**CDX Distance Learning**

**Exercise #41**

**Power Steering Diagnostics**

**Student Name:** Click or tap here to enter text.

Use the animation found in each section below to troubleshoot the power steering system and virtually diagnose common power steering complaints. Follow the steps below:

1. Use the link provided to open the animation.
2. Complete the troubleshooting checklist in each section using the animation to perform the required system tests.
3. Analyze your test results taken from the troubleshooting checklist by comparing them to the listed specifications.
4. Enter your recommendation for repair in the recommendation comment box. Use the possible causes listed as a guide.
5. Make sure to include a detailed explanation of how you came about your recommendation.
6. When complete, close the animation window and move on to the next question(s).
7. Once all sections are complete, upload, copy and paste, or email the file to your supervisor/instructor to receive your grade.

**Section 1**

**SAMPLE:**

**[Testing Procedures Power Assisted Steering](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss01_C1/SS_HDpwrStrTestAss01_C1.html)**

**Customer Complaint:** Steers normally

**Troubleshooting checklist:**Use the animation to perform the following checks and enter the results below:

System Backpressure at Idle **80** PSI Backpressure at Max (1600) RPM **80** PSI

Maximum System Pressure (Pump Relief Setting) at Idle **1440** PSI at Max RPM **1440** PSI

Flow at Idle with Backpressure Only **4** GPM

Flow at Max 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 **460**  PSI LEFT Turn **460**  PSI

Steering Gear Internal Leakage RIGHT Turn **1440**  PSI **0** GPM

Steering Gear Internal Leakage LEFT Turn  **1440** PSI  **0** GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 KPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation:**

**SAMPLE**: System Normal

Performed tests using analyzer and all tests meet specifications. This shows that the steering system pump and relief valve are good, there are no restrictions in the system, the steering gear is good, and the steering linkage is not dry or binding.

**Section 2**

[**Testing Procedures Power Assisted Steering**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss02_C1/SS_HDpwrStrTestAss02_C1.html)

**Customer Complaint:** Steers slow in all directions

**Troubleshooting Checklist:** Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation:**

Click or tap here to enter text.

**Section 3**

[**Testing Procedures Power Assisted Steering**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss03_C1/SS_HDpwrStrTestAss03_C1.html)

**Customer Complaint:** Steers hard in all directions when loaded

**Troubleshooting Checklist:**Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation:**

Click or tap here to enter text.

**Section 4**

[**Testing Procedures Power Assisted Steering**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss04_C1/SS_HDpwrStrTestAss04_C1.html)

**Customer Complaint:** Steers hard in all directions when empty or loaded

**Troubleshooting Checklist:** Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation**

Click or tap here to enter text.

**Section 5**

**[Testing Procedures Power Assisted Steering](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss05_C1/SS_HDpwrStrTestAss05_C1.html)**

**Customer Complaint:** Steers hard in all directions, steering reservoir gets hot

**Troubleshooting Checklist:**Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation**

Click or tap here to enter text.

**Section 6**

[**Testing Procedures Power Assisted Steering**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss06_C1/SS_HDpwrStrTestAss06_C1.html)

**Customer Complaint:** Steers hard in all directions

**Troubleshooting Checklist:**Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 PSI (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation**

Click or tap here to enter text.

**Section 7**

[**Testing Procedures Power Assisted Steering**](http://d2jw81rkebrcvk.cloudfront.net/assetscdx2/202003%20-%20COVID/Assessments/MS/ANIM/SS/SS_HDpwrStrTestAss07_C1/SS_HDpwrStrTestAss07_C1.html)

**Customer Complaint:** Axle stops broken

**Troubleshooting Checklist:**Use the animation to perform the following checks:

System Backpressure at Idle Click or tap here to enter text. PSI

System Backpressure at Maximum (1600) RPM Click or tap here to enter text. PSI

Maximum System Pressure (Pump Relief Setting) at Idle Click or tap here to enter text. PSI at Maximum RPM Click or tap here to enter text. PSI

Flow at Idle with Backpressure Only Click or tap here to enter text. GPM

Flow at Maximum RPM Backpressure Only Click or tap here to enter text.GPM

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

Static Steer Turning Pressure RIGHT Turn Click or tap here to enter text. PSI LEFT Turn Click or tap here to enter text. PSI

Steering Gear Internal Leakage RIGHT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

Steering Gear Internal Leakage LEFT Turn Click or tap here to enter text. PSI Click or tap here to enter text. GPM

**System Specifications:**

* + Back pressure: **less than 100 psi (689.5 kPa)**
  + Maximum System Pressure (Pump Relief Setting): **1400 +/- 50 psi (9653 +/- 345 kPa)**
  + Flow with Backpressure Only: **4–6 GPM (18–27 lpm)**
  + Static Steer Turning Pressure: **less than 900 psi (6205 kPa)**
  + Steering Gear Internal Leakage: **less than 1 GPM (3.8 lpm)**

**Common Possible Causes:**

* + System Normal
  + Worn Pump
  + Relief Valve Stuck Open
  + Relief Valve Stuck Closed
  + Steering Gear Internal Leakage
  + Restriction in System
  + Binding/Tight Steering Linkage

**Recommendation:**

Click or tap here to enter text.