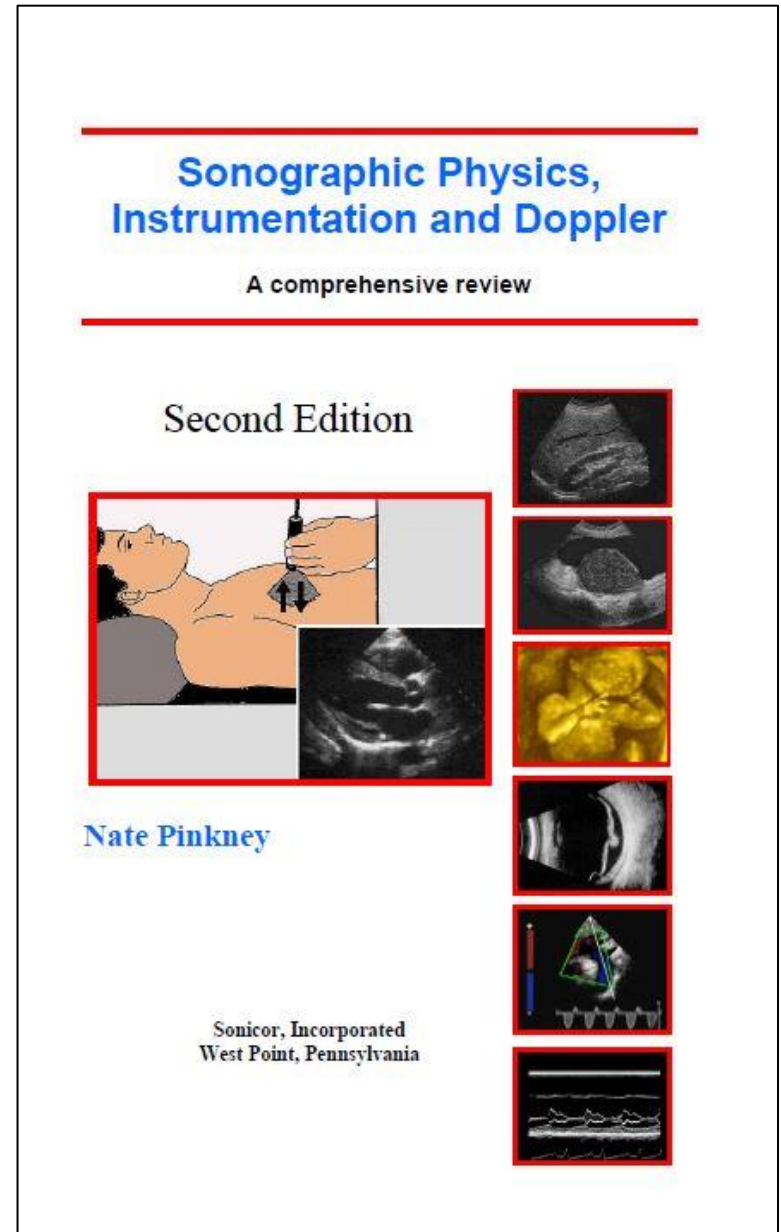


# Lesson 10:

## Ultrasound Quality Assurance

This lesson contains 6 slides plus 2 multiple-choice questions.

