



### **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 45' Motorcoach 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.



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every (Mileage)																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Check air compressor intake	X	X	X		X															
Check brake throw and record		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check tire pressure and record	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check tire tread depth and record	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Change engine oil		X		X		X		X		X		X		X		X		X		X
Change all engine oil filter		X		X		X		X		X		X		X		X		X		X
Change fuel filter if not equipped with Daycor unit		X		X																
Change fuel filter						X		X		X		X		X		X		X		X
Check air filter monitor and replace if required		X		X		X		X		X		X		X		X		X		X
Lube all chassis grease point		X		X		X		X		X		X		X		X		X		X
Clean fan clutch air filter						X		X		X		X		X		X		X		X
Check coolant recovery pump						X		X		X		X		X		X		X		X
Inspect and clean in-line air filter (front wet tank)						X		X		X		X		X		X		X		X
Check coolant inhibitor level		X		X		X		X		X		X		X		X		X		X
Change rear end oil										X					X					X
Change air dryer desiccant cartridge and purge valve					X					X					X					X
Check fan clutch for air leak					X					X					X					X
Check engine oil cooler for leak					X					X					X					X
Change oil in B-500 transmission					X					X					X					X
Check oil level in tag axle bearing box when applicable										X					X					X
Check coolant filter when applicable				X								X				X				X
Change coolant filter when applicable								X												
Check wheel hub oil						X						X						X		
Reline brake if required						X						X						X		
Rebuild or replace park brake valve										X										X
Rebuild or replace tag axle caster control valve										X										X
Replace in all brake chamber																				X
Rebuild or replace foot brake valve																				X
Rebuild or replace quick release valve																				X
Rebuild or replace brake relay valve																				X
Rebuild or replace inversion valve																				X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every (Mileage)																				
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K	
Service Operations																					
Rebuild or replace pressure protection valve																					X
Rebuild or replace double check valve																					X
Rebuild or replace pressure regulator valve																					X
Rebuild or replace air horn foot valve																					X
Rebuild or replace all skinner valves																					X
Remove and rebuild engine radiator																					X
Replace oil in all wheel hub																					X
Check belt tension and adjust				X				X				X				X					X
Inspect belt and replace if required				X				X				X				X					X
Check battery electrolyte	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Replace HVAC air filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check AC motor brushes				X				X				X				X					X
Inspect and replace shock absorber if required										X											X
Inspect and replace sway bar bushing if required										X											X
Inspect and replace radius rod bushing if required										X											X
Rebuild or replace all leveling valve										X											X
Clean main heater water valve air filter										X											X
Check and clean A/C compressor-evaporator and condenser																					X
Check refrigerant level																					X
Inspect tie-rod end boot																					X
Perform air system leak test																					X
Replace power steering oil and filter															X						
Inspect and replace engine mount												X									



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 5,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Check air compressor intake	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check brake throw and record (starting at 10K, except for 15K and 25K)		X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check tire pressure and record	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check tire tread depth and record	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Check battery electrolyte	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Replace HVAC air filter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 10,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Change engine oil		X		X		X		X		X		X		X		X		X		X
Change all engine oil filter		X		X		X		X		X		X		X		X		X		X
Change fuel filter		X		X		X		X		X		X		X		X		X		X
Check air filter monitor and replace if required		X		X		X		X		X		X		X		X		X		X
Lube all chassis grease point		X		X		X		X		X		X		X		X		X		X
Clean fan clutch air filter (beginning at 30K)						X		X		X		X		X		X		X		X
Check coolant recovery pump (beginning at 30K)						X		X		X		X		X		X		X		X
Inspect and clean in-line air filter (front wet tank) (beginning at 30K)						X		X		X		X		X		X		X		X
Check coolant inhibitor level		X		X		X		X		X		X		X		X		X		X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 20,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Check coolant filter when applicable (except at 40K and 80K)				X								X								X
Change coolant filter when applicable (40K and 80K)								X								X				
Check belt tension and adjust				X				X				X				X				X
Inspect belt and replace if required				X				X				X				X				X
Check AC motor brushes				X				X				X				X				X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 25,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Change rear end oil (beginning at 50K)										X					X					X
Change air dryer desiccant cartridge and purge valve					X					X					X					X
Check fan clutch for air leak					X					X					X					X
Check engine oil cooler for leak					X					X					X					X
Change oil in B-500 transmission					X					X					X					X
Check oil level in tag axle bearing box when applicable (beginning at 50K)										X					X					X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 30,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Check wheel hub oil						X						X							X	
Reline brake if required						X						X							X	



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 50,000 Miles																				
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K	
Service Operations																					
Rebuild or replace park brake valve										X											X
Rebuild or replace tag axle caster control valve										X											X
Inspect and replace shock absorber if required										X											X
Inspect and replace sway bar bushing if required										X											X
Inspect and replace radius rod bushing if required										X											X
Rebuild or replace all leveling valve										X											X
Clean main heater water valve air filter										X											X



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 60,000 Miles																			
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K
Service Operations																				
Inspect and replace engine mount												X								



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 75,000 Miles																				
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K	
Service Operations																					
Replace power steering oil and filter															X						



Performance of preventive maintenance measures for all service operations are measured in mileage intervals.	Service Performed Every 100,000 Miles																				
	5K	10K	15K	20K	25K	30K	35K	40K	45K	50K	55K	60K	65K	70K	75K	80K	85K	90K	95K	100K	
Service Operations																					
Replace diaphragm in all brake chamber																					X
Rebuild or replace foot brake valve																					X
Rebuild or replace quick release valve																					X
Rebuild or replace brake relay valve																					X
Rebuild or replace inversion valve																					X
Rebuild or replace pressure protection valve																					X
Rebuild or replace double check valve																					X
Rebuild or replace pressure regulator valve																					X
Rebuild or replace air horn foot valve																					X
Rebuild or replace all skinner valves																					X
Remove and rebuild engine radiator																					X
Replace oil in all wheel hub																					X
Check and clean A/C compressor-evaporator and condenser																					X
Check refrigerant level																					X
Inspect tie-rod end boot																					X
Perform air system leak test																					X