North Carolina Department of Health and Human Services
Division of Health Service Regulation

Pat McCrory
Governor

Aldona Z. Wos, M.D.
Ambassador (Ret.)
Secretary DHHS

Drexdal Pratt
Division Director

December 11, 2013

Elizabeth Kirkman
Assistant Vice-President
CHS Management Company
2709 Water Ridge Parkway, Suite 200
Charlotte, NC 28217

Exempt from Review - Replacement Equipment

Facility:	Carolinas Medical Center-Union
Project Description:	Replace Cardiac Catheterization Lab Equipment
County:	Union
FID #:	923515

Dear Ms. Kirkman:

In response to your letter of November 21, 2013, the above referenced proposal is exempt from certificate of need review in accordance with N.C.G.S 131E-184(a)(7). Therefore, you may proceed to acquire, without a certificate of need, the GE Innova IGS 520 System to replace the existing Toshiba Infinix DP Angiography System of fixed cardiac catheterization equipment (Serial Number B0512316) currently located in the cardiac catheterization room at CMC-Union. The existing Toshiba Infinix DP Angiography System of fixed cardiac catheterization equipment will be removed from the site once the new GE Innova IGS 520 System is operational. This determination is based on your representations that the existing unit will be removed from North Carolina and will not be used again in the State without first obtaining a certificate of need. Further, please be advised that as soon as the replacement equipment is acquired, you must provide the CON Section and the Medical Facilities Planning Branch with the serial number of the new equipment to update the inventory, if not already provided.

Moreover, you should contact the Construction Section to determine if they have any requirements for development of the proposed project.

It should be noted that this Agency's position is based solely on the facts represented by you and that any change in facts as represented would require further consideration by this Agency and a separate determination.

If you have any questions concerning this matter, please feel free to contact this office.

Sincerely,

Gloria C. Hale

Gloria C. Hale, Project Analyst

Craig R. Smith

Craig R. Smith, Chief
Certificate of Need Section

cc: Construction Section, DHSR

Carolinas HealthCare System

November 21, 2013

Mr. Craig R. Smith, Chief
Certificate of Need Section
Division of Health Service Regulation
809 Ruggles Drive
Raleigh, North Carolina 27603-0530

RE: Replacement of Cardiac Catheterization Lab Equipment on the campus of The Charlotte-Mecklenburg Hospital Authority d/b/a Carolinas Medical Center-Union

Dear Mr. Smith:

Carolinas Medical Center-Union (CMC-Union) is planning to replace its existing unit of fixed cardiac catheterization equipment with new, technologically comparable equipment. CMC-Union intends to purchase a General Electric (GE) Innova IGS 520 System to replace a 13 year-old Toshiba Infinix DP Angiography System of fixed cardiac catheterization equipment currently located in the cardiac catheterization room at CMC-Union. The existing equipment is near the end of its useful life and is at risk for service interruptions due to downtime.

The GE Innova IGS 520 unit will be used for the same types of procedures as the existing equipment and it will not be used to provide a new health service. A chart comparing the existing equipment and the replacement equipment is included in Attachment A along with supporting documentation. The equipment is currently in use and documentation provided in Attachment B indicates 459 procedures have been performed in 2013.

The purchase price of the new cardiac catheterization equipment is $914,275.20 as shown in the quote from General Electric provided in Attachment C. Please see Attachment D (and the Trade-In Addendum to the Quote in Attachment C) for a letter documenting the equipment will be taken out of service and removed from North Carolina. The projected total capital expenditure for the removal of the existing equipment, renovation of the room and installation of the replacement cardiac catheterization equipment is $1,400,000. The total capital cost schedule and

certified cost estimate of the renovation required to install the new equipment are provided in Attachment E.

The North Carolina Certificate of Need statutes provide a definition of replacement equipment in N.C.G.S. 131E-176(22a). The definition requires the replacement equipment be comparable to the existing medical equipment and cost less than $2 million when installed. The statutes further provide in 131E-184(a)(7) an exemption from certificate of need review for replacement equipment projects if prior notice is provided to the CON Section.

This letter serves as prior notification of our intent to proceed with this project. We would appreciate your written concurrence that this project is exempt from CON review. If you have any questions or require further information regarding this project, please contact me at 704-446-8475.

Sincerely,

Elizabeth Kirkman

Elizabeth Kirkman, Assistant Vice-President
CHS Management Company

Attachments

Attachment A

Comparison of Existing and Replacement Equipment

Attachment A - EQUIPMENT COMPARISON

Carolinas Medical Center-Union: Cardiac Catheterization Lab Replacement

	Existing Equipment	Replacement Equipment
Type of Equipment (List each component)	Infinix DP Angiography System	Innova IGS 520
Manufacturer of Equipment	Toshiba	GE
Tesla Rating for MRIs	N/A	N/A
Model Number	DL-1006	IGS 520
Serial Number	B0512316 See attachment labeled (SEG Verification Form) for serial number for each additional part	Serial Number Assigned upon installation
Provider's Method of Identifying Equipment	Serial number	System ID Serial Number
Specify if Mobile or Fixed	Fixed	Fixed
Mobile Trailer Serial Number/VIN #	N/A	N/A
Mobile Tractor Serial Number/VIN #	N/A	N/A
Date of Acquisition of Each Component	3/27/2000	To be determined
Does Provider Hold Title to Equipment or Have a Capital Lease?	Title	Title
Specify if Equipment Was/Is New or Used When Acquired	New	New
Total Capital Cost of Project (Including Construction, etc.) <Use Attached Form>	1,165,594	1,400,000
Total Cost of Equipment	$989,000	$914,275.20
Fair Market Value of Equipment		$914,275.20 – Price Extended $1,033,263.52 Premier Contract
Net Purchase Price of Equipment	$989,000	$914,275.20
Locations Where Operated	Carolinas Medical Center-Union formerly known as Union Memorial Hospital	Carolinas Medical Center-Union
Number Days in Use/To Be Used in N.C. per Year	260 days	260 days
Percent of Change in Patient Charges (by procedure)	0	0
Percent of Change in Per Procedure Operating Expenses (by procedure)	0	0
Type of Procedures Currently Performed on Existing Equipment	Cardiac Catherizations, pacemakers and vascular procedures	
Type of Procedures New Equipment is Capable of Performing		Cardiac Catherizations, pacemakers

GE Healthcare

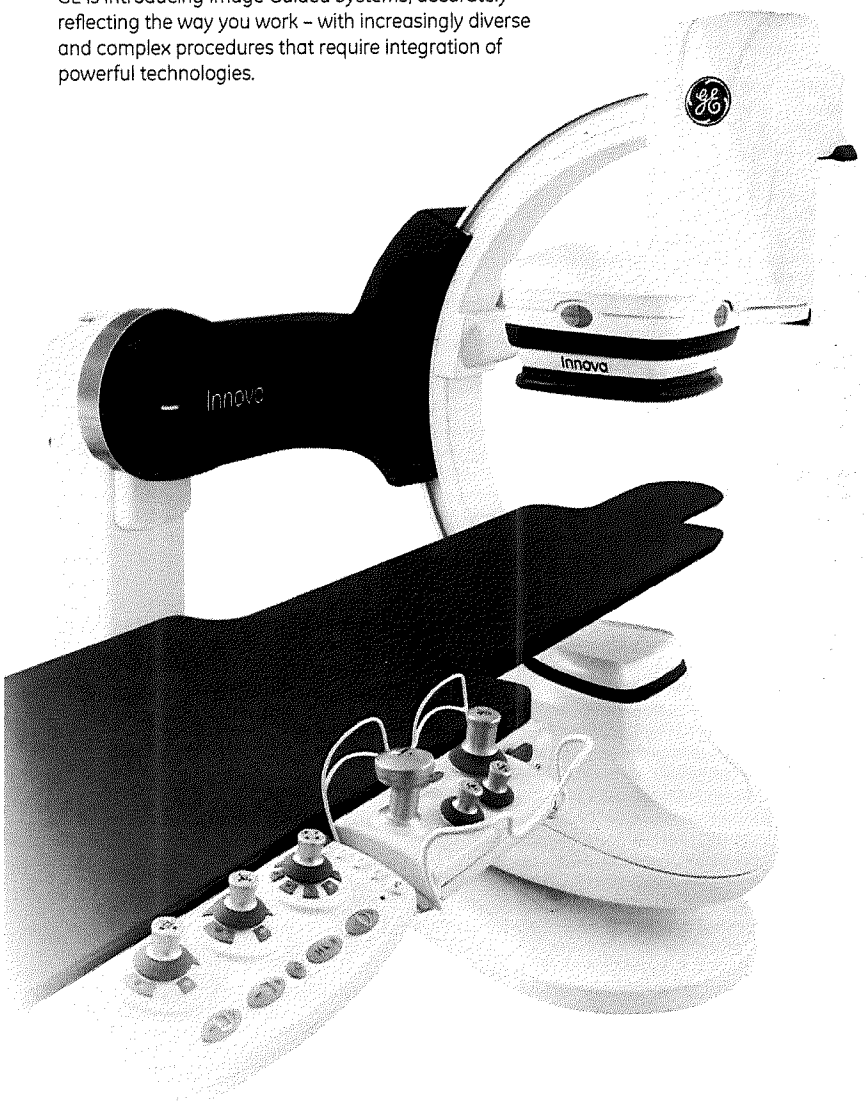
Interventional Cardiology
Time for a [Re]vision

Innova IGS 520

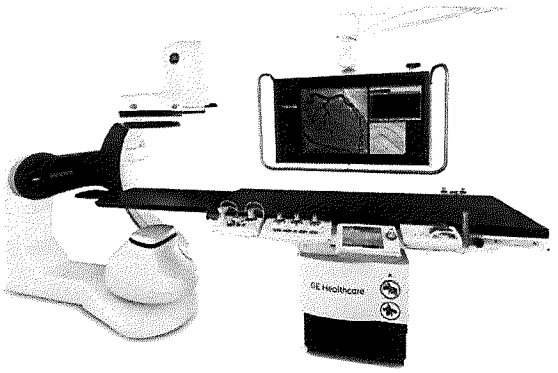
Time for a [Re]vision

From X-ray to Image Guided Systems

It's time to rethink Interventional Cardiology imaging. GE is introducing Image Guided Systems, accurately reflecting the way you work – with increasingly diverse and complex procedures that require integration of powerful technologies.



The Innova™ IGS 520[1] helps answer your daily challenges in image quality, clinical confidence, efficient procedure time, dose and reliability.



Performance imaging. At all times.

The Innova IGS 520 lets you leverage GE Healthcare's excellence in flat-panel imaging:

- Use the 21 cm x 21 cm flat-panel digital detector for approximately 30% more anatomical coverage than 17.7 cm square detectors.
- Get excellent performance in the low-dose fluoroscopy and record modes, with high Detective Quantum Efficiency (DQE).
- Obtain exceptional image quality, high reliability, advanced applications and dose management solutions: It all means you can trust your system to perform superbly in even the most complex cases.

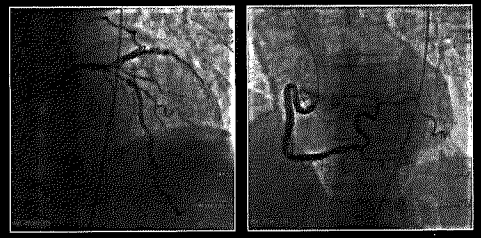
Time for a [Re]vision

Drive your procedure with clinical confidence

Percutaneous Coronary Intervention

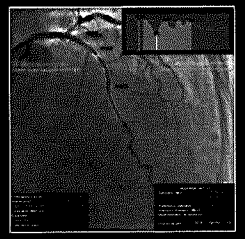
PLAN

Select the optimal angle with one injection



InnovaSpin is a rotational angiography that provides many of the cardiac information you need, from over a maximum range of 200° angles, in one acquisition and with one injection.

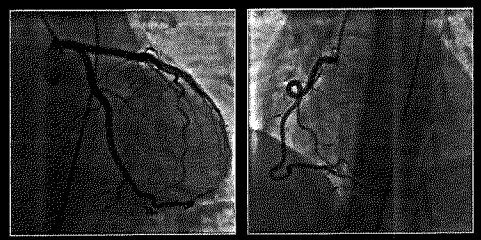
Analyze the vessel for device selection



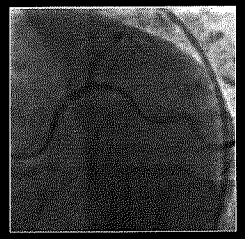
Innova OneTouch Stenosis Analysis simplifies lesion measurement thanks to auto-calibration and easy one-button activation at tableside

GUIDE

View the advancement and deployment of guidewires and devices



Record mode views

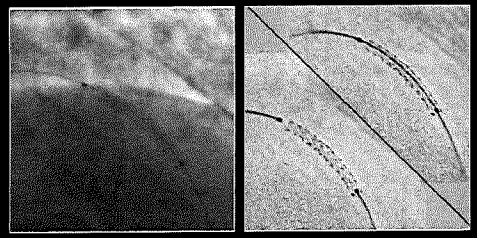


Low-dose fluoroscopy

Using **Fluorostore** the record mode can be replaced with **low-dose fluoroscopy** while delivering exceptional image quality.

ASSESS

View and characterize the stent

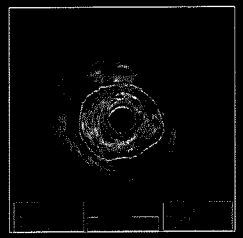


Acquired view

StentViz view

The subtracted guidewire view of **StentViz** allows excellent visualization of the stent struts and borders within the stent.

Check the intra-vessel lumen

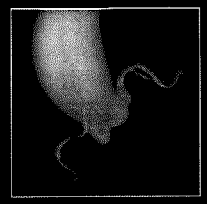


The Innova s5i-system option provides complete integration of the IVUS solution from Volcano.

Transcatheter Aortic Valve Replacement

PLAN

Understand the 3D aortic root anatomy

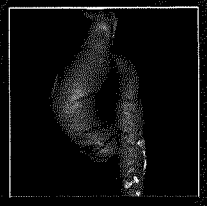


Innova 3D images, provided by rotational angiography, allows measurements of the elliptical aortic root in the absence of CT.

Confirm valve stenosis, vessel suitability and identify the access approach

Valve Assist (featuring Valve Planning protocol) provides vessel tortuosity, perimeter and calcifications from the illiacs to the aortic root (CT images).

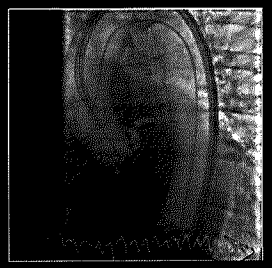
Select the appropriate valve and identify the valve plane

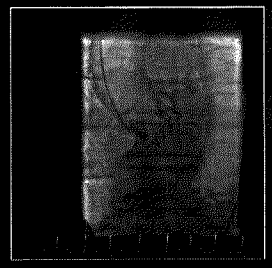


Valve Assist (featuring Valve Planning protocol) allows you to size the aortic root annulus, essential for device selection. It also helps to identify valve plane orientation for successful deployment (CT images).

GUIDE

Get accurate valve positioning and deployment

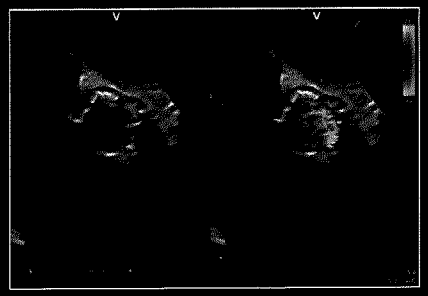




Valve Assist (featuring Innova HeartVision) provides high precision for real-time guidance to assist valve positioning and deployment, while minimizing motion with ECG synchronization and Image Stabilization.

ASSESS

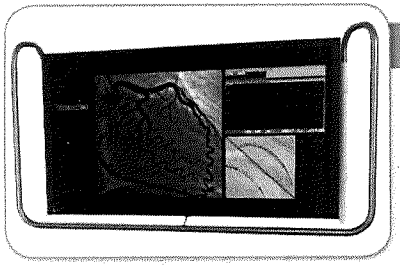
Check procedure results and success



Both angiography and Ultrasound, including TTE, TEE and CardioICE®, help control the device final positioning. In addition, Ultrasound could also be used in the previous steps of the procedure.

Image displays Edwards Sapien™ Aortic valve (P100041)

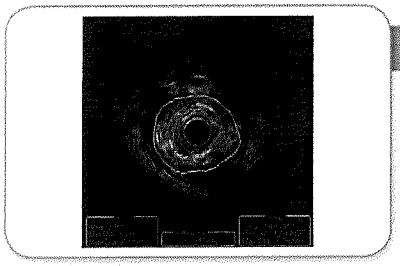
Efficient procedure time



56-inch Large Display Monitor[2]

Powerful. Comfortable. Flexible.

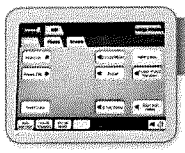
See information how, where and when you want it based on a large choice of predefined layouts. Optimize your workflow and choose from a wide range of interventional cardiology layouts at tableside.



IVUS & FFR integration

Full integration of Volcano s5i.[1,2]

IVUS and FFR functionalities of Volcano on the tableside touch screen control help provide more comfort and efficiency for the user with synchronization of the patient data.



Tableside touch screen control with Innova Central[2]

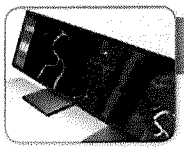
Control at your fingertips.

Easily access applications and dose protocols with the intuitive touch screen at tableside.

Mac-Lab® Hemodynamic Recording[2]

Move beyond integration to synchronization.

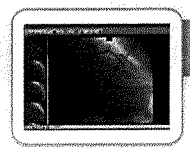
Images, waveforms and data, brought together in real-time, to put the information you need at your fingertips when you need it.



Multimodality visualization and analysis with AW[2]

Review images and plan treatments on the Innova with AW.

Easily plan and monitor treatments on the Innova, and compare multiple 3D models with full processing and control at tableside.

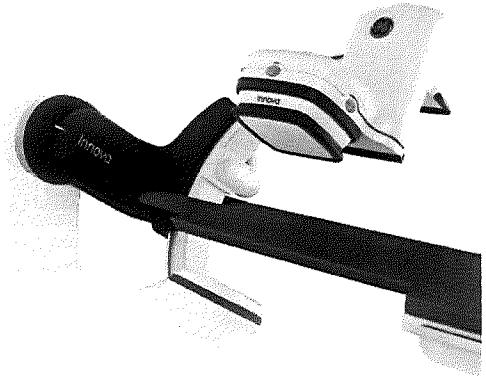


Cardiovascular IT[2]

Centricity Cardiology Enterprise Solution.

A comprehensive cardiovascular IT solution offering clinical access to a more complete cardiovascular patient record with optimized workflow and improved revenue cycle management.

Optimal procedure length is only as long as needed. The appropriate length for a procedure is the minimum time spent in the Cath Lab to create a positive patient outcome. Enhanced workflow lets you focus on the patient – not the technology.



Excellence in Dose Management

DoseSense

The right image at the right dose.

The IGS 520 features DoseSense, a comprehensive set of dose management tools that further extend dose efficiency.[3]

- Personalize and select your dose settings at tableside to achieve the IQ/Dose balance that fits your procedure needs.
- Keep image quality and dose at optimum levels with GE Healthcare's exclusive AutoEX, adapting on the fly the dose for each operator and procedure.
- Use InnovaSense with its intelligent detector to recognize patient contouring and optimize positioning.

Time for a [Re]vision

General Electric Company reserves the right to make changes in specifications and features shown herein, or discontinue the product described at any time without notice or obligation. Contact your GE Representative for the most current information.

GE and GE Monogram are trademarks of General Electric Company.

A General Electric Company, doing business as GE Healthcare.

* Trademark of General Electric Company.

** Volcano is a trademark of Volcano Corporation. Volcano s5i is a platform developed by Volcano Corporation and is required for Integrated Innova – s5i system option functionality.

*** Edwards Sapien is a trademark of Edwards Lifesciences Corporation

[1] Cannot be marketed (including advertising and promotions) in countries where market authorization is required and not yet obtained. Refer to your sales representative.

[2] Offered as an option

[3] The dose efficiency may vary depending on the clinical task, patient size, anatomical location and clinical practice.

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About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

GE Healthcare
Chalfont St.Giles,
Buckinghamshire,
UK

GE imagination at work

DOC1125855 CAR-0355-04.12-EN-US

TOSHIBA

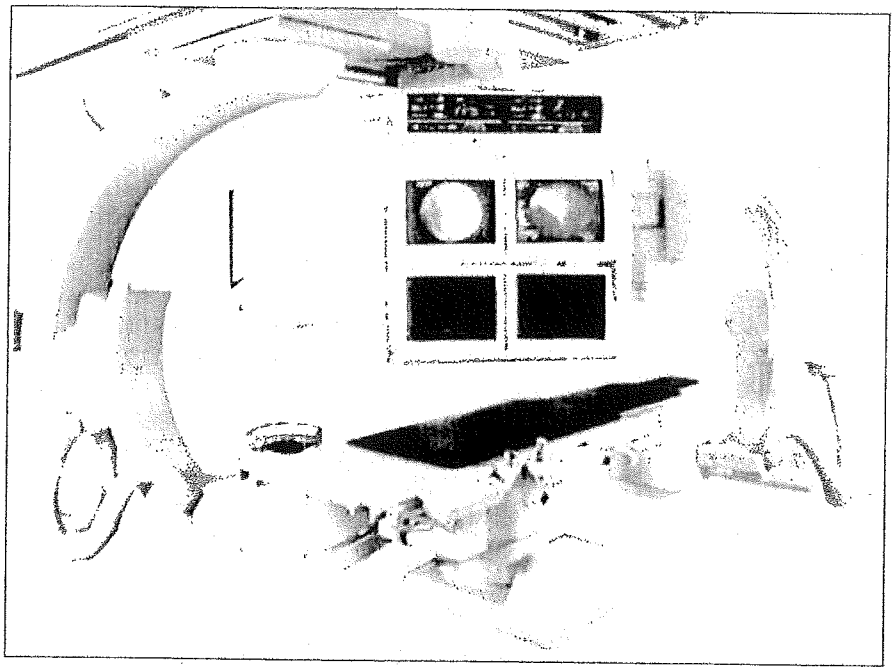
Systems Data
No. MSDXR0037EA

UNIVERSAL DUAL PLANE ANGIOGRAPHY SYSTEM

Infinix DP

SYSTEM OUTLINE

The Infinix DP is a universal dual plane imaging system, with a floor-mounted C-arm and ceiling-suspended C-arm. Has a J-advanced I.I., a CCD digital camera, a large-capacity X-ray tube, a catheterization table with a wide range of movement, a large-output X-ray generator controlled by a microprocessor, and a digital fluorography system providing high-quality image information. Since multidirectional digital angiography and digital subtraction angiography can be performed, this system is most suitable for both the cardiac examination and the examination of the head, abdomen and lower-limb extremities for interventional radiology.



FEATURES

- **Floor-mounted C-arm**
  Quick positioning is possible as the C-arm angulation and tabletop framing are simultaneously performed by one-handed operation. High-speed movement improves operability and reduces examination times.
- **Ceiling-suspended C-arm**
  A double-track, 3-axis ceiling-suspended C-arm allows access to the patient from any direction, permitting quick positioning to be performed.
- **Catheterization table**
  The catheterization table can support a wide range of diagnosis and therapy from the head, abdomen, and extending to the lower limbs, working in concert with the wide-ranging movement.
- **High-frequency inverter X-ray generator**
  By use of a large-output, high-frequency inverter, a large output capacity of up to 100 kW can be obtained. In fluoroscopy and I.I. photofluorography, automatic control of X-ray conditions, with mAs based control, is executed.
- **Digital fluorography system**
  The digital fluorography system employs digital subtraction angiography for angiographic examination and DA for cardiac examination. Providing support for routine, safe, and efficient X-ray diagnosis as well as interventional radiology and cardiology.
  In addition, rotational DSA and lower limb stepping DSA can be supported (both are optional functions).
- **One-million pixel CCD camera**
  The one-million pixel, 1024 × 1024 matrix CCD digital camera has excellent spatial resolution and has improved halation characteristics, providing high-resolution images without lag.
- **High contrast ratio I.I.**
  The Infinix DP system comes with 9", 14" or 16" I.I. These I.I.s are designed to a very high specification that maximizes contrast so that small objects can be easily seen.
- **Water-cooled triple-focus X-ray tube unit**
  The X-ray tube has a grid control function, which is capable of pulsed fluoroscopy.
- **Three typical layouts are provided.**

SYSTEM COMPOSITION

Standard composition

	Qty		Qty			
CAS-10A/CX	1	CAS-8000V	1	C-arm support		
XGCP-010B	1			Table-side console (Hyper-Handle)		
MTV-500A/CX	1	MTV-500A/XI	1	TV camera		
(with CENH-001A,		CENH-001A	1	Contrast enhancement unit		
SFXL-001A)		SFXL-001A	1	Super filter		
				Alternative	Qty	
DRX-T7445GDS	1	DRX-T7345GDS	1	DRX-T7235GDS	1	X-ray tube unit
		XGTC-008A/WT	1	XGTC-008A/WT	1	X-ray tube unit cover
HCM-150GCS/30	1	HCM-150GCS/30	1	HCM-150GCS/30	1	High-voltage cable
HEX-119	1	HEX-119	1	HEX-119	1	Heat exchanger
HEX-60354A	1	HEX-60354A	1	HEX-60354A	1	Heat exchanger hose
		BLA-800A	1	BLA-800A	1	Beam limiting device
RTP9211J-G11	1	RTP14301J-G1E	1	RTP16301J-G1E	1	I.I.
		XGTS-14I/8K	1	XGTS-16I/8K	1	I.I. touch sensor
		XKCP-110A	1	XKCP-110A	1	Optional console
	Alternative					
CAT-350B/CX	1	CAT-350B	1	Catheterization table		
(Stepping DSA is		(Stepping DSA				
not available)		is available)				
XBAR110A	1	XBAR110A	1	Armrest		
XBFS-020A	1			Footswitch		
		XBHG150A	1	Hand grip		
		XIDF-061A	1	Table-side console for DFP-2000A		
XBFG-001A	1			Free-slide grip		
MSI-20A	1	MSI-40A	1	Monitor suspension		
XGMR-010A	1	XGMR-010A	1	Ceiling rail		
DFP-2000A/AS, /AE	1	DFP-2000A/M	1	Digital fluorography system		
XIDF-021A	1	XIDF-021A	1	Expansion kit for universal-angiography option		
TVM-210MB	4	TV monitor				
TVM-150MT	4	TV monitor				
KXO-100G	1	X-ray generator				
XKWF-100A	1	Fluoroscopic 2-system I/F unit				
XKGC-100A	1	Fluoroscopy control cabinet				

UNIVERSAL DUAL PLANE ANGIOGRAPHY SYSTEM

Infinix DP

Optional items

For CAS-8000V	
XGHA-001A	Ceiling height adjustment kit
XGDM-008A	Diamentor mounting kit
For CAT-350B/CX	
XBBP250B	Base plate
XBAR110A	Armrest
XBFS-020A	Additional footswitch
XBFG-001A	Additional free-slide grip
For CAT-350B	
XBBP250B	Base plate
XBAR-001A	Armrest
XBHG-001A	Handgrip
XBSD150A	Control switch stand
XBFS-010A	Additional footswitch
XBFG-001A	Additional free-slide grip
For cine camera	
XKCI-100A	Cine camera I/F unit
CAI-02A	Cine auto-iris unit
R35-90SI	Cine camera
XRCC001A	Cine synchronization unit
500FT-MAGAZIN	500-foot film magazine
For digital fluorography system	
XIDF032A	Scatter correction unit for contrast enhancement for DFP-2000A/AS, /AU
XIDF-037A	PC-I/F unit
XIDF-038A	CD-R publishing unit
SRS-1000A	CD-R review station
XIDF-053A	DICOM communication kit
XIDF-054A	PC expansion kit
XIDF-055A	MOD kit 2
XIDF-056A	DICOM communication kit 2
XIDF-061A	Table-side console with infrared remote control
RDSA-01A	Rotational DSA application kit
SDSA-01A	Stepping DSA application kit combining with CAT-350B
XIDF012A	IC memory unit
For digital VCR	
XIDF-029B	DVR I/F for DFP-2000A/AS, /AU
DVR-20	Digital VCR
For KXO-100G	
CAB-100A	System cabinet
CABS-100A	Cabinet side cover
CABC-100A	Cabinet corner cover

SPECIFICATIONS

Floor-mounted C-arm support

CAS-10A/CX

- Isocenter height: 105 cm (41.3")
- C-arm inner radius: approx. 80 cm (31.5")
- C-arm offset: left, 45 cm (17.7")
- C-arm depth: 132 cm (52.0")
- Distance from isocenter to X-ray tube focus: 75 cm (29.5")
- Distance from X-ray tube focus to I.I. touch sensor: 82 cm to 112 cm (32.3" to 44.1")
- C-arm rotation
  Range: LAO 120° to RAO 120°
  Speed: Single plane, Max. 20°/s (variable)
- C-arm sliding
  Range: CRA 50° to CAU 45°
  Speed: Single plane, Max. 20°/s (variable)
- I.I. forward/backward movement
  Range: 30 cm (11.8")
  Speed: Max. 10 cm/s (3.9"/s)
- C-arm swivel PARK
  Range: +90° to –90° (manual operation)
- Auto-positioning function
  - Function
    Data for frequently used projection angles (RAO/LAO and CRA/CAU angles), SID, compensation filters position and the catheterization table height is memorized and automatically reproduced.
- X-ray beam limiting device (BLA-800C)
  Rectangular blades, circular blades, X-ray compensation filters, and X-ray beam hardening filters are incorporated. X-ray compensation filters can be opened/closed independently, and can be rotated ±135°.
- Optical system
  - Light detector: Photomultiplier
- X-ray grid
  Fiber, 10:1, 44 lines/cm, FFD=100 cm (39.4")
- Over framing (for MTV-500A/CX)

Ceiling-supended C-arm support
CAS-8000V

- C-arm inner radius: 89 cm (35.0")
- C-arm rotation: RAO 180° to LAO 120° (speed: max. 15°/s) when the C-arm is set at the head end.
- C-arm slide: RAO 90° to LAO 45° (speed: max. 15°/s (For rotational DSA, max. 30°/s)) when the C-arm is set at the patient's left side.
- Distance from X-ray tube focus to I.I. touch sensor: 82 cm to 112 cm (32.2" to 44.1")
- I.I. movement: 30 cm (11.8") (speed: max. 5 cm/s (2.0"/s))
- Isocenter height: 105 cm (41.3")
- Longitudinal ceiling movement: 210 cm (82.7") (speed: max. 20 cm/s (7.9"/s))
- Lateral ceiling movement: 90 cm (35.4") (±45 cm (±17.7")) (speed: max. 20 cm/s (7.9"/s))
- Column rotation: 270° (±135°) (speed: max. 10°/s)
- Auto-positioning function: 100 sets of projection angles, SID and height of catheterization table measurements are stored in memory for each of the C-arm positions.
- Touch sensor kit in front of I.I.: X-ray grid included Fiber, 10:1, 44 lines/cm, FFD=100 cm (39.4")
- X-ray beam limiting device (BLA-800A)
  - Circular and rectangular blades, and X-ray compensation filters are incorporated. X-ray compensation filters can be opened/closed independently, and can be rotated ±135°.

TV camera
MTV-500A

- Image sensor: One-million pixel CCD
- Scanning lines: 1050 lines (30 Hz) 525 lines (60 Hz)
- Aspect ratio: 3:4
- Contrast enhancement unit
- Super filter
- Over framing (MTV-500A/cx)

TV monitors
TVM-150MT, TVM-210MB

- Aspect ratio: 3:4
- Video frequency bandwidth: 120 MHz (–3 dB)
- Max. gain: 33 dB (at 0.7 Vp-p input)
- Automatic brightness control (ON/OFF): Most suitable contrast and brightness are automatically maintained. A sensor on the front of the monitor responds to room light variations.

UNIVERSAL DUAL PLANE ANGIOGRAPHY SYSTEM

Infinix DP

X-ray tube unit

	DRX-T7445GDS	DRX-T7345GDS	DRX-T7235GDS
• Focal spot (mm)	0.3/0.5/0.8	0.3/0.6/1.0	0.3/0.8/1.2
• Max. peak voltage (kV)	125	125	125
• Target angle (°)	8	11	12.5
• Anode heat storage capacity (kJ) (( ): kHU)	1300 (1800)	1300 (1800)	1300 (1800)
• Max. rating (kW)	20/49/98	17/48/100	16/57/112

Image intensifier

	RTP9211J-G11	RTP14301J-G1E	RTP16301J-G1E
• Input size (cm) (( ): in)	23/17/12 (9/7/4.5)	35.6/25/17 (14/10/7)	40/31/23/16 (16/12/9/6)
• Resolution (lp/cm) (min.)	46/51/62	38/44/51	36/40/46/50
• Gx. $\left(\frac{cd/m^2}{\mu C/kg \cdot s}\right)$ (min.)	970	1080	1280
• Contrast (typical) (10% area contrast)	34:1	33:1	30:1
• DQE (%) (typical) (IEC standard)	70	65	65

Catheterization table

	CAT-350B/CX	CAT-350B
• Overall tabletop length	295 cm (116.1")	275 cm (108.3")
• Frameless section of the tabletop	135 cm (53.1")	115 cm (45.3")
• Max. tabletop width	75 cm (29.5") (side rails included)	
• On-tabletop chest-holding width	45 cm (17.7")	
• On-tabletop head-holding width	25 cm (9.8")	
• Tabletop material	Carbon fiber reinforced plastic (CFRP)	

• Longitudinal movement (manual)
  • Range
  • Fixing method
	
	110 cm (43.3")
	Off-locking with magnetic brakes
		
		150 cm (59.1")
		Off-locking with magnetic brakes

• Lateral movement (manual)
  • Range
  • Fixing method
	
	30 cm (11.8") (±15 cm (±5.9")
	Off-locking with magnetic brakes
		
		25 cm (9.8") (±12.5 cm (±4.9"))
		Off-locking with magnetic brakes

• Support column rotation (manual)
  • Range
  • Fixing method
	Approx. 270° (–90° to 0°, 0° to +180°)
	Off-locking with magnetic brakes	

• Vertical movement (motor driven)
  • Range above floor
  • Speed
	79 cm to 120 cm (31.3" to 47.2")
	Approx. 1.4 cm/s (0.5"/s)	

• Footswitch	• Fluoroscopic start • High level control (HLC mode) fluoroscopic start • Cine, DA, DSA start	
• Max. allowable load	Up to 160 kg (350 lb)	Up to 135 kg (300 lb)

• Tabletop step-sliding movement (When the tabletop rotation is at the 0° or 180° position)
  • DSA stepping mode
 	
  • Stepping speed
	—	
		16 cm to 22 cm (6.3" to 8.7") ×
		Max. 7 steps
		1.7 s/step

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Infinix DP

X-ray generator

KXO-100G

Ratings

- Fluorographic ratings: 1250 mA, 80 kV (0.1 s), 1000 mA, 100 kV (0.1 s), 800 mA, 125 kV (0.1 s), 630 mA, 150 kV (0.1 s)
- Fluoroscopic ratings: Continuous fluoroscopy, 4 mA, 125 kV
- Nominal maximum power: 100 kW

Fluorographic functions

- Setting of techniques
  - DSA (digital subtraction angiography), DA (digital angiography), One-shot fluorography, CINE/DA (digital angiography)
- DSA function
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA
  - Pulse width: 1.0 ms to 100 ms
- DA function
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA
  - Pulse width: 1.0 ms to 25 ms
  - Pulse rate: 7.5, 10, 15, 30, 60 exp./s
  - Exposure time: 1 s to 40 s, 1-s step
  - ABC function: AUTO mode/LOCK mode
  - Setting of LOCK delay time: 0 to 3 s, 0.5-s step
  - Auto iris control: The iris is automatically opened or closed.
- One-shot fluorographic function
  Combination with the DF system.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA
  - Pulse width: 5.0 ms to 100 ms
  - AEC function: The tube voltage and tube current are automatically calculated and the exposure time is controlled.
- CINE/DA function
  Combination with the cine camera interface unit (XKCI-100A), an optional unit, is necessary.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA
  - Pulse width: 1.0 ms to 8.0 ms
  - Frame rate: 15, 30, 60, 90
  - Total time: 1 s to 40 s, 1-s step
  - ABC function: AUTO mode/LOCK mode
  - Setting of LOCK delay time: 0 to 3 s, 0.5-s step
  - Auto iris control: Automatically opened or closed.
- Fluorographic range
  - Tube voltage setting range: 50 kV to 125 kV, 2-kV step
  - Tube current setting range: 10 mA to 1250 mA in 16 steps
  - Exposure time setting range: 1.0 ms to 1000 ms in 31 steps
  - mAs usable range
    - One-shot Fluorography: 0.5 mAs to 125 mAs
    - DSA fluorography: 125 mAs max.

Fluoroscopic functions

- Fluoroscopy (continuous fluoroscopy)
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: to 4 mA (Min. setting 0.5 mA)
  - Setting of fluoroscopic time: 1 min to 5 min (1-min steps)
  - Cumulative fluoroscopic time: Up to 199 minutes
  - ABC function: Keeps the monitor brightness constant.
- Pulsed fluoroscopy functions
  - Tube voltage range: 50 kV to 110 kV
    - Pulse width: 1.0 ms to 13 ms
    - Repetitive pulse rate: 1, 2, 3.75, 7.5, 15, 30 exp./s
  - ABC function: Keeps the monitor brightness constant
  - Cumulative pulsed fluoroscopic time: Up to 199 minutes
- Fluoroscopy mode: Normal fluoroscopy mode/ high dose HLC mode

Automatic exposure control function

- Applicable fluorographic technique: One-shot fluorography
- Shortest exposure time: 3 ms
- Nominal shortest exposure time: 5 ms
- Setting of film density: 9 steps including the standard density
- Display of real exposure time

Fluorographic condition programming function

- No. of programs: Up to 128 types of program can be registered.

