ANTHROPOMORPHIC PHANTOMS
FOR TEACHING/TRAINING IN
DIAGNOSTIC RADIOLOGY
ANTHROPOMORPHIC PHANTOMS ARE IDEAL SUBSTITUTE PATIENTS FOR TEACHING/TRAINING RADIOLOGIC TECHNOLOGISTS

- Permit unlimited repetitions of most views...patients cannot be used for this...
- Demonstrate effects of changing technical factors...
- Provide valid feedback to evaluate trainee performance...
- Because the same phantom can be used year after year, performance norms can be derived to guide training procedures...

HUMAN SKELETAL ARCHITECTURE IS DUPLICATED MORE REALISTICALLY WITH RSD SKELETONS THAN WITH CADAVERIC SKELETONS

Soft-tissue molds and skeleton molds are matched for anatomic fidelity.

RSD skeletons meet radiation interaction properties of both cortical bone and spongiosa as standardized by the International Commission on Radiation Units and Measurements.

...many cadaveric human skeletons do not — especially when dried out for their preparation.

![Image of X-rays with text]

Which Skull is Natural and Which is Made by RSD?

Answer on the lower left corner of the back cover
PIXY® was designed specifically for training radiologic technologists. PIXY is 5 ft. 1 in. (156cm) tall and weighs 105 lbs. (48kg). She is repeatable, virtually indestructible and a convenient substitute for patients.

PIXY is used to demonstrate anatomy and evaluate positioning and imaging techniques, including kVp, mAs, contrast, optical density, OFD and TFD. Radiographs of PIXY are optically equivalent in density and contrast to human patients.

PIXY permits unlimited exposures and tolerates trainee errors.

**PIXY ANATOMY**

PIXY shoulders have ball and socket joints; elbows and knees flex 90° to 100°. Hips flex 130° with 30° hyperextension.

A “frog position” is made possible by lateral flexion at the hips. The right hand is molded with fingers positioned for an AP view, while the left hand is in an oblique-lateral position. The left foot is in full plantarflexion; the right foot is in a neutral position.

C1, C2, C6 and C7 were converted to mechanical nylon joints because educators in the field prefer full positioning capabilities for the head. The design permits the remaining neck vertebrae to be fixed in a normal position, while assuring a full range of head motion.
PIXY contains abdominal and pelvic organs: stomach, gall bladder, urinary bladder, kidneys, rectum and sigmoid flexure. These are air-filled, but accept water or contrast media and can be easily flushed after use. Custom fractures and custom pathologies are optional.

**PIXY MATERIALS**

**Skeletons**

Skeletons are in continuous production, so prompt shipments are routine. Nevertheless, human skeletons are available for users who desire them. There is a surcharge to cover the high cost of scarce natural skeletons and for added labor needed to rework them to fit PIXY molds.

The matching of skeletons and soft tissues permits external and bony landmarks to coincide. The position of bones within the soft tissues is anatomically correct.

The detail cast into RSD skeletons is considered a triumph of the sculptural moldmaker's craft. The skull, for example, has frontal and sphenoidal sinuses, ethmoidal and mastoid air cells and the auditory ossicles. Bone sutures are radiographically visible.

**Soft Tissues**

PIXY is available in opaque or transparent tissue-equivalent materials. The transparent PIXY has visible organs and skeleton except at the hips, knees, and elbows, which are opaque because, as on the opaque PIXY, latex coverings are needed to retain tissue-equivalent gels for soft-tissue continuity at these articulations. Two-ply coverings protect against gel leakage.

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**PIXY MODEL NUMBERS**

- **RS-102**: Opaque PIXY Phantom with stomach, gall bladder, urinary bladder, kidneys, rectum and sigmoid flexure. Permanent shipping/storage case.
- **RS-102T**: Same as RS-102 but transparent.
- **RS-157**: Animal Lungs.
- **RS-102R**: Standard PIXY Refurbishment.

* Must be ordered with Phantom (cannot be retrofitted).

