

STANDARD OPERATING PROCEDURES
DIVISION OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

SOP#: 1111.2

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TITLE: **C-Arm Fluoroscope**
SCOPE: Research and Animal Care Personnel
RESPONSIBILITY: Surgical Core Manager, Professional & Administrative Staff
PURPOSE: To Outline the Proper Procedures for Use and Maintenance of a Veterinary C-Arm Fluoroscope

I. PURPOSE

1. This procedure outlines the use and maintenance of a veterinary C-Arm fluoroscope used to examine tissues and deep structures of the body utilizing x-rays in a variety of species.

II. RESPONSIBILITY

1. It is the responsibility of the Surgical Core Manager to ensure that all portable equipment is appropriately calibrated, certified, and in good working order, and available for research personnel as requested.
2. It is the responsibility of the veterinary professional, administrative, and managerial staff to ensure that all research and technical staff using this equipment are adequately trained and experienced to perform veterinary fluoroscopy.

III. EQUIPMENT SET UP - FLUOROSCOPY

Steps must be followed in exact order

1. Turn key operated mode switch to standby.
2. Turn on control (#1) circuit breaker.
3. Check ready light (#2) on monitor cart power panel; it should be illuminated but not flashing.
4. Turn on all breakers in the following order:
 - a. motor (#3)
 - b. HVPS (#4)
 - c. Main (#5)
5. Turn on the video (#6) and service (#7) breakers on monitor cart power panel.
6. Toggle switch on monitor cart power panel must be set to bypass to record on VCR.

7. Adjust monitor controls for brightness and contrast.
8. Turn key switch to fluoro.
9. Prepare TV monitor and VCR for recording (see other sheet).

IV. EQUIPMENT USE - FLUOROSCOPY

1. After switching to fluoro mode, press enter to select auto continuous mode.
2. Select large field.
3. Select fluoro mode on monitor cart front panel; real time (live) fluoroscopic images will be displayed on left monitor and TV.
4. Press x-ray on button or use footswitch to see image on monitors.
5. Use identification tapes to clarify and sharpen image; adjust monitors, use level to adjust brightness and window to adjust contrast; sharpen to sharpen edges of image.
6. To hold last image on left monitor, the toggle switch must be in normal position.
7. Image may be saved by transferring it to right monitor by pressing L→R button on monitor cart before next image is made.
8. To power down, turn all circuit breakers off in reverse order of start up.

V. EQUIPMENT USE – VIDEO MONITORING/RECORDING

1. Turn TV power on and place on channel 3.
2. VCR power on; use remote to place on AU position (number 0 on remote)
3. Label VCR tape with date and place in VCR unit.
4. On remote, press TV/Video button (very important!).
5. To record, on remote, press Rec/Play buttons together.
6. First frame of tape should be a shot of the date, study number, and animal identification number using the lead tape.
7. On remote, press Pause/Rec buttons to pause in recording; press Pause/Stop to release pause.
8. Be sure that record is displayed on VCR to tape procedure.

NOTE: You can record on VCR only when toggle switch is in bypass. TV monitor will display images as seen on left monitor. Images cannot be saved with the switch in bypass. To hold/save images, flip switch to normal, but then you are not recording.

VI. ROADMAPPING

1. On monitor cart, press roadmap, peak opacity, averaging 4, and auto switches (#1-4).
2. On power panel of monitor car, toggle switch to normal.
3. Use the fluor only side of footswitch (left pedal) to obtain proper positioning of animal.
4. Depress process footswitch (right pedal), inject contrast after the beep.
5. When desired image mask appears, release footswitch, and press L→R switch to save last image.
6. To begin roadmap subtraction, depress process footswitch (right pedal) again.
7. Process footswitch may be pressed repeatedly for subtractions from same mask.
8. Press left footswitch or exit mode to cancel mask.

VII. POST PROCESSING RECORDED IMAGES (For Roadmapping)

NOTE: During processing, the monitor cart can be operated without the main frame powered up; only video and service breakers need to be turned on.

1. Set up monitor cart for roadmap mode.
2. Rewind VCR tape to beginning of roadmap run and press play.
3. Immediately press process on to begin image processing.
4. Press process off to obtain mask and immediately pause VCR.
5. Press record on VCR and process on again to begin roadmapping subtraction.

NOTE: The TV monitor is displaying the exact image as seen on left monitor of cart. In bypass mode, you can display realtime only. To save or freeze any images, must switch to normal mode. If the left monitor is not displaying any realtime activity, TV monitor will just roll until realtime fluoroscopy is engaged.

VIII. MAINTENANCE

1. Clean unit by wiping with a mild disinfectant and soft cloth.

2. Unit is visually inspected by the University's Radiation Safety Office yearly and monitored for radiation every two months using a radiation monitoring badge,
3. Unit is functionally tested by the State of Florida every 5 years.
4. Unit is calibrated every 5 years.
5. Any malfunction should be reported to the Surgical Core Manager.
6. Any additional maintenance/service should be performed by authorized personnel and unit re-certified in writing.

IX. REFERENCES

1. Refer to the manufacturers manual for additional information for contact G.E. Walker (813) 623-2481.

Approved:

Date: