



MEMORANDUM FOR RECORD

Todd Gunther
Air Safety Investigator
Eastern Region

Date: November 23, 2021
Subject: Oil Sending Units and Wiring Harnesses
NTSB Case Number: CEN21FA130

On November 23, 2021, the oil sending units from the accident airplane (N13VT) along with their associated wiring harnesses were examined and tested at Velocity Inc., Sebastian, Florida.

In attendance were:

- Todd Gunther (NTSB)
- Bryan McCartney (Velocity Inc.)

Examination of both the left and right oil pressure sensors from N13VT, indicated that they were both the specified 150-psi type oil pressure sensors (Kavlico Corporation, Model B0719, P/N 4055-150G) that were specified by Velocity Inc., for use on airplanes with Dynon or Garmin electronic flight displays.

Examination of the left and right wiring harnesses indicated that they consisted of an attachment plug with three wires (Red, Green, Black). Further examination revealed that the wiring harness for the right oil pressure sensor was intact, but the wiring harness for the left oil pressure sensor displayed visible damage with the Red wire displaying a break (cut), which had separated the wire into two pieces, and visible cuts which had penetrated the insulation of the Green and Black wires.

Testing of the left and right oil pressure sensors was accomplished on an exemplar Velocity VTwin utilizing the left engine's oil system:

- The left oil pressure sensor was tested first, by attaching a surrogate wiring harness to it in place of the damaged one, and installing it in the mounting position on the left engine firewall. After starting the engine, the sensor was able to detect the left engine's oil pressure.
- The right oil pressure sensor was then tested using its original (as found) wiring harness from N13VT, and installing it in the mounting position on the left engine firewall. After starting the engine, the sensor was able to detect the left engine's oil pressure.

