Mobile x-ray

Amx 2 portable x-ray

Safety

- Do not wear jewelry (ie.watches, rings, necklaces, etc.)
- Wear PPE (ie. thyroid shield, lead apron, and male/female gentailia body parts)
- Distance, shielding, and Time
  - Increase distance = less radiation exposure
  - Increase shielding = less radiation exposure
  - Decrease time = less radiation exposure

Clinical Applications

- Mobile radiographic units are used for radiographic imaging of patients who cannot be moved to the radiology department and who are in areas — such as intensive and critical care units or operating and emergency rooms — that lack standard, fixed radiographic equipment.
- Mobile units, which are manually or motor driven to the patient, are designed for use only when patient transport is inadvisable; the radiology department offers a more controlled, optimal setting for radiographic imaging (ie. bone fractures, organ viewing).

Standards & Regulations

- Code of Federal Regulations (CFR) Title 21
  - TITLE 21--FOOD AND DRUGS CHAPTER I--FOOD AND DRUG ADMINISTRATION
    DEPARTMENT OF HEALTH AND HUMAN SERVICES
    SUBCHAPTER
  - H--MEDICAL DEVICES
  - SUBCHAPTER H--MEDICAL DEVICES PART 892 -- RADIOLOGY DEVICES
    - Subpart B--Diagnostic Devices Sec. 892.1720 Mobile x-ray system.
      (a)*Identification.* A mobile x-ray system is a transportable device system intended to be used to generate and control x-ray for diagnostic procedures. This generic type of device may include signal analysis and display equipment, patient and equipment supports, component parts, and accessories.
    - (b)*Classification.* Class II.