System control function

Display of X-ray tube anode heat storage (HU)

Error detection function

Digital fluorography system

DFP-2000A/A4, DFP-2000A/AS, DFP-2000A/AU

- Image memory
  - IC memory
    Memory capacity: 128 MB (to max. 320 MB option)
  - High-speed disk
    - Recording format for dynamic images:

Image matrix (horizontal/vertical)	Bit	Number of frames DFP-2000A/AS DFP-2000A/AU	DFP-2000A/A4
1024 × 1024	10	20,700	41,400
1024 × 1024	8	27,500	55,000
512 × 512	10	71,000	125,000
512 × 512	8	100,000	166,500

  - Magnetic disk:
    1024 × 1024 16 bits max. 100 frames
- Image display section

Monitor output for:	Display mode	Aspect ratio	Image matrix
Fluoroscopy	1049 lines, 30 fps interlaced	4:3	1024 × 1024 and 512 × 512
Roadmapping	1050 lines, 60 fps non-interlaced Dynamic stereo view (option)	4:3	1024 × 1024 and 512 × 512
Standard analog VCR	525 lines, 30 fps interlaced	4:3	512 × 512

- Digital pulsed fluoroscopy
  - High-definition fluoroscopy: 1024 × 1024, 30 frames/s
  - Pulsed fluoroscopy:
    - Standard: 30 pulses/s
    - Low-rate: 15, 7.5 pulses/s
- DSA
  Digital subtraction imaging is performed using a mask which is acquired through controlled timing of contrast medium injection.
  - Standard imaging

Acquisition mode	Image matrix	Bit	Acquisition rate (frames/s)	Max. X-ray exposure width (ms)
High-definition	1024^2	8, 10	30*	20*
			15, 10	50
			7.5, 6, 5,	100
			3.75, 3,	100
			2.5, 2, 1.5,	100
			1, 1/2, 1/3	100
High-speed	512^2	8, 10	60	6
			30	20
			15, 10	50
			7.5, 6, 5,	100
			3.75, 3,	100
			2.5, 2, 1.5,	100
			1, 1/2, 1/3	100

* for DFP-2000A/A4

  - Optional acquisition mode:
    - Stereo images at half the acquisition rate
    - Stepping DSA with 1 IC memory unit
    - Rotational DSA with 3 IC memory units
- Digital angiography (Fluorography)
  The TV camera images can be processed and stored in the high-speed disk.
- One-shot fluorography: Still images with 1024 × 1024, 10 bits
- Postprocessing
  - Dynamic image playback using the Jog/Shuttle
  - Dynamic image processing such as spatial filters and auto window
- Image filing
  - Digital VCR (option)
  - CD-R publising station (option)
  - CD-R review station (option)
- Image communication through Ethernet (DICOM) (option)
- Utility such as Registration of Anatomical Program

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Infinix DP

DIMENSIONS AND MASS

Unit	Net Dimensions mm (in) (L × W × H)	Mass (Approx.) kg (lb)
C-arm support CAS-10A/CX	2,425 × 1,240 × 2,310 (95.5 × 48.8 × 90.9)	950 (2,090)
Control cabinet for CAS-10A/CX	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	140 (308)
Control switch for CAS-10A/CX	420 × 200 × 120 (16.5 × 7.9 × 4.7)	3 (6.4)
C-arm support CAS-8000V	2,120 × 640 × 2,560 (83.5 × 25.2 × 100.8)	850 (1,873)
Ceiling rail for CAS-8000V	5,000 × 1,900 × 100 (196.9 × 74.8 × 3.9)	90 (198)
Control cabinet for CAS-8000V	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	140 (308)
Control switch for CAS-8000V	350 × 170 × 160 (13.8 × 6.7 × 6.3)	3 (7)
Catheterization table CAT-350B/CX	3,300 × 750 × 790 (130 × 30 × 31.1)	440 (968)
Catheterization table CAT-350B	3,300 × 750 × 790 (130 × 30 × 31.1)	410 (902)
Base plate XBBP250B	1,400 × 1,400 × 16 (55.1 × 55.1 × 0.63)	240 (528)
Control console for KXO-100G	440 × 280 × 83 (17.3 × 11.0 × 3.3)	5 (11)
Optional console for KXO-100G	150 × 280 × 83 (5.9 × 11.0 × 3.3)	1.5 (3.3)
Generator control cabinet	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	110 (242)
Generator power cabinet	1,145 × 461 × 2,312 (45.1 × 18.1 × 91.0)	450 (990)
Fluoroscopy control cabinet (2 sets)	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	270 (594)
System transformer (power source) cabinet	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	350 (770)
Processing unit for DFP-2000A/A-I	910 × 1,140 × 1,810 (35.8 × 44.9 × 71.3)	640 (1,408)
Processing unit for DFP-2000A/AS, /AU	910 × 570 × 1,810 (35.8 × 22.4 × 71.3)	450 (990)
SDF main console	280 × 380 × 76.4 (11.0 × 15.0 × 3.0)	4.5 (9.9)

INSTALLATION CONDITIONS

Examination room

The size of examination room should satisfy the following requirements.

- Ceiling height: 2.8 m (110.2") to 3.0 m (118.1")
- Minimum space for installation: 5.4 m (212.6") (W) × 7.3 m (287.4") (L)

Power requirements

- Three-phase, 380/400/415/440/480 VAC, 50/60 Hz, 150 kVA or larger
  - Allowable line voltage fluctuation rate (no load): Within nominal line voltage ±10%
  - Allowable line impedance: 380 V, 0.08 Ω or less
    400 V, 0.09 Ω or less
    415 V, 0.09 Ω or less
    440 V, 0.10 Ω or less
    480 V, 0.12 Ω or less
  - Rating of distribution breaker: 380/400/415/440/480 V 100 A
- Single-phase, 200/210/220/230/240 VAC, 50/60 Hz, 7.5 kVA or larger
  - Allowable line voltage fluctuation rate (no load): Within nominal line voltage ±10%
  - Rating of distribution breaker: 200/210/220/230/240 V 100 A

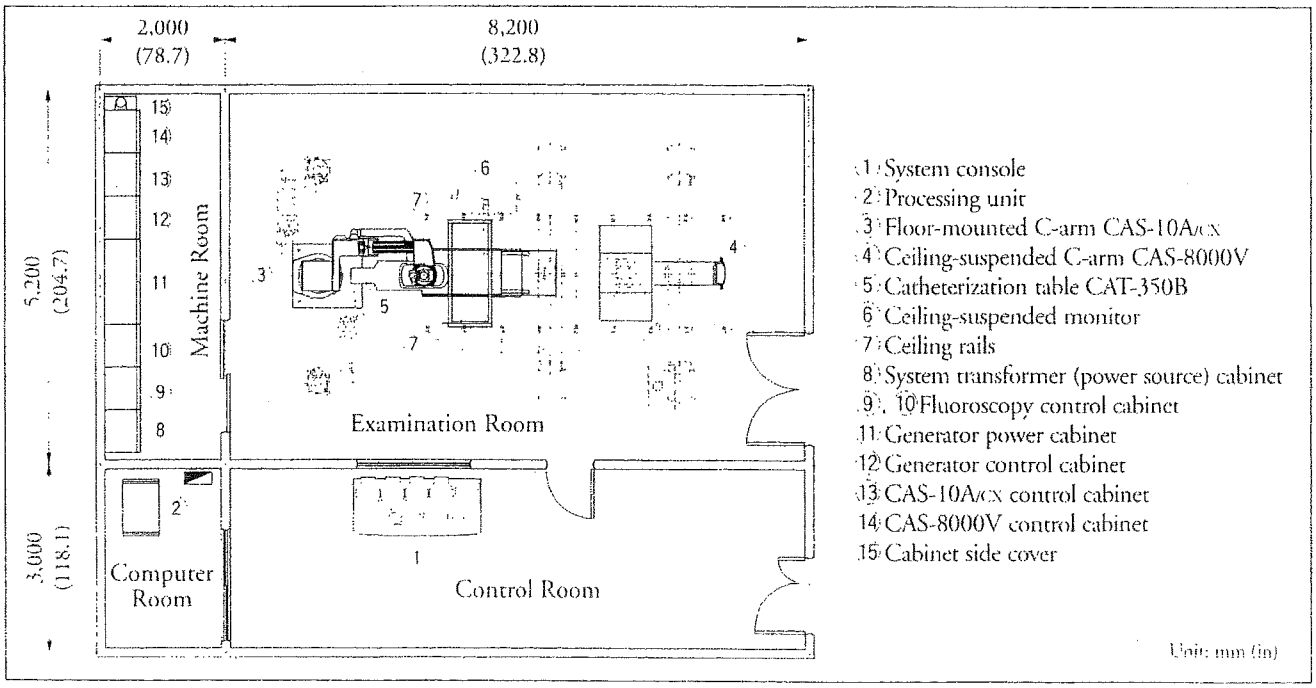
Grounding

Grounding must be provided in compliance with all applicable legal requirements for medically used electrical equipment.

Operating requirements

- Examination room and machine room
  - Ambient temperature: 10°C to 35°C
  - Relative humidity: 35% to 70% (no condensation)
  - Atmospheric pressure: 700 hPa to 1,060 hPa
- Control room and computer room
  - Ambient temperature: 18°C to 28°C
  - Relative humidity: 35% to 70% (no condensation)
  - Atmospheric pressure: 700 hPa to 1, 060 hPa

TYPICAL LAYOUT



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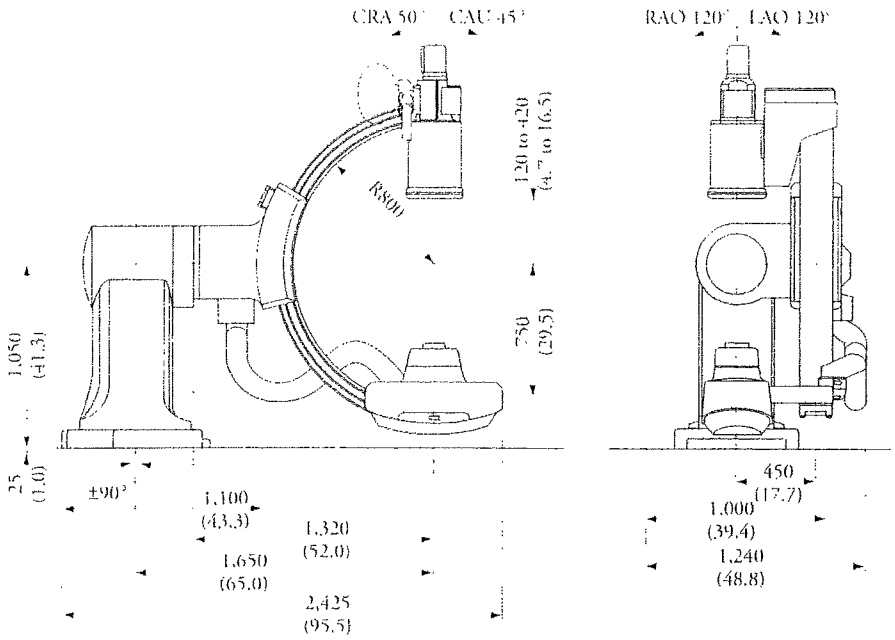
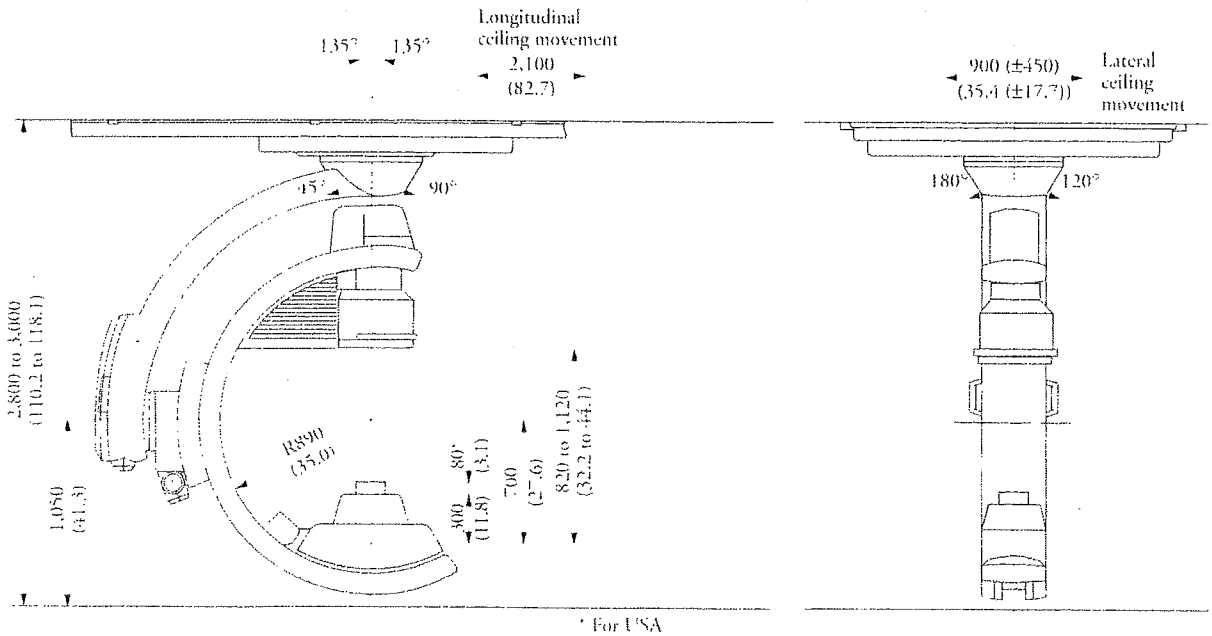
OUTLINE DRAWINGS



C-arm Support CAS-10A/CX

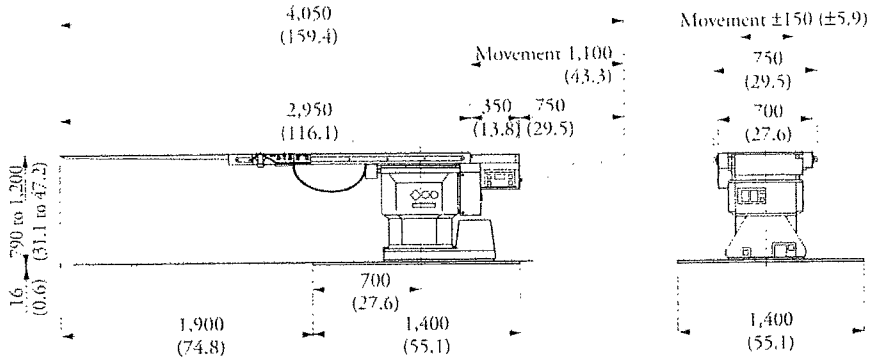


* For USA

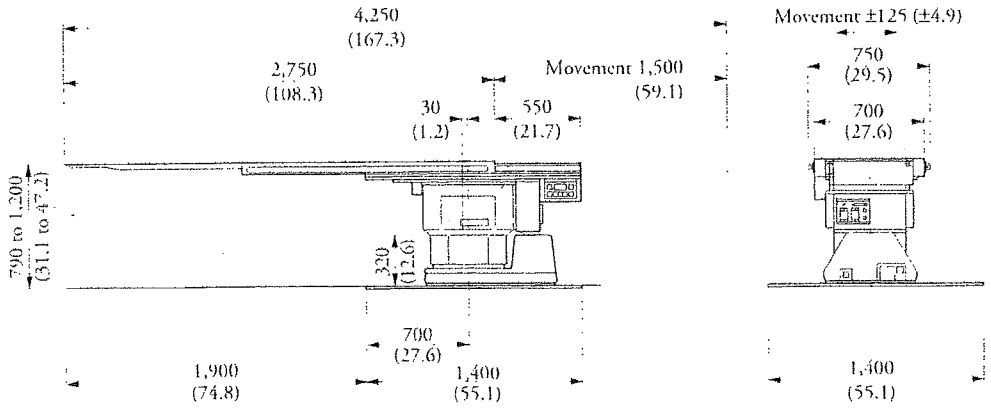
C-arm Support CAS-8000V

Unit: mm (in)

OUTLINE DRAWINGS



Catheterization Table CAT-350B/CX (including XBBP250B)



Catheterization Table CAT-350B (including XBBP250B)

Unit: mm (in)

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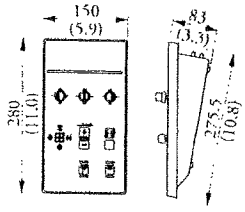
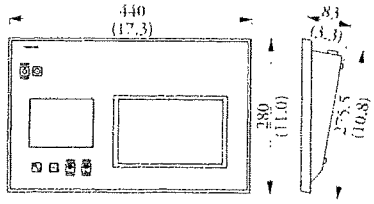
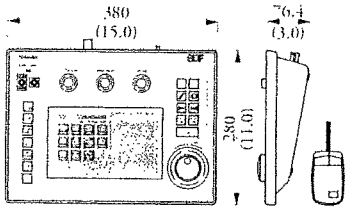
OUTLINE DRAWINGS



Optional Console for KXO-100G



Control Console for KXO-100G



SDF Main Console

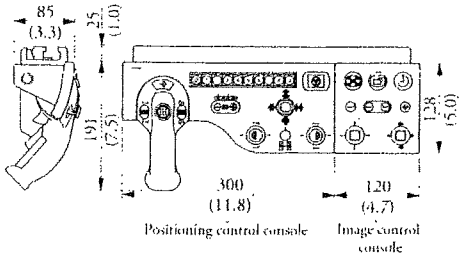
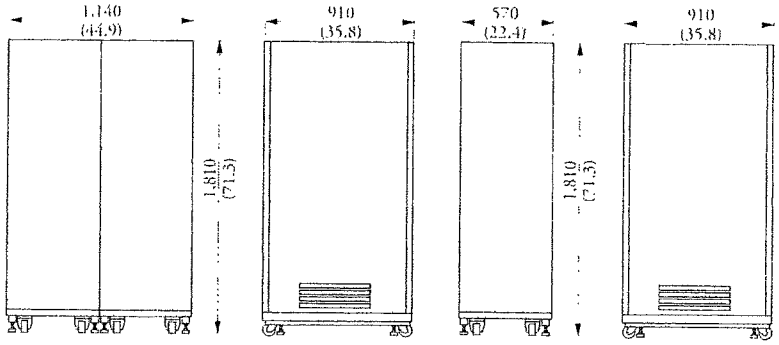
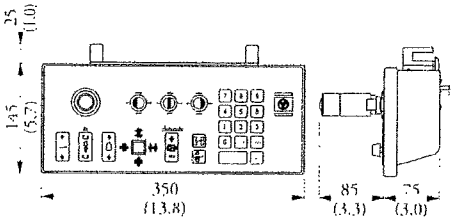


Table-side Console for CAS-10A/CX

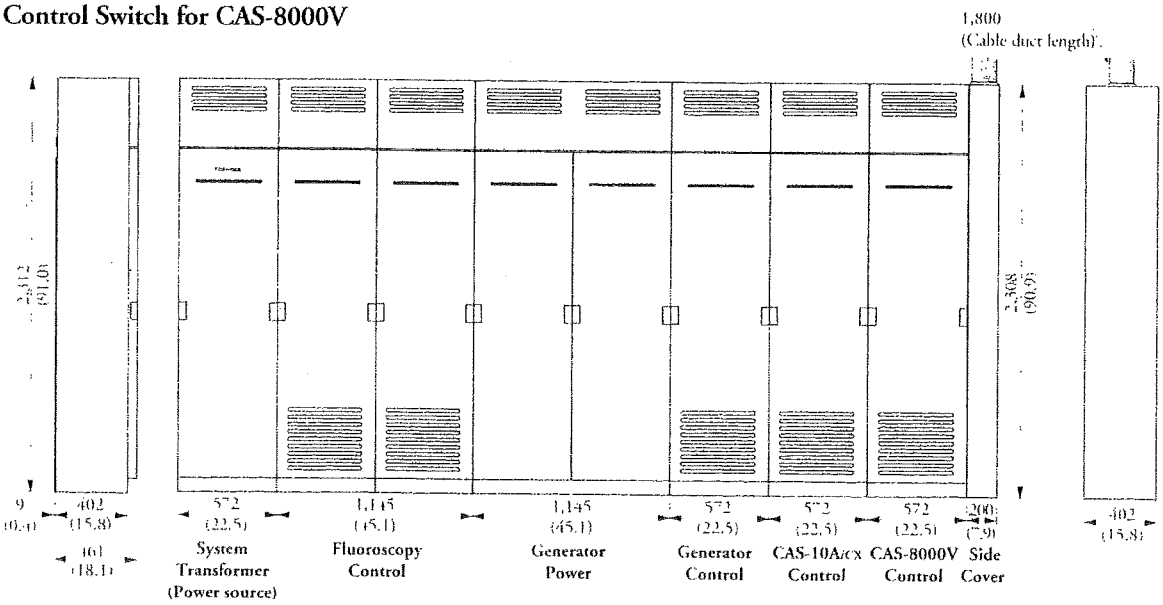


Processing Unit for DFP-2000A/A4

Processing Unit for DFP-2000A/AS, /AU



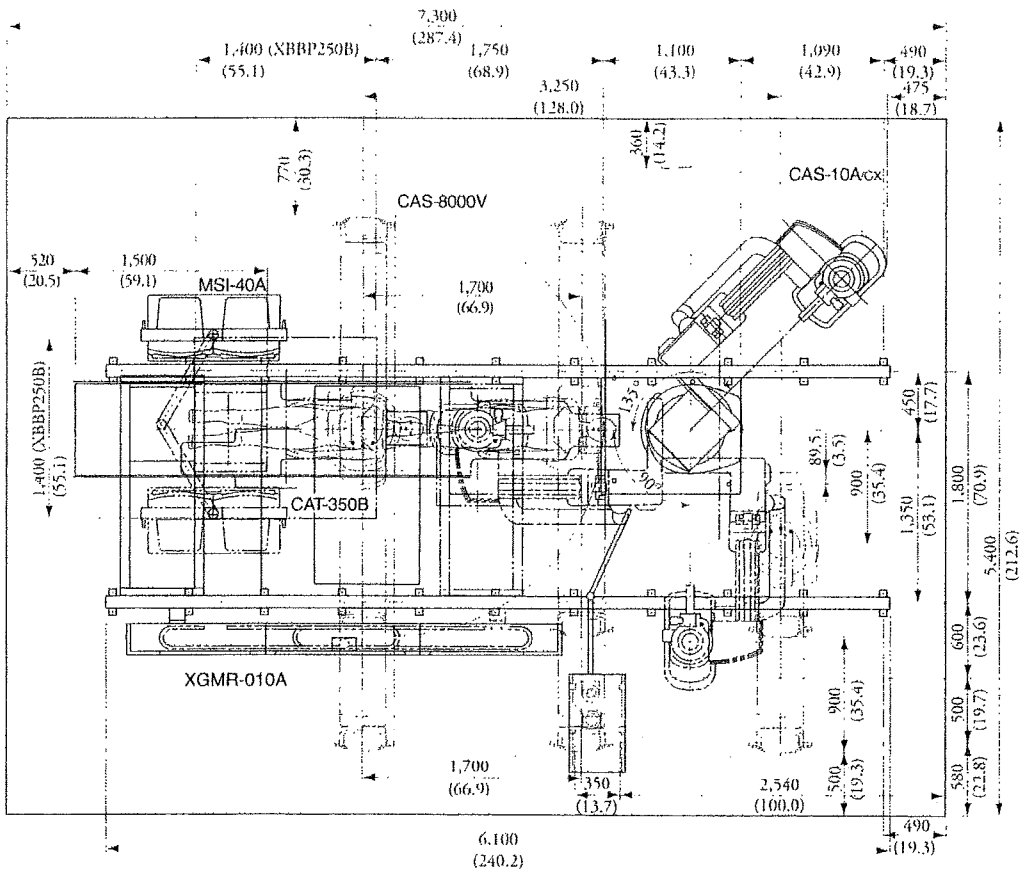
Control Switch for CAS-8000V

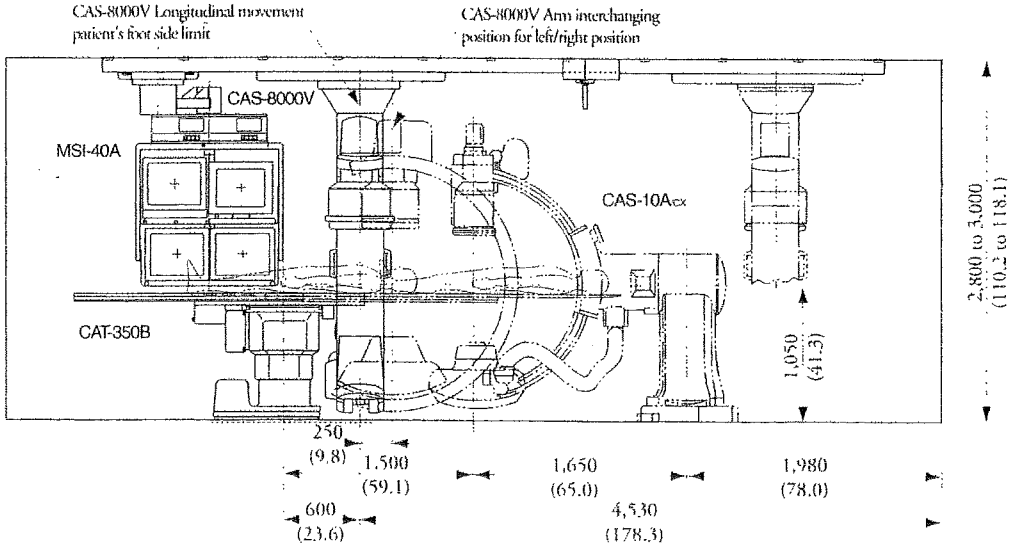


Cabinet

Unit: mm (in)

TYPICAL LAYOUT #1 FOR EXAMINATION ROOM (0 degree)





Unit: mm (in)

UNIVERSAL DUAL PLANE ANGIOGRAPHY SYSTEM

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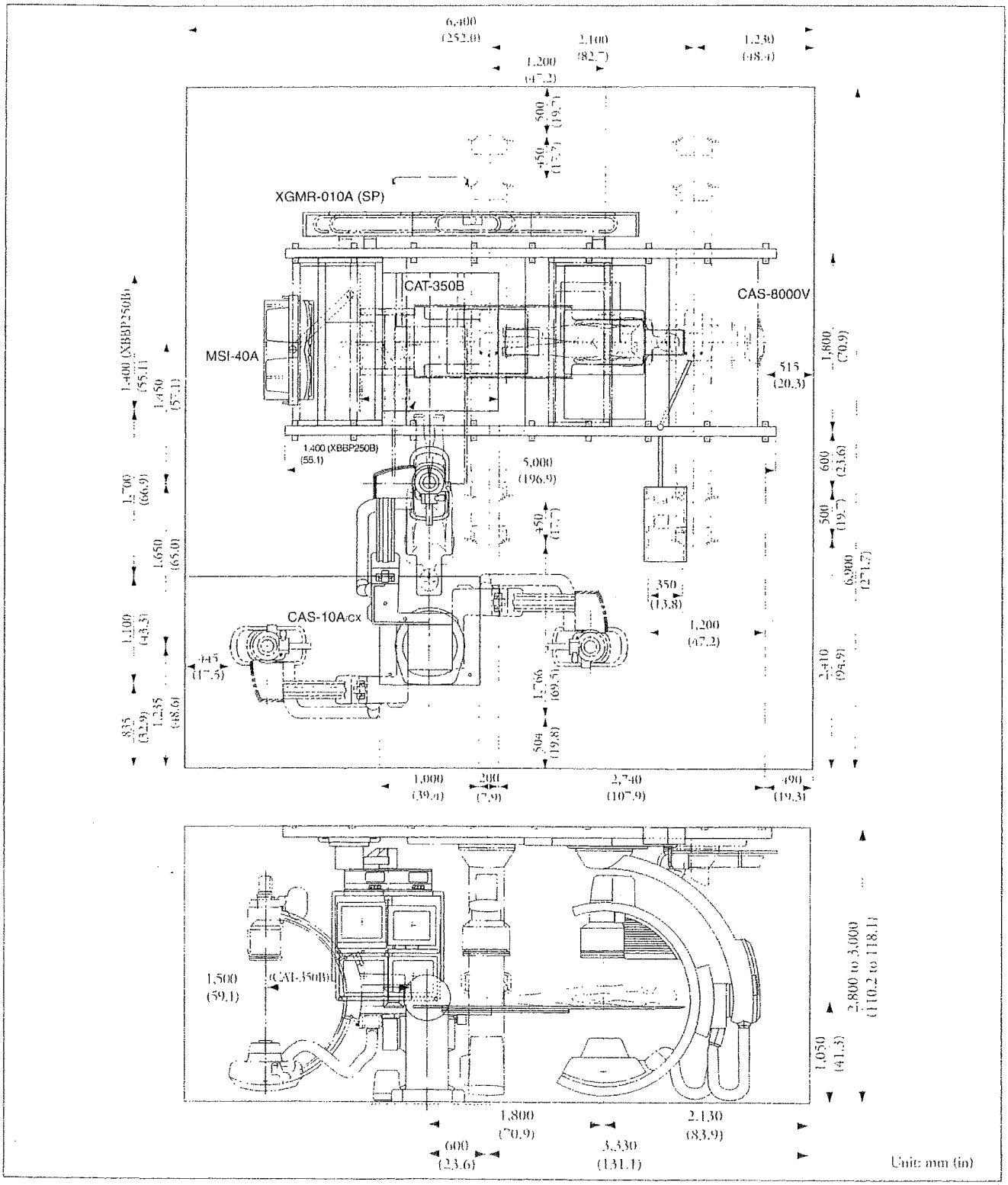
TYPICAL LAYOUT #2 FOR EXAMINATION ROOM (90 degrees)



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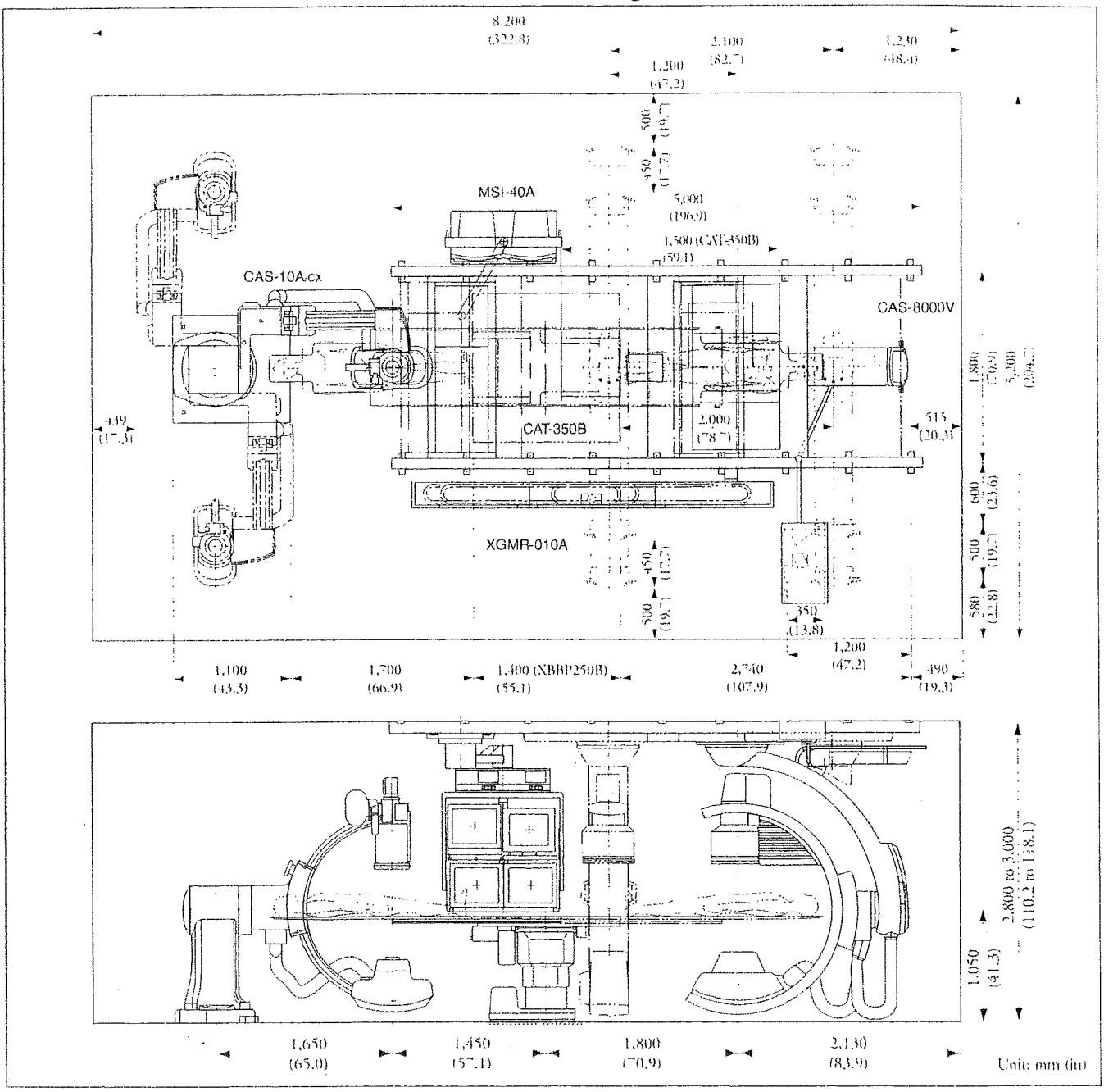
TYPICAL LAYOUT #3 FOR EXAMINATION ROOM (180 degrees)



TÜV Rheinland

Toshiba Corporation Medical Systems Company meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485, EN 46001 Registration No.: 09 105 5673

ISO 14001 JACO — NATIONAL ACCREDITATION OF CERTIFICATION BODIES — JAB EMS Accreditation RE.009

Toshiba Nasu Operations meets the Environmental Management System standard, ISO 14001 Registration No. EC99J1019

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TOSHIBA

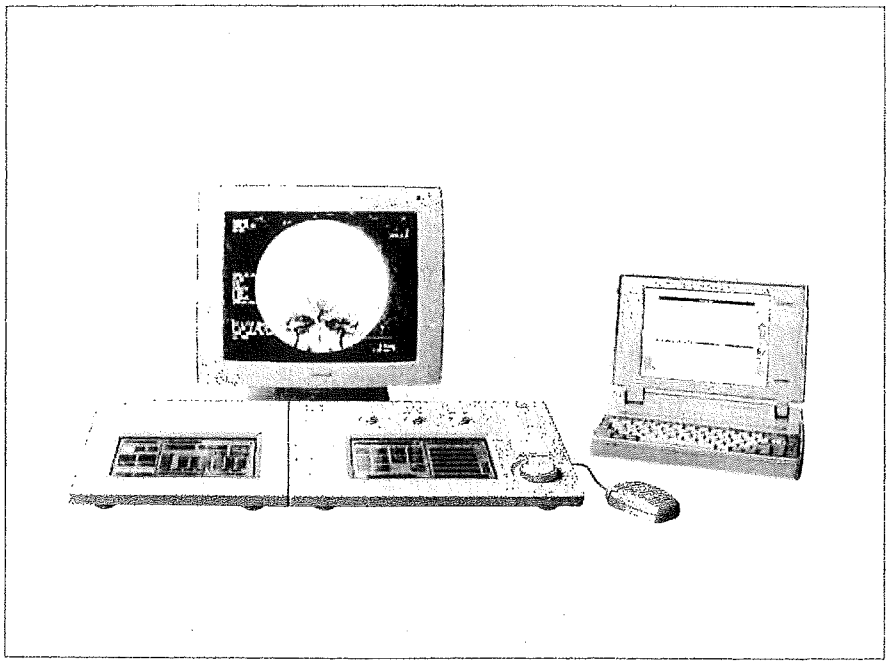
Product Data
No. MPDXR0005EAB

DIGITAL FLUOROGRAPHY SYSTEM

DFP-2000A/A4

APPLICATION

This is a digital fluorography (DF) system for digital angiography and digital subtraction angiography. High-definition digital images are acquired when performing angiography of the brain, abdomen, and lower limbs. The system is equipped with a high-definition digital TV camera, real-time image processor, high-speed disk unit, and digital VCR.
Dynamic digital angiography, such as imaging with table shift and C-arm rotation, can be performed rapidly and safely. The easy-to-use roadmapping function with digital image processing can support interventional techniques.



FEATURES

- High-definition pulsed progressive fluoroscopy is supported. This technique reduces artifacts and provides high-resolution fluoroscopic images.
- A maximum of 2,900 digital images of 30 frames per second, is recorded in the high-speed disk and can be retrieved instantly.
  The dedicated CCD camera provides excellent digital images.
- Image acquisition and analysis are easily performed by following pop-up menus, such as the anatomical program and guide.
- A powerful image recording system, with the combination of the high-speed disk and digital VCR, provides excellent digital angiography throughput.
- Advanced stereo imaging is helpful when a special stereo X-ray tube unit is used.
- Image processing of playback images, such as roadmapping, requires only a simple operation.
  Morphological studies are aided by instant image viewing and functions such as X-ray scatter correction, free magnification and subtraction, and split-screen display of fluoroscopy and roadmap images on the TV monitor.
- Up to 100 still roadmap images can be recorded and played back to support PTA.
  Effective programs such as the percent stenosis and functional image analysis are also available.
- Four-channel physiological waveforms can be recorded and played back in synchronization with the digital images.
- Two optional biplane functions are available, which permit acquiring frontal and lateral images either alternately or simultaneously.
- An optional Ethernet* image communication unit makes it possible to send the acquired images to a general-purpose image processing system.

* Ethernet is a registered trademark of XEROX U.S.A.

Product Data
No. MPDXR0005EAB

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COMPOSITION

Standard composition (*)

- Processing unit 1
- High-speed disk unit 2
- Main console 1
- Table-side console 1
- Subconsole 1
- Digital VCR interface (XIDF029A) 1
- Digital video interface for laser imager (XIDF018A) .. 1
- Scatter correction unit for contrast enhancement (XIDF032A) 1
- Set of connection cables 1
- Software for the personal computer 1
- Infrared remote control (XIDF017A) 1

Optional items

- IC memory unit (64 MB; XIDF012A): Max. 320 MB adding to the standard 128 MB
- Magneto-optical disk (MOD) unit (XIDF014A)
- Ethernet image communication unit (XIDF015A)
- File/communication expansion unit (XIDF013A)
- Stereo DSA application unit (XIDF027A)
- High-definition TV monitor (TVM-150MT/150MB, TVM-210MT/210MB, TVM-170MB)
- One-processor biplane kit-2 (XIDF024A)
- High-speed biplane kit (XIDF-025B)
- Additional console unit for dual-room application (XIDF030A)
  An additional subconsole is also required.
- Physician's console unit (XIDF026A)
- Subconsole unit (XIDF022A)
- Boosters for coaxial video cable extension (XIDF034A); 3 channels can be boosted.
- Console desk (DFD-100A)
- Expansion kit for universal option (XIDF021A)
- Stepping DSA application kit (SDSA-01A)
- Rotational DSA application kit (RDSA-01A)

(*) The composition may be different for the USA.

