

15. OBSTETRICAL CALCULATIONS

The system can be used to the following obstetrical calculations:

1. Calculation of the gestational age and estimated date of confinement based on the fetal ultrasonic image.
2. Calculation of the fetal weight based on the fetal ultrasonic image.
3. Calculation of indexes based on the ratio between two fetal ultrasonic images.
4. If you enter one of LMP, BBT, EGA (last examination date) and EDC (expected confinement date) when entering an ID or entering patient information in a report, the gestational week and expected confinement date is computed.

These calculation results can be compiled into a report.

You can also display a fetal growth graph, a BPP (Biophysical profile score) which is convenient for high risk pregnancy management, an anatomy check list (fetal observation record obtained using ultrasound diagnostic equipment) and amniotic fluid index measurement results in the report.

In the above measurement, you can select the measurement items and items to be displayed, using the Preset function.

Note

Before starting an examination, always check that the date displayed on the monitor screen is correct. If the data is incorrect, invalid results may be displayed.

This section consists of 128 pages.

15-1. Obstetrical measurement items that are calculated and explanation

The indexes that can be displayed in this report and their abbreviations are listed below.

[Remark]

The items marked by an asterisk are indexes in the obstetric table installed in the system.

■ Abbreviations and ultrasonic images

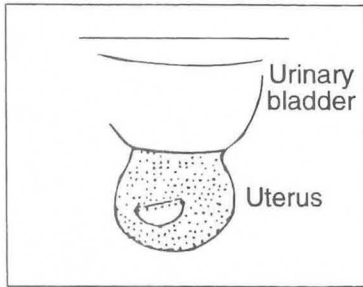
Parameter	Full spelling	Measurement method	Unit
*GS	Gestational Sac	DIST.	cm
*CRL	Crown Rump Length	DIST.	cm
*BPD	Biparietal Diameter	DIST.	cm
*OFD	Occipital Frontal Diameter	DIST.	cm
*HC	Head Circumference	Area-T Area-E	cm
BPD _o	Biparietal Diameter (outer-to-outer)	DIST.	cm
OFD _o	Occipital Frontal Diameter (outer-to-outer)	DIST.	cm
APTD	Anteroposterior Trunk Diameter	DIST.	cm
*TTD	Transverse Trunk Diameter	DIST.	cm
*AC	Abdominal Circumference	Area-T Area-E	cm
*FTA	Fetal Trunk Cross Sectional Area	Area-T Area-E	cm ²
*FL	Femur Length	DIST.	cm
*HL	Humerus Length	DIST.	cm
*TIB	Tibia Length	DIST.	cm
*ULNA	Ulna Length	DIST.	cm
*LV	Length of Vertebrae	DIST.	cm
*RAD	Radius Length	DIST.	cm
*FIB	Fibula Length	DIST.	cm
*BD	Binocular Distance	DIST.	cm
*CD	Cerebellar Diameter	DIST.	cm
LVW	Lateral Ventricular body width	DIST.	cm
HW	Hemispheric Width	DIST.	cm
USR1 ┆ USR4	User-defined settings		

Measurements are made with the trackball. The next page shows the ultrasonic images.

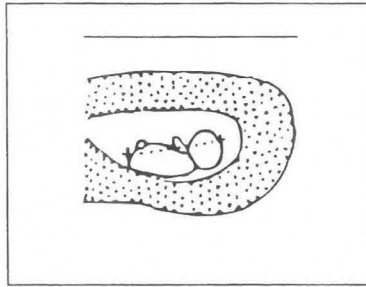
15-1. Obstetrical measurement items that are calculated and explanation

15-1-1. Measured section for each parameter

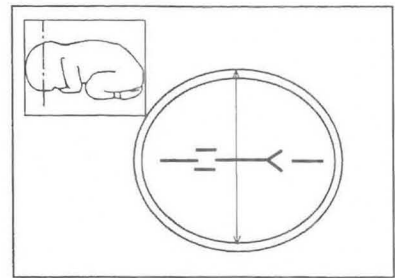
GS (Gestational Sac)