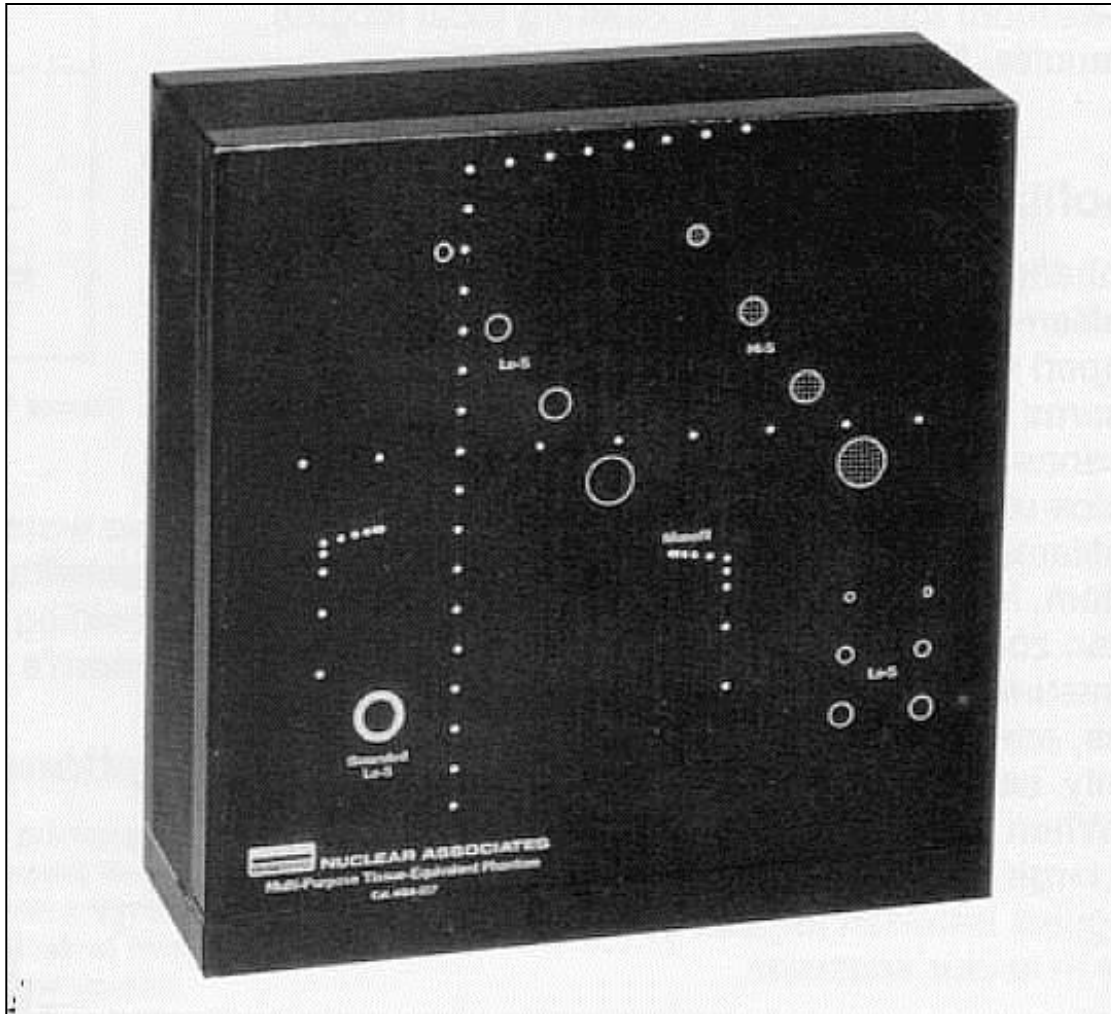
Accompanying text for the slides in this lesson can be found on pages 51 and 52 in the textbook:



