

4113-Left Pump Forward Solenoid High Side Shorted to Power

Context:

The UCM detects a short circuit to another voltage source in the left forward solenoid circuit, **X-016** pin 5.

Cause:

There is a short circuit to another voltage source in the left forward solenoid circuit, **X-016** pin 5.

Possible failure modes:

1. Short circuit in the left forward solenoid circuit.
2. Faulty left forward solenoid.
3. Faulty UCM.

Solution:

1. Verify that the fault code is active.

Connect the Electronic Service Tool to the service tool connector.

To check for fault codes: Start and operate the machine.

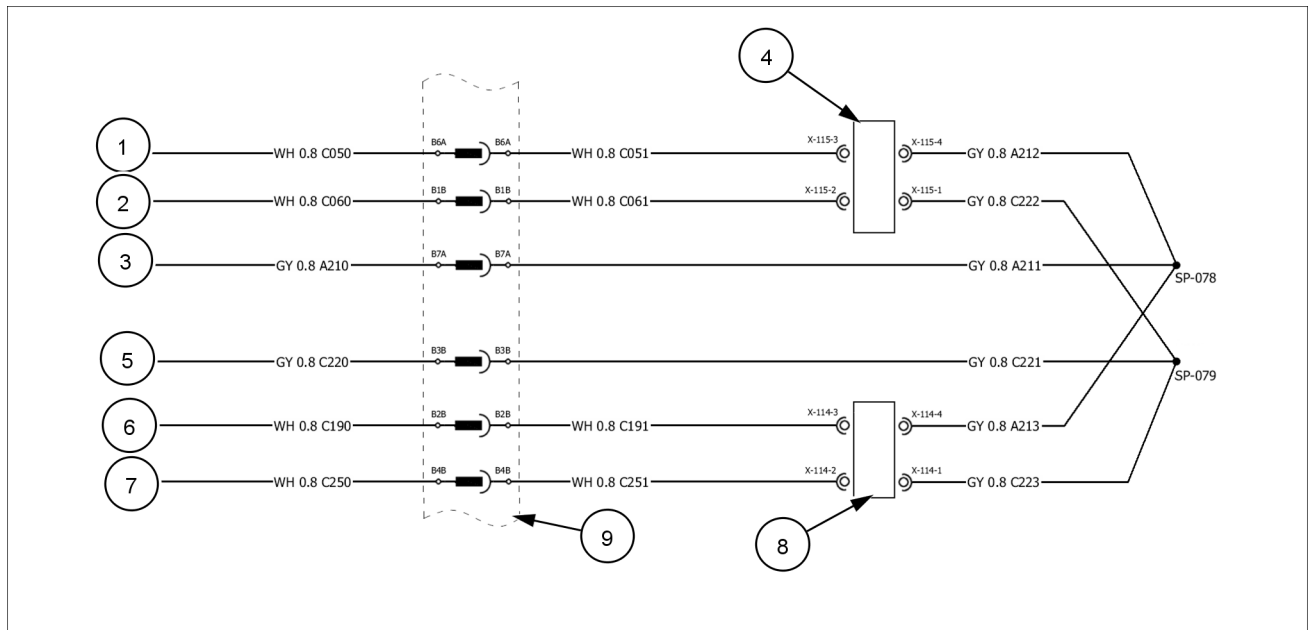
A. The fault code is not recorded again. OK to return the machine to service.

B. Fault code 4113 is recorded again. Go to step 2.

2. Verify that the wiring and connectors are free of damage.

Inspect the **UCM** and the left forward solenoid connections. All connections should be secure, tight, free of corrosion, abrasion and damage.

Inspect the harness from the **UCM** to the left forward solenoid. Verify that the harness is free of damage, corrosion, abrasion and incorrect attachment.



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Schematic legend			
(1)	UCM connector X-016 Pin 5 L Pump FWD (Front A) Fault Codes 4111, 4112, 4113, 4114, and 4302	(6)	UCM connector X-016 Pin 22 REV Pump RTN (Both B) Fault Codes 4311, 4313 and 4312
(2)	UCM connector X-016 Pin 6 L Pump REV (Front B) Fault Codes 4131, 4132, 4133, 4134, and 4312	(7)	UCM connector X-016 Pin 19 R Pump FWD (Rear A) Fault Codes 4101, 4102, 4103, 4104, and 4302
(3)	UCM connector X-014 Pin 21 FWD Pump RTN (Both A) Fault Codes 4301, 4303, and 4302	(8)	UCM connector X-016 Pin 25 R Pump REV (Rear B) Fault Codes 4121, 4122, 4123, 4124, and 4312
(4)	Left Pump Connector X-115	(9)	Right Pump Connector X-114
(5)	Connector X-001/ X-090		

A. The connectors are secure and the harness is free of damage. Go to step 3.

B. The connectors or the harness has damage. Repair or replace the harness or connectors as required. Return to step 1 to confirm elimination of the fault.

