



## ANTHROPOMORPHIC TRAINING & TEACHING PHANTOM WITH 16 PATHOLOGIES AND TRAUMAS AVAILABLE

- Phantom disassembles into 9 parts
- Ideal substitute for teaching and training radiological technologists
- Small size and low weight simplify positioning
- Unlimited repetition of most views for which patients cannot be used
- Provides valid feedback to evaluate trainee performance
- Designed to image any clinical view (AP, oblique, lateral, frog legs, etc.)

Designed with the expert assistance of Judy McNitt-Mell, RSD's Domestic Violence Take-Apart Pixy is an anatomically and radiologically correct female designed specifically for training radiologic technologists. At 5' 1" (156 cm) weighing 105 lb. (48 kg), Domestic Violence Take-Apart Pixy is a repeatable, convenient substitute for patients and virtually indestructible.

Domestic Violence Take-Apart Pixy may be ordered with or without abdominal and pelvic organs: stomach, gall bladder, urinary bladder, kidneys, rectum, and sigmoid flexure. The organs are air-filled but accept water or contrast media that can be easily flushed after use. Custom pathologies and traumas available at an additional cost.

Built with soft-tissue mold and skeleton molds that are matched for anatomic fidelity, Domestic Violence Take-Apart Pixy permits unlimited exposures, demonstrates the effects of changing technical factors, and allows for evaluation of student performance. Students have no difficulty in maneuvering Domestic Violence Take-Apart Pixy into most desired positions as the phantom is built to tolerate trainee errors.

## PATHOLOGIES AND TRAUMAS

Head	Displacement of mandibular condyle fracture Separate fracture of left frontal zygomatic bone Step deformity of left infraorbital rim Mandible fracture with missing bone Fracture of nasal bone
Neck	C4+C5 compression fracture
Body	Glenoid Fracture left scapular Fracture of lateral right ribs 6+7 Fracture of left ribs 8+9 mediolateral Right 12 rib fracture
Arm	Displaced fracture of left radius and ulna, midshaft Left hand 3rd and 4th metacarpals shattered Proximal tibia fracture with multiple bone fragment Right minimally displaced distal fibula fracture
Pelvis	Displaced pubic ramus fracture right and left
Foot	Right displaced angle fracture in calcaneus bone

## Model Numbers

Model No.	Product Description
RS-106T	Transparent with NO Fill Ports, includes storage case

## Materials *See page 30 for more information.*

RSD Soft Tissue	RSD Cortical Bone	RSD Trabecular Bone
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## Specifications

Packing Size	Packing Weight
152W x 69D x 84H cm	111 kg
60W x 27D x 33H in	245 lb.

**Soft Tissues:** There are unlimited, small variations in density and absorption throughout the human body. Phantom soft tissue is closely controlled to have the average density of these tissues.

**Skeletons:** RSD skeletons are highly detailed polymer moldings which reproduce the shape, mass density and attenuation coefficients of cortical bone and spongiosa. RSD's proprietary moldings allow for continuous production, eliminate the restrictions of human skeleton bones (including limited availability, unethical collection of human bone specimen, variable size, and uncertain chemical composition), and avoid the loss of marrows in dried natural skeletons thereby making RSD skeletons superior to "real bone."

**Molds:** Molds for the RSD cortical bone and spongiosa were made from human skeletons consistent with the sizes of the soft tissue molds.

**ICRU 44:** RSD skeletons conform closely to the standards established by the International Commission on Radiation Units and Measurements ([ICRU Report No. 44](#)); mass density is reduced slightly to take into account a small decrease in calcium content for older patients.

## LINEAR ATTENUATION DATA

1. Monte Carlo simulation was used to calculate linear attenuation coefficients as a function of beam.
2. Monte Carlo results were validated with linear attenuation coefficients derived from Hounsfield Unit measurements at discreet energy levels.
3. RSD Phantom material linear attenuation data was compared to NIST data using ICRU Report 44 compositions of human tissues.
4. NIST data was interpolated when necessary.

MATERIALS	DENSITY (g/cc)
RSD Soft Tissue (Opaque)	1.08
RSD Soft Tissue (Transparent)	1.10
RSD Cortical Bone	1.83
RSD Trabecular Bone	1.17

RSD SOFT TISSUE					
Energy (MeV)	Mean (HU)	Calculated ( $\mu$ )	$\mu$ (ICRU 44)	% Difference	Ratio
00.08	60.30	0.1948	0.1932	0.80%	0.9921
00.10	52.88	0.1797	0.1795	0.15%	0.9985
00.12	57.10	0.1717	0.1709	0.44%	0.9956
00.14	52.95	0.1623	0.1624	0.07%	1.0007
00.20	--	0.1477	0.1439	2.61%	0.9746
00.30	--	0.1245	0.1246	0.04%	1.0004
00.60	--	0.0950	0.0941	1.01%	0.9900
00.80	--	0.0825	0.0826	0.13%	1.0013
01.00	--	0.0744	0.0743	0.18%	0.9982
02.00	--	0.0520	0.0519	0.18%	0.9982
03.00	--	0.0351	0.0357	1.71%	1.0174
06.00	--	0.0288	0.0291	0.88%	1.0088
08.00	--	0.0252	0.0255	0.98%	1.0099
10.00	--	0.0229	0.0232	1.49%	1.0151
15.00	--	0.0203	0.0203	0.15%	0.9985
20.00	--	0.0189	0.0189	0.17%	1.0017

RSD CORTICAL BONE					
Energy (MeV)	Mean (HU)	Calculated ( $\mu$ )	$\mu$ (ICRU 44)	% Difference	Ratio
00.08	1365	0.4345	0.4280	1.51%	0.9851
00.10	1048	0.3496	0.3562	1.84%	1.0188
00.12	0977	0.3211	0.3274	1.91%	1.0195
00.14	0902	0.2932	0.2986	1.80%	1.0184
00.20	--	0.2511	0.2513	0.09%	1.0009
00.30	--	0.2155	0.2137	0.84%	0.9916
00.60	--	0.1596	0.1598	0.11%	1.0011
00.80	--	0.1403	0.1402	0.10%	0.9990
01.00	--	0.1274	0.1261	1.06%	0.9895
02.00	--	0.0883	0.0885	0.17%	1.0017
03.00	--	0.0611	0.0625	2.29%	1.0235
06.00	--	0.0512	0.0525	2.46%	1.0253
08.00	--	0.0468	0.0474	1.20%	1.0121
10.00	--	0.0446	0.0444	0.39%	0.9962
15.00	--	0.0410	0.0409	0.16%	0.9984
20.00	--	0.0393	0.0397	1.02%	1.0103

RSD TRABECULAR BONE (SPONGIOSA)					
Energy (MeV)	Mean (HU)	Calculated ( $\mu$ )	$\mu$ (ICRU 44)	% Difference	Ratio
00.08	551	0.2849	--	--	--
00.10	515	0.2586	--	--	--
00.12	439	0.2337	--	--	--
00.14	318	0.1541	--	--	--