

## HOLOGIC QDR APPLICATION NOTE

### HIP PHANTOM

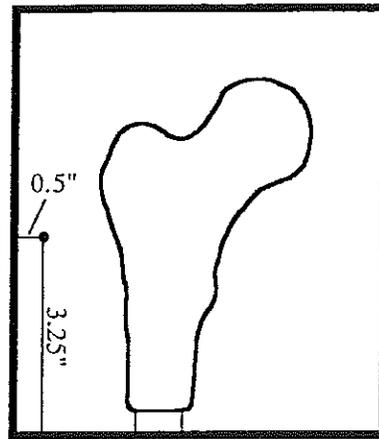
QDR 1000, 1000/W AND PERFORMANCE SERIES MACHINES

This application note is being provided to inform users of the correct method of scanning, analyzing and quality control of the HOLOGIC WHF-1 Anthropomorphic Hip Phantom. The instructions enclosed are specific, so, please follow them in order to keep the reproducibility and precision at a maximum.

## SCANNING:

1. Create a Patient Biography for the hip phantom if one does not already exist. Be sure to include the phantom number in the Name entry. For example, HIP PHANTOM #133.
2. Place the hip phantom box cover against the back edge of the table.
3. Place the hip phantom against the box cover. Scan as a RIGHT hip.
4. Center the red laser 3.25" up from the bottom of the hip phantom and 0.5" in towards the center. Mark the starting point with a magic marker. See fig.1. below. (NOTE: Newer phantoms will already be marked).

FIG. 1.



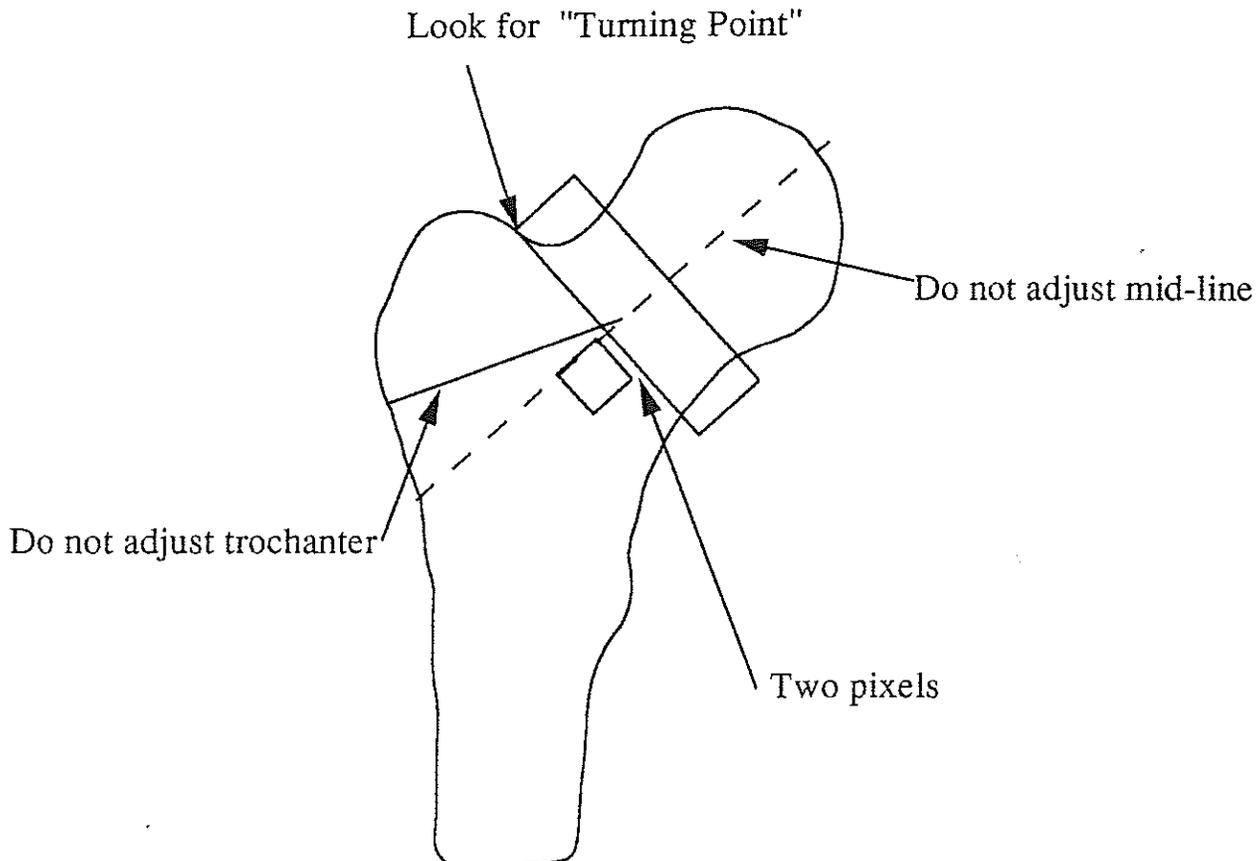
5. Scan.
  - A) If you have a Performance Series machine, scan in the Performance mode.
  - B) Use the default length and width
  - C) Use F3 (rescan) if you do not have all of the shaft of the femur included. NOTE: This scan is not like that of a patient, the greater trochanter will not be in the center of the scan box.
  - D) Let the scan complete itself.

## HIP PHANTOM ANALYSIS:

1. Select Region of Interest.
  - A) Make the ROI box size 112x152.
  - B) Place the lower line four steps (pixels) below the base of the femoral shaft.
  - C) Center the ROI to the hip.
  - D) End.

2. Insert or Delete Points
  - A) End.
3. Mark Femoral Midline.
  - A) End.
4. Position Box on Femoral Neck.
  - A) Press <Insert> to move entire box.
  - B) Press <Ctrl and Page Down> 3 times. This slows the movements of the box.
  - C) Adjust the position of the neck box to align with the trochanter at the turning point. See fig. 2.
  - D) End.
5. Position Box on Ward's Triangle.
  - A) Press <Insert>.
  - B) Press <Ctrl and Page Down> 3 times.
  - C) Align Ward's with the femoral midline. Fig. 2.
  - D) Adjust Ward's so that it is two steps (pixels) below the femoral neck box. Fig. 2.
  - E) End.
6. Mark Base of Trochanter.
  - A) End.

FIG. 2.



## HIP PHANTOM COMPARE:

1. Once a baseline hip phantom scan has been established, then, use that scan to **Compare** all future scans to.
2. After a subsequent scan has been done:
  - A) Go to Analyze (F4 or from the Main Menu).
  - B) Go to Compare.
  - C) Pick the baseline hip scan by highlighting it and then <enter>.
  - D) Now analyze. NOTE: Steps 3. and 4. from HIP PHANTOM ANALYSIS must be done manually even though you are comparing.

