

<b>East Lake Tarpon Special Fire Control District</b>		
	<i>SOP 914 Guide for Placing Vehicle Out of Service</i>	
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**PURPOSE:** To assist Personnel responsible for placing vehicles out of service for mechanical reasons. This standard categorizes in a red, yellow and green form of all items that require repair based on seriousness of situation. Refer to Out of Service Criteria.

**RED (IMMEDIATE)**

**YELLOW (AS SOON AS POSSIBLE BUT NOT IMMEDIATELY)**

**GREEN (CAN WAIT, OR IN-HOUSE REPAIR)**

### **OUT OF SERVICE CRITERIA**

The following list is to be referred to as a guide when deciding when to place the apparatus “out of service” or otherwise unable to be driven for safety reasons:

#### **DRIVING AND CREW AREAS, APPARATUS BODY AND COMPARTMENTATION**

1. **Body or Cab mountings that are defective** (Visible missing mounting bolts or attachments where the body or cab can or has moved from its original position.)

2. **Seat Belts that are defective** (Missing or otherwise non functional seat belts will render that seat unusable. Driver’s seat belt must be in good, operable condition at all times.)

3. **Broken or cracked cab glass** – particularly the windshield that can obstruct the operator’s view. (Any glass, which is damaged, can cause premature failure and injury to the occupants and should be considered unsafe.)
  
4. **Rearview mirrors which are missing, broken, or unable to hold a setting.** (Will create unsafe driving conditions and “blind spots”.)
  
5. **Windshield wipers that are missing or inoperable.** (This is to include grossly ineffective wiping acting due to worn or defective blades where the operators view can become compromised.)
  
6. **Steering wheel that has a deficiency.** (This is to include inoperable – (or unable to hold) adjustment settings and loose coverings which may compromise the operators control.)
  
7. **Steering wheel play in excess of 5”** This is to be checked with s\wheels straight and engine running. Free play is steering wheel movement that does not affect tire movement.)
  
8. **Critical engine/transmission gauges that have failed.** (This is to include: Oil pressure, Engine Temperature, Transmission Temperature.)
  
9. **Brake air pressure gauge(s) and/or warning devices that have failed.** (This is to include: gauges that are unreadable, grossly inaccurate, inoperable and warning lights and buzzers that fail to operate if the reserve air falls below 50 PSI.)
  
10. **Door latches that are defective.** (Any door, which has questionable security, should be considered unsafe. This includes both cab and body compartment doors.)
  
11. **Windshield Defrosters which are defective.** (This includes the front cab blower (must work) and operator selector (must be able to put selector to “defrost” and feel air coming from windshield vents.)

12. **Foot Throttle that is defective.** (Particularly a throttle that either doesn't work at all or one which allows the engine to rev independent of foot command [sticking].)

### **Chassis, Axles, Steering and Suspension Systems, Driveline, Wheels and Tires**

1. **Tires that have cuts to the cord.** Or otherwise damage exposing the cord.
  
2. **Tires that are excessively worn.** (Measured with a tread gauge; 4/32" tread remaining for front tires, 2 /32" tread remaining for rear tires – or – visual checking to wear bars for rears or twice the tread remaining for the front tires on two or more adjacent grooves.)
  
3. **Tires that are low or flat.** (Tires should be checked daily by “thumping” and the pressure should be checked with gauges whenever doubt exists that the pressure is adequate.) Example: dual tires should never touch each other. Contact road surface should be approximately square (width Vs length of contact at rest).
  
4. **Suspension components that are defective.** (Visibly “off tracking” of vehicle (crabbing) can be caused by broken springs parts. Shifting (popping, snapping) noises when cornering or articulating over bumps can be caused by loose or excessively worn parts.)
  
5. **Wheel fasteners that are either missing or broken.** (Lug nuts and studs)
  
6. **Wheels that are defective.** (Broken, cracked or deformed wheels can fail without warning.)
  
7. **Any significant oil or grease leakage from axles or inner wheel ends.** (Drippage that leaves oil on the floor or visible oil traces on the inside of the tire [oil slinging].)
  
8. **Steering components that are defective.** (Abnormal play, noises, tightness or looseness, binding or lack of steering control can be caused by worn or failed steering parts.)

9. **Any significant oil or grease leakage from the steering gear or pump.** (Drippage that leaves oil on the floor directly below the component.)

10. **Driveline components that are defective.** (Abnormal noises associated with vehicle movement can warn of wear or failure. Example: Abnormal “clunking” when shifting into gear, high frequency “throbbing” increasing with vehicle speed could indicate prop shaft failures.)

