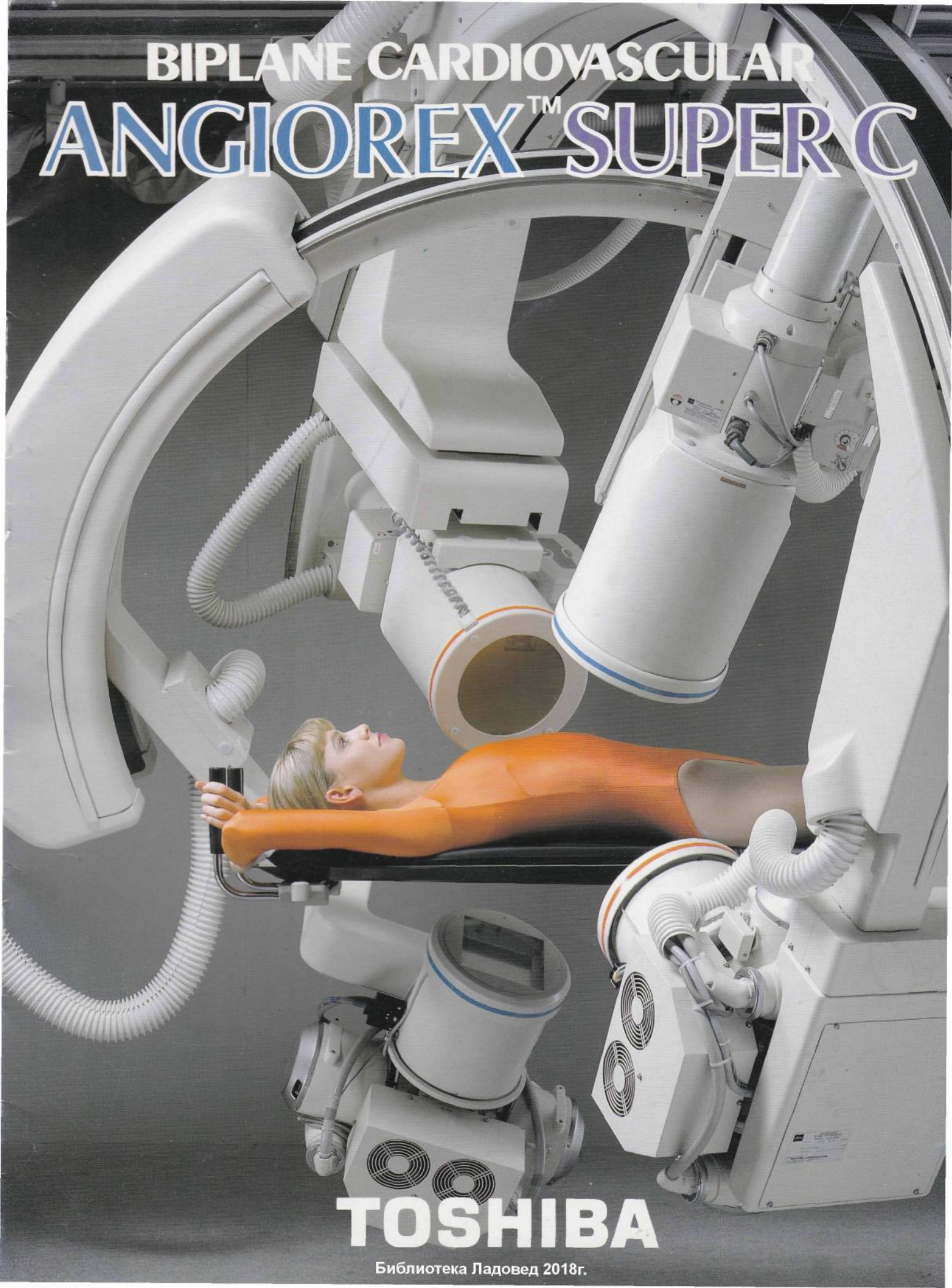


BIPLANE CARDIOVASCULAR ANGIOREX™ SUPER C



TOSHIBA

Библиотека Ладовед 2018г.

ANGIOREX™ SUPERC
(CAS-10A/100A)

A New Biplane Cardiovascular System Ideal for Interventional Angiography

TOSHIBA offers ever greater improvements in
image quality through superior technology.





More functions. More clarity. More sophisticated techniques. More new ideas for more reliable diagnosis. The world of diagnostic imaging apparatus resounds with incessant demands for more. And cardiovascular angiographic systems are no exceptions. For the sake primarily of the patient, the only proper response is to provide more ways of looking at more distinct images in order to derive more data and offer more hope for the ill, with more convenience and comfort for all. And that's what we at TOSHIBA have done in the new high-performance ANGIOREX™ SUPER C [CAS-10A/100A].

Incorporating a wide and flexible range of high-level functions such as multi-directional projection and quantitative analysis, capable of outstanding versatility and maneuverability, providing fluoroscopic/fluorographic images of superb quality, and allowing ease of access for patient and operator alike, as well as ready expansion to include digital imaging, the ANGIOREX SUPER C is the new leader in cardiac angiography. It's a TOSHIBA: technology you can trust.

Applications

- Cardiac and Coronary Angiography
- Interventional Angiography
- Digital Fluorography with Quantitative Evaluation Capacity (option)

