Setting up the Thickness Gauge

For greatest accuracy in flow applications, the PT878GC can measure pipe wall thickness using an optional thickness gauge transducer, instead of relying on the nominal pipe wall thickness. In Thickness Gauge mode, the PT878GC does not measure flow, but it can determine the thickness of most standard metal and plastic pipe materials over a range from 0.05 to 3 in. (1.3 to 76.2 mm). Figure 9-4 below illustrates use of the optional thickness gauge.

Figure 9-4: PT878GC Thickness Gauge in Operation

The PT878GC offers two basic thickness gauge functions: using the gauge to measure thickness after entering the pipe material, and calibrating the gauge. For the highest possible accuracy, you can also calibrate the velocity of sound in the pipe material.

Using the thickness gauge involves three steps:

1. Entering the material and sound speed (in the Material window on page 9-7),
2. Measuring the pipe wall thickness (in the Display window on page 9-9), and
3. If the measurement seems unreasonable, examining the acoustic signal to diagnose the problem (in the Graph window on page 9-10).

Setting up the Thickness Gauge (cont.)

Calibrating the thickness gauge involves up to two additional steps:

4. Calibrating the thickness gauge itself (in the Zero window on page 9-12), and
5. Calibrating the velocity of sound in the pipe material (in the Velocity window on page 9-14), if possible and if the pipe material is not the material entered in the Zero window. This step requires a trustworthy reference, either a section of pipe (such as a flange or open pipe section) that can be measured with calipers or another measurement device, or a thickness calibration block of the same material.