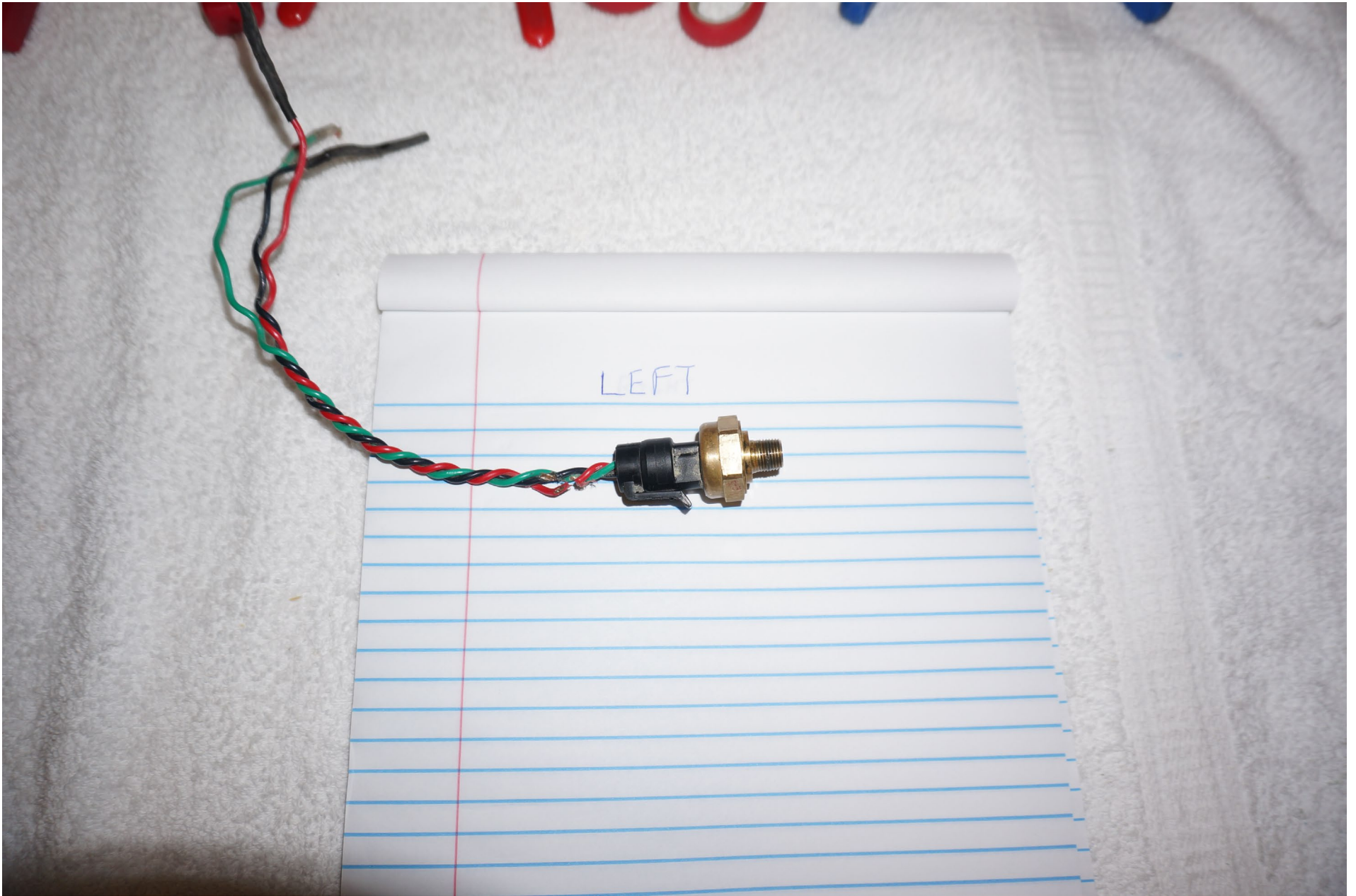


Photo 1 - Left Wiring Harness and Oil Pressure Sensor

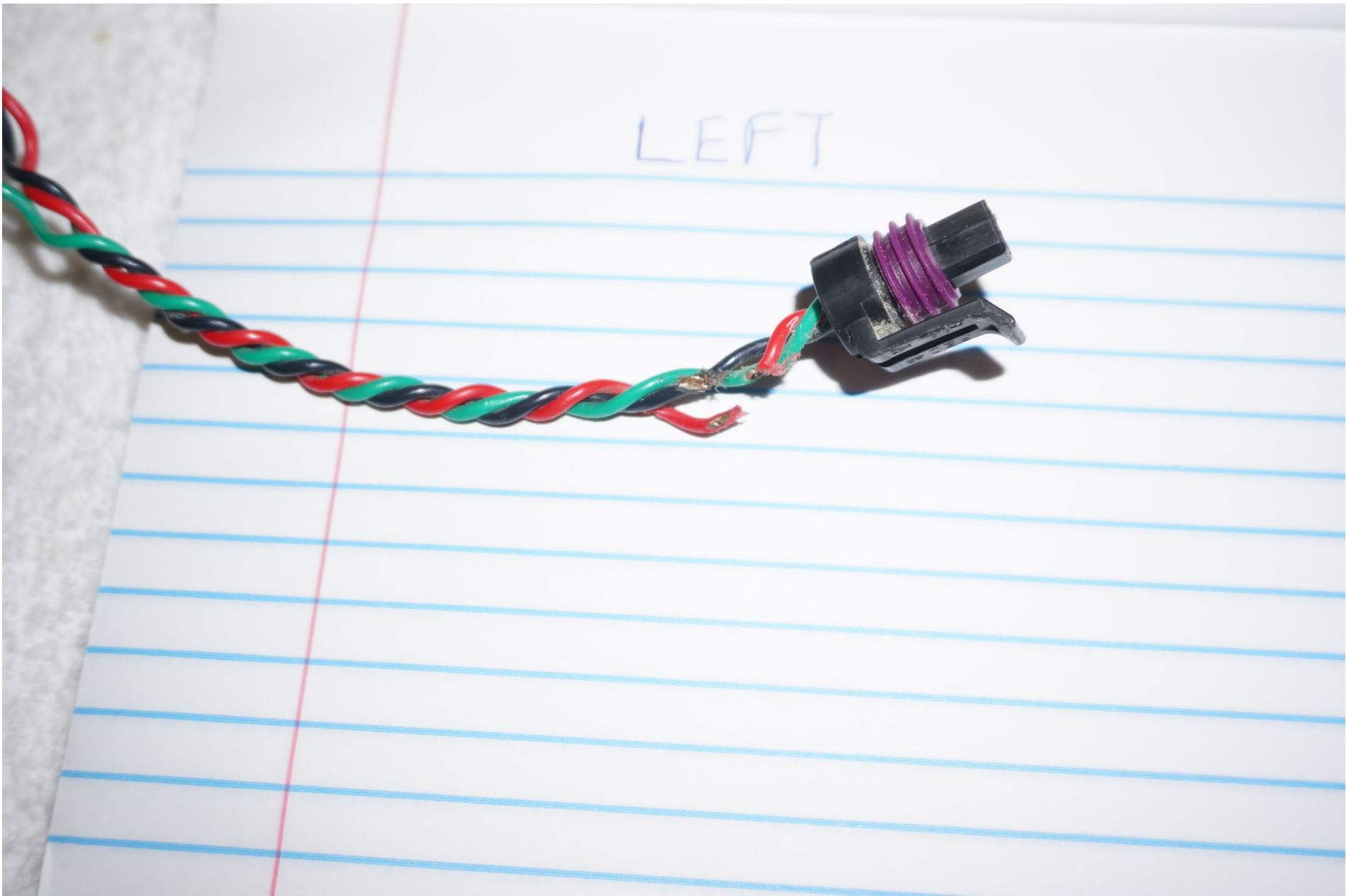


Photo 2 - Left Wiring Harness



Photo 3 – Close Up of Left Wiring Harness

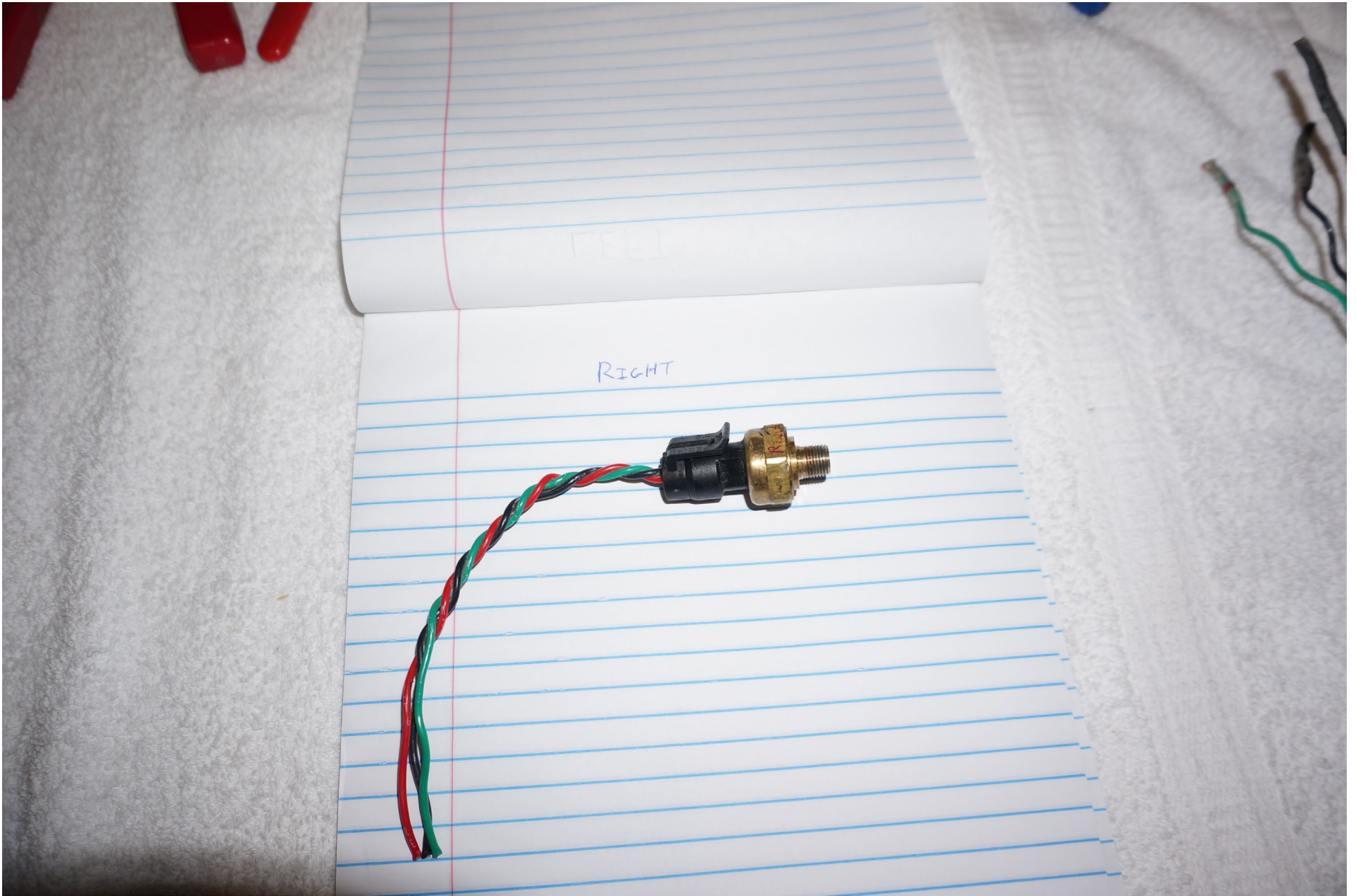


Photo 4 - Right Wiring Harness and Oil Pressure Sensor



Photo 5 – Exemplar Velocity VTwin



Photo 6 – Testing Location of Oil Pressure Sensors (Forward Left Engine Bay)



Photo 7 - Left Oil Pressure Sensor Test - Indicating Oil Pressure (Left "OIL PSI" Needle



Photo 8 - Right Oil Pressure Sensor Test - Indicating Oil Pressure (Left "OIL PSI" Needle)