BLUE BIRD

BULLETIN

Blue Bird OEM Installed Coolant Replacement

MODELS AFFECTED: ***A3FE, A3RE, and BBCV with Caterpillar and Cummins engines***

SERVICE BULLETIN S06LB

ISSUE

Blue Bird installed OEM coolant may not meet the ASTM 6210 specifications required by engine manufacturers.

CORRECTIVE ACTION

NOTE: If coolant has already been changed, do not perform this bulletin.

It is recommended that all delivered buses with chassis manufactured from January 01, 2006 through June 19, 2006 with OEM supplied coolant, red in color, be drained, chemically flushed and refilled with a coolant that meets ASTM 6210.

PROCEDURE

Blue Bird recommends that an authorized Caterpillar or Cummins dealer/distributor perform this flush and fill in their respective engines.

NOTE: If there is a difference between the information in this Service Bulletin and engine Operation and Maintenance Manuals, the engine Operation and Maintenance Manual takes precedence over information in this Service Bulletin.

1. Park bus on a level surface, apply parking brake, turn off engine, remove ignition key and chock wheel.

2. **Warning**: **Use care when removing the radiator cap. Slowly vent pressure before removing the radiator cap. Engine coolant is toxic and is an eye and skin irritant. Protective gear should be worn when working with this substance. Observe that the system is cool before draining and flushing the cooling system. Engine coolant is a threat to the environment. Use suitable containers for disposal. All applicable federal, state, and local laws must be observed when disposing of engine coolant.**

3. Drain and discard the coolant from the cooling system following all applicable federal, state, and local laws when disposing of engine coolant. Note: Be sure that all the heater valves are open in order to completely drain the engine, heaters, coolers, hose, etc.

    a. After the engine has cooled, locate and open all heater valves for flushing the entire cooling system. There may be more than one valve.
    b. Place a drain pan under the radiator drain and open valve. Opening radiator cap may allow system to drain faster.
    c. After system has drained, remove both the pressure and return heater hoses. Using shop air set at a maximum of 15 PSI, pressurize the heater hoses to blow the remaining coolant from the heater system.
    d. Open the lowest drain port or plug from engine to drain the remaining coolant from the engine.
    e. Close all drains, reconnect heater hoses and install all plugs that have been opened or removed.

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4. Removal of the thermostat may assist in draining, flushing, rinsing and refilling process. Follow engine manufacturers' recommendations on thermostat removal and installation.

5. If the system has a coolant filter, close the valves to the filter and remove filter.

6. **On A3FE** (**Only**): If the system has any material collected on the cap, neck or deaeration tank, remove and replace the radiator cap, brass neck and plastic deaeration tank. If the system has discolored coolant, inspect the cap, neck and deaeration tank for accumulation of foreign material or staining. If stained, clean the components, if the stain cannot be removed, then replace these components. If the coolant is not discolored and there is no accumulation on theses components, do not replace these components.

7. **On A3FE** (**Only**): Install new deaeration tank Blue Bird # 0032865, brass neck Blue Bird # 0033762, and radiator cap Blue Bird # 1325430.

8. Reconnect all hoses that were disconnected for replacing components. Check all hose connections and clamps.

9. **Caterpillar engines**:

    a. Follow Caterpillar's instruction in the Caterpillar Operation and Maintenance Manual for chemically flushing the entire cooling system. Note: For the Caterpillar engines with sludge or oil, use Caterpillar's 30-Day cleaner and for scale and deposit use Caterpillar "Quick Flush" type cleaner.
    b. When using the acid type cleaners, be sure the systems are flushed 3 – 5 times to remove all cleaner from the system. If cleaner is not completely removed ammonia salts will be left from the cleaner and severe copper corrosion can occur.
        i. After the engine has been stopped and the cooling system has cooled, drain the cleaner from the entire system following the steps describe in the initial drain including pressurizing the system with 15 PSI (max) of shop air.
        ii. Close all drains and reconnect all hoses that have been removed.
        iii. Fill the system with water and run for minimum of 30 minutes on high idle with heater pumps on and all heater valves open.
        iv. After the engine has been stopped and the cooling system has cooled, drain the water from the entire system following the steps describe in the initial drain including pressurizing the system with 15 PSI (max) of shop air.
        v. With the hoses disconnected and the drain valves open, run fresh water through the heater system, radiator, transmission cooler and engine until the water is clear.
        vi. Close all drains and reconnect all hoses that have been removed
        vii. Fill the system with water and run for minimum of 30 minutes on high idle with heater pumps on and all heater valves open.
        viii. Repeat the steps as many times as required to ensure that the system is clean and the chemicals completely removed.

    c. **NOTE**: **It is IMPORTANT that the cleaner be completely removed**. If the cleaner is not completely removed, ammonia salts will be left from the cleaner and can damage the bus cooling system. Therefore, multiple flushing and filling may be required.

