CARE AND MAINTENANCE OF APPARATUS

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1. **INTRODUCTION**

1.1 The following are procedures for care and maintenance common to all apparatus. Maintenance information for specific apparatus can be obtained from Fleet Services Division.

1.2 Company officers and chauffeurs should familiarize themselves with this bulletin to ensure safe and efficient operation of apparatus.

1.3 The Preventive Maintenance Program (PMP) does not relieve company officers and chauffeurs from the responsibility of apparatus maintenance or inspection.

1.4 Company commanders should be aware that some apparatus have special maintenance requirements in addition to those outlined in this bulletin. Commanders shall consult with Fleet Services Division and be guided by their instructions.

2. **RESPONSIBILITY OF DEPARTMENT PERSONNEL**

2.1 Chauffeurs are responsible for the condition and operation of apparatus under their control, and must be alert for any repairs or supplies needed. When these become necessary, they should immediately notify the officer-on-duty.

2.2 Spare apparatus and equipment must be given the same care and attention as regularly assigned apparatus and equipment.

2.3 Routine maintenance schedules are the responsibility of the company commander.

2.4 On apparatus equipped with auto eject plug receptacles which supply battery/air maintenance systems, it shall be utilized while the apparatus is parked in quarters.

2.5 On apparatus equipped with auto eject plug receptacles which supply engine block heaters, it shall be utilized while the apparatus is parked outside of quarters during cold weather.

3. **CARE AND MAINTENANCE**

Instructions listed here are to be followed when performing maintenance to company apparatus. Guide to Company Apparatus Care and Maintenance (RT-14) shall be used as a guide and shall be posted at the housewatch area.

3.1 Beginning **each tour**, immediately after the 0900 and 1800 roll calls:

3.1.1 **Fill Fuel Tank:**

After extended periods of operation, or when necessary, check and fill fuel during tour.
3.1.2 **Seat belts:**
- Check for fraying.
- Check mounting brackets.
- Check locking mechanism.

3.1.3 **Response warning devices:**
Sirens, air horns and lights.
- Check for operability.
- Ensure they are mounted securely.
- Check for obstructions in and/or over the air horn, and siren speaker.
- Clean warning light lenses.

3.1.4 **Lights (non-response):**
- Check for operability.
- Ensure they are mounted securely.
- Lenses cleaned.
- Replace headlight bulbs when necessary.

**Note:** For all other bulbs requiring replacement, notify the Fleet Services Division.

3.1.5 **Purge air tanks:**
- Operate motor at moderate speed until maximum pressure is attained.
- Shut motor. Operate the drain cable for each air tank to discharge water. Release the cable when dry air is discharged. This is particularly important during sub-freezing weather.

3.2 **DAILY MAINTENANCE**

3.2.1 **Apparatus Cleaning:**
- Wipe down all hard surfaces of apparatus cabs and compartments to remove fireground contaminants.

3.2.2 **Door handles, latches, hinges and all hand holds and rails:**
- Examine for defects, weakness or need for replacement.

3.2.3 **Windshield wipers, mirrors and glass:**
- Examine for defects, weakness or need for replacement.

3.2.4 **Battery maintenance:**
- Check battery casing for cracks or leaks.
- Check for corrosion at each cable and clean as needed.
- Check for loose connections at each cable.
- Check condition of battery hold down mechanism.

3.2.5 **Battery charge (voltmeter):**
- With the engine running at 700 to 800 rpm for 2 minutes, the voltmeter will show a reading of 13.5 to 14.2 volts, indicating that the battery is charging. A reading of 14.8 volts or higher would indicate that the system is over-charging and Fleet Services Division should be notified.
- With the engine off, a reading of 12 volts or higher indicates the battery has a sufficient charge.
3.2.6 **Air loss in brake system:**
- Maximum 1 lb. per 10 minutes.
- Maximum 10 lbs. per application.

**Note:** If a loss occurs over the amounts stated, above notify the Fleet Services Division.

3.2.7 **Engine oil level:**
- Do not check the oil level with the engine running. Check it cold or after the engine has been shutdown for at least 15 minutes. When checking the oil level, the dipstick must be withdrawn and wiped clean, then inserted all the way and once again withdrawn for a true reading. Be sure the oil level is between the "Add" and "Full" marks on the dipstick. Add oil as necessary.

**Note:** Be guided by the Fluid Placard Chart on the inside of the chauffeur's door to ensure that the correct oil is being put into the engine of the apparatus.

3.2.8 **Oil pressure:**
- Greater than 5 psi when at operating temperature and at idle.
- 30 to 70 psi when operating between 1500 to 2100 rpm.

