**CHANGE**

**NO. 1**

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 4 April 1995

**Lubrication Order**

**TRUCK, TRACTOR, M1074**
**AND M1075 PALLETIZED**
**LOAD SYSTEM (PLS)**
**NSN 2320-01-304-2277**
**NSN 2320-01-304-2278**

LO 9-2320-364-12, dated 1 October 1993, is changed as follows:

1. Remove old cards and insert new cards as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the card.
3. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.
4. Title is changed as noted above.

| Remove Card | Insert Card | Remove card | Insert Card |
|---|---|---|---|
| Card 7 and Card 8 | Card 7 and Card 8 | Card 41 and Card 42 | Card 41 and Card 42 |
| Card 17 and Card 18 | Card 17 and Card 18 | Card 43 and Card 44 | Card 43 and Card 44 |

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
*Chief of Staff*

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
00360

Distribution: To be distributed in accordance with DA Form 12-38-E, Block 0891, requirements for LO 9-2320-364-12.

File this change sheet in the front of the publication for reference purposes.

Approved for public release: distribution is unlimited.

# LO 9-2320-364-12

## PALLETIZED LOAD SYSTEM (PLS), M1074/M1075 (NSN 2320-01-304-2277/2320-01-304-2278)

**References:** TM 9-2320-364-10, TM 9-2320-364-20, FSC C9100-IL

**REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS**

You can improve this publication by calling attention to errors and by recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended Changes to Publications and Blank Forms, should be mailed directly to Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI, 48397-5000. A reply will be furnished directly to you.

**Maintenance Levels.** This Lubrication Order (LO) is for Operator/Crew and Unit Maintenance. The lowest level of maintenance authorized to lubricate a point is indicated by either Operator/Crew (C) or Unit Maintenance (O). Operator/Crew may lubricate points authorized for Unit Maintenance when authorized by Unit Maintenance.

**Locators.** Points indicated with dotted lines are lubricated on both sides of the truck. Reference to the appropriate localized view is given after most lubrication entries. Localized views begin on Card 24.

**Lube Intervals.** Lube intervals (On-Condition or Hard-Time) and related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. Army Oil Analysis Program (AOAP) lubricants will be changed on condition as directed by analysis results. Hard-time intervals will be applied in the event AOAP laboratory support is not available. For equipment under manufacturer's warranty, hard-time oil service intervals shall be followed. The calendar interval maybe extended during periods of low activity. If extended, adequate preservation precautions must be taken. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions, such as longer-than-usual operating hours, extended idling periods, or extreme dust.

Intervals shown in this LO are based on calendar, mileage, and hourly times and/or any combination of calendar, mileage, and hourly times. An example of a calendar lubrication interval is: S, which stands for Semiannually (every six months). An example of a mileage and calendar interval is: 10/A, in which 10 stands for 10,000 mi (16,090 km), and A stands for Annual (every 12 months). Perform the lubrication at whichever interval occurs first. Notes are located on Cards 40 to 44.

**Approved for public release: distribution is unlimited.**

**WARNING**

- Drycleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Drycleaning Solvent is 100 degrees F (38 degrees C) and for Type II dry cleaning solvent is 140 degrees F (60 degrees C). Failure to do so 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 immediate medical attention.

**Cleaning and Fording.** Clean grease fitting and grease gun tip before lubricating. Clean parts with dryclcaning solvent (P-D-680, Type II or equivalent). Dry before lubricating. After high pressure washing, lubricate all fittings and oil can points outside and underneath the truck. After fording, lubricate all fittings below fording dcpth and check submerged gearboxes for water. Drain if water is found. For corrosion control, refer to TM 9-2320-364-10.

**Distribution Statement.** Approved for public release; distribution is unlimited.

**AOAP Sampling.** Engine oil/transmission oil/hydraulic fluids must be sampled at 100 hours of operation or at 90-day intervals, whichever comes first, as prescribed by DA Pam 738-750. Hard-time intervals will be applied in the event AOAP laboratory support is not available.

**Warranty Statement.** For equipmemt under manufaturer's warranty, hard-time oil service intervals shall be followed, however, if the laboratory recommends an oil change, the recommendation will be followed. Intervals shall be shortened if lubricants arc known to be contaminated or if operation is under adverse conditions, such as longer-than-usual operating hours, extended idling periods, or extreme dust.

Table 1. Lubricants

| | Component | Approximate Capacity | Expected Temperatures | Intervals | |
|---|---|---|---|---|---|
| Lubricating Oil, Internal Combustion Engine (ICE), Tactical, OE/HDO (MIL-L-2104) or Lubricating Oil, ICE, Arctic, OEA (MIL-L-46167) | Engine | 30 qt (28 l) | See CHART A. | OC - ON-CONDITION<br>D - DAILY<br>W - WEEKLY<br>M - MONTHLY<br>AR - AS REQUIRED<br>HRS - HOURS<br>S - SEMIANNUALLY (6 MONTHS)<br>A - ANNUALLY<br>BI - BIENNIALLY<br>1.5 - 1500 MILES<br>3 - 3000 MILES<br>6 - 6000 MILES<br>9 - 9000 MILES<br>12 - 12,000 MILES<br>24 - 24,000 MILES | For arctic operation, refer to FM 9-207. |
| | Transmission | 33 qt (31 l) | See CHART B. | | |
| | Transfer Case | 9.8 qt (9 l) | See CHART C. | | |
| | Power Steering Reservoir | 15.3 qt (14 l) | See CHART D. | | |
| | Hydraulic Reservoir | 162 qt (153 l) | See CHART D. | | |
| | Oil Can Points | As required | See CHART G. | | |
| Lubricating Oil, Gear, Multipurpose, GO (MIL-L-2105) | Axle No. 1 | 34 pt (16.1 l) | See CHART H. | | |
| | Axle No. 2 | 33 pt (15.61 l) | See CHART H. | | |
| | Axle No. 3 | 33 pt (15.61 l) | See CHART H. | | |
| | Axle No. 4 | 32 pt (15.14 l) | See CHART H. | | |
| | Axle No. 5 | 34 pt (16.1 l) | See CHART H. | | |
| | Planetary Hub Gears | 3.2 pt (1.5 l) | See CHART H. | | |
| | Steering Gear Box 2.21:1 | 0.5 pt (0.237 l) | See CHART F. | | |
| | Self-Recovery Winch Gearbox | 2 qt (2 l) | See CHART E. | | |
| | Hoist Gearbox | 1 pt (0.47 l) | See CHART E. | | |
| | Swing Drive Gearbox | 40 oz (1.18 l) | See CHART E. | | |

## Table 2. Other Fluids

| Fluid | Capacity | Temperature | For arctic operation, refer to FM 9-207. |
|---|---|---|---|
| Drycleaning Solvent, SD-II, (P-D-680) | As required | All Temperatures | |
| Antifreeze, Ethylene Glycol (MIL-A-46153) | 109 qt (103 l)* | Above -50 degrees F (-46 degrees C) | |
| Antifreeze, Arctic-Type (MIL-A-11755) | 112 qt (106 l)* | Use when extended periods of -40 degrees F (-40 degrees C) or below are encountered. | |

* Cooling System Capacity

## Table 3. Grease, Automotive and Artillery (GAA) (MIL-L-10924)

The following components are lubricated with GAA as required at all temperatures.

| | |
|---|---|
| Drive Train/Suspension Driveshafts, U-Joints, Double Cardon Joints, Spring Hangers, Trunnions (Fittings) | For arctic operation, refer to FM 9-207. |
| SRW Tensioning Guides and Rollers (Fittings) | |
| Self-Guided Coupler (Fittings) | |
| Steering System Pitman Arms, Steering Gears, Drag Links, Steering Shafts, Steering Column Linkage, Tie Rod Ends, Intergear Link (Fittings) | |
| Tire Davit (Fittings) | |
| Hydraulic Pump Driveshaft (Fitting) | |
| Load Handling System (Fittings) | |
| Crane (Fittings) | |

## Table 4. Antiseize Compound (MIL-A-907)

The following components are lubricated with antiseize compound as required at all temperatures.

| |
|---|
| Crane Jack Cylinder Barrels |
| Crane Tension Link |

**Table 5. Total Work-Hours* Required for Service**

| TRUCK, M1074 | |
|---|---|
| OC | 1.04 |
| D | 0.03 |
| W | 0.03 |
| M/50 HRS | 0.43 |
| S,Q | 0.04 |
| A | TBD |
| BI | TBD |
| 1.51/Q | 1.71 |
| 3/S | 0.72 |
| S/400 HRS | 1.08 |
| 6A | 0.41 |
| 12A | 0.40 |
| 20/A | 0.33 |
| 50/A | 1.38 |
| 12/BI | 5.93 |
| 8000 HRS/12 | 0.10 |

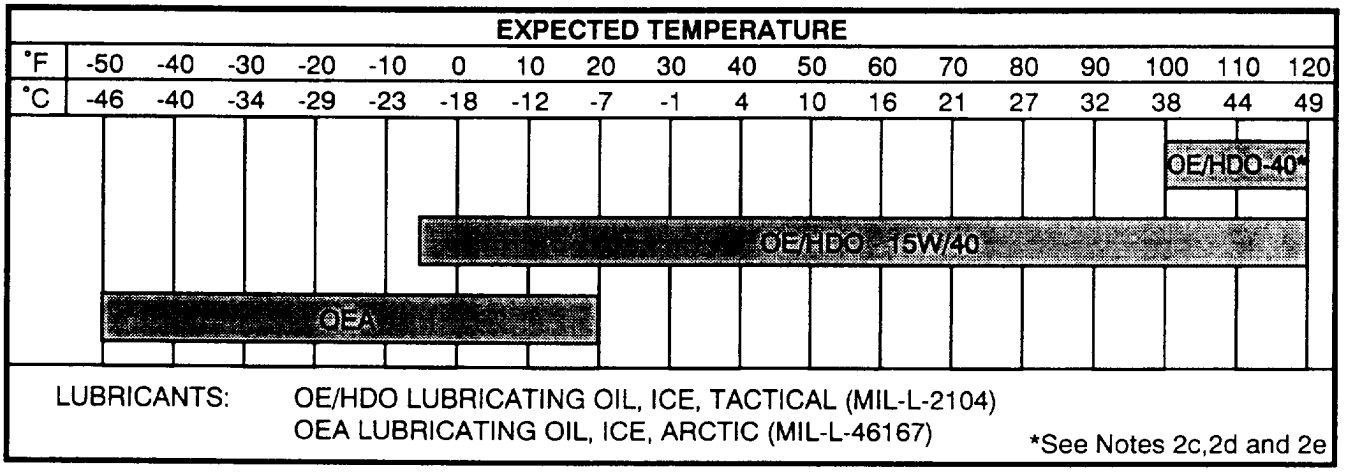
* The work-hours shown above have been established on an individual basis and, accordingly, are not applicable at maintenance facilities where production line methods are employed.

**Table 6. Sealant (NSN 8030-01-166-0675)**

The following components have sealant applied.

| |
|---|
| Steering Gear Box 2.21 to 1 |

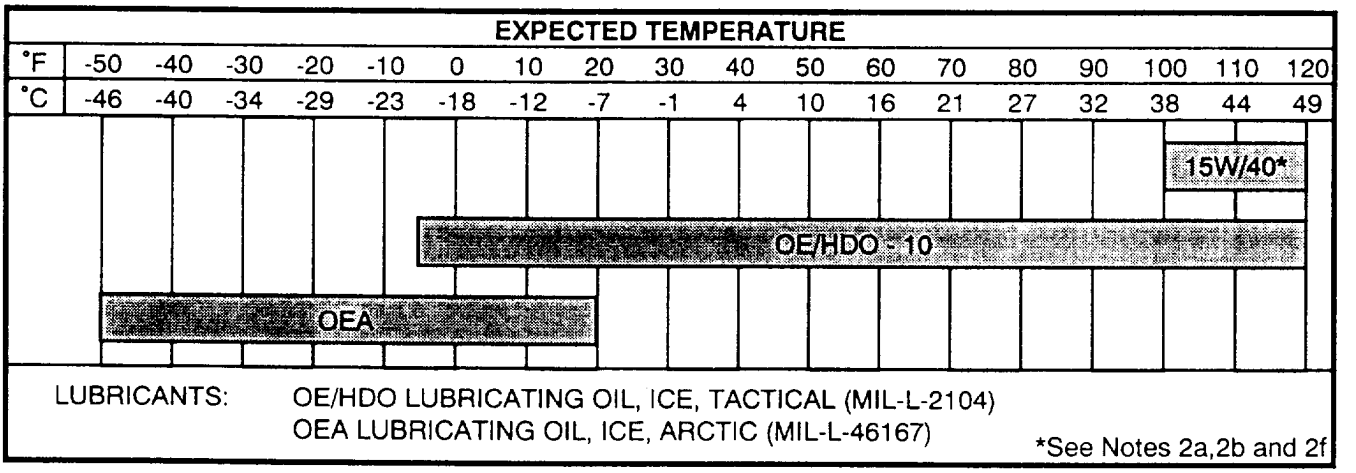
## CHART A. ENGINE




LUBRICANTS: OE/HDO LUBRICATING OIL, ICE, TACTICAL (MIL-L-2104)
OEA LUBRICATING OIL, ICE, ARCTIC (MIL-L-46167)

*See Notes 2c,2d and 2e

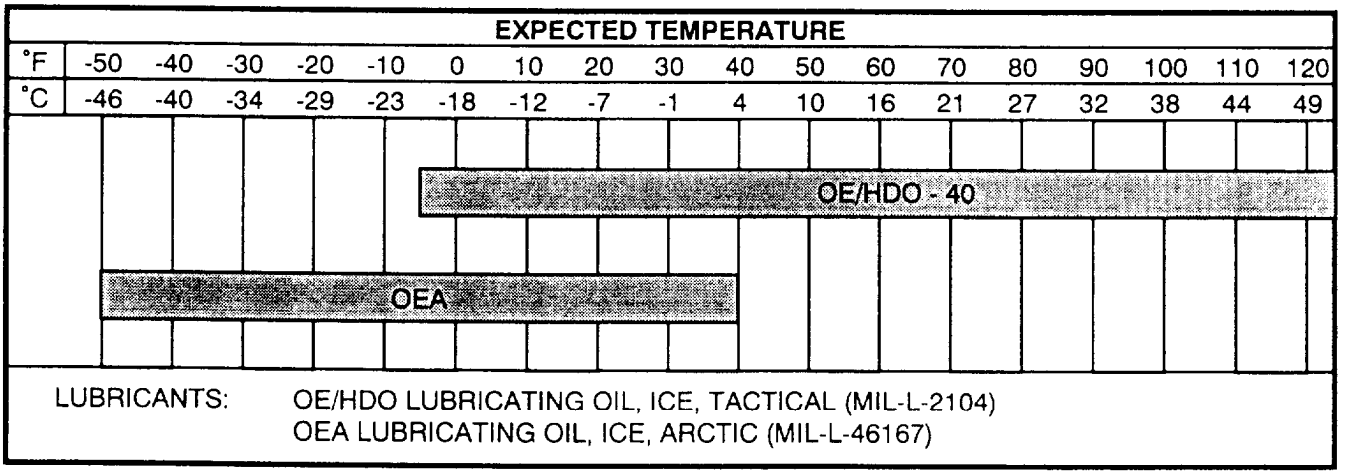
## CHART B. TRANSMISSION




LUBRICANTS: OE/HDO LUBRICATING OIL, ICE, TACTICAL (MIL-L-2104)
OEA LUBRICATING OIL, ICE, ARCTIC (MIL-L-46167)

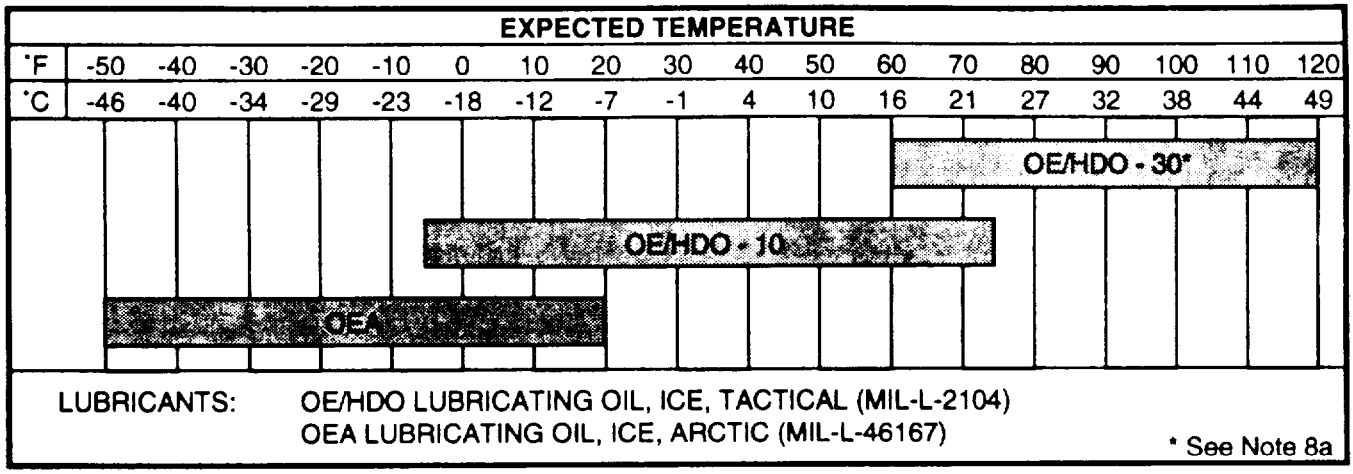
*See Notes 2a,2b and 2f

## CHART C. TRANSFER CASE

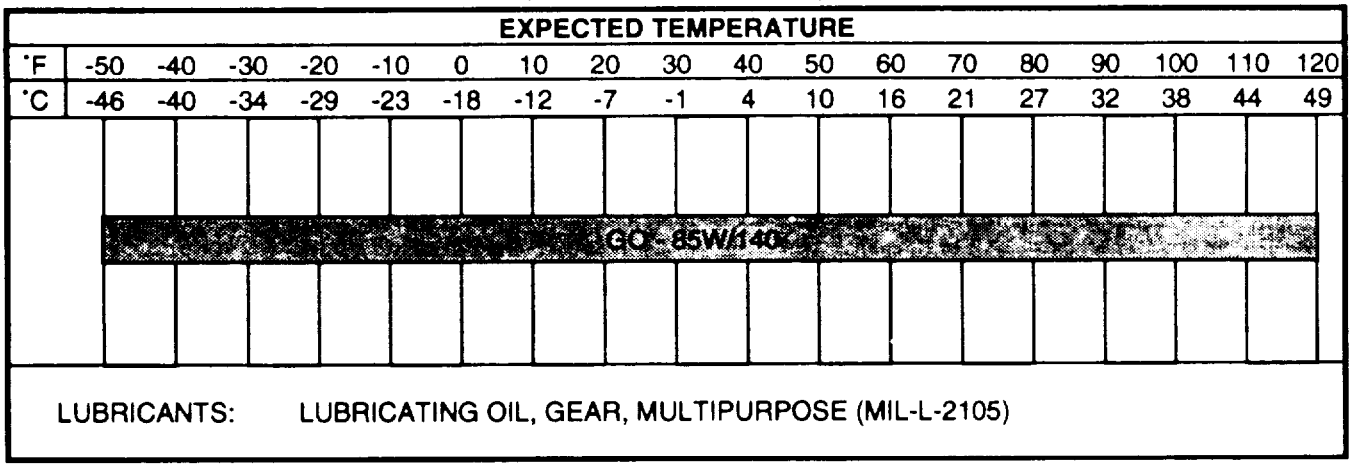



LUBRICANTS: OE/HDO LUBRICATING OIL, ICE, TACTICAL (MIL-L-2104)
OEA LUBRICATING OIL, ICE, ARCTIC (MIL-L-46167)

