

OPERATION MANUAL

FOR

CT Scanner

Aquilion *Lightning*

TSX-036A

BASIC VOLUME

(2B203-485EN*D)

IMPORTANT!

Read and understand this manual before operating the equipment. After reading, keep this manual in an easily accessible place.

CANON MEDICAL SYSTEMS CORPORATION

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4.4.2 Auto set switch

The auto set switch can be used to automatically set the couch top to the IN-LIMIT position after the patient couch is raised. This makes it possible to place the patient near the scanning position.

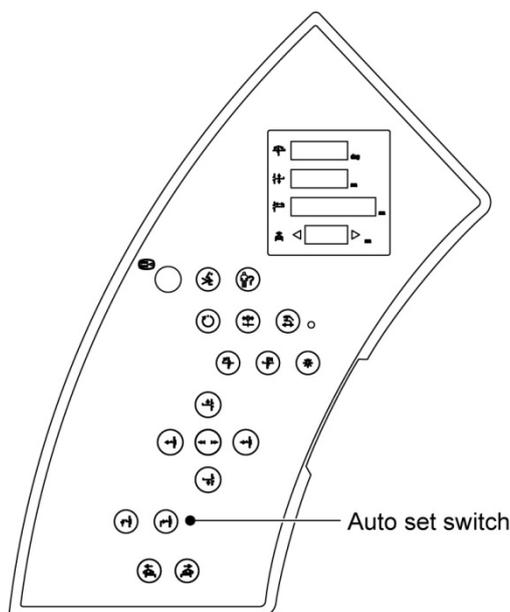
This switch is assigned to the gantry operating panel or the footswitch*1.

When the auto set switch provided on the footswitch unit is depressed, the patient couch rises to the specified couch position (one of three positions within the movable range which is the distance between the floor and the upper surface of the patient-couch top cover*2) and then the couch top moves in the IN-LIMIT*3 direction. The movement stops when the switch is released.

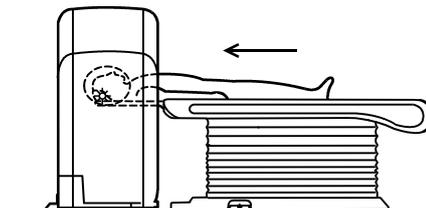
*1: This function is not assigned to the footswitch as the standard setting. To assign the auto set switch function to the footswitch, contact your service representative.

*2: CBTB-033: Approximately 766 mm to approximately 941 mm
 CBTB-032: Approximately 711 mm to approximately 941 mm

*3: "IN-LIMIT" is the stroke-end position of the couch top in the IN direction.



Operating panel on the left side of the gantry



Auto set position

<Auto set position>

Couch vertical movement : HEIGHT 1 to UP-LIMIT
 One of three positions can be selected within the movable range*2.

Couch-top horizontal movement : IN-LIMIT
 (Couch-top position in which the couch top is fully inserted in the gantry in the IN direction)

4.5 Accessories

For the operating procedures for the patient couch accessories, refer to section 7.

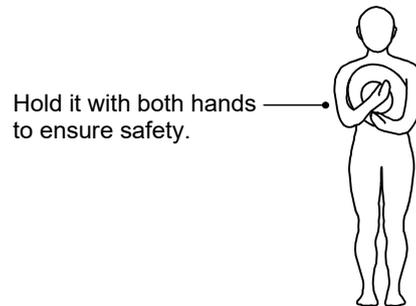
■ ■ ■ Section 7 "CT Examination"

⚠ WARNING

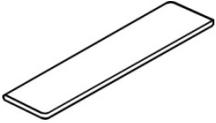
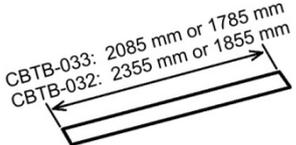
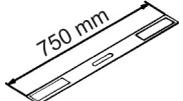
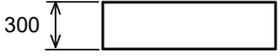
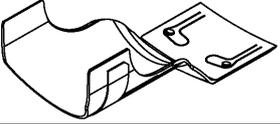
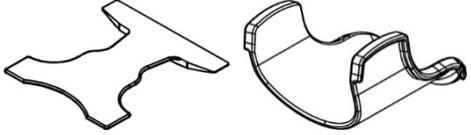
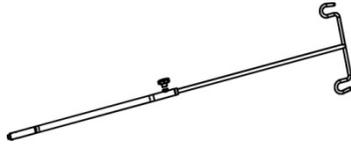
Periodically check the system main unit and all accessories. If an abnormality is found in the system main unit or any of the accessories, immediately stop using them and contact your service representative.

