

Ultrasound Model PT50A - Instructions for Use

Patient preparation

- Position comfortably in right lateral recumbency.
- Clip (or shave) all hair from last 2 ribs over entire ventral abdomen, extending to mid flank.
- Remove loose hair.
- Apply gel to skin.

Preferably, examine the patient in a darkened room

Care of Electric Clippers

After every use :

- Remove any hair and debris using a toothbrush (brush away from the clipper body)
- Apply a little lubricating oil and run for several seconds

Care of Probe

FRAGILE : Handle with Care

- always wipe off excess gel after use to avoid reducing image quality
- never immerse in water or other liquid
- clean with soft moist soapy cloth
- sterilize by wiping with 3.4% acetaldehyde

Note Alcohol can be applied to the skin on unshaved dogs instead of (or as well as) gel.

BUT ... repeated use of alcohol will degrade the probe, so it is important to rinse off alcohol and clean the end of the probe after each use.

Control Panel

Multifunction knob - > Optimise image - > Animal information - > Save - > Freeze

1. **Power On** (attach power charger if necessary)

2. Enter new patient details.

- > Function - > Patient list - > New exam

3. Hold probe with thumb on raised marker (this places the left internal organs on the right side of the viewing screen ... like X-Ray plates) and apply probe on midline near point of sternum to identify the liver

4. Manoeuvre the probe sequentially over the liver, then other organs

5. - > **Freeze** (on bottom Control Panel) to view still image. Press **Freeze** again to cancel

In Freeze mode :

Measure

- > **Function** -> **Measure**. Tap position to be measured then confirm by tapping 'tick' icon. Repeat at the other end to be measured.
- > **Clear** to remove measurement, or -> **Save** (on bottom Control Panel), or -> **Exit**.

Magnify frozen image

- > **Function** -> **Zoom**

Tap +/- on thumbnail to zoom in/out
Alter position by moving rectangle in thumbnail
Exit by tapping Zoom

Cine review of frozen image

- > **Autoplay** x0 -> **Autoplay** x1
- > **Autoplay** x0 to exit.
- > **Save** cine if required.

Split Screen

- > **Mode** -> **2B** or **(4B)**

Tap **2B** to open next window or scroll through windows.
(active window has brighter orange indicator)

To Retrieve Existing Patient

- > **Function** -> **Patient List**
Then, Select patient

- Either -> **Review** or -> **New Exam**
-> **OK**

To Review Stored Image

Retrieve existing patient

- > **Review**

Double tap thumbnail to open, then double tap to review

- > **Freeze** to exit

Improving the Ultrasound Image

Preferably, examine the patient in a **darkened room**

Adjust **Brightness** of monitor image (if necessary) (Dr Douglas has this set at 100%)

- > **Function** - > **Brightness**

Note : Scroll through **Soft Menu options** (rectangles near bottom of screen) by repeatedly touching circular icon in centre of Soft Menu area.

The main adjustments that can be made during the ultrasound examination are:

Depth, Gain, and TGC adjustments

Depth

Ideally, adjust the depth so that the organ of interest fills 3/4 of monitor screen

The manual says **press** the **multifunction knob**, then rotate it to adjust the depth displayed in the image parameter area on the upper left corner of the screen.

The multifunction knob does not seem to work properly!

TGC

Time Gain Compensation improves the image of deeper tissue by brightening the deeper area.

Rotate the **multifunction knob** slightly until slider bars appear on the left side of screen. Adjust slider bar of appropriate deeper segments to brighten that image area.

Gain The brightness of the entire viewing area can be increased or decreased by rotating the the **multifunction knob** (use sparingly to avoid accidental misinterpretations due to increased noise)

To Reset Image Parameters to Default Settings

- > **Settings** (lower right of screen) - > **Image Preset** - > **Apply** - > **Exit**

other Image Adjustment controls

Focus Position	slide indicators to change focus position
Frequency	higher frequency improves near field resolution, but decreases penetration
Dynamic Range	increasing the DR provides more specific information, but gives lower contrast and more noise
Persistence	increasing can remove image noise to make details clearer, but may cause signal missing
Gray Map	various grey corrections to optimize images
Colorise	image based on colour difference instead of grey distinction
TSI	Tissue Specific Imaging to optimize muscle, fluid or fat tissue views
Expand	Expanding sample range decreases frame rate
Optimise (Q)	press icon on Control Panel (below screen) to optimize image parameters as per the current tissue. Press again to remove

To Disconnect Probe

Note a locking lever holds the probe connector into the port at the rear of the unit

Move locking lever anti-clockwise to unlock before pulling connector out

Operator's Manual

Tap the Question Mark '?' in lower right corner of monitor screen to open the Operator's Manual

