



### **Asset Maintenance Policy**

Grantees are required to maintain project equipment at a high level of cleanliness, safety, and mechanical soundness. At a minimum, grantees will perform maintenance according to the manufacturer's requirements.

Preventive maintenance (PM) is an essential element of every effective maintenance program to ensure maximum vehicle reliability, longevity, and passenger safety. Preventive maintenance is more than routine services such as changing oil and rotating tires, it is a methodical system of regularly scheduled maintenance procedures that include daily inspections, prompt attention to minor repairs, knowing thoroughly and taking full advantage of your vehicle warranties, and monitoring your suppliers for fuel and vehicle parts for low prices, highest quality, and maximum reliability. While preventive maintenance may be more expensive in the short run, it reduces overall operation and maintenance costs over the life of the vehicle. All transportation providers should implement a preventive maintenance program. A good preventive maintenance program should be tailored to your vehicle fleet and system needs. There are several options when developing a preventive maintenance program. Each vehicle manufacturer provides a checklist for preventive maintenance for their vehicles. Transit vehicles are used to transport large numbers of people often on very short trips, resulting in what manufacturers call "severe use." This PM checklist is designed to help you ensure your vehicles receive proper maintenance, sustain accurate maintenance records, and lower total repair and related operating costs.

Your vehicle will come with a number of warranties including the chassis, the body modifications, and major components. These can take many forms, but generally include some combination of mileage and time, and will often contain exclusions for "consumable" items such as brake pads, batteries, and tires. Additionally, warranties generally have stipulations regarding operating and maintaining the vehicle in accordance with the manufacturer or supplier's recommendations. Thoroughly examine and become familiar with all the warranties provided with the vehicle when it is delivered. Make sure you have read all of the "fine print." In rare instances, the warranty covers 100 percent of all repair costs for the entire period. The component coverage and mileage can vary greatly from vehicle to vehicle. There can be many exclusions depending on the mileage and operating environment. It is crucial to understand the service agreements and extended warranties. Do not enter into any agreements unless you completely understand the contract. All MassDOT supplied vehicles have warranties, which at minimum cover all labor and replacement parts for a selected period of time. Warranties cover the basic vehicle with separate warranties for ancillary equipment (i.e. air conditioner, wheelchair lift, wheelchair securement systems, seats, vehicle modifications, etc.) It is very important to read and completely understand the warranty prior to paying for repairs. Every maintenance program will be unique due to the mix of vehicle types and ages, fleet size, services provided and arrangements for maintaining the vehicles.

For your convenience, PM checklists detailing the manufacturers recommended ongoing maintenance for a Type E or E2 fully accessible van accompany this policy. A separate checklist is attached for the suggested mileage intervals and what must be done at each interval to ensure that PM objectives are being met.

Service Operation - operations in bold print are conducted by hours	Mileage / Hours (every)										or	Season		
	5000 / 170	10000 / 330	15000 / 500	20000 / 660	25000 / 830	30000 / 1000	35000 / 1170	40000 / 1330	45000 / 1500	50000 / 1670		Spring	Fall	Quarterly
clean / replace a/c return air filters											X	X		
clean injectors (natural gas only)										X				
drain coalescent filter bowl and replace filter (natural gas)					X					X				
engine oil and filter change	X	X	X	X	X	X	X	X	X	X				
inspect a/c system performance											X			
inspect and lubricate wheelchair lift													X	
inspect brake system			X		X				X					
inspect charging system output											X	X		
inspect electrical panel for loose connections													X	
inspect cooling system and hoses			X		X				X					
inspect emergency exits (open exits and clean gaskets)													X	
inspect exhaust system and heat shields					X									
inspect for loose seats and handrail hardware													X	
inspect fuel tanks (natural gas only)					X									
inspect steering linkage and universal joints			X		X				X					
inspect tires for wear or damage	X	X	X	X	X	X	X	X	X	X				
inspect wheel bearings for play and noise			X		X				X					
Lubricate entry door mechanism and hinge pins	X	X	X	X	X	X	X	X	X	X				
multi-point inspection (see attachment a)	X	X	X	X	X	X	X	X	X	X				
replace accessory drive belts					X					X				
replace engine air filter					X									
replace fuel filter (gasoline or diesel)					X									
replace transmission fluid (and remote filter, if equipped)					X									
rotate tires (recommended for extended life)		X		X		X		X		X				



