

LUBRICATION ORDER

L O 9 - 2 3 2 0 - 2 6 0 = 1 2

4 November 1983

(Supersedes LO 9-2320-260-12,
dated 26 March 1979)

TRUCK, CHASSIS: 5-TON, 6X6, M809, M809A1, M81-0, M811,
M811A1, M811A2; ROCKET LAUNCHER CHASSIS: M812A1;
TRUCK, CARGO: 5-TON, 6X6, M813; DROPSIDE, M813A1, M814;
TRUCK, BOLSTER, LOGGING: M815; TRUCK, WRECKER,
MEDIUM: M816; TRUCK, DUMP: M817; TRUCK, TRACTOR: M818;
TRUCK, TRACTOR, WRECKER: M819;
TRUCK, VAN, EXPANSIBLE: M820, M820A1, M820A2;
TRUCK, STAKE, BRIDGE TRANSPORTING: M821.

REFERENCE: TM 9-2320-260-10-1, TM 9-2320-260-10-2, TM 9-2320-260-10-3, TM 9-2320-260-10-4, TM 9-2320-260-20-1, TM 9-2320-260-20-2-1, TM 9-2320-260-20-2-2, TM 9-2320-260-20-3-1, TM 9-2320-260-20-3-2, TM 9-2320-260-20-3-3, TM 9-2320-260-20-3-4, AND CI.9100SL

Intervals (on-condition or hard time) and the related man-hour times are based on normal operation. The man-hour time specified is the time you need to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hard time interval if your lubricants are recontaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The hard time interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available.

Clean fittings before lubricating. Clean parts with drycleaning solvent (SD) type II or equivalent. Dry before lubricating. Dotted arrow points indicate lubrication required on both sides of equipment.

Level of maintenance. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols: Operator/Crew (C); and Organizational Maintenance (O).

Relubricate after fording.

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this lubrication order. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Your letter or DA form 2028 (Recommended Changes to Publications) should be mailed directly to: Commander, U.S. Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished directly to you.

TA 255942

—KEY—


| LUBRICANTS | CAPACITIES | EXPECTED TEMPERATURES | | | INTERVALS |
|---|----------------------|----------------------------|---------------------------------|---------------------------------|--|
| | | Above 15°F (Above -9°C) | +40° to -15°F (+4° to -26°C) | +40° to -65°F (+4° to -54°C) | |
| OE/HDO-LUBRICATING OIL, INTERNAL COM- BUSTION ENGINE (MIL-1-2104) | | | | | OC-On condition (AOAP) C/MR-Change gear lubricant only when required by mainte- nance repair action, or if contaminated by water or other foreign materials, D- Daily W- Weekly, as required, de- pending upon use; otherwise, during INTER- VAL 3 1- 1,000 miles** (1,600 km) 3- 3,000 miles (4,800 km) or 3 months, whichever occurs first 3/S- 3,000 miles (4,800 km) or semiannually, whichever occurs first 6- 6,000 miles (9,600 km) or 6 months, whichever occurs first 12- 12,000 miles (19,000 km) or 12 months, whichever occurs first S- semiannually (6 months) A- Annually (12 months) |
| OEA-LUBRICATING OIL, INTERNAL COM- BUSTION ENGINE (ARCTIC) (MIL-1-46 167) | | | | | |
| OIL CAN POINTS | | OE/HDO 30 | OE/HDO 10* | OEA | |
| CRANKCASE: | | OE/HDO 30 | OE/HDO 10* | OEA | |
| W/FILTER | 27 qts. (25.5 l) | | | | |
| W/O FILTER | 23 qts. (21.8 l) | | | | |
| STEERING AND HYDRAULIC SYSTEMS: (INCLUDING STEER- ING GEAR BOX) | | | | | |
| STEERING SYSTEM RESERVOIR | 5 qts. (4.7 l) | OE/HDO 10° | OE/HDO 10° | OEA | |
| DUMP BODY HYDRAULIC RESERVOIR | 37 qts. (35 l) | OE/HDO 10* | OE/HDO 10* | OEA | |
| CRANE HYDRAULIC TANK (M816) | 60 gal, (227 l) | OE/HDO 10* | OE/HDO 10* | OEA | |
| CRANE HYDRAULIC TANK (M819) | 33 gal. (125 l) | OE/HDO 10* | OE/HDO 10* | OEA | |
| GO-LUBRICATING OIL, GEAR MULTIPURPOSE (MIL-L-2105) | | | | | FOR ARCTIC OPERATION, REFER TO FM 9-20/ |
| TRANSMISSION | 9 qts. (8.5 l) | GO 80/90 | GO 80/90 | GO 75 | |
| W/PTO | 11 qts. (10.4 l) | | | | |
| DIFFERENTIAL (3) | 12 qts. (11.4 l) | GO 80/90 | GO 80/90 | GO 75 | |
| TRANSFER CASE | 5.25 qts. (5 l) | GO 80/90 | GO 80/90 | GO 75 | |
| MIDSHIP WINCH END FRAME HOUSING | 1.75 pts. (.83 l) | GO 80/90 | GO 80/90 | GO 75 | |
| MIDSHIP WINCH GEAR CASE | 2.6 pts. (1.2 l) | GO 80/90 | GO 80/90 | GO 75 | |
| FRONT WINCH GEAR CASE | 2.6 pts. (1.2 l) | GO 80/90 | GO 80/90 | GO 75 | |
| REAR WINCH GEAR CASE | 3 pts. (1.4 l) | GO 80/90 | GO 80/90 | GO 75 | |

* If OEA lubricant is required to meet the temperature ranges prescribed in the KEY, then the OEA lubricant is to be used in place of OE/HDO 10 lubricant for all temperature ranges.

“ See note 1.

TA 255943

—KEY— (Cont'd)

| LUBRICANTS | CAPACITIES | EXPECTED TEMPERATURES | | | FOR ARCTIC OPERATION, REFER TO FM 9-207 | INTERVALS |
|--|------------|----------------------------|----------------------------------|---------------------------------|---|---|
| | | Above 15°F (Above -9°C) | +40° to - 15°F (+4° to -26°C) | +40° to -65°F (+4° to -54°C) | | |
| GAA-GREASE, AUTOMOTIVE AND ARTILLERY, (MI1-G-10924). | | ALL TEMPERATURES | | | | |
| BFS***-BRAKE FLUID, SILI- CONE, AUTOMOTIVE, ALL WEATHER, OPER- ATIONAL AND PRESERVATIVE (MIL-B-46176) ****BRAKE MASTER CYLINDER | | ALL TEMPERATURES | | | | |
| CW-LUBRICATING OIL, CHAIN WIRE ROPE, EXPOSED GEAR (VV-1-751) WINCH WIRE ROPE | | ABOVE +800F(+27°C) | +80° to +30°F (+27° to -1°C) | +30° to -30°F (-1 °to -34°C) | -30° to -65°F (-34° to -54°C) |  |
| | | CW-IIC | CW-IIB | CW-IIA | GO 75 | |

*** See TB 43-0002-87 for conversion procedures from HB to BFS

**** See note 10.

TOTAL MAN-HOURS

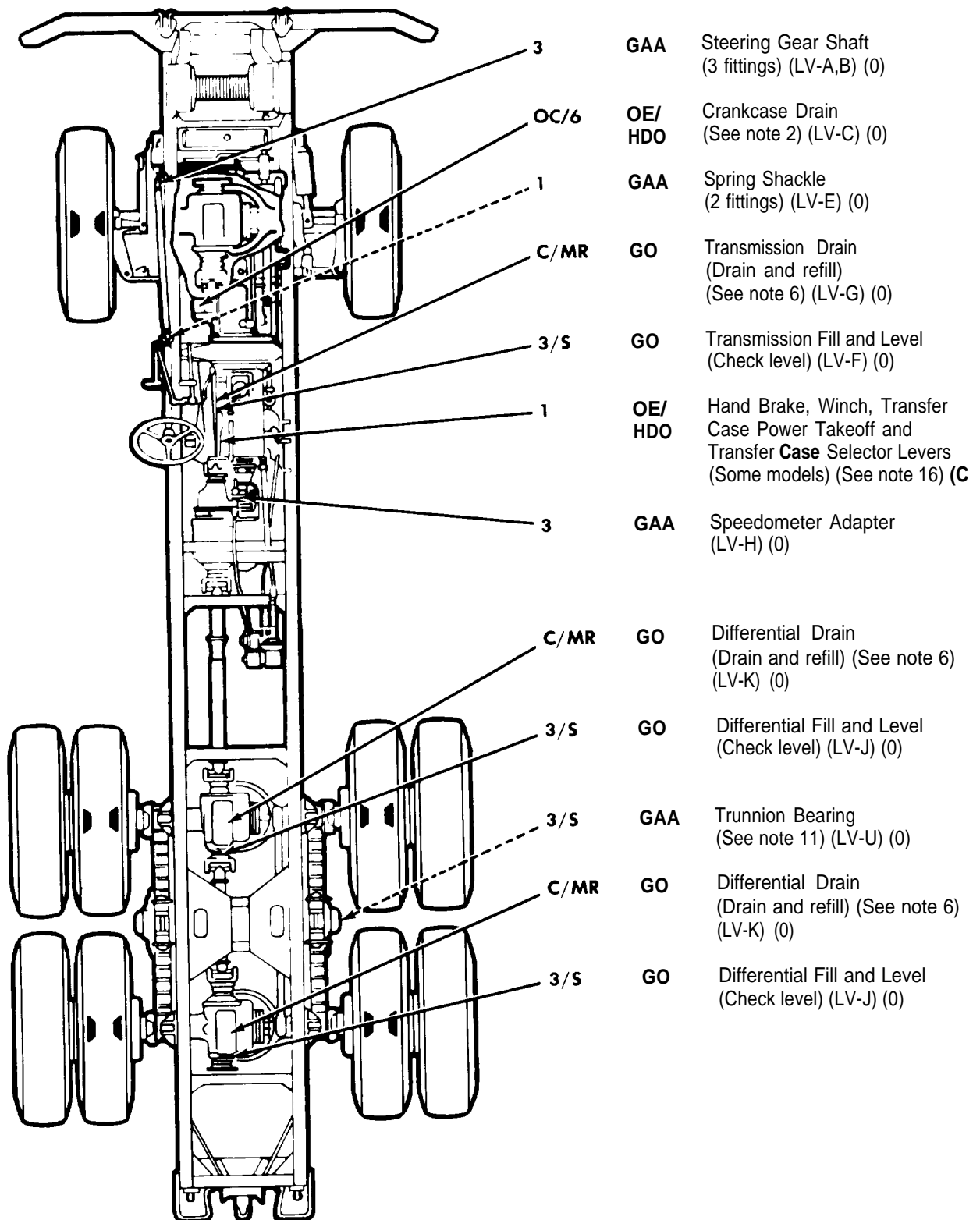
| | OC | D | W | 1 | 3/S | 3 | 6 | 12 | C/MR | S | A |
|---|-----|----|----|-----|-----|-----|-----|------|------|-----|-----|
| TRUCK, CHASSIS: M809, M809A 1, M810, M811, M811A1, M811A2 | 1.5 | .3 | | 2.5 | 1.0 | 1.8 | .9 | 8.0 | 3.9 | .6 | 1.5 |
| TRUCK, CHASSIS: M812A1 | 1.5 | .3 | | 2.5 | 1.0 | 1.8 | 9 | 8.0 | 3.9 | .6 | 15 |
| TRUCK, CARGO: M813, M813A1, M814 | 15 | 3 | .8 | 2.3 | 1.0 | 1.8 | 1.0 | 8.0 | 3.9 | .4 | 1.5 |
| TRUCK, BOLSTER: M815 | 1.5 | 3 | | 2.5 | 10 | 1.8 | 1.0 | 10.3 | 3.9 | 1.4 | 2.8 |
| TRUCK, WRECKER: M816 | 1.5 | .3 | .7 | 2.3 | 1.0 | 1.8 | 10 | 8.0 | 3.9 | 2.0 | 2.5 |
| TRUCK, DUMP: M817 | 1.5 | .3 | 6 | 2.3 | 1.0 | 1.8 | 1.0 | 8.0 | 3.9 | 1.6 | 2.2 |
| TRUCK, TRACTOR: M818 | 1.5 | 3 | | 23 | 1.0 | 1.8 | 1.0 | 8.0 | 39 | .4 | 1.5 |
| TRUCK, TRACTOR, WRECKER: M819 | 1.5 | .3 | .5 | 2.3 | 1.0 | 1.8 | 1.0 | 8.0 | 3.9 | 3.0 | 2.5 |
| TRUCK, VAN, EXPANSIBLE: M820, M820A1 | 1.5 | 3 | | 1.3 | 1.0 | 1.8 | 1.0 | 8.0 | 4.9 | .7 | 1.5 |
| TRUCK, VAN, EXPANSIBLE: M820A2 | 1.5 | .3 | | 1.3 | 1.0 | 1.8 | 10 | 8.0 | 3.9 | .7 | 1.5 |
| TRUCK, STAKE, BRIDGE: M821 | 1.5 | .3 | | 2.3 | 10 | 1.8 | Lo | 8.0 | 3.9 | 7 | 1.5 |
| FRONT, WINCH | | | | .4 | Lo | | 1.0 | | | 1.7 | 10 |

NOTE

- The man-hours shown above have been established on an individual vehicle basis and, accordingly, are not applicable at maintenance facilities where production line methods are employed.
- A reference to the appropriate localized view (1.V) is provided after the lubrication entry, in most cases.

