: corrosion-resistant (81349) MIL-S-81733, type II	
		8030-00-009-5023	Kit	KT
62	O		SEALING COMPOUND: pipe, anaerobic, with Teflon (05972) 59231	
		8030-01-054-0740	50 Milliliter Tube	ML
63	O		SEALING COMPOUND: thread-locking, high-strength (80244) MIL-S-46163, type I, grade K	
		8030-00-148-9833	10 CC Bottle	CC
64	O		SEALING COMPOUND: thread-locking, medium-strength (80244) MIL-S-46163, type II, grade N	
		8030-01-025-1692	250 CC Bottle	CC

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
65	F	8030-00-291-1787	SEALING COMPOUND: gasket, non-hardening (80244) MIL-S-45180, type II 1 Pint Can	PT
66	F	8030-00-111-2763	SEALING COMPOUND: thread-locking, penetrating, anaerobic (80244) MIL-S-46163, type III, Grade R 10 CC Bottle	CC
67	H	8030-01-268-5917	SEALING COMPOUND: high-temperature cylindrical part bonding (05972) 62040 50 CC Bottle	CC
68	O	8030-00-165-6547	SEALING COMPOUND: windshield (04963) EC1103 1 Quart Can	QT
69	F	8030-00-159-8177	SEALING COMPOUND: type II, synthetic rubber (81349) MIL-S-12158 1 Quart Can	QT
70	O	8030-01-328-0574	SEALING COMPOUND: synthetic rubber (71984) 737RTV 3 Ounce Package	OZ
71	O	8030-00-111-2762	SEALING COMPOUND: anaerobic/Loctite 290 (81349) MIL-S-46163 50 CC Bottle	CC
72	F	8030-01-392-3276	SEALING COMPOUND: (71961) 6099 1 Gallon Can	GAL.
72.1	O	8030-01-054-3968	SEALING COMPOUND: (80244) MIL-S-46163 TY2GRM 50 CC Bottle	CC
73	F	6850-01-137-8525	SILICONE COMPOUND: thermal insulating (71984) DC 340 2 Ounce Tube	OZ
		6850-00-927-9461	5 Ounce Package	OZ
74	O	6850-01-159-4844	SILICONE COMPOUND: RTV (11862) 1052734 10-1/2 Ounce Tube	OZ
75	O	6850-00-880-7616	SILICONE COMPOUND: dielectric colloid, non-melting, heat-stable, NATO code no. S-736 (81349) MIL-S-8660 8 Ounce Tube	OZ

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont'd)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
76	O	6850-00-295-7685	10 Pound Can SODIUM BICARBONATE: technical (baking soda) (81348) O-S-576	LB
		6810-00-264-6618	1 Pound Box	LB
77		6810-00-290-5574	100 Pound Bag	LB
78	O		DELETED	
79	O	7510-00-149-0732	TAPE: pressure-sensitive adhesive, polyester film, transparent, 1 in. wide, 2 mil thick (80063) SMA 597833-3 72 Yard Roll	YD
80	F	8315-01-115-7617	TAPE: hook and pile material (81349) MIL-F-21840 1 Yard Roll	YD
81	H	9320-01-244-0046	TAPE: (04963) Y-9485 1 Yard Roll	YD
82		8010-00-160-5787	THINNER, LACQUER: cellulose nitrate (58536) A-A-857 1 Gallon Can	GAL.
83	F		DELETED	
		5350-00-242-4404	WOOL, METALLIC: type III, medium (58536) A-A-1043 1 Pound Package	LB

APPENDIX D ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

PART NO.	FIGURE NO.
5992403	D-72
5992404	D-73
N/A	D-107
N/A	D-111

D-1. SCOPE

This appendix includes complete instructions for making items authorized to be manufactured or fabricated at unit, direct support, and general support maintenance.

D-2. GENERAL

- a.** A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria.
- b.** All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

Section II. ILLUSTRATED MANUFACTURING INSTRUCTIONS (Cont'd)

ASSEMBLY INSTRUCTIONS:

NOTE

Remove all burrs and sharp edges after each fabrication.

1. Position lift hook (3) on lift sling beam (2) and weld into place.
2. Position two sling reinforcements (1) and (4) on lift sling beam (2) and lift hook (3) and weld into place.
3. Position right side bracket (8) on lift sling beam (2) and weld into place.
4. Position right side bracket reinforcement (7) on lift sling beam (2) and right side bracket (8) and weld into place.
5. Position left side bracket (5) on lift sling beam (2) and weld into place.
6. Position left side bracket reinforcement (6) on lift sling beam (2) and left side bracket (5) and weld into place.
7. Locate, mark, and drill four 0.437-in. (11.10-mm) diameter holes through powertrain lift sling.
8. Paint powertrain lift sling (refer to TM 43-0139).
9. Complete load test for powertrain lift sling using a 1-ton (907.18-kg) weight.
10. Check powertrain lift sling for weld cracks by using a dye penetrant inspection method.

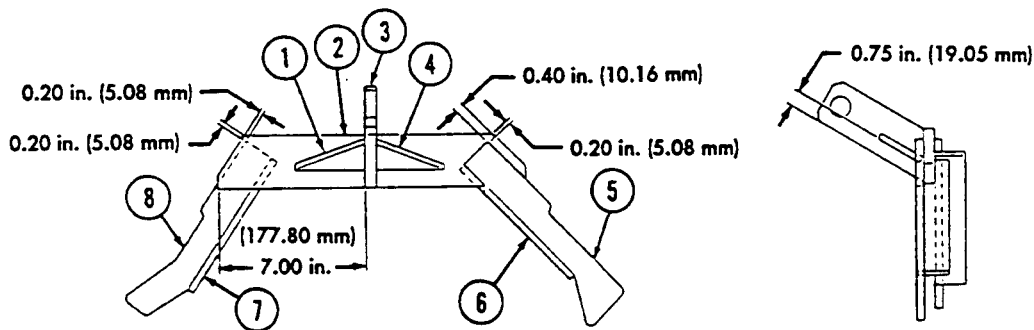


Figure D-72. Powertrain Lift Sling, 5992403.

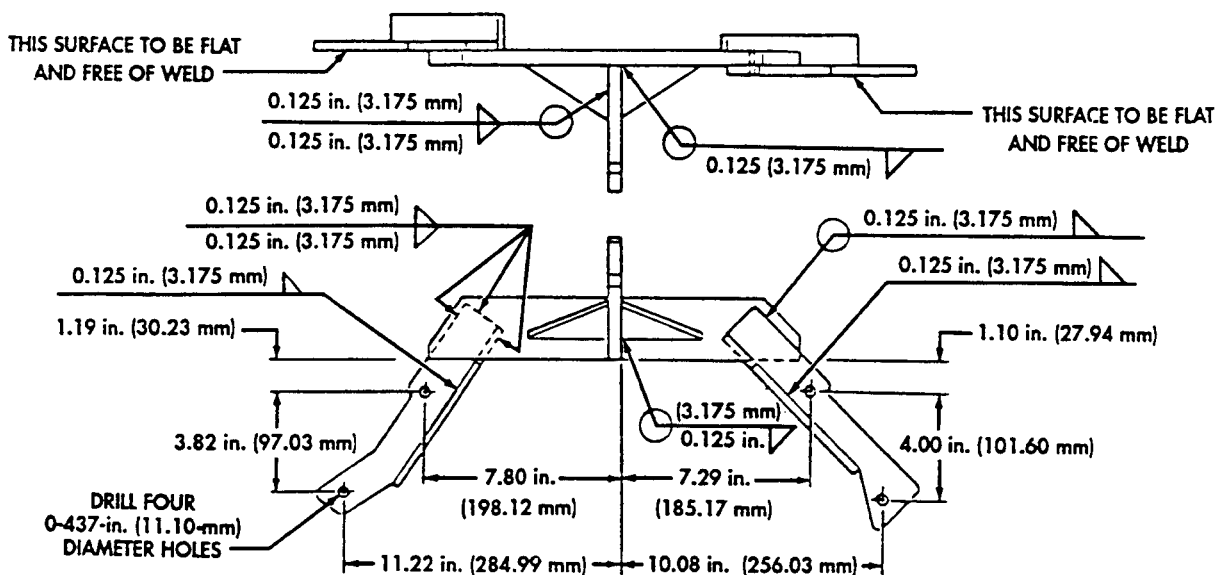


Figure D-73. Powertrain Lift Sling, 5992404.

Section II. ILLUSTRATED MANUFACTURING INSTRUCTIONS (Cont'd)

MATERIAL BLOCK		
STOCK SIZE	DESCRIPTION	SPECIFICATION
0.125 X 2.570 X 3.500 in. (3.175 X 65.278 X 88.900 mm)	ALUMINUM FLAT SHEET	IAW ASTM B 209
0.125 X 0.750 X 24.000 in. (3.175 X 19.050 X 609.600 mm)	ALUMINUM RECTANGLE	IAW ASTM B 211

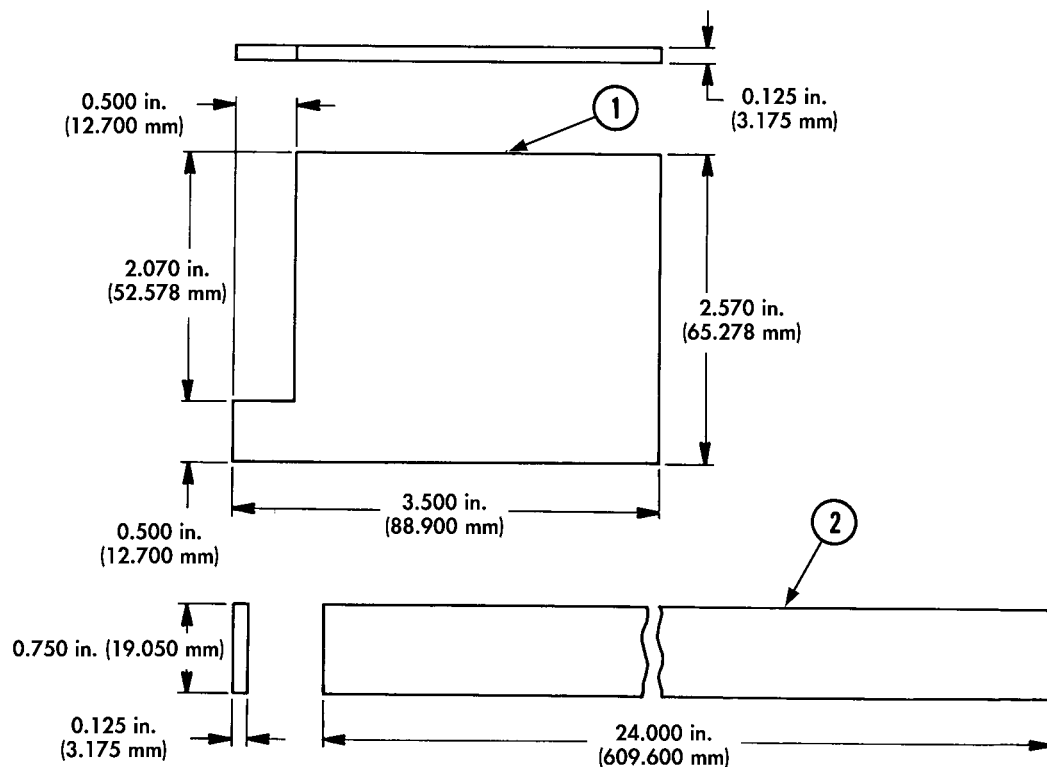


Figure D-107. Pulley Alignment Tool Fabrication.

INSTRUCTIONS:

NOTE

- Remove all burrs and sharp edges from aluminum sheet and rectangle.
- Pulley alignment tool can be assembled using nuts, bolts, rivets, or by welding.

1. Cut aluminum sheet (1) to size as shown.
2. Position aluminum rectangle (2) on top of aluminum sheet (1) as shown in figure D-107.

NOTE

Check all measurements before welding, riveting, or bolting pulley alignment tool together.

3. Assemble pulley alignment tool as shown in figure D-107.

Section II. ILLUSTRATED MANUFACTURING INSTRUCTIONS (Cont'd)

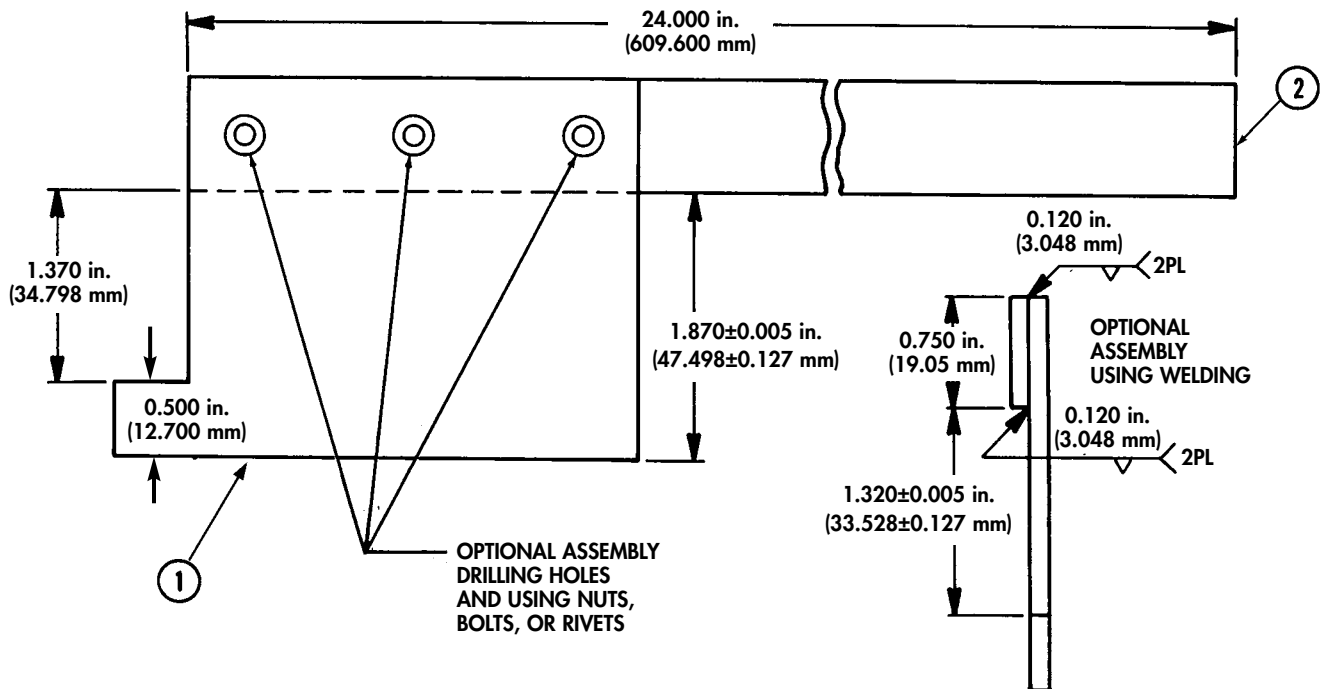


Figure D-107. Pulley Alignment Tool Fabrication (Cont'd).

Section II. ILLUSTRATED MANUFACTURING INSTRUCTIONS (Cont'd)

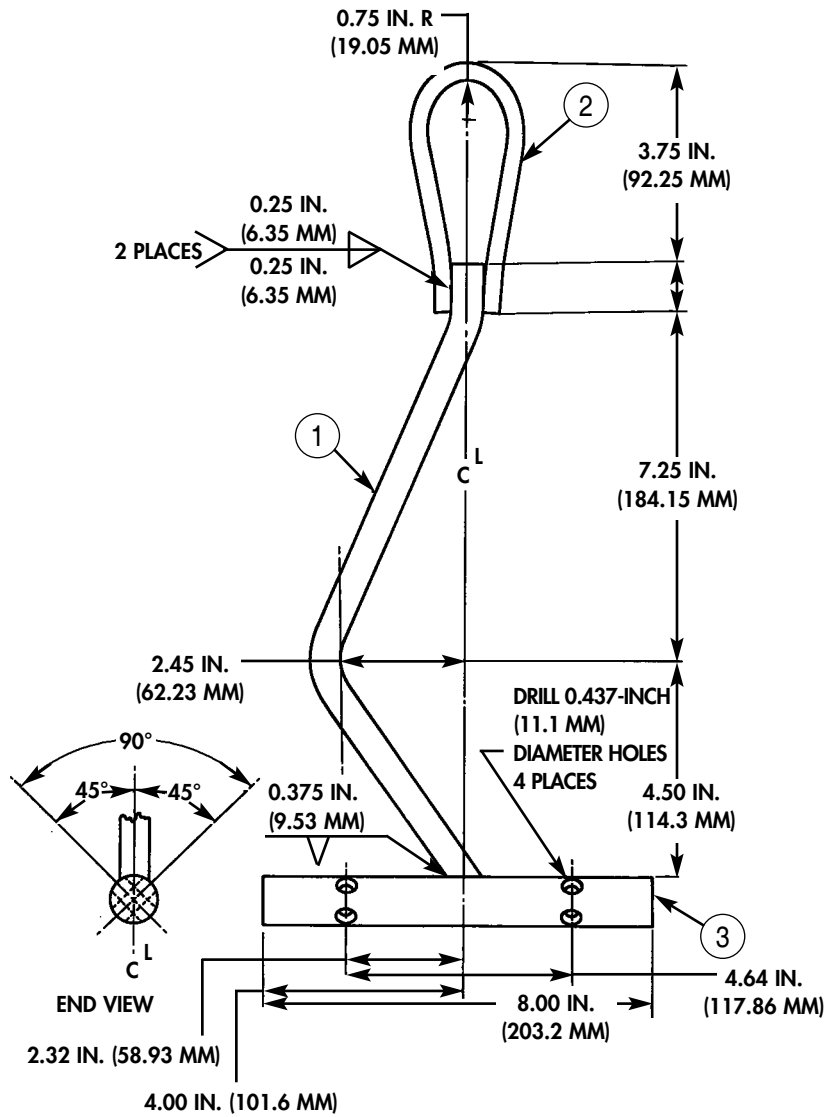


Figure D-111. Cylinder Head Lifting Device.

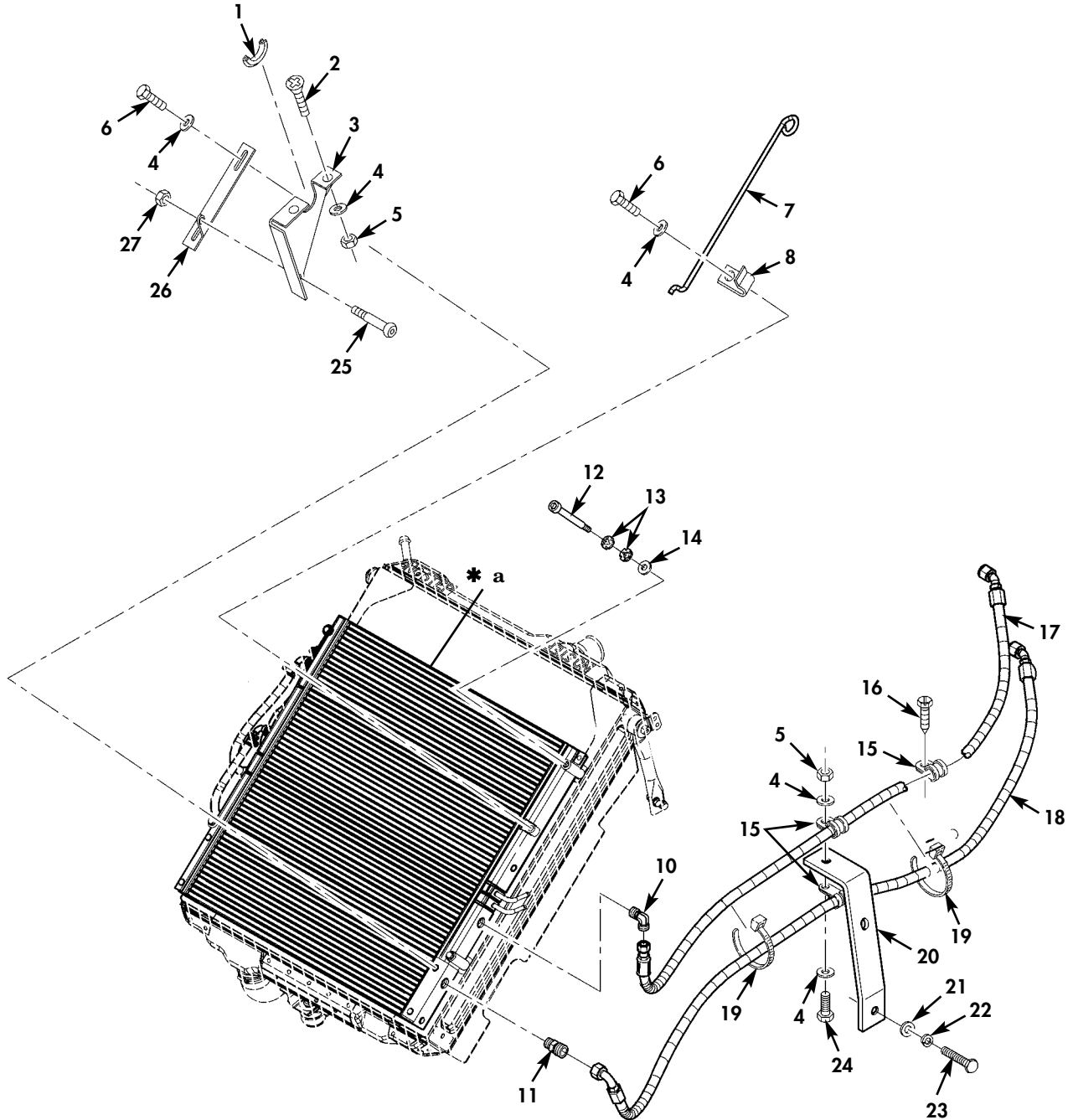
APPENDIX E

REPAIR PARTS SPECIAL TOOLS LIST (RPSTL)

The following APPENDIX provide you with the repair parts and special tools you will need to maintain or replace any of the components associated with the components that are specific to your REV vehicle.

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

9 —
10
and
11



* a PART OF ITEM 9

Figure 1. Engine, Power Steering, and Transmission Oil Cooler, Engine Oil Cooler Lines, and Related Parts (Serial Number 30000 and Above).

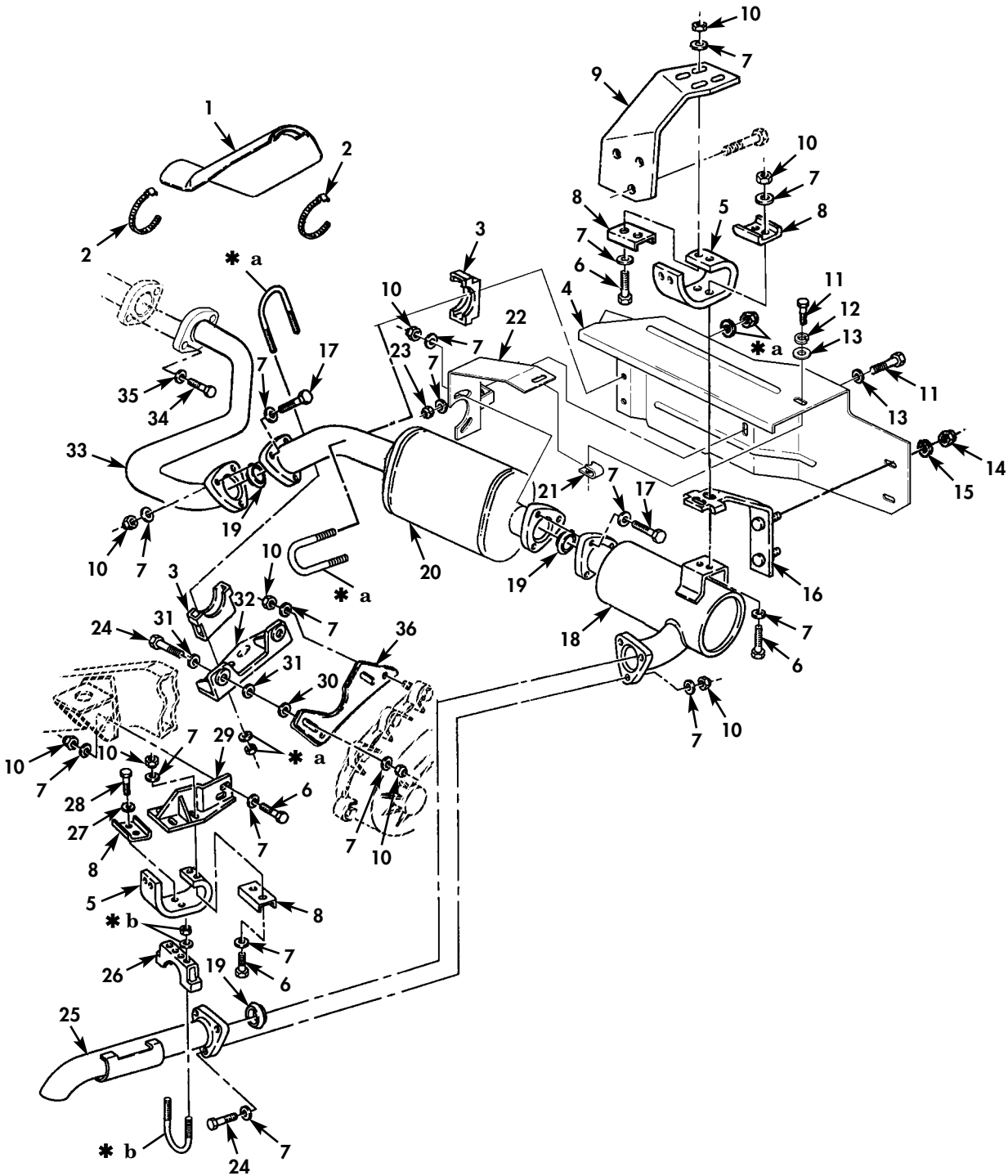
(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0106 ENGINE LUBRICATION SYSTEM						
FIG. 1 ENGINE, POWER STEERING, AND TRANSMISSION OIL COOLER, ENGINE OIL COOLER LINES, AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5342012749884	34623	5597890	PROTECTOR,EDGE.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5305009543937	80205	MS35190-290	SCREW,MACHINE 1/4-20 X 7/8.....	4
					UOC:TTA,UU2,UUA	
3	PAOZZ		34623	6038851	BRACKET,ENGINE ACCE L.H.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ		34623	6038852	BRACKET,ENGINE ACCE R.H.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	11
					UOC:TTA,UU2,UUA	
5	PAOZZ	5310000614650	80205	M45913/3-4CG8C	NUT,SELF-LOCKING,HE 1/4-20.....	5
					UOC:TTA,UU2,UUA	
6	PAOZZ	5305000712506	80204	B1821BH025C050N	SCREW,CAP,HEXAGON H 1/4-20 X 1/2....	5
					UOC:TTA,UU2,UUA	
7	PFOZZ		34623	6038537	ROD,SUPPORT,VEHICUL.....	1
					UOC:TTA,UU2,UUA	
8	PFOZZ		19207	12469374	CLIP,SPRING TENSION.....	1
					UOC:TTA,UU2,UUA	
9	PAOZZ		47NR0	X21678	COOLER,LUBRICATING.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ		47NR0	818839	.ELBOW,PIPE TO HOSE.....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ		47NR0	817549	.ADAPTER,STRAIGHT PI.....	1
					UOC:TTA,UU2,UUA	
12	PFOZZ		34623	6043006	SCREW,SHOULDER 3/8-16 X 2.50.....	4
					UOC:TTA,UU2,UUA	
13	PFOZZ		34623	6042658	WASHER,SPRING TENS 3/8.....	8
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8.....	4
					UOC:TTA,UU2,UUA	
15	PAOZZ	5340012293632	19207	12340571-2	CLAMP,LOOP.....	3
					UOC:TTA,UU2,UUA	
16	PAOZZ	5305012364349	7X677	172482	SCREW,TAPPING 3/8-16 X 5/8.....	1
					UOC:TTA,UU2,UUA	
17	PAOZZ		34623	6043134	HOSE ASSY,NONME FROM COOLER.....	1
					UOC:TTA,UU2,UUA	
18	PAOZZ		34623	6038644	HOSE ASSEMBLY,NONME TO COOLER.....	1
					UOC:TTA,UU2,UUA	
19	PAOZZ	5975009856630	96906	MS3367-3-0	STRAP,TIEDOWN,ELECT.....	2
					UOC:TTA,UU2,UUA	
20	PAOZZ		34623	6042207	BRACKET,OIL COOLER.....	1
					UOC:TTA,UU2,UUA	
21	PAOZZ	5310011517347	24617	2436167	WASHER,FLAT 5/8.....	1
					UOC:TTA,UU2,UUA	

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
22	PAOZZ	5310009370453	80205	MS35338-145	WASHER, LOCK 5/8.....	1
					UOC: TTA, UU2, UUA	
23	PFOZZ		34623	6019857	SCREW, CAP, HEXAGON H 5/8-18 X 5.00...	1
					UOC: TTA, UU2, UUA	
24	PAOZZ	5305002253842	80204	B1821BH025C113N	SCREW, CAP, HEXAGON H 1/4-20 X 1.125..	1
					UOC: TTA, UU2, UUA	
25	PAOZZ	5305009143818	80205	MS51975-8	SCREW, SHOULDER 1/4-20 X .923.....	2
					UOC: TTA, UU2, UUA	
26	PAOZZ	5340014753480	19207	12469373	BRACKET, MOUNTING R.H.....	1
					UOC: TTA, UU2, UUA	
26	PAOZZ	5340014753485	19207	12469372	BRACKET, MOUNTING L.H.....	1
					UOC: TTA, UU2, UUA	
27	PAOZZ	5310013980319	24617	9424215	NUT, SELF-LOCKING, HE 1/4-20.....	2
					UOC: TTA, UU2, UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
 REPAIR PARTS AND SPECIAL TOOLS LIST
 TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES



- * a PART OF ITEM 3
- * b PART OF ITEM 26

Figure 2. Muffler, Exhaust Pipes, and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0401 MUFFLER AND PIPES						
FIG. 2 MUFFLER, EXHAUST PIPES, AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		34623	6013322	GUARD,MUFFLER-EXHAU.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	4730009086292	58536	A-A-52506-F-48	CLAMP,HOSE.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ	5340014847760	19207	12338343-2	CLAMP,LOOP.....	2
					UOC:TTA,UU2,UUA	
4	PAOZZ		34623	6042520	HEAT SHIELD,EXHAUST.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ	2540013094459	19207	12338337	INSULATION,THERMAL.....	2
					UOC:TTA,UU2,UUA	
6	PAOZZ	5305000680511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON H 3/8-16 X 1.25...	12
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310000806004	96906	MS27183-14	WASHER,FLAT 3/8.....	42
					UOC:TTA,UU2,UUA	
8	PAOZZ	5340012124887	34623	5588675	STRAP,RETAINING.....	6
					UOC:TTA,UU2,UUA	
9	PFOZZ		34623	6031218	HANGER,ENGINE EXHAU.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ	5310014904433	81349	M45913/4-6CG8C	NUT,SELF-LOCKING,HE 3/8-16.....	24
					UOC:TTA,UU2,UUA	
11	PAOZZ	5305000680508	80204	B1821BH025C075N	SCREW,CAP,HEXAGON H 1/4-20 X 3/4....	2
					UOC:TTA,UU2,UUA	
12	PAOZZ	5310005825965	80205	MS35338-44	WASHER,LOCK 1/4.....	1
					UOC:TTA,UU2,UUA	
13	PAOZZ	5310008094058	96906	MS27183-10	WASHER,FLAT 1/4.....	2
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310010128962	24617	9416918	NUT,PLAIN,EXTENDED 1/4-20.....	2
					UOC:TTA,UU2,UUA	
15	PAOZZ	5310004079566	80205	MS35338-45	WASHER,LOCK 5/16.....	2
					UOC:TTA,UU2,UUA	
16	PAOZZ	5340014132689	19207	12460083	BRACKET,MOUNTING.....	1
					UOC:TTA,UU2,UUA	
17	PAOZZ	5305006388920	80204	B1821BH038C225N	SCREW,CAP,HEXAGON H 3/8-16 X 2.25...	6
					UOC:TTA,UU2,UUA	
18	PAOZZ	2990014113947	34623	12460090	MUFFLER,EXHAUST.....	1
					UOC:TTA,UU2,UUA	
19	PAOZZ	5330012000466	19207	12338339	GASKET.....	3
					UOC:TTA,UU2,UUA	
20	PAOZZ	2990014971042	19207	12469353	CONVERTER,CATALYTIC.....	1
					UOC:TTA,UU2,UUA	
21	PAOZZ	5310012536439	19207	12339425	NUT,SHEET SPRING 1/4-20.....	1
					UOC:TTA,UU2,UUA	
22	PAOZZ		19207	12469346	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
23	PAOZZ	5310015101237	81349	M45913/4-4CG8C	NUT,SELF-LOCKING,HE 1/4-20.....	1
					UOC:TTA,UU2,UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
24	PAOZZ	5305007829489	80204	B1821BH038C200N	SCREW,CAP,HEXAGON H 3/8-16 X 2.00... UOC:TTA,UU2,UUA	4
25	PAOZZ	2990014334422	19207	12469350	PIPE,EXHAUST..... UOC:TTA,UU2,UUA	1
26	PAOZZ	5340012123553	19207	12338343-1	CLAMP,LOOP..... UOC:TTA,UU2,UUA	1
27	PAOZZ	5310000045033	80205	MS35338-46	WASHER,LOCK 3/8..... UOC:TTA,UU2,UUA	2
28	PAOZZ	5305000680510	80204	B1821BH038C100N	SCREW,CAP,HEXAGON H 3/8-16 X 1.00... UOC:TTA,UU2,UUA	2
29	PFOZZ	2990012118587	19207	12338346	HANGER,ENGINE EXHAU..... UOC:TTA,UU2,UUA	1
30	PAOZZ	5310012113811	7X677	9417793	WASHER,FLAT 3/8..... UOC:TTA,UU2,UUA	2
31	PAOZZ	5325011871604	19207	12338338	GROMMET,NONMETALLIC..... UOC:TTA,UU2,UUA	4
32	PFOZZ	5340012113137	34623	12338340	BRACKET,ANGLE..... UOC:TTA,UU2,UUA	1
33	PAOZZ		34623	6038476	PIPE,EXHAUST..... UOC:TTA,UU2,UUA	1
34	PAOZZ	5306014558016	7X677	15728527	BOLT,MACHINE M10-10.5 X 1/2..... UOC:TTA,UU2,UUA	2
35	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8..... UOC:TTA,UU2,UUA	2
36	PFOZZ	5340012114025	34623	5590387	STRAP,RETAINING..... UOC:TTA,UU2,UUA	1

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
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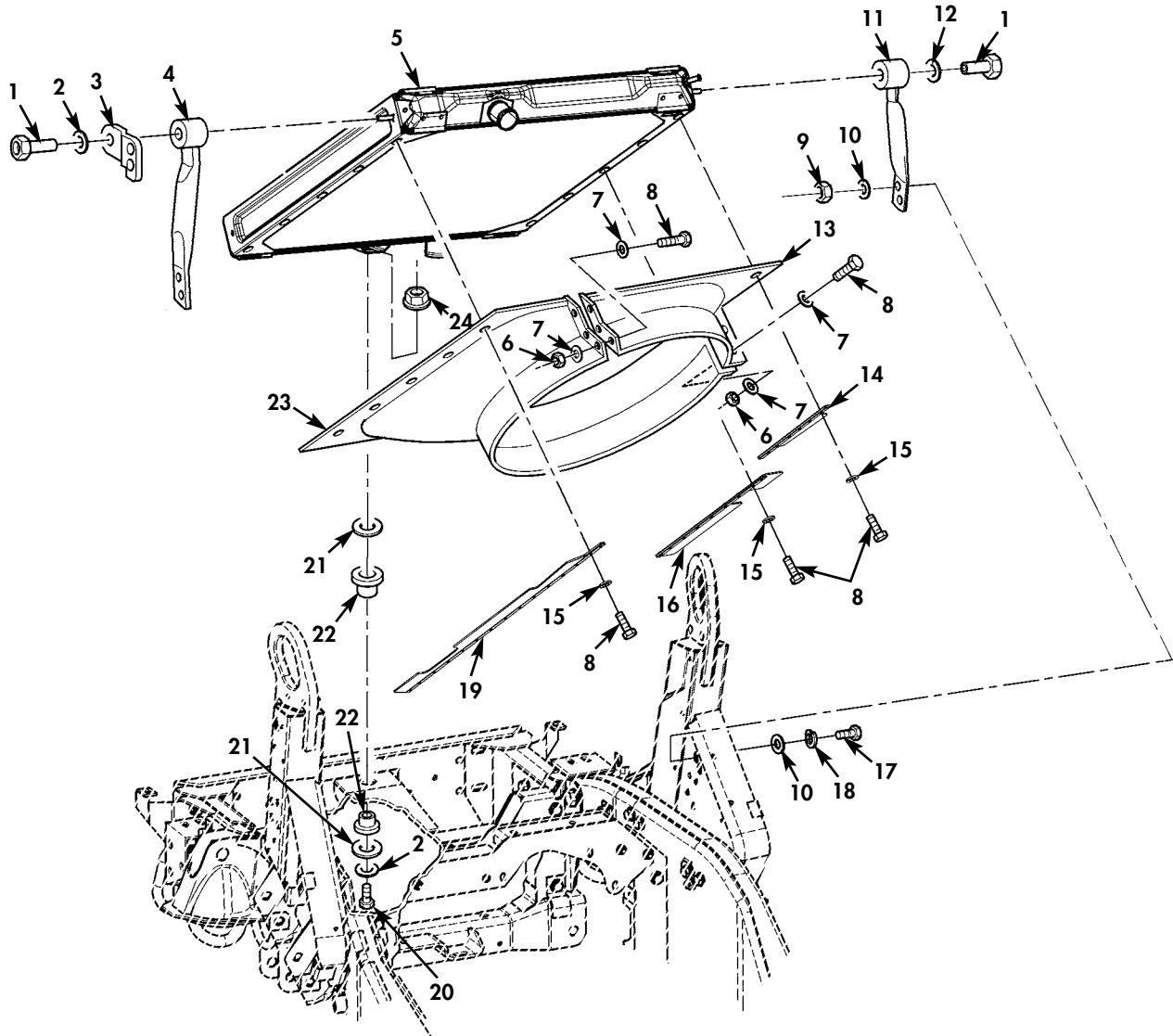


Figure 3. Radiator, Shroud, and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0501 RADIATOR, EVAPORATIVE COOLER, OR HEAT EXCHANGER						
FIG. 3 RADIATOR, SHROUD, AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PFOZZ		34623	6023405	STANDOFF, THREADED S 3/8-16 X 1.50...	2 UOC: TTA, UU2, UUA
2	PAOZZ	5310011211703	24617	2436165	WASHER, FLAT 1/2.....	2 UOC: TTA, UU2, UUA
3	PFOZZ		34623	6038874	BRACKET, VEHICULAR C.....	1 UOC: TTA, UU2, UUA
4	PFOZZ		81860	29329-1	RETAINER, RADIATOR L.H.....	1 UOC: TTA, UU2, UUA
5	PAOFH	2930014489439	50022	1AF00019	RADIATOR, ENGINE COO.....	1 UOC: TTA, UU2, UUA
6	PAOZZ	5310000614650	81349	M45913/3-4CG8C	NUT, SELF-LOCKING, HE 1/4-20.....	5 UOC: TTA, UU2, UUA
7	PAOZZ	5310011023270	24617	2436161	WASHER, FLAT 1/4.....	10 UOC: TTA, UU2, UUA
8	PAOZZ	5305000712505	80204	B1821BH025C088N	SCREW, CAP, HEXAGON H 1/4-20 X 7/8....	15 UOC: TTA, UU2, UUA
9	PAOZZ	5310009359021	96906	MS51943-35	NUT, SELF-LOCKING, HE 3/8-16.....	4 UOC: TTA, UU2, UUA
10	PAOZZ	5310014124013	24617	2436163	WASHER, FLAT 3/8.....	8 UOC: TTA, UU2, UUA
11	PFOZZ		81860	29329-2	RETAINER, RADIATOR R.H.....	1 UOC: TTA, UU2, UUA
12	PFOZZ		81860	9810386	WASHER, FLAT 1/2.....	1 UOC: TTA, UU2, UUA
13	PAOZZ		34623	6043383	SHROUD, FAN, RADIATOR UPPER.....	1 UOC: TTA, UU2, UUA
14	PAOZZ		34623	6013409	BAFFLE, RADIATOR R.H. UPPER.....	1 UOC: TTA, UU2, UUA
15	PAOZZ	5310005825965	80205	MS35338-44	WASHER, LOCK 1/4.....	10 UOC: TTA, UU2, UUA
16	PAOZZ		34623	6038710	BAFFLE, RADIATOR R.H., LOWER.....	1 UOC: TTA, UU2, UUA
17	PAOZZ	5305005432419	80204	B1821BH038C113N	SCREW, CAP, HEXAGON H 3/8-16 X 1.125..	4 UOC: TTA, UU2, UUA
18	PAOZZ	5310000045033	80205	MS35338-46	WASHER, LOCK 3/8.....	4 UOC: TTA, UU2, UUA
19	PAOZZ		34623	6038679	BAFFLE, RADIATOR L.H.....	1 UOC: TTA, UU2, UUA
20	PAOZZ	5305000712074	80204	B1821BH050C275N	SCREW, CAP, HEXAGON H 1/2-13 X 2.75...	1 UOC: TTA, UU2, UUA
21	PAOZZ	5310012507835	7X677	9428851	WASHER, FLAT 1/2.....	2 UOC: TTA, UU2, UUA
22	PAOZZ		81860	28787-3	MOUNT, RESILIENT, WEA.....	2 UOC: TTA, UU2, UUA
23	PAOZZ		34623	6043382	SHROUD, FAN, RADIATOR LOWER.....	1 UOC: TTA, UU2, UUA
24	PAOZZ	5310008493589	96906	MS51988-11	NUT, PLAIN EXTENDED 1/2-13.....	1 UOC: TTA, UU2, UUA

END OF FIGURE

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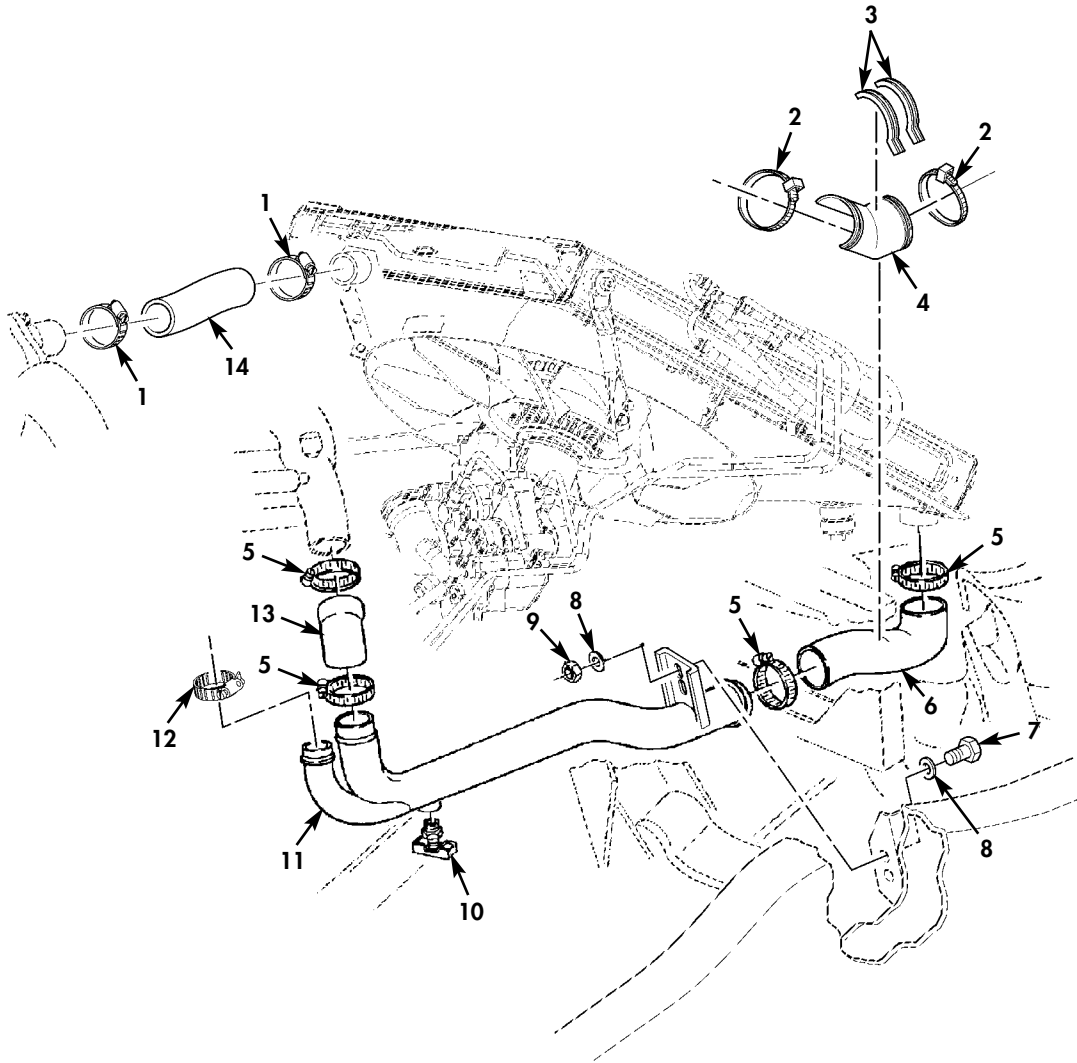


Figure 4. Radiator Hoses and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0503 WATER MANIFOLD, HEADERS, THERMOSTATS AND HOUSING GASKET						
FIG. 4 RADIATOR HOSES AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		76599	TSS28S30	CLAMP,HOSE.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5975009856630	96906	MS3367-3-0	STRAP,TIEDOWN,ELECT.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ		19207	12339902-12	PAD,CUSHIONING.....	2
					UOC:TTA,UU2,UUA	
4	PAOZZ		34623	6041631	GUARD,HOSE-TUBING.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ		76599	TSS32S30	CLAMP,HOSE.....	4
					UOC:TTA,UU2,UUA	
6	PAOZZ		34623	6043025	HOSE,PERFORMED LOWER.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5305000680508	80204	B1821BH025C075N	SCREW,CAP,HEXAGON H 1/4-20 X 3/4....	2
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	4
					UOC:TTA,UU2,UUA	
9	PAOZZ	5310000614650	80205	M45913/3-4CG8C	NUT,SELF-LOCKING,HE 1/4-20.....	2
					UOC:TTA,UU2,UUA	
10	PAOZZ	4820007529040	58536	AA594401/1-004	COCK,DRAIN.....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ		34623	6033126	TUBE,BENT METALLIC LOWER.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	4730009083194	19207	12345009-1	CLAMP,HOSE.....	1
					UOC:TTA,UU2,UUA	
13	PAOZZ	4720011881370	19207	12339159	HOSE,PREFORMED LOWER.....	1
					UOC:TTA,UU2,UUA	
14	PAOZZ		34623	6038808	HOSE,PREFORMED UPPER.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

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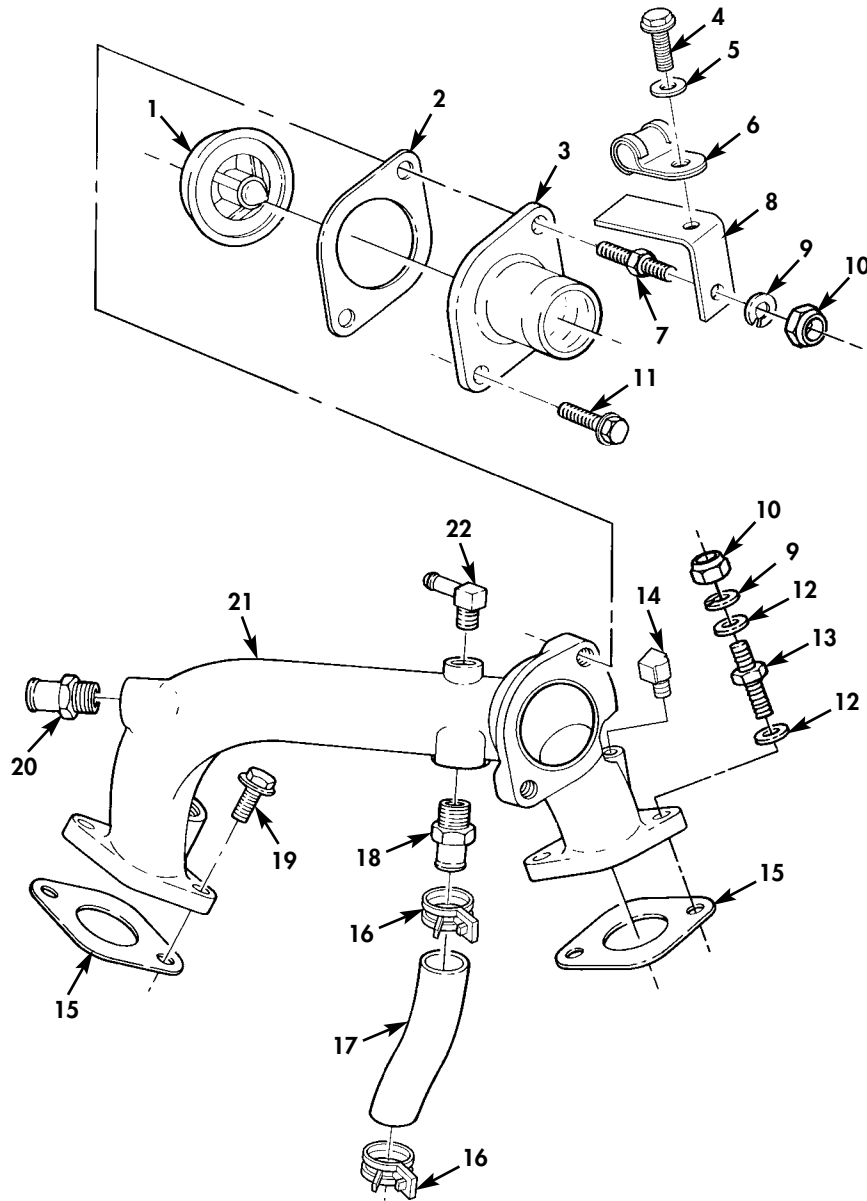


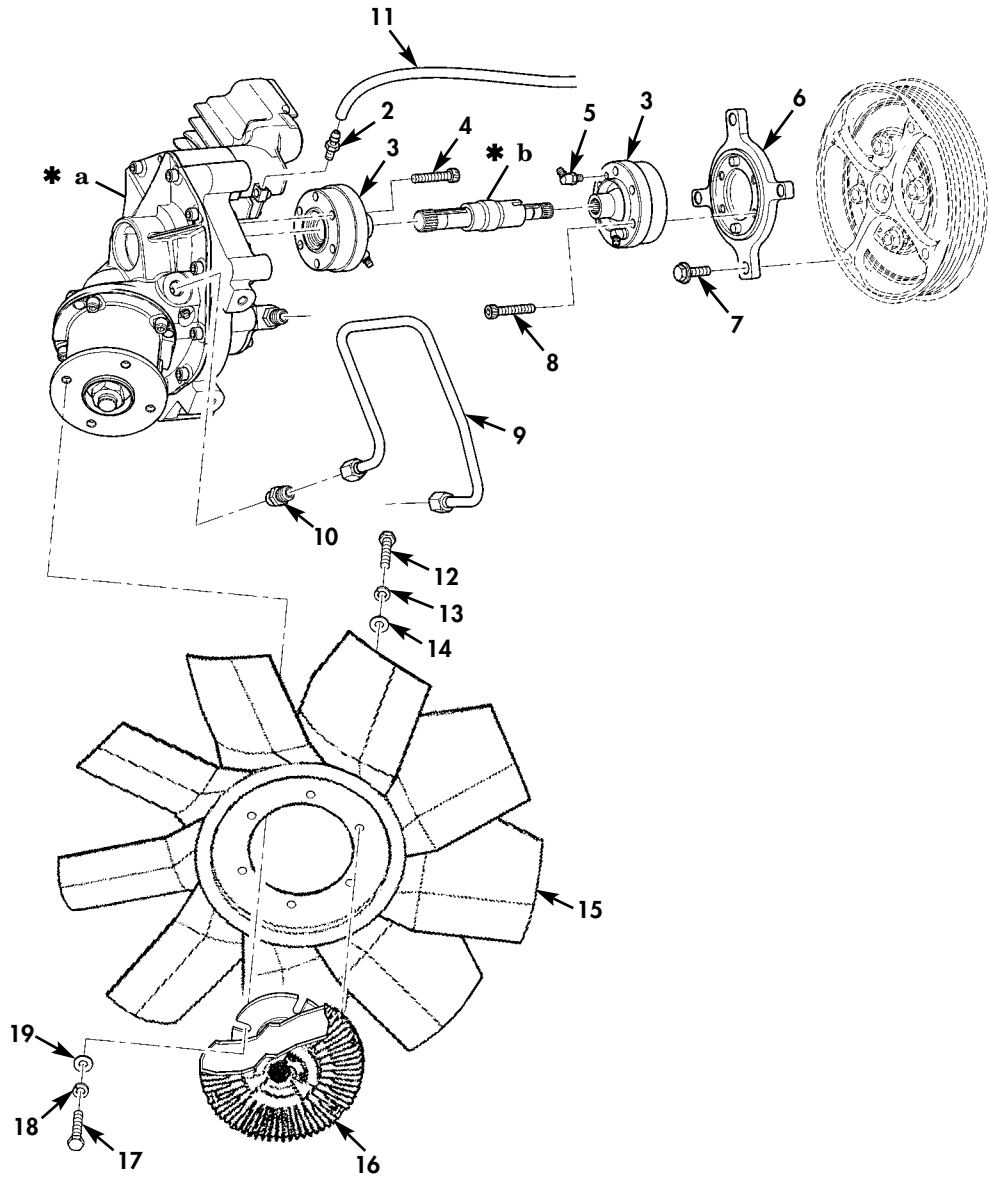
Figure 5. Thermostat, Water Crossover, and Attaching Hardware (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0503 WATER MANIFOLD, HEADERS, THERMOSTATS AND HOUSING GASKET						
FIG. 5 THERMOSTAT, WATER CROSSOVER, AND ATTACHING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	6685014449478	7X677	12559337	THERMOSTAT, FLOW CON.....	1
					UOC: TTA, UU2, UUA	
2	PAOZZ	5330014348611	7X677	12551591	GASKET.....	1
					UOC: TTA, UU2, UUA	
3	PAOZZ	2930011474198	7X677	14028918	WATER OUTLET, ENGINE.....	1
					UOC: TTA, UU2, UUA	
4	PAOZZ	5305013936311	24617	271153	SCREW, TAPPING 3/8-16 X 5/8.....	1
					UOC: TTA, UU2, UUA	
5	PAOZZ	5310014124013	24617	2436163	WASHER, FLAT 3/8.....	1
					UOC: TTA, UU2, UUA	
6	PAOZZ	5340008546730	80205	MS21333-124	CLAMP, LOOP.....	1
					UOC: TTA, UU2, UUA	
7	PAOZZ	5307011501227	7X677	14033946	STUD, SHOULDERED.....	1
					UOC: TTA, UU2, UUA	
8	PAOZZ		19207	12469288	BRACKET, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
9	PAOZZ	5310012067306	7X677	11500207	WASHER, LOCK 1/4.....	2
					UOC: TTA, UU2, UUA	
10	PAOZZ	5310013958747	80204	B18241B100F	NUT, PLAIN, HEXAGON 10-1.5 MM X 20 MM.	2
					UOC: TTA, UU2, UUA	
11	PAOZZ	5306011483666	7X677	14056165	BOLT, MACHINE 10-1.5 X 30 MM.....	1
					UOC: TTA, UU2, UUA	
12	PAOZZ	5310000806004	96906	MS27183-14	WASHER, FLAT.....	2
					UOC: TTA, UU2, UUA	
13	PAOZZ	5307014655796	19207	12339406-4	STUD, SHOULDERED.....	1
					UOC: TTA, UU2, UUA	
14	PAOZZ		34623	6031548	ELBOW, PIPE TO HOSE.....	1
					UOC: TTA, UU2, UUA	
15	PAOZZ	5330011490874	7X677	10137488	GASKET.....	2
					UOC: TTA, UU2, UUA	
16	PAOZZ		34623	11516435	CLAMP, LOOP.....	2
					UOC: TTA, UU2, UUA	
17	MOOZZ		7X677	10243629	HOSE, NONMETALLIC MAKE FROM HOSE, P/N SAE-20R1ECLTS-A-25XR, 5-1/2 INCHES LONG	1
					UOC: TTA, UU2, UUA	
18	PAOZZ	4730014452358	7X677	10183956	ADAPTER, STRAIGHT, PI.....	1
					UOC: TTA, UU2, UUA	
19	PAOZZ	5306011496280	7X677	1635490	BOLT, MACHINE 10-1.5 X 30 MM.....	3
					UOC: TTA, UU2, UUA	
20	PAOZZ	4730011482758	19207	12339396	ADAPTER, STRAIGHT, PI.....	1
					UOC: TTA, UU2, UUA	
21	PAOZZ	2930014607507	7X677	12554091	WATER OUTLET, ENGINE.....	1
					UOC: TTA, UU2, UUA	
22	PAOZZ	4730000412526	79470	1069X6	ELBOW, PIPE TO HOSE.....	1
					UOC: TTA, UU2, UUA	

END OF FIGURE

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2
thru
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* a PART OF ITEM 1
* b PART OF ITEM 3

Figure 6. Geared Fan Drive (Serial Number 300000 and Above) (Sheet 1 of 2).