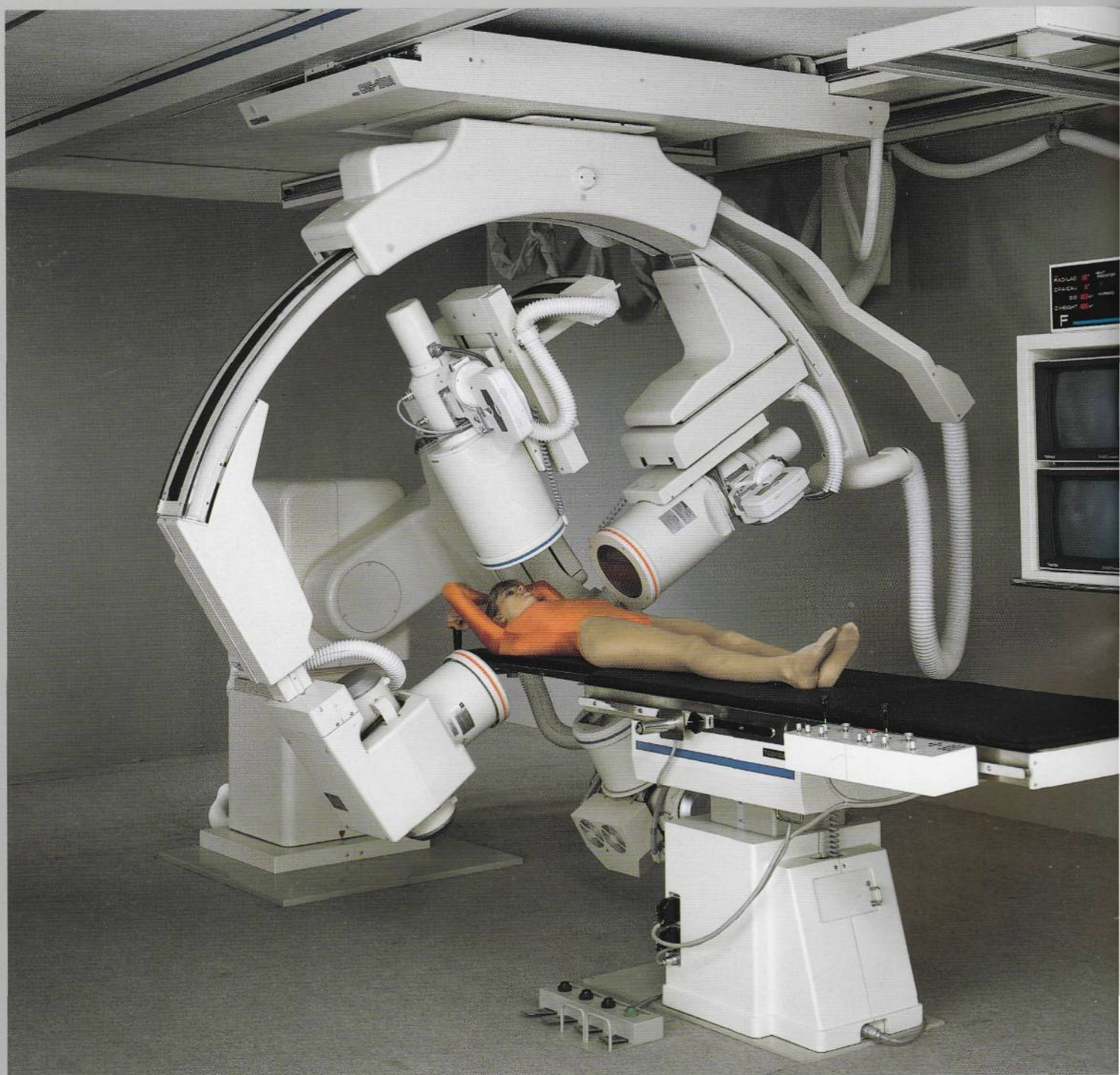
Clinical Requirements	Design Criteria
● Overlapping and foreshortening of anatomical structures now eliminated	● Multidirectional projection
● Reduced contrast medium dosage	● Biplane projection
● Precise and easy positioning	● Isocentric design/convenient layout of controls
● Easy patient access to table	● Full clearance around table
● Emergency treatments	● Smooth parking of arms
● Outstanding diagnostic data quality	● High-quality images
● Interventional angiography	● Multidirectional fluoroscopy with superb images/road mapping
● System upgrading	● Easy conversion for DSA, digital image processing

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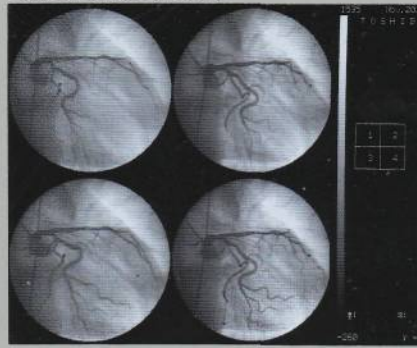
ANGIOREX™ SUPER C
(CAS-10A/100A)

Microprocessor-Controlled Multidirectional Biplane System

Through mechatronics technology to superior maneuverability and better study times.



Digital Angiography

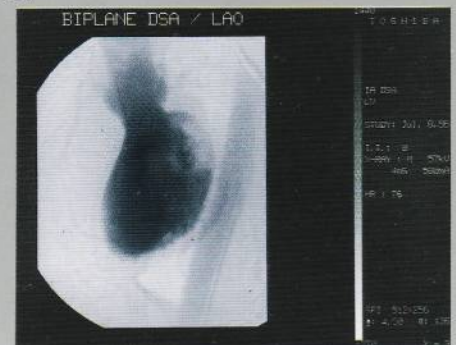


Cine Angiography

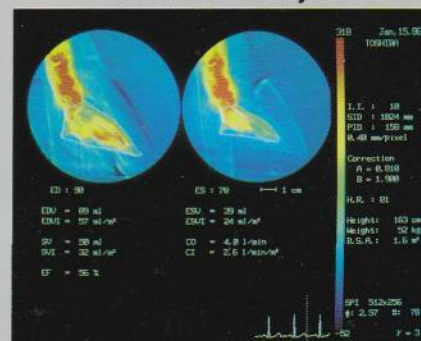


Features	Advantages
● C-arm radius increased to 900 mm	● Increased ease of movement around patient
● Variable-speed arm rotation	● Free manipulation of both arms
● Microcomputer-controlled interrelation of arms	● Rapid positioning and accelerated examinations
● Autopositioning function (100 programs)	● Significantly improved maneuverability and safety, no mutual interference between arms
● Autosetting/autoparking of Ω arm (motor-driven)	● Reduced study times and improved accuracy of repositioning
● Digital display of projection angles	● Faster biplane setting
● PA projection with Ω arm	● Improved visibility and angular reproducibility
● Vertical movement of lateral beam	● Uninterrupted examination even with inoperative C-arm
	● Simple and accurate image framing

DSA



Quantitative analysis



Excellent Flexibility in Biplane System

Multidirectional Projection

The multidirectional projection technique makes possible avoidance of overlapping or foreshortening of images of blood vessels or of the chambers of the heart. Multidirectional fluoroscopy/fluorography of a supine patient can be carried out with the ANGIOREX SUPER C, using the C-arm and the Ω -arm.

Autopositioning Program

By previous programming, the precise positioning required by the operator can be executed by the pressing of a single button on the control panel by the catheter table. A total of 100 programs may be stored.