Ultrasound Model PT50A - Default Image Parameters

Frequency 6.0 MHz
D R 75
Gain 60
Frame Rate 26
Depth 6.0

SET UP : IMAGE PRESET

	ABD	B & THI	M	
	Colorise Map	off	TSI General	Speed 2
	A. Power	82%	. TIS	Gain 71
Probe	C8 - 5Cc			Dyn R 75
				Colorise Map 2
				Gray Map
				M Soften 2
	Depth	6.0	Freq	6.0 MHz
	B Gain	60	THI Gain	60
	Dyn R	75	THI Dyn Ra	75
	B Gray M	Gray M	THI Gray Map	Gray M
	Persistence	3	THI Persistence	3
	Cross Beam	off	Enhance	1
	Focus Position	3.0 cm		
	L/R Flip	left		
	U/D Flip	up		

To Reset Image Parameters to Default Settings

-> **Settings** (lower right of screen) -> **Image Preset** -> **Apply** -> **Exit**

Further information, eLearning and References

Search 'ultrasound' in the eLearning link of the FAVF page on the AFU website <http://afu.edu.np/vet/> to view the video of Dr Douglas demonstrating how to use the Ultrasound machine in the Veterinary Teaching Hospital, AFU, Rampur

- 1 <https://www.youtube.com/watch?v=PtJ8SiRkUUK> ultrasound controls
- 2 <https://www.youtube.com/watch?v=WO1u1sKuJB4> ultrasound probe
- 3 <https://www.youtube.com/watch?v=l0cYGuvVFJA> ultrasound patient preparation
- 4 https://www.youtube.com/watch?v=s_Dkdkdroxc&index=2&list=PLd5W8xBvIBDQvX6x-WUKRkArOdNpiSaXY liver scan
- 5 <https://www.youtube.com/watch?v=Lmkm4pbWNSo&list=PLd5W8xBvIBDQvX6x-WUKRkArOdNpiSaXY&index=3> spleen scan
- 6 <https://www.youtube.com/watch?v=-7n8nCaysh0&list=PLd5W8xBvIBDQvX6x-WUKRkArOdNpiSaXY&index=4> kidney scan
- 7 <https://www.youtube.com/watch?v=f3Ge3OkRx94&index=5&list=PLd5W8xBvIBDQvX6x-WUKRkArOdNpiSaXY> urinary bladder scan
- 8 <https://www.youtube.com/watch?v=KEehR9wP7IY&index=6&list=PLd5W8xBvIBDQvX6x-WUKRkArOdNpiSaXY> GI Tract scan
- 9
<https://www.youtube.com/watch?v=5sOCiYUx9i8&list=PL8Q7BwjVMVoyGUK38mtHLN3zBGBByT4QLG&index=8> Completing the exam

NOTE The following link is a complete playlist of the videos listed 1-9 above

https://www.youtube.com/results?search_query=bcf+technology+veterinary+ultrasound

<https://www.sonosite.com/specialties/companion-small-animal-ultrasound-videos> good 30 minute
uTube video. Normal and abnormal kidneys

<https://www.youtube.com/watch?v=I0JEPsCZqug> Pregnancy scan dog basic

https://www.youtube.com/watch?v=KvuJC_1gWNU Pregnancy scan basic 28 and 52 days

<https://www.youtube.com/watch?v=j3cigohRbJ4> Bowel scan dog using Clarius

<https://www.youtube.com/watch?v=PVssRGROC5I> Canine stomach scan

<https://www.ivetultrasound.com/videos/> Free fluid in abdomen of cat

<https://www.idexxlearningcenter.com/mod/scorm/view.php?id=1358> 1 hour from idexx

https://www.youtube.com/watch?v=mPSZhXvnItk&list=PLXFPJ1XI2hkVHY_wHiccusH0Kxym__HLs
American, slow Dr Craig McInnis

<https://www.imv-imaging.in/> various imaging videos, courses, cases including ultrasound

Sheep

<https://www.youtube.com/watch?v=GNQU-MBBpSE> Sheep scanning, where to position the probe

FAST

Focused Assessment with Sonography for Triage or Trauma patients

(a standard protocol to look for free fluid in abdomen caused by blunt trauma)

<https://www.youtube.com/watch?v=HBqJsfoG0M8> Cat abdomen by Dr Soren

<https://www.youtube.com/watch?v=frplbybbsGY> Dog abdomen by VETgirlontherun

<https://www.youtube.com/watch?v=za5YEALHOII> FAST exam dog

<https://www.youtube.com/watch?v=NZS3dUHk3Zo> FAST scan preparation by Ben Sullivan

<https://www.youtube.com/watch?v=UqPL5tts53I> Diaphragmaticohepatic (cranial) view by Ben Sullivan

https://www.youtube.com/watch?v=-9RXjl22qog&list=PLpUtCpMDMUHRSmpAs_gp_Y-sacWtB0pg8
Full series of FAST scanning videos by Ben Sullivan