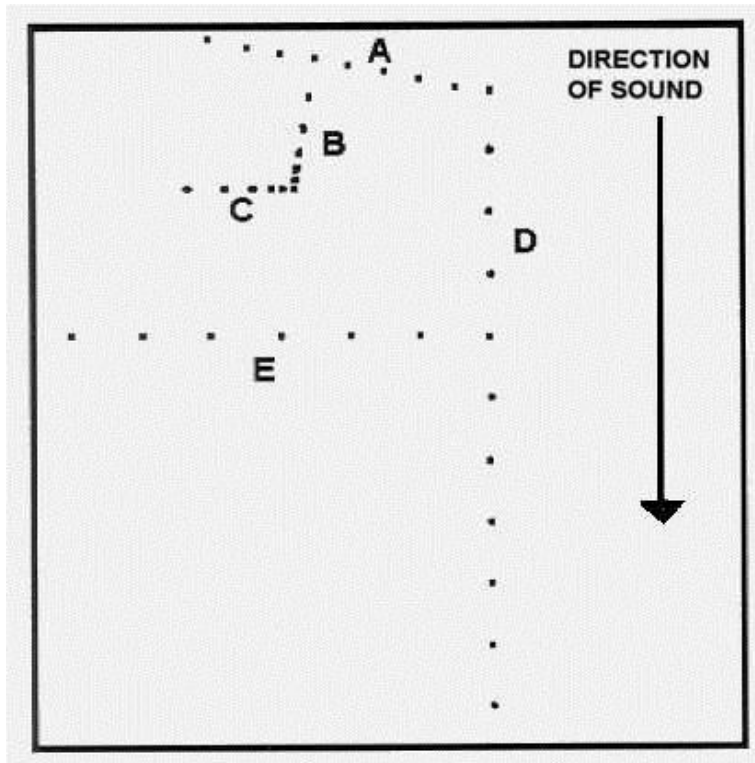
## Ultrasound Quality Assurance

*Quality assurance* is necessary to ensure that equipment parameters do not vary over time. The user of the equipment is responsible for ensuring that periodic quality control inspections are performed.