Isocentric Biplane Mechanism

The isocentric design of the C-arm and the Ω -arm permits each to be promptly and accurately positioned using the autopositioning program. The ANGIOREX SUPER C features a unique variable isocenter in the vertical plane, which contributes greatly to the flexibility of positioning. Another advantage of this is that it facilitates delicate, independent cine framing in two planes at once.

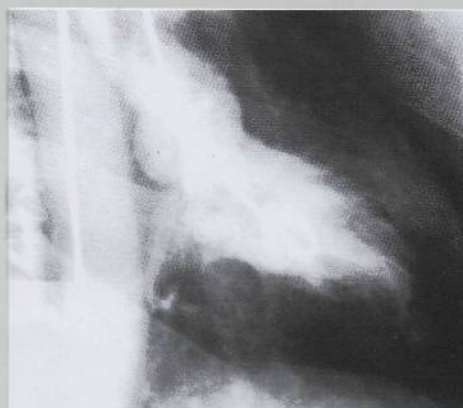
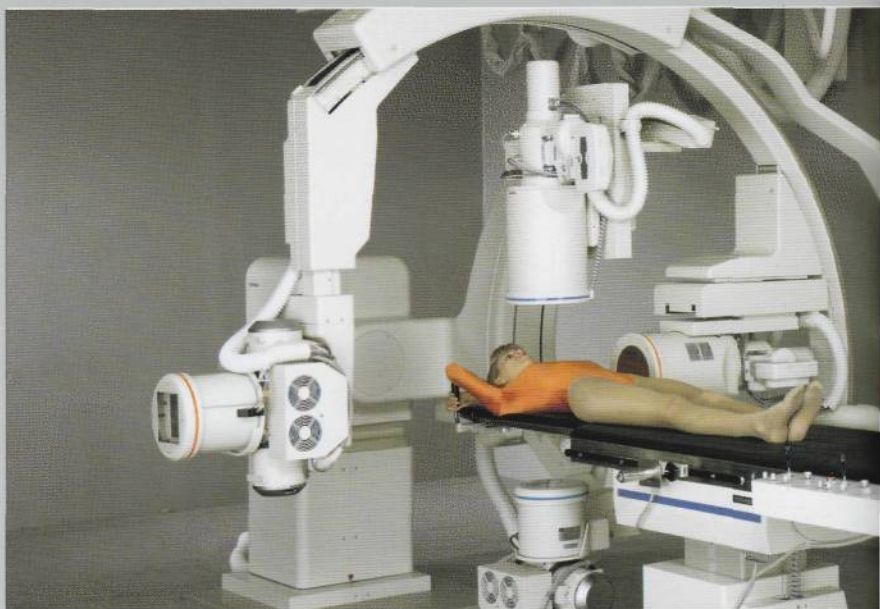
Both the C-arm and the Ω -arm can be rotated independently or synchronously under powered control, as is most convenient, so that the time required for an examination can be minimized.

Ease of Access to the Patient

The frontal C-arm off-center design and large radius allow ready access to the patient from the head of the table. In the C-arm operation, access to the patient is possible from any direction.

X-ray Tube Parking

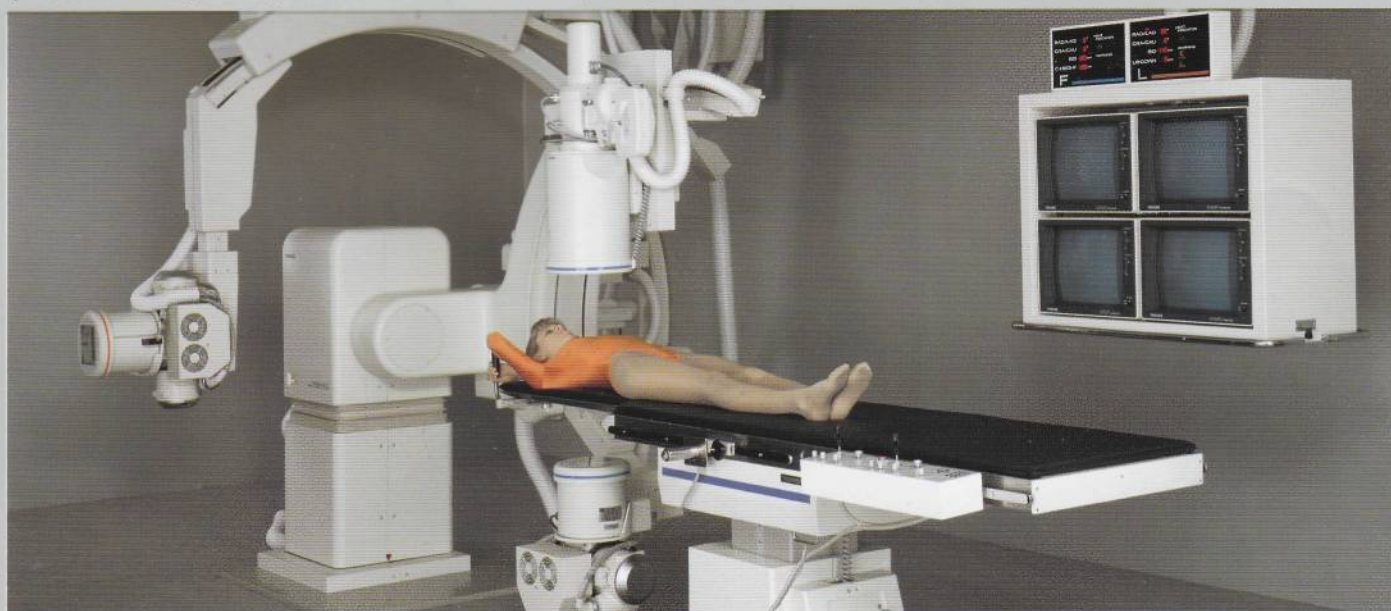
In biplane operation, when the operator wishes to approach the patient to carry out some adjustment, pressing of the X-ray Tube Park button on the control panel will cause the X-ray tube to swivel out so that a free space around the patient is realized.





Ω-Arm Auto Parking

If the lateral Ω-arm is not required after a biplane operation has been performed, the Ω-Arm Park button on the control panel may be operated to park the ceiling-suspended Ω-arm over the tower side of C-arm. This process is executed entirely with power drive. In case of an emergency, the C-arm may be rotated and parked. Thus, it is possible to keep the space around the table completely clear.