TA 255945

INTERVAL | LUBRICANT

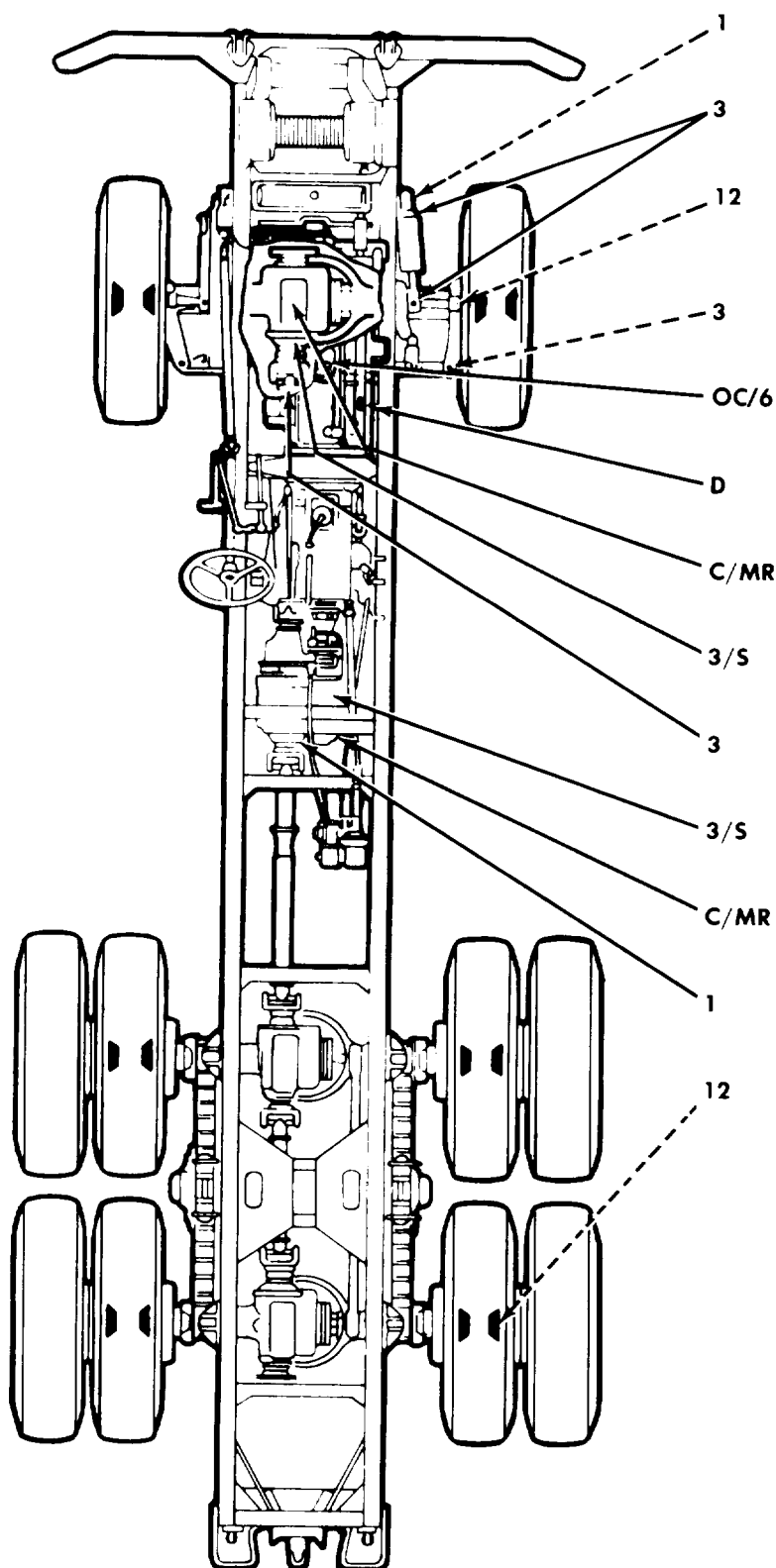


NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 25594

INTERVAL • LUBRICANT



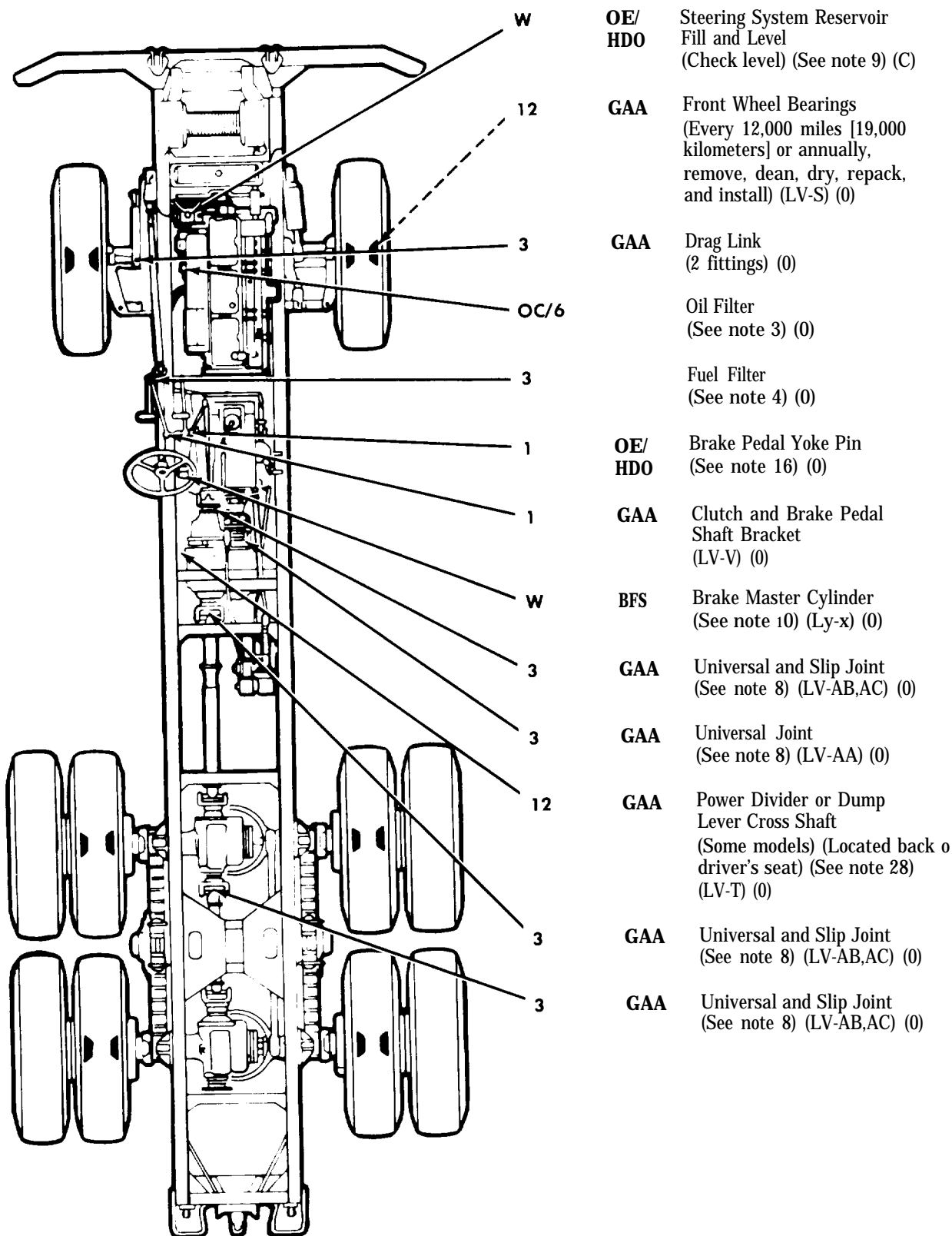
- | | |
|--------------------|---|
| GAA | Spring Bolt (LV-D) (0) |
| GAA | Power Steering Cylinder (2 fittings) (0) |
| GAA | universal Joint and Steering Knuckle Bearing (See note 7) (LV-L,M) (0) |
| GAA | Tie Rod (LV-N) (0) |
| OE/ HDO | Crankcase Fill (See note 2) (LV-P) (0) |
| OE/ HDO | Crankcase Level (Check level) (See note 2) (C) |
| GO | Differential Drain (See note 6) (LV-K) (0) |
| GO | Differential Fill and Level (Check level) (LV-J) (0) |
| GAA | Universal Joint (See note 8) (LV-AD) (0) |
| GO | Transfer Case Fill and Level (Check level) (LV-Q) (0) |
| GO | Transfer Case Drain (See note 6) (LV-R) (0) |
| GAA | Hand Brake Shoe (4 fittings) (0) |
| GAA | Rear-Rear Wheel Bearings (Every 12,000 miles [19,000 kilometers] or annually, remove, clean, dry, repack, and install) (LV-S) (c) |

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255947

INTERVAL • LUBRICANT

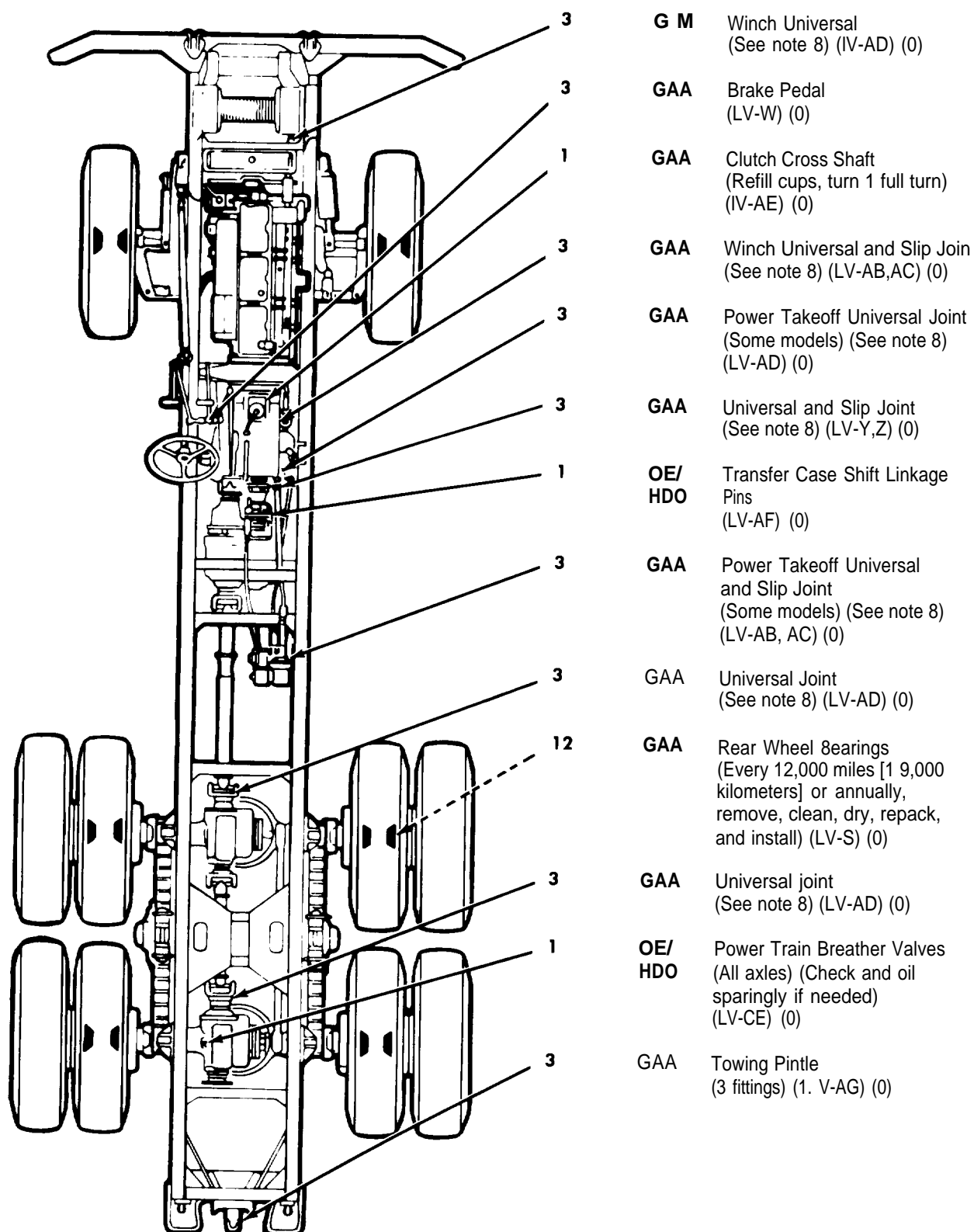


NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255948

INTERVAL • LUBRICANT

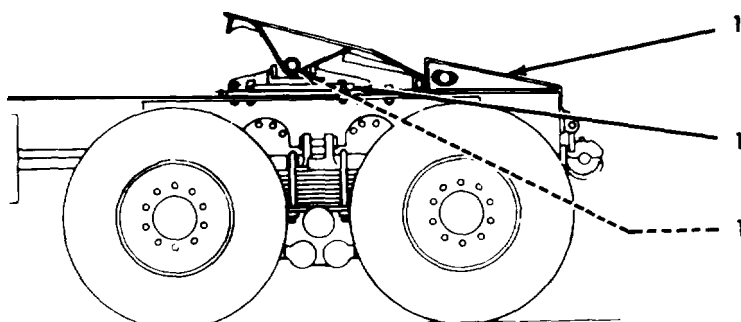


NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) 1.
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255949

INTERVAL • LUBRICANT



- G M** Approach Plate
(Clean and coat)
(LV-AN) (0)
- G M** Lateral Shaft
(2 fittings) (LV-AL) (0)
- GAA** Rocker Shaft
(2 fittings) (LV-AK) (0)

FIFTH WHEEL — M818, M819
(LEFT SIDE VIEW)

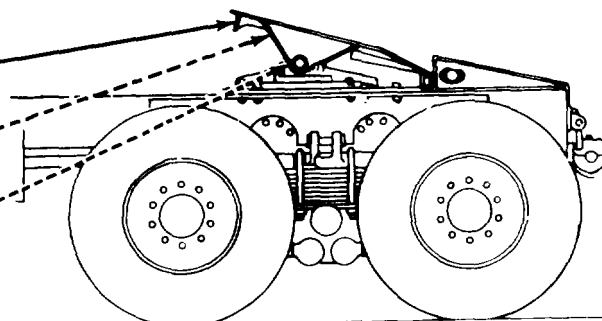
LUBRICANT • INTERVAL

Lock Plunger Shaft and Latch
(LV-AM) (0)

Base Plate
(2 fittings) (LV-AJ) (0)

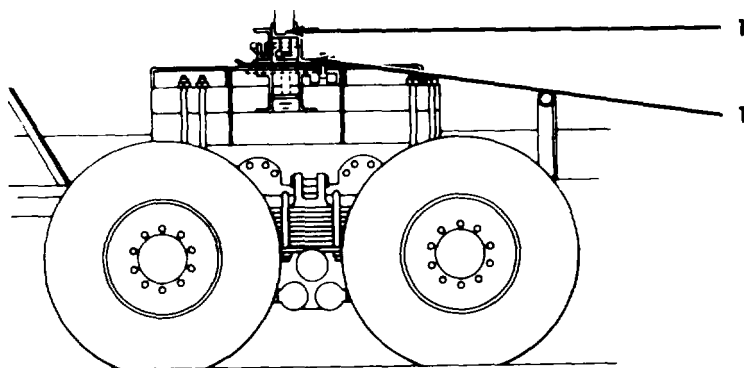
Coupler Jaw Pin
(LV-AH) (0)

- OE/
HDO** 1
- GAA** 1
- GAA** 1



FIFTH WHEEL — M818, M819
(LEFT SIDE VIEW)

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- GAA** King Pin
(0)
- GAA** Bolster Base
(0)

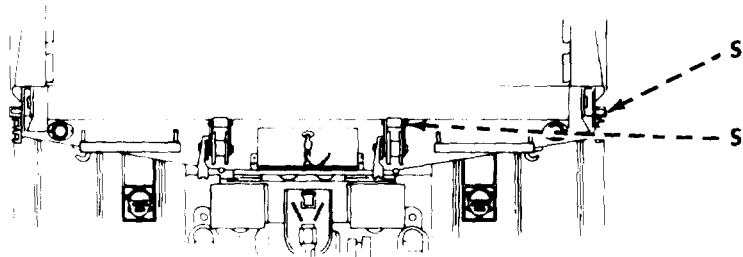
BOLSTER AND FIFTH WHEEL — M815
(LEFT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255951

