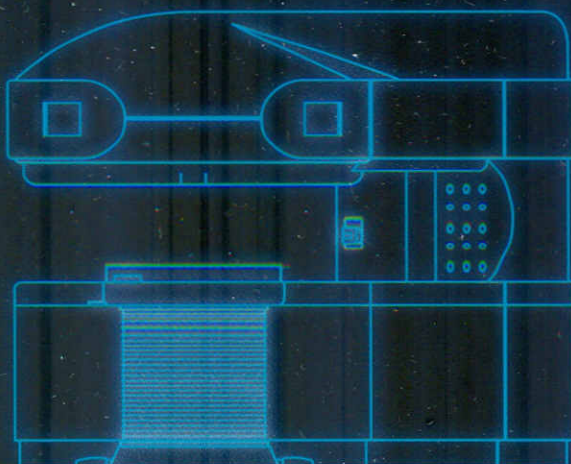


HITACHI
Inspire the Next

A P E R T O

APERTO™
Totally Open with Ultimate Performance



APERTO™

A different solution to the high field.

Open MRI or Closed MRI - which do you prefer?

To this question, the medical professionals in the world will choose the former.

This is the answer also from those examinees who must undergo MRI examination.

CT scanners and X-ray systems are bound by design limitation due to their principle of operation. So was MRI, emerged as a new modality, also bound by the same limitation, and has kept on evolving. However, MRI systems have taken another way of evolution, different from that of other modalities because MRI has two methods - vertical magnetic field and horizontal magnetic field.

In 1995, an MRI system with a totally new concept, breaking all the design limitation of MRI came on the stage.

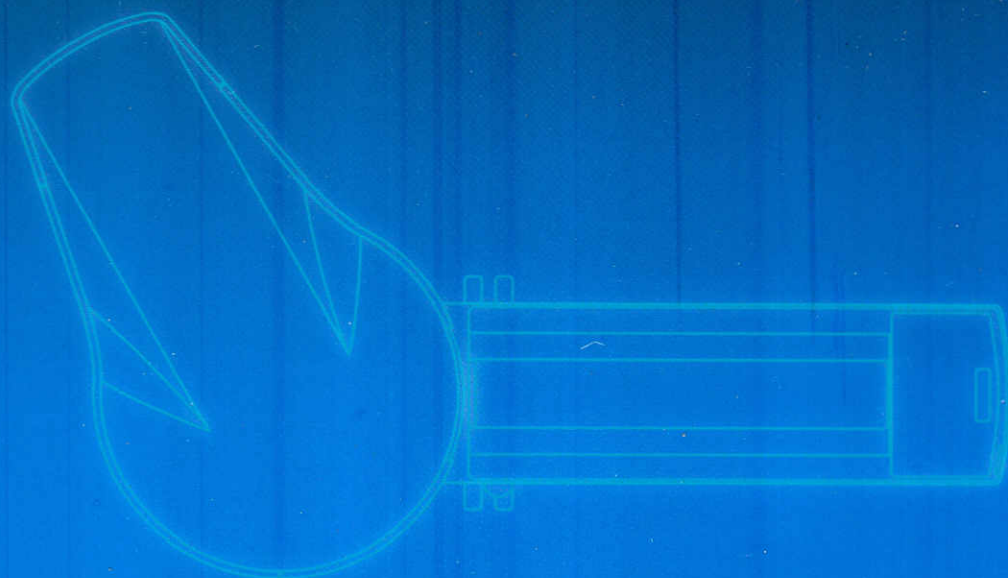
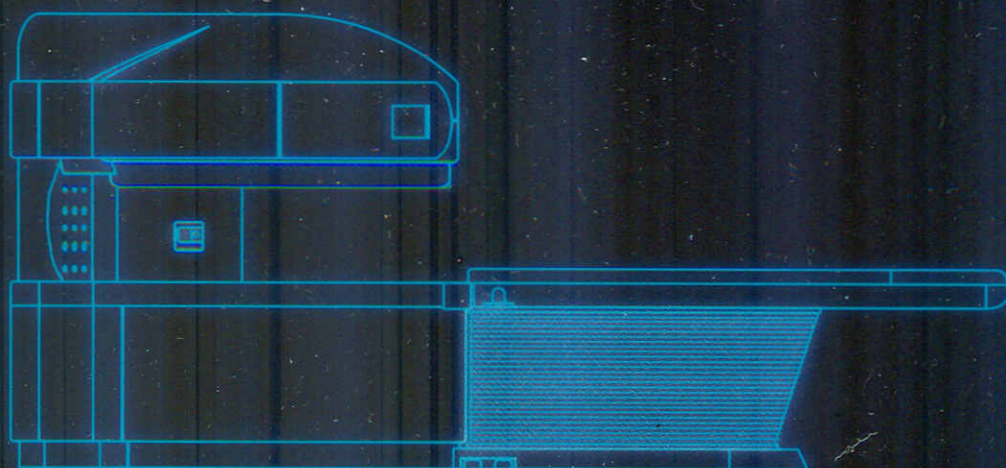
That is HITACHI AIRIS series