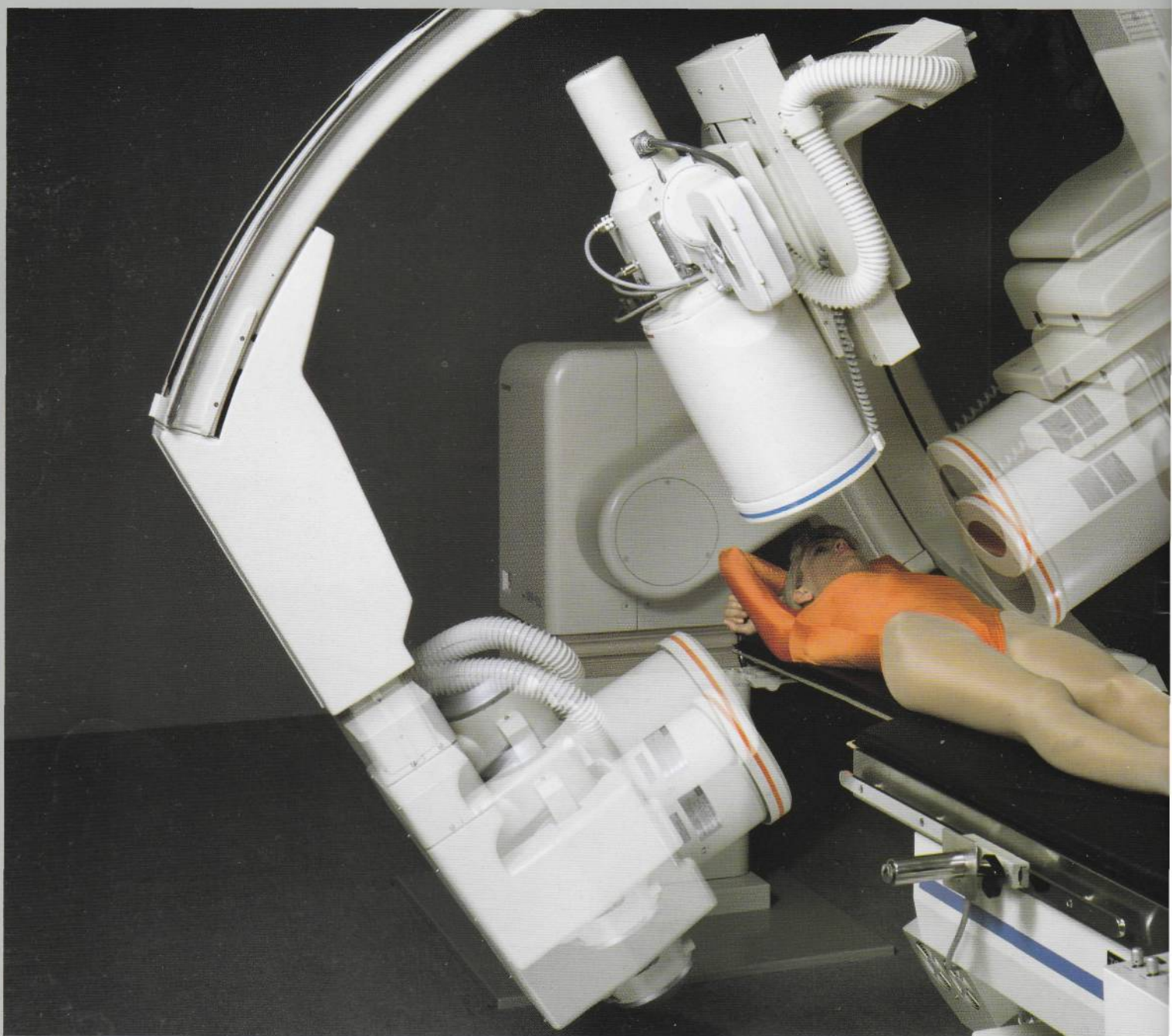


ANGIOREX™ SUPER C (CAS-10A/100A)

Ω -arm Lateral Beam Movement

Lateral beam movement of the Ω -arm is a type of positioning for multidirectional projection, and is a function useful for the fine positioning of a lateral image after the setting of the frontal C-arm. The movement can proceed up to $\pm 70\text{mm}$ from the Ω -arm beam center.

(If this positioning is carried out only with vertical movement of the catheter table, the position of the frontal C-arm image is displaced, and it is troublesome to adjust the C-arm side again).



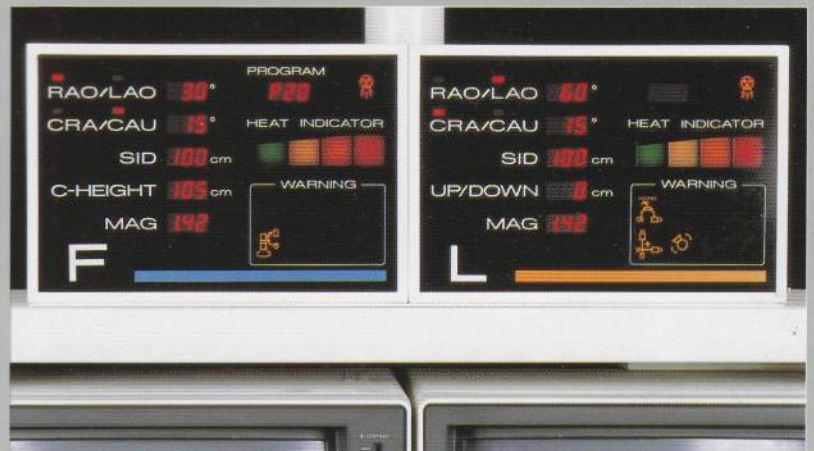
Face of the Functional Control Panel

The control of the C-arm Ω -arm is executed from the panel at the side of the catheter table. Apart from the basic movement functions, the auto-positioning function, the auto-park set function, and the heart contour compensating filter function are operated with this compact device.

