Washout Kit

Items Included in the Kit

Unpack the kit and review its contents.

Label the Sensor Cable(s): Label **both ends** of the cable using colored tape or zip ties to identify its function when routed to the Hub.

Recommendations:
Yellow – Slump Hydraulic Sensor
Red – Drum Sensor (Drum 1)
Green – Drum Sensor (Drum 2)
Blue – Water Add Flow Meter
White – Washout Switch

Washout Switch Kit Quantity: 1 DF Part Number: **WASH-102** (dimple indicator on sensor faces water flow)	
M12 Cordset, 20M Cable Kit Quantity: 1 DF Part Number: **GEN-102**	
Male Terminals DF Part Number: **GEN-110**	
Female Terminals DF Part Number: **GEN-101**	
T-Fitting (3/4” x 3/4” x 1/2”) Kit Quantity: 1 DF Part Number: **WASH-101** (fitting for sensor)	
3/4” Pipe Connector Kit Quantity: 1 DF Part Number: **WASH-100**	

Tools for the Job (not included)

- #2 Phillips screwdriver (or screw gun with #2 Phillips end)
- 22 mm Wrench (for Washout Sensor)
- Pipe wrenches
- Hose cutter
- Cable stripper (nice to have)
- Wire crimpers
- Wire strippers
- Side cutters

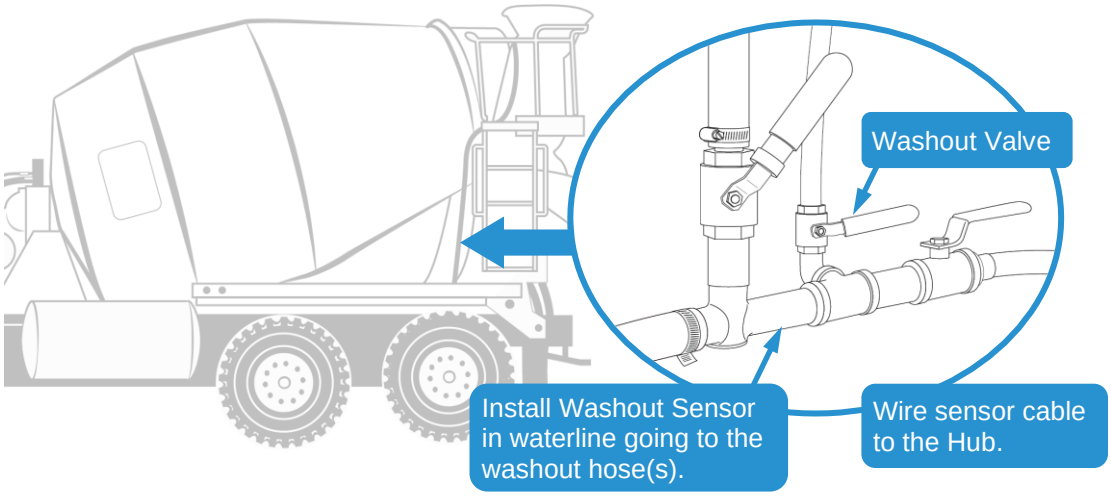
Additional Items Needed (not included)

- Grommets, bushings, hole plugs (to pass wiring through dash/firewall)
- Wire ties
- Colored tape (to mark cables)

Installation – Washout

The Washout Switch is installed in the water line going into the washout valve. This allows the driver and dispatch to monitor washout events.

