



# Erratic Gauges

MODELS AFFECTED: All Blue Bird Visions

# BULLETIN

## ISSUE

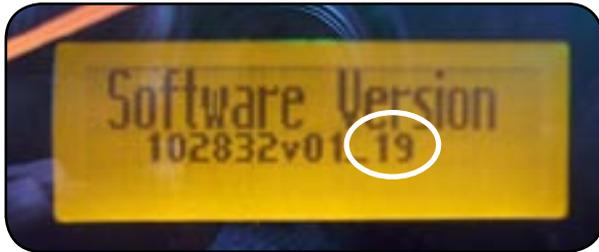
Intermittent electrical connections cause Blue Bird Vision dash panel to perform its start-up cycle during operation of vehicle. Gauges sweep and Warning Bank lights blink.

## CORRECTIVE ACTION

This procedure covers checking and correcting electrical connections in several key areas which have been found to correct the problem on affected units. For the distinction between sweeping versus wagging gauges and additional troubleshooting info, see attachment: *ACTIA Instrument Panel Blue Bird Instrumentation Diagnostics—Needle Functions.*

## PROCEDURE

- 1 Turn ignition key to ON position and watch the Speedometer Message Display Center. Note the software version installed. If the version is 18 or higher, proceed to step 2. Software versions prior to 18 must be updated, either by uploading new software, or by replacing the Speedometer.



- 2 Park the bus on a level surface. Remove the ignition key and chock the rear wheels. Disconnect the negative battery cable from the battery.

- 3 If the bus is equipped with a Battery Quick Disconnect Switch, ensure the security of the connections on the back of the switch as follows:

- 3.1 Locate the switch body under the bus on the rear wall of the battery compartment. Locate the smaller terminal to which two cables are attached.



- 3.2 Remove the two 10-32 nuts, star washers, and cable ends. Reinstall the cables with components in this stacking order:

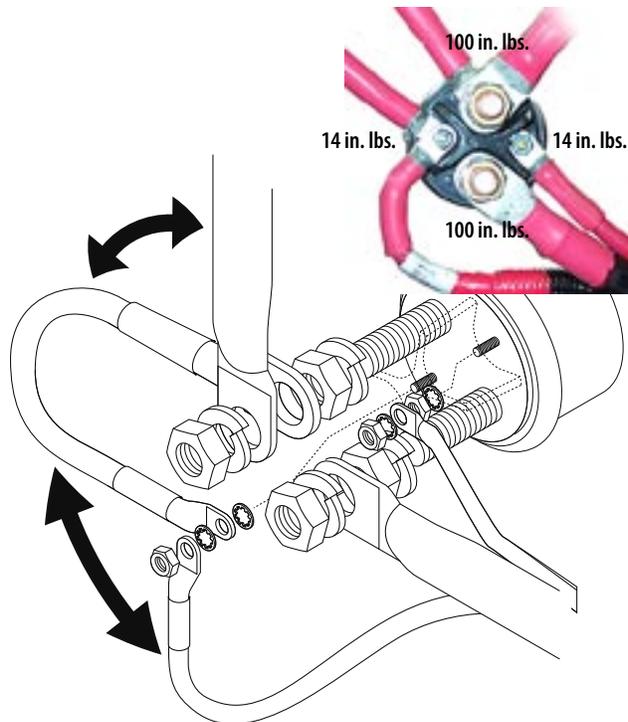
1. Star Washer
2. Cable
3. Star Washer
4. Cable (turn cable connector barrel ~90 degrees from first cable.
5. Nylock Nut (0043743). Torque to 14 in. lbs.

- 3.3 Using a cable tie (0029999), secure the smaller 4 gauge wire to the adjacent battery cable.

- 3.4 Remove the top nut, washer and cable end from the remaining small stud to which one cable is connected. Reinstall the cable with components in this stacking order:

1. Star Washer
2. Hex nut (Check torque; 14 in. lbs.)
3. Cable
4. Star Washer
5. Nylock Nut (0043743). Torque to 14 in. lbs.