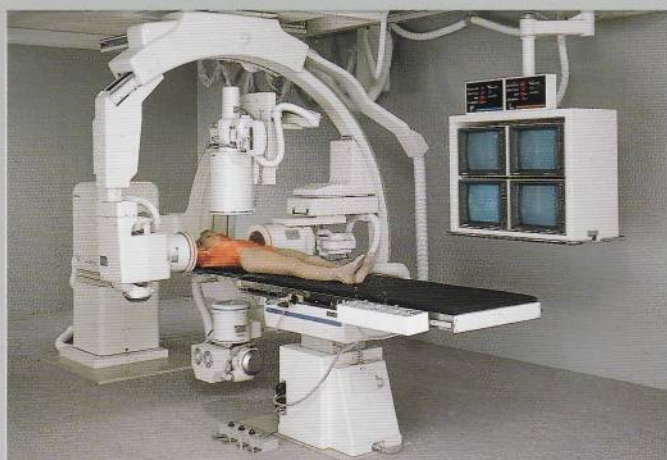


Digital Indicator

The digital indicator is mounted on the monitor suspension. The angling of the C-arm and the Ω -arm is displayed in digital form, and the X-ray tube heat indicator and warnings are also displayed.



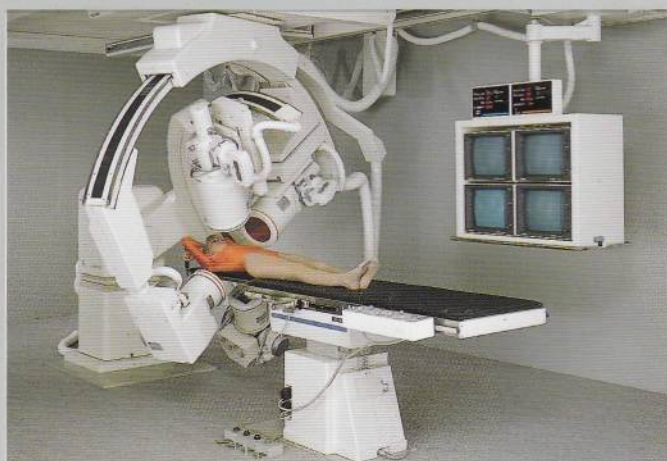
Variation of Biplane Angled Views



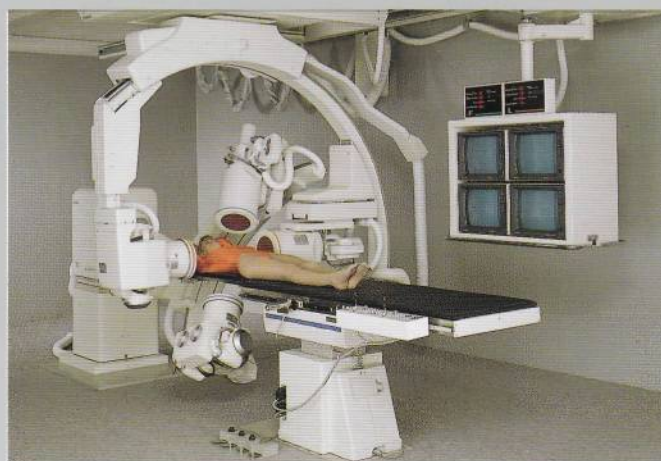
Set position
C: 0°. Ω: LL



LV angiography
C: RAO 30°. Ω: LAO 60°



PTCA positioning
C: RAO 30°/CAU 20°. Ω: LAO 60°/CRA 20°



Pediatric positioning (4-chamber view)
C: LAO 30°/CRA 25°. Ω: LL

Specifications

● C-arm

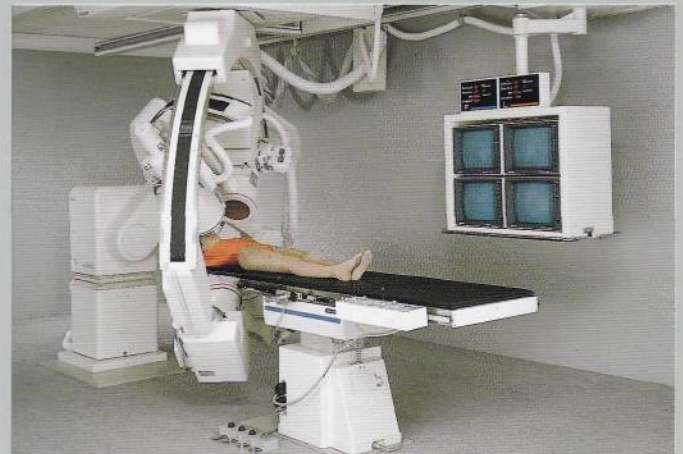
C-arm radius		900 (35.4)
Depth of arm		1,320 (52.0)
LAO/RAO rotation	Range	LAO 110° to RAO 110°
	Speed	0.33 to 1.3 rpm, variable
Cran./Caud. rotation	Range	Cran. 45° to caud. 35°
	Speed	0.33 to 1.3 rpm, variable

Unit: mm (in)

Main body vertical movement	Stroke	220 (8.7)
Focus-I.I. front		800 (31.5) to 1,050 (41.3) [S.I.D. 850 (33.5) to 1,100 (43.3)]
Focus-isocenter		700 (27.6)
Isocenter height		1,050 (41.3) to 1,270 (50.0)
Main body park rotation		± 90°



H-C projection
C: RAO45°/CRA30°. Ω : LAO45°/CRA30°



H-C projection
C: RAO45°/CAU17°. Ω : LAO45°/CRA45°



Aortic orifice view
C: LAO30°/CRA30°. Ω : LPO60°/CRA15°



C: LAO30°/CAU30°. Ω : LPO60°/CAU15°

● Ω -arm

Ω-arm radius		1,340 (52.8)
LAO/RAO rotation	Range	LAO 120° to P.A.
	Speed	0.33 to 1.3 rpm, variable
Cran./Caud. rotation	Range	Cran. 45° to caud. 45° rotation
	Speed	0.25 to 1.0 rpm, variable
Isocenter height	Range	1,050 (41.3) \pm 70 (2.8)
	Speed	10mm/s (0.39in/s)
X-ray tube parking	Range	180° rotation (5s)

Unit: mm (in)