That was the birth of an epoch-making MRI adopting the concept of "Open" that had never existed with conventional MRI systems.

Open MRI largely alleviates uneasy feeling of examinees and at the same time remarkably improves the operability for the operator, pioneering further such new capabilities of MRI as I-MR.

And we are now in the 21st century.

A new way of solution begins to move toward high magnetic field.



APERTO™

Single Pillar

A beautiful MRI system was born, overthrowing common sense derived from conventional MRI.

Magnet

The highest magnetic field was achieved in the area of the permanent magnetic field.

Gradient

Gradient magnet system required for realizing high performance sequence is provided with the power overwhelming that of conventional models.

Open

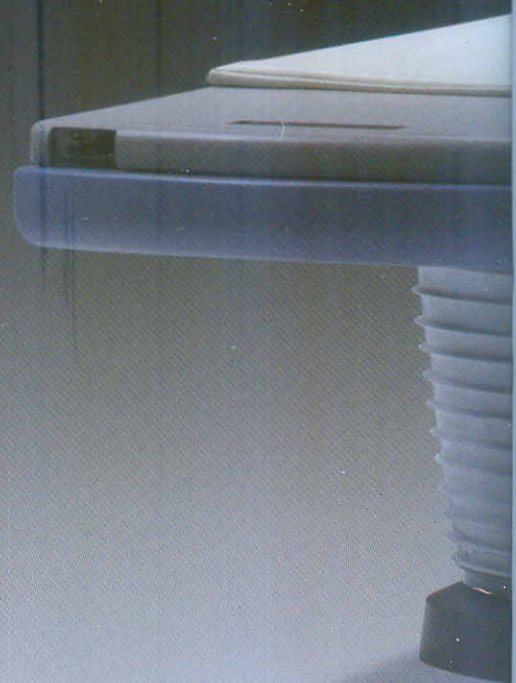
Ultimate openness was realized, giving a big capability to operator and a big security to patient.