- 3.5 Check the two large studs for solid connection. Torque to 100 in. lbs.



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S E R V I C E B U L L E T I N

**4** If the bus is equipped with a right side heater blower mounted on the floor forward of the entrance door stepwell, the blower housing may have to be removed to access some of the screws of the PDU cover.

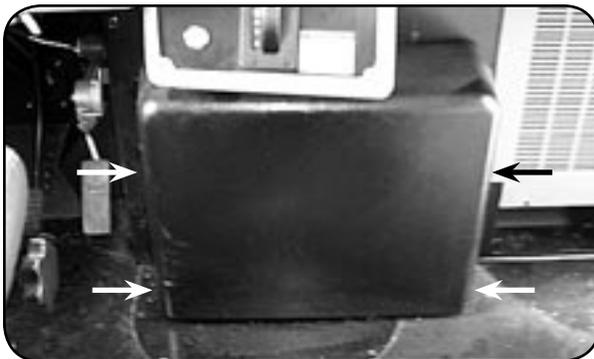
4.1 Pry out the plastic access plugs on the top of the blower housing and remove the three mounting screws.



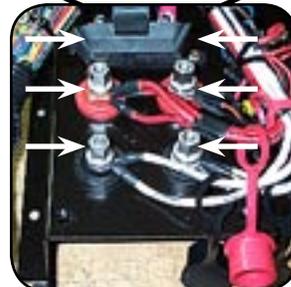
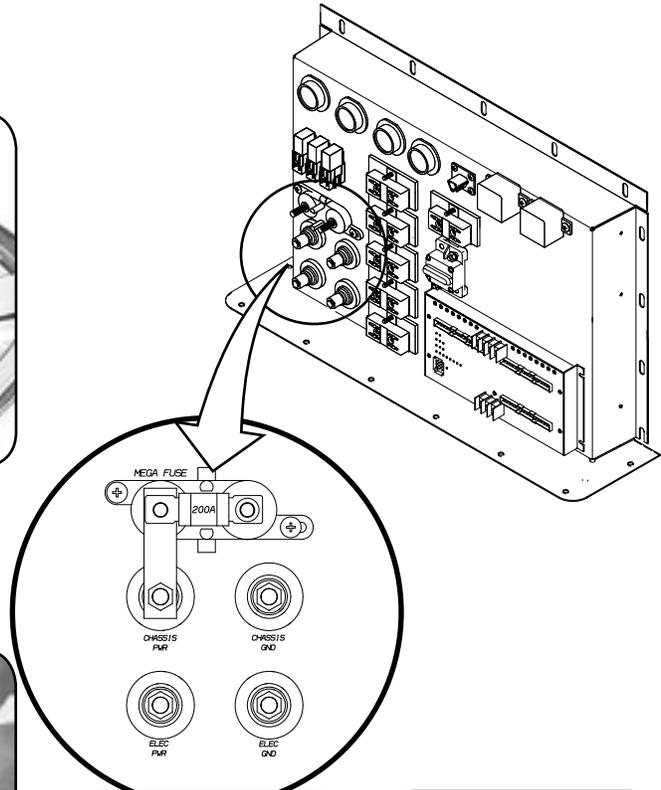
4.2 Slide the housing assembly rearward toward the stepwell. Unplug the blower motor harness at the left side of the assembly and remove the assembly.



4.3 Remove two screws on each side of the PDU cover and remove the cover.



**5** Six large connection studs located at the left bottom of the PDU must be checked. Four of these are pass-through connectors and must be checked on both sides of the panel. This will require unbolting the PDU panel for access.



6 studs viewed from passenger side of PDU panel



4 studs viewed from engine side of PDU panel

5.1 Remove the screws securing the transmission cover plate in front of the PDU.



5.2 Remove the self-tapping bolts securing the PDU panel.



5.3 Carefully pull the right side of the PDU back just enough to allow access to the connectors, and power and ground studs on the engine side of the panel.



