**ANSWER KEY**

**Distance Learning Exercise #41: Power Steering Diagnostics**

**Section 2**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_80\_** PSI

System Backpressure at Maximum (1600) RPM **\_\_80\_**   PSI

Maximum System Pressure (Pump Relief Setting) at idle **\_1440\_** PSI at Maximum RPM  **1440** PSI

Flow at Idle with Backpressure Only **\_4\_\_** GPM

Flow at Maximum RPM Backpressure Only **\_\_5\_** GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_\_\_520\_\_** PSI LEFT Turn **\_\_\_520\_\_** PSI

Steering Gear Internal Leakage RIGHT Turn **\_\_520\_\_\_\_** PSI **\_\_\_5\_\_** GPM

Steering Gear Internal Leakage LEFT Turn **\_\_\_\_\_520\_\_** PSI **\_\_\_\_5\_\_** GPM

**Recommendation:** **Steering Gear Internal Leakage**

The steering gear internal leakage for both right turn and left turn have a low psi of 520, and 5 GPM; it should be relief psi and less than 1 GPM. Replace the steering gear.

**Section 3**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_80\_** PSI

System Backpressure at Maximum (1600) RPM **\_80\_\_**   PSI

Maximum System Pressure (Pump Relief Setting) at idle **820** PSI at Maximum RPM **\_820** PSI

Flow at Idle with Backpressure Only **\_4\_\_** GPM

Flow at Maximum RPM Backpressure Only **\_5\_**GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_\_360\_** PSI LEFT Turn **\_\_360\_** PSI

Steering Gear Internal Leakage RIGHT Turn **\_\_820\_\_\_** PSI **\_\_\_0\_\_** GPM

Steering Gear Internal Leakage LEFT Turn **\_\_\_\_820\_\_\_** PSI **\_\_\_0\_\_\_** GPM

**Recommendation: Worn Pump**

Worn pump with maximum system pressure at 820 psi, static steer turning pressure at 360 psi, and steering gear internal leakage of 0 GPM. Replace the pump.

**Section 4**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_80\_** PSI

System Backpressure at Maximum (1600) RPM **\_80\_\_**   PSI

Maximum System Pressure (Pump Relief Setting) at idle **\_320\_** PSI at Maximum RPM **\_320\_** PSI

Flow at Idle with Backpressure Only **\_2\_** GPM

Flow at Maximum RPM Backpressure Only **3** GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_\_320\_\_\_** PSI LEFT Turn **\_\_320\_\_\_** PSI

Steering Gear Internal Leakage RIGHT Turn **\_\_320\_\_\_\_** PSI **\_\_0\_\_\_** GPM

Steering Gear Internal Leakage LEFT Turn **\_\_\_320\_\_\_\_** PSI **\_\_\_0\_\_\_** GPM

**Recommendation: Relief Valve Stuck Open**

The main relief valve is stuck open. Maximum System Pressure (Pump Relief Setting) is at 320 psi and the flow with backpressure only is low at 2 GPM and 3 GPM. Replace the relief valve (if applicable) or the pump assembly.

**Section 5**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_360\_** PSI

System Backpressure at Maximum (1600) RPM **\_360\_\_**   PSI

Maximum System Pressure (Pump Relief Setting) at idle **\_1440\_** PSI at Maximum RPM **1440** PSI

Flow at Idle with Backpressure Only **\_2\_** GPM

Flow at Maximum RPM Backpressure Only **\_3\_**GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_1180\_** PSI LEFT Turn **\_1180\_** PSI

Steering Gear Internal Leakage RIGHT Turn **\_1440\_\_\_** PSI **\_\_0\_\_\_** GPM

Steering Gear Internal Leakage LEFT Turn **\_1440\_\_\_\_** PSI **\_\_\_0\_\_\_** GPM

**Recommendation: Restriction in System**

There is a restriction in the system. The system backpressure at idle is 360 psi and the backpressure at maximum rpm is 360 psi. It should be less than 100 psi. Repair/replace the bad hose, fitting, or plugged filter.

**Section 6**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_80\_** PSI

System Backpressure at Maximum (1600) RPM **\_80\_\_**   PSI

Maximum System Pressure (Pump Relief Setting) at idle **1440** PSI at Maximum RPM **\_1440** PSI

Flow at Idle with Backpressure Only **\_4\_\_** GPM

Flow at Maximum RPM Backpressure Only **\_\_5\_** GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_1180\_** PSI LEFT Turn **\_1180\_** PSI

Steering Gear Internal Leakage RIGHT Turn **\_1440\_** PSI **\_0\_**GPM

Steering Gear Internal Leakage LEFT Turn **\_\_1440** PSI **\_0\_** GPM

**Recommendation:** **Binding/Tight Linkage**

Binding/Tight Linkage. Static steering pressure is high at 1180 psi in both directions indicating tight king pins, tie rods, or binding, or too much weight on the steer axle.

**Section 7**

**Troubleshooting Checklist:**

System Backpressure at Idle **\_80** PSI

System Backpressure at Maximum (1600) RPM **\_80**  PSI

Maximum System Pressure (Pump Relief Setting) at idle **1500** PSI at Maximum RPM **1500** PSI

Flow at Idle with Backpressure Only **\_4\_\_** GPM

Flow at Maximum RPM Backpressure Only **\_\_5\_** GPM

Does the steering gear stay in pressure when the steering wheel is released? YES [ ]  NO [x]

Static Steer Turning Pressure RIGHT Turn **\_440**  PSI LEFT Turn **\_440**  PSI

Steering Gear Internal Leakage RIGHT Turn **1500**  PSI **\_0\_**GPM

Steering Gear Internal Leakage LEFT Turn **1500** PSI **\_0\_** GPM

**Recommendation:** **Relief Valve Stuck Closed**

The relief valve is stuck closed. Maximum system pressure of 1500 psi should be 1400 +/- 50 psi. Replace the relief valve (if applicable) or the pump assembly.