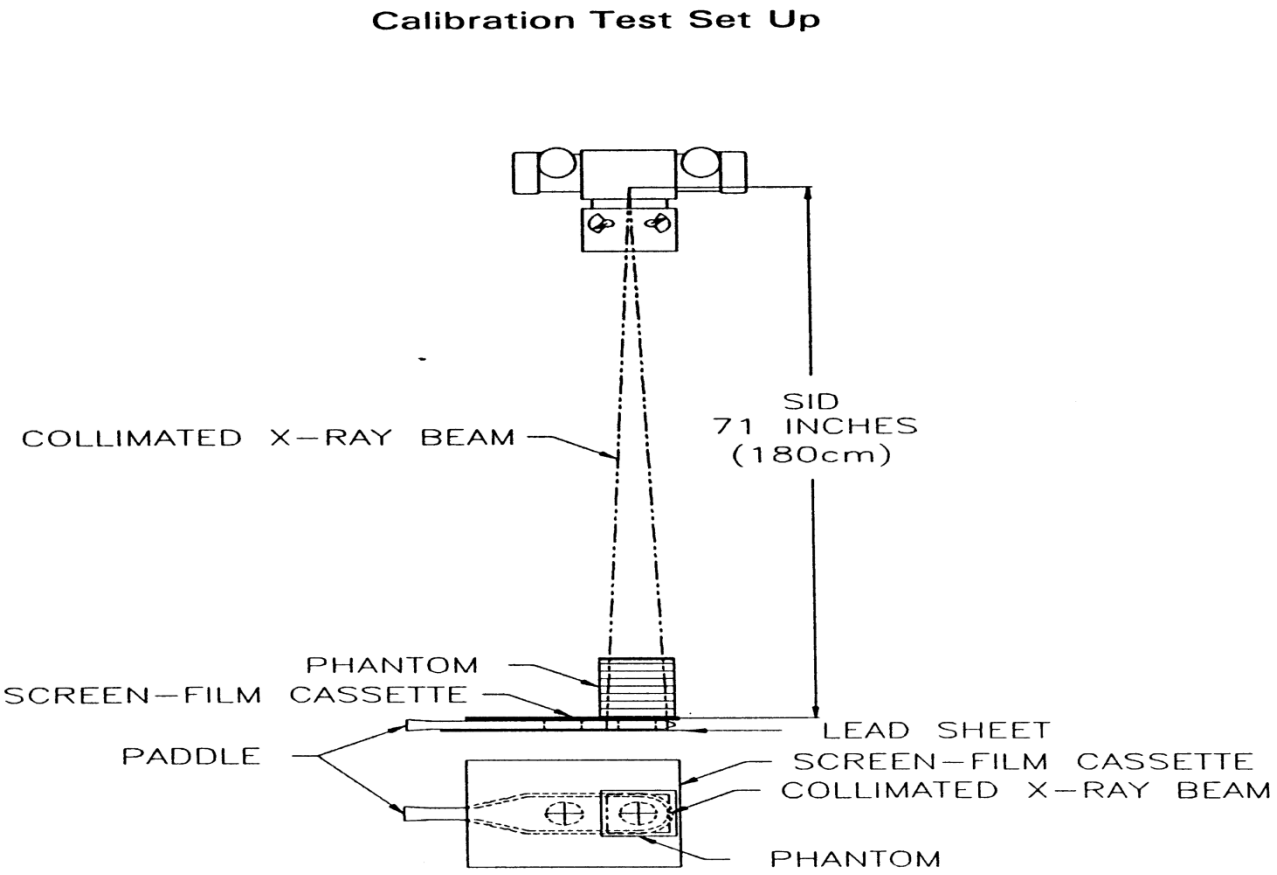
Acceptance

- Certification of x-ray systems (41-201 para 2.26.4)
  - When an assembler (BMET, manufacturer, or third-party) installs one or more certified components of diagnostic X-ray equipment, the assembler must complete FDA Form 2579, **Report of Assembly of a Diagnostic X-ray System.**
- Certification of x-ray systems (41-201 para 2.26.1)
  - Diagnostic medical X-ray
  - Dental x-ray systems
- Paperwork (41-201 para 2.26.5)
  - White copy is sent to CDRH
  - Yellow copy sent to AFMLO within 30 days
  - Pink kept in EDF

Performance checks

- Check wiring and collimator cables
- Check motor speed and kick plate
- Check handbrake
- Check fuses
- Check that all PCBs, ICs, and internal wires are secure.
- Check displays
- Check PCB +5, +12, and -12 VDC voltages
- Check for oil leaks from tube

Calibration setup



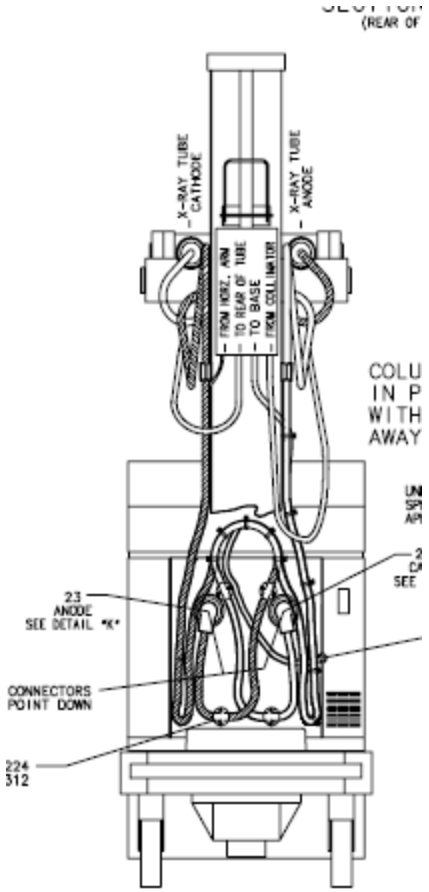
Calibration

- Perform the following checks IAW OEM specifications.
- Nominal settings can be…
- kVp
  - 90 nominal setting
- mA
  - 100mA nominal setting
- Time
  - .05 nominal setting (author preference is 1 sec)