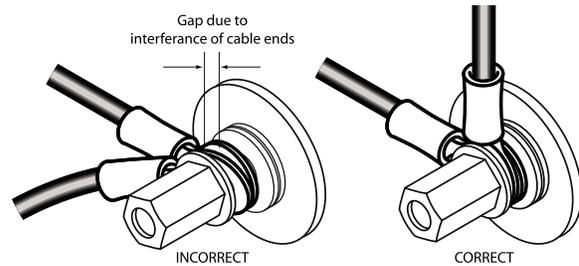
**6** Locate, inspect, and tighten the connections on the engine compartment side of the PDU panel as follows:

6.1 Locate the four pass-through connector studs on the engine compartment side of the panel.



*4 studs on engine compartment side of panel (rubber insulator caps removed)*

6.2 Remove the insulator cap from each stud, and inspect the connection. Ensure that all eyelets of cable ends are seated flatly between the nut and the connector stud without gaps. A nut may appear to be tight even though gaps are present due to stacking interference between connector ends, or binding of the parts.



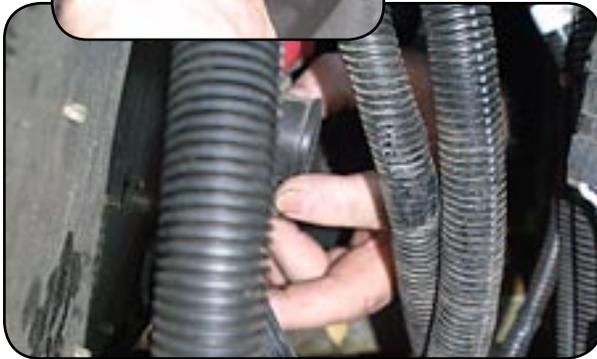
If necessary, loosen the connection in order to relieve binding. On studs with more than one eyelet connector, orient the cable ends so that they do not bind and create gaps. Before re-tightening, fan cable ends away from each other to avoid their barrels stacking up and preventing a solid connection between eyelets.

6.3 Tighten the stud nuts to 25 ft lbs. and replace the insulator caps.



*Tighten all four connector stud nuts to 25 ft lbs. ...*

*... and reinstall insulator caps.*



**CAUTION** Be sure to reinstall the rubber insulator caps securely on the connector stud nuts, to prevent possible short circuits.

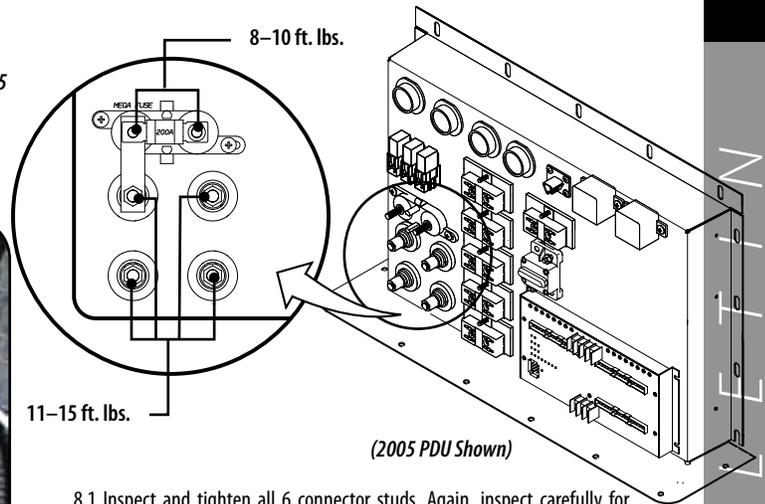
6.4 Locate the gray J1939 harness connectors shown below, located just rearward of the engine valve cover near the red heater cutoff valve. Unfold the J1939 cable if sharply bent. Cable should be as straight as possible to relieve stress on internal wires. Check these for secure connection.