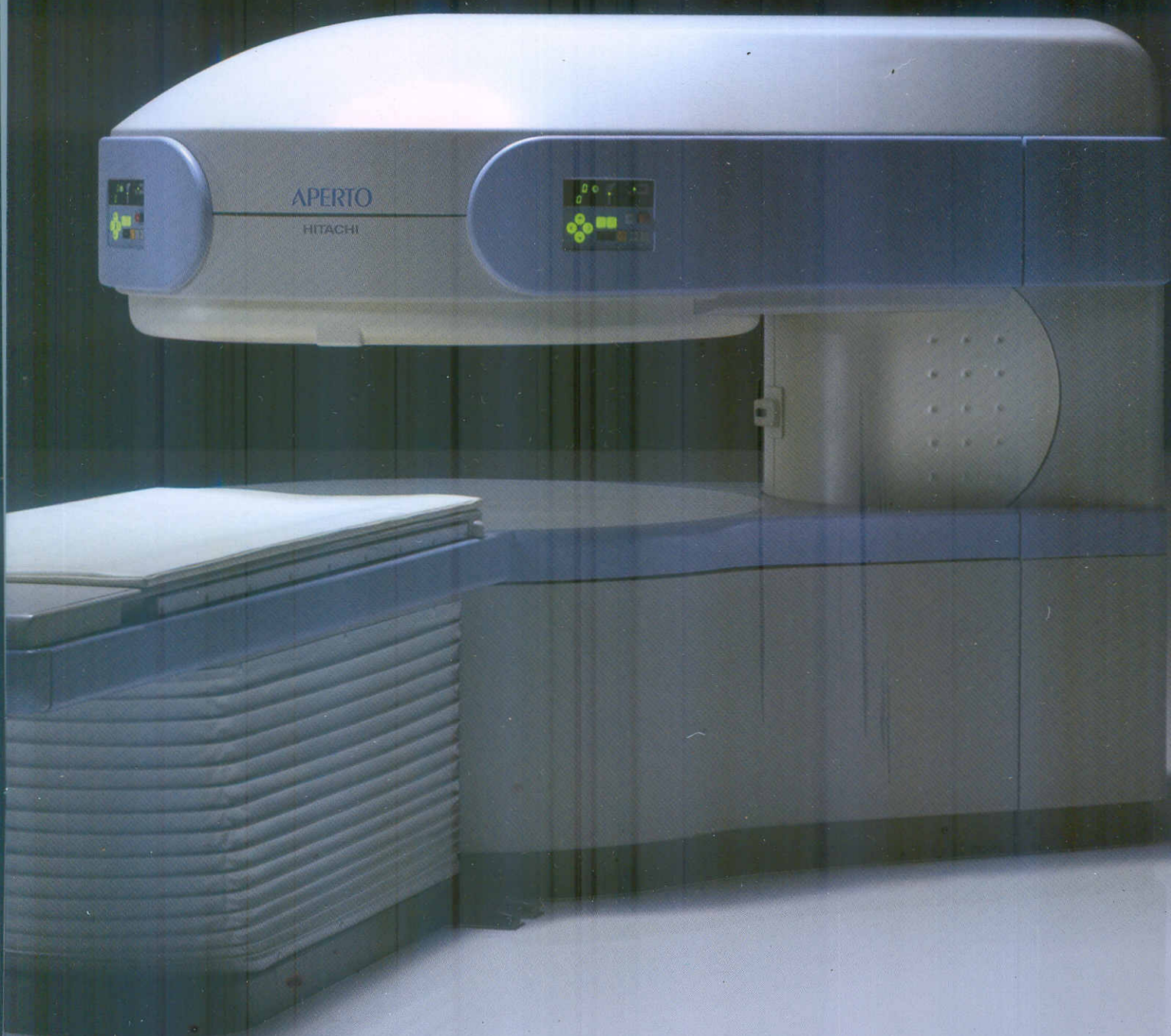
Applications

High precision static magnetic field together with gradient magnetic field system provides a group of high performance sequences.

Possibilities

Design and performance of APERTO indicate the beginning of a new Open MRI era.







Magnetic field strength

Gantry accommodating 0.4T, the highest permanent magnetic field

Excellent magnet technology has at last materialized 0.4T magnetic field strength, the first in the world as permanent magnet, maintaining full gantry opening diameter. Small leakage magnetic field and highly uniform magnetic space were realized in a single system.

High image quality best suited for Ultimate Performance

VOSI (Vertical-Field with Optimized Sub-System Integration) Technology accompanied by high sensitivity receiving coils has realized high image quality. A full lineup of receiving coils compatible with each imaging area can cover all the body areas.

Gradient magnetic field

A powerful gradient magnetic field supporting high performance

The high power gradient magnetic field system compatible with a variety of high function sequence. Enough powerful for speedy examination and high level clinical applications.

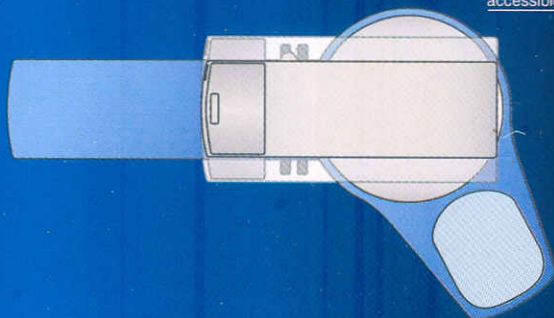
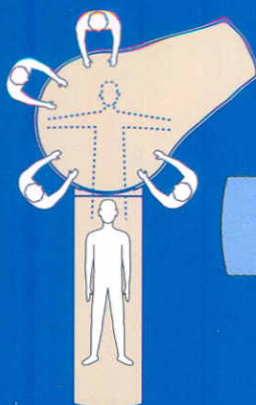
Totally open design

Ultimate openness

The history of the Open-MRI has shown a continued evolution from MRP series to AIRIS series. The world of Open-MRI that Hitachi has created is demonstrating now the all-direction-accessible "APERTO".

