

3. Inspection Items

Inspection Items	Contents	Measurement and Inspection Method	Safety	Remarks
1. Checking Installation Environment				
(1) Confirmation of X-ray irradiation indicator light	Check if the indicator light of the monitor cart lights normally during exposure.	Indicator light of the monitor cart should be lit during exposure.	*	
(2) Measurement of temperature and humidity	Temperature and humidity are measured. (For allowable range, refer to the specification of the target device)	Measure with thermo-hygrometer.		Report to facility manager if it is out of range.
(3) Power supply voltage	Measure the power supply (single-phase 100V or single-phase 200V) of each device.	Measure the transformer terminal board in the monitor cart with a digital multimeter.		
(4) Ground check	Check the ground.	Check if the ground wire is fixed.	*	
2. Checking Device Condition				
(1) Device appearance	Check for large dirt and damage.	Check the overview.		
(2) Device nameplate	Check for loss, dirt or damage.	Check nameplate.		
(3) Device cleaning	Clean with a cleaner.	Clean the device with a cleaner.		Don't disassemble and clean the footswitch.
(4) Confirmation of cable connection status	Check the connection of each cable terminal and connector.	Check terminals and connectors of each cable.		
(5) Confirmation of cable condition	Check each cable condition (no rubbing, twisting, pulling, etc.).	Check each cable. Perform the contents of Technical Information SVH-152016B "Check the Inner Shell Vertical Movement Cable Guide".		
(6) Confirmation of cart cable	Check the cart cable for loose or damaged connectors.	Check the cart cable connector.		
(7) Ambient environment of device	Check for interference around the device.	No interference around the device.	*	
(8) Confirmation of each AC power supply	220VAC $\pm 10\%$	Measure the DC pack AC input part of C-arm cart and monitor cart with digital multimeter.		
(9) Confirmation of each DC power supply	Check +5V, +12V, -12V, and +24V.	Measure the power supply part of C-arm cart and monitor cart with digital multimeter.	*	

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3. Checking Around C-arm				
(1) C-arm slide	Check for lock operation.	Can be locked/unlocked.	*	
	Operation/Limit: 90° /-30°	Normal operation within the specified range.	*	
(2) C-arm rotation	Can be locked/unlocked.	Can be locked/unlocked.	*	
	Operation/Limit: 300°/-120°	Normal operation within the specified range.	*	
(3) X-ray tube unit backward and forward	Check for lock operation.	Can be locked/unlocked.	*	
	Operation/Limit: 200mm	Normal operation within the specified range.	*	
(4) C-arm left and right	Check for lock operation.	Can be locked/unlocked.	*	
	Operation/Limit: +12.5°/12.5°	Normal operation within the specified range.	*	
	Check for lock operation.	Can be locked/unlocked.	*	
(5) C-arm up and down	Operation/Limit: 450mm	Normal operation within the specified range.	*	
	Check for balance.	Balance at the intermediate position.	*	
	Noise and vibration	No abnormalities.	*	
(6) C-arm traveling	Check for brake.	Sufficient braking.	*	
	Check for a handle steering ability.	Normal operation.	*	
(7) Open/Close of parallel compensating filter	Noise, movement and amount of transfer	Normal operation.		
(8) Rotation of parallel compensating filter	Noise, movement and amount of transfer	Normal operation.		
(9) Open/Close of octagonal leaves	Noise, movement and amount of transfer	Normal operation.		
(10) Switch of compensating filter	Noise and movement	No abnormalities. The density of fluoroscopy image changes normally by manual fluoroscopy.		
(11) Camera operation	Rotation	Normal operation.		OPESCOPE ACTENO only
	H/V flip reverse	Normal operation.		

