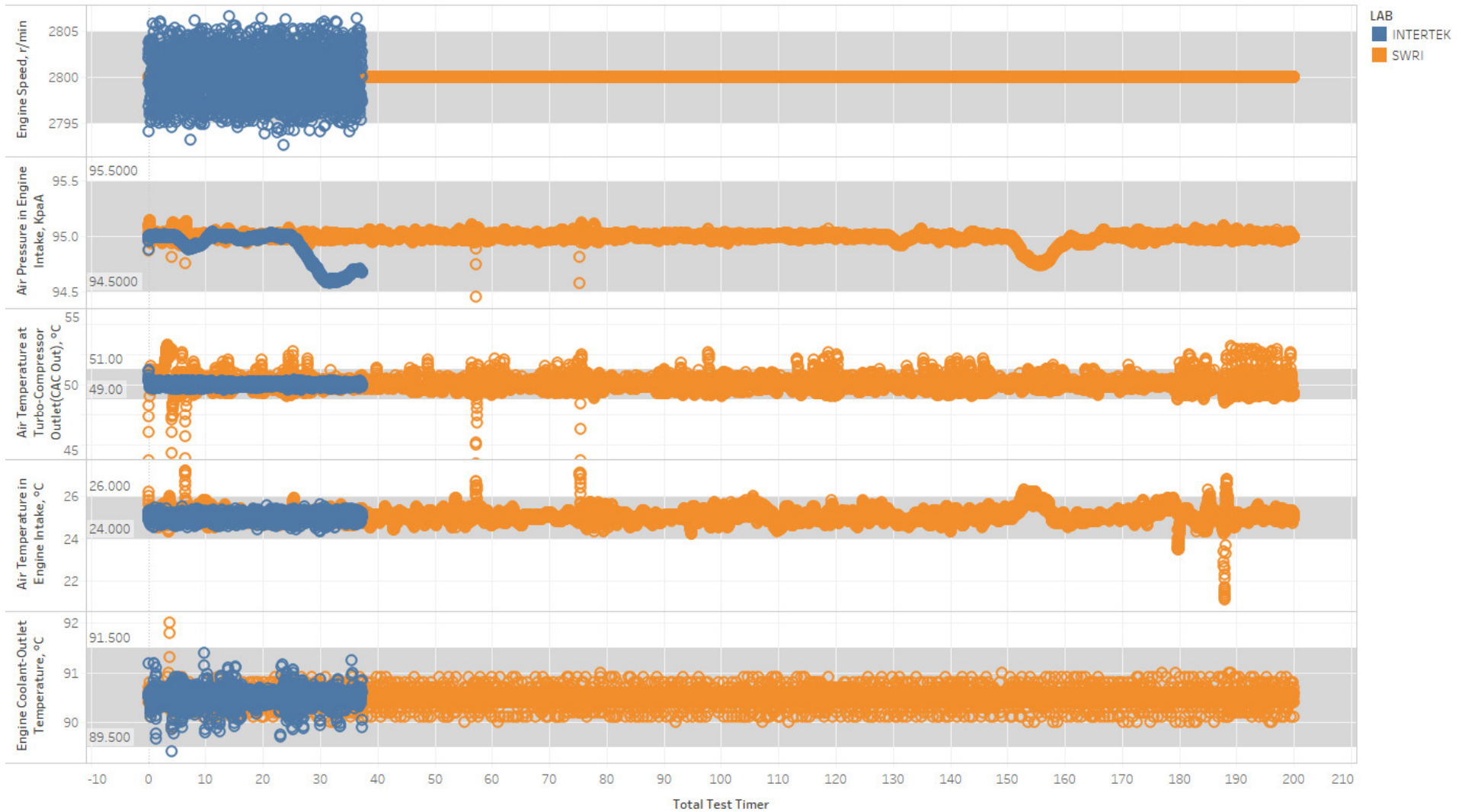


HWO Operational Data - 200 Hour Test

File created on: 6/15/2020

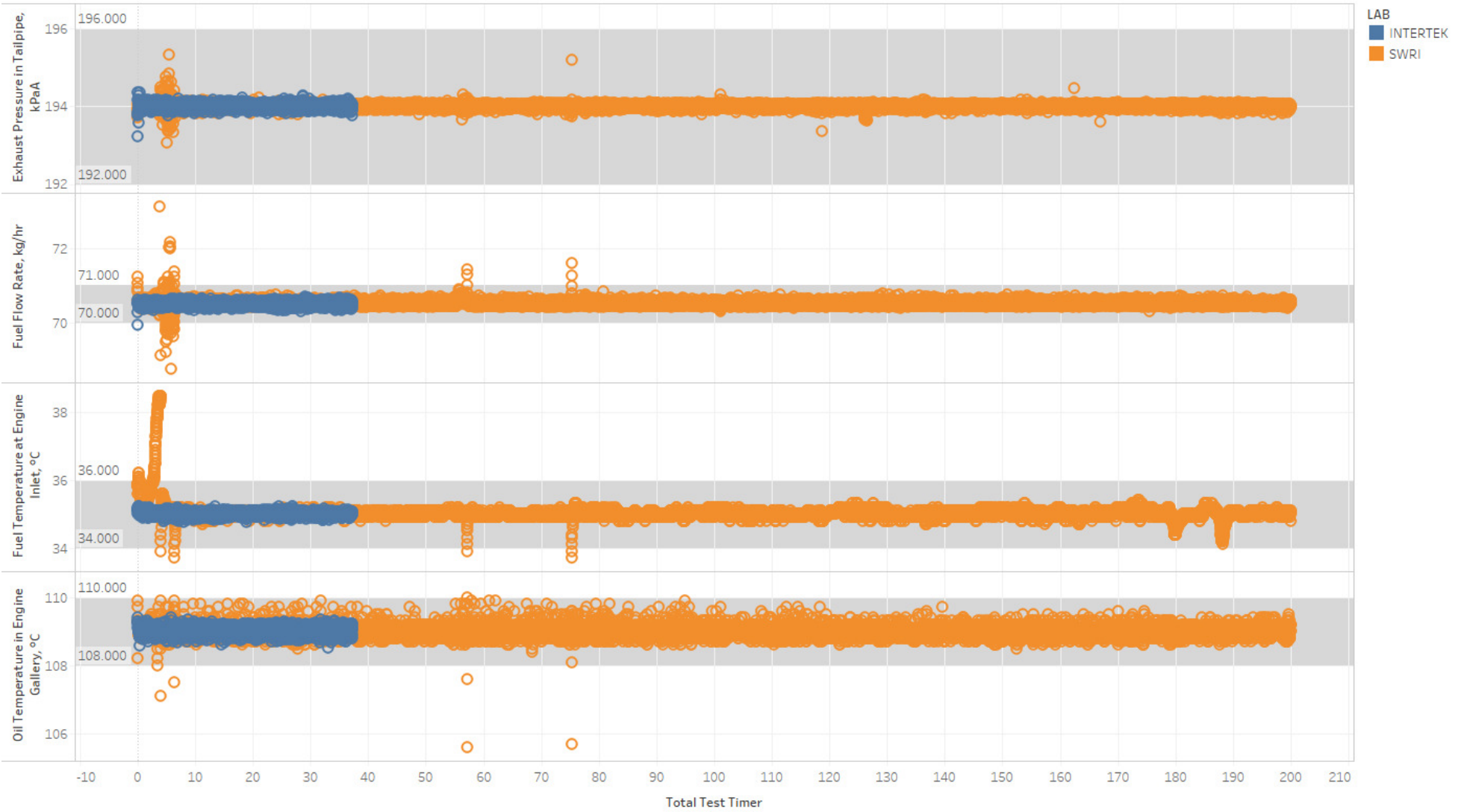
SwRI completed first 200 hour test on HWO with no early sooting phase and using “pump” fuel. Intertek started first 200 hour test on HWO using PC-10 fuel but suffered an engine failure at ~37 hours of testing. Operational data shown for this test is up to that point for limited comparison.