## **Engine Systems**

1. **Air Take (Filter) restricting warning sounding or showing maximum restriction.** (Extremely obstructed intakes, on diesels, can cause the engine to “run-away” uncontrollably by sucking the motor oil into the combustion chambers (catastrophic failure) rendering the engine unable to shut off or otherwise control.)

2. **Engine that won’t crank or otherwise start.**

3. **Any significant oil or grease drippage from the engine or attached parts.** (Drippage is defined by a 4” diameter spot below the component leaking, within 8 hours, is considered excessive.)

4. **Engine overheating.** (Normal driving operations should never cause the temperature gauge to exceed normal temperatures (180-195 degrees) however; pumping operations may cause the engine temperature to increase causing additional cooling needed by opening the auxiliary cooler. Overheating shall be defined as exceeding 240 degrees maximum in any situation.)

5. **Oil that contains coolant.** (Best-noted on oil sampling but can be monitored by the operator by checking the underside of the oil fill cap for “milking”.)

6. **Oil that is diluted with fuel.** (Best-noted on oil sampling but can be monitored by the operator by checking the dipstick. Motor oil should NEVER smell like diesel.)

7. **Fuel system that has signs of leakage.** (Defined by “haloing” [wet crusting around lines and fittings] or pooling on the component but not enough to leak to the floor.)
8. **Loose or shifted fuel tank or straps.**
9. **“Stop Engine” (amber “fluid”) light that fails to go out or comes on when driving.** (This indicates a critical failure of one of the components monitored by the engine systems computer and should be considered potentially catastrophic.)

### **Engine Cooling System**

1. **Coolant leak.** (Any leak that pools on the floor directly below the component leaking. This is not to be confused by overflow leakage following a refill (outage).)
2. **Coolant contains oil.** (Best noted during service intervals but can be easily monitored by the operator by checking for “slime” under the radiator cap. Appears like brown mud.)
3. **Noisy water pump with visible pulley wobble when the engine is idling.**
4. **Cooling Fan that is defective.** (Damaged or missing blade(s) or uneven rotation (looseness).)

### **Transmission and Clutch (when applicable)**

1. **Clutch (when equipped) that either slips excessively or has no free play.**
2. **Automatic transmission that either doesn’t shift or “flares” significantly between shifts.** (“Flaring” is the term used to describe the engine revving up between shifts.)
3. **Shift linkage that is defective.** (Shifter that cannot move into/out of gear. Safety lock-outs that are inoperable – should never be able to go into reverse without first pulling up T-handle.)

4. **Transmission that overheats.** (Transmission maximum temperature is 300 degrees with normal operating temperatures below 200 degrees.)
  
5. **Transmission warning lights or buzzers sounding.** (Transmission temperature warning light on the pump panel.)
  
6. **Any significant oil or grease drippage from the transmission.** (Drippage is defined by any oil or grease on the floor directly the component leaking leaving a 4-inch diameter spot within 8 hours.)

## **Electrical Systems**

1. **Running lights that are inoperative.** (One or more headlamps, brake light, tail lights inoperative or clusters or more marker lights inoperative (switch failure) and/or dash lights inoperative.)
  
2. **Ignition system that is defective.** (Stalling, backfiring or otherwise unreliable engine operation.)
  
3. **Charging system that is defective.** (Low battery warning when the engine is running (except when excessive lights are turned on with the engine at idle).)

## **BRAKING SYSTEMS**

### **Air Brake Systems**

1. **Service brakes that leak air excessively.** (Excessive air loss is defined by a drop in system pressure of more than 2 PSI in one minute with the engine turned off and the park braking released.)

2. **Service brakes that leak air excessively when applied.** (Excessive air loss is defined by a drop in system pressure (after initial brake application) of 3 PSI in one minute with the engine turned off, the park brake released, and the service brake applied.)
  
3. **Brakes that are out of adjustment.** (This is best checked on the periodic inspections and when servicing (1-3/4" max slack @ 90+PSI) but can be checked by the operator by setting the park brake on a slight roll and noting travel distance (brake action should be rapid, even and firm).)
  
4. **Audible air leaks.**
  
5. **Ineffective brakes** (to include abnormal brake fade).
  
6. **Air compressor fails to build air pressure.**
  
7. **Air pressure that fails to maintain 80 – 90 PSI** when brakes are applied and the engine is idling.
  
8. **Brake lining that is worn.** (This measurement is done by qualified technicians – 1/4" to rivets for drum brakes, 1/8" to rivets for disc brakes.)
  
