



FLEET SERVICE

STANDARDS OF MAINTENANCE (SOM)

Revision 3-3-14

STANDARDS OF MAINTENANCE (SOM)

GENERAL

This Standard of Maintenance (SOM) program has been implemented to ensure a proper high level of maintenance for all Village owned, rented and/or leased vehicles is being accomplished. These standards shall also be applicable to all vehicles maintained by Fleet Management for other agencies (if applicable). All Village vehicles are to be maintained to these high standards for safety, reliability, warranty requirements, regulatory requirements and vehicle longevity. These performance and maintenance standards for individual vehicle items or systems are determined to be that equal to or at an improved level of performance when compared to the original manufacturer's specifications. It is expected that all Equipment Operators & Fleet Services employees follow these SOM to ensure the objectives of the Division are being met.

LEGAL REQUIREMENTS

Under all circumstances, maintenance and repair tasks completed under the SOM guidelines will be in full compliance with all Fleet Management, Local, State and Federal regulations and policies pertaining to the type of vehicle being reported or maintained.

Vehicle – Equipment Inspection

Anytime a Village owned vehicle or equipment enters the Fleet Maintenance Division for repair (non-preventative maintenance) work or minor inspection, and/or for any other reason, a basic system inspection will be conducted to ensure safety of the vehicle and/or equipment and a quality of work standard is being met. These “quick” inspections shall include:

- Inspect all fluid levels
- Proper tire inflation inspection
- All lights (brake, turn signals, markers and headlamps)
- Wiper blades
- Horn

These inspections are to be completed in a minimal amount of time.

CAB/BODY:

APPEARANCE: General vehicle appearance must be clean enough to ensure that a satisfactory customer and public image is properly presented at all times.

UPHOLSTERY: All upholstery must be intact. Seat backs, bottoms, arm rests, headliners and door panels should have complete unbroken coverage.

Manual and power seat adjustment mechanisms must operate easily, smoothly and lock in position without undue effort. Seat mounting and frame must be secured to the vehicle and intact.

FLOOR COVERING: Floor covering (mats/carpeting) should cover the entire floor surface. All edges must be flat, unfrayed and secured to the vehicle. Patches when installed must follow the contour of the existing surface, glued or sewn in place, and used only at extreme points of wear. Pedal pads will be in place and completely cover the metal surfaces. Supplemental floor mats or covering should be in good condition, the proper configuration for the vehicle and not interfere with normal vehicle component operations.

SEAT AND SHOULDER BELTS: All seat and shoulder belts must have functional buckles that only require light pressure to join and release them. All seat and shoulder belt materials must be free of damage. Belts will lay flat or retract ready for immediate use.

Manual or automatic seat/shoulder belt retracting mechanisms will operate smoothly and fully retract belt buckles to the proper position. All anchors and mounting bolts must be tight and correctly secured. All seat/shoulder belts shall be OEM and not modified and shall be kept in safe, secure and good working condition at all times.

SUN VISORS: All visors should be intact as a unit and retain adjustment in any position.

WINDOW REGULATORS: All window regulators should move the glass each direction evenly and operator with a light drag. Handles must have knobs, be secure on the regulators, and have no sharp or rough edges. Electric window regulators and controls are to function smoothly in the same manner as manual systems.

LOGO: Marked vehicles must have legible numbers, letters, and emblems. No other decals or emblems may be placed on the vehicle without approval of the Fleet Service Division. Defacing Village equipment is against Village policy, and unauthorized decals and/or labeling shall be removed by equipment maintenance.

DAMAGE: Each vehicle should be relatively damage free. Vehicle body repairs refinish or touch up with paint must be completed in a professional manner to maintain uniform vehicle appearance.

BODY: All items associated with vehicle body i.e. locks, latches, etc.) Must function properly. No areas of the vehicle body may have sharp edges or loose attachments, which can cause harm to people outside the vehicle or interior occupants.

BUMPERS: Front and rear bumpers must be entirely intact. There must not be sharp edges, cracks, or damage, which changes the normal contour or weakens the bumper assembly.

