DPSAFT School Bus Inspection

Procedures, Repair Criteria, & Out Of Service Criteria

Engine Compartment of School Bus

C. ENGINE COMPARTMENT 1. Fluid Levels and Conditions		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
a. Brake Fluid: 1) Check brake fluid and brake power-assist hydraulic fluid (if equipped) for level and condition.	Level of brake fluid in either side of master cylinder reservoir is low or below "Add" mark (if equipped). Brake power-assist hydraulic fluid is below cold "Add" mark.	Brake fluid or power-assist fluid shows evidence of contamination.
b. Power Steering Fluid: 1) Check power steering fluid level and condition.	Power steering fluid is below cold "Add" mark.	Power steering fluid shows evidence of contamination.
c. Windshield Washer Fluid: 1) Check windshield washer fluid level.	Reservoir is low or washer does not spray windshield.	
d. Coolant: 1) Check coolant (antifreeze) level and condition.	Coolant level in radiator or reservoir is low but still visible in tank. Coolant level in radiator or reservoir is low and **not** visible in tank. Coolant shows evidence of rust and corrosion contamination.	

C. ENGINE COMPARTMENT 2. Belts and All Hoses		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
a. Belt(s): continued 2) Condition: Visually inspect belt(s) for glazing, oil contamination, dry rotting, cuts, and separation of plies. Check belts for twisting or distortion.	Any belt is glazed. Any belt is oil saturated, dry-rotted, or cut or plies of belt(s) are separated.	Any belt is twisted or distorted.
3) Routing: Visually inspect belt(s) for rubbing or contact with objects other than pulleys and for routing around correct pulleys.		Any belt is making contact with objects other than pulley(s). Any belt is routed around incorrect pulley(s).
4) Belt Alignment: Visually inspect belts for proper alignment.	Any belt is not inline. (Less than 1/16 inch per foot)	Belt misalignment is excessive and could result in failure. (More than 1/16 inch per foot)

Belt Inspection

1. Inspect all used drive belts (including those that are being replaced) for the following conditions:

2. Inspect for glazing (shiny sidewalls). Glazing is caused by friction created when a loose belt slips in the pulleys. It can also be caused by oil or grease on the pulleys.

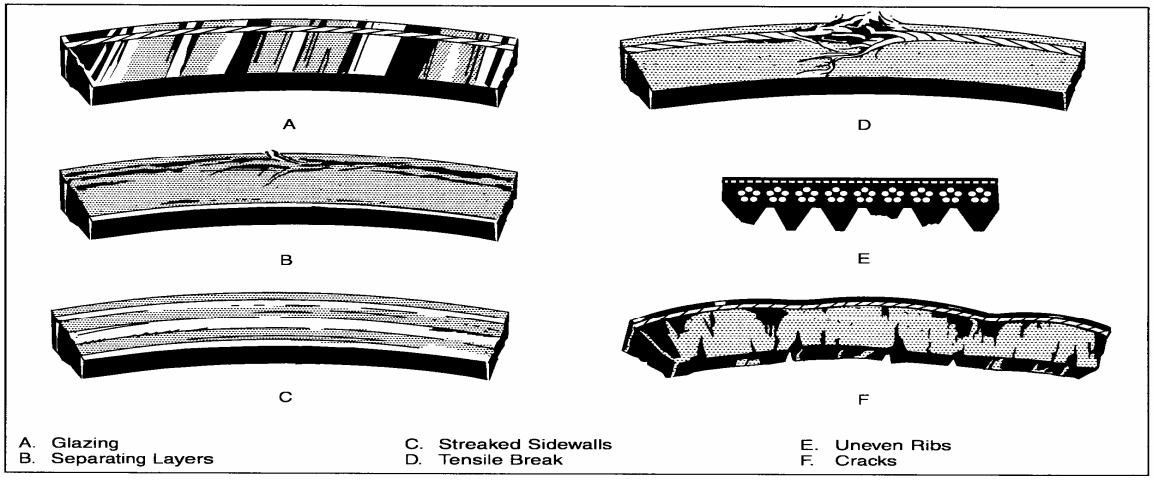
3. Inspect for separating layers. Oil, grease, or belt dressings can cause the belt to fall apart in layers. If engine parts are leaking, repair the oil leaks. Do not use belt dressings on any belt.

4. Check for jagged or streaked sidewalls. These are the result of a foreign object (such as sand or small gravel) in the pulley, or a rough pulley wall surface.

5. Check for tensile breaks (breaks in the cord body). Cut belts are usually caused by large foreign objects in the pulley or by prying or forcing the belt during installation or removal.