# Tissue-Mimicking Phantom



# Line Targets



**A = DEAD ZONE**

**B = AXIAL RESOLUTION**

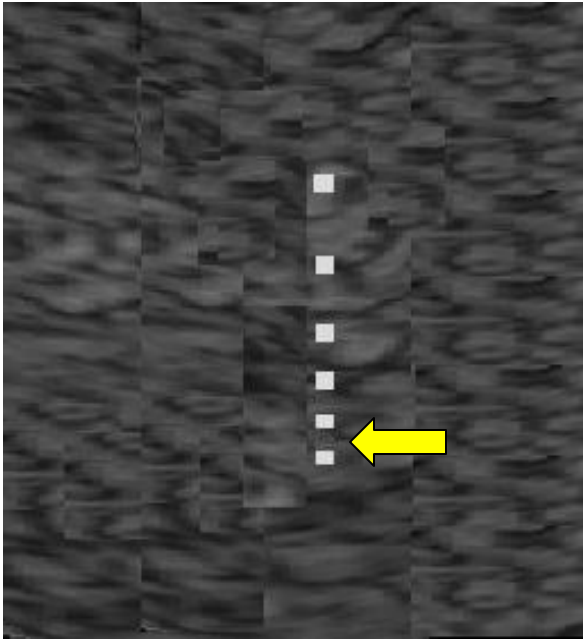
**C = LATERAL RESOLUTION**

**D = VERTICAL DISTANCE ACCURACY**

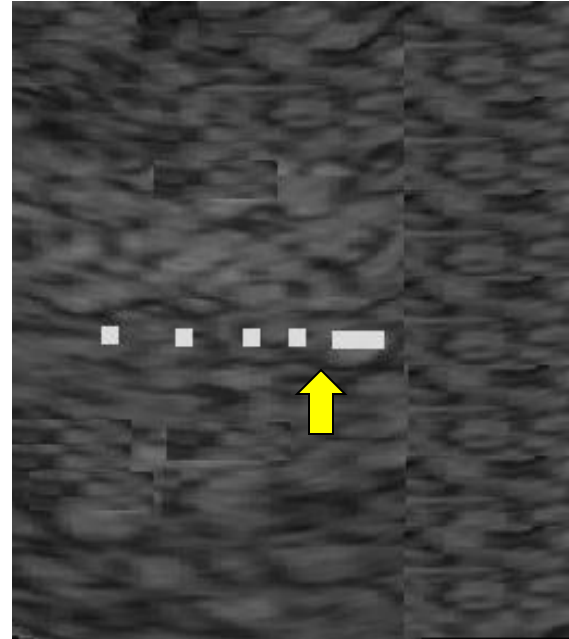
**E = HORIZONTAL DISTANCE ACCURACY**

# Resolution Targets

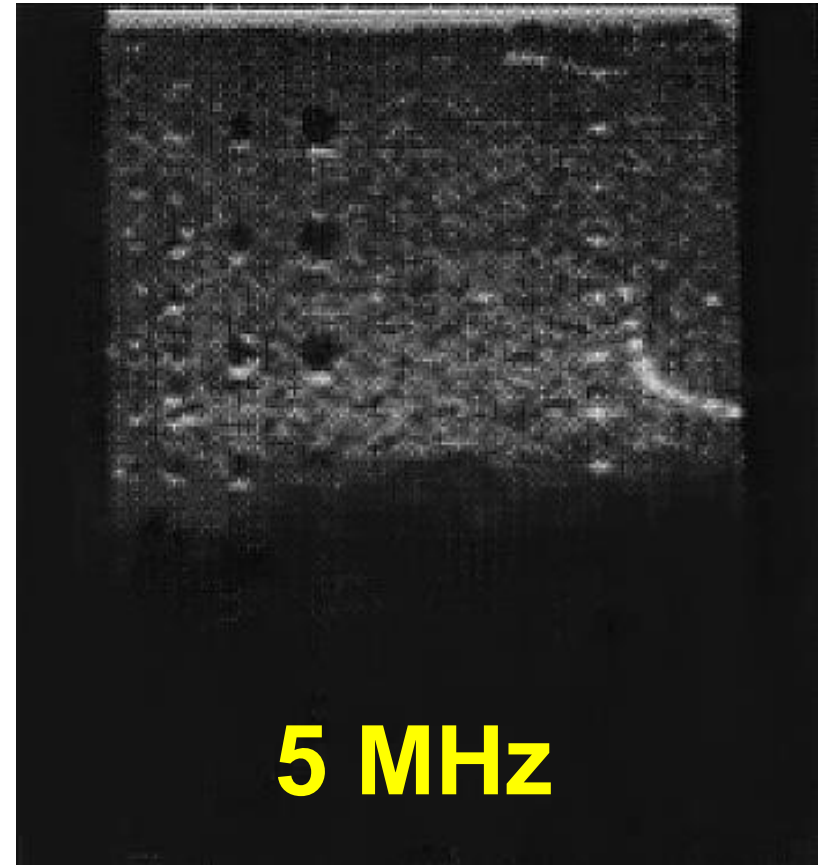
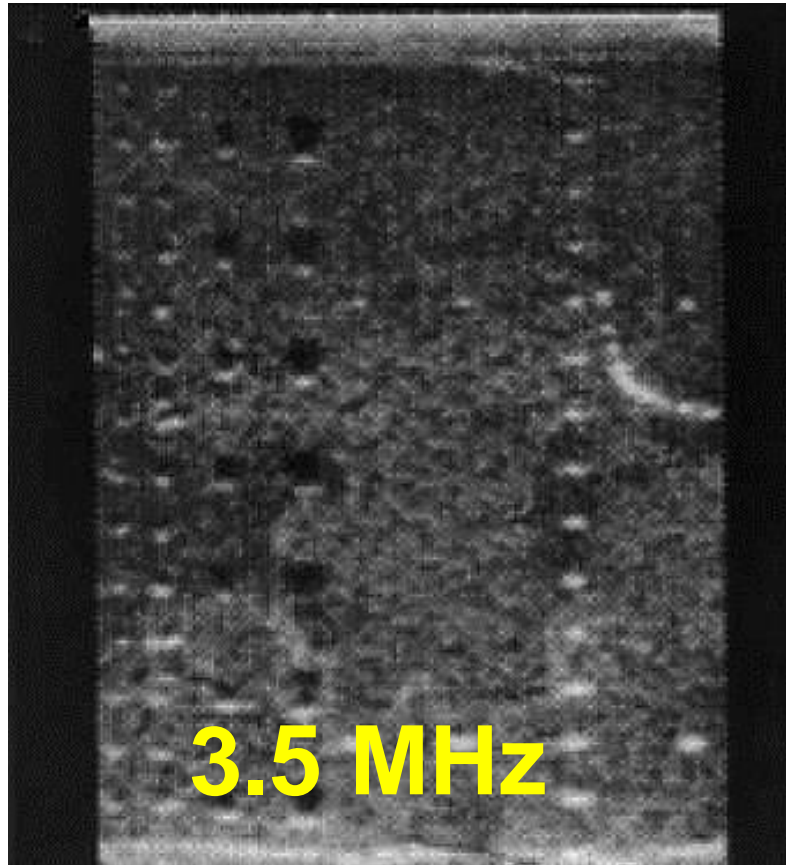
AXIAL RESOLUTION 1mm