During Installation You Will:



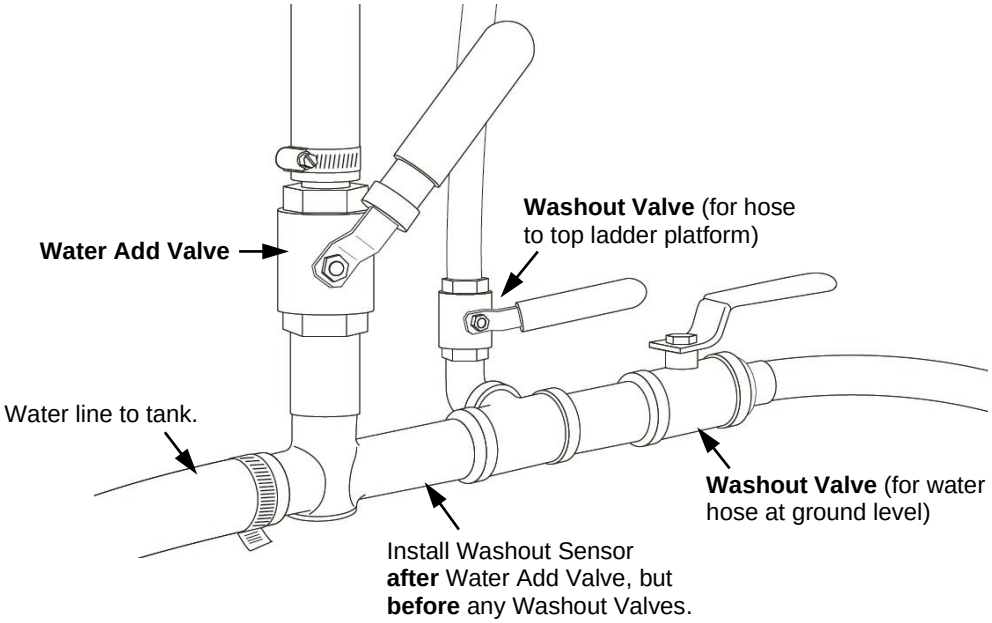
INSTALLATION

Step 1. Before starting—color code each end of the sensor cable to identify its function when routed to the hub (white recommended for Washout).

Step 2. Engine must be off, but leave battery connected.

Step 3. Start installation in the water line **after** the water add valve, but **before** any washout valves, see image below.

Note: There may be multiple washout valves (for hose going to top ladder platform, for hose at ground level).



Step 4. Drain the water line.

Step 5. Install pipe fittings for Washout Switch (reference images below and on next page).

5.1. Unscrew the hose from the washout valve, then unscrew the washout valve(s).

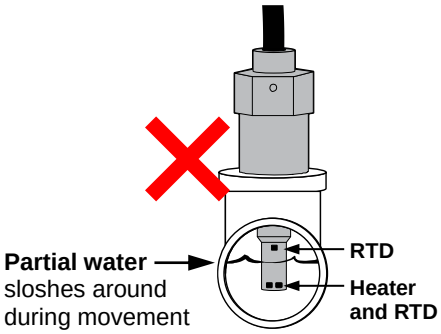
5.2. Install the T-fitting (WASH-101) for the washout switch (use pipe compound on the threads to avoid leaks)—**read Important Notes below** before installing.

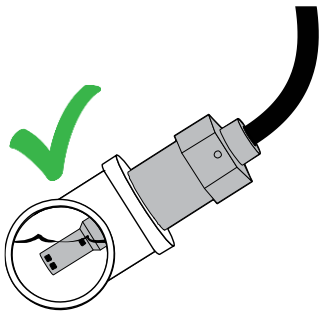
Important Notes:

A. Sensors in waterlines that do not fully drain can give sporadic false readings—typically an issue on **Front Discharge Mixers** where the sensor is installed in a low point of the line.

Front Discharge Mixers - Steps to avoid sporadic false readings:

1. Install sensor in a higher point of the line, **or**
2. Tilt sensor so **both RTDs and the heater** (on the sensor tip) stay in contact with water when the line is not fully drained (see image).