6. On poly-V belts check for uneven ribs. Foreign objects in the pulley will erode the under cord ribs, causing the belt to lose its gripping power.

7. Inspect for cracks. Small, irregular cracks are usually signs of an old belt. Replace the belt if any of the above conditions are found. Replace both belts of a set, at the same time. Matched belts must be from the same manufacturer.



NOTE: For an installed belt, gently twist the belt about 90 degrees so you can see the sidewalls and bottom.

C. ENGINE COMPARTMENT 2. Belts and All Hoses (continued)		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
b. Hose(s) **NOTE: References to hoses include all types of hoses located in the engine compartment, including power steering, coolant, air compressor intake, vacuum, brake hydraulic assist, engine oil, and transmission hoses.**		
1) Clamp(s) and Connections: Visually and physically check that hose connections or clamp(s) are tight.	Any hose connection or clamp(s) is loose or is too tight digging into hose. Any silicone hose does not have a constant torque type clamp on it.	
2) Condition: Visually inspect all hoses for cuts, abrasions and wear, oil saturation, dry rotting, or "ballooning."	Any silicone hose has been exposed to diesel fuel by contaminated coolant.	Any hose is cut, abraded, worn, oil saturated, dry-rotted, or "ballooned" to the point that failure is imminent.
3) Routing: Visually inspect routing and securement of all hoses.	Any hose is misrouted or unsecured so that heat damage, abrasion, or cuts could cause long-term failure.	Any hose is misrouted or unsecured so that heat damage, abrasion, or cuts could cause imminent failure.
4) Type: Confirm hose is of the proper type for the application.		Any hose is found to be of the improper type for the application.

C. ENGINE COMPARTMENT 3. Components		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
a. Air Cleaner: 1) Check air cleaner assembly (housing, lid, piping, gasket(s), seal, clamp(s)) for securement, condition, and record filter restriction. Check for presence of wing nut and seal (if equipped). **Note: Do not disturb large two-stage air filters to check condition of element. If loosened or removed it must be replaced.**	Air filter restriction exceeds manufacturer's specifications. Any portion of air cleaner assembly or mounting is loose or damaged, including piping, nuts, bolts or clamps. There are any worn or damaged seals or gaskets. There is any air or vacuum leaks or missing components.	
2) Air Restriction Gauge (diesel engines), check for presence and condition.	Any gauge found missing, damaged, or inoperative.	
b. Turbo: Inspect turbo and plumbing for leaks, mounting, connections, and condition.	Evidence of oil seepage. Heat shield is damaged or missing.	Any leak is observed on air, exhaust, or oil. Any mounting or connection is loose. Any unusual noise or vibration is observed.
c. Power Steering Pump 1) Check securement and condition of power steering pump.	Pump has wrong type cap on reservoir (vented or not vented).	Any portion of the power steering pump, mounting bracketry or fastener is cracked, loose, or missing.

C. ENGINE COMPARTMENT 4. Components (continued)		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
d. Brake Pump 1) Check securement and condition of brake pump.		Pump has wrong type cap on reservoir (vented). Any portion of the pump, mounting bracketry or fastener is cracked, loose, or missing. Any of the hoses or lines not secured or routed correctly and can touch the exhaust manifold.
e. Air Compressor and Filter 1) Check securement and condition of air compressor and filter assembly.	Air compressor air filter (if equipped) is dirty. (Continued on Next Page)	Any loose, leaking or damaged hose or plumbing between engine air filtration system and compressor (on vehicles that share filter). Any portion of the air compressor, compressor air filter (if equipped), filter and compressor mounting bracketry, filter cover, or fastener is cracked, loose, or missing. Any oil or coolant leaks from compressor or plumbing. Any problem with piggy-backed power steering pumps either mounting or leaks.

C. ENGINE COMPARTMENT 4. Components (continued)		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
f. Water Pump 1) Check condition of water pump and pulley.	There is evidence of coolant seepage from water pump, seal, gasket surface, or weep hole. Water pump fasteners are loose, damaged, or missing.	Water pump is noisy, bearing is damaged, or coolant is dripping out.
g. Fan 1) Check fan blade and fan clutch/drive assembly for securement and condition.	Hydraulic drive type fan always remains in the "on" position.	Fan is not OEM type. Fan has any cracked, bent, or broken blades. Any portion of fan mounting is loose. Fan clutch is seized or loose. Any leak, mounting, rotation or function problem with hydraulic motor. Electric fan does not operate. Hydraulic solenoid valve inoperative. Wiring for fan (electric) or solenoid (hydraulic) is not secured or is loose, damaged, or missing.