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(12) Fluoroscopy field	Maximum open amount of octagonal collimator and parallel compensating filter and mounting position of fixed rectangular leaf.	Position of the collimator shall be visible on the monitor. Fixed rectangular leaf shall not be visible.		For FD type, check the mounting position with the Leaf Check Tool. In case of failure, adjust the mounting position.
(13) Radiography field				
4. Checking X-ray Control Circuit				
(1) Fluoroscopy	Check the tube voltage and current during fluoroscopy.	Measured TkV and TmA values are as set.		
(2) Radiography	Check the tube voltage and current during radiography.	Measured TkV and TmA values are as set.		
(3) Radiography accuracy and reproducibility	Check the radiography time.	Radiography time is as set.		
5. System Operation				
(1) DC fluoroscopy	Check the operation.	Normal operation.		
(2) Pulsed fluoroscopy	Check the operation.	Normal operation.		
(3) Boost-pulse	Check the operation.	Normal operation.		
(4) Supershot	Check the operation.	Normal operation.		For OPESCOPE ACTENO, only equipment without DR option.
(5) Radiography	Check the operation.	Normal operation.		OPESCOPE ACTENO with DR option and OPESCOPE ACTENO FD type
(6) Fluoroscopy buzzer and timer	Check the operation.	Buzzer with the user setting value when fluoroscopy FootSW is turned ON, and X-ray is blocked continuously for 10 minutes (9 to 12 minutes). When FootSW is turned OFF/ON again, fluoroscopy is restarted. (IEC compliant)		
(7) Confirmation of Last Image Hold	Check the LIH image.	Normal display.		

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(8) Write/Read memory image	Check the read/write of memory image.	Read/Write normally.		
(9) Confirmation of APR	Check the APR setting and read.	Read/Write normally.		
6. Image Quality				There is a precaution.
(1) IBS balance conditions	Check each fluoroscopy mode and IBS balance point.	Conditions are as set in the installation manual.		
(2) Fluoroscopy image quality	Brightness, uneven brightness, distortion, defect, and spatial resolution	Image confirmation		OPESCOPE ACTENO only.
	Brightness, uneven brightness, distortion, and defect	Calibration and defect registration		OPESCOPE ACTENO FD type only
(3) Radiography image quality	Brightness of SPOT radiography image	Image confirmation		OPESCOPE ACTENO Only with DR option
(4) I.I. Relative brightness	I.I. Relative brightness	Check IBS balance point with iris value during installation.		OPESCOPE ACTENO only
(5) Maximum fluoroscopy exposure dose	Measure the maximum fluoroscopy exposure dose in DC fluoroscopy mode and pulsed fluoroscopy mode.	Dose shall not exceed specified dose.		
(6) Calculated dose display	Measure the dose.	Error shall be within 35%.		

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7. Accessory Equipment				
(1) Video signal external output function (Thermal printer)	Print images from the printer.	Whether the printer prints normally.		Optional for OPESCOPE ACTENO
	Print from C-arm.	Normal operation.		Optional for OPESCOPE ACTENO
(2) Laser pointer	Check if the laser marker center matches the actual X-ray image center.	Normal operation.		Optional
(3) Doctor handle	Check the operation.	Normal operation.		Optional for OPESCOPE ACTENO
(4) Hand switch	Check the operation.	Normal operation.		Optional
(5) Wireless hand switch	Check the operation.	Normal operation.		Optional (OPESCOPE ACTENO FD type only)
(6) DAP meter	Check measurement accuracy.	Error shall be within 10% in fluoroscopy at 100kV and 50kV.		Optional
(7) LAN	Check the operation.	Accurate operation.		Optional (OPESCOPE ACTENO FD type only)
(8) Long cable Foot switch	Check the operation.	Accurate operation.		Optional (OPESCOPE ACTENO FD type only)
(9) Router	Check the operation.	Normal operation.		Optional
(10) Video signal external output function	Check the operation.	Normal operation.		Optional (OPESCOPE ACTENO FD type only)
8. Monitor unit				
(1) Live monitor	Contact and cleaning of connection	Perform cleaning.		
	Check grayscale.	Check visually.		
	Check artifact and brightness.	Check visually.		
(2) Reference monitor (For two monitors only)	Contact and cleaning of connection	Perform cleaning.		
	Check grayscale.	Check visually.		
	Check artifact and brightness.	Check visually.		