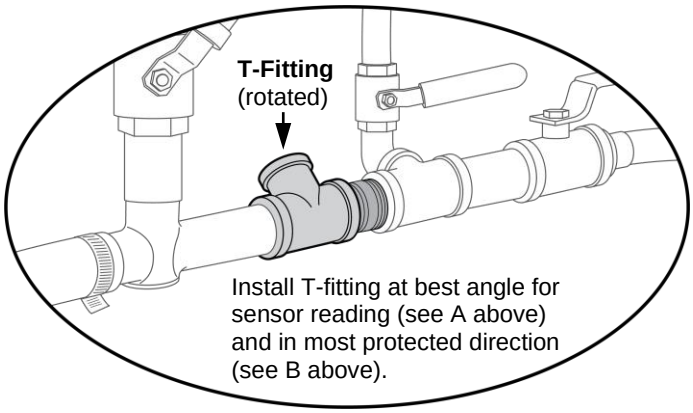


If water will not drain completely:

- Install T-fitting at an angle, so **both RTDs and the heater** contact water.
- Angle required varies depending on installation.

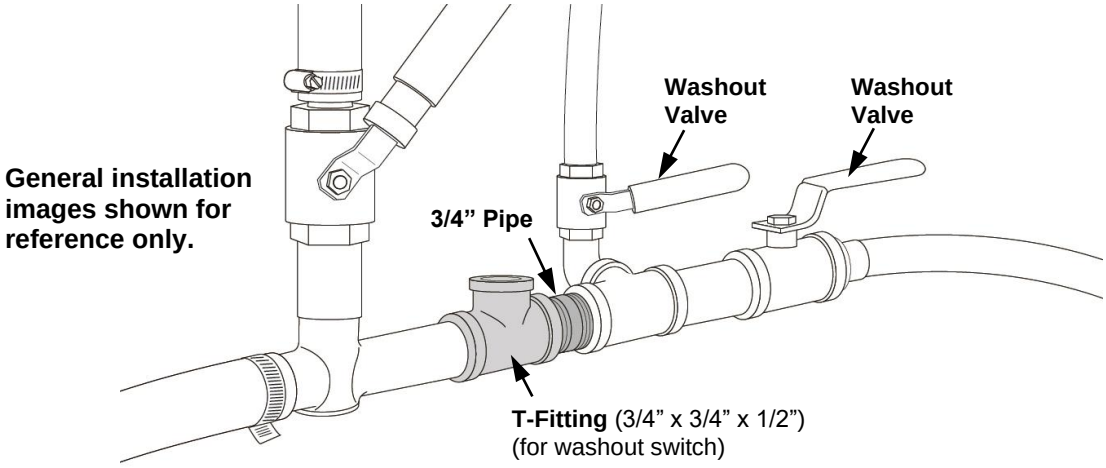
B. Sensor placement **must not interfere** with a valve handle turning or have sensor cable bumped during normal operation.

- Position T-fitting opening so sensor can be freely installed, and sensor cable easily attached.
- When T-fitting is installed at an angle (i.e., on Front Discharge Mixers, see image below), sensor must **NOT vibrate** against any object or surface after installed.



5.3. Install 3/4” pipe on T-Fitting (use pipe compound).

5.4. Reinstall washout valve(s)/hoses (use pipe compound).



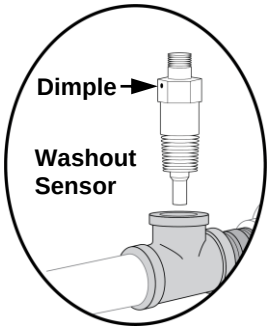
Step 6. Install the Washout Switch (WASH-100):