⚠ CAUTION

When carrying an accessory with no handles or a heavy accessory such as a phantom, be sure to hold it with both hands and to watch your step. The accessory may fall, possibly causing your fingers to be caught and resulting in personal injury.



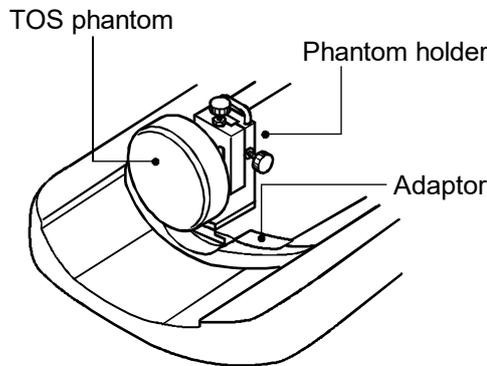
List of accessories

Name	Quantity	Name	Quantity
(1) Couch mat 	1	(8) Wedge mat 	1
(2) Couch-top fastener of the body band 	2	(9) Fastener <a> 	1
(3) Patient fastener <a> of the body band (long type with a width of 200 mm) 	2	(10) Fastener 	1
(4) Patient fastener of the body band (short type with a width of 200 mm) 	2	(11) Adaptor 	1
(5) Patient fastener <c> of the body band (300 mm) 	2	(12) Phantom holder 	1
(6) Headrest 	1	(13) Phantom (L, M, S/SS, TOS) 	1 each
(7) Head mat 	1	(14) IV bar (supplied with CBTB-032A, 032B) 	1

* Items (11) to (13) are accessories for maintenance.

- (6) Perform scanning for pre-operation checks.
 - (a) Check the positioning operation of the slice plane.
 - Set the TOS phantom.

■ ■ ■ Subsection 7.1.4 "How to use the phantoms"



TOS phantom

- Operate the system to move the TOS phantom to a scan position and confirm that couch vertical movement and couch-top IN/OUT operation are performed normally and the positioning projectors light normally.
- (b) Check scan operation.

Scan the TOS phantom using the eXam Plan set at the time of shipment to confirm that scanning is performed normally.

eXam Plan settings

For 72 kVA (50.4-kW output)*, 50 kVA (36-kW output)

eXam Plan name \ Condition	kV/mA	Scan time (s)	Scan field/ slice thickness	Phantom	Reconstruction function
Image check 1	120 kV/300 mA	1.0	M/4 mm × 4	φ320 TOS	FC70
Image check 2	120 kV/300 mA	1.0	L/4 mm × 4	φ320 TOS	FC70

*: When the optional X-ray Power Up kit is installed

- (c) Image check
 - Confirm that no abnormalities such as a ring artifact appear on the image acquired by scanning the TOS phantom.

If ring artifacts are seen, acquire the calibration data.

■ ■ ■ Subsection 5.1.3 "Calibration data acquisition (air-calibration data)"

7.1.4 How to use the phantoms

Types of phantoms

The following four types of phantoms are provided as accessories.

1. Phantom (L)

Water phantom with a diameter of 400 mm (L).

2. Phantom (M)

Water phantom with a diameter of 320 mm (M).

3. Phantom (S/SS)

Stacked water phantom consisting of two phantoms with a diameter of 240 mm (S) and a diameter of 180 mm (SS).

4. Phantom (TOS)

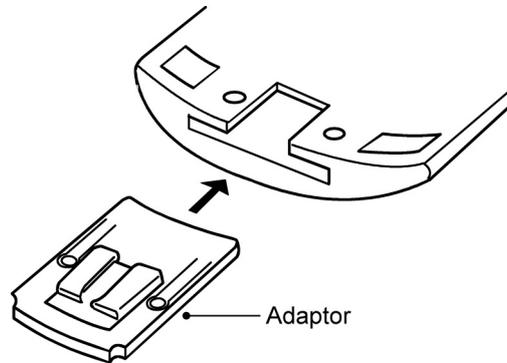
TOS phantom with a diameter of 320 mm (M).

