

# *Ultrasonic Testing Lecture Guide*

## Text Corrections

The following text corrections apply to the first printing of the *Ultrasonic Testing Lecture Guide*, which is part of the *Ultrasonic Testing Instructor Package*. The next printing of this publication will incorporate the corrections into the published text.

**Page 19, Rayleigh (Surface Wave) Mode, Item #2:** Change second sentence as follows: They propagate on the surface of steel at a velocity ~~about 10%~~ 8.4% less than shear waves.

**Page 23, Impedance Ratio, Item #4:** Change third sentence as follows: The impedance ratio for a ~~liquid-to-metal~~ water-to-steel interface is about ~~20:1~~ 31:1 (about ~~80%~~ 88% reflection), whereas the impedance ratio for air-to-metal is about 115 000:1 (virtually 100% reflection).

**Page 52, Quiz 3, Questions #39 and #40:** Delete both questions, as they repeat questions #11 and #31, respectively. (Note: answers #39 and 40 on p. 166 of the Lesson 3 Quiz Key should also be deleted.)

**Page 54, Item #2:** Change second sentence as follows: Barium titanate was regarded as the best material to use as a transmitting crystal, while lithium ~~sulphate~~ sulfate was widely thought to be the best material for receiving ultrasonic vibrations.

**Page 70, Quiz 4, Question #6:** Change question as follows: ~~Until~~ Through the ~~mid-~~ early 1980s, barium titanate was regarded as the best material to use as a transmitting crystal, while lithium sulfate was widely thought to be the best material for receiving ultrasonic vibrations. (Note: the answer to the revised question in the Lesson 4 Quiz Key on p. 167 will remain “true.”)

**Page 89, Broadband Transducers:** Change third sentence as follows: They are ~~not~~ also suitable in tests of coarse-grained, highly attenuative materials.

**Page 109, Quiz 7, Question #16:** Answer b should be corrected as follows: Set from the reflection generated by the 1.6 ~~em~~ mm (0.0625 in.) SDH in the IIW block.

**Page 119, Quiz 8, Question #5:** Question should be corrected as follows:

5. Because the ingots cool from the outside surface inward and the cooling steel contracts, the upper center portion of the ingot often shrinks inward and down into the ingot. This process causes:

- a. Shrinkage cracks.
- b. Slag and entrapped gases.
- c. ~~Both (a) and (b).~~ Pipe.
- d. ~~Pipe.~~ All of the above.

(Note: the answer to question #5 in the corrected version of the Lesson 8 Quiz Key on p. 187 should be: d. All of the above.)

**Page 131, Quiz 9, Question #5:** Question should be corrected as follows: A ~~larger~~  
smaller reflector located in the shadow of another larger discontinuity may not be  
detected at all. (Note: the answer to the revised question in the Lesson 9 Quiz Key on  
p. 191 will remain “true.”)

**Page 192, Lesson 9 Quiz Key, Question #14:** Answer should be b. False.

**Page 198, Lesson 11 Quiz Key, Question #7:** Answer should be b. False.

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