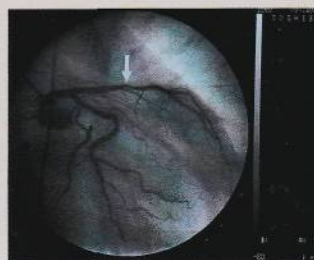
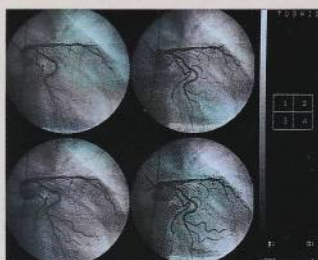
Overhead travel, longitudinal	Stroke	Approx. 3,500 (137.8)
	Speed	Fast 140mm/s (5.5in/s) Slow 35mm/s (1.4in/s)
Overhead travel, lateral	Stroke	350 (13.8) (from center to I.I. side)
	Speed	Fast 80mm/s (3.2in/s) Slow 40mm/s (1.6in/s)
Focus-I.I. front		800 (31.5) to 1,070 (42.1) [S.I.D. 850 (33.5) to 1,120 (44.1)]
Focus-isocenter		700 (27.6)
Ceiling height		2,950 to 3,000 (116 to 118)

The Digital Imaging Function Can Enhance the Efficiency and Variety of a Catheterization Laboratory



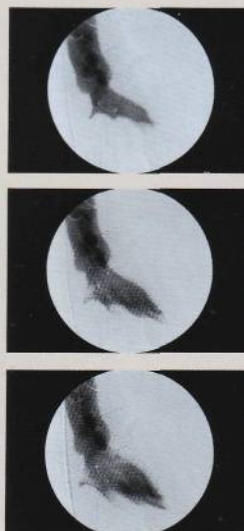
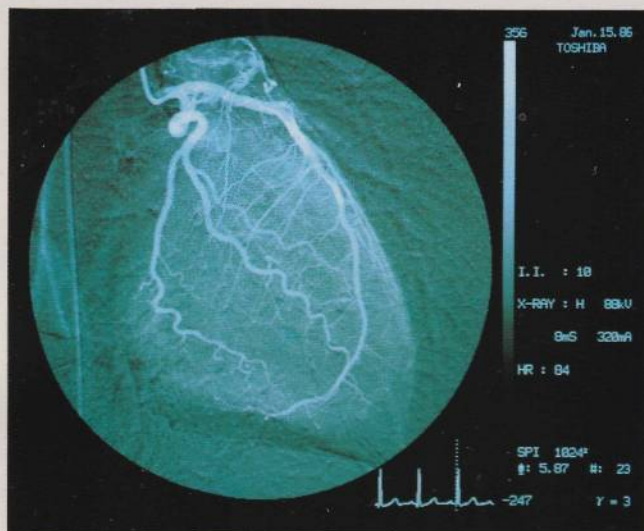
DA (Digital Angiography) [Superb function with DF system]

The function of the DA is to store X-ray TV digital signals in the image memory in real time during X-ray fluoroscopic procedures (including cine fluorography and pulse fluoroscopy), enabling the successive reproduction of the images thus obtained to be performed. The best image can be frozen for storage, like a still image, and the stored image can then assist (for road mapping purposes) in catheter insertion procedures.



On the DVM, several alternatives are available for image processing. These include $4\times$ magnification, subtraction processing, land marking, and recursive filtration procedures. The physician or the technician can obtain immediate reviews of stored images at any time for reference, by using a remote control console.

DSA



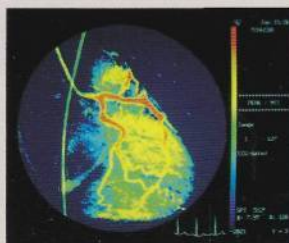
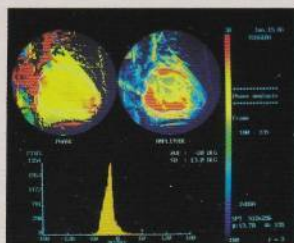
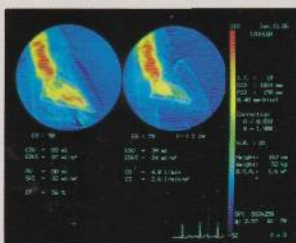
TOSHIBA's advanced DF system (option), allows the combined use of an extensive range of DAS techniques.

Many types of quantitative analyses are also offered on the DF system for instance, cardiac function analysis and evaluation of stenosis.

Quantitative Analysis

Sophisticated Clinical Application Programs

TOSHIBA's commitment and experience are reflected in the contents of the software package supplied with the standard DIGIFORMER-HR. The following list indicates only a few of them:



- LV volume analysis
- Percentage shortening
- Phase analysis
- Cardiac volume curve
- Pressure-volume curve
- Wall motion analysis
- Myocardial perfusion
- Analysis of stenosis data
- Functional images

A Readily Upgradable System

Enhanced Efficiency and Precision PTCA Technique

PTCA technique now requires higher and more specialized performance than the conventional angiographic system. The ANGIOREX SUPER C offers a superior PTCA efficiency and precision thanks to the following features:

●Multidirectional Fluoroscopy/Fluorography

Proper observation of areas of stenosis necessitates multidirectional projection.

The ANGIOREX SUPER C offers a high degree of flexibility and reproducibility of projections. Examinations can be accelerated by the use of biplane fluoroscopy, which also requires less contrast medium.

●Pulsed X-ray Fluoro Technique

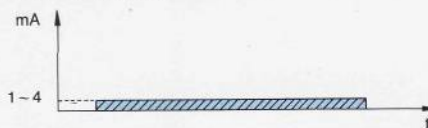
The success of PTCA procedures must depend heavily on the capacity to observe clearly fine guide wires and low-contrast balloons. Toshiba's independently developed pulsed X-ray fluoro technique employs a sharp pulsed X-ray beam of approximately 5 ms synchronized to the TV camera scanning, and a larger current for the recording mode than in conventional fluoroscopy. The quantum noise is thus reduced significantly, and a much clearer fluoroscopic image results. The Automatic Brightness Control circuitry always maintains the brightness of the monitored image at a constant level.

●Simultaneous Biplane Fluoroscopic Technique

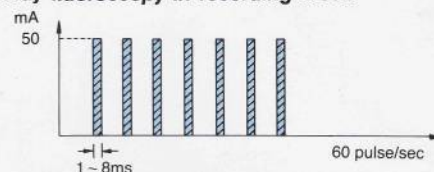
It is important in PTCA to confirm that a guide wire passes the area of stenosis and that a balloon is placed securely in the correct position.

The ANGIOREX SUPER C permits the simultaneous display of frontal and lateral fluoroscopic images. Catheterization can therefore be carried out through the comparative visualization of images in both planes. The pulsed X-ray beam is generated alternately in the frontal and lateral planes, providing clear biplane fluoroscopic imaging free from any fog caused by scattered X-rays.

