DEF Tank Level Sensor Replacement

UPDATE

SU1216

SERVICE UPDATE

WARNING: Always follow all Federal, State, Local and Shop safety standards and use proper safety equipment, and thoroughly read and understand all instructions before performing these procedures.

In the event that you would need to replace the DEF Tank Level Sensor, see instructions below.

1. Park the bus on a level surface, apply parking brake, switch engine off, remove ignition key and chock wheels.

2. Disconnect batteries. (negative [-] cable first, then positive [+])

3. Relieve pressure from cooling system by removing pressure cap from surge tank. After pressure has been relieved, replace pressure cap. (See "*Cooling*" section in your Blue Bird Service Manual for surge tank location.)

4. Locate DEF Tank and cut wire ties to free up the two wire harnesses that lead to the level sending unit.

5. Unplug both wire harnesses. (Fig. 1)

6. Disconnect DEF lines and coolant hoses from the head unit. Use pinch-off type hose clamps on the coolant lines prior to removing to prevent coolant from leaking out of hoses.

7. Lower DEF Tank from bus by removing the four bolts from the isolator assemblies. (Fig. 2)

   CAUTION: Be sure to support bottom of tank when removing bolts and isolators.

WARNING: Do not remove the pressure cap from a hot engine. Wait until the coolant temperature is below 50°C [120°F] before removing the pressure cap. Heated coolant spray or steam can cause personal injury.

WARNING: Coolant is toxic. Keep away from children and pets. If not reused, dispose of in accordance with local environmental regulations.

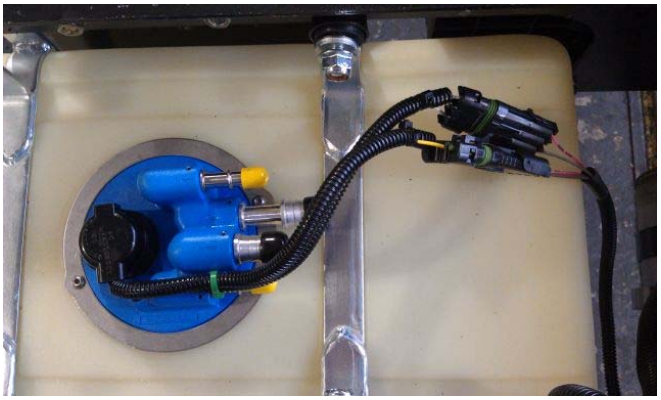

Fig. 1

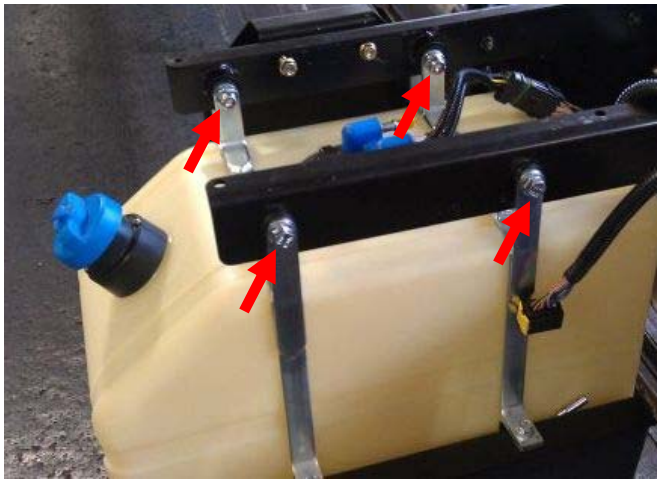

Fig. 2

8. Using a 1/8” Allen wrench/hex key, unscrew the Allen screws holding the retaining ring to the reservoir from the unit and place safely aside to be used at a later time. (Fig. 3)

Fig. 3

9. Remove retaining ring from unit. (Fig. 4)

Fig. 4

10. Using a flathead screwdriver, gently pry around where the head unit is connected to the reservoir while pulling on the top of the unit to remove. (Fig. 5 & 6)

CAUTION: Do NOT pull on the wires or fittings for removal.

