

# ALBANY COUNTY FIRE DISTRICT 1

## Equipment Maintenance

### Standard Operating Guidelines (SOG)

**Approved: 5/20/2015; Art Sigel, Joe Witt, George French**

SCOPE: To outline best maintenance practices for firefighting vehicles and pump-units and to detail parameters for replacement/upgrade of firefighting vehicles and pump-units.

#### **1. Operator Emphasis**

Equipment maintenance and crew safety is dependent upon regular operator inspection of equipment and the timely reporting of maintenance deficiencies for repair.

#### **2. Pre-deployment Maintenance Inspections.**

- a. Pre-deployment inspections must be performed after a unit returns to station, prior to the next deployment.
- b. Pre-deployment inspections should be performed by vehicle and equipment operators. Inspection documents should be maintained.
- c. Inspections should be based upon vehicle operator manuals and/or DOT pre-operation inspection checklists (the North American Uniform Drivers – Vehicle Inspection Report), depending upon the size of the vehicle.
- d. As a minimum, the following areas should be inspected.
  - i. Emergency lights, horn and sirens.
  - ii. Radios and communication equipment.
  - iii. Vehicle headlights, marker lights, brake lights, turn signals, back-up lights and audible back-up alarm.
  - iv. Windshields, wipers, mirrors
  - v. Seat belts
  - vi. Engine oil, transmission oil, power steering fluid, engine coolant, wiper fluid
  - vii. Parking brake and service brakes.
  - viii. Tires for serviceability.
  - ix. Chock blocks.
  - x. Proper operation of the pump unit.
  - xi. Fuel levels in vehicle and pump unit.
  - xii. Water tank for leaks and proper water level.

### **3. Periodic maintenance checks and safety inspections.**

- a. Vehicles under warranty should be inspected per factory recommended service intervals by calendar interval, mileage or hours of service. As a minimum, the entire vehicle should be inspected annually.
- b. Military type vehicles should follow periodic maintenance inspection guidelines outlined in relevant 10 (operator) and 20 (maintenance tech) series maintenance manuals.
- c. D.O.T. maintenance inspections requirements must be followed for vehicles over 26,000 GVW or GVCW.

### **4. Scheduled preventative maintenance services.**

- a. Vehicles under warranty should be serviced per factory recommended service intervals by calendar interval, mileage or hours of service.
  - i. Utilize synthetic engine oil where warranty allows.
    1. Consider the use of 5 – 40 engine oil instead of 15 – 40 engine oil in emergency vehicles operated with a marginal warm up period.
- b. After warranty has expired, service intervals for “unusual conditions of use” should be followed.
  - i. After warranty has expired, where practical, maintenance intervals should be extended thru the use of synthetic lubricants, oil analysis, coolant testing, automated in-vehicle coolant/automatic transmission oil cleansing and processing.
  - ii. Annual oil analysis should be used to determine change intervals for high usage engines. Bi-annual oil analysis should be used for low usage engines.
  - iii. Engines should utilize 5-40w synthetic oil for vehicles and large pump unit engines
  - iv. 10-30w synthetic oil should be used for small 4 cycle engines
  - v. Gear boxes (transmissions, transfer-cases, differentials) should utilize non-synthetic oil for normal or low mileage vehicles.
    - a. Bi-annual oil analysis should be utilized to determine change intervals.
  - vi. Utilize annual coolant analysis to determine coolant change intervals.
    1. High mileage/hours engines should be changed per factory recommendations or every three years or as analysis determines.
    2. Low mileage/hours engines should be changed every five years or as analysis determines.
    3. In-engine coolant filter and treatment flushes can be utilized.

- vii. More frequent air filter changes for vehicles/pump units operating for extended time in high smoke or high dust conditions.
- c. Military type vehicles should follow periodic maintenance service guidelines outlined in relevant 10 (operator) and 20 (maintenance tech) series maintenance manuals.
- d. D.O.T. maintenance service requirements must be followed for vehicles over 26,000 GVW or GVCW.