WINDSHIELD WIPERS: The windshield wiper motor and mechanism must operate smoothly and effectively. The wiper blade(s) condition must be adequate to provide clear vision through the windshield (and other windows as appropriate) during inclement weather as intended by the manufacturer. Windshield wipers must fully retract to the park position when turned off.

WINDSHIELD WASHER: The windshield and/or rear window washer must provide a spray pattern, which contacts the windshield as intended by the manufacturer. Windshield washer fluid must be a cleaner/antifreeze type.

DOORS: All doors, deck lids and appropriate seals should be aligned to prevent leaks at all points. Doors should open and close easily and quietly. All opening mechanisms, locks, hinges and hold open devices must be adjusted to work properly.

MIRRORS: All mirror heads, mounting brackets and adjustment nut/bolts should be tight and vibration free. The mirror glass should have no discoloration and flat glass should be distortion free. Power mirror units must function smoothly in all directions.

GLASS: All glass must be intact with no cracks, breaks, distortion and discoloration and be free of sharp edges (small chips out of the driver's line of sight are acceptable as long as it is safe).

LOCKS AND KEYS: All vehicle lock assemblies should operate satisfactorily with an external key, internal control mechanism and/or remote control (if equipped). Keyless entry devices should function per OEM specifications.

TIRES: All tires must meet or exceed all State, Federal DOT and OEM standards for the specific vehicle application.

LICENSE PLATES/REGISTRATION/MOUNTING: Front and rear license plates (including current registration stickers – if applicable) will be in place, legible and have no sharp edges exposed. A current Village insurance card will be maintained in the vehicle at all times. License plate holders will be on the vehicle and have no exposed sharp edges.

CLIMATE CONTROL: The air conditioning and heating system including window defrosters will perform according to the manufacturer's specifications. All controls will function properly. Conversion of existing systems to environmentally friendly R-134A refrigerant will be performed by Fleet Service

ROAD TEST:

BRAKES: All braking systems must meet and perform to EMD, OEM, State and Federal standards. Brakes are considered a major maintenance safety item. All Village owned vehicles or equipment shall be road tested for safety and quality of work before being released back into service to the customer.

CLUTCH: If applicable, the clutch pedal must have free play in accordance with OEM requirements. The clutch pedal must engage smoothly and disengage transmission completely. The clutch must not slip when fully engaged.

CLUTCH BRAKES: If equipped, clutch brakes should function and be adjusted per OEM requirements.

ENGINE: All engines must start within 10/15 seconds of cranking time. With the engine at operating temperature, it must satisfactorily perform during acceleration, idling and power operations. The engine shall not emit unusual noises or fumes.

TRANSMISSION: There should be no excessive shift lever free play. Linkage(s) should work smoothly and fully engage the transmission in the selected gear. The transmission should not exhibit unusual noises or vibrations. Automatic transmission shift sequences and shift points as well as park and neutral shall be within the OEM specifications.

DIFFERENTIAL: Free play in the differential should be within manufacturer's tolerances. There should be no excessive noise or vibration.

SPEEDOMETER/HOUR METERS: The speedometer must operate quietly and smoothly indicating the correct vehicle speed and miles traveled. Hour meter must accurately record hours/tenths of usage.

GAUGES/WARNING LIGHTS: All gauges and/or warning lights must function as designed by the OEM and be accurate.

CHASSIS:

SUSPENSION: The overall suspension and steering assembly of each vehicle must be in mechanically sound condition so alignment adjustments can be maintained. Front-end and four-wheel alignment must be maintained with OEM specifications for correct tire and chassis component longevity and wear. Suspension components should be free of unusual noise or vibration.

STEERING GEAR/POWER ASSIST UNITS: The steering gear must function with no noise, binding, vibration or excessive play, and have a tendency to return to the centered position.

The steering gear mounting bolts must be properly torqued. Pitman and tie rod ends must be securely attached to steering shafts. All seals, lines and gaskets must be in place and free from leaks. Power assist units shall provide sufficient and operate with no noise or vibration.