Controlled Parameters 1



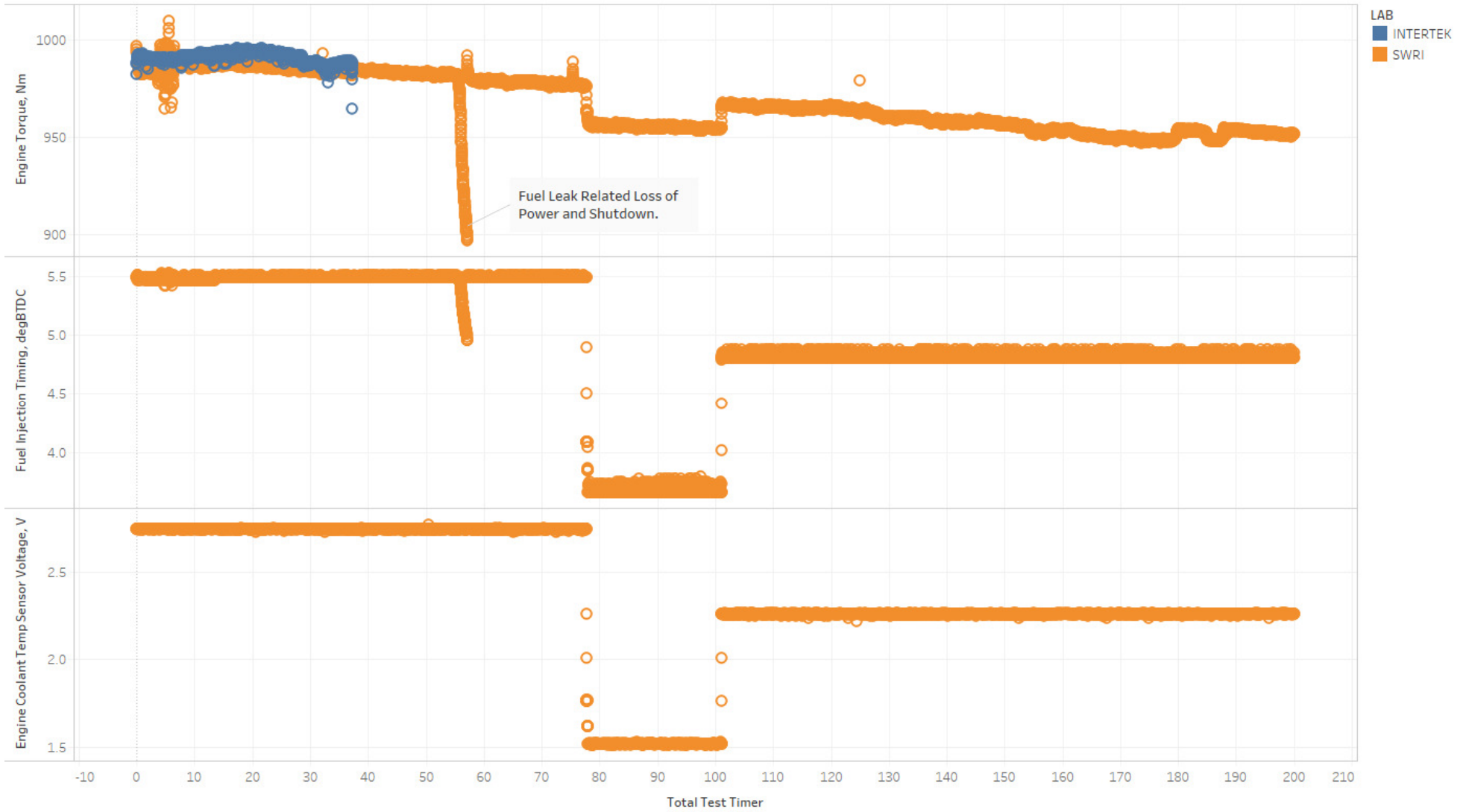
Total Test Timer vs. Engine Speed, r/min, Air Pressure in Engine Intake, KpaA, Air Temperature at Turbo-Compressor Outlet(CAC Out), °C, Air Temperature in Engine Intake, °C and Engine Coolant-Outlet Temperature, °C. Color shows details about LAB.