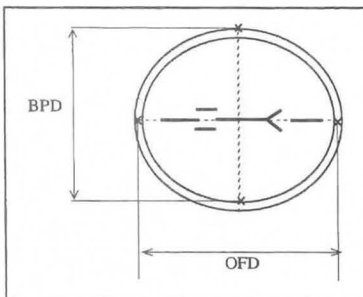
CRL (Crown Rump Length)



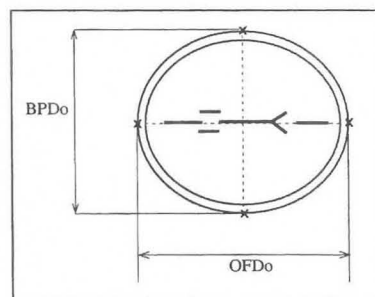
BPD (Biparietal Diameter)



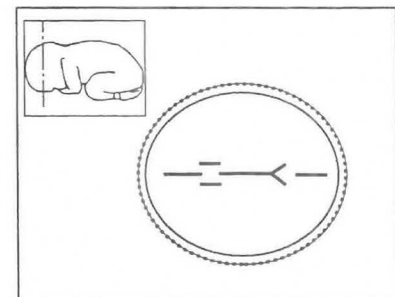
OFD (Occipital Frontal Diameter)



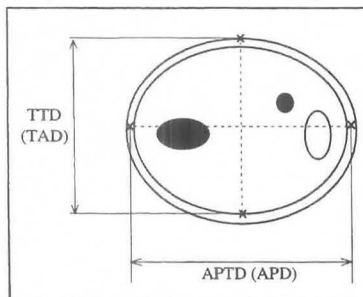
BPD_o, OFD_o (outer-to-outer)



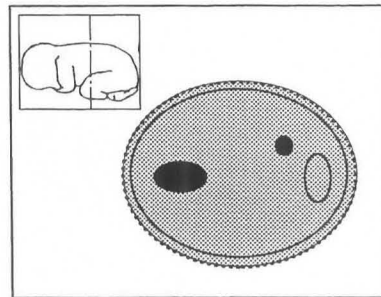
HC(Head Circumference)



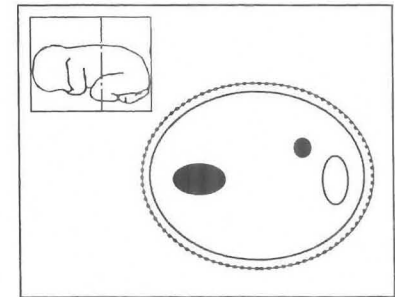
APTD (APD), TTD(TAD)
(Anteroposterior Trunk Diameter)
(Transverse Trunk Diameter)



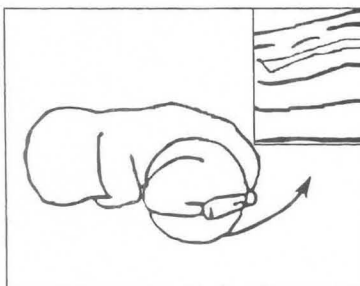
FTA
(Fetal Trunk CrossSectional Area)



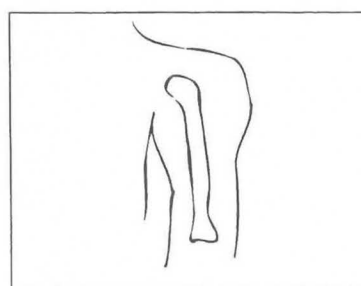
AC
(Abdominal Circumference)



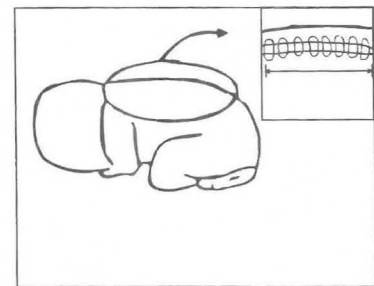
FL(Femur Length)



HL(Humerus Length)