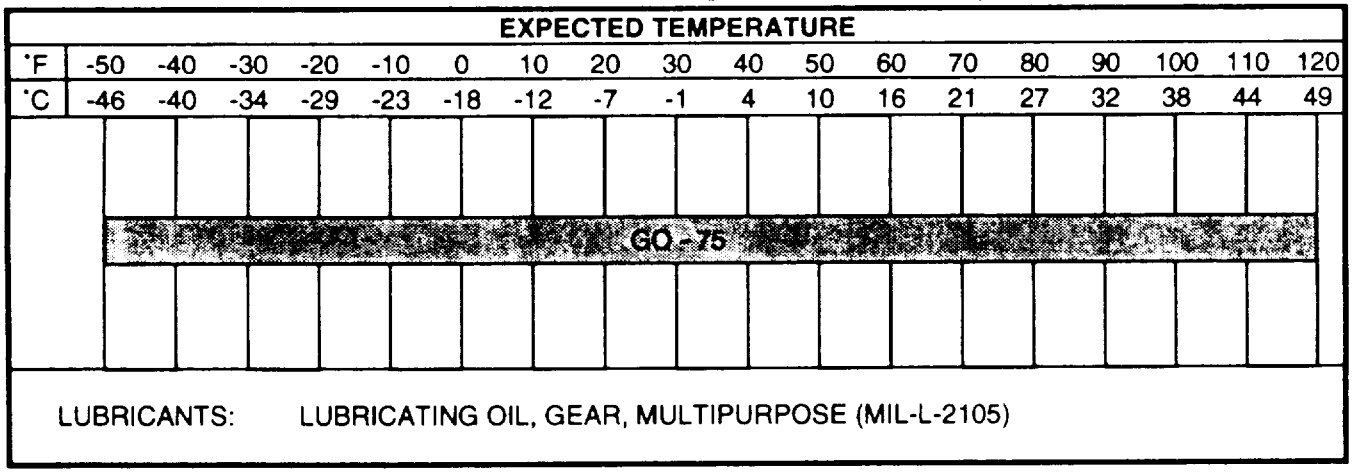
## CHART D. HYDRAULIC RESERVOIR/STEERING RESERVOIR



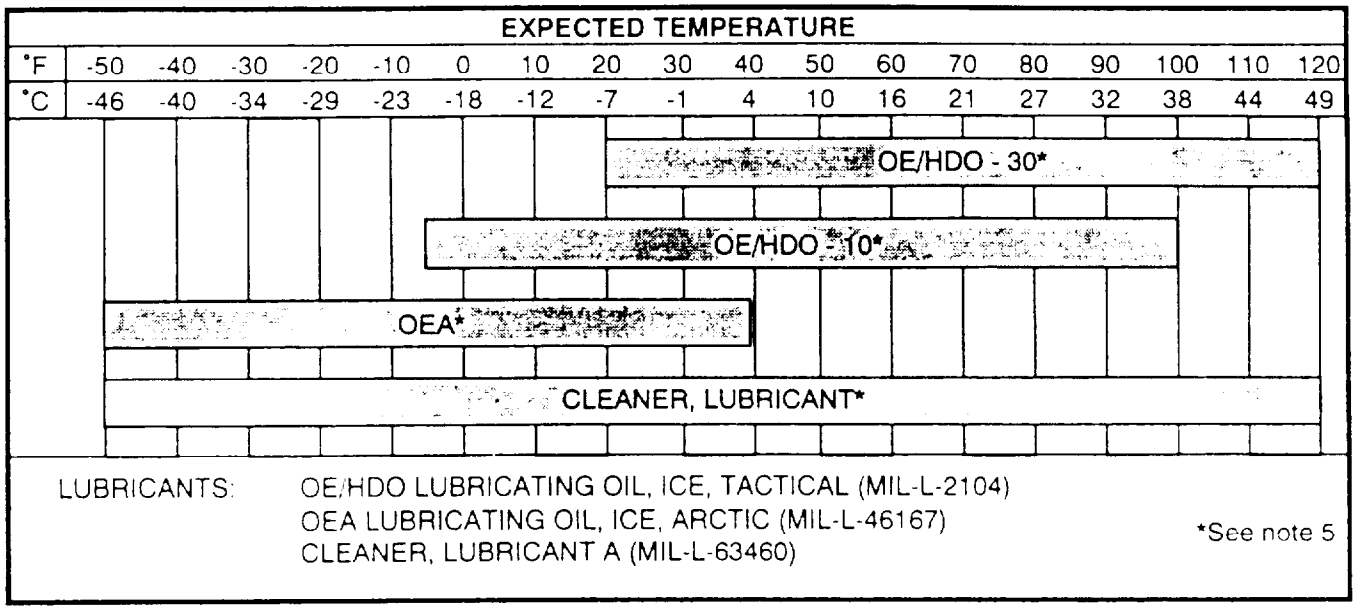

## CHART E. SRW GEARBOX, HOIST GEARBOX, SWING DRIVE GEARBOX



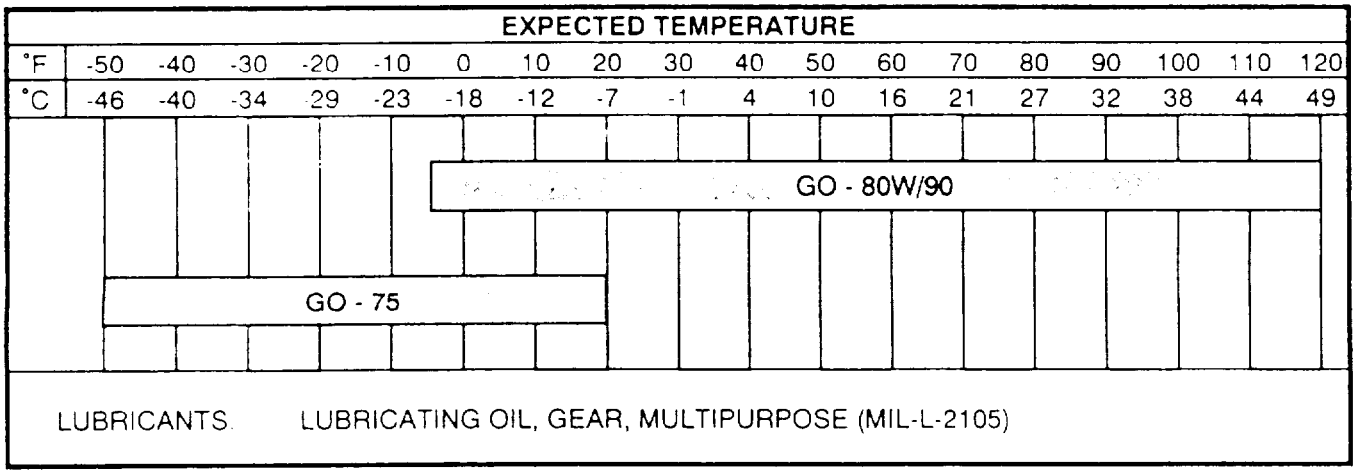

## CHART F. GEARBOX (STEERING 2.21:1)



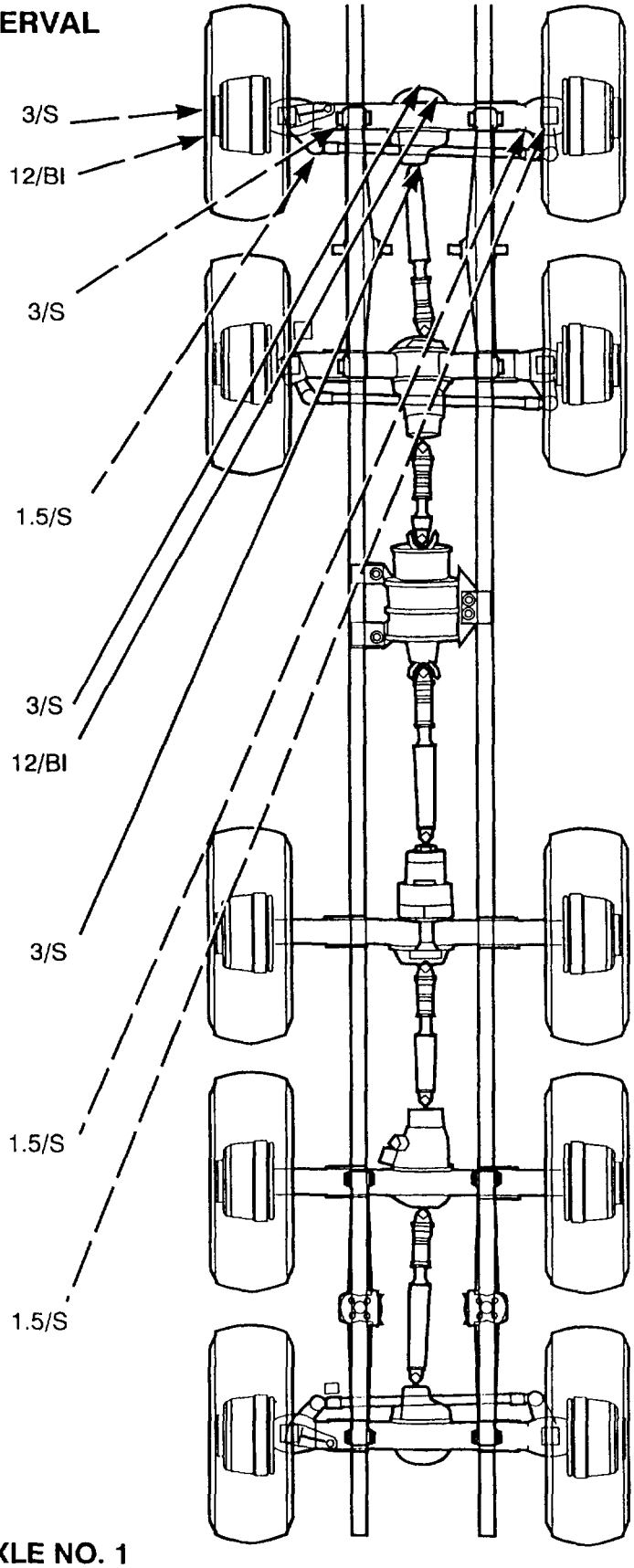
## CHART G. OIL CAN POINTS




## CHART H. AXLES AND PLANETARY WHEEL ENDS

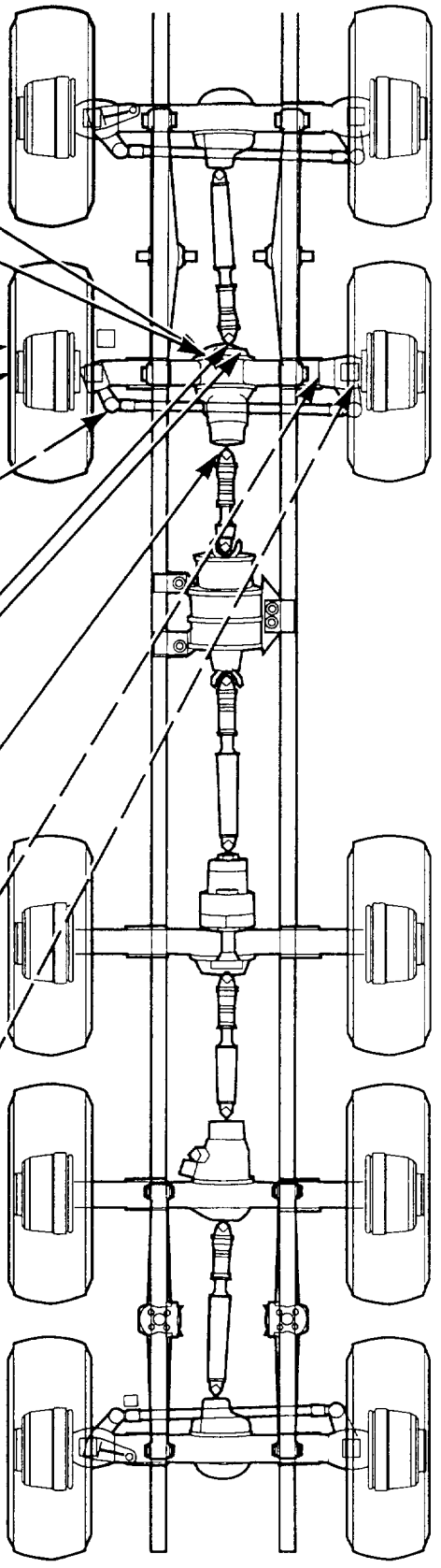


| | LUBRICANT | INTERVAL |
|---|---|---|
| **Planetary Hub Gears** | | |
| Check and fill. (O) (See View 1) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a,4b and View 1.) | GO | 12/BI |
| **Spring Hangers** | | |
| Lubricate. (O) (2 springs, 1 fitting per spring) (See Notes 1a, 1d and View 2.) | GAA | 3/S |
| **Tie Rod Ends** | | |
| Lubricate. (1 fitting per tie rod end) (O) (See Note 1a, and View 3.) | GAA | 1.5/S |
| **Differential** | | |
| Check and fill. (O) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a, 4b, 4e and View 4.) | GO | 12/BI |
| **Driveshaft and Universal Joints** | | |
| Lubricate. (5 fittings) (O) (See Notes 1a,1b, 1c and View 5.) | GAA | 3/S |
| **Double Cardon Joint** | | |
| Lubricate. (2 fittings per joint) (O) (See Notes 1a, 1e and View 7.) | GAA | 1.5/S |
| **Trunnions** | | |
| Lubricate. (2 fittings - 1 upper, 1 lower on each side) (O) (See Note 1a and View 6.) | GAA | 1.5/S |



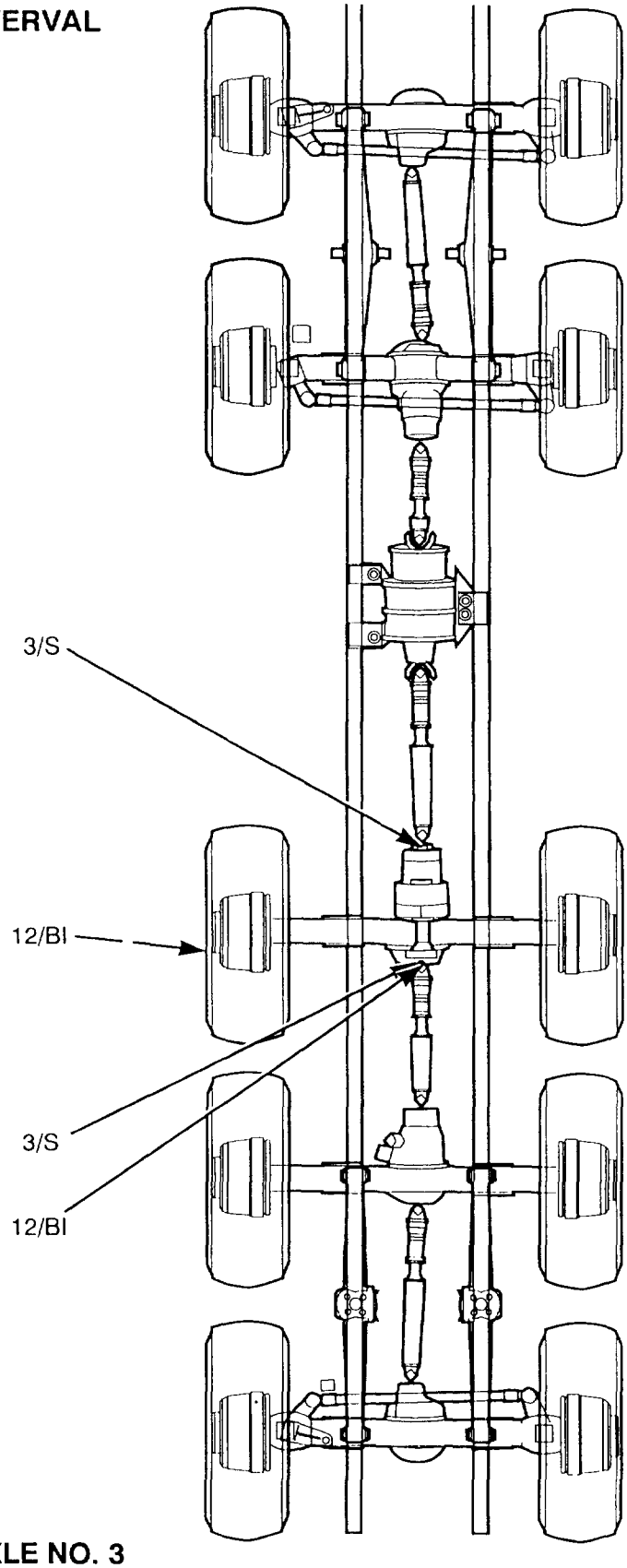
**AXLE NO. 1**

| | LUBRICANT | INTERVAL |
|---|---|---|
| **Differential** | | |
| Check and fill. (O) (See View 8.) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a, 4b, 4e and View 8.) | GO | 12/BI |
| **Planetary Hub Gears** | | |
| Check and fill. (O) (See (View 1.) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a,4b and View 1.) | GO | 12/BI |
| **Tie Rod Ends** | | |
| Lubricate. (1 fitting per tie rod end) (O) (See Notes 1a, and View 3.) | GAA | 1.5/S |
| **Axle Output Shaft** | | |
| Lubricate. (O) (2 fittings) (See Note 1f and View 8.) | GAA | 3/S |
| **Driveshaft and Universal Joints** | | |
| Lubricate. (5 fittings) (O) (See Notes 1a,1b, 1c and View 5.) | GAA | 3/S |
| **Double Cardon Joint** | | |
| Lubricate. (2 fittings per joint) (O) (See Notes 1a, 1e, and View 7.) | GAA | 1.5/S |
| **Trunnions** | | |
| Lubricate. (2 fittings - 1 upper, 1 lower on each side) (O) (See Note 1a and View 6.) | GAA | 1.5/S |



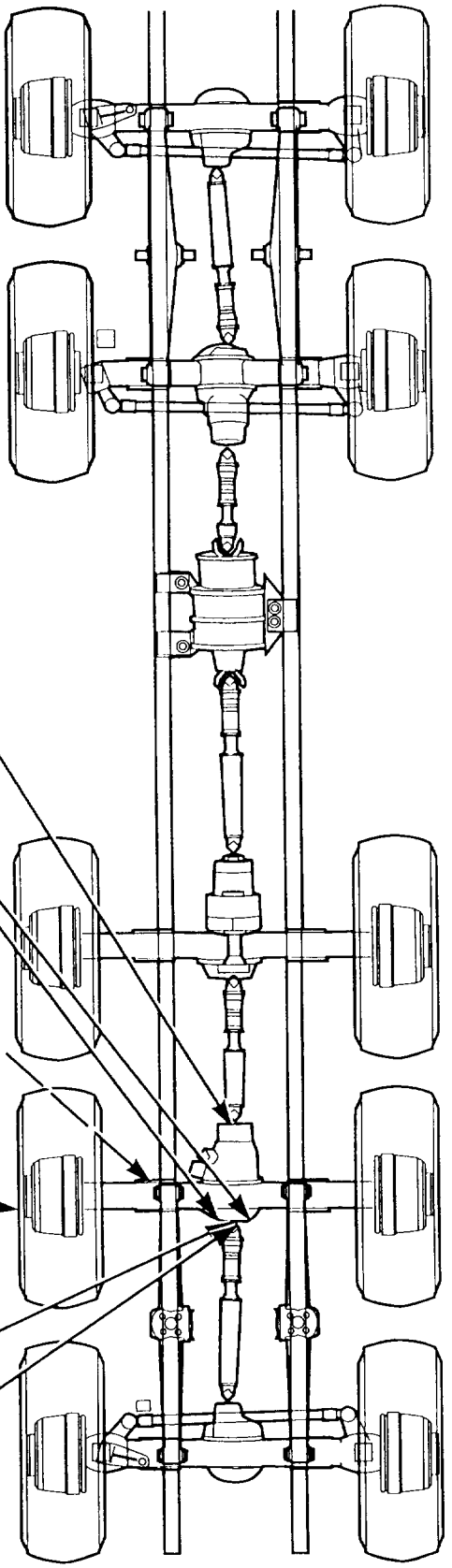
**AXLE NO. 2**

| | LUBRICANT • INTERVAL |
|---|---|
| **Driveshaft and Universal Joints** | |
| Lubricate. (5 fittings) (O) (See Notes 1a,1b, 1c, and View 5.) | GAA |
| **Planetary Hub Gears** | |
| Drain and refill. (O) (See Notes 4a,4c and View 1.) | GO |
| **Differential** | |
| Check and fill. (O) (See View 9) | GO |
| Drain and refill. (O) (See Notes 4a, 4c, 4d, 4e and View 9.) | GO |