PERFORMANCE SPECIFICATIONS

Performance of each section

- Image acquisition section
  - Input image:

Image matrix (horizontal/vertical)	Bit	Max. acquisition rate (frames/s)
1024 × 1024	10	30
512 × 512	10	60

  - Two TV cameras can be connected.

- Image memory
  Images are recorded temporarily for digital fluoroscopy, digital angiography (fluorography) and roadmapping with reference images.
  - IC memory
    The digital fluoroscopy, digital angiography and still reference images are recorded in this IC memory. The image memory is used as a working area for image processing.
    The following standard recording formats are available.
    – Memory capacity: 128 MB standard, 320 MB max. with the option
  - High-speed disk
    – Recording format for dynamic images:

Image matrix (horizontal/vertical)	Bit	Number of frames
Dynamic		
1024 × 1024	10	41,400
1024 × 1024	8	55,000
512 × 512	10	125,000
512 × 512	8	166,500

  - Magnetic disk
    – Still images are recorded on this disk. 1024 × 1024, 16 bits, max. 100 frames

DIGITAL FLUOROGRAPHY SYSTEM

DFP-2000A/A4

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- Image processing section
  This is the real-time high-speed image processing hardware.
  - Spatial filter
  - Free magnification
  - Gray scale
  - Arithmetic and statistical processing
  - Contrast enhancement with scatter correction
  - Stereo image display for dynamic and still images (option)

- Image display section

Monitor output for:	Display mode	Aspect ratio	Image matrix	D/A converter
Fluoroscopy (biplane)	1049 lines, 30 frames/s interlaced	4:3	1024 × 1024 and 512 × 512	8 bits for Black & White
Roadmapping (biplane)	1050 lines, 60 frames/s non-interlaced Dynamic stereo view (option)	4:3	1024 × 1024 and 512 × 512	8 bits for Black & White
High-resolution VCR	1049 lines, 30 frames/s interlaced	4:3	1024 × 1024	8 bits for Black & White
Conventional VCR	525 lines, 30 frames/s interlaced	4:3	512 × 512	8 bits for Black & White

- Permanent image filing
  - Digital VCR
    Dynamic and still images are recorded with patient examination information.
    - View Mode: Images are recorded with a reduced number of scan lines.
    - File Mode: Raw images previously saved in the high-speed disk are recorded without any data loss.
    - Recording time
      S size cassette: Max. 32 min
      M size cassette: Max. 94 min
  - Magneto-optical disk (option)
    Still images are recorded together with patient examination information.
    Image recording capacity: 644.2 MB (unformatted)

- Operating section
  For performing image acquisition, processing, analysis, and recording
  - Main Console for operation in the control room
  - Table-side Console for direct operation in the catheterization room
  - Subconsole
    This console is placed at the side of the main console and is used for setting up image acquisition programs.
  - Additional Main Console and Subconsole for dual-room application (option)
    The consoles are the same as the above consoles for alternative operation in the second room.
  - Physician's Room Main Console (option) for image processing and analysis for alternative operation in the physician's room
  - Infrared Remote Control (option) for separate control of image postprocessing in the above rooms

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- Communication section for digital images
  Ethernet image communication:
  Dynamic and still images can be transferred to a general-purpose image processing system through the available Ethernet network.
  This requires the optional File/Communication Unit.

- Physiological waveform acquisition section
  - Input signal: +5 V to −5 V
  - Input channels: 4
  - Sampling rate: 240 Hz
  - Recording time: Max. 64 s

Acquisition, processing, and transfer of images

- Digital pulsed fluoroscopy
  - High-definition fluoroscopy
    Fluoroscopic images are scanned in the high-definition progressive mode and converted to digital images with a 1024 × 1024 matrix, at 30 frames/s.
  - Pulsed fluoroscopy
    Blur-free fluoroscopy can be achieved by using pulsed X-rays.
    - Standard: 30 pulses/s
    - Low-rate: 15 pulses/s for reduced X-ray dose
  - Fluoroscopic dose mode: High, standard, and low
  - Biplane digital fluoroscopy (option)

- Digital fluoroscopic image processing
  Digital fluoroscopic images are enhanced in real-time to assist during interventional procedures.
  - Functions: Spatial filter
    Subtraction
    Landmarking
    Peak pixel
    Last image hold
- Recording of digital fluoroscopic images
  All digital fluoroscopic images are recorded in the Image Memory.
  - Digital image: 1024 or 512 matrix and 8 or 10 bits
- Physiological waveforms input and display
  Four physiological waveforms, such as ECG and blood pressure, can be input and one of them is superimposed on the acquired image.

- DSA
  Digital subtraction imaging is performed using a mask which is acquired through controlled timing of contrast medium injection.
  - Optional acquisition mode:
    - Stereo images at half the acquisition rate
    - Biplane images alternately at half the acquisition rate
    - Stepping DSA with 1 IC memory unit
    - Rotational DSA with 3 IC memory units

- Standard imaging

Acquisition mode	Image matrix	Bit	Acquisition rate (frames/s)	Max. X-ray exposure width (ms)
High-definition	1024^2	8, 10	30	20
			15, 10	50
			7.5, 6, 5, 3.75, 3,	100
			2.5, 2, 1.5, 1, 1/2, 1/3	100
High-speed	512^2	8, 10	60,	6
			30,	20
			15, 10,	50
			7.5, 6, 5, 3.75, 3,	100
			2.5, 2, 1.5, 1, 1/2, 1/3	100

DIGITAL FLUOROGRAPHY SYSTEM

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- Digital angiography (Fluorography)
  The TV camera images can be processed and stored in the high-speed disk.
  - DA acquisitions
    1024 × 1024 Matrix
    Bit: 8, 10
    Rate: 30, 15, 10, 7.5 frames/s
    512 × 512 Matrix
    Bit: 8, 10
    Rate: 60, 30, 15, 10, 7.5 frames/s
  - Biplane fluorography (option)

- One-shot fluorography
  Still images with 1024 × 1024, 10 bits
  In this mode, the fluorographic position and balloon status can be checked, and image data are stored as still images.

- Digital VCR recording of digital images
  Recorded images: 512 × 512, 8 bits (in View Mode)
  Attached information: Patient data and examination data
  Digital fluoroscopic and fluorographic images are recorded in View Mode in the VCR.
  - Fluoroscopy: When optional biplane images are recorded, only frontal plane images are recorded in the VCR, and the lateral plane images are recorded in the Image Memory. The images in the Image Memory are sent to the VCR after fluoroscopy is completed.
  - Fluorography: When optional biplane images are recorded, only frontal plane images are recorded in the VCR, and the lateral plane images are recorded in the high-speed disk. The images in the high-speed disk are sent to the VCR after fluorography is completed.
    Fluorographic images can be recorded in File Mode in the Digital VCR.

- Postprocessing
  - Dynamic image playback
    - Dynamic images are displayed continuously; speed is variable.
    - Still mode; image can be shifted forward or backward.
    - Can be controlled using the Jog/Shuttle on the Main Console or the Joystick on the Table-side Console
  - Dynamic image processing during image playback
    - Spatial filter
    - Gray scale adjustment
    - Auto window for the proper gray scale level
    - Nega/Posi reversal of images
    - Zooming, shifting and rotating
    - Subtraction: Subtraction is performed between the playback image and any mask image.
    - Landmarking: Contrast images with enhanced blood vessels
    - Time interval differential (TID): Sequential subtraction between the images at any desired interval, can be used to trace the flow of contrast medium.
    - Peak pixel: The flow of injected contrast medium is traced at the maximum density.
    - Remasking: Selected images (maximum 64) are added, averaged, and registered as a mask image.
    - Pixel shift: The alignment of the subtraction image is adjusted.
    - Graphic processing of the displayed image and display shutter to eliminate unwanted parts
    - Annotation using letters, arrows, and rulers
    - Scatter correction for contrast enhancement

- Image display
  - The following fluoroscopic and reference images can be displayed on a single roadmap monitor:
    Vertical and horizontal 2-way split display
    Picture-in-picture display
  - The catalog display function provides a multi-image display of the 8 images held in the image memory. This feature makes it easy to select the desired roadmap image, and then the still image can be displayed on the roadmap monitor.
  - It is also possible to generate 2-way and 4-way split displays of reproduced images. The images displayed can be all still images, or can include one dynamic image.
  - Dynamic stereo view on a TV monitor (option)
    Special PLZT glasses are used to observe the acquired stereo images.
  - For playback of the dynamic images stored in the high-speed disk, the catalog display function provides a multi-image display of the 16 images which are still images sampled from the dynamic images.

- Image filing
  - Digital VCR
    Dynamic and still images from the high-speed disk can be recorded using the VCR. Biplane images also can be saved.
    - View Mode recording: 512 × 512, 8 bits
    - View Mode playback: The images played back from the VCR can be displayed directly.
    - File Mode recording: 1024 × 1024 or 512 × 512, 8 bits or 10 bits
    - File Mode playback: The images filed without data loss can be used for postprocessing.
  - Magneto-optical disk (option)
    Still images are recorded for long-term storage.
    Attached information: Patient data and examination data
    Recording frames: Max. 140/side for 1024 × 1024, 16 bits

- Image communication through Ethernet (option)
  This can be performed for dynamic and still images.
  - Data format: ACR-NEMA
  - Communication format: TCP/IP protocol
  - Attached information: Patient data and examination data
  - Communication method: Active transmission and passive reception
  - Communication destination: General-purpose image processing unit

- Image analysis
  The following measurements can be performed during postprocessing.
  - Blood vessel diameter, length of the stenotic portion, and stenotic ratio are measured using the area method and the length method. The results are displayed in a report format with the images.
  - Functional image analysis
    Various parameters are visualized from dynamic images. The parameter curves indicate functions affecting density variation at each pixel.
    - Time to maximum: The density at any point on the resulting image represents the time required to reach the maximum at that point.
    - a% UP(DOWN): The density at any point represents the time required for the a% of the maximum value at that point to increase (decrease).
    - Maximum value: The density at any point represents the maximum value at that point.
    - Average transit time at any point
    - Integration

DIGITAL FLUOROGRAPHY SYSTEM

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- Utility
  - Patient information for a full day can be registered using a personal computer.
    The patient to be examined can be selected from the registered patient list.
  - Examination information such as X-ray exposure conditions and content of imaged processing etc. is added to the recorded images.
  - Registration of Anatomical Program
    Various parameters of the Anatomical Program, such as image acquisition conditions, can be registered.
  - Stopwatch display
    The stopwatch for measuring the elapsed time is displayed.
    - Time display: Max. 59 min 59 s (in seconds)
    - Preset alarm: Max. 59 min 59 s (in seconds)
  - In the optional dual-room operation, one of the rooms is selected to operate digital fluorography.

RELATED ITEMS

- TV camera (CCD type): MTV-500A
- Optical system only for the CCD camera
- High-definition TV monitor
  Aspect ratio: 4:3
  Scan mode: 1050 lines, 60 frames/s, non-interlaced
  - Black & White type
    TVM-150MT, TVM-150MB with 15" CRT
    TVM-170MB with 17" CRT
    TVM-210MT, TVM-210MB with 21" CRT
- Imaging camera
  - Laser imager with video signal input: 1049 lines, 30 frames/s interlaced, aspect ratio 4:3
  - Laser imager with digital signal input: Toshiba standard communication protocol
    This requires the Digital Video Interface. (XIDF018A)
- Digital VCR: SONY DVR-20 or equivalent
- Analog VCR
  - High-resolution type: SONY WBS-700H or equivalent, 1049 lines, 30 frames/s interlaced
  - Standard type: SONY VO-9600H or equivalent, 525 lines, 30 frames/s interlaced
  - Scan converter
    The converter can be used to change format: From 525 lines, 30 frames/s, interlaced, to 1049 lines, 30 frames/s interlaced, or to 525 lines, 60 frames/s non-interlaced.
- Stereo viewer
  - PLZT stereo glasses, or equivalent, for dynamic images
  - Stereo glasses for still images
- Personal computer: Toshiba T-1850, T-1800 or equivalent
- Printer: SEIKO BL-210X or equivalent
- Communication interface for C-arms: XGSM001A
  Digital acquisition images can be linked with the projection angle of the C-arm.
  Compatible C-arms: CAS-10A, CAS-100A, CAS-30B, CAS-110A, CAS-200A, CAS-210A, CAS-210B, CAS-330B, CAS-8000V
- X-ray generator
  KXO-80C, KXO-80D
  KXO-80A, KXO-80B (without cine)
  KXO-200A, DC-200B
- Physiological waveform monitor: Analog signal output and input (–5V to +5V) to the DFP-2000A/A4

DIMENSIONS AND MASS

Unit	Net Dimensions (L × W × H) mm (in)	Mass kg (lb) Approx.
Processing unit	910 × 1,140 × 1,810 (35.8 × 44.9 × 71.3)	640 (1,408)
Main console	280 × 380 × 76.4 (11.0 × 15.0 × 3.00)	4.5 (9.9)
Subconsole	280 × 280 × 76.4 (11.0 × 11.0 × 3.00)	3.0 (6.6)
Table-side console	145 × 280 × 93 (5.7 × 11.0 × 3.7)	3.0 (6.6)
Console control interface box	360 × 410 × 80 (14.2 × 16.1 × 3.1)	10.0 (22.0)
Table-side console control interface	360 × 410 × 80 (14.2 × 16.1 × 3.1)	7.0 (15.4)

INSTALLATION CONDITIONS

Power requirements

- Processing unit

Power supply:	Single-phase 200, 210, 220, 230, 240 V ±10%
Frequency:	50/60 Hz
Capacity:	Normal 5.0 kVA Max. 7.5 kVA

Thermal radiation

- Processing unit

Standard configuration:	Approx. 4.0 kW
Full configuration:	Approx. 6.0 kW

Operating conditions

Temperature:	18°C to 28°C
Relative humidity:	35% to 70% (no condensation)
Altitude:	Not above 3,000 meters

Air-conditioning system is required.

Storage conditions

Temperature:	–5°C to 60°C
Relative humidity:	20% to 80% (no condensation)
Altitude:	Not above 3,000 meters

DIGITAL FLUOROGRAPHY SYSTEM

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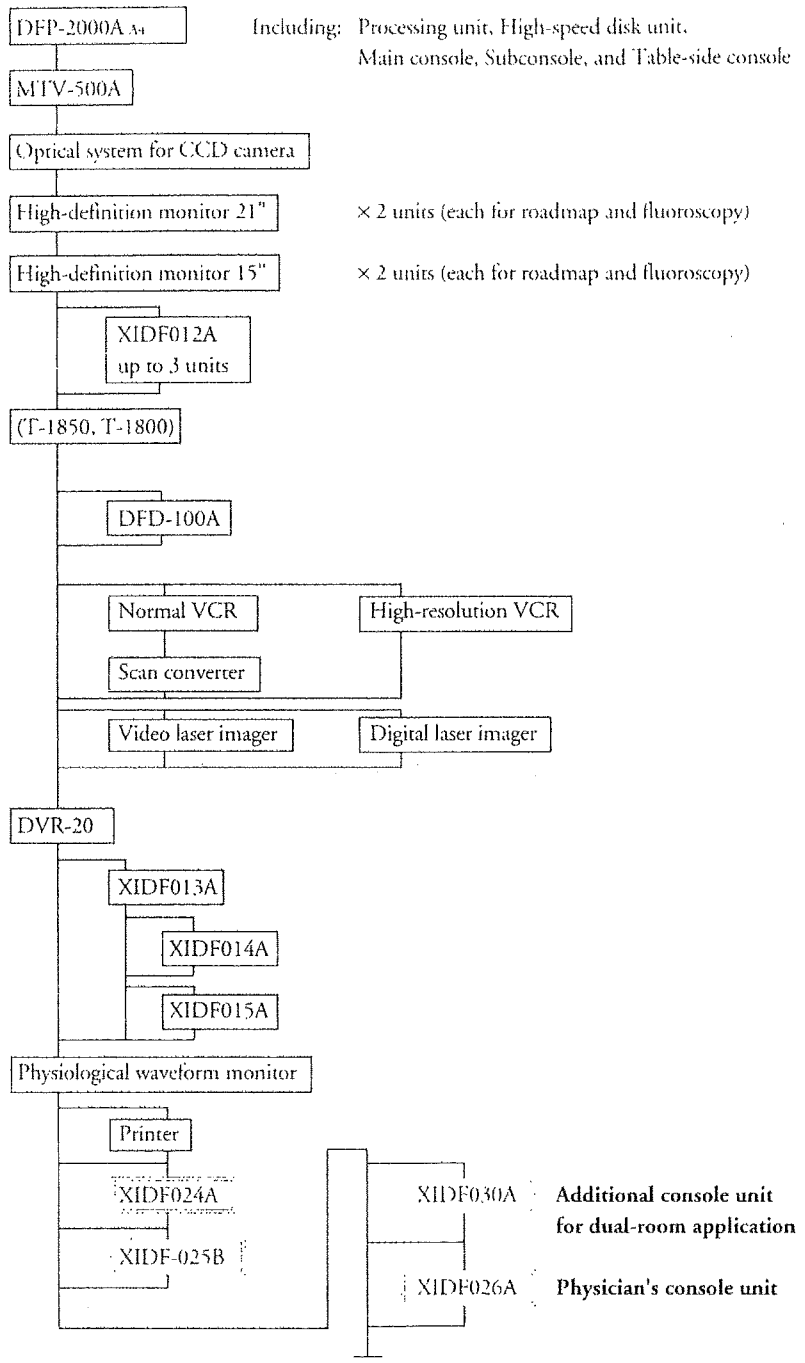
SYSTEM CONFIGURATION

● Basic system



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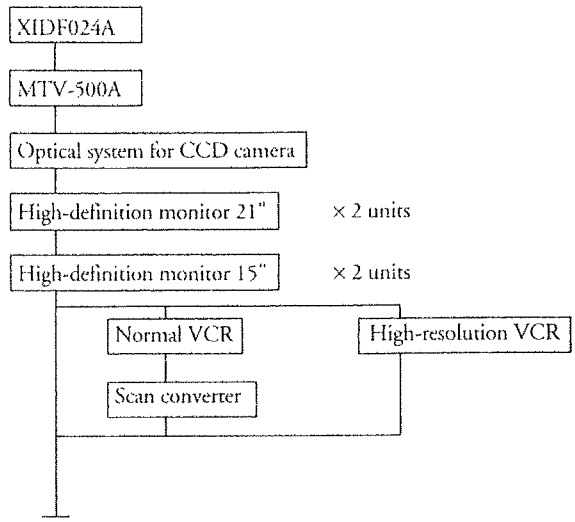
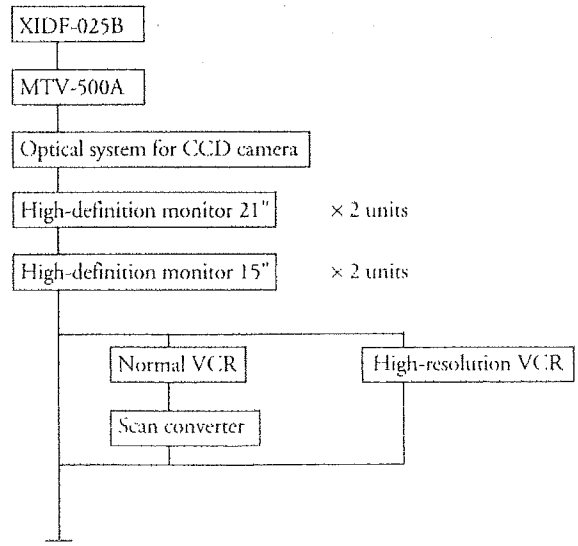
SYSTEM CONFIGURATION

- Biplane expansion
  (Alternating acquisition)



- Biplane expansion
  (High-speed acquisition)



DIGITAL FLUOROGRAPHY SYSTEM

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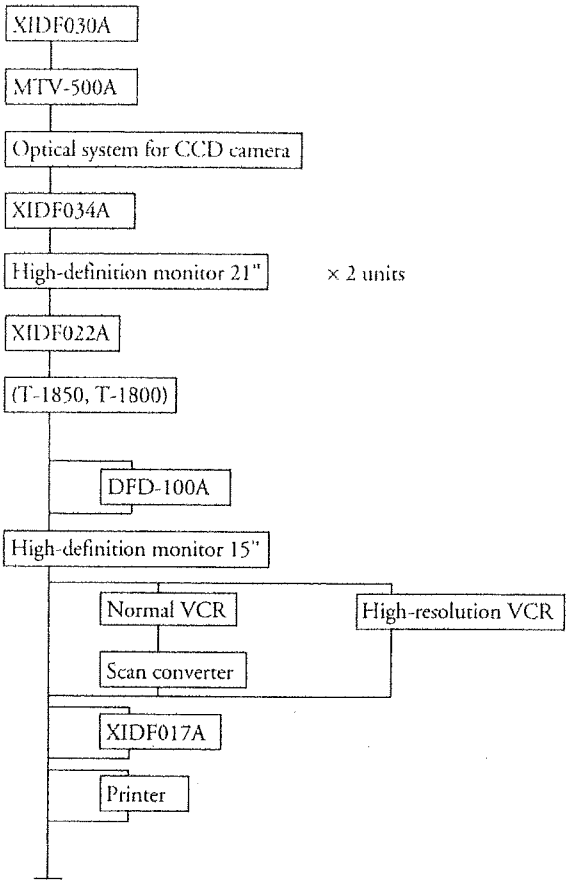
- Console unit for dual-room application



TV camera (CCD type)

Optical system

Booster for long cable

Examination room monitor

Subconsole

Personal computer for inputting patient/ examination information

Console desk

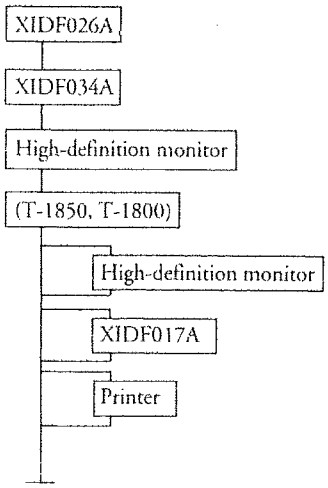
Control room monitor

Normal VCR/High-resolution VCR

Infrared remote control

Printer

- Separate console for analysis (Physician's console)



Physician's console unit

Booster for long cable

Image monitor

Examination information/diagnosis input

Biplane lateral image monitor

Infrared remote control

Printer

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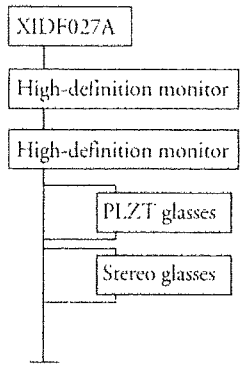
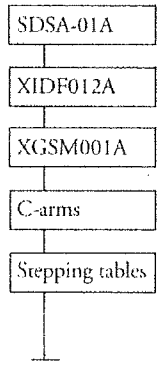
SYSTEM CONFIGURATION

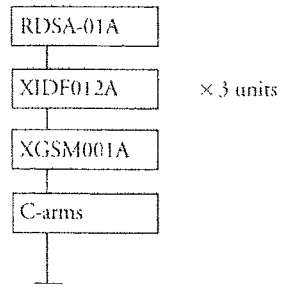
● Stereo DSA application



● Stepping DSA application



● Rotational DSA application



DIGITAL FLUOROGRAPHY SYSTEM

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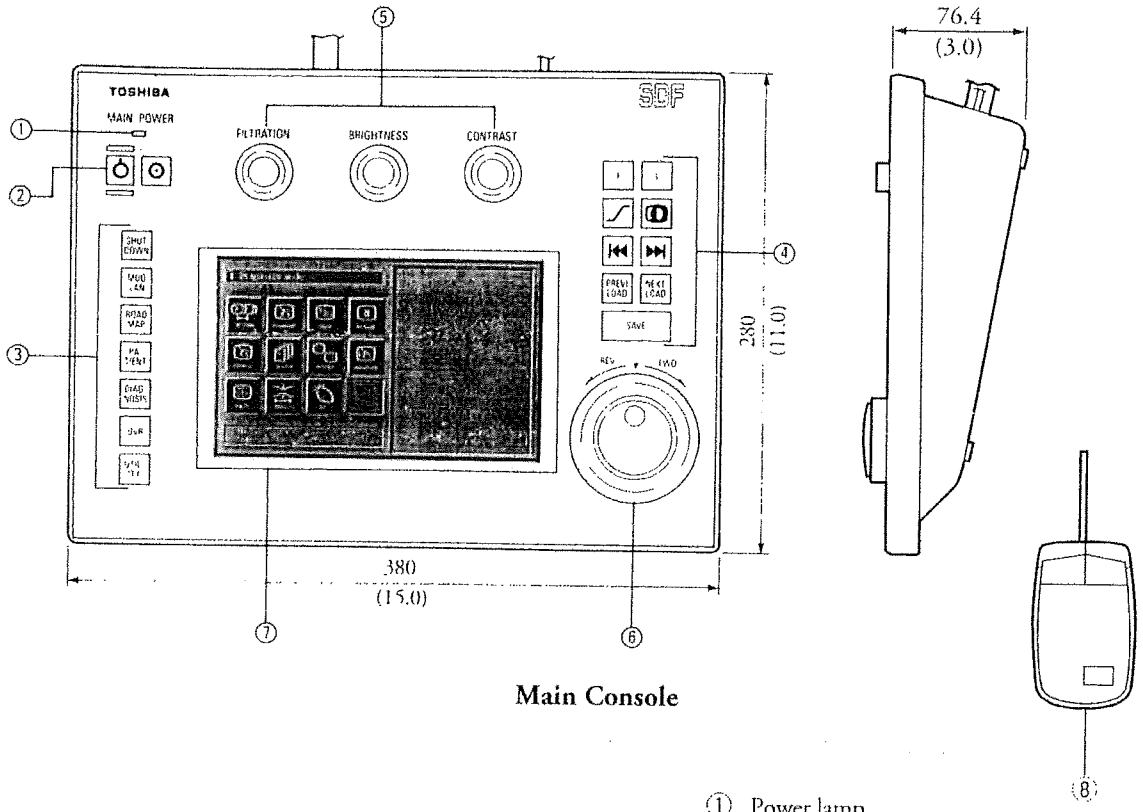
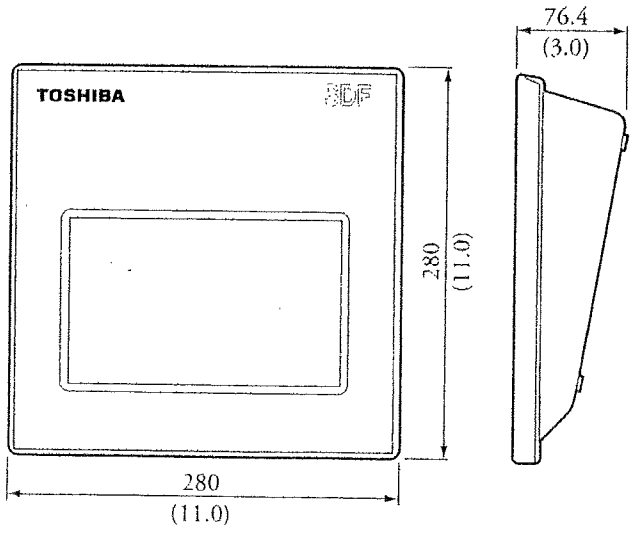
OUTLINE DRAWINGS



Main Console



Subconsole

① Power lamp
② Power switch
③, ④ Function keys
The function keys are sheet type keys and assigned main functions for execution.
The functions are used to control image acquisition, processing, and filing.
⑤ Gray scale adjustment knobs
These knobs adjust the brightness, contrast, and filter for the displayed image except the View Mode image from the digital VCR.
⑥ Jog / shuttle
The shuttle is used to play back dynamic images.
The jog is used to play still images.
⑦ Touch panel
This EL display window with touch switches develops various menus for image processing.
⑧ Mouse
This mouse is used to specify a point on the roadmap monitor using the cursor.

Color: Toshiba standard white
Unit: mm (in)

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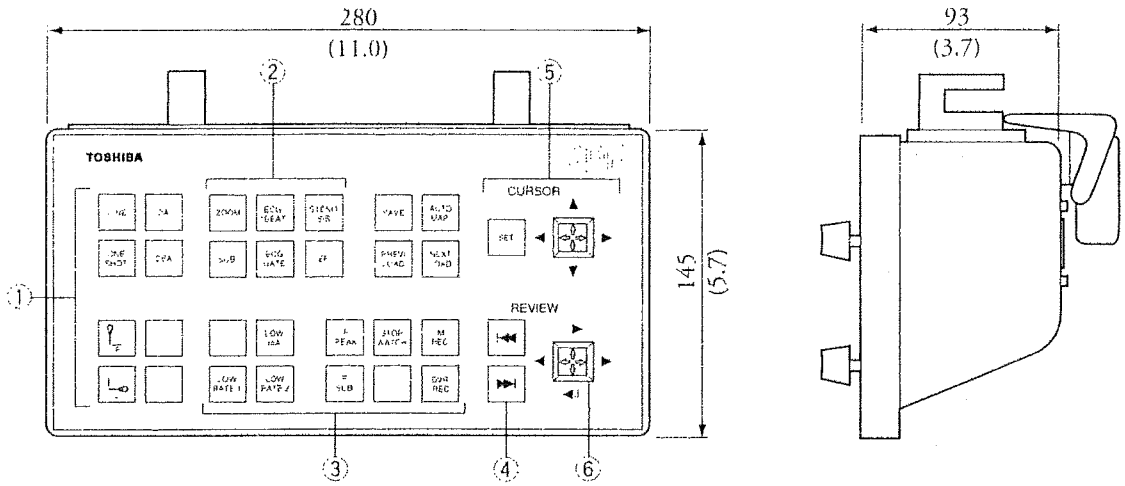
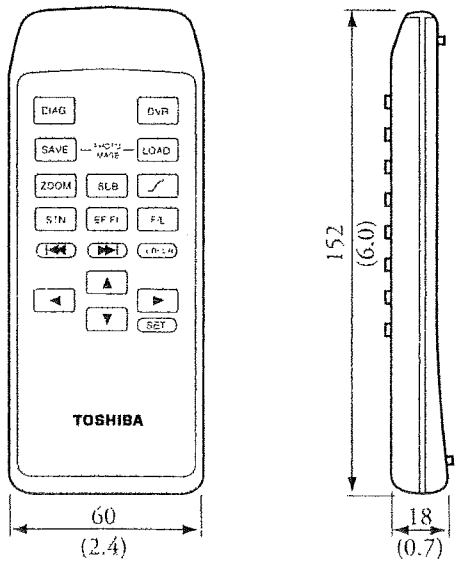
OUTLINE DRAWINGS



The table-side console is installed beside the catheterization table and it is operated directly by operating staff.

① Digital angiography (fluorography) operating keys
② Postprocessing keys
③ Fluoroscopy processing keys
④ Reference image operating keys
⑤ Position selection keys
⑥ Dynamic image playback keys

Table-side Console



Color: Toshiba standard white
Unit: mm (in)

Infrared Remote Control

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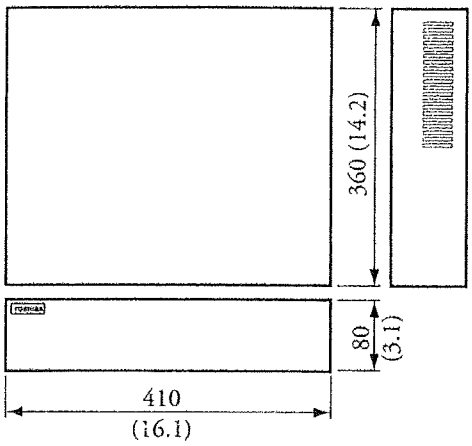
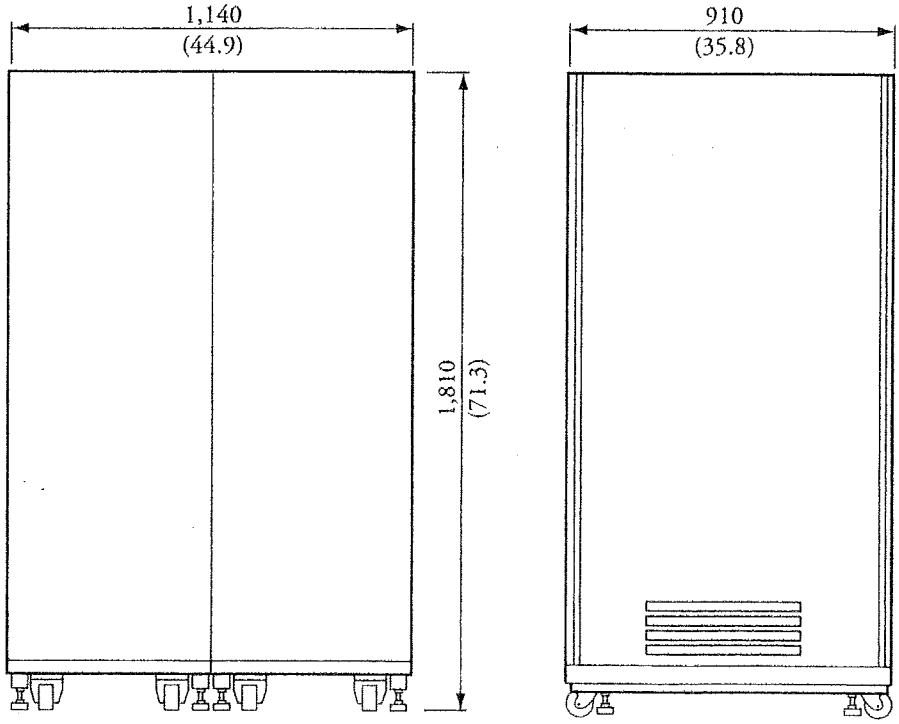
OUTLINE DRAWINGS



Two Interface Boxes for Consoles



Processing Unit

Color: Toshiba standard white
Unit: mm (in)

Product Data
No. **MPDXR0005EAB**

DIGITAL FLUOROGRAPHY SYSTEM

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In Touch with Tomorrow

TOSHIBA

GLOBAL IMAGING ▪ MEDICAL SYSTEMS

TOSHIBA CORPORATION MEDICAL SYSTEMS DIVISION
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95-12 TME / SB Printed in Japan

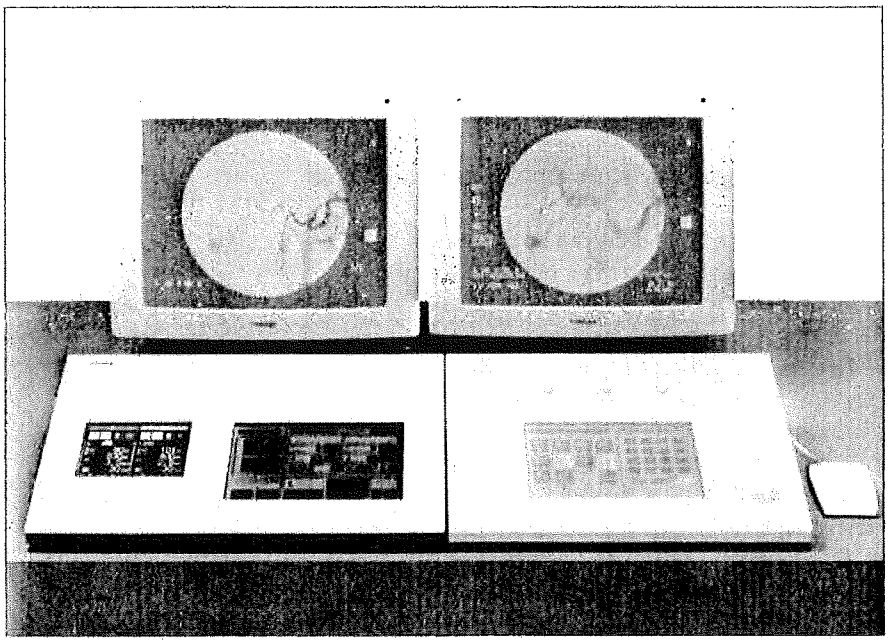
TOSHIBA

Product Data
No. MPDXR0126EAA

X-RAY GENERATOR
KXO-100G

APPLICATION

The KXO-100G is an X-ray generator for X-ray systems for dedicated vascular diagnosis, using an X-ray control inverter system.



FEATURES

- **High-frequency X-ray control inverter system**
  By use of a large-output, high-frequency inverter, a large output capacity of up to 100 kW can be obtained. (100 kV, 1000 mA)

- In fluoroscopy and I.I. photofluorography, automatic control of X-ray conditions, with mAs based control, is executed. Changes in the tube voltage due to the thickness of an object can be suppressed in fluoroscopy, and an image with stable contrast can be obtained.

- **Improvement of system operation**
  The console design is unified with the DF (digital fluorography) system to improve the system operability. When an optional console is combined, the X-ray beam limiting device, compensating filter, and I.I. imaging system can also be operated.

- **Simple operation by the X-ray condition program**
  When X-ray conditions depending on the X-ray exposure technique are simply selected from the program, the preparation is completed. The problem of operating the exposure technique, purpose and sequence, respectively, can be eliminated, and a simple operation is realized.

- **Combination with water-cooling, triple-focus X-ray tube unit**
  The housing cooling capacity is increased 2 times or more (company ratio) compared with conventional air-cooling X-ray tube unit. By combination with this X-ray tube unit, the KXO-100G can be used efficiently for interventional angiography and the throughput is improved. Since no air-cooling fan is used, the noise levels for the patient and the operator are reduced. (Company ratio)
  By combination with the triple-focus X-ray tube unit, a focal size which combines suitably with the X-ray conditions can be selected according to the specific use such as fluoroscopy, cine fluorography, DSA, DA.

- **Use of a cine auto-iris system**
  By using the cine auto-iris, the system sensitivity is controlled, and even in the case of a thick object or imaging from deep angles, control with respect to the contrast of the cine film is achieved.

- **Biplane fluoroscopy by pulse X-rays is possible**
  Since pulsed X-rays and I.I. blanking are used together, biplane fluoroscopy can be performed with a stable image quality which is not affected by mutually scattered X-rays.