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

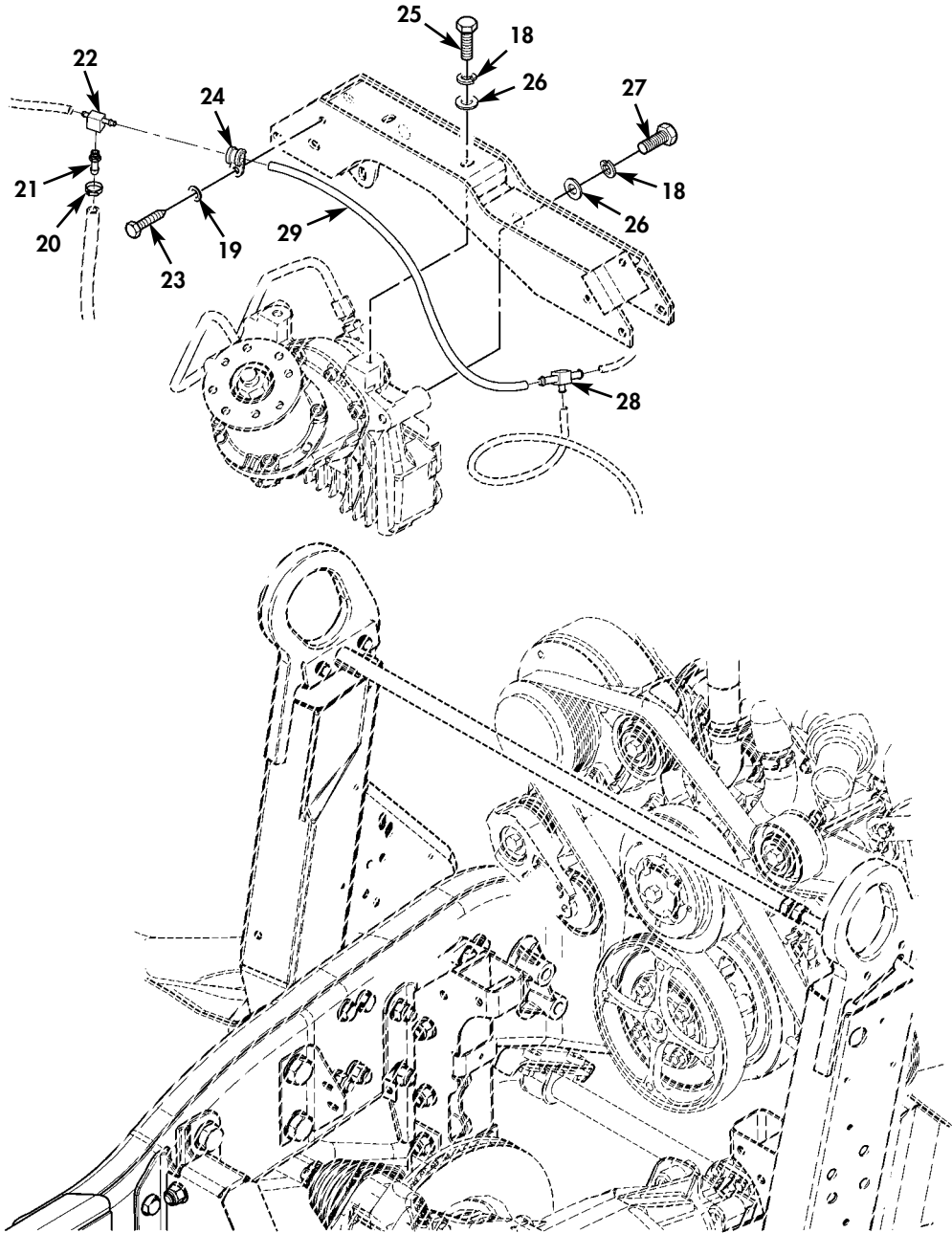


Figure 6. Geared Fan Drive (Serial Number 300000 and Above) (Sheet 2 of 2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0505 FAN ASSEMBLY						
FIG. 6 GEARED FFAN DRIVE (SERIAL NUMBER 30000 AND ABOVE)						
1	PAOFF		34623	6044183	CLUTCH,FAN,ENGINE COOLING.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	4730011855348	19207	12339978	.ADAPTER,STRAIGHT,PI.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ		34623	6025464	.GEAR,DRIVE ASSEMBLY.....	1
					UOC:TTA,UU2,UUA	
4	PFOZZ		34623	6041305	.SCREW,CAP,SOCKET HE M8-1.25 X 45 MM	6
					UOC:TTA,UU2,UUA	
5	PAOZZ		6H404	HUH2601	.FITTING,LUBRICATION.....	4
					UOC:TTA,UU2,UUA	
6	PAOZZ		34623	6022876	.ADAPTER,GEAR DRIVE	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5306012638889	19207	12340845-2	.BOLT,MACHINE.....	4
					UOC:TTA,UU2,UUA	
8	PFOZZ		34623	6030287	.SCREW,CAP,SOCKET HE M8- 1.00 X 40MM	4
					UOC:TTA,UU2,UUA	
9	PAOZZ		34623	6019008	.TUBE,METALLIC.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ	4730004919576	96906	MS51525-A6	.ADAPTER,STRAIGHT,TU.....	2
					UOC:TTA,UU2,UUA	
11	MOOZZ		19207	CPR104420-1-11IN	TUBING,NONMETALLIC MAKE FROM TUBING	1
					P/N CPR104420-1,11 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
12	PAOZZ	5306002264825	80204	B1821BH031C075N	BOLT,MACHINE 5/16-18 X 3/4.....	6
					UOC:TTA,UU2,UUA	
13	PAOZZ	5310004079566	80205	MS35338-45	WASHER,LOCK 5/16.....	6
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310000814219	96906	MS27183-12	WASHER,FLAT 5/16.....	6
					UOC:TTA,UU2,UUA	
15	PAOZZ		51377	4735-43782-18	IMPELLER,FAN,AXIAL.....	1
					UOC:TTA,UU2,UUA	
16	PAOZZ		51377	1210-09167-51	CLUTCH,FAN,ENGINE.....	1
					UOC:TTA,UU2,UUA	
17	PAOZZ	5305005434372	80204	B1821BH038C075N	SCREW,CAP,HEXAGON H 3/8-16 X 3/4....	4
					UOC:TTA,UU2,UUA	
18	PAOZZ	5310000045033	80205	MS35338-46	WASHER,LOCK 3/8.....	9
					UOC:TTA,UU2,UUA	
19	PAOZZ	5310000806004	96906	MS27183-14	WASHER,FLAT 3/8.....	5
					UOC:TTA,UU2,UUA	
20	PAOZZ	4730012102732	34623	5934854	CLAMP,HOSE.....	1
					UOC:TTA,UU2,UUA	
21	PAOZZ	4730013948345	34623	12340331	ADAPTER,STRAIGHT,PI.....	1
					UOC:TTA,UU2,UUA	
22	PAOZZ	4730011928086	01276	1077X4	TEE,PIPE TO HOSE.....	1
					UOC:TTA,UU2,UUA	
23	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	1
					UOC:TTA,UU2,UUA	
24	PAOZZ	5340000509077	96906	MS21333-119	CLAMP,LOOP.....	1
					UOC:TTA,UU2,UUA	

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
25	PAOZZ	5305005432866	80204	B1821BH038C250N	SCREW,CAP,HEXAGON H 3/8-16 X 2.50... UOC:TTA,UU2,UUA	2
26	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8..... UOC:TTA,UU2,UUA	5
27	PAOZZ	5305000680511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON H..... UOC:TTA,UU2,UUA	3
28	PAOZZ	4730010035105	93061	224-4-5/32	TEE,HOSE..... UOC:TTA,UU2,UUA	1
29	MOOZZ		19207	CPR104420-1-16IN	TUBING,NONMETALLIC MAKE FROM TUBE P/N CPR104420-1,16 INCHES LONG..... UOC:TTA,UU2,UUA	1

END OF FIGURE

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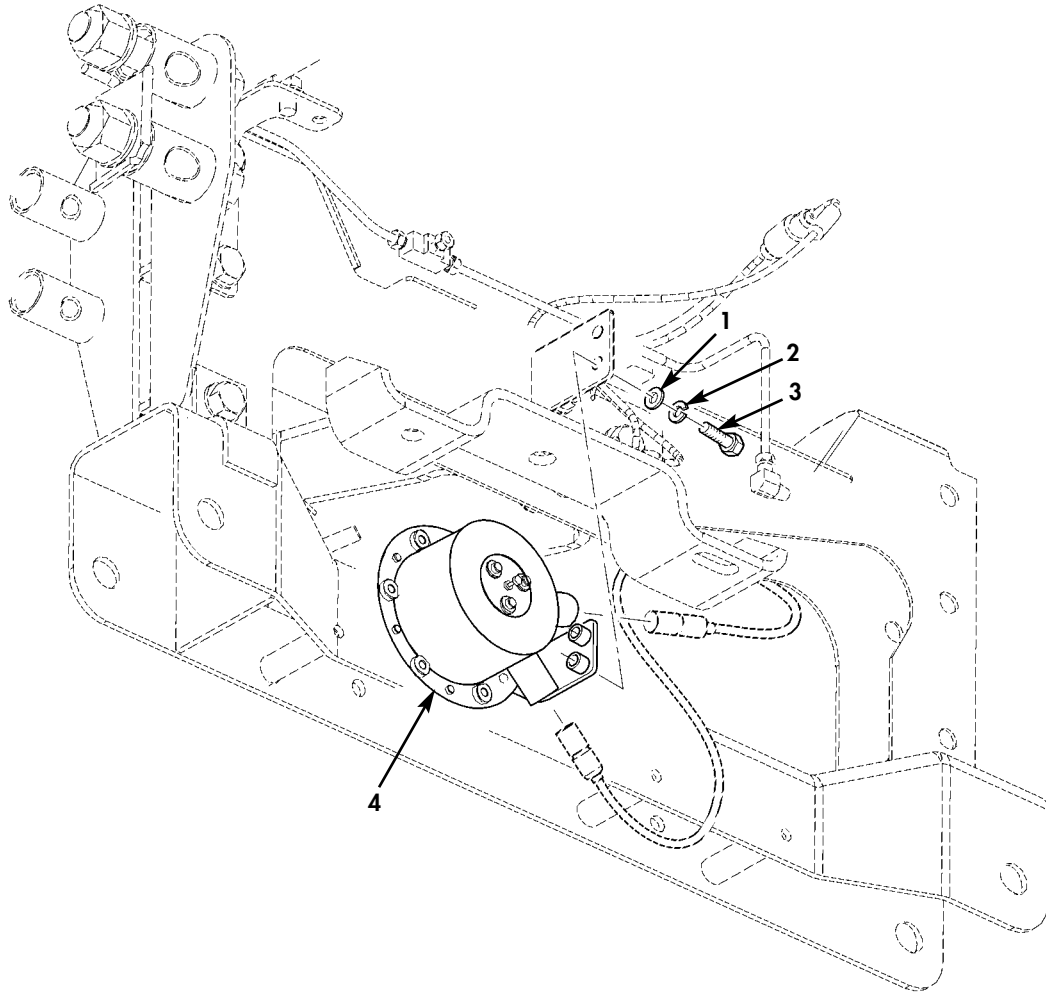


Figure 7. Horn Assembly and Mounting Hardware.

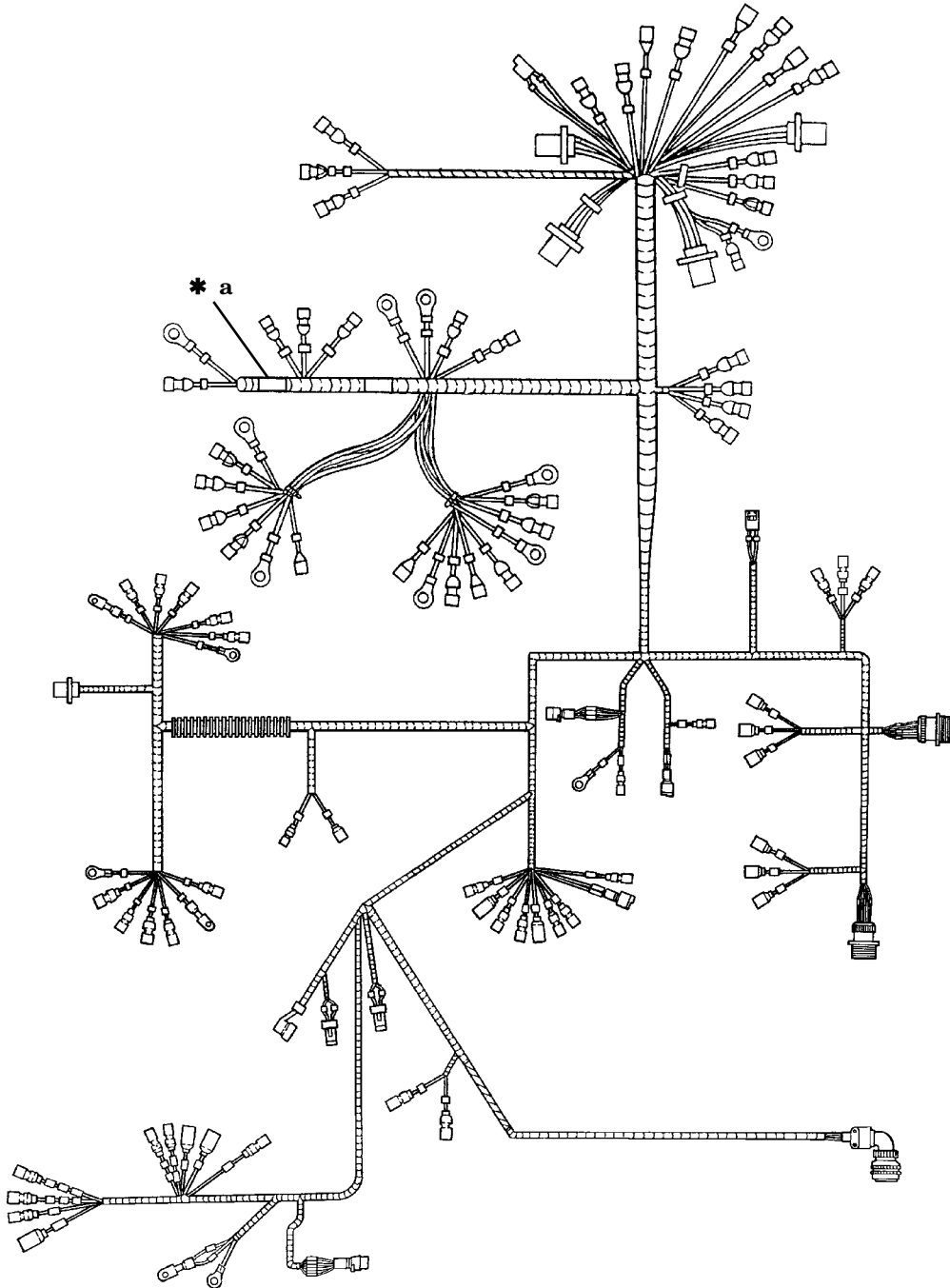
(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0611 HORN,SIREN						
FIG. 7 HORN ASSEMBLY AND MOUNTING HARDWARE						
1	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310005825965	80205	MS35338-44	WASHER,LOCK 1/4.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ	5305002253843	80204	B1821BH025C100N	SCREW,CAP,HEXAGON H 1/4-20 X 1.00...	2
					UOC:TTA,UU2,UUA	
4	PAOZZ	2590006830598	80252	9630	HORN,ELECTRICAL.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

1 —

2 thru 4



* a PART OF ITEM 1

Figure 8. Body Harness (Serial Number 300000 and Above) (Sheet 1 of 2).

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

1 —

2 thru 4

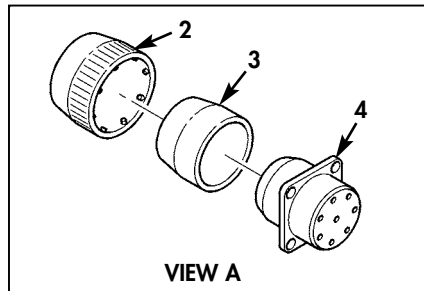
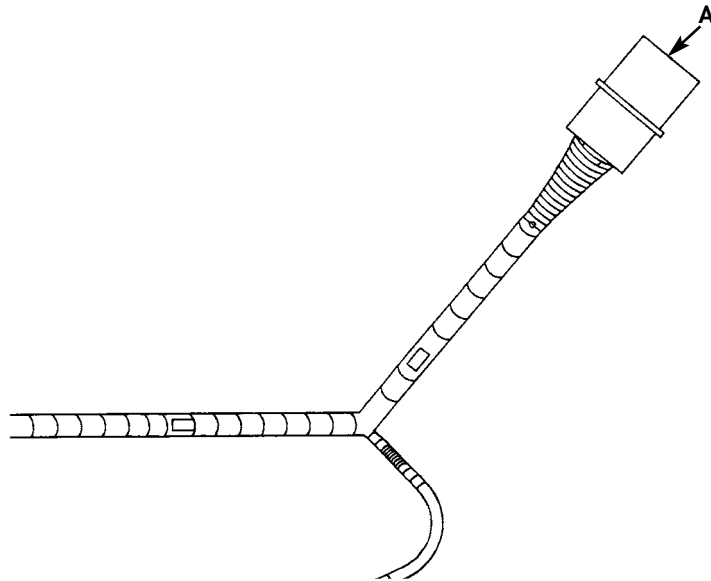


Figure 8. Body Harness (Serial Number 300000 and Above) (Sheet 2 of 2).

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 0613 HULL OR CHASSIS WIRING HARNESS	
					FIG. 8 BODY HARNESS (SERIAL NUMBER 300000 AND ABOVE)	
1	PAFFF		34623	6032473	CABLE,ASSEMBLY SPEC.....	1
					UOC:TTA,UU2,UUA	
2	PAFZZ	5935007723307	19204	7723307	.NUT,BUSHING RETAINE.....	1
					UOC:TTA,UU2,UUA	
3	PAFZZ	5365007722322	19207	7722322	.BUSHING,NONMETALLIC.....	1
					UOC:TTA,UU2,UUA	
4	PAFZZ	5935007722353	19207	7722353	.CONNECTOR,RECEPTACL.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

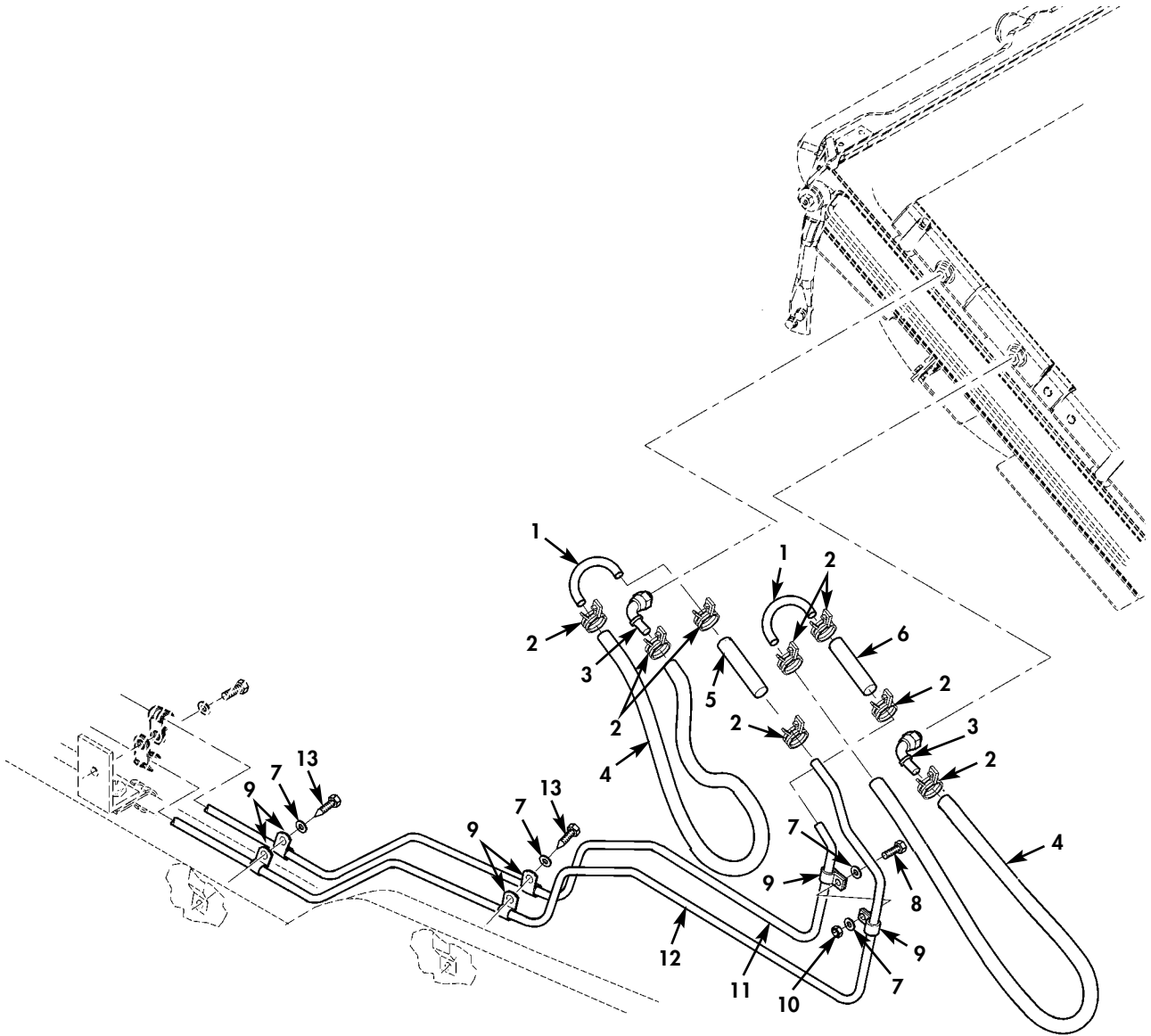


Figure 9. Transmission Oil Cooler Lines (Serial Number 300000 and Above) (Sheet 1 of 2).

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

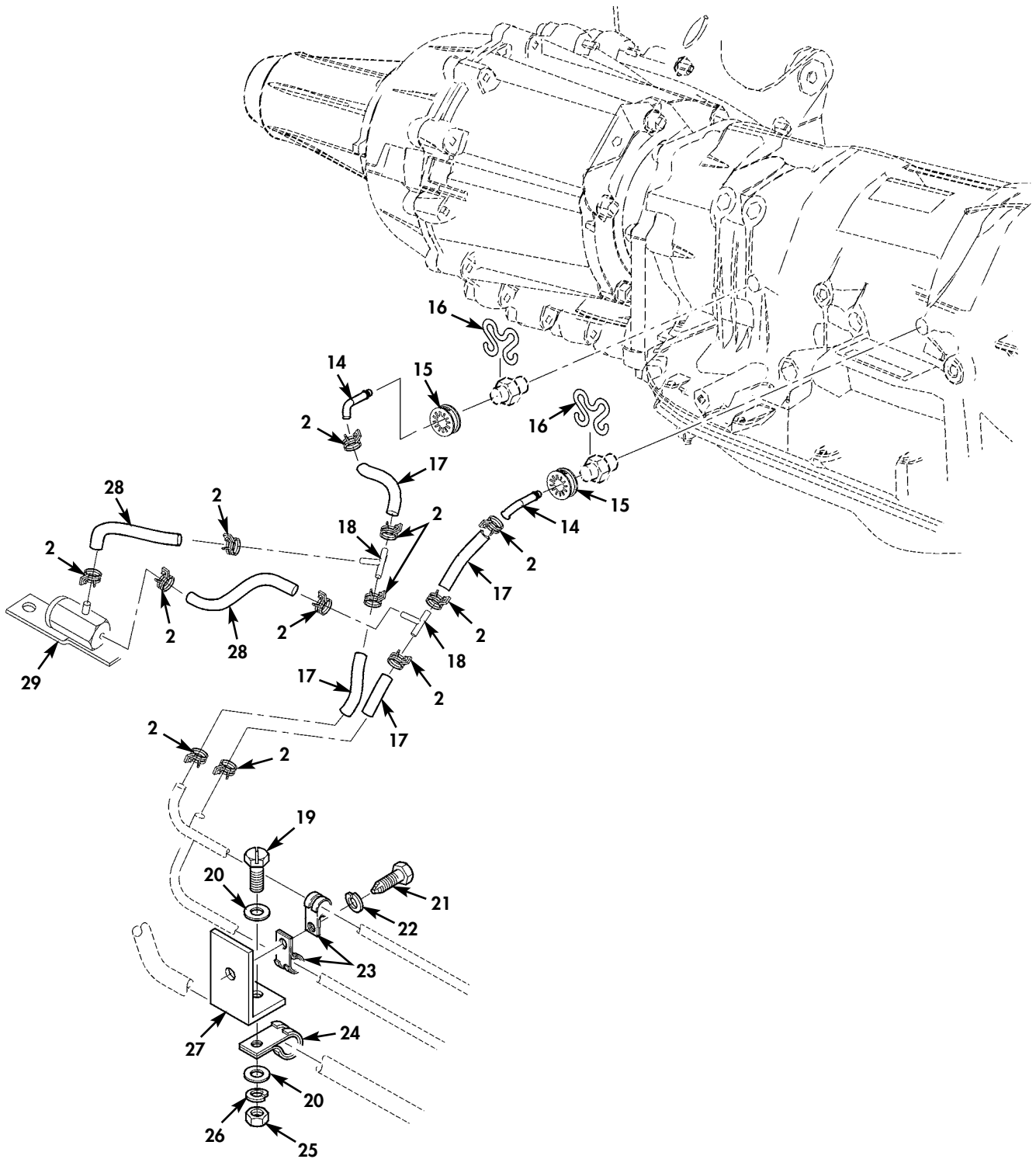


Figure 9. Transmission Oil Cooler Lines (Serial Number 300000 and Above) (Sheet 2 of 2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0721 COOLERS, PUMPS, MOTORS						
FIG. 9 TRANSMISSION OIL COOLER LINES (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	4710014731708	19207	12469380	TUBE,BENT,METALLIC.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5340014732692	34623	6008528	CLAMP,LOOP.....	20
					UOC:TTA,UU2,UUA	
3	PAOZZ	4730012217320	87373	33982-6-6	ELBOW,TUBE TO HOSE.....	2
					UOC:TTA,UU2,UUA	
4	MOOZZ		19207	12338330-14-23.5	HOSE,NONMETALLIC MAKE FROM HOSE,P/N	2
					5741209,23.5 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
5	MOOZZ		19207	12338330-1-3IN	HOSE,NONMETALLIC MAKE FROM HOSE P/N	1
					5741209,3 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
6	MOOZZ		19207	12338330-4-5IN	HOSE,NONMETALLIC MAKE FROM HOSE P/N	1
					5741209,5.25 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT.....	4
					UOC:TTA,UU2,UUA	
8	PAOZZ	5305000680508	80204	B1821BH025C075N	SCREW,CAP,HEXAGON H 1/4-20 X 3/4....	1
					UOC:TTA,UU2,UUA	
9	PAOZZ	5340008091492	80205	MS21333-100	CLAMP,LOOP.....	6
					UOC:TTA,UU2,UUA	
10	PAOZZ	5310000614650	81349	M45913/3-4CG8C	NUT,SELF-LOCKING,HE 1/4-20.....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ	4710011883516	34623	5582817	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	4710011883515	34623	5582819	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
13	PAOZZ	5305012727422	12361	7-790-140853	SCREW,TAPPING 1/4-20 X 1/2.....	2
					UOC:TTA,UU2,UUA	
14	PAOZZ	4710014398165	34623	EC-06008597	TUBE,BENT,METALLIC.....	2
					UOC:TTA,UU2,UUA	
15	PAOZZ	5340014420308	34623	6008953	COVER,ACCESS.....	2
					UOC:TTA,UU2,UUA	
16	PAOZZ	5340014744011	7X677	24205103	CLIP,RETAINING.....	2
					UOC:TTA,UU2,UUA	
17	MOOZZ		34623	12447073-4IN	HOSE,NONMETALLIC MAKE FROM HOSE,P/N	4
					5741209,4.00 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
18	PAOZZ	4730014091204	34623	12447077	TEE,HOSE.....	2
					UOC:TTA,UU2,UUA	
19	PAOZZ	5305010062053	96906	MS51849-75	SCREW,MACHINE 10-24 X 5/8.....	2
					UOC:TTA,UU2,UUA	
20	PAOZZ	5310004022778	24617	9416128	WASHER,FLAT #10.....	4
					UOC:TTA,UU2,UUA	
21	PAOZZ	5305012364349	7X677	172482	SCREW,TAPPING 3/8-16 X 5/8.....	2
					UOC:TTA,UU2,UUA	
22	PAOZZ	5310000045033	80205	MS35338-46	WASHER,LOCK 3/8.....	2
					UOC:TTA,UU2,UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
23	PAOZZ	5340009546014	80205	MS21333-121	CLAMP, LOOP..... UOC: TTA, UU2, UUA	4
24	PAOZZ	5340000881254	80205	MS21333-104	CLAMP, LOOP..... UOC: TTA, UU2, UUA	2
25	PAOZZ	5310009349758	80205	MS35649-202	NUT, PLAIN, HEXAGON 10-24..... UOC: TTA, UU2, UUA	2
26	PAOZZ	5310007217809	96906	MS35340-43	WASHER, LOCK #10..... UOC: TTA, UU2, UUA	2
27	PFOZZ		34623	6043068	BRACKET, VEHICULAR C FRONT..... UOC: TTA, UU2, UUA	1
27	PFOZZ		34623	6043069	BRACKET, VEHICULAR C REAR..... UOC: TTA, UU2, UUA	1
28	MOOZZ		19207	12338330-2-7.25	HOSE, NONMETALLIC MAKE FROM P/N 5741209, 7.25 INCHES LONG..... UOC: TTA, UU2, UUA	2
29	PAOZZ	4820014566257	19207	12447076	VALVE, REGULATING, FL..... UOC: TTA, UU2, UUA	1

END OF FIGURE

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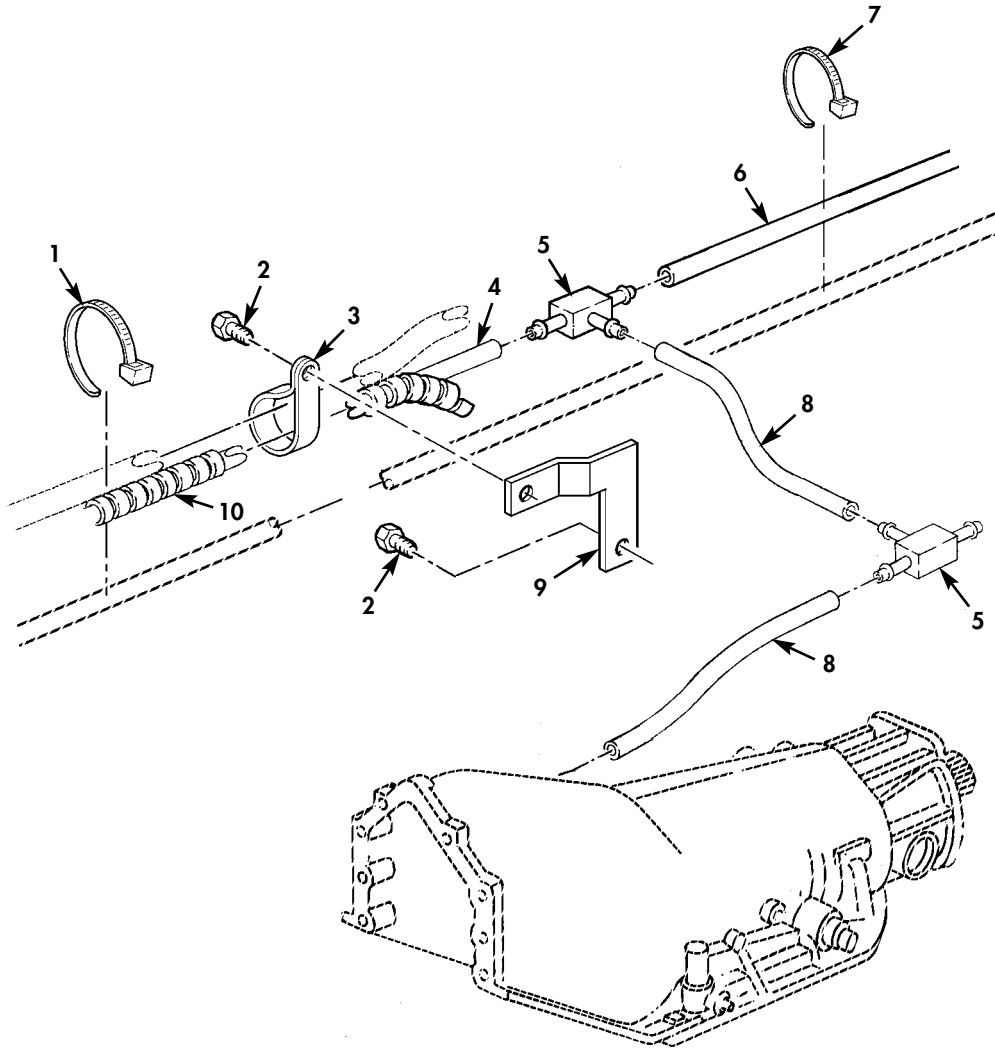


Figure 10. Transmission Vent Lines and Attaching Hardware (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0721 COOLERS, PUMPS, MOTORS						
FIG. 10 TRANSMISSION VENT LINES AND ATTACHING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5975015179077	06641	PTL21-C76	STRAP,TIEDOWN ELECT.....	3
					UOC:TTA,UU2,UUA	
2	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ	5340007255280	80205	MS21333-125	CLAMP,LOOP.....	1
					UOC:TTA,UU2,UUA	
4	MOOZZ		19207	CPR104420-1-41IN	TUBE MAKE FROM TUBING NONMETALLIC P/N CPR104420-1,41 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ	4730010035105	93061	224-4-4-5/32	TEE,HOSE.....	2
					UOC:TTA,UU2,UUA	
6	MOOZZ		19207	CPR104420-1-62IN	TUBE MAKE FROM TUBING NONMETALLIC P/N CPR104420-1,62 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5975009856630	96906	MS3367-3-0	STRAP,TIEDOWN,ELECT.....	5
					UOC:TTA,UU2,UUA	
8	MOOZZ		19207	CPR104420-1-11IN	TUBING,NONMETALLIC MAKE FROM TUBING NONMETALLIC P/N CPR104420-1,11 INCHES LONG.....	2
					UOC:TTA,UU2,UUA	
9	PAOZZ	5340014120867	19207	12447165	BRACKET,MOUNTING.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ	5640014791272	34623	6005714	INSULATION SLEEVING.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
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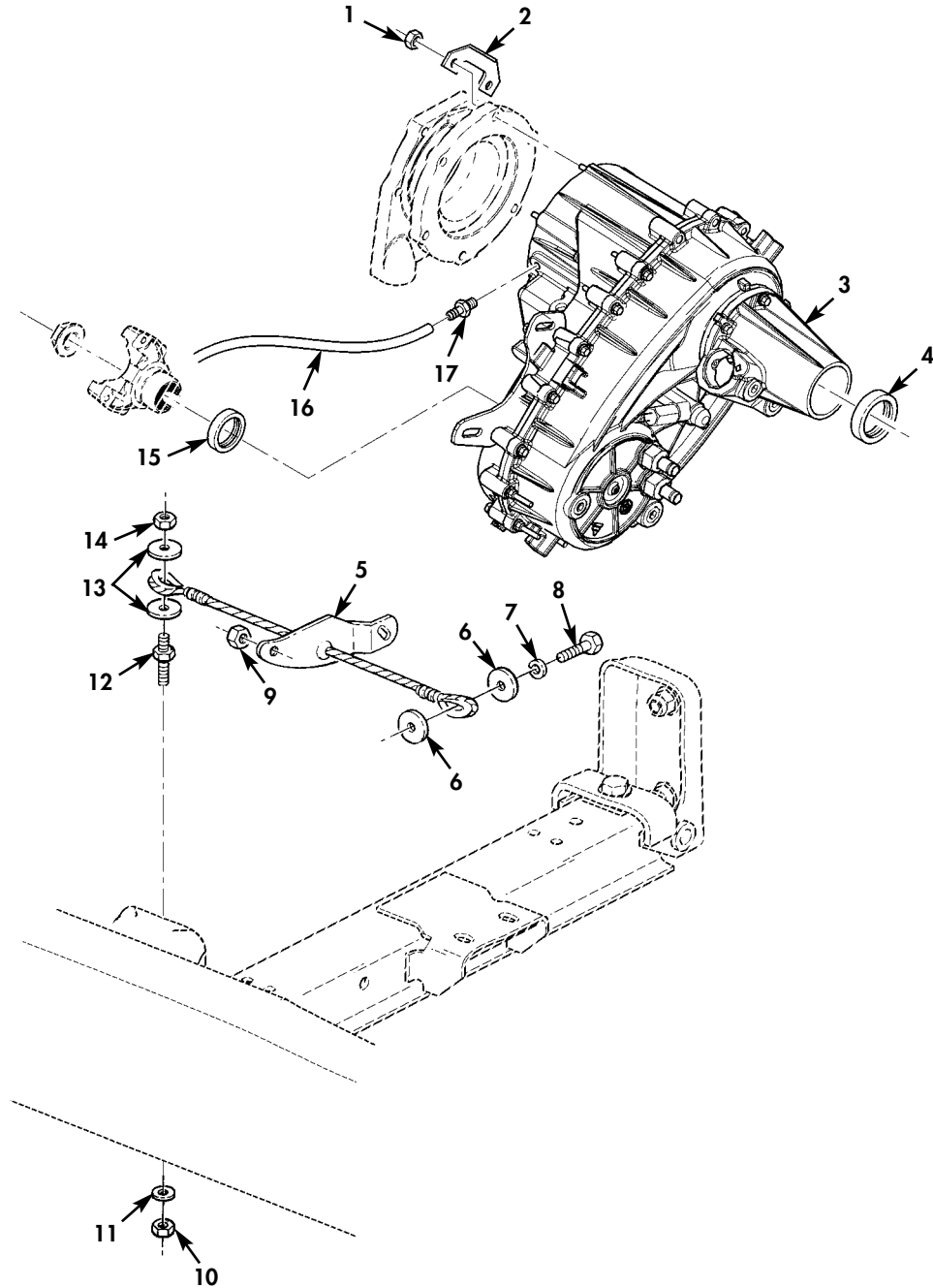


Figure 11. Transfer Assembly (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0801 POWER TRANSFER AND FINAL DRIVE ASSEMBLIES						
FIG. 11 TRANSFER ASSEMBLY (SERIAL NUMBER 300000 AND ABOVE)						
1	PAFZZ	5310004478774	96906	MS51988-8	NUT, SELF-LOCKING, EX 3/8-24.....	2
					UOC: TTA, UU2, UUA	
2	PFFZZ		34623	6032857	BRACKET, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
3	PAFHH		76760	54815	TRANSFER TRANSMISSI.....	1
					UOC: TTA, UU2, UUA	
4	PAHZZ		76760	22507	SEAL, PLAIN REAR OUT.....	1
					UOC: TTA, UU2, UUA	
5	PAFZZ		34623	6033410	WIRE ROPE ASSEMBLY.....	1
					UOC: TTA, UU2, UUA	
6	PAFZZ	5310014089593	7X677	9428839	WASHER, FLAT 1/2.....	2
					UOC: TTA, UU2, UUA	
7	PAFZZ	5310000116121	96906	MS35338-67	WASHER, LOCK 1/2.....	1
					UOC: TTA, UU2, UUA	
8	PAFZZ	5305000712070	80204	B1821BH050C175N	SCREW, CAP, HEXAGON H 1/2-13 X 1.75...	1
					UOC: TTA, UU2, UUA	
9	PAFZZ	5310011430512	73342	29520052	NUT, SELF-LOCKING, HE 3/8-16.....	2
					UOC: TTA, UU2, UUA	
10	PAFZZ	5310000443342	19204	8712289-5	NUT, SELF-LOCKING, HE 9/16-12.....	1
					UOC: TTA, UU2, UUA	
11	PAFZZ	5310000685285	96906	MS27183-20	WASHER, FLAT 9/16.....	1
					UOC: TTA, UU2, UUA	
12	PAFZZ	5307014503072	19207	12447177	STUD, SHOULDERED 7/16-14 X 3.00.....	1
					UOC: TTA, UU2, UUA	
13	PAFZZ	5310012538437	19207	12340058	WASHER, FLAT 9/16.....	2
					UOC: TTA, UU2, UUA	
14	PAFZZ	5310011504003	24617	9422299	NUT, SELF-LOCKING, HE 7/16-14.....	1
					UOC: TTA, UU2, UUA	
15	PAHZZ	5330014133713	76760	19016	SEAL, PLAIN ENCASED.....	1
					UOC: TTA, UU2, UUA	
16	MOOZZ		19207	CPR104420-1-17	TUBING, NONMETALLIC MAKE FROM TUBE, P/N CPR104420-1, 17 INCHES LONG.....	1
					UOC: TTA, UU2, UUA	
17	PAFZZ	4730011855348	19207	12339978	ADAPTER, STRAIGHT, PI.....	1
					UOC: TTA, UU2, UUA	

END OF FIGURE

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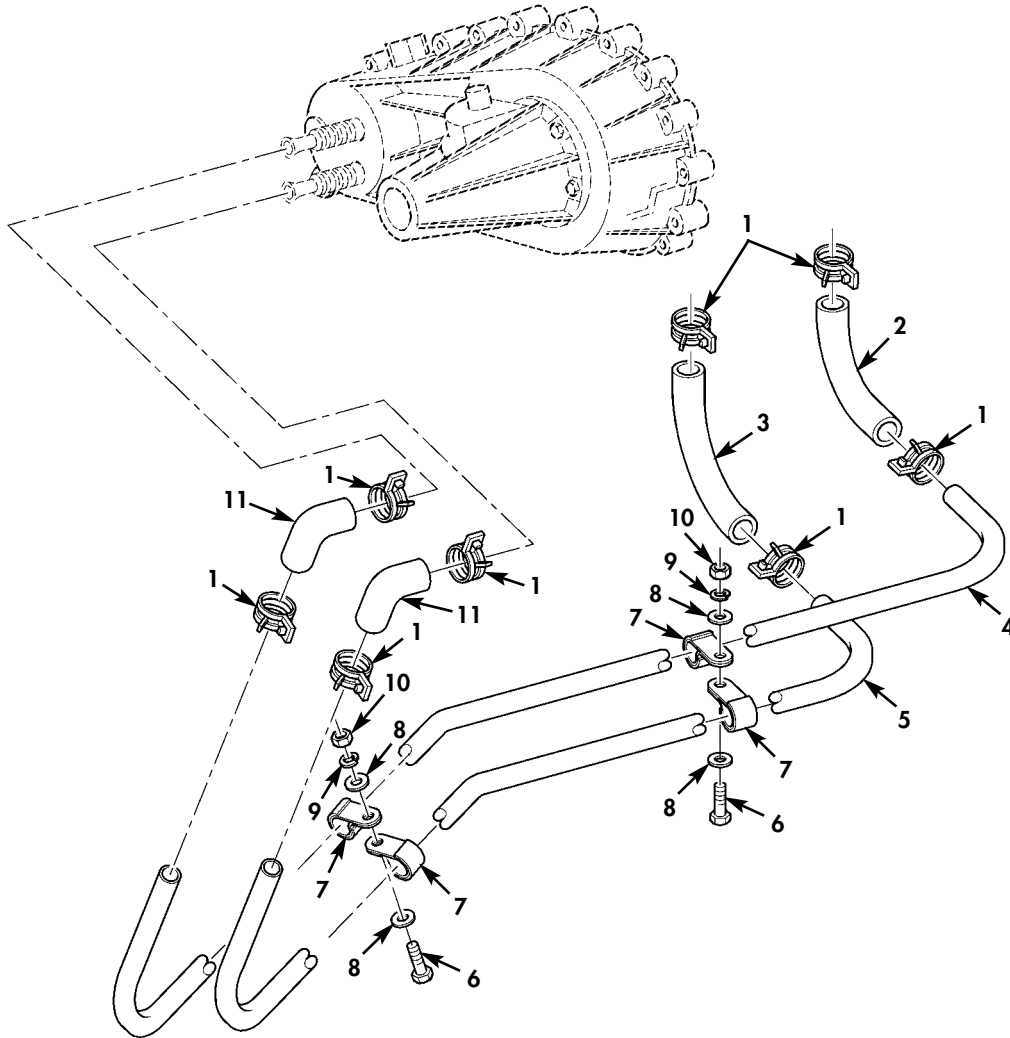


Figure 12. Differential and Transfer Case Cooler Lines (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 0801 POWER TRANSFER AND FINAL DRIVE ASSEMBLIES						
FIG. 12 DIFFERENTIAL AND TRANSFER CASE COOLER LINES (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		34623	6017845	CLAMP, LOOP.....	8
					UOC:TTA,UU2,UUA	
2	MOOZZ		34623	6042796-7.5IN	HOSE, NONMETALLIC MAKE FROM P/N MS521301A203R 7.5 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
3	MOOZZ		34623	6043355-20.5IN	HOSE, NONMETALLIC MAKE FROM HOSE P/N MS521301A203R, 20.5 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ		34623	6032849	TUBE, BENT, METALLIC.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ		34623	6032848	TUBE, BENT, METALLIC.....	1
					UOC:TTA,UU2,UUA	
6	PAOZZ	5305000680510	80204	B1821BH038C100N	SCREW, CAP, HEXAGON H 3/8-16 X 1.00...	2
					UOC:TTA,UU2,UUA	
7	PAOZZ	5340007255280	80205	MS21333-125	CLAMP, LOOP.....	4
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310014124013	24617	2436163	WASHER, FLAT 3/8.....	4
					UOC:TTA,UU2,UUA	
9	PAOZZ	5310000045033	80205	MS35338-46	WASHER, LOCK 3/8.....	2
					UOC:TTA,UU2,UUA	
10	PAOZZ	5310007610654	96906	MS51967-9	NUT, PLAIN, HEXAGON 3/8-16.....	2
					UOC:TTA,UU2,UUA	
11	PAOZZ	4720011892218	19207	12339251	HOSE, PREFORMED.....	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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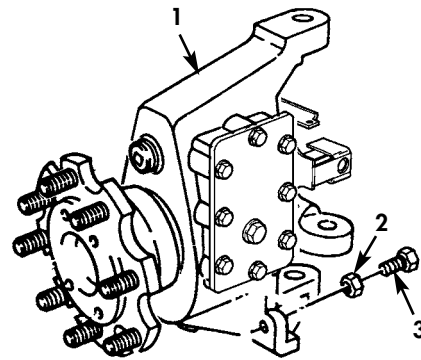


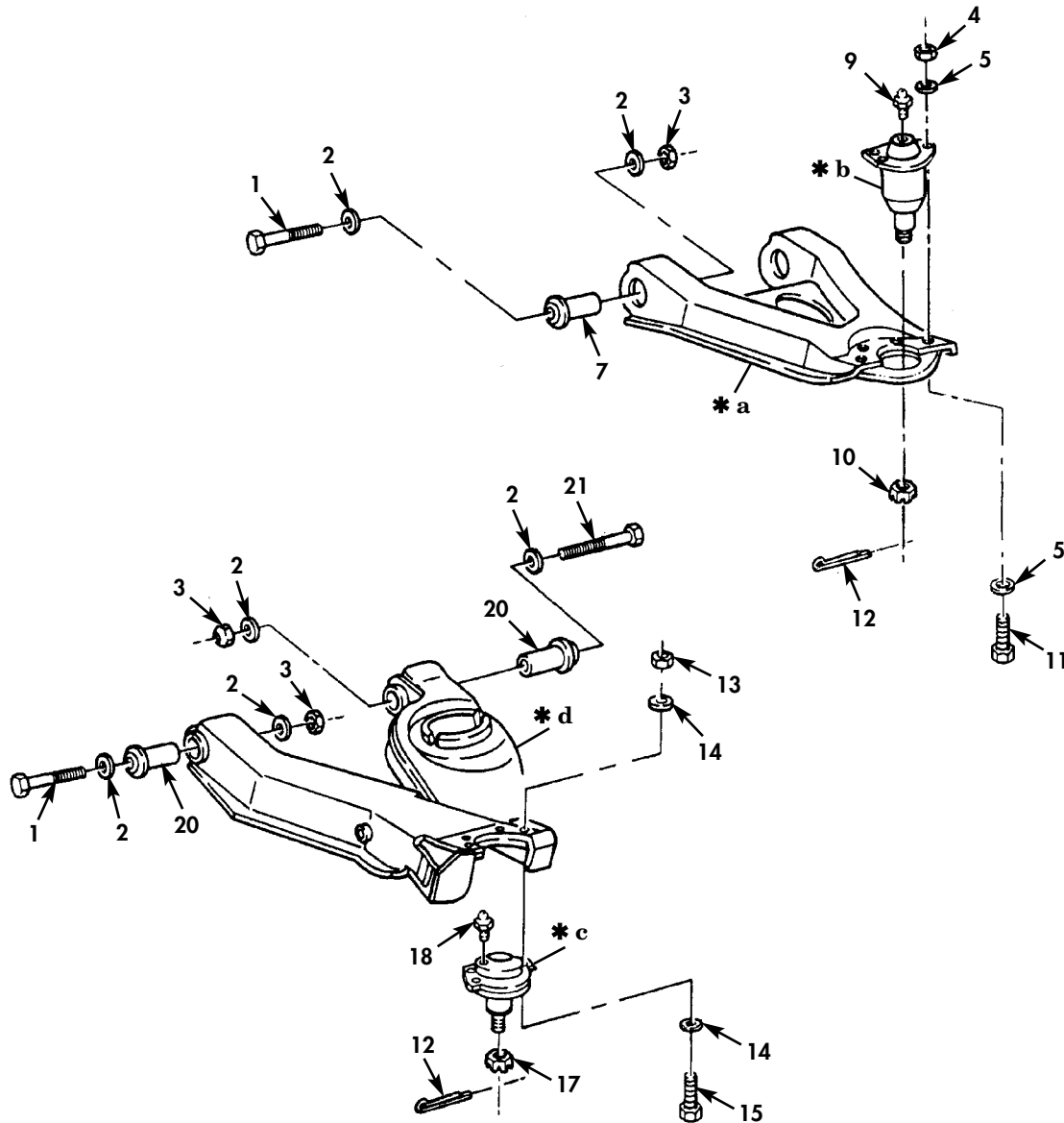
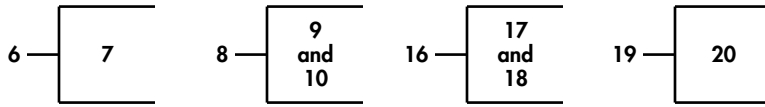
Figure 13. Front Knuckle and Geared Hub Assembly (Serial Number 300000 and Above).