6.5 Check all other harness connectors on the engine compartment side of the panel, ensuring they are secure.

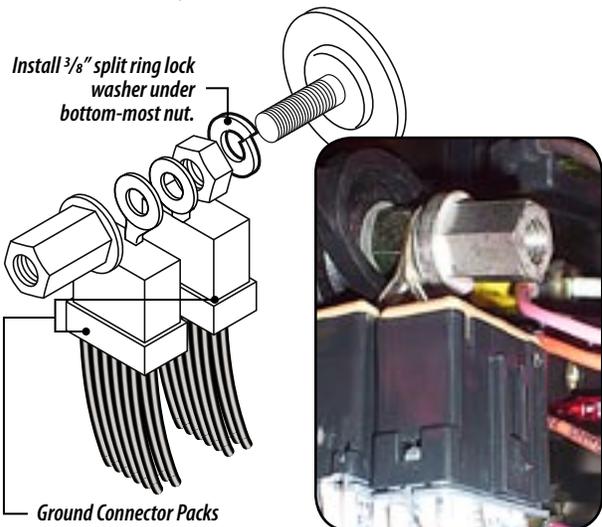
**7** Remount the PDU panel and reinstall the transmission cover panel which was removed in steps 5.

**8** Similarly inspect and tighten the connector studs on the bus interior side of the PDU Panel. Before proceeding, note the difference which exists between 2004-05 model Visions and 2006 model Visions, described below:

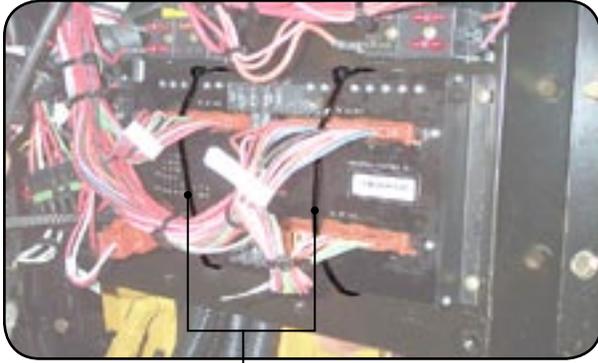


8.1 Inspect and tighten all 6 connector studs. Again, inspect carefully for any connection gaps or loosening between cable eyelets due to binding or arrangement of cable ends. Torque connector stud nuts to the values shown above.

8.2 On some Visions, the Chassis Ground connector stud attaches two Ground Connector Packs. The bulk of these two Ground Packs may cause a connection gap. To provide additional stand-off space for a secure connection, install a 3/8" lockwasher under the bottom-most nut of this stud, as shown below. Torque both nuts on this stud to 11-15 ft. lbs.

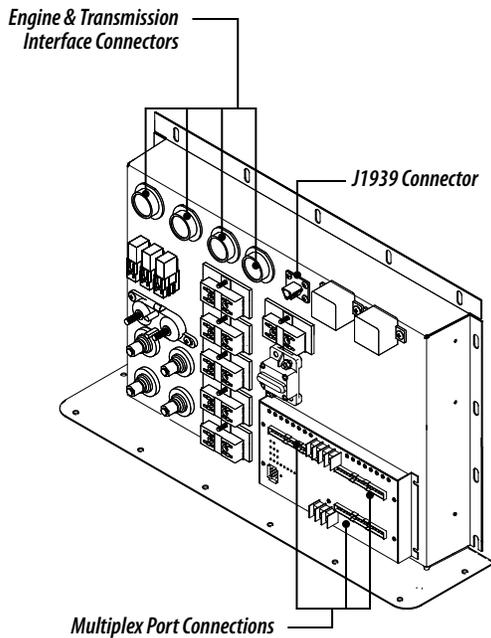


**9** Push each of the three Multiplex Port connectors to ensure they are securely seated in their sockets. Install cable ties 0029999 around the MPX module and the connectors as shown. Do not overtighten. The cable ties should be snug enough to help secure the port connectors against loosening, but not so tight as to bend them over.