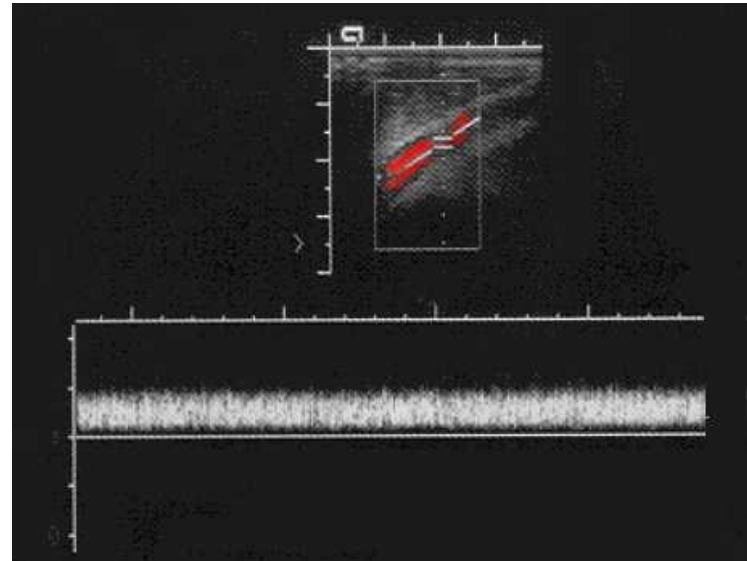
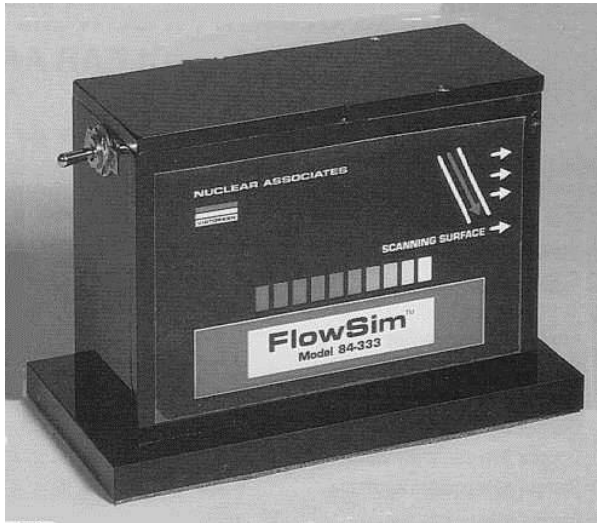
LATERAL RESOLUTION 2mm



