

**Warning:** Undefined array key "te\_title" in /var/www/vhosts/amatrol.com/httpdocs/wp-content/themes/kallyas-child/dkpdf/dkpdf-index.php on line 168

**Warning:** Undefined array key "te\_subtitle" in /var/www/vhosts/amatrol.com/httpdocs/wp-content/themes/kallyas-child/dkpdf/dkpdf-index.php on line 169

**Warning:** Undefined array key 1 in /var/www/vhosts/amatrol.com/httpdocs/wp-content/themes/kallyas-child/dkpdf/dkpdf-index.php on line 171

**Warning:** Trying to access array offset on value of type null in /var/www/vhosts/amatrol.com/httpdocs/wp-content/themes/kallyas-child/dkpdf/dkpdf-index.php on line 171

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Table of Contents: Introduction To Steam Systems

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**OBJECTIVE 12 DESCRIBE THE OPERATION OF A STEAM PRESSURE GAUGE**

For measuring steam pressure, the Bourdon gauge is the most widely-used method. The operation of a Bourdon gauge is simple. In figure 39, the components of a typical Bourdon gauge are shown.

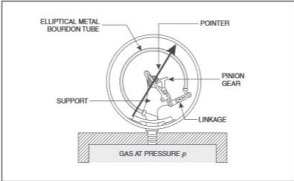


Figure 39. Bourdon Gauge

When pressure is applied, the Bourdon tube (which has an elliptical cross-section) deforms. This deformation causes the lever mechanism and gear sector to move the needle as shown in figure 40. The needle is read against a calibrated dial which gives the indicated pressure.




Figure 40. Bourdon Gauge Operation

**SKILL 5 MEASURE GAUGE PRESSURE USING A PRESSURE GAUGE**

**Procedure Overview**

In this skill, you will gain experience in measuring steam pressure by reading a gauge.

1. On the 950-SH1 Steam Trainer, locate the boiler pressure gauge as shown in figure 41.




Figure 41. Boiler Pressure Gauge

2. Take a moment to view the gauge. Read the indicated pressure on the gauge and record this pressure.  
Pressure: \_\_\_\_\_ psi (kPa)
3. Obtain a watch with a second-hand.  
You will use the watch to record the steam pressure at one-minute intervals.
4. Notify your instructor that you are ready for the steam trainer to be started. The instructor will start the boiler and allow the steam to vent at a prescribed setting.
5. Begin timing from the moment the boiler is started.

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matrol's Steam Systems eBook course introduces learners to the operation, installation, maintenance, and repair of steam systems and their application in paper mills, commercial and residential settings, power companies, and even nuclear submarines. (References [950-SH1](#))

## Steam Systems

### **What is the Basic Principle of Boiler Operation?**

A boiler is used to generate steam for heating and power. In a boiler, heat is added to a container holding water. As the water is heated, it turns to steam at a certain pressure. The necessary basic components for a boiler are the following:

- **Container** - The container holds the liquid water and also contains the steam that is produced. The container is designed to withstand the heat and pressure of the steam and is referred to as a pressure vessel. Heat from the heat source is transferred to the steam through the pressure vessel.
- **Water Supply** - As steam is produced, the liquid water in the pressure vessel is diminished and must be replaced. The water supply supplies and regulates the boiler's water supply.
- **Heat Source** - Heat is required to generate steam. This heat source can come from the sun, electricity, gas, fuel oil, coal, or wood.

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