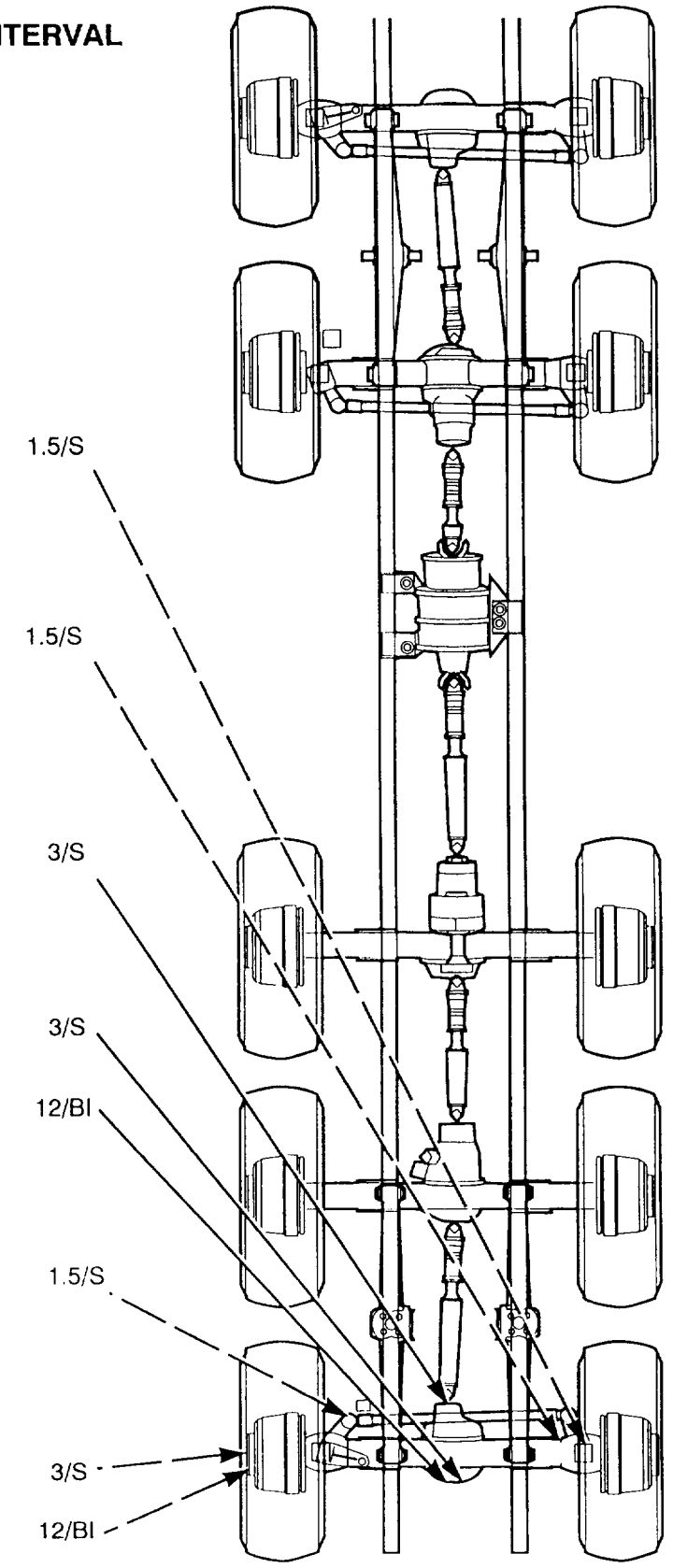

**AXLE NO. 3**

| LUBRICANT • INTERVAL | | |
|---|---|---|
| **Driveshaft and Universal Joints** | | |
| Lubricate. (5 fittings) (O) (See Notes 1a,1b, 1c and View 5.) | GAA | 3/S |
| **Axle Output Shaft** | | |
| Lubricate. (2 fittings ) (O) (See Note 1f and View 8.) | GAA | 3/S |
| **Spring Hangers** | | |
| Lubricate. (2 springs, 1 fitting per spring) (O) (See Notes 1a, 1d and View 2.) | GAA | 3/S |
| **Planetary Hub Gears** | | |
| Drain and refill. (O) (See Notes 4a, 4c and View 1.) | GO | 12/Bl |
| **Differential** | | |
| Check and fill. (O) (See View 8.) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a, 4c, 4d, 4e and View 8.) | GO | 12/Bl |



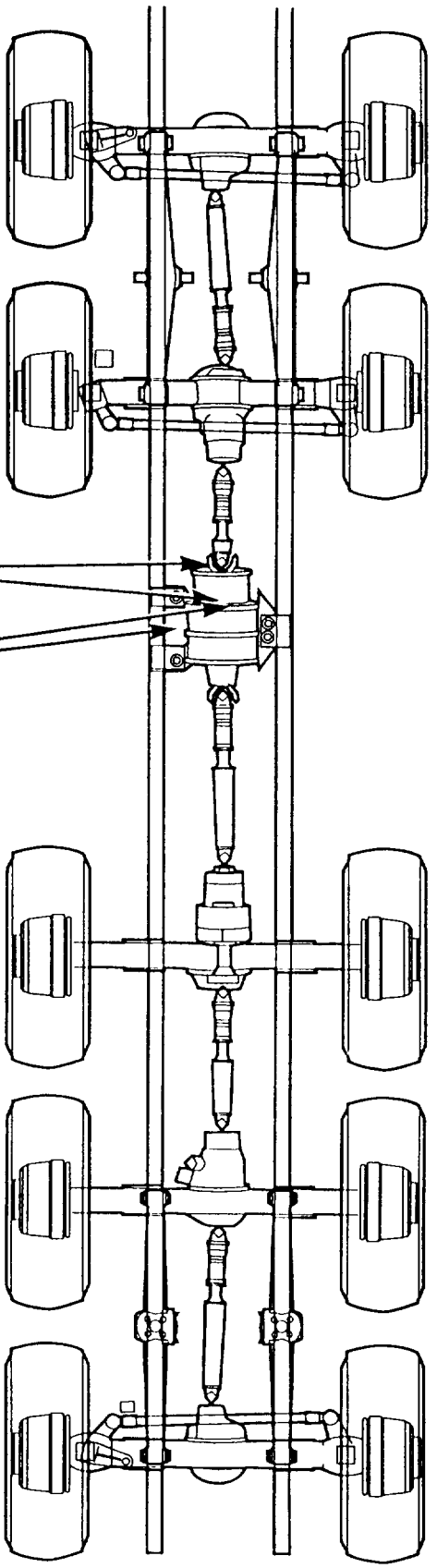
**AXLE NO. 4**

| | LUBRICANT | INTERVAL |
|---|---|---|
| **Trunnions** | | |
| Lubricate. (2 fittings - 1 upper 1 lower on each side) (O) (See Note 1a and View 6.) | GAA | 1.5/S |
| **Double Cardon Joint** | | |
| Lubricate. (2 fittings per joint) (O) (See Notes 1a, 1e and View 7.) | GAA | 1.5/S |
| **Driveshaft and Universal Joints** | | |
| Lubricate. (5 fittings) (O) (See Note 1a,1b, 1c and View 5.) | GAA | 3/S |
| **Differential** | | |
| Check and fill. (O)(See View 4.) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a, 4b, 4e and View 4.) | GO | 12/BI |
| **Tie Rod Ends** | | |
| Lubricate. (O) (1 fitting per tie rod end) (See Note 1a and View 3.) | GAA | 1.5/S |
| **Planetary Hub Gears** | | |
| Check and fill. (O) (See View 1.) | GO | 3/S |
| Drain and refill. (O) (See Notes 4a,4b and View 1.) | GO | 12/BI |



**AXLE NO. 5**

| | LUBRICANT • INTERVAL | |
|---|---|---|
| **Transfer Case** | | |
| Check and fill. (O)<br>(See View 10.) | OE/HDO | 1.5/S |
| Drain and fill. (O)<br>(See View 10.) | OE/HDO | 12/BI |



TRANSFER CASE

## LUBRICANT • INTERVAL

**Engine Crankcase**

Check oil at dipstick. (C) (See Note 2c and View 11.)

Fill at filler tube. (O) (See View 11.) — OE/HDO

**Engine Oil Sampling Valve**

Sample. (O) (See Note 6 and View 12.)

**Hydraulic Pump Driveshaft**

Lubricate. (O) (1 Fitting.) (See Note 1a and View 13.) — GAA

**Transmission**

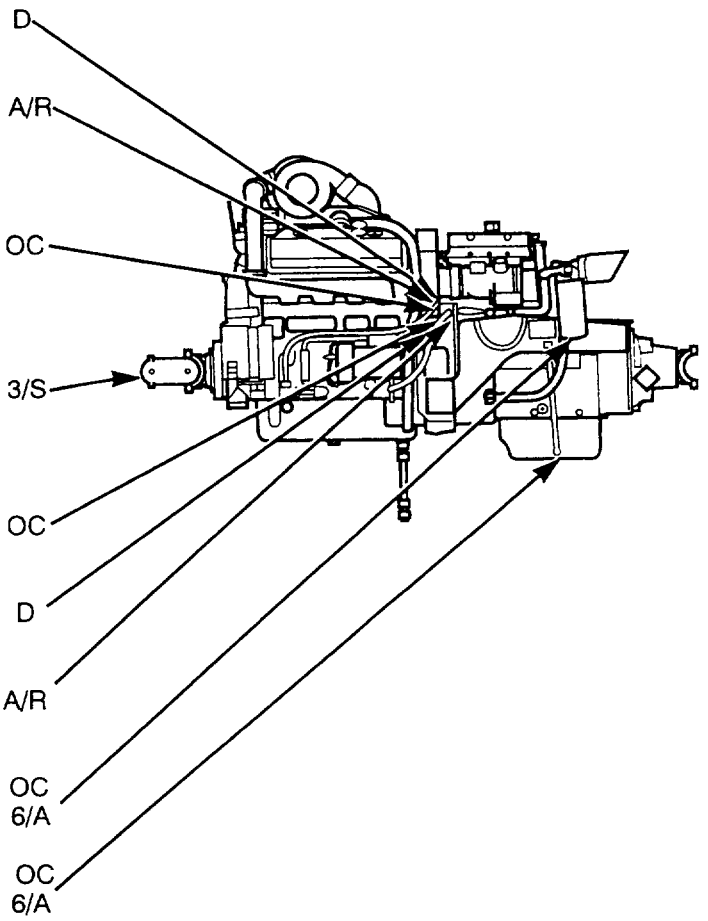
Sample oil. (O) (See Note 6 and View 12.)

Check oil at dipstick. (C) (See Notes 2a, 2b and View 11.)

Fill at dipstick tube. (O) (See Notes 2a, 2b and View 11.) — OE/HDO

Replace filter. (O) (See View 14.)

Drain and refill. (O) (See Notes 2a, 2b and View 15 and 11.) — OE/HDO




**Driveshaft and Universal Joints**

Lubricate. (O) (3 Fittings.) (See Notes 1a, 1b and 1c.) (See View 16.) — GAA

**Secondary Fuel Filter**

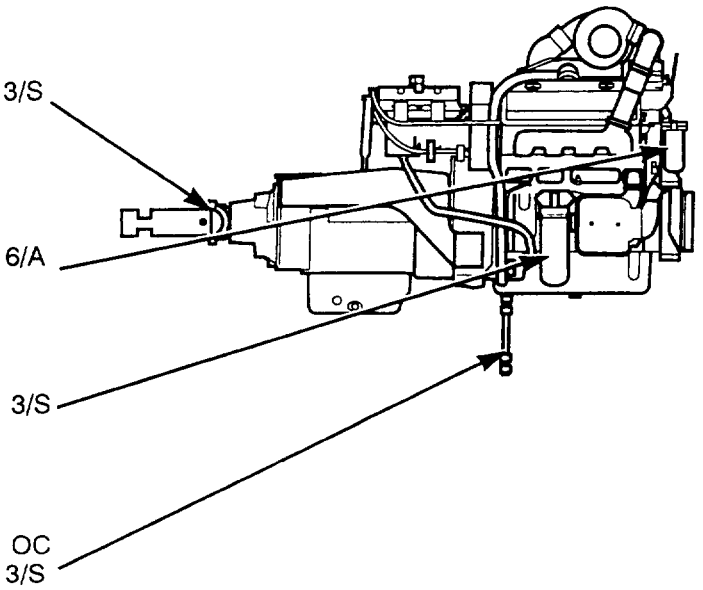
Replace filter. (O) (See View 17.)

**Engine Oil Filter**

Replace. (O) (See Note 2d and View 18.)

**Engine Crankcase**

Drain and refill. (O) (See Notes 2c and 2e and View 19.) — OE/HDO

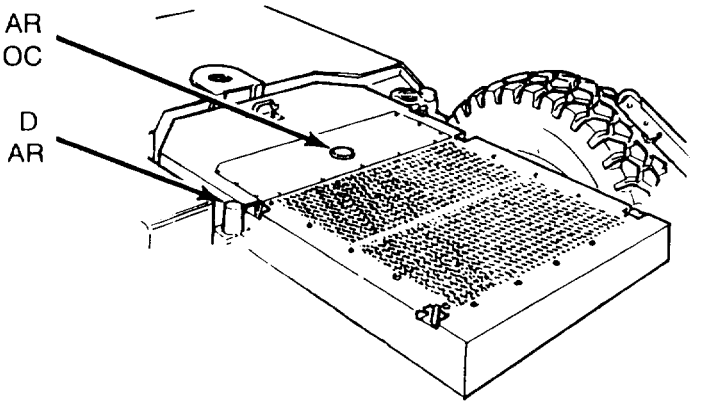


## LUBRICANT • INTERVAL

**Cooling System**

Check coolant condition. (O)

Check level (C) and fill. (O)
(See View 20.)




**Air Filter**

Replace filter. (O) (See View 29 and Note 11.)

**Coalescing Filter**

Replace filter. (O)
(See View 30.)

**Air Dryer Filters/Aftercooler Filter**

Replace filters. (O)
(See View 30.)

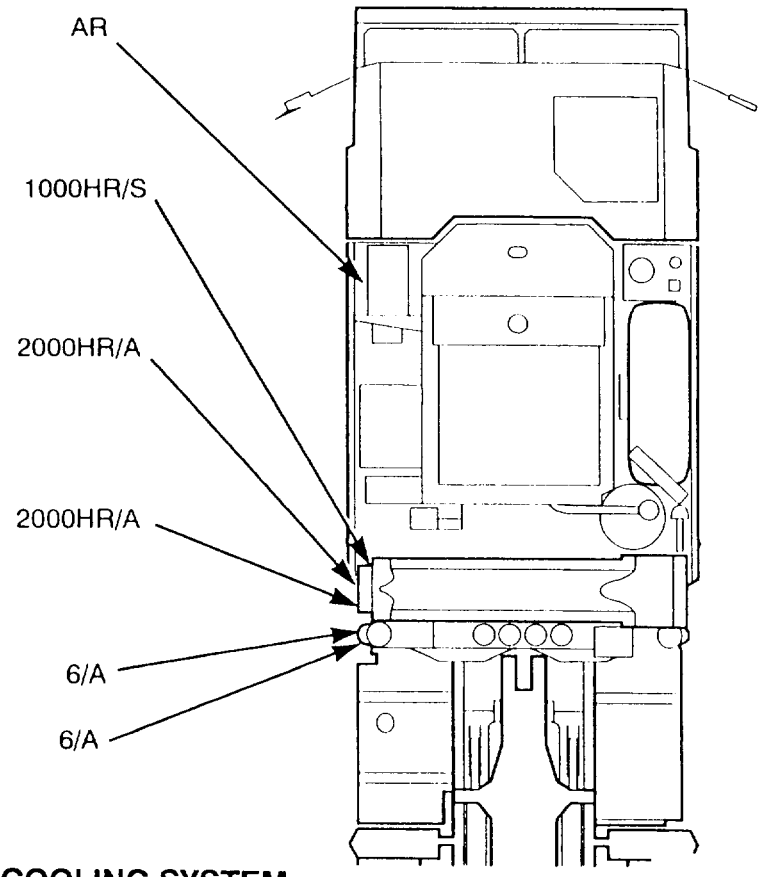
**Air Dryer Desiccant**

Replace Desiccant. (O)
(See View 30.)

**Fuel/Water Separator**

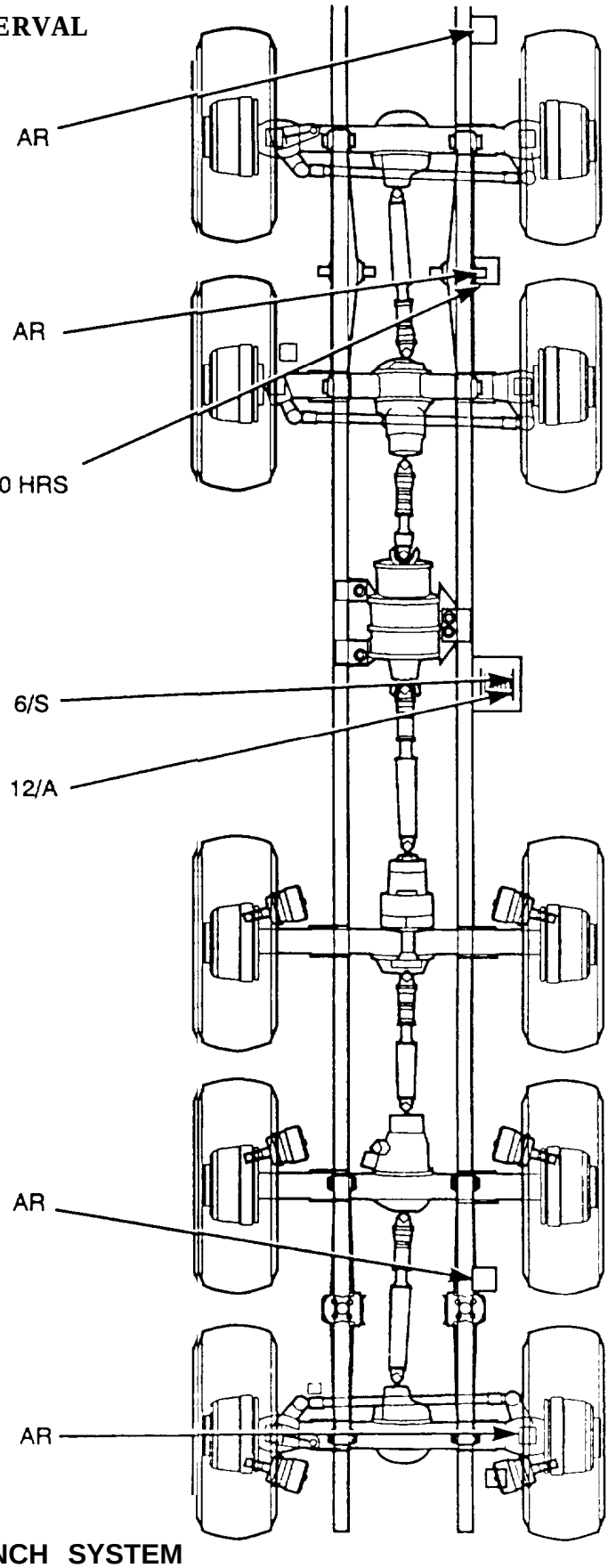
Drain. (O)

Replace filter. (O) (See View 30.)