COMPOSITION

Standard composition of single-plane system

- Control console 1
- Control cabinet 1
- Power cabinet (high-speed starter built in) 1
- Fluoroscopy control cabinet 1
- System power source cabinet 1
- Side cover for cabinet 1
- Set of accessories 1

Notes:

1. The high-voltage X-ray generator is incorporated in the power cabinet.
2. Up to two X-ray tube units can be combined.
3. The control console serves as a subconsole of the DFP-2000A.

Standard composition of biplane system

To perform biplane angiography, it is necessary to add the biplane unit XKBP-100G in addition to the standard composition of the single-plane system mentioned in the previous section.

- XKBP-100G
  - Power cabinet ..... 1 (high-speed starter built in)
  - Fluoroscopy control cabinet 1
  - Set of accessories 1

Optional items

- Cine camera interface unit: XKCI-100A
  When the unit is connected to the cine camera power unit (NG8 of ARRITECHNO 35R90) with a connector, cine angiography can be performed in connection with it.
- System cabinet: CAB-100A
  The peripheral equipment used in the system is stored in this cabinet.
- Optional console: XKCP-100A (for frontal) XKCP-100B (for lateral)
  This is a console for a cardiac system. With this console, the X-ray beam limiting device, compensating filter, and I.I. imaging system can be operated.
- Optional console: XKCP-110A (for frontal) XKCP-110B (for lateral)
  This is a console for a general system. With this console, the X-ray beam limiting device, compensating filter, and I.I. imaging system can be operated.
- Fluoroscopy control cabinet: XKGC-100A
  Fluoroscopic control by pulsed X-rays is executed. When two X-ray tube units are combined, one fluoroscopy control cabinet is added.
- Fluoroscopic 2-system interface unit: XKWF-100A
  This unit is used for a dual-plane system. When two I.I.s are combined with one X-ray generator, the signal connection with the optical system is switched.

PERFORMANCE SPECIFICATION

Ratings

- High-voltage X-ray generation system: Inverter system
- Fluorographic ratings: 1250 mA, 80 kV (0.1 s)
  1000 mA, 100 kV (0.1 s)
  800 mA, 125 kV (0.1 s)
  630 mA, 150 kV (0.1 s)
- Fluoroscopic ratings: Continuous fluoroscopy, 4 mA, 125 kV
- Nominal maximum power: 100 kW

Fluorographic functions

- Setting of techniques
  - DSA (digital subtraction angiography)
  - DA (digital angiography)
  - One-shot fluorography
  - CINE/DA (digital angiography)

  Note: In addition to the aforementioned, "fluoroscopy" or "cine" can be set. "Cine" can be set when the DF system is not combined or the power source of the DF system is turned off.
- DSA function
  In DSA, continuous fluorography is performed by pulsed X-rays, and fluorographic images are acquired. To perform subtraction, the X-ray conditions are fixed for fluorography. The DSA requires combination with the DF system.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA (Limited by the rating of the X-ray tube unit)
  - Pulse width: 1.0 ms to 100 ms

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- DA function
  The DA function is a function for digitally acquiring images picked up under control of pulsed X-rays. The DA requires combination with the DF system.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA (Limited by the rating of the X-ray tube unit)
  - Pulse width: 1.0 ms to 25 ms
  - Pulse rate: 7.5, 10, 15, 30, 60 exp./s
  - Exposure time: 1 s to 40 s, 1-s step (Limited by the ratings of the DF system and X-ray tube unit)
  - Automatic Brightness Control (ABC) function: The most suitable brightness is automatically set by the ABC function.
    - AUTO mode: The ABC function automatically sets the tube voltage, tube current, and pulse width according to the change in the thickness of the object during fluorography and keeps the film density constant. The tube voltage and tube current are automatically calculated from the fluoroscopic X-ray conditions.
    - LOCK mode: After fluorography starts, the fluorographic conditions can be fixed to the set LOCK delay time. The LOCK delay time is the time required to switch the AUTO mode to the LOCK mode. The LOCK delay time is set by the LOCK delay time setting function. Both the AUTO and LOCK modes can be used to change the system sensitivity (I.I. input dose).
  - Setting of LOCK delay time: 0 to 3 s, 0.5-s step
  - Auto iris control: The iris of the cine camera is automatically opened or closed to control the system sensitivity (I.I. input dose).
- One-shot fluorographic function
  The one-shot fluorographic function is a function for acquiring one digital image by one fluorography during fluoroscopy. This is used to confirm the insertion position of catheters and to observe and record the status during blood vessel dilation operations. The one-shot fluorographic function requires combination with the DF system.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA (Limited by the rating of the X-ray tube unit)
  - Pulse width: 5.0 ms to 100 ms
  - AEC function: The tube voltage and tube current are automatically calculated from the fluoroscopic X-ray conditions and the exposure time is controlled so that the monitor brightness of the acquired images is made constant.
  - Setting of Automatic Exposure Control (AEC) brightness level: The brightness level of the AEC function can be set.
- CINE/DA function
  By combining the DF system, digital images can be acquired during cine angiography. To perform cine angiography, combination with the cine camera interface unit (XKCI-100A), an optional unit, is necessary.
  - Tube voltage range: 50 kV to 125 kV
  - Tube current range: 100 mA to 1250 mA (Limited by the rating of the X-ray tube unit)
  - Pulse width: 1.0 ms to 8.0 ms
  - Frame rate: 15, 30, 60, 90
  - Total time: 1 s to 40 s, 1-s step
  - ABC function: The most suitable brightness is automatically set by the ABC function. The ABC function has the following two modes, AUTO mode and LOCK mode.

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– AUTO mode: The ABC function automatically sets the tube voltage, tube current, and pulse width according to changes in the object during fluorography, and keeps the film density constant. The tube voltage and tube current are automatically calculated from the fluoroscopic X-ray conditions.

– LOCK mode: After fluorography starts, the fluorographic conditions can be fixed to the set LOCK delay time. The LOCK delay time is the time required to switch the AUTO mode to the LOCK mode.
The LOCK delay time is set by the LOCK delay time setting function. Both the AUTO and LOCK modes can be used to change the system sensitivity (setting of the I.I. input dose).

- Setting of LOCK delay time: 0 to 3 s, 0.5-s step
- Auto iris control: The iris of the cine camera is automatically opened or closed to control the system sensitivity (I.I. input dose).

– Setting of film density: The setting of the film density can be changed.

- Fluorographic range
The fluorographic conditions of each fluorography are automatically set. However, the fluorographic conditions of each fluorography within the following ranges can be set manually. The fluorographic condition ranges which can be set manually may be limited by the X-ray tube unit to be combined.
  - Fluorographic tube voltage setting range: 50 kV to 125 kV, 2-kV step
  - Fluorographic tube current setting range: 10, 20, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 630, 800, 1000, 1250 mA
  - Exposure time setting range: 1.0, 1.3, 1.6, 2.0, 2.5, 3.2, 4.0, 5.0, 6.3, 8.0, 10, 13, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 320, 400, 500, 630, 800, 1000 ms
  - mAs usable range
    – One-shot fluorography: From 0.5 mAs to 125 mAs
    – DSA fluorography: 500 mAs max.
- Selection of X-ray tube unit
Up to two X-ray tube units can be used. When a fluorographic technique is selected, the X-ray tube unit to be used is automatically selected. The combination of the fluorographic technique and the X-ray tube unit to be used, is set at the time of installation.
- Selection of focal size
A combination of a tube current and focal size is set at the time of installation. Therefore, a focal size is automatically selected in correspondence with a tube current. Focal size can be selected manually.
Focal size can be set in a fluorographic program. When a program is selected, a focal size is automatically selected.

Fluoroscopic functions

- Fluoroscopy (continuous fluoroscopy)
  - Fluoroscopic tube voltage range: 50 kV to 125 kV
  - Fluoroscopic tube current range: to 4 mA (The minimum tube current which is manually set is 0.5 mA.)
  - Setting of fluoroscopic time
    – Setting range: 1 min to 5 min (1-min steps)
    – Function: A buzzer rings 30 seconds before the set time. When the set time elapses without resetting, the fluoroscopy is cut off.

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– Reset method: The reset button is displayed on the console screen 30 seconds before the set time. When this reset button is pressed, the buzzer and fluoroscopic set time can be reset.

- Cumulative fluoroscopic time: Up to 199 minutes can be cumulated. The cumulative time can be reset to 0 minutes by the reset button on the console screen.
- ABC function: The ABC function automatically sets the tube voltage or the tube voltage/tube current according to the thickness of an object during fluorography and keeps the monitor brightness constant. The function can change the system sensitivity (setting of the I.I. input dose).
- Setting of ABC brightness level: The brightness level of the ABC function can be set.

- Pulsed fluoroscopy functions
  - Tube voltage range: 50 kV to 110 kV
  - Peak tube current range: to 50 mA
    - Pulse width: 1.0 ms to 13.3 ms (Limitd by the repetitive pulse rate)
    - Repetitive pulse rate: 1, 2, 3.75, 7.5, 15, 30 exp./s
- ABC function: The ABC function automatically sets the tube voltage or the tube voltage/tube current according to the thickness of an object during fluorography and keeps the monitor brightness constant. A function to change the system sensitivity (setting of the I.I. input dose) is available.
- Setting of ABC brightness level: The brightness level of the ABC function can be set.
- Cumulative pulsed fluoroscopic time: Up to 199 minutes can also be cumulated during pulsed fluoroscopy in the same way as with fluoroscopy (continuous fluoroscopy).
- Fluoroscopy mode: There is a normal fluoroscopy mode and a high dose HLC mode available, with the HLC mode limiting the dose to 5.16×10^{-3} C/kg (20 R/min). (USA, HHS requirement)

Automatic exposure control function

- Applicable fluorographic technique: One-shot fluorography
- System combination
  - No. of combination detectors: Up to 2 detector systems can be combined.
  - System combination

Detector	Fluorographic technique	Description of detector	Additional unit
1 detector system	One-shot fluorography	I.I. photo detector	–
2 detector systems	2 one-shot fluorography systems	2 I.I. photo detector systems	Fluoroscopic 2-system interface unit

- Shortest exposure time: 3 ms
- Nominal shortest exposure time*1: 5 ms
  *1: Shortest exposure time satisfying the reproducibility and stability of radiation dose
- Reproducibility*2: CV ≤ 0.045
  *2: Coefficient of variation of X-ray dose in 10 continuous radiography passes
- Setting of film density: The film density can be set in 9 steps including the standard density.
- Display of real exposure time: At the end of fluorography, the real exposure time is displayed.

Fluorographic condition programming function
Settings of fluorographic techniques and conditions can be programmed beforehand and selected according to the X-ray diagnostic system to be used.

- Programming conditions
  Conditions which can be programmed beforehand are as follows. Necessary conditions are programmed for each fluorographic technique.
  - Single-plane, biplane system
  - Fluorographic tube voltage
  - Fluorographic tube current
  - Exposure time (exposure timer)
  - AEC, manual
  - Selection of AUTO mode
  - Film density
  - Exposure time (continuous exposure time)
  - Fluorographic speed (/second)
  - Focal size
  - Tube No. of X-ray tube unit
- No. of programs
  Up to 128 types of program can be registered. That is, 48 types of program in the cardiac mode of cine radiography or others, and 80 types of program in the angio mode of DSA or others. The result of changing each condition is registered as a program. With respect to a registered program, the key position can be changed according to the use frequency.

System control function
The following operations can be performed by the control console of the KXO-100G.

- Operation of opening or closing the X-ray beam limiting device (the rectangular blades and compensating filter)*
- I.I. size selecting operation*
- Injector interlocking operation
- VCR interlocking operation

*: Each operation is performed by the optional console.

Display of X-ray tube anode heat storage (HU)
A change in the maximum anode heat storage of the selected X-ray tube unit is displayed on the color indicator (bar graph).

Error detection function
When an error occurs in any function in the equipment, the equipment makes a self diagnosis. As a result of the diagnosis, when the error is unrecoverable or minor errors are detected continuously, the equipment displays an error. When the function is not reusable, the equipment displays and indicates it. The equipment function can be returned by the reset operation.
Various types of information such as the error occurrence date and radiographic conditions are automatically stored and can be read as service information during inspection.

RELATED ITEMS

- Triple-focus water cooling X-ray tube unit
  - 1300 kJ (1800 kHU): DRX-T7445GDS
    DRX-T7345GDS
    DRX-T7235GDS
  - 1065 kJ (1500 kHU): DXB-G15345
- Dual-focus X-ray tube unit
  - 1065 kJ (1500 kHU): DXB-G1535
    DXB-G1534
- DF system: DFP-2000A series
- Typical C-arm support unit: CAS-8000V series
  CAS-10A/CX
- Typical catheterization table: CAT-350B
  CAT-350B/CX
- Cine camera: ARRITECHNO 35R90
- Injector: MARK-V
  ANGIOMAT 6000
- VCR: SVO-9500MD

X-RAY GENERATOR

KXO-100G

DIMENSIONS AND MASS

	Net Dimensions W × D × H mm (in)	Mass kg (lb) (Approx.)
Control console	440 × 280 × 83 (17.3 × 11.0 × 3.3)	5 (11)
Control cabinet	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	110 (242)
Power cabinet	1,145 × 461 × 2,312 (45.1 × 18.1 × 91.0)	450 (990)
Fluoroscopy control cabinet	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	270 (594)
System power source cabinet	572 × 461 × 2,312 (22.5 × 18.1 × 91.0)	350 (770)
Optional console	150 × 280 × 83 (5.9 × 11.0 × 3.3)	1.5 (3.3)

INSTALLATION CONDITIONS

Power requirements

- Normal line voltage: Three-phase, AC 380/400/415/440/480 V
- Power frequency: 50/60 Hz
- Allowable line voltage fluctuation rate (no load): Within nominal line voltage ±10%
- Allowable line impedance: 380 V, 0.08 Ω or less
  400 V, 0.09 Ω or less
  415 V, 0.09 Ω or less
  440 V, 0.10 Ω or less
  480 V, 0.12 Ω or less
- Rating of distribution breaker: 380/400/415/440/480 V 100 A
- Recommended distribution transformer capacity: 100 kVA or larger

Grounding

Grounding must be provided in compliance with all applicable legal requirements for medically used electrical equipment.

Transport and storage conditions (while packed)

- Ambient temperature: −10°C to 60°C
- Relative humidity: 30% to 85% (no condensation)
- Atmospheric pressure: 70 kpa to 106 kpa

Operating conditions

- Ambient temperature: 5°C to 40°C
- Relative humidity: 30% to 85% (no condensation)
- Atmospheric pressure: 70 kpa to 106 kpa

Requirements for operation

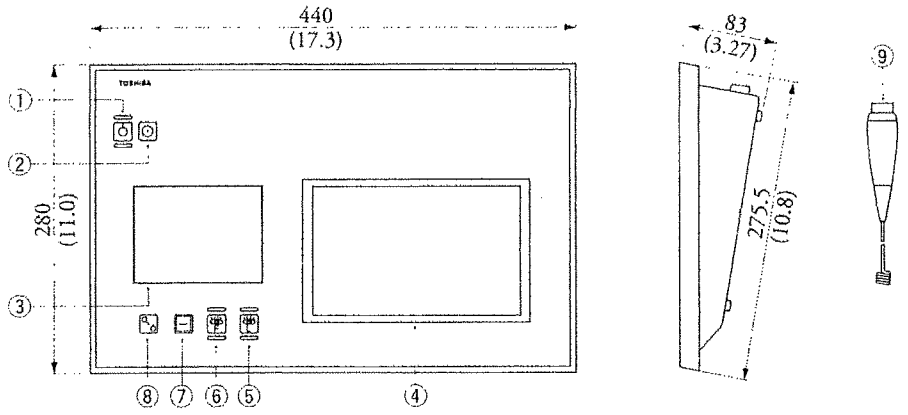
Do not use the equipment in the following situations or places:

- Exposure to harmful gasses
- Exposure to steam
- In the vicinity of splashing water
- Dusty or sandy
- Excessively steamy
- Exposure to salt air
- Exposure to explosive gasses or dust
- Subjected to excessive vibration or shock
- On a steep incline
- Abnormal changes in voltage supply
- Excessive drops in voltage supply during loading
- Direct sunlight

COMPLIANCE

- IEC60601-1 (1988) (General), Amendment 2 (1995)
  IEC60601-1-2 (1993) (EMC)
  IEC60601-2-7 (1987) (X-ray generators)
- USA HHS requirement

OUTLINE DRAWINGS



Control console

① Power OFF switch:
This switch turns the KXO-100G off.
The combined support unit, catheterization table, and monitor suspension unit are also turned off. The DF system is not be turned off.

② Power ON switch:
This switch turns the KXO-100G on.
The combined support unit, DF system, catheterization table, and monitor suspension unit are also turned on.

③ LCD display panel:
The panel displays the status of the X-ray system.

④ EL/touch panel:
The panel sets and displays various conditions such as radiographic conditions and radiographic techniques.

⑤ Lateral system fluoroscopy ON switch:
When the optional console is used, fluoroscopic X-ray exposure is performed using the fluoroscopy ON switch of the optional console.

⑥ Frontal system fluoroscopy ON switch:
When the optional console is used, fluoroscopic X-ray exposure is performed using the fluoroscopy ON switch of the optional console.

⑦ Main window display switch:
The switch changes the window displayed on the EL/touch panel.

⑧ Shutdown switch:
When turning the equipment off, the switch selects the shutdown function. When the power is turned off by the shutdown function, data is automatically saved in the memory.

⑨ X-ray exposure hand switch:
The switch is of a two-stage type. The first stage is a READY switch and the second stage is an X-ray exposure switch.

Unit: mm (in)

X-RAY GENERATOR
KXO-100G

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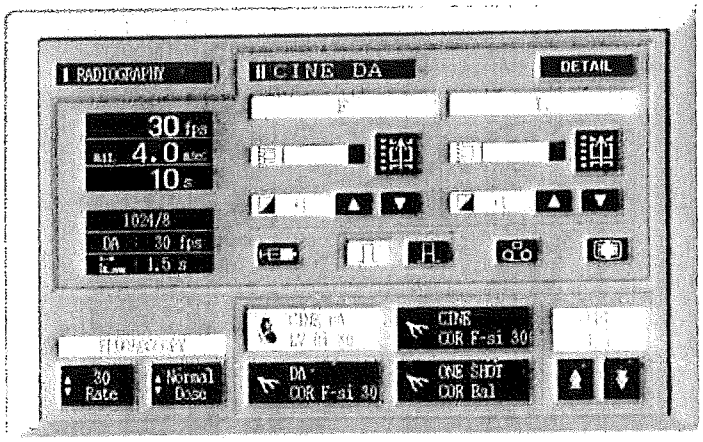
OUTLINE DRAWINGS

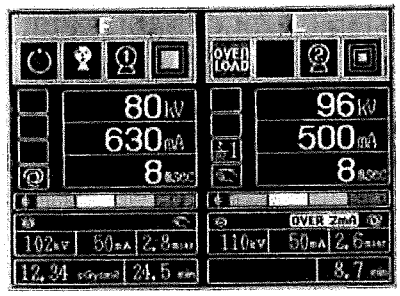


Display example (CINE/DA window)

EL/touch panel

The panel sets and displays various conditions such as fluorographic conditions and techniques. When the switch on the panel is touched softly, the target function and conditions can be set.
Functions which can be set are shown below.

- Selection and display of fluorographic technique
- Display of fluorographic conditions
- Selection and display of frontal or lateral system
- Setting and display of fluorographic conditions
- Setting and display of fluoroscopic conditions
- Selection of fluorographic program
- Display of image acquisition conditions
- Selection of injector interlocking or non-interlocking
- Selection and display of VCR interlocking
- Selection of X-ray tube focus
- Warning display and reset function



Display example (Biplane system)

LCD display panel

The LCD display panel displays the status of the X-ray system. The panel displays fluorographic X-ray conditions and fluoroscopic X-ray conditions in realtime.
Functions which can be displayed are shown below.

- X-ray preparation completion
- X-ray exposure
- Selected X-ray tube unit
- Focal size
- X-ray tube unit anode heat storage
- Cumulative fluoroscopic time
- Dose area product*
- Fluoroscopic excessive irradiation prevention warning
- X-ray conditions
- Fluoroscopic conditions
- Automatic or manual selection of fluorographic or fluoroscopic conditions
- X-ray system status and display of message

*: When a dose area product meter is connected, the output data of the dose area product meter is displayed.

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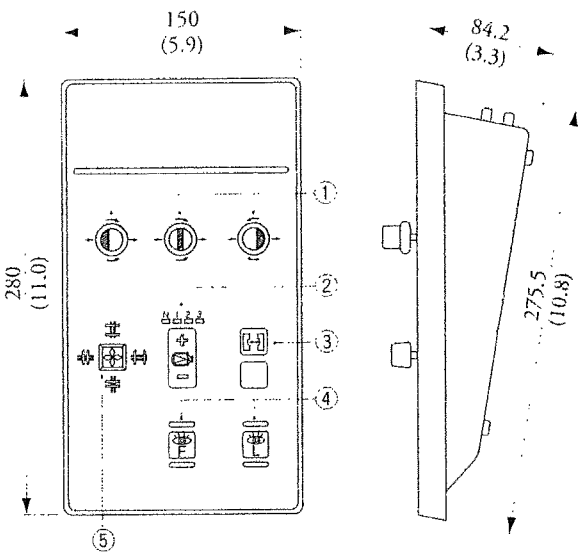
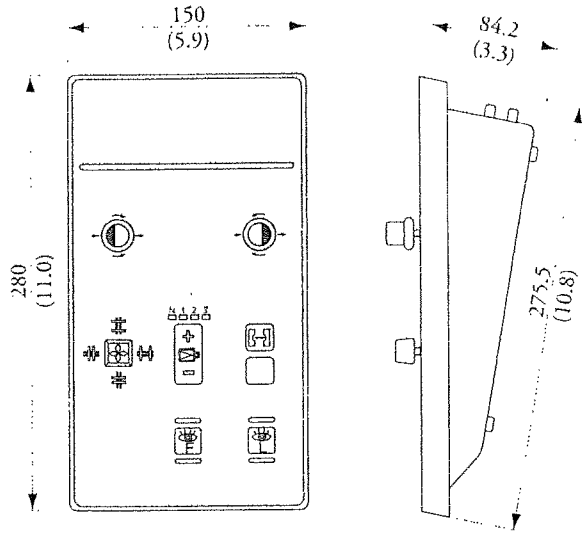
OUTLINE DRAWINGS



Optional console for general angiography



Optional console for cardiac angiography

The optional console is an operation panel for the combined I.I. and X-ray beam limiting device.

① Compensating filter operation switch:
The switch rotates or opens or closes the compensating filter.

② I.I. size selection switch:
The switch selects the I.I. size.

③ Compensation filter left-right interchanging switch:
When the left and right compensation filters are interchanged, the heart type or straight type can be selected.

④ Fluoroscopic X-ray exposure switch:
- F display side:
  Fluoroscopic X-rays of the frontal system
- L display side:
  Fluoroscopic X-rays of the lateral system

F and L can be interchanged according to the arrangement of the display monitor.

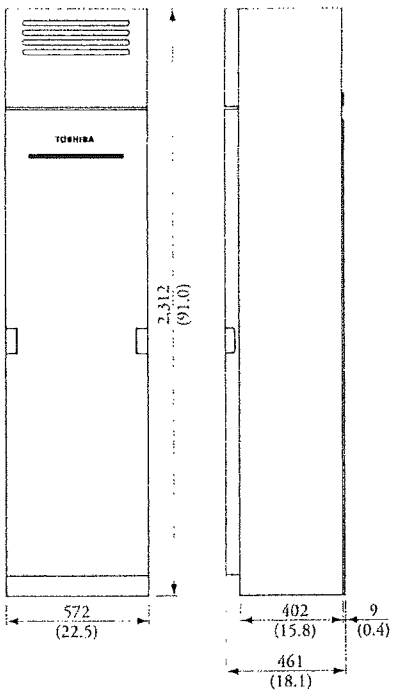
⑤ Rectangular blades operation switch:
The switch opens or closes the rectangular blades.

Unit: mm (in)

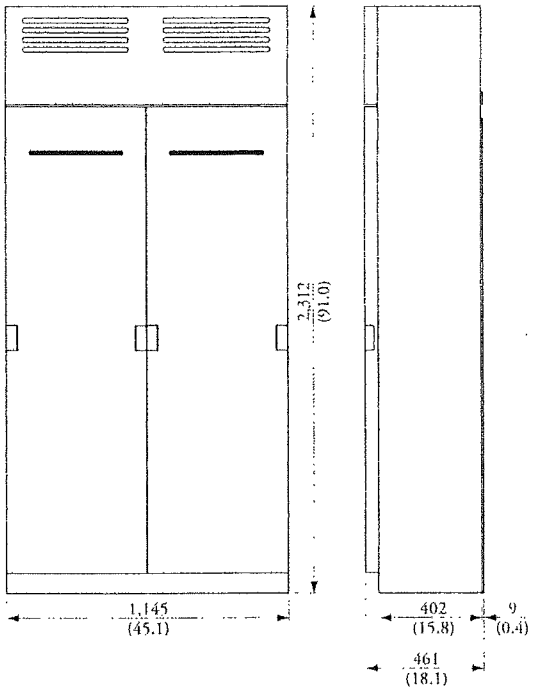
X-RAY GENERATOR

KXO-100G

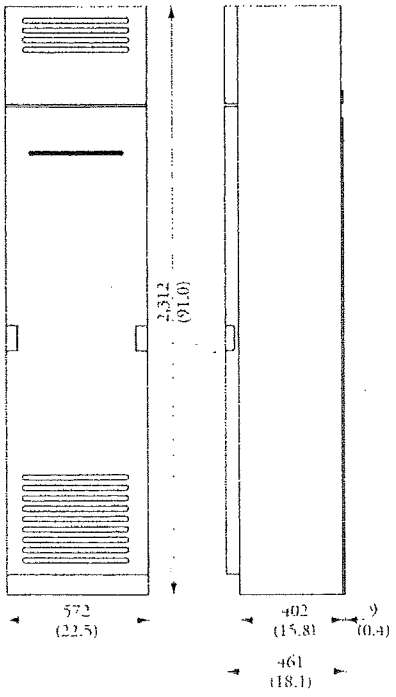
OUTLINE DRAWINGS



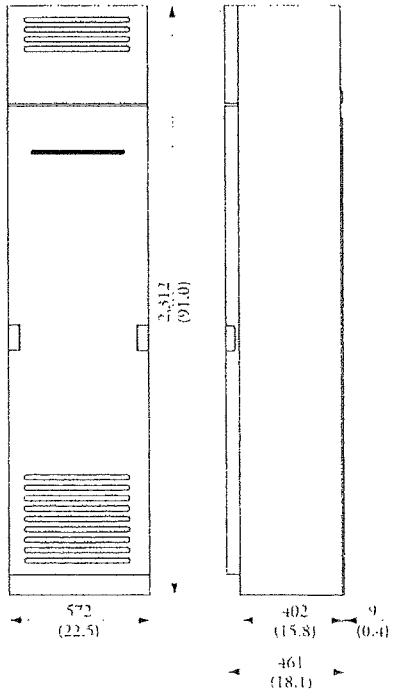
System power source cabinet



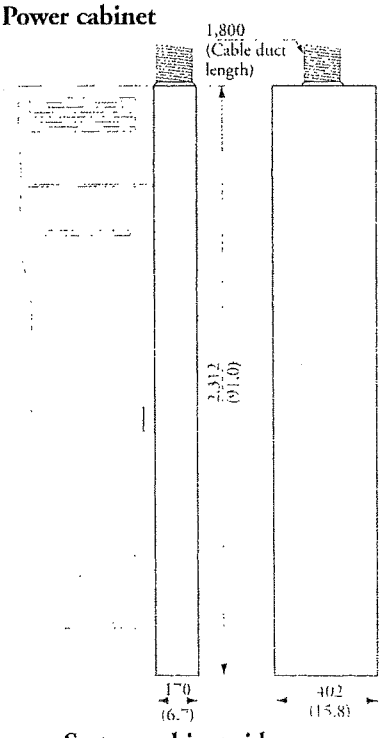
Power cabinet



Fluoro. control cabinet



Control cabinet



System cabinet side cover

Unit: mm (in)

Product Data
No. MPDXR0126EAA

X-RAY GENERATOR
KXO-100G

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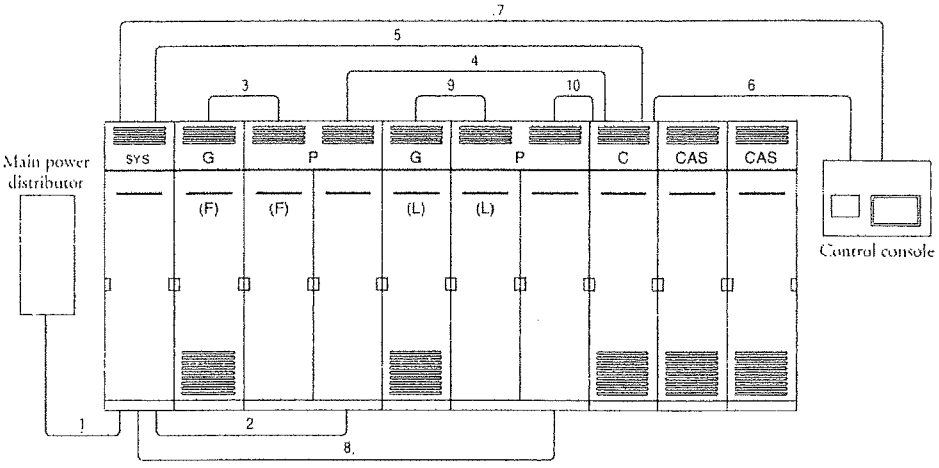
WIRING DIAGRAM



Wiring diagram of KXO-100G (Biplane system)

Cable specification

No.	◇Class	Cable termination (1) Component	Cable termination (1) End terminal	Cable termination (2) Component	Cable termination (2) End terminal	Outside diameter (mm)	Core	Length (virtual) (m)
1 – 1	P	Main power distributor Power, Earth terminal	M8 ring tongue terminal	SYS. Cabinet TB1, Earth terminal	M6 ring tongue terminal	34.4	4	10 (9.3)
2 – 1	P	SYS. Cabinet TB2, Earth terminal	M6 ring tongue terminal	P. Cabinet TB, Earth terminal	M6 ring tongue terminal	34.4	4	3.5 (1.7)
3 – 1	S	P. Cabinet TB2	M4 ring tongue terminal	G. Cabinet TB3	M4 ring tongue terminal	9.4	2	5 (2.0)
3 – 2	S	P. Cabinet Earth terminal	M6 ring tongue terminal	G. Cabinet Earth terminal	M6 ring tongue terminal	5.2	1	5 (2.0)
3 – 3	S	P. Cabinet ×36	20 pin connector	G. Cabinet CNN8	20 pin connector	10.4	20	5 (1.6)
3 – 4	S	P. Cabinet ×15	8 pin connector	G. Cabinet CNN3	8 pin round connector	6.9	2	5 (1.6)
3 – 5	S	P. Cabinet HRU Tank	High-voltage plug	G. Cabinet GCU Tank	High-voltage plug	19.0	3	5 (0.5)
4 – 1	S	P. Cabinet ×13	Optical fiber connector	C. Cabinet OPT2	Optical fiber connector	6.0	1	6 (3.3)
4 – 2	S	P. Cabinet ×15	Optical fiber connector	C. Cabinet OPT1	Optical fiber connector	6.0	1	6 (3.3)
5 – 1	S	SYS. Cabinet TB3	M4 ring tongue terminal	C. Cabinet TB1	M4 ring tongue terminal	9.4	2	8 (5.3)
5 – 2	S	SYS. Cabinet Earth terminal	M6 ring tongue terminal	C. Cabinet Earth terminal	M6 ring tongue terminal	5.2	1	8 (5.3)
6 – 1	S	C. Cabinet TB1	M4 ring tongue terminal	Console CNN1	3 pin round connector	6.9	2	25 (24.3)
6 – 2	S	C. Cabinet Earth terminal	M6 ring tongue terminal	Console Earth terminal	M6 ring tongue terminal	5.2	1	25 (24.3)
6 – 4	S	C. Cabinet CNN1	80 pin connector	Console CNN3	80 pin connector	9.9	80	25 (24.0)
7 – 1	S	SYS. Cabinet TB1 (PSQ PWB)	M3 ring tongue terminal	Console CNN2	9 pin D-sub	7.1	5	25 (23.5)
8 – 1	P	SYS. Cabinet TB2, Earth terminal	M6 ring tongue terminal	P. Cabinet (L) TB, Earth terminal	M6 ring tongue terminal	34.4	4	5.5 (3.7)
9 – 1	S	P. Cabinet (L) TB2	M4 ring tongue terminal	G. Cabinet (L) TB1	M4 ring tongue terminal	9.4	2	5 (2.0)
9 – 2	S	P. Cabinet (L) Earth terminal	M6 ring tongue terminal	G. Cabinet (L) Earth terminal	M6 ring tongue terminal	5.2	1	5 (2.0)
9 – 3	S	P. Cabinet (L) ×36	20 pin connector	G. Cabinet (L) CNN8	20 pin connector	10.4	20	5 (1.6)
9 – 4	S	P. Cabinet (L) ×15	8 pin connector	G. Cabinet (L) CNN3	20 pin round connector	6.9	2	5 (1.6)
9 – 5	S	P. Cabinet (L) HRU TANK	High-voltage plug	G. Cabinet (L) GCU TANK	High-voltage plug	19.0	3	5 (0.5)
10 – 1	S	P. Cabinet (L) ×13 (P-CIF)	Optical fiber connector	C. Cabinet OPT2 (XPIF-L)	Optical fiber connector	6.0	1	6 (3.3)
10 – 2	S	P. Cabinet (L) ×15 (P-CIF)	Optical fiber connector	C. Cabinet OPT1 (XPIF-L)	Optical fiber connector	6.0	1	6 (3.3)

SYS. Cabinet: System power source cabinet
P. Cabinet: Power cabinet
G. Cabinet: Fluoroscopy control (Grid control) cabinet
◇Class: P (Power) and S (Signal) cables should be distinguished at the time of installation.

* for Biplane system

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GLOBAL IMAGING ■ MEDICAL SYSTEMS

TOSHIBA CORPORATION MEDICAL SYSTEMS DIVISION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN PHONE: 3457-3273 FAX: 5444-9345 TELEX: J22587 TOSHIBA

98-06 TME / SB Printed in Japan

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QUOTATION/ORDER
ORDER SUMMARY

DATE: 10/05/99 QUOTE NO. 18438

PRESENTED TO: (COMPLETE LEGAL NAME)

UNION MEMORIAL HOSPITAL
600 HOSPITAL DRIVE
MONROE, NC. 28110

DELIVER TO:

UNION MEMORIAL HOSPITAL
600 HOSPITAL DRIVE
MONROE, NC. 28110

EQUIPMENT SUMMARY:

#INFINIX DP	**UNIVERSAL DUAL POSITIONER 100G**
CAS-10A/CX	C-ARM FLOOR MOUNTED
RTP9211J-G11	TUBE,IMAGE INTENSIFIER 9-7-4.5
304303T3	SHIELD,60X80CM,3M TRK CAS-8000
DRX-T7445GDS	TUBE,X-RAY 1800KHU .3/.5/.8
CAT-350B/DP	TABLE,CPU CONTROL,W/STEP PIVOT
SDSA-01A	MODULE,DSA STEPPING
RIDGES-PLUS	FILTER SET,COMPENSATION
RDSA-01A	MODULE,ROTATIONAL DSA
XIDF012A	MEMORY,IMAGE 64MB
XIDF012A	MEMORY,IMAGE 64MB
XIDF012A	MEMORY,IMAGE 64MB
KXO-100G	HIGH FREQUENCY X-RAY GENERATOR

This quotation shall remain valid for days (not to exceed 60 days) from date of submission. All prices are F.O.B. Tustin, California.

Payment terms for Therapy, CT, MRI and X-ray equipment are: Cash - 10% down payment, 70% upon shipment, 20% net 30 days after shipment or upon availability for first use by purchaser, whichever comes first.

Payment terms for Nuclear, Ultrasound and Mobile X-ray equipment are: Cash - 10% down payment, 90% net 30 days after shipment or upon availability for first use by purchaser, whichever comes first.

Additional terms and conditions of this quotation appear on reverse side hereof.

ACCEPTED, AGREED AND ORDERED:

CUSTOMER REQUESTED DELIVERY DATE: _____

_____ TOSHIBA REP / CONTACT

_____ DATE

_____ PURCHASER'S SIGNATURE / TITLE

_____ DATE

_____ DISTRICT SALES MANAGER

_____ DATE

NTS 0501

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EQUIPMENT SUMMARY: (continued)

XKCP-110A	CONSOLE,AP	
XKWF-100A	FLUOROSCOPIC DUAL I/F	
XKGC-100A	FLUOROSCOPY CONTROL CABINET	
MTV-500A/CX	CAMERA,TV CCD 1024	
MTV-500A/XL	CCD TV CAMERA 1024^2	
SFXL-001A	KIT,CONTRAST ENHANCEMENT	
CENH-001A	KIT,CONTRAST ENHANCEMENT	
TVM-150MT/W1	MONITOR,TV,15"/1125/1:1	
TVM-150MT/W1	MONITOR,TV,15"/1125/1:1	
SMM21103L	MONITOR,21" GREYSCALE	(quantity 2)
CAS-8000V(DPU)	C-ARM,ANGIO	
BLA-800A	COLLIMATOR,ANGIO	
MSI-40A	SUSPENSION,4 MONITORS	
RTP16301J-G1E/A	IMAGE INTENSIFIER 16-12-9-6"	
XGTS-16I/8K	SWITCH,SAFETY W/GRID	
DRX-T7235GDS	TUBE,X-RAY,1800KHU .3/.8/1.2	
CLX-80798-1	MODIFICATION KIT	
DFP-2000A/CU	PROCESSOR,DIGITAL FLUOROGRAPHY	
TOSH-101592	COMPUTER,LAPTOP & ACCESSORIES	

SES-055

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EQUIPMENT SUMMARY: (continued)

810T-05161PM-01	DISK,HIGH SPEED,16GB
XIDF-061A/U1	TABLESIDE CONTROL UNIT
XIDF037A	HARDWARE,DYNAMIC DICOM OUTPUT
XIDF038A	CD-R PUBLISH AND REVIEW
XIDF-056A	SOFTWARE,DYNAMIC DICOM I/F
CDPU-LAYOUT-SS	SITE LAYOUT TO BE DETERMINED

SES-055

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COMPONENT DESCRIPTION :

CAS-10A/CX **C-ARM FLOOR MOUNTED**

RTP9211J-G11 **TUBE,IMAGE INTENSIFIER 9-7-4.5**

9/7/4.5" Advanced Super Metal Image Intensifier

Features:

* *High Resolution: 46 LP/CM Minimum at 9" Mode*
* *High QDE Input Screen: 85%*
* *High Conversion Efficiency: 200{(DC/M²)/(MR/S)} Minimum*
* *High Contrast Ratio: 30:1*

304303T3 **SHIELD,60X80CM,3M TRK CAS-8000**

This is a ceiling mounted Radiation Shield measuring 60 x 80 cm. The shield travels along a 3m ceiling mounted track. The center column is 30 inches long. Recommended for CAS-8000 Series.
Consisting of:

* *300-CEN-68CM (1) Radiation Shield, 60x80cm*
* *303-T3C (1) Support Assy, 3m Track w/Carriage*

(Note: A Surgical Light can be added at additional cost.)