Fig. 5

Fig. 6

11. Once loosened from the DEF reservoir, pull the head unit out of the tank, and drain the head unit of any coolant still inside. Place the head unit upside-down on a soft, clean surface. (Fig. 7 & 8)

***Note**: Place a protective cover over tank opening to prevent contamination of DEF.*

Fig. 7

12. Grip the Focus Tube and hand loosen counter-clockwise until it becomes unattached from the head unit (Focus Tube colors vary). Set aside for use at a later time. (Fig. 9 & 10)

Fig. 8

Fig. 9

13. Place the head unit upright on a clean surface, so as to help prevent contaminants from being introduced into the reservoir upon re-installation. (Fig. 11)

Fig. 10

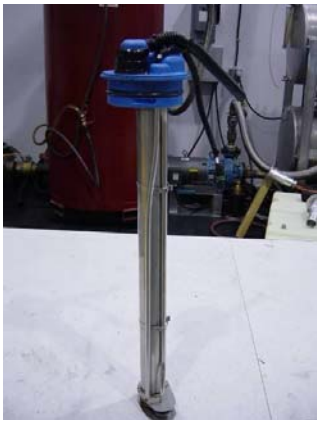

Fig. 11

14. Snip off the zip ties to remove the split wire loom from the wires connected to the sensor and remove split wire loom from around the wires connected to the level sensor unit. (Fig. 12 & 13)

    ***NOTE**: Mark or note the orientation of the existing sender wires. New sender wires will need to oriented in the same direction after installation.*

Fig. 12

Fig. 13

15. Use groove lock pliers or a wrench to firmly grip the base of the level sensor and turn it counter clockwise to remove it from the head unit. (Fig. 14 & 15)

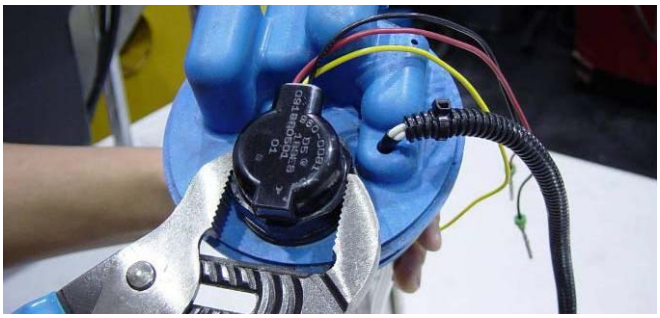

Fig. 14

Fig. 15

16. The gasket of the new level sensor should be lubricated with a thin layer of DEF compatible lubricant, such as Parker Super O-lube or any silicone based lubricant, and then screwed into place until the bottom lip of the sensor is touching the top of the head unit. (Fig. 16 & 17)

Fig. 16

Fig. 17

17. Use the groove lock pliers or wrench to tighten so that the wires are in the original position. (Fig. 18 & 19)

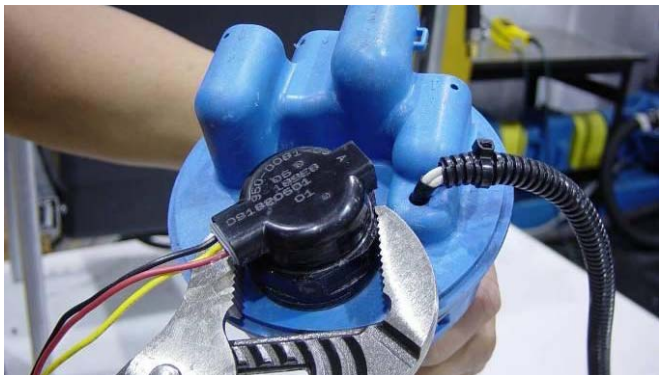

Fig. 18

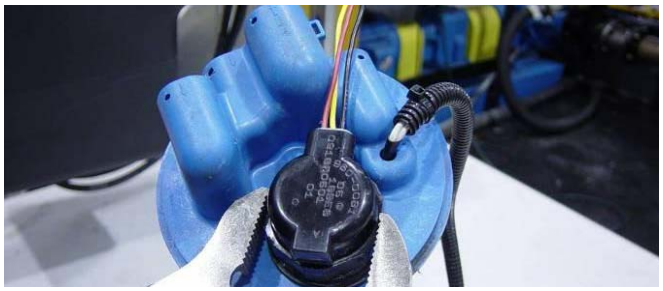

Fig. 19

18. Locate where the focus tube will be positioned on the underside of the head unit. Place the focus tube so that the inner threaded side of the tube will be tightened over top of the threaded projection from the level sensor on the underside of the head unit (Focus Tube colors vary). (Fig. 20, 21, 22 & 23)