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 1004 STEERING AND LEANING WHEEL MECHANISM	
					FIG. 13 FRONT KNUCKLE AND GEARED HUB ASSEMBLY (SERIAL NUMBER 300000 AND ABOVE)	
1	PAOFF		34623	6041986	HUB BODY ASSEMBLY,F.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310012729981	96906	MS51471-01	NUT,PLAIN,HEXAGON 1/2-13.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ	5305000712069	80204	B1821BH050C150N	SCREW,CAP,HEXAGON H 1/2-13 X 1.50...	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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- * a PART OF ITEM 6
- * b PART OF ITEM 8
- * c PART OF ITEM 16
- * d PART OF ITEM 19

Figure 14. Front Control Arms, Ball Joints, and Mounting Hardware (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1004 STEERING AND LEANING WHEEL MECHANISM						
FIG. 14 FRONT CONTROL ARMS, BALL JOINTS, AND MOUNTING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5305009474361	80204	B1821BH075C475N	SCREW,CAP,HEXAGON H 3/4-10 X 4.75... UOC:TTA,UU2,UUA	6
2	PAOZZ	5310011474052	23862	2436168	WASHER,FLAT 3/4..... UOC:TTA,UU2,UUA	16
3	PAOZZ	5310004093333	81349	M45913/3-12CG8C	NUT,SELF-LOCKING,HE 3/4-10..... UOC:TTA,UU2,UUA	8
4	PAOZZ	5310008140672	96906	M45912/3-6FG8C	NUT,SELF-LOCKING,HE 3/8-24..... UOC:TTA,UU2,UUA	8
5	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8..... UOC:TTA,UU2,UUA	16
6	PAOFF	2530015548317	34623	6030624	ARM,CONTROL,VEHICUL UPPER,L.H..... UOC:TTA,UU2,UUA	1
6	PAOFF	2530015548340	34623	6030626	ARM,CONTROL,VEHICUL UPPER,R.H..... UOC:TTA,UU2,UUA	1
7	PAFZZ		76445	869370	.BUSHING,SLEEVE UOC:TTA,UU2,UUA	2
8	PAOZZ	2530015548288	34623	6026749	PARTS KIT,BALL JOIN UPPER..... UOC:TTA,UU2,UUA	2
9	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION..... UOC:TTA,UU2,UUA	1
10	PAOZZ	5310008507004	96906	MS35692-54	.NUT,PLAIN,SLOTTED,H 5/8-18..... UOC:TTA,UU2,UUA	1
11	PAOZZ	5305014125994	19207	12460159	SCREW,CAP,HEXAGON H 3/8-24 X 5/8.... UOC:TTA,UU2,UUA	8
12	PAOZZ	5315000120123	15434	C2798	PIN,COTTER 1/8 X 1-1/4..... UOC:TTA,UU2,UUA	4
13	PAFZZ	5310011504003	24617	9422299	NUT,SELF-LOCKING,HE 7/16-14..... UOC:TTA,UU2,UUA	8
14	PAOZZ	5310008094085	96906	MS27183-16	WASHER,FLAT 7/16..... UOC:TTA,UU2,UUA	16
15	PAOZZ	5305000712055	80204	B1821BH044C150N	SCREW,CAP,HEXAGON H 7/16-14 X 1.50.. UOC:TTA,UU2,UUA	8
16	PAOZZ	2530015548307	34623	6030616	PARTS KIT,BALL JOIN LOWER..... UOC:TTA,UU2,UUA	2
17	PAOZZ	5310008507004	96906	MS35692-54	.NUT,PLAIN,SLOTTED,H 5/8-18..... UOC:TTA,UU2,UUA	1
18	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION..... UOC:TTA,UU2,UUA	1
19	PAOFF	2530015548336	34623	6030627	ARM,CONTROL,VEHICUL LOWER R.H..... UOC:TTA,UU2,UUA	1
19	PAOFF	2530015548270	34623	6030629	ARM,CONTROL,VEHICUL LOWER L.H..... UOC:TTA,UU2,UUA	1
20	PAFZZ		76445	869370	.BUSHING,SLEEVE UOC:TTA,UU2,UUA	2

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
21	PAOZZ	5305009474362	80204	B1821BH075C500N	SCREW,CAP,HEXAGON H 3/4-10 X 5.00... UOC:TTA,UU2,UUA	2

END OF FIGURE

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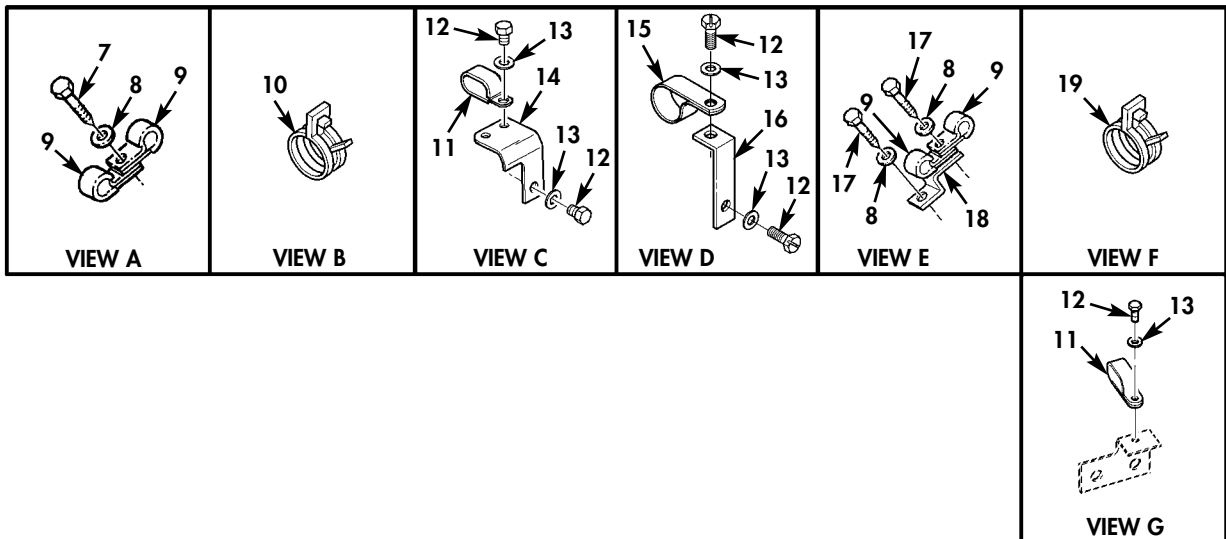
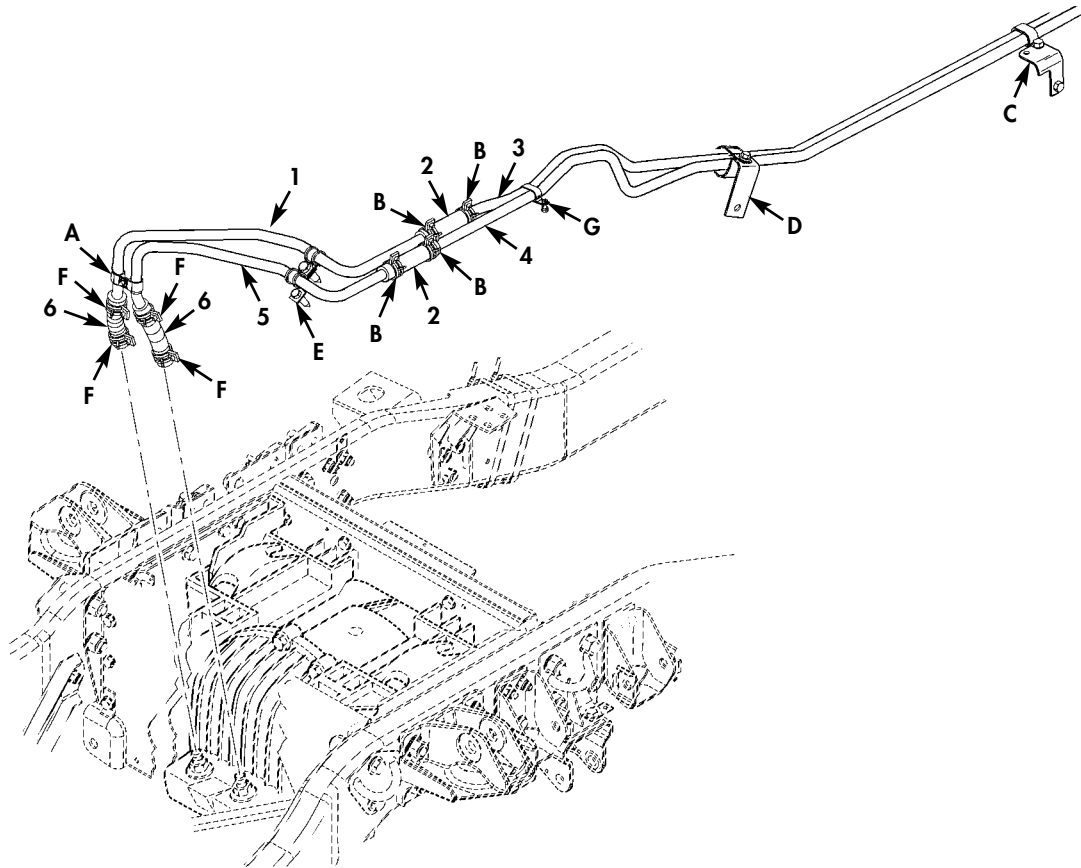


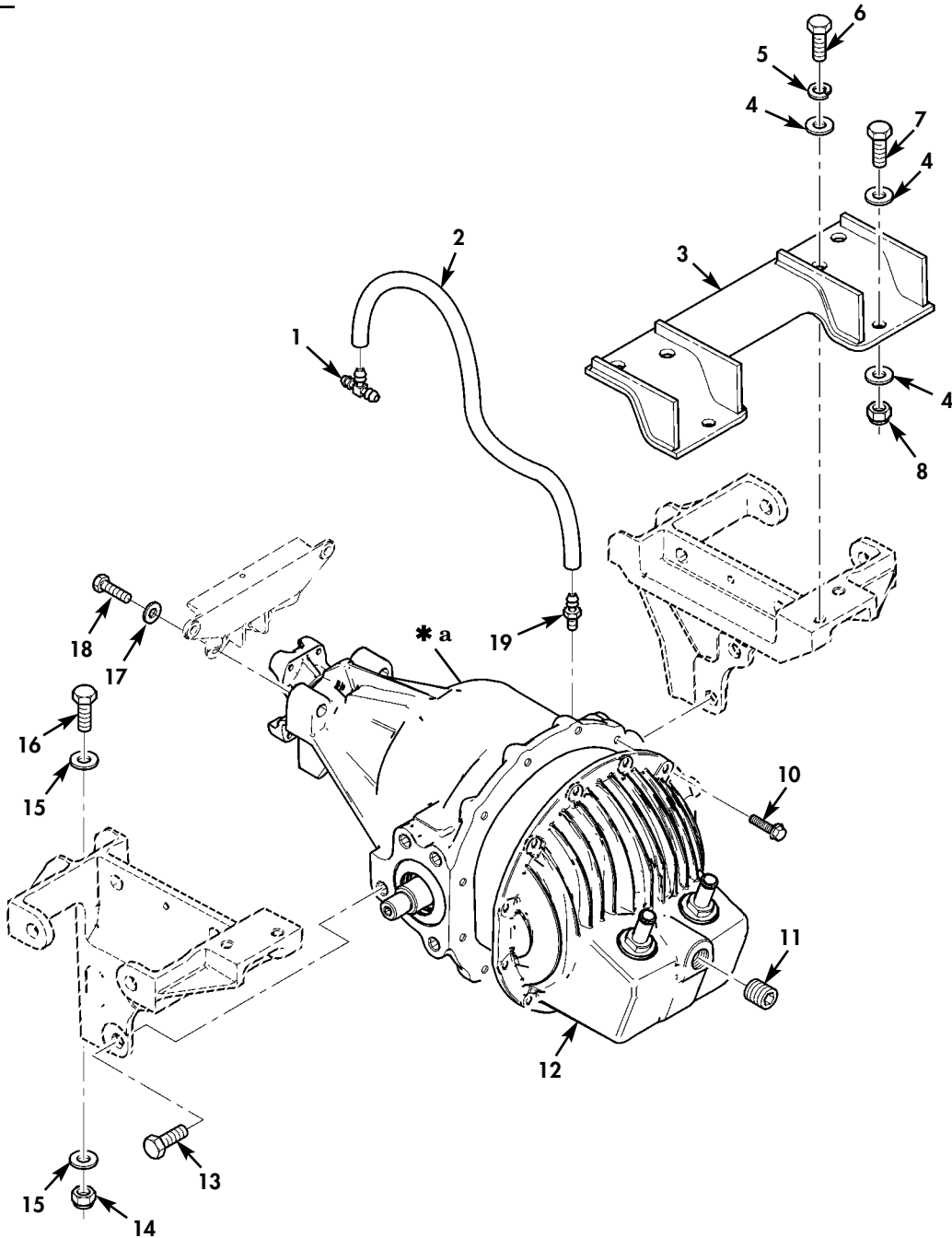
Figure 15. Rear Differential Cooler Hoses and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1102 DIFFERENTIAL						
FIG. 15 REAR DIFFERENTIAL COOLER HOSES AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		34623	6042830	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
2	MOOZZ		34623	6033138-4.5IN	HOSE,NONMETALLIC MAKE FROM P/N MS521301A203R,4.5 INCHES LONG.....	2
					UOC:TTA,UU2,UUA	
3	PAOZZ		34623	6039248	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ		34623	6039247	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ		34623	6042831	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
6	MOOZZ		34623	6042796-7.5IN	HOSE,NONMETALLIC MAKE FROM P/N MS521301A203R,7.5 INCHES LONG.....	2
					UOC:TTA,UU2,UUA	
7	PAOZZ	5305011985510	7X677	9420352	SCREW,TAPPING 1/4-14 X 5/8.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	3
					UOC:TTA,UU2,UUA	
9	PAOZZ	5340000881254	80205	MS21333-104	CLAMP,LOOP.....	4
					UOC:TTA,UU2,UUA	
10	PAOZZ		34623	6017845	CLAMP,LOOP.....	4
					UOC:TTA,UU2,UUA	
11	PAOZZ	5340007022848	80205	MS21333-128	CLAMP,LOOP.....	2
					UOC:TTA,UU2,UUA	
12	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	5
					UOC:TTA,UU2,UUA	
13	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8.....	5
					UOC:TTA,UU2,UUA	
14	PFOZZ		34623	6043340	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
15	PAOZZ	5340007385182	19207	7385182	CLAMP,LOOP.....	1
					UOC:TTA,UU2,UUA	
16	PAOZZ	5340011922256	19207	12338663	BRACKET,ANGLE.....	1
					UOC:TTA,UU2,UUA	
17	PAOZZ	5305001913640	96906	MS51851-85	SCREW,TAPPING 1/4-20 X 5/8.....	2
					UOC:TTA,UU2,UUA	
18	PFOZZ		34623	6042857	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
19	PAOZZ	5340014732692	34623	6008528	CLAMP,LOOP.....	4
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

9 —
10
thru
12



* a PART OF ITEM 9

Figure 16. Rear Differential Assembly and Related Parts (Serial Number 30000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1102 DIFFERENTIAL						
FIG. 16 REAR DIFFERENTIAL ASSEMBLY AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	4730010035105	93061	224-4-4-5/32	TEE,HOSE.....	1
					UOC:TTA,UU2,UUA	
2	MOOZZ		19207	CPR104420-1-17	TUBING,NONMETALLIC MAKE FROM TUBE, P/N CPR104420-1, 17 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ		34623	6042370	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
4	PAFZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2.....	8
					UOC:TTA,UU2,UUA	
5	PAFZZ	5310005845272	80205	MS35338-48	WASHER,LOCK 1/2.....	4
					UOC:TTA,UU2,UUA	
6	PAFZZ	5305000712069	80204	B1821BH050C150N	SCREW,CAP,HEXAGON H 1/2-13 X 1.50...	4
					UOC:TTA,UU2,UUA	
7	PAFZZ	5305000712068	80204	B1821BH050C138N	SCREW,CAP,HEXAGON H 1/2-13 X 1.375..	2
					UOC:TTA,UU2,UUA	
8	PAFZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13.....	2
					UOC:TTA,UU2,UUA	
9	PAFHH		97271	606279-2	DIFFERENTIAL,DRIVIN.....	1
					UOC:TTA,UU2,UUA	
10	PAFZZ	5306014886213	19207	12448438-18	.BOLT,MACHINE 5/16-18 X 1.00.....	12
					UOC:TTA,UU2,UUA	
11	PAOZZ	4730012573348	34623	5597050	.PLUG,PIPE.....	1
					UOC:TTA,UU2,UUA	
12	PAFZZ		92721	85914	.COVER,ACCESS.....	1
					UOC:TTA,UU2,UUA	
13	PAFZZ	5305000712513	80204	B1821BH025C250N	SCREW,CAP,HEXAGON H 1/4-20 X 2.50...	4
					UOC:TTA,UU2,UUA	
14	PAFZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13.....	2
					UOC:TTA,UU2,UUA	
15	PAFZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2.....	4
					UOC:TTA,UU2,UUA	
16	PAFZZ	5305002253841	80204	B1821BH025C138N	SCREW,CAP,HEXAGON H 1/4-20 X 1.375..	2
					UOC:TTA,UU2,UUA	
17	PAOZZ	5310011517347	24617	2436167	WASHER,FLAT 5/8.....	2
					UOC:TTA,UU2,UUA	
18	PAFZZ	5305007247220	80204	B1821BH063C150N	SCREW,CAP,HEXAGON H 5/8-11 X 1.50...	2
					UOC:TTA,UU2,UUA	
19	PAFZZ	4730011855348	19207	12339978	ADAPTER,STRAIGHT,PI.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

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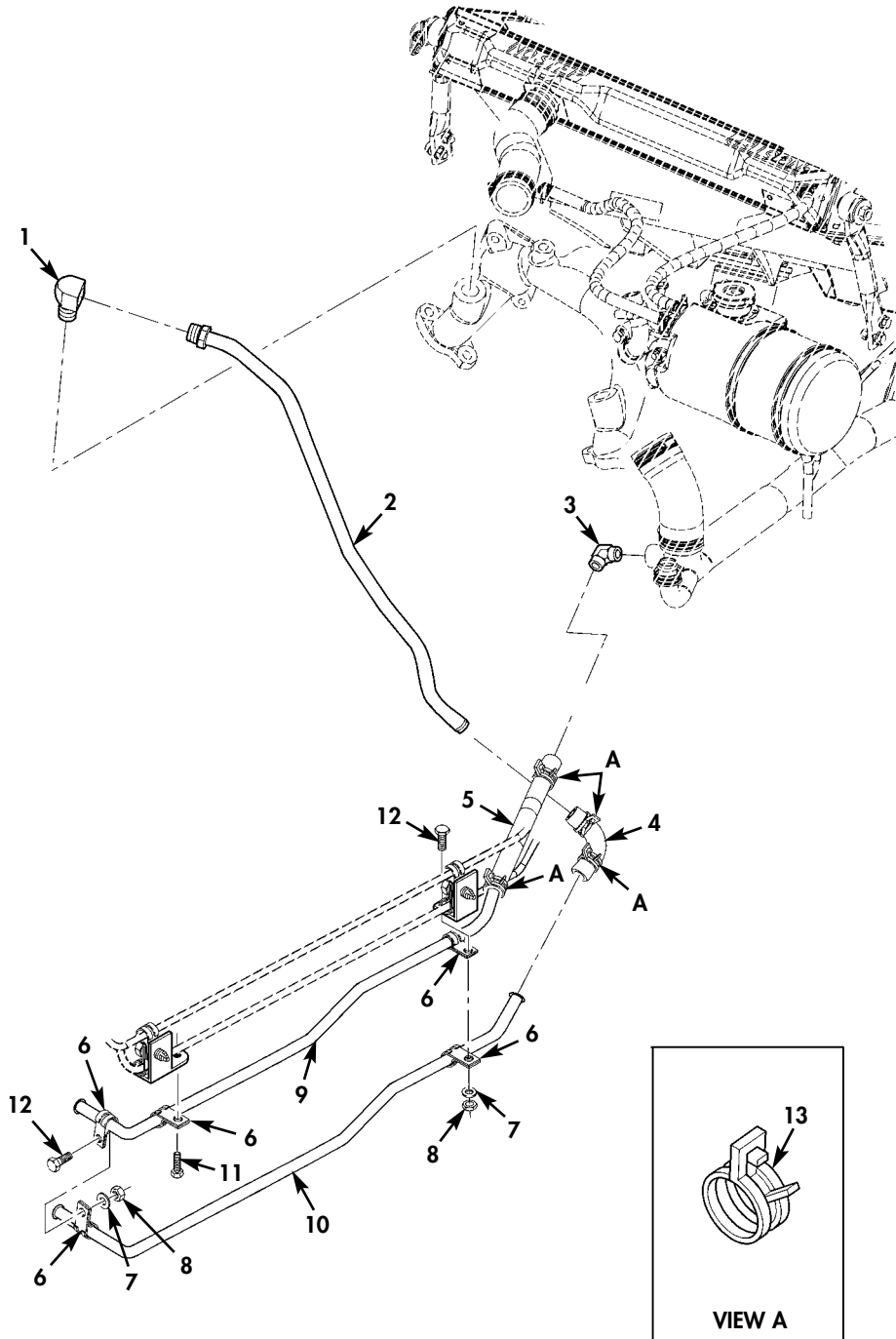


Figure 17. Front-Rear Differential Cooler Hoses and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1102 DIFFERENTIAL						
FIG. 17 FRONT-REAR DIFFERENTIAL COOLER HOSES AND RELATED PARTS (SERIAL NUMBER 30000 AND ABOVE)						
1	PAOZZ		93061	2491FHD-10-8	ELBOW,PIPE TO TUBE.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ		34623	6043257	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	4370013994206	81343	10-8 430260C	ELBOW,PIPE.....	1
					UOC:TTA,UU2,UUA	
4	MOOZZ		34623	6043356-9IN	HOSE,NONMETALLIC MAKE FROM P/N MS521301A203R,9 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
5	MOOZZ		34623	6033141-12.5IN	HOSE,NONMETALLIC MAKE FROM P/N MS521301A203R,12.5 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
6	PAOZZ	5340000881254	80205	MS21333-104	CLAMP,LOOP.....	5
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	2
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310009050762	96906	MS51967-3	NUT,PLAIN,HEXAGON.....	2
					UOC:TTA,UU2,UUA	
9	PAOZZ		34623	6033083	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ		34623	6043342	TUBE,BENT,METALLIC.....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	5305000680508	80204	B1821BH025C075N	SCREW,CAP,HEXAGON H 1/4-20 X 3/4....	2
					UOC:TTA,UU2,UUA	
13	PAOZZ		34623	6017845	CLAMP,LOOP.....	4
					UOC:TTA,UU2,UUA	

END OF FIGURE

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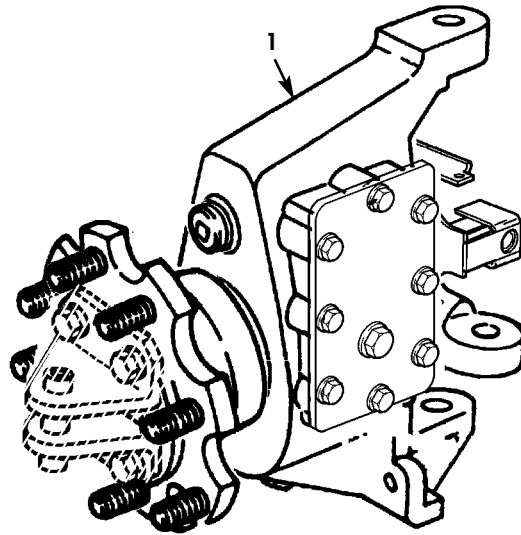


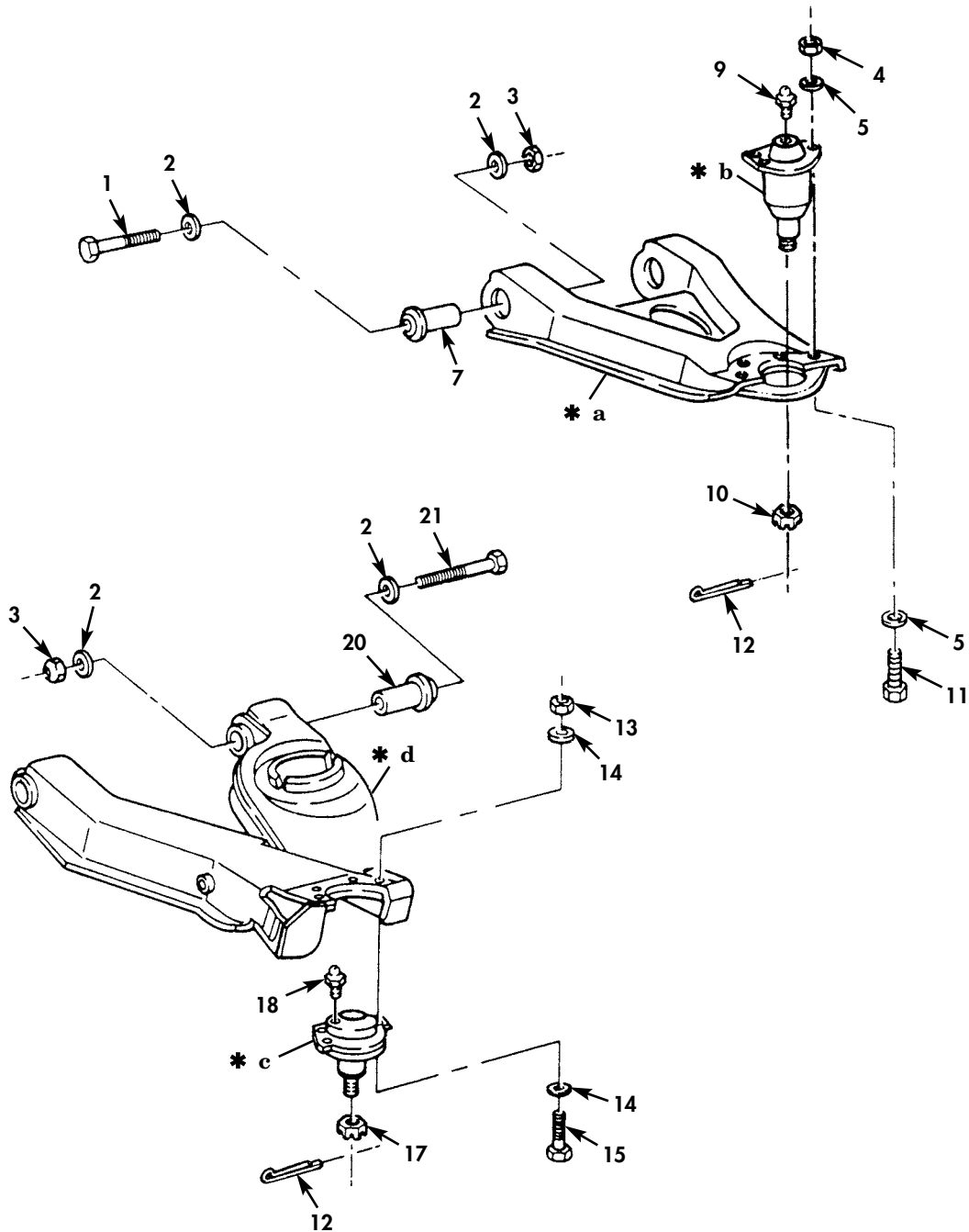
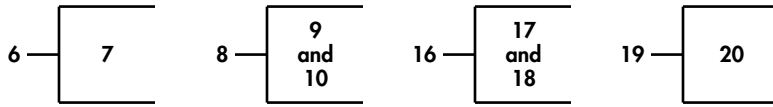
Figure 18. Rear Knuckle and Geared Hub Assembly (Serial Number 300000 and Above).

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 1104 STEERING, SIDESHAFT AND WHEEL LEANING MECHANISM	
					FIG. 18 REAR KNUCKLE AND GEARED HUB ASSEMBLY (SERIAL NUMBER 300000 AND ABOVE)	
1	PAOFF		34623	6041986	HUB BODY ASSEMBLY,F.....	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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- * a PART OF ITEM 6
- * b PART OF ITEM 8
- * c PART OF ITEM 16
- * d PART OF ITEM 19

Figure 19. Rear Control Arms, Ball Joints, and Mounting Hardware
 (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1104 STEERING, SIDESHAFT AND WHEEL LEANING MECHANISM						
FIG. 19 REAR CONTROL ARMS, BALL JOINTS, AND MOUNTING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5305009474363	80204	B1821BH075C550N	SCREW,CAP,HEXAGON H 3/4-10 X 5.50... UOC:TTA,UU2,UUA	6
2	PAOZZ	5310011474052	34623	5593312	WASHER,FLAT 3/4..... UOC:TTA,UU2,UUA	16
3	PAOZZ	5310004093333	81349	M45913/3-12CG8C	NUT,SELF-LOCKING,HE 3/4-10..... UOC:TTA,UU2,UUA	8
4	PAOZZ	5310008140672	96906	M45912/3-6FG8C	NUT,SELF-LOCKING,HE 3/8-24..... UOC:TTA,UU2,UUA	8
5	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8..... UOC:TTA,UU2,UUA	16
6	PAOFF	2530015548309	34623	6030617	ARM,CONTROL,VEHICUL UPPER,L.H..... UOC:TTA,UU2,UUA	1
6	PAOFF	2530015548315	34623	6030618	ARM,CONTROL,VEHICUL UPPER,R.H..... UOC:TTA,UU2,UUA	1
7	PAFZZ		76445	869370	.BUSHING,SLEEVE UOC:TTA,UU2,UUA	2
8	PAOZZ	2530015548288	34623	6026749	PARTS KIT,BALL JOIN UPPER..... UOC:TTA,UU2,UUA	2
9	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION..... UOC:TTA,UU2,UUA	1
10	PAOZZ	5310008507004	96906	MS35692-54	.NUT,PLAIN,SLOTTED,H 5/8-18..... UOC:TTA,UU2,UUA	1
11	PAOZZ	5305014125994	19207	12460159	SCREW,CAP,HEXAGON H..... UOC:TTA,UU2,UUA	8
12	PAOZZ	5315000120123	80205	MS24665-355	PIN,COTTER 1/8 X 1.25..... UOC:TTA,UU2,UUA	4
13	PAFZZ	5310011504003	24617	9422299	NUT,SELF-LOCKING,HE 7/16-14..... UOC:TTA,UU2,UUA	8
14	PAOZZ	5310008094061	96906	MS27183-15	WASHER,FLAT 7/16..... UOC:TTA,UU2,UUA	16
15	PAOZZ	5305000712055	80204	B1821BH044C150N	SCREW,CAP,HEXAGON H 7/16-14 X 1.50.. UOC:TTA,UU2,UUA	8
16	PAOZZ	2530015548307	34623	6030616	PARTS KIT,BALL JOIN LOWER..... UOC:TTA,UU2,UUA	2
17	PAOZZ	5310008507004	96906	MS35692-54	.NUT,PLAIN,SLOTTED,H 5/8-18..... UOC:TTA,UU2,UUA	1
18	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION..... UOC:TTA,UU2,UUA	1
19	PAOFF	2530015548336	34623	6030627	ARM,CONTROL,VEHICUL LOWER R.H..... UOC:TTA,UU2,UUA	1
19	PAOFF	2530015548270	34623	6030629	ARM,CONTROL,VEHICUL LOWER L.H..... UOC:TTA,UU2,UUA	1
20	PAFZZ		76445	869370	.BUSHING,SLEEVE UOC:TTA,UU2,UUA	2

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
21	PAOZZ	5305009474361	80204	B1821BH075C475N	SCREW,CAP,HEXAGON H 3/4-10 X 4.75... UOC:TTA,UU2,UUA	2

END OF FIGURE

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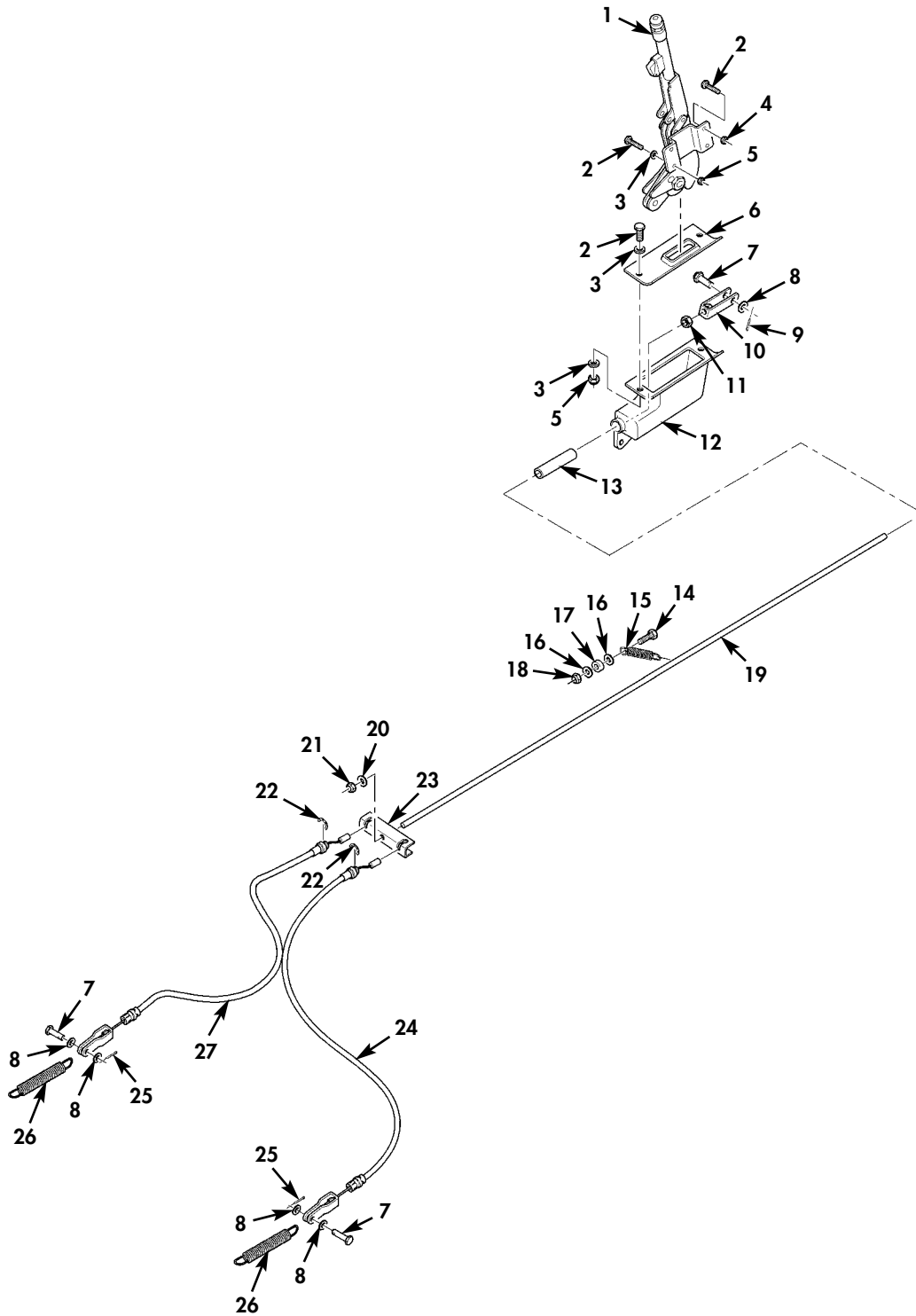


Figure 20. Parking Brake Cables, Rod, and Hand Lever
(Serial Number 300000 and Above).

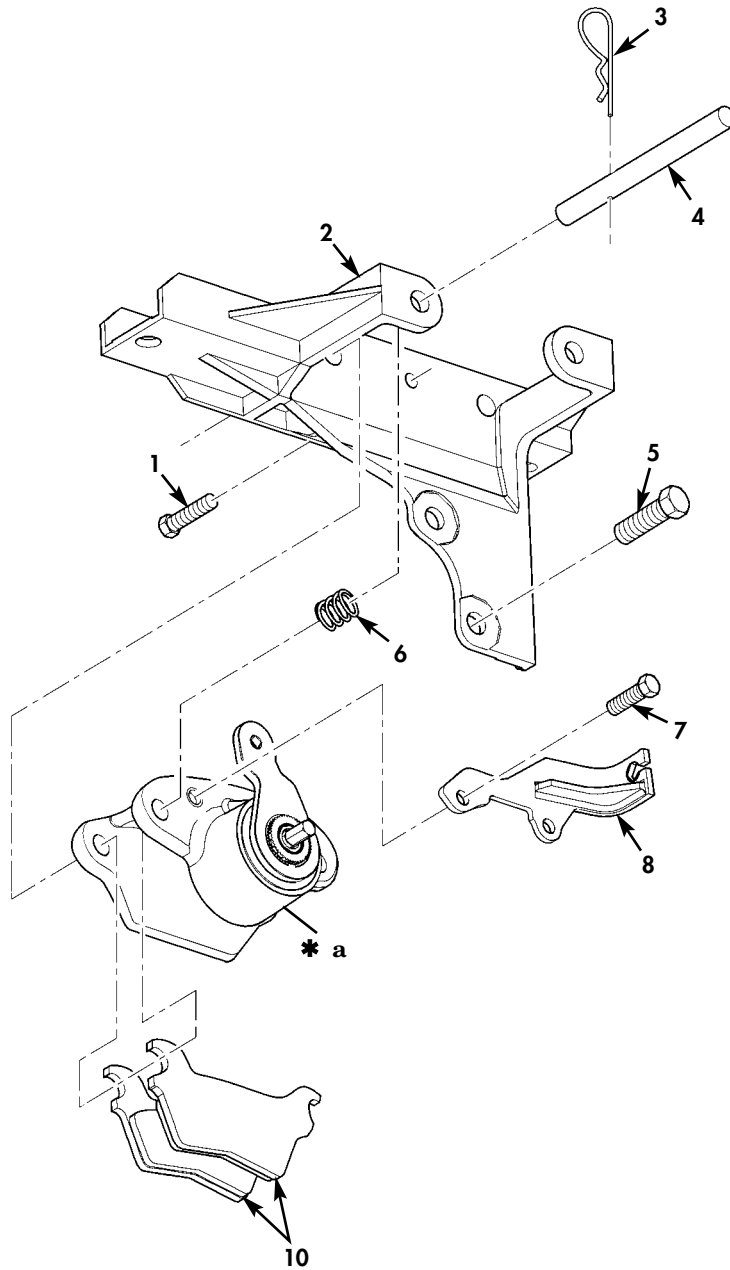
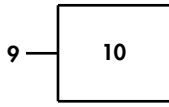
(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1201 HAND BRAKES						
FIG. 20 PARKING BRAKE CABLES, ROD, AND HAND LEVER (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5340013804561	19207	12342679	LEVER, LOCK-RELEASE.....	1
					UOC: TTA, UU2, UUA	
2	PAOZZ	5305000712505	80204	B1821BH025C088N	SCREW, CAP, HEXAGON H 1/4-20 X 7/8....	6
					UOC: TTA, UU2, UUA	
3	PAOZZ	5310011023270	24617	2436161	WASHER, FLAT 1/4.....	6
					UOC: TTA, UU2, UUA	
4	PAOZZ	5310011520598	24617	271172	NUT, SELF-LOCKING, AS 1/4-20.....	2
					UOC: TTA, UU2, UUA	
5	PAOZZ	5310014326727	24617	9419471	NUT, SELF-LOCKING, HE 1/4-20.....	4
					UOC: TTA, UU2, UUA	
6	PAOZZ	2530011883520	19207	12338295	BOOT, VEHICULAR COMP.....	1
					UOC: TTA, UU2, UUA	
7	PAOZZ	5315008158840	96906	MS35810-4	PIN, STRAIGHT, HEADED.....	3
					UOC: TTA, UU2, UUA	
8	PAOZZ	5310014124013	24617	2436163	WASHER, FLAT.....	5
					UOC: TTA, UU2, UUA	
9	PAOZZ	5315008423044	80205	MS24665-283	PIN, COTTER.....	1
					UOC: TTA, UU2, UUA	
10	PAOZZ	5340012135600	92867	95001418	CLEVIS, ROD END.....	1
					UOC: TTA, UU2, UUA	
11	PAOZZ	5310009054600	96906	MS51968-6	NUT, PLAIN, HEXAGON 5/16-24.....	1
					UOC: TTA, UU2, UUA	
12	PAOZZ	2530011888446	19207	12338291	BOOT, VEHICULAR COMP.....	1
					UOC: TTA, UU2, UUA	
13	PAOZZ		81851	1101001303M0359	SPACER, SLEEVE.....	1
					UOC: TTA, UU2, UUA	
14	PAOZZ	5306002264827	80204	B1821BH031C100N	BOLT, MACHINE 5/16-18 X 1.00.....	1
					UOC: TTA, UU2, UUA	
15	PAOZZ	5360012600700	19207	12338866	SPRING, HELICAL, EXTE.....	1
					UOC: TTA, UU2, UUA	
16	PAOZZ	5310011191024	24617	2436162	WASHER, FLAT 5/16.....	2
					UOC: TTA, UU2, UUA	
17	PAOZZ	5365012550965	34623	5596306	SPACER, SLEEVE.....	1
					UOC: TTA, UU2, UUA	
18	PAOZZ	5310011193668	24617	9422295	NUT, SELF-LOCKING, CO 5/16-18.....	1
					UOC: TTA, UU2, UUA	
19	PFOZZ	5306012736333	34623	5596803	ROD, THREADED END.....	1
					UOC: TTA, UU2, UUA	
20	PAOZZ	5310012895455	19207	12341897	WASHER, CONVEX.....	1
					UOC: TTA, UU2, UUA	
21	PAOZZ	5310009843807	81349	M45913/1-5FG5C	NUT, SELF-LOCKING, HE 5/16-24.....	1
					UOC: TTA, UU2, UUA	
22	PAOZZ	5325004425845	96906	MS16633-1050	RING, RETAINING.....	2
					UOC: TTA, UU2, UUA	
23	PFOZZ	2530012914597	19207	12341902	BAR, BRAKE CABLE.....	1
					UOC: TTA, UU2, UUA	
24	PAOZZ		92867	15844903	CABLE AND CONDUIT A L.H.....	1
					UOC: TTA, UU2, UUA	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
25	PAOZZ	5315011900430	96652	21-04	PIN,COTTER .0725 X 1.437.....	2
					UOC:TTA,UU2,UUA	
26	PAOZZ		34623	6042460	SPRING,HELICAL,EXTE.....	2
					UOC:TTA,UU2,UUA	
27	PAOZZ		92867	15844902	CABLE AND CONDUIT,A R.H.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

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* a PART OF ITEM 9

Figure 21. Parking Brake Assembly (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1202 SERVICE BRAKES						
FIG. 21 PARKING BRAKE ASSEMBLY (SERIAL NUMBER 300000 AND ABOVE)						
1	PFOZZ		60250	43-8891	BOLT,HEX HEAD 3/8-16 X 1.00 LOCKING PATCH.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ		60250	93-8172	BRACKET,MOUNTING R.H.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ		60250	93-8171	BRACKET,MOUNTING L.H.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ		60250	43-9200	PIN,COTTER PART OF KIT P/N 328-7904.	4
					UOC:TTA,UU2,UUA	
4	PAOZZ		60250	43-9171	PIN,STRAIGHT,HEADED.....	4
					UOC:TTA,UU2,UUA	
5	PAOZZ	5305007247219	80204	B1821BH063C125N	SCREW,CAP,HEXAGON H 5/8-11 X 1.25...	4
					UOC:TTA,UU2,UUA	
6	PAOZZ		60250	40-8007	SPRING,HELICAL,COMP PART OF KIT P/N 328-7904.....	4
					UOC:TTA,UU2,UUA	
7	PFOZZ		60250	43-9092	SCREW,CAP,HEXAGON H 3/8-16 X 3/4....	4
					UOC:TTA,UU2,UUA	
8	PAOZZ		60250	93-8211	BRACKET,MOUNTING R.H.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ		60250	93-8210	BRACKET,MOUNTING L.H.....	1
					UOC:TTA,UU2,UUA	
9	PAOZZ		60250	471-8084-S	CALIPER ASSEMBLY,DI L.H.....	1
					UOC:TTA,UU2,UUA	
9	PAOZZ		60250	471-8085-S	CALIPER ASSEMBLY,DI R.H.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ		60250	244-7935	.DISC BRAKE SHOE SET CONTAINS 2 PADS PART OF KIT P/N 328-7904.....	1
					UOC:TTA,UU2,UUA	
KIT	PAOZZ		60250	328-7904	BRAKE LINING KIT.....	1
					UOC:TTA,UU2,UUA	
					DISC BRAKE SHOE (1) 21-10	
					PIN,COTTER (4) 21-3	
					SPRING,HELICAL,COMP(4) 21-6	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