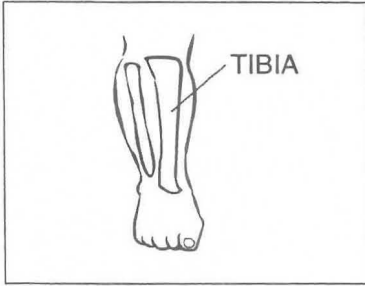


LV(Length of Vertebrae)

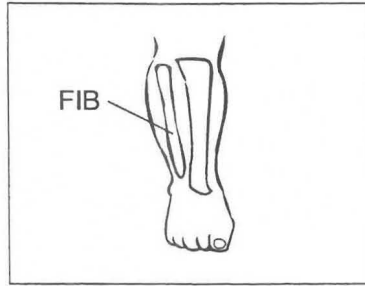


15-1. Obstetrical measurement items that are calculated and explanation

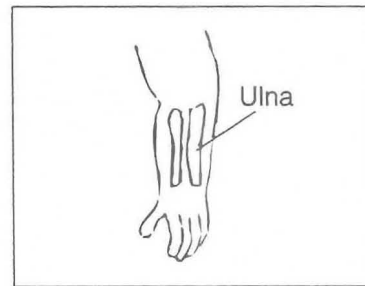
TIB (Tibia)



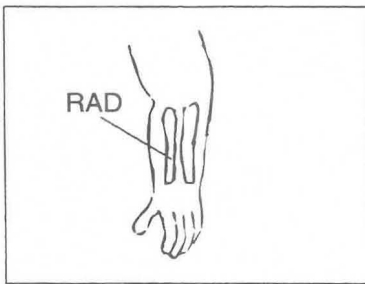
FIB (Fibula)



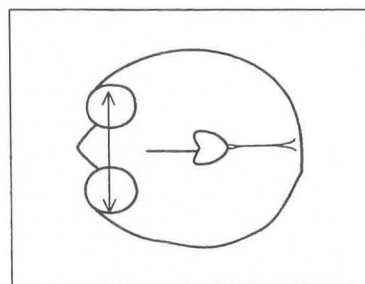
ULNA (Ulna)



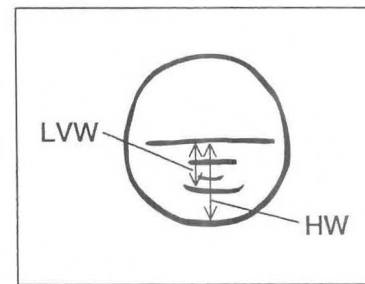
RAD(Radius)



BD (Binocular Distance),
CD (Cerebellar Diameter)



LVW (Lateral Ventricular body width),
HW (Hemispheric Width)



15-1. Obstetrical measurement items that are calculated and explanation

15-1-2. Obstetrical tables installed in the system

The system provides the 55 gestational age tables shown below. The user can also register additional tables.

1. Tokyo University

Measured section	Source	Table format
GS	Tokyo University	Week \pm Day
CRL	Tokyo University	Week \pm Day
BPD	Tokyo University	Week \pm Day
FL	Tokyo University	Week \pm Day
LV	Tokyo University	Week \pm Day
AXT	Tokyo University	Week \pm Day

2. Osaka University

Measured section	Source	Table format
CRL	Osaka University	Week \pm SD
BPD	Osaka University	Week \pm SD
FTA	Osaka University	Week \pm SD
FL	Osaka University	Week \pm SD
HL	Osaka University	Week \pm SD

3. Hadlock

Measured section	Source	Table format
BPD	Hadlock	Measurement \pm Day
HC	Hadlock	Measurement \pm Day
AC	Hadlock	Measurement \pm Day
FL	Hadlock	Measurement \pm Day

4. Had - 90%

Measured section	Source	Table format
HC	Hadlock	10% - 90% percentile
AC	Hadlock	10% - 90% percentile
FL	Hadlock	10% - 90% percentile