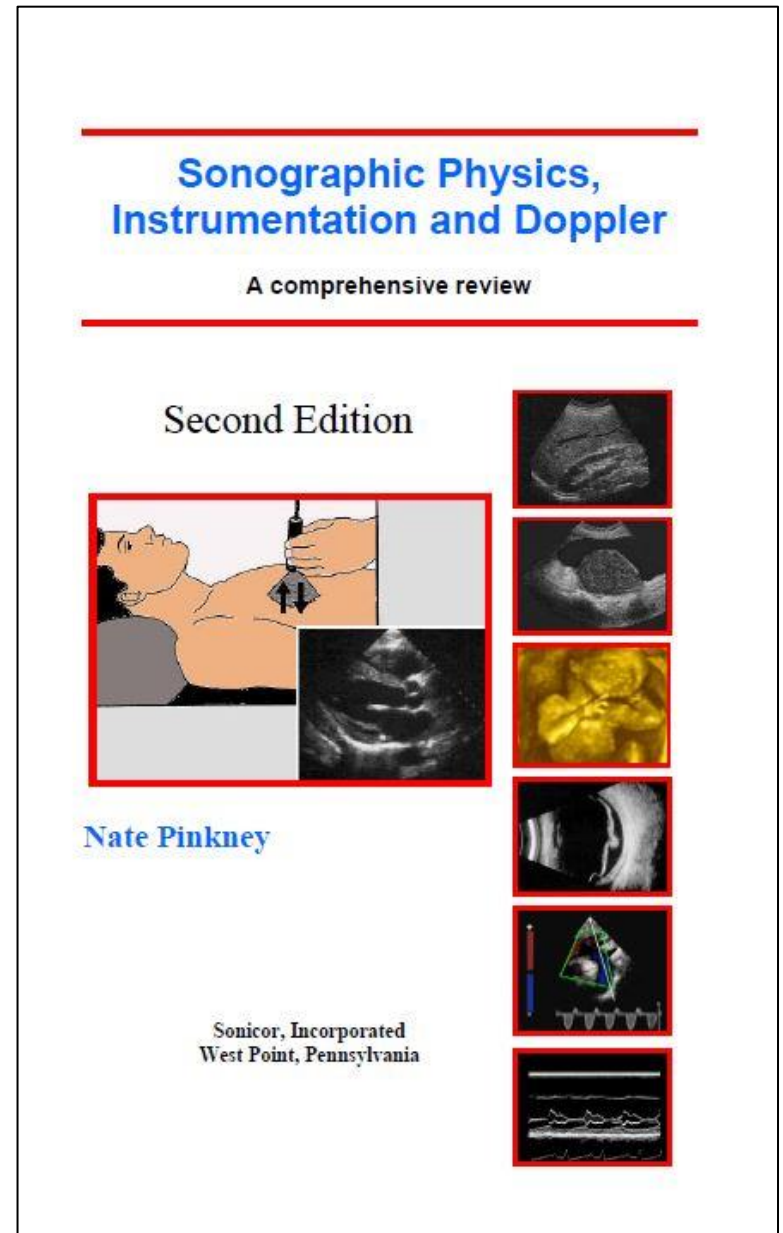
# Phantom Images



# Doppler Quality Control



Answers to the following **TWO** practice questions were derived from material in the textbook:





## Question 1

Which one of the following sets of properties of a test object or phantom is MOST relevant when assessing depth calibration accuracy?

- reflector spacing and speed of sound in the medium
- reflector spacing and reflector reflection coefficient
- attenuation in the medium and speed of sound in the medium
- reflector spacing and ultrasonic attenuation in the medium