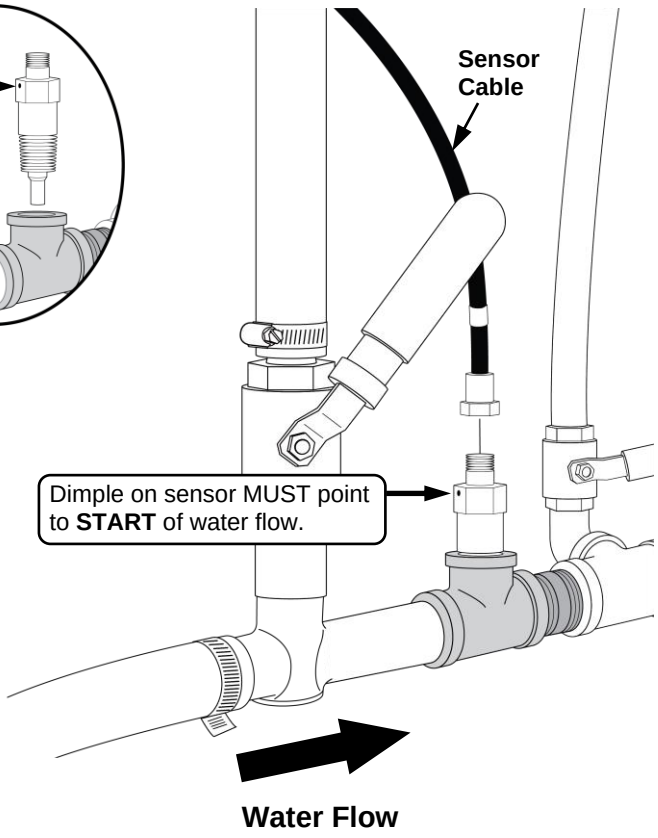
6.1. Add pipe compound to the sensor threads to avoid leaks.

6.2. Screw sensor into T-fitting—**dimple indicator is directional**, see image below.

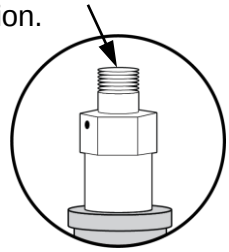
- When installed, dimple MUST point in direction **water is coming from**.
- DO NOT overtighten sensor—carefully gauge where dimple needs to end up before any final tightening.

IMPORTANT: After installed, dimple on sensor MUST point to **START** of water flow.





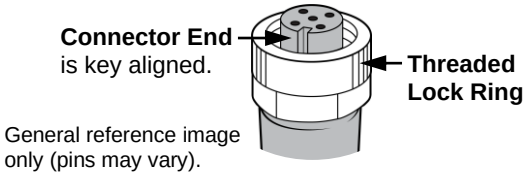
6.3. Put a dab of **dielectric grease on sensor pins** to help prevent corrosion.



Step 7. Connect cable (GEN-102) to sensor end, see image on previous page:

Do not force a connection—end should slide on easily, check key alignment.

Thread lock ring onto sensor until hand tight (ring clicks slightly when locked).



General reference image only (pins may vary).

Run cable so it **does not interfere** with valve handle turning or get bumped during normal operation.

WASHOUT SENSOR WIRING

To connect sensor wiring, you need to access the Hub, generally located in dash (Rear Discharge Mixers) or on back cab wall (Front Discharge Mixers).

HUB
BASE-100

Route Sensor Cable and Connect it to the Hub

If you have additional sensors to install, route all the cables together, then zip tie them to the frame as a group whenever possible.

Step 1. Route sensor cable(s) to the Hub—fasten cables approx. every foot.

Important: Route cables safely—avoid moving parts, pinch points, and sharp edges. Use a grommet or bushing on pass-thru holes as needed.

Rear Discharge Mixers: Run cable(s) through the frame rails, under the cab, through a hole in the firewall, and into the dash to connect to the Hub.

Front Discharge Mixers: Run cable(s) through the frame rails, up the back cab wall, and pass it thru a hole into the cab to connect to the Hub.

Step 2. **BEFORE cutting any cable**:

2.1. Measure enough cable length for Hub to be removed from the dash and set aside to work on it effectively.

2.2. **Move the color coding (tape)** so the cable can still be identified after being cut.

2.3. Cut off any extra cable length.

Step 3. Connect Washout Sensor Cable to Hub (use GEN-102 Cable color coded for Washout).