15-1. Obstetrical measurement items that are calculated and explanation

5. Jeanty

Measured section	Source	Table format
FL	Jeanty	Measurement \pm Day
HL	Jeanty	Measurement \pm Day
TIB	Jeanty	Measurement \pm Day
ULNA	Jeanty	Measurement \pm Day
BD	Jeanty	Measurement \pm Day

6. Jea - 95%

Measured section	Source	Table format
FL	Jeanty	5% - 95% percentile
HL	Jeanty	5% - 95% percentile
TIB	Jeanty	5% - 95% percentile
ULNA	Jeanty	5% - 95% percentile
RAD	Jeanty	5% - 95% percentile

7. Campbell

Measured section	Source	Table format
BPD	Campbell	Week \pm Day
HC	Campbell	Week \pm Day
AC	Campbell	Week \pm Day
FL	Campbell	Week \pm Day

8. Hansmann

Measured section	Source	Table format
CRL	Hansmann	Week \pm Day
BPD	Hansmann	Week \pm Day
OFD	Hansmann	Week \pm Day
HC	Hansmann	Week \pm Day
TTD	Hansmann	Week \pm Day
FL	Hansmann	Week \pm Day
HL	Hansmann	Week \pm Day
AC	Hansmann	Week \pm Day

15-1. Obstetrical measurement items that are calculated and explanation

9. Rempen

Measured section	Source	Table format
GS	Rempen	Measurement \pm Day
CRL	Rempen	Measurement \pm Day
BPD	Rempen	Measurement \pm Day

10. Merz

Measured section	Source	Table format
BPD	Merz	5% - 95% percentile
OFD	Merz	5% - 95% percentile
HC	Merz	5% - 95% percentile
TTD	Merz	5% - 95% percentile
APTD	Merz	5% - 95% percentile
AC	Merz	5% - 95% percentile
FL	Merz	5% - 95% percentile
TIB	Merz	5% - 95% percentile
FIB	Merz	5% - 95% percentile
HL	Merz	5% - 95% percentile
RAD	Merz	5% - 95% percentile
ULNA	Merz	5% - 95% percentile

11. OTHER

Measured section	Source	Table format
CRL	Robinson	Measurement \pm Day
CRL	Nelson	Measurement \pm Day
BPD	Kurtz	Measurement \pm Day
CRL	Daya	Measurement \pm Day
CD	Hill	Measurement \pm Day
GS	Hellman	10%-90% percentile
FL	Hohler	Measurement \pm Day
BPD	Sabbagha	Measurement \pm Day
FL	Warda	Measurement \pm Day
FL	O' Brien	Week \pm 2SD
CD	Goldstein	Measurement \pm Day

[Remark]

You can select up to 18 gestational week tables using "OB-Program" of the Preset function. Of these, you can make up to six tables yourself.

15-1. Obstetrical measurement items that are calculated and explanation

15-1-3. Fetal weigh calculation items installed in the system

The system provides the eight fetal weight equations shown below. The use can also register additional equations.

1. Tokyo University equation $FW(g)=1.07 \times (BPD)^3 + 3.42 \times APTD \times TTD \times FL$
2. Osaka University equation $FW(g)=1.25647 \times (BPD)^3 + 3.50665 \times FTA \times FL + 6.3$
3. Hadlock equation 1 $FW(g)=10 \exp(1.304 + 0.05281 \times AC + 0.1938 \times FL - 0.004 \times AC \times FL)$
4. Hadlock equation 2 $FW(g)=10 \exp(1.326 - 0.00326 \times AC \times FL + 0.0107 \times HC + 0.0438 \times AC + 0.158 \times FL)$
5. Hadlock equation 3 $FW(g)=10 \exp(1.335 - 0.0034 \times AC \times FL + 0.0316 \times BPD + 0.0457 \times AC + 0.1623 \times FL)$
6. Hadlock equation 4 $FW(g)=10 \exp(1.182 + 0.0273 \times HC + 0.07057 \times AC - 0.00063 \times AC \times AC - 0.0002184 \times HC \times AC)$
7. Hadlock equation 5 $FW(g)=10 \exp(1.3596 - 0.00386 \times AC \times FL + 0.0064 \times HC + 0.00061 \times BPD \times AC + 0.0424 \times AC + 0.174 \times FL)$
8. Shepard equation $FW(g)=10 \exp(AC \times 0.046 - BPD \times AC \times 0.002646 + BPD \times 0.166 + 1.2508)$