Controlled Parameters 2



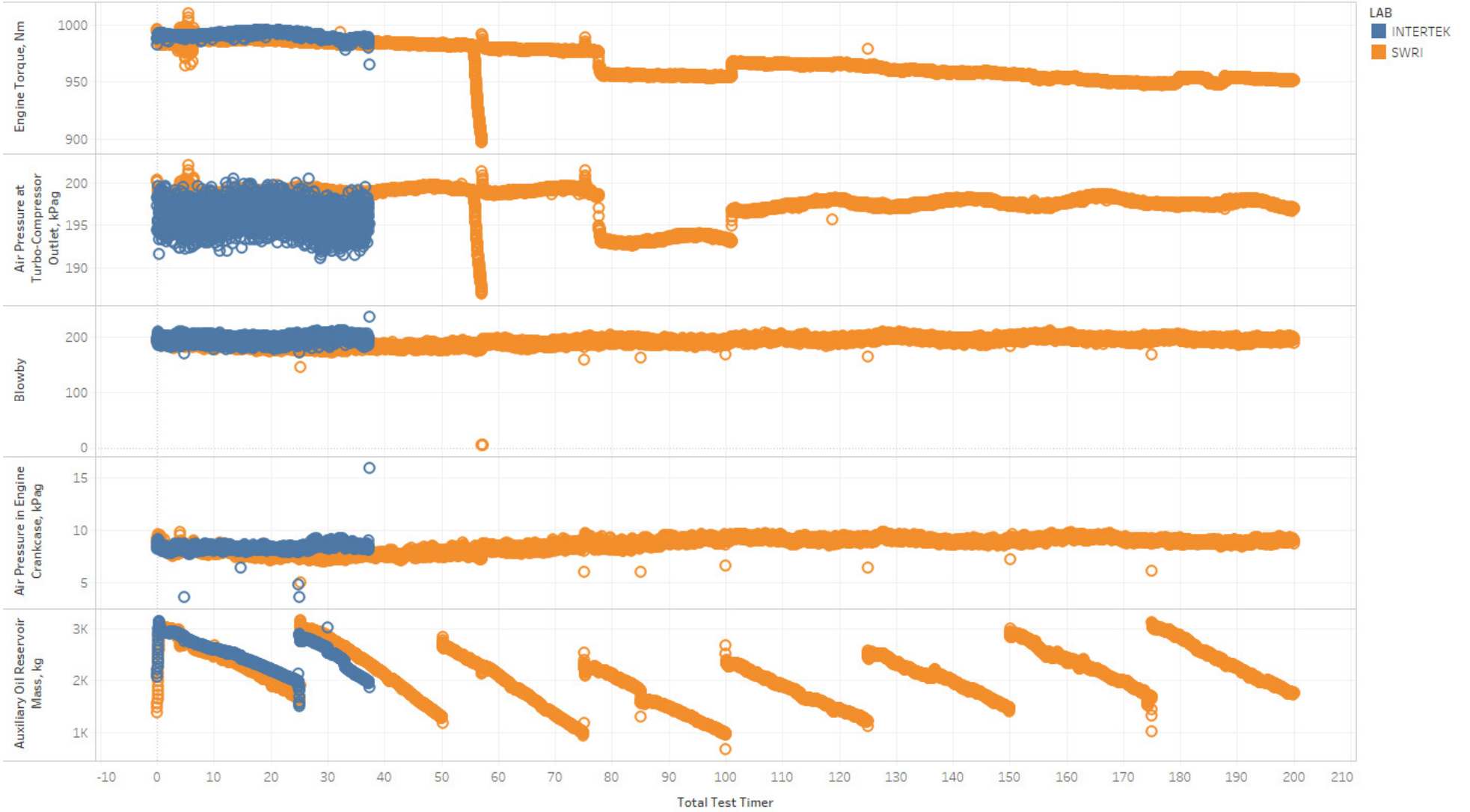
Total Test Timer vs. Exhaust Pressure in Tailpipe, kPaA, Fuel Flow Rate, kg/hr, Fuel Temperature at Engine Inlet, °C and Oil Temperature in Engine Gallery, °C. Color shows details about LAB.