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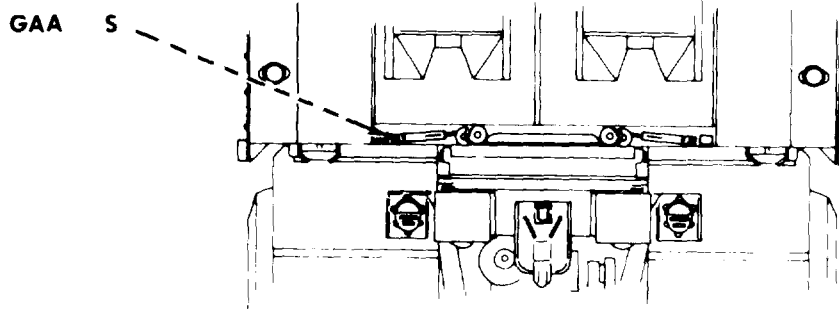


- GAA** Roller Bearings (O)
- GAA** Support Roller Pins (O)

BRIDGE TRANSPORTING BODY — M821
(REAR VIEW)

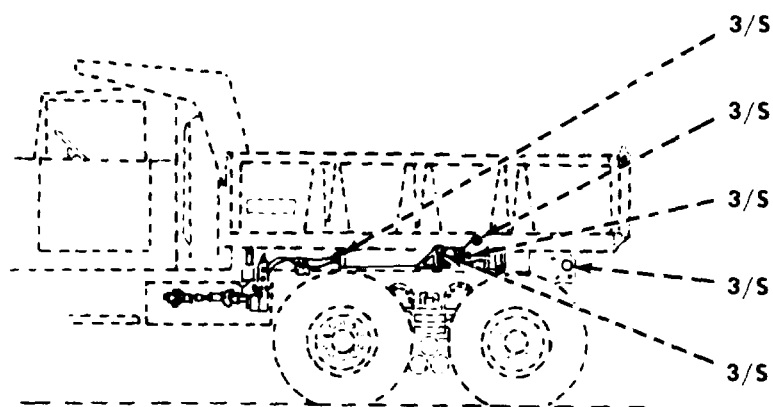
LUBRICANT • INTERVAL

Pawl Plunger
(LV-AP) (O)



VAN BODY — M820, M820A1
(REAR VIEW)

INTERVAL • LUBRICANT



- GAA** Trunnion Pins (See note 27) (LV-AQ) (O)
- GAA** Lifting Arm (See note 27) (LV-AS) (O)
- GAA** Cylinder Crosshead (See note 27) (LV-AT) (O)
- GAA** Body Hinge Pins (See note 27) (LV-BN) (O)
- GAA** Lifting Arm Rollers (3 fittings) (See note 27) (LV-AR) (O)

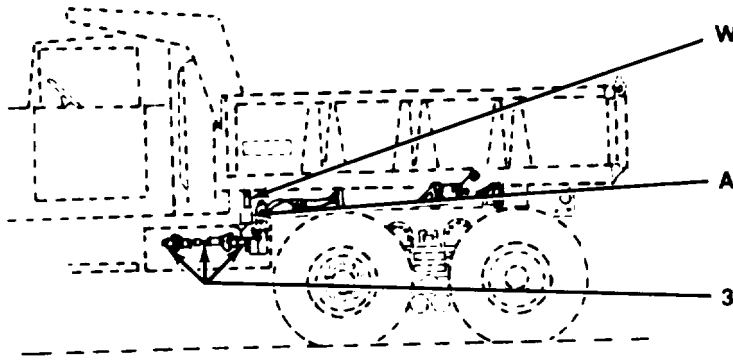
DUMP BODY — M817
(LEFT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255951

INTERVAL • LUBRICANT



DUMP BODY — M817
(LEFT SIDE VIEW)

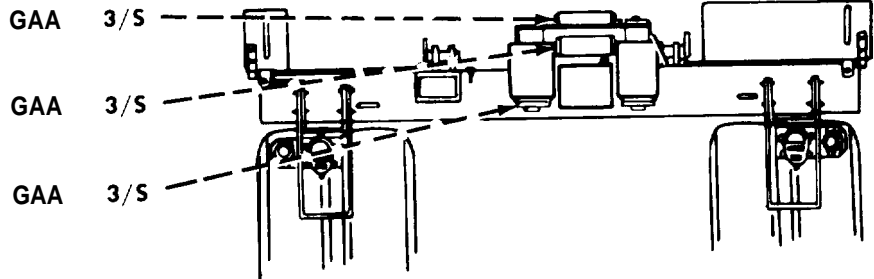
| | |
|------------|---|
| OE/ HDO | Hydraulic Reservoir Fill and Level (Check Level) (See note 15) (C) |
| OE/ HDO | Hydraulic Reservoir Drain (Drain and refill) (See note 15) (O) |
| GAA | Universals and Slip Joint (See note B) (LV-AB,AC,AD) (O) |

LUBRICANT • INTERVAL

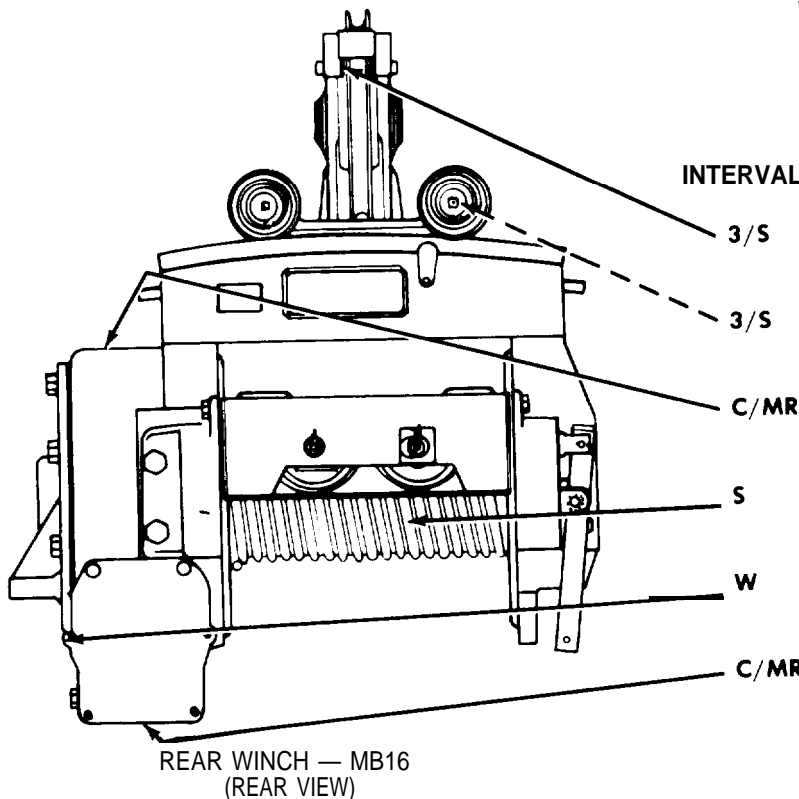
Upper Cable Guide Roller
2 fittings) (See note 27) (LV-BU) (O)

Lower Cable Guide Roller
(2 fittings) (See note 27) (O)

Vertical Cable Guide Roller
(2 fittings) (See note 27) (LV-BT) (O)



WRECKER BODY — MB16
(REAR VIEW)



REAR WINCH — MB16
(REAR VIEW)

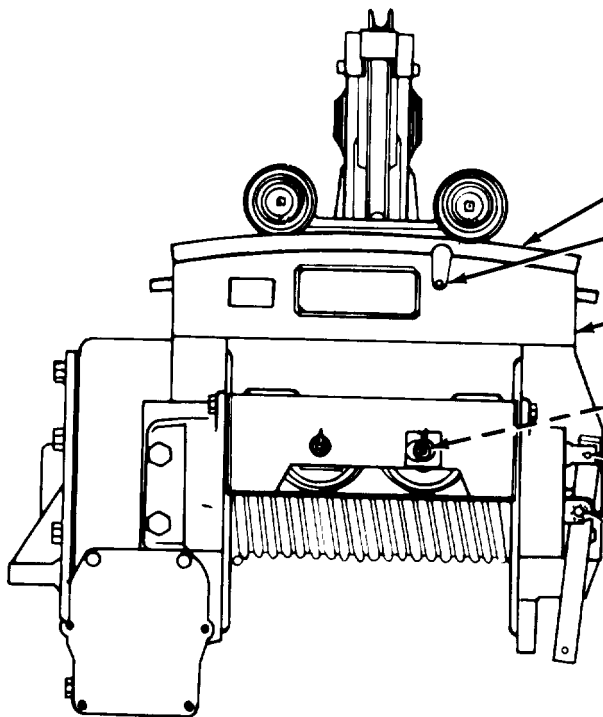
INTERVAL • LUBRICANT

| | | |
|------|------------|---|
| 3/S | GAA | Level Wind Sheave Bearing (See note 27) (O) |
| 3/S | GAA | Level Wind Trolley Wheels (See note 27) (LV-BV) (O) |
| C/MR | GO | Gear Case Fill (See note 6) (O) |
| S | OE/ HDO | Winch Cable (See note 13) (C) |
| W | GO | Gear Case Level (Check level) (O) |
| C/MR | GO | Gear Case Drain (Drain and refill to level plug) (See note 6) (O) |

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 25595



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- 3/S GAA Level Wind Frame (2 fittings) (See note 27) (O)
- 1 OE/HDO Level Wind Trolley Lock (O)
- 3/S GAA Sheave Frame Pin Bearing (See note 27) (O)
- 1 GAA Tensioner Sheave pins (LV-BX) (O)
- 3/S GAA End Frame Bearing (See note 27) (LV-BW) (O)
- 1 OE/HDO Tensioner Racker Lever Pins (O)

REAR WINCH — M816
(REAR VIEW)

LUBRICANT • INTERVAL

Universal and Slip Joints
~See note 8) (LV-AB,AC) (O)

Lower Divider Fill and Level
Check level) (LV-CA) (O)

Lower Divider Shift Linkage
See note 28) (O)

GAA

S

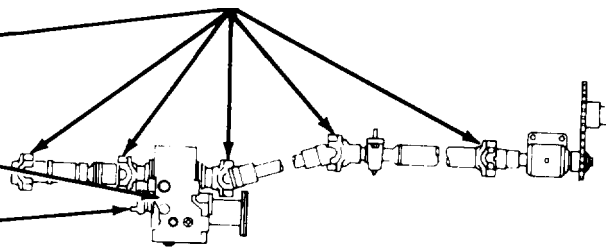
GO

W

OE/HDO

S

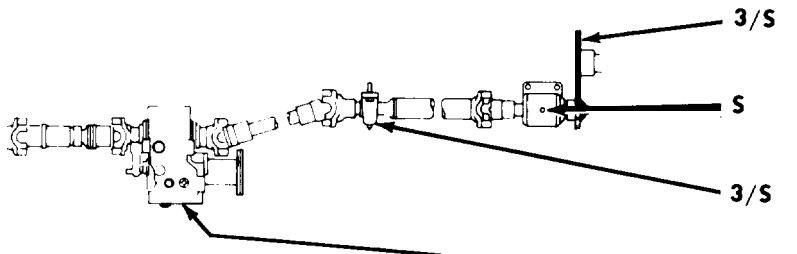
& GAA



REAR WINCH DRIVE — M816
(LEFT SIDE VIEW)

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- 3/S CW Drive Chain (Coat lightly) (See note 27) (O)
- S GAA Drive Sprocket Bearing (LV-CC) (O)
- 3/S GAA Pillow Block (LV-CD) (O)
- C/MR GO power Divider Drain (Drain and refill to level plug) (See note 28) (LV-CB) (O)

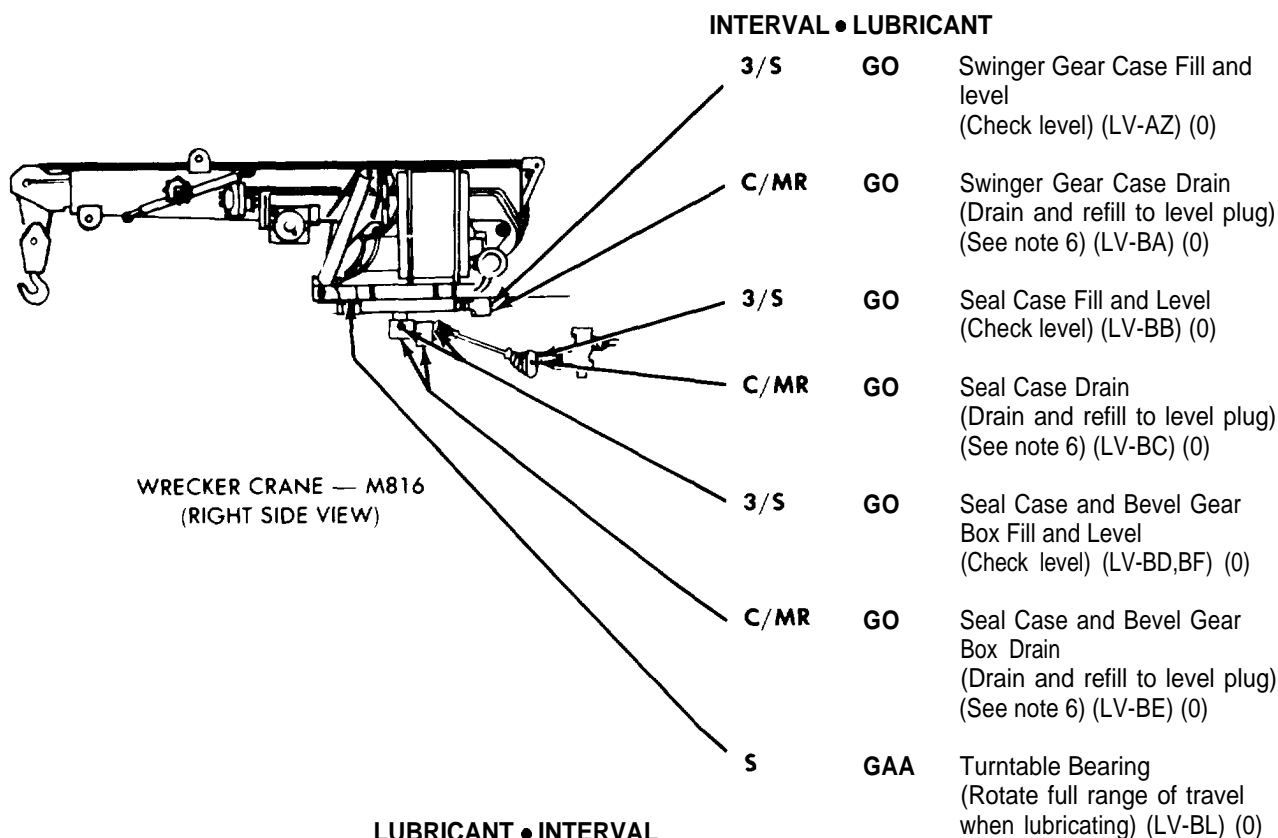


REAR WINCH DRIVE — M816
(LEFT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES,

TA 255953



Hoist Gear Case Fill
(Check level) (See note 12) (LV-BP) (0)

GO

3/S

Hoist Gear Case Drain
(Drain and refill to level plug)
(See note 12) (LV-BS) (0)

GO

C/MR

Cable Guide Roller
(See note 27) (0)