STEERING LINKAGE/WHEEL BEARINGS: Pitman arms, tie rods, idler arms and associated linkage(s) must be tight and not contacting other vehicle components. Wheel

bearings must be clean, properly lubricated and adjusted to manufacturer's specifications. Seals must be intact.

KING PINS/BALL JOINTS: King pin(s), bushings, and ball joint wear cannot exceed manufacturer's specifications. Manufacturer's recommended procedures must be used to check for wear.

SPRINGS/TORSION BARS/SHOCKS: All springs, torsion bars, shock absorbers, and associated assemblies must be intact, free from mechanical defects, and properly installed. Shock absorbers must exert a continuous dampening affect on compression or rebound and show no sign of leakage. All mounting bushing shall be intact and have no excessive clearance.

DRIVESHAFT/UNIVERSAL JOINTS/FRAME: The driveshaft and/or axles must be straight and have no indentations or irregularities. Driveshaft support bearings are to be properly secured and within manufacturer's specifications. Universal joints and flanges must be correctly aligned. Properly secured and tight in cups, yokes and flanges. Universal joints and drive-shaft slip joints will be properly lubricated and have no excessive clearance. The frame must be free of broken welds, loose rivets, and cracks. The frame must also be free of dents that would adversely affect the operation of the vehicle.

EXHAUST SYSTEM: The entire system must function with out leaks or restrictions, except as designed by the manufacturer. All mufflers, catalytic converters, resonators, clamps, brackets and pipes must be in the correct position; including diesel particulate filters (if equipped) shall be tight and have adequate clearance to control vibration and rattles. The exhaust system must meet all legal requirements for noise, emission control, and spark arresting where required. Heat shields/exhaust guards shall be in place when necessary to protect personnel or other vehicle components. All exhaust systems on specialty vehicles must be designed and maintained to divert heat and fumes away from passengers and cargo. The heat riser (manifold heat control valve) must operate freely and within the guidelines of the manufacturer's recommendations.

LUBRICATION:

CHASSIS/STEERING GEAR/TRANSMISSION/DIFFERENTIAL: Lubrication services must be maintained to the manufacturer's specifications.

ENGINE OIL: Engine oil must meet the current engine manufacturer's recommended American Petroleum Institute (API) classifications and standards.

OIL CHANGE INTERVAL – GASOLINE/DIESEL ENGINES: Oil changes are to be performed on Fleet Service recommended intervals that are established based on manufacturer's recommended intervals and vehicle usage. Correct oil type must be adhered to based on vehicle, engine and fuel type (gasoline, diesel, natural gas).

Note: Oil change intervals defined in Fleet Service SOM may vary due to severity of service or local conditions such as stop and start driving or heavy contamination conditions and extended periods of heat.

ENGINE OIL LEVEL: Crankcase oil levels must be maintained at all times within the operating range indicated by the manufacturer. Oil leaks (defined as drip not dampness) must be identified and repaired.

WHEEL BEARINGS: Lubrication must be clean, not contaminated and the correct type for the specified application. Seal must be intact and have no distortion, frayed edges, or damaged sealing surfaces.

DIFFERENTIAL/TRANSMISSIONS: The lubrication level must be within the operational range as indicated by the manufacturer.

Note: Manual transmission, differentials and gearboxes will be maintained with the range of ½” from the bottom of the oil level hole or OEM specification.

BEATHER/FILLER CAP: Oil fill and/or breather caps must be in good condition, fit properly, and be in place. Breather/Filler caps must be proper for the application.

COOLING SYSTEM:

GENERAL: The cooling system and related components must be capable of holding 3 PSI more than the rated pressure of the radiator cap for three minutes without evidence of leaking.

RADIATOR: The radiator exterior must be free of foreign obstructions, with no evidence of seepage, damage, or loss of fins due to damage or corrosion. The radiator cap must be the correct type and have accurate pressure release action to dissipate pressure building.

Cross flow radiator fluid level should be not less than 4” from the top of the fill hole (recovery systems require full radiator core coverage). Vertical flow radiator fluid level will be above the top of the core (recovery systems require full core coverage). All radiators shall be cleaned during each PM cycle.