Fig. 20

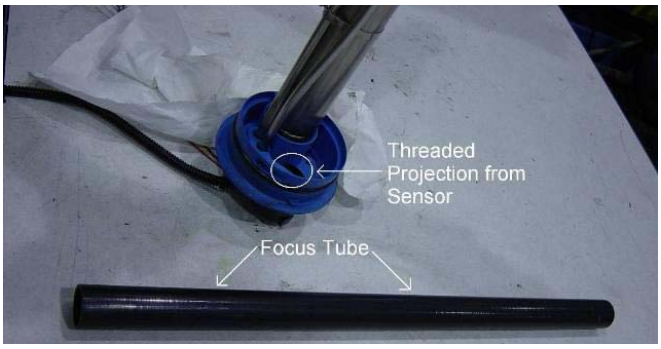

Fig. 21

Fig. 23

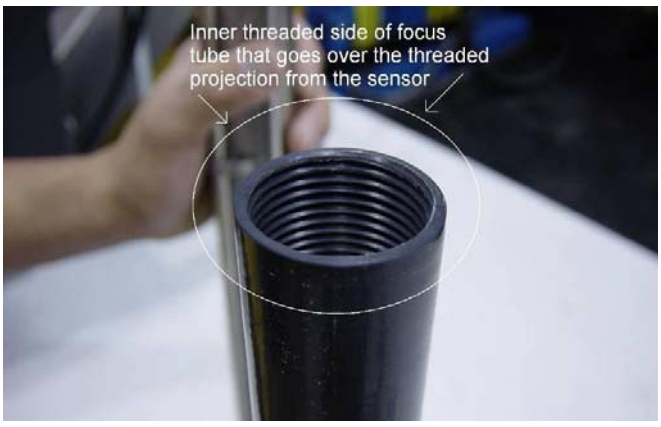

Fig. 22

19. Tighten the focus tube by hand until it feels snug. (Fig. 24 & 25)

Fig. 24

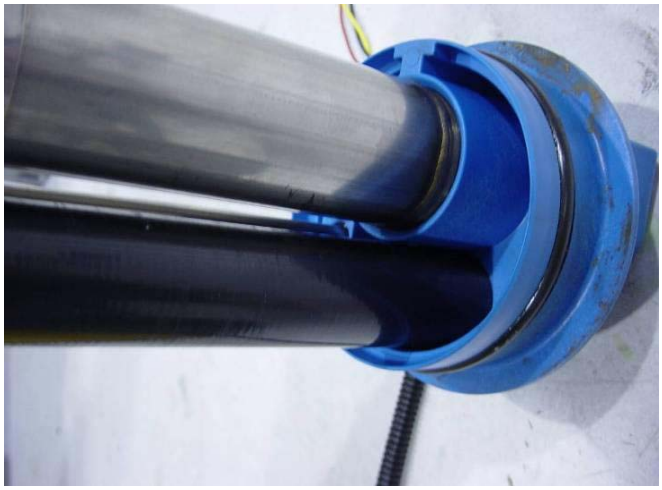

Fig. 25

20. Pull the split wire loom over the wires of the new level sensor unit (Fig. 26) and attach zip ties (Fig. 27 & 30), making sure that the second tie connects both wire looms (Fig. 28) and goes through the connector located on the DEF head unit itself (Fig. 29).

Fig. 26

Fig. 27

Fig. 28

Fig. 29

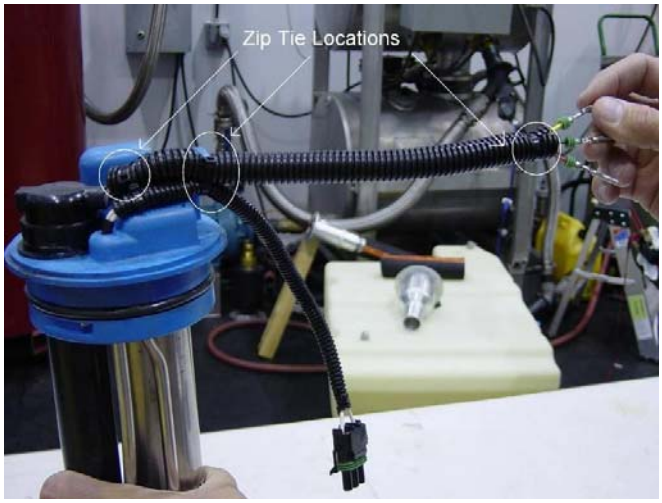

Fig. 30

21. Position DEF head unit with new level sensor and focus tube over reservoir tank. Angle the head unit so that it will fit through the opening, then straighten the head unit and slide it the rest of the way through. (Fig. 31)