GAA

3/S

Winch Drum Shaft Bearings
(See note 27) (0)

GAA

3/S

Hoist Winch
(Fill and level) (Check level)
(See note 12) (LV-BQ) (0)

GO

3/S

Cable Guide Roller
(See note 27) (0)

GAA

3/S

Elevating Cylinder Bushings
(IV-AU) (0)

GAA

S

Hoist Winch Drain
(Drain and refill to level plug)
(See note 12) (LV-BR) (0)

GO

C/MR

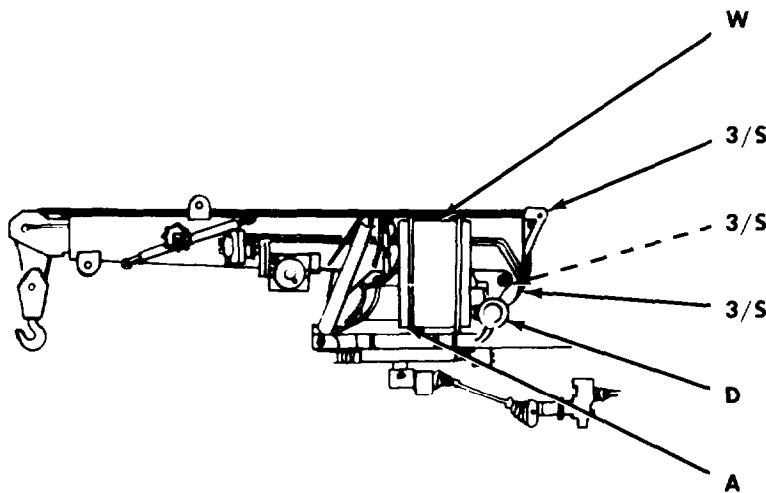
WRECKER CRANE — M816
(RIGHT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

1A 255954

INTERVAL | LUBRICANT



WRECKER CRANE — M816
(RIGHT SIDE VIEW)

| | | |
|--------------------|------------|---|
| OE/ HDO | W | Hydraulic Oil Tank Fill and Level (Check level) (See note 14) (LV-AW) (C) |
| GAA | 3/S | Hoist Cable Sheave (See note 27) (LV-AX) (0) |
| GAA | 3/S | Boom Hinge Pin (See note 27) (LV-AY) (0) |
| GAA | 3/S | Hoist Cable Sheave (See note 27) (0) |
| OE/ HDO | D | Hydraulic System Filter (See note 20) (C) |
| OE/ HDO | A | Hydraulic Oil Tank Drain (Drain and refill) (See note 14) (LV-AV) (0) |

LUBRICANT • INTERVAL

Boom Cylinder Pin
(See note 27) (LV-BG) (0)

Boom Roller Shaft
(See note 27) (LV-BK) (0)

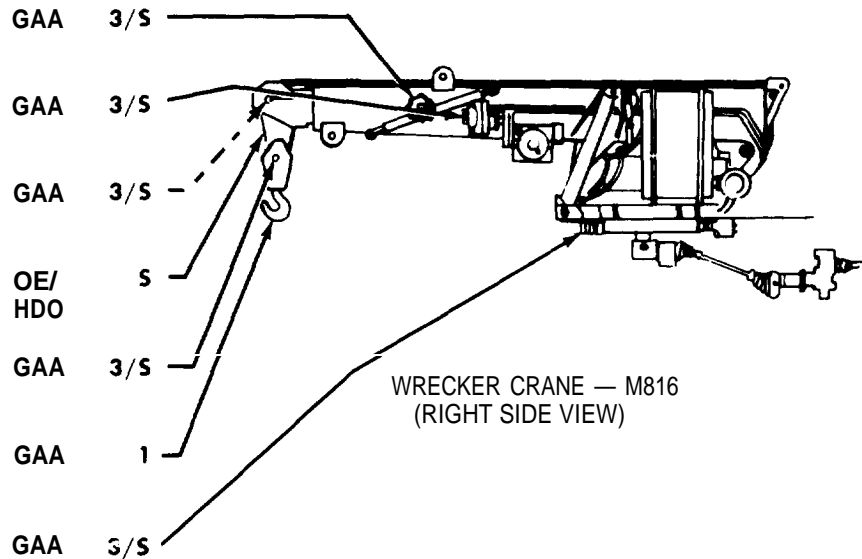
Boom Sheave Pin
(See note 27) (0)

Hoist Cable
(See note 13) (LV-BH) (C)

B10ck Sheave Pin
(See note 27) (LV-BJ) (0)

Block Hook
(o)

Turntable Gear
(Rotate full range of travel
when lubricating) (See note 27)
(LV-BM) (0)



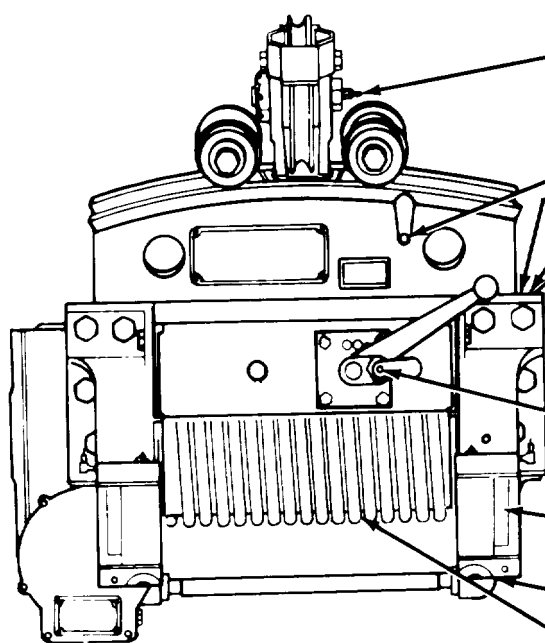
WRECKER CRANE — M816
(RIGHT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

1A 255955

INTERVAL • LUBRICANT



FRONT WINCH (FRONT VIEW)

| | | |
|------|------------|---|
| 3/S | GAA | Level Wind Sheave Bearing (See note 27) (0) |
| 1 | OE/ HDO | Level Wind Trolley Lock (o) |
| 1 | OE/ HDO | Clutch Lever Poppet (o) |
| C/MR | GO | End Frame Fill (o) |
| 1 | OE/ HDO | Drum Lock (o) |
| 1 | OE/ HDO | Tensioner Control Lever Lock (o) |
| 3/S | GO | End Frame Level (Check level) (0) |
| C/MR | GO | End Frame Drain (Drain and refill to level plug) (See note 6) (0) |
| S | OE/ HDO | Winch Cable (See note 13) (C) |

LUBRICANT • INTERVAL

Level Wind Trolley Wheels
(See note 27) (0)

GAA

3/S

Gear Case Fill
(See note 6) (0)

GO

C/MR

Tensioner Sheave pins
(See note 27) (0)

GAA

3/S

vertical Cable Rollers
(See note 27) (0)

GAA

3/S

Horizontal Cable Roller
(See note 27) (0)

GAA

3/S

Gear Case Level
(Check level) (LV-BY) (0)

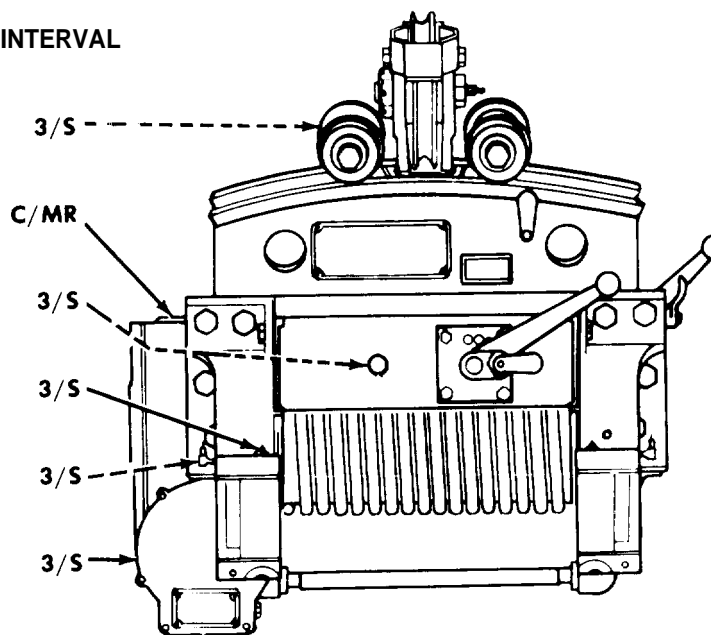
GO

3/S

Gear Case Drain
(Drain and refill to level plug)
(See note 6) (LV-BZ) (0)

GO

C/MR



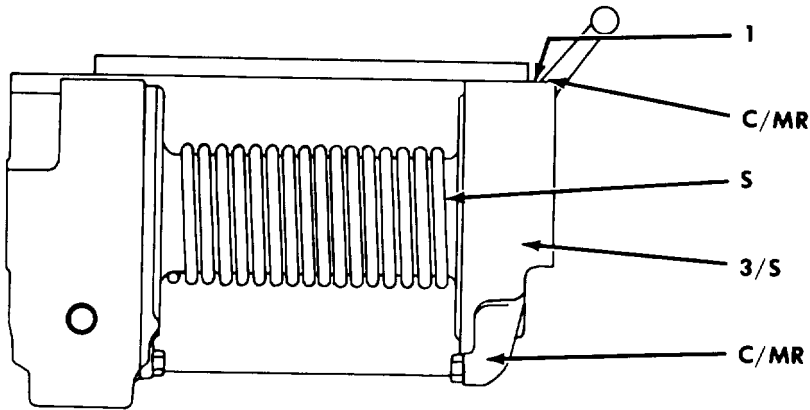
FRONT WINCH (FRONT VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 25595

INTERVAL • LUBRICANT



| | |
|------------|--|
| OE/ HDO | Clutch Lever Poppet (0) |
| GO | End Frame Fill (0) |
| OE/ | Winch Cable (See note 13) (C) |
| GO | End Frame Level (Check level) (0) |
| GO | End Frame Drain (Drain and refill to level plug (See note 6) (0) |

MIDSHIPS WINCH — M815
(REAR VIEW)

LUBRICANT • INTERVAL

Sear Case Fill
See note 6) (0)

GO

C/MR

Gear Case Level
Check level) (0)

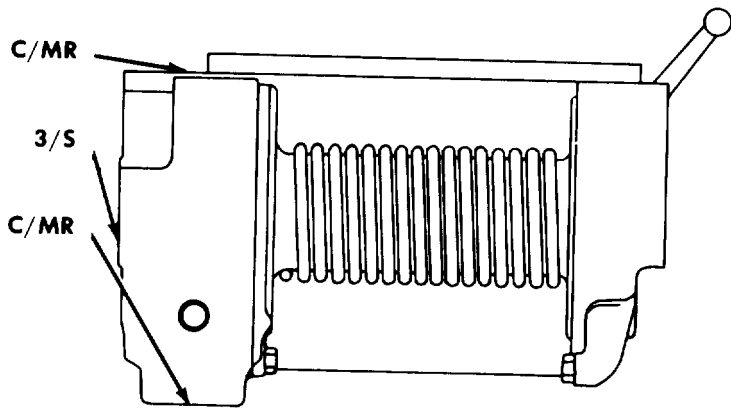
GO

3/S

Gear Case Drain
Drain and refill to level plug)
(See note 6) (0)

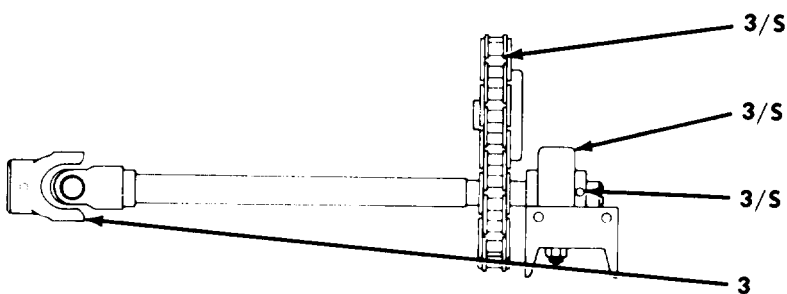
GO

C/MR



MIDSHIPS WINCH — M815
(REAR VIEW)