3. Measure the voltage on the signal wire.

Turn the ignition switch OFF.

Disconnect **UCM** connector **X-016**.

Disconnect the left forward solenoid.

Turn the ignition switch ON.

Measure the voltage between **X-016** pin 5 and chassis ground. The chassis ground connection must be clean and free of paint, oil, and dirt. The voltage should be less than **0.5 V**.

A. The voltage is less than **0.5 V**. Go to step 4.

B. The voltage is greater than **0.5 V**. There is a short circuit to another voltage source. Repair or replace the harness as required. Return to step 1 to confirm elimination of the fault.

4. Test the circuit.

Turn the ignition switch OFF.

Reconnect the **UCM** connector.

Disconnect the left forward solenoid.

Fabricate a jumper wire that will connect between **X-115** pin 3 and **X-115** pin 4.

Connect the jumper wire between **X-115** pin 3 and **X-115** pin 4.

Turn the ignition switch ON.

Access the fault code screen on the EST.

Fault code 4113 should no longer be active. Fault code 4112 is now active. Fault code 4131 will also be active, ignore this fault code.

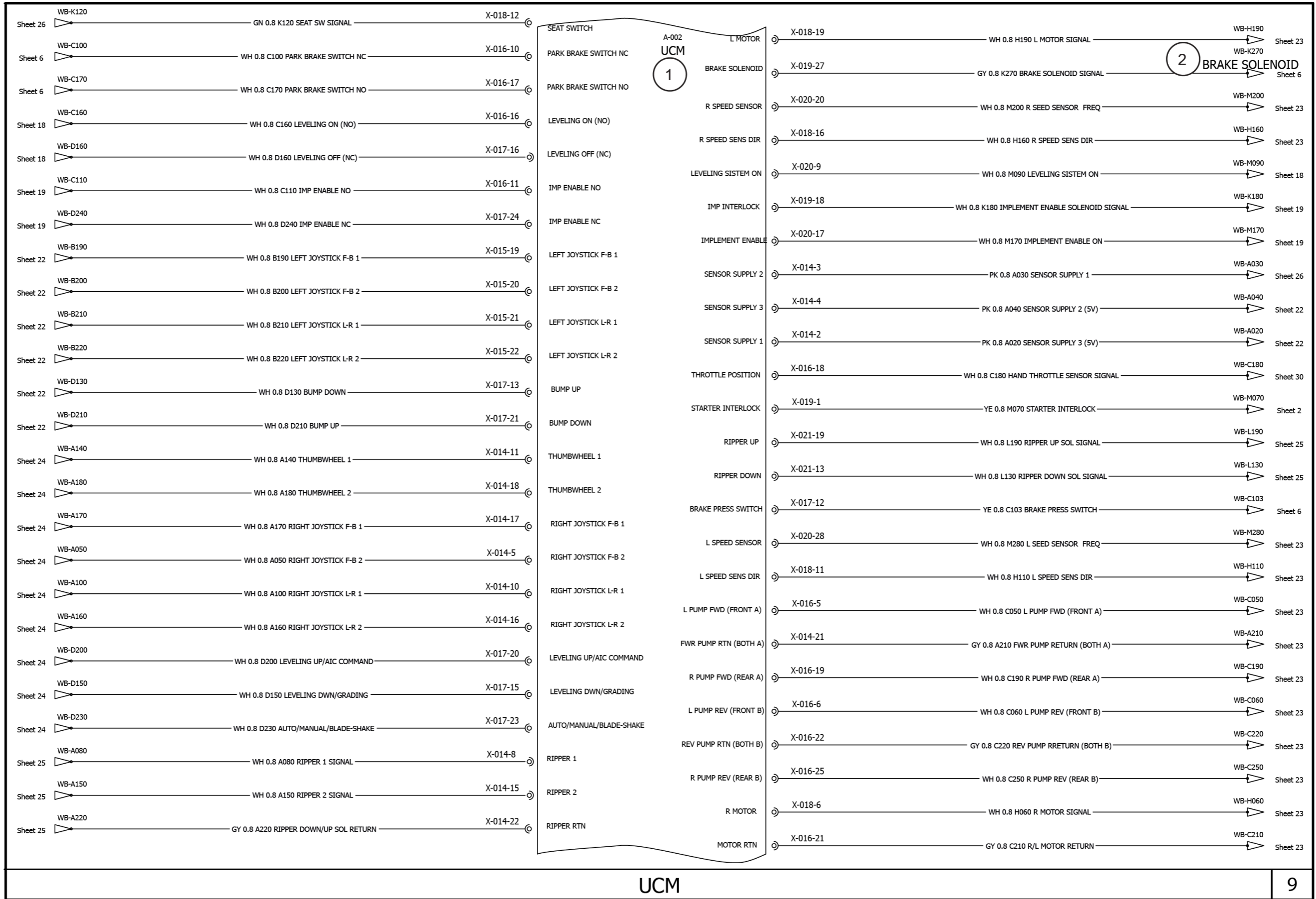
A. Fault code 4113 is no longer active. Fault code 4112 is now active. Temporarily replace the solenoid and retest. Return to step 1 to confirm elimination of the fault.

