

**MCI PRO SUPPORT**<sup>SM</sup>

*Welcome to Motor Coach  
Industries Webinar Series*

*Your Webinar Will Begin Soon*

**Today's Topic:**

**Winterizing your Fleet**



MOTOR COACH  
INDUSTRIES

# *Areas Needing Attention*

**It is highly recommended that a complete and thorough vehicle inspection is performed**

- Cooling System
- Air System
- Engine
- Chassis
- Electrical System
- Miscellaneous Information

# Cooling System

- **Check antifreeze concentration**
  - Should be a 50/50 mixture of antifreeze and distilled water
    1. Check with you local engine manufacture because mixture content can vary from region to region
- **Check water hoses**
  - Replace if there are any weakened hoses found
  - Check for any signs of rubbing
  - Ensure hose routing is correct where there are no signs of kinking or chaffing
- **Check and re-torque hose clamps**



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# Cooling System Con't

- **Clean and inspect radiators**
  - Clean radiator coils opposite of air flow
  - Do not use a high pressure washer because it will damage fins
- **Check fan blades**
  - Look for cracks in the blades
  - Ensure bolts are properly torqued
- **Check belts condition**
  - Look for signs of cracking or damaged plies



# *Cooling System Con't*

- **Check belt tensions**
  - Refer to maintenance manual to determine the proper deflection or tension procedures
- **Check for signs of belt slippage**
  - Slipping belts will be glazed or shiny
- **Ensure coach is equipped with spare belts**
  - Coach should be equipped with at least one extra belt for each location

# *Cooling System Con't*

- **Check idler pulley bearing condition**
  - Remove belt and spin the pulley. There should be no rough spots and should spin without abnormal noise.
- **Check belt alignment**
  - Most alignments can be checked using a straight edge
  - Refer to maintenance manual for proper method for the particular belt

# Cooling System Con't

- **Ensure manual hot water valves are open**
  - Closed valves reduce the amount of coolant available for cooling the engine
- **Check fan clutch operation**
  - Ensure clutch fan applies at the proper temperature
  - Inspect for signs of slippage
- **Ensure fan clutch lock bolt is removed**
  - Most clutches have a bolt that is in the housing that is designed to be removed and screwed through a tab on the housing that will lock the clutch in case of failure



# *Cooling System Con't*

- **Check radiator cap**
  - Ensure the gasket is in good condition.
  - Check relief valve to see if it released at the correct pressure
  - Special testing tool needed
- **Check fan drive oil level and condition**
  - If the oil is dirty or appears contaminated, drain the oil and install fresh oil
  - Some fan drives require synthetic oil.
  - Consult maintenance manual for the correct oil

# *Cooling System*

- Clean evaporator filter
- Clean the heater core fins
- Perform tune up check on auxiliary heater and ensure proper operation



# *Air System*

- Replace air drier cartridge and clean/inspect all components
- Test air dryer heating element
- Drain all air tanks of any water
- Repair all air leaks



# *Air System*

- **Inspect all air hoses**



- **Inspect air bags**



- **Test the tag unload feature for proper operation**

# Engine

- Check belts
- Replace fuel filters
- Ensure fuel heaters are working if equipped
- Check block heaters for proper operation
- Switch to winter fuel or use fuel additive
  - On 2007 and newer engines, contact your engine manufacturer before using any type of fuel additive to ensure no damage will be done to the after treatment device



# Chassis

- **Ensure tires are in good shape**
  - **Ensure tread depth is adequate for severe weather**
  - **Check side walls for damage**
- **Ensure tire chains and straps are ready to be used if needed**



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# Chassis

- Has Service Bulletin 2793 been performed on coaches with Smart Tire systems



- Check windshield washer pump and distribution nozzles for proper operation
- Ensure windshield washer fluid tank is full

# Electrical System

- Test batteries
  - Load test batteries to  $\frac{1}{2}$  cold cranking amp rating on batteries for 15 seconds. Battery should not drop below 9.6v.



- Test specific gravity of electrolyte – 1.225 at 75% of fully charged lead acid, maintenance free or extended life battery is recommended



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# *Electrical System*

- **Clean battery terminals**



- **Check battery water levels**
  - Water must be above the plates
  - Use only distilled water

# *Electrical System*

- **Rotate Batteries**
- **Ensure battery hold down braces are installed**
- **Inspect all battery and starter cables for corrosion**
  - There should be no signs of breakage in the insulation
- **Check starter condition and amperage draw**
  - Perform a starter amperage draw test

# *Electrical System*

- **Check charging system condition**
  - Inspect alternator brushes
  - Test alternator output – range 27.5v to 28.2v depending on coach
  - Check bearing condition



- **Test the battery equalizer**

# *Electrical System*

- **Check evaporator motor brushes**
  - Replace if less than 75% of the original brush length
  - Ensure brush springs are installed correctly and not broken
  - Inspect commutator for wear
- **Check defroster motors**



# *Miscellaneous Information*

- **Create emergency break down kits**
  - **Extra fuel filters**
  - **Blankets**
  - **Flares**
- **Have an action plan for severe weather**

# Questions???

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