0029999 Cable Ties

**10** Before reinstalling the PDU cover, check all other harness connectors on the bus interior side of the panel, ensuring they are secure.



**11** On 2006 model Visions, the chassis ground and power cables leading from the PDU are connected to terminals on the firewall inside the engine compartment. Raise the engine hood to check these connectors also for solid connections and tighten to 25 ft lbs. Apply anti corrosion protectant.



Terminals above engine on firewall leading from PDU

**12** J1939 harness connectors similar to those shown in step 6.4 are located behind the driver's instrument panel, and should be checked for good connection.

12.1 Remove the screws around the perimeter of the instrument panel, and lift the panel away from the dash housing.



12.2 Locate the connectors shown and ensure they are securely connected.

Inspect the area for any signs of abraded wires or poor connections and correct accordingly. If the J1939 cable is folded over or sharply bent against itself, unfold it if possible. Cable should be as straight as possible to eliminate stress on internal wires.



12.3 Carefully inspect the harness wires on the back side of the instrument panel for loose connectors. On some units, the rear edge of the housing retainer plate is not positioned closely against the housing, and may provide opportunity for abrasion of the nearby wires. Inspect the wires on the back of the panel for signs of abrasion or damaged insulation. Repair any damaged insulation. As a preventive measure, install a length of vinyl edge trim (BB # 1489434) along the edges of the retainer plate.



**13** Reinstall the instrument panel. Reinstall the PDU cover and right front heater housing (if equipped). Reconnect the battery ground cable. Test drive the vehicle and verify that gauges do not restart during normal operation.



February 14, 2005

## Actia Instrument Panel

### Bluebird Instrumentation Diagnostics - Needle Functions

#### 1) Start up self test:

- Instrumentation Operation (Sweeping). Normal at startup only.

During normal startup all gauge needles will be synchronized and sweep in unison from 50% to 100% to 0%. All Warning lights will come on and go off. The audible alarm will sound three tones during the sequence. The LCD will self test and display current software revision.

This startup cycle should not occur while the bus is running during normal operation.

- Causes of gauge startup cycle while the bus is running:
  - Loss of ignition voltage to the instrumentation.
  - Loss of ground connection to the instrumentation.
  - Loss of battery voltage to the instrumentation.

Note: If a fault is active at the time of start up the LCD will display the fault first. You must EXIT this screen to display the current software version. The startup sweep function can be disabled from the setup menu. If disabled, the needles will only move from neutral to input setting.

#### 2) Loss of J1939 databus communication:

- Instrumentation Operation (Wagging). Abnormal.

Needles on all gauges operated through the J1939 databus sweep from 0% to 100% and back continuously, not in sync with other gauges. Warning lights do not blink, but may light continuously.

- Causes:
  - Total loss of J1939 communication (All J1939 gauges wagging and message in the LCD message center).
  - ECM connection broken from J1939 databus (Only gauges receiving their data from the ECM wagging and message in the LCD message center).
  - ECM calibration / setup incorrect (Only the specific gauge receiving its data from the ECM wagging and no message in the LCD message center).
  - TCM connection broken from J1939 databus (Only gauges receiving their data from the TCM wagging and message in the LCD message center).
  - TCM calibration / setup incorrect (Only the specific gauge receiving its data from the TCM wagging and no message in the LCD message center).

#### 3) Loss of Instrumentation (LIN) databus communication (Communication between the speedometer and other gauges and warning bank):

- Instrumentation Operation (Wagging)

The needles will sweep from 0% to 100% and back continuously and gauges warning lights will blink on and off intermittently with a rapid pulse. The Speedometer will not be wagging.

- Causes:
  - Bad or loose connection at the master gauge (speedometer) or slave gauges.
  - Defective splice connection in the instrument harnessing.
  - Defective slave gauge.
  - Defective master gauge.