INTERVAL • LUBRICANT



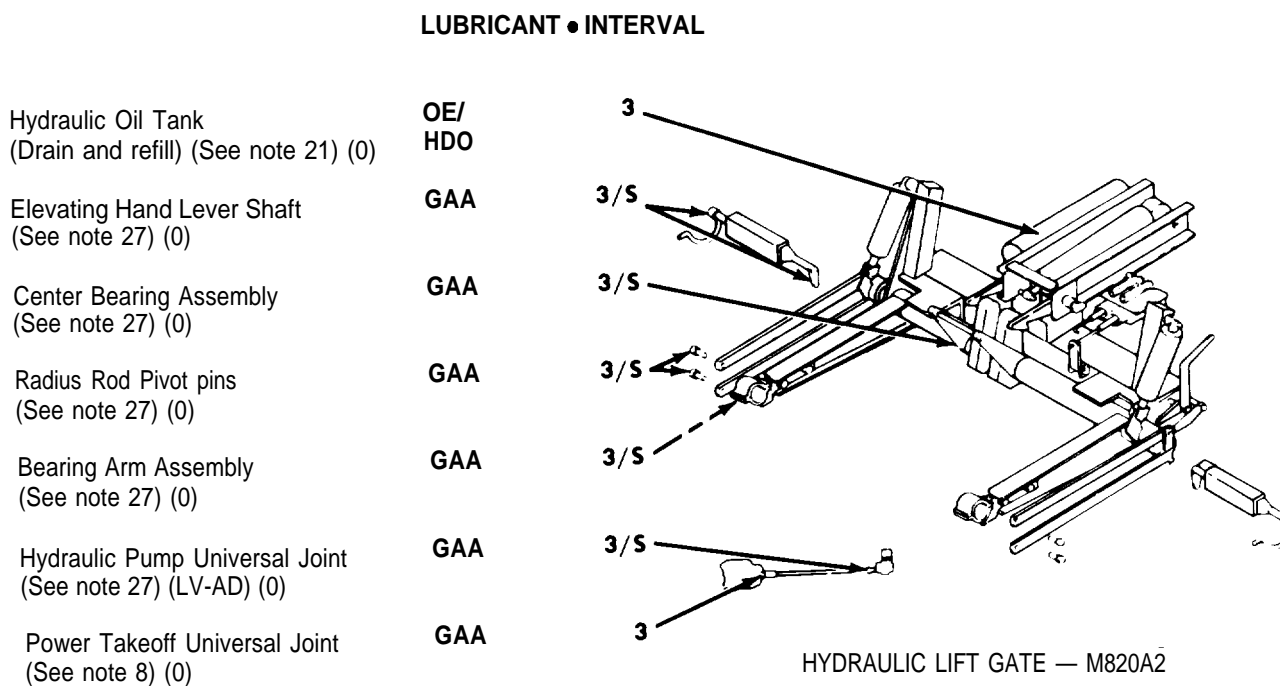
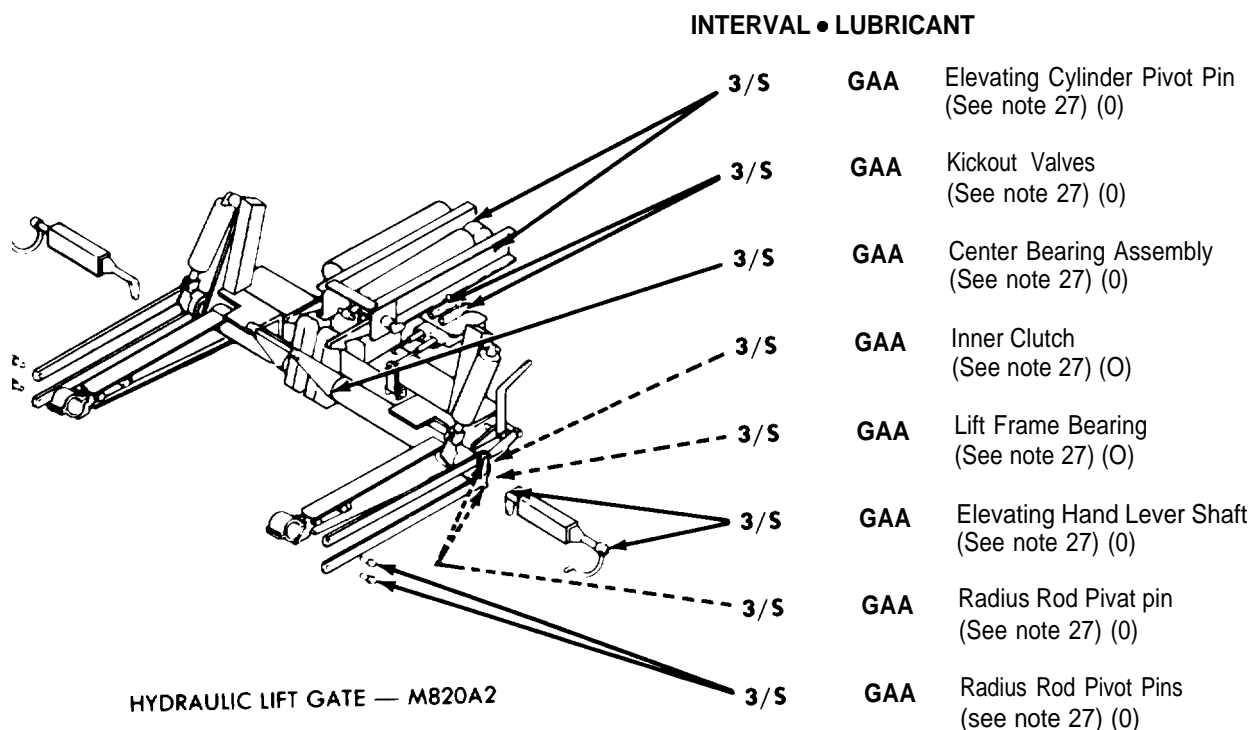
| | |
|-----|---|
| Cw | Drive Chain (Coat lightly) (See note 27) (0) |
| GAA | Pillow Block (See note 27) (0) |
| GAA | Pillow Block sleeve (See note 27) (0) |
| GAA | Universal Joint (See note 8) (LV-AD) (0) |

MIDSHIPS WINCH DRIVE — M815
(LEFT SIDE VIEW)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 255957

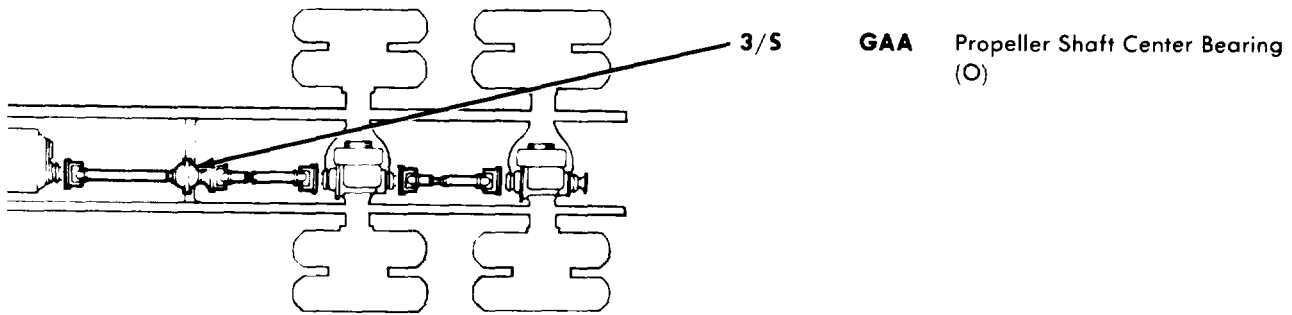


NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

TA 25595

INTERVAL • LUBRICANT



PROPELLER SHAFT CENTER BEARING —
M812A1 , M814, M819, M820, M820A1 , M820A2, M821
(TOP VIEW)

LUBRICANT • INTERVAL

Pivot Post Upper Bearing
(See note 27) (0)

GAA 3/S

Pivot Post lower Bearing
(See note 27) (0)

GAA 3/S

Ring Gear
(See note 24) (0)

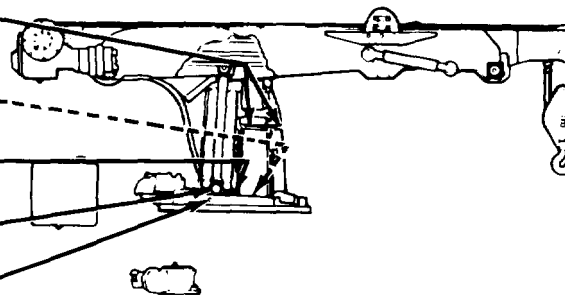
GAA 3/S

Idler Gear
(See note 27) (0)

GAA 3/S

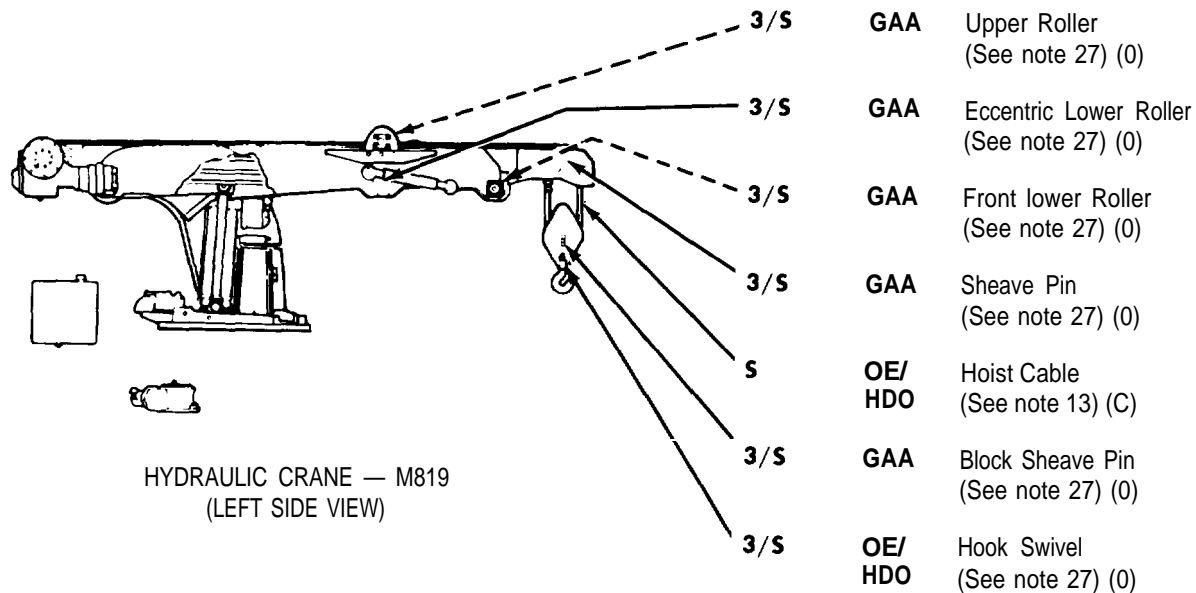
Drive Pinion
(See note 27) (0)

GAA 3/S



HYDRAULIC CRANE — M819
(LEFT SIDE VIEW)

INTERVAL • LUBRICANT



HYDRAULIC CRANE — M819
(LEFT SIDE VIEW)

3/S GAA Upper Roller
(See note 27) (0)

3/S GAA Eccentric Lower Roller
(See note 27) (0)

3/S GAA Front lower Roller
(See note 27) (0)

3/S GAA Sheave Pin
(See note 27) (0)

S OE/
HDO Hoist Cable
(See note 13) (C)

3/S GAA Block Sheave Pin
(See note 27) (0)

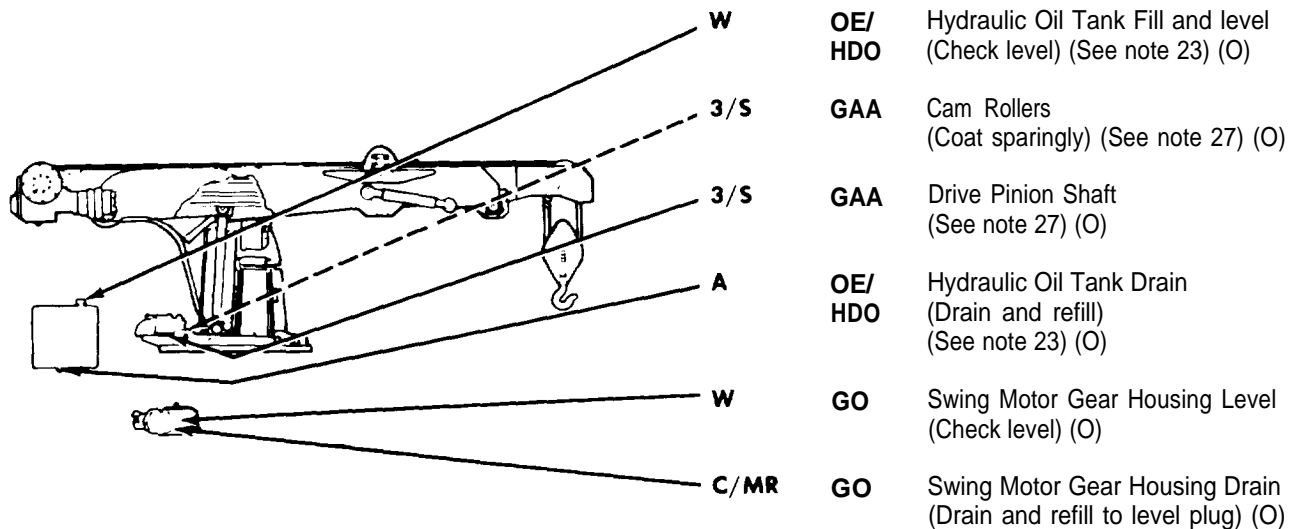
3/S OE/
HDO Hook Swivel
(See note 27) (0)

NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS
PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

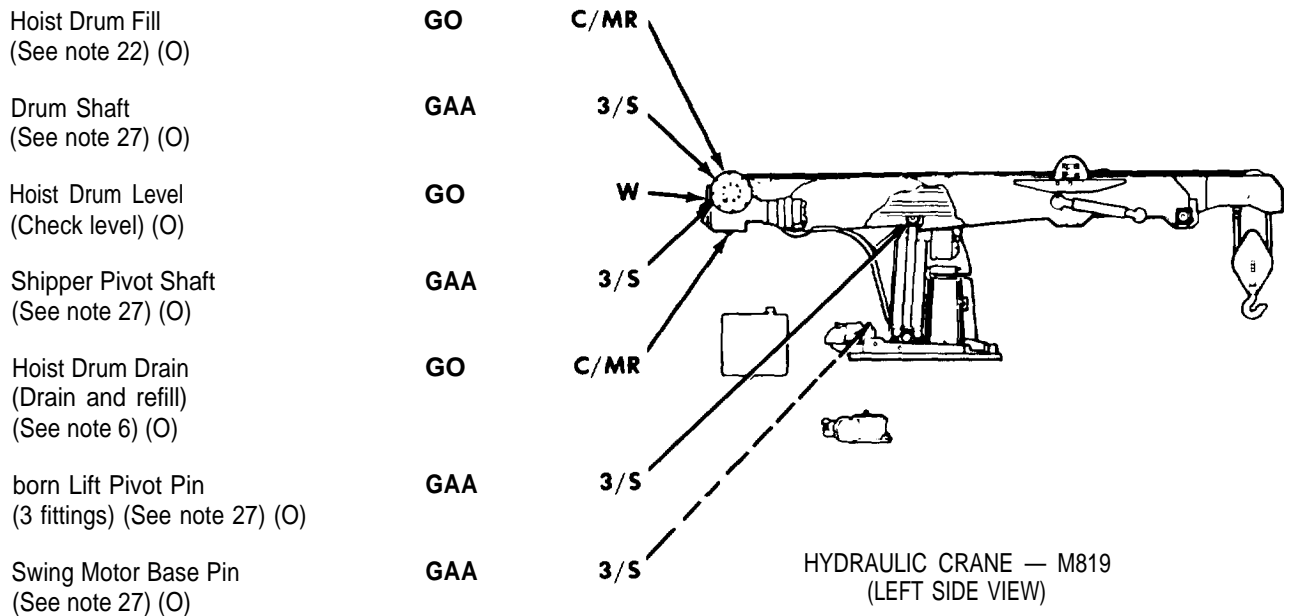
TA 2155959

INTERVAL • LUBRICANT



HYDRAULIC CRANE — M819
(LEFT SIDE VIEW)