Overflow recovery tanks, piping and hoses will be free of leaks and damage. Radiator shutters (heavy duty applications) will operate smoothly and within the manufacturer’s recommended temperature range.

HOSES: All hoses shall be properly routed and will be in good condition without leaks or restrictions. All hoses are to be routed, secured and/or protected to avoid wear, chaffing or abrasions. Replacement coolant hose(s) will be equal to OEM in quality, material and configuration.

WATER PUMP/ENGINE BLOCK: There should not be any leaks. The fan and pulley assembly should not have any vibration, distortion, or cracks. The shroud should have adequate clearance around the fan and be securely mounted.

DRIVE BELTS: Drive belts must not have any glazed surfaces, frayed edges, excessive cracking or material separation. All belts should fit pulleys properly and be adjusted to the proper tension.

COOLANT: Coolant must be maintained at the proper levels and concentration to provide adequate freeze, overheating and rust protection. The appropriate coolant type will be used as per manufacturer's recommendations.

COOLANT FILTERS: Coolant filters (if equipped) will be maintained and changed per the OEM or Fleet Service PM recommendations.

FUEL SYSTEM:

FUEL INJECTION SYSTEMS: Fuel injectors and related systems will operate within manufacturer's specifications. Fuel injection systems will be cleaned when required to ensure proper performance. There shall be no external fuel leakage.

AIR CLEANER: Air cleaner elements must be clean so as not to impede proper airflow. The air cleaner body should be secured so there is no wear, vibration or leakage. Air system pre-cleaners will be maintained per manufactured specifications and procedures. All related hoses and/or accessories connected to air cleaner assemblies will be maintained to manufacturer's specifications.

FUEL LEAKS: The entire fuel system(s) must be free of any leaks or flaws of any kind.

FILTERS: Fuel filters shall be replaced at an interval that will ensure a clean fuel supply or as recommended by the manufacturer or Fleet Service PM cycles.

FUEL TANKS/CAPS: Fuel tank(s) must be free from leakage and undamaged. All fuel tank mounting brackets and hardware must be in place and bolts tightened as per manufacturer's specifications. Fuel filler piping and hoses must be properly routed, free from leaks and not in contact with other vehicle components. All fuel supply components should be located away from heat sources or heat shield protected. Fuel filler caps must be in place and proper for vehicle.

ELECTRICAL:

LIGHTS: All lights will be maintained and operate as intended by the OEM, or Fleet Service. Reflective lenses must be intact with no discoloration and/or distortion.

BATTERY/CABLE/HOLD DOWN: The battery electrolyte level will be maintained at a level recommended by the manufacturer. The terminals shall be clean, free of corrosion,

and the cables clamped tight in place. Battery cables should be the appropriate gauge, type and length recommended for the specific application.

The battery hold-down mounting case should be clean, free of corrosion and properly installed. Batteries shall be cleaned and tested during each PM cycle.

A voltage drop between the positive post and the starter shall not exceed 0.5 volts while cranking the engine.

GENERATOR/ALTERNATOR/STARTER: The starter, generator and/or alternator, and other related components should function consistently within the manufacturer's specifications.

WIRING: All wires should be of the proper gauge, length, color code and type to ensure continuity of electrical circuits. Wiring must be routed in a manner to prevent damage, avoid excessive heat, moisture and maintained properly against circuit overload. Replacement wiring will be consistent with OEM specifications of the same size and capacity.

HORN: Horn(s) are to operate within the legal and rated requirements.

IGNITION SYSTEM: Primary and secondary components should function within the limits specified by the manufacturer and comply with legal requirements.

SWITCHES/CONTROLS: All electrical switches and control units are to function properly within the manufacturer's specifications. After market switches/controls will be clearly marked as to function.

EMISSION CONTROL DEVICES: All vehicle emission systems that are required by law shall be maintained and function per the OEM, Fleet Service and legal requirements. Vehicle emission systems shall pass legally required biennial inspections for gasoline, CNG propane, diesel and dual-fuel vehicles (if applicable). Emission systems will not be removed, bypassed or otherwise tampered with.

