1. System knowledge for MR 6

1.1. The MR scanner room

The figure below is showing the hardware components included in the MRI scanner.
The static magnetic field (B0), gradient fields in x,y and z directions (G) and radiofrequency field (B1) are also shown in the figure below.
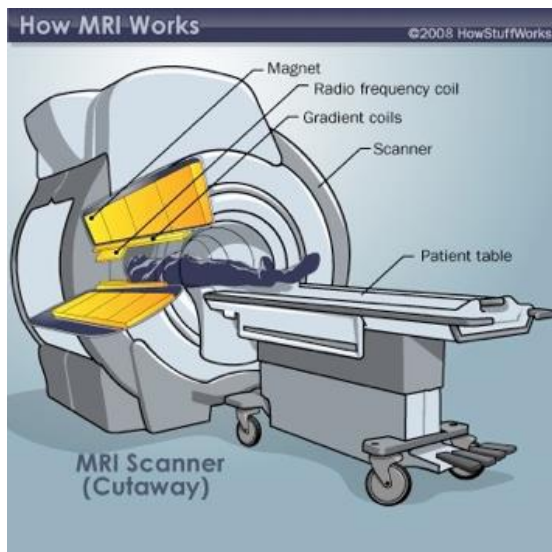

Fig. 1 Hardware components in the MRI scanner.

There are different types of coils used in MRI; transmit/receiver and receiver coils. The integrated body coil in the scanner is a transmit/receiver coil.
The most used receiver coils are Head / Neck coil (20 ch and 64 ch), body 18, Flex Large 4 and spine 32 (integrated in the patient table).

Fig. 2 Scanning a patient in MRI where body 18 coil is used [1].

1.2. The technical room

The technical room is a room located next to the magnet room and which houses several pieces of equipment that are needed for the MR scanner to function properly.

The figure below is showing three cabinets, and these are (from left) gradient cabinet, power supply cabinet and cryo pump cabinet.

Fig. 3 From left: Gradient cabinet, power supply cabinet and cryopump cabinet in the technical room of the Siemens 3T scanner.

1.3 Cryo pump

The cryopump of the 3T scanner switches on automatically after power dip. Nevertheless, it is good to check whether the 3T cryopump makes a repetitive noise *('hm-tjuk-hm-tjuk-hm-tjuk…')*. If not, please advise the MR-manager, or other staff that can take care of the condition. If the cryopump does not work the helium will boil off the system at an accelerated rate. Helium costs about 100 SEK/liter.

Fig. 4 Cryopump in the technical room of the 3T scanner, left mid of the technical room. After a power break it will start again automatically but please check the repetitive sound ('hm-tjuk-hm-

1.14 Peripheral devices

In the control room there is a lot of peripheral devices such as operator consol, keyboard and communication devices. In the figure below you can see the fMRI computer used when fMRI is run on the MR scanner.
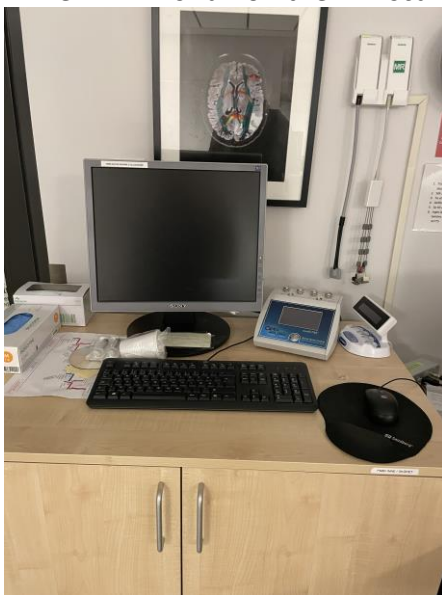

Fig. 5 fMRI computer located in the control room for MR6.

The figure below is showing the computer used for postprocessing of neuro MRI images by neurologists.

Fig. 6 *NovaFlow computer.*

The figure below is showing the Philips Expression IP5 device used as a information portal to connect the MR patient monitor with the hospital IT system.

Fig. 7 *Philips Expression IP5.*

The Philips MR400 used together with Philips Expression IP5 is shown below:

Fig. 8 *Philips MR400.*

2. References

1. https://www.siemens-healthineers.com/magnetic-resonance-imaging/options-and-upgrades/coils/body-18 [2023-10-18].