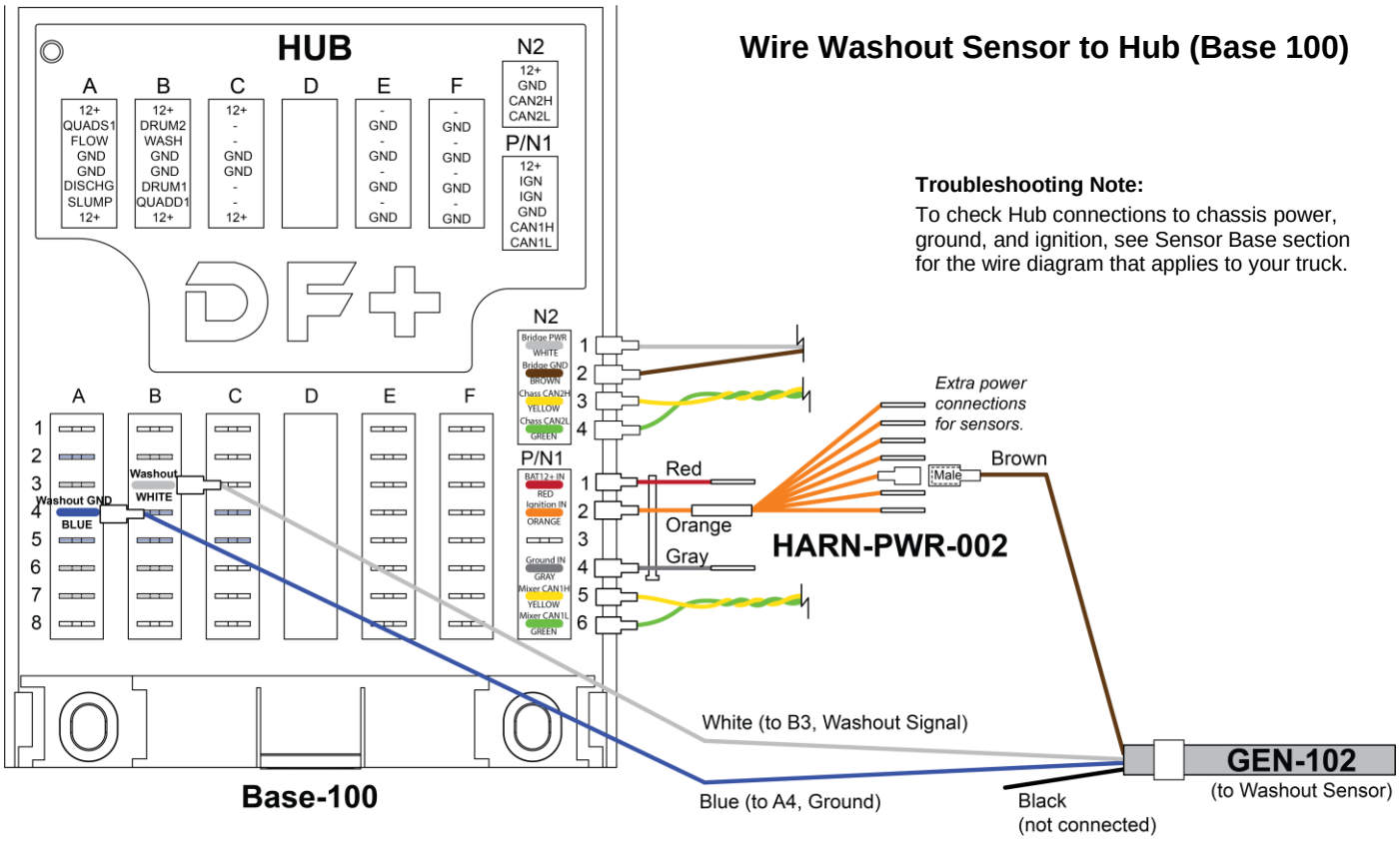
Reference Hub wire diagram on next page.