DRX-T7445GDS **TUBE,X-RAY 1800KHU .3/.5/.8**

1.8 MHU 0.3/0.5/0.8 Triple Focus Water-Cooled X-Ray Tube for 9" II

Features:

* *Grid Switched Water-Cooled*
* *MAX kV* *125kV*
* *Focal Spot* *0.3/0.5/0.8MM*
* *MAX Ratings* *20/49/98kW*

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* *Target Angle*	*8°*
* *MAX Anode Heat Storage*	*1800 kHU*
* *MAX Cooling Rate Anode*	*337 kHU/min*
* *MAX Cooling Rate Housing*	*253 kHU/min*
* *Anode Rotation*	*9700 rpm*
* *Heat Exchanger*	*Water-Cooled*

* *Requires Additional Items Ordered Separately:*

HEX-119	*Water Cooling Unit*
HCM-150GCS/30A	*High Voltage Cables 30M*
HEX-60354A	*Water Hose 40M (or HEX-60353A 30M)*
Tube Cover Kit	

HEX-119	**WATER COOLING UNIT**
HEX-60354A	**HOSE,WATER,40M**
XGTC-002A/WT	**KIT,WATERTB COVER CAS-10A/100A**
HCM-150GCS/30A	**HT CABLE,GC WATER TUBE,30M**
CAT-350B/DP	**TABLE,CPU CONTROL,W/STEP PIVOT**

Catheterization Table for the Cardiac, Cerebral, Abdominal, and Peripheral Areas, and DSA Stepping

Features:

* *The Tabletop is made of Carbon Fiber Reinforced Plastic, CFRP*
* *The Flat Surface of the Tabletop Makes it Easy for The Operator to Lay the Patient on and Remove him from the Tabletop*
* *Micro-Processor Controlled*
* *Extended Longitudinal Movement Stroke of the Tabletop allows the Table to be used with a Multi-Purpose X-Ray System for*

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several radiographic techniques
* *Sliding Movements of the Tabletop (Manual)*
  - *Longitudinal Stroke 1500mm (59")*
  - *Lateral Stroke ±125mm (4.9")*
* *Vertical Movement of Tabletop (Motor-Driven)*
  - *790mm (31.1") to 1200mm (47.2") (From Floor Level)*
* *Step-Sliding Movements for Peripheral Angiography*
  - *DSA Stepping Mode: 160 to 220mm (6.3" to 8.7") x Max. 7 steps; the sliding distance can be set automatically by storing the area of interest in memory.*
  - *220mm (8.7") x 4 Steps. The Stroke of one step can be adjusted at the time of Installation*
* *Tabletop Rotation (Manual Pivot)*
  - *Rotation Range +180° to 0°, 0° to -90°*
* *Standard Accessories:*
  - *Tabletop Mat*
  - *Tabletop Control Handle*
  - *Foot Switch*
  - *Drip Infusion Stand*
  - *Lower Limb Patient Band*

SDSA-01A **MODULE,DSA STEPPING**

Features:

* *Image size:*	*1024 x 1024; 10 bits*
* *Image rate (fps):*	*3.75, 2.5, 1/2, 1/5*
* *Stages:*	*8 (7 steps)*
* *Speed:*	*1.7 sec/step*
* *Stroke:*	*160 mm (6.3 in.) minimum*
	220 mm (8.7 in.) maximum
* *Maximum sweep:*	*1550 mm (61.0 in.)*
* *Three sweeps:*	*Set up exposures at fluoro dose levels (Abdomen to feet)*
	Mask acquisition (Feet to abdomen)
	DSA exposures (Abdomen to feet)

* *User controls stepping during bolus chase*
* *DSA images displayed in real time*

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RIDGES-PLUS **FILTER SET,COMPENSATION**

Set of seven Silicone Rubber Compensating Filters for digital subtraction arteriography of the lower extremities. Includes two velcro straps and three foam cushions.

RDSA-01A **MODULE,ROTATIONAL DSA**

Features:

* *Image size:*	*1024 x 1024; 8/10 bits*
* *Image rate (fps):*	*Up to 30 fps*
* *Modes:*	*Single plane or biplane*
* *Three sweeps:*	*Set up exposure at fluoro dose levels*
	Mask acquisition (same path as test acquisition)
	DSA exposures (return rotation)

XIDF012A **MEMORY,IMAGE 64MB**

Extra Image Memory
** Capacity of Image Memory can be Expanded up to 320MB by 64MB.*
512^2, 8bit, 30fps, 1120fr, 37sec
1024^2, 8bit, 30fps, 280fr, 9sec

XIDF012A **MEMORY,IMAGE 64MB**

Extra Image Memory
** Capacity of Image Memory can be Expanded up to 320MB by 64MB.*
512^2, 8bit, 30fps, 1120fr, 37sec
1024^2, 8bit, 30fps, 280fr, 9sec

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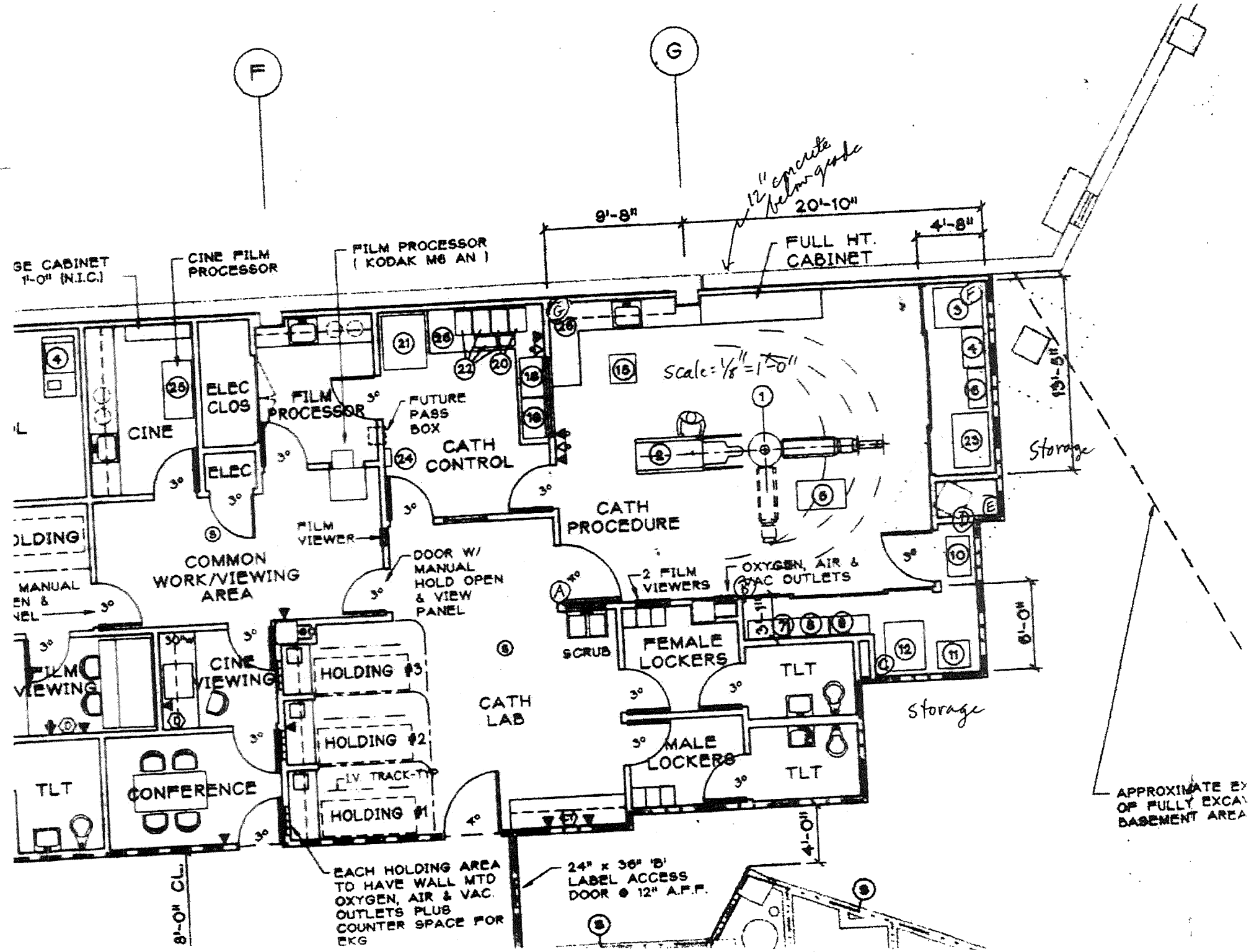
F
G
GE CABINET 1'-0" (N.I.C.)
CINE FILM PROCESSOR
FILM PROCESSOR (KODAK M6 AN)
9'-8"
12" concrete below grade
20'-10"
4'-8"
FULL HT. CABINET
Scale: 1/8" = 1'-0"
CINE
ELEC CLOS
ELEC
FILM PROCESSOR
FUTURE PASS BOX
CATH CONTROL
CATH PROCEDURE
Storage
15'-5"
FILM VIEWER
DOOR W/ MANUAL HOLD OPEN & VIEW PANEL
COMMON WORK/VIEWING AREA
2 FILM VIEWERS
OXYGEN, AIR & VAC OUTLETS
SCRUB
FEMALE LOCKERS
TLT
MALE LOCKERS
TLT
6'-0"
Storage
FILM VIEWING
CINE VIEWING
HOLDING #3
HOLDING #2
I.V. TRACK-TYP
HOLDING #1
CATH LAB
TLT
CONFERENCE
4'-0"
8'-0" CL.
EACH HOLDING AREA TO HAVE WALL MTD OXYGEN, AIR & VAC. OUTLETS PLUS COUNTER SPACE FOR EKG
24" x 36" 'B' LABEL ACCESS DOOR @ 12" A.F.F.
APPROXIMATE EX
OF FULLY EXCA
BASEMENT AREA

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XIDF012A **MEMORY,IMAGE 64MB**

Extra Image Memory
** Capacity of Image Memory can be Expanded up to 320MB by 64MB.*
512², 8bit, 30fps, 1120fr, 37sec
1024², 8bit, 30fps, 280fr, 9sec

XBAR110A **ARMREST SET**

XBHG150A **HANDGRIP SET**

KXO-100G **HIGH FREQUENCY X-RAY GENERATOR**

100kW DC Output High Frequency X-Ray Generator

** Control Console*
** Control Cabinet*
** Power Cabinet with High-Speed Starter*
** Fluoroscopy Control Cabinet*
** System Power Source Cabinet*

Features:

** Radiographic Rating of 1250mA at 80kV, 1000mA at 100kV, 800mA at 125kV and 630mA at 150kV*

** Pulsed Fluoroscopy available at pulse rates of 1, 2, 3.75, 7.5, 15, 30 exposures/second.*

** Record mode and low dose mode fluoroscopy available.*

** Generator control/display console integrates with optional digital control.*

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XKCP-110A	CONSOLE,AP
XKWF-100A	FLUOROSCOPIC DUAL I/F
XKGC-100A	FLUOROSCOPY CONTROL CABINET
BSX12-1173	PCB,ARCNET
BSX12-1152	CABLE,SIO/CPU
MTV-500A/CX	CAMERA,TV CCD 1024

1024 Matrix CCD Camera

Features:

* *High Resolution 1024 Matrix CCD*
* *10 Bit Digital Output*
* *Including Recursive Filter w/ Motion Detection and Edge-Enhancement in Digital*
* *Automatic Gain Control and Shading Compensation for Analog Output for Fluoro Display*
* *60 dB S/N Ratio at 1050 Lines Progressive Scan, 70 dB S/N Ratio at 525 Lines Progressive Scan*
* *5-year warranty on the camera-head*

MTV-500A/XL	CCD TV CAMERA 1024^2

1024 Matrix CCD Camera

Features:

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* *High Resolution 1024 Matrix CCD*
* *10 Bit Digital Output*
* *Including Recursive Filter w/ Motion Detection and Edge-Enhancement in Digital*
* *Automatic Gain Control and Shading Compensation for Analog Output for Fluoro Display*
* *60 dB S/N Ratio at 1050 Lines Progressive Scan, 70 dB S/N Ratio at 525 Lines Progressive Scan*
* *5-year warranty on the camera-head*

SFXL-001A **KIT,CONTRAST ENHANCEMENT**

CENH-001A **KIT,CONTRAST ENHANCEMENT**

TVM-150MT/W1 **MONITOR,TV,15"/1125/1:1**

15" High Resolution Monitor

Features:

* *Auto-Scanning Method to Match 1050 Lines 60Hz Non-Interlace Images, 1049 Lines 60Hz Interlaced Images, 525 Lines 60Hz Non-Interlaced Images and 525 Lines 120Hz Non-Interlaced Images.*
* *4:3 Aspect Ratio or 1:1 Aspect Ratio set at Installation.*
* *Flat Screen and Uniform focus Characteristics over the entire Screen*
* *Automatic Brightness Control with Optical Sensor for the Lighting Level of the Room.*
* *Tilting Base*

TVM-150MT/W1 **MONITOR,TV,15"/1125/1:1**

15" High Resolution Monitor

Features:

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* *Auto-Scanning Method to Match 1050 Lines 60Hz Non-Interlace Images, 1049 Lines 60Hz Interlaced Images, 525 Lines 60Hz Non-Interlaced Images and 525 Lines 120Hz Non-Interlaced Images.*
* *4:3 Aspect Ratio or 1:1 Aspect Ratio set at Installation.*
* *Flat Screen and Uniform focus Characteristics over the entire Screen*
* *Automatic Brightness Control with Optical Sensor for the Lighting Level of the Room.*
* *Tilting Base*

SMM21103L (2) MONITOR,21" GREYSCALE

21" High Resolution, High Luminance Monitor

Features:

* *High Contrast and Brightness/High Resolution CRT*
* *Microprocessor control of all internal monitor functions*
* *Ambient light sensor for automatic contrast control*
* *Constant Gamma for equal grayscale performance in multi-monitor configurations, also over complete lifetime*
* *Formats are selected and modified through the RS232 serial port*
* *1600 x 1280 addressability standard*
* *Scan range of 30 to 93 kHz horizontal and 50 to 120 Hz vertical*

CAS-8000V(DPU) C-ARM,ANGIO

BLA-800A COLLIMATOR,ANGIO

Automatic Collimator for Rad/Fluoro/DSA

* *Remote-Control and Manual*
* *Programmable*
* *Circular (Head) filtration, and straight edge filtration*
* *Rectilinear filter for extremities (Changeable)*

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** All filters translate and rotate 360° for easy positioning*
** Projection Lamp*

XGMR-010A **RAIL,MONITOR SUPPORT**

MSI-40A **SUSPENSION,4 MONITORS**

Ceiling Suspended Monitor Support

** Holds four 21" Toshiba monitors*

RTP16301J-G1E/A **IMAGE INTENSIFIER 16-12-9-6"**

XGTS-16I/8K **SWITCH,SAFETY W/GRID**

DRX-T7235GDS **TUBE,X-RAY,1800KHU .3/.8/1.2**

1.8 MHU 0.3/0.8/1.2 Triple Focus Water-Cooled X-Ray Tube for 16" I.I.

Features:

* Grid Switched Water-Cooled	
* MAX kV	125kV
* Focal Spot	0.3/0.8/1.2MM
* MAX Ratings	16/57/112kW
* Target Angle	12.5°
* MAX Anode Heat Storage	1800 kHU/min
* MAX Cooling Rate Anode	337 kHU/min
* MAX Cooling Rate Housing	253 kHU/min
* Anode Rotation	9700 rpm
* Heat Exchanger	Water-Cooled

* Requires Additional Items Ordered Separately:
HEX-119 Water Cooling Unit

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HCM-150GCS/30A High Voltage Cables 30M
HEX-60354A Water Hose 40M (or HEX-60353A 30M)
Tube Cover Kit

HCM-150GCS/30A	HT CABLE,GC WATER TUBE,30M
HEX-60354A	HOSE,WATER,40M
HEX-119	WATER COOLING UNIT
XGTC-008A/WT	KIT,WATER TUBE COVER 8000V
CLX-80798-1	MODIFICATION KIT
XIDF021A	KIT,UNIVERSAL USE

Universal Use Expansion Kit 3
** Both Cardiac and Angio Applications can be Performed with this Kit.*
** For C Series Processors, an additional Sub-Console XIDF022A (DSA Console) must be Ordered as well.*
** This Kit can be Applied to C3U, C4U, A3U.*

XIDF018A I/F,DIGITAL TO LASER

Digital Video Interface between Laser Imager and DFP-1000A/2000A

#CU-60(SP)PAK2 TDC-3000/CU(SP) DIGITAL

Toshiba Digital Cardiac SDF System (High Performance System)
Consisting of:

SI-5055

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* *DFP-2000A/CU : Digital Fluorography Unit*
* *High Speed Acquisition Kit*
* *Laptop Computer and Accessories*
* *CONCEPT-8105/4 : 16GB High Speed Disk 4GB Parity*
* *Desk : 50"L x 30"W*

Features:

* *1024 Matrix CCD Camera Digital Acquisition and Output*
* *PTCA Assist:*
  Roadmap Images and Stenosis Sizing Table Side with Auto Boundary
* *Display at 1050 Lines 60 FPS Progressive*
* *60,30,15 FPS Acquisition at 512 x 512 x 8/10 Bits (High Speed C3 Kit enables 60 FPS)*
* *15 FPS Acquisition at 1024 x 1024 x 8/10 Bits*
* *16,000 Images On-line Disk Storage (16GB) for 1024 x 1024*
* *Note: Providing an upgrade path to C4 requires that site preparation meets all C4 requirements.*
* *Options not available with CU:*
  - *Room 2 Expansion (XIDF030A)*
  - *Physician's Room Console (XIDF026A)*

DFP-2000A/CU	PROCESSOR,DIGITAL FLUOROGRAPHY
XIDF033A	KIT,HIGH SPEED C3
TOSH-101592	COMPUTER,LAPTOP & ACCESSORIES
XTOSH-785-15B	CABLE,COMMUNICATION,15'
2150-ES	DRIVE,STREAMER TAPE

For use by Service for loading system software. This is not an image archive device.

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XTOSH-57S	CABLE SET,STREAMER TAPE
810T-05161PM-01	DISK,HIGH SPEED,16GB
T5133	DESK,SDF
XIDF-061A/U1	TABLESIDE CONTROL UNIT
XIDF037A	HARDWARE,DYNAMIC DICOM OUTPUT

Hardware, Dynamic DICOM Output, Fast EtherNet: 100base-T

XIDF038A	CD-R PUBLISH AND REVIEW

CD-R Publish and Review

For combination only with XIDF037A.
Allows for publishing and review of patient studies on CD-R in ACC-DICOM format.

XIDF-056A	SOFTWARE,DYNAMIC DICOM I/F

Software, Dynamic DICOM Interface, Fast EtherNet: 100base-T

For combination with XIDF037A only.
In combination with XIDF037A, allows for high-speed transfer of dynamic vascular studies over Fast EtherNet.

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600 HOSPITAL DRIVE
MONROE, NC. 28110

CDPU-LAYOUT-SS	SITE LAYOUT TO BE DETERMINED	
	LIST PRICE:	**$ 1,545,000.00**
	NET SALE PRICE:	**$ 989,000.00**

PURCHASER		TOSHIBA REP/CONTACT	
INITIALS	DATE	INITIALS	DATE

In Touch with Tomorrow
TOSHIBA

GLOBAL IMAGING ▪ MEDICAL SYSTEMS

QUOTATION/ORDER
ORDER DETAIL

PTS NO. 134001

PRESENTED TO:

DATE: 10/05/99 QUOTE NO. 18438
PAGE 14

UNION MEMORIAL HOSPITAL
600 HOSPITAL DRIVE
MONROE, NC. 28110

** OPTIONS **

NL-001 LASER CAMERA INPUT	add	$9,800.00
PCDU-100VL CONDITIONER,LINE FOR KXO-100G	add	$20,800.00

Notice: PCDU accepted/declined at this time. (Must circle one.)

I understand if declined, I will be able to purchase the PCDU at quoted price through equipment turnover and that the dollars will be incremental to this particular order.

Customer Initials _____

PURCHASER		TOSHIBA REP/CONTACT	
INITIALS	DATE	INITIALS	DATE

In Touch with Tomorrow
TOSHIBA

GLOBAL IMAGING ■ MEDICAL SYSTEMS

QUOTATION/ORDER
ORDER DETAIL

PTS NO. 134001

PRESENTED TO:

DATE: 10/05/99 QUOTE NO. 18438
PAGE 15

UNION MEMORIAL HOSPITAL
600 HOSPITAL DRIVE
MONROE, NC. 28110

** ADDENDUM **

NOTE: A LASER CAMERA INTERFACE IS INCLUDED WITH THE MAIN SYSTEM QUOTATION. THE LASER CAMERA INPUT IS QUOTED AS AN OPTION IN CASE IT IS REQUIRED.

THE POWER CONDITIONER IS NOT REQUIRED FOR A STANDARD INSTALLATION. THE HOSPITAL POWER CONDITION TO BE DETERMINED. PRODUCTS OF THIS NATURE ARE AVAILABLE FROM OTHER VENDORS.

PURCHASER	
INITIALS	DATE

TOSHIBA REP/CONTACT	
INITIALS	DATE

Section Two

Payment Terms:
0% down with purchase order, 80% due upon delivery, 20% due upon acceptance.

Terms of Acceptance:
Customer must reject or accept any equipment purchased under this Agreement, no later than ten (10) days following Toshiba's completion of installation. Customer may reject the equipment only if it fails to meet the manufacturer's specifications. If the equipment is rejected, Toshiba will proceed to correct any non-conformity. Upon Toshiba's completion of the corrective work, Customer will have another 10-day period to either accept or reject the equipment. Customer's acceptance or rejection must be made in writing. If Customer fails to either accept or reject the Equipment within such 10-day period, Customer will be deemed to have accepted the Equipment. Once Customer provides Toshiba with a rejection notice, it may not use the equipment for clinical purposes. If Customer uses the equipment, Customer will be deemed to have accepted the equipment notwithstanding delivery of a rejection notice. "Acceptance Date" will be the earlier of (i) the date the equipment is accepted or (ii) the date of first clinical use, or (iii) the expiration of the initial 10-day or subsequent acceptance period if Customer does not either reject or accept the equipment in writing."

Substitution:
Toshiba America Medical Systems will deliver the most current product available at the time of shipment, based on the requirements set forth in the RFP and reflected in the purchase order. Should a new product or component become available prior to shipment that is part of the purchase order, Toshiba will provide same to customer at no additional charge. If availability occurs after delivery, the upgrade will be offered to CHS at the same discount off list price as the original purchase agreement. The current Infinix DP System is in the beginning stages of it's latest iteration and no upgrades are available at this time.

Representation:
Toshiba America Medical Systems corporate offices are located in Tustin, CA. The Southern Region Office is located in Duluth, GA. Sales support originates from Asheville, NC and Fayettville, NC. Service support originates from numerous points in NC. with the closet being Waxhaw, Charlotte, Salisbury, Pinehurst, Durham, Raleigh, Hickory and Columbia, SC.

Toshiba will draw from all available personnel to respond to emergency within the time specified in the proposed Service Agreement. Emergency service is easily reached by calling the TAMS Assist Center.

CAROLINAS HEALTHCARE SYSTEM
MATERIALS MANAGEMENT

PROPOSAL ACKNOWLEDGMENT AND AUTHORIZATION FORM

The undersigned hereby acknowledges that he/she, as an officer of the stated corporation, has read and understands the specifications, requirements, terms, conditions and proposed agreement regarding the Request For Proposal. He/she further acknowledges that the bidder's proposed equipment, materials and services fully meet or exceeds those as specified in the Request for Proposal. Additionally, the bidder agrees that all its bid documents and responses to the Request For Proposal will, at the option of the Carolinas HealthCare System, become a legally binding and essential part of the final contract between the bidder and the Carolinas HealthCare System.

Signature: _____

Printed Name: Richard A. Gorglione

Title: Account Executive

Company: Toshiba America Medical Systems

Upon completion of this document, please fax to the attention of Michael Rush.

TERMS AND CONDITIONS OF SALE

1. **GENERAL TERMS.** Unless otherwise specified on the face of this document, this Quotation/Order ("Agreement") will remain valid only if accepted by Customer no later than 60 days from date of submission to Customer

2. **TITLE AND RISK OF LOSS.** Unless otherwise specified on the face of this document, title and risk of loss to the Equipment purchased under this Agreement will pass to Customer (a) if Toshiba is to provide installation, upon Toshiba's completion of installation, or (b) if Toshiba will not provide installation, upon delivery by Toshiba to a common carrier at Toshiba's facility from which the Equipment is shipped.

3. **TERMS OF PAYMENT.** Unless otherwise specified on the face of this document, prices stated are F.O.B. Tustin, California or other facilities of Toshiba in the U.S.A. from which the Equipment may be shipped, freight prepaid and charged. All taxes which are levied on or payable by Toshiba in connection with the sale, use, or possession of the Equipment to or by the Customer (excluding income taxes), and transportation charges (including rigging) for the shipment to installation site will be paid by the Customer in addition to the quoted price. Terms of the payment for Therapy, C.T., Nuclear, and X-Ray will be cash - 10% upon execution of this Agreement, 70% upon delivery, balance due upon completion of installation and/or availability for first use, whichever is earlier. Terms of payment for Ultrasound and Mobil X-Ray will be cash - 10% upon execution of this Agreement, 90% NET upon completion of installation and/or availability for first use, whichever is earlier. All invoices paid after due date will be assessed a late payment charge of the lesser of 1 1/2% per month or the maximum rate permitted by law.

4. **DELAYS.** With the exception of Ultrasound and Mobile X-Ray products, if Customer changes the scheduled delivery date specified on the face of this document ("Scheduled Delivery Date") during the period of 120 days preceding such date, Customer will nevertheless pay the 70% installment of the purchase price payable upon delivery, on the Scheduled Delivery Date as if delivery had been made on such date. In addition, Customer will pay all extra costs incurred by Toshiba as a result of such delay, including, without limitation, storage and transportation. Storage fees will be charged at commercially comparable rates for storage on Toshiba's site. If delivery is delayed by 12 months or more from the Scheduled Delivery Date, through no fault of Toshiba, the price set forth in this Agreement may be increased by Toshiba to a level equal to the higher of the prevailing price in effect at the time of the revised delivery date or 1 percent (1%) per month (or portion of it) for each month (or portion of it) that delivery is delayed. However, such 12-month period will be tolled for any days during which the delay in delivery is caused solely by Toshiba.

5. **ACCEPTANCE BY TOSHIBA.** This Agreement will not be binding on Toshiba unless and until it is accepted by Toshiba as evidenced by the signature of an authorized representative of Toshiba on the face of this document. Toshiba's acceptance is expressly made conditional upon Customer's assent to the terms and conditions contained in this document. All different or additional terms and conditions which may be contained in Customer's bid documents, purchase order or any other documents furnished by Customer are hereby objected to and deemed material unless accepted in writing by an authorized representative of Toshiba. Toshiba will give Customer a fully executed copy of this Agreement upon acceptance by Toshiba.

6. **EQUIPMENT INSTALLATION.** Toshiba will install all Equipment purchased under this Agreement and connect them to existing power and/or plumbing lines at no additional charge to Customer, except that Customer agrees to pay overtime premium for any labor performed beyond Toshiba's normal working hours. Customer will be responsible for electrical wiring, plumbing, carpentry, plastering, painting, or all other site preparation required prior to installation and connection of the Equipment by Toshiba. Customer will provide space at the installation site for the safe storage of Toshiba's tools, test equipment and other materials used for installation at no charge to Toshiba. Customer shall, at its cost, obtain all permits and licenses required by governmental authorities in connection with the installation and operation of the Equipment. In the event delivery and/or installation of any part of the Equipment is delayed or interrupted because of strike or other labor dispute involving trade unions having jurisdiction over Customer's premises, Customer agrees to negotiate with such trade unions and arrange for the timely completion of such delivery and/or installation. Customer will reimburse Toshiba for any expense incurred as a result of any such labor dispute. The Equipment may contain certain components which may have been remanufactured. However, such components will meet the manufacturer's specifications for new components as of the date of completion of installation.

7. **EQUIPMENT OPERATION AND INDEMNITY.** Customer agrees that all Equipment purchased under this Agreement will be operated exclusively by duly qualified technicians and/or medical doctors in a safe and reasonable manner in accordance with Toshiba's written instructions, applicable laws and regulations, and for the purposes for which such Equipment was intended. Customer agrees to defend, indemnify and hold Toshiba and Toshiba's officers, directors and employees harmless from and against all claims, demands, lawsuits, liabilities, judgments, and costs (including reasonable attorney's fees, expert fees, and other litigation costs) arising out of or in connection with the operation of the Equipment by Customer, unless caused by Toshiba's sole negligence.

8. **LIMITED WARRANTY AND REMEDY.** For the warranty period described below by product, Toshiba, as its only obligation, will replace or repair, at Toshiba's option and without charge to Customer during Toshiba's normal working hours (if Customer requests warranty service outside such hours, Customer will pay overtime premium for labor), any component of the Equipment determined by Toshiba to be defective in materials or workmanship, provided such defect is reported to Toshiba within the warranty period. Toshiba's warranty period is as follows: (a) X-Ray and Therapy - 6 months from the date of completion of installation, (b) Ultrasound, C.T., Nuclear, MRI - 1 year from date of completion of installation, (c) Probes - 12 months from date of completion of installation. Toshiba does not warrant that operation of the Equipment will be uninterrupted. Components not manufactured by Toshiba, including but not limited to X-Ray tubes, monitors, glassware, VTRS, cameras, computer equipment, and software will be furnished subject only to the manufacturer's warranty, if any, and without any warranty whatsoever by Toshiba. During the warranty period, Toshiba will furnish free of charge any upgrades, including software required to correct any defect in the Equipment or as required under applicable laws. TOSHIBA'S OBLIGATION TO REPAIR OR REPLACE DEFECTIVE PARTS WILL BE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY FOR A BREACH OF THE WARRANTY SET FORTH IN THIS SECTION. SUCH WARRANTY WILL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF THE MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. The warranty set forth in this Section will not apply to, and Toshiba will not be liable for any defects resulting from misuse, repairs performed by unauthorized third parties, accidents, acts of God, or neglect of anyone other than Toshiba.

9. **LIMITATION OF LIABILITY.** TOSHIBA WILL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR CONSEQUENTIAL, SPECIAL, INCIDENTAL, OR EXEMPLARY DAMAGES OR ECONOMIC LOSS ARISING OUT OF OR RELATED TO THE TRANSACTIONS CONTEMPLATED IN THIS AGREEMENT, EVEN IF TOSHIBA IS APPRISED OF THE LIKELIHOOD OF SUCH DAMAGES OCCURRING. IN NO EVENT WILL TOSHIBA'S LIABILITY TO CUSTOMER (WHETHER BASED ON AN ACTION OR CLAIM IN CONTRACT, TORT, INCLUDING NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE) ARISING OUT OF OR RELATING TO THE TRANSACTIONS CONTEMPLATED IN THIS AGREEMENT EXCEED THE AGGREGATE AMOUNT ACTUALLY PAID BY CUSTOMER TO TOSHIBA UNDER THIS AGREEMENT.

10. **SECURITY INTEREST.** Toshiba hereby reserves and Customer grants to Toshiba a security interest pursuant to the Uniform Commercial Code, in and to the Equipment (and all products and proceeds of it) until full payment of the purchase price is received. Customer hereby grants to Toshiba its irrevocable special power of attorney to execute and file financing statements or other documents, on Customer's behalf, for the purpose of protecting the security interest of Toshiba.

11. **REMOVAL OF EQUIPMENT.** Until Toshiba has received full payment of the purchase price, Customer will not remove any part of the equipment from Customer's premises, nor will Customer sell, lease, transfer or otherwise part with possession of, or permit any lien or encumbrance to be placed on all or any part of the Equipment.

12. **REMEDIES OF TOSHIBA.** If Customer fails to make any payment when due under this Agreement or under any other agreement between Customer and Toshiba, or becomes insolvent or makes an assignment for the benefit of creditors, or if a petition in Bankruptcy is filed by or against Customer, or if the financial responsibility of Customer becomes impaired or unsatisfactory in Toshiba's judgment, or if Customer otherwise breaches any or the terms and conditions of this Agreement, then Toshiba may, without prior notice or demand, defer shipments, cancel the balance of the order, suspend performance of any obligation (including without limitation, all obligations set forth under Limited Warranty And Remedy above), and/or take immediate possession of the Equipment delivered, until the full purchase price of the Equipment will be paid by Customer or, at Toshiba's discretion, until security satisfactory to Toshiba will be given by Customer. Any costs incurred by Toshiba as a result of suspending performance or repossession or collection will be payable by Customer. Toshiba may sell repossessed Equipment with proceeds to be applied to unpaid balance and expenses incurred in sale, repossession and collection. Customer will pay any remaining deficiency. Toshiba may exercise any other rights available to it by law.

13. **ATTORNEY'S FEES AND COSTS.** Customer will be liable for all attorneys' fees and litigation costs incurred by Toshiba to enforce any of its rights under this Agreement, including, without limitation, any action or proceeding to recover delinquent accounts.

14. **EXCUSED PERFORMANCES.** Toshiba will not be liable for nonperformance or delay in performance resulting directly or indirectly from any occurrences beyond Toshiba's control, including without limitation, strikes or other labor troubles, acts of God, war, accidents, fires, floods, other catastrophes, inclement weather, transportation, unavailability of materials and labor, delays caused by Toshiba's suppliers, or laws, regulations, or acts of any governmental agency. The foregoing provision will apply even though such cause may occur after performance of the obligations of Toshiba under this Agreement has been delayed for other causes.

15. **SOFTWARE.** All rights and interest in any software that may be furnished under this Agreement, and any updates and enhancements to it, will remain the property of Toshiba. Such software is being furnished to Customer under a non-exclusive license. Customer will not decompile, modify, copy, reproduce, or transcribe the software nor allow third parties to use the same without Toshiba's prior written consent upon Toshiba's request, Customer will execute an End-User Software License Contract, in a form designated by Toshiba.

16. **CANCELLATION.** Customer may not cancel the order subject to this Agreement except with Toshiba's prior written consent. In the event of such cancellation, Toshiba will be entitled to recover any and all damages suffered by it caused by the cancellation as allowed by law, but in no event less than an amount equal to twenty percent (20%) of the purchase price for restocking charge.

17. **ASSIGNMENT.** Customer may not assign any of its obligations under this Agreement without Toshiba's prior written consent.

18. **EXPORT REGULATIONS.** This Agreement involves products, and/or technical data that may be controlled under the U.S. Export Administration Regulations and may be subject to the approval of the U.S. Department of Commerce prior to export. Any export or reexport by Customer, directly or indirectly, in contravention of such Regulations is prohibited.

19. **ENTIRE AGREEMENT.** This Agreement contains the entire agreement between the parties and supersedes all prior or concurrent agreements between the parties, whether oral or written, relating to its subject matter. The provisions of this agreement may not be modified unless in writing and executed by both parties.

TOSHIBA AMERICA MEDICAL SYSTEMS, INC.

This quotation is for Toshiba's Infinix DP DualPlane Vascular Imaging Suite. Except for options, it is offered as a complete system and is priced as single unit.

Attachment B

Equipment Use Documentation

Attachment B

2013	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov - 11/4/13	Total
CMC-Union Cardiac Suite Procedure Total	47	39	61	51	49	52	56	32	31	37	4	459

Attachment C

Equipment Vendor Quote

GE Healthcare

QUOTATION

Quotation Number: P7-C150864 V 17

Carolinas Medical CenterUnion
600 Hospital Dr
Monroe NC 28112-6000

Attn: Wendy Bodrick
600 Hospital Dr
Monroe NC 28112

Date: 11-05-2013

This Agreement (as defined below) is by and between the Customer and the GE Healthcare business ("GE Healthcare"), each as identified herein. GE Healthcare agrees to provide and Customer agrees to pay for the Products listed in this GE Healthcare Quotation ("Quotation"). "Agreement" is defined as this Quotation and the terms and conditions set forth in either (i) the Governing Agreement identified below or (ii) if no Governing Agreement is identified, the following documents:

1) This Quotation that identifies the Product offerings purchased or licensed by Customer;

2) The following documents, as applicable, if attached to this Quotation: (i) GE Healthcare Warranty(ies); (ii) GE Healthcare Additional Terms and Conditions; (iii) GE Healthcare Product Terms and Conditions; and (iv) GE Healthcare General Terms and Conditions.

In the event of conflict among the foregoing items, the order of precedence is as listed above.

This Quotation is subject to withdrawal by GE Healthcare at any time before acceptance. Customer accepts by signing and returning this Quotation or by otherwise providing evidence of acceptance satisfactory to GE Healthcare. Upon acceptance, this Quotation and the related terms and conditions listed above (or the Governing Agreement, if any) shall constitute the complete and final agreement of the parties relating to the Products identified in this Quotation. The parties agree that they have not relied on any oral or written terms, conditions, representations or warranties outside those expressly stated or incorporated by reference in this Agreement in making their decisions to enter into this Agreement. No agreement or understanding, oral or written, in any way purporting to modify this Agreement, whether contained in Customer's purchase order or shipping release forms, or elsewhere, shall be binding unless hereafter agreed to in writing by authorized representatives of both parties. Each party objects to any terms inconsistent with this Agreement proposed by either party unless agreed to in writing and signed by authorized representatives of both parties, and neither the subsequent lack of objection to any such terms, nor the delivery of the Products, shall constitute an agreement by either party to any such terms.

By signing below, each party certifies that it has not made any handwritten modifications. Manual changes or mark-ups on this Agreement (except signatures in the signature blocks and an indication in the form of payment section below) will be void.