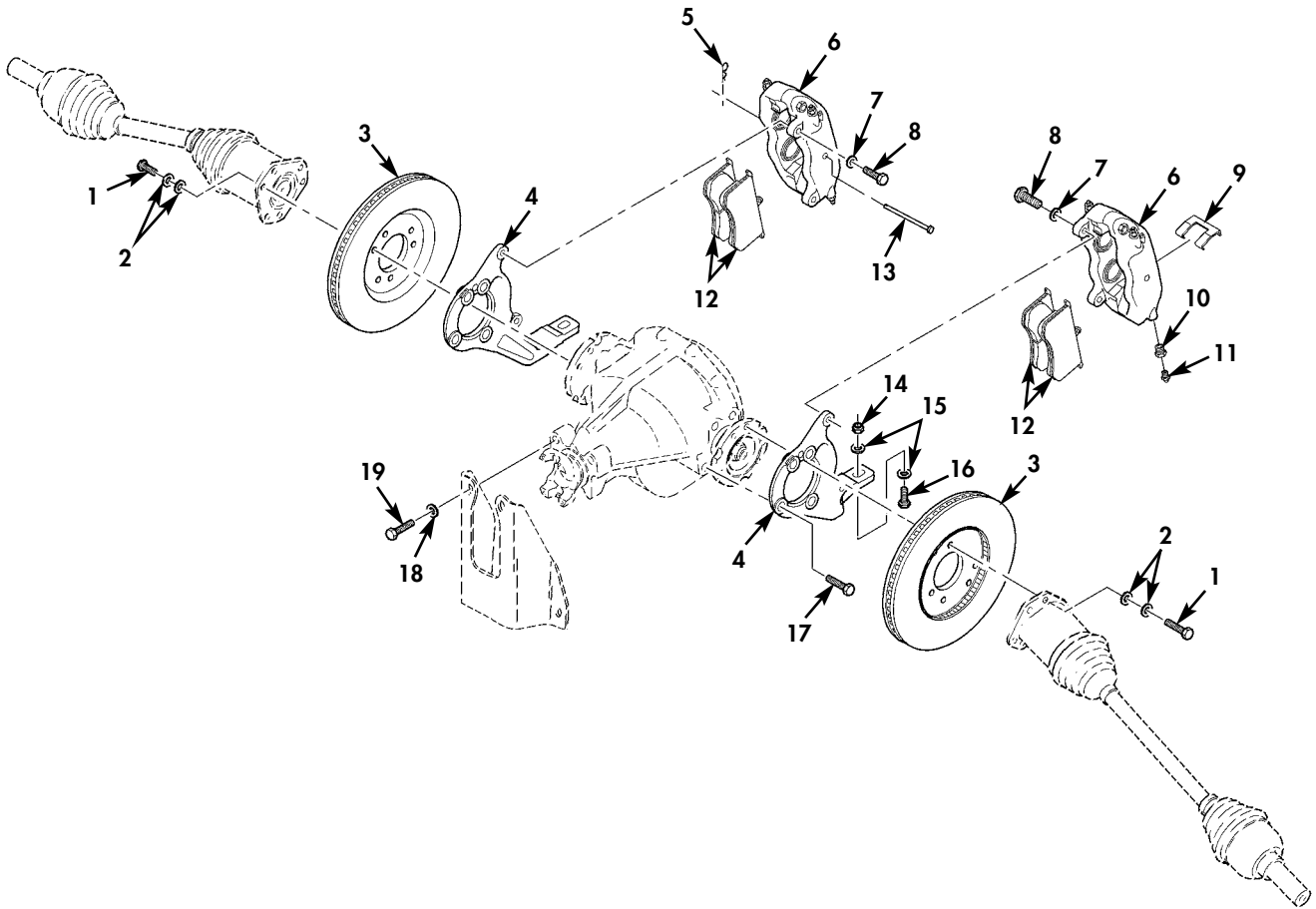


Figure 22. Front Service Brake Caliper Assembly and Rotor (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 22 FRONT SERVICE BRAKE CALIPER ASSEMBLY AND ROTOR (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5306011857048	7X677	11513606	BOLT,MACHINE M10 X 1.5 X 35MM.....	12
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310014573292	1PUD1	NL-10	WASHER,CAMLOCK 10MM.....	24
					UOC:TTA,UU2,UUA	
3	PAOZZ		04XS7	Z-160-9535	ROTOR,DISC BRAKE.....	2
					UOC:TTA,UU2,UUA	
4	PFFZZ		04XS7	Z-250-9944	ADAPTER,CALIPER,DIS L.H.....	1
					UOC:TTA,UU2,UUA	
4	PFFZZ		04XS7	Z-250-9943	ADAPTER,CALIPER,DIS R.H.....	1
					UOC:TTA,UU2,UUA	
5	KFOZZ		04XS7	310-9951	PIN CLIP PART OF KIT P/N 5717285....	2
					UOC:TTA,UU2,UUA	
6	PAOZZ		34623	6040401	CALIPER,DISC BRAKE.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310012789555	34623	2436164	WASHER,FLAT 7/16.....	4
					UOC:TTA,UU2,UUA	
8	PAOZZ	5305000711788	80204	B1821BH044C125N	SCREW,CAP,HEXAGON H 7/16-14 X 1.25..	4
					UOC:TTA,UU2,UUA	
9	KFOZZ		04XS7	300-10467	PLATE,WEAR,BRAKE SH PART OF KIT P/N 5717286.....	2
					UOC:TTA,UU2,UUA	
10	KFOZZ		04XS7	220-9968	BRASS ADAPTER PART OF KIT P/N 5717287.....	2
					UOC:TTA,UU2,UUA	
11	KFOZZ		04XS7	220-9969	VALVE,BLEEDER,SCREW PART OF KIT P/N 5717287.....	2
					UOC:TTA,UU2,UUA	
12	KFOZZ		04XS7	150-9841	DISC BRAKE SHOE SET CONTAINS 2 PADS PART OF KIT P/N 5717285.....	1
					UOC:TTA,UU2,UUA	
13	KFOZZ		04XS7	330-9950	RETENTION PIN PART OF KIT P/N 5717285.....	2
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13.....	2
					UOC:TTA,UU2,UUA	
15	PAOZZ	5310008664417	19207	10910174-5	WASHER,FLAT 1/2.....	4
					UOC:TTA,UU2,UUA	
16	PAOZZ	5305000712070	80204	B1821BH050C175N	SCREW,CAP,HEXAGON H 1/2-13 X 1.75...	2
					UOC:TTA,UU2,UUA	
17	PAOZZ	5305007247220	80204	B1821BH063C150N	SCREW,CAP,HEXAGON H 5/8-11 X 1.25...	8
					UOC:TTA,UU2,UUA	
18	PAOZZ	5310011517347	24617	2436167	WASHER,FLAT.....	2
					UOC:TTA,UU2,UUA	
19	PAOZZ	5305007247219	80204	B1821BH063C125N	SCREW,CAP,HEXAGON H 5/8-11 X 1.25...	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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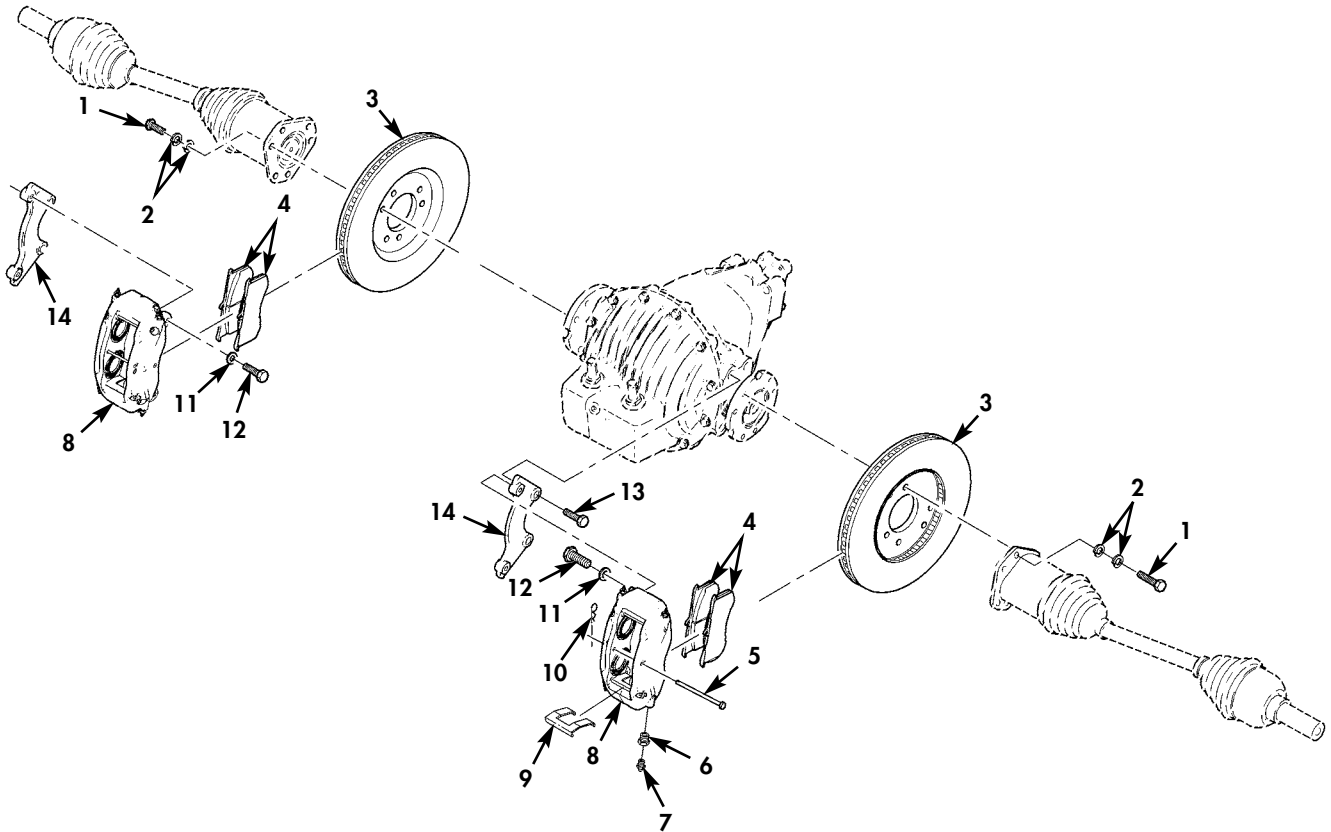


Figure 23. Rear Service Brake Caliper Assembly (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 23 REAR SERVICE BRAKE CALIPER ASSEMBLY (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5306011857048	7X677	11513606	BOLT,MACHINE M10 X 1.5 X 35MM.....	12
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310014573292	1PUD1	NL-10	WASHER,CAMLOCK 10MM.....	24
					UOC:TTA,UU2,UUA	
3	PAOZZ		04XS7	Z-160-9535	ROTOR,DISC BRAKE.....	2
					UOC:TTA,UU2,UUA	
4	KFOZZ		04XS7	150-9841	DISC BRAKE SHOE SET CONTAINS 2 PADS PART OF KIT P/N 5717285.....	1
					UOC:TTA,UU2,UUA	
5	KFOZZ		04XS7	330-9950	RETENTION PIN PART OF KIT P/N 5717285.....	2
					UOC:TTA,UU2,UUA	
6	KFOZZ		04XS7	220-9968	BRASS ADAPTER PART OF KIT P/N 5717287.....	2
					UOC:TTA,UU2,UUA	
7	KFOZZ		04XS7	220-9969	VALVE,BLEEDER,SCREW PART OF KIT P/N 5717287.....	2
					UOC:TTA,UU2,UUA	
8	PAOZZ		34623	6040401	CALIPER,DISC BRAKE.....	1
					UOC:TTA,UU2,UUA	
9	KFOZZ		04XS7	300-10467	PLATE,WEAR,BRAKE SH PART OF KIT P/N 5717286.....	2
					UOC:TTA,UU2,UUA	
10	KFOZZ		04XS7	310-9951	PIN CLIP PART OF KIT P/N 5717285....	2
					UOC:TTA,UU2,UUA	
11	PAOZZ	5310012789555	34623	2436164	WASHER,FLAT 7/16.....	4
					UOC:TTA,UU2,UUA	
12	PAOZZ	5305000711788	80204	B1821BH044C125N	SCREW,CAP,HEXAGON H 7/16-14 X 1.25..	4
					UOC:TTA,UU2,UUA	
13	PAFZZ	5305007247220	80204	B1821BH063C150N	SCREW,CAP,HEXAGON H 5/8-11 X 1.50...	4
					UOC:TTA,UU2,UUA	
14	PFFZZ		04XS7	Z-250-9941	ADAPTER,CALIPER,DIS R.H.....	1
					UOC:TTA,UU2,UUA	
14	PFFZZ		04XS7	Z-250-9942	ADAPTER,CALIPER,DIS L.H.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
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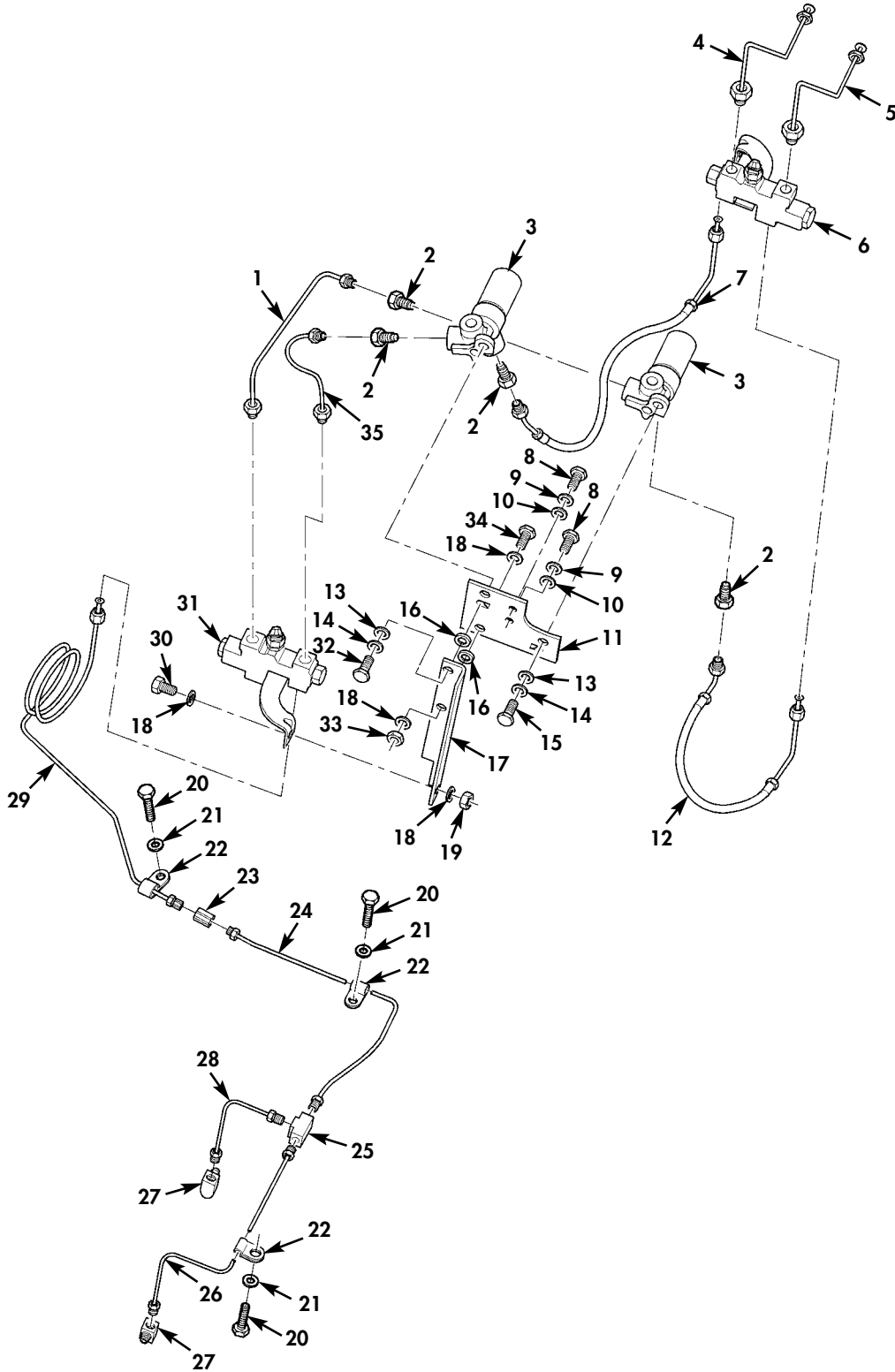


Figure 24. Front Brake Lines and Fittings
(Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 24 FRONT BRAKE LINES AND FITTINGS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	4710014885625	19207	12469465	TUBE ASSEMBLY,METAL.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	4730015603024	19207	12469461	ADAPTER,STRAIGHT,PI.....	4
					UOC:TTA,UU2,UUA	
3	PAOZZ	4820014560168	34623	RCSK18136	VALVE,LINEAR,DIRECT.....	2
					UOC:TTA,UU2,UUA	
4	PAOZZ		34623	6036845	TUBE ASSEMBLY,METAL.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ		34623	6036848	TUBE ASSEMBLY,METAL.....	1
					UOC:TTA,UU2,UUA	
6	PAOZZ	2530014732724	34623	EX5025	CYLINDER,HYDRAULIC.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ		34623	6041618	HOSE ASSEMBLY,NONME.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ	5305000712505	80204	B1821BH025C088N	SCREW,CAP,HEXAGON H 1/4-20 X 7/8....	2
					UOC:TTA,UU2,UUA	
9	PAOZZ	5310005825965	80205	MS35338-44	WASHER,LOCK 1/4.....	2
					UOC:TTA,UU2,UUA	
10	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4.....	2
					UOC:TTA,UU2,UUA	
11	PAOZZ		34623	6038872	PLATE,MOUNTING.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ		34623	6041613	HOSE ASSEMBLY,NONME.....	1
					UOC:TTA,UU2,UUA	
13	PAOZZ	5310014624611	7X677	11508788	WASHER,FLAT #8.....	2
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310015485182	24617	11500206	WASHER,LOCK #8.....	2
					UOC:TTA,UU2,UUA	
15	PAOZZ	5305011491938	7X677	11500815	SCREW,CAP,HEXAGON H M8 X 1.25 X 16 MM.....	1
					UOC:TTA,UU2,UUA	
16	PFOZZ		34623	6043241	SPACER,RING.....	2
					UOC:TTA,UU2,UUA	
17	PAOZZ	5340014885619	19207	12469463	BRACKET,ANGLE.....	1
					UOC:TTA,UU2,UUA	
18	PAOZZ	5310011191024	24617	2436162	WASHER,FLAT 5/16.....	4
					UOC:TTA,UU2,UUA	
19	PAOZZ	5310011193668	24617	9422295	NUT,SELF-LOCKING,CO 5/16-18.....	1
					UOC:TTA,UU2,UUA	
20	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	3
					UOC:TTA,UU2,UUA	
21	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8.....	3
					UOC:TTA,UU2,UUA	
22	PAOZZ	5340009546014	80205	MS21333-121	CLAMP,LOOP.....	3
					UOC:TTA,UU2,UUA	
23	PAOZZ	4730014570727	24617	442393	COUPLING,HOSE.....	1
					UOC:TTA,UU2,UUA	

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(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
24	PAOZZ		34623	6042051	TUBE ASSEMBLY,METAL R.H. FRONT..... UOC:TTA,UU2,UUA	1
25	PAOZZ	4730002871706	81343	SAE J512 3-3-3 0 40401BA	TEE,TUBE..... UOC:TTA,UU2,UUA	1
26	PAOZZ		34623	6032324	TUBE ASSEMBLY,METAL R.H..... UOC:TTA,UU2,UUA	1
27	PAOZZ	4730011991878	01276	402X3	ELBOW,PIPE..... UOC:TTA,UU2,UUA	2
28	PAOZZ		34623	6032203	TUBE ASSEMBLY,METAL L.H..... UOC:TTA,UU2,UUA	1
29	PAOZZ		34623	6041616	TUBE ASSEMBLY,METAL FRONT..... UOC:TTA,UU2,UUA	1
30	PAOZZ	5306002264825	80204	B1821BH031C075N	BOLT,MACHINE 5/16-18 X 3/4..... UOC:TTA,UU2,UUA	1
31	PAOZZ	4820013599489	19207	12339353-1	VALVE,REGULATING,FL..... UOC:TTA,UU2,UUA	1
32	PAOZZ	5305015544493	39428	91280A534	SCREW,CAP,HEXAGON H M8 X 1.25 X 25 MM..... UOC:TTA,UU2,UUA	1
33	PAOZZ	5310008140673	81349	M45913/3-5CG8C	NUT,SELF-LOCKING,HE 5/16-18..... UOC:TTA,UU2,UUA	1
34	PAOZZ	5306002264828	80204	B1821BH031C113N	BOLT,MACHINE 5/16-18 X 1.125..... UOC:TTA,UU2,UUA	1
35	PAOZZ	4710014885621	19207	12469464	TUBE ASSEMBLY,METAL..... UOC:TTA,UU2,UUA	1

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST
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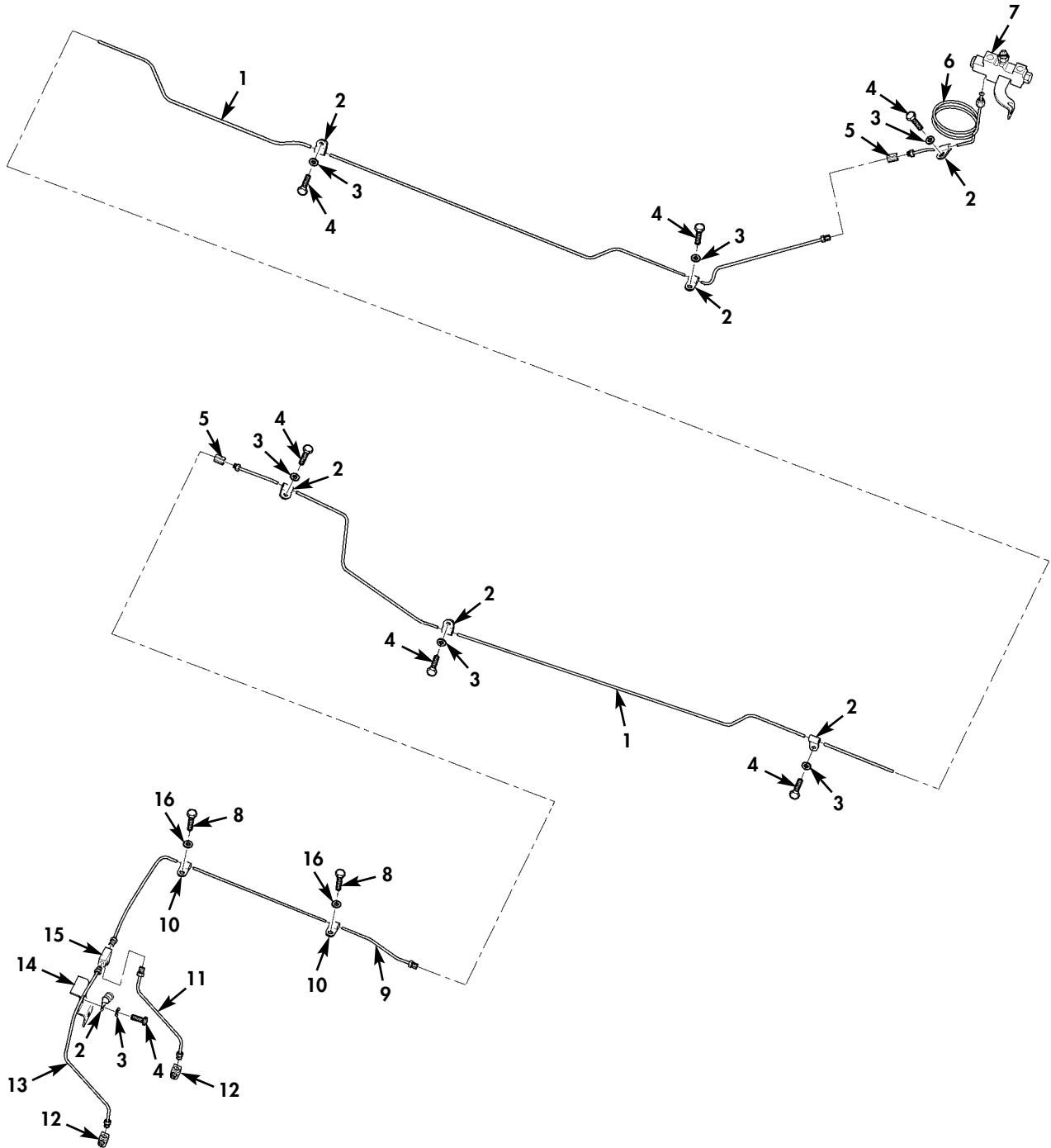


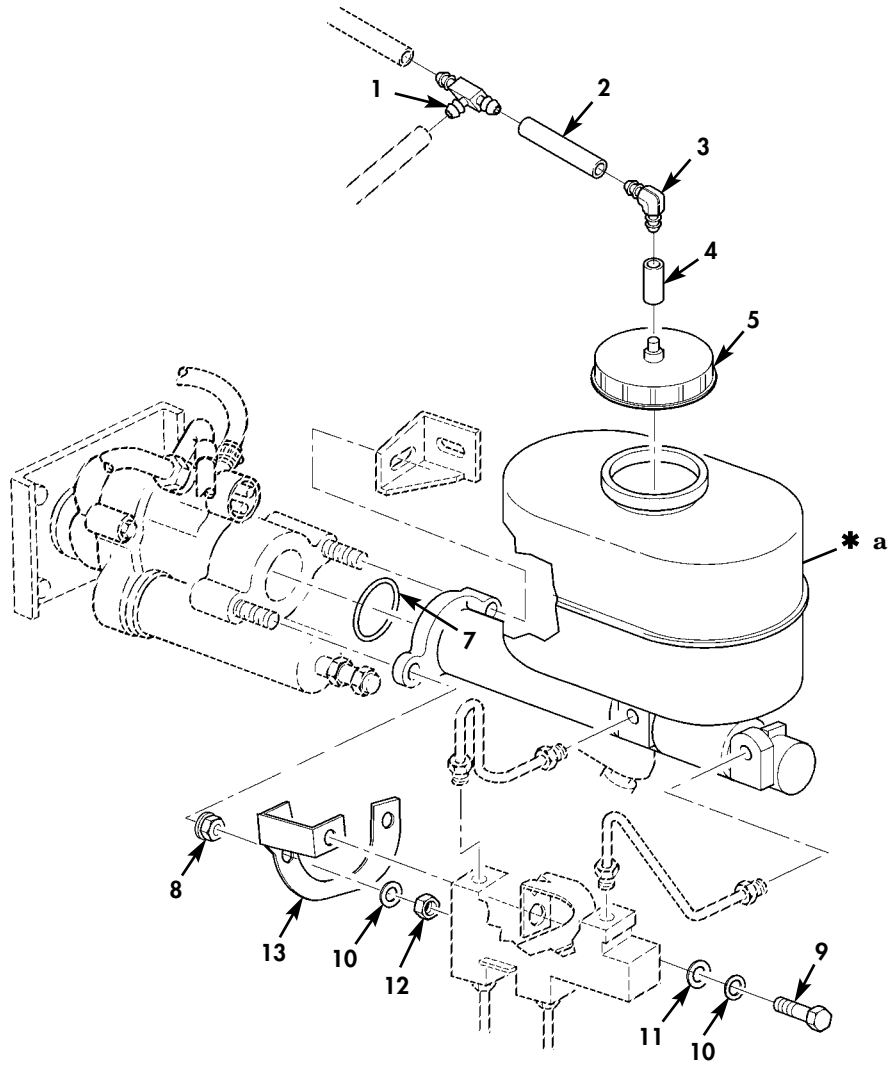
Figure 25. Rear Brake Lines and Fittings (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 25 REAR BRAKE LINES AND FITTINGS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		34623	6044065	TUBE,ASSEMBLY,METAL.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	5340009546014	80205	MS21333-121	CLAMP,LOOP.....	7
					UOC:TTA,UU2,UUA	
3	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8.....	7
					UOC:TTA,UU2,UUA	
4	PAOZZ	5305013936311	24617	271153	SCREW,TAPPING 3/8-16 X 5/8.....	7
					UOC:TTA,UU2,UUA	
5	PAOZZ	4730014570727	24617	442393	COUPLING,HOSE.....	2
					UOC:TTA,UU2,UUA	
6	PAOZZ		34623	6041617	TUBE ASSEMBLY,METAL.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	4820011860822	34281	109413-01	VALVE,REGULATING,FL.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ	5305012068401	11862	448655	SCREW,TAPPING 1/4-28 X 1/2.....	2
					UOC:TTA,UU2,UUA	
9	PAOZZ		34623	6031742	TUBE ASSEMBLY,METAL L.H.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ	5340008278314	96906	MS21333-33	CLAMP,LOOP.....	2
					UOC:TTA,UU2,UUA	
11	PAOZZ		34623	6042585	TUBE ASSEMBLY,METAL MIDDLE.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	4730011991878	01276	402X3	ELBOW,PIPE.....	2
					UOC:TTA,UU2,UUA	
13	PAOZZ		34623	6042578	TUBE ASSEMBLY,METAL R.H.....	1
					UOC:TTA,UU2,UUA	
14	PAOZZ		34623	6042487	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
15	PAOZZ	4730002871706	7X677	178654	TEE,TUBE.....	1
					UOC:TTA,UU2,UUA	
16	PAOZZ	5310008094058	96906	MS27183-10	WASHER,FLAT 1/4.....	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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 REPAIR PARTS AND SPECIAL TOOLS LIST
 TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

6 — 7
and
8



* a PART OF ITEM 6

Figure 26. Hydroboost Master Cylinder (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 26 HYDROBOOST MASTER CYLINDER (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	4730010035105	93061	224-4-4-5/32	TEE,HOSE..... UOC:TTA,UU2,UUA	1
2	MOOZZ		19207	CPR104420-1-3IN	TUBE MAKE FROM TUBING,NONMETALLIC P/N CPR104420-1,3 INCHES LONG..... UOC:TTA,UU2,UUA	1
3	PAOZZ	4730015458308	19207	12339979-1	ELBOW,HOSE..... UOC:TTA,UU2,UUA	1
4	MOOZZ		19207	CPR104420-1-1IN	TUBING,NONMETALLIC MAKE FROM TUBING NONMETALLIC P/N CPR104420-1,1 INCH LONG..... UOC:TTA,UU2,UUA	1
5	PAOZZ		34623	6014240	CAP,FILLER OPENING..... UOC:TTA,UU2,UUA	1
6	PAOZZ		53867	02040C2315	CYLINDER ASSEMBLY, HYDRAULIC BRAKE,MASTER..... UOC:TTA,UU2,UUA	1
7	PCOZZ	5331001716649	81343	MS28775-223	.O-RING..... UOC:TTA,UU2,UUA	1
8	PFOZZ		53867	2770827	.NUT,FLANGED 3/8-16..... UOC:TTA,UU2,UUA	2
9	PAOZZ	5305000680510	80204	B1821BH038C100N	SCREW,CAP,HEXAGON H 3/8-16 X 1.00... UOC:TTA,UU2,UUA	1
10	PAOZZ	5310000045033	80205	MS35338-46	WASHER,LOCK 3/8..... UOC:TTA,UU2,UUA	3
11	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT..... UOC:TTA,UU2,UUA	1
12	PAOZZ	5310009359021	96906	MS51943-35	NUT,SELF-LOCKING,HE 3/8-16..... UOC:TTA,UU2,UUA	2
13	PAOZZ		34623	6036851	BRACKET,VEHICULAR C..... UOC:TTA,UU2,UUA	1

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
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TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

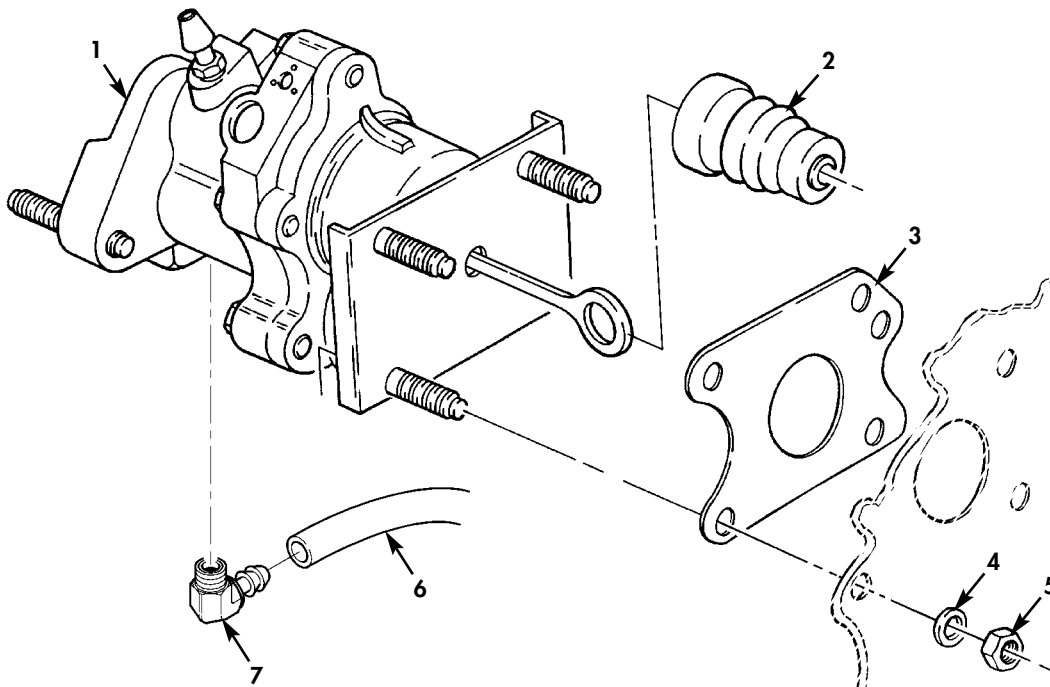
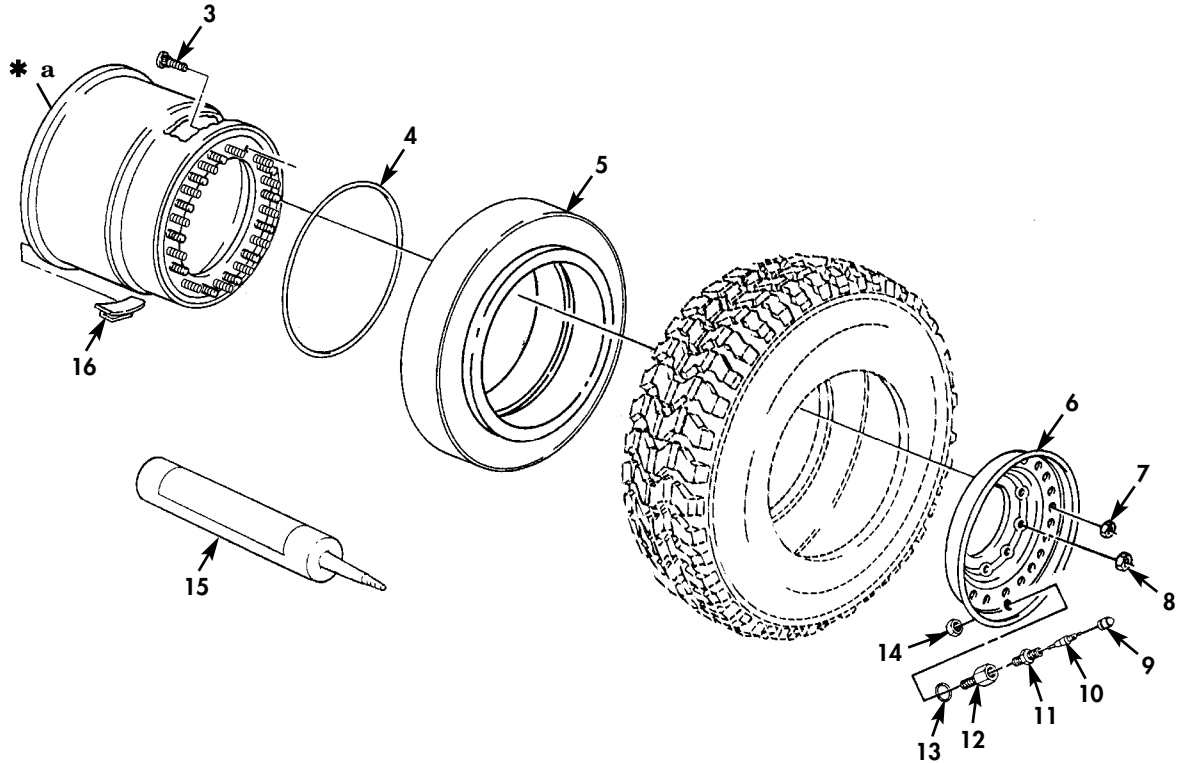
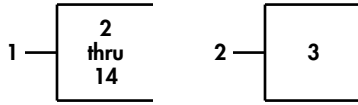


Figure 27. Hydroboost (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1205 VACUUM SYSTEM COMPONENTS						
FIG. 27 HYDROBOOST (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ		53867	02040C2314	BRAKE BOOSTER ASSEM.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ		53867	BX2771145	BOOT,DUST AND MOIST.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	5330015601552	53867	BX129860	GASKET.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ	5310011191024	24617	2436162	WASHER,FLAT 3/8.....	4
					UOC:TTA,UU2,UUA	
5	PAOZZ	5310009359021	96906	MS51943-35	NUT,SELF-LOCKING,HE 3/8-16.....	4
					UOC:TTA,UU2,UUA	
6	MOOZZ		19207	CPR104420-1-15	TUBING,NONMETALLIC MAKE FROM	1
					TUBING,NONMETALLIC P/N	
					CPR104420-1,15 INCHES LONG.....	
					UOC:TTA,UU2,UUA	
7	PAOZZ	4730011953803	19207	12339964-2	ELBOW,PIPE TO HOSE.....	1
					UOC:TTA,UU2,UUA	

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
 REPAIR PARTS AND SPECIAL TOOLS LIST
 TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES



* a PART OF ITEM 2

Figure 28. Wheel and Runflat Assembly (24 Bolt Wheel) (Serial Number 246890 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1311 WHEEL ASSEMBLY						
FIG. 28 WHEEL AND RUNFLAT ASSEMBLY (24 BOLT WHEEL) (SERIAL NUMBER 246890 AND ABOVE)						
1	PCOHH	2530015582138	19207	12506927	WHEEL,PNEUMATIC TIR.....	4
					UOC:TTA,UU2,UUA	
2	PAOZZ	2530015583027	1S0RS	19026	.RIM,WHEEL,PNEUMATIC TIRE,INNER.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	5306014172467	41885	X91430	..BOLT,RIBBED NECK 1/2-20 X 2.120...	24
					UOC:TTA,UU2,UUA	
4	PAOZZ	5331014171043	41885	91610	.O-RING.....	1
					UOC:TTA,UU2,UUA	
5	PCOZZ	2640014196202	19207	12342638-1	.RUN-FLAT KIT,INSERT.....	1
					UOC:TTA,UU2,UUA	
6	PAOZZ	2530015583061	1S0RS	18069	.RIM,WHEEL,PNEUMATIC TIRE,OUTER.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310011987585	19207	12339501	.NUT,SELF-LOCKING,HE 1/2-20.....	24
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310010219027	7X677	1567442	.NUT,PLAIN,CONE SEAT 1/2-18.....	8
					UOC:TTA,UU2,UUA	
9	PAOZZ	2640010982029	63900	A-100-VC-8	.CAP,PNEUMATIC VALVE.....	1
					UOC:TTA,UU2,UUA	
10	PAOZZ	2640000501229	39BV2	100-AA	.VALVE CORE.....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ	2640013354583	63900	12342634	.VALVE,PNEUMATIC TIR.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	4730013461063	41885	90619D	.ADAPTER,STRAIGHT,PI.....	1
					UOC:TTA,UU2,UUA	
13	PCOZZ	5331013463806	19207	12342794	.O-RING.....	1
					UOC:TTA,UU2,UUA	
14	PAOZZ	5310004492376	80205	MS21245-8	.NUT,SELF-LOCKING,HE 1/2-20.....	1
					UOC:TTA,UU2,UUA	
15	PCOZZ	2640014196200	19207	D528235-H1	LUBRICANT,RUNFLAT 11OZ TUBE.....	1
					UOC:TTA,UU2,UUA	
15	PCOZZ	2640014575552	62161	D528235-B	LUBRICANT,RUNFLAT 55GAL. DRUM.....	1
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530012616844	9G287	P-050	WEIGHT,WHEEL BALANC CLIP ON,1/2 OUNCE.....	V
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530008484581	9G287	P-100	WEIGHT,WHEEL BALANC CLIP ON,1 OUNCE.....	V
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530012616845	9G287	P-150	WEIGHT,WHEEL BALANC CLIP ON,1-1/2 OUNCE.....	V
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530012616846	9G287	P-200	WEIGHT,BALANCE CLIP ON,2 OUNCE.....	V
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530012628646	9G287	P-250	WEIGHT,WHEEL BALANC CLIP ON,2-1/2 OUNCE.....	V
					UOC:TTA,UU2,UUA	
16	PAOZZ	2530012618011	97789	27-300	WEIGHT,WHEEL BALANC CLIP ON,3 OUNCE.....	V
					UOC:TTA,UU2,UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
16	PAOZZ	2530012618012	34623	5595972	WEIGHT,WHEEL BALANC CLIP ON,3-1/2 ONCE..... UOC:TTA,UU2,UUA	V
16	PAOZZ	2530012618013	9G287	P-400	WEIGHT,WHEEL BALANC CLIP ON,4 OUNCE. UOC:TTA,UU2,UUA	V
16	PAOZZ	2530012628647	9G287	P-500	WEIGHT,WHEEL BALANC CLIP ON,5 OUNCE. UOC:TTA,UU2,UUA	V
16	PAOZZ	2530012632268	9G287	P-550	WEIGHT,WHEEL BALANC CLIP ON,5-1/2 OUNCE..... UOC:TTA,UU2,UUA	V
16	PAOZZ	2530012358688	34623	5593926	WEIGHT,WHEEL BALANC CLIP ON,6 OUNCE. UOC:TTA,UU2,UUA	V

END OF FIGURE

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REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

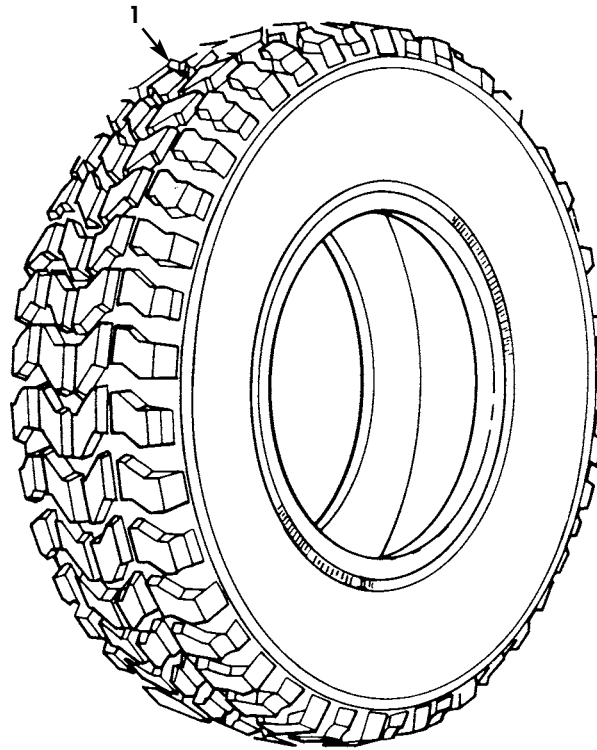


Figure 29. Tires (Serial Number 246890 and Above).

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY

GROUP 1313 TIRES, TUBES, TIRE CHAINS

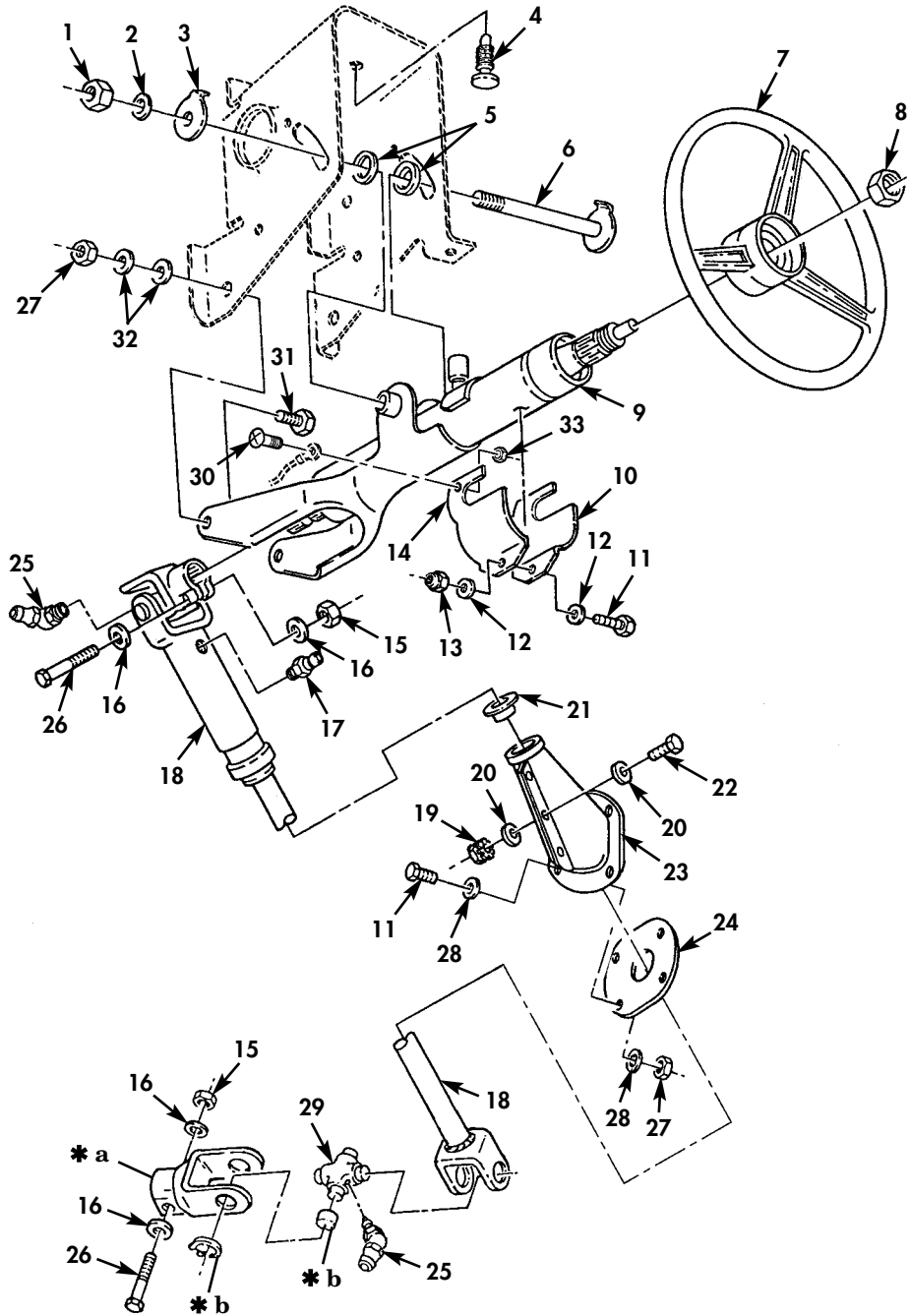
FIG. 29 TIRES (SERIAL NUMBER 246890 AND ABOVE)

1 PCOFH 2610015414090 12195 08973

TIRE,PNEUMATIC,VEHI 4
RADIAL,37X12.50X16.50.....
UOC:TTA,UU2,UUA

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
 REPAIR PARTS AND SPECIAL TOOLS LIST
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- * a PART OF ITEM 18
- * b PART OF ITEM 29

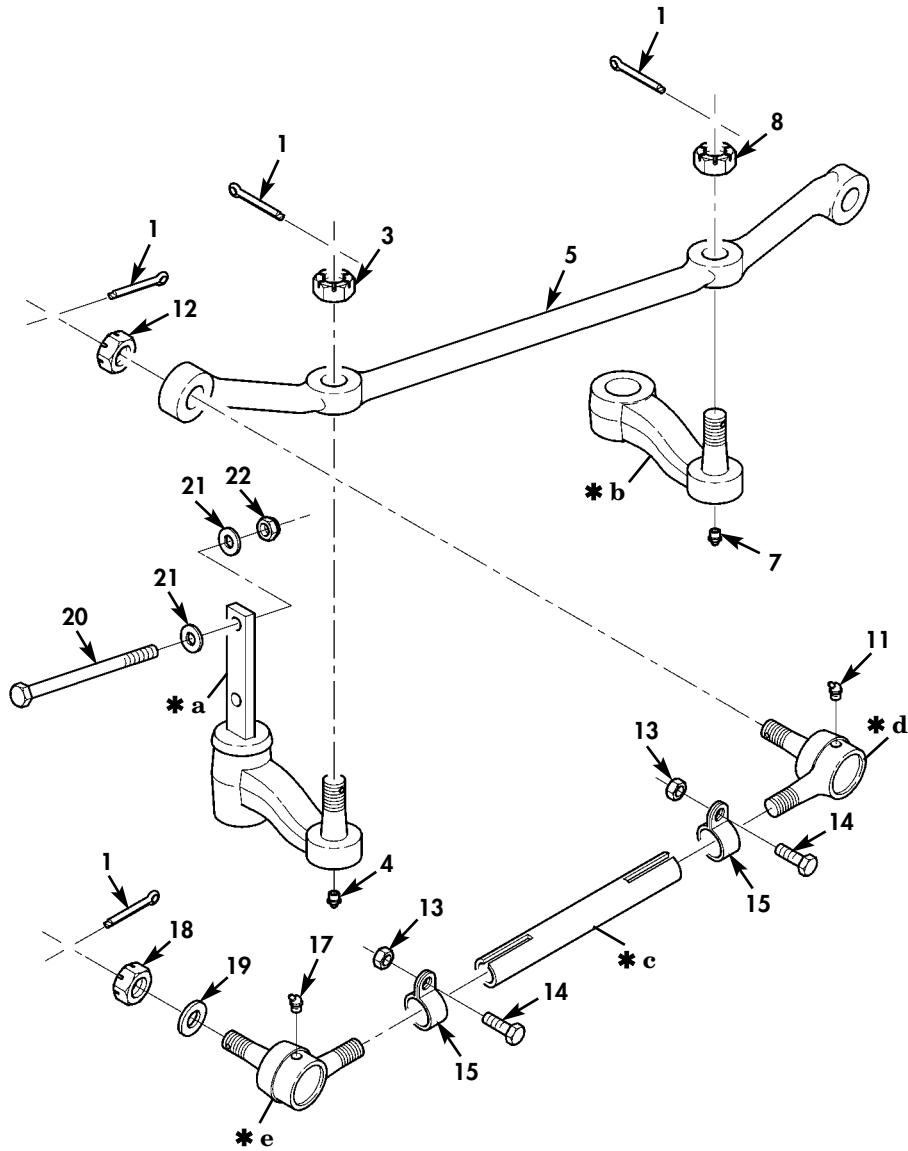
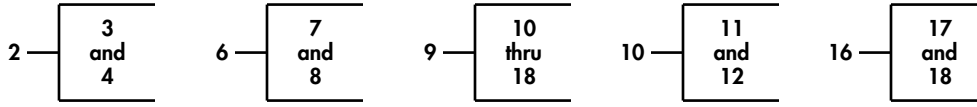
Figure 30. Steering Column, Wheel, and Intermediate Shaft (Serial Number 246890 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1401 MECHANICAL STEERING GEAR ASSEMBLY						
FIG. 30 STEERING COLUMN, WHEEL, AND INTERMEDIATE SHAFT (SERIAL NUMBER 246890 AND ABOVE)						
1	PAOZZ	5310009359021	96906	MS51943-35	NUT, SELF-LOCKING, HE 3/8-16.....	1
					UOC: TTA, UU2, UUA	
2	PAOZZ	5310000045033	80205	MS35338-46	WASHER, LOCK 3/8.....	1
					UOC: TTA, UU2, UUA	
3	PAOZZ	5310011880745	34623	5585103	WASHER, KEY 3/8.....	1
					UOC: TTA, UU2, UUA	
4	PFOZZ	5325012097843	19207	12339402	GROMMET, NONMETALLIC.....	1
					UOC: TTA, UU2, UUA	
5	PAOZZ	5310011881093	19207	12339308	WASHER, RECESSED.....	2
					UOC: TTA, UU2, UUA	
6	PAOZZ	5315012013592	19207	12339310	PIN, STRAIGHT, THREAD.....	1
					UOC: TTA, UU2, UUA	
7	PAOZZ	2530014112729	19207	12446803	STEERING WHEEL.....	1
					UOC: TTA, UU2, UUA	
8	PAOZZ	5310001263842	19207	7063812	NUT, PLAIN, HEXAGON 5/8-18.....	1
					UOC: TTA, UU2, UUA	
9	PAOZZ	2530014112735	0LB15	1493B-SA	HOUSING, STEERING CO.....	1
					UOC: TTA, UU2, UUA	
10	PAOZZ	2530013835740	34623	12342875	SUPPORT, STEERING CO.....	1
					UOC: TTA, UU2, UUA	
11	PAOZZ	5305002253843	80204	B1821BH025C100N	SCREW, CAP, HEXAGON H 1/4-20 X 1.00...	5
					UOC: TTA, UU2, UUA	
12	PAOZZ	5310008094058	96906	MS27183-10	WASHER, FLAT 1/4.....	2
					UOC: TTA, UU2, UUA	
13	PAOZZ	5310000881251	81349	M45913/1-4CG5C	NUT, SELF-LOCKING, HE 1/4-20.....	1
					UOC: TTA, UU2, UUA	
14	PAOZZ	2530013847154	19207	12342876	SUPPORT, STEERING CO.....	1
					UOC: TTA, UU2, UUA	
15	PAOZZ	5310000443340	19207	8712289	NUT, SELF-LOCKING, HE 7/16-20.....	2
					UOC: TTA, UU2, UUA	
16	PAOZZ	5310008094085	96906	MS27183-16	WASHER, FLAT 7/16.....	4
					UOC: TTA, UU2, UUA	
17	PAOZZ	4730001720010	32546	13044	FITTING, LUBRICATION.....	1
					UOC: TTA, UU2, UUA	
18	PAOZZ		72447	915027-18	SHAFT, STEERING COLU.....	1
					UOC: TTA, UU2, UUA	
19	PAOZZ	5310009349764	80205	MS35649-205B	NUT, PLAIN, HEXAGON #10-24.....	3
					UOC: TTA, UU2, UUA	
20	PAOZZ	5310000145850	96906	MS27183-42	WASHER, FLAT #10.....	6
					UOC: TTA, UU2, UUA	
21	PAOZZ	2530007537285	96881	14L14F	NYLINER.....	1
					UOC: TTA, UU2, UUA	
22	PAOZZ	5305002400194	96906	MS51849-76	SCREW, MACHINE #10-24 X 3/4.....	3
					UOC: TTA, UU2, UUA	
23	PCOZZ	2530012858381	19207	12341893	BOOT, VEHICULAR COMP.....	1
					UOC: TTA, UU2, UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
24	PAOZZ	5330012097723	34623	5584384	SEAL,PLAIN..... UOC:TTA,UU2,UUA	1
25	PAOZZ	4730005852653	36251	5311	FITTING,LUBRICATION..... UOC:TTA,UU2,UUA	2
26	PAOZZ	5306011922207	7X677	454977	BOLT,MACHINE 7/16-20 X 2.00..... UOC:TTA,UU2,UUA	2
27	PAOZZ	5310000614650	80205	M45913/3-4CG8C	NUT,SELF-LOCKING,HE 1/4-20..... UOC:TTA,UU2,UUA	6
28	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4..... UOC:TTA,UU2,UUA	8
29	PAOZZ	2520003522168	78500	CPL6R50	SPIDER,UNIVERSAL JO..... UOC:TTA,UU2,UUA	2
30	PAOZZ	5305015008280	24617	456931	SCREW,CAP,HEXAGON H #10-32 X 1.125.. UOC:TTA,UU2,UUA	1
31	PAOZZ	5305014491983	19207	12447027	SCREW,CAP,SOCKET HE 5/16-18 X 3/4... UOC:TTA,UU2,UUA	2
32	PAOZZ	5310011191024	24617	2436162	WASHER,FLAT 5/16..... UOC:TTA,UU2,UUA	4
33	PAOZZ	5310001249265	72582	271169	NUT,PLAIN,ASSEMBLED #10-32..... UOC:TTA,UU2,UUA	1