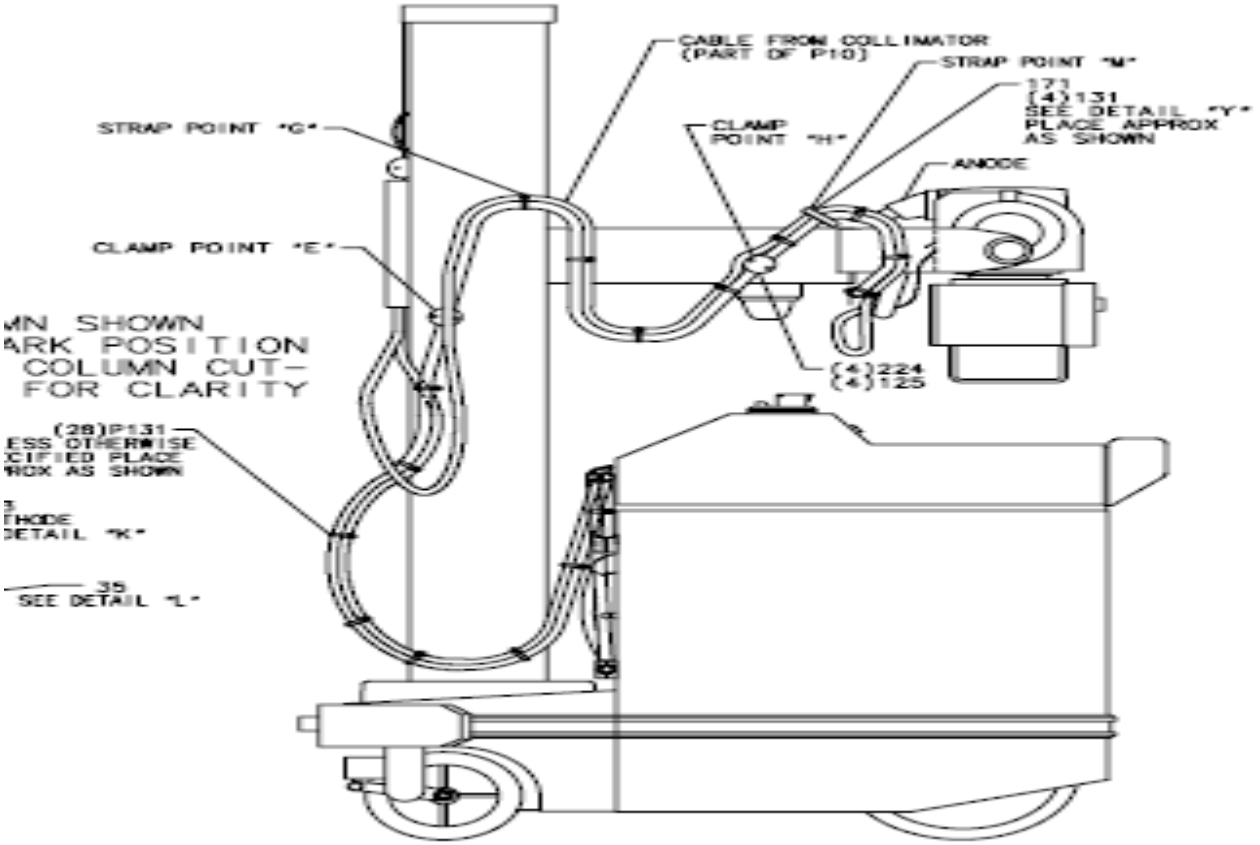
Troubleshooting

- Test 04 failure
- Check calibration and RAM: Test 04 failure – Calculates the checksum for the calibration database and compares it with the stored value. If they're not equal, the test fails. Entering calibration will give you a more specific error code for the checksum failure. Error Code 84 Hex is recorded in the error log for a failure

Front view

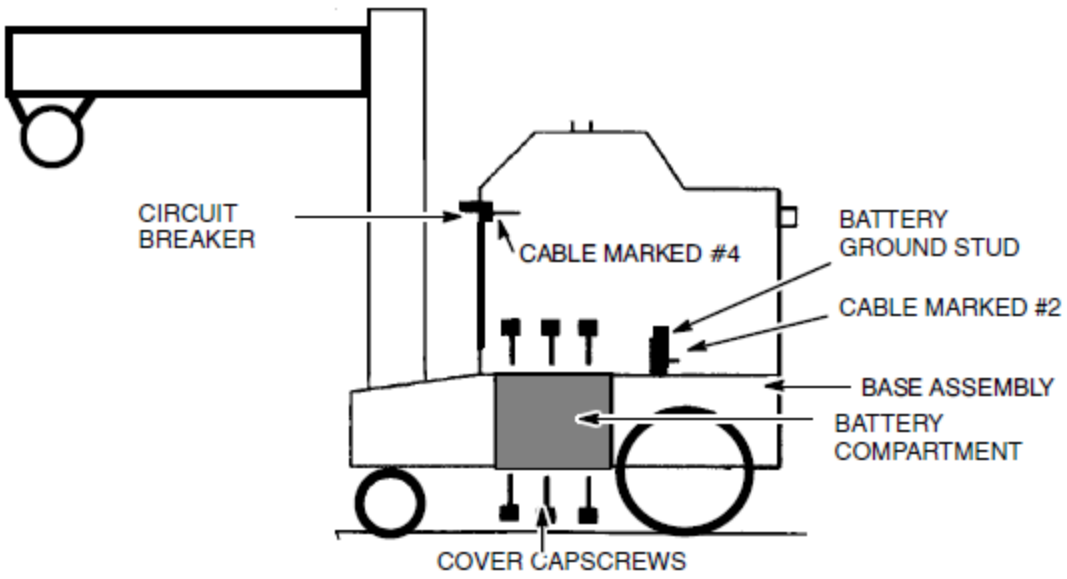

X-RAY TUBE
CATHODE
X-RAY TUBE
ANODE
TO REAR OF TUBE
TO BASE
23
ANODE
SEE DETAIL "K"
CONNECTORS
POINT DOWN
224
312

Side view w/kick plate



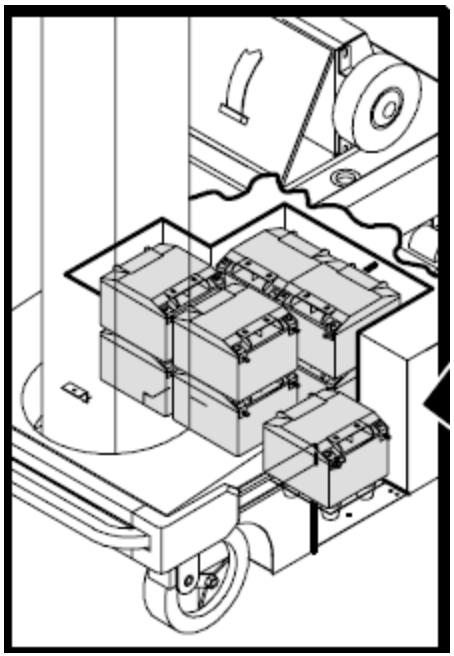
Battery compartment

ILLUSTRATION 6–1
BATTERY COMPARTMENT ACCESS



Batteries

- Stores x10 12VDC cells inside lower compartment
- Constant Voltage Regulator Board
- Daisy chained



References

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- http://www.fda.gov/RadiationEmittingProducts/default.htm
- http://www.imagingeconomics.com/
- http://bmet.wikia.com/wiki/Main_Page