- Terms of Delivery: FOB Destination
- Quotation Expiration Date: 12-20-2013
- Billing Terms: 100% at ship complete
- Payment Terms: 60 DAYS NET
- Governing Agreement: CSS-GEHC MVA July 15 2011

Each party has caused this Agreement to be signed by an authorized representative on the date set forth below.
Please submit Purchase Orders to: General Electric Company, GE Healthcare, 9900 Innovation Dr, RP2124, Wauwatosa, WI 53226.
Fax to (262) 312-1182.

GE HEALTHCARE

Sarah Thomas
11-05-2013
Product Sales Specialist

US
Phone: +1 262 347 9347
Sarah.Thomas@ge.com

CUSTOMER

Authorized Customer Date

Print Name and Title

PO #

INDICATE FORM OF PAYMENT:

(If there is potential to finance with a lease transaction, GE HFS or otherwise, select lease.)

____ Cash * ____ Lease ____ HFS Loan

If financing please provide name of finance company below*:

*Selecting Cash or not identifying GE HFS as the finance company declines option for GE HFS financing.

Quotation Number: P7-C150864 V 17

Item No.	Qty	Catalog No.	Description
			Innova IGS 520 Gen2 System
	1		**Innova IGS 520 Gen 2 System**
1	1	S18921ET	Innova IGS 520 Gen 2 System with Omega V Long Table-Special Introductory Offer
			Innova Image Guided System 520 - Special Introductory Offer
			Innova IGS 520 Cardiovascular and Interventional Single Plane System with Omega V Table (Motorized)
			The Innova IGS 520 is a fully integrated imaging system that meets a wide range of clinical needs for interventional and diagnostic imaging with excellent image quality, extensive real-time processing, innovative dose management, ease of positioning, improved workflow and image management for excellent clinical versatility without compromise.
			The Innova IGS 520 (20.5 x 20.5 cm square and 29 cm diagonal) unites image quality, an optimal panel size and built-in protocols for imaging versatility.
			The Innova Digital Flat Panel Detector
			The key element in this image chain is GE's patented Revolution Digital detector, which captures dynamic and fluoroscopic images in digital form with very efficient use of X-ray dose. The specially designed Innova IGS 520 Digital System provides optimized and customizable image processing algorithms to take maximum advantage of the unique properties of these images.
			Dose Reduction
			The Innova IGS 520 is optimized for dose efficient operation in a wide range of imaging applications. GE's novel dose sensitive design has considered various aspects of dose optimization.
			• DoseMap: records and displays estimated local cumulated dose during procedures performed on your GE Healthcare angiographic system. The calculation and the cumulated local dose are displayed upon user request or upon configured threshold and provide a visualization of the distribution of the local cumulated dose all along the exam as well as the current projection of the beam. • Detector dose efficiency:The high DQE of the Revolution detector provides inherent dose efficiency improvements. • Virtual Collimation: Enables you to position the collimator blades without irradiation. • Dynamic exposure optimization - AutoEx:A neural network technology allows

Item No.	Qty	Catalog No.	Description

advanced exposure management algorithms to dynamically control x-ray technique and beam filtration.This optimizes the contrast-to noise ratio within the image automatically, in real time, without operator intervention.

- Temporal dose efficiency:The high temporal resolution of the Revolution detector and the real-time adaptive capability of the Innova IGS 520 architecture allow GE's unique fluoro algorithms to produce dose efficient noise reduction.
- Optimized frame rates: A choice of frame rates to enable dose reduction while capturing dynamic motion with required resolution is available.
- Integrated dose monitoring:This allows monitoring and display of air kerma, integrated air kerma over the exam and the total dose area product received by the patient during a procedure.
- Dose IQ customization:Several image quality and dose strategies are available and can be customized for the various clinical protocols in both Fluoro and Record acquisitions, making the Innova IGS 520 truly versatile without compromise over a wide range of clinical procedures.
- Adjustable Dose Threshold Settings: Configurable threshold of cumulated dose visual warnings when reaching the threshold
- Dose Structure Reports: Dose reporting using DICOM standards

Innova IGS 520 Positioner

The Innova IGS 520 combines GE's exclusive Innova LC Positioner with an ergonomically

designed tableside user interface to provide easy access and control of critical features during an exam.

- The patented, three-axis isocentric Positioner design with floor mounted L-arm and offset C-arm provides maximum positioning flexibility and excellent patient access in all views.
- The rigid, floor-mounted construction provides minimum vibration and deflection during acquisitions.
- The three motor-driven axes make even the most complex angulations easy to achieve.
- Anatomical and mechanical movement for easy gantry positioning

Innova Digital Flat Panel Image Chain

- 20 cm Revolution Digital Flat Panel Imaging System
- Completely Digital Imaging Chain
- Amorphous Silicon Photodiode Array

Item No.	Qty	Catalog No.	Description

- Cesium Iodine Scintillator
- 20 cm x 20 cm Active Area
- 20, 17, 15, and 12 cm Fields of View (measurements are length per side)

Innova IGS 520 X-ray Generation

The Innova IGS 520 utilizes a 100 kW high frequency, Jedi three-phase power unit that provides grid pulsed fluoroscopy capability.

Performix 160A X-ray Tube:

- 1.0, 0.6 and 0.3 mm (Biased) Effective Focal Spots
- Grid Pulsed Fluoroscopy
- 3.7 MHU Anode Heat Storage Capacity
- 3200 Watt Continuous Casing Heat Dissipation Rate
  - 4500 Watt peak capability for a maximum of 10 minutes
- Continuous Water Cooling with External Chiller

Innova Angiographic Collimator

- Automated Spectral Filters
  - 0.1, 0.2, 0.3, 0.6 and 0.9 mm Thick
- Three Independent Motorized Contour Filter Plates including a Central Leg Filter
- Functions controlled from tableside.
- Pediatric filters: 0.1mm Cu spectral filter for Pediatric protocols

Innova Digital Imaging Subsystems

A fully integrated imaging system that meets key vascular imaging demands with advanced real-time processing, storage, post processing and display capabilities. Based on the Windows XP operating system, the Innova Digital system is capable of true multitasking with background image networking that increases productivity and speeds patient throughput.

- High bandwidth, real-time processing and image presentation algorithms optimized for imaging using the Revolution Detector provide superior image enhancement.
- Innova Dynamic Range Management provides consistent visibility of vessels and devices over all backgrounds.
- Edge enhancement filters automatically adapt to field-of-view changes to maintain consistent image appearance.

Image Acquisition

Item No.	Qty	Catalog No.	Description

- Fluoroscopy (un-subtracted, roadmap and subtracted) at 30 fps, 15 fps, and 7.5 fps, and 3.75 fps.
- Optional Sub/no Sub simultaneous display at maximum 30 fps (requires an additional in-room B&W LCD monitor)
- Optional Angio Acquisition Package:
  - DSA (digital subtracted angiography) at 0.5 - 7.5 fps
  - Multi-segment DSA and flexible frame rate and duration and single shot capabilities
- Dynamic Acquisition Package at 30 fps and 15 fps
- Optional Innova Chase acquisition at 5 fps
- Field-of-view adjustment from tableside with four magnification selections with 1024 x 1024 image display regardless of acquisition matrix
- Integrated X-ray dose tracking and in-room display of air kerma and dose area product as well as DoseMap visualization of estimated local patient dose throughout exam
- Horizontal and vertical image flip

  capability for all acquisition modes
- Automated electronic shutter matched to collimated portion of image for optimized image display and visualization comfort.

Image Display

- Innova IGS 520 includes 1 B&W 19" LCD monitor and 1 console color monitor for control room display of live and reference images.
- Additional 19" LCD color monitors can be purchased and installed on the in-room LCD monitor suspension for AW, hemodynamic, and recording systems, ultrasound, IVUS.

User Interface

- Innova Central Touch Screen user interface allows control of many vascular X-Ray and accessory functions from table side in addition to control room. Examples of controllable functions include: examination protocols, fluoro and record parameters, in-room browser, and(optional)Large Display Monitor (LDM) configuration. It also provides table side control for numerous options and advanced applications including Stenosis Analysis, 3D imaging,Vision applications, MacLab hemodynamic recording, and Volcano IVUS. Favorites tab allows selection of all available controls to be managed with a single button press.
- SmartNav, an innovative, intuitive and context-based navigation allows the user

Item No.	Qty	Catalog No.	Description

to clearly navigate through a selection of functions and applications, using the Innova Central joystick and the reference monitor as a "heads up" display for navigating system menus, if desired.

- Dedicated keypad for convenient control of commonly used review functions
- Flat graphic display with easy "point-and click" mouse control for patient management and advanced processing and analysis features
- Keyboard for patient data entry
- Wireless remote for in-lab control of commonly used image playback and processing functions
- Tableside TSSC with Contour Filter Controls, Collimation, 72 User Stored Gantry Positions, and Landscaped Roadmapping at Tableside
- Virtual Collimation provided with display of Collimator position on Fluoro Last Image Hold
- Dual Footswitch with Table Unlock and Footswitch Cover
- InfraRed Remote Control for Tableside Review

Image Management, Connectivity & Workflow

- Acquisition of data at 14 bits
- Cardiac images stored in 8 bits, maximum 450 images per sequence, storage capacity: 136000 cardiac images
- DSA images with 12 bits data stored in 16 bits, maximum 450 images per sequence, storage capacity: 68000 DSA images
- DICOM image output on 100Mbit Ethernet with Autosend and background transfer for fast transmission with minimal user interaction
- Capability to do full resolution 1024 x 1024 DICOM push to retain image quality at acquisition (configurable to 512 x 512, for cardiac acquisitions)
- Patient Worklist capability provides a single point of entry of patient data, increasing staff productivity and eliminating clerical errors. Patient information can easily be imported into the digital system from information systems that support DICOM Worklist Service Class Provider.
- MPPS: Modality Performed Procedure Step allows the Innova IGS 520 to share with the hospital information system the main exam parameters.

Omega V Long Table (Motorized) with Slicker Cover

- The Compact carbon fiber laminate structure tabletop provides maximum rigidity with lowest

  absorption and scatter while allowing increa system angulation capability.
- The compact base provides complete freedom of movement around the table

Item No.	Qty	Catalog No.	Description

and clearance for the positioner. Motorized vertical travel of tabletop facilitates magnification technique and vertical positioning of the patients to isocenter.

- It also Aallows for positioning of the tabletop to a comfortable working height Tabletop rotation of +/- 180 degrees along the vertical axis allows for easy loading and unloading of patient, excellent patient access at the beginning or at the end of patient easy anesthesia, and rapid patient access in emergencies.
- The tabletop is equipped with accessory rails to mount gantry controls, table-side system controls and optional I.V. poles.
- Enhanced auto positioning feature enables the capability to memorize the table and gantry position simultaneously or separately; quickly reaching programmed positions by performing multiple-axis motion simultaneously.

Specifications:

Table: 61 cm x 52 cm (24 inches by 20.5 inches); Length: 333 cm (131 inches); Width: 46 cm (18 inches) in patient trunk area; Longitudinal travel: 170 cm (67 inches); Transverse travel: +/- 14 cm (+/- 5.5 inches); Vertical travel: 30 cm (12 inches); Vertical travel above floor: From 78 cm (30.7 inches) to 108 cm (42.7 inches); Vertical speed: 2.5 cm/s (1 inch/s)

The Omega V Table can support a maximum patient weight of 204 kg (450 lbs) for the tabletop, 40 kg (88 lbs) of accessories supported on each of two side rails, and 20 kg (44 lbs) of accessories on the (optional) table end rails.

Also includes:

- Clear vu Arm Support.
- Velcro Quick Straps - 7.6 cm x 9.14 cm
- IV Pole

Warranty:

Full One Year Warranty on System and Revolution Detector. Three Year Non-prorated Warranty on the X-Ray Tube as detailed in Warranty Documentation.

Broadband Built In

Includes hardware install support essential for systems to be ready for high speed internet connection. Enables customer to access GE Healthcare Digital Services designed to improve quality, enhance performance, increase productivity, reduce costs, reduce downtime, expand imaging capabilities, and increase privacy and security of data transmission.

Standard warranty coverage hours for this Innova system are 8 AM to 9 PM local time.

Compliant with the Medical Imaging & Technolgy Alliance (MITA) commitment made

Item No.	Qty	Catalog No.	Description
			by the x-ray Interventional industry to implement the DICOM Radiation Dose Structure Report.
2	1	S18061AC	Table Head Extender Table Head Extender • Extender to widen the table top head end for patient comfort
3	1	S18751SA	In-room Browser In Room Browser Enables a thumbnail display of acquired sequences and photos on the in room monitor for interactive table-side selection and review. With a press of a button, transfer the angulation information from a review image to positioner for auto-positioning of the gantry.
4	1	S18751FS	FluoroStore with Fluoroloop FluoroStore Lets you store and play fluoroscopic loops with a push of a button. Enables looping display and storage of the last 450 fluoroscopic images (60 seconds to 15 seconds depending on frame rate). The images are marked with a separate icon to identify them distinctly during the review.
5	2	S18061TP	SmartBox for Omega Tables SmartBox for Innova IGS with Omega Tables New SmartBox for Simplified and Intuitive Joystick Control of Positioner and Table • Anatomical and mechanical positioning • Independent or simultaneous movement of all three positioner axes • Remote SID Control • Manual or motor assisted 4-way table panning • Ergonomic design • Hermetically sealed
6	1	S18061TA	2nd TSSC Control for Omega Tables Second TSSC Control for IGS with Omega Tables
7	1	S18461MA	GE Large Display Monitor, 8MP GE Integrated Large Display Monitor

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Item No.	Qty	Catalog No.	Description

The GE Large Display Monitor (LDM) is an optional in-room primary 8 megapixel large monitor and video server solution that is fully integrated on the Innova Central Touch Screen. The 56 inch LDM connects with the Innova single plane cardiovascular X-ray systems, helping physicians perform routine and advanced procedures in the Cath, Interventional Radiology and Electrophysiology Labs by helping them to see with confidence. A high definition video output is available as an option. This plug-in allows other HD devices such as monitors for teaching purposes or recording and streaming systems to be displayed.

There are 19 inputs available including 3 free open inputs compatible with VGA and DVI video formats. The Large Display solution can support many relevant data sources required during interventional procedures. More than 120 pre-defined layouts are accessible at the Innova Central Touch Screen. This offers the user a wide variety of ways to customize layouts according to their specific procedures and preferences. Layouts may be changed during the procedure at the Innova Central Touch Screen. The images may be zoomed to enlarge small details or information in complex interventions.

The GE Large Display solution has the potential to replace the multiple monitors fixed on the boom and select individual device monitors scattered around the lab with one large, configurable, high resolution display. This allows an improved procedural workflow that helps the physician keep the focus on the patient, not the technology.

The main features of the Large Display Monitor are:

- Large Display Monitor of 56 inches (142.2cm) in diagonal dimension
- Display matrix of 8 megapixels arranged as a 3840 by 2160 pixel array
- Ability to accept up to 19 video inputs for Live, Reference, AW and optional subtracted Fluoro monochrome signals as well as for a wide variety of other video signals usually used in an interventional environment - including 3 free open inputs compatible with VGA and DVI video formats
- Video server able to display video signals on screen at various sizes and in various arrangements
- Up to 120 layouts provided for selection by the users - may be grouped into user groups or application specific functional groups for convenience
- Can select the displayed layout directly from the Innova Central Touch Screen at tableside in one click
- 19 inch (48cm) monochrome Live and Reference monitors connect at the back side of the LDM for backup and reliability in the procedure room.
- As an option, HD video outputs are available to connect to any HD compatible video solution (such as second 8MP monitor, 2MP HD monitor, recorder ...) for

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Item No.	Qty	Catalog No.	Description
			education and recording purposes.
8	1	S18111PV	Power Cord for LDM Power Cord for LDM, 110 volt
9	1	S18751PY	3KVA UPS for LDM, 110 volt UPS for Large Display Monitor, 3KVA, 110 volt
10	1	S18461AD	Analog to Digital Converter Kit Analog to Digital Converter Kit
11	1	S18461LM	Link Set for Recording System Link Set for Recording Systems
12	1	S18461LP	Link Set for PACS Link Set for PACS
13	1	S18461LV	Link Set for IVUS Volcano Link Set for IVUS Volcano
14	1	S18461LW	Link Set for AW, Innova 3D, and Innova CT Link Set for AW, Innova 3D, and Innova CT
15	1	S18461LG	Link Set for Digital and Analog Ultrasound Link Set for Digital and Analog Ultrasound
16	1	S18461LZ	Link Set for Open 1 Link Set Open 1 Suitable for anesthesia monitors, camera, etc.
17	1	S18461LY	Link Set for Open 2 Link Set Open 2 Suitable for anesthesia monitors, camera, etc.
18	1	S18391LZ	Large Display Monitor Suspension with 36 meter cable GE Large Display Monitor Suspension • A dedicated ceiling suspension with protective handles provides vertical and

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Item No.	Qty	Catalog No.	Description
			horizontal monitor position adjustments as well as rotation of the monitor on the boom.
19	1	S18461GE	19 inch Monochrome Flat LCD Reference Monitor 19 Inch Monochrome Flat (LCD) Reference Monitor All Components Required for Viewing of High Quality Images. The Kit Includes: • 19 Inch Monochrome LCD Control Room Monitor • All Required Cabling
20	1	S1876PE	Main Power Disconnect Panel - UPS Ready Innova Main Disconnect Panel - UPS Ready This main disconnect panel provides emergency shut down, undervoltage protection, overcurrent protection, OSHA lockout tag provisions, and serves as a local disconnect for the GEHC Innova system. It reduces installation time and cost by providing a single-point power connection, eliminating the need to mount and wire a number of individual components, and its standardized design and testing assures high product quality and system reliability. It is UL and cUL listed for compliance with National Electric Code, and it can be either surface or semi-flush mounted. Customer is responsible for rigging and arranging for installation with a certified electrician.
21	1	S1875PK	Innova IQ 20KVA UPS GE Digital Energy 20KVa UPS for Innova Systems
22	1	S18751PK	UPS Interface Innova UPS Interface
23	1	S18101CH	UL Coolix SMC Auto Transformer UL Coolix SMC Auto Transformer
24	1	S18921LB	InnovaSense, Advanced Patient Positioning, Patient Contouring InnovaSense, Advanced Patient Positioning, Patient Contouring and Anti-Collision Package Patient contouring feature leverages advanced capactive sensor technology in real time to sense the distance of the patient from the detector. Ability to do so is critical in moving the detector rapidly near the patient, and also positioning it optimally close to the patient to reduce skin dose.

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Item No.	Qty	Catalog No.	Description
25	1	S18721AF	Administration Package Administration Package DICOM Patient Worklist Capability Provides Single Point of Entry of Patient Data, Increasing Staff Productivity and Eliminating Clerical Errors. Patient Information can Easily be Imported Into the Digital System From Information Systems That Support DICOM Worklist Service Provider. The Administrative Package is Required for Two-way Information Exchange with the Mac Lab Hemodynamic Recording Systems (Optional). Administration Package includes Multi-destination Push which enables images to be sent to multiple remote DICOM destinations sequentially (one after the other). Multi-destination helps to support a clinical scenario of handling post processing and archival activities in multiple destinations independently of each other (workstation, PACS). Multi-destination provides a seamless integration of the Innova into your workflow.
26	1	S18751DS	Digital Subtraction Angiography Option DSA Package GE's unique DSA implementation uses sophisticated imaging optimization techniques to achieve the best image quality at an optimal dose. Optimal technique levels for DSA are set from Fluoroscopic images produced prior to the DSA. In the event Fluoroscopy has not been performed at the location where DSA has been commanded, the operator will be prompted by the system to fluoro prior to initiating DSA. The actual exposure runs begin immediately after the trial exposures to achieve a very high image quality at user defined frame-rates (0.5-7.5 f/s). Optionally, the contrast injection can also be automatically initiated with an injector. The first image is used as a mask by default, and a real-time subtraction is performed. The mask image can be modified in post-processing, along with pixel-shift operation. This no-compromise imaging on a larger 20 cm panel helps achieve the best image quality at an optimal dose for peripheral imaging applications.
27	1	S18751CH	InnovaChase 5 fps Peripheral Bolus Chase with DRM Option InnovaChase One pass, one injection, non-subtracted image acquisition at 5 fps. InnovaChase enables the user to visualize vasculature well throughout the anatomy of interest, maintaining the superior visualization across a background of varying tissue densities. Due to the design of the InnovaChase TM procedure protocol and the implicit high DRM, there is a reduced need for bolus filtering. Result is less exposures needed before

Item No.	Qty	Catalog No.	Description
			a diagnosis can be made and therefore less dose to patient and physician.
28	1	S18751BR	Blended Roadmap Blended Roadmap Blended Roadmap is a vascular roadmapping application that superimposes a previously acquired vascular image over live fluoroscopy. Clinicians can select any DSA or bolus image as a reference roadmap image. By using it multiple times, it has the potential to minimize contrast media injections during roadmapping. Blended roadmap provides additional features to enhance roadmapping procedures: • Adjustment of the subtraction level • Adjustment of the vessels transparency • Automatic resizing of the roadmap image to adapt to the fluoroscopic field of view • Pixel shift of the vessel image to compensate for motion Blended Roadmap is available on systems with either Omega V or InnovaIQ tables. Blended Roadmap requires the Advanced Innova Software Package. On the biplane systems it can be applied to one frame at a time.
29	1	M81511VN	AW VS5 - NO VOLUME VIEWER AW VolumeShare 5 with Two Flat Panel Monitors and 6GB of RAM. Does NOT Include Volume Viewer. AW VolumeShare 5 is a multi-modality image review, comparison and post processing workstation built with simplicity and power at its core. Powerful software is optimized to take advantage of state of the art 64 bit technology and multiple cores to ensure leading edge performance. AW VolumeShare 5 features include: Hardware: • HP Z800 Workstation with Intel x5650 Six Core Xeon 2.66 GHz CPU with 8MB Shared L2 Cache / 1333 MHz Dual FSB • 6GB DDR-3 1333 ECC DIMM • 300GB SAD 15,000rpm Hard Disk for OS and Apps. • 600GB SAS 15,000rpm Hard Disks for Image Data • 2 x 19" EIZO MX191 monitors Software: • Fast access to information you need through optional RIS integration & priors

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Item No.	Qty	Catalog No.	Description
			post-fetch • Efficient workflow through dynamic load, end review and Key Image Notes features • Optional productivity package to pre-process exams and allow up to 8 simultaneous sessions • Applications usage monitor to track usage of your system • Smart layouts with Volume Viewer General review protocol that optimizes comparison and single exam layouts • Enhanced multi-modality contouring tool with support for PET SUV's • Support for external DICOM USB media and preference management tool to exchange preferences across users • Support for optional, broad suite of multi-modality advanced applications
30	1	E7018JN	Medrad Mark V ProVis Table Mount Injector, Remote Keyboard, Free Standing Pedestal Medrad Provis Table Mount Injector w/Remote Keyboard, & Free-Standing Pedestal FEATURES/BENEFITS • Programmed microprocessor helps protect against over-volume, over-flow, over-pressure • Exclusive mechanical stop automatically sets and locks to physically limit injection to selected volume and is unaffected by electrical interruption • Large, bright control panel for easy reading in any lighting situation • Common protocols are stored to save time • Multiple Turret configurations for different volume studies • Wide range of fast and slow loading speeds • Convenient free standing pedestal to allow injector to be removed from table and placed out of the way when not in use SPECIFICATIONS • Loda rate 5-10 ml/sec variable speed • Syringes, disposable: 60, 150, or 200 ml • 105-120 VAC single phase, 60 Hz
31	1	E4502SS	NR - X-Ray Warning and Room Lighting Control Panel X-Ray Warning and Room Lighting Control Panel The X-Ray in use Warning and Room Lighting Control Panel provides a low voltage interface between the X-Ray in use warning lights, interior room general lighting

Item No.	Qty	Catalog No.	Description
			systems, and the X-Ray system. Convenient, pre-wired foot switch operation of the interior room lights, aids in easy precise imaging system positioning. The X-Ray in use portion of the panel provides low voltage, low energy control of the X-Ray in use Warning Lights. The room general lighting is controlled by a foot switch activated contactor. FEATURES/BENEFITS • Reduces installation time, procurement time and cost, by providing stock availability of this assembled control panel • Reduces shock hazard from the second source of energy running to the imaging control panel • Eliminates the sourcing inconveniences and delivery delays often associated with acquiring individual components • Reduces shock hazard from the second source of energy running to the imaging control panel • UL and cUL labeled to conform to domestic and Canadian Codes • Increases servicing safety by the use of low voltage interface circuit between the imaging system and the line voltage lighting systems SPECIFICATIONS • Dimensions (H x W x D): 12" x 12" x 6" • Weight: 26 lbs. • Mounting: Rear mounting holes located 9" horizontally and 9" vertically. Mounting hole diameter is 5/16" COMPATIBILITY • For use in CT, PET/CT and X-Ray applications NOTES: • Customer is responsible for rigging and arranging for installation with a certified electrician • ITEM IS NON-RETURNABLE AND NON-REFUNDABLE
32	1	E6220J	VIS-A-VIS Vitalinq Intercom System for X-ray VIS-A-VIS Vitalinq Intercom System for X-ray The VIS-A-VIS Vitalinq intercom system for X-ray is a two-way communication system that is designed to meet the specific needs that arise during diagnostic and interventional procedures. It enables physicians to have continuous two-way

Item No.	Qty	Catalog No.	Description
			conversation with the control room operator during diagnostic and interventional procedures. FEATURES/BENEFITS • Capable of picking up conversation in a normal tone of voice, Vitalinq allows control room operators to respond immediately to physicians' requests • Larger format and unique pyramidal construction of the microphones contribute to Vitalinq's high intellgibility, even within the acoustically active space of a full-functioning procedure room • Designed to minimize the loss of articulation by reducing the potential echo path it gathers and transmits speech in a highly efficient manner SPECIFICATIONS • Dimensions: 24" x 24" x 20" • Weight: 47 lbs. NOTES: • INSTALLATION IS THE RESPONSIBILITY OF THE CUSTOMER • Warranty Period 6 months - Exchange of non conforming products, which are returned to GE during warranty period. • Installation, parts, application training and onsite service is the buyer's responsibility
33	1	E7009CA	Innova 2100/2121 Detector Drapes (20/box) Innova 2100 Detector Drapes (20/Box)
34	1	E6415J	X-Ray Table Clamp for Remote Panning Handle X-Ray Table Clamp for Remote Panning Handle FEATURES/BENEFITS • Designed for an Omega cardiac/vascular table • BIG AL clamp allows the operator to position the table remote panning handle at the end of the angio table on either the right or left side • The location of the handle can be customized to meet the needs of the individual operator • Option will support clinical studies such as TIP's procedures, or any procedure where the operator needs to position and operate the table from the patient's head and neck area

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Item No.	Qty	Catalog No.	Description
			SPECIFICATIONS • Metal clamp: 3" x 3" x 7" box weighing 6 lbs COMPATIBILITY • GE Omega cardiac/vascular tables
35	1	E8016AY	GE Angio/Cardiac Slicker for Omega V Tables - 132 in. GE Angio/Cardiac Slicker for Omega V Tables 132 in. FEATURES/BENEFITS • Increase system uptime by protecting table from spills • Recommended for sites concerned with blood and fluid borne disease • Durable PVC material resists contamination • Facilitates faster cleanups of blood and fluids • Prevents contaminate buildup in hard to clean areas • Easy to install, does not interfere with normal table operation SPECIFICATIONS • Weight: 6 lbs. • Durable PVC material • 132 in. length • Includes table cover and mounting Velcroy COMPATIBILITY • Omega V systems, 132 in.
36	1	E6412DA	Clear Vu Arm Support-1pair Clear-Vu Arm Supports, One Pair..H Dimensions: 11-1/2 x 15-3/4 x .177" thick. Sold Per Pair
37	1	E8015JB	Omega V Tempurpedic Table Pad (1 in. Thick), 131 in. L Omega V Tempurpedic Table Pad (1 in. Thick), 131 in. L GE has partnered with Tempurmedic to produce a 1 in. thick pad that improves patient comfort for long procedures. This mattress is designed for use in acute, sub-acute, and long-term care settings. It is a superior therapeutic adjunct that has been clinically demonstrated effective in supporting comprehensive plans of care intended to prevent and treat pressure ulcers. Healthcare facilities that have convert

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Item No.	Qty	Catalog No.	Description
			ed to this mattress have reported: significant reduction in wound incidence rates, desirable wound healing rates, and better patient comfort. This rectangular mattress is recommended for use with the Omega V Angio table, has a neutral gray color and measures 131 in. L x 22 in. W x 1 in. T...H
38	3	E7018JZ	Mavig 2.5m Track without Cable Spooler Mavig 2.5m Ceiling Track without Cable Spooler The Ceiling Track is suited for use of ceiling guided accessories, including radiation protective shields, lamps, injectors, monitors, and other equipment. FEATURES AND BENEFITS • The unique structure profile ensures smooth running of the carriage • With little force, the installed system can be moved and positioned • The carriage glides smoothly, even after many years of routine use • Adjustable cross-struts simplifies the system installation
39	2	E3053CC	2.5m Cable Spooler (requires E3053CM) Mavig 2.5m Cable Spooler for R-96 & Mach 3 Lamp This Mavig cable spooler is used when the R-96 or Mach 3 lamp is track-mounted. The spooler yields and retracts the electrical cable as the lamp travels along the track, eliminating all dangling and tangled power supplies. Warranty Period- 6 months- Exchange of non conforming products, which are returned to GE during warranty period Note: Installation,parts,application training and on-site service are the buyer's responsibility
40	2	E3053CM	Cable Holders and Stoppers for Ceiling Track Mavig Cable Holders and Stoppers for Ceiling Track (used with Cable Spoolers E3053CC, E3053LT)
41	3	E3053BC	Portegra2 360 Ceiling Column w/ Carriage - 58 cm Portegra2 360 Ceiling Column w/ Carriage 58 cm • Lower post allows 360 rotation • Upper fixed post is electric with 330 rotation • Each has a load capacity of 18 kg (40 lbs.)
42	2	E3053CH	Contour Shield 76 x 61 cm (with center connect) Contour Shield 76 x 61 cm (with center connect)

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Item No.	Qty	Catalog No.	Description
43	1	E3053LW	Mavig Mach3 DuoFocus Surgical Lamp w/ Mounting Arm Mavig Mach 3 DuoFocus Examination Lamp with Extension/Spring Arm The Mach 3 lamp is ideally suited as an accessory to a MAVIG radiation protection system to provide illumination for examination procedures. The electrically wired extension and spring arms permit installation of the lamp on the wired mounting post of the dual-fixture column. The lightweight lamp head and well positioned focusing handle offer the physician quick and accurate positioning and in-depth focusing. SPECIFICATIONS • Max Light Intensity: 110,000 lux • Focusable Light Field Size: 3-14 in. • Working Distance: 24-59 in. • Power Requirements: 110V, 50-60 Hz Includes the M3 Lamp, extension and spring arms, and transformer. Does not include column. Warranty Code: H
44	1	E3053LS	Mavig Uniflex R-96 Examination Lamp w/ Mounting Arm Mavig Uniflex R-96 Lamp with Mounting Arm Mavig R-96 examination lamp with mounting arm provides 40,000 lux and color rendering index of 96.5% which improves visualization of different shades of red in the wound area. This lamp comes with a focusable light field size of 14-25 cm and runs on AC 110-120V power. Use the cable spooler when lamp needs to be track-mounted. The spooler yields and retracts the electrical cable as the lamp travels along the track, eliminating all dangling and tangled power supplies. Does not include column. . .E Warranty Period-6 months- Exchange of non conforming products, which are returned to GE during warranty period Note:Installation,parts,application training and on-site service is the buyer's responsibility
45	2	E3053JB	Mavig Double Pivot, Flexible Lower Body Protector Mavig Double Pivot, Flexible Lower Body Protector, (UT6020-GE); This Model is Designed To Offer Full Protection to Doctor and Staff During Examination in Combination with Tiltable Tables. Performance Angle +/- 15 Degrees, Adjustable Brakes for Lower Shield, Left and Right Table Mounting with Single Adapter; Sold per Each ..H Warranty Period-6 months- Exchange of non conforming products, which are returned to GE during warranty period Note: Installation, parts, application training and on-site service is the buyer's responsibility
46	2	E7058A	GE Anti-Fatigue Floor Mat (Blue 3x5 x 5/8")

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Item No.	Qty	Catalog No.	Description
			GE Anti-Fatigue Floor Mat FEATURES/BENEFITS • Ingenious device for those who spend a lot of time on their feet on concrete or tile surfaces • Cradles feet in cushiony comfort, minimizing stress and fatigue • Sealed to prevent moisture absorption and facilitate cleanup - ideal for medical environments SPECIFICATIONS • Dimensions (L x W x D): 60" x 36" x 0.5" • Weight: Approx 22 lbs. • Blue/White Marble Color COMPATIBILITY • Cath Labs, Angiography, R&F rooms • Mammography • Ultrasound
47	1	W0100CV	6 Days Interventional X-ray On-site System Training 6 Days Interventional X-ray On-site System Training Six full days (1 day = 8 hours) of on-site training for an Innova X-ray system. Includes one 3-day on-site visit to coincide with system go-live and one 3-day on-site follow-up visit to be scheduled Monday through Friday. Training cannot be scheduled as single day events. Training expires 12 months from the date of go-live of equipment or purchase, whichever is the latest.
48	1	W0004CV	4 Days Interventional X-ray On-site System Training 4 Days Interventional X-ray On-site System Training Four full week days (1 day = 8 hours) of on-site training for an Innova X-ray System, to be used Monday through Friday. Training expires 12 months from the date of go-live of equipment or purchase, whichever is the latest. Days provided consecutively.
49	1	W4010CV	HQ Class for Innova Single Plane or Biplane with AW HQ Class for Innova Single Plane or Biplane with AW Tuition for one student to attend one three-day class for Innova Single Plane or Innova Biplane at the GE Healthcare Institute in Waukesha, WI. Tuition includes air

Item No.	Qty	Catalog No.	Description
			transportation, local ground transportation, hotel and meals to include breakfast and lunch. Training expires 12 months from the date of go-live of equipment or purchase, whichever is the latest. This course will focus on both the Innova IGS and Advantage Workstation and is intended for the customer who desires training on both systems to include Innova 3D/3DCT. All Vision applications are discussed in the course as only a high level overview. This course is not recommended for customers who have purchased an Innova IGS System without the purchase and/or use of the Advantage Workstation.
50	1	S18051NF	Provis Mark V+ Table Mount Injector Interface Mark V+ Provis Table/Rack Mount Interface
51	1	S18101SP	Installation Template Installation Template
52	1	S18101SF	Above Grade and Through Bolts Anchor Kit - Above Grade and Through Bolts, 25 mm
53	1	S18111SB	9 ft. 6 inch Inboard Monitor Bridge 9 foot 6 inch Inboard Monitor Bridge
54	1	S18111SH	Long Sleeve for 3 Monitor Support Reinforcement Bridge
55	1	S18121RD	In Board Rails, 228 inch/579 cm In Board Rails, 228 inches long, to be used with LCD Monitor Suspensions
56	1	S18751CD	MAC Lab Cable 70 inches MAC Lab Cable, 70 inches
57	1	S18941CB	Group 1 Cable - Maximum Length Group 1 Cable - Maximum Length
58	1	S18941CD	Group 2 Cable - Maximum Length Group 2 Cable - Maximum Length
59	1	S18941CE	Group 3 Cable - Standard Length

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Item No.	Qty	Catalog No.	Description
			Group 3 Cable - Standard Length
60	1	S18741EY	Group 4 - 5 Cable
			Group 4-5 Cable
61	1	S18741EL	Fast Link Cable Group
			Fast Link Cable
62	1	S18101SM	Vascular Base Plate Assembly
			Vascular Base Plate Assembly
63	1	S18741TP	Table Plate
			Table Plate
64	1	S18741PC	Innova Lift Dolly
			Innova Lift Dolly
65	1	S18101SX	Rails and Cable Drapes
			Rails and Cable Drapes
66	1	S18121TB	X-ray Digital Detector Coolant Kit
			X-ray Digital Detector Coolant Kit
			Rigging to remove Toshiba Dual Plane
	1		**NonProducts**
67	1		Rigging to remove Toshiba $10,000

Quote Summary:

Competitive Conversion	**($50,000.00)**
Toshiba Trade In	**$0.00**
Total Quote Net Selling Price	**$914,275.20**

(Quoted prices do not reflect state and local taxes if applicable. Total Net Selling Price Includes Trade In allowance, if applicable.)

Service Option invoicing will be separate from the equipment.

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For Third Party Products and Services Only. If GE Healthcare has agreed to provide any third party products and/or services (other than GE Healthcare accessories and supplies) to Customer as part of the Quotation, including but not limited to any Commitment Account/Non-Inventory items, (i) GE Healthcare is acquiring such products and/or services on Customer's behalf and not as a supplier of such products and/or services; (ii) GE Healthcare makes no warranties of any kind, express or implied, with respect to such products and/or services (warranties, if any, on such products and/or services will be provided by the manufacturer or service provider, as applicable); (iii) Customer is solely responsible for ensuring that the acquisition and use of such products and/or services is in compliance with applicable laws and regulations, including applicable FDA regulations; and (iv) Customer is solely responsible for any and all claims resulting from or related to the acquisition or use of such products and/or services.

For Mobile Systems Only. For products that are approved by GE Healthcare for use as transportable, relocatable and mobile systems, GE Healthcare will deliver the system to Customer's van manufacturer and furnish final assembly services to place the system in Customer's van. At the time of order, Customer must notify GE Healthcare of the van manufacturer to which the system is to be shipped. It is Customer's responsibility to make arrangements with the van manufacturer for delivery of the van and to comply with any additional planning requirements of the van manufacturer. For MR systems, GE Healthcare's product tests will be performed when assembly in the van is completed and MR system operation will be re-checked when the van is delivered to Customer.

For Healthcare IT Products Only:

a. Payment. Unless specified separately in the Quotation, fees for non-GE Healthcare software and hardware shall be due one hundred percent (100%) on delivery of the applicable software or hardware.

b. Audit Rights. Upon forty-five (45) days notice GE Healthcare may audit Customer's use of the software. Customer agrees to cooperate with GE Healthcare's audit and to provide reasonable assistance and access to information. If the audit uncovers underpaid or unpaid fees owe to GE Healthcare, Customer agrees to pay those fees and GE Healthcare's costs incurred in conducting the audit within thirty (30) days of written notification of the amounts owed. If Customer does not pay the amounts owed, GE Healthcare may terminate Customer's license to use the applicable software. Customer agrees to permit GE Healthcare to obtain certain reasonable information regarding the users and other use information regarding the software. All of such information shall be treated as confidential information, shall be used solely for the purposes of technical support and auditing the use of the software, and shall not be disclosed to any third party (other than third-party vendors of software licensed to Customer under this Agreement) without Customer's consent.