## QUALITY CONTROL:

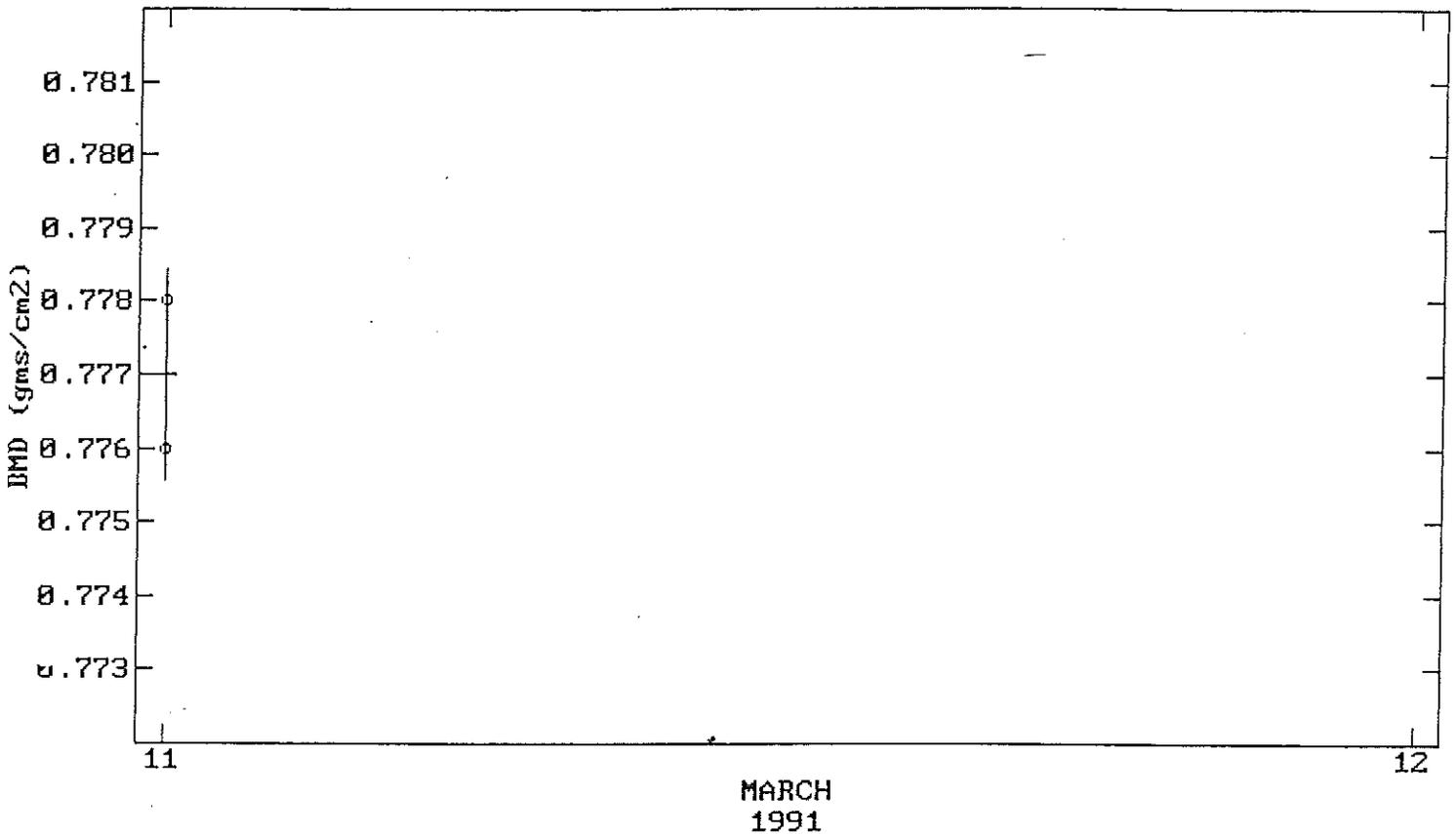
1. Go to Qc (from the Main Menu).
  - A) Go to Add <enter>.
  - B) Put a + next to the current hip phantom scan. <Enter>.
  - D) Go to Plot <enter>.
  - E) Select BMD.
  - F) <Enter> down to the field, [Plot Phantom Number]. Type in your hip phantom number. <Enter>.
  - D) At the field, [Plot Phantom Type], type HIP.
  - E) Press <F10>.

## SET UP:

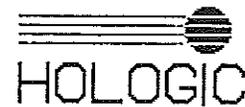
1. A QC Hip Phantom set up needs to be done if one does not exist on your system.
2. How to know if a *set up* does not exist.
  - A) The QC steps presented above will not work. Instead you will receive a message that states: "There are too few data points that match your selection...".
  - B) If more than one hip phantom scan has been added you will be allowed to Plot, but, there will be no limits set. This is evident by the words NOT DEFINED under the Reference Values column. See fig. 3. on next page.

If either of these two situations occurs then a *set up* needs to be created. A *set up* only needs to be created once.

FIG. 3.



Reference Values	Plot Statistics
hip phantom #133	n = 2
mean = NOT DEFINED	mean = 0.7770 gms/cm2
S.D. = NOT DEFINED	S.D. = 0.0014 gms/cm2
limits = NOT DEFINED	cv = 0.18%



3. How to create a set up.
  - A) Scan and analyze the Hip Phantom 20 times. Analyze using **Compare**. ( Remember to adjust the neck box and Ward's).
  - B) Go to Qc (from the Main Menu).

- C) Go to Add <enter>.
- D) Put a + next to the 20 hip phantom scans that you did. <Enter>.
- E) Go to Set up <enter>.
- F) At the field, [Phantom Type], type Hip. <Enter>.
- G) At the field, [Phantom Number], type the hip phantom number. <Enter>.
- H) You will now be at the Qc-Scan Selection screen. Again, put a + next to the 20 hip phantom scans. <Enter>.
- I) You will now be at the Edit Qc Plotting Parameters screen. Press F10.
- J) Now you may Plot your hip phantom. Follow the Qc instructions.

If you have any questions or problems concerning applications related to the hip phantom, please contact one of our Product Applications Specialists:

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