9. **Brake parts that are defective.** (This includes but not limited to: cracked brake drums, loose or missing parts.)
  
10. **Rotors or Drums that are worn beyond their maximum specifications.** Apparatus drums or rotors cannot be machined and must be replaced when performing reline repairs.)
  
11. **ABS (anti-lock) warning light that doesn't go out or comes on when driving.** (The light indicates a failure in the ABS system. Even though the ABS failure will not affect the total application of the service brakes, the ABS failure can affect the total safety of the vehicle by allowing the wheels to lock on severe applications thereby affecting vehicle control.)

## Hydraulic Brake Systems

1. **Any leakage of the brake system (brake fluid).** (Defined by “Haloing” of wet product leaving a dark crusty shadow to visible wetness.)
2. **Any unexplained loss of brake fluid.** (Repeated need to refill the master cylinder.)
3. **Braking system that is ineffective.** (Unable to stop the vehicle in a normal manner.)
4. **Parking brake that is ineffective.** (Will not hold the vehicle when applied on a mild grad.)
5. **Brake warning light on.** (Indicates a system failure. Brake failures of this type can be catastrophic.)
7. **Brake lining worn.** (This is checked by qualified technicians. ¼” lining remaining to rivets or backing.)
8. **Brake parts that are defective or missing.** (This includes but is not limited to: damaged brake lines, brake hoses that are cracked or burned, loose or worn pedal linkages.)
9. **ABS warning lights that do not go out or lights when driving.** (This may indicate a failure in the anti-lock system and usually will not affect total brake application but will prevent the ABS from preventing over braking and vehicle loss of control.)

## Fire Pump System

1. **Pump service test results that fall below 90% of the original rated capacity.** (Failure to achieve rated capacity can indicate worn pump parts and can further fail when operating on fire ground.)

2. **Pumps that will not engage.**
3. **Pump that does not lock transmission.** (Can be noted by transmission shifting through the gears as the pump throttle is raised. Will affect performance / output.)
4. **Pressure control system(s) that are inoperative.** (Relief valves and/or governors that fail to hold pressure or otherwise are unreliable are deemed inoperative and require manual operation which could be hazardous in multi-line operations.)
5. **Water tanks that will not hold water.** (Leak.)
6. **Pump transmission components that have significant oil/grease leaks.** Significant leaks can be defined by noting a 4” diameter spot of product on floor directly under the leaking component with the vehicle at rest for over 8 hours.
7. **Pump transmission lubricant that is contaminated.** Excessive pump packing leakage can “water jet” water past the output shaft seal of the transmission, thereby contaminating the oil with water. Identifying contaminated oil is a function of the periodic inspections.
8. **Pump panel throttle that is defective.** This is to include electronic and/or mechanical irregularities (i.e.: unable to hold engine speed due to a vernier lock failure, Captain system electronic failure causing throttle loss).
9. **Pump packing leaking excessively.** Excessive leakage is defined as water drippage, while vehicle is at rest (engine off) in excess of 210 DPM (drips per minute).
10. **Any gate or drain that cannot be turned off.** Uncontrolled discharge from any gate or drain. This is NOT to include minor intake drippage due to colder weather conditions.
11. **Water tank level lights or indicators that are defective.** Level lights that are grossly inaccurate or otherwise fail to alert the operator of the reserve tank capacity.

## Aerial Device Systems

1. **Power take-off (PTO) that will not engage.** This includes requiring the operator to “emergency pump” the hydraulics to operate the aerial when otherwise PTO would operate the system.
2. **Aerial “MASTER” inoperative.** This includes having to manually operate the devices using the interlocks when otherwise the system would be operated normally from the control panel.
3. **Aerial device that is defective.** This includes missing or visibly damaged parts, excessive play or binding of the boom or aerial nozzle parts.
4. **Hydraulic system components that are defective.** This is to include abnormal pump noise (whine or growl) or unstable hydraulic pressures. (Should be 1000-1500 PSI when operating).
5. **Cable sheaves that are defective.** (Cable pulleys. This is to be checked by qualified technicians.
6. **Cables that are defective or worn (frayed).** This includes loose or missing parts.
7. **Base and section rails (boom surfaces) that show ironing.** Ironing is defined as metal galling due to excessive or abnormal metal contact of moving parts.
8. **Aerial device that is structurally deformed.** Any deformation is unacceptable.
9. **Torque box structure or fasteners that are defective.** This must be checked by qualified inspectors.
10. **Turntable fasteners that are defective or missing.** This must be checked by qualified inspectors.