Diagnosing and Resolving Dynamic ECU Fault Codes
(Fault Codes created while trailer is moving)

The following diagnostic codes are NOT typically results of the ECU performance. First, thoroughly investigate the following ECU Fault Codes BEFORE replacing any ECU.

A Wheel speed sensor output having insufficient or too low signal can cause any of the following fault codes: 11, 12, 13, 14, 15, or 16 (Occurs when the trailer is moving).

Steps to verify and correct if needed:
1. The gap between the sensor and the exciter ring is too great.
   a. Measure the AC voltage output at the sensor in question while rotating the corresponding wheel at least 1 revolution every two seconds. The voltage output should be at least 200 millivolts or .2 Volts AC.
   b. If the output is less than 200 millivolts AC, try pushing the sensor in the sensor block until the sensor touches the exciter ring.
   c. Ensure the sensor block retaining clip is not damaged and verify the sensor is secured within the sensor block retaining clip against the exciter.
   d. If this does not correct the voltage problem, replace the sensor and any sensor extensions if so equipped.
2. The teeth on one or more of the exciter rings may be damaged or the gaps between the teeth may be filled with debris.
   a. Visually inspect and clean the exciter ring.
   b. If nicked or missing teeth, replace the exciter ring.
   c. Ensure exciter ring is mounted flush with hub if using a press on ring.
   d. Ensure hub bearings are torqued properly to eliminate exciter ring wobble.

A Wheel speed sensor having an intermittent loss of a sensor signal can cause any of the following fault codes: 21, 22, 23, 24, 25, or 26 (Occurs when the trailer is moving).

Steps to verify and correct if needed:
1. The most likely causes include: a broken sensor block or broken/loose retaining clip, a damaged or misaligned exciter ring, or excessive wheel bearing end play.
2. Other possible causes are: a loose, damaged, or corroded sensor electrical connection or a break in the sensor cable or sensor extension.
   a. If the connections look good, terminals are not damaged or corroded, then look for visual external damage to the cable. Replace any suspect components and retest.
   b. Verify sensor cables and cable extensions are NOT tie wrapped too tight to any Air Hoses.
3. Ensure that the wheel bearings are torqued to the manufacture’s specification. Loose wheel bearings can cause false sensor signals.
4. The teeth on the exciter ring may be damaged (even slight damage can causes faults) or the gaps between the teeth on the exciter ring may be filled with debris
   a. Inspect and clean the exciter ring.
   b. If nicked, missing or deformed teeth are present, replace the exciter ring, hub or rotor depending on style of exciter teeth.

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**Code 41, 42 or 43 (Occurs when the trailer is moving):** Indicates that a wheel is slow to come back up to speed when ABS releases the brakes during an ABS event.

**Corrective Actions:**
1. Likely causes include: 1) a dragging brake, 2) a pinched/kinked/restricted air hose, 3) a defective valve, 4) a different number of exciter ring teeth between wheels, 5) too small of tires used with 100 tooth exciter rings.
   a. Check the service brakes to ensure they release freely and completely. Look for visual external damage to the delivery hoses or delivery tubing. Replace any defective hardware and retest.
2. If 4S/2M system, verify correct ABS configuration (Side by Side or Axle by Axle)

**If multiple sensor and solenoid codes appear in any combination (Occurs on 1M systems and 2M Select ECU’s) when 12 volt DC power is supplied without the Solenoid and/or the Sensors connected:**

1. If multiple dynamic sensor and solenoid codes are generated, this would most likely be caused by the sensor to valve channels not in the correct locations. Verify correct ABS system configuration in ABS Installation Manual (L30041 pages 27-34).
   a. **Example A:** The wheel speed sensors are in the correct place on the ECU but the sensed axles plumbed to the wrong ABS valves.
   b. **Example B:** The plumbing could be correct but the wheel speed sensors are plugged into the incorrect place on the ECU.
   c. **Example C:** Wheel speed sensors are plugged into the incorrect place on ECU and/or the wheels are plumbed to the wrong ABS valves.
2. If too small of tires are used with 100 tooth exciter rings you could see multiple dynamic sensor and solenoid codes occur.
3. Ensure the number of teeth on the exciter ring matches the specific tire size used. Refer to ABS Installation Manual (L30041- page 48).

**Notes:**

- If an “07” dynamic fault code is displayed but the ABS warning lamp remains on and there is an 11-16 or 21-26 code stored in memory. Correct the problem and pull the trailer above 6 mph to get the ABS light to turn off and then clear the stored codes.

- **Driving the trailer above 6 mph AFTER repair** is critical to assure proper ECU configuration and self testing.

- The tractor or yard spotter must have switched permanent power to the blue 7-way plug center pin.
  
  *(Without permanent power to the ECU, proper diagnostics and configuration cannot take place.)*