END OF FIGURE

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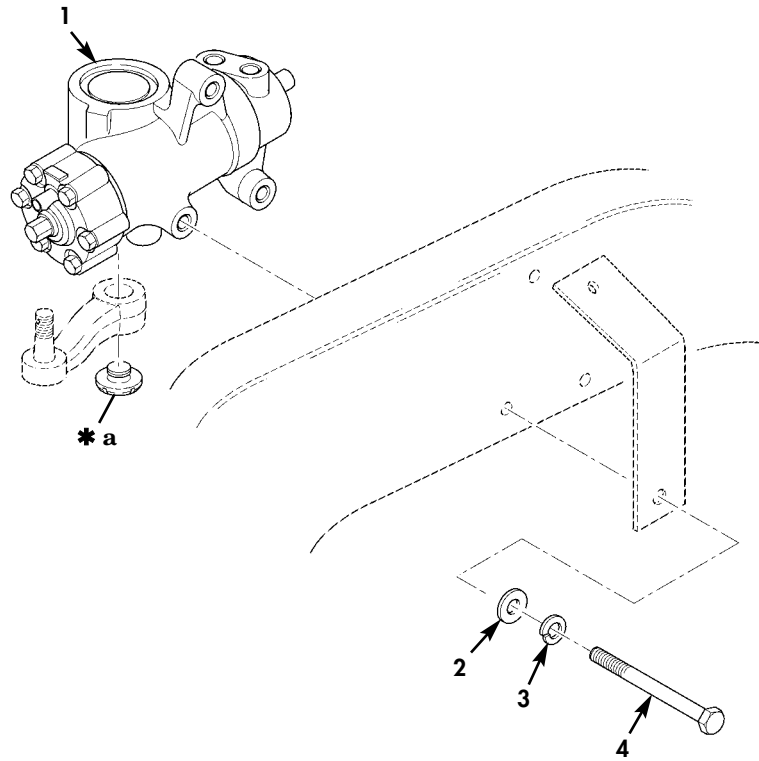
- * a PART OF ITEM 2
- * b PART OF ITEM 6
- * c PART OF ITEM 9
- * d PART OF ITEM 10
- * e PART OF ITEM 16

Figure 31. Steering Linkage (Serial Number 246890 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1401 MECHANICAL STEERING GEAR ASSEMBLY						
FIG. 31 STEERING LINKAGE (SERIAL NUMBER 246890 AND ABOVE)						
1	PAOZZ	5315000120123	80205	MS24665-355	PIN,COTTER.....	6
					UOC:TTA,UU2,UUA	
2	PAOZZ		63477	SE80289	IDLER ARM,STEERING.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	5310008506993	96906	MS35692-62	.NUT,PLAIN,SLOTTED,H.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ		01212	SE80271	DRAG LINK,STEERING.....	1
					UOC:TTA,UU2,UUA	
6	PAOZZ		78222	2596924	PITMAN ARM,STEERING.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	4730000504203	81343	AS15001-1	.FITTING,LUBRICATION.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ	5310008506993	96906	MS35692-62	.NUT,PLAIN,SLOTTED,H.....	1
					UOC:TTA,UU2,UUA	
9	PAOOO	2530015544728	34623	6028192	TIE ROD,STEERING L.H. AND R.H.....	2
					UOC:TTA,UU2,UUA	
10	PAOZZ		63477	SE639	.TIE ROD END,STEERIN R.H. THREAD....	1
					UOC:TTA,UU2,UUA	
11	PAOZZ	4730000504205	81343	AS15001-3	..FITTING,LUBRICATION.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	5310012122213	7X677	9428308	..NUT,PLAIN,SLOTTED,H 5/8-18.....	1
					UOC:TTA,UU2,UUA	
13	PAOZZ		81349	M45913/4-7CG8Z	.NUT,SELF-LOCKING,HE 7/16-14.....	2
					UOC:TTA,UU2,UUA	
14	PAOZZ	5305000712056	80204	B1821BH044C175N	.SCREW,CAP,HEXAGON H 7/16-14 X 1.75.	2
					UOC:TTA,UU2,UUA	
15	PAOZZ		63477	SE80886	.CLAMP,LOOP.....	2
					UOC:TTA,UU2,UUA	
16	PAOZZ		63477	SE640	.TIE ROD END,STEERIN L.H. THREAD....	1
					UOC:TTA,UU2,UUA	
17	PAOZZ	4730000504205	81343	AS15001-3	..FITTING,LUBRICATION.....	1
					UOC:TTA,UU2,UUA	
18	PAOZZ	5310012122213	7X677	9428308	..NUT,PLAIN,SLOTTED,H 5/8-18.....	1
					UOC:TTA,UU2,UUA	
19	PAOZZ	5310011517347	24617	2436167	WASHER,FLAT 5/8.....	2
					UOC:TTA,UU2,UUA	
20	PAOZZ	5305010322312	80204	B1821BH050C600N	SCREW,CAP,HEXAGON H 1/2-13 X 6.00...	2
					UOC:TTA,UU2,UUA	
21	PAOZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2.....	4
					UOC:TTA,UU2,UUA	
22	PAOZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13.....	2
					UOC:TTA,UU2,UUA	

END OF FIGURE

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* a PART OF ITEM 1

Figure 32. Power Steering Gear and Mounting Hardware (Serial Number 246890 and Above).

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 1407 POWER STEERING GEAR ASSEMBLY	
					FIG. 32 POWER STEERING GEAR AND MOUNTING HARDWARE (SERIAL NUMBER 246890 AND ABOVE)	
1	PAOFF		78222	M83PAQ2	STEERING GEAR.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310011517347	24617	2436167	WASHER,FLAT 5/8.....	3
					UOC:TTA,UU2,UUA	
3	PAOZZ	5310009370453	80205	MS35338-145	WASHER,LOCK 5/8.....	3
					UOC:TTA,UU2,UUA	
4	PAOZZ	5305007262567	80204	B1821BH063F500N	SCREW,CAP,HEXAGON H 5/8-24 X 5.00...	3
					UOC:TTA,UU2,UUA	

END OF FIGURE

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REPAIR PARTS AND SPECIAL TOOLS LIST
TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

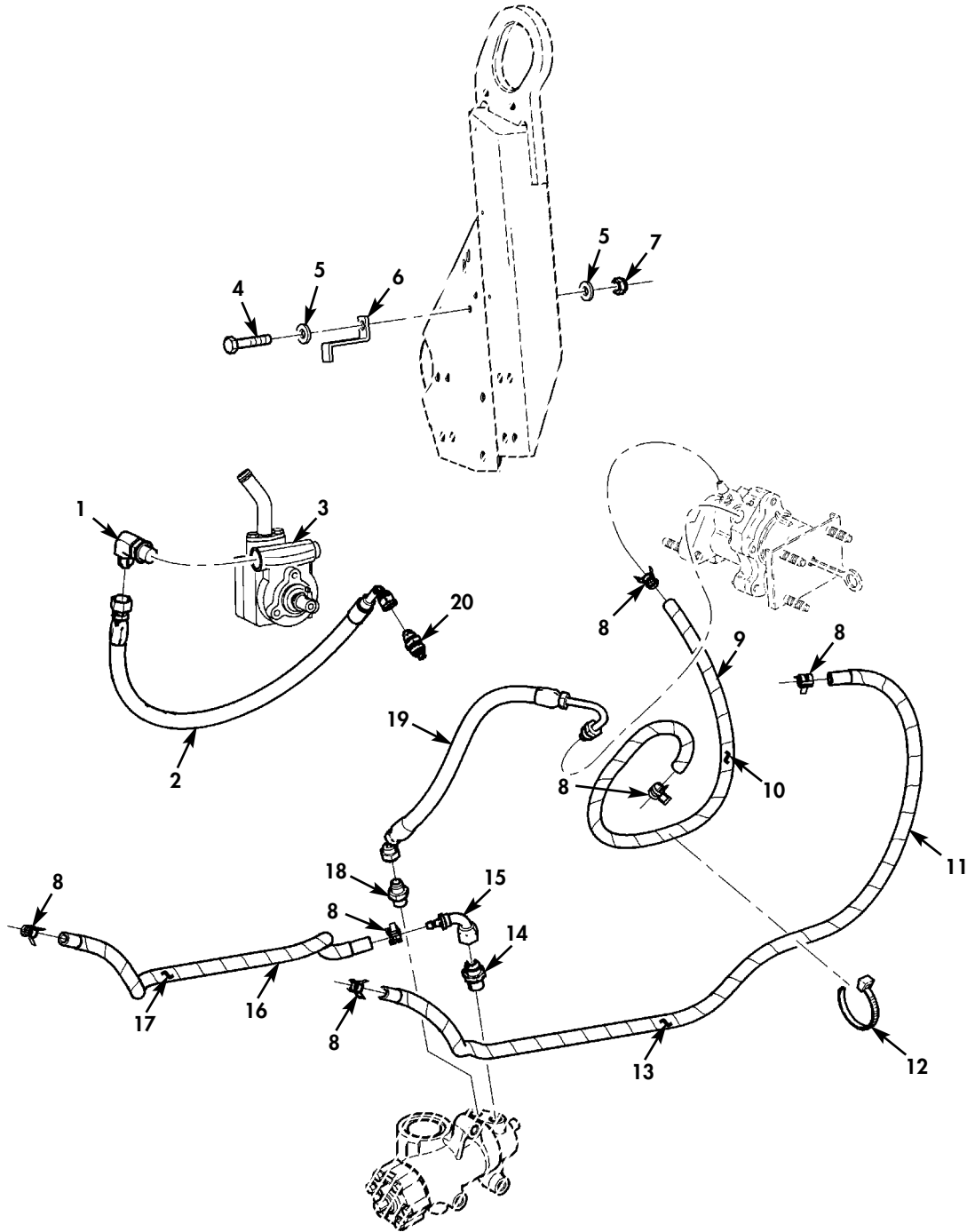


Figure 33. Power Steering Hoses (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1410 HYDRAULIC PUMP OR FLUID MOTOR ASSEMBLY						
FIG. 33 POWER STEERING HOSES (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	4730013588538	01276	GG308-NP08-18	ELBOW,TUBE TO BOSS.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	4720014886156	34623	12469489	HOSE ASSEMBLY,NONME.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	2530015544731	34623	6500522	PUMP ASSEMBLY,POWER.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ	5306002264828	80204	B1821BH031C113N	BOLT,MACHINE 5/16-24 X 1.125.....	1
					UOC:TTA,UU2,UUA	
5	PAOZZ	5310011191024	24617	2436162	WASHER,FLAT 5/16.....	2
					UOC:TTA,UU2,UUA	
6	PAOZZ		34623	6042882	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
7	PAOZZ	5310009318167	96906	MS51967-6	NUT,PLAIN,HEXAGON 5/16-18.....	1
					UOC:TTA,UU2,UUA	
8	PAOZZ	5340014732692	34623	6008528	CLAMP,LOOP.....	V
					UOC:TTA,UU2,UUA	
9	MOOZZ		34623	6043145-32IN	HOSE ASSEMBLY,NONME POWER STEERING GEAR TO HYDRO-BOOST,MAKE FROM HOSE P/N 5741209,32 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
10	MOOZZ		34623	6037172-35IN	TUBING,PLASTIC SPIR MAKE FROM TUBING,PLASTIC P/N 6037172,35 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
11	MOOZZ		34623	6043147-60IN	HOSE ASSEMBLY,NONME POWER STEERING GEAR TO OIL COOLER,MAKE FROM HOSE P/N 5741209,60 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
12	PAOZZ	5975008994606	96906	MS3367-2-0	STRAP,TIEDOWN,ELECT.....	V
					UOC:TTA,UU2,UUA	
13	MOOZZ		34623	6037172-60IN	TUBING,PLASTIC SPIR MAKE FROM TUBING,PLASTIC P/N 6037172,60 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
14	PAOZZ	4730013592382	01276	GG108-NP08-18	ADAPTER,STRAIGHT,TU.....	1
					UOC:TTA,UU2,UUA	
15	PAOZZ	4730015280977	01276	191321-8-6S	ELBOW,TUBE TO HOSE.....	1
					UOC:TTA,UU2,UUA	
16	MOOZZ		34623	6043146-32IN	HOSE ASSEMBLY,NONME POWER STEERING GEAR TO OIL COOLER,MAKE FROM HOSE P/N 5741209,32 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
17	MOOZZ		34623	6037172-30IN	TUBING,PLASTIC SPIR MAKE FROM TUBING,PLASTIC P/N 6037172,30 INCHES LONG.....	1
					UOC:TTA,UU2,UUA	
18	PAOZZ	4730015221312	30780	6M16F82EDMX-S	ADAPTER,STRAIGHT,PI.....	1
					UOC:TTA,UU2,UUA	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
19	PAOZZ	4720015587665	34623	RCSK23646	HOSE ASSEMBLY, NONME HYDRO-BOOST TO POWER STEERING GEAR..... UOC: TTA, UU2, UUA	1
20	PAOZZ	4730014934056	01276	FF3323-0706-259	ADAPTER, STRAIGHT, TU..... UOC: TTA, UU2, UUA	1

END OF FIGURE

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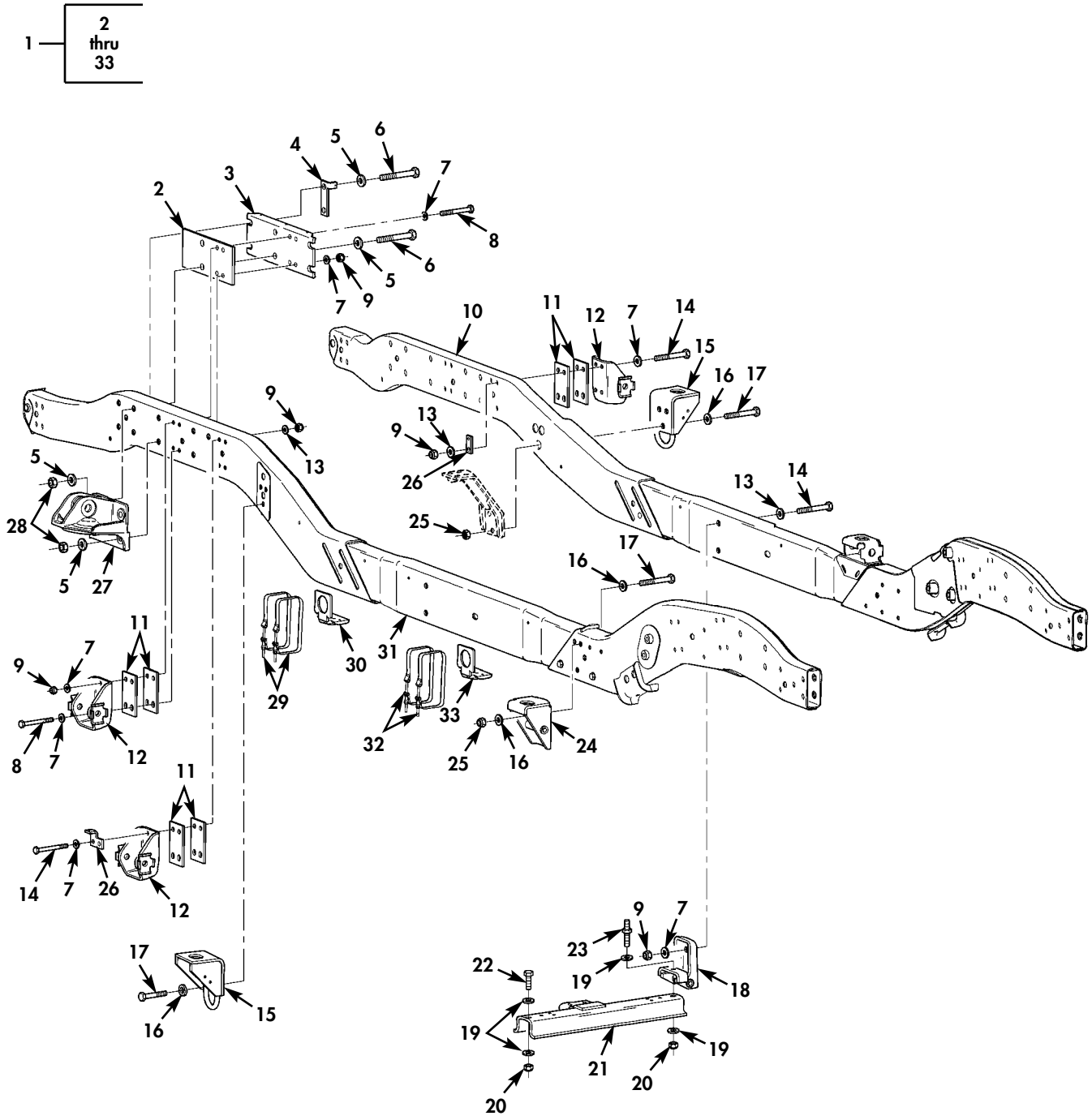


Figure 34. Frame Assembly, Body Mount Brackets, and Transmission Crossmembers
 (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 34 FRAME ASSEMBLY, BODY MOUNT BRACKETS, AND TRANSMISSION CROSSMEMBERS (SERIAL NUMBER 300000 AND ABOVE)						
1	XDHHH		34623	6030396	FRAME, STRUCTURAL, VE.....	1
					UOC: TTA, UU2, UUA	
2	PAFZZ		34623	6041932	.PLATE, MOUNTING.....	2
					UOC: TTA, UU2, UUA	
3	PAFZZ		34623	6030775	.PLATE, MOUNTING.....	2
					UOC: TTA, UU2, UUA	
4	PFFZZ		34623	6033318	.BRACKET, VEHICULAR C PARKING BRAKE RETURN SPRING, R.H.....	1
					UOC: TTA, UU2, UUA	
5	PAFZZ	5310011474052	23862	2436168	.WASHER, FLAT 3/4.....	14
					UOC: TTA, UU2, UUA	
6	PAFZZ	5305009474361	80204	B1821BH075C475N	.SCREW, CAP, HEXAGON H 3/4-10 X 4.75..	4
					UOC: TTA, UU2, UUA	
7	PAFZZ	5310011211703	24617	2436165	.WASHER, FLAT 1/2.....	28
					UOC: TTA, UU2, UUA	
8	PAFZZ	5305000712081	80204	B1821BH050C450N	.SCREW, CAP, HEXAGON H 1/2-13 X 4.50..	8
					UOC: TTA, UU2, UUA	
9	PAFZZ	5310004883889	96906	MS51943-39	.NUT, SELF-LOCKING, HE 1/2-13.....	24
					UOC: TTA, UU2, UUA	
10	PBHZZ		34623	6038360	.FRAME SECTION, STRUC L.H.....	1
					UOC: TTA, UU2, UUA	
11	PAFZZ	5365015026879	19207	12469415-2	.SPACER, PLATE .125.....	8
					UOC: TTA, UU2, UUA	
12	PAFZZ	2590012154325	19207	12338245	BRACKET, VEHICULAR C REAR, UPPER L.H. AND R.H.....	4
					UOC: TTA, UU2, UUA	
13	PAFZZ	5310008664417	19207	10910174-5	.WASHER, FLAT 1/2.....	10
					UOC: TTA, UU2, UUA	
14	PAFZZ	5305000711783	80204	B1821BH050C425N	.SCREW, CAP, HEXAGON H 1/2-13 X 4.25..	12
					UOC: TTA, UU2, UUA	
15	PAFZZ		34623	6030647	.BRACKET, VEHICULAR C L.H.....	1
					UOC: TTA, UU2, UUA	
15	PAFZZ		34623	6030648	.BRACKET, VEHICULAR C R.H.....	1
					UOC: TTA, UU2, UUA	
16	PAFZZ	5310011517347	24617	2436167	.WASHER, FLAT 5/8.....	12
					UOC: TTA, UU2, UUA	
17	PAFZZ	5305007247236	80204	B1821BH063C325N	.SCREW, CAP, HEXAGON H 5/8-11 X 3.25..	9
					UOC: TTA, UU2, UUA	
18	PFFZZ	2590011860863	19207	12338185	.BRACKET, VEHICULAR C.....	2
					UOC: TTA, UU2, UUA	
19	PAFZZ	5310000685285	96906	MS27183-20	.WASHER, FLAT 9/16.....	4
					UOC: TTA, UU2, UUA	
20	PAFZZ	5310000443342	19204	8712289-5	.NUT, SELF-LOCKING, HE 9/16-12.....	2
					UOC: TTA, UU2, UUA	
21	PAFZZ	2510014124969	19207	12447053	.FRAME SECTION, STRUC.....	1
					UOC: TTA, UU2, UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
22	PAFZZ	5305007167680	80204	B1821BH056C150N	.SCREW,CAP,HEXAGON H 9/16-12 X 1.50. UOC:TTA,UU2,UUA	1
23	PAFZZ	5307014503072	19207	12447177	.STUD,SHOULDERED..... UOC:TTA,UU2,UUA	1
24	PAFZZ		34623	6031217	.BRACKET,VEHICULAR C..... UOC:TTA,UU2,UUA	1
25	PAFZZ	5310000614651	81349	M45913/1-10CG8C	.NUT,SELF-LOCKING,HE 5/8-11..... UOC:TTA,UU2,UUA	6
26	PAFZZ		34623	6042797	.BRACKET,VEHICULAR C..... UOC:TTA,UU2,UUA	1
27	PFFZZ	2590012484873	19207	12338738	.BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	2
28	PAFZZ	5310004093333	81349	M45913/3-12CG8C	.NUT,SELF-LOCKING,HE 3/4-10..... UOC:TTA,UU2,UUA	8
29	PAFZZ		54646	974HW-1750	.BAND,RETAINING..... UOC:TTA,UU2,UUA	16
30	PAFZZ	5340015360557	6W728	4660639-000	.BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	8
31	PBHZZ		34623	6038361	.FRAME,STRUCTURAL,VE R.H..... UOC:TTA,UU2,UUA	1
32	PAOZZ		54646	974JG-1500	.BAND,RETAINING..... UOC:TTA,UU2,UUA	4
33	PAOZZ		34623	6043522	.BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	2

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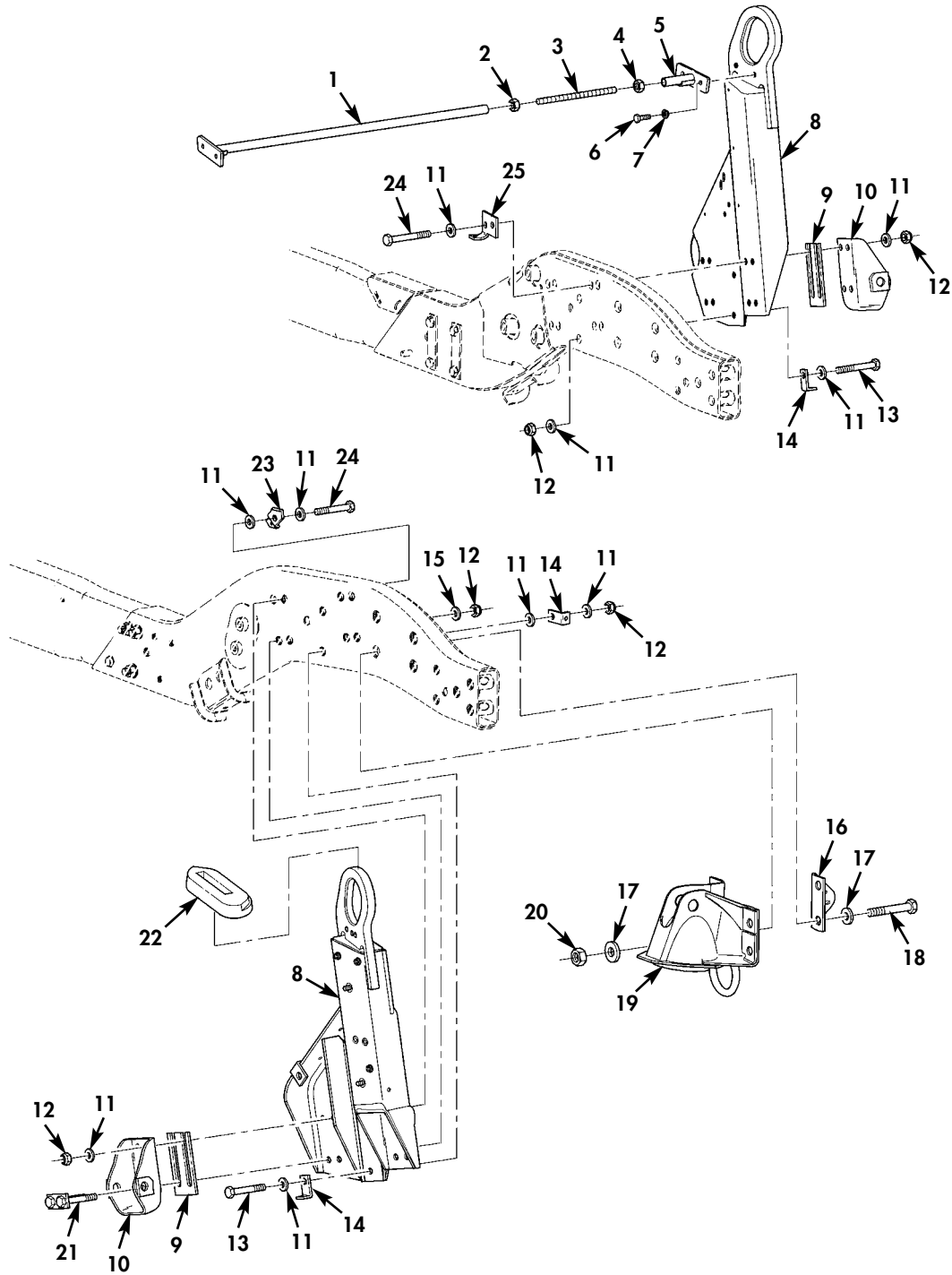


Figure 35. Air Lift Brackets, Front Upper Control Arm Brackets, Front Spring Seats, Crossbrace, and Mounting Brackets (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 35 AIR LIFT BRACKETS, FRONT UPPER CONTROL ARM BRACKETS, FRONT SPRING SEATS, CROSSBRACE, AND MOUNTING BRACKETS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAFZZ		34623	6031568	CROSSBRACE.....	1
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310014654525	24617	9418753	NUT,PLAIN,HEXAGON 1/2-13.....	1
					UOC:TTA,UU2,UUA	
3	PAOZZ	5306015463599	19207	12469418-1	ROD,THREADED END.....	1
					UOC:TTA,UU2,UUA	
4	PAOZZ	5310015013086	81349	M45913/3-8CG8Z	NUT,SELF,LOCKING HE 1/2-13.....	1
					UOC:TTA,UU2,UUA	
5	PAFZZ		34623	6031571	BRACKET,MOUNTING.....	1
					UOC:TTA,UU2,UUA	
6	PAFZZ	5306002264827	80204	B1821BH031C100N	BOLT,MACHINE 5/16-18 X 1.00.....	4
					UOC:TTA,UU2,UUA	
7	PAFZZ	5310011191024	24617	2436162	WASHER,FLAT 5/16.....	4
					UOC:TTA,UU2,UUA	
8	PAFZZ		34623	6030404	BRACKET,LIFT,VEHICU L.H.....	1
					UOC:TTA,UU2,UUA	
8	PAFZZ		34623	6031708	BRACKET,LIFT,VEHICU R.H.....	1
					UOC:TTA,UU2,UUA	
9	PAFZZ	5365012097832	19207	12338226-2	SPACER,PLATE .250 INCH.....	V
					UOC:TTA,UU2,UUA	
10	PAFZZ	2590012154325	19207	12338245	BRACKET,VEHICULAR C FRONT,UPPER L.H. AND R.H.....	4
					UOC:TTA,UU2,UUA	
11	PAFZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2.....	22
					UOC:TTA,UU2,UUA	
12	PAFZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13.....	18
					UOC:TTA,UU2,UUA	
13	PAFZZ	5305000712078	80204	B1821BH050C375N	SCREW,CAP,HEXAGON H 1/2-13 X 3.75...	2
					UOC:TTA,UU2,UUA	
14	PFFZZ	5340011902248	19207	12338170	BRACKET,ANGLE.....	3
					UOC:TTA,UU2,UUA	
15	PAFZZ	5310008664417	19207	10910174-5	WASHER,FLAT 1/2.....	8
					UOC:TTA,UU2,UUA	
16	PAFZZ		34623	6043156	BRACKET,VEHICULAR C.....	1
					UOC:TTA,UU2,UUA	
17	PAFZZ	5310011474052	23862	2436168	WASHER,FLAT 3/4.....	16
					UOC:TTA,UU2,UUA	
18	PAFZZ	5305009474358	80204	B1821BH075C400N	SCREW,CAP,HEXAGON H 3/4-10 X 4.00...	8
					UOC:TTA,UU2,UUA	
19	PAFZZ	2540011877034	19207	12338191-1	SEAT SPRING,VEHICUL L.H.....	1
					UOC:TTA,UU2,UUA	
19	PAFZZ	2540011883239	19207	12338191-2	SEAT SPRING,VEHICUL R.H.....	1
					UOC:TTA,UU2,UUA	
20	PAFZZ	5310004093333	81349	M45913/3-12CG8C	NUT,SELF-LOCKING,HE 3/4-10.....	8
					UOC:TTA,UU2,UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
21	PAFZZ	5340014570003	34623	6009794	BRACKET,MOUNTING L.H.,USE WITH .240 AND THICKER SHIM PACK..... UOC:TTA,UU2,UUA	2
21	PAFZZ	5340014569885	34623	6009792	BRACKET,MOUNTING R.H.,USE WITH SHIM PACK UP TO .180 THICK..... UOC:TTA,UU2,UUA	2
22	PAOZZ	2540015550462	34623	6016615	SEAL,COATED,AIRLIFT L.H..... UOC:TTA,UU2,UUA	1
22	PAOZZ	2540015550428	34623	6016616	SEAL,COATED,AIRLIFT R.H..... UOC:TTA,UU2,UUA	1
23	PFFZZ	5340012142089	19207	12338159	BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	1
24	PAFZZ	5305000712079	80204	B1821BH050C400N	SCREW,CAP,HEXAGON H 1/2-13 X 4.00... UOC:TTA,UU2,UUA	8
25	PAFZZ		34623	6032416	BRACKET,VEHICULAR C..... UOC:TTA,UU2,UUA	1

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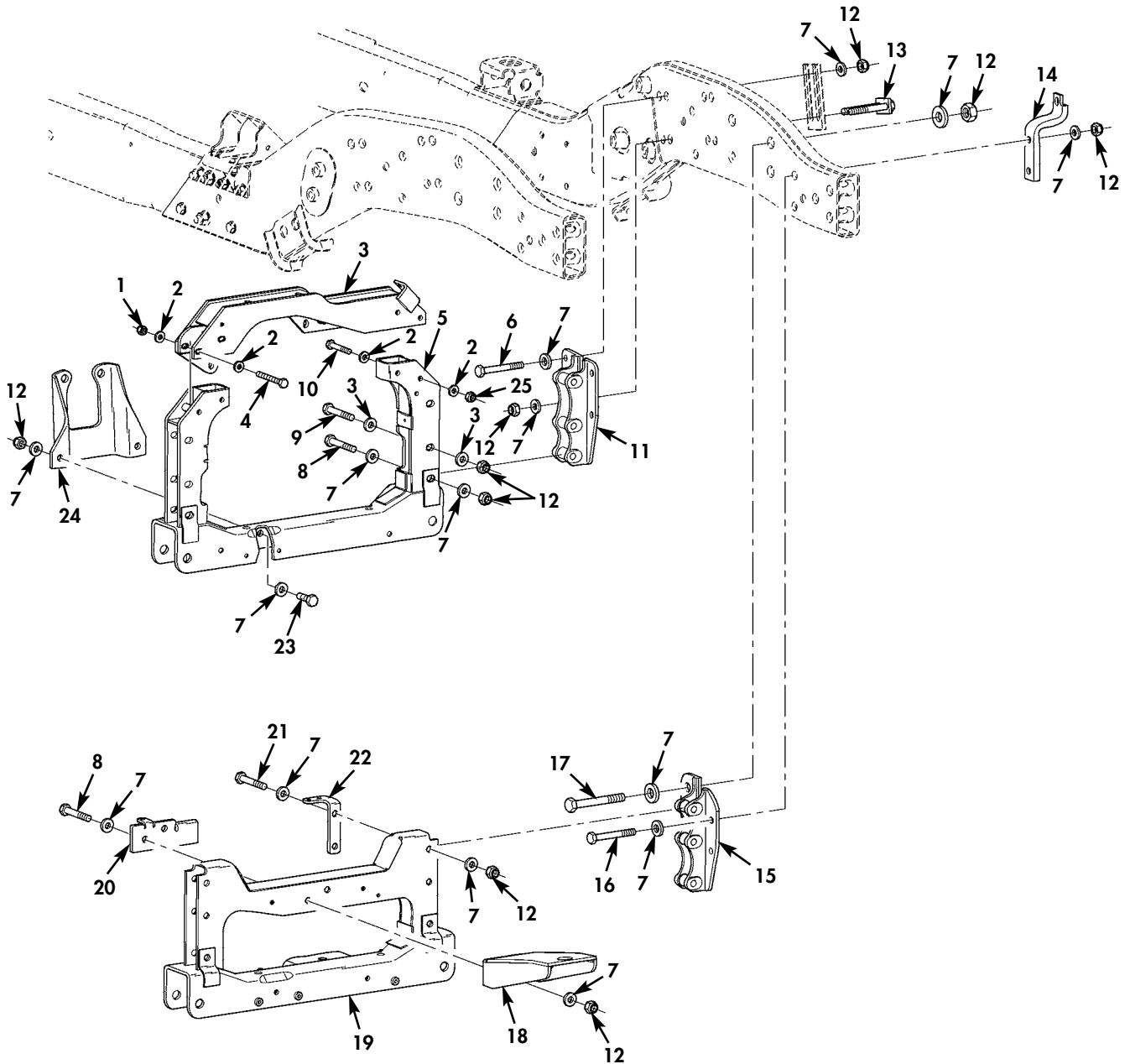


Figure 36. Front Suspension Crossmembers, Related Parts, and Mounting Hardware (Serial Number 30000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 36 FRONT SUSPENSION CROSSMEMBERS, RELATED PARTS, AND MOUNTING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5310009359021	96906	MS51943-35	NUT, SELF-LOCKING, HE 3/8-16.....	3
					UOC: TTA, JU2, UUA	
2	PAOZZ	5310014124013	24617	2436163	WASHER, FLAT 3/8.....	8
					UOC: TTA, JU2, UUA	
3	PAOZZ		34623	6033365	.FRAME, SECTION, STRUC.....	1
					UOC: TTA, JU2, UUA	
4	PAOZZ	5305007813927	80204	B1821BH038C350N	.SCREW, CAP, HEXAGON H 3/8-16 X 3.50..	3
					UOC: TTA, JU2, UUA	
5	PAFZZ		34623	6031640	FRAME, SECTION, STRUC FRONT, REAR.....	1
					UOC: TTA, JU2, UUA	
6	PAFZZ	5305000712079	80204	B1821BH050C400N	SCREW, CAP, HEXAGON H 1/2-13 X 4.00...	2
					UOC: TTA, JU2, UUA	
7	PAOZZ	5310011211703	24617	2436165	WASHER, FLAT 1/2.....	64
					UOC: TTA, JU2, UUA	
8	PAOZZ	5305000712076	80204	B1821BH050C325N	SCREW, CAP, HEXAGON H 1/2-13 X 3.25...	6
					UOC: TTA, JU2, UUA	
9	PAFZZ	5305000712075	80204	B1821BH050C300N	SCREW, CAP, HEXAGON H 1/2-13 X 3.00...	4
					UOC: TTA, JU2, UUA	
10	PAFZZ	5305007813928	80204	B1821BH038C400N	SCREW, CAP, HEXAGON H 3/8-16 X 4.00...	1
					UOC: TTA, JU2, UUA	
11	PAFZZ	2510011856647	19207	12338155-1	BRACKET, CROSSMEMBER L.H.....	1
					UOC: TTA, JU2, UUA	
11	PAFZZ	2510011856648	19207	12338155-2	BRACKET, CROSSMEMBER R.H.....	1
					UOC: TTA, JU2, UUA	
12	PAOZZ	5310004883889	96906	MS51943-39	NUT, SELF-LOCKING, HE 1/2-13.....	28
					UOC: TTA, JU2, UUA	
13	PAFZZ	5340014570003	34623	6009794	BRACKET, MOUNTING L.H., USE WITH .240 AND THICKER SHIM PACK.....	2
					UOC: TTA, JU2, UUA	
13	PAFZZ	5340014569885	34623	6009792	BRACKET, MOUNTING R.H., USE WITH SHIM PACK UP TO .180 THICK.....	2
					UOC: TTA, JU2, UUA	
14	PAFZZ	5340014847646	19207	12447051	BRACKET, MOUNTING.....	2
					UOC: TTA, JU2, UUA	
15	PAFZZ	2510011890891	19207	12338149-1	BRACKET, CROSSMEMBER L.H.....	1
					UOC: TTA, JU2, UUA	
15	PAFZZ	2510011877031	19207	12338149-2	BRACKET, CROSSMEMBER R.H.....	1
					UOC: TTA, JU2, UUA	
16	PAFZZ	5305000712077	80204	B1821BH050C350N	SCREW, CAP, HEXAGON H 1/2-13 X 3.50...	4
					UOC: TTA, JU2, UUA	
17	PAFZZ	5305009474358	80204	B1821BH075C400N	SCREW, CAP, HEXAGON H 3/4-10 X 4.00...	4
					UOC: TTA, JU2, UUA	
18	PAFZZ		34623	6039565	BRACKET, VEHICULAR C RADIATOR SUPPORT	1
					UOC: TTA, JU2, UUA	
19	PAFZZ		34623	6031502	FRAME, STRUCTURAL, VE FRONT.....	1
					UOC: TTA, JU2, UUA	

TB 9-2320-335-13&P

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
20	PAOZZ		34623	6043102	BRACKET,VEHICULAR C BRAKE LINE MOUNTING..... UOC:TTA,UU2,UUA	1
21	PAOZZ	5305000712074	80204	B1821BH050C275N	SCREW,CAP,HEXAGON H 1/2-13 X 2.75... UOC:TTA,UU2,UUA	2
22	PFOZZ		34623	6032372	BRACKET,VEHICULAR C..... UOC:TTA,UU2,UUA	1
23	PAFZZ	5305000712067	80204	B1821BH050C125N	SCREW,CAP,HEXAGON H 1/2-13 X 1.25... UOC:TTA,UU2,UUA	2
24	PAFZZ	5340014328680	34623	6002219	BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	1
25	PAFZZ	5310007610654	96906	MS51967-9	NUT,PLAIN,HEXAGON 3/8-16..... UOC:TTA,UU2,UUA	1

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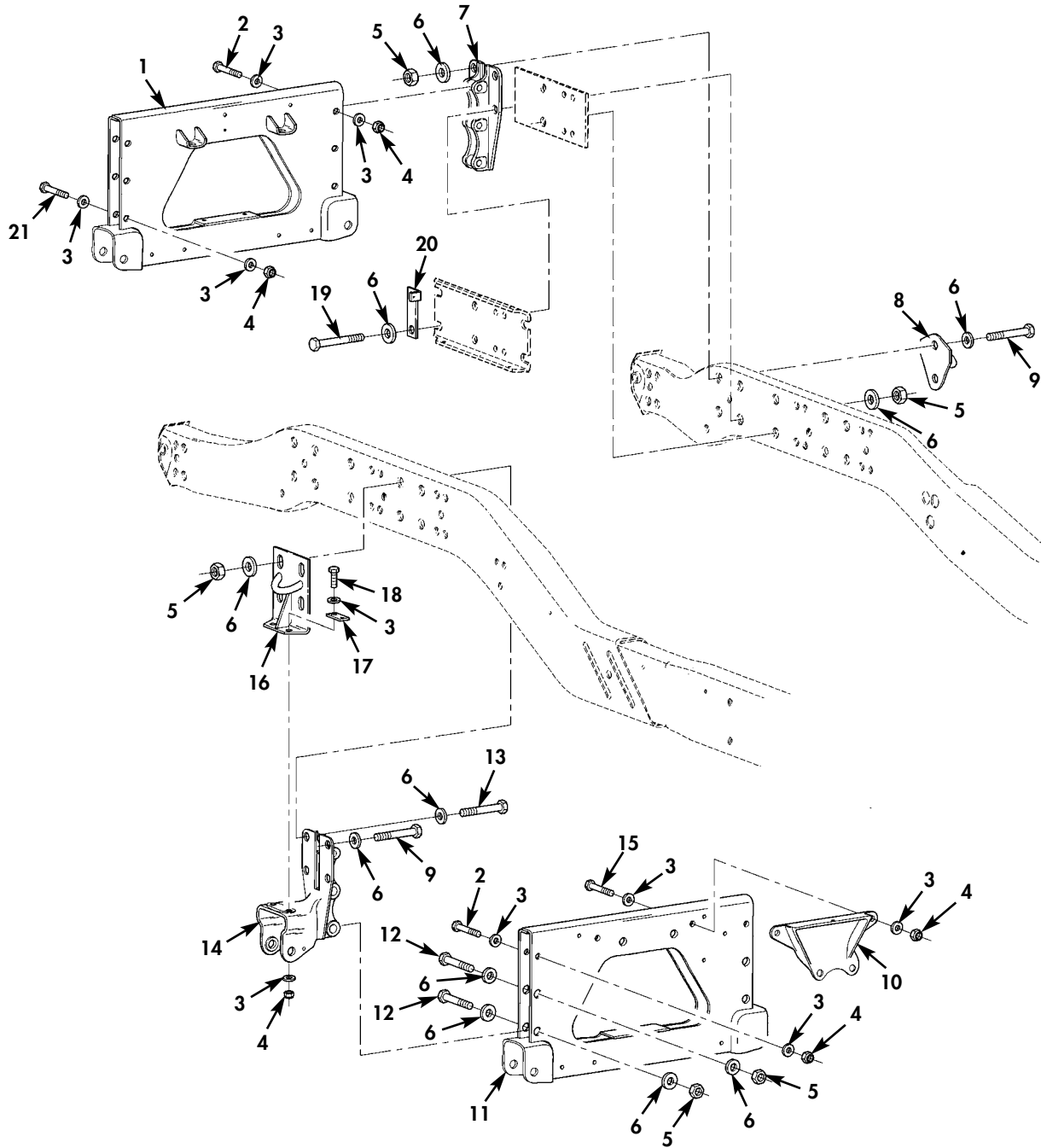


Figure 37. Rear Suspension Crossmembers, Related Parts, and Mounting Hardware (Serial Number 30000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 37 REAR SUSPENSION CROSSMEMBERS, RELATED PARTS, AND MOUNTING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAFZZ		34623	6042432	FRAME, STRUCTURAL, VE REAR, REAR.....	1
					UOC: TTA, UU2, UUA	
2	PAFZZ	5305000712074	80204	B1821BH050C275N	SCREW, CAP, HEXAGON H 1/2-13 X 2.75...	6
					UOC: TTA, UU2, UUA	
3	PAFZZ	5310011211703	24617	2436165	WASHER, FLAT 1/2.....	28
					UOC: TTA, UU2, UUA	
4	PAFZZ	5310004883889	96906	MS51943-39	NUT, SELF-LOCKING, HE 1/2-13.....	14
					UOC: TTA, UU2, UUA	
5	PAFZZ	5310004093333	81349	M45913/3-12CG8C	NUT, SELF-LOCKING, HE 3/4-10.....	20
					UOC: TTA, UU2, UUA	
6	PAFZZ	5310011474052	23862	2436168	WASHER, FLAT 3/4.....	40
					UOC: TTA, UU2, UUA	
7	PFFZZ	2510011877033	19207	12338148	FRAME SECTION, STRUC.....	2
					UOC: TTA, UU2, UUA	
8	PFFZZ	5340011867664	19207	12338181	LOOP, STRAP FASTENER.....	2
					UOC: TTA, UU2, UUA	
9	PAFZZ	5305009474359	80204	B1821BH075C425N	SCREW, CAP, HEXAGON H 3/4-10 X 4.25...	8
					UOC: TTA, UU2, UUA	
10	PAFZZ	5340013017929	19207	12341900	BRACKET, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
11	PFFZZ	2510014334421	19207	12460235	FRAME SECTION, STRUC.....	1
					UOC: TTA, UU2, UUA	
12	PAFZZ	5305009474355	80204	B1821BH075C325N	SCREW, CAP, HEXAGON H 3/4-10 X 3.25...	4
					UOC: TTA, UU2, UUA	
13	PAFZZ	5305009474360	80204	B1821BH075C450N	SCREW, CAP, HEXAGON H 3/4-10 X 4.50...	4
					UOC: TTA, UU2, UUA	
14	PFFZZ	2510012106941	19207	12338224	BRACKET, SUSPENSION.....	2
					UOC: TTA, UU2, UUA	
15	PAFZZ	5305000712076	80204	B1821BH050C325N	SCREW, CAP, HEXAGON H 1/2-13 X 3.25...	2
					UOC: TTA, UU2, UUA	
16	PFFZZ	5340012042584	19207	12338197	BRACKET, MOUNTING.....	2
					UOC: TTA, UU2, UUA	
17	PAFZZ	5340012097767	19207	12338172	PLATE, MENDING.....	2
					UOC: TTA, UU2, UUA	
18	PAFZZ	5305000712069	80204	B1821BH050C150N	SCREW, CAP, HEXAGON H 1/2-13 X 1.50...	4
					UOC: TTA, UU2, UUA	
19	PAFZZ	5305009474361	80204	B1821BH075C475N	SCREW, CAP, HEXAGON H 3/4-10 X 4.75...	4
					UOC: TTA, UU2, UUA	
20	PFFZZ		34623	6033320	BRACKET, VEHICULAR C PARKING BRAKE RETURN SPRING, L.H.....	1
					UOC: TTA, UU2, UUA	
21	PAFZZ	5305000712075	80204	B1821BH050C300N	SCREW, CAP, HEXAGON H 1/2-13 X 3.00...	2
					UOC: TTA, UU2, UUA	

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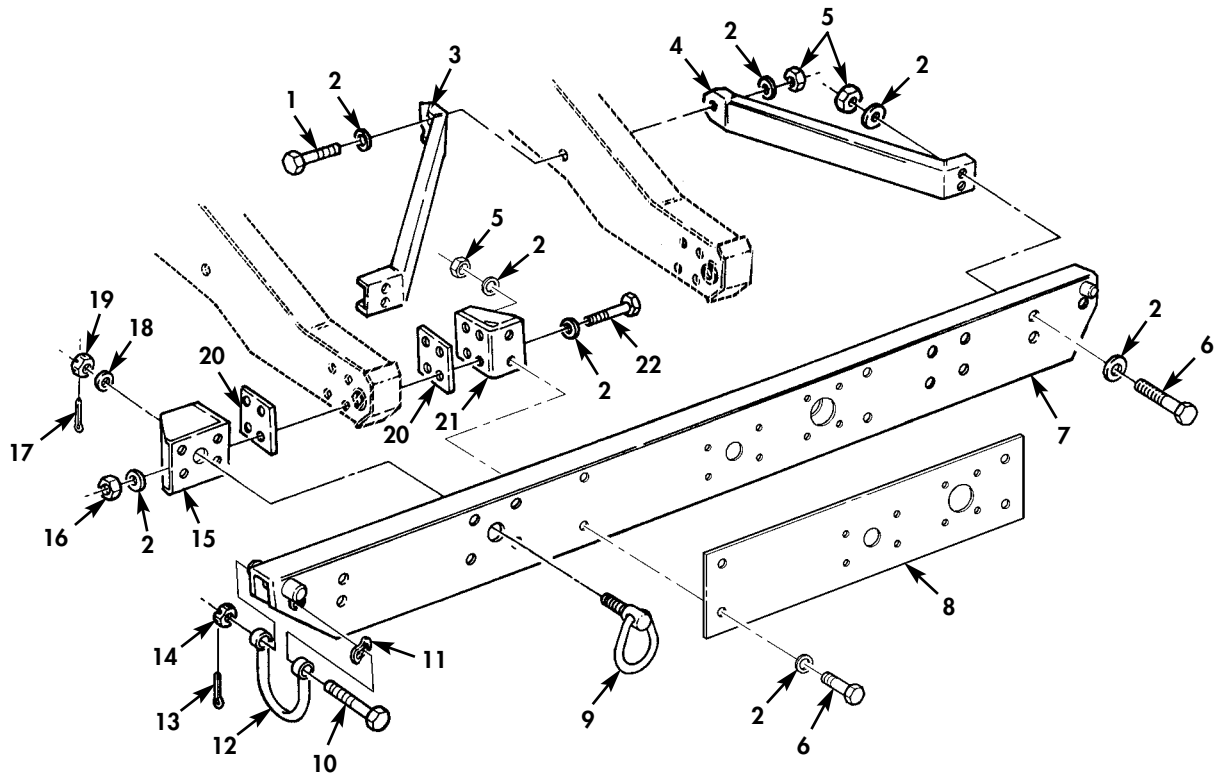


Figure 38. Rear Bumper and Lifting Shackle (Serial Number 300000 and Above).