Panoramic 320°-open MRI

Open-MRI can give peaceful feeling to examinee, and a wide accessible area enables direct approach to imaging area, contributing to shortening of setting time.



Operability

Side movement of table inside gantry is possible

Side-sliding function of patient table improves further the high setting function of the open MRI. With APERTO, regardless of table position, the table can move in any area within gantry with a stroke of 300mm. Together with the 700mm wide tabletop, it provides high operability and high efficiency.

High operability by footswitch

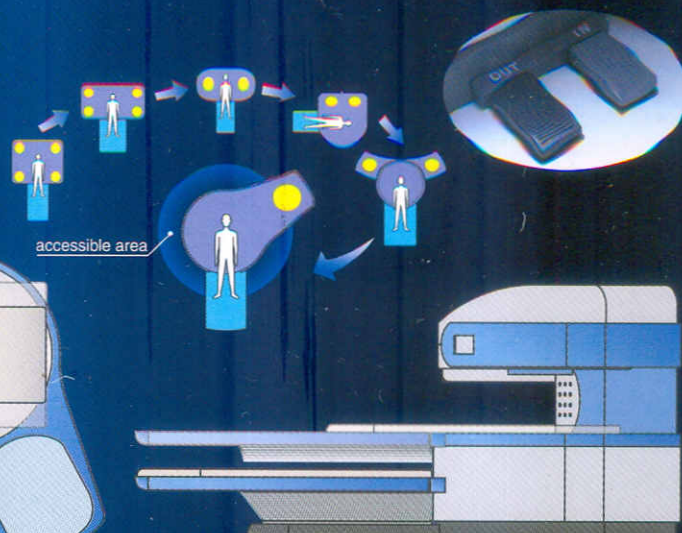
Only two IN/OUT footswitches located at the lower side of the table allow a series of operation automatically - elevate the table from starting position as low as 450mm from the floor, turn laser localizer on, introduce the table into the gantry etc.