C. ENGINE COMPARTMENT 4. Components (continued)		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
h. Alternator 1) Check securement and condition of alternator assembly.	Alternator is noisy. Washers missing on slide portion of mount. All Vehicles **except** those with 6.9L & 7.3L Engines - Battery wire does not have a rubber insulating boot over the connection on the back of the Alternator.	Any portion of the alternator, mounting bracketry, or fastener is cracked, loose, or missing. Alternator is not charging. Pulley or fan is loose, bent or does not run true. Bearings are worn or damaged. All Vehicles **with** 6.9L & 7.3L Engines - Battery wire does not have a rubber insulating boot over the connection on the back of the Alternator.
i. Starter 1) Check starter for securement and condition.	Wire/harness not firmly attached or routed improperly. Must be clear of exhaust. Starter will not start vehicle. Starter drags, noisy or does not engage properly. Teeth missing from bendix or flywheel.	

C. ENGINE COMPARTMENT 5. Wiring		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
a. Routing and Condition 1) Check routing, securement, and condition of all wiring and any electrical cable in the engine compartment. **Note: Wiring must be in OEM condition. Wire must be replaced with proper size, type, and color. Routing should be OEM, properly secured, and in harness or loom where applicable.**	There is any loose, damaged, or corroded wiring connector or terminal end. Replaced wire has not been removed.	There is any unsecured or poorly routed wiring that could cause potential short or fire due to abrasion or heat damage. There is any burnt wiring or wiring with missing insulation (other than ground straps). Any repair has been made using improper gauge wiring or method.
C. ENGINE COMPARTMENT **6. Fuel System and Lines**		
a. Fuel System and Lines 1) Visually check the condition, operation, and securement of all fuel system components, including pumps, fuel lines and routing, and accelerator return springs in the engine compartment. **Note:** All mechanical accelerators must have a minimum of two (2) return springs.	There is evidence of contamination the fuel water separator (if equipped).	There is any unsecured, or poorly routed, or loose fuel line or hose that could cause potential fire due to abrasion or heat damage. Any fuel system connection or component that is stripped, loose, cracked, or leaking. Any fuel system component is damaged or not mounted securely. Any evidence of fuel leaking internally and contaminating oil or coolant (pump, tubes, etc.). Any electric or mechanical shutdown that does not operate properly. Any accelerator return spring is weak, broken, or missing.

C. ENGINE COMPARTMENT 7. Radiator/Cooling		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
a. Radiator Mounting 1) Check radiator assembly and mounting for securement and condition.	Any portion of radiator mounting system is cracked, damaged, or has loose or missing fasteners.	Any portion of radiator is cracked or leaking.
b. Cap 1) Check condition of radiator cap. **WARNING:** **ALWAYS USE PROPER ROCEDURES WHEN REMOVING RADIATOR CAP.**	Radiator cap is hard to open or close. Radiator cap is of the wrong pressure rating. There is any visible damage to the pressure seat or vacuum relief seat of the cap.	Radiator cap is missing.
c. Reservoir (pressurized) 1) Check coolant reservoir (including de-aeration tank) and sight glass (if equipped) for mounting and condition.	Sight glass (if OEM equipped) has been replaced with plug.	Any portion of coolant reservoir or mounting system is missing, cracked or damaged, is leaking, or has loose or missing fasteners.
d. Coolant Recovery Tank (non pressurized) 1) Check condition, securement and operation.	Any problem with tank, connections or missing parts.	
e. Fan Shroud 1) Check fan shroud for mounting and condition.	Any portion of fan shroud or shroud mounting is cracked, damaged, or has loose, or missing fasteners. **(Continued on Next Page)**	Fan shroud is missing. Shroud is in danger of contacting fan.

C. ENGINE COMPARTMENT 7. Radiator/Cooling (continued)		
Inspection Procedures:	**Repair if:**	**Out of Service if:**
f. Charge Air Cooler: 1) Check charge air cooler assembly, mounting, and plumbing for securement and condition (if equipped).	Any portion of the cooler mounting system is cracked, damaged, or has loose or missing fasteners. Any plumbing connections are loose, damaged, or missing.	Any portion of the cooler is cracked or leaking.
g. Heater Booster Pump: 1) Check for operation and condition of heater booster pump and plumbing (if equipped).	Booster pump is inoperative Booster pump mounting is loose or has missing fasteners.	Booster pump is leaking.

End of Section