## Question 1

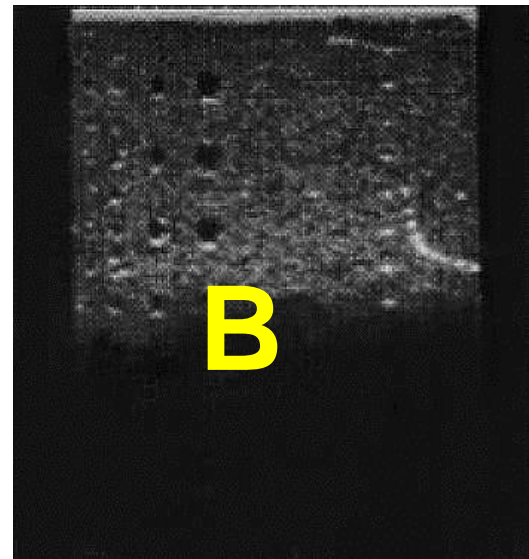
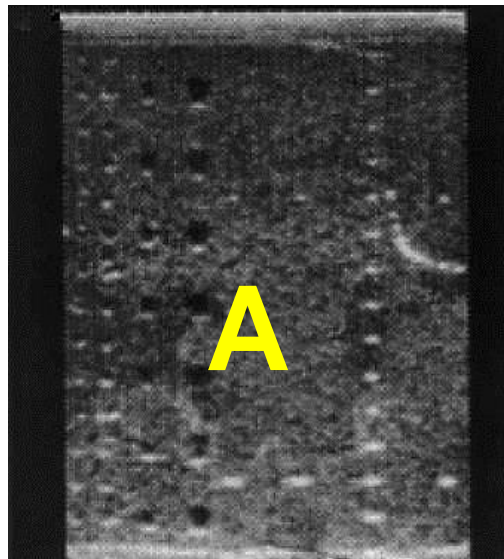
Which one of the following sets of properties of a test object or phantom is MOST relevant when assessing depth calibration accuracy?

- reflector spacing and speed of sound in the medium
- reflector spacing and reflector reflection coefficient
- attenuation in the medium and speed of sound in the medium
- reflector spacing and ultrasonic attenuation in the medium

## Question 2

The images of scans of a tissue equivalent test object demonstrate differences in echo distribution. What is the difference between image A and image B?

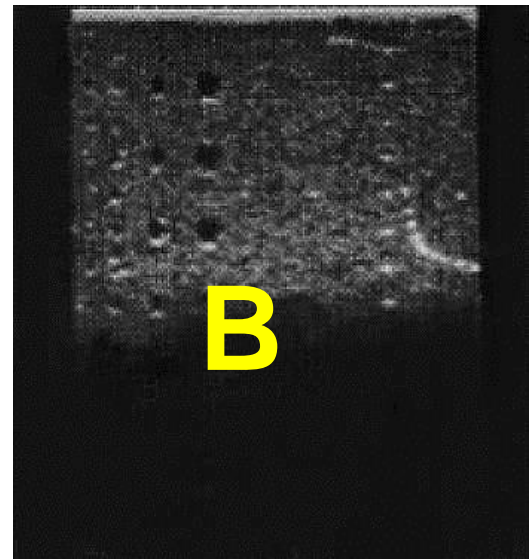
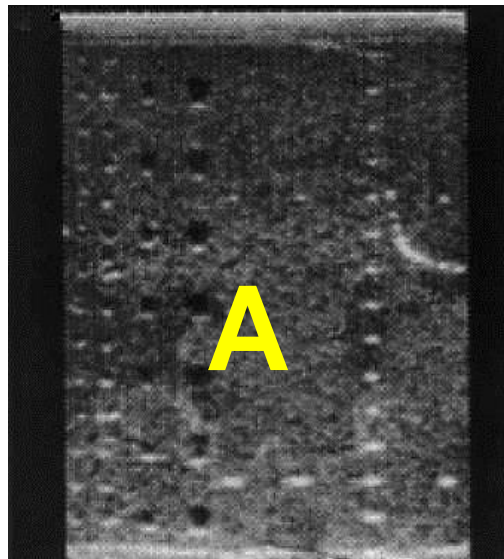
- The dynamic range was lower on image B
- The reject control was improperly adjusted on image B
- Image B was obtained with a higher frequency transducer
- The NEAR GAIN was higher on image A



## Question 2

The images of scans of a tissue equivalent test object demonstrate differences in echo distribution. What is the difference between image A and image B?

- The dynamic range was lower on image B
- The reject control was improperly adjusted on image B
- Image B was obtained with a higher frequency transducer
- The NEAR GAIN was higher on image A



## **END OF LESSON 10**

For information on the accompanying textbook, visit the Website:

[www.Sonicorinc.com](http://www.Sonicorinc.com)