10. **Cummins engines**:

    a. Follow Cummins's instruction for chemically flushing the entire cooling system. Note: For the Cummins use Restore for sludge and oil, use Restore Plus (+) when heavy metals or deposits are present.
    b. When using the acid type cleaners, be sure the systems are flushed 3 – 5 times to remove all cleaner from the system. If cleaner is not completely removed ammonia salts will be left from the cleaner and severe copper corrosion can occur.
        i. After the engine has been stopped and the cooling system has cooled, drain the flush from the entire system following the steps describe in the initial drain including pressurizing the system with 15 PSI (max) of shop air.
        ii. Close all drains and reconnect all hoses that have been removed.
        iii. Fill the system with water and run for minimum of 30 minutes on high idle with heater pumps on and all heater valves open.
        iv. After the engine has been stopped and the cooling system has cooled, drain the water from the entire system following the steps describe in the initial drain including pressurizing the system with 15 PSI (max) of shop air.
        v. With the hoses disconnected and the drain valves open, run fresh water through the heater system, radiator, transmission cooler and engine until the water is clear.
        vi. Close all drains and reconnect all hoses that have been removed
        vii. Fill the system with water and run for minimum of 30 minutes on high idle with heater pumps on and all heater valves open.
        viii. Repeat the steps as many times as required to ensure that the system is clean and the chemicals completely removed.

    c. **NOTE**: **It is IMPORTANT that the cleaner be completely removed.** If the cleaner is not completely removed, ammonia salts will be left from the cleaner and can damage the bus cooling system. Therefore, multiple flushing and filling may be required.

11. If the bus has a coolant filter, check the filter head, clean filter head and lines as required to remove all of the old coolant and any residue. Install a new coolant filter.

12. If the thermostats have been removed in an earlier step, reinstall thermostats following engine manufacturer's procedures.

13. In Caterpillar engines, install Caterpillar ELC Premixed 50/50 Part Number 101-2844 (one (1) gallon), 129-2151 (5 gallons) or 101-2845 (55 gallons drum) following Caterpillar instructions in the Caterpillar Operation and Maintenance Manual. In Cummins engines, install Fleetguard ES Optimax Ethylene Glycol Premixed 50/50 Part Number CC2785/CC2785X (one (1) gallon) or CC2787/2787X (55 gallon drum) following Cummins instructions.

14. Operate engine to open thermostats and allow the air to escape from the system. Bleed the heater system. If the coolant level drops when the thermostats open or during bleeding of the heater system, stop and add premix coolant.

    After operating the engine to open thermostats and bleeding the heater system, allow the engine cooling system to cool. Check for coolant level in the deaeration tank. Top off with the appropriate Caterpillar ELC Premixed 50/50 Part Number 101-2844 (one (1) gallon) only in Caterpillars engines and Fleetguard ES Optimax Ethylene Glycol Premixed 50/50 Part Number CC2785/CC2785X (one (1) gallon) in Cummins engines.

    Do NOT top off with water or other brand coolants. **Do NOT mix coolant brands and colors.**

    After the air has been removed, run the engines until the thermostats open to mix the new added coolant, turn off the engine and wait 15-30 minutes then test the glycol level from the bottom of the radiator with a refractometer to be sure the glycol level is 50%. If the glycol level is less than 50%, drain the appropriate amount and add concentrate per Caterpillar or Cummins procedures for increasing glycol percentage to correct glycol level.

    When the system has been successfully bled and the coolant level remains at the correct level, pressure test the cooling system for leaks. If no leaks are found, place bus back in service.

    INSTRUCTIONS FOR BLEEDING THE HEATER SYSTEM

    i. With the engine stopped and a cool engine, remove the radiator cap.

    ii. Start engine and operate at 1800 to 2000 rpm.

    iii. Locate the ¼" black tube with a bleed valve. Place the open end of the bleeder tube into filler neck of deaeration tank.

    iv. Open the bleeder valve.

    v. Add 50/50 premix coolant as required during this process to maintain the coolant level.

    vi. Operate the engine with the bleeder valve open until all air has been purged from the system.

    vii. After the air has been purged and solid stream is present, turn off the bleeder valve and store the bleeder line.

    viii. Install the radiator cap.

    ix. Operate the engine until the thermostats open. Stop and let engine cool. Recheck coolant levels and top off the approved 50/50 premixed coolant.

15. Operate the buses/engines for approximately 30 days then take samples of the coolant for a Caterpillar SOS Level 2 or Monitor C for Cummins Fleet Guard coolant or equivalent lab test to be sure heavy metals are not present, the cleaner has been completely removed from the system and the corrosion protection and glycol levels are correct for proper protection.

Service Bulletin S06LB expires one year from date of issue.