

Technical Support Notification

PLLD – Periodic Line Failure

► Overview

Pressurized Line Leak Detection (PLLD) monitors line pressure to detect for leaks. This technical support notification is intended to help a certified technician troubleshoot a Periodic Line Failure (0.2 gph). The TLS-450PLUS and TLS-350 consoles automatically run a gross line test after the completion of a dispense, when all handle signals are off. The periodic test runs after a passing gross test. **Note:** These troubleshooting steps don't apply to lines programmed as User Defined.

The instructions below are to be used in conjunction with the [PLLD & WPLLD Troubleshooting Guide \(577013-344\)](#).

► Troubleshooting

During the start of a periodic test, when the pump turns on, a pressure spike is trapped in the line. During this spike, two pressure readings (P1 and P2) are recorded. A leak rate is calculated based on these two pressure readings and the duration of the spike. This process is repeated a second time and is then followed by the mid-range test. The mid-range test is a pump off test.

If the mid-range test fails, the periodic test will also fail. A passing mid-range test does not guarantee a passing periodic test.

- Check the line's pressure – mid-range tests:

The mid-range tests TLS-450PLUS screen or TLS-350 printout shows the five most recent passes and five most recent fails per line.



Date / Time	Pump On	First Read	Second Read	Test Results
LINE 1: Regular PLLD				
10/05/2020 01:08 AM	33.5	20.0	19.8	Passed
10/04/2020 11:23 AM	29.7	20.5	20.2	Passed
10/04/2020 05:49 AM	38.4	20.7	20.5	Passed
10/01/2020 01:28 AM	37.3	19.2	19.0	Passed
09/29/2020 01:56 AM	36.0	19.3	19.3	Passed

TLS-450PLUS

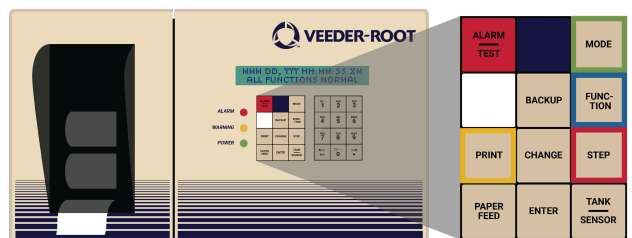
Menu → Diagnostics → PLLD → Mid-Range Tests

TLS-350

1. Press **MODE** for DIAG MODE
2. **FUNCTION** to PRESSURE LINE LEAK DIAG
3. **STEP** to MID DIAG
4. Press **PRINT**

YOUR TLS-3XX SERIES

KEYPAD



Note: For a more detailed description of the mid-range test pressure readings and possible causes, refer to the [Technical Support Notification – PLLD – Gross Line Failure \(576047-364\)](#).

- Check the ratio and test duration (see next page).
- Close the shear valves under all dispensers and check for visible leaks. This will isolate the dispensers from the line and STP.
- Run a manual periodic test – with the dispenser shear valves closed, a failing periodic test indicates a line or STP issue. A passing test could indicate a dispenser issue.

Note: If the shear valves are closed and the periodic test fails two times, consider a third-party test.

▶ Troubleshooting – Ratio and Test Duration

TLS-350

1. Press **MODE** for DIAG MODE
2. **FUNCTION** to PRESSURE LINE LEAK DIAG
3. **STEP** to 0.2 DIAG
4. Press **PRINT**

```

PRESSURE LINE LEAK DIAG
MMM DD, YYYY HH:MM XM

Q1:
0.20 TEST DIAG

CURRENT TEST:
---TEST--PRESS--RAMP RATE

PREVIOUS DATA:
---TIME--PRESS--RAMP RATE

AUTO-CONFIRM DATA
-----
CURRENT TEST:
START TIME: JAN 12, 2000
DURATION: 3 DAYS
SEQUENTIAL PASSES: 0
SEQUENTIAL FAILS: 1
TOTAL PASSES: 0
TOTAL FAILS: 1
RESULT REASON CODE:
WORKING
RESULT: NONE

LAST TEST:
START TIME: JAN 01, 2000
DURATION: 11 DAYS
SEQUENTIAL PASSES: 0
SEQUENTIAL FAILS: 3
TOTAL PASSES: 0
TOTAL FAILS: 3
RESULT REASON CODE:
FAIL - SEQUENTIAL
RESULT: FAIL

0.20 TEST RESULTS
-----
PON RATIO DUR RESULT
MMM DD, YYYY HH:MM XM
31.0 0.30 1:15 PASS
MMM DD, YYYY HH:MM XM
33.2 0.26 50 PASS
MMM DD, YYYY HH:MM XM
34.0 1.2 45 FAIL
MMM DD, YYYY HH:MM XM
32.0 0.77 35 PASS
NO-VENT TEST ABORTS:
0 OUT OF 4 TEST
    
```

Current & Previous Tests

Rates must be close for the thermal stability to be declared.

Auto-Confirm

If auto-confirm is enabled, use the auto-confirm data to identify whether or not the failure is consistent.

Note: A manual test bypasses the auto-confirm filter.

When auto-confirm is enabled, two periodic line tests must fail before the alarm is displayed. To clear the alarm, two periodic tests must pass.

Ratio/Ramp Rate

Note: The ratio doesn't show where the failure is taking place. It only shows how close the test is to passing.

Pon Ratio = Ramp Rate/Fail threshold
>1.0 = Fail and <1.0 = Pass

The ratio indicates how close the test is to the failure threshold. Large variations in ratio indicate an intermittent problem, such as a valve not always seating properly.

TLS-450PLUS Menu → Diagnostics → PLLD → 0.2 GPH TESTS

Date / Time	Pump On / PMID	Ratio	Duration [Hours]	Test Result
Line 1: Unleaded				
3/13/21 8:33 PM		21.0	0.01	00:45 Pass
3/13/21 7:13 AM		21.6	-0.01	00:45 Pass
3/9/21 2:03 PM		22.4	0.01	00:45 Pass
3/9/21 12:13 PM		22.4	0.00	00:45 Pass
3/5/21 11:57 PM		13.8	0.14	00:56 Pass
3/3/21 11:04 PM		14.3	0.08	01:08 Pass
2/27/21 1:52 PM		12.4	-0.00	00:45 Pass
2/27/21 6:56 AM		15.4	0.03	00:58 Pass
2/23/21 11:43 PM		17.6	0.03	00:45 Pass
2/23/21 9:03 PM		14.4	0.08	01:08 Pass

Thermal Instability

Long durations indicate there was a lot of thermal activity during the test.

Note: Too much thermal activity can prevent a test from completing.

▶ Further Information

- Contact Veeder-Root Technical Support at 1-800-323-1799 for additional help or questions.
- Learn more about Pressurized Line Leak Detection on our [Line Leak Detection](#) webpage.
- Visit our [Technical Support Notifications](#) webpage, for other Technical Support & Troubleshooting Tips.