Timing Related



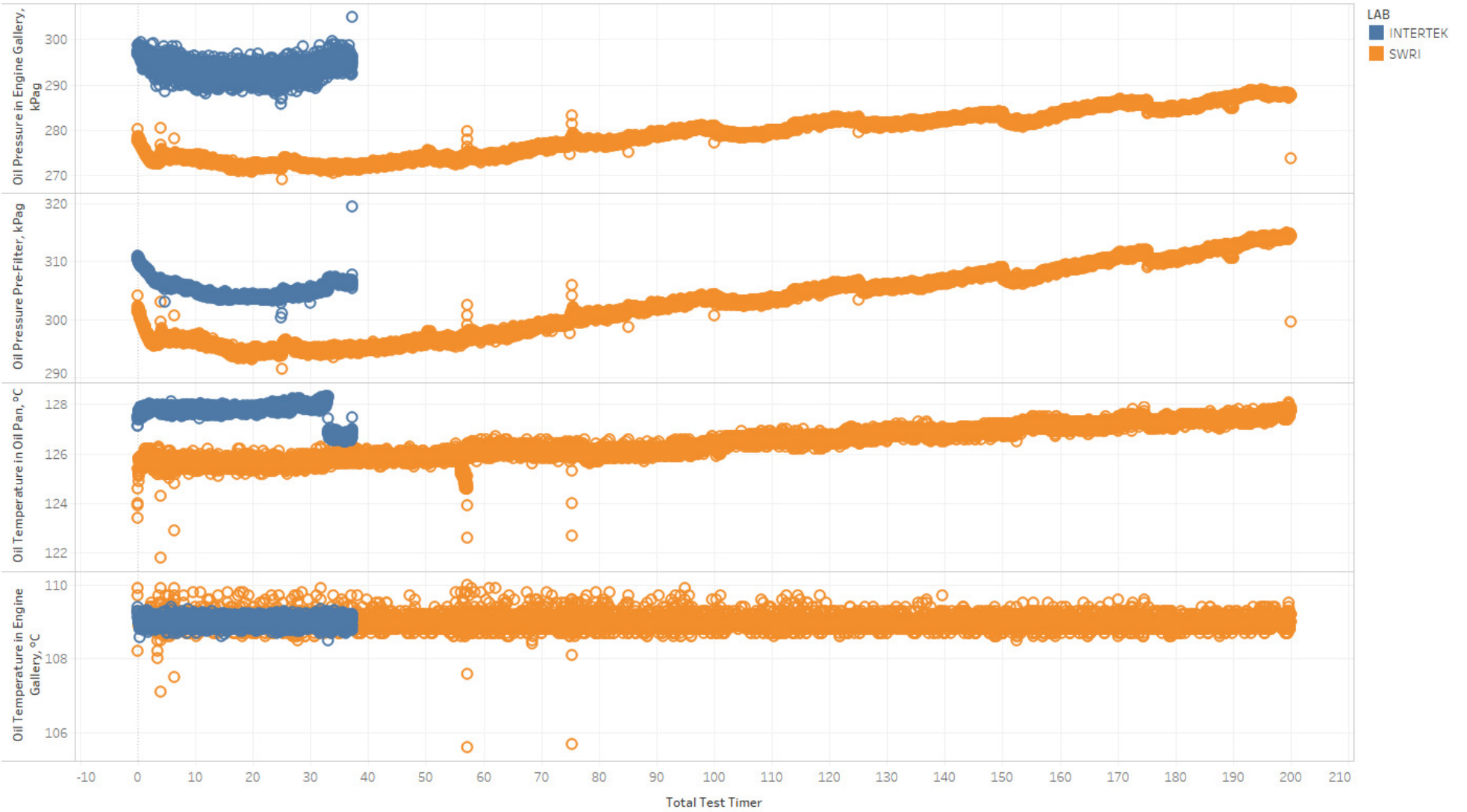
Total Test Timer vs. Engine Torque, Nm, Fuel Injection Timing, degBTDC and Engine Coolant Temp Sensor Voltage, V. Color shows details about LAB.

Uncontrolled Parameters 1



Total Test Timer vs. Engine Torque, Nm, Air Pressure at Turbo-Compressor Outlet, kPag, Blowby, Air Pressure in Engine Crankcase, kPag and Auxiliary Oil Reservoir Mass, kg. Color shows details about LAB.

Oil Pressures



Total Test Timer vs. Oil Pressure in Engine Gallery, kPag, Oil Pressure Pre-Filter, kPag, Oil Temperature in Oil Pan, °C and Oil Temperature in Engine Gallery, °C. Color shows details about LAB.