SECTION II			TB 9-2320-335-13&P			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 38 REAR BUMPER AND LIFTING SHACKLE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5305000712075	80204	B1821BH050C300N	SCREW,CAP,HEXAGON H 1/2-13 X 3.00... UOC:TTA,UU2,UUA	2
2	PAOZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2..... UOC:TTA,UU2,UUA	36
3	PAOZZ	2540012573877	19207	12339186	BRACE ASSEMBLY,BUMP..... UOC:TTA,UU2,UUA	2
4	PFOZZ	2540013957999	34623	12342960	BRACKET,VEHICULAR B..... UOC:TTA,UU2,UUA	2
5	PAOZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13..... UOC:TTA,UU2,UUA	10
6	PAOZZ	5305000712077	80204	B1821BH050C350N	SCREW,CAP,HEXAGON H 1/2-13 X 3.50... UOC:TTA,UU2,UUA	8
7	PAOZZ	2540011964920	19207	12469405	BUMPER,VEHICULAR..... UOC:TTA,UU2,UUA	1
8	PAOZZ	5340014987964	19207	12469169	PLATE,MOUNTING..... UOC:TTA,UU2,UUA	1
9	PAOZZ	5340014127514	19207	12447089-2	CONNECTOR,ROD END..... UOC:TTA,UU2,UUA	2
10	PAOZZ	5305012643602	19207	12338225-1	SCREW,CAP,HEXAGON H 5/8-18 X 5.50... UOC:TTA,UU2,UUA	2
11	PAOZZ	5310005957486	19207	7716721	WASHER,SPRING TENS 5/8..... UOC:TTA,UU2,UUA	2
12	PAOZZ	4030013161551	19207	12342354	SHACKLE..... UOC:TTA,UU2,UUA	2
13	PAOZZ	5315000120123	80205	MS24665-355	PIN,COTTER..... UOC:TTA,UU2,UUA	2
14	PAOZZ	5310008507004	96906	MS35692-54	NUT,PLAIN,SLOTTED,H 5/8-18..... UOC:TTA,UU2,UUA	2
15	PFOZZ	5340014088523	19207	12446989	BRACKET,MOUNTING OUTER,L.H..... UOC:TTA,UU2,UUA	1
15	PFOZZ	5340014088529	19207	12446990	BRACKET,MOUNTING OUTER,R.H..... UOC:TTA,UU2,UUA	1
16	PAOZZ	5310000614651	81349	M45913/1-10CG8C	NUT,SELF-LOCKING,HE 5/8-11..... UOC:TTA,UU2,UUA	8
17	PAOZZ	5315002398032	80205	MS24665-513	PIN,COTTER 3/32 X 1/2..... UOC:TTA,UU2,UUA	2
18	PAOZZ	5310011474052	23862	2436168	WASHER,FLAT 3/4..... UOC:TTA,UU2,UUA	2
19	PAOZZ	5310008506993	96906	MS35692-62	NUT,PLAIN,SLOTTED,H 3/4-20..... UOC:TTA,UU2,UUA	2
20	PAOZZ	5365012055377	19207	12338164	SPACER,PLATE..... UOC:TTA,UU2,UUA	4
21	PAOZZ	2541014864915	19207	12446991-3	BRACKET,VEHICULAR B MOUNTING INNER.. UOC:TTA,UU2,UUA	2
22	PAOZZ	5305007247264	80204	B1821BH063C450N	SCREW,CAP,HEXAGON H 5/8-11 X 4.50... UOC:TTA,UU2,UUA	8

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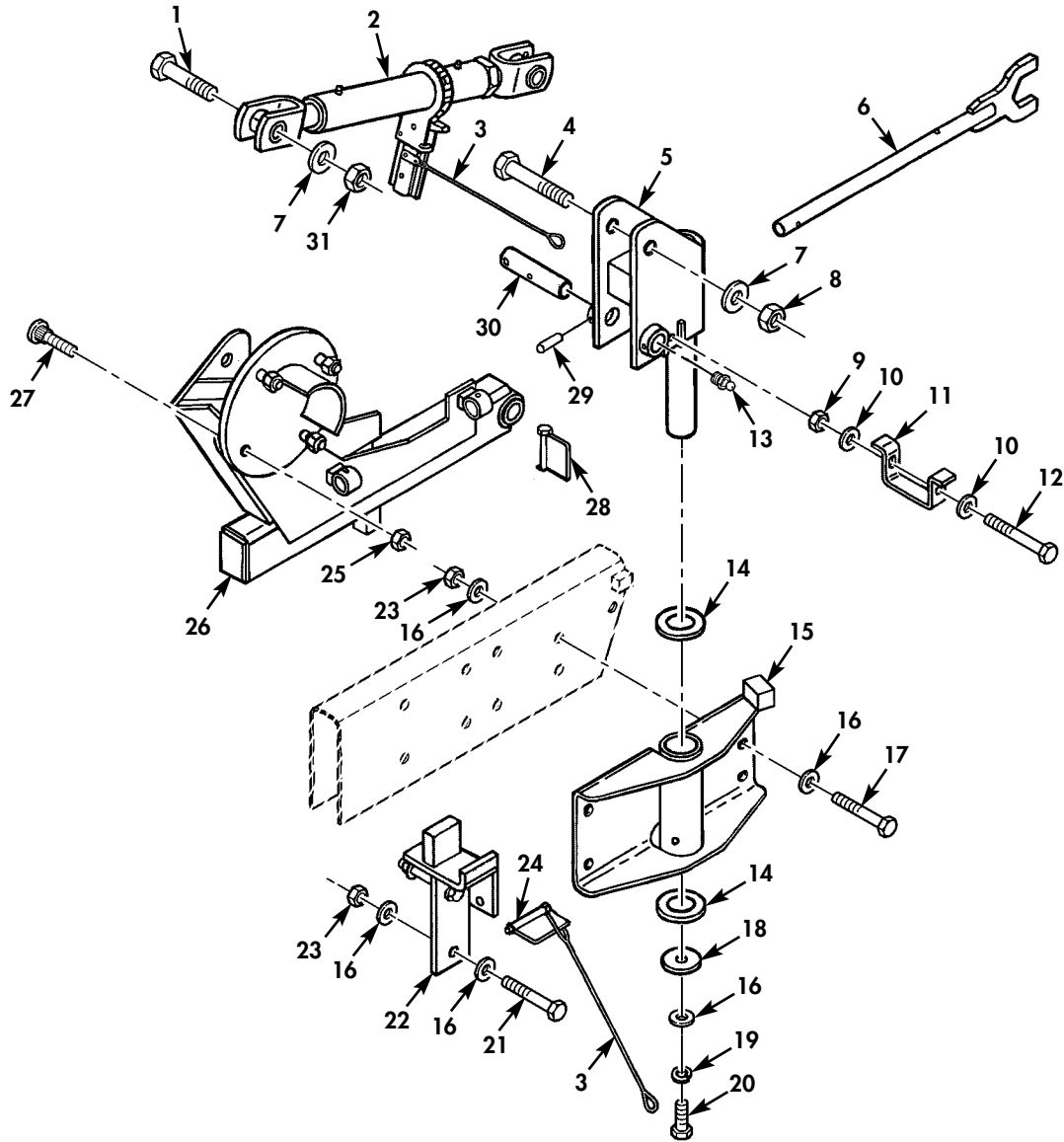


Figure 39. Drop Down Spare Tire Carrier Accessory Kit (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1504 SPARE WHEEL CARRIER AND TIRE LOCK						
FIG. 39 DROP DOWN SPARE TIRE CARRIER ACCESSORY KIT (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5305000712077	80204	B1821BH050C350N	SCREW,CAP,HEXAGON H 3/4-10 X 3.50 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
2	KFOZZ		0ZM57	99221173P	JACK,RATCHET,DRIVIN PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
3	KFOZZ		0ZM57	70061338	WIRE,ROPE ASSEMBLY PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	2
4	PAOZZ	5305009474360	80204	B1821BH075C450N	SCREW,CAP,HEXAGON H 3/4-10 X 4.50 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
5	PAOZZ	3010015428199	0ZM57	STA002-02P	COUPLING,SHAFT,FLEX PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
6	PAOZZ	5120015435919	0ZM57	STA010-01P	WRENCH,OPEN END PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
7	PAOZZ	5310008238804	96906	MS27183-9	WASHER,FLAT 3/4 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
8	PAOZZ	5310004093333	81349	M45913/3-12CG8C	NUT,SELF-LOCKING,HE 3/4-10 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
9	PAOZZ	5310009359021	96906	MS51943-35	NUT,SELF-LOCKING,HE 3/8-16 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
10	PAOZZ	5310014124013	24617	2436163	WASHER,FLAT 3/8 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	2
11	KFOZZ		0ZM57	ST023-02P	BRACKET,LEVER PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
12	PAOZZ	5305008576886	80204	B1821BH038C450N	SCREW,CAP,HEXAGON H 3/8-16 X 4.50 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
13	KFOZZ		0ZM57	H133	FITTING,LUBRICATION PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
14	KFOZZ		0ZM57	90171135	SPACER,RING PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	2
15	KFOZZ		0ZM57	STA001-05P	BRACKET,MOUNTING PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
16	PAOZZ	5310011211703	24617	2436165	WASHER,FLAT 1/2 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	13
17	PAOZZ	5305000712079	80204	B1821BH050C400N	SCREW,CAP,HEXAGON H 1/2-13 X 4.00 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	4
18	KFOZZ		0ZM57	ST019-01P	WASHER,FLAT PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
19	PAOZZ	5310001941483	80205	MS35333-44	WASHER,LOCK 1/2 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
20	PAOZZ	5305007320511	80204	B1821BH050C113N	SCREW,CAP,HEXAGON H 1/2-13 X 1.125 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
21	PAOZZ	5305000712081	80204	B1821BH050C450N	SCREW,CAP,HEXAGON H 1/2-13 X 4.50 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	2
22	KFOZZ		0ZM57	STA005-05P	BRACKET,MOUNTING PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
23	PAOZZ	5310004883889	96906	MS51943-39	NUT,SELF-LOCKING,HE 1/2-13 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	6
24	PAOZZ	5315015424594	0ZM57	70061343	PIN,LOCK PART OF KIT P/N STA007-05.. UOC:TTA,UU2,UUA	1
25	KFOZZ		0ZM57	H1593	NUT,PLAIN,HEXAGON H PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	4
26	KFOZZ		0ZM57	STA003-04P	RETAINER,SPARE TIRE PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
27	KFOZZ		0ZM57	H1594	BOLT,MACHINE PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	4
28	PAOZZ	5315015423872	0ZM57	70061342	PIN,LOCK PART OF KIT P/N STA007-05.. UOC:TTA,UU2,UUA	1
29	KFOZZ		0ZM57	H100	PIN,SPRING PART OF KIT P/N STA007-05 UOC:TTA,UU2,UUA	1
30	KFOZZ		0ZM57	ST021-01P	PIN,SRAIGHT,HX,HEAD PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
31	PAOZZ	5310011340206	24617	9422307	NUT,SELF-LOCKING,CO 3/4-10 PART OF KIT P/N STA007-05..... UOC:TTA,UU2,UUA	1
KIT	PAOZZ	2590015251995	0ZM57	STA007-05	RETAINER,SPARE TIRE..... UOC:TTA,UU2,UUA BOLT,MACHINE (4) 39-27 BRACKET,LEVER (1) 39-11 BRACKET,MOUNTING (1) 39-22 BRACKET,MOUNTING (1) 39-15 COUPLING,SHAFT,FLEX(1) 39-5 FITTING,LUBRICATION(1) 39-13 JACK,RATCHET,DRIVIN(1) 39-2	1

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR	NSN	CAGEC	PART	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
NO	CODE			NUMBER		
					NUT,PLAIN,HEXAGON H(	4) 39-25
					NUT,SELF-LOCKING,CO(	1) 39-31
					NUT,SELF-LOCKING,HE(	1) 39-9
					NUT,SELF-LOCKING,HE(	1) 39-8
					NUT,SELF-LOCKING,HE(	6) 39-23
					PIN,LOCK	(1) 39-28
					PIN,LOCK	(1) 39-24
					PIN,SPRING	(1) 39-29
					PIN,SRAIGHT,HX,HEAD(	1) 39-30
					RETAINER,SPARE TIRE(	1) 39-26
					SCREW,CAP,HEXAGON H(	1) 39-12
					SCREW,CAP,HEXAGON H(	1) 39-20
					SCREW,CAP,HEXAGON H(	1) 39-1
					SCREW,CAP,HEXAGON H(	1) 39-4
					SCREW,CAP,HEXAGON H(	2) 39-21
					SCREW,CAP,HEXAGON H(	4) 39-17
					SPACER,RING	(2) 39-14
					WASHER,FLAT	(1) 39-7
					WASHER,FLAT	(1) 39-18
					WASHER,FLAT	(13) 39-16
					WASHER,FLAT	(2) 39-10
					WASHER,LOCK	(1) 39-19
					WIRE,ROPE ASSEMBLY	(2) 39-3
					WRENCH,OPEN END	(1) 39-6

END OF FIGURE

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TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

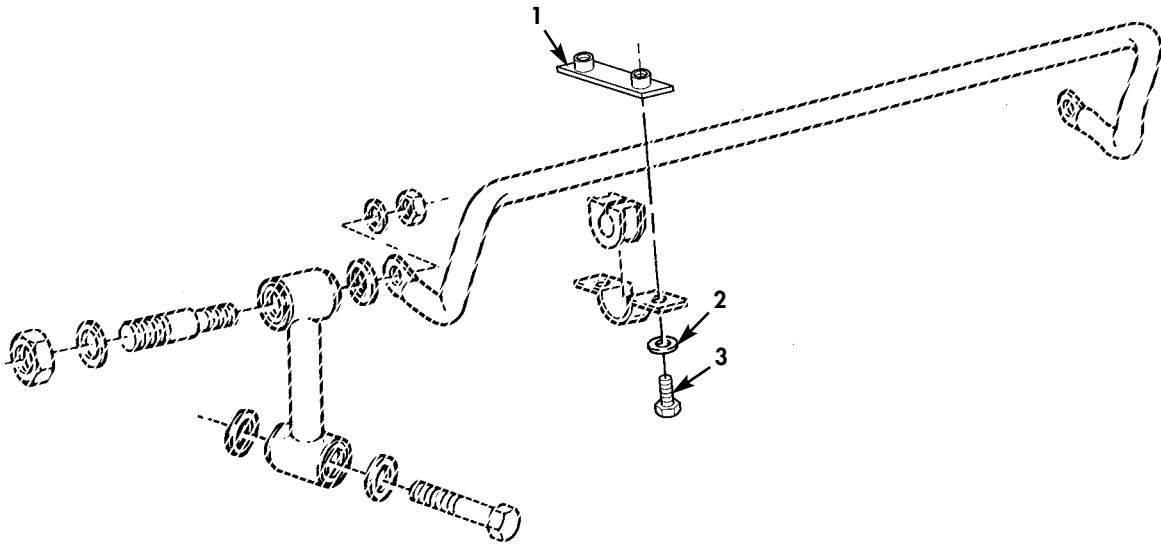


Figure 40. Stabilizer Bar Mounting Hardware (Serial Number 300000 and Above).

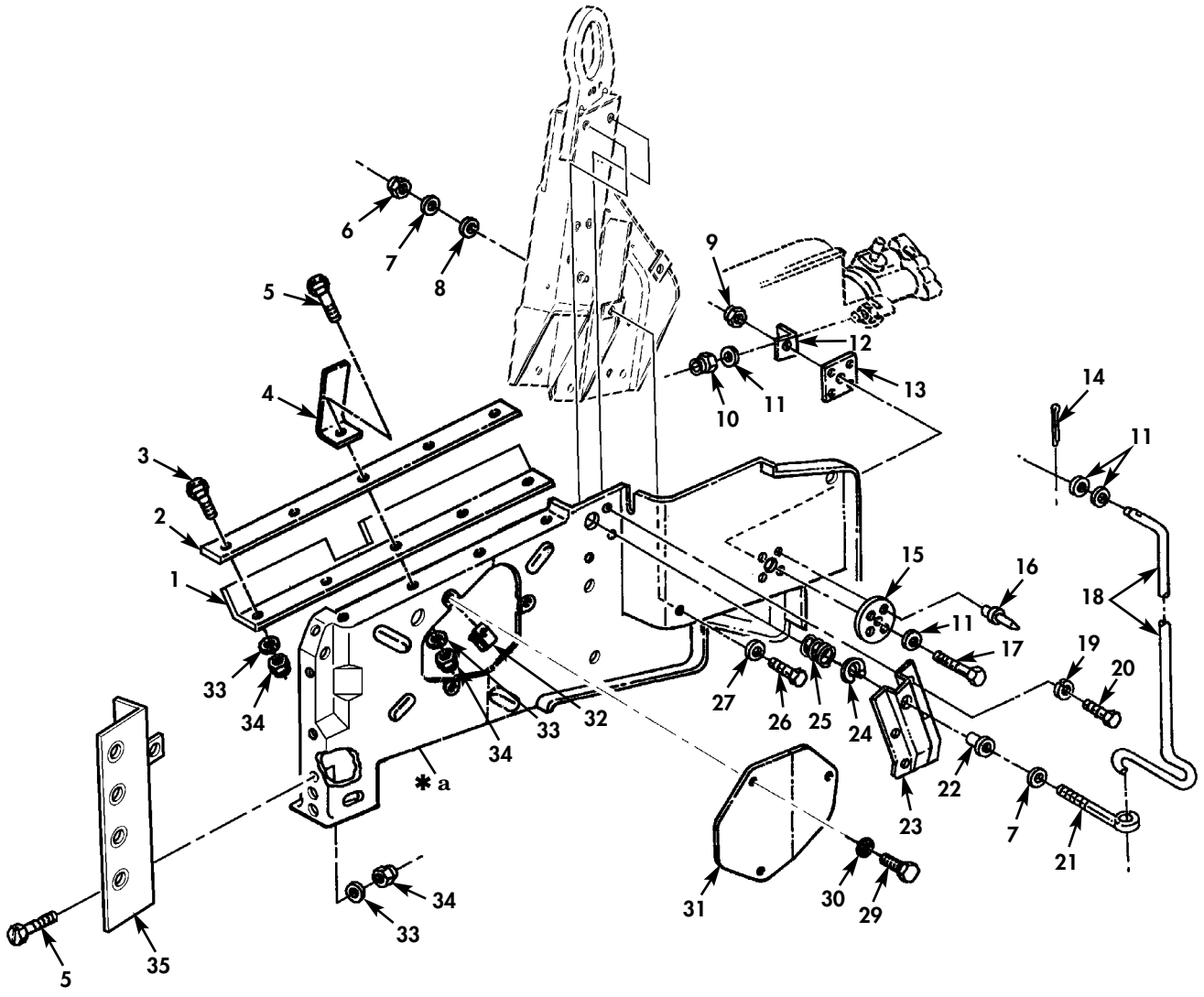
TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 1605 TORQUE, RADIUS, AND STABILIZER RODS	
					FIG. 40 STABILIZER BAR MOUNTING HARDWARE (SERIAL NUMBER 300000 AND ABOVE)	
1	PFOZZ		34623	6042476	PLATE,MOUNTING.....	2
					UOC:TTA,UU2,UUA	
2	PAOZZ	5310012866077	19207	12341856	WASHER,FLAT 7/16.....	4
					UOC:TTA,UU2,UUA	
3	PAOZZ	5305000711786	80204	B1821BH044C100N	SCREW,CAP,HEXAGON H 7/16-14 X 1.00..	4
					UOC:TTA,UU2,UUA	

END OF FIGURE

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 REPAIR PARTS AND SPECIAL TOOLS LIST
 TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES

28 — 29
thru
32



* a PART OF ITEM 28

Figure 41. Left-Hand Splash Shield, Radiator Side Armor, and Hood Prop Rod (Serial Number 30000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1801 BODY, CAB, HOOD, AND HULL ASSEMBLIES						
FIG. 41 LEFT-HAND SPLASH SHIELD, RADIATOR SIDE ARMOR, AND HOOD PROP ROD (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5330014568882	34623	12469025	SEAL, NONMETALLIC SP.....	1
					UOC: TTA, UU2, UUA	
2	PFOZZ	5330014335054	34623	12460527	PLATE, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
3	PAOZZ	5305012139852	72582	440502	SCREW, MACHINE.....	1
					UOC: TTA, UU2, UUA	
4	PAOZZ	5340014563913	34623	EC12460529B1	BRACKET, ANGLE.....	4
					UOC: TTA, UU2, UUA	
5	PAOZZ	5305002400194	96906	MS51849-76	SCREW, MACHINE 10-24 X 3/4.....	7
					UOC: TTA, UU2, UUA	
6	PAOZZ	5310008140673	81349	M45913/3-5CG8C	NUT, SELF-LOCKING, HE 5/16-18.....	1
					UOC: TTA, UU2, UUA	
7	PAOZZ	5310000814219	96906	MS27183-12	WASHER, FLAT 5/16.....	2
					UOC: TTA, UU2, UUA	
8	PAOZZ	5310014574009	24617	9421128	WASHER, FLAT 5/16.....	1
					UOC: TTA, UU2, UUA	
9	PAOZZ	5310009308214	96906	MS51988-7	NUT, SELF-LOCKING, EX 3/8-16.....	1
					UOC: TTA, UU2, UUA	
10	PAOZZ	5310009359021	96906	MS51943-35	NUT, SELF-LOCKING, HE 3/8-16.....	1
					UOC: TTA, UU2, UUA	
11	PAOZZ	5310000806004	96906	MS27183-14	WASHER, FLAT 3/8.....	4
					UOC: TTA, UU2, UUA	
12	PFOZZ	5340014599424	34623	EC12460528B1	BRACKET, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
13	PAOZZ	5365012529214	34623	5591577-B	SPACER, PLATE.....	1
					UOC: TTA, UU2, UUA	
14	PAOZZ	5315008423044	80205	MS24665-283	PIN, COTTER 3/32 X 3/4.....	1
					UOC: TTA, UU2, UUA	
15	PAOZZ	5365012468281	19207	12338637	SUPPORT ASSEMBLY, B.....	1
					UOC: TTA, UU2, UUA	
16	PAOZZ	5320012645978	19207	12339355-2	RIVET, BLIND 3/16 DIA., .214-.437 GRIP	4
					UOC: TTA, UU2, UUA	
17	PAOZZ	5305007252317	80204	B1821BH038C150N	SCREW, CAP, HEXAGON H 3/8-16 X 1.50...	1
					UOC: TTA, UU2, UUA	
18	PFOZZ	2510011856118	19207	12338915	ROD, HOOD, VEHICULAR.....	1
					UOC: TTA, UU2, UUA	
19	PAOZZ	5310005825965	80205	MS35338-44	WASHER, LOCK 1/4.....	4
					UOC: TTA, UU2, UUA	
20	PAOZZ	5305014614400	3M915	172447	SCREW, TAPPING 1/4-20 X 1.00.....	4
					UOC: TTA, UU2, UUA	
21	PAOZZ	5306011867129	19207	12339435	BOLT, EYE.....	1
					UOC: TTA, UU2, UUA	
22	PAOZZ	3120011867715	19207	12338895	BUSHING, SLEEVE.....	1
					UOC: TTA, UU2, UUA	
23	PFOZZ	5340011867229	19207	12338913	STRAP, RETAINING.....	1
					UOC: TTA, UU2, UUA	
24	PAOZZ	5325002821830	96906	MS16624-1066	RING, RETAINING.....	1
					UOC: TTA, UU2, UUA	

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
25	PAOZZ	5360012559899	73821	C0850-081-2250-M	SPRING,HELICAL,COMP..... UOC:TTA,UU2,UUA	1
26	PAOZZ	5306002258499	80205	MS90725-34	BOLT,MACHINE 5/16-18 X 1.00..... UOC:TTA,UU2,UUA	1
27	PAOZZ	5310011191024	24617	2436162	WASHER,FLAT 5/16..... UOC:TTA,UU2,UUA	1
28	PAOZZ	2540014750629	19207	12446953-4	GUARD,SPLASH,VEHICU..... UOC:TTA,UU2,UUA	1
29	PAOZZ	5305001159934	96906	MS51849-55	.SCREW,MACHINE 8-32 X 5/8..... UOC:TTA,UU2,UUA	3
30	PAOZZ	5310012134192	7X677	9423534	.WASHER,FLAT #8..... UOC:TTA,UU2,UUA	3
31	PAOZZ	5340014570459	19207	12446770	.COVER,ACCESS..... UOC:TTA,UU2,UUA	1
32	PAOZZ	5310015131935	34623	1494255	.NUT,SHEET SPRING #8-32..... UOC:TTA,UU2,UUA	3
33	PAOZZ	5310000145850	96906	MS27183-42	WASHER,FLAT #10..... UOC:TTA,UU2,UUA	8
34	PAOZZ	5310012699245	7X677	190254	NUT,SELF-LOCKING,HE 10-24..... UOC:TTA,UU2,UUA	8
35	PAOZZ	5340014342834	19207	12469026	BRACKET,MOUNTING..... UOC:TTA,UU2,UUA	1

END OF FIGURE

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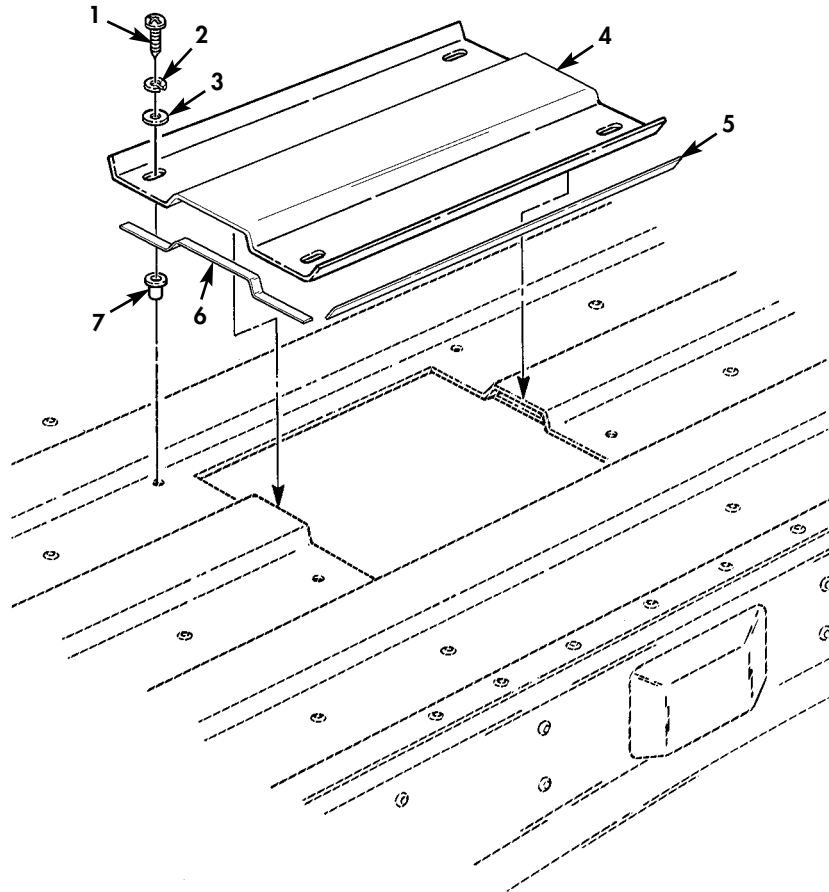


Figure 42. Parking Brake Access Cover and Related Hardware (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1801 BODY, CAB, HOOD, AND HULL ASSEMBLIES						
FIG. 42 PARKING BRAKE ACCESS COVER AND RELATED HARDWARE (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5305002253843	80204	B1821BH025C100N	SCREW,CAP,HEXAGON H 1/4-20 X 1.00... UOC:TTA,UU2,UUA	8
2	PAOZZ	5310005825965	80205	MS35338-44	WASHER,LOCK 1/4..... UOC:TTA,UU2,UUA	8
3	PAOZZ	5310011023270	24617	2436161	WASHER,FLAT 1/4..... UOC:TTA,UU2,UUA	8
4	PFOZZ		34623	6043073	COVER,ACCESS..... UOC:TTA,UU2,UUA	2
5	MOOZZ		12624	EP-3376-13IN	SEAL,NONMETALLIC MAKE FROM TAPE P/N EP-3376,13 INCHES LONG..... UOC:TTA,UU2,UUA	4
6	MOOZZ		12624	EP-3376-6.62IN	SEAL,NONMETALLIC MAKE FROM TAPE P/N EP-3376,6.62 INCHES LONG..... UOC:TTA,UU2,UUA	4
7	PAOZZ	5325015482516	78276	AKS4-420-260	INSERT,SCREW THREAD 1/4-20..... UOC:TTA,UU2,UUA	8

END OF FIGURE

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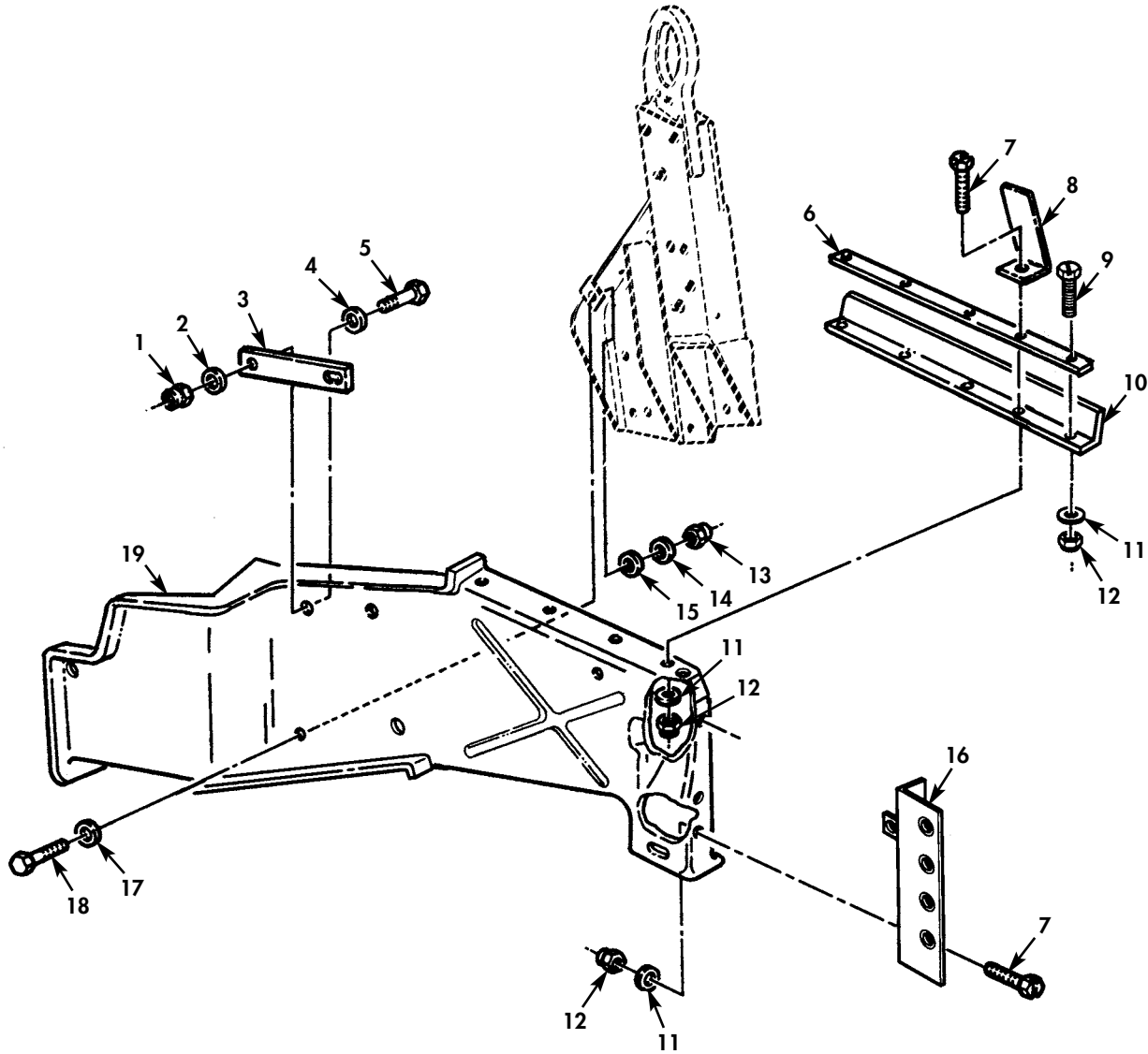


Figure 43. Right-Hand Splash Shield (Serial Number 300000 and Above).

SECTION II			TB 9-2320-335-13&P			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM NO	SMR CODE	NSN	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 1801 BODY, CAB, HOOD, AND HULL ASSEMBLIES	
					FIG. 43 RIGHT-HAND SPLASH SHIELD (SERIAL NUMBER 300000 AND ABOVE)	
1	PAOZZ	5310000614650	80205	M45913/3-4CG8C	NUT, SELF-LOCKING, HE 1/4-20.....	1
					UOC: TTA, UU2, UUA	
2	PAOZZ	5310008094058	96906	MS27183-10	WASHER, FLAT 1/4.....	1
					UOC: TTA, UU2, UUA	
3	PAOZZ	5365012101584	19207	12338635	SPACER, PLATE.....	1
					UOC: TTA, UU2, UUA	
4	PAOZZ	5310008093078	96906	MS27183-11	WASHER, FLAT 1/4.....	1
					UOC: TTA, UU2, UUA	
5	PAOZZ	5305000680508	80204	B1821BH025C075N	SCREW, CAP, HEXAGON H 1/4-20 X 3/4....	1
					UOC: TTA, UU2, UUA	
6	PFOZZ	5330014335054	34623	12460527	PLATE, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
7	PAOZZ	5305002400194	96906	MS51849-76	SCREW, MACHINE 10-24 X 3/4.....	7
					UOC: TTA, UU2, UUA	
8	PAOZZ	5340014563913	34623	EC12460529B1	BRACKET, ANGLE.....	4
					UOC: TTA, UU2, UUA	
9	PAOZZ	5305012139852	72582	440502	SCREW, MACHINE.....	1
					UOC: TTA, UU2, UUA	
10	PAOZZ	5330014568882	34623	12469025	SEAL, NONMETALLIC SP.....	1
					UOC: TTA, UU2, UUA	
11	PAOZZ	5310000145850	96906	MS27183-42	WASHER, FLAT #10.....	8
					UOC: TTA, UU2, UUA	
12	PAOZZ	5310012699245	7X677	190254	NUT, SELF-LOCKING, HE 10-24.....	8
					UOC: TTA, UU2, UUA	
13	PAOZZ	5310008140673	81349	M45913/3-5CG8C	NUT, SELF-LOCKING, HE 5/16-18.....	1
					UOC: TTA, UU2	
14	PAOZZ	5310011191024	24617	2436162	WASHER, FLAT 5/16.....	1
					UOC: TTA, UU2	
15	PAOZZ	5310014574009	24617	9421128	WASHER, FLAT 5/16.....	1
					UOC: TTA, UU2, UUA	
16	PAOZZ	5340014324879	34623	12469027	BRACKET, MOUNTING.....	1
					UOC: TTA, UU2, UUA	
17	PAOZZ	5310000446363	24617	446363	WASHER, FLAT 5/16.....	1
					UOC: TTA, UU2, UUA	
18	PAOZZ	5306002264827	80204	B1821BH031C100N	BOLT, MACHINE 5/16-18 X 1.00.....	1
					UOC: TTA, UU2, UUA	
19	PAOZZ	2540015204910	19207	12460531-2	GUARD, SPLASH, VEHICL.....	1
					UOC: TTA, UU2, UUA	

END OF FIGURE

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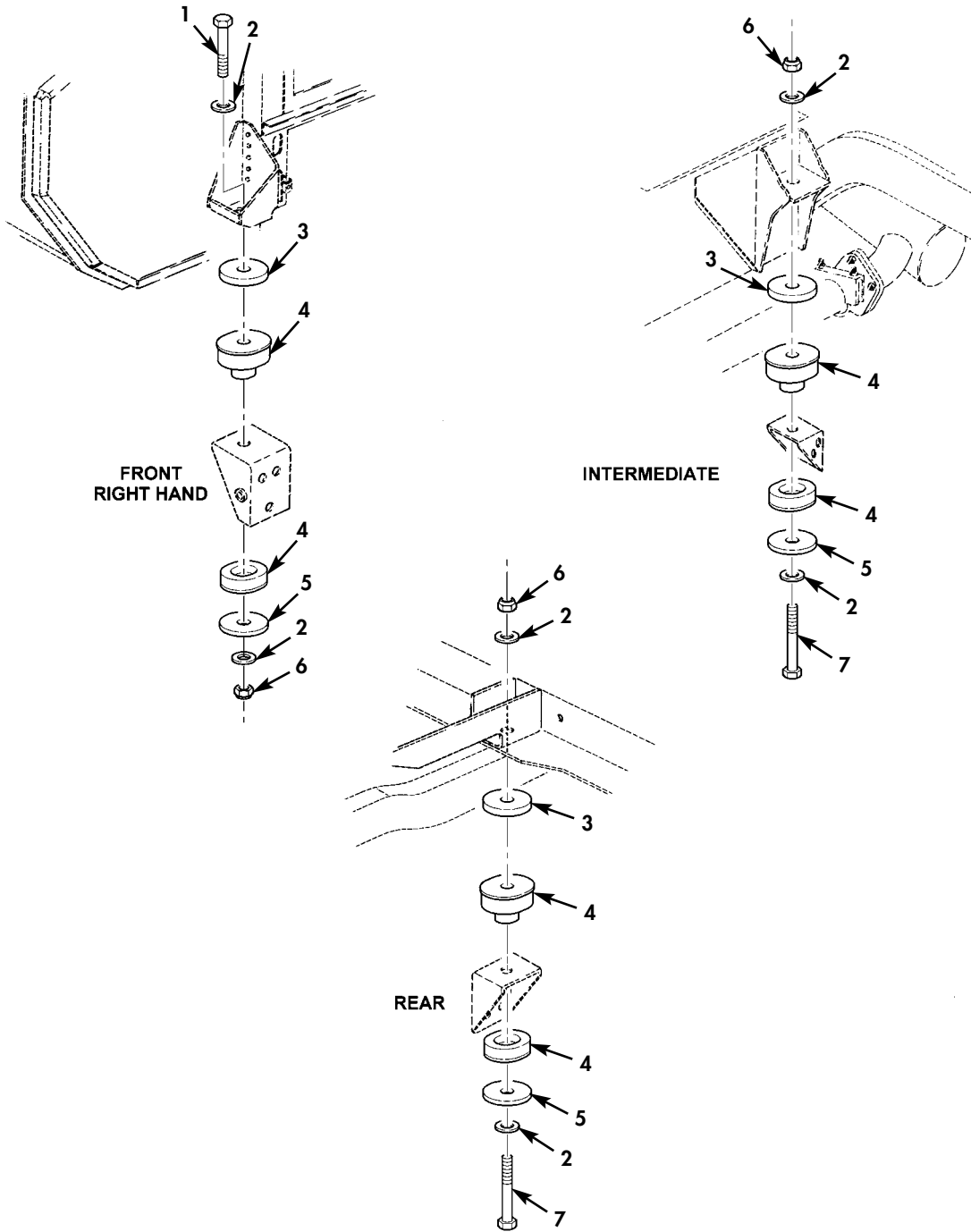


Figure 44. Body Mounting Components (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 1801 BODY, CAB, HOOD, AND HULL ASSEMBLIES						
FIG. 44 BODY MOUNTING COMPONENTS (SERIAL NUMBER 30000 AND ABOVE)						
1	PAHZZ	5305007247264	80204	B1821BH063C450N	SCREW,CAP,HEXAGON H 5/8-11 X 4.50,L.H. FRONT.....	1
					UOC:TTA,UU2,UUA	
2	PAHZZ	5310011517347	24617	2436167	WASHER,FLAT 5/8.....	12
					UOC:TTA,UU2,UUA	
3	PAHZZ	5310012527285	19207	12339248-2	WASHER,FLAT.....	6
					UOC:TTA,UU2,UUA	
4	PAHZZ		34623	6042800	MOUNT,RESILIENT.....	6
					UOC:TTA,UU2,UUA	
5	PAHZZ	5310014769321	19207	12339248-3	WASHER,FLAT.....	6
					UOC:TTA,UU2,UUA	
6	PAHZZ	5310000614651	81349	M45913/1-10CG8C	NUT,SELF-LOCKING,HE 5/8-11.....	6
					UOC:TTA,UU2,UUA	
7	PAHZZ	5305007247265	80204	B1821BH063C475N	SCREW,CAP,HEXAGON H 5/8-11 X 4.75...	5
					UOC:TTA,UU2,UUA	

END OF FIGURE

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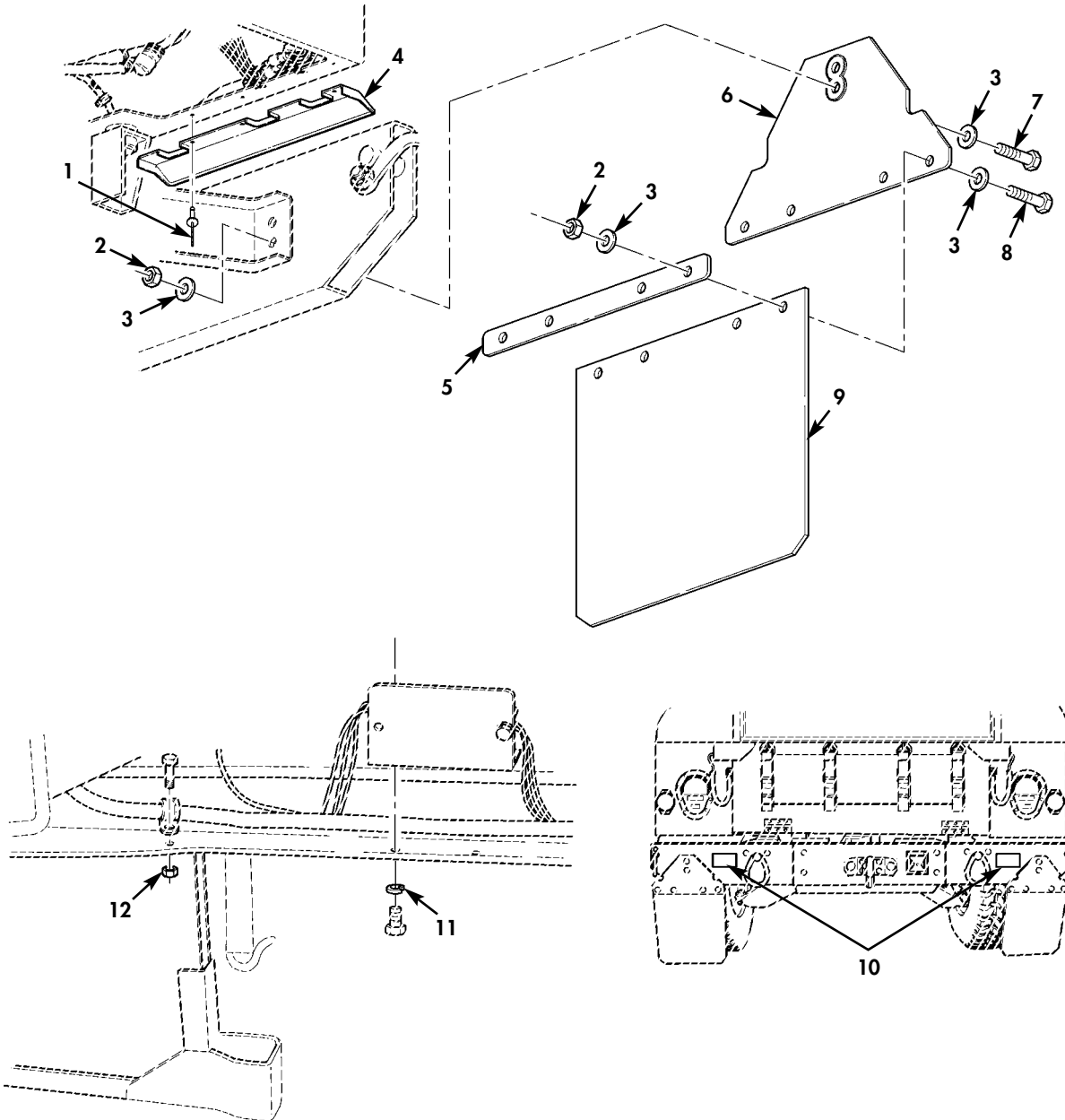


Figure 45. Mudflaps (Serial Number 300000 and Above).