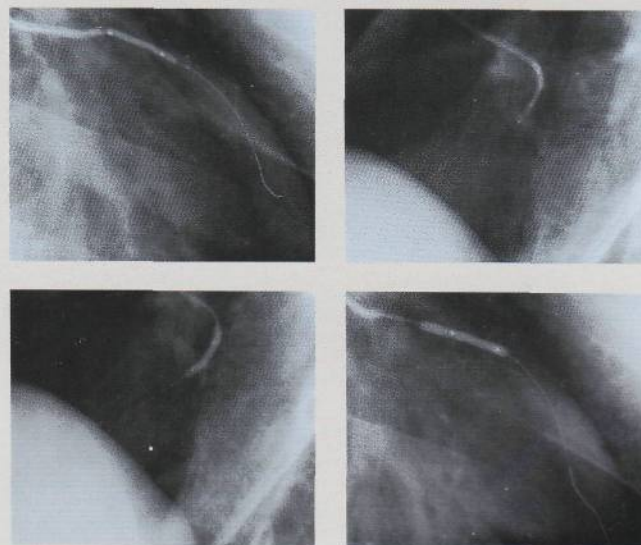
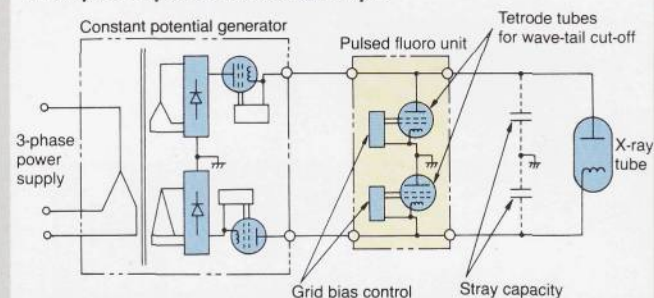
Conventional fluoroscopy



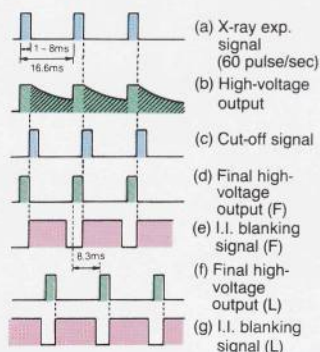
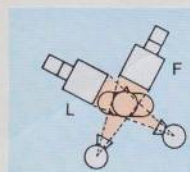
Pulsed X-ray fluoroscopy in recording mode



Principles of pulsed fluoro technique



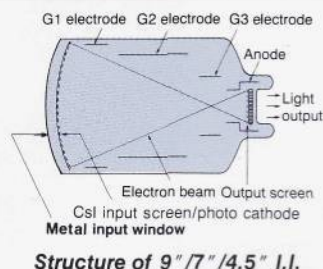
Principles of biplane fluoro technique



Every Component, Every Option Bears
the Stamp of TOSHIBA Quality

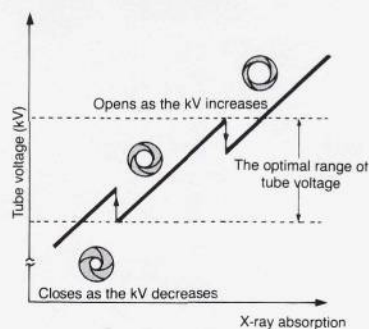
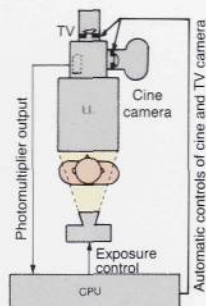
Super Metal I.I.

This super metal I.I. possesses a metal input window that scatters X-rays less than conventional windows. The resulting unit has extremely high performance, and the resolution and contrast characteristics are excellent.



Cine Auto-Iris

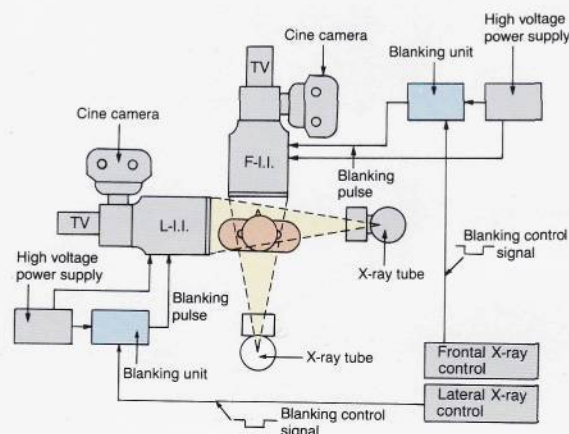
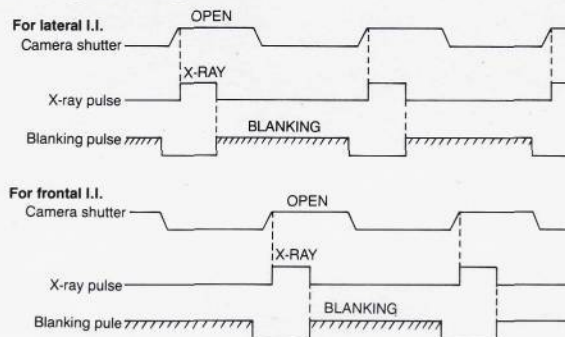
This cine auto-iris in the cine camera is controlled by the microprocessor unit, and so is adjusted to the optimal tube voltage range according to the X-ray absorption by the object under examination. The contrast is therefore good even when cine fluorography is performed at a deep angle, or in an obese patient.



I.I. Blanking

During biplane operation, this function can effectively suppress the fogging caused by scattered radiation.

Blanking for Image Intensifier



High Output X-ray Tube

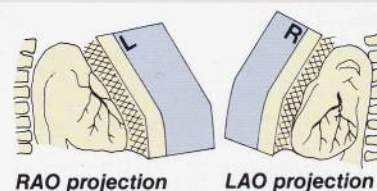
The ANGIOREX SUPER C is fitted with a high-quality, high-output metal tube so as to ensure prolonged and reliable performance. The unit can be used for angiography at lower kV settings and shorter exposure times because of its high output. To meet procedural requirements for angioplasty, which necessitates extended fluoroscopy times, X-ray tubes with a heat exchanger are also available.