Parameter	Full spelling	Measurement method	Unit
BPD	Biparietal Diameter	DIST.	cm
APTD	Anteroposterior Trunk Diameter	DIST.	cm
TTD	Transverse Trunk Diameter	DIST.	cm
AC	Abdominal Circumference	Area-T Area-E	cm
FTA	Fetal Trunk Cross Sectional Area	Area-T Area-E	cm ²
FL	Femur Length	DIST.	cm

[Remark]

You can select up to 6 fetal weight equations using "OB-Program" of the Preset function. Of these, you can make up to three equations yourself.

15-1. Obstetrical measurement items that are calculated and explanation

Following three are the fetal weight standard value table installed in the system:

Standard value table	Range	Period	Step
Brenner	10, 90%tile	21st week to 44th week	1 week
Osaka University	1 SD	16th week to 40th week	1 week
Hadlock	10, 90%tile	10th week to 40th week	1 week

15-1-4. Ratio calculations (displayed in the report area) installed in the system

The system provides the four ratio calculation equations shown below. These equations come with a standard value table that allows the system to display in the report whether the calculated value is within the standard range. The user can also register additional equations and create additional standard tables.

Compared indexes	Range	Period	Standard values	Step
BPD _o / OFD _o (=Cephalic Index Hadlock 1981)	±2SD	Week 14 - week 40	0.7~0.86	1 week
HC / AC (Campbell 1977)	5, 95%tile	Week 13 - week 42	---	1 week
FL / BPD (Hohler1981)	90% Confidence	Week 23 - week 40	0.71 to 0.87	1 week
FL / AC (Hadlock 1981)	±2SD	Week 21 - week 42	0.20 to 0.24	1 week
LVW / HW (Hohler1981) (Hohler1981)	±2SD	Week 15 - week 25 Week 25 - Term		1 week

[Remark]

You can select up to 12 ratio calculations using "OB-Program" of the Preset function. Of these, you can make up to five calculations yourself.

15-1. Obstetrical measurement items that are calculated and explanation

15-1-5. Pregnancy history calculation

When entering an ID, you can compute the expected confinement date (excluding EDC) and the gestational week by entering LMP, BBT, EGA (last examination date) and EDC (expected confinement date). The gestational week is displayed continuously on the screen.

```

HOSPITAL NAME AREA : ALOKA      , 32Y   '93/08/25
                   :           , F    20:35:45
                                   3.5M 3.5
                                   DVA:90%
                                   GA:12w5d
    
```

Display of the GA (gestational)

[Remark]

If the ID input method is not **ID-GA**, you cannot enter the **LMP**, **BBT**, and **EGA** data. Change the input method to **ID-GA** from the menu or through preset operation.

For details, refer to 11-4 "Menu" or 11-5 "Preset".

[Remark]

The estimated date of confinement can also be calculated in the same way in the obstetrical calculation report. However, because the data registered during ID input is also used in the obstetrical calculation report, you do not need to enter the ID data again.

15-1-6. Calculation equations

Calculation equations for gestational age and estimated date of confinement

[When LMP is entered]

$$GA = (\text{Current date} - \text{Date of last menstruation period}) / 7$$

$$EDC = 280 \text{ days} + \text{Date of last menstruation period}$$

[When BBT is entered]

$$GA = (\text{Current date} - \text{Estimated date of ovulation} + 14 \text{ days}) / 7$$

$$EDC = (280 \text{ days} - 14 \text{ days}) + \text{Estimated date of ovulation}$$

[When EGA is entered]

$$GA = ((280 \text{ days} - \text{Previous examination date}) / 7) + \text{Gestational age on previous examination date}$$

$$EDC = \text{Previous examination date} + (280 \text{ days} - \text{Gestational age on previous examination date})$$

[When EDC is entered]

$$GA = \{(280 \text{ days} - (\text{EDC} - \text{Current date}))\} \div 7$$

15-1. Obstetrical measurement items that are calculated and explanation

15-1-7. Built-in Doppler range table (displayed in the report area)

The equipment has the following four built-in Doppler range tables. These formulas have standard value tables, enabling you to display graphically in the report whether or not the measurement values are within the range of the standard values.