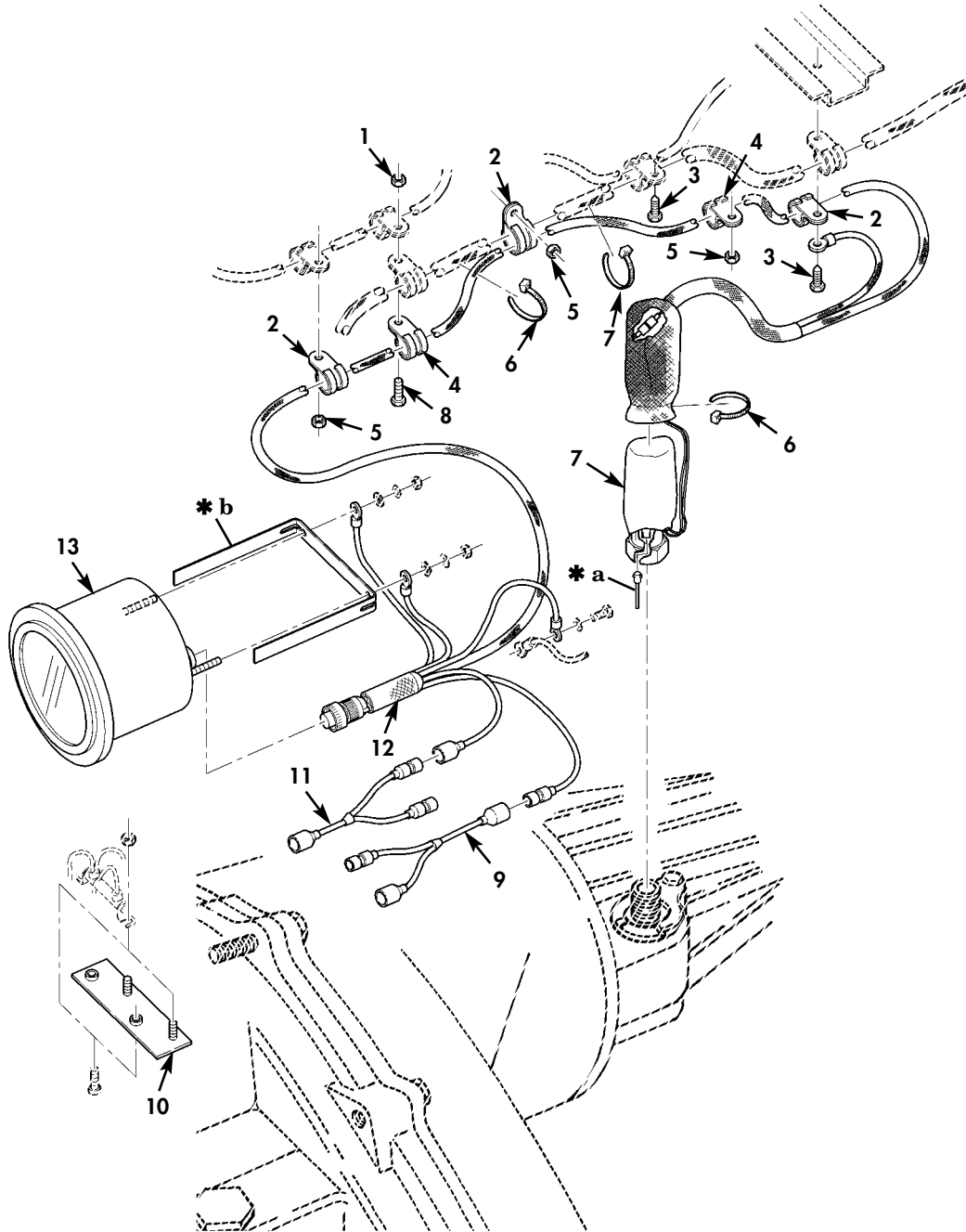
(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 2101 BUMPERS, BRACKETS, GUARDS, AND PROTECTIVE DEVICES						
FIG. 45 MUDFLAPS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5320004902243	81349	M24243/3-A610	RIVET,BLIND PART OF KIT P/N 57K4403. UOC:TTA,UU2,UUA	6
2	PAOZZ	5310015481848	81349	M45913/4-8CG8Z	NUT,SELF-LOCKING,HE 1/2-13 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	12
3	PAOZZ	5310012447459	29510	120396	WASHER,FLAT 1/2 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	24
4	PAOZZ	2590015390647	34623	12480595-1	BRACKET,VEHICULAR C L.H. PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	1
4	PAOZZ		34623	5716636	BRACKET,VEHICULAR C R.H. PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	1
5	PAOZZ		19207	12480587	PLATE,MOUNTING PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	2
6	PAOZZ	5340015385849	34623	RCSK19805	BRACKET,MOUNTING PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	2
7	PAOZZ	5305000712076	80204	B1821BH050C325N	SCREW,CAP,HEXAGON H 1/2-13 X 3.25 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	4
8	PAOZZ	5305000712069	80204	B1821BH050C150N	SCREW,CAP,HEXAGON H 1/2-13 X 1.50 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	8
9	PAOZZ	2540015390180	34623	6011599	GUARD,SPLASH,VEHICU PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	2
10	PAOZZ		19207	12339058	MARKER,IDENTIFICATI SLING AND TIE-DOWN PART OF KIT P/N 57K4403.... UOC:TTA,UU2,UUA	2
11	PAOZZ	5310005825965	80205	MS35338-44	WASHER,LOCK 1/4 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	4
12	PAOZZ	5310001249265	72582	271169	NUT,PLAIN,ASSEMBLED 10-32 PART OF KIT P/N 57K4403..... UOC:TTA,UU2,UUA	2
KIT	PAOZZ	2540015391558	19207	57K4403	GUARD,SPLASH,VEHICU..... UOC:TTA,UU2,UUA BRACKET,MOUNTING (2) 45-6 BRACKET,VEHICULAR C(1) 45-4 BRACKET,VEHICULAR C(1) 45-4 GUARD,SPLASH,VEHICU(2) 45-9 MARKER,IDENTIFICATI(2) 45-10 NUT,PLAIN,ASSEMBLED(2) 45-12 NUT,SELF-LOCKING,HE(12) 45-2	1

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					PLATE,MOUNTING	(2) 45-5
					RIVET,BLIND	(6) 45-1
					SCREW,CAP,HEXAGON H	(4) 45-7
					SCREW,CAP,HEXAGON H	(8) 45-8
					WASHER,FLAT	(24) 45-3
					WASHER,LOCK	(4) 45-11

END OF FIGURE

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE
 REPAIR PARTS AND SPECIAL TOOLS LIST
 TRUCK, UTILITY: EXPANDED CAPACITY VEHICLES



- * a PART OF ITEM 8
- * b PART OF ITEM 14

Figure 46. Speedometer, Speedometer Drive, and Related Parts (Serial Number 300000 and Above).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES(UOC)	(7) QTY
GROUP 4701 INSTRUMENTS (SPEED AND DISTANCE)						
FIG. 46 SPEEDOMETER, SPEEDOMETER DRIVE, AND RELATED PARTS (SERIAL NUMBER 300000 AND ABOVE)						
1	PAOZZ	5310012699245	7X677	190254	NUT, SELF-LOCKING, HE 10-24 PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
2	PAOZZ	5340000797837	80205	MS21333-67	CLAMP, LOOP PART OF KIT P/N 57K4882..	3
					UOC: TTA, UU2, UUA	
3	PAOZZ	5305012645809	19207	12342499-2	SCREW, TAPPING 10-32 X 5/8 PART OF KIT P/N 57K4882.....	2
					UOC: TTA, UU2, UUA	
4	PAOZZ	5340008091490	80205	MS21333-98	CLAMP, LOOP PART OF KIT P/N 57K4882..	2
					UOC: TTA, UU2, UUA	
5	PAOZZ	5310015481269	81349	M45913/4-4CG8Z	NUT, SELF-LOCKING, HE 1/4-20 PART OF KIT P/N 57K4882.....	3
					UOC: TTA, UU2, UUA	
6	PAOZZ	5975009846582	96906	MS3367-1-0	STRAP, TIEDOWN, ELECT PART OF KIT P/N 57K4882.....	3
					UOC: TTA, UU2, UUA	
7	PAOZZ	6115015544741	34623	12480922	GENERATOR, TACHOMETE PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
8	PAOZZ	5305004703321	96906	MS51849-74	SCREW, MACHINE 10-24 X 1/2 PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
9	PAOZZ	6150015557019	19207	12480909	CABLE ASSEMBLY, SPEC PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
10	PFOZZ		19207	12480918	PLATE, MOUNTING RESISTOR MOUNT PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
11	PAOZZ	6150015557025	19207	12480908	CABLE ASSEMBLY, SPEC PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
12	PAOZZ	6150015557011	19207	12480907	WIRING HARNESS, BRAN PART OF KIT P/N 57K4882.....	1
					UOC: TTA, UU2, UUA	
13	PAOZZ	6680015544738	34623	12480921	SPEEDOMETER PART OF KIT P/N 57K4882..	1
					UOC: TTA, UU2, UUA	
KIT	PAOZZ	2590015543458	19207	57K4882	MODIFICATION KIT, VE.....	1
					UOC: TTA, UU2, UUA	
					CABLE ASSEMBLY, SPEC(1) 46-11	
					CABLE ASSEMBLY, SPEC(1) 46-9	
					CLAMP, LOOP (2) 46-4	
					CLAMP, LOOP (3) 46-2	
					GENERATOR, TACHOMETE(1) 46-7	
					NUT, SELF-LOCKING, HE(1) 46-1	
					NUT, SELF-LOCKING, HE(3) 46-5	
					PLATE, MOUNTING (1) 46-10	

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					SCREW,MACHINE	(1) 46-8
					SCREW,TAPPING	(2) 46-3
					SPEEDOMETER	(1) 46-13
					STRAP,TIEDOWN,ELECT	(3) 46-6
					WIRING HARNESS,BRAN	(1) 46-12

END OF FIGURE

TB 9-2320-335-13&P

(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY

GROUP 9401 KITS

FIG. KITS

1	PAOZZ		34623	5717285	KIT,BRAKE PAD.....	1
					UOC:TTA,UU2,UUA	
					DISC BRAKE SHOE (1) 21-11	
					DISC BRAKE SHOE (1) 22-11	
					PIN CLIP (2) 23-6	
					PIN CLIP (2) 22-6	
					RETENTION PIN (2) 23-12	
					RETENTION PIN (2) 22-12	
2	PAOZZ		34623	5717286	KIT,CAPLIPER WEAR P.....	1
					UOC:TTA,UU2,UUA	
					PLATE,WEAR,BRAKE SH(2) 23-8	
					PLATE,WEAR,BRAKE SH(2) 22-8	
3	PAOZZ		34623	5717287	KIT,CALIPER BLEED	1
					UOC:TTA,UU2,UUA	
					BRASS ADAPTER (2) 23-9	
					BRASS ADAPTER (2) 22-9	
					VALVE,BLEEDER,SCREW(2) 22-10	
					VALVE,BLEEDER,SCREW(2) 23-10	

END OF FIGURE

SECTION II			TB 9-2320-335-13&P			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
ITEM	SMR			PART		
NO	CODE	NSN	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES(UOC)	QTY
					GROUP 9501 BULK	
					FIG. BULK	
1	PAOZZ	4720011862358	34623	5741209	HOSE, NONMETALLIC.....	V
					UOC: TTA, UU2, UUA	
2	PFOZZ		34623	6037172	TUBING, PLASTIC.....	V
					UOC: TTA, UU2, UUA	
3	PAOZZ	4720010587213	19207	CPR104420-1	TUBING, NONMETALLIC 50 FEET LONG.....	V
					UOC: TTA, UU2, UUA	
4	PAOZZ		12624	EP-3376	TAPE, PRESSURE SENSI.....	V
					UOC: TTA, UU2, UUA	
5	PAOZZ	4720004910102	96906	MS521301A203R	HOSE, NONMETALLIC.....	V
					UOC: TTA, UU2, UUA	
6	PAOZZ	4720004019299	81343	SAE-20R1ECLTS-A-25XR	HOSE, NONMETALLIC.....	V
					UOC: TTA, UU2, UUA	

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-004-5033	2	27	5305-00-068-0511	6	27
5310-00-004-5033	3	18	5310-00-068-5285	11	11
5310-00-004-5033	6	18	5310-00-068-5285	34	19
5310-00-004-5033	9	22	5305-00-071-1783	34	14
5310-00-004-5033	12	9	5305-00-071-1786	40	3
5310-00-004-5033	26	10	5305-00-071-1788	22	8
5310-00-004-5033	30	2	5305-00-071-1788	23	12
5310-00-011-6121	11	7	5305-00-071-2055	14	15
5315-00-012-0123	14	12	5305-00-071-2055	19	15
5315-00-012-0123	19	12	5305-00-071-2056	31	14
5315-00-012-0123	31	1	5305-00-071-2067	36	23
5315-00-012-0123	38	13	5305-00-071-2068	16	7
5310-00-014-5850	30	20	5305-00-071-2069	13	3
5310-00-014-5850	41	33	5305-00-071-2069	16	6
5310-00-014-5850	43	11	5305-00-071-2069	37	18
4730-00-041-2526	5	22	5305-00-071-2069	45	8
5310-00-044-3340	30	15	5305-00-071-2070	11	8
5310-00-044-3342	11	10	5305-00-071-2070	22	16
5310-00-044-3342	34	20	5305-00-071-2074	3	20
5310-00-044-6363	43	17	5305-00-071-2074	36	21
2640-00-050-1229	28	10	5305-00-071-2074	37	2
4730-00-050-4203	14	9	5305-00-071-2075	36	9
4730-00-050-4203	14	18	5305-00-071-2075	37	21
4730-00-050-4203	19	9	5305-00-071-2075	38	1
4730-00-050-4203	19	18	5305-00-071-2076	36	8
4730-00-050-4203	31	4	5305-00-071-2076	37	15
4730-00-050-4203	31	7	5305-00-071-2076	45	7
4730-00-050-4205	31	11	5305-00-071-2077	36	16
4730-00-050-4205	31	17	5305-00-071-2077	38	6
5340-00-050-9077	6	24	5305-00-071-2077	39	1
5310-00-061-4650	1	5	5305-00-071-2078	35	13
5310-00-061-4650	3	6	5305-00-071-2079	35	24
5310-00-061-4650	4	9	5305-00-071-2079	36	6
5310-00-061-4650	9	10	5305-00-071-2079	39	17
5310-00-061-4650	30	27	5305-00-071-2081	34	8
5310-00-061-4650	43	1	5305-00-071-2081	39	21
5310-00-061-4651	34	25	5305-00-071-2505	3	8
5310-00-061-4651	38	16	5305-00-071-2505	20	2
5310-00-061-4651	44	6	5305-00-071-2505	24	8
5305-00-068-0508	2	11	5305-00-071-2506	1	6
5305-00-068-0508	4	7	5305-00-071-2513	16	13
5305-00-068-0508	9	8	5340-00-079-7837	46	2
5305-00-068-0508	17	12	5310-00-080-6004	2	7
5305-00-068-0508	43	5	5310-00-080-6004	5	12
5305-00-068-0510	2	28	5310-00-080-6004	6	19
5305-00-068-0510	12	6	5310-00-080-6004	41	11
5305-00-068-0510	26	9	5310-00-081-4219	6	14
5305-00-068-0511	2	6	5310-00-081-4219	41	7

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-088-1251	30	13	5310-00-488-3889	16	14
5340-00-088-1254	9	24	5310-00-488-3889	22	14
5340-00-088-1254	15	9	5310-00-488-3889	31	22
5340-00-088-1254	17	6	5310-00-488-3889	34	9
5305-00-115-9934	41	29	5310-00-488-3889	35	12
5310-00-124-9265	30	33	5310-00-488-3889	36	12
5310-00-124-9265	45	12	5310-00-488-3889	37	4
5310-00-126-3842	30	8	5310-00-488-3889	38	5
5331-00-171-6649	26	7	5310-00-488-3889	39	23
4730-00-172-0010	30	17	5320-00-490-2243	45	1
5305-00-191-3640	15	17	4720-00-491-0102	BULK	5
5310-00-194-1483	39	19	4730-00-491-9576	6	10
5305-00-225-3841	16	16	5305-00-543-2419	3	17
5305-00-225-3842	1	24	5305-00-543-2866	6	25
5305-00-225-3843	7	3	5305-00-543-4372	6	17
5305-00-225-3843	30	11	5310-00-582-5965	2	12
5305-00-225-3843	42	1	5310-00-582-5965	3	15
5306-00-225-8499	41	26	5310-00-582-5965	7	2
5306-00-226-4825	6	12	5310-00-582-5965	24	9
5306-00-226-4825	24	30	5310-00-582-5965	41	19
5306-00-226-4827	20	14	5310-00-582-5965	42	2
5306-00-226-4827	35	6	5310-00-582-5965	45	11
5306-00-226-4827	43	18	5310-00-584-5272	16	5
5306-00-226-4828	24	34	4730-00-585-2653	30	25
5306-00-226-4828	33	4	5310-00-595-7486	38	11
5315-00-239-8032	38	17	5305-00-638-8920	2	17
5305-00-240-0194	30	22	2590-00-683-0598	7	4
5305-00-240-0194	41	5	5340-00-702-2848	15	11
5305-00-240-0194	43	7	5305-00-716-7680	34	22
5325-00-282-1830	41	24	5310-00-721-7809	9	26
4730-00-287-1706	24	25	5305-00-724-7219	21	5
4730-00-287-1706	25	15	5305-00-724-7219	22	19
2520-00-352-2168	30	29	5305-00-724-7220	16	18
4720-00-401-9299	BULK	6	5305-00-724-7220	22	17
5310-00-402-2778	9	20	5305-00-724-7220	23	13
5310-00-407-9566	2	15	5305-00-724-7236	34	17
5310-00-407-9566	6	13	5305-00-724-7264	38	22
5310-00-409-3333	14	3	5305-00-724-7264	44	1
5310-00-409-3333	19	3	5305-00-724-7265	44	7
5310-00-409-3333	34	28	5305-00-725-2317	41	17
5310-00-409-3333	35	20	5340-00-725-5280	10	3
5310-00-409-3333	37	5	5340-00-725-5280	12	7
5310-00-409-3333	39	8	5305-00-726-2567	32	4
5325-00-442-5845	20	22	5305-00-732-0511	39	20
5310-00-447-8774	11	1	5340-00-738-5182	15	15
5310-00-449-2376	28	14	4820-00-752-9040	4	10
5305-00-470-3321	46	8	2530-00-753-7285	30	21
5310-00-488-3889	16	8	5310-00-761-0654	12	10

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-761-0654	36	25	5310-00-930-8214	41	9
5365-00-772-2322	8	3	5310-00-931-8167	33	7
5935-00-772-2353	8	4	5310-00-934-9758	9	25
5935-00-772-3307	8	2	5310-00-934-9764	30	19
5305-00-781-3927	36	4	5310-00-935-9021	3	9
5305-00-781-3928	36	10	5310-00-935-9021	26	12
5305-00-782-9489	2	24	5310-00-935-9021	27	5
5340-00-809-1490	46	4	5310-00-935-9021	30	1
5340-00-809-1492	9	9	5310-00-935-9021	36	1
5310-00-809-3078	43	4	5310-00-935-9021	39	9
5310-00-809-4058	2	13	5310-00-935-9021	41	10
5310-00-809-4058	25	16	5310-00-937-0453	1	22
5310-00-809-4058	30	12	5310-00-937-0453	32	3
5310-00-809-4058	43	2	5305-00-947-4355	37	12
5310-00-809-4061	19	14	5305-00-947-4358	35	18
5310-00-809-4085	14	14	5305-00-947-4358	36	17
5310-00-809-4085	30	16	5305-00-947-4359	37	9
5310-00-814-0672	14	4	5305-00-947-4360	37	13
5310-00-814-0672	19	4	5305-00-947-4360	39	4
5310-00-814-0673	24	33	5305-00-947-4361	14	1
5310-00-814-0673	41	6	5305-00-947-4361	19	21
5310-00-814-0673	43	13	5305-00-947-4361	34	6
5315-00-815-8840	20	7	5305-00-947-4361	37	19
5310-00-823-8804	39	7	5305-00-947-4362	14	21
5340-00-827-8314	25	10	5305-00-947-4363	19	1
5315-00-842-3044	20	9	5305-00-954-3937	1	2
5315-00-842-3044	41	14	5340-00-954-6014	9	23
2530-00-848-4581	28	16	5340-00-954-6014	24	22
5310-00-849-3589	3	24	5340-00-954-6014	25	2
5310-00-850-6993	31	3	5310-00-984-3807	20	21
5310-00-850-6993	31	8	5975-00-984-6582	46	6
5310-00-850-6993	38	19	5975-00-985-6630	1	19
5310-00-850-7004	14	10	5975-00-985-6630	4	2
5310-00-850-7004	14	17	5975-00-985-6630	10	7
5310-00-850-7004	19	10	4730-01-003-5105	6	28
5310-00-850-7004	19	17	4730-01-003-5105	10	5
5310-00-850-7004	38	14	4730-01-003-5105	16	1
5340-00-854-6730	5	6	4730-01-003-5105	26	1
5305-00-857-6886	39	12	5305-01-006-2053	9	19
5310-00-866-4417	22	15	5310-01-012-8962	2	14
5310-00-866-4417	34	13	5310-01-021-9027	28	8
5310-00-866-4417	35	15	5305-01-032-2312	31	20
5975-00-899-4606	33	12	4720-01-058-7213	BULK	3
5310-00-905-0762	17	8	2640-01-098-2029	28	9
5310-00-905-4600	20	11	5310-01-102-3270	1	4
4730-00-908-3194	4	12	5310-01-102-3270	3	7
4730-00-908-6292	2	2	5310-01-102-3270	4	8
5305-00-914-3818	1	25	5310-01-102-3270	7	1

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-102-3270	9	7	5310-01-151-7347	31	19
5310-01-102-3270	15	8	5310-01-151-7347	32	2
5310-01-102-3270	17	7	5310-01-151-7347	34	16
5310-01-102-3270	20	3	5310-01-151-7347	44	2
5310-01-102-3270	24	10	5310-01-152-0598	20	4
5310-01-102-3270	30	28	4730-01-185-5348	6	2
5310-01-102-3270	42	3	4730-01-185-5348	11	17
5310-01-119-1024	20	16	4730-01-185-5348	16	19
5310-01-119-1024	24	18	2510-01-185-6118	41	18
5310-01-119-1024	27	4	2510-01-185-6647	36	11
5310-01-119-1024	30	32	2510-01-185-6648	36	11
5310-01-119-1024	33	5	5306-01-185-7048	22	1
5310-01-119-1024	35	7	5306-01-185-7048	23	1
5310-01-119-1024	41	27	4820-01-186-0822	25	7
5310-01-119-1024	43	14	2590-01-186-0863	34	18
5310-01-119-3668	20	18	4720-01-186-2358	BULK	1
5310-01-119-3668	24	19	5306-01-186-7129	41	21
5310-01-121-1703	3	2	5340-01-186-7229	41	23
5310-01-121-1703	16	4	5340-01-186-7664	37	8
5310-01-121-1703	16	15	3120-01-186-7715	41	22
5310-01-121-1703	31	21	5325-01-187-1604	2	31
5310-01-121-1703	34	7	2510-01-187-7031	36	15
5310-01-121-1703	35	11	2510-01-187-7033	37	7
5310-01-121-1703	36	7	2540-01-187-7034	35	19
5310-01-121-1703	37	3	5310-01-188-0745	30	3
5310-01-121-1703	38	2	5310-01-188-1093	30	5
5310-01-121-1703	39	16	4720-01-188-1370	4	13
5310-01-134-0206	39	31	2540-01-188-3239	35	19
5310-01-143-0512	11	9	4710-01-188-3515	9	12
5310-01-147-4052	14	2	4710-01-188-3516	9	11
5310-01-147-4052	19	2	2530-01-188-3520	20	6
5310-01-147-4052	34	5	2530-01-188-8446	20	12
5310-01-147-4052	35	17	2510-01-189-0891	36	15
5310-01-147-4052	37	6	4720-01-189-2218	12	11
5310-01-147-4052	38	18	5315-01-190-0430	20	25
2930-01-147-4198	5	3	5340-01-190-2248	35	14
4730-01-148-2758	5	20	5306-01-192-2207	30	26
5306-01-148-3666	5	11	5340-01-192-2256	15	16
5330-01-149-0874	5	15	4730-01-192-8086	6	22
5305-01-149-1938	24	15	4730-01-195-3803	27	7
5306-01-149-6280	5	19	2540-01-196-4920	38	7
5307-01-150-1227	5	7	5305-01-198-5510	15	7
5310-01-150-4003	11	14	5310-01-198-7585	28	7
5310-01-150-4003	14	13	4730-01-199-1878	24	27
5310-01-150-4003	19	13	4730-01-199-1878	25	12
5310-01-151-7347	1	21	5330-01-200-0466	2	19
5310-01-151-7347	16	17	5315-01-201-3592	30	6
5310-01-151-7347	22	18	5340-01-204-2584	37	16

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5365-01-205-5377	38	20	2530-01-261-8013	28	16
5310-01-206-7306	5	9	2530-01-262-8646	28	16
5305-01-206-8401	25	8	2530-01-262-8647	28	16
5330-01-209-7723	30	24	2530-01-263-2268	28	16
5340-01-209-7767	37	17	5306-01-263-8889	6	7
5365-01-209-7832	35	9	5305-01-264-3602	38	10
5325-01-209-7843	30	4	5305-01-264-5809	46	3
5365-01-210-1584	43	3	5320-01-264-5978	41	16
4730-01-210-2732	6	20	5310-01-269-9245	41	34
2510-01-210-6941	37	14	5310-01-269-9245	43	12
5340-01-211-3137	2	32	5310-01-269-9245	46	1
5310-01-211-3811	2	30	5305-01-272-7422	9	13
5340-01-211-4025	2	36	5310-01-272-9981	13	2
2990-01-211-8587	2	29	5306-01-273-6333	20	19
5310-01-212-2213	31	12	5342-01-274-9884	1	1
5310-01-212-2213	31	18	5310-01-278-9555	22	7
5340-01-212-3553	2	26	5310-01-278-9555	23	11
5340-01-212-4887	2	8	2530-01-285-8381	30	23
5310-01-213-4192	41	30	5310-01-286-6077	40	2
5340-01-213-5600	20	10	5310-01-289-5455	20	20
5305-01-213-9852	41	3	2530-01-291-4597	20	23
5305-01-213-9852	43	9	5340-01-301-7929	37	10
5340-01-214-2089	35	23	2540-01-309-4459	2	5
2590-01-215-4325	34	12	4030-01-316-1551	38	12
2590-01-215-4325	35	10	2640-01-335-4583	28	11
4730-01-221-7320	9	3	4730-01-346-1063	28	12
5340-01-229-3632	1	15	5331-01-346-3806	28	13
2530-01-235-8688	28	16	4730-01-358-8538	33	1
5305-01-236-4349	1	16	4730-01-359-2382	33	14
5305-01-236-4349	9	21	4820-01-359-9489	24	31
5310-01-244-7459	45	3	5340-01-380-4561	20	1
5365-01-246-8281	41	15	2530-01-383-5740	30	10
2590-01-248-4873	34	27	2530-01-384-7154	30	14
5310-01-250-7835	3	21	5305-01-393-6311	5	4
5310-01-252-7285	44	3	5305-01-393-6311	6	23
5365-01-252-9214	41	13	5305-01-393-6311	10	2
5310-01-253-6439	2	21	5305-01-393-6311	15	12
5310-01-253-8437	11	13	5305-01-393-6311	17	11
5365-01-255-0965	20	17	5305-01-393-6311	24	20
5360-01-255-9899	41	25	5305-01-393-6311	25	4
4730-01-257-3348	16	11	4730-01-394-8345	6	21
2540-01-257-3877	38	3	2540-01-395-7999	38	4
5360-01-260-0700	20	15	5310-01-395-8747	5	10
2530-01-261-6844	28	16	5310-01-398-0319	1	27
2530-01-261-6845	28	16	4370-01-399-4206	17	3
2530-01-261-6846	28	16	5340-01-408-8523	38	15
2530-01-261-8011	28	16	5340-01-408-8529	38	15
2530-01-261-8012	28	16	5310-01-408-9593	11	6

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4730-01-409-1204	9	18	4820-01-456-0168	24	3
2530-01-411-2729	30	7	5340-01-456-3913	41	4
2530-01-411-2735	30	9	5340-01-456-3913	43	8
2990-01-411-3947	2	18	4820-01-456-6257	9	29
5340-01-412-0867	10	9	5330-01-456-8882	41	1
5310-01-412-4013	1	14	5330-01-456-8882	43	10
5310-01-412-4013	2	35	5340-01-456-9885	35	21
5310-01-412-4013	3	10	5340-01-456-9885	36	13
5310-01-412-4013	5	5	5340-01-457-0003	35	21
5310-01-412-4013	6	26	5340-01-457-0003	36	13
5310-01-412-4013	12	8	5340-01-457-0459	41	31
5310-01-412-4013	14	5	4730-01-457-0727	24	23
5310-01-412-4013	15	13	4730-01-457-0727	25	5
5310-01-412-4013	19	5	5310-01-457-3292	22	2
5310-01-412-4013	20	8	5310-01-457-3292	23	2
5310-01-412-4013	24	21	5310-01-457-4009	41	8
5310-01-412-4013	25	3	5310-01-457-4009	43	15
5310-01-412-4013	26	11	2640-01-457-5552	28	15
5310-01-412-4013	36	2	5340-01-459-9424	41	12
5310-01-412-4013	39	10	2930-01-460-7507	5	21
2510-01-412-4969	34	21	5305-01-461-4400	41	20
5305-01-412-5994	14	11	5310-01-462-4611	24	13
5305-01-412-5994	19	11	5310-01-465-4525	35	2
5340-01-412-7514	38	9	5307-01-465-5796	5	13
5340-01-413-2689	2	16	4710-01-473-1708	9	1
5330-01-413-3713	11	15	5340-01-473-2692	9	2
5331-01-417-1043	28	4	5340-01-473-2692	15	19
5306-01-417-2467	28	3	5340-01-473-2692	33	8
2640-01-419-6200	28	15	2530-01-473-2724	24	6
2640-01-419-6202	28	5	5340-01-474-4011	9	16
5340-01-432-4879	43	16	2540-01-475-0629	41	28
5310-01-432-6727	20	5	5340-01-475-3480	1	26
5340-01-432-8680	36	24	5340-01-475-3485	1	26
2510-01-433-4421	37	11	5310-01-476-9321	44	5
2990-01-433-4422	2	25	5640-01-479-1272	10	10
5330-01-433-5054	41	2	5340-01-484-7646	36	14
5330-01-433-5054	43	6	5340-01-484-7760	2	3
5340-01-434-2834	41	35	2541-01-486-4915	38	21
5330-01-434-8611	5	2	5340-01-488-5619	24	17
4710-01-439-8165	9	14	4710-01-488-5621	24	35
5340-01-442-0308	9	15	4710-01-488-5625	24	1
6685-01-444-9478	5	1	4720-01-488-6156	33	2
4730-01-445-2358	5	18	5306-01-488-6213	16	10
2930-01-448-9439	3	5	5310-01-490-4433	2	10
5305-01-449-1983	30	31	4730-01-493-4056	33	20
5307-01-450-3072	11	12	2990-01-497-1042	2	20
5307-01-450-3072	34	23	5340-01-498-7964	38	8
5306-01-455-8016	2	34	5305-01-500-8280	30	30

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-501-3086	35	4	2530-01-558-3027	28	2
5365-01-502-6879	34	11	2530-01-558-3061	28	6
5310-01-510-1237	2	23	4720-01-558-7665	33	19
5310-01-513-1935	41	32	5330-01-560-1552	27	3
5975-01-517-9077	10	1	4730-01-560-3024	24	2
2540-01-520-4910	43	19	5120-04-543-5919	39	6
4730-01-522-1312	33	18			
2590-01-525-1995	39	KIT			
4730-01-528-0977	33	15			
5340-01-536-0557	34	30			
5340-01-538-5849	45	6			
2540-01-539-0180	45	9			
2590-01-539-0647	45	4			
2540-01-539-1558	45	KIT			
2610-01-541-4090	29	1			
5315-01-542-3872	39	28			
5315-01-542-4594	39	24			
3010-01-542-8199	39	5			
4730-01-545-8308	26	3			
5306-01-546-3599	35	3			
5310-01-548-1269	46	5			
5310-01-548-1848	45	2			
5325-01-548-2516	42	7			
5310-01-548-5182	24	14			
2590-01-554-3458	46	KIT			
5305-01-554-4493	24	32			
2530-01-554-4728	31	9			
2530-01-554-4731	33	3			
6680-01-554-4738	46	13			
6115-01-554-4741	46	7			
2530-01-554-8270	14	19			
2530-01-554-8270	19	19			
2530-01-554-8288	14	8			
2530-01-554-8288	19	8			
2530-01-554-8307	14	16			
2530-01-554-8307	19	16			
2530-01-554-8309	19	6			
2530-01-554-8315	19	6			
2530-01-554-8317	14	6			
2530-01-554-8336	14	19			
2530-01-554-8336	19	19			
2530-01-554-8340	14	6			
2540-01-555-0428	35	22			
2540-01-555-0462	35	22			
6150-01-555-7011	46	12			
6150-01-555-7019	46	9			
6150-01-555-7025	46	11			
2530-01-558-2138	28	1			

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
53867	02040C2314		27	1
53867	02040C2315		26	6
12195	08973	2610-01-541-4090	29	1
81343	10-8 430260C	4370-01-399-4206	17	3
39BV2	100-AA	2640-00-050-1229	28	10
7X677	10137488	5330-01-149-0874	5	15
7X677	10183956	4730-01-445-2358	5	18
7X677	10243629		5	17
79470	1069X6	4730-00-041-2526	5	22
01276	1077X4	4730-01-192-8086	6	22
19207	10910174-5	5310-00-866-4417	22	15
19207	10910174-5	5310-00-866-4417	34	13
19207	10910174-5	5310-00-866-4417	35	15
34281	109413-01	4820-01-186-0822	25	7
81851	1101001303M0359		20	13
24617	11500206	5310-01-548-5182	24	14
7X677	11500207	5310-01-206-7306	5	9
7X677	11500815	5305-01-149-1938	24	15
7X677	11508788	5310-01-462-4611	24	13
7X677	11513606	5306-01-185-7048	22	1
7X677	11513606	5306-01-185-7048	23	1
34623	11516435		5	16
29510	120396	5310-01-244-7459	45	3
51377	1210-09167-51		6	16
19207	12338148	2510-01-187-7033	37	7
19207	12338149-1	2510-01-189-0891	36	15
19207	12338149-2	2510-01-187-7031	36	15
19207	12338155-1	2510-01-185-6647	36	11
19207	12338155-2	2510-01-185-6648	36	11
19207	12338159	5340-01-214-2089	35	23
19207	12338164	5365-01-205-5377	38	20
19207	12338170	5340-01-190-2248	35	14
19207	12338172	5340-01-209-7767	37	17
19207	12338181	5340-01-186-7664	37	8
19207	12338185	2590-01-186-0863	34	18
19207	12338191-1	2540-01-187-7034	35	19
19207	12338191-2	2540-01-188-3239	35	19
19207	12338197	5340-01-204-2584	37	16
19207	12338224	2510-01-210-6941	37	14
19207	12338225-1	5305-01-264-3602	38	10
19207	12338226-2	5365-01-209-7832	35	9
19207	12338245	2590-01-215-4325	34	12
19207	12338245	2590-01-215-4325	35	10
19207	12338291	2530-01-188-8446	20	12
19207	12338295	2530-01-188-3520	20	6
19207	12338330-1-3IN		9	5
19207	12338330-14-23.5 IN		9	4
19207	12338330-2-7.25		9	28
19207	12338330-4-5IN		9	6

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
19207	12338337	2540-01-309-4459	2	5
19207	12338338	5325-01-187-1604	2	31
19207	12338339	5330-01-200-0466	2	19
34623	12338340	5340-01-211-3137	2	32
19207	12338343-1	5340-01-212-3553	2	26
19207	12338343-2	5340-01-484-7760	2	3
19207	12338346	2990-01-211-8587	2	29
19207	12338635	5365-01-210-1584	43	3
19207	12338637	5365-01-246-8281	41	15
19207	12338663	5340-01-192-2256	15	16
19207	12338738	2590-01-248-4873	34	27
19207	12338866	5360-01-260-0700	20	15
19207	12338895	3120-01-186-7715	41	22
19207	12338913	5340-01-186-7229	41	23
19207	12338915	2510-01-185-6118	41	18
19207	12339058		45	10
19207	12339159	4720-01-188-1370	4	13
19207	12339186	2540-01-257-3877	38	3
19207	12339248-2	5310-01-252-7285	44	3
19207	12339248-3	5310-01-476-9321	44	5
19207	12339251	4720-01-189-2218	12	11
19207	12339308	5310-01-188-1093	30	5
19207	12339310	5315-01-201-3592	30	6
19207	12339353-1	4820-01-359-9489	24	31
19207	12339355-2	5320-01-264-5978	41	16
19207	12339396	4730-01-148-2758	5	20
19207	12339402	5325-01-209-7843	30	4
19207	12339406-4	5307-01-465-5796	5	13
19207	12339425	5310-01-253-6439	2	21
19207	12339435	5306-01-186-7129	41	21
19207	12339501	5310-01-198-7585	28	7
19207	12339902-12		4	3
19207	12339964-2	4730-01-195-3803	27	7
19207	12339978	4730-01-185-5348	6	2
19207	12339978	4730-01-185-5348	11	17
19207	12339978	4730-01-185-5348	16	19
19207	12339979-1	4730-01-545-8308	26	3
19207	12340058	5310-01-253-8437	11	13
34623	12340331	4730-01-394-8345	6	21
19207	12340571-2	5340-01-229-3632	1	15
19207	12340845-2	5306-01-263-8889	6	7
19207	12341856	5310-01-286-6077	40	2
19207	12341893	2530-01-285-8381	30	23
19207	12341897	5310-01-289-5455	20	20
19207	12341900	5340-01-301-7929	37	10
19207	12341902	2530-01-291-4597	20	23
19207	12342354	4030-01-316-1551	38	12
19207	12342499-2	5305-01-264-5809	46	3
63900	12342634	2640-01-335-4583	28	11

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
19207	12342638-1		2640-01-419-6202	28	5
19207	12342679		5340-01-380-4561	20	1
19207	12342794		5331-01-346-3806	28	13
34623	12342875		2530-01-383-5740	30	10
19207	12342876		2530-01-384-7154	30	14
34623	12342960		2540-01-395-7999	38	4
19207	12345009-1		4730-00-908-3194	4	12
19207	12446770		5340-01-457-0459	41	31
19207	12446803		2530-01-411-2729	30	7
19207	12446953-4		2540-01-475-0629	41	28
19207	12446989		5340-01-408-8523	38	15
19207	12446990		5340-01-408-8529	38	15
19207	12446991-3		2541-01-486-4915	38	21
19207	12447027		5305-01-449-1983	30	31
19207	12447051		5340-01-484-7646	36	14
19207	12447053		2510-01-412-4969	34	21
34623	12447073-4IN			9	17
19207	12447076		4820-01-456-6257	9	29
34623	12447077		4730-01-409-1204	9	18
19207	12447089-2		5340-01-412-7514	38	9
19207	12447165		5340-01-412-0867	10	9
19207	12447177		5307-01-450-3072	11	12
19207	12447177		5307-01-450-3072	34	23
19207	12448438-18		5306-01-488-6213	16	10
19207	12460083		5340-01-413-2689	2	16
34623	12460090		2990-01-411-3947	2	18
19207	12460159		5305-01-412-5994	14	11
19207	12460159		5305-01-412-5994	19	11
19207	12460235		2510-01-433-4421	37	11
34623	12460527		5330-01-433-5054	41	2
34623	12460527		5330-01-433-5054	43	6
19207	12460531-2		2540-01-520-4910	43	19
34623	12469025		5330-01-456-8882	41	1
34623	12469025		5330-01-456-8882	43	10
19207	12469026		5340-01-434-2834	41	35
34623	12469027		5340-01-432-4879	43	16
19207	12469169		5340-01-498-7964	38	8
19207	12469288			5	8
19207	12469346			2	22
19207	12469350		2990-01-433-4422	2	25
19207	12469353		2990-01-497-1042	2	20
19207	12469372		5340-01-475-3485	1	26
19207	12469373		5340-01-475-3480	1	26
19207	12469374			1	8
19207	12469380		4710-01-473-1708	9	1
19207	12469405		2540-01-196-4920	38	7
19207	12469415-2		5365-01-502-6879	34	11
19207	12469418-1		5306-01-546-3599	35	3
19207	12469461		4730-01-560-3024	24	2
19207	12469463		5340-01-488-5619	24	17

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
19207	12469464		4710-01-488-5621	24	35
19207	12469465		4710-01-488-5625	24	1
34623	12469489		4720-01-488-6156	33	2
19207	12480587			45	5
34623	12480595-1		2590-01-539-0647	45	4
19207	12480907		6150-01-555-7011	46	12
19207	12480908		6150-01-555-7025	46	11
19207	12480909		6150-01-555-7019	46	9
19207	12480918			46	10
34623	12480921		6680-01-554-4738	46	13
34623	12480922		6115-01-554-4741	46	7
19207	12506927		2530-01-558-2138	28	1
7X677	12551591		5330-01-434-8611	5	2
7X677	12554091		2930-01-460-7507	5	21
7X677	12559337		6685-01-444-9478	5	1
32546	13044		4730-00-172-0010	30	17
7X677	14028918		2930-01-147-4198	5	3
7X677	14033946		5307-01-150-1227	5	7
7X677	14056165		5306-01-148-3666	5	11
0LB15	1493B-SA		2530-01-411-2735	30	9
34623	1494255		5310-01-513-1935	41	32
96881	14L14F		2530-00-753-7285	30	21
04XS7	150-9841			22	12
04XS7	150-9841			23	4
7X677	1567442		5310-01-021-9027	28	8
7X677	15728527		5306-01-455-8016	2	34
92867	15844902			20	27
92867	15844903			20	24
7X677	1635490		5306-01-149-6280	5	19
3M915	172447		5305-01-461-4400	41	20
7X677	172482		5305-01-236-4349	1	16
7X677	172482		5305-01-236-4349	9	21
7X677	178654		4730-00-287-1706	25	15
1S0RS	18069		2530-01-558-3061	28	6
76760	19016		5330-01-413-3713	11	15
7X677	190254		5310-01-269-9245	41	34
7X677	190254		5310-01-269-9245	43	12
7X677	190254		5310-01-269-9245	46	1
1S0RS	19026		2530-01-558-3027	28	2
01276	191321-8-6S		4730-01-528-0977	33	15
50022	1AF00019		2930-01-448-9439	3	5
96652	21-04		5315-01-190-0430	20	25
04XS7	220-9968			22	10
04XS7	220-9968			23	6
04XS7	220-9969			22	11
04XS7	220-9969			23	7
93061	224-4-4-5/32		4730-01-003-5105	10	5
93061	224-4-4-5/32		4730-01-003-5105	16	1
93061	224-4-4-5/32		4730-01-003-5105	26	1
93061	224-4-5/32		4730-01-003-5105	6	28

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
76760	22507		11	4
7X677	24205103	5340-01-474-4011	9	16
24617	2436161	5310-01-102-3270	1	4
24617	2436161	5310-01-102-3270	3	7
24617	2436161	5310-01-102-3270	4	8
24617	2436161	5310-01-102-3270	7	1
24617	2436161	5310-01-102-3270	9	7
24617	2436161	5310-01-102-3270	15	8
24617	2436161	5310-01-102-3270	17	7
24617	2436161	5310-01-102-3270	20	3
24617	2436161	5310-01-102-3270	24	10
24617	2436161	5310-01-102-3270	30	28
24617	2436161	5310-01-102-3270	42	3
24617	2436162	5310-01-119-1024	20	16
24617	2436162	5310-01-119-1024	24	18
24617	2436162	5310-01-119-1024	27	4
24617	2436162	5310-01-119-1024	30	32
24617	2436162	5310-01-119-1024	33	5
24617	2436162	5310-01-119-1024	35	7
24617	2436162	5310-01-119-1024	41	27
24617	2436162	5310-01-119-1024	43	14
24617	2436163	5310-01-412-4013	1	14
24617	2436163	5310-01-412-4013	2	35
24617	2436163	5310-01-412-4013	3	10
24617	2436163	5310-01-412-4013	5	5
24617	2436163	5310-01-412-4013	6	26
24617	2436163	5310-01-412-4013	12	8
24617	2436163	5310-01-412-4013	14	5
24617	2436163	5310-01-412-4013	15	13
24617	2436163	5310-01-412-4013	19	5
24617	2436163	5310-01-412-4013	20	8
24617	2436163	5310-01-412-4013	24	21
24617	2436163	5310-01-412-4013	25	3
24617	2436163	5310-01-412-4013	26	11
24617	2436163	5310-01-412-4013	36	2
24617	2436163	5310-01-412-4013	39	10
34623	2436164	5310-01-278-9555	22	7
34623	2436164	5310-01-278-9555	23	11
24617	2436165	5310-01-121-1703	3	2
24617	2436165	5310-01-121-1703	16	4
24617	2436165	5310-01-121-1703	16	15
24617	2436165	5310-01-121-1703	31	21
24617	2436165	5310-01-121-1703	34	7
24617	2436165	5310-01-121-1703	35	11
24617	2436165	5310-01-121-1703	36	7
24617	2436165	5310-01-121-1703	37	3
24617	2436165	5310-01-121-1703	38	2
24617	2436165	5310-01-121-1703	39	16
24617	2436167	5310-01-151-7347	1	21
24617	2436167	5310-01-151-7347	16	17

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
24617	2436167	5310-01-151-7347	22	18
24617	2436167	5310-01-151-7347	31	19
24617	2436167	5310-01-151-7347	32	2
24617	2436167	5310-01-151-7347	34	16
24617	2436167	5310-01-151-7347	44	2
23862	2436168	5310-01-147-4052	14	2
23862	2436168	5310-01-147-4052	34	5
23862	2436168	5310-01-147-4052	35	17
23862	2436168	5310-01-147-4052	37	6
23862	2436168	5310-01-147-4052	38	18
60250	244-7935		21	10
93061	2491FHD-10-8		17	1
78222	2596924		31	6
97789	27-300	2530-01-261-8011	28	16
24617	271153	5305-01-393-6311	5	4
24617	271153	5305-01-393-6311	6	23
24617	271153	5305-01-393-6311	10	2
24617	271153	5305-01-393-6311	15	12
24617	271153	5305-01-393-6311	17	11
24617	271153	5305-01-393-6311	24	20
24617	271153	5305-01-393-6311	25	4
72582	271169	5310-00-124-9265	30	33
72582	271169	5310-00-124-9265	45	12
24617	271172	5310-01-152-0598	20	4
53867	2770827		26	8
81860	28787-3		3	22
81860	29329-1		3	4
81860	29329-2		3	11
73342	29520052	5310-01-143-0512	11	9
04XS7	300-10467		22	9
04XS7	300-10467		23	9
04XS7	310-9951		22	5
04XS7	310-9951		23	10
04XS7	328-7904		21	KIT
04XS7	330-9950		22	13
04XS7	330-9950		23	5
87373	33982-6-6	4730-01-221-7320	9	3
60250	40-8007		21	6
01276	402X3	4730-01-199-1878	24	27
01276	402X3	4730-01-199-1878	25	12
60250	43-8891		21	1
60250	43-9092		21	7
60250	43-9171		21	4
60250	43-9200		21	3
72582	440502	5305-01-213-9852	41	3
72582	440502	5305-01-213-9852	43	9
24617	442393	4730-01-457-0727	24	23
24617	442393	4730-01-457-0727	25	5
24617	446363	5310-00-044-6363	43	17
11862	448655	5305-01-206-8401	25	8

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
7X677	454977		5306-01-192-2207	30	26
24617	456931		5305-01-500-8280	30	30
6W728	4660639-000		5340-01-536-0557	34	30
60250	471-8084-S			21	9
60250	471-8085-S			21	9
51377	4735-43782-18			6	15
36251	5311		4730-00-585-2653	30	25
76760	54815			11	3
34623	5582817		4710-01-188-3516	9	11
34623	5582819		4710-01-188-3515	9	12
34623	5584384		5330-01-209-7723	30	24
34623	5585103		5310-01-188-0745	30	3
34623	5588675		5340-01-212-4887	2	8
34623	5590387		5340-01-211-4025	2	36
34623	5591577-B		5365-01-252-9214	41	13
34623	5593312		5310-01-147-4052	19	2
34623	5593926		2530-01-235-8688	28	16
34623	5595972		2530-01-261-8012	28	16
34623	5596306		5365-01-255-0965	20	17
34623	5596803		5306-01-273-6333	20	19
34623	5597050		4730-01-257-3348	16	11
34623	5597890		5342-01-274-9884	1	1
34623	5716636			45	4
34623	5717285			KITS	1
34623	5717286			KITS	2
34623	5717287			KITS	3
34623	5741209		4720-01-186-2358	BULK	1
34623	57K4403			45	KIT
34623	57K4882			46	KIT
34623	5934854		4730-01-210-2732	6	20
34623	6002219		5340-01-432-8680	36	24
34623	6005714		5640-01-479-1272	10	10
34623	6008528		5340-01-473-2692	9	2
34623	6008528		5340-01-473-2692	15	19
34623	6008528		5340-01-473-2692	33	8
34623	6008953		5340-01-442-0308	9	15
34623	6009792		5340-01-456-9885	35	21
34623	6009792		5340-01-456-9885	36	13
34623	6009794		5340-01-457-0003	35	21
34623	6009794		5340-01-457-0003	36	13
34623	6011599		2540-01-539-0180	45	9
34623	6013322			2	1
34623	6013409			3	14
34623	6014240			26	5
34623	6016615		2540-01-555-0462	35	22
34623	6016616		2540-01-555-0428	35	22
34623	6017845			12	1
34623	6017845			15	10
34623	6017845			17	13
34623	6019008			6	9

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
34623	6019857			1	23
34623	6022876			6	6
34623	6023405			3	1
34623	6025464			6	3
34623	6026749		2530-01-554-8288	14	8
34623	6026749		2530-01-554-8288	19	8
34623	6028192		2530-01-554-4728	31	9
34623	6030287			6	8
34623	6030396			34	1
34623	6030404			35	8
34623	6030616		2530-01-554-8307	14	16
34623	6030616		2530-01-554-8307	19	16
34623	6030617		2530-01-554-8309	19	6
34623	6030618		2530-01-554-8315	19	6
34623	6030624		2530-01-554-8317	14	6
34623	6030626		2530-01-554-8340	14	6
34623	6030627		2530-01-554-8336	14	19
34623	6030627		2530-01-554-8336	19	19
34623	6030629		2530-01-554-8270	14	19
34623	6030629		2530-01-554-8270	19	19
34623	6030647			34	15
34623	6030648			34	15
34623	6030775			34	3
34623	6031217			34	24
34623	6031218			2	9
34623	6031502			36	19
34623	6031548			5	14
34623	6031568			35	1
34623	6031571			35	5
34623	6031640			36	5
34623	6031708			35	8
34623	6031742			25	9
34623	6032203			24	28
34623	6032324			24	26
34623	6032372			36	22
34623	6032416			35	25
34623	6032473			8	1
34623	6032848			12	5
34623	6032849			12	4
34623	6032857			11	2
34623	6033083			17	9
34623	6033126			4	11
34623	6033138-4.5IN			15	2
34623	6033141-12.5IN			17	5
34623	6033318			34	4
34623	6033320			37	20
34623	6033365			36	3
34623	6033410			11	5
34623	6036845			24	4
34623	6036848			24	5

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CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
34623	6036851			26	13
34623	6037172			BULK	2
34623	6037172-30IN			33	17
34623	6037172-35IN			33	10
34623	6037172-60IN			33	13
34623	6038360			34	10
34623	6038361			34	31
34623	6038476			2	33
34623	6038537			1	7
34623	6038644			1	18
34623	6038679			3	19
34623	6038710			3	16
34623	6038808			4	14
34623	6038851			1	3
34623	6038852			1	3
34623	6038872			24	11
34623	6038874			3	3
34623	6039247			15	4
34623	6039248			15	3
34623	6039565			36	18
34623	6040401			22	6
34623	6040401			23	8
34623	6041305			6	4
34623	6041613			24	12
34623	6041616			24	29
34623	6041617			25	6
34623	6041618			24	7
34623	6041631			4	4
34623	6041932			34	2
34623	6041986			13	1
34623	6041986			18	1
34623	6042051			24	24
34623	6042207			1	20
34623	6042370			16	3
34623	6042432			37	1
34623	6042460			20	26
34623	6042476			40	1
34623	6042487			25	14
34623	6042520			2	4
34623	6042578			25	13
34623	6042585			25	11
34623	6042658			1	13
34623	6042796-7.5IN			12	2
34623	6042796-7.5IN			15	6
34623	6042797			34	26
34623	6042800			44	4
34623	6042830			15	1
34623	6042831			15	5
34623	6042857			15	18
34623	6042882			33	6

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
34623	6043006		1	12
34623	6043025		4	6
34623	6043068		9	27
34623	6043069		9	27
34623	6043073		42	4
34623	6043102		36	20
34623	6043134		1	17
34623	6043145-32IN		33	9
34623	6043146-32IN		33	16
34623	6043147-60IN		33	11
34623	6043156		35	16
34623	6043241		24	16
34623	6043257		17	2
34623	6043340		15	14
34623	6043342		17	10
34623	6043355-20.5IN		12	3
34623	6043356-9IN		17	4
34623	6043382		3	23
34623	6043383		3	13
34623	6043522		34	33
34623	6044065		25	1
34623	6044183		6	1
97271	606279-2		16	9
34623	6500522	2530-01-554-4731	33	3
30780	6M16F82EDMX-S	4730-01-522-1312	33	18
12361	7-790-140853	5305-01-272-7422	9	13
0ZM57	70061338		39	3
0ZM57	70061342	5315-01-542-3872	39	28
0ZM57	70061343	5315-01-542-4594	39	24
19207	7063812	5310-00-126-3842	30	8
19207	7385182	5340-00-738-5182	15	15
19207	7716721	5310-00-595-7486	38	11
19207	7722322	5365-00-772-2322	8	3
19207	7722353	5935-00-772-2353	8	4
19204	7723307	5935-00-772-3307	8	2
47NR0	817549		1	11
47NR0	818839		1	10
92721	85914		16	12
76445	869370		14	7
76445	869370		14	20
76445	869370		19	7
76445	869370		19	20
19207	8712289	5310-00-044-3340	30	15
19204	8712289-5	5310-00-044-3342	11	10
19204	8712289-5	5310-00-044-3342	34	20
0ZM57	90171135		39	14
41885	90619D	4730-01-346-1063	28	12
39428	91280A534	5305-01-554-4493	24	32
72447	915027-18		30	18
41885	91610	5331-01-417-1043	28	4

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
60250	93-8171		21	2
60250	93-8172		21	2
60250	93-8210		21	8
60250	93-8211		21	8
24617	9416128	5310-00-402-2778	9	20
24617	9416918	5310-01-012-8962	2	14
7X677	9417793	5310-01-211-3811	2	30
24617	9418753	5310-01-465-4525	35	2
24617	9419471	5310-01-432-6727	20	5
7X677	9420352	5305-01-198-5510	15	7
24617	9421128	5310-01-457-4009	41	8
24617	9421128	5310-01-457-4009	43	15
24617	9422295	5310-01-119-3668	20	18
24617	9422295	5310-01-119-3668	24	19
24617	9422299	5310-01-150-4003	11	14
24617	9422299	5310-01-150-4003	14	13
24617	9422299	5310-01-150-4003	19	13
24617	9422307	5310-01-134-0206	39	31
7X677	9423534	5310-01-213-4192	41	30
24617	9424215	5310-01-398-0319	1	27
7X677	9428308	5310-01-212-2213	31	12
7X677	9428308	5310-01-212-2213	31	18
7X677	9428839	5310-01-408-9593	11	6
7X677	9428851	5310-01-250-7835	3	21
92867	95001418	5340-01-213-5600	20	10
80252	9630	2590-00-683-0598	7	4
54646	974HW-1750		34	29
54646	974JG-1500		34	32
81860	9810386		3	12
0ZM57	99221173P		39	2
63900	A-100-VC-8	2640-01-098-2029	28	9
58536	A-A-52506-F-48	4730-00-908-6292	2	2
58536	AA594401/1-004	4820-00-752-9040	4	10
78276	AKS4-420-260	5325-01-548-2516	42	7
81343	AS15001-1	4730-00-050-4203	14	9
81343	AS15001-1	4730-00-050-4203	14	18
81343	AS15001-1	4730-00-050-4203	19	9
81343	AS15001-1	4730-00-050-4203	19	18
81343	AS15001-1	4730-00-050-4203	31	4
81343	AS15001-1	4730-00-050-4203	31	7
81343	AS15001-3	4730-00-050-4205	31	11
81343	AS15001-3	4730-00-050-4205	31	17
80204	B1821BH025C050N	5305-00-071-2506	1	6
80204	B1821BH025C075N	5305-00-068-0508	2	11
80204	B1821BH025C075N	5305-00-068-0508	4	7
80204	B1821BH025C075N	5305-00-068-0508	9	8
80204	B1821BH025C075N	5305-00-068-0508	17	12
80204	B1821BH025C075N	5305-00-068-0508	43	5
80204	B1821BH025C088N	5305-00-071-2505	3	8
80204	B1821BH025C088N	5305-00-071-2505	20	2