3.1. Black wire not used.

3.2. Strip remaining wires—crimp on terminals:
- blue/white—female terminal (GEN-101)
- brown—male terminal (GEN-110)

3.3. Plug blue and white wire into Hub, see image.

3.4. Plug brown wire into power harness on Hub (HARN-PWR-002—strip one of the orange, extra power connection wires and crimp on a female terminal for use).



Step 4. Double check that all wiring connections are securely fastened.

STOP If applicable, complete any additional sensor wiring to the Hub before testing each sensor (refer to the wiring instructions in each sensor's section).

INSTALLER VERIFICATION

Step 1. Prepare the system for verification.

1.1. Make sure there is enough water in the tank for testing (min. approx. 5 gallons).

1.2. Turn the truck ON and if applicable, pressurize the tank.

IMPORTANT: When truck is turned on, it takes 15 sec. for the sensor to warm-up —no water events will register during this warm-up (power-ON delay).

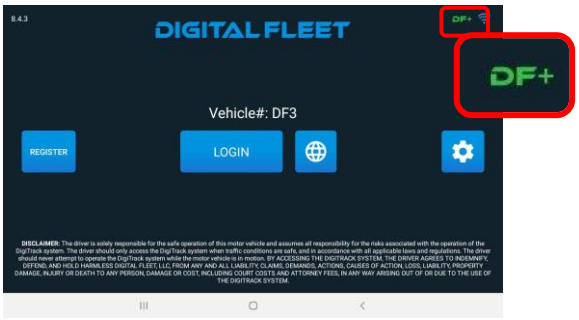
1.3. Make sure the pump is enabled and ready for use.

1.4. Check connections for leaks, tighten connections if needed. For sensor tightening, **make sure dimple indicates direction correctly**, see Installation section, Step 6.

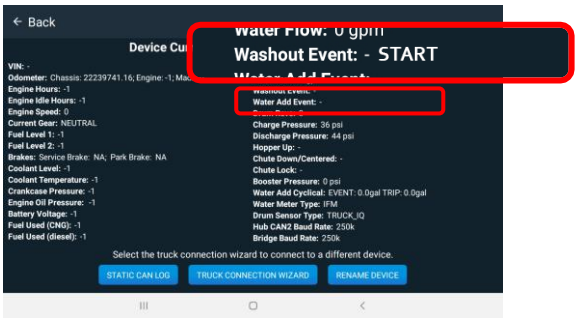
Step 2. If possible, have the tablet near you to watch the reading on-screen as water is used.

Step 3. Verify the tablet shows correct washout reading:

IMPORTANT: For a water event to register, there is a 10 sec. **delay-ON** and a 10 sec. **delay-OFF**, see instructions below.



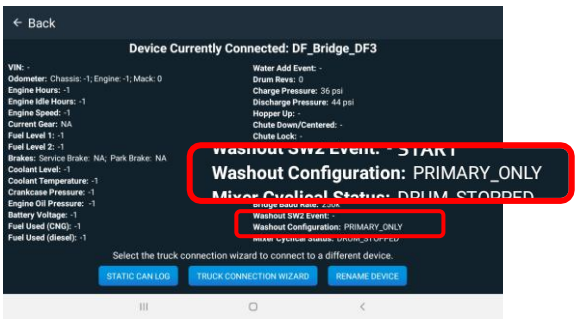
3.1 **Press DF+ icon** to navigate to the DF+ diagnostic screen.



3.2 **On diagnostic screen**—scroll down to the Washout Event reading.

- Turn the washout valve ON all the way—**wait approx. 10 sec.** (for the delay-ON) and the screen should show START.
- After water runs a few seconds, turn the valve OFF—**wait approx. 10 sec.** (for the delay-OFF) and the screen should show FINISH.

If the washout reading shows an accurate START and FINISH, the Washout Event is verified. *(If one or both events are not registering correctly, reference the Washout Sensor Troubleshooting section).*



3.3 **Scroll down to observe Washout Configuration** —it should read PRIMARY_ONLY. (*If incorrect, contact DF+ Support.)*

If the reading is correct, sensor installation is verified.