- The TOS phantom is used for inspection scanning. For inspection procedures, refer to subsection 5.1.2 "Checks after turning ON the power".
 - ■ ■ Subsection 5.1.2 "Checks after turning ON the power"

Phantom mounting procedure (common for all phantoms)

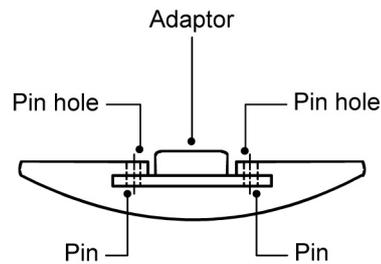
Mount the phantom by following the procedures below.

1. First, attach the adaptor to the couch top. Fully insert the adaptor into the patient support device mounting section of the couch top.

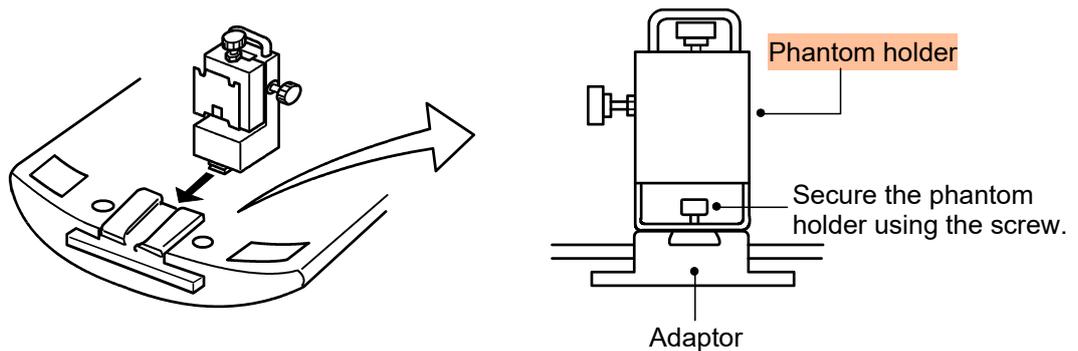


2. Insert the retaining pin*1.

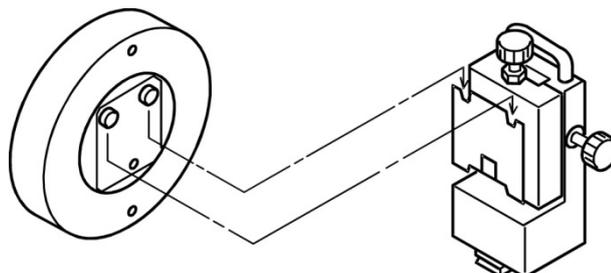
*1: This pin appears in the images.



3. Confirm that the adaptor cannot be pulled from the couch top.
4. Mount the phantom holder to the adaptor.



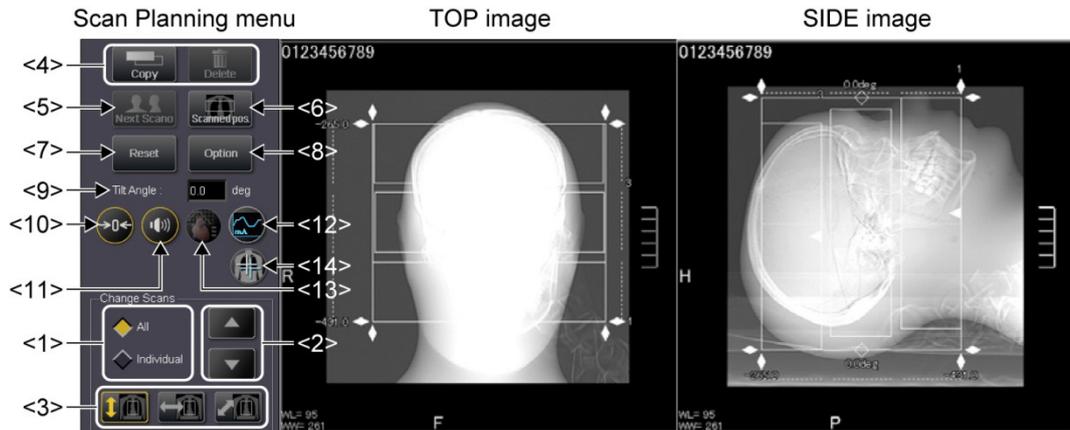
5. Mount the phantom to the phantom holder.