3.2.9 **Tires:**
- Check for uneven wear, cuts and bruises. When the tread wear reaches 3/16 inch in depth, request replacement.
- On open rim wheels, check for indications of the rim having rotated in relation to the spokes. (Spares prior to 1997 and Foam Units)
- Pay particular attention to tires on dual wheels. Defects, partial loss of air pressure and flats are not easily detectable.
- Inspection of the Wheel-Checks shall be performed.

Wheel-Checks are a loose wheel nut indicator that can identify a loose wheel nut with a simple visual inspection. When the wheel nuts are properly torqued to specifications, the Wheel-Checks are placed on the wheel nuts in a uniform pattern. (See photos below)

- Once a wheel nut has loosened, the Wheel-Check will become out of sequence. If the Wheel-Check is out of sequence, the chauffeur shall notify the Officer on duty. The Officer on duty shall notify Fleet Services.
3.2.10 **Suspension:**
- Visual check for cracks and/or missing parts of leaf springs.

3.2.11 **Upholstery:**
- Keep clean and free from objects which may tear fabric.

**Note:** If tools are stored under chauffeur's seat, precautions or provisions must be made so that these tools do not come loose, or come in contact with electrical unit located under seat. In addition, units are not to store tools or equipment behind the rearward facing seat of the crew cab on the chauffeur's side. (On-board compressor and battery charger are installed at this location.)

3.2.12 **Radiator level:**
- Check the anti freeze level when the engine is cool. It should be about one inch below the radiator cap (when accessible) or to the full mark on the surge tank.
- Make sure the radiator cap is secure (when accessible).
- Check for indications of leaks on or near the radiator, engine block or hose connections.
- Examine all water hoses for deterioration, paying particular attention to the lower hose. Make sure all hose clamps are tight.
- Check the radiator for debris or obstructions which may prevent proper air circulation through the core.
- The fan belt should be checked for tightness. It must be free from oil and grease, with no cuts or visible wear.

**Note:** Normal operating temperature may be as high as 220º F as indicated on the engine temperature gauge.

3.2.13 **Engines:** (additional daily maintenance)
- With the engine shut down, operate all gates and valves. (including transfer valve)
- Strainers on suction inlets shall be checked for operating efficiency.
- Momentarily engage pump with engine running – check all pump indicator lights. Check gauges on the pump panel against corresponding gauges in the cab to verify their accuracy.

**Note:** The pump should only be engaged momentarily to ensure it is functioning. Running the pump dry will cause damage to the pump.

3.2.14 **Primer pump oil:** (Engines)
- Where applicable, check the level of oil in the primer pump tank on Engines. Be guided by the Fluid Placard Chart on the inside of the chauffeur's door to ensure that the correct oil is being put into the Primer Pump Tank.
- Ensure that the vent hole on the cap of the primer pump tank is clear of obstructions.

**Note:** All Engines model year 2000 and newer have oilless primers. Apparatus with an oilless system for the primer pump will not have a tank.
3.2.15 **Tower Ladders** (additional daily maintenance)

A. Pedestal and basket railings, basket gates and locks for looseness, wear or defective welds and/or cracks.

B. Welds at base of basket riser to Stang waterway, welds at pistons at base of boom and at basket level, welds at jacks, outriggers and at turntable. Cracking of paint over welds can indicate development of hairline crack at weld.

C. Condition of safety belts installed in basket.

D. Test of intercom operation, and electrical outlets and lights at basket.

E. Tower ladder baskets should remain relatively level. If during a short period of time (approximately 24 hours), the basket platform drifts downward excessively, notify Fleet Services.

F. Check that the leveling pistons are securely attached; lubricate the brass bushings with WD-40 if necessary.

G. A visual check of hydraulic lines to the main reservoir shall be made, noting any cuts, leaks or possible signs of failure.

H. Check boom cradle for defects, condition of padding and low limit switch operation.

I. At the end of each boom section, with the exception of the last sliding section, is a steel rod held in place by a spring clip or nut. Visual check of condition of clip or presence of clip shall be performed. (See Figure 1)

**Note:** Also check for the presence and tightness of the six skid plate bolts located at the end of each boom section on both sides of the boom. Tighten as necessary.

![Figure 1](clip_at_end_of_steel_shaft_on_both_sides_ofBoom_Holds_Boom_Extension_Stop_In_Place)

J. Check to see that no tools or equipment carried in bed will strike cable reel.

K. Perform a visual check of compression and tension bolts of the turntable for missing or sheared bolts. A hand check for tightness of those bolts that are accessible shall be made.

