Adjustable pointers allow for precise pointer adjustments when the span is incorrectly positioned. The span is the range of movement for a pointer when going from 0 to full-scale (this is usually 270° of rotation). The adjustable pointers allow the span to be adjusted to any position along the gauge.

As seen in Figure 1, the marked areas on each gauge represent a span of 270° of pointer rotation or 2000 psi. Although the highlighted areas are different, both gauges are within the stated accuracy. The marked area in the left picture shows the pointer rotation if not adjusted correctly. The pointer will begin at a point less than zero and stop just short of the full scale value of 2000 psi. If the pointer is adjusted correctly, the pointer span will begin on the zero mark and end on the 2000 psi mark as shown in the picture on the right.

WIKI currently uses two adjustable pointers: the micro-adjust pointer and the center hub adjustment pointer. Both types of pointers are generally used on gauges that have removable bezels.
A common misconception with the adjustable pointers is that adjusting the pointer allows the gauge to be put back into calibration. If a gauge is out of calibration, no amount of pointer adjustment will put it back into calibration.

**Micro-Adjust Pointer**

To start the adjusting procedure, carefully remove the bezel ring, window and window gasket from the gauge. Once removed, place the items to the side. Place the gauge in an area where it can be secure throughout the process.

In order to adjust the micro-adjust pointer, hold the thicker portion of the pointer. Be careful to not hold it too tightly since the pointer will bend if too much force is applied.

Next, use a small flathead screwdriver (0.8mm) for the adjustment screw located on the same side of the pointer that is being held.

To adjust the pointer, rotate the adjustment screw clockwise to make the pointer indicate a higher pressure and counterclockwise to make the pointer indicate a lower pressure (see Figure 3). Continue adjusting until the desired position is reached.

**Figure 3: Effects of Rotating the Micro Adjustment Screw**

As seen on the left column, to adjust to a higher pressure, rotate the micro adjustment screw clockwise.

As seen on the right column, to adjust to a lower pressure, rotate the micro adjustment screw counterclockwise.

Note: Pictures shown here are exaggerated to show the effects of adjusting the pointer. When adjusting the pointer, always check the calibration against a master test gauge. If calibration is outside of the stated accuracy of the instrument after pointer adjustment, the gauge will either need to be repaired by a qualified technician or discarded and replaced.

When finished adjusting the pointer, install the window gasket, window and bezel ring. Make sure that the bezel ring is secure.
Hub Adjustable Pointer

To start the adjusting procedure, carefully remove the bezel ring, window and window gasket from the gauge. Once removed, place the items to the side. Place the gauge in an area where it can be secure throughout the process.

To adjust the hub adjustable pointer, hold the thicker portion of the pointer. Do not hold too tightly since the pointer will bend if too much force is applied. Place the screwdriver (0.8mm) into the notch in the center of the pointer to adjust.

Maintain a rigid grip on the pointer while turning the screwdriver. To adjust, rotate the center hub clockwise to make the pointer indicate a lower pressure and counterclockwise to indicate a higher pressure (see Figure 4). Continue until the pointer has been adjusted to the desired position.

Figure 4: Effects of Rotating the Pointer Hub

As seen on the left column, to adjust to a higher pressure, rotate the pointer adjustment hub counterclockwise.
As seen on the right column, to adjust to a lower pressure, rotate the pointer adjustment hub clockwise.
Note: Pictures shown here are exaggerated to show the effects of adjusting the pointer. When adjusting the pointer, always check the calibration against a master test gauge. If calibration is outside of the stated accuracy of the instrument after pointer adjustment, the gauge will either need to be repaired by a qualified technician or discarded and replaced.

When finished adjusting the pointer, install the window gasket, window and bezel ring. Make sure that the bezel ring is secure.

**Important Note About Adjustable Pointers**

It is recommended that the gauge being adjusted be tested against a master test gauge of similar range. Even though adjusting the pointer can place it back at the zero position, this does not mean that the gauge is calibrated correctly. The gauge could have lost calibration due to many types of damage such as over pressure, pressure spikes, pressure pulsation, vibration, or mishandling. In these cases, the gauge will most likely need to be repaired by a certified technician or discarded and replaced. After adjustment, a gauge should be tested at a minimum of 3 points along the full-scale range to make sure that it is within calibration (see below “How to Check Gauge Calibration”). If the gauge reading is within the stated accuracy when checking against a master test gauge, then it is within calibration and functioning correctly.

**How to Check Gauge Calibration**

As seen below in Figure 5, the gauge is placed in a test bench with a master gauge of similar range (in this example both are 160 psi). Before setting the gauge on a test bench, remove the bezel ring, window and the gasket material. As shown in the picture, the gauge pointer being adjusted is off zero. Prior to applying any pressure to the test bench, adjust the pointer to indicate zero pressure.
Figure 5: Proper Setup of Gauge Adjustment

To check calibration, pressurize the test bench to a point within 25% of the full-scale range. The gauge being checked should be on or near the pressure point of the master test gauge. If not, adjust the pointer so that both will match. In the pictures below, both gauges are shown to be at 20 psi after adjustment.

Next test at a point that is 50% of full-scale range. At this point, the gauge being adjusted should be on or near the master test gauge reading. If not, adjust the pointer so that both will match. In the pictures below, both gauges are shown to be at 80 psi after adjustment.
Check a final pressure point within the last 25% of the full-scale range and make any minor adjustments to the pointer as needed. Below both gauges indicate a pressure reading of 160 psi.

Once finished, pressure down and recheck at each of the previous test points. If the gauge and master test gauge are the same at each test point, the gauge is within calibration and the pointer has been properly adjusted. If the gauge being adjusted is not within calibration and/or the stated accuracy as indicated by the master test gauge, the gauge should be repaired by a qualified technician or discarded and replaced.