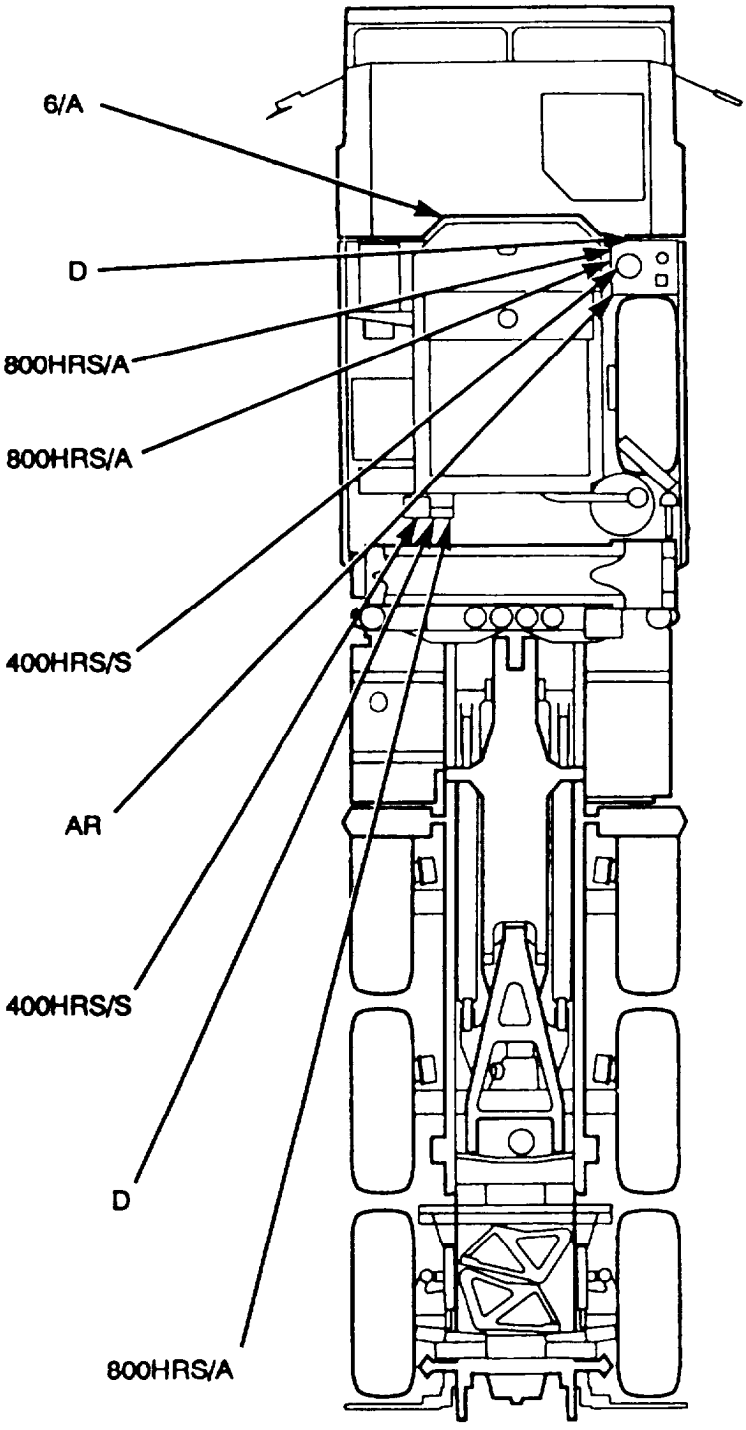

**AIR AND COOLING SYSTEM**

| | LUBRICANT | INTERVAL |
|---|---|---|
| Self-Recovery Winch Front Guide | | |
| Lubricate. (O) (4 fittings) (See Notes 1a, 3d and View 21.) | GAA | AR |
| Self-Recovery Winch Front Tension Guide | | |
| Lubricate. (O) (3 fittings) (See Note 1a and View 22.) | GAA | AR |
| Oil Can Points | | |
| Lubricate. (O) (See View 22.) | OE/HDO | 50 HRS |
| Self-Recovery Winch | | |
| Check and fill. (O) (See View 23.) | OE/HDO | 6/S |
| Drain and refill. (O) (See Notes 3b, 3c and View 23.) | OE/HDO | 12/A |
| Self-Recovery Winch Rear Tension Guide | | |
| Lubricate. (O) (3 fittings) (See Note 1a and View 22.) | GAA | AR |
| Self-Recovery Winch Rear Guide | | |
| Lubricate. (O) (4 fittings) (See Note 1a and View 24.) | GAA | AR |



**SELF-RECOVERY WINCH SYSTEM**

| | LUBRICANT ● INTERVAL |
|---|---|
| Main Hydraulic High Pressure Filter | |
| Change filter. (O) (See View 25.) | |
| Main Hydraulic Reservoir | |
| Check (C) and fill. (O) (See View 26 and 27.) | OE/HDO |
| Drain and refill. (O) (See Note 8a and View 26 and 27.) | OE/HDO |
| Replace strainers. (0) (See View 26.) | |
| Main Hydraulic Return Line Filter | |
| Replace filter. (O) (See view 26.) | |
| Hydraulic Sampling Valve | |
| Sample. (O) (See View 27.) | OE/HDO |
| Power Steering Filter | |
| Change filter. (O) (See View 28.) | |
| Power Steering Reservoir | |
| Check and fill. (O) (See View 28.) | OE/HDO |
| Drain and refill. (O) (See Notes 8a, 8b and View 28.) | OE/HDO |




HYDRAULIC SYSTEM

## LUBRICANT • INTERVAL

**Steering Column Linkage and Front Steering Gear**

Lubricate. (O) (6 fittings) GAA 1.5/S
(See Note 1a,10c and Views 31, 32, 33 and 34.)

**Drag Link (Axle No. 1)**

Lubricate. (O) (2 fittings) GAA 1.5/S
(See Note 1a and View 35.)

**Intergear Link**

Lubricate. (O) (2 fittings) GAA 1.5/S
(See Note 1a and View 36 and 37.)

**Drag Link (Axle No. 2)**

Lubricate. (O) (2 fittings) GAA 1.5/S
(See Note 1a and View 38.)

**Steering Shaft**

Lubricate. (O) (4 fittings) GAA 1.5/S
(See Notes 1a, 10b, 10c and View 39.)

**Gear Box 2.21 : 1**

Check and fill. (O) GO 3/S
(See Note 10a and View 40.)

**Rear Steering Shaft**

Lubricate. (O) (1 fitting) GAA 1.5/S
(See Note 1a and View 40.)

**Rear Steering Shaft**

Lubricate. (O) (3 fittings) GAA 1.5/S
(See Notes 1a, 10b and View 41.)

**Steering Gear Oil Sampling Valve**

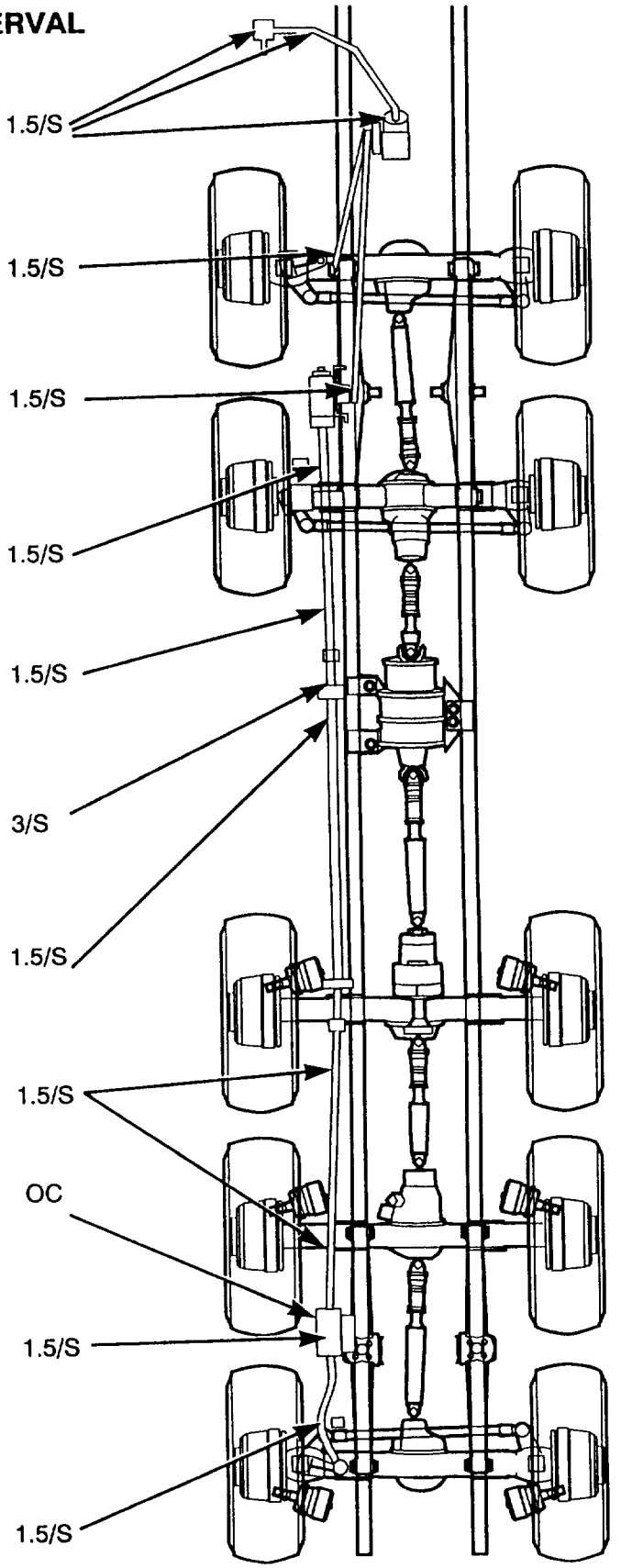
Sample Oil (See Note 6 and View 42.) OC

**Rear Steering Gear** GAA 1.5/S

Lubricate. (O) (1 fitting)
(See Note 10c and View 42.)

**Drag Link (Axle No. 5)**

Lubricate. (O) (2 fittings) GAA 1.5/S
(See Note 1a and View 38.)



**STEERING SYSTEM**

## LUBRICANT • INTERVAL

**Lift Hook**

Lubricate. (O) (See Notes 7b and 7c.) GAA 1.5/S

**Hook Arm Cylinder Pivot Pin (Front)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c and View 43.) GAA M/50HRS

**Main Cylinder Pins (Front)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c and View 44.) GAA M/50HRS

**Hook Arm Cylinder Pivot Pin (Rear)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c, 7d and View 45.) GAA M/50HRS

**Hook Arm Pivot Pin (Rear)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c and View 46.) GAA M/50HRS

**Main Cylinder Pivot Pin (Rear)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c and View 47.) GAA M/50HRS

**Middle Frame Pivot Pin (Rear)**

Lubricate. (O) (2 fittings) (See Notes 1a, 7c and View 48.) GAA M/50HRS

**Horizontal Rollers**

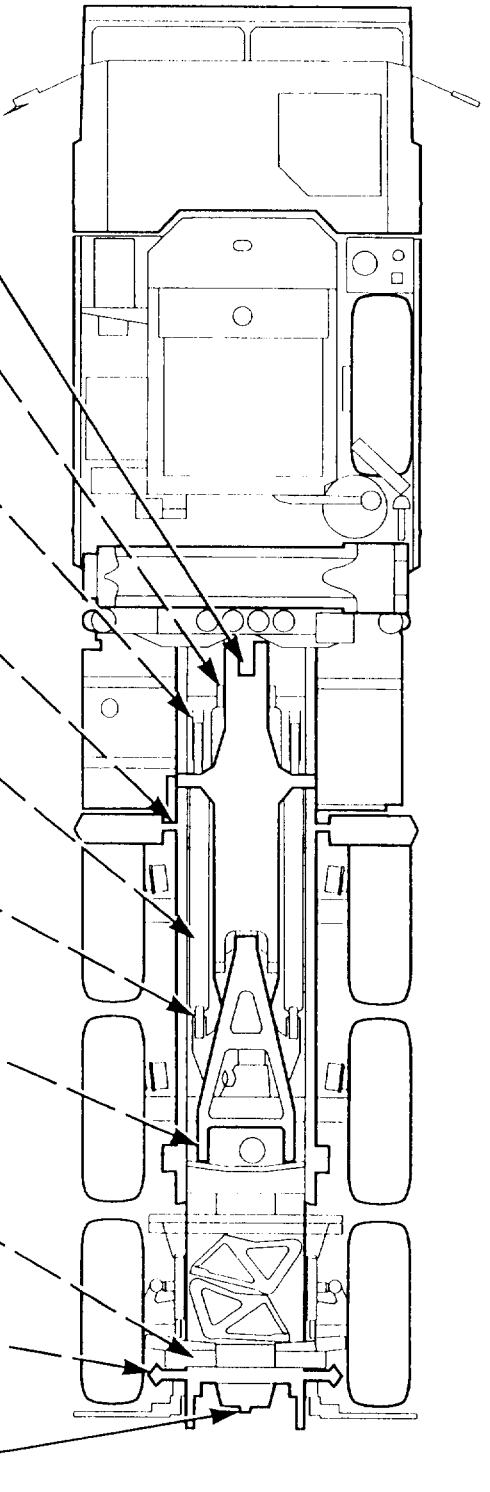
Lubricate. (O) (4 fittings) (See Notes 1a, 7c and View 49.) GAA M/50HRS

**Angled Rollers**

Lubricate. (O) (4 fittings) (See Notes 1a, 7c and View 49.) GAA M/50HRS

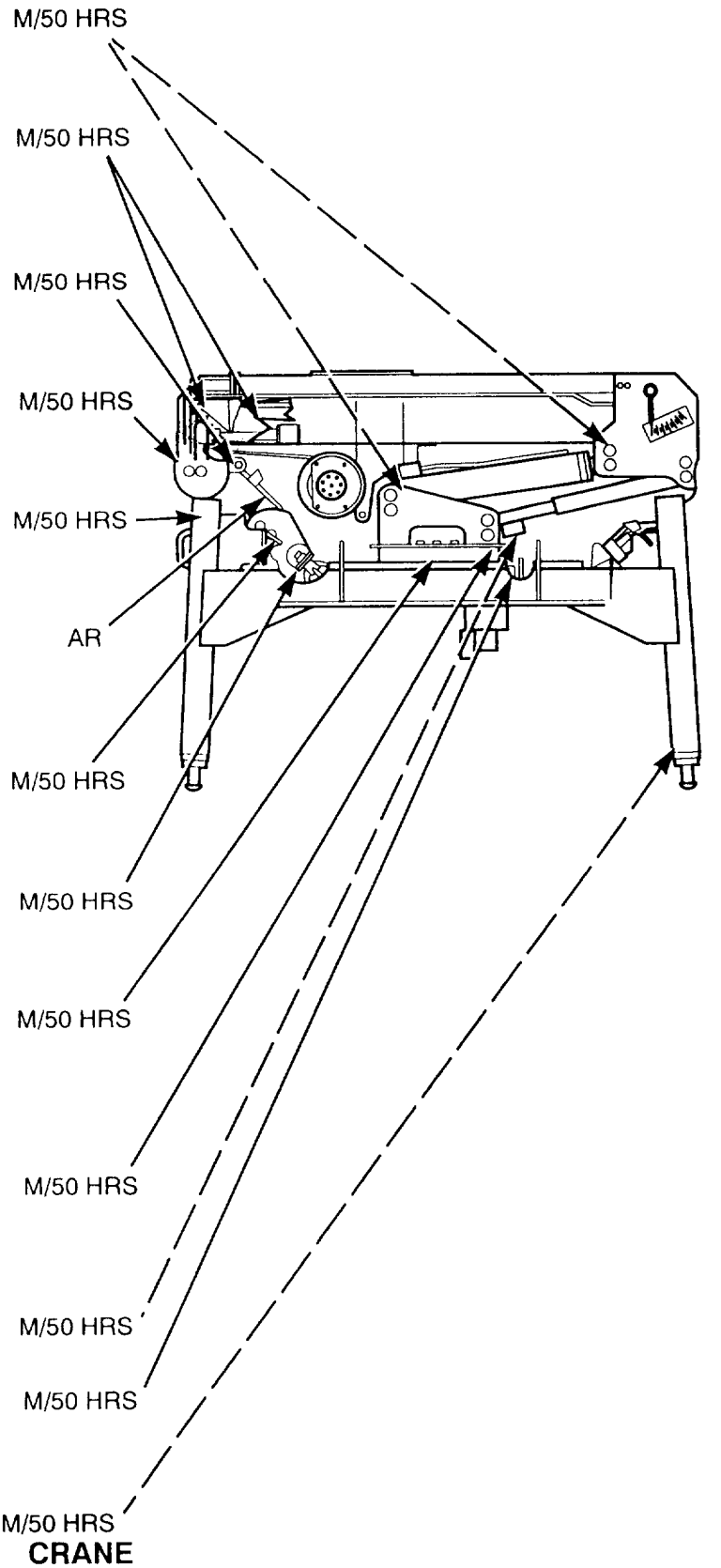
**Self-Guided Coupler**

Clean and lubricate. (O) (5 fittings)(See Notes 1a, 5 and View 50.) GAA 1.5/S



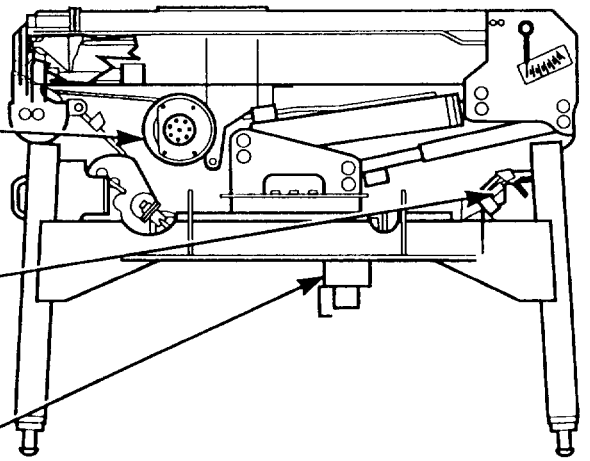
## LOAD HANDLING SYSTEM

| | LUBRICANT | INTERVAL |
|---|---|---|
| **Lift Cylinder** | | |
| Lubricate. (O) (4 fittings) (See Note 3c and View 51.) | GAA | M/50 HRS |
| **Boom Sheaves** | | |
| Lubricate. (O) (1 fitting) (See Note 3c and View 52.) (Crane extended) | GAA | M/50 HRS |
| **Hoist Cable Clevis** | | |
| Lubricate with oil can. (O) (See Note 3c and View 53.) | OE/HDO | M/50 HRS |
| **Boom Nose Sheave** | | |
| Lubricate. (O) (1 fitting) (See Note 3c and View 53.) | GAA | M/50 HRS |
| **Jack Cylinder Cover** | | |
| Lubricate with oil can. (O) (See Notes 3c, 3g and View 54.) | OE/HDO | M/50 HRS |
| **Hoist Cable** | | |
| Clean and lubricate. (O) (See View 58.) (Crane extended) (Requires assistant.) | OE/HDO | AR |
| **Hook Block Sheave** | | |
| Lubricate. (O) (1 fitting) (See Note 3c and View 53.) | | M/50 HRS |
| **Hook Assembly Bearing** | | |
| Lubricate with oil can. (O) (See Note 3c and View 53.) | OE/HDO | M/50 HRS |
| **Turntable Bearing** | | |
| Lubricate. (O) (1 fitting) (See Note 3c and View 57.) Raise mast until fitting comes into view. Turn and lubricate every 90 degrees. | GAA | M/50 HRS |
| **Rotation Gear and Pinion Teeth** | | |
| Coat teeth of rotation gear lightly with grease. (O) (See Notes 3a, 3c and View 59.) | GAA | M/50 HRS |
| **Tension Link** | | |
| Lubricate. (O) (4 fittings.) (See Note 3c and View 59.) | GAA | M/50 HRS |
| Lubricate link. (O) (See Note 3c and View 59.) | Antiseize | M/50 HRS |
| **Jack Cylinder Barrels** | | |
| Lubricate. (O) (See Note 3c and View 60.) | Antiseize | M/50 HRS |

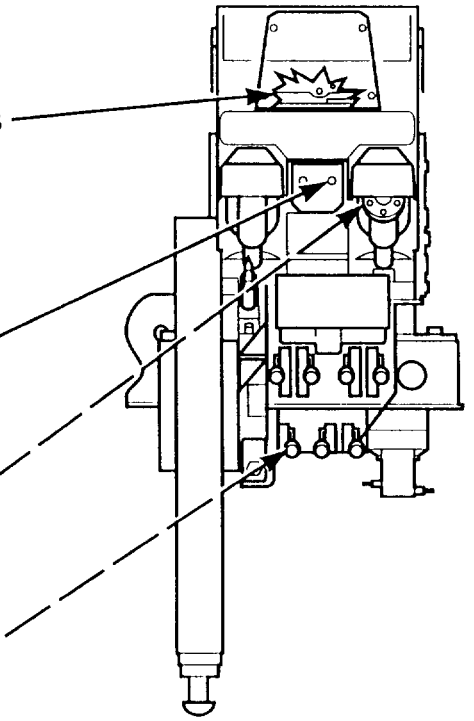


**CRANE**

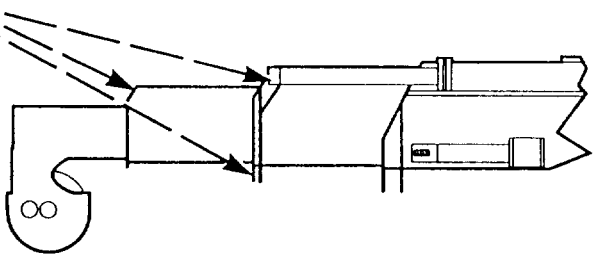
| | LUBRICANT | INTERVAL |
|---|---|---|
| **Hoist Drum** | | |
| Check and fill. (O) | GO | BI/250 HRS |
| **Crane Hand Pump** | | |
| Lubricate both sides with oil can. (O) (See View 56.) | OE/HDO | M/50 HRS |
| **Swing Drive Gear Box** | | |
| Check and fill. (O) (See View 55.) | GO | BI/250 HRS |



| | | |
|---|---|---|
| **Boom Sheaves** | | |
| Lubricate. (O) (2 fittings) (See Note 3c and View 61.) (Crane extended.) (Access panel removed.) | GAA | M/50 HRS |
| **Mast** | | |
| Lubricate. (O) (4 fittings) (See Note 3c and View 62.) | GAA | M/50 HRS |
| **Erection Cylinder** | | |
| Lubricate. (O) (4 fittings) (Crane extended.) (See Note 3c and View 63.) | GAA | M/50 HRS |
| **Crane Control Valve Levers** | | |
| Lubricate with oil can. (O) (See Note 3c and View 60.) | OE/HDO | M/50 HRS |



| | | |
|---|---|---|
| **Boom Wear Pads** | | |
| Clean and apply light grease to wear pads and sliding surfaces. (O) (See Notes 3a, 3b and 3c and View 64.) | GAA | M/50 HRS |