3.2.16 **Aerial Ladders** (additional daily maintenance)

A. Inspect ladder for damage (rails and rungs).

B. Check ladder slide wear blocks.

C. A visual check of hydraulic lines to the main reservoir shall be made, noting any cuts, leaks or possible signs of failure.
3.3 **WEEKLY MAINTENANCE**

3.3.1 **Tire maintenance:**
- Tire pressure – As indicated on the placard at each tire position.
- Check wheel lugs to verify if any are loose, missing or broken.

3.3.2 **Transmission fluid:**
- Check the level of transmission fluid with the engine warm and running. When checking the transmission fluid level, the dipstick must be withdrawn and wiped clean, then inserted all the way and once again withdrawn for a true reading. Be sure the fluid level is between the "Add" and "Full" marks on the dipstick. Add the proper fluid through the dipstick opening as necessary.

*Note:* Be guided by the Fluid Placard Chart on the inside of the chauffeur's door to ensure that the correct fluid is being put into the transmission of the apparatus.

3.3.3 **Power steering:**
- Check the fluid level and add the proper fluid as necessary.

*Note:* Be guided by the Fluid Placard Chart on the inside of the chauffeur's door to ensure that the correct fluid is being put into the power steering unit of the apparatus.

3.3.4 **Air cleaner:**
- Check the indicator if present. It should read green.

3.3.5 **Electric fuel pump primer:**
- Operate each week for 5 seconds with ignition “On” and apparatus not running. Listen for fuel primer motor while operating switch.

*Note:* Primer switch is a momentary type switch.

3.3.6 **Tower Ladder** (additional weekly maintenance)
- Tower Ladder Emergency System:
  - Test for a maximum of 30 seconds.
- Hydraulic system:
  - Check the fluid level; add the proper fluid as necessary.

3.3.7 **Aerial Ladder** (additional weekly maintenance)
- Aerial Emergency System:
  - Test for a maximum of 30 seconds.
- Hydraulic system:
  - Check the fluid level; add the proper fluid as necessary.

3.4 **MONTHLY MAINTENANCE**

3.4.1 **Tower Ladder Boom**
- Inspect, remove debris and lubricate as needed with a light grease i.e., Lubriplate.
3.4.2 **Aerial Ladder**

- Inspect, remove debris and lubricate as needed with a light grease i.e., Lubriplate.

**Note:** Apparatus without grease fittings for the ladder system utilize a greaseless system for the aerial ladder slides and will not have to be lubricated.
GUIDE TO COMPANY APPARATUS CARE AND MAINTENANCE RT-14

EACH TOUR
FILL FUEL TANK
SEAT BELTS
RESPONSE WARNING LIGHTS
LIGHTS (NON-RESPONSE)
Purge Air Tanks

WEEKLY
TIRES (PRESSURE & WHEEL LUGS)
TRANSMISSION FLUID
POWER STEERING FLUID
AIR CLEANER
ELECTRIC FUEL PUMP

TOWER LADDERS (additional weekly maint.)
EMERGENCY SYSTEM
HYDRAULIC FLUID LEVEL

DAILY
CABS AND COMPARTMENTS–WIPE DOWN
HARD SURFACES
DOOR HANDLES, LATCHES, HINGES,
HAND HOLDS, RAILS
WINDSHIELD WIPERS, MIRRORS, GLASS
BATTERY MAINTENANCE
BATTERY CHARGE (VOLTOMETER)
AIR LOSS IN BRAKE SYSTEM
ENGINE OIL LEVEL
ENGINE OIL PRESSURE
TIRES/WHEEL-CHECKS
SUSPENSION
UPHOLSTERY
RADIATOR LEVEL

AERIAL LADDERS (additional weekly maint.)
EMERGENCY SYSTEM
HYDRAULIC FLUID LEVEL

MONTHLY
TOWER LADDER BOOM
(INSPET AND LUBE AS NEEDED)

ENGINES (additional daily maint.)
ENGAGE PUMP
STRAINERS – SUCTION INLETS
PUMPER GATES AND VALVES
PRIMER PUMP OIL

AERIAL LADDER SLIDES
(INSPET AND LUBE AS NEEDED)

TOWER LADDERS (additional daily maint.)
BASKET RAILINGS, GATES AND LOCKS
WELDS
SAFETY BELTS
INTERCOM, ELECTRIC OUTLETS, LIGHTS
LEVELING PISTONS
HYDRAULIC LINES
BOOM CRADLE
SPRING CLIP ON STEEL SHAFT
EQUIPMENT BED
TURNTABLE COMPRESSION BOLTS

AERIAL LADDER (additional daily maint.)
INSPECT LADDER
WEAR BLOCKS
HYDRAULIC LINES