You can also register formulas and create standard value tables

Table	Range	Period	Step
UmA-PI (Shinozuka)	10,90%tile	13week~41week	1week
UmA-RI (Shinozuka)	10,90%tile	13week~41week	1week
MCA-PI (Shinozuka)	10,90%tile	21week~41week	1week
MCA-RI (Shinozuka)	10,90%tile	21week~41week	1week

[Remark]

You can select up to six ratio measurement formulas using "OB-Program" in the Preset function. You can also freely create up to three ratio measurement formulas.

15-1-8. Built-in AFI range tables (displayed in the report area)

The equipment has the following two built-in AFI range tables. These formulas have standard value tables, enabling you to display in the report whether or not the measurement values are within the range of the standard values.

You can also register formulas and create standard value tables.

Table	Range	Period	Step
Moore	5-95%tile	16week~42week	1week
Jeng.et.al	week \pm 1SD	13week~42week	1week

15-2. PRESET set-up (OB-Program)

The Preset function enables you to display computation formulas, computation items, the method of entering comments, and reports. It also enables you to perform various settings such as assignment of measurement menus.

Settings are made using OB-Program and Menu Control of the Preset function.

Menu Control enables you to set measurement menus that can be called with the MEASUREMENT switch, and also to register USER switches. For details of the setting method, refer to "MEASURE Control" of 11-5 "Preset".

- At the OB-Program stage, select the parameters to be displayed in the report.
The following parameters can be set:

- 1 OB Study :
Setting of OB Study.
- 2 Contents of OB Measurement Program :
GA Table, Ratio(Range Table), FW Equation FW Range Growth Table,
Setting of User's Name, Measurement Method

[Remark]

The equipment contains 66 kinds of GA Tables (gestational week tables), eight FW Equations (fetal weight formulas), five Ratio formulas, three FW Range/Growth Tables, and two sets of AFI values. Of these, 18 GA Tables, including obstetrical measurements that can be freely set, six FW Equations, 12 Ratios, six FW Range/Growth Tables, and one set of AFI values can be displayed in a report.

- 3 Doppler Measurement program :
Setting of the Doppler measurement (uterine artery, umbilical artery, middle cerebral artery, aorta, and two others) display items and Doppler table.
- 4 Report Display Type :
Select the information to be displayed in the report, from report name, measurement value display, graph display, amniotic fluid index display, amniotic fluid sampling display, and Anatomy Check List.
- 5 Report Printer :
Setting of the printer that outputs the report information.
- 6 Anatomy Check List 1, 2 :
Register comments concerning anatomical positions that you wish to display in the report.

[Remark]

You can add to the Anatomy Check List a simple questionnaire asking whether or not the operator made an observation, and whether or not the internal organs were visible.

- 7 Others :
Setting of the measurement display method, method of obtaining the mean value, BPP score index, unit for fetal weight measurement, and gestational week display.
- 8 Formed Comment :
Registration of titles and comments displayed in the report.

[Remark]

Formed Comment is the function used to register the comment list and the titles for each comment column item in the patient information page of the report.

The comment list is very handy for registering comments that are always entered in patient charts.

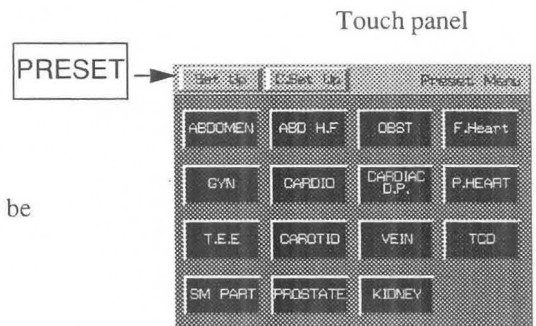
The comment list can also be used to register items other than comments.