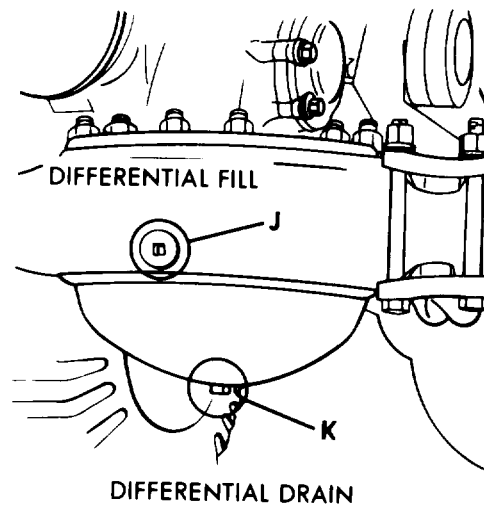
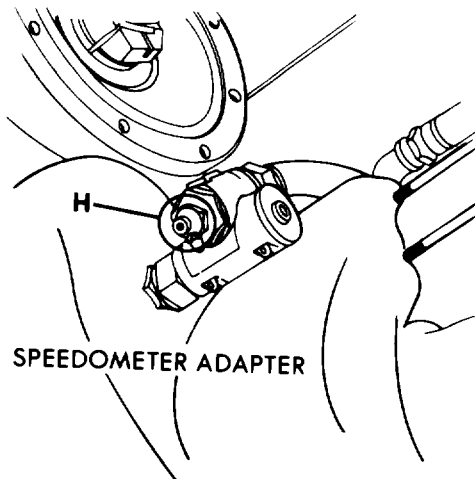
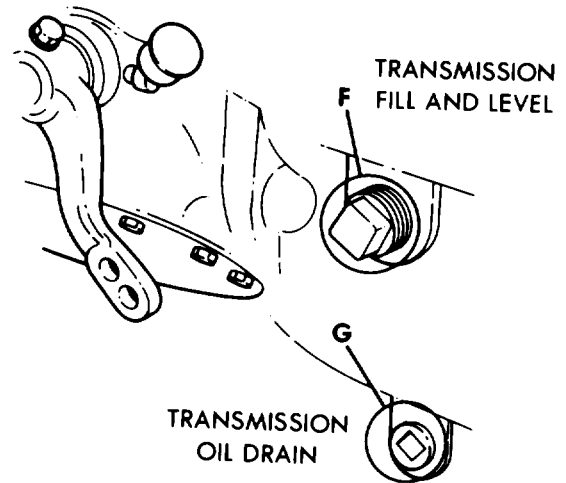
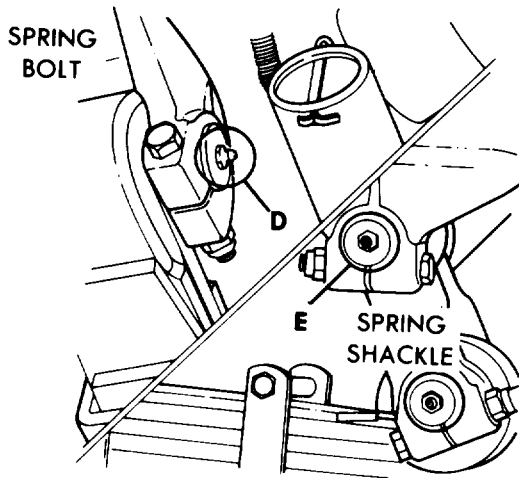
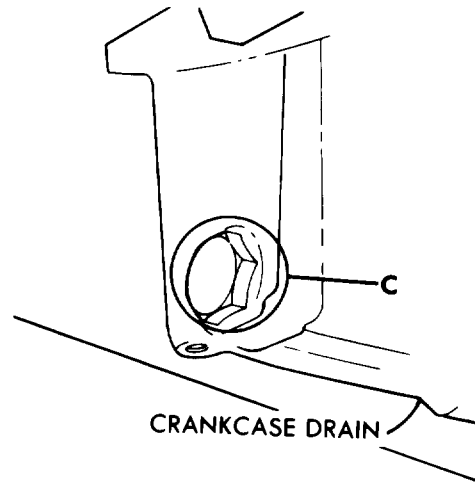
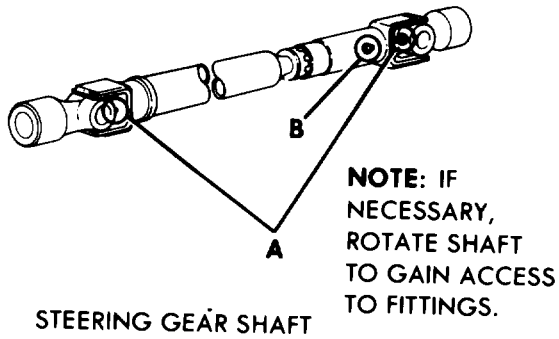
LUBRICANT • INTERVAL



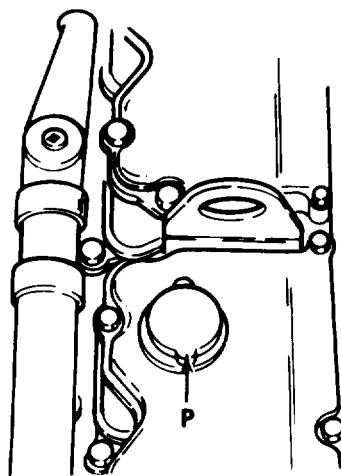
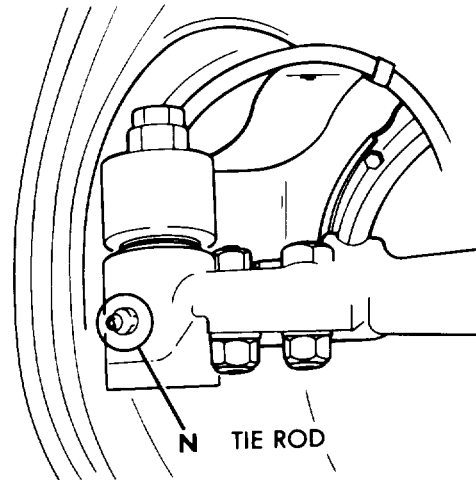
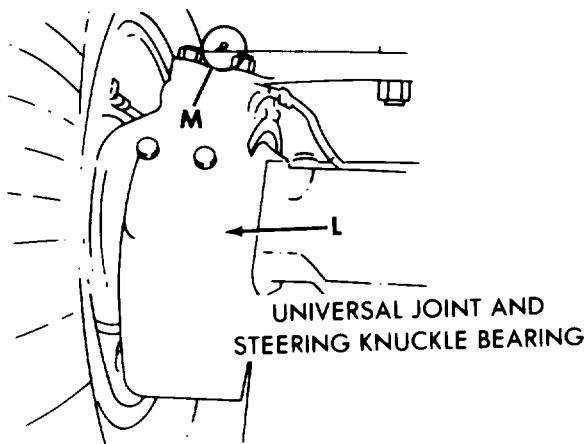
NOTE

A REFERENCE TO THE APPROPRIATE LOCALIZED VIEW (LV) IS PROVIDED AFTER LUBRICATION POINT ENTRY, IN MOST CASES.

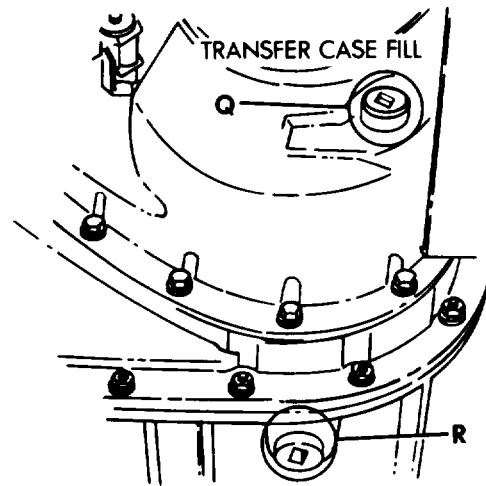
TA 255960



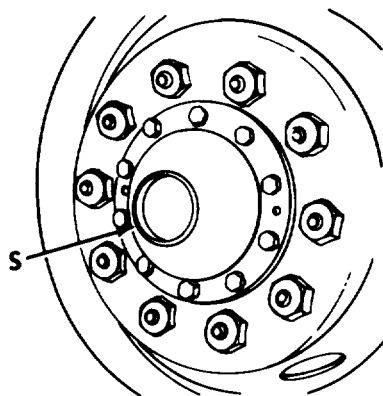
LOCALIZED LUBRICATION POINTS (A THROUGH K)



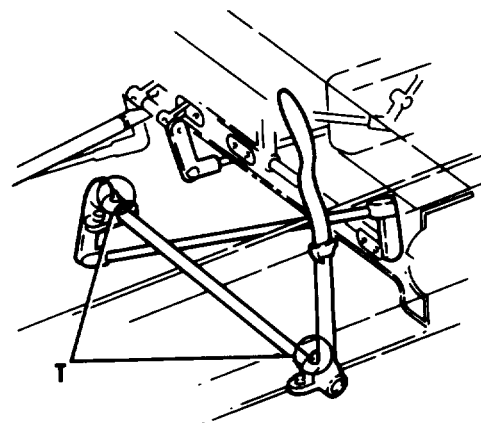
CRANKCASE FILL



TRANSFER CASE DRAIN



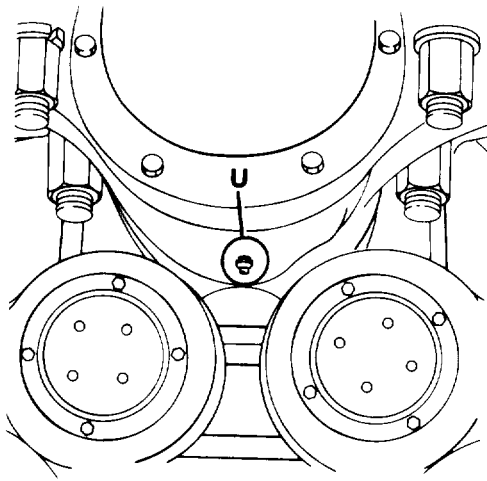
WHEEL BEARINGS



POWER DIVIDER/
DUMP LEVER CROSS SHAFT

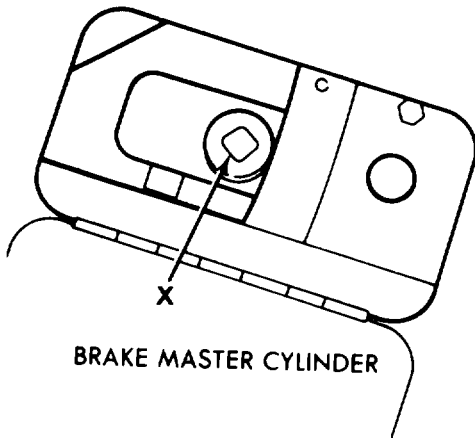
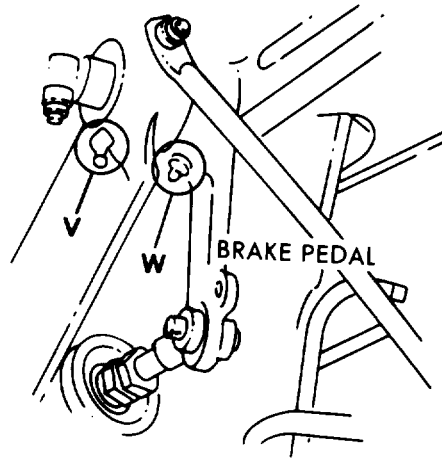
LOCALIZED LUBRICATION POINTS (L THROUGH T)

TA 25596

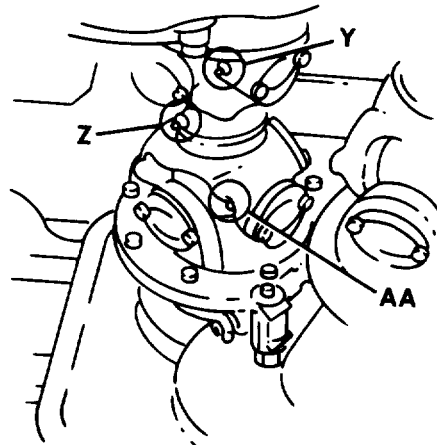


TRUNNION BEARING

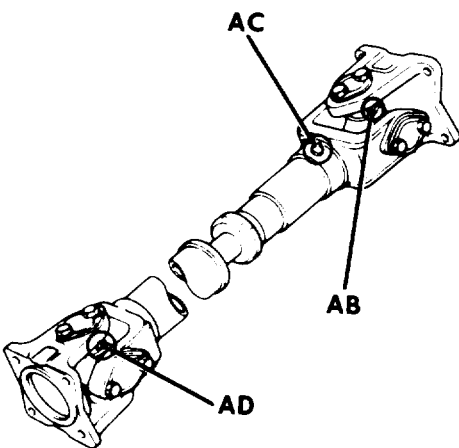
CLUTCH AND BRAKE
PEDAL SHAFT BRACKET



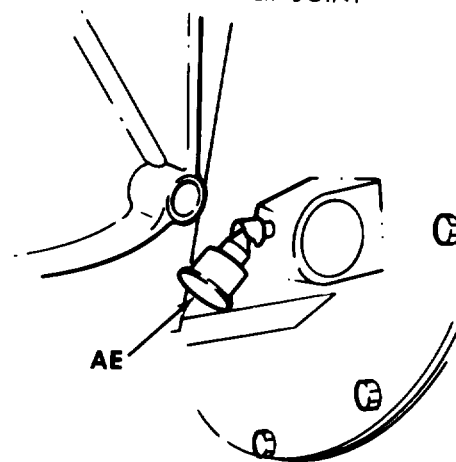
BRAKE MASTER CYLINDER



UNIVERSAL JOINT
AND SLIP JOINT



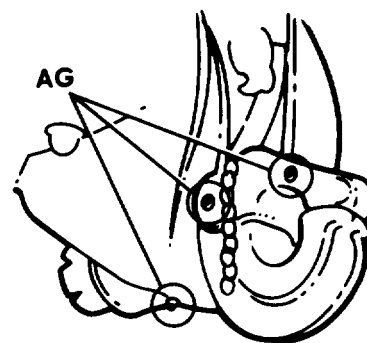
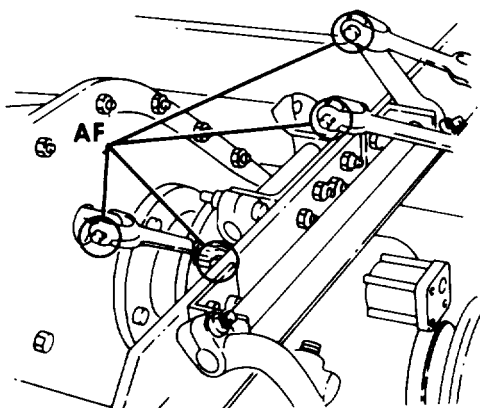
POWER TAKEOFF UNIVERSAL
AND SLIP JOINT



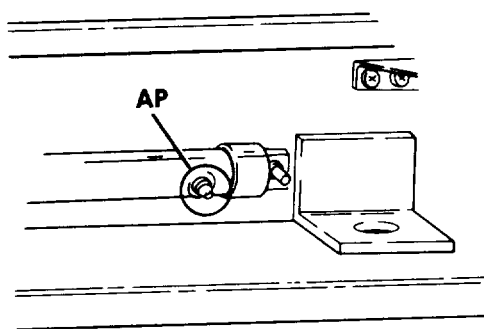
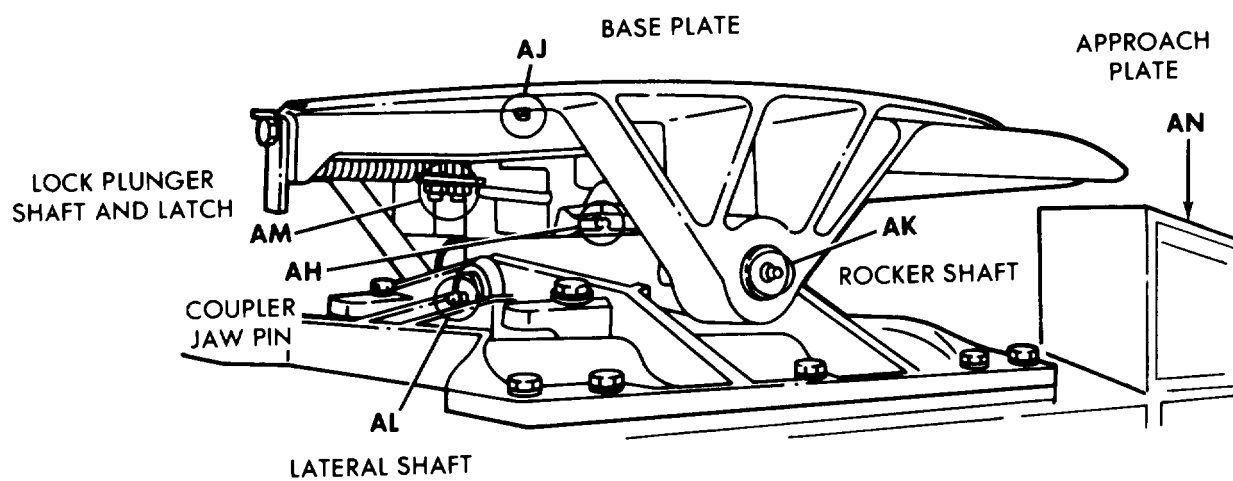
CLUTCH CROSS SHAFT