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Options

(These items are not included in the total quotation amount)

Item No.	Qty	Catalog No.	Description	Ext Sell Price
			Innova IGS 520 Gen2 System	
68	1	S18351AC	In-room 3D Mouse with GPS Navigation In-Room 3D Mouse with GPS Navigation Dedicated in-room user interface allowing direct 3D image manipulation at tableside. An in-room color 19" LCD AW monitor (option to integrate in the LCD suspension) can be activated to display and access various 3D manipulation commands. The ergonomic designed tableside user interface provides direct tableside access to: • Image manipulation functions: 360 degree rotation, roam, zoom, shutters • Image visualization functions: Surface, MIP and Volume rendered modes • Image measurements • Image management functions: store and recall of 3D images In-room 3D mouse includes Innova GPS that assists the physician to select the optimal view to perform an intervention by synchronizing real time a pre-acquired Innova 3D model displayed on one of the in-room 19" LCD AW monitor with the gantry angulations of the Innova positioner. Alternatively, the Innova 3D model can be manipulated and the corresponding angles sent to the Innova. The Innova GPS runs on the GE Advantage Workstation Volume Share 2 (2008 release) or higher.	$20,000.00
69	1	S18021TR	Innova 3D Innova 3D for Innova Vascular and Cardiac Systems This option includes the necessary hardware and software for the Innova 3D Option for acquiring and processing Innova Rotational Angiography and visualizing the results on the AW Workstation. The option also includes the capability of the acquiring 2D rotational spins (InnovaSpin). This option requires the Innova 3D calibration phantom kit and the Volume Viewer capability on the AW Workstation. It also includes the 3D Calibration Suitcase.	$100,000.00

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Item No.	Qty	Catalog No.	Description	Ext Sell Price
			The acquisition capability includes both the choice of InnovaSpin at 40 degrees per second with DRM applied and Innova 3D acquisition at 40 degrees per second with DRM turned off for reconstruction on the AW Workstation. The Acquisition in both cases spans approximately 200 degrees and takes approximately 5 seconds to complete. Acquisition fields of view are 20x20 cm, 16x16 cm, and 12x12 cm on the Innova IGS 520/620. Data is automatically transferred to the AW Workstation for reconstruction and review. The option includes the necessary software on the AW Workstation for reconstruction of the acquired data with appropriate artifact correction applied into slice data sets that can be reviewed utilizing the full capabilities of the Volume Viewer application of the AW Workstation. These capabilities include 3D visualization structure as well as cross sectional slice review. Innova 3D results can be archived utilizing the AW archival capabilities or exported to external storage systems for long term archival. Innova 3D can be used for Cardiac as well as Vascular 3D models.	
70	1	S18701VB	3D Calibration Suitcase for Innova 2100IQ/2121IQ 3D Calibration Suitcase for Innova 2100IQ/ 2121IQ The set includes the necessary calibration phantoms for calibrating acquisition and post processing of Innova Rotational Angiography on the Innova 2100IQ/2121IQ systems. The set includes a secure storage case.	$10,000.00
71	1	E7100RS	Raysafe i2 Package Includes: • 1 - E7100RA Raysafe i2 • 4 - E7100RB Additional Raysafe Dosimeter • 1 - E7100RC Raysafe Dose Manager Software • 1 - E7100RD Additional Raysafe Rack RaySafe i2 dosimetry system provides real-time, accurate and easy-to-interpret dose information. It helps healthcare workers to better understand scatter radiation and decide when it is time to adjust their working behavior to avoid unnecessary exposure. By continuous control of exposure data it is possible to reduce dose to	$41,850.00

Item No.	Qty	Catalog No.	Description	Ext Sell Price
			the personnel. Clinical studies have indicated around 30-40% staff dose reduction.	
			(Quoted prices do not reflect state and local taxes if applicable. Total Net Selling Price Includes Trade In allowance, if applicable.)	

GE Healthcare General Terms and Conditions

GE Healthcare

References herein to "Products" and "Services" mean the Products (including equipment and software) and Services identified on the applicable GE Healthcare Quotation ("Quotation").

1. General Terms

1.1. Confidentiality. Each party will treat the terms of this Agreement and the other party's written, proprietary business information as confidential if marked as confidential or proprietary. Customer will treat GE Healthcare (and GE Healthcare's third party vendors') software and technical information as confidential information whether or not marked as confidential and shall not use or disclose to any third parties any such confidential information except as specifically permitted in this Agreement or as required by law (with reasonable prior notice to GE Healthcare). The receiving party shall have no obligations with respect to any information which (i) is or becomes within the public domain through no act of the receiving party in breach of this Agreement, (ii) was in the possession of the receiving party prior to its disclosure or transfer and the receiving party can so prove, (iii) is independently developed by the receiving party and the receiving party can so prove, or (iv) is received from another source without any restriction on use or disclosure.

1.2. Governing Law. The law of the state where the Product is installed or the Service is provided will govern this Agreement.

1.3. Force Majeure. Neither party is liable for delays or failures in performance (other than payment obligations) under this Agreement due to a cause beyond its reasonable control. In the event of such delay, the time for performance shall be extended as reasonably necessary to enable performance.

1.4. Assignment; Use of Subcontractors. Neither party may assign any of its rights or obligations under this Agreement without the prior written consent of the other party, which consent shall not be unreasonably withheld; provided, however, that either party may transfer and assign this Agreement without the other party's consent to any person or entity (except to a GE Healthcare competitor) that is an affiliate of such party or that acquires substantially all of the stock or assets of such party's applicable business if any such assignees agree, in writing, to be bound by the terms of this Agreement. Subject to such limitation, this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns. GE Healthcare may hire subcontractors to perform work under this Agreement, provided that GE Healthcare will at all times remain responsible for the performance of its obligations and duties under this Agreement.

1.5. Amendment; Waiver; Survival. This Agreement may be amended only in writing signed by both parties. Any failure to enforce any provision of this Agreement is not a waiver of that provision or of either party's right to later enforce each and every provision. The terms of this Agreement that by their nature are intended to survive its expiration (such as the confidentiality provisions included herein) will continue in full force and effect after its expiration.

1.6. Termination. If either party materially breaches this Agreement and the other party seeks to terminate this Agreement for such breach, such other party shall notify the breaching party in writing, setting out the breach, and the breaching party will have sixty (60) days following receipt of such notice to remedy the breach. If the breaching party fails to remedy the breach during that period, the other party may, subject to the terms of Section 1.4.5 of the GE Healthcare Product Terms and Conditions, terminate this Agreement by written notice to the breaching party. For the avoidance of doubt, this Agreement is not terminable for convenience and may only be terminated in accordance with this Agreement. If GE Healthcare determines in good faith at any time that there are legal or regulatory compliance and/or material credit issues with this Agreement, if any, GE Healthcare may terminate this Agreement (including warranty services hereunder) immediately upon written notice to Customer.

2. Compliance

2.1. Generally. This Agreement is subject to (i) GE Healthcare's on-going credit review and approval and (ii) GE Healthcare's on-going determination that Customer and this Agreement comply with all applicable laws and regulations, including those relating to workplace safety, FDA matters, Federal Healthcare Program Anti-kickback compliance, export/import control and money laundering prevention. CUSTOMER ACKNOWLEDGES THAT THE PRODUCTS ARE OR MAY BE SUBJECT TO REGULATION BY THE FDA AND OTHER FEDERAL OR STATE AGENCIES. CUSTOMER SHALL NOT USE OR PERMIT THE PRODUCTS TO BE USED IN ANY MANNER THAT DOES NOT COMPLY WITH APPLICABLE FDA OR OTHER REGULATIONS OR FOR ANY NON-MEDICAL, ENTERTAINMENT, OR AMUSEMENT PURPOSES. Further, Customer represents that it is purchasing the Products for its own use consistent with the terms of this Agreement and that it does not intend to re-sell the Products to any other party or to export the Products outside the country to which GE Healthcare delivers the Products.

2.2. Cost Reporting. Customer represents and warrants that it shall comply with (a) the applicable requirements of the Discount Statutory Exception, 42 U.S.C. 1320a-7b(b)(3)(A), and the Discount Safe Harbor, 42 C.F.R. § 1001.952(h), with respect to any discounts Customer may receive under this Agreement and (b) the Warranties Safe Harbor, 42 C.F.R. § 1001.952(g), with respect to any price reductions of an item (including a free item) which were obtained as part of a warranty under this Agreement. Customer agrees that, if Customer is required to report its costs on a cost report, then (i) the discount must be based on purchases of the same good bought within a fiscal year; (ii) Customer must claim the benefit in the fiscal year in which the discount is earned or in the following year; (iii) Customer must fully and accurately report the discount in the applicable cost report; and (iv) Customer must provide, upon request, certain information required to be provided to the Customer by GE Healthcare as a seller or offeror, as appropriate. If Customer is an individual or entity in whose name a claim or request for payment is submitted for the discounted items, the discount must be made at the time of the sale of the good; and the Customer must provide, upon request, certain information required to be provided to the Customer by GE Healthcare as a seller or offeror, as appropriate. GE

Healthcare agrees to comply with the applicable requirements for sellers or offerors under the Discount Safe Harbor, as appropriate.

2.3. Site Access Control and Network Security. Customer shall be solely responsible for establishing and maintaining security, virus protection, backup and disaster recovery plans for any data, images, software or equipment. GE Healthcare's Services do not include recovery of lost data or images. Customer shall comply with all applicable laws and regulations related to site access control.

2.4. Environmental Health and Safety. Customer shall provide and maintain a suitable, safe and hazard-free location and environment for the GE Healthcare Products and Services in material compliance with any written requirements provided by GE Healthcare, perform GE Healthcare recommended routine maintenance and operator adjustments, and ensure that any non-GE Healthcare provided Service is performed by, and GE Healthcare Products are used by, qualified personnel in accordance with applicable user documentation. GE Healthcare shall have no obligation to perform Services until Customer has complied with its obligations under this Section.

2.5. GE Healthcare-Supplied Parts. GE Healthcare can make no assurances that Product performance will not be affected by the use of non-GE Healthcare-supplied parts. In some instances, use of non-GE Healthcare-supplied parts may affect Product performance or functionality.

2.6. Training. Any Product training identified in the Quotation shall be in accordance with GE Healthcare's then-current training program offerings and terms. Unless otherwise stated in the catalog description, training must be completed within twelve (12) months after (i) the date of Product delivery for training purchased with Products and (ii) the start date for Services for training purchased with Services. If training is not completed within the applicable time period, GE Healthcare's obligation to provide the training will expire without refund.

2.7. Medical Diagnosis and Treatment. All clinical and medical treatment and diagnostic decisions are the responsibility of Customer and its professional healthcare providers.

3. Disputes; Liability; and Indemnity

3.1. Waiver of Jury Trial. EACH PARTY EXPRESSLY WAIVES ALL RIGHTS TO A JURY TRIAL IN CONNECTION WITH ANY DISPUTE ARISING UNDER THIS AGREEMENT.

3.2. Limitation of Liability. GE HEALTHCARE'S (AND ITS REPRESENTATIVES') LIABILITY UNDER THIS AGREEMENT, REGARDLESS OF THE FORM OF ACTION, SHALL NOT EXCEED: (A) FOR PRODUCTS OR SERVICES OTHER THAN SERVICES UNDER AN ANNUAL SERVICE CONTRACT, THE PRICE FOR THE PRODUCT OR SERVICE THAT IS THE BASIS FOR THE CLAIM; OR (B) FOR ANNUAL SERVICE CONTRACTS, THE ANNUAL CONTRACT PRICE FOR THE SERVICE THAT IS THE BASIS FOR THE CLAIM. NEITHER CUSTOMER NOR GE HEALTHCARE (NOR THEIR RESPECTIVE REPRESENTATIVES) SHALL BE LIABLE TO THE OTHER PARTY UNDER THIS AGREEMENT (OR OTHERWISE IN CONNECTION WITH THE PRODUCTS AND SERVICES) FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR LOSS OF PROFITS, REVENUE, TIME, OPPORTUNITY OR DATA, WHETHER IN AN ACTION IN CONTRACT, TORT, PRODUCT LIABILITY, STATUTE, EQUITY OR OTHERWISE. THE LIMITATION OF LIABILITY AND EXCLUSION OF DAMAGES SHALL APPLY EVEN IF THE LIMITED REMEDIES FAIL OF THEIR ESSENTIAL PURPOSE.

3.3. IP Indemnification. GE Healthcare will defend, indemnify and hold harmless Customer from any third party claims for infringement of intellectual property rights arising from Customer's use of GE Healthcare manufactured equipment and/or GE Healthcare proprietary software listed in the Quotation in accordance with their specifications and within the license scope granted in this Agreement. If any such claim materially interferes with Customer's use of such equipment and/or software, GE Healthcare shall, at its option: (i) substitute functionally equivalent non-infringing products; (ii) modify the infringing Product so that it no longer infringes but remains functionally equivalent; (iii) obtain for Customer at GE Healthcare's expense the right to continue to use the infringing Product; or (iv) if the foregoing are not commercially reasonable, refund to Customer the purchase price, as depreciated (based on five (5) year straight-line depreciation), for the infringing Product. Any such claims arising from Customer's use of such infringing Product after GE Healthcare has notified Customer to discontinue use of such infringing Product and offered one of the remedies set forth in clauses (i) through (iv) above are the sole responsibility of Customer. This Section represents Customer's sole and exclusive remedy (and GE Healthcare's sole and exclusive liability) regarding any infringement claim associated with such infringing Product. The above indemnification obligation is conditional upon Customer providing GE Healthcare prompt written notice of the infringement claim after receiving notice of such claim, allowing GE Healthcare to control the defense of such claim, and reasonably cooperating with GE Healthcare in such defense. Notwithstanding any other provision in this Agreement, GE Healthcare shall not have any obligation to Customer hereunder for infringement claims based on or resulting from: (a) use of such infringing Product in combination with any computer software, tools, hardware, equipment, materials, or services, not furnished or authorized in writing for use by GE Healthcare; (b) use of such infringing Product in a manner or environment or for any purpose for which GE Healthcare did not design or license it, or in violation of GE Healthcare's use instructions; or (c) any modification of such infringing Product by Customer or any third party. GE Healthcare shall not be responsible for any compromise or settlement or claim made by Customer without GE Healthcare's written consent. This indemnification obligation is expressly limited to the GE Healthcare manufactured equipment and/or GE Healthcare proprietary software listed in the Quotation.

4. Payment and Finance

4.1. Generally. The payment and billing terms for the Product(s) and/or Service(s) are stated in the Quotation.

4.2. Affiliate Billing. If Customer's order includes Products manufactured by more than one GE Healthcare affiliated company, each affiliated company may invoice Customer separately for the portion of the total price under the Quotation attributable to its Products, under the same payment terms specified in the Quotation. There shall be no additional fees or charges to Customer for such separate invoicing.

4.3. Late Payment. Failure to make timely payment is a material breach of this Agreement, for which (in addition to other available remedies) GE Healthcare may suspend performance under any or all GE Healthcare agreements until all past due amounts are brought current. If GE Healthcare so suspends, GE Healthcare will not be responsible for the completion of planned maintenance due to be performed during the suspension period and any product downtime will not be included in the calculation of any uptime commitment. Interest shall accrue on past-due amounts at a rate equal to the lesser of one-and-one-half percent (1.5%) per month or the maximum rate permitted by applicable law. Customer will reimburse GE Healthcare for reasonable costs (including attorneys' fees) relating to collection of past due amounts. Any credits that may be due to Customer under an agreement may be applied first to any outstanding balance. If Customer has a good faith dispute

regarding payment for a particular Product (or subsystem thereof) or Service, such dispute shall not entitle Customer to withhold payment for any other Product (or subsystem thereof) or Service provided by GE Healthcare. GE Healthcare may revoke credit extended to Customer because of Customer's failure to pay for any Products or Services when due, and in such event all subsequent shipments and Services shall be paid for on receipt.

4.4. Taxes. Prices do not include sales, use, gross receipts, excise, valued-added, services, or any similar transaction or consumption taxes ("Taxes"). Customer shall be responsible for the payment of any such Taxes to GE Healthcare unless it otherwise timely provides GE Healthcare with a valid exemption certificate or direct pay permit. In the event GE Healthcare is assessed Taxes, interest or penalty by any taxing authority, Customer shall reimburse GE Healthcare for any such Taxes, including any interest or penalty assessed thereon. Each party is responsible for any personal property or real estate taxes on property that the party owns or leases, for franchise and privilege taxes on its business, and for taxes based on its net income or gross receipts.

GE Healthcare Product Terms and Conditions

GE Healthcare

References herein to "Products" and "Services" mean the Products (including equipment and software) and Services identified on the applicable GE Healthcare Quotation ("Quotation"). References herein to "Healthcare IT Products" are (i) those software products identified in the Quotation as a "Centricity" product, any third party software licensed for use in connection with the Centricity software, all hardware used to operate the Centricity or the third party software, and services provided with respect to the implementation, installation or support and maintenance of the Centricity or the third party software, and/or (ii) any software, product or service that is included in a Quotation which Quotation is designated as an "Healthcare IT Quotation".

1. Commercial Logistics

1.1. Order Cancellation and Modification.

1.1.1. Cancellation and Payments. Except for Healthcare IT Products, if Customer cancels an order without GE Healthcare's prior written consent, Customer will pay a cancellation charge of fifteen percent (15%) of the price of the Products ordered. GE Healthcare will retain as a credit any payments received up to the amount of the cancellation charge. If Customer cancels an order for Products for which GE Healthcare has provided site evaluation services, Customer will also pay GE Healthcare reasonable charges for such services performed prior to cancellation. If applicable for the order, Customer will pay all progress payments (other than the final payment) prior to final Product calibration, and GE Healthcare may, at its option, delay final calibration until required progress payments are received. If Customer fails to schedule a delivery date with GE Healthcare within six (6) months after order entry, GE Healthcare may cancel Customer's order upon written notice to Customer.

1.1.2. Order Modifications. No modifications may be made to an order without GE Healthcare's prior written consent. The Product configuration listed in the Quotation is based upon information furnished to GE Healthcare by Customer, and Customer is responsible to provide and pay for modifications, if any, to the configuration due to inaccuracies or incompleteness of the information furnished to GE Healthcare by Customer, changes in Customer's needs or requirements, or for other reasons attributable to Customer.

1.2. Site Preparation. If applicable, Customer will be responsible, at its sole expense, for evaluating and preparing the site where the Products will be installed in accordance with GE Healthcare's site preparation requirements and applicable laws. Customer must provide GE Healthcare with prompt written notice if Customer is unable to prepare the site before the mutually agreed installation date. Upon receipt of such notice, GE Healthcare will reschedule the installation to a mutually agreed date. Customer shall be liable for any costs or expenses GE Healthcare or its representatives incur resulting from Customer's failure to provide GE Healthcare with timely notice of Customer's failure to properly prepare the site. GE Healthcare may, in its discretion, delay delivery or installation if GE Healthcare determines that the site has not been properly prepared or there are any other impediments to installation; provided that GE Healthcare gives Customer written notice of such delay stating the reasons therefor. If GE Healthcare provides site evaluation services, such services are intended only to assist Customer in fulfilling Customer's responsibility to ensure that the site complies with GE Healthcare's applicable site preparation requirements.

1.3. Transportation, Title and Risk of Loss; Delivery; Returns.

1.3.1. Transportation, Title and Risk of Loss. Unless otherwise indicated in the Quotation, shipping terms are FOB Destination. Title and risk of loss to equipment passes to Customer upon delivery to Customer's designated delivery location. Software is licensed to Customer; no title to or other ownership interest in such software passes to Customer.

1.3.2. Delivery. When feasible, GE Healthcare reserves the right to make delivery in installments. All such installments shall be separately invoiced and paid for when due, without regard to subsequent deliveries. At the time of such delivery, Customer will pay GE Healthcare for any amounts due upon delivery. Delivery dates are approximate. For GE Healthcare software or documentation, delivery means the first to occur of: (i) communication to Customer through electronic means, that allows Customer to take possession of the first copy or product master, or (ii) delivery to Customer's designated delivery location.

1.3.3. Product Returns. Customer shall not have any right to return Products for a refund after delivery except for products shipped in error that are different from the Products listed in the Quotation.

1.4. Installation and Certification. GE Healthcare will provide product assembly, installation and calibration, as required, at no additional charge, except for items excluded herein. GE Healthcare installation Services provided under the Quotation will be performed in accordance with applicable GE Healthcare installation guides and/or project plans. Customer will review the applicable GE Healthcare installation guides, and/or project plans, and perform Customer's obligations as set forth in those materials. Upon completion of assembly, installation and calibration, and prior to turnover of the Products to Customer for clinical use, as applicable, GE Healthcare will perform prescribed tests using its own performance specifications, instruments and procedures to verify that the Products meet GE Healthcare's applicable performance specifications.

1.4.1. Customer-Supplied Items.

- Customer will install necessary system cable and assemble any necessary equipment or hardware not provided by GE Healthcare, unless agreed otherwise in writing by the parties.
- For Products that will be operated on or in connection with Customer supplied hardware or software, Customer is responsible

for ensuring that such hardware and software conform to GE Healthcare's minimum hardware and software requirements as made available to Customer.

- Unless GE Healthcare has agreed in writing to maintain responsibility for an applicable service, Customer will be responsible for enabling the connectivity and interoperability between Customer-supplied hardware or software or other systems or devices and the Product, including, without limitation, procuring and installing any modifications, interfaces or upgrades consistent with GE Healthcare's written specifications.
- Unless otherwise agreed in writing by GE Healthcare, Customer is solely responsible for the performance of and payment for any applicable rigging and/or facility costs. GE Healthcare will not install accessory items unless otherwise agreed in writing by GE Healthcare.
- If applicable for the Product, electrical wiring and outlets, computer network infrastructure, conduit, cabinetry modification, wall mounts, ventilation and any other site preparation are not included in the purchase price and are the responsibility of Customer, unless otherwise agreed in writing by GE Healthcare.

1.4.2. Network. Unless Customer has elected to purchase network preparation and certification Services from GE Healthcare as set forth in the Quotation, Customer is solely responsible for ensuring that Customer's network is adequate for the proper operation and performance of the Products and otherwise meets GE Healthcare's written network configuration requirements.

1.4.3. License, Permits, and Approvals. Customer shall obtain and maintain all licenses, permits and other approvals necessary for installation, use, and disposal/recycling of the Products provided under this Agreement, including, but not limited to, any government licenses required to use radioactive sources for Products that require the use of such sources. GE Healthcare will ship such sources to Customer only after Customer provides GE Healthcare with satisfactory evidence that Customer has obtained all required licenses for such sources In addition, Customer will provide all radioactive sources for calibration and performance checks of Products that require the use of such sources. GE Healthcare will file any required Federal and State reports relating to its installation activities. GE Healthcare will not install, test, certify or provide its own software license or warranty for Products that are not listed in its on-line catalog or price pages at the time of sale (such Products are normally identified by NL or NW series numbers), unless otherwise agreed in writing by GE Healthcare.

1.4.4. Non-GE Healthcare Labor. If local labor conditions make it impractical to, or GE Healthcare is directed not to, use GE Healthcare's employees or pre-qualified contractors for the installation, all work will be performed by Customer's laborers or outside labor at Customer's expense; provided that GE Healthcare will, at Customer's request, furnish guidance for installation. GE Healthcare is not responsible for the quality or adequacy of any work performed by any party other than GE Healthcare or its pre-qualified contractors.

1.4.5. Non-GE Healthcare Installation. For Products that GE Healthcare is obligated to install under the terms of this Agreement, if GE Healthcare delivers the Product but fails to perform its installation obligations, then in such event Customer shall nevertheless be obligated to pay GE Healthcare an amount equal to (a) the Product purchase price set forth in the Quotation, if the Product purchase price and the installation Services price are shown as separate line items in the Quotation, or (b) if the Product purchase price and installation Services price are not shown as separate line items in the Quotation, then the Product purchase price less the fair market value of the applicable installation Services, taking into account the type of Product and level of installation required ("Installation Service FMV"). An independent third party shall determine the Installation Service FMV. Notwithstanding any other provision of this Agreement to the contrary, either the discharge of Customer's obligation to pay for installation Services shown as a separate line item(s) in the Quotation or the deduction of the Installation Service FMV, as applicable, shall be Customer's sole and exclusive remedy (and GE Healthcare's sole and exclusive liability) in the event GE Healthcare fails to perform its installation obligations under this Agreement.

1.5. Acceptance. Unless expressly provided otherwise in this Agreement, Customer shall be deemed to have accepted a Product delivered by GE Healthcare under this Agreement on the earlier of: (i) if GE Healthcare installs the Product, five (5) days after GE Healthcare notifies Customer that it has completed assembly and the Product is operating substantially in accordance with GE Healthcare's published performance specifications; (ii) if GE Healthcare does not install the Product, five (5) days after delivery of the Product to Customer; or (iii) the date Customer first uses the Product for patient use.

1.6. Warranties. Product warranties (if applicable) are set forth in the GE Healthcare warranty forms delivered with the Quotation. GE Healthcare may use refurbished parts in new Products as long as it uses the same quality control procedures and warranties as for new Products. Any part for which GE Healthcare has supplied a replacement shall become GE Healthcare property.

1.7. Data Access. If applicable, Customer shall permit GE Healthcare to connect to the Products, or to otherwise access Product performance data through a Customer-furnished telephone line or Broadband connection. The data collected by GE Healthcare will be used, during and after the term of this Agreement, in accordance with all applicable laws and regulations and in a manner that will maintain confidentiality.

2. Software License

2.1. License Grant. GE Healthcare grants to Customer a non-exclusive, non-transferable license to use for Customer's internal business purposes the GE Healthcare software, third-party software and Documentation at the location (or, for mobile systems, in the specific vehicle) identified in the Quotation, subject to the license scope and other restrictions set forth in this Agreement. "Documentation" means the GE Healthcare user manuals, on-line help functions, technical specifications and user instructions regarding the operation, installation and use of the software as made available by GE Healthcare to Customer. Customer may only use third-party software provided by GE Healthcare together with the GE Healthcare software and will comply with all third-party software license terms included in any click or shrink wrap license or of which GE Healthcare otherwise makes Customer aware. To the extent permitted by applicable law, licensors of third-party software shall be third-party beneficiaries of this Agreement with respect to third-party software sublicensed under this Agreement. Customer may permit its employees, agents, independent contractors and healthcare providers with privileges at Customer's facilities to use the software and Documentation; provided, however, that Customer shall be responsible for any acts of such third parties that are inconsistent

with this Agreement. Notwithstanding the foregoing, independent contractors that supply products comparable to the software shall be provided access to the software only with GE Healthcare's prior written consent and subject to any conditions GE Healthcare deems appropriate to protect its confidential and proprietary information.

2.2. Additional License Terms. Without GE Healthcare's prior written consent, Customer may not: (i) copy, sublicense, distribute, rent, lease, loan, resell, modify or translate the software or create derivative works based thereon, except that to the extent applicable, the software may be configured as specifically permitted in the Documentation; (ii) directly or indirectly decompile, disassemble, reverse engineer or otherwise attempt to learn the source code, structure, algorithms or ideas underlying the software; (iii) provide service bureau, time share or subscription services based on the software; (iv) remove, obscure or modify any markings, labels or any notice of the proprietary rights, including copyright, patent and trademark notices of GE Healthcare or its licensors; (v) electronically transfer the software outside Customer's intranet or network dedicated for the software, unless otherwise authorized in writing by GE Healthcare; or (vi) publicly release the results of any testing or benchmarking of the software without the prior written consent of GE Healthcare. Customer may transfer authorized copies of the software, and Documentation to a party that purchases or otherwise acquires the equipment and accepts any applicable license terms, except for software and Documentation that are (a) not a part of the base system standard operating software or Documentation for the equipment and (b) generally provided by GE Healthcare to its customers for a separate fee or charge. Advanced service software is subject to a separate fee and eligibility criteria and licensed under a separate agreement with GE Healthcare.

2.3. Backups. Customer may make a reasonable number of copies of the software in machine-readable form solely for backup, training, testing or archival purposes, so long as applicable license fees are paid. Customer shall reproduce on any such copy the copyright notice and any other proprietary legends that were on the original copy. GE Healthcare and its licensors, as applicable, retain all ownership and intellectual property rights to the software and Documentation. If Customer acquires any rights to the software or Documentation, Customer hereby assigns all of those rights to GE Healthcare or its licensors, as applicable. No license rights are granted (whether by implied license or otherwise), to Customer, except as specifically provided in this Section.

2.4. Remedies. Customer agrees that a violation of GE Healthcare's license, confidentiality or intellectual property rights will cause irreparable harm to GE Healthcare for which the award of money damages alone are inadequate. In the event of any breach of this provision, GE Healthcare shall be entitled to seek injunctive relief in addition to immediately terminating the license granted herein and requiring that Customer cease use of the software and return all copies of stand-alone software in any media in addition to seeking any other legal or equitable remedies available to GE Healthcare. This paragraph shall survive the termination of this Agreement.

3. Payment and Finance

3.1. Security Interest; Upgrade Pricing. Customer grants GE Healthcare a purchase money security interest in all items of hardware or equipment listed in the Quotation until full payment is received, and Customer shall perform all acts and execute all documents as may be necessary to perfect GE Healthcare's security interest. Except for Healthcare IT Products, prices for upgrades and revisions assume that Customer returns the replaced component and transfers title to GE Healthcare at no charge to GE Healthcare. If, after Product delivery, Customer does not make any payments for the Products within forty-five (45) days after such payments are due, GE Healthcare may, upon ten (10) days prior written notice to Customer, either (a) enter upon Customer's site and remove the Products or (b) temporarily disable the Products so that they are not operational.

3.2. Leases. If Customer is acquiring use of Products through an equipment lease (a "Lease") with an equipment lessor (a "Lessor"), certain provisions of this Agreement (including, but not limited to, terms related to payment, title transfer, warranties, and software licenses) may be modified as agreed to in writing between GE Healthcare, the applicable Lessor, and/or Customer, as the case may be. Acceptance of the equipment as between GE Healthcare and Lessor will be defined by this Agreement; acceptance of the equipment as between Lessor and Customer will be defined by the lease agreement. Notwithstanding the foregoing, if the Lessor does not comply with the terms of this Agreement, Customer shall continue to be responsible for the payment obligations hereunder.

4. Product Specific Terms

4.1. MUSE CV Information Technology Professional Services (ITPS). MUSE CV Product ITPS shall be performed within six (6) months of the date Customer orders the Services. Without limiting the foregoing, Customer agrees that, if the Services have not been performed within one (1) year of the date Customer orders the Services for reasons other than GE Healthcare's failure to perform, GE Healthcare shall be relieved of its obligation to perform the Services and the Customer shall not be entitled to a refund for such unperformed Services. ITPS Services include clinical applications training, project management, HL7/HIS systems integration, database conversion, and network design and integration (ND&I).

4.2. Pre-Owned Products. Products identified as pre-owned/refurbished/remanufactured Products have been previously owned and used; they are not new. When delivered to Customer, such Products may have received mechanical, electrical, and/or cosmetic reconditioning, as necessary, and will meet their original specifications. Since pre-owned Products may be offered simultaneously to several customers, their sale to Customer is subject to their continued availability at the time Customer offers to purchase such Products. If the pre-owned Products are no longer available, (i) GE Healthcare will attempt to identify other pre-owned Products in its inventory that meet Customer's needs, and (ii) if substitute pre-owned Products are not acceptable to Customer, GE Healthcare will cancel the order and refund any deposit Customer has paid for such Products.

4.3. CT and X-Ray Products. Certain Products that use x-ray or image intensifier tubes have been designed to recognize GE Healthcare-supplied tubes and report to the user the presence of a non-GE Healthcare-supplied tube. This will permit the user to make any adjustments to Product use that the user deems appropriate. Use of the Products with non-GE Healthcare-supplied tubes is always at the user's discretion; however, Customer acknowledges that advanced scanner functionality may be impaired or disabled by the use of non-GE Healthcare-supplied tubes. GE Healthcare assumes no liability for the use of non-GE-Healthcare-supplied tubes and disclaims any responsibility for any effect such tubes may have on Product performance.

GE Healthcare

GE Healthcare Additional Terms and Conditions: Healthcare IT

References herein to "Products" and "Services" mean the Products (including hardware and software) and Services purchased by Customer as identified on the applicable GE Healthcare Quotation ("Quotation"). References herein to "Healthcare IT Products" are (i) those software products identified in the Quotation as a "Centricity" product, any third party software licensed for use in connection with the Centricity software, all hardware used to operate the Centricity or the third party software, and services provided with respect to the implementation, installation or support and maintenance of the Centricity or the third party software, and/or (ii) any software, product or service that is included in a Quotation which Quotation is designated as an "Healthcare IT Quotation".

These Additional Terms and Conditions incorporate the GE Healthcare General Terms and Conditions as well as the GE Healthcare Product Terms and Conditions and will apply only to the license, purchase and use of Healthcare IT Products.

1. Healthcare IT Product Specific Terms. The following terms apply only to the purchase of Healthcare IT Products.

1.1. Statement of Work (SOW). Following the effective date of this Agreement, the parties may enter into a written statement of work ("SOW") signed by the parties that describe the professional services to be provided by pursuant to the quotation, which may include, among other things, an installation and implementation project work plan, identification of installation and implementation services, and other related professional services. GE Healthcare shall perform the professional services and provide any deliverables described in any such SOW and shall use commercially reasonable efforts to do so according to any delivery schedule in the SOW. GE Healthcare is responsible for the assignment of personnel to perform all services and may make any change in staffing it deems necessary provided that such change does not compromise the level of expertise required to complete the applicable SOW. Each SOW may include descriptions of the following: (i) professional services to be performed; (ii) deliverables; (iii) Customer's additional responsibilities; (iv) project work scope, (v) estimated performance schedule and applicable milestones; (vi) Customer's site and any site preparation requirements; (vii) network, hardware or other environmental or infrastructure requirements; (viii) preliminary implementation plans; or (ix) key assumptions. The terms and conditions of this Agreement shall prevail over those of the SOW. A SOW may only be modified in writing signed by authorized representatives of both parties and must be made pursuant to mutually agreed change control procedures. Changes to a SOW may require a change in fees reflecting the change in scope and/or change in schedule of delivery of the professional services or deliverables and/or change in Customer's responsibilities. From time to time during the term of this Agreement, the parties may enter into additional SOWs relating to services purchased by Customer under Change Orders to this Agreement. Each such additional SOW shall constitute a separate and independent work engagement and contractual obligation.

1.2. Project Managers. If required by the SOW, Customer and GE Healthcare shall each designate a project manager who will be responsible for day-to-day communications regarding the subject matter of the applicable SOW. The project managers will be responsible for monitoring the schedules and progress of services pursuant to the Agreement and/or SOW and will have the authority to act for the respective parties in all aspects of the engagement. The project managers for the parties will meet in person or via conference call as necessary. The responsibilities of the project managers include to: (i) serve as the single point of contact for all departments in their organization participating in this project; (ii) administer the change-of-control procedure; (iii) participate in project status meetings; (iv) obtain and provide information, data, decisions and approvals, within seven working days of the other party's request unless GE Healthcare and Customer mutually agree to an extended response time; (v) resolve deviations from project plans that may be caused by the parties' respective organizations; (vi) help resolve project issues and escalate issues within the parties' respective organizations, as necessary; (vii) monitor and report project status on a regular basis to the respective organizations as appropriate; and (viii) provide and coordinate technical and specialist resources as necessary.

1.3. HITECH Certification. GE Healthcare will use diligent efforts to obtain certification under the Health Information Technology for Economic and Clinical Health Act (the "HITECH Act") to the extent that certification standards are established for the applicable functionality included as part of GE Healthcare's EMR or Centricity Practice Solutions software licensed by Customer, including those product updates that GE Healthcare provides generally to Customer of such products as part of support and maintenance. If GE Healthcare fails to obtain certification for the applicable components within ninety (90) days after the beginning of the first Reporting Period in a Payment Year that Customer is actively seeking to demonstrate Meaningful Use, GE Healthcare will credit the standard support services fees for such software for each month during which the software is not certified (up to a maximum of 6 months) against future support fees. The foregoing is Customer's sole and exclusive remedy in the event GE Healthcare fails to obtain certification. For the avoidance of doubt, Customer's payment obligations under this Agreement are not conditioned on receipt of HITECH incentive payments, certification of the software or demonstration of meaningful use. GE Healthcare will keep Customer informed of GE Healthcare's certification status by posting such status at www.gehealthcare.com/hitech (or some other location that of which GE Healthcare may inform Customer). It is Customer's responsibility to ensure Customer meets all the requirements to qualify for the incentive payments, including "meaningful use", and to confirm that the GE Healthcare software Customer is using is certified according to HITECH criteria. GE Healthcare's obligations under this section apply only to the then-most current version of GE Healthcare's Centricity EMR or Centricity Practice Solution software products. GE Healthcare's obligations are contingent upon Customer then-receiving and paying for support services and complying with the requirements of the GE Healthcare service policy and, if GE Healthcare so requires, upon Customer installing software fixes, patches or updates or migrating to a new or different GE Healthcare software offering, and on Customer otherwise having installed all functionality not part of the GE Healthcare software that would have been required to show Meaningful Use. All capitalized terms shall the definitions set forth in this Agreement, the HITECH Act or any applicable implementing regulations.

1.4. Ownership Rights. GE Healthcare shall retain ownership of all deliverables (including any intellectual property embodied in the

deliverables or related to them) and any intellectual property developed under a SOW or during the course of performing the services whether or not the services are performed by GE Healthcare alone or jointly with Customer or others. In addition, GE Healthcare shall own all improvements, enhancements and derivative works of any GE Healthcare intellectual property. Customer hereby assigns, and will cause Customer's employees and independent contractors to assign, to GE Healthcare all of Customer's rights in and to such deliverables and intellectual property. GE Healthcare grants to Customer a nonexclusive, nontransferable, license, without the right to sublicense, to use the deliverables solely for Customer's internal business purposes and subject to the limitations described in this Agreement and the relevant SOW. Customer agrees to provide reasonable assistance to GE Healthcare in obtaining and enforcing GE Healthcare's rights to such deliverables and intellectual property. GE Healthcare will acquire no rights to any of Customer's confidential information that may be included in any deliverable unless expressly agreed to otherwise by Customer.