WASHOUT TROUBLESHOOTING

Issue	Possible Cause	Potential Solution
No washout event registers (water not seen)	Dirty sensor probe—sensor **was working and** verified ok but it's not working now.	**For sensors that have been installed for a while:** A sensor probe constantly sitting in water can develop a residue buildup preventing it from reading. **If sensor stops working** and you have checked all connections, cable path, and T-fitting, but sensor is still not reading—remove sensor and clean the probe tip, then reinstall sensor (see Washout Installation, Step 6).
	No water passing thru sensor	Water valve was turned on, but no water passes thru the sensor—make sure the tank has water in it. Waterlines must be drained after use when the temperature is below 40°F. Water freezing in the lines can block water flow and damage the sensor.
	Sensor delays (START and /or FINISH does not display)	The sensor has three delay periods during which the tablet will not register a reading, see below (also reference sensor's Installer Verification section). If you are **not waiting long enough** for the delay period(s), to end, the screen will not register the START and/or FINISH of a water event. If you are **not running the water long enough** for the event to register, an event reading will not be displayed. **Sensor Delay Periods:** • **Power-ON delay:** When truck is turned ON, it takes 15 sec. for sensor to warm-up. • **START delay-ON:** When washout valve is turned ON, it takes approx. 10 sec. for tablet to show a washout event has started. • **FINISH delay-OFF:** When washout valve is turned OFF, it takes approx. 10 sec. for tablet to show a washout event has finished.
	Incorrect sensor placement	Make sure sensor is installed in the waterline **after** the Water Add Valve, but **before** any washout valve(s), (reference Washout Installation section, Step 3). Washout sensor is directional—make sure sensor is installed correctly in the waterline T-fitting and the dimple indicator points to the **start of the water flow** (reference Washout Installation section, Step 6).
	Parameter setting on tablet	Check the Washout Configuration shown on the diagnostic screen— it should read PRIMARY_ONLY (reference sensor's Installer Verification section, Step 3.3). If incorrect, contact DF+ Support.
	Open circuit/short circuit (sensor to Hub)	Make sure sensor is installed in the waterline **after** the Water Add Valve, but **before** any washout valve(s), (reference Washout Installation Step 3–7). **Check cable connection at sensor end**—key on cable connector aligns it to the sensor pins; lock ring threads onto sensor until hand tight (see Washout Installation section, Step 7).

Issue	Possible Cause	Potential Solution
	Open circuit/short circuit (sensor to Hub) *continued*	**Check wire connections on Hub:** Make sure sensor cable runs into the truck cab and all connections match the appropriate wire diagram (reference Washout Sensor Wiring section of Washout Installation Instructions). **Check ignition** connection: • Make sure brown wire is connected to orange wire of HARN-PWR-002 (ignition). • Make sure orange wire of HARN-PWR-002 is plugged into N1-2 (ignition) on Hub. **Check ground** connection: • Make sure blue wire is connected to ground on Hub. • Make sure gray wire of HARN-PWR-002 is plugged into N1-4 (ground) on Hub. **Check Washout signal** connection at Hub: • Make sure white wire is connected to B3 (Washout Signal on Hub).
	Open circuit (Hub to truck)	Make sure Hub is connected to chassis power, ground, and ignition (as applicable, reference Sensor Base section for the wire diagram that applies to your truck). Verify truck has proper fuses installed; make sure fuses are not blown.
	Damaged wiring	**Inspect cable length for damage.** Check sensor pins for damage—remove cable end from sensor to inspect pins. Whenever cable is disconnected, clean end and put a dab of dielectric grease on sensor pins before reconnecting. Visually check the cable length for damage—make sure it has not been pinched, nicked, or damaged in any way. **Check for any type of damage, for example:** **Frayed** harness or wire  **Pinched** wire or harness  **Cut** or exposed wire  **Burned or hot wire** (discolored or distorted covering)  For any damage to the wiring or plug ends, replace the cable (reference the sensor's, Installation section).
	Damaged sensor/ sensor failure	• Visually inspect the sensor. If it leaks water, properly tighten it 100Nm (74 ft-lbs.), and make sure it is positioned in the correct direction (reference Washout Installation section, Step 6). • If sensor does not tighten correctly or looks physically damaged, replace it (reference Washout Installation section).