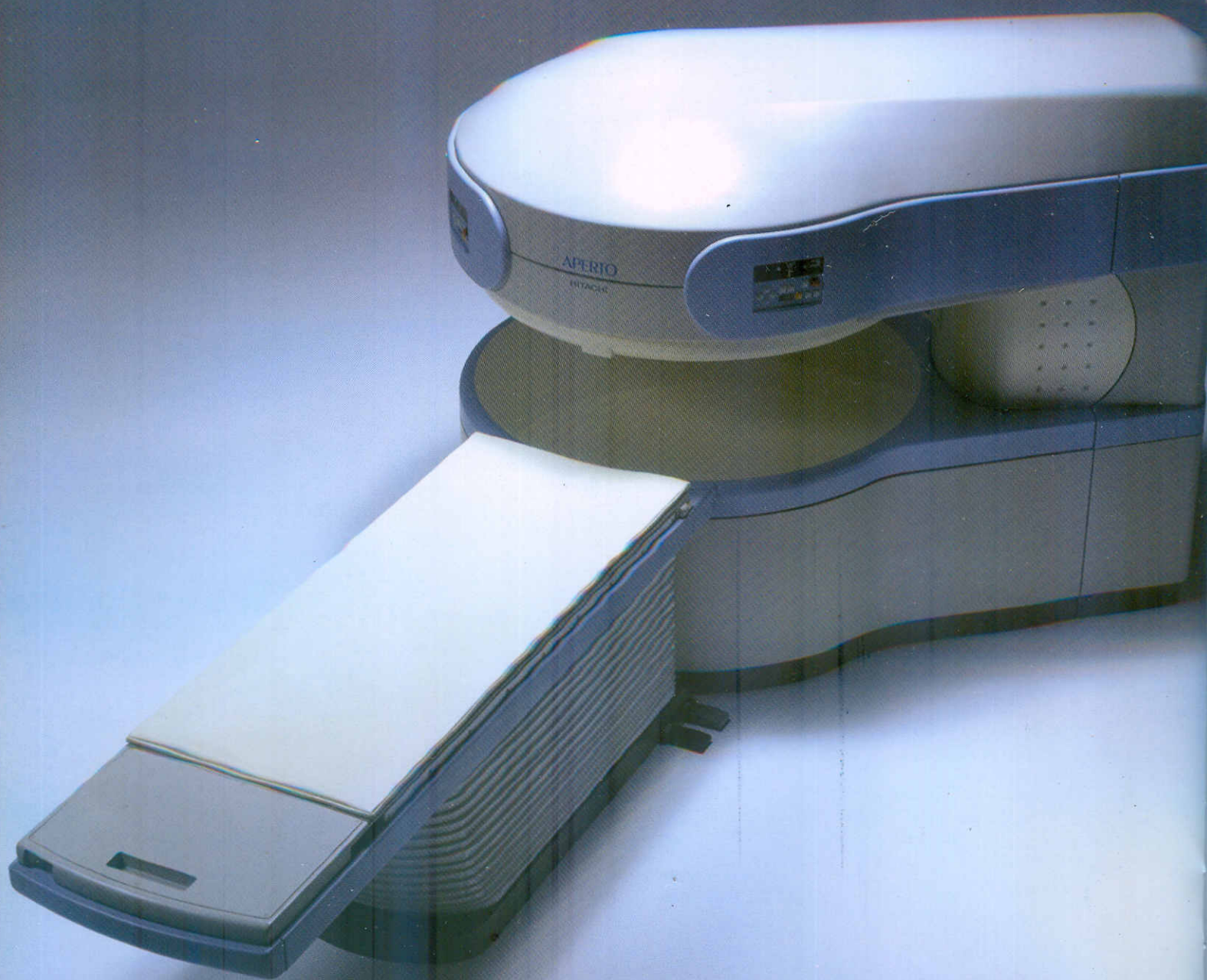
Also, table shift motion can be smoothly accelerated and stopped by CPU control.

Possibilities

Compatible with I-MR

Due to the realization of Open-MRI, a new application technology of MRI has started. The application technology covers, for example, utilizing MRI images for monitoring puncture needle or MRI imaging for checking during surgical operation. I-MR is a future application field which was made possible by the openness of Open-MRI and the small leakage magnetic field of permanent magnet, and is now attracting world's high attention.





High speed: [Single Shot EPI]

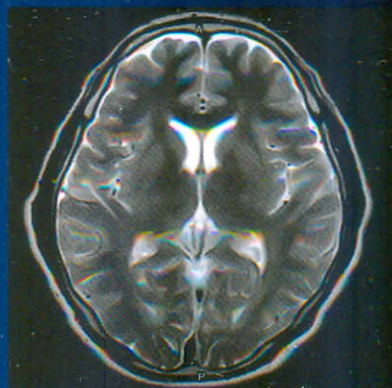
APERTO has realized Single Shot EPI by high speed and high precision of gradient magnetic field control. Single Shot EPI enables sub-second high speed imaging and also short time imaging, and therefore, motion-artifact-free images can be obtained.

High speed: [Single Shot FSE]

Realization of both powerful gradient magnetic field system and high magnetic field uniformity has enabled Single Shot FSE imaging with short echo intervals. Short time data acquisition prevents deterioration due to T2-attenuation and is effective in various clinical applications such as MRCP.

High quality: [Balanced SARGE]

The real SSFP sequence by which the basic performance of an MRI is evaluated. APERTO has incorporated Balanced SARGE. Balanced SARGE is able to provide water-weighted image with high signals in a short time. It has excellent time resolution, high precision and image signal-to-noise ratio, and therefore, it is expected to show its power in such future application fields as cardiac and joint areas.