DRX-6434HD-H

Heart Contour Compensation Filter

Image quality in the ANGIOREX SUPER C is improved significantly by the use of halation prevention filters whose shape conforming to the contours of the heart. These filters are incorporated in the collimator and are remotecontrolled for opening, closing and rotation. They also offer enhanced automatic exposure precision.



Simple and Safe to Operate

MPU-controlled and Inverter Type X-ray Generator

This generator provides an ideal, constant high-power potential output for cine fluorography. High-precision control, reliability and image quality are assured,

because the programming of the cine fluorographic conditions and the automatic exposure control are controlled by the microprocessor unit.



KXO-80C/KXO-80D

Table-side/Remote Control Switch

Positioning can be carried out using the sterilizable joystick-type switch at the table-side.

Height-Adjustable Table

The tabletop can be adjusted to a height convenient for patient access and operation. The lowest height setting facilitates easy transfer of a patient from a stretcher.

Special Overall Monitoring System

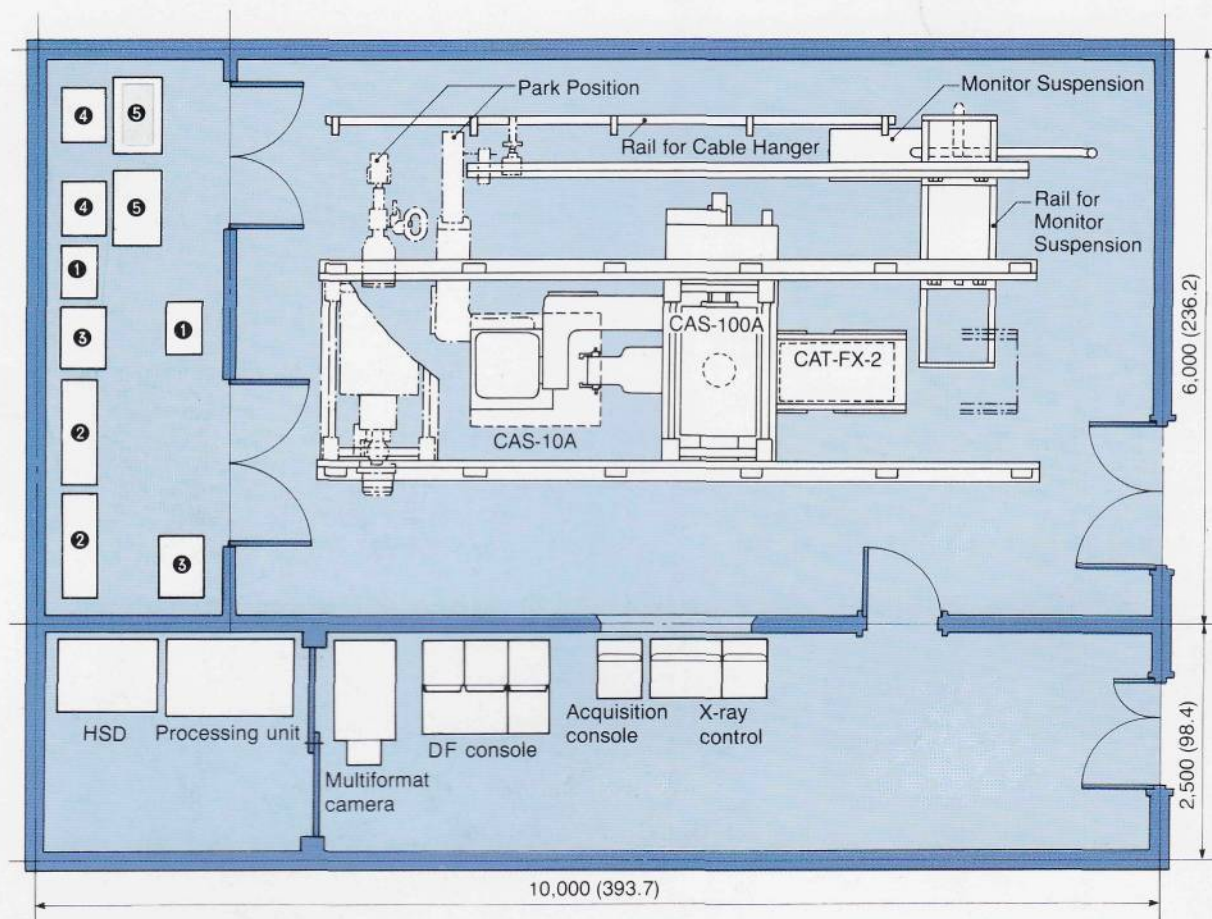
The status of the system is monitored constantly by the microprocessor unit in the X-ray generator, and is displayed on the digital indicator.

Heat Indicator System

The load of the X-ray tube anode is calculated by the heat indicator system, and then is displayed in color to allow safe execution of clinical examinations.



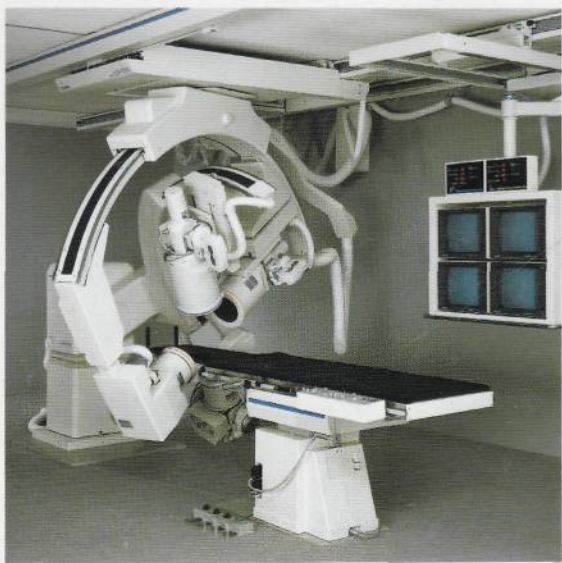
Typical Layout Plan



Unit: mm (in)

- ① Power Cabinet
- ② Control Cabinet
- ③ Arm Control Cabinet
- ④ HV. Transformer
- ⑤ Pulsed X-ray Fluoro, Adaptor (Option)

BIPLANE CARDIOVASCULAR
ANGIOREX™ SUPER C



In Touch with Tomorrow
TOSHIBA

GLOBAL IMAGING ■ MEDICAL SYSTEMS