LOCALIZED LUBRICATION POINTS (U THROUGH AE)

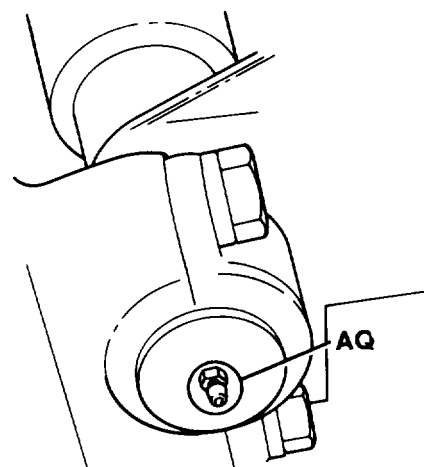
TRANSFER CASE SHIFT LINKAGE PINS



TOWING PINTLE

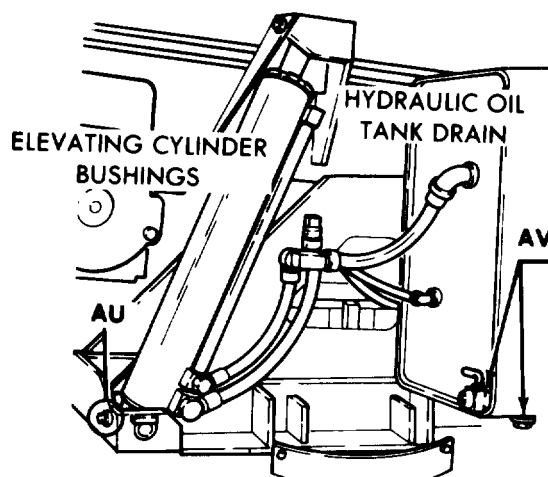
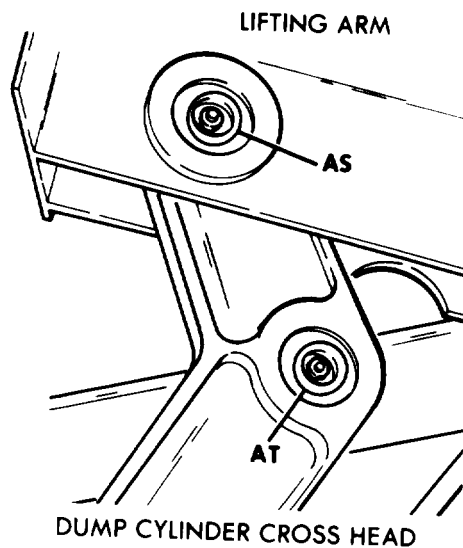
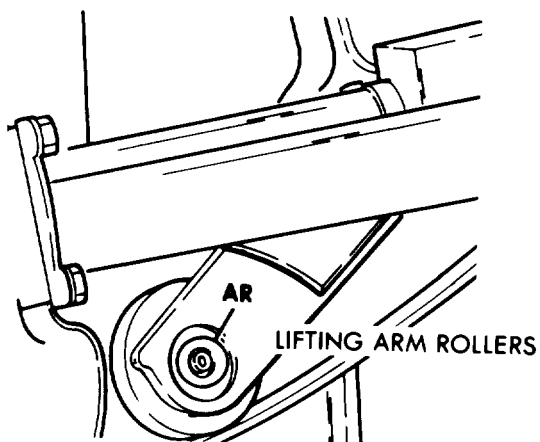


PAWL PLUNGER

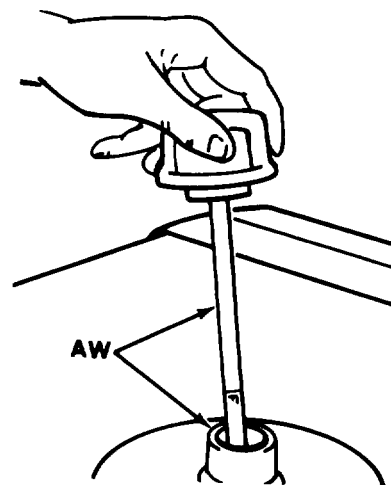


TRUNNION PIN

LOCALIZED LUBRICATION POINTS (AF THROUGH AQ)

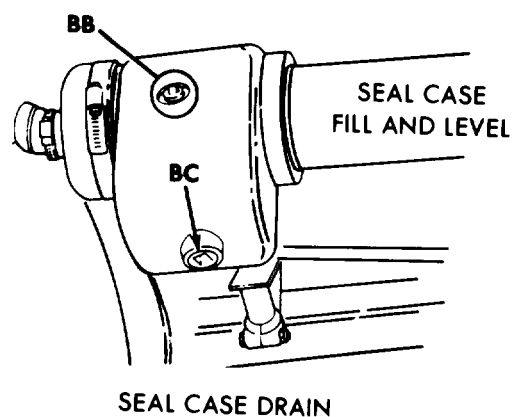
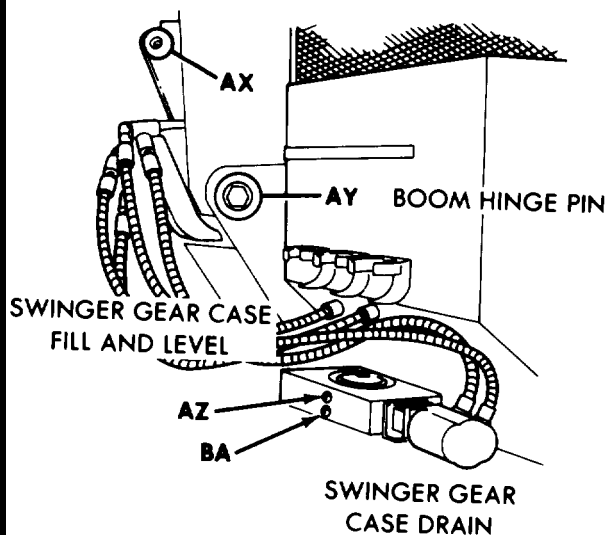


NOTE: TO DRAIN, REMOVE PIPE PLUG FROM DRAIN VALVE AND ATTACH HOSE (FURNISHED WITH VEHICLE) AND DRAIN OIL OVERSIDE INTO CONTAINER. REMOVE DRAIN PLUG IN BOTTOM OF TANK TO COMPLETELY DRAIN TANK. ALWAYS REPLACE PLUG IN DRAIN VALVE.



HOIST CABLE SHEAVE

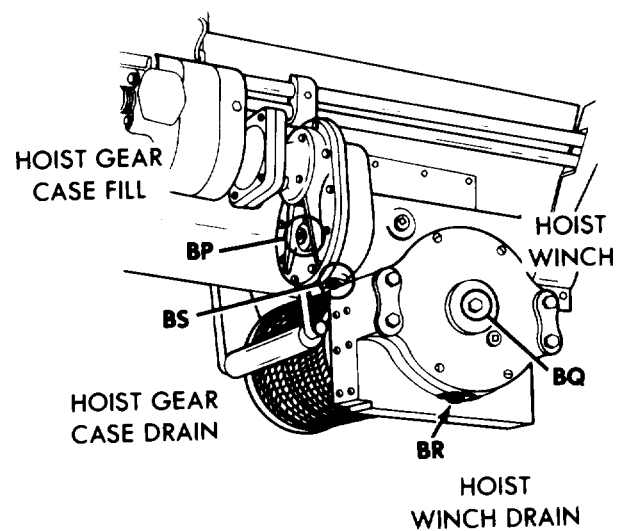
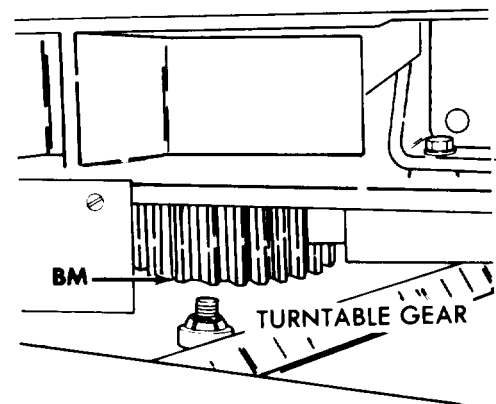
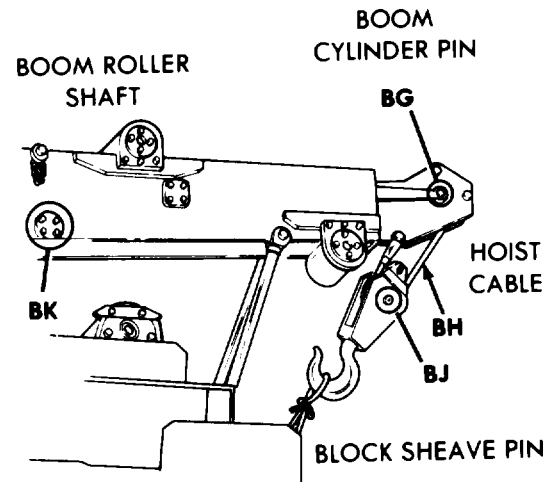
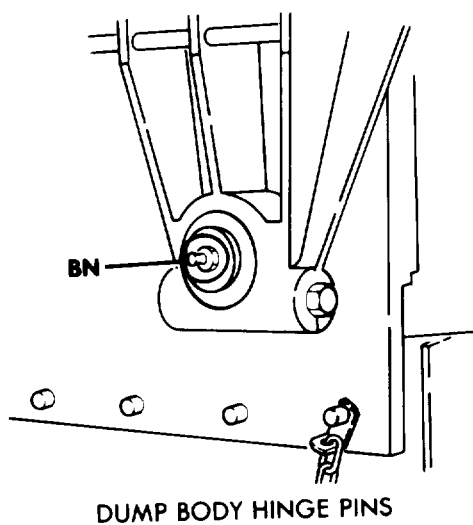
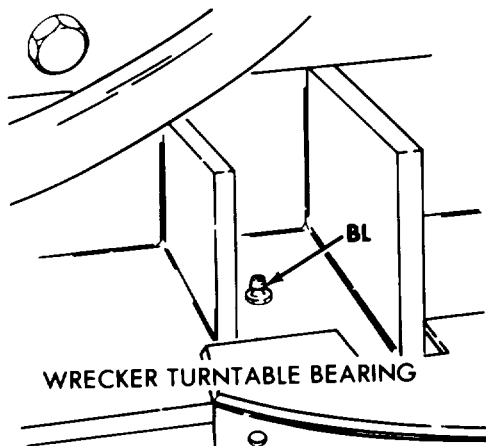
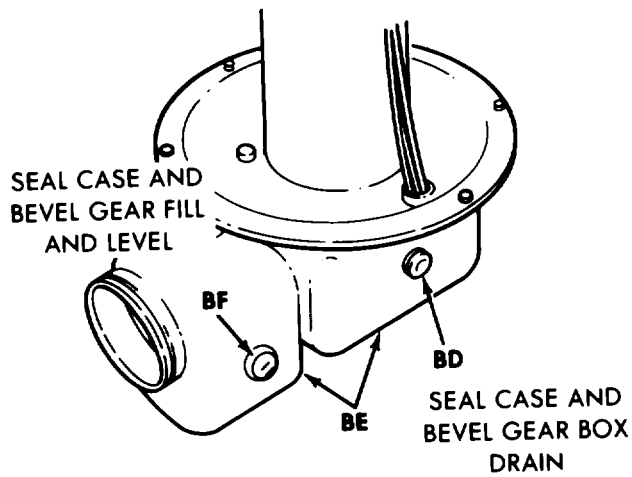
WRECKER HYDRAULIC OIL TANK



SWINGER GEAR CASE DRAIN

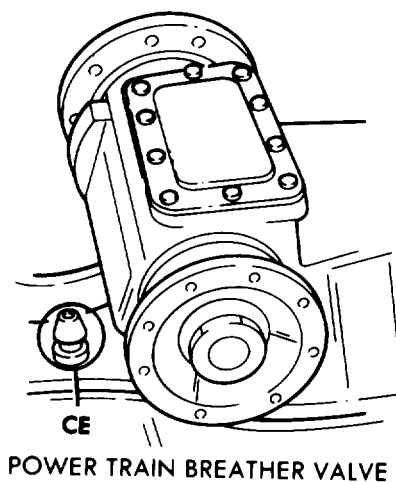
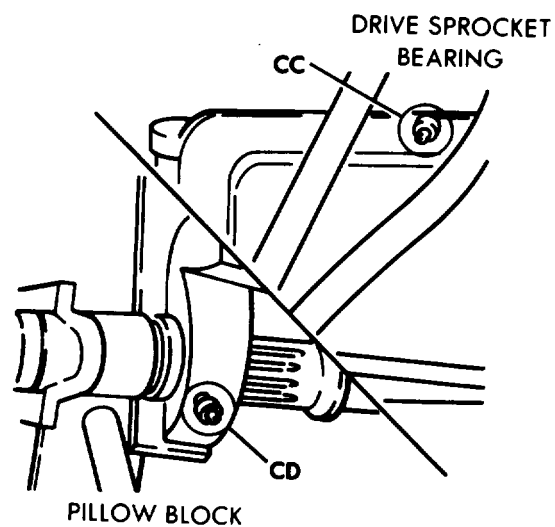
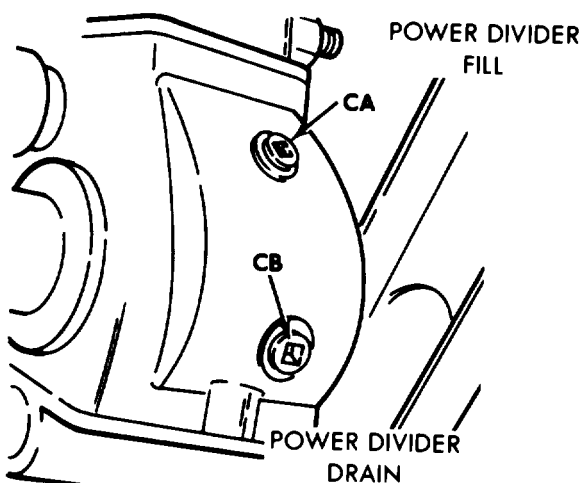
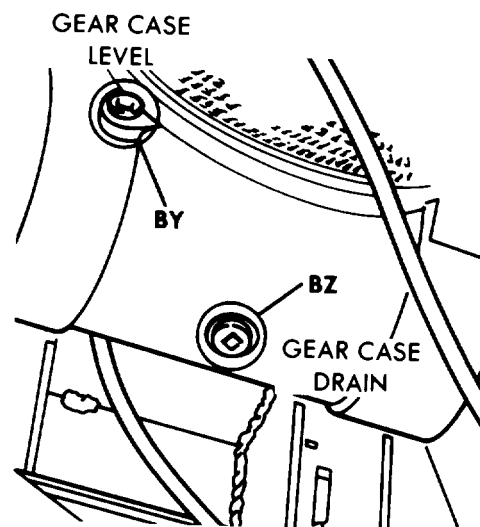
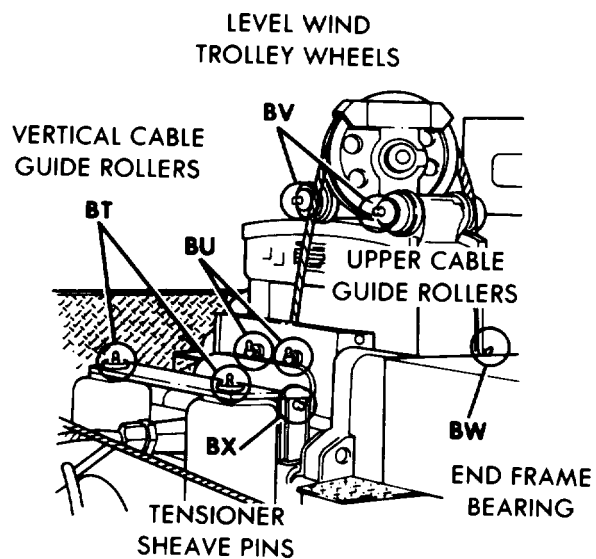
SEAL CASE DRAIN