**5. Vehicle and pump-unit major repairs, unit upgrades or replacement.**

- a. Decisions about major repairs, upgrades and vehicle/equipment replacement should be based upon a dollar cost comparison of the repaired value of the vehicle/equipment as related to the cost of a replacement vehicle/equipment in serviceable condition.
- b. The cost comparison for military type vehicles should be determined by guidance from the Wyoming State Forestry Division Fire Equipment Maintenance Program.
- c. Decisions will be made on a case-by-case basis due to the unique nature of the vehicle/equipment. The following areas should be taken into consideration on the cost of the repair or upgrade.
  - i. Whether the majority of the vehicle/equipment is under warranty, regardless of the individual repair being covered by warranty. (Component warranty could be denied due to abuse, although other parts of the vehicle are still under warranty.)
  - ii. Low or high mileage/hours status of the vehicle/equipment.
  - iii. Age of the vehicle/equipment
  - iv. Availability and condition of replacement parts (Are only used parts available?)
  - v. Does replacement vehicle/equipment have similar functional capability?
  - vi. Availability of funding.
- d. The general guideline for a cost comparison decision should be that repairs or upgrades on existing vehicles/equipment should not usually exceed 50% of the cost of a newer used-vehicle/equipment of similar function and capability.

**6. Vehicle major repairs and component replacement when allowed by cost analysis.**

- a. Major repairs and component replacement.
  - i. Military Type chassis, body, powertrain
    - 1. Request repair by the Wyoming State Forestry Division Fire Equipment Maintenance Program.
    - 2. Repair may be performed locally by qualified or experienced technicians with repair parts supplied by the Wyoming State Forestry Division Fire Equipment Maintenance Program.

3. Repairs must follow procedures listed in appropriate 14- 20 – 34 series repair manuals.
- ii. Civilian chassis, body, powertrain
  1. Repaired by a dealership.
  2. Repaired by qualified or experienced technician with locally purchased OEM or OEM equivalent repair parts.
  3. Repairs must follow procedures listed in appropriate factory repair manuals.

**7. Pump unit major repairs and component replacement when allowed by cost analysis.**

- a. Repaired by factory or factory trained technician.
- b. Repaired by Specialized Fire Equipment dealership or dealer technician.
- c. Repaired by qualified Emergency Vehicle Technician.
- d. Repairs must follow procedures listed in appropriate factory repair manuals.
- e. Qualified or experienced local technicians may repair minor plumbing components.

**8. Personnel authorized to perform maintenance.**

- a. Military type equipment.
  - i. Technicians with a military maintenance MOS and experience with this type of vehicle
  - ii. Technicians trained by the Wyoming State Forestry Division Fire Equipment Maintenance Program for this type of vehicle.
  - iii. ASE certified Heavy Truck technicians with certification in the area of the type of repair.
  - iv. DOT experienced technician.
- b. Civilian chassis/body/powertrain
  - i. Factory trained dealership technician for this type of vehicle.
  - ii. Experienced dealership technician for this type of vehicle.
  - iii. ASE Certified Automotive/Heavy Truck technician with certification in the area of the type of repair.
  - iv. Vehicles over 26,000 GVW/GCVW require a DOT qualified technician/inspector. (FMCSA 396.19 Inspector Qualifications)
    1. Successfully completed a Federal/State sponsored training program or have a certificate from a State that qualifies the individual...
    2. Have a combination of training or experience totaling at least 1 year. Such training or experience may consist of:
      - a. Participation in a commercial motor vehicle manufacturer-sponsored training program or similar commercial training

- program designed to train students in commercial motor vehicle operation and maintenance;
  - b. Experience as a mechanic or inspector in a motor carrier equipment maintenance program;
  - c. Experience as a mechanic or inspector in a commercial motor vehicle maintenance at a commercial garage, fleet leasing company, or similar facility.
- c. Pump-unit
  - i. A qualified factory/dealership Emergency Vehicle Technician should repair major components.
  - ii. An otherwise qualified Emergency Vehicle Technician may repair major components.
  - iii. Qualified or experienced local technicians may repair minor plumbing components.

**9. Conditions when vehicles must not be put into service.**

- a. Vehicles over 26,000 lbs GVW/GCVW will not be put into service if any component is not serviceable per the DOT FMCSA Driver's Inspection Report, which would create an unsafe condition on public roadways, or on a fire scene.
- b. Vehicles in violation of applicable Pre-deployment Inspection items listed in "1.d." above, which would create an unsafe condition on public roadways, or on a fire scene.
- c. When a vehicle or pump-unit would create an unsafe condition on a fire scene which would put the safety of crew or firefighters in jeopardy.