FLUKE®
Biomedical

Nuclear Associates 07-600

Fluoroscopic Beam Alignment Device

Users Manual

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Fluke Biomedical
Radiation Management Services

6045 Cochran Road
Cleveland, Ohio 44139
440.498.2564

www.flukebiomedical.com/rms

Table of Contents

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Section 1
General Information

1.1 Introduction

In misaligned fluoroscopic image intensifier systems, part of the x-ray field may fall outside the visible area of the image receptor. This portion of the field does not contribute to the useful fluoroscopic image and may result in unnecessary exposure to the patient.

The Fluoroscopic Beam Alignment Device will determine the alignment of the x-ray field and the image receptor. If corrective measures are required, the device provides a measure of optimum beam alignment within the limits of the equipment's design.

This device consists of a plate into which channels have been cut to accept four sliding brass strips. The strips define the visible area of the image receptor, and they are adjustable with respect to the center of the device. The holes drilled at ½" intervals on a line through the center of each channel are filled with radiopaque plugs. The clear visibility of the plugs in the fluoroscopic image permits their use as a means of centering the device. The size of the field can be determined by counting the number of visible plugs from one edge of the field to the opposite edge, and multiplying that number by one-half to give the value in inches. A transparent plastic overlay on the aluminum plate prevents the vertical displacement of the brass strips.

1.2 Operation

1. Place the device on the table so that one set of brass strips lies along the centerline of the table. Push all four strips fully towards the center of the device.
2. With the shield curtain in place, advance the imaging (or x-ray) head to the center lock position and lock it. Place the head at its lower limit of vertical travel, and adjust the beam-limiting system to the full open position.
3. Advance the unit to the appropriate center of the alignment device, and fluoroscope to ascertain the exact center.
4. Lock the head in this center position.
5. With the fluoroscopy system on automatic and the user wearing shielding gloves, withdraw the four brass strips so that the inner end of each strip corresponds to one of the four edges of the visual field.
6. Record the spacing distribution of the four brass strips to yield the visual field size. The plugs are ½" apart.
7. Place a piece of film on top of the Beam Alignment Device and expose.
8. Develop of the film and observe. The ends of the brass strips should correspond with the edges of the field as defined by the beam limiter. If not, the system is out of alignment.

   If the image taken on the spot film (or seen on the image amplifier) appears rotated, this also indicates a misalignment.
9. Repeat steps 1 through 8 for the upper limit of the head's vertical travel.

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