FSE: T2-weighted head image
2m48s



BASG:
Coronary artery image.
Breath hold: 10s



SE: T1-weighted head image
2m37s



BASG:
Short axis cardiac image
Breath hold: 5s



FSE:
T1-weighted abdominal image
Breath hold



FSE:
T2-weighted abdominal image
Breath hold

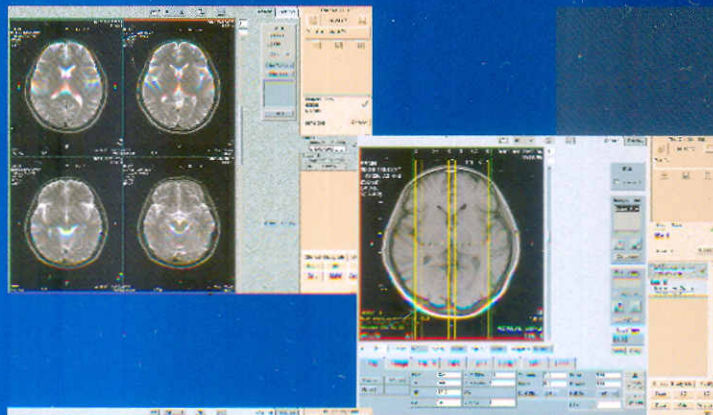


3D-TOF MRA head

Graphic User Interface

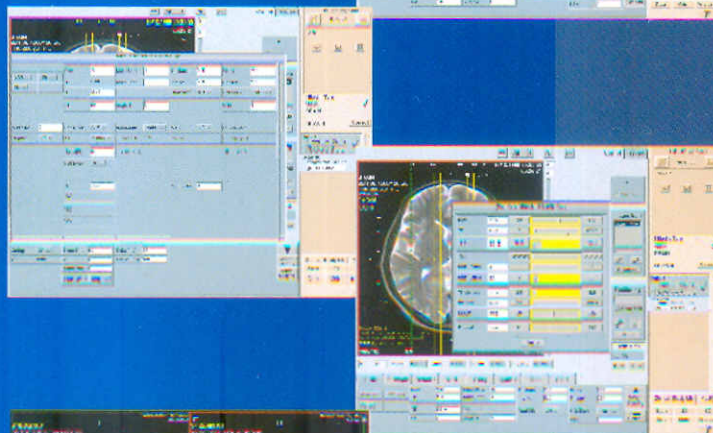
Easy operation

Adopted in the system is GUI (Graphical User Interface) easily operable from scan parameter setting to scan-start and display level adjustment. As basic operation display uses the fixed-position card system, floating window does not interfere with the operation. Attention is paid for easy visibility by adopting large-size LCD panel.



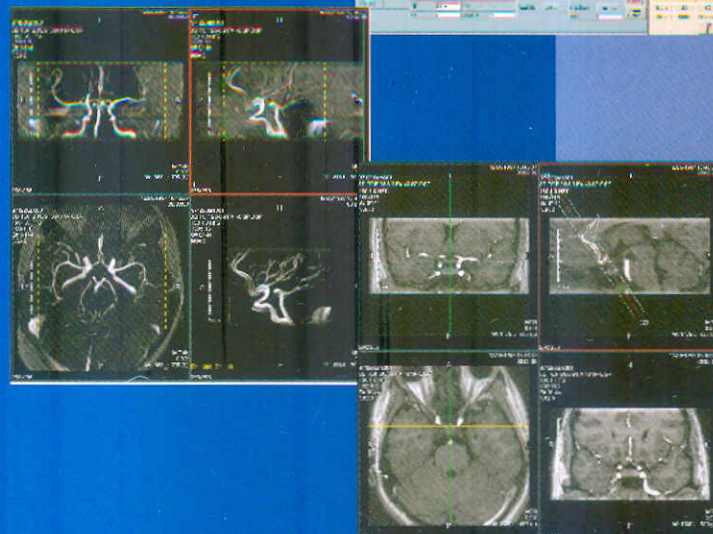
Imaging function

Speedy slice-setting by means of 3-section scanogram. Multiple protocol setting by the optimum parameter set is flexibly corresponding to every imaging area. In addition, by setting parameters freely, it is possible to set independent protocol.