WARNING DEVICES: All warning devices including safety and/or vehicle equipment malfunction shall operate per OEM requirements.

TIRES/WHEELS: All tires must meet minimum tread depth requirements (3/32" front and rear). Tires should be free of significant cuts, breaks and uneven wear. Tires must be properly matched for size, diameter, tread design and application. Proper tire balance and rotation(s) shall be maintained throughout the life of the tire(s). Tire repairs will only be performed following the manufacturer's procedures. Proper inflation must be maintained to ensure safety and tire life. It is the driver's responsibility to periodically check and maintain proper tire inflation pressure. Spare tire/wheel and tire changing equipment will be provided and secured in the proper storage area.

Wheels shall be of the proper size and design for the vehicle. Wheels shall run true and not be bent or distorted. Wheel mounting nuts and bolts shall be tightened to the proper torque. No recapped tires are permitted on the front steering axle of commercial vehicles.

BRAKING SYSTEM:

PARKING BRAKE: The parking brake must be fully operational and hold the vehicle, with the engine at normal idle speed, in both the forward and reverse gears on a level surface. Parking brake application mechanisms shall function smoothly during application and release. Parking brake control mechanisms should be free of damage.

HYDRAULIC SYSTEM: Brake fluid levels will be maintained at the proper level. There must not be any leaks in the hydraulic system including master cylinder, wheel cylinders and all hoses and liners. All hydraulic system components should be free of damage. Braking system warning lights shall function properly and not be bypassed.

AIR SYSTEMS: All components of the air brake system must function properly and meet the performance and inspection requirements specified by the law and the manufacturer. There shall be no excessive air loss during application or normal driving. Proper air pressure build-up and release times will be maintained as recommended by the manufacturer. All air system lines and components should be free of damage.

LINING/PADS: Brake lining and disc pads must be in good condition. Any brake lining or pads that have cracks, breaks, or are loose on the backing plates must be replaced. Any brake lining or disc pads that are at or below manufacturers recommended replacement in thickness or would require replacement prior to the next regularly scheduled maintenance must be replaced. Replacement brake lining and disc pads will be equal to or better than OEM.

DRUM/ROTORS: All brake drums and rotors must be replaced if they have cracks, hard spots, hot spots or if they do not meet manufacturer's specifications for thickness or diameter.

WHEEL BEARINGS: Wheel bearings shall be repacked each time the brake drum and/or rotor are removed for service or wheel bearing maintenance is required. Axle seals will be replaced if leaking or if the hub is removed.

SPECIALTY SYSTEMS

HYDRAULIC SYSTEMS: Hydraulic components must function smoothly when operating in an extension or retraction mode. Hydraulic pumps and/or motors will function properly with no unusual noises or vibrations.

Controls shall operate freely with proper detents and be easily accessible to the operator. Hydraulic hoses and fittings should not leak and be properly mounted and/or secured so as to prevent damage to the hose or other components. Quick coupler connections should

release and re-couple smoothly with minimal oil loss. Hydraulic cylinders must not leak, cylinder shafts must be free from dirt or corrosion, mounting pins/bushings must not have excessive clearance and proper grease fittings must be provided. Hydraulic oil reservoirs shall be properly mounted, free from leaks, have functioning level indicators, and fully functioning shut-off valves. All operating instructions and warning labels are to be in place and legible.

TRUCK BODY/BEDS: All truck bodies and beds will be maintained at a level required to perform the work or function for which the bed was originally designed. This standard will apply to non-production modifications if made within proper engineering and unit capacity standards. All lighting will be fully functional in compliance with local, State and/or Federal standards. Tarping systems must work smoothly with minimal operator effort. Tarps will be intact with no tears or other distortions. Body anchors and tie-downs will be correctly installed and operate properly. Cab protection structures must be properly installed and maintained. Body, doors, tailgates and other moving attachments must work properly, be securely mounted, have appropriate hinge or mounting clearance and operate with minimal effort. Body attachment must be safe and in proper repair. Appropriate safety and/or restraining chains or cables must be in place and functioning properly.

Dump and/or elevating bodies shall have properly installed and operating safety devices to prevent the body from lowering during inspections, repairs or maintenance operations. All operating and warning labels are to be in place and legible.