<table>
<tr><th>Issue</th><th>Possible Cause</th><th>Potential Solution</th></tr>
<tr><td></td><td></td><td>

- Waterlines must be drained after use when the temperature is below 40°F. Water freezing in the lines can block water flow and damage the sensor.
- If other troubleshooting causes check ok, use a multimeter to check for sensor failure—perform a continuity test (resistance, ohms) as indicated below.

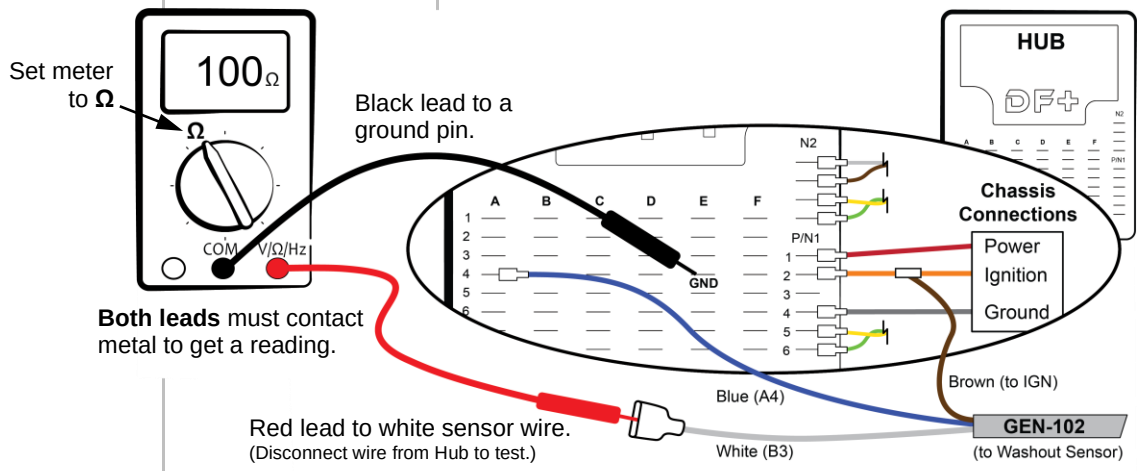
</td></tr>
<tr><td></td><td colspan="2">Continuity Test (Ω) - Signal Wire to Hub</td></tr>
<tr><td></td><td>Signal wire (white)</td><td>

Test continuity (resistance, ohms [Ω]) of signal wire for sensor failure.

1. **Make sure** Hub is connected to truck's ground and power supply.

   Reference Sensor Base Kit section for the wire diagram that applies to your truck.

2. **Turn ignition ON.**
3. **Setup multimeter** as shown below.



4. Meter should show < 1300 Ω when water is not seen.
5. Meter should read "OL" (∞) when water is flowing.
6. If meter readings are outside the normal range, replace the sensor (reference Washout Installation, Step 6).
7. **After testing**—reconnect all wiring securely.

</td></tr>
<tr><td>False readings</td><td>Water leaking</td><td>Check that washout valve(s) is turned OFF completely and not leaking.</td></tr>
<tr><td>Sporadic False Readings</td><td>Partial water left in waterline after it is drained</td><td>Partial water sloshes around the sensor during movement causing sporadic reading errors. Especially an issue on Front Discharge Mixers—to fix this issue, see Washout Installation section, Step 5.2.</td></tr>
<tr><td>Other issues check ok, but sensor still not working.</td><td></td><td>Replace the sensor (reference Washout Installation section, Step 6).</td></tr>
</table>

For installation or troubleshooting questions, please call DF+ Support at 630.518.4606.