

GE Twin: Early warning of decreased coolant level on a diesel-electric locomotive engine

What did our services find?

Beginning in January, GE Digital's Asset Performance Management detected a deviation on a diesel-electric locomotive engine. Specifically, the engine coolant level had been slowly decreasing over a one-week period. Coolant level decreased from the expected values of approximately 170 liters - 185 liters (180 quarts - 195 quarts) to approximately 150 liters - 160 liters (159 quarts - 169 quarts). GE Digital's Industrial Managed Services team added this item to the weekly report for discussion with the customer.

What was the underlying cause?

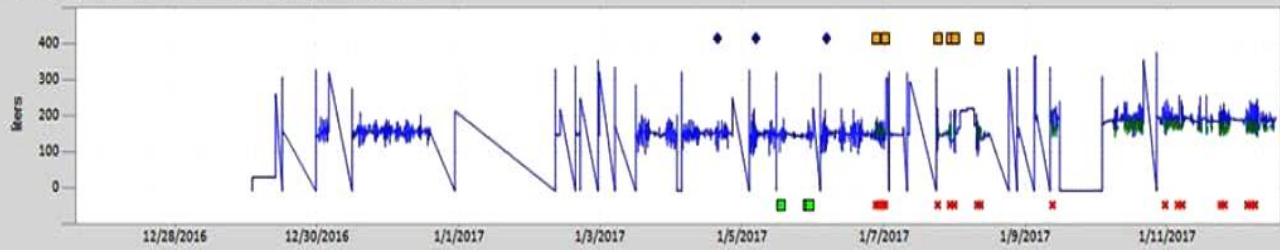
After the alert from GE Digital's Industrial Managed Services team, the customer inspected the locomotive during its next planned stop and discovered that both water pumps were leaking coolant. Because the issue was identified before cooling capacity was lost, no physical symptoms were noted during operation and the locomotive did not indicate low coolant pressure to the operator. After the pumps were replaced and the coolant refilled, the coolant level returned and steadily tracked at its expected range.

What was the value to the customer?

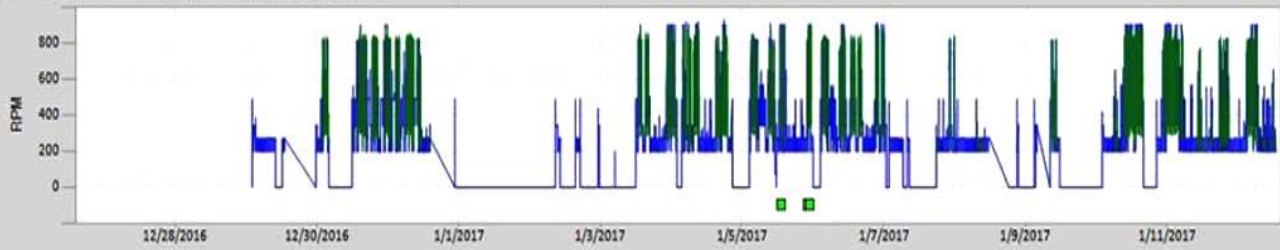
Due to the early notification from GE Digital's Industrial Managed Services team, the customer was able to investigate the engine during a planned stop. The customer discovered that the leaks on both the left-hand and right-hand bank water pumps were causing the coolant level to decrease. Without notification from GE Digital's Industrial Managed Services team, the coolant level would have continued to decrease until the locomotive either shut down in traffic due to low coolant pressure or the engine sustained damage from an overheated cylinder bank. In addition, GE Digital's Industrial Managed Services team was able to verify the maintenance actions were successful by observing the actual values return to the model-predicted value.

<https://www.ge.com/digital/industrial-managed-services-remote-monitoring-for-iiot/article/76634-early-warning-of-decreased-coolant-level-on-a-diesel-electric-locomotive-engine>

(ENGINE_COOLANT_LEVEL) - CoolantTankLevel, Coolant level, liters,



(ENGINE_SPEED) - SpeedEngine, Engine RPM, RPM,



(LOCOMOTIVE_SPEED) - GroundSpeedLocomotive, Locomotive Speed, MPH,