## LUBRICANT • INTERVAL

**Cable**

Clean and lubricate with oil can. (O) — OE/HDO

**Reel and Reel Shaft**

Lubricate with oil can. (O) — OE/HDO

**Gears of Reel and Ratchet**

Clean and apply grease. (O) — GAA

**Bushing of Crank and Ratchet Shaft**

Lubricate with oil can. (O) — OE/HDO

**Pulleys**

Lubricate with oil can. (O) — OE/HDO

**Tire Davit at Pivot Point**

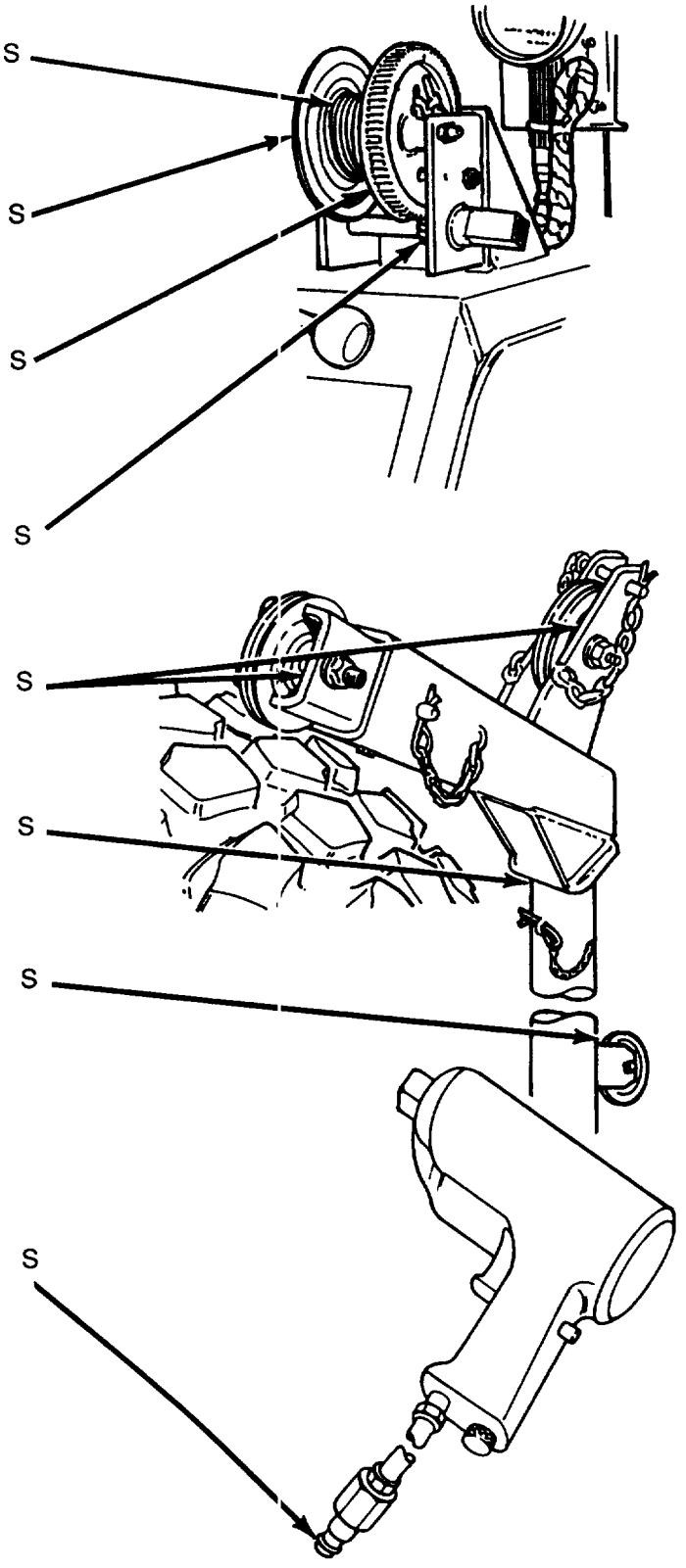
Clean and apply grease. (O) — GAA

**Pulley**

Lubricate with oil can. (O) — OE/HDO

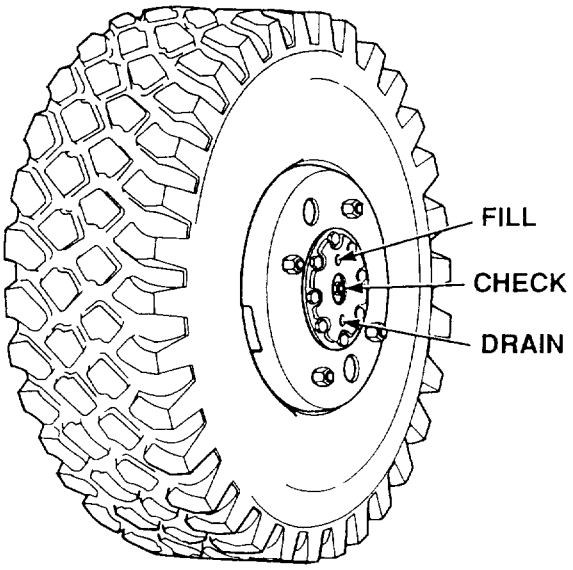
**Air Wrench**

Lubricate with oil can. (See Note 12) — OE/HDO



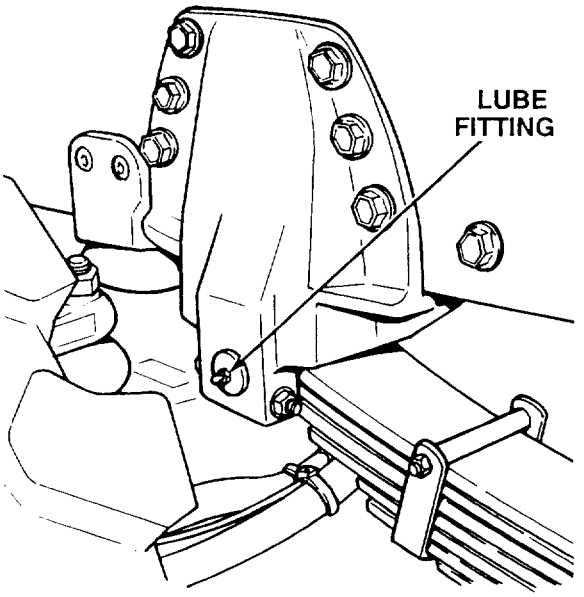

SPARE TIRE DAVIT AND AIR WRENCH

1



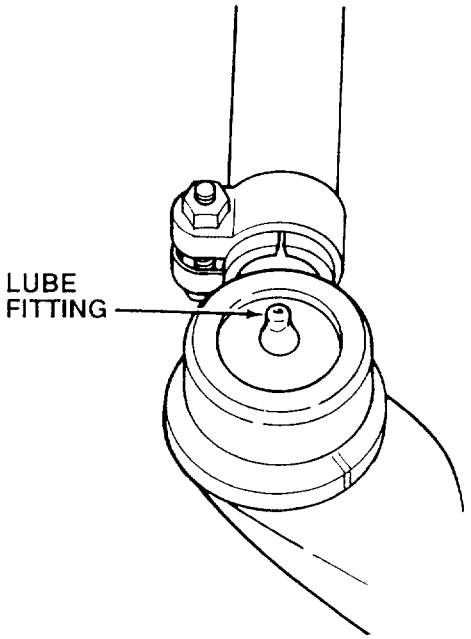

PLANETARY HUB GEARS

2



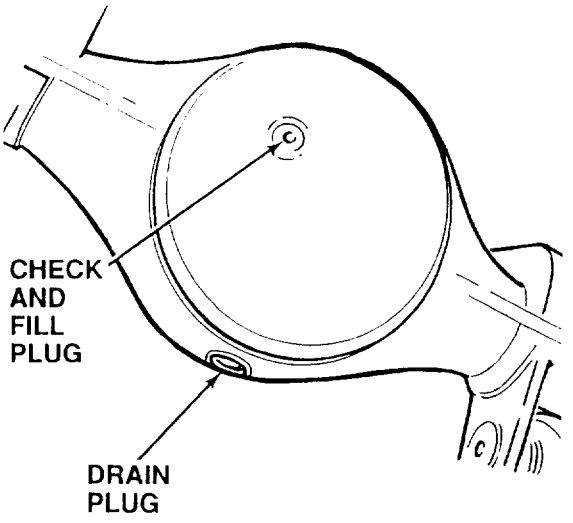

SPRING HANGERS

3



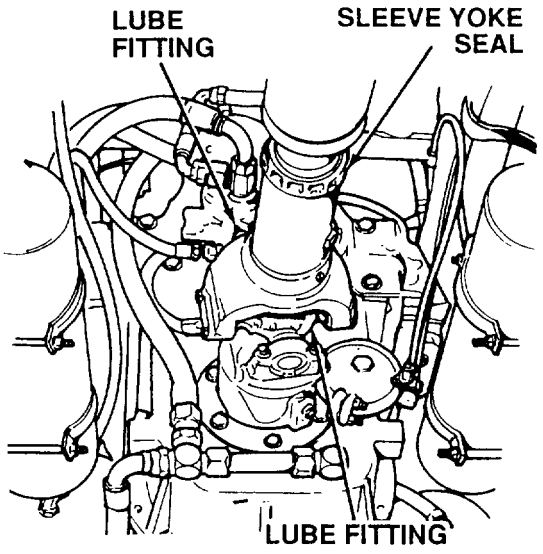

TIE ROD ENDS

4



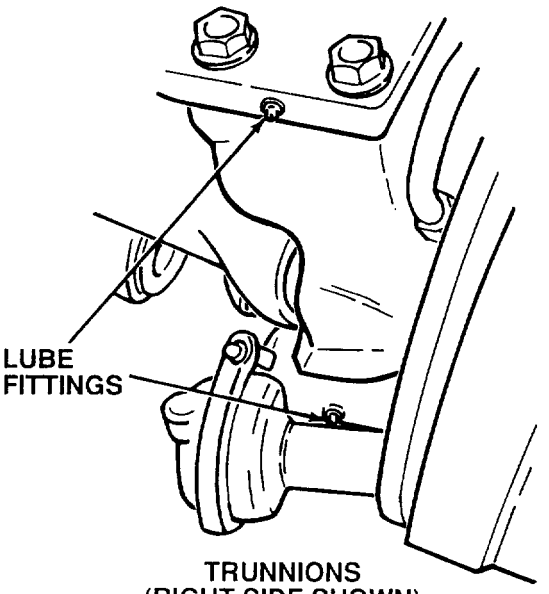

AXLES NO. 1 AND 5
DIFFERENTIALS

5



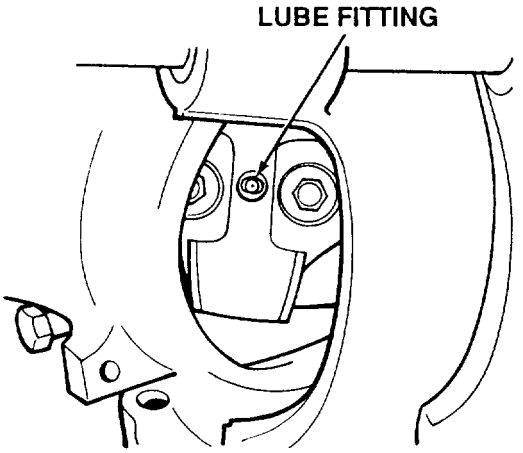

DRIVESHAFT AND
UNIVERSAL JOINTS

6



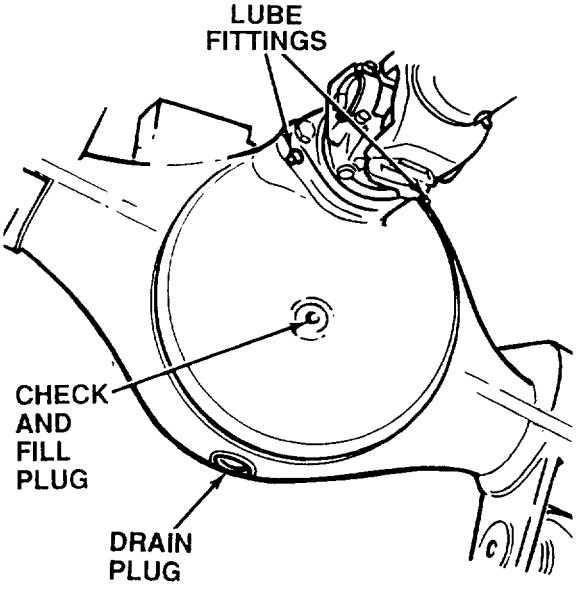

TRUNNIONS
(RIGHT SIDE SHOWN)

7



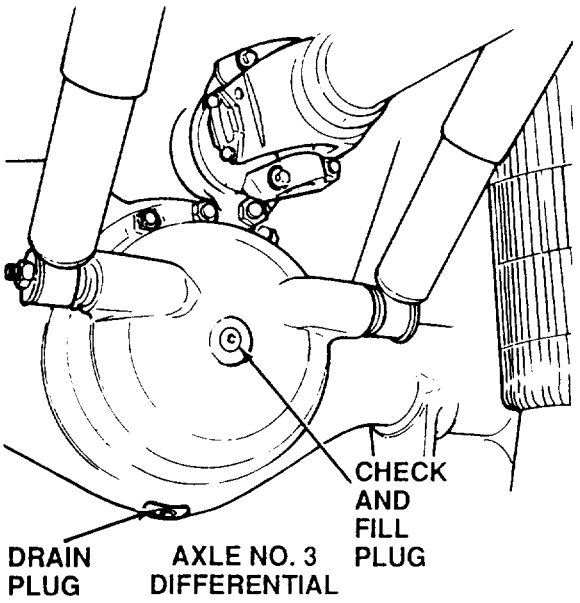

DOUBLE CARDON JOINT
(ONE SIDE SHOWN)

8




AXLES NO. 2 AND 4
DIFFERENTIAL AND AXLE OUTPUT SHAFT

9

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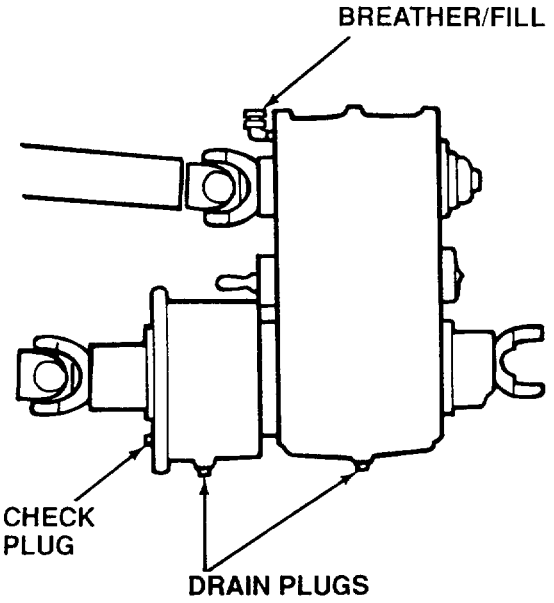
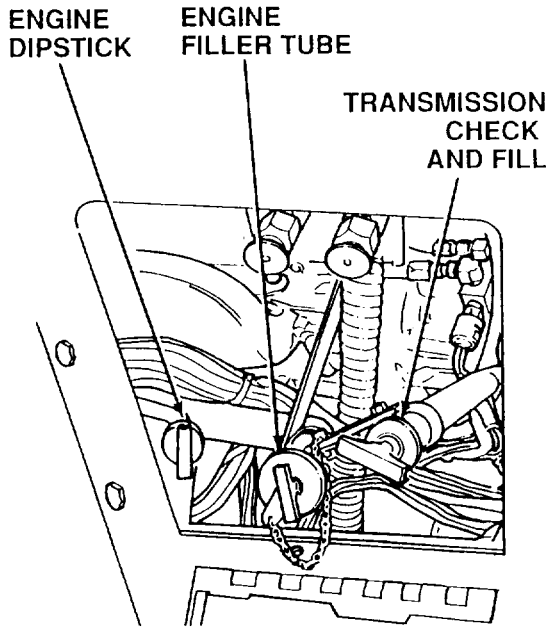



TRANSFER CASE

11

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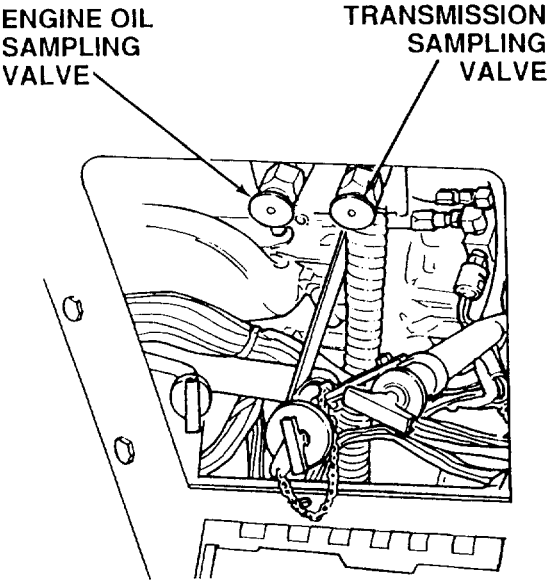

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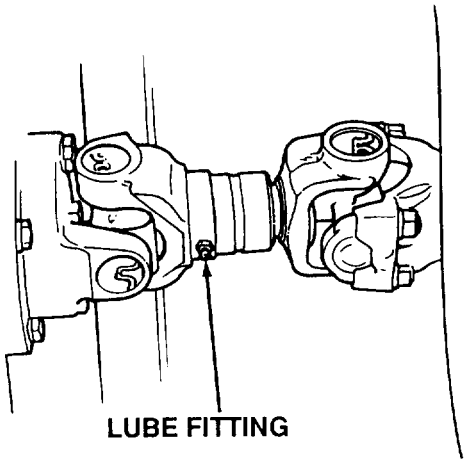
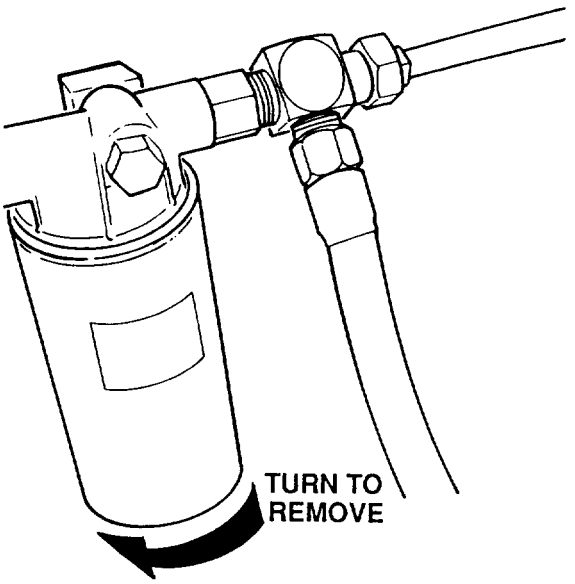


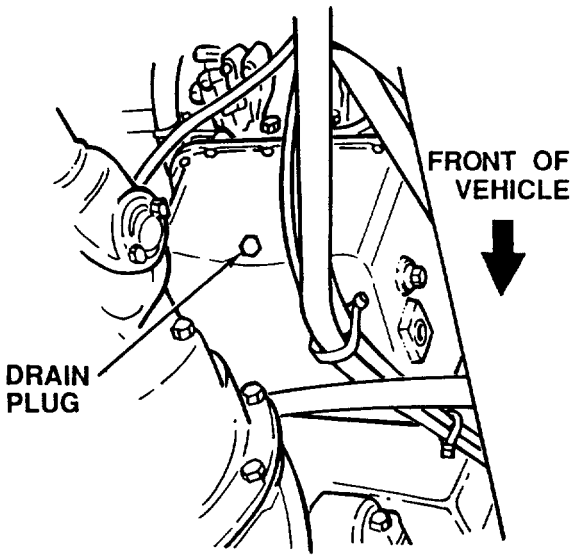

HYDRAULIC PUMP
DRIVESHAFT

14



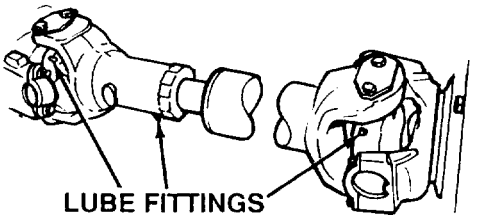

TRANSMISSION FILTER

15



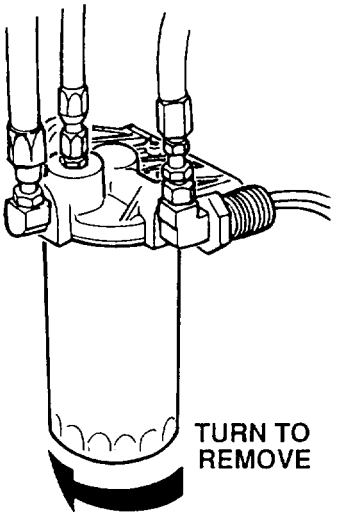

TRANSMISSION OIL PAN

16



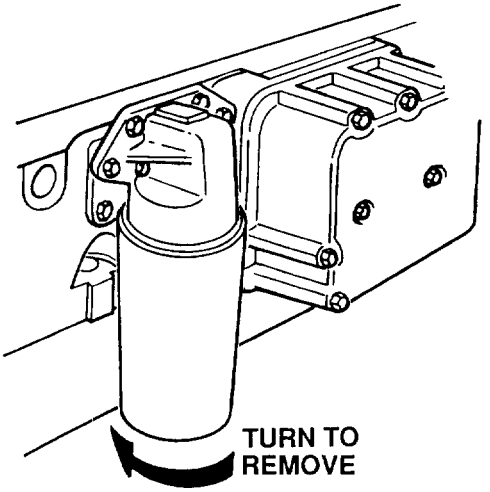

DRIVESHAFT AND
UNIVERSAL JOINTS

17



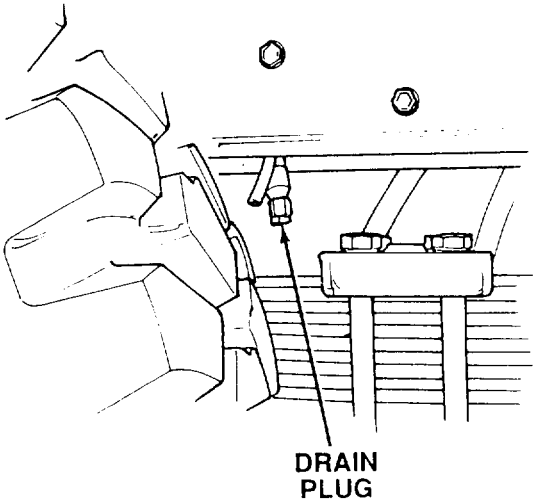

SECONDARY FUEL FILTER

18



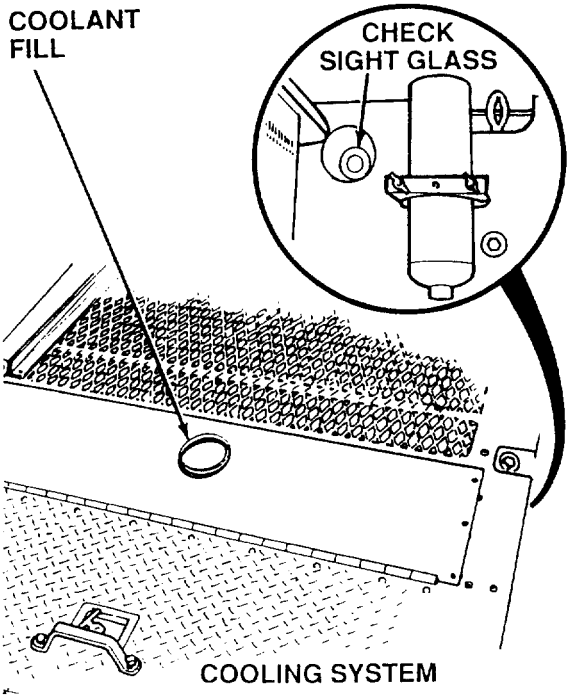

ENGINE OIL FILTER

19



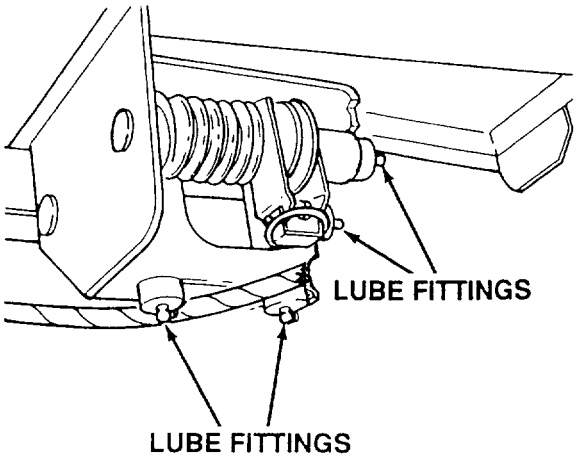

ENGINE CRANKCASE

20



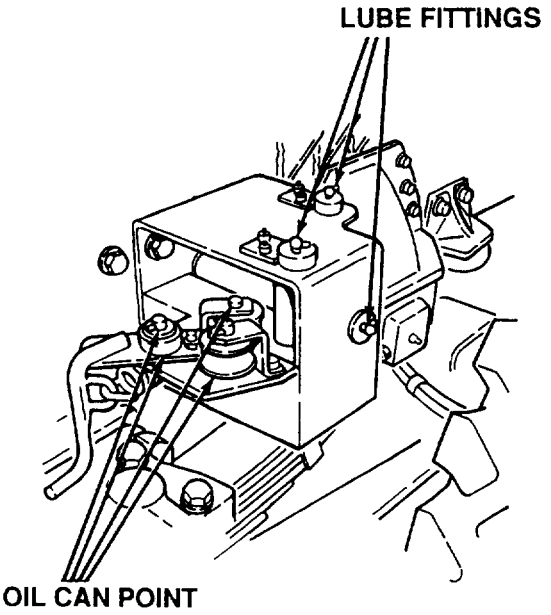

COOLING SYSTEM

21



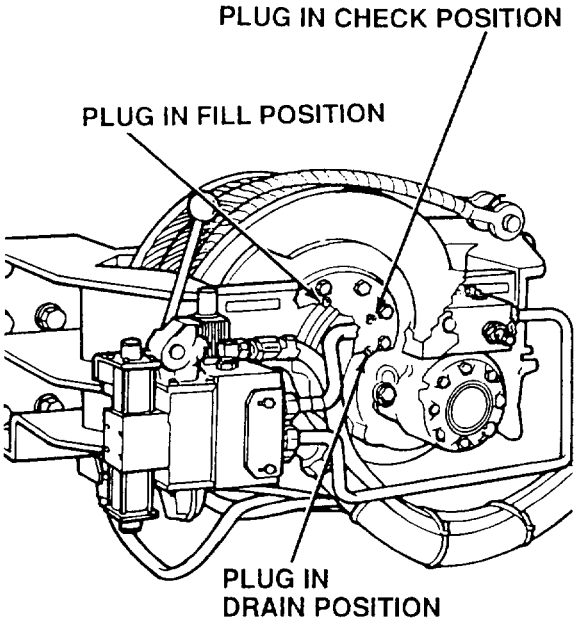

SELF-RECOVERY WINCH
FRONT GUIDE

22



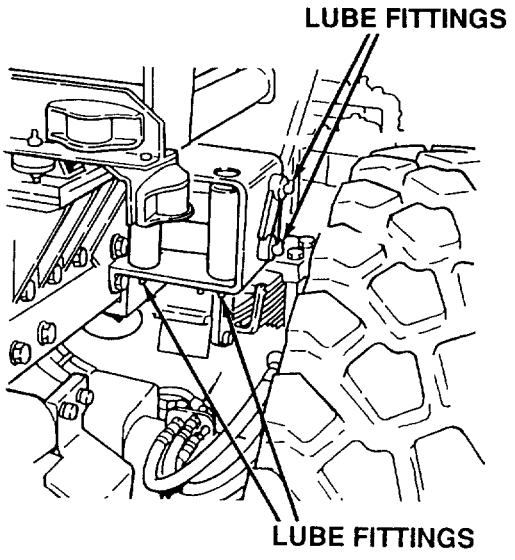

SELF-RECOVERY WINCH
TENSION GUIDE

23



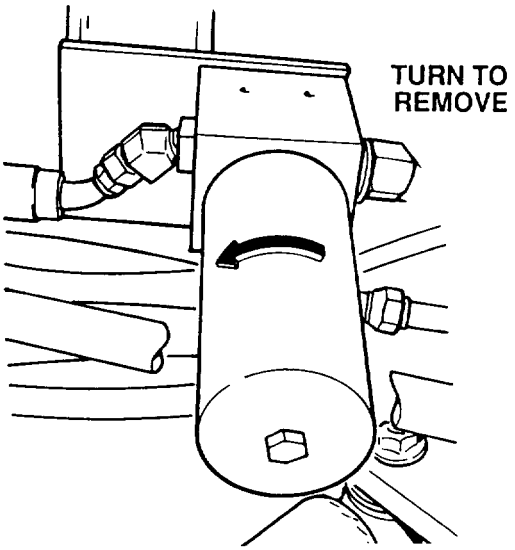

SELF-RECOVERY WINCH

24



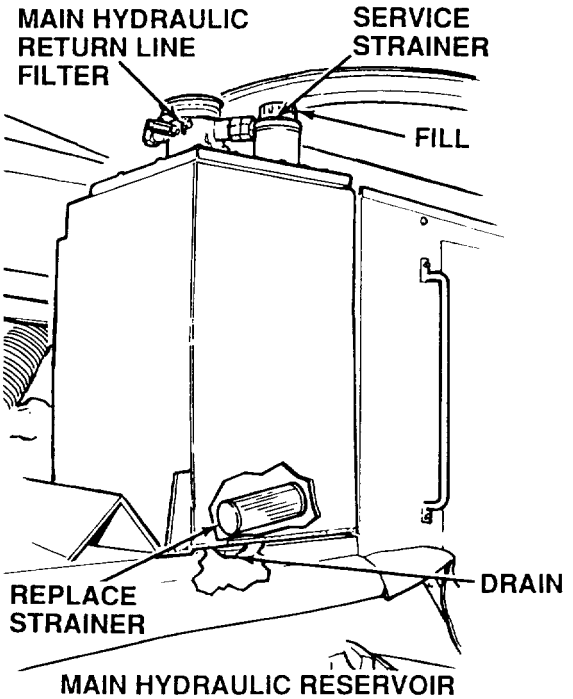

SELF-RECOVERY WINCH
REAR GUIDE

25



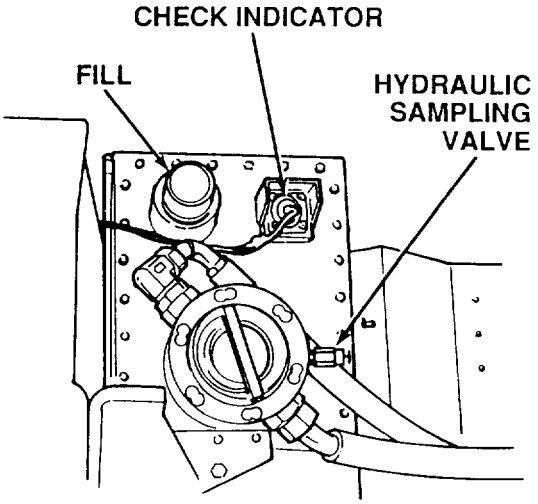

MAIN HYDRAULIC HIGH PRESSURE FILTER
(LOCATED UNDER ENGINE FRONT MOUNT)

26



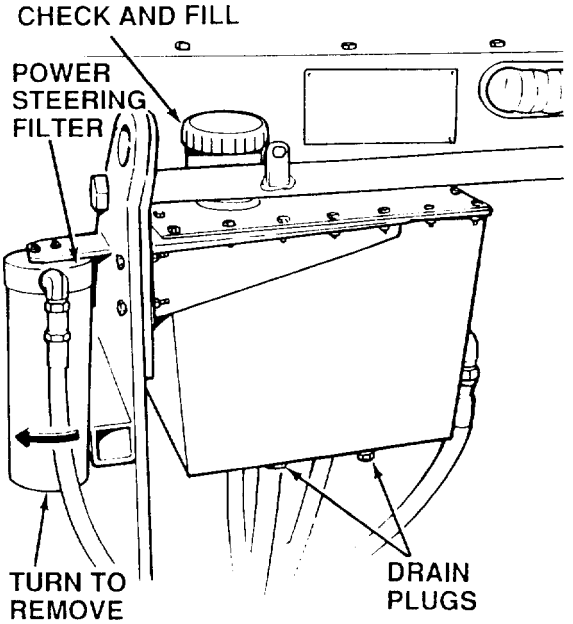

MAIN HYDRAULIC RESERVOIR

27



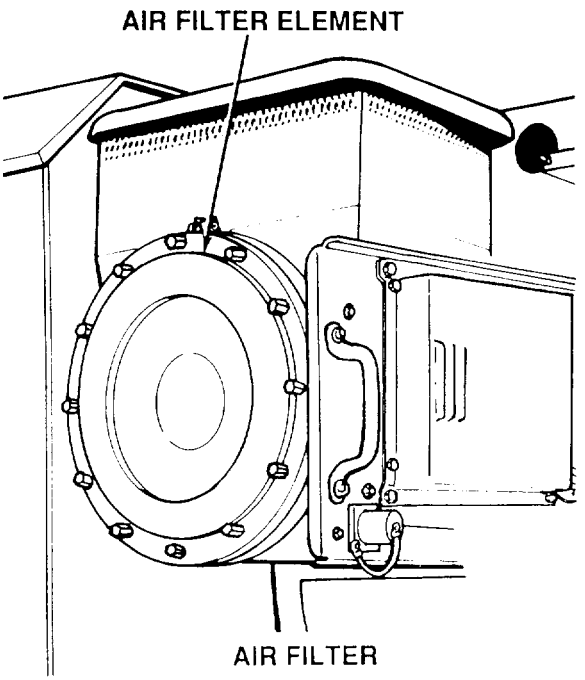

MAIN HYDRAULIC RESERVOIR

28

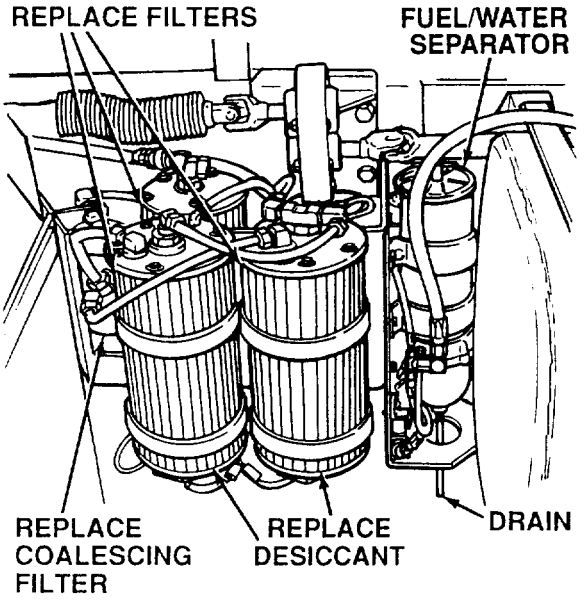



POWER STEERING RESERVOIR

29

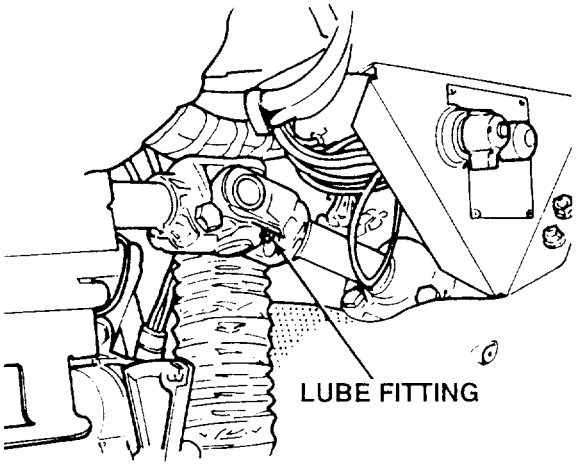



30



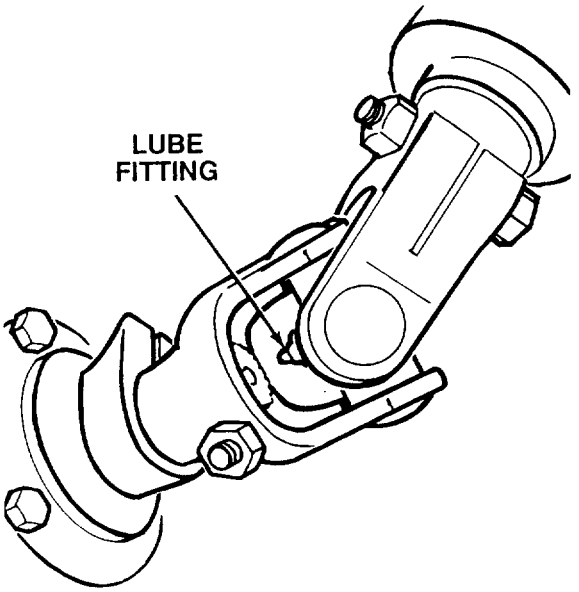

AIR DRYER, AFTER COOLER FUEL/WATER SEPARATOR, COALESCING FILTER

31



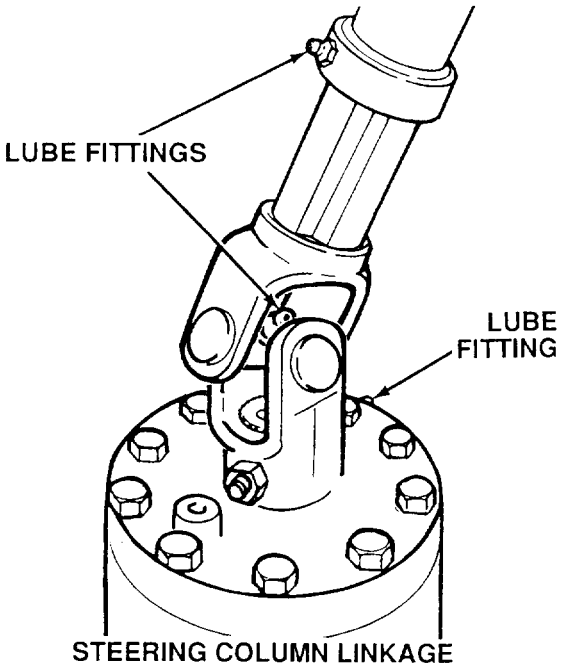

STEERING COLUMN LINKAGE (UNDER DASH)

32




STEERING COLUMN LINKAGE (UNDER DASH)

33

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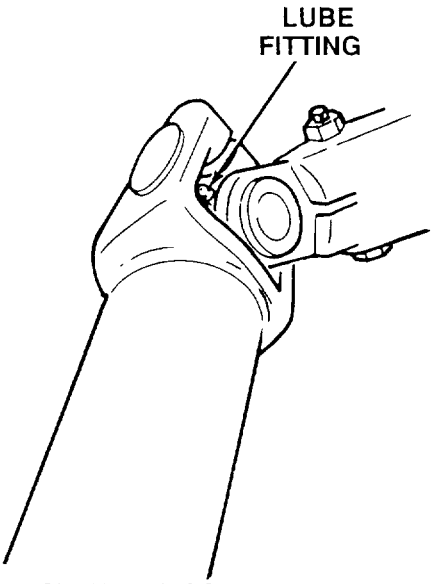


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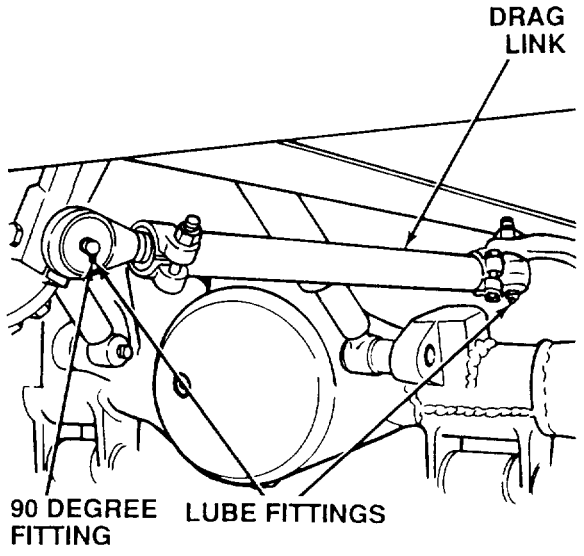
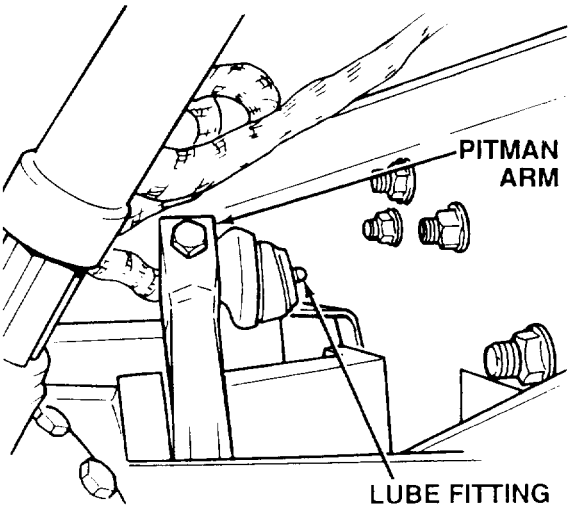


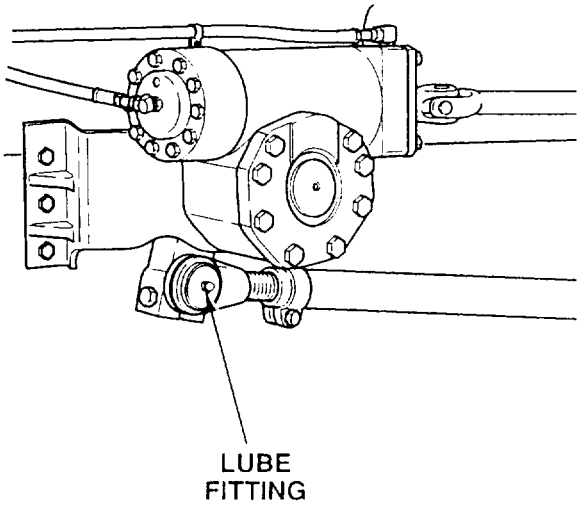

DRAG LINK (AXLE NO.1)

36



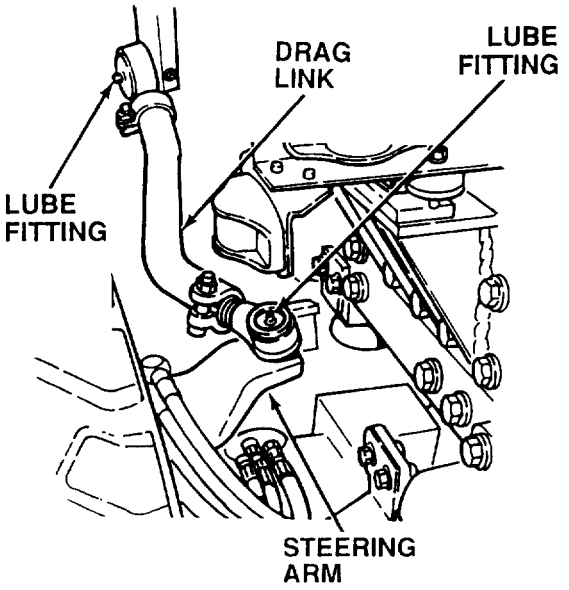

INTERGEAR LINK
(AT FRONT STEERING GEAR)

37



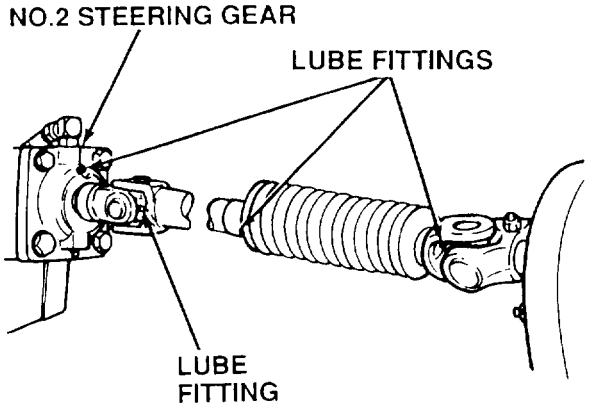

INTERGEAR
LINK

38



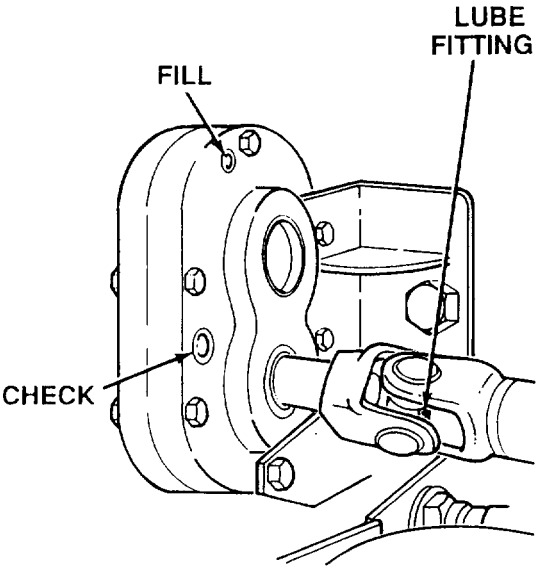

DRAG LINK, AXLES NO. 2 AND 5
(AXLE NO. 5 SHOWN)

39



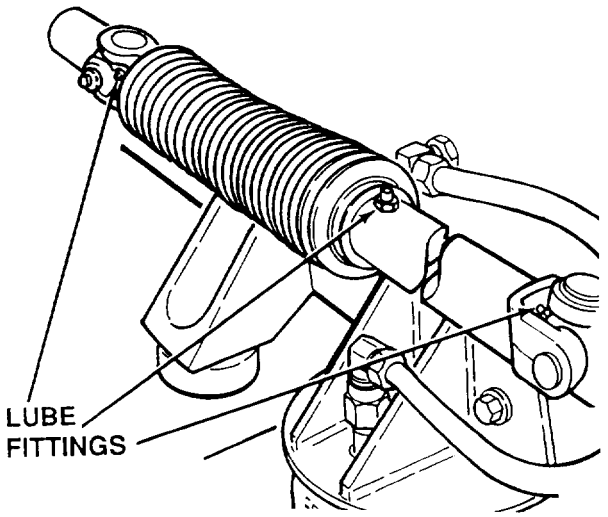

STEERING SHAFT

40



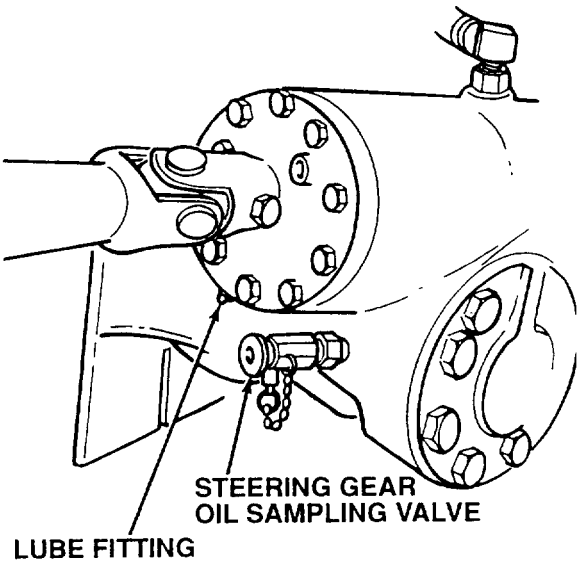

2.21 : 1 STEERING GEARBOX
AND REAR STEERING SHAFT

41




REAR
STEERING SHAFT

42




REAR STEERING GEAR

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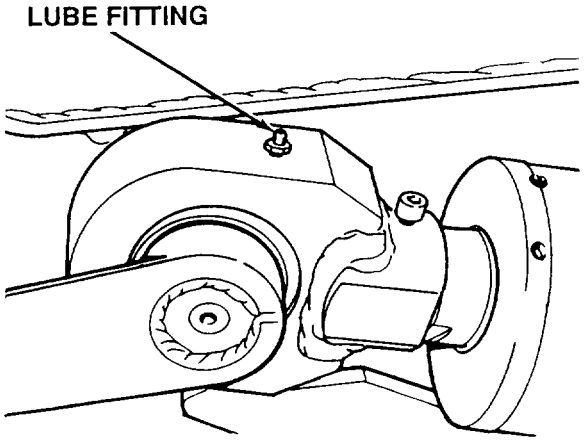
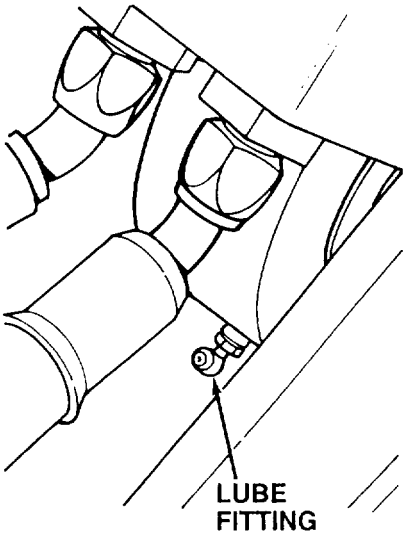


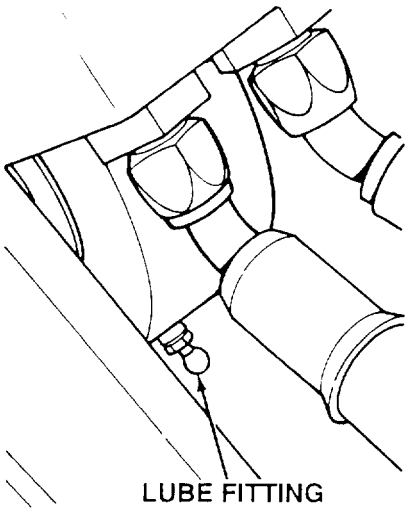

HOOK ARM CYLINDER PIVOT PIN
(FRONT)

44




MAIN CYLINDER
PIVOT PINS (FRONT)

45




HOOK ARM CYLINDER
PIVOT PIN (REAR)

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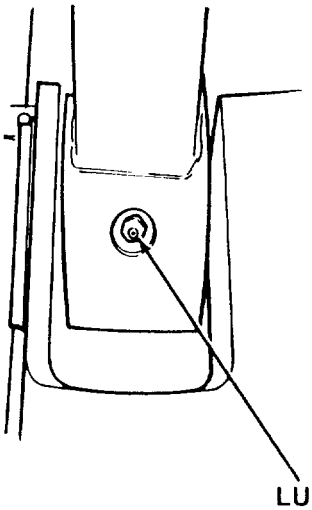


HOOK ARM PIVOT PIN (REAR)

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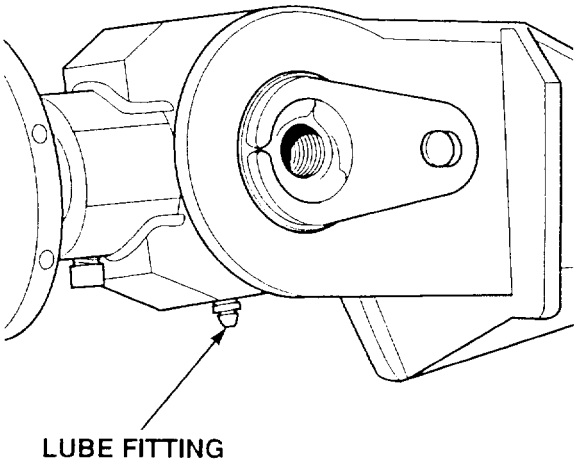


MAIN CYLINDER PIVOT PIN (REAR)

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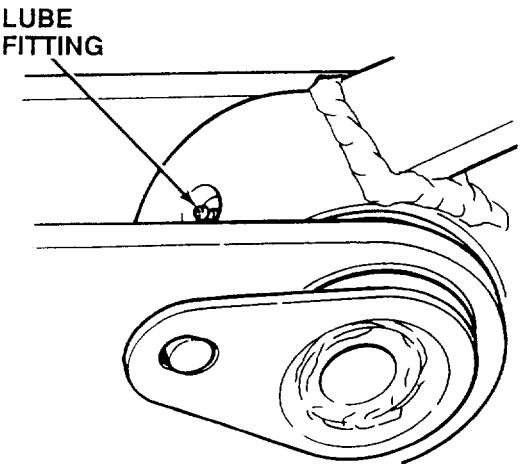
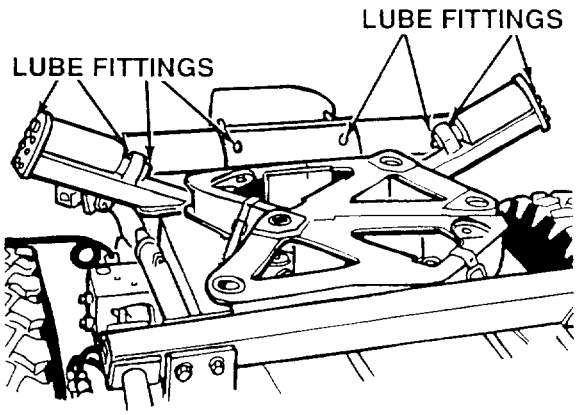


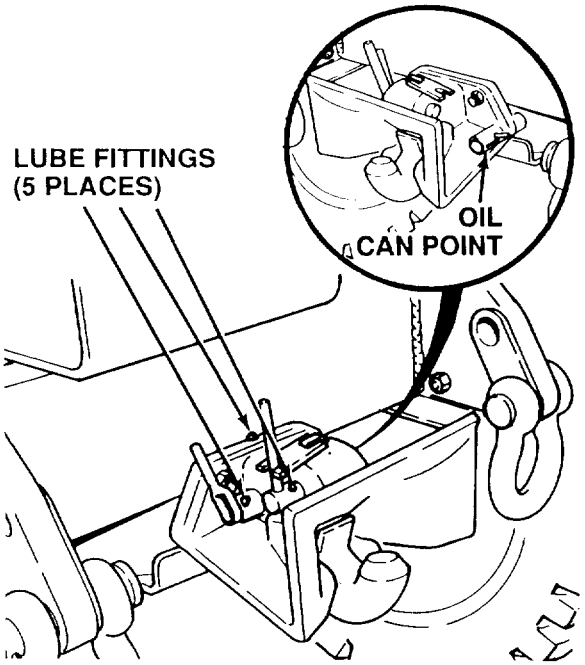

MIDDLE FRAME PIVOT PIN (REAR)

49




HORIZONTAL AND ANGLED ROLLERS

50




SELF-GUIDED COUPLER

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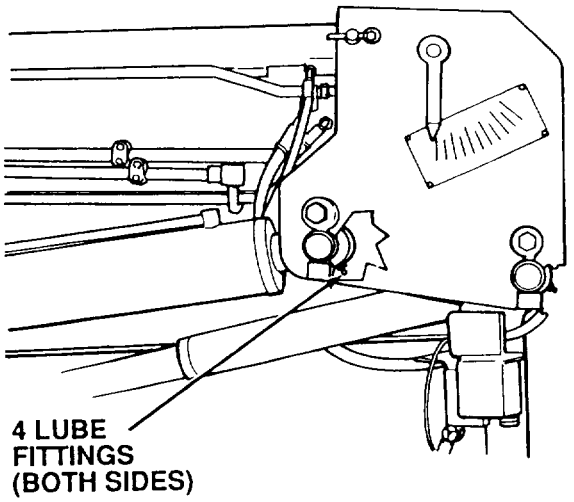


LIFT CYLINDER

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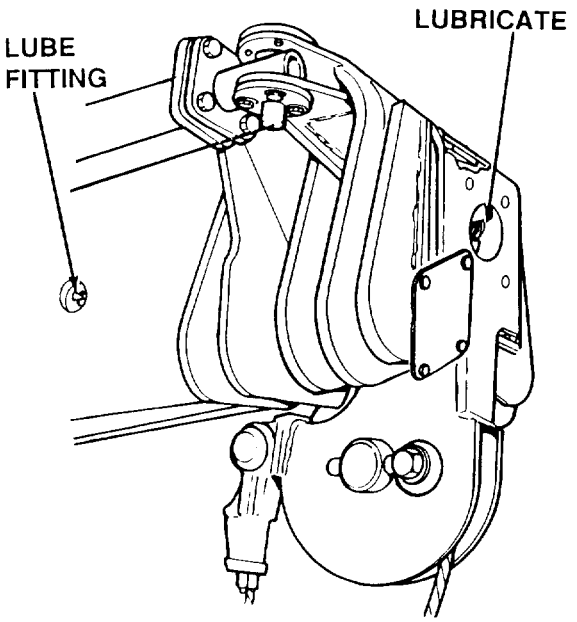
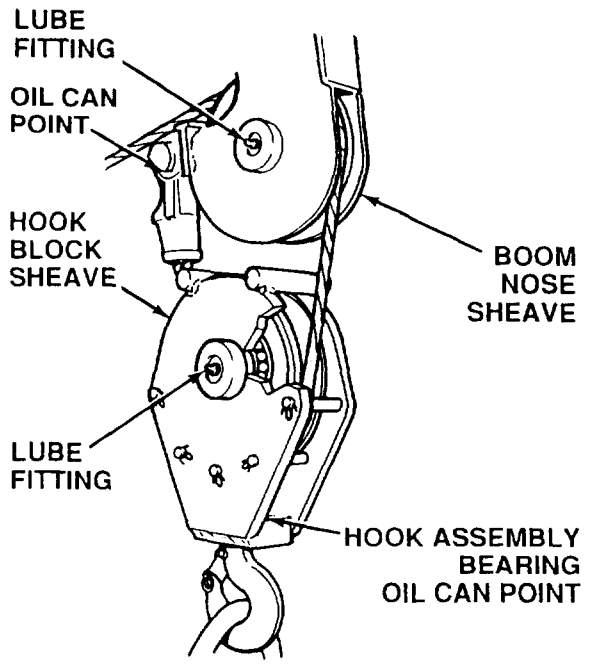



BOOM SHEAVES

53

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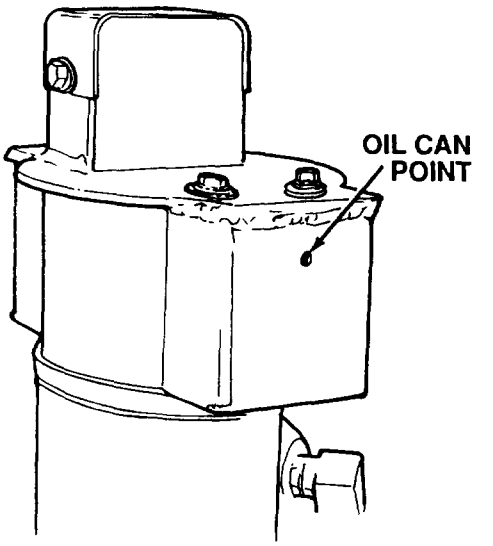


JACK CYLINDER COVER

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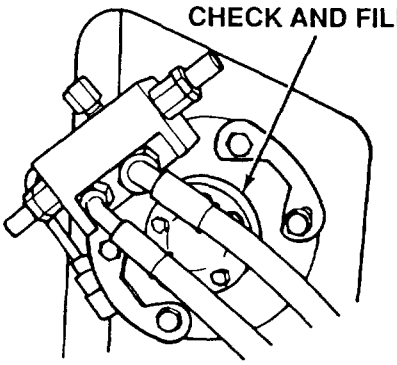


SWING DRIVE GEARBOX

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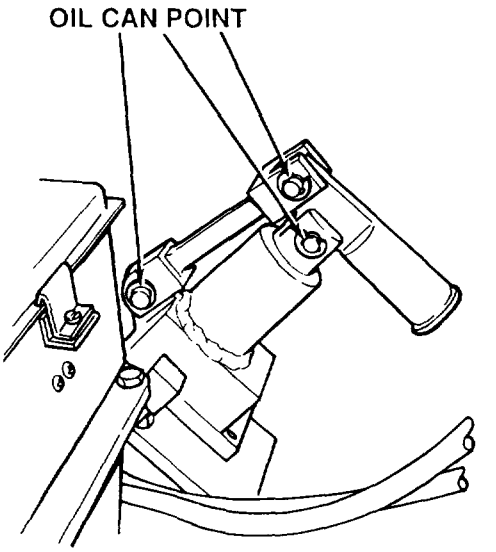


CRANE HAND PUMP

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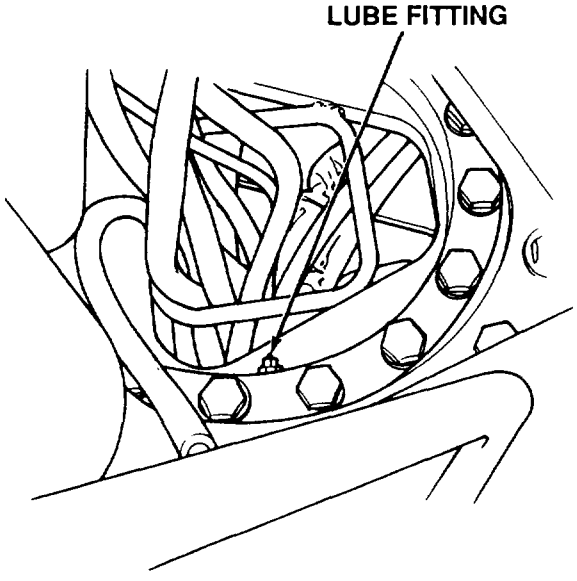


TURNTABLE BEARING

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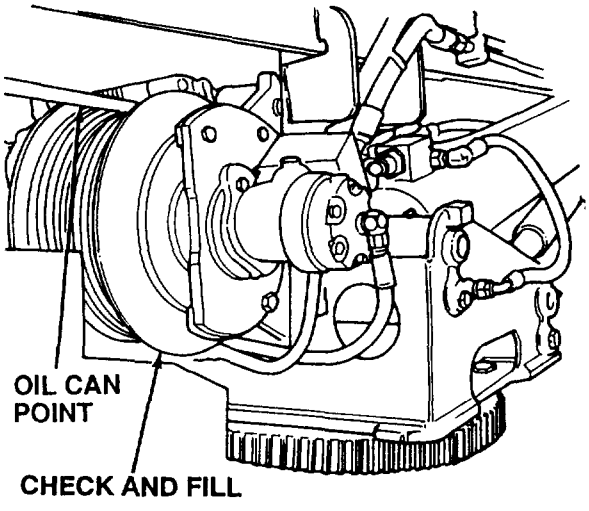
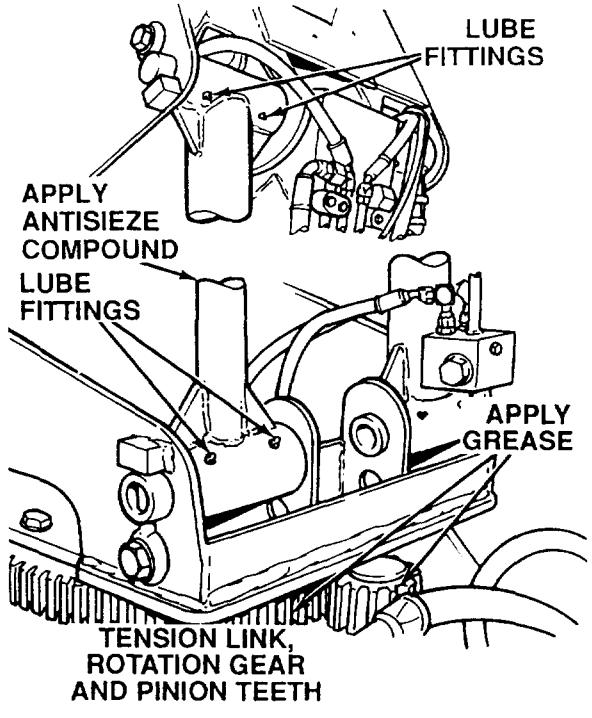



HOIST DRUM AND
HOIST CABLE

59

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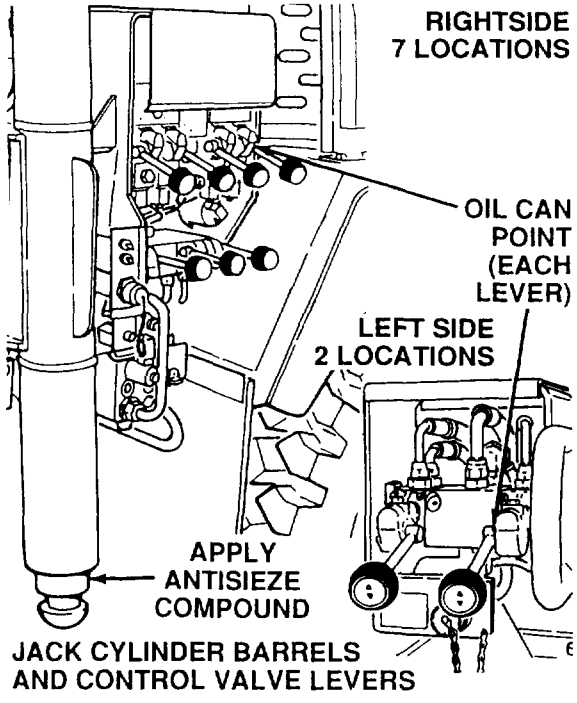

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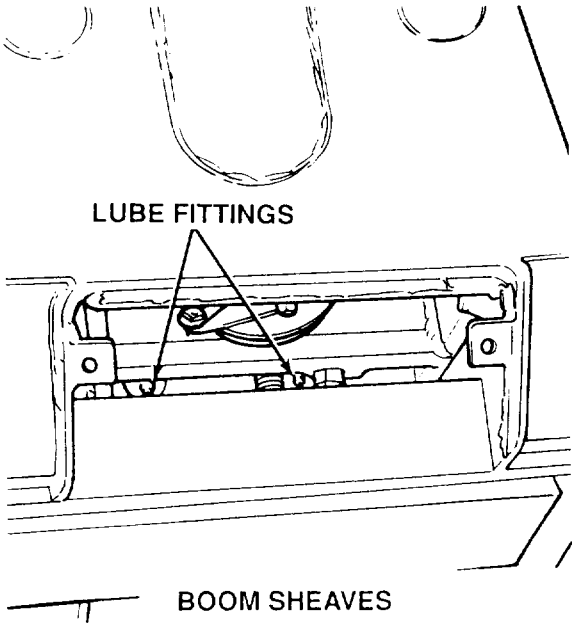
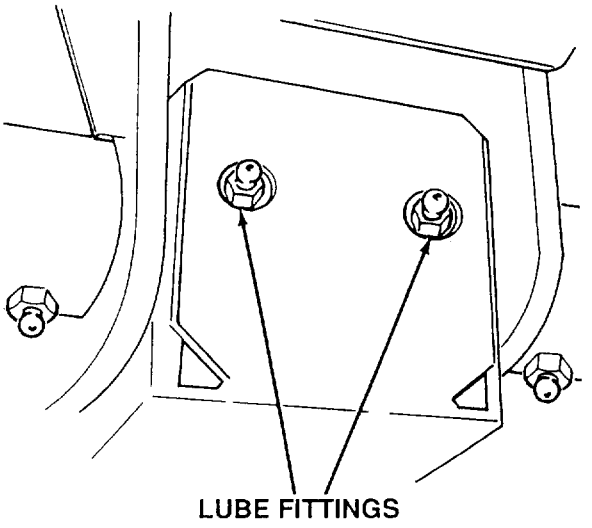
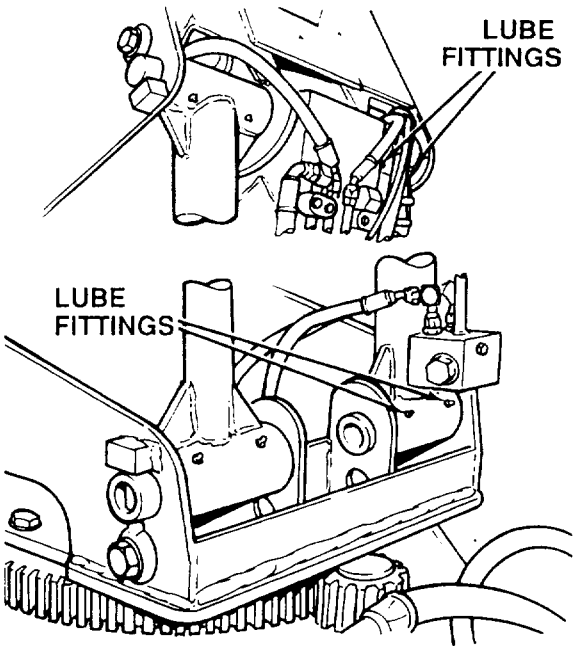

LUBE FITTINGS
BOOM SHEAVES

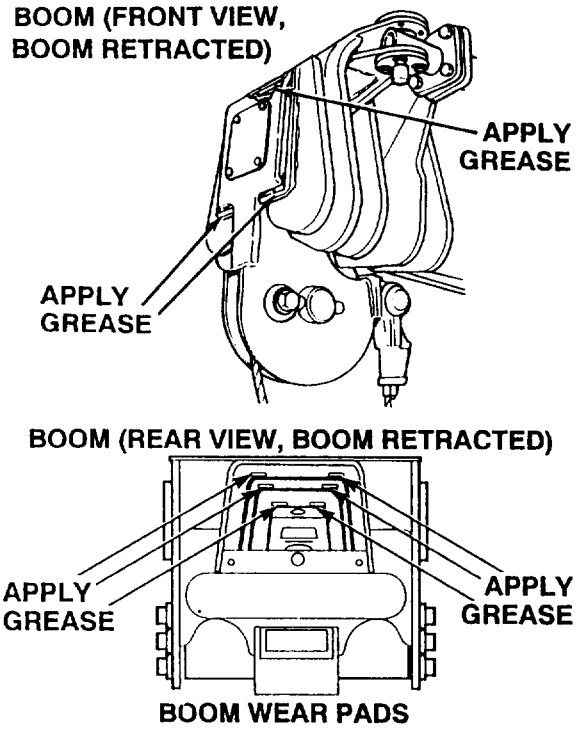
62


LUBE FITTINGS
MAST

63


LUBE FITTINGS
LUBE FITTINGS
ERECTION CYLINDER

64


BOOM (FRONT VIEW, BOOM RETRACTED)
APPLY GREASE
APPLY GREASE
BOOM (REAR VIEW, BOOM RETRACTED)
APPLY GREASE
APPLY GREASE
BOOM WEAR PADS

## NOTES

### 1. CHASSIS.

**NOTE**

If an air operated grease gun does not purge the fitting, use a hand operated grease gun. If the part does not purge, remove fitting and clean, install fitting and grease again. If part still does not purge, refer to maintenance task for that component.

*a.* ***Purging of Lubricant.*** When using a grease gun, apply lubricant to the fitting until clean lubricant squeezes out of the part being lubricated.

**WARNING**

Do not start engine or move truck when anyone is working on or under vehicle. Severe injury or death to personnel could result.

**NOTE**

Universal joint may have one or two grease fittings. If there are two fittings, grease either fitting. It is not necessary to grease both fittings.

*b.* ***Universal Joints.*** Use the proper lubricant to purge all seals on each universal joint. Purging flushes abrasive contaminates from each bearing and ensures all bearings are filled properly. Pop the seals; these seals are made to be popped. If any seal fails to purge, move driveshaft from side-to-side while applying grease gun pressure. This allows greater clearance on thrust end of bearing that is not purging. If seals still do not purge, rock truck by starting engine, releasing parking brakes, putting transmission in Drive (D) or Reverse (R), and allowing truck to roll. This removes the wind up in the drive line and allows for a greater clearance on the thrust end of the universal joint.

Because of the design of the universal joint seal, there will occasionally be one or more bearing seals that may not purge. Seal tension then has to be released. The procedure for releasing seal tension is as follows:

(1) Loosen bolts holding bearing assembly that does not purge to release seal tension. It maybe necessary to loosen bearing assembly approximately 1/16 in. (1.5 mm) minimum.

(2) If loosening does not result in purging, remove bearing assembly to determine cause of blockage.

*c.* ***Drive Shaft Slip Joints.*** When lubricating spline end of driveshafts, apply grease to spline fitting until lubricant appears at pressure relief hole. Cover hole with finger and continue adding grease until it appears at sleeve yoke seal.

*d.* ***Spring Hangers.*** If spring hanger pin does not accept grease, relieve load on spring pin by jacking truck up by frame as close to spring pin as possible. If spring pin still fails to take grease, notify Direct Support Maintenance to remove spring pin and/or bushing and replace if necessary.

*e.* ***Axles.*** The truck will need to be jacked up so tire can be turned to access both lube fittings. Both fittings must be lubricated.

*f.* ***Axle Output Shaft.*** Lubricant will not purge from axle output shaft seal. When using a hand operated grease gun, apply only two pumps of lubricant to the fitting. When using an air operated grease gun, apply only a small amount of lubricant to the fitting.

## 2. ENGINE AND TRANSMISSION.

**a. Cold Oil Check.** When initially tilling or changing the transmission fluid, use the COLD band on dipstick. At an initial operating temperature of 60 to 120 degrees F (16 to 49 degrees C) fill the transmission so the fluid is in COLD range.

**NOTE**

Loosen T-handle on transmission dipstick approximately one full turn after dipstick can be removed from check and fill tube with slight resistance.

**b. Hot Oil Check.** Operate engine one minute at 1000 RPM, idle until transmission temperature reaches 180 to 220 degrees F (82 to 104 degrees C). With engine idling, transmission in neutral, and truck on level ground, check transmission dipstick. If oil level is within the HOT/RUN band the quantity of oil in the transmission is safe for operation. If oil level is on or below bottom line of HOT/RUN band, notify Unit Maintenance. See TM 9-2320-364-20.

**c. Crankcase.** Check oil level with truck parked on level ground and the engine off and cool. Do not overfill crankcase. Drain crankcase when hot.

**d. Engine Oil Filter.** After installing new filter, fill crankcase, operate engine five minutes and check filter for leaks. Shut down engine, check crankcase level and bring to FULL mark.

**e. Engine Oil.** OE/HDO 40 must be used in temperatures consistently above 100 degrees F (38 degrees C).

**f. Transmission Oil.** OE/HDO- 15W/40 must be used when temperatures are consistently above 100 degrees F (38 degrees C).

## 3. CRANE AND SELF-RECOVERY WINCH (SRW).

a. Lubricate boom wear pads, and exposed rotation gears more often when cranes are operated in sandy or dusty conditions.

b. To lubricate boom wear pads perform the following procedures:

(1) Refer to TM 9-2320-364-10, and shut off truck.

(2) Remove cover at fear of boom.

(3) Inject grease in front of each rear (upper) wear pad.

**WARNING**

Do not allow personnel to perform maintenance directly under the boom or mast. Failure to follow proper procedures could cause serious injury or death.

(4) Refer to TM 9-2320-364-10 and erect crane and extend boom.

(5) Apply grease to front (lower) wear pads.

(6) Extend and retract boom. If boom chatters or does not smoothly extend/retract, refer to TM 9-2320-364-10. return crane to stowed position and shut off buck. Repeat Steps (3) through (5).

(7) With boom extended, visually inspect that the boom sections undersides are evenly greased along the boom wear pad riding surfaces. If bare spots are present, refer to TM 9-2320-364-10, return crane to stowed positron and shut off truck. Repeat Steps (3) through (6).

(8) Refer to TM 9-2320-364-10 and return crane to stowed position.

(9) Refer to TM 9-2320-364-10 and shut off truck.

(10) Install cover plate at rear of boom.

**c.** The 50 hour interval is based on actual crane operating hours. The hours can be tracked by the operator and recorded in the logbook. The crane should be lubricated on a monthly or 50 actual operating hour interval, whichever comes first.

**d.** Lubricate self-recovery winch (SRW) front guide horizontal shaft and sheave by turning and sliding sheave along length of shaft while applying grease with grease gun.

**e.** Change oil in self-recovery winch (SRW) gearbox after the first 10 hours of winch operation.

**f.** Self-recover-y winch (SRW) has two plugs. To check and fill self-recovery winch (SRW), one plug must be in upper position and second plug must be at side position. To drain self-recovery winch (SRW), one plug must be in side position and one plug must be at bottom position.

**g.** Use oil can sparingly. A single oil can application at each oil can hole is required.

## 4. AXLE DIFFERENTIAL POWER DIVIDERS, AND WHEEL ENDS.

**a.** Change lubricant in new or rebuilt axles at 1000 mi (1609 km), but no sooner than 500 mi (805 km). Following initial dram. change lubricant every 12,000 mi (19,308 km) or each two years of service, whichever comes first. If truck is operated in ambient temperatures over 100 degrees F (38 degrees C) the lubricant should be drained and refilled every 3000 mi (4827 km). During all lubricant changes, remove metal particles from magnetic drain plugs. Fill wheel ends first.

**b.** Axles No. 1, 2, and 5 (steering axles). Initial fill and level checks for the axles will be made from the housing side plugs. Oil level should be at bottom of the hole. Planetary wheel end level is at the bottom of the center check plug. Fill slowly through the 3/4 in. (19 mm) fill holes until oil runs out the center check location. Scheduled oil level checks will be made at these same locations.

**c.** Axles No. 3 and 4 (non-steering axles). Initial fill and level checks for the axles will be made from the housing side plugs. Level should be set at the bottom of the hole. Planetary wheel end level on the rigid axles will also initially be set at bottom of the center check plug. Filling will be through the 3/4 in. (19 mm) fill holes until oil runs out the center check location. Scheduled oil level checks will be made only at the axle housing and not the planetary wheel ends on the rigid axles. Due to internal venting the wheel ends will seek the same level as the axle housing, and as a result, no checks should be made after the initial fill/check of the wheel end.

**d.** Axles No. 3 and 4 (non-steering axles). Some oil will transfer from the wheel end to the axle housing and a slight overfill condition at the axle housing may be noticed during checking of the axles. This is considered normal and should not be a reason for concern.

**e.** Differential. All axles are drained/filled the same way. After draining, fill through the axle bowl to a level even with the check and fill hole. Allow the oil level to stabilize and recheck. Add lubricant as needed.

## 5. OIL CAN POINTS.

Lubricate doors, side panels, engine cover hinges, locks and pivot points every 1500 mi (2414 km) or Semiannually. Lubricate more often of usage is high. Lubricate door rotary locks and latches with lubricant cleaner.

## 6. ARMY OIL ANALYSIS PROGRAM (AOAP).

**a.** Refer to DA Pam 738-750 for sampling requirements.

**b.** After expiration of warranty, active Army units will send an oil sample to an AOAP laboratory for analysis every 90 days. Reserve and National Guard activities will send on oil sample to an AOAP Laboratory for analysis every 180 days.

**c.** Intervals for sampling as well as draining and refilling lubricants may be changed by an AOAP laboratory.

**d.** If AOAP laboratory support is not available, drain and refill crankcase oil every 3000 mi (4827 km) or Semiannually, whichever comes first. Drain and refill transmission oil every 6000 mi (9654 km) or Annually, whichever comes first. Drain and refill power steering reservoir Annually. Drain and refill hydraulic oil reservoir Annually.

## 7. LOAD HANDLING SYSTEM.

**a.** If hydraulic system oil becomes contaminated, immediately change oil and filter.

**b.** Apply grease to lift hook more often if PLS truck mileage is low, but LHS usage is high.

**c.** The 50 hour interval is based on actual LHS operating hours. The hours can be tracked by the operator and recorded in the logbook. The LHS should be lubricated on a monthly or 50 actual operating hour interval, whichever comes first.

**d.** To allow access to the hook arm cylinder rear grease fittings, LHS should be fully extended.

## 8. HYDRAULIC/STEERING SYSTEM.

**a.** OE/HDO-30 must be used when temperatures are consistently above 60 degrees F (16 degrees C).

**b.** Both drain plugs must be removed to completely drain the steering reservoir.

**c.** When oil is cold, do not add or fill beyond the word “FULL” on the fluid level indicator.

## 9. COOLANT SYSTEM.

Test coolant to see if draining is necessary, refer to TB 750-651.

## 10. STEERING SYSTEM

**a.** Remove check plug from 2.21:1 steering gear box and check oil level. Add oil as required until oil appears at check plug opening. Apply sealant (NSN 8030-01-166-0675) to check plug threads prior to installing.

**b.** When greasing steering shaft slip joint lube fitting, apply two pumps from a manual grease gun or two clicks from a pneumatic grease gun. If rubber boot appears to be full of grease, remove tie strap from end of rubber boot. Push boot forward and wipe off excess grease from boot and steering shaft. Position rubber boot correctly on steering shaft and install new tie strap.

**c.** When greasing fittings on steering gears, apply two pumps from a manual grease gun or two clicks from a pneumatic grease gun This will prevent seal from being pushed out of bore.

**11. AIR FILTER ELEMENT.** When air restriction indicator (located on dash panel) reads 20 in replace air filter element.

**12. AIR WRENCH.** Pour 1/2 oz. (15 ml) of oil in the short hose installed on the air wrench. Connect air hose to air supply and operate sir wrench for 10 to 15 seconds.

A copy of this lubrication order will remain with the equipment at all times; instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:

Chief of Staff, United States Army

* U.S. GOVERNMENT PRINTING OFFICE: 1995 0-398-898(22017)