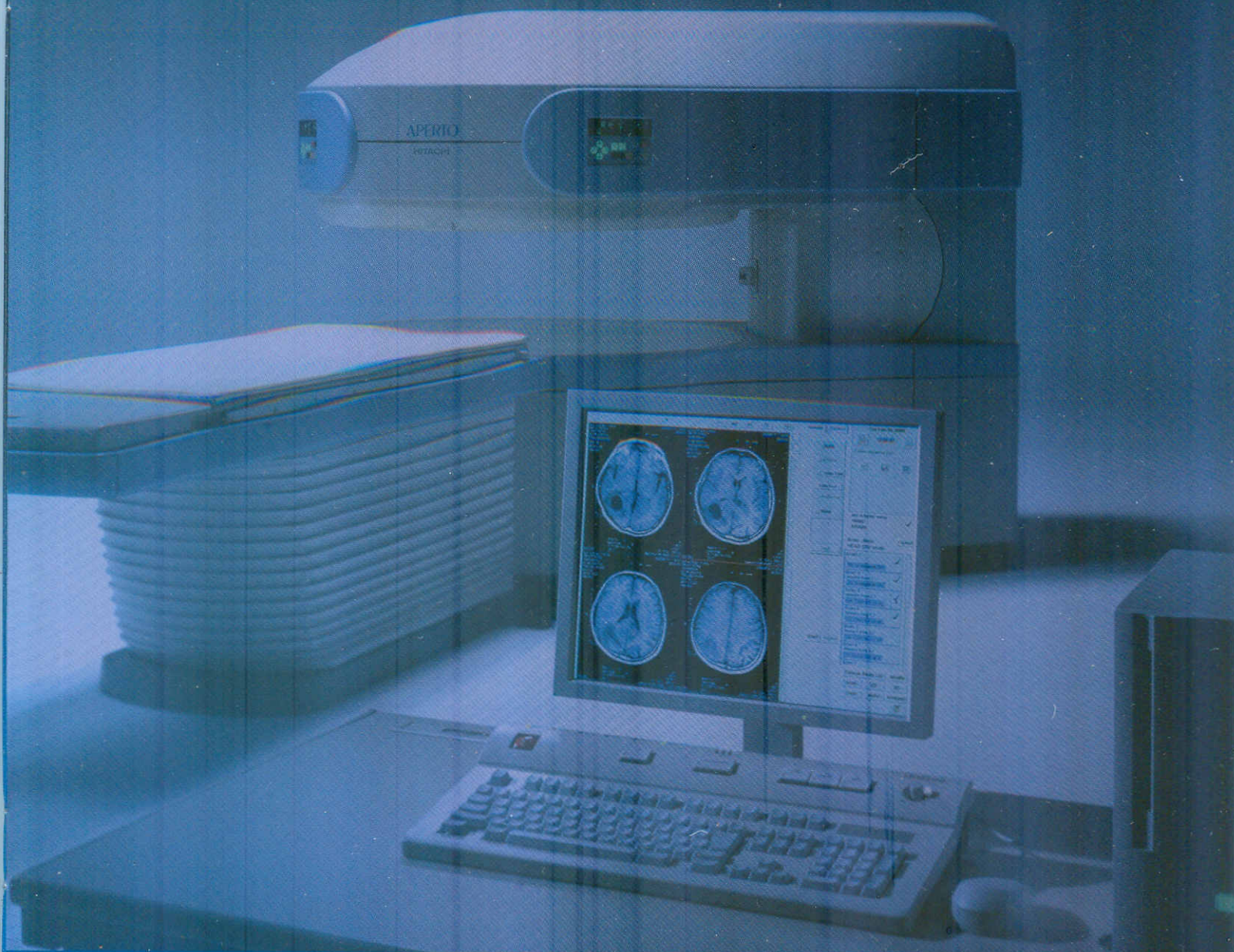
High speed image processing

High speed calculation with workstation allows 3-D data processing in real time. Unnecessary region can be selectively deleted from the 3-D data such as angiographic images by drawing free curve in 3-section fluoroscopic images. Also, rotating display can be processed in real time. Data for filming also can be made out in a short time only by setting angle step.



Network

DICOM 3.0 incorporated as standard in the system is compatible with network inside hospital. A variety of network application such as DICOM print realizes speedy communication.



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Totally Open with Ultimate Performance



Hitachi Medical Corporation
Medical System Operations
Group, Kashiwa
has established and maintains a
quality management system
according to
ISO 9001, ISO 13485.



Hitachi Medical Corporation, Medical System
Operation Group, is certified as complying
with the International
Environmental Management System (ISO 14001).

- Specifications and physical appearance may be changed without prior notice for improvement of performance.
- Be sure to read Instruction Manual for correct operation of the equipment.

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