A.3 Scan Planning Window

(1) Scan planning menu

After scanning is completed, the following scan planning menu is displayed.



Function of each button in the scan planning menu

	Function
<1>	Used to adjust the target processing area of all scan groups at one time or of each scan group (line by line in the eXam Plan information display area).
<2>	The processing target (such as the slice selected on the scanogram) can be changed in ascending/descending order.
<3>	Used to change the movement direction of the target area for processing (ROI) on the scanogram.
<4>	The selected processing target can be copied or deleted.
<5>	Used to switch between scanograms when multiple scanograms have been acquired.
<6>	When the Scanned pos. button is selected, the line segments indicating the slice positions already scanned in the same study are displayed.
<7>	The entries are reset to the initial status.
<8>	Options for scan planning can be set. The most recently edited settings are reflected.
<9>	The selected processing target can be tilted to the desired angle.
<10>	Select the line to be zero-cleared as the base position in the eXam Plan information display area. When the 0 clear button is clicked, 0 is set as the base position on the selected line.
<11>	Display/non-display of the voice controls can be switched by clicking this button.
<12>	When a scan in which Sure Exposure 3D is set is selected, the tube current value corresponding to the couch position is displayed as a graph. Display/non-display of the graph can be switched by setting the mA Graph Disp. button to ON or OFF.
<13>	This function is an option.
<14>	Used to move the patient to the acquisition center position. When this button is clicked, the arrow buttons are displayed on the scanogram. When an arrow button is clicked, the scanogram is moved in the direction indicated by the arrow. * The arrow buttons for the lateral movement are displayed only when the couch lateral movement unit (option) is installed.

The names and functions of the parts of the keyboard are described below.

<1>		Power lamp This lamp is lit when the system power is ON.
<2>		Emergency stop button Used to stop the system immediately in the case of an emergency. ■ ■ ■ Subsection 4.6.1 "Emergency stop buttons"
<3>		Movement (gantry/couch) key Used to perform gantry tilting, couch vertical movement, and couch-top horizontal movement using the interactive screen. After entering the target position on the interactive screen, press this key to execute the movement.
<4>		Talk key Used to talk to the patient in the scan room. This key is active only while it is held down. When the key is held down during output of a prescan voice message (or during the delay period), the prescan voice message is canceled and the operator can talk to the patient in the scan room. Scanning is not started while the key is held down. If the end of the delay period has passed, scanning is started immediately after the key is released. If the operator needs to give the patient instructions immediately before scanning (for example, if patient movement is too much or patient breath control is insufficient), this key makes it possible to postpone the start of scanning until the instructions are completed. Note that once X-ray exposure is started, pressing this key does not stop the scan. X-ray exposure is continued till the end of the scan even if the key is held down.
<5>		Exposure lamp This lamp lights during X-ray exposure.
<6>		Scan start key The key lights when the system is ready for scanning. When this key is pressed while the lamp is lit, scanning starts. Blinking of the lamp indicates that the system is waiting for couch-top preparatory movement before scanscopy or helical scanning. When the scan start key is pressed in this status, couch-top preparatory movement (couch-top movement in the direction opposite that for scanscopy or helical scanning) starts. When preparatory movement is completed and the system is ready to perform scanning, the key lights.
<7>		Scan interruption (abort) key This key is lit while scanning is performed (including the scan preparation time). To interrupt scanning, press this key.
<8>		Speaker volume control Used to control the volume of sounds in the scan room acquired using the microphone mounted on the gantry.
<9>		Microphone volume control Used to control the volume for communication with the scan room through the microphone when the talk key is pressed.
<10>		Window level adjustment knob Used to change the center value (WL: window level) within the CT number range for image display.
<11>		Window width adjustment knob Used to change the width (WW: window width) of the CT number range for image display.