LOCALIZED LUBRICATION POINTS (AR THROUGH BC)



LOCALIZED LUBRICATION POINTS (BD THROUGH BS)

TA 25596



LOCALIZED LUBRICATION POINTS (BT THROUGH CE)

NOTES

1. INTERVALS

This LO has been revised to comply with DA programing to extend intervals and conserve lubricants. When practicable, lubrication services will be made to coincide with the vehicle "S" Preventive Maintenance Service. For this purpose a 10% tolerance (variation) in specified lubrication point mileage is permissible. Those vehicles not accumulating 1,030 miles (1,600 kilometers) in a 6 month period will be lubricated at time of Preventive Maintenance Service.

2. CRANKCASE

CAUTION

- Withdraw dipstick slowly to ensure accurate reading. There are two marks on the dipstick, "H" and "L". The quantity of oil required to raise the oil level from "L" mark to "H" mark is approximately 7 quarts (6.6 liters). Daily, check and adjust oil level as required prior to engine operation.
- If water or metal particles are detected during crankcase draining and filter element changing, notify Direct Support Maintenance Personnel before refilling crankcase.

NOTE

Ž Fill crankcase with 27 quarts (25.5 liters) of engine oil. Crankcase capacity is 23 quarts (21.8 liters) and oil filter capacity is 4 quarts (3.8 liters). Start engine and visually check for oil leaks at drain plug and oil filter case. Stop engine and allow approximately one minute for oil to drain back into oil pan; recheck oil level with dipstick. The dipstick is equipped with a seal which fits into the opening of the dipstick tube. The seal is seated within the tube and must be turned counterclockwise to be released before dipstick is withdrawn. Turn clockwise to seat after oil level has been checked and dipstick installed.

- Do not hold oil samples. Submit oil samples as soon as they have been taken.

Sample oil every 60 days or 1,000 miles (1,600 kilometers). Army Reserve Units will sample every 120 days or 1,000 miles (1,600 kilometers). Oil will be changed only when directed by oil analysis laboratory.

Bring engine up to operating temperature and remove drain plug from oil pan. Inspect for presence of metal particles and water while draining oil into a drainage container. Allow sufficient draining time so that all oil has time to drain. Install drain plug and tighten to 60-70 lb-ft (81-95 N•m).

NOTE

- Seasonal oil changes will be made due to expected temperatures. See the Chart on page 2.
- If oil analysis laboratory is not available, use the hard time interval of 6,000 miles, 6 months or 600 engine hours, whichever occurs first. Replace the oil filter element each time oil is drained.

TA 255968

NOTES (Cont'd)

3. ENGINE OIL FILTER

Oil filter will be changed only when directed by oil analysis laboratory. Remove filter drain plug, drain oil and remove filter case assembly (with element) from filter head. Remove filter element from filter case and inspect for presence of metal particles or water. Discard element after inspection has been completed. Remove seal ring from filter head and discard. Clean filter case thoroughly. Check to ensure element end seals are in place and install new element over spring support assembly. Position new seal ring on filter head with drain plug pointing down. Tighten center capscrew 25-35 lb-ft (34-47 N•m). (Follow procedure outlined in NOTE 2).

4. ENGINE FUEL FILTER

Replace every 3,000 miles (4,800 kilometers) or 3 months, whichever occurs first.

5. CRANKCASE BREATHER

Check and clean crankcase breather and lines every 6,000 miles (9,600 kilometers) under normal operating conditions.

6. GEAR CASE

Change gear lubricant only when required by maintenance repair action, or if contaminated by water or other foreign material. Drain only after operation when hot. Place vehicle in level position. Remove drain and filler plugs from case, and after draining reinstall drain plugs. Fill axle differentials, transfer, transmission, and power divider (M816 wrecker), within 1/2 inch (12.7 millimeters) of filler plug opening, when lubricant is cold, or to plug level when hot. Fill other gear cases to plug openings at all times, and install filler plugs. Clean vents after operation in mud or water.

7. FRONT AXLE UNIVERSAL JOINTS AND STEERING KNUCKLE BEARINGS

Every 12,000 miles (19,000 kilometers) or 12 months, remove plug from universal joint housing, fill to level of plug opening, reinstall plug. Do not disassemble C.V. joints.

8. PROPELLER SHAFT UNIVERSAL AND SLIP JOINTS

Every 3,000 miles (4,800 kilometers) or 3 months, whichever occurs first, on universals equipped with plugs, remove filler plugs and install pressure fittings; lubricate using low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,600 kilometers).

9. STEERING HYDRAULIC SYSTEM

Fill until oil is visible in sight glass window of reservoir while engine is stopped. The steering gear receives lubrication from the power steering pump.

10. BRAKE MASTER CYLINDER

CAUTION

Use only brake fluid silicone (MIL-B-46176).

Check level weekly. Fill to 1/2 inch (12.7 millimeters) from top of master cylinder. Use BFS (MIL-B-46176) for brake master cylinder.

TA 255969

NOTES (Cont'd)

11. REAR SPRINGS TRUNNION BEARINGS

Every 3,000 miles (4,800 kilometers) or 6 months, whichever occurs first, loosen screws on bearing cap, lubricate through fitting until lubricant appears around cap, and tighten capscrews. Every 6,000 miles (9,600 kilometers) or annually, whichever occurs first, remove, clean, dry, and repack trunnion bearings.

12. M816 HOIST WINCH

Change gear lubricant only when required by maintenance repair action, or if contaminated by water or other foreign material.

Weekly, with boom in horizontal position, remove level plug from winch worm gear case and winch input drive reduction gear case; if level is below level plug hole, replenish to bottom of hole.

13. WINCH AND CRANE HOIST CABLES

After each operation, clean and oil with new OE/HDO. Every 6 months if cable is not generally used, unwind entire cable; clean and soak; by means of a brush, with new OE/HDO. Wipe off excess and coat cable with CW. Also coat winch drum with CW before rewinding cable on drum.

14. M816 CRANE HYDRAULIC OIL TANK

With boom in horizontal position, remove oil filler cap and gage from top of tank. If level is below full mark on gage, replenish to full mark. Every 12 months, remove pipe plug from drain valve, attach hose (furnished with vehicle), and drain oil into a container. Remove plug in bottom of tank to completely drain. Always install plug in drain valve after draining. Refill tank to full mark on oil level gage, approximately 60 gallons (227 liters). Operate crane several times to completely fill system, and check level.

15. DUMP BODY HYDRAULIC RESERVOIR

WARNING

Rest weight of dump body on safety braces when performing maintenance on hoist mechanism with dump body in raised position.

CAUTION

Remove filler plug slowly to release pressure. Do not overfill.

Weekly, remove filler plug, gage, and screen; clean and install screen. Replenish with oil to third mark from top on gage with body down in lowered position. Install gage and plug. Raise and lower body several times slowly and recheck oil level. Drain every 12 months. Remove drain plug from reservoir and drain with dump body in lowered position. Clean and install drain plug. Refill reservoir with OE/HDO 10. Raise and lower body several times slowly and recheck oil level. Capacity of hydraulic system is 37 quarts (35 liters).

16. OIL CAN POINTS

Every 1,000 miles (1,600 kilometers) or monthly, lubricate hinges and latches, transfer and power takeoff shift linkage, clutch and brake pedal linkage, hand brake lever, rear winch control lever linkage, and dump truck tailgate bearings, with seasonal grade OE/HDO. **TA 255970**

NOTES (Cont'd)

17. DO NOT LUBRICATE

Springs, clutch release bearing, alternator, shock absorbers, or clutch pilot bearing.

18. LUBRICATED AT TIME OF DISASSEMBLY BY DS AND GS PERSONNEL

Clutch release bearing carrier, rear winch swivel sheave frame bearing, pedestal bearing, starter, water pump and fan hub pulley.

19. OPERATOR PARTICIPATION

"D" maintenance is performed by the operator. Operator may assist in lubrication intervals marked "W" or "S" if supervised by qualified personnel.

20. M816 CRANE HYDRAULIC SYSTEM FILTER

CAUTION

Do not operate crane when indicator is at "BY-PASSING" position.
Notify Organizational Maintenance.

To maintain adequate filtering, remove and clean filter element when indicator points to "Needs Cleaning" with pump running and oil at operating temperature.

21. LIFT GATE HYDRAULIC OIL TANK

Every 3 months check hydraulic oil level. Place lift gate in lowered position at ground level and remove filler plug. Oil supply is minimum at 2 inches (5.1 centimeters) and maximum at 3 inches (7.6 centimeters).

When necessary to add oil, operate lift gate several times up and down, open and close with filler plug removed. If there is excessive oil in the system the oil tank will overflow. Replace filler plug.

22. M819 HOIST DRUM

Weekly, check level, drain only when required by maintenance repair action, or if contaminated by water or other foreign material. Set boom in horizontal position and remove drain plug from case. Remove breather and level plug; fill drum to level of plug hole. Install plug. Clean and install breather.

23. M819 CRANE HYDRAULIC OIL TANK

Weekly, with boom in horizontal position, remove plug from top of tank. If level is below bottom mark on gage, replenish to tap mark. Every 12 months, remove plug from bottom of tank, and drain. To completely drain system, operate crane several times, disconnect hydraulic lines at lowest position, and let drain. Clean and install plug. Connect hydraulic lines. Refill tank with 33 gallons (125 liters) of oil and operate crane several times to completely fill system. Check level.

24. M819 RING GEAR

Remove pivot post drain plugs located on underside of crane base plate. Remove two pipe plugs on each side of pivot post gear shield and install lubricating fittings. Lubricate through fittings until lubricant appears at underside of pivot post drain holes. Install pivot post drain plugs, remove fittings, and install pipe plugs.

TA 255971

NOTES (Cont'd)

25. TEMPERATURE RISES

If ambient temperature rises to 70°F (21°C) for no more than one week, use of OE/HDO 10 is permissible. If ambient temperature rises to 40°F (+4°C) for no more than one week, use of OEA is permissible.

26. FOR OPERATION OF EQUIPMENT IN PROLONGED COLD TEMPERATURE BELOW - 10°F (-23°C)

Remove lubricants prescribed in the key for temperatures above -10°F (-23°C). Clean parts with drycleaning solvent. Relubricate with lubricants specified in the key for temperatures below -10°F (-23°C).

27. WINCHES, CRANES, WRECKERS, DUMP BODY, AND LIFTGATE

Service every 3,000 miles (4,800 kilometers) or semiannually, whichever occurs first. If operation is frequent, or under severe conditions, service weekly.

28. POWER DIVIDER

Service every 12,000 miles (19,000 kilometers) or annually, whichever occurs first.

Copy of this lubrication order will remain with the vehicle at all times. Instructions contained herein are mandatory and supersede all conflicting lubrication instructions dated prior to the date of this lubrication order.

BY ORDER OF THE SECRETARY OF THE ARMY:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

OFFICIAL:

R.M. Joyce
Major General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with DA Form 12-38, LO requirements for Truck, Chassis: 5 Ton, 6X6, M809 A1, M810, M811, A1 & A2; M812 & A1; Cargo: M813; M814; M815; Wrecker: Medium, M816; Dump; M817, Tractor; M818, TractorWrecker; M819, Van; Expansive: M820 A1 & A2, Stake; Bridge Transporting M821.

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CAREFULLY TEAR IT OUT, FOLD IT
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PREVIOUS EDITIONS
ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR
RECOMMENDATION MAKE A CARBON COPY OF THIS
AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

| To change | To | Multiply by | To change | To | Multiply by |
|---------------|--------------------|-------------|--------------------|---------------|-------------|
| inches | centimeters | 2.540 | ounce-inches | newton-meters | .007062 |
| feet | meters | .305 | centimeters | inches | .394 |
| yards | meters | .914 | meters | feet | 3.280 |
| miles | kilometers | 1.609 | meters | yards | 1.094 |
| square inches | square centimeters | 6.451 | kilometers | miles | .621 |
| square feet | square meters | .093 | square centimeters | square inches | .155 |
| square yards | square meters | .836 | square meters | square feet | 10.764 |
| square miles | square kilometers | 2.590 | square meters | square yards | 1.196 |
| acres | square hectometers | .405 | square kilometers | square miles | .386 |
| cubic feet | cubic meters | .028 | square hectometers | acres | 2.471 |
| cubic yards | cubic meters | .765 | cubic meters | cubic feet | 35.315 |
| fluid ounces | milliliters | 29.573 | cubic meters | cubic yards | 1.308 |
| pints | liters | .473 | milliliters | fluid ounces | .034 |
| quarts | liters | .946 | liters | pints | 2.113 |
| gallons | liters | 3.785 | liters | quarts | 1.057 |
| ounces | grams | 28.349 | liters | gallons | .264 |
| pounds | kilograms | .454 | grams | ounces | .035 |
| short tons | metric tons | .907 | kilograms | pounds | 2.205 |
| pound-feet | newton-meters | 1.356 | metric tons | short tons | 1.102 |
| pound-inches | newton-meters | .11296 | | | |

Temperature (Exact)

| | | | | |
|----|------------------------|----------------------------|---------------------|----|
| °F | Fahrenheit temperature | 5/9 (after subtracting 32) | Celsius temperature | °C |
|----|------------------------|----------------------------|---------------------|----|