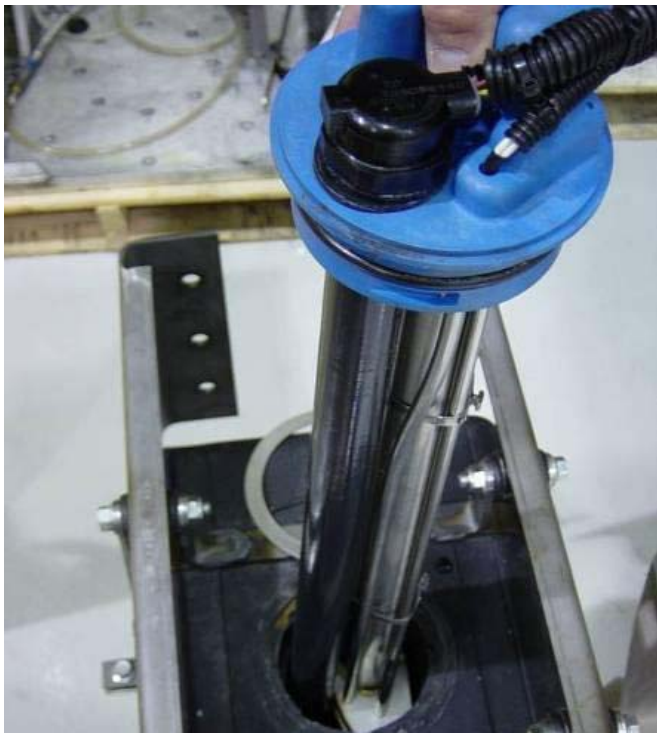

Fig. 31

22. Push the head unit back into place, facing the original or desired location to ensure proper hose connection. Parker Super O-Lube or equivalent silicon based lubricant may need to be applied to the O-ring on the head unit for easier insertion. Apply Loctite 242 to the screw holes on the reservoir, and then slide the retaining ring over the split wire loom coverings and onto the head unit, ensuring the screw holes of the retaining ring match up with the holes in the tank. (Fig. 32)

Fig. 32

23. Using the Allen Wrench/Hex Key, screw the Allen screws back into place and installation is complete. Recommended torque installation is 20-30 in-lbs. (Fig. 33)

Fig. 33

24. Reinstall DEF tank into mounting brackets with existing isolators and fasteners. Torque nut 20-23 FT-LBS. (Fig. 34)

25. Reconnect DEF lines and coolant hoses to the head unit.

26. Remove pinch off type hose clamps.

27. Plug in the two wire harnesses and secure with wire ties.

28. Reconnect batteries. (positive [+] cable first, then negative [-])

29. Remove wheel chocks and place bus back in normal service.

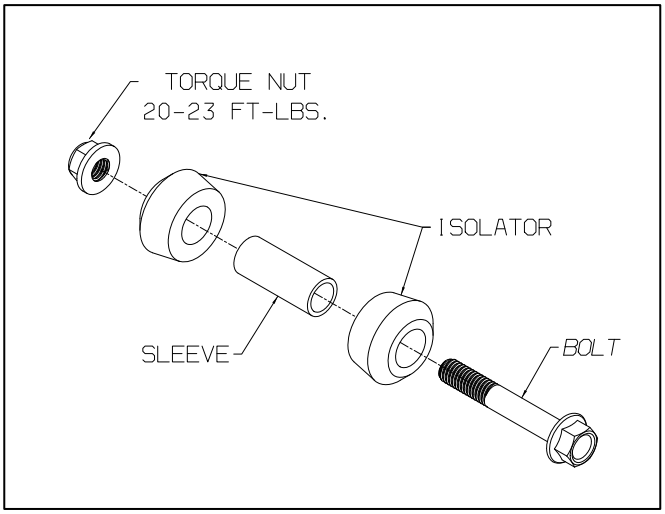

Fig. 34