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**Lungs**

Standard PIXY lungs are molded of tissue-equivalent foam with the mass density of inflated human lungs (0.30 g/cc). They are connected to the oro-nasal cavity by the stem bronchi and trachea. The oro-nasal pharynx is filled with a nearly air-equivalent foam.

Optional animal lungs, which duplicate the intricate detail of the vascular trees, are available. These lungs are fixed in the inflated state and molded to conform to the pleural cavities of the phantom. The pulmonary arteries are injected with a blood-equivalent plastic. In addition, low, medium or high contrast material may be selected by the user.

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**REFURBISHMENT**

RSD offers a PIXY refurbishment service which, after wear and tear from usage over an extended period of time, restores PIXY to its original condition. This service includes repair of minor bone fractures of hands and feet. Quotes are furnished upon request for more extensive damage.

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* Highly detailed polymer skeletons which reproduce the shape, mass density and attenuation coefficients of the cortical bone and spongiosa, allow continuous production of phantoms instead of sporadic production due to limited availability, variable size and uncertain chemical composition of human skeletons.
SECTIONAL PHANTOMS

Anthropomorphic Body Sections
With Applications Throughout
The Field Of Radiography

Sectional phantoms, with the anatomic and radiographic fidelity of PIXY, are used widely in teaching/training, with many other applications. They represent an average male 5 ft. 9 in. tall (175cm), with a weight of 162 lbs (74kg). They are rugged, easily transported and shatter-proof.

Sectional phantoms do not replace simple geometric phantoms that are used to evaluate individual characteristics of an imaging system. They provide comprehensive evaluation of the imaging system and imaging techniques under realistic conditions. Typical applications are the same as PIXY.
SECTIONAL MODEL NUMBERS

- RS-108 or RS-108T: Head with Cervical Spine (C1-C7)
- RS-109 or RS-109T: Head without Cervical Spine
- RS-111 or RS-111T: Thorax
- RS-113 or RS-113T: Pelvis
- RS-114 or RS-114T: Hand/Wrist (natural position), right or left
- RS-115 or RS-115T: Hand/Wrist (oblique position), left only
- RS-116 or RS-116T: Foot/Ankle (natural position), right or left
- RS-117 or RS-117T: Foot/Ankle (extended position), left only
- RS-118 or RS-118T: Knee (natural position), right or left
- RS-119 or RS-119T: Knee (90° flexion), left only
- RS-120 or RS-120T: Elbow (natural position), right or left
- RS-121 or RS-121T: Elbow (90° flexion), left only
- RS-122 or RS-122T: Complete Arm/Shoulder (natural position), right only
- RS-123 or RS-123T: Complete Leg/Hip (natural position), right only

All sectional phantoms are available in either opaque or transparent material (suffix T).
MAMMO II PHANTOM

A Mammography Teaching/Training Phantom

- Teaches positioning for craniocaudal and mediolateral oblique views
- Teaches spot-compression procedures
- Sensitivity training for patient comfort
- Helpful in training male students (no more loaded vests to simulate breasts)

MAMMO II is a patient substitute that allows instructors to teach mammography positioning.

MAMMO II mammograms, taken within the range of standard technical factors, provide realistic images with high contrast.

MAMMO II simplifies classroom procedures, allowing trainees to take as many exposures as are needed to develop expertise.

A molded gel provides realistic compressibility. Mammograms are taken at a breast thickness of 5-cm, using normal technical factors.

The breast is mounted on a post with adjustments for height and the angles needed for various views.
A small indicator box is placed next to the breast to signal when the 5-cm breast thickness is reached. An "ouch" is represented by a red warning light which informs the trainee that a patient's pain level can be reached at about this compression. The light is actuated 5-mms before the dead stop produced by the box. This procedure emphasizes the care needed for patients when the pain zone is reached.

*The skull on the right is natural

Our thanks to Dr. Carolyn Kimme-Smith for her invaluable help in developing MAMMO II.