LOADER/BACKHOE: All loader/backhoe buckets, blades and related booms, arms, etc. will operate smoothly in all positions.

Mounting brackets, pins and bushings shall have proper clearance and grease fitting(s). Bucket wear surfaces including cutting edges and teeth shall be monitored and repaired or replaced as necessary. Proper safety devices must be installed and maintained to prevent buckets, blades, etc. from lowering during maintenance operations. Manual adjustment mechanisms shall work properly and have no sharp edges or pinch-points to injure maintenance staff.

PRESSURE SYSTEMS (GENERAL – AIR, HYDRAULIC, WATER, ETC.): Pressure tanks shall be properly mounted, have no leakage and have appropriate pressure relief valve(s). Pressure relief valve systems will function properly and within 5% of rated capacity. All lines, hoses and connections will have no leaks and be mounted to avoid damage and/or unnecessary wear. All certifications (if required) are to be in place and legible.

LIQUID CONTAINERS: Liquid containers shall be properly mounted, free from leaks, have functioning level indicators, and fully functioning shut off and drain valve(s).

COMPRESSED NATURAL GAS (CNG)

Equipment Maintenance and Fleet Services is responsible for a considerable and growing fleet of CNG powered vehicles. The safety of the CNG system(s) is paramount to the success of the preventative maintenance program.

CNG POWERED EQUIPMENT – The CNG system(s) on each vehicle shall be inspected during each PM scheduled cycle. All CNG pressure vessels (tanks) are to be carefully inspected by technical personnel during each PM cycle. CNG tanks (pressure vessels) shall be thoroughly inspected for cleanliness, condition, integrity, fractures, holding support brackets, leakage, residue, electrical connections, end-caps and all other related safety inspections as detailed by the tank manufacturer. All pressure release devices (PRD) will be inspected for electrical operational safety and cleaned during each PM cycle. All high pressure CNG fuel lines, fittings, connectors, stationary hold down blocks, CNG line bulk heads, vibration clamps, labeling and all related CNG components will be inspected, repaired or replaced (as necessary) during each PM cycle. Coalescent CNG fuel filters will also be replaced during each PM cycle and the system inspected for any oil carry-over problems.

All CNG system maintenance cycles and parameters will be strictly enforced, scheduled and supervision will perform final inspections as required on these system(s) per-vehicle. Any safety degradation in the CNG fuel system(s) shall be reported to a supervisor and repairs shall be immediately made to bring the vehicle back up to a high priority and safe condition (like new condition).

American with Disabilities Act – ADA

GENERAL: All equipment and/or vehicles equipped with safety sensitive equipment, equipment pertaining to ADA requirements; i.e.; wheel chair/ramps, sensitive edges, restraint systems, seat or wheel belts, locks, mechanisms, annunciation equipment, audio, special seats, or seating arrangements and their associated locks/levers, and/or all related equipment or systems subject to ADA requirements.

ADA systems and equipment shall be inspected for safety and proper working order during the PM or statutory inspection cycles. All systems and equipment shall be cleaned, lubricated and tested for function, application and proper, safe operation before the vehicle/equipment is placed back into service.

This Standards of Maintenance (S O M) document is intended to provide a clear technical reference and guide for all maintenance activities relating to repair and the maintainability of all Village equipment and/or vehicles. Its use and thorough understanding and application are required of all Equipment Operators and Fleet Services personnel to assist and guide them in the technical expectation and execution of the total high quality of work effort.

END OF S.O.M. Revision 3-3-14

Standards of Maintenance

Common Industry or special Acronyms

DOT -	Department of Transportation
CARB -	California Air Resources Board
ADA -	Americans with Disability Act
CNG -	Compressed Natural Gas
PRD -	Pressure Release Device
OEM -	Original Equipment Manufacturer
PSI -	Pressure Per-Square Inch
RPM -	Revolutions per-Minute
HVAC -	Heating Ventilation and Air Conditioning (systems)
API -	American Petroleum Institute
SAE -	Society of Automotive Engineers