Service Operation - operations in bold print are conducted by hours	Mileage / Hours (every)										or	Season		
	55000 / 1830	60000 / 2000	65000 / 2170	70000 / 2330	75000 / 2500	80000 / 2670	85000 / 2830	90000 / 3000	95000 / 3170	100000 / 3330		Spring	Fall	Quarterly
clean / replace aftermarket a/c return air filters											X	X		
clean injectors (natural gas only)										X				
drain coalescent filter bowl and replace filter (natural gas)					X					X				
engine oil and filter change					X					X				
flush cooling system and replace extended life coolant	X	X	X	X	X	X	X	X	X	X				
inspect a/c system performance										X				
inspect and lubricate wheelchair lift											X			
inspect brake system														X
inspect charging system output		X			X			X						
inspect electrical panel for loose connections											X	X		
inspect cooling system and hoses														X
inspect emergency exits (open exits and clean gaskets)		X			X			X						
inspect exhaust system and heat shields														X
inspect for loose seats and handrail hardware		X						X						
inspect fuel tanks (natural gas only)		X												X
inspect steering linkage and universal joints		X						X						
inspect tires for wear or damage		X			X			X						
inspect wheel bearings for play and noise	X	X	X	X	X	X	X	X	X	X				
lubricate (repack) front wheel bearings		X			X			X						
Lubricate entry door mechanism and hinge pins		X												
<b>multi-point inspection (see attachment a)</b>	X	X	X	X	X	X	X	X	X	X				
<b>replace accessory drive belts</b>	X	X	X	X	X	X	X	X	X	X				
<b>replace engine air filter</b>					X					X				
<b>replace fuel filter (gasoline or diesel)</b>		X						X						
replace rear axle lubricant		X						X						
<b>replace spark plugs</b>										X				
<b>replace transmission fluid (and remote filter, if equipped)</b>										X				
rotate tires (recommended for extended life)		X						X						



Service Operation - operations in bold print are conducted by hours	Mileage / Hours (every)										or	Season		
	105000 / 3500	110000 / 3670	115000 / 3830	120000 / 4000	125000 / 4170	130000 / 4330	135000 / 4500	140000 / 4670	145000 / 4830	150000 / 5000		Spring	Fall	Quarterly
clean / replace aftermarket a/c return air filters											X	X		
clean injectors (natural gas only)										X				
drain coalescent filter bowl and replace filter (natural gas)				X						X				
engine oil and filter change	X	X	X	X	X	X	X	X	X	X				
flush cooling system and replace extended life coolant										X				
inspect a/c system performance											X			
inspect and lubricate wheelchair lift														X
inspect brake system	X		X			X				X				
inspect charging system output											X	X		
inspect coach electrical panel for loose connections														X
inspect cooling system and hoses	X		X			X				X				
inspect emergency exits (open exits and clean gaskets)														X
inspect exhaust system and heat shields			X							X				
inspect for loose seats and handrail hardware														X
inspect fuel tanks (natural gas only)			X							X				
inspect steering linkage and universal joints	X		X			X				X				
inspect tires for wear or damage	X	X	X	X	X	X	X	X	X	X				
inspect wheel bearings for play and noise	X		X			X				X				
lubricate (repack) front wheel bearings			X							X				
Lubricate entry door mechanism and hinge pins	X	X	X	X	X	X	X	X	X	X				
multi-point inspection (see attachment a)	X	X	X	X	X	X	X	X	X	X				
replace accessory drive belts				X						X				
replace engine air filter			X							X				
replace fuel filter (gasoline or diesel)			X							X				
replace rear axle lubricant										X				
replace transmission fluid (and remote filter, if equipped)			X							X				
rotate tires (recommended for extended life)	X		X		X		X		X	X				



## Multi-point Inspection Checklist

*This checklist is intended to be used in conjunction with hourly intervals as indicated on the preceding PM checklists.*

- Check and top off fluid levels:
  - Brake fluid reservoir
  - Coolant recovery reservoir
  - Transmission fluid
  - Power steering reservoir
  - Windshield washer reservoir
- Check tire air pressure (including spare)
- Check exhaust system for leaks, damage and foreign material
- Check battery connections and performance
- Check operation of horn, turn signal, brake, marker and hazard lamps
- Check radiator for obstructions and hoses for damage
- Inspect Windshield for cracks, chips and pitting
- Check windshield wiper and windshield washer operation
- Inspect for oil and fluid leaks
- Inspect air cleaner filter
- Inspect shock absorbers and suspension components for leaks and damage
- Inspect accessory drive belts for cracks or damage
- Check interior courtesy, step and reading lamp operation