B. Fault code 4113 is still present and active. Fault code 4112 did not become active. Temporarily replace the **UCM** and retest. Return to step 1 to confirm elimination of the fault.

Harnesses and connectors - Electrical schematic sheet 09 UCM

[Family and Group not set]

1	Universal Control Module
2	Brake solenoid



UCM

9

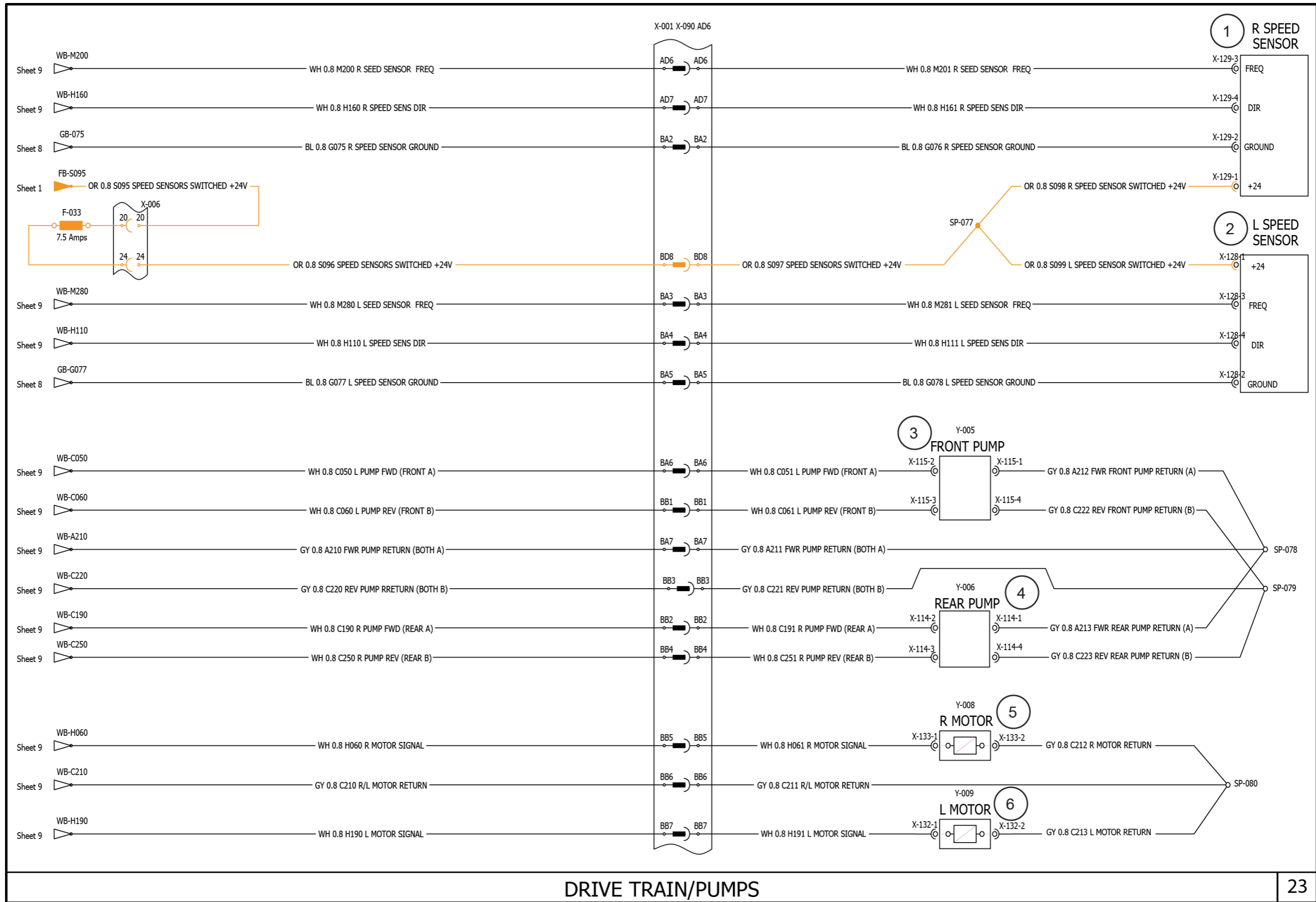
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Harnesses and connectors - Electrical schematic sheet 23

Drivetrain Pumps

[Family and Group not set]

1	Right speed sensor
2	Left speed sensor
3	Front pump
4	Rear pump
5	Right motor
6	Left motor



DRIVE TRAIN/PUMPS