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CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
80204	B1821BH025C088N	5305-00-071-2505	24	8
80204	B1821BH025C100N	5305-00-225-3843	7	3
80204	B1821BH025C100N	5305-00-225-3843	30	11
80204	B1821BH025C100N	5305-00-225-3843	42	1
80204	B1821BH025C113N	5305-00-225-3842	1	24
80204	B1821BH025C138N	5305-00-225-3841	16	16
80204	B1821BH025C250N	5305-00-071-2513	16	13
80204	B1821BH031C075N	5306-00-226-4825	6	12
80204	B1821BH031C075N	5306-00-226-4825	24	30
80204	B1821BH031C100N	5306-00-226-4827	20	14
80204	B1821BH031C100N	5306-00-226-4827	35	6
80204	B1821BH031C100N	5306-00-226-4827	43	18
80204	B1821BH031C113N	5306-00-226-4828	24	34
80204	B1821BH031C113N	5306-00-226-4828	33	4
80204	B1821BH038C075N	5305-00-543-4372	6	17
80204	B1821BH038C100N	5305-00-068-0510	2	28
80204	B1821BH038C100N	5305-00-068-0510	12	6
80204	B1821BH038C100N	5305-00-068-0510	26	9
80204	B1821BH038C113N	5305-00-543-2419	3	17
80204	B1821BH038C125N	5305-00-068-0511	2	6
80204	B1821BH038C125N	5305-00-068-0511	6	27
80204	B1821BH038C150N	5305-00-725-2317	41	17
80204	B1821BH038C200N	5305-00-782-9489	2	24
80204	B1821BH038C225N	5305-00-638-8920	2	17
80204	B1821BH038C250N	5305-00-543-2866	6	25
80204	B1821BH038C350N	5305-00-781-3927	36	4
80204	B1821BH038C400N	5305-00-781-3928	36	10
80204	B1821BH038C450N	5305-00-857-6886	39	12
80204	B1821BH044C100N	5305-00-071-1786	40	3
80204	B1821BH044C125N	5305-00-071-1788	22	8
80204	B1821BH044C125N	5305-00-071-1788	23	12
80204	B1821BH044C150N	5305-00-071-2055	14	15
80204	B1821BH044C150N	5305-00-071-2055	19	15
80204	B1821BH044C175N	5305-00-071-2056	31	14
80204	B1821BH050C113N	5305-00-732-0511	39	20
80204	B1821BH050C125N	5305-00-071-2067	36	23
80204	B1821BH050C138N	5305-00-071-2068	16	7
80204	B1821BH050C150N	5305-00-071-2069	13	3
80204	B1821BH050C150N	5305-00-071-2069	16	6
80204	B1821BH050C150N	5305-00-071-2069	37	18
80204	B1821BH050C150N	5305-00-071-2069	45	8
80204	B1821BH050C175N	5305-00-071-2070	11	8
80204	B1821BH050C175N	5305-00-071-2070	22	16
80204	B1821BH050C275N	5305-00-071-2074	3	20
80204	B1821BH050C275N	5305-00-071-2074	36	21
80204	B1821BH050C275N	5305-00-071-2074	37	2
80204	B1821BH050C300N	5305-00-071-2075	36	9
80204	B1821BH050C300N	5305-00-071-2075	37	21
80204	B1821BH050C300N	5305-00-071-2075	38	1
80204	B1821BH050C325N	5305-00-071-2076	36	8

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
80204	B1821BH050C325N	5305-00-071-2076	37	15
80204	B1821BH050C325N	5305-00-071-2076	45	7
80204	B1821BH050C350N	5305-00-071-2077	36	16
80204	B1821BH050C350N	5305-00-071-2077	38	6
80204	B1821BH050C350N	5305-00-071-2077	39	1
80204	B1821BH050C375N	5305-00-071-2078	35	13
80204	B1821BH050C400N	5305-00-071-2079	35	24
80204	B1821BH050C400N	5305-00-071-2079	36	6
80204	B1821BH050C400N	5305-00-071-2079	39	17
80204	B1821BH050C425N	5305-00-071-1783	34	14
80204	B1821BH050C450N	5305-00-071-2081	34	8
80204	B1821BH050C450N	5305-00-071-2081	39	21
80204	B1821BH050C600N	5305-01-032-2312	31	20
80204	B1821BH056C150N	5305-00-716-7680	34	22
80204	B1821BH063C125N	5305-00-724-7219	21	5
80204	B1821BH063C125N	5305-00-724-7219	22	19
80204	B1821BH063C150N	5305-00-724-7220	16	18
80204	B1821BH063C150N	5305-00-724-7220	22	17
80204	B1821BH063C150N	5305-00-724-7220	23	13
80204	B1821BH063C325N	5305-00-724-7236	34	17
80204	B1821BH063C450N	5305-00-724-7264	38	22
80204	B1821BH063C450N	5305-00-724-7264	44	1
80204	B1821BH063C475N	5305-00-724-7265	44	7
80204	B1821BH063F500N	5305-00-726-2567	32	4
80204	B1821BH075C325N	5305-00-947-4355	37	12
80204	B1821BH075C400N	5305-00-947-4358	35	18
80204	B1821BH075C400N	5305-00-947-4358	36	17
80204	B1821BH075C425N	5305-00-947-4359	37	9
80204	B1821BH075C450N	5305-00-947-4360	37	13
80204	B1821BH075C450N	5305-00-947-4360	39	4
80204	B1821BH075C475N	5305-00-947-4361	14	1
80204	B1821BH075C475N	5305-00-947-4361	19	21
80204	B1821BH075C475N	5305-00-947-4361	34	6
80204	B1821BH075C475N	5305-00-947-4361	37	19
80204	B1821BH075C500N	5305-00-947-4362	14	21
80204	B1821BH075C550N	5305-00-947-4363	19	1
80204	B18241B100F	5310-01-395-8747	5	10
53867	BX129860	5330-01-560-1552	27	3
53867	BX2771145		27	2
73821	C0850-081-2250-M	5360-01-255-9899	41	25
15434	C2798	5315-00-012-0123	14	12
78500	CPL6R50	2520-00-352-2168	30	29
19207	CPR104420-1	4720-01-058-7213	BULK	3
19207	CPR104420-1-11IN		6	11
19207	CPR104420-1-11IN		10	8
19207	CPR104420-1-15		27	6
19207	CPR104420-1-16IN		6	29
19207	CPR104420-1-17		11	16
19207	CPR104420-1-17		16	2
19207	CPR104420-1-1IN		26	4

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
19207	CPR104420-1-3IN		26	2
19207	CPR104420-1-41IN		10	4
19207	CPR104420-1-62IN		10	6
62161	D528235-B	2640-01-457-5552	28	15
19207	D528235-H1	2640-01-419-6200	28	15
34623	EC-06008597	4710-01-439-8165	9	14
34623	EC12460528B1	5340-01-459-9424	41	12
34623	EC12460529B1	5340-01-456-3913	41	4
34623	EC12460529B1	5340-01-456-3913	43	8
12624	EP-3376		BULK	4
12624	EP-3376-13IN		42	5
12624	EP-3376-6.62IN		42	6
34623	EX5025	2530-01-473-2724	24	6
01276	FF3323-0706-259	4730-01-493-4056	33	20
01276	GG108-NP08-18	4730-01-359-2382	33	14
01276	GG308-NP08-18	4730-01-358-8538	33	1
0ZM57	H100		39	29
0ZM57	H133		39	13
0ZM57	H1593		39	25
0ZM57	H1594		39	27
6H404	HUH2601		6	5
81349	M24243/3-A610	5320-00-490-2243	45	1
96906	M45912/3-6FG8C	5310-00-814-0672	14	4
96906	M45912/3-6FG8C	5310-00-814-0672	19	4
81349	M45913/1-10CG8C	5310-00-061-4651	34	25
81349	M45913/1-10CG8C	5310-00-061-4651	38	16
81349	M45913/1-10CG8C	5310-00-061-4651	44	6
81349	M45913/1-4CG5C	5310-00-088-1251	30	13
81349	M45913/1-5FG5C	5310-00-984-3807	20	21
81349	M45913/3-12CG8C	5310-00-409-3333	14	3
81349	M45913/3-12CG8C	5310-00-409-3333	19	3
81349	M45913/3-12CG8C	5310-00-409-3333	34	28
81349	M45913/3-12CG8C	5310-00-409-3333	35	20
81349	M45913/3-12CG8C	5310-00-409-3333	37	5
81349	M45913/3-12CG8C	5310-00-409-3333	39	8
80205	M45913/3-4CG8C	5310-00-061-4650	1	5
81349	M45913/3-4CG8C	5310-00-061-4650	3	6
80205	M45913/3-4CG8C	5310-00-061-4650	4	9
81349	M45913/3-4CG8C	5310-00-061-4650	9	10
80205	M45913/3-4CG8C	5310-00-061-4650	30	27
80205	M45913/3-4CG8C	5310-00-061-4650	43	1
81349	M45913/3-5CG8C	5310-00-814-0673	24	33
81349	M45913/3-5CG8C	5310-00-814-0673	41	6
81349	M45913/3-5CG8C	5310-00-814-0673	43	13
81349	M45913/3-8CG8Z	5310-01-501-3086	35	4
81349	M45913/4-4CG8C	5310-01-510-1237	2	23
81349	M45913/4-4CG8Z	5310-01-548-1269	46	5
81349	M45913/4-6CG8C	5310-01-490-4433	2	10
81349	M45913/4-7CG8Z		31	13
81349	M45913/4-8CG8Z	5310-01-548-1848	45	2

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
78222	M83PAQ2		32	1
96906	MS16624-1066	5325-00-282-1830	41	24
96906	MS16633-1050	5325-00-442-5845	20	22
80205	MS21245-8	5310-00-449-2376	28	14
80205	MS21333-100	5340-00-809-1492	9	9
80205	MS21333-104	5340-00-088-1254	9	24
80205	MS21333-104	5340-00-088-1254	15	9
80205	MS21333-104	5340-00-088-1254	17	6
96906	MS21333-119	5340-00-050-9077	6	24
80205	MS21333-121	5340-00-954-6014	9	23
80205	MS21333-121	5340-00-954-6014	24	22
80205	MS21333-121	5340-00-954-6014	25	2
80205	MS21333-124	5340-00-854-6730	5	6
80205	MS21333-125	5340-00-725-5280	10	3
80205	MS21333-125	5340-00-725-5280	12	7
80205	MS21333-128	5340-00-702-2848	15	11
96906	MS21333-33	5340-00-827-8314	25	10
80205	MS21333-67	5340-00-079-7837	46	2
80205	MS21333-98	5340-00-809-1490	46	4
80205	MS24665-283	5315-00-842-3044	20	9
80205	MS24665-283	5315-00-842-3044	41	14
80205	MS24665-355	5315-00-012-0123	19	12
80205	MS24665-355	5315-00-012-0123	31	1
80205	MS24665-355	5315-00-012-0123	38	13
80205	MS24665-513	5315-00-239-8032	38	17
96906	MS27183-10	5310-00-809-4058	2	13
96906	MS27183-10	5310-00-809-4058	25	16
96906	MS27183-10	5310-00-809-4058	30	12
96906	MS27183-10	5310-00-809-4058	43	2
96906	MS27183-11	5310-00-809-3078	43	4
96906	MS27183-12	5310-00-081-4219	6	14
96906	MS27183-12	5310-00-081-4219	41	7
96906	MS27183-14	5310-00-080-6004	2	7
96906	MS27183-14	5310-00-080-6004	5	12
96906	MS27183-14	5310-00-080-6004	6	19
96906	MS27183-14	5310-00-080-6004	41	11
96906	MS27183-15	5310-00-809-4061	19	14
96906	MS27183-16	5310-00-809-4085	14	14
96906	MS27183-16	5310-00-809-4085	30	16
96906	MS27183-20	5310-00-068-5285	11	11
96906	MS27183-20	5310-00-068-5285	34	19
96906	MS27183-42	5310-00-014-5850	30	20
96906	MS27183-42	5310-00-014-5850	41	33
96906	MS27183-42	5310-00-014-5850	43	11
96906	MS27183-9	5310-00-823-8804	39	7
81343	MS28775-223	5331-00-171-6649	26	7
96906	MS3367-1-0	5975-00-984-6582	46	6
96906	MS3367-2-0	5975-00-899-4606	33	12
96906	MS3367-3-0	5975-00-985-6630	1	19
96906	MS3367-3-0	5975-00-985-6630	4	2

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
96906	MS3367-3-0	5975-00-985-6630	10	7
80205	MS35190-290	5305-00-954-3937	1	2
80205	MS35333-44	5310-00-194-1483	39	19
80205	MS35338-145	5310-00-937-0453	1	22
80205	MS35338-145	5310-00-937-0453	32	3
80205	MS35338-44	5310-00-582-5965	2	12
80205	MS35338-44	5310-00-582-5965	3	15
80205	MS35338-44	5310-00-582-5965	7	2
80205	MS35338-44	5310-00-582-5965	24	9
80205	MS35338-44	5310-00-582-5965	41	19
80205	MS35338-44	5310-00-582-5965	42	2
80205	MS35338-44	5310-00-582-5965	45	11
80205	MS35338-45	5310-00-407-9566	2	15
80205	MS35338-45	5310-00-407-9566	6	13
80205	MS35338-46	5310-00-004-5033	2	27
80205	MS35338-46	5310-00-004-5033	3	18
80205	MS35338-46	5310-00-004-5033	6	18
80205	MS35338-46	5310-00-004-5033	9	22
80205	MS35338-46	5310-00-004-5033	12	9
80205	MS35338-46	5310-00-004-5033	26	10
80205	MS35338-46	5310-00-004-5033	30	2
80205	MS35338-48	5310-00-584-5272	16	5
96906	MS35338-67	5310-00-011-6121	11	7
96906	MS35340-43	5310-00-721-7809	9	26
80205	MS35649-202	5310-00-934-9758	9	25
80205	MS35649-205B	5310-00-934-9764	30	19
96906	MS35692-54	5310-00-850-7004	14	10
96906	MS35692-54	5310-00-850-7004	14	17
96906	MS35692-54	5310-00-850-7004	19	10
96906	MS35692-54	5310-00-850-7004	19	17
96906	MS35692-54	5310-00-850-7004	38	14
96906	MS35692-62	5310-00-850-6993	31	3
96906	MS35692-62	5310-00-850-6993	31	8
96906	MS35692-62	5310-00-850-6993	38	19
96906	MS35810-4	5315-00-815-8840	20	7
96906	MS51471-01	5310-01-272-9981	13	2
96906	MS51525-A6	4730-00-491-9576	6	10
96906	MS51849-55	5305-00-115-9934	41	29
96906	MS51849-74	5305-00-470-3321	46	8
96906	MS51849-75	5305-01-006-2053	9	19
96906	MS51849-76	5305-00-240-0194	30	22
96906	MS51849-76	5305-00-240-0194	41	5
96906	MS51849-76	5305-00-240-0194	43	7
96906	MS51851-85	5305-00-191-3640	15	17
96906	MS51943-35	5310-00-935-9021	3	9
96906	MS51943-35	5310-00-935-9021	26	12
96906	MS51943-35	5310-00-935-9021	27	5
96906	MS51943-35	5310-00-935-9021	30	1
96906	MS51943-35	5310-00-935-9021	36	1
96906	MS51943-35	5310-00-935-9021	39	9

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER INDEX		FIG.	ITEM
	PART NUMBER	STOCK NUMBER		
96906	MS51943-35	5310-00-935-9021	41	10
96906	MS51943-39	5310-00-488-3889	16	8
96906	MS51943-39	5310-00-488-3889	16	14
96906	MS51943-39	5310-00-488-3889	22	14
96906	MS51943-39	5310-00-488-3889	31	22
96906	MS51943-39	5310-00-488-3889	34	9
96906	MS51943-39	5310-00-488-3889	35	12
96906	MS51943-39	5310-00-488-3889	36	12
96906	MS51943-39	5310-00-488-3889	37	4
96906	MS51943-39	5310-00-488-3889	38	5
96906	MS51943-39	5310-00-488-3889	39	23
96906	MS51967-3	5310-00-905-0762	17	8
96906	MS51967-6	5310-00-931-8167	33	7
96906	MS51967-9	5310-00-761-0654	12	10
96906	MS51967-9	5310-00-761-0654	36	25
96906	MS51968-6	5310-00-905-4600	20	11
80205	MS51975-8	5305-00-914-3818	1	25
96906	MS51988-11	5310-00-849-3589	3	24
96906	MS51988-7	5310-00-930-8214	41	9
96906	MS51988-8	5310-00-447-8774	11	1
96906	MS521301A203R	4720-00-491-0102	BULK	5
80205	MS90725-34	5306-00-225-8499	41	26
1PUD1	NL-10	5310-01-457-3292	22	2
1PUD1	NL-10	5310-01-457-3292	23	2
9G287	P-050	2530-01-261-6844	28	16
9G287	P-100	2530-00-848-4581	28	16
9G287	P-150	2530-01-261-6845	28	16
9G287	P-200	2530-01-261-6846	28	16
9G287	P-250	2530-01-262-8646	28	16
9G287	P-400	2530-01-261-8013	28	16
9G287	P-500	2530-01-262-8647	28	16
9G287	P-550	2530-01-263-2268	28	16
06641	PTL21-C76	5975-01-517-9077	10	1
34623	RCSK18136	4820-01-456-0168	24	3
34623	RCSK19805	5340-01-538-5849	45	6
34623	RCSK23646	4720-01-558-7665	33	19
81343	SAE J512 3-3-3 0 40401BA	4730-00-287-1706	24	25
81343	SAE-20R1ECLTS-A- 25XR	4720-00-401-9299	BULK	6
63477	SE639		31	10
63477	SE640		31	16
01212	SE80271		31	5
63477	SE80289		31	2
63477	SE80886		31	15
0ZM57	ST019-01P		39	18
0ZM57	ST021-01P		39	30
0ZM57	ST023-02P		39	11
0ZM57	STA001-05P		39	15
0ZM57	STA002-02P	3010-01-542-8199	39	5

CROSS-REFERENCE INDEXES

CAGEC	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
0ZM57	STA003-04P			39	26
0ZM57	STA005-05P			39	22
0ZM57	STA007-05			39	KIT
0ZM57	STA010-01P		5120-01-543-5919	39	6
76599	TSS28S30			4	1
76599	TSS32S30			4	5
47NR0	X21678			1	9
41885	X91430		5306-01-417-2467	28	3
04XS7	Z-160-9535			22	3
04XS7	Z-160-9535			23	3
04XS7	Z-250-9941			23	14
04XS7	Z-250-9942			23	14
04XS7	Z-250-9943			22	4
04XS7	Z-250-9944			22	4

APPENDIX F

WIRING DIAGRAMS AND SCHEMATIC

F-1. GENERAL

The following appendix includes functional flow and wiring diagram foldout pages needed to maintain the M1151A1, M1152A1, and M1165A1 vehicles with serial numbers 300000 and above.

F-2. WIRING DIAGRAM AND SCHEMATIC INDEX

FIGURE NO.	TITLES	PAGE NO.
FO-4.1.	Cooling Functional Flow and Location of Parts Diagrams (Serial Numbers 300000 and Above) (located at back of manual)	FP-1
FO-12.1.	Brakes Functional Flow and Location of Parts Diagrams (Serial Numbers 300000 and Above) (located at back of manual)	FP-3
FO-13.1.	Steering Functional Flow and Location of Parts Diagrams (Serial Numbers 300000 and Above) (located at back of manual)	FP-5
FO-14.1.	Drivetrain Functional Flow and Location of Parts Diagram (Serial Numbers 300000 and Above) (located at back of manual)	FP-7
FO-16.	Electronic Speedometer Wiring Chart (Serial Numbers 300000 and Above) (located at back of manual)	FP-9

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:



JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0810804

By Order of the Marine Corps:

THOMAS H. MILLER
Program Manager,
Motor Transport (PMM151)
Marine Corps Systems Command

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II (reverse) for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE: <p style="text-align: center;">5 Dec. 2005</p>
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TO: (Forward to proponent of publication or form) (include ZIP code) AMSTA-LC-LMPP/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: (Activity and location) (include ZIP code) <p style="text-align: center;">Co. B, 1st BN, 2nd Brigade Ft. Hood, TX 76445</p>
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PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER <p style="text-align: center;">TB 9-2320-335-13&P</p>	DATE <p style="text-align: center;">30 MAY 2008</p>	TITLE <p style="text-align: center;">TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS</p>
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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible)</i>
1	5-15			5-20		Capscrew part number should be B1821BH031F100N (callout #4)

SAMPLE

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE, OR TITLE <p style="text-align: center;">Pat Smith</p>	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <p style="text-align: center;">AV272-4162</p>	SIGNATURE <p style="text-align: center;"><i>Pat Smith</i></p>
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TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMPP/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i>	DATE:
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER TB 9-2320-335-13&P	DATE 30 MAY 2008	TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
<h1>SAMPLE</h1>								

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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TYPED NAME, GRADE, OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.				Use Part II (reverse) for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).		DATE:
TO: <i>(Forward to proponent of publication or form) (include ZIP code)</i> AMSTA-LC-LMPP/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630				FROM: <i>(Activity and location) (include ZIP code)</i>		
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS						
PUBLICATION/FORM NUMBER TB 9-2320-335-13&P			DATE 30 MAY 2008		TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS	
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible)</i>
<i>*Reference to line numbers within the paragraph or subparagraph.</i>						
TYPED NAME, GRADE, OR TITLE				TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION		SIGNATURE

TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMPP/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i>	DATE:
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER TB 9-2320-335-13&P	DATE 30 MAY 2008	TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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PUBLICATION/FORM NUMBER TB 9-2320-335-13&P			DATE 30 MAY 2008		TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS		
ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible)</i>	
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TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMPP/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i>	DATE:
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

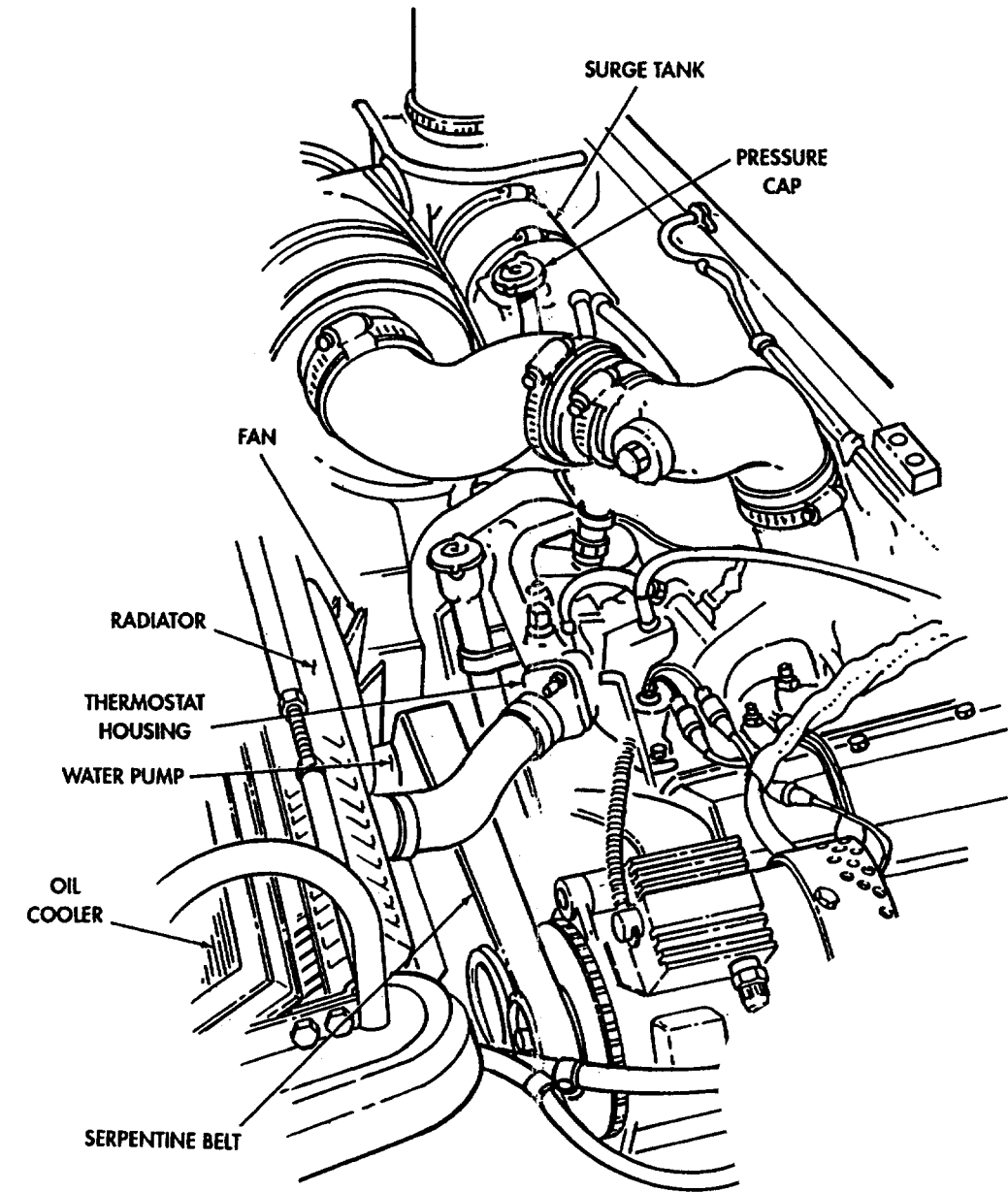
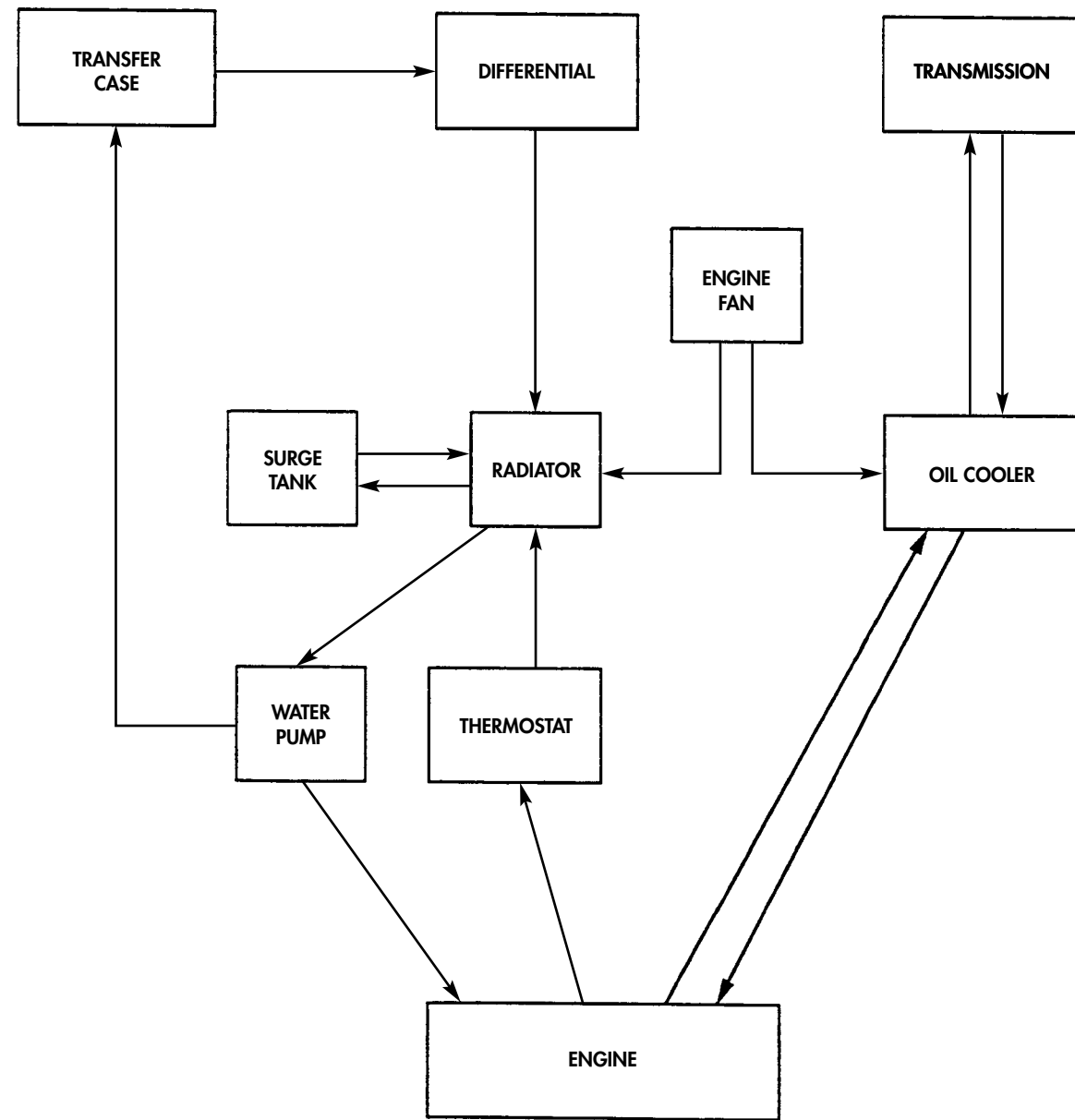
PUBLICATION/FORM NUMBER TB 9-2320-335-13&P	DATE 30 MAY 2008	TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

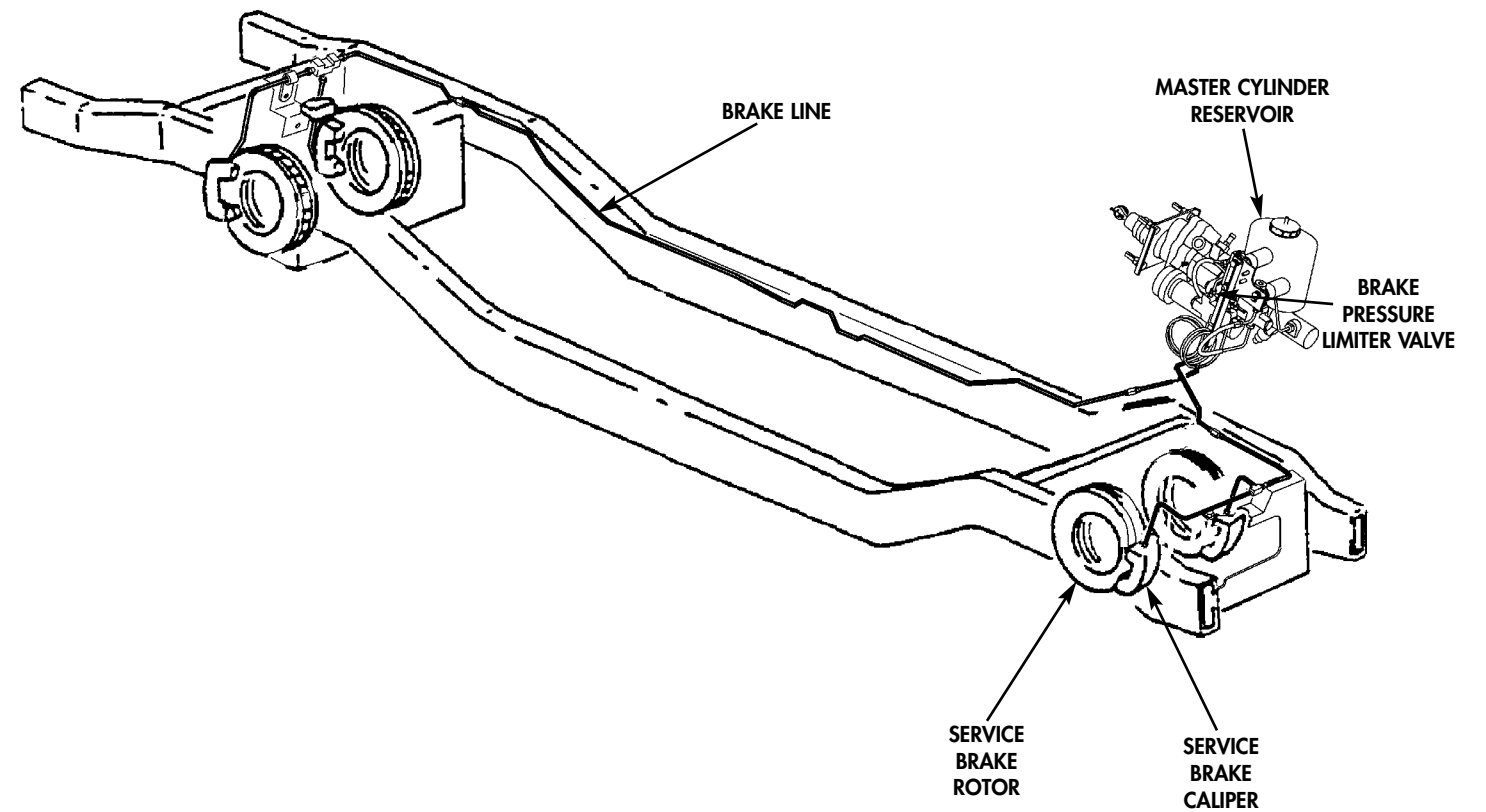
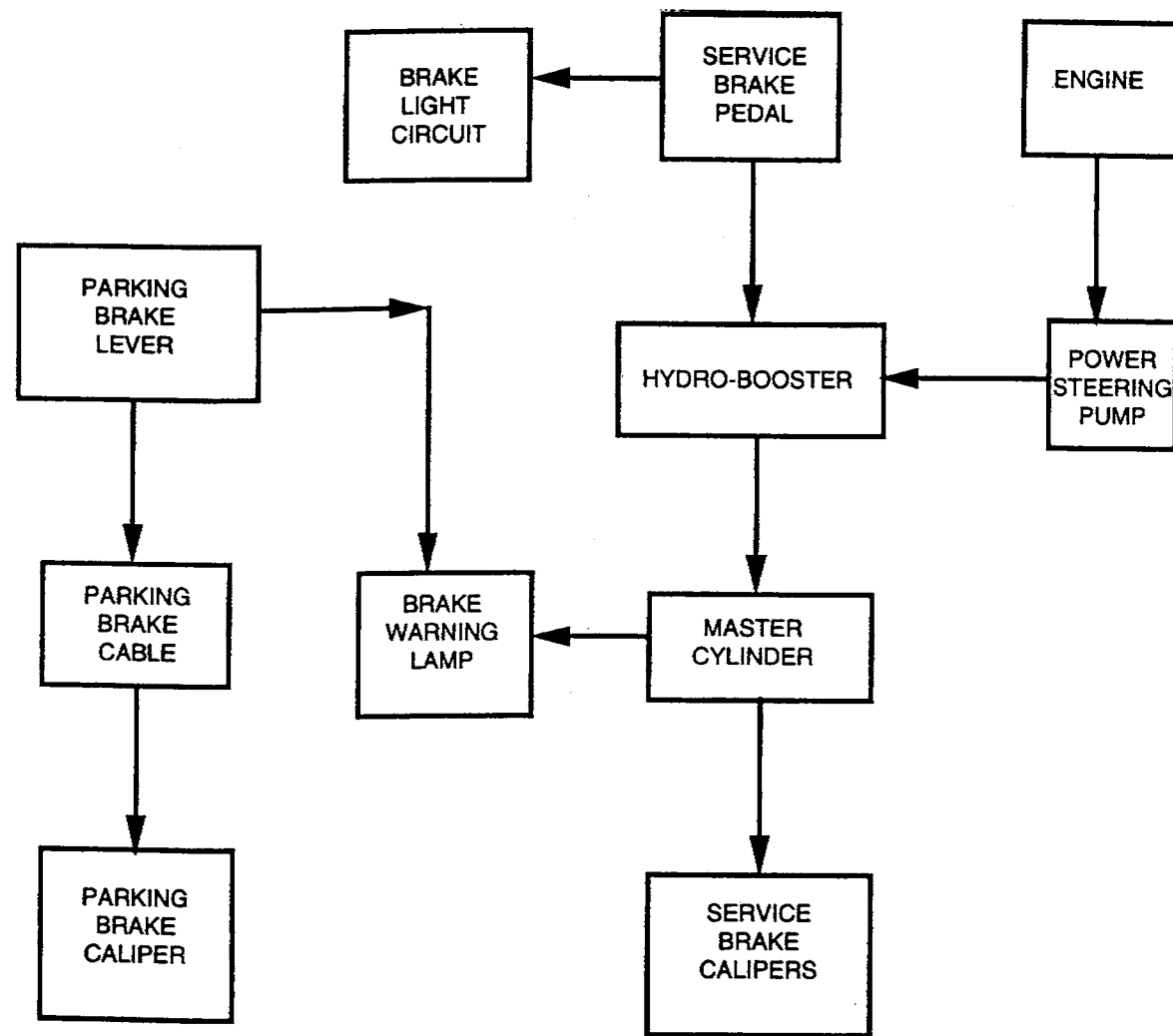
PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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TYPED NAME, GRADE, OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

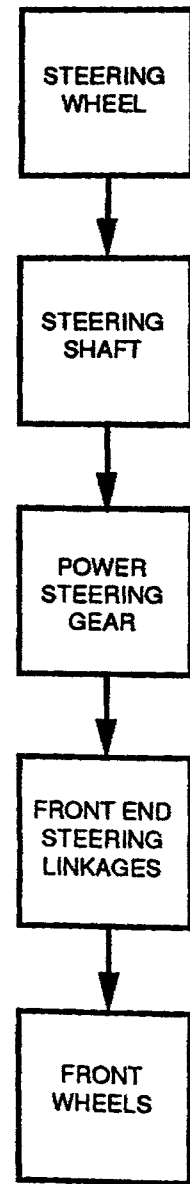


FO-4.1 Cooling Functional Flow and Location of Parts Diagrams (Serial Numbers 300000 and Above)

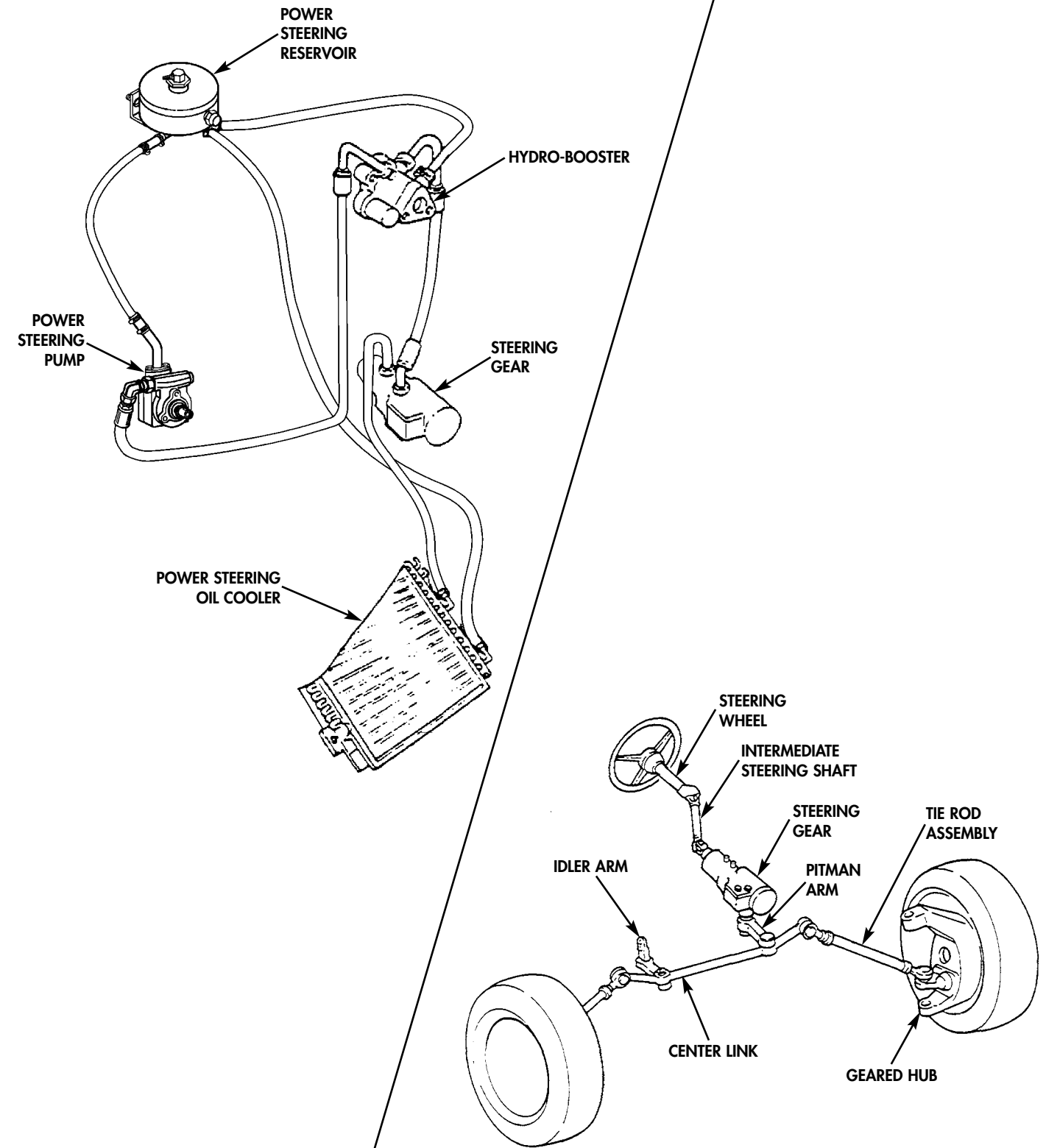
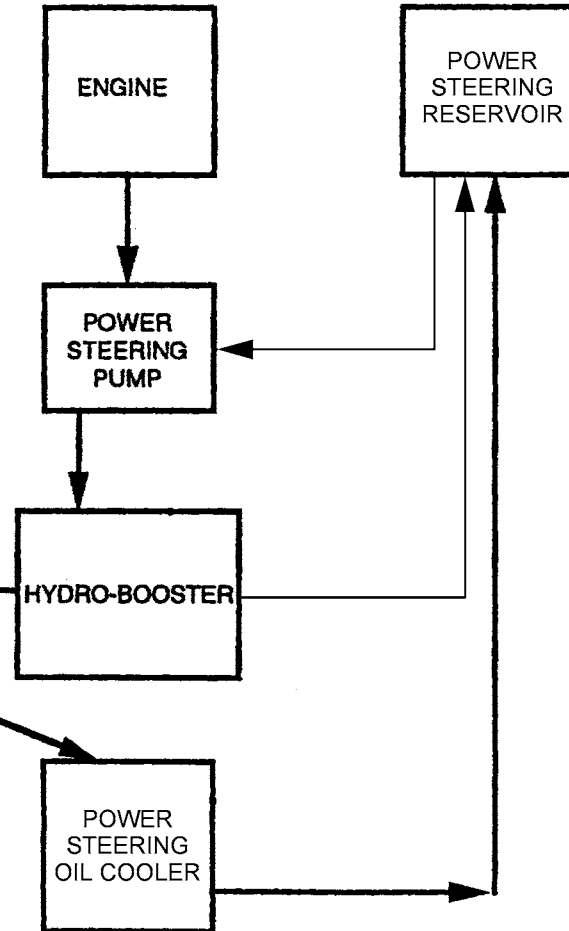


FO-12.1 Brakes Functional Flow and Location of Parts Diagrams (Serial Numbers 300000 and Above)

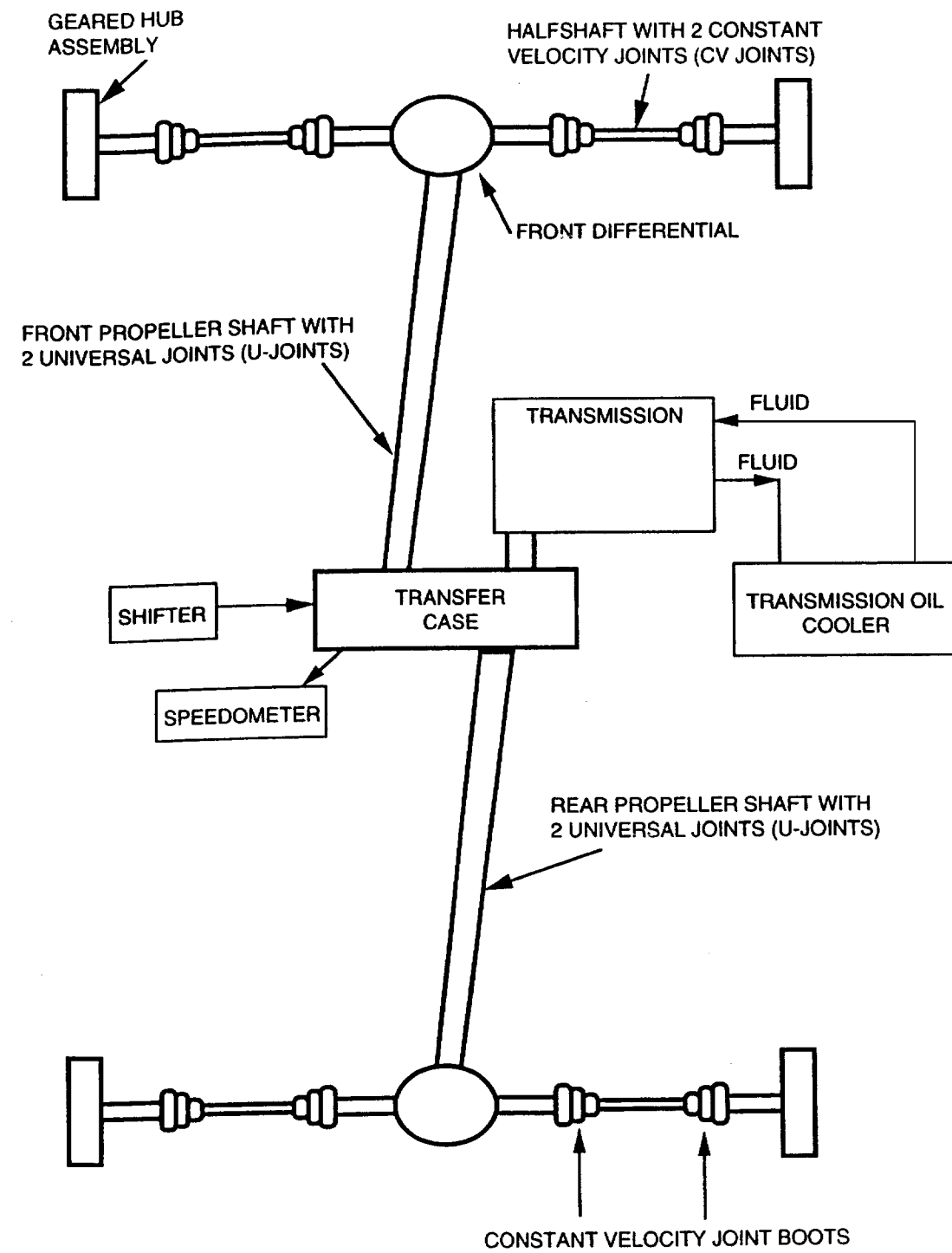
MECHANICAL SYSTEM



HYDRAULIC SYSTEM

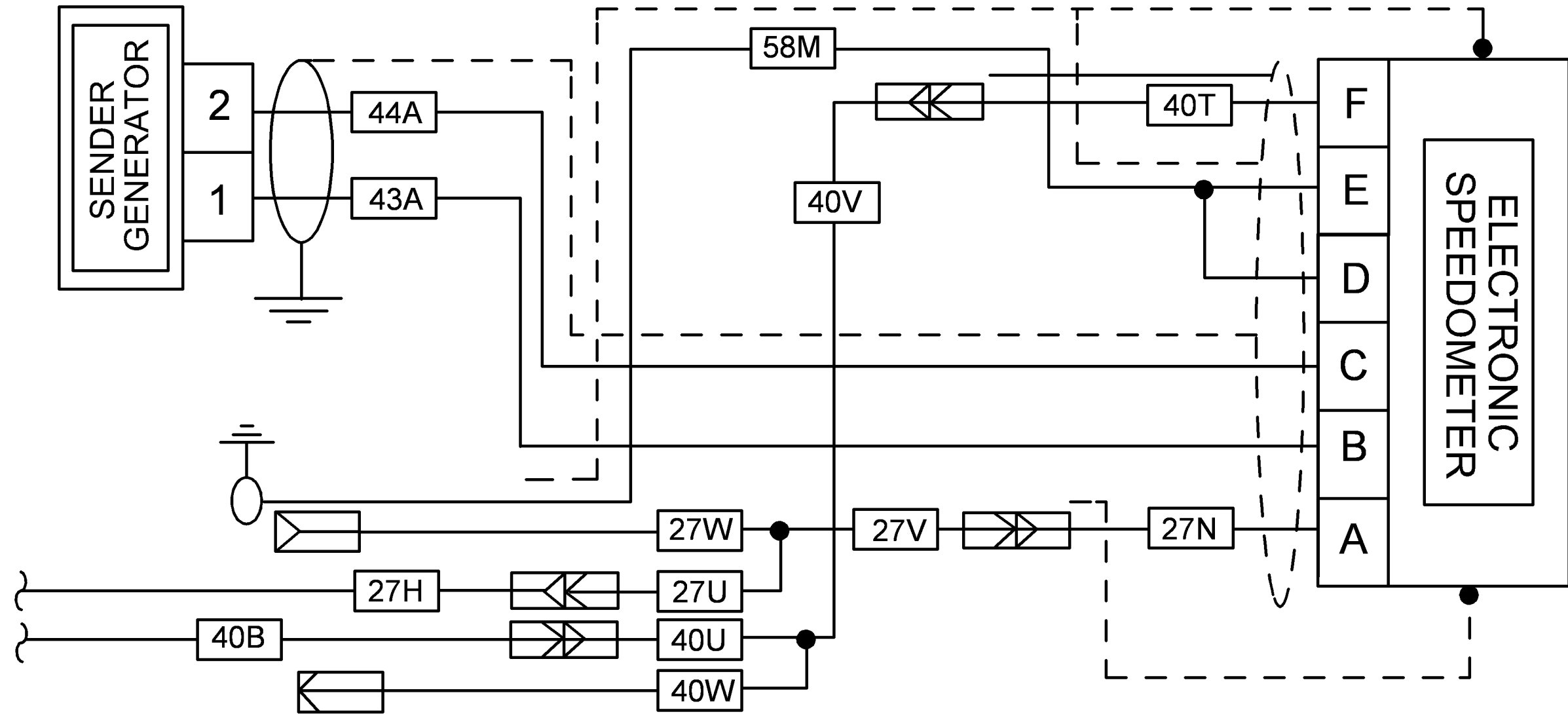


FO-13.1 Steering functional flow and Location of Parts Diagrams (Serial Numbers 300000 and Above)



NOT APPLICABLE TO THIS SYSTEM

FO-14.1 Drivetrain Functional Flow and Location of Parts Diagram (Serial Numbers 300000 and Above)



FO-16 Electronic Speedometer Wiring Chart

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

- 1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
- 1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches
- 1 Kilometer = 1,000 Meters = 0.621 Miles

SQUARE MEASURE

- 1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
- 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
- 1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

- 1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
- 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

- 1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
- 1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

- Degrees Fahrenheit (F) = $^{\circ}\text{C} \cdot 9 \div 5 + 32$
- Degrees Celsius (C) = $\text{F}^{\circ} - 32 \cdot 5 \div 9$
- 212° Fahrenheit is equivalent to 100° Celsius
- 90° Fahrenheit is equivalent to 32.2° Celsius
- 32° Fahrenheit is equivalent to 0° Celsius

WEIGHTS

- 1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
- 1 Kilogram = 1,000 Grams = 2.2 Lb
- 1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Millimeters	25.4
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.4536
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609
TO CHANGE	TO	MULTIPLY BY
Millimeters	Inches	0.03937
Centimeters	Inches	0.3937
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.2046
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621