1.5. Software Product Testing and Acceptance. Commencing on the date that GE Healthcare gives notice of installation of the GE Healthcare software (or on the date as otherwise provided for in the applicable SOW) and implementation by GE Healthcare of appropriate option and parameter selections made by Customer, Customer will have thirty (30) days to test each unit or module of the GE Healthcare software. Customer shall be deemed to have accepted GE Healthcare proprietary software the earlier of (i) Customer's written acceptance, (ii) the expiration of the test period identified in the preceding sentence without GE Healthcare receiving written notice from Customer of the existence of any errors and a reasonable description of such error(s), or (iii) the date Customer first uses the software to process actual data in the operation of Customer's business (e.g. to register a patient, to produce a bill, to record a treatment or diagnosis or to process or view a medical image). As used in this section, an "error' is the failure of the software to perform substantially in accordance with the documentation. Acceptance tests will be conducted using test data, preferably from Customer's historical operations, in a non-productive environment and according to test protocol to be mutually agreed upon by the parties. Upon discovering an error, Customer shall promptly notify GE Healthcare in writing of the error, which notice shall include a reasonable description of the error. Upon GE Healthcare's timely receipt of Customer's written notice, GE Healthcare shall promptly correct such failures identified by Customer therein. An acceptance test for amendments or alterations provided by GE Healthcare as a result of testing may be conducted by Customer for a period of not more than five (5) days after delivery of such amendment or alteration, and the test period shall be extended for this purpose. Upon the occurrence of acceptance, all payments associated with acceptance, if any, shall be due and payable.

1.6 Software Support. GE Healthcare will provide to Customer the software support services as described in the applicable GE Healthcare service policy for the GE Healthcare software and the support period as specified in the applicable quotation for which Customer has paid the applicable fees. Software that is identified on the quotation and either (i) is delivered to Customer in a third-party developer/supplier's packaging and with its labeling or (ii) for which GE Healthcare expressly indicates (either in the quotation or in the product documentation) that the software is provided with the third-party developer/supplier's software support services in lieu of GE Healthcare software support services is not covered under this Agreement unless specifically stated otherwise in the applicable quotation. GE Healthcare support services will automatically renew for another annual term upon payment of the applicable renewal support fees, unless either party provides sixty (60) days prior written notice of non-renewal. GE Healthcare may increase its charges for support and maintenance fees for each successive annual software renewal support term. In connection with any annual renewal of support services, GE Healthcare may increase its annual charges for maintenance and support by no more than CPI plus two percent (2%). CPI shall mean the U.S. City Average (December to December percent) for ALL Urban Consumers (CPI-U). If GE Healthcare announces to its customers that it will no longer offer support ("end of product life") for a product or component, then upon at least twelve (12) months' prior written notice to Customer, GE Healthcare may, at its option, remove any such item from all GE Healthcare service agreements, with an appropriate adjustment of charges, without otherwise affecting such agreements.

1.7 Medical Diagnosis and Treatment. Customer acknowledges that: (a) the software does not make clinical, or other decisions and is not a substitute for competent, properly trained and knowledgeable staff who bring professional judgment and analysis to the information presented by the software; (b) Customer is responsible for verifying the accuracy of all patient information and determining the data necessary for Customer and Customer's users to make medical and diagnostic decisions, as well as for complying with all laws, regulations and licensing requirements applicable to Customer's delivery of healthcare services; (c) Customer is responsible for establishing and maintaining reasonable quality control procedures to ensure the accuracy of input to the software; (d) Customer and Customer's staff will consider all relevant information including information presented to Customer and Customer's staff by the software and may give whatever weight Customer and Customer's staff deem appropriate to the information produced by the software in the performance of Customer's and Customer's staff's functions; (e) any and all financial and management information produced by the software must be tested for reasonableness and accuracy before any actions are taken or reliance placed on it; (f) Customer has reviewed and will communicate to users who use and access the software any software information, which may be provided to Customer by GE Healthcare from time to time; (g) although GE Healthcare and its third-party vendors have used reasonable care in obtaining information from sources believed to be reliable, Customer acknowledges that it is Customer's obligation to be informed about any changes or developments in clinical information or guidelines that may not be reflected in the software and that the absence of an alert or warning for a given course of treatment, drug or drug combination should not be construed to indicate that the treatment, drug or drug combination is safe, appropriate or effective in any given patient; (h) Customer is solely responsible for the proper, complete and accurate submission of claims, including without limitation the determination of proper billing, diagnosis and procedure codes and the maintenance of patient medical records containing appropriate documentation of the Services billed; (i) when selecting a narrative condition or coded diagnosis or procedure, Customer must make an independent and informed judgment based upon the patient's condition and symptoms and/or a physician's submitted diagnosis, to select a code appropriate for that patient (GE Healthcare does not make any representation or warranty regarding the appropriateness of any of the narrative or codes displayed for any or all patients); (j) since it is possible that a payor's local medical review policies may be in effect prior to their receipt or update by GE Healthcare or its licensors, Customer, as a provider under Federal health care programs, assumes responsibility for the accuracy of all claims submitted for Services performed for Medicare beneficiaries. Customer shall use the Products only for clinical diagnostic purposes in the diagnosis or treatment of a disease or condition, and not for any entertainment or amusement purposes. GE Healthcare will not deliver, install, service or provide training on use of the Products if GE Healthcare discovers the Products have been or are intended to be used for non-clinical purposes

in violation of the preceding sentence.

1.8 Return of Software. Upon termination of this Agreement for any reason, Customer shall immediately return to GE Healthcare any and all software for which license grant immediately terminates.

2. Healthcare IT Warranty. The following warranties apply only to Healthcare IT products and are in lieu of any other standard GE Healthcare warranties.

2.1. Express Warranties. GE Healthcare makes the following express warranties to Customer:

2.1.1. GE Healthcare warrants that its services will be performed by trained individuals in a professional, workman-like manner.

2.1.2. Except as indicated otherwise below, GE Healthcare warrants that (i) GE Healthcare has the right to license or sublicense the software to Customer for the purposes and subject to the terms and conditions set forth herein, (ii) for 90 days following the warranty commencement date, the software will perform substantially in accordance with the applicable documentation, (iii) it has not inserted any disabling code (as defined herein) into the software, and (iv) it will use reasonable commercial efforts consistent with industry standards to scan for and remove any software viruses before installation of the software. As used herein, (a) "disabling code" means computer code that is designed to delete, interfere with, or disable the normal operation of the software; provided, however, that code included in the software that prohibits use outside of the license scope purchased for the software will not be deemed to be disabling code, and (b) "warranty commencement date" means the date upon which Customer first uses the software to process actual data in the operation of Customer's business (e.g., to register a patient, to produce a bill, to record a treatment or diagnosis or to process or view a medical image). The warranty period for any software or component furnished to correct a warranty failure will be the unexpired term of the warranty applicable to the repaired or replaced software.

2.1.3. Except for the right to license warranty above, the above warranties do not cover equipment or third-party software delivered with the GE Healthcare software. Third-party software is identified with a separate part number on the quotation (i) delivered to Customer in the third-party manufacturer/supplier's packaging and with its labeling, or (ii) for which GE Healthcare expressly indicates (either in the quotation or in the product documentation) that the software or equipment is provided with the third-party manufacturer/supplier's warranty in lieu of a GE Healthcare warranty. Such products are covered by the third-party manufacturer/supplier's warranties, to the extent available.

2.2. No Other Warranties. NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, SYSTEM INTEGRATION AND DATA ACCURACY, WILL APPLY.

2.3. Sole and Exclusive Remedies for Breach of Warranties. The remedies set forth below are Customer's sole and exclusive remedies and GE Healthcare's sole and exclusive liability for warranty claims. These exclusive remedies shall not have failed of their essential purpose (as that term is used in the Uniform Commercial Code) as long as GE Healthcare remains willing to repair or replace defective warranted products or re-perform any non-conforming services for no charge, as applicable, within a commercially reasonable time after being notified of Customer's warranty claim.

2.3.1. If there is any breach of a warranty contained in Section 2.1.1, GE Healthcare will promptly re-perform any non-conforming services for no charge as long as Customer provides reasonably prompt written notice to GE Healthcare.

2.3.2. If there is a breach of warranty contained in Section 2.1.2(i) GE Healthcare will indemnify Customer in accordance with Section 3.3 of the General Terms and Conditions to included as part of this Agreement.

2.3.3. If there is any breach of a warranty contained in Section 2.1.2(ii) – (iv) and Customer promptly notifies GE Healthcare of Customer's warranty claim during the warranty period and makes the software available for service, GE Healthcare will, at its option, with respect to the GE Healthcare software, either correct the non-conformity or replace the applicable software. Unless agreed otherwise, warranty service will be performed without charge from 8:00 a.m. to 5:00 p.m. (local site time), Monday-Friday, excluding GE Healthcare holidays, and outside those hours at GE Healthcare's then prevailing service rates and subject to the availability of personnel. For certain licensed software, GE Healthcare will perform warranty service only at an authorized service center or, in some instances, via a secure, remote connection to a GE Healthcare online center.

2.4. Limitations. GE Healthcare shall not have any obligation to Customer hereunder if the warranty claim results from or arises out of: (i) the use of the software in combination with any software, tools, hardware, equipment, supplies, accessories or any other materials or services not furnished by GE Healthcare or recommended in writing by GE Healthcare; (ii) the use of the software in a manner or environment, or for any purpose, for which GE Healthcare did not design or license it, or in violation of GE Healthcare's written recommendations or instructions on use; (iii) any alteration, modification or enhancement of the software by Customer or any third party not authorized or approved in writing by GE Healthcare (iv) inadequate back-up or virus protection or any other cause external to the software or beyond GE Healthcare's reasonable control. In addition, the warranties set forth above do not cover the software to the extent it is used in any country other than the country to which GE Healthcare ships the licensed software (unless GE Healthcare expressly agrees otherwise in writing). GE Healthcare does not guarantee that the software will operate without error or interruption.

Warranty Statement (United States)

GE Healthcare

1. **Warranted Products.** These warranties cover the purchase and use of the following GE Healthcare products:

- Magnetic Resonance
- Computed Tomography
- Mammography
- Positron Emission Tomography (including scanners, cyclotrons & chemistry labs)
- Nuclear
- X-ray
- Surgical Navigation Systems
- Cardiology
- Ultrasound
- Bone Mineral Densitometry
- Physiological Monitoring
- Small Animal Imaging
- C-Arms
- Advantage Workstation and Server
- Anesthesia Delivery
- Respiratory Care
- Gold Seal
- Phototherapy and other infant care accessories
- Microenvironments, including Giraffe®, Care Plus®, Ohio® Infant Warmer Systems and Panda™ Baby Warmers

2. **GE Healthcare Warranties.**

2.1 Scope. This warranty statement incorporates GE Healthcare's General Terms and Conditions and GE Healthcare's Product Terms and Conditions. GE Healthcare warrants that its services will be performed by trained individuals in a professional, workman-like manner. GE Healthcare will promptly re-perform any non-conforming services for no charge as long as Customer provides reasonably prompt written notice to GE Healthcare. The foregoing service remedy, together with any remedy provided herein, are Customer's sole and exclusive remedies (and GE Healthcare's sole and exclusive liability) for warranty claims. These exclusive remedies shall not have failed of their essential purpose (as that term is used in the Uniform Commercial Code) as long as GE Healthcare remains willing to repair or replace defective warranted products or re-perform any non-conforming services for no charge, as applicable, within a commercially reasonable time after being notified of Customer's warranty claim. NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, SYSTEM INTEGRATION AND DATA ACCURACY, WILL APPLY.

2.2 Term Usage. "Warranted Product" is a collective term which includes both the above-listed manufactured equipment and licensed software, with the exception of Healthcare IT Products, purchased by and/or licensed to (as applicable) Customer under the relevant GE Healthcare Quotation. Where an item of equipment has software code embedded in it, the code will only be considered licensed software under this warranty statement if the applicable GE Healthcare Quotation provides a separate part number for that software.

2.3 Equipment Warranty. Except as indicated otherwise below, GE Healthcare warrants the equipment will be free from defects in title and that for 1 year from the Warranty Commencement Date (as defined below) (i) the equipment will be free from defects in material and workmanship under normal use and service and (ii) except for equipment manufactured in compliance with Customer's designs or specifications, the equipment will perform substantially in accordance with GE Healthcare's written technical specifications for the equipment (as such specifications exist on the date the equipment is shipped) (the "Specifications"). This warranty covers both parts and labor and is available only to end-users that purchase the equipment from GE Healthcare or its authorized distributors. Customers purchasing through an authorized distributor must contact GE Healthcare promptly following such purchase to enable this warranty.

2.4 Software Warranty. Except as indicated otherwise below, GE Healthcare warrants for 90 days from the Warranty Commencement Date that (i) the licensed software will perform substantially in accordance with the applicable Documentation (as defined herein), (ii) it has not inserted any Disabling Code (as defined herein) into the licensed software and (iii) it will use reasonable commercial efforts consistent with industry standards to scan for and remove any software viruses before installation of the applicable Warranted Product. Except as indicated otherwise below, GE Healthcare warrants that it has the right to license or sublicense the licensed software to Customer for the purposes and subject to the terms and conditions set forth in GE Healthcare's General Terms and Conditions. As used in this warranty statement, (i) "Disabling Code" means computer code that is designed to delete, interfere with, or disable the normal operation of the Warranted Product; provided, however, that code included in the licensed software that prevents use outside of the license scope purchased for the software will not be deemed to be Disabling Code and (ii) "Documentation" means the GE Healthcare user manuals, on-line help functions, technical specifications and user instructions regarding the operation, installation and use of the software as made available by GE Healthcare to Customer.

2.5 Pre-owned Equipment. GE Healthcare's Gold Seal Preferred Products (certain pre-owned GE Healthcare equipment) and GE Healthcare's certified pre-owned Bone Mineral Densitometry Products are provided with GE Healthcare's standard warranties carrying the same duration as the new equipment warranty, but in no event exceeding 1 year (unless otherwise provided in writing by GE Healthcare). Except as expressly provided in this paragraph or in the applicable GE Healthcare Quotation, used and/or pre-owned equipment is not warranted by GE Healthcare.

2.6 Healthcare IT and X-Ray Tubes. GE Healthcare X-ray and Image Intensifier Tubes, Maxiray X-ray Tubes and GE Healthcare IT Products are covered by a separate warranty statement provided in an applicable GE Healthcare Quotation.

2.7 Third-Party Software and Equipment. This warranty statement does not cover Third-Party Software and Equipment (as defined herein) delivered with the Warranted Products (commonly identified by NL or NW series numbers in GE Healthcare's Quotation). "Third-Party Software and Equipment" means any non-GE Healthcare software or equipment (i) delivered to Customer in the third-party manufacturer/supplier's packaging and with its labeling or (ii) for which GE Healthcare expressly indicates (either in the GE Healthcare Quotation or in the product documentation) that the software or equipment is provided with the third-party manufacturer/supplier's warranty in lieu of a GE Healthcare warranty. Such products are covered by the third-party manufacturer/supplier's warranties, to the extent available. Anesthesia monitor mounting solutions Third-Party Software and Equipment purchased directly from GE Healthcare will not be treated as Third-Party Software or Equipment.

3. Warranty Commencement. Unless expressly provided otherwise in this warranty statement or the applicable GE Healthcare Quotation, the warranty period begins (the "Warranty Commencement Date") on the earlier of: (i) if GE Healthcare installs the Warranted Product, 5 days after GE Healthcare notifies Customer that it has completed assembly and the Warranted Product is operating substantially in accordance with GE Healthcare's Specifications; (ii) if GE Healthcare does not install the Warranted Product, 5 days after delivery of the Warranted Product to Customer; (iii) the date Customer first uses the Warranted Product for patient use; or (iv) if GE Healthcare is contractually required to install the Warranted Product, the 30th day following shipment to the end-user Customer if installation is delayed for reasons beyond GE Healthcare's reasonable control. The warranty period for any Warranted Product or component furnished to correct a warranty failure will be the unexpired term of the warranty applicable to the repaired or replaced Warranted Product. The warranty period for Vital Signs, Inc. Products begins on the date such products are shipped to Customer.

4. Remedies. If Customer promptly notifies GE Healthcare of Customer's warranty claim during the warranty period and makes the Warranted Product available for service, GE Healthcare will, at its option (i) with respect to equipment, either repair, adjust or replace (with new or exchange replacement parts) the non-conforming Warranted Product or components of the Warranted Product and (ii) with respect to GE Healthcare's licensed software, either correct the non-conformity or replace the applicable licensed software. Warranty service will be performed without charge from 8:00 a.m. to 5:00 p.m. (local site time), Monday-Friday, excluding GE Healthcare holidays, and outside those hours at GE Healthcare's then prevailing service rates and subject to the availability of personnel. For certain Warranted Products, GE Healthcare will perform warranty service only at an authorized service center or, in some instances, via a secure, remote connection to a GE Healthcare online center. With respect to GE Healthcare's warranty for the services it provides to Customer, Customer's exclusive remedy is set forth in Section 2.1 above.

Warranty claims for the Warranted Products should be directed through GE CARES at 1-800-437-1171. Warranty claims for accessories and supplies items should be directed through 1-800-558-5102.

5. Limitations. GE Healthcare shall not have any obligation to Customer hereunder if the warranty claim results from or arises out of: (i) the use of the Warranted Product in combination with any software, tools, hardware, equipment, supplies, accessories or any other materials or services not furnished by GE Healthcare or recommended in writing by GE Healthcare; (ii) the use of the Warranted Product in a manner or environment, or for any purpose, for which GE Healthcare did not design or license it, or in violation of GE Healthcare's recommendations or instructions on use; or (iii) any alteration, modification or enhancement of the Warranted Product by Customer or any third party not authorized or approved in writing by GE Healthcare. In addition, this warranty does not cover the Warranted Product to the extent it is used in any country other than the country to which GE Healthcare ships the Warranted Product (unless GE Healthcare expressly agrees otherwise in writing). GE Healthcare does not guarantee that licensed software will operate without error or interruption.

In addition, these warranties do not cover: (i) any defect or deficiency (including failure to conform to Specifications and/or Documentation, as applicable) that results, in whole or in part, from any improper storage or handling, failure to maintain the Warranted Products in the manner described in any applicable instructions or specifications, inadequate back-up or virus protection or any cause external to the Warranted Products or beyond GE Healthcare's reasonable control, including, but not limited to, power failure and failure to keep Customer's site clean and free of dust, sand and other particles or debris; (ii) the payment or reimbursement of any facility costs arising from repair or replacement of the Warranted Products or parts; (iii) any adjustment, such as alignment, calibration, or other normal preventative maintenance required of Customer; (iv) expendable supply items; (v) stockpiling of replacement parts; (vi) any failure of the Warranted Products to use or correctly process dates; and (vii) products not listed in GE Healthcare's Accessories and/or Supplies catalogs at the time of sale, and all service manuals are provided AS IS. For network and antenna installations not provided by GE Healthcare or its authorized agent(s), network and antenna system troubleshooting will be billable at GE Healthcare's standard service rates.

For MR systems, these warranties do not cover (i) any defect or deficiency that results, in whole or in part, from failure of any water chiller system supplied by Customer, (ii) service to any water chiller systems supplied by Customer and (iii) for MR systems with LHe/LN or shield cooler configured superconducting magnets (except for MR Systems with LCC magnets), any cryogen supply, cryogenic service or service to the magnet, cryostat, coldhead, shield cooler compressor or superconductive or resistive shim coils unless the need for such supply or service is caused by a defect in material or workmanship covered by these warranties (GE Healthcare's MR Magnet Maintenance and Cryogen Service Agreement is available to provide supplemental coverage during the warranty period). For Proteus XR/a, Definium and Precision 500D x-ray systems, these warranties do not cover collimator bulbs.

6. Exceptions to GE Healthcare Standard Warranties Described Above.

CT Partial System Equipment Upgrades*: Six (6) months
MR Partial System Equipment Upgrades*: Six (6) months
X-ray Partial System Equipment Upgrades*; High Voltage Rectifiers and TV Camera Pick-Up Tubes: Six (6) months
PET Partial System Equipment Upgrades* (Scanners, Cyclotrons and Chemistry Labs): Six (6) months
Nuclear Partial System Equipment Upgrades*: Six (6) months
GE OEC New or Exchange Service/Maintenance Parts: Ninety (90) days
HealthNet Lan, Advantage Review — Remote Products: Ninety (90) days

GE Ultrasound Exchange Probes and Transducers, Ultrasound Water Path attachment Kit: Ninety (90) days
GE Ultrasound Service Replacement Parts: Thirty (30) days
LOGIQBook and Other Handheld/Compact Ultrasound Products: Standard warranty includes (i) repair services at GE Healthcare service facilities, (ii) three (3) business day turnaround repair time for systems shipped via overnight delivery (where available), measured from the date of shipment (GE Healthcare is not responsible for delays in overnight shipment), (iii) seventy-two (72) hour loaner systems or probe replacement service via Fed Ex (shipping charges included), (iv) technical support via telephone from 7:00 am to 7:00 pm Central Time, Monday-Friday, excluding GE Healthcare holidays, (iv) field support/service is available for an additional charge and (v) preventative maintenance for an additional charge. For an additional charge, GE Healthcare will also provide the following enhanced warranty features as part of the system warranty: coverage for system damage due to accidental dropping or mishandling, with a maximum of two (2) replacement systems during the term of the warranty.
Ultrasound Partial System Equipment Upgrades*: Ninety (90) days (Customer will not be credited the value of this warranty against pre-existing warranties or service agreements).
Dash, Solar 8000M, 8000i & Tram: Additional two (2) years of parts only coverage, excluding displays (United States only)
DINAMAP ProCare Vital Signs Monitors: Two (2) years
DINAMAP Pro 100-400V2 Series Monitors: Three (3) years
Enterprise Access: One (1) year parts, ninety (90) days labor
MAC 1600: Three (3) years
MAC 1200: Three (3) years (United States only)
Batteries: Ninety (90) days, except (i) for LOGIQBook batteries, which are warranted for twelve (12) months and (ii) for Nickel cadmium or lead acid batteries for X-ray and mammography systems (which will carry a sixty (60)-month warranty prorated as shown below). For Nickel cadmium or lead acid batteries for X-ray and mammography systems, warranty service will be performed without charge from 8:00 a.m. to 5:00 p.m. (local site time), Monday-Friday, excluding GE Healthcare holidays, and outside those hours at GE Healthcare's then prevailing service rates and subject to the availability of personnel only during the first twelve (12) months of the sixty (60)-month warranty period. For X-ray and mammography systems, if nickel cadmium or lead acid batteries need replacement during their applicable warranty period, Customer will pay the price of the replacement battery in effect on its delivery date less a Pro Rata Credit Allowance (as defined herein). The Pro Rata Credit Allowance for batteries that fail less than twelve (12) months after the warranty begins is one hundred percent (100%). The Pro Rata Credit Allowance for batteries that fail more than twelve (12) months after the warranty begins is:

1 - (# of Mos. After Warranty Commencement /60) x 100%

For the purpose of Pro Rata Credit Allowance, a fraction of a month less than fifteen (15) days will be disregarded, and a fraction of a month equal to or greater than fifteen (15) days will be regarded as a full month.
Care Plus® Incubator: Three (3) years parts, one (1) year labor
Ohio® Infant Warmer Systems and Panda™ Warmers: Lifetime parts warranty on heater cal rod
BiliBlanket® Plus High Output Phototherapy System: Two (2) years on Light Box and eighteen (18) months on Fiberoptic Pad
Microenvironment and Phototherapy expendable components, this includes but is not limited to patient probes, probe covers and light bulbs: Thirty (30) days
GE OEC refurbished c-arms: Twelve (12) months after installation
Oximeters: Three (3) years from installation, or thirty-nine (39) months from GE Healthcare invoice, whichever occurs sooner
Tec 7 Vaporizers: Three (3) years
Tec 6 Plus Vaporizers: Two (2) years
X-ray and Image Intensifier Tubes and Maxiray X-ray Tubes: See GE Healthcare Warranty Statement X-Ray an Image Intensifier Tubes
Accessories and Supplies: GE Healthcare's catalog and/or website includes a "Service/Warranty Code" which identifies the installation, warranty, applications and post-warranty service, if any, provided for each accessory and supply product. Following are the warranty periods for accessories and supplies:

Service/Warranty Code T	100 Years
Service/Warranty Code V	25 Years
Service/Warranty Codes X	15 Years
Service/Warranty Codes F	3 Years
Service/Warranty Codes D, J, N, O, R or Z	2 Years
Service/Warranty Codes A, B, C, E, G, L, P, Q, S or Y	1 Year
Service/Warranty Code H	6 Months
Service/Warranty Code K and all Vital Signs, Inc. products	3 Months
Service/Warranty Code M	1 Month
Service/Warranty Code W	Out of Box Failure Only

*** NOTE: For partial system equipment upgrades, the warranty applies only to the upgraded components**

GE Healthcare

Warranty Codes For Accessories And Supplies

Service / Warranty Codes. If Customer promptly notifies GE Healthcare of its warranty claim and makes the Product available for service, GE Healthcare will provide the warranty service indicated in the applicable Service/Warranty Code description. The terms and conditions of GE Healthcare's Warranty Statement(s) apply to all warranty claims. Basic Service Premise for Products – GE Healthcare Field Engineers will take the first call for service and either provide direct support or arrange for support from the manufacturer or its dealers as indicated by the individual Service/Warranty Code. If the Service/Warranty Code calls for Product return for repair or in-warranty exchange, Customer must return the Product as GE Healthcare directs. GE Healthcare provides warranty service from 8:00 AM to 5:00 PM local time Monday-Friday EXCLUDING GE HEALTHCARE HOLIDAYS. If a Service/Warranty Code provides for warranty service to be performed on Customer's site, such service is available outside the above hours at GE Healthcare's prevailing service rates and subject to the availability of personnel.

A GE Healthcare directly, or through a sub-contractor, provides the following:

Installation; parts; on-site warranty service to repair, adjust or replace (at GE Healthcare's option and using new or exchange replacement parts) non-conforming products or parts; applications training in some cases (with additional charge); and post-warranty service, at prevailing hourly billed service ("HBS") rates and, in some cases, under GE Healthcare service contracts.

B GE Healthcare directly provides the following through GE Healthcare's Global Parts Operation (GPO):

New or exchange replacement parts at no charge to correct non-conforming products or parts during the warranty period; new or exchange replacement parts at GE Healthcare's normal prices for post-warranty repairs. ***Note:*** *Installation, applications training and on-site service is the Customer's responsibility. However, GE Healthcare's Field Engineers may be available at prevailing HBS rates. Contact GE CARES for availability.*

C GE Healthcare arranges for the third-party Product Manufacturer or its dealers to provide the following:

Installation (in some cases with an additional charge); parts; on-site warranty service to repair, adjust, or replace (at the manufacturer's or dealer's option and using new or exchange replacement parts) non-conforming products or parts; applications training in some cases (some with additional charge); and post-warranty service at prevailing service rates.

D GE Healthcare refers to the Product Manufacturer warranty, which provides the following:

Basic functional troubleshooting (no technical labor) with supplier phone support and repair or replacement (at the manufacturer's or dealer's option) of defective products or parts. ***Note:*** *The battery for Service/Warranty Code **D** has a 1-year warranty. For detailed warranty information, please refer to the Product Manufacturer's warranty certificate.*

E GE Healthcare directly, or through a sub-contractor, provides:

Installation (in some cases with an additional charge); basic functional troubleshooting (no technical labor) with supplier phone support; and coordination of unit exchange or loaner program for in-factory service.

GE Healthcare arranges for the third-party Product Manufacturer or its dealers to provide in-factory service:

At no charge during the warranty period and at manufacturers or dealer's prevailing service rates outside of the warranty period. Products must be returned to the manufacturer or dealer, at GE Healthcare's expense during warranty and Customer's expense after warranty, for repair.

F GE Healthcare refers to the Product Manufacturer warranty, which provides the following:

Basic functional troubleshooting (no technical labor) with supplier phone support and replacement of non-conforming products or parts, which Customer returns to the manufacturer or dealer during the warranty period. ***Note:*** *For detailed warranty information, please refer to the Product Manufacturer's warranty certificate.*

G, J, O and Q GE Healthcare refers to the Product Manufacturer warranty, which provides the following:

Start up and commissioning; basic functional troubleshooting (no technical labor) with supplier phone support 24/7; and warranty service to repair, adjust, or replace (at the manufacturer's or dealer's option) non-conforming products or parts (excluding installation, time and material). ***Note:*** *The UPS battery for Service/Warranty Code **G** has a 9-year pro-rated warranty to cover non-conforming material. Start up and commissioning for Service/Warranty Code **O** applies only to 10 KVA and above. The UPS battery for Service/Warranty Codes **O** and **Q** has a 1-year warranty to replace the product. For detailed warranty information, please refer to the Product Manufacturer's warranty certificate. Warranty service for Service/Warranty Codes **G** and **O** is provided On-site. For detailed warranty information, please refer to the Product Manufacturer's warranty certificate.*

H, K, L and M GE Healthcare directly provides the following:

Exchange of non-conforming products, which Customer returns to GE Healthcare during the warranty period. ***Note:*** *Installation, parts, applications training, and on-site service is the Customer's responsibility.*

N, R and S GE Healthcare refers to the Product Manufacturer warranty, which provides the following:

Installation; Preventative Maintenance; and parts and labor. ***Note:*** *Post-warranty service, at manufacturer's prevailing HBS rates, and in some cases, under GE Healthcare service contracts. The battery for Service/Warranty Code R has a 1-year warranty. For detailed warranty information, please refer to the Product Manufacturer's warranty certificate.*

P GE Healthcare directly provides the following:

Replacement of non-conforming components. ***Note:*** *Installation, parts, applications training, and on-site service is the Customer's responsibility.*

T, V and X GE Healthcare directly provides the following:

Replacement of Product only; GE Healthcare will not replace patient records; and product is warranted only for image legibility. ***Note:*** *Installation, parts, applications training, and on-site service is the Customer's responsibility.*

W GE Healthcare directly provides the following:

Replacement of Product only for Out of Box failure. ***Note:*** *Installation, parts, applications training, and on-site service is the Customer's responsibility.*

Y and Z GE Healthcare refers to the Product Manufacturer warranty, which provides the following:

Basic functional troubleshooting (no technical labor) with supplier phone support and replacement of non-conforming components. ***Note:*** *All electrical components (excluding the UPS) for Service/Warranty Code **Z** have a 1-year warranty. For detailed warranty information, please refer to the Product Manufacturer's warranty certificate.*

Trade-in Addendum to GE Healthcare Quotation

THIS ADDENDUM, dated this Select Effective Date of this Addendum, between General Electric Company, through its division, GE Healthcare ("GE Healthcare") and Carolinas Medical Center Union ("Customer"), is made a part of Quotation # P7-C150864 v15 dated October 31, 2013 ("Quotation") between GE Healthcare and Customer and modifies the Quotation as follows:

A. Customer warrants and represents to GE Healthcare that Customer has full legal title to the equipment listed below ("Equipment") and/or mobile vehicle in which the Equipment is contained ("Vehicle"), free and clear of all liens and encumbrances and conveys such title, and any registration and license documents (as applicable), to GE Healthcare effective as of the date of the removal or receipt by GE Healthcare of the Equipment and/or Vehicle (as applicable).

Equipment/Vehicle Mfr.	Model & Description	Quantity	ID / Serial #	Trade-In Amount ($)
Toshiba	Dual Plane	1	N/A	0.00

B. In cases where GE Healthcare will be removing the Equipment, GE Healthcare will, at its expense, arrange for removal of the Equipment during Customer's normal business hours or on a mutually agreed schedule. Customer will be responsible for (i) any required rigging, construction or demolition expenses; (ii) any facility reconditioning (unless expressly stated otherwise in the Quotation); and (iii) providing GE Healthcare and/or its contractor(s) with timely, unrestricted access to remove the Equipment. Prior to removal or return to GE Healthcare (as applicable), Customer will ensure that the site where the Equipment is located and the Equipment itself are clean and free of bodily fluids. Customer must also inform GE Healthcare of work-area related safety risks to GE Healthcare employees. Until safety risks are appropriately addressed and the Equipment is removed or returned to GE Healthcare (as applicable), Customer is responsible for risk of loss and damage to the Equipment.

C. Customer is responsible for the proper management, transportation and disposal of the following materials that may be located at Customer's site in accordance with applicable legal requirements: radioactive sources; PET radioactive pins; biohazard filled bags; pharmaceuticals; and all other materials considered hazardous under U.S. Department of Transportation shipping regulations.

D. Prior to removal or return to GE Healthcare (as applicable), Customer will remove all Protected Health Information ("PHI") (as defined by the Health Insurance Portability and Accountability Act) from the Equipment and agrees to indemnify GE Healthcare for any loss whatsoever resulting from any PHI that is not removed. The parties agree that GE Healthcare shall have no obligations whatsoever in connection with any PHI that is not properly removed from the Equipment by Customer.

E. If any of the conditions in this Addendum are not fulfilled, or if the Equipment is missing any components or is inoperable at the time of removal or return to GE Healthcare (as applicable), GE Healthcare may at its option reduce the trade-in amount or decline to purchase the Equipment. All other terms and conditions of the Quotation remain unmodified and in full force and effect.

Once this Addendum has been attached to the signed Quotation, this Addendum shall be deemed executed by GE Healthcare and Customer effective as of the date set forth above.

Carolinas Medical Center Union

Signature: _____

Print Name: _____

Title: _____

Date: _____

General Electric Company, through its division, GE Healthcare

Signature: _____

Print Name: _____

Title: _____

Date: _____

Attachment D

Equipment Disposal Letter

November 15, 2013

Steven Dence
Interventional Cath & Angio Department
Carolinas Medical Center – Union
600 Hospital Drive
Monroe, NC 28112

RE: North Carolina Certificate of Need ("CON") requirements for Trade-in Equipment on Quotation P7-C150864v17

Dear Steven,

General Electric Company, by and through its GE Healthcare Division ("GE Healthcare"), sincerely thanks you for your continued business and support. GE Healthcare values the relationship that we have with Carolinas Medical Center – Union ("Customer").

GE Healthcare understands and acknowledges that end-user purchasers who acquire diagnostic imaging equipment for use in North Carolina are or may be subject to Certificate of Need ("CON") requirements for such equipment. GE Healthcare agrees to use commercially reasonable efforts to help facilitate compliance with applicable CON requirements prior to resale and/or re-installation of this equipment, as applicable, but the parties acknowledge that the end-user purchaser is solely responsible for obtaining any applicable CON approvals prior to use of such equipment in North Carolina.

Thank you again for the opportunity to earn your business. If you have any additional questions, feel free to call me at any time.

Sincerely,

Sarah Thomas
Product Manager
Interventional
sarah.thomas@ge.com
262-347-9347

Attachment E

Capital Cost Schedule and Certified Cost Letter

Attachment E - **PROPOSED TOTAL CAPITAL COST OF PROJECT**

Project name: CMC-Union Cardiac Catheterization Lab Equipment Replacement

Provider/Company:

A.	**Site Costs**		
(1)	Full purchase price of land		$0
	Acres Price per Acre $		
(2)	Closing costs		$0
(3)	Site Inspection and Survey		$0
(4)	Legal fees and subsoil investigation		$0
(5)	Site Preparation Costs		
	Soil Borings		
	Clearing-Earthwork		
	Fine Grade for Slab		
	Roads-Paving		
	Concrete Sidewalks		
	Water and Sewer		
	Footing Excavation		
	Footing Backfill		
	Termite Treatment		
	Other (Specify)		
	Sub-Total Site Preparation Costs		$0
(6)	Other (Specify)		$0
(7)	**Sub-Total Site Costs**		**$0**
B.	**Construction Contract**		
(8)	Cost of Materials		
	General Requirements	Included	
	Concrete/Masonary	Included	
	Woods/Doors & Windows/Finishes	Included	
	Thermal & Moisture Protection	Included	
	Equipment/Specialty Items	Included	
	Mechanical/Electrical	Included	
	Other (Specify)	Included	
	Sub-total Cost of Materials		$322,000
(9)	Cost of Labor		Included
(10)	Other (Specify)		Included
(11)	**Sub-Total Construction Contract**		**$322,000**
C.	**Miscellaneous Project Costs**		
(12)	Building Purchase		NA
(13)	Fixed Equipment Purchase/Lease		$914,275.20
(14)	Movable Equipment Purchase/Lease		$0
(15)	Furniture		$4000
(16)	Landscaping		$0
(17)	Consultant Fees		
	Architect and Engineering Fees	$50,000	
	Legal and CON Fees	$25,000	
	Market Analysis	$0	
	Other (Testing)	$5,000	
	Other (Abatement)	$0	
	Sub-Total Consultant Fees		$80,000
(18)	Financing Costs (e.g., Bond, Loan, etc.)		$0
(19)	Interest During Construction		$0
(20)	Other (Contingency)		$79,724.80
(21)	**Sub-Total Miscellaneous**		**$1,078,000**
(22)	**Total Capital Cost of Project** (Sum A-C above)		**$1,400,000**

Architecture RdM

07 November 2013

Mr. Craig Smith, Section Chief
Certificate of Need Section
Division of Health Service Regulation
NC Department of Health and Human Services
2704 Mail Service Center
Raleigh, North Carolina 27699-2704

RE: Statement of Probable Cost – SD Phase
CMC Union Cath Lab Equipment Replacement
Carolinas HealthCare System
RdM 9010.135
OSR 2698614

Mr. Smith,

As a licensed architect in the State of North Carolina, the architect with responsible charge of this project, and an authorized representative of RdM Architecture PA, please accept this Statement of Probable Construction Costs.

The estimated cost of construction is based on the healthcare experience of me, RdM Architecture PA and recent construction experience of Carolinas HealthCare System. Based on this collective information, to the best of our knowledge and professional experience, and in association with CHS, we submit to you a probable construction cost of $322,000, and that the cost is complete, accurate and reasonable for this project.

Please contact us with any questions or the need for additional information.

Regards,
RdM Architecture PA

Richard Mack AIA

CC: Tom Washington, Carolinas HealthCare System

RICHARD D. MACK REGISTERED ARCHITECT 5628 NORTH CAROLINA CHARLOTTE, N. C.

RDM ARCHITECTURE PA REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 578 NORTH CAROLINA CHARLOTTE, N. C.