15-2-1. OB-Program (Obstetrical Measurement Program)

OB-Program is used to select parameters used for measurement, and also to select parameters to be displayed in a report.

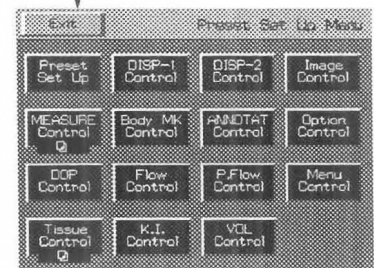
You can enter the OB-Program by carrying out the following procedure.

- ① Press the **PRESET** switch, select the Preset number to be changed, then select **Set up Menu**.
- ② Select **MEASURE Control**.
- ③ To change OB-Program, select **OB**.
→ The screen changes to the OB-Program page.

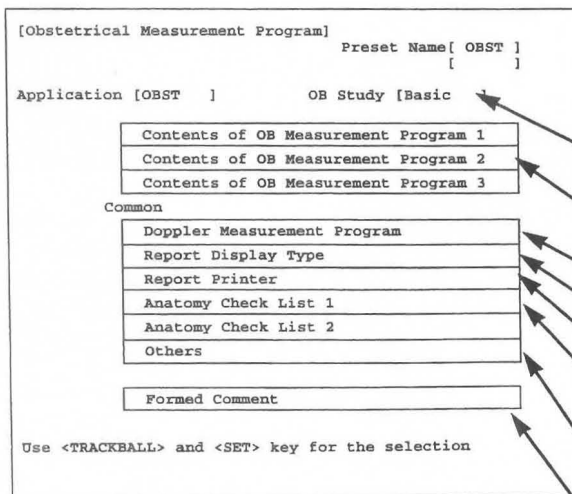
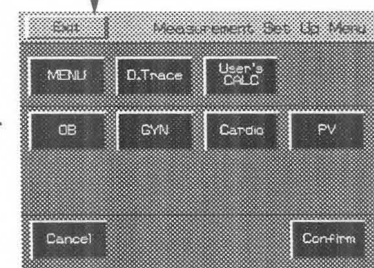


Touch panel

PRESET No.+ Set up



MEASURE Control



OB

- Select when changing **OB Study**. You can create a study for twins or triplets.
- Select one of these items when you wish to change a **Contents of OB Measurement Program**.
- Select when registering Doppler measurement.
- Select this item when you wish to change the method of displaying the report.
- Select when outputting report information.
- Select one of these items when you wish to register comments concerning anatomical positions, and so on.
- Select this item when you wish to set the method of displaying the measurement results, the method of obtaining the average value, the BPP score index, and the setting of the unit of fetal weight measurement.
- Select this item to change the contents of the **formed comment**.

- ④ Move the arrow to a box , and press the SET switch.
→ For each selection, the OB-Program page changes to the following screens:

15-2. PRESET set-up (OB-Program)

OB Study set-up

Select OB Study

1:[Basic] 2:[Extended] 3:[Early OB]
 4:[Amni/ CVS] 5:[AFI-BPP] 6:[Anatomy]
 7:[Twins]

Fetal Number
 [Single] [Twins] [Triplets]

[Cancel] [Confirm]

To change the OB Study name, select
 "Report Display Type".

Contents of OB Measurement Program set-up

[Contents of OB Measurement Program Page1]
 Preset Name [OBST]

Application [OBST]

[Initialize] [Program]

GA Table	Ratio	FW:Equation	AFI values
1:	1:	1:	
2:	2:	2:	
3:	3:	FW:Range/Growth Table	
4:	4:	1:	
		2:	
5:	User's Name		Measurement Method
6:			

Use <TRACKBALL> and <SET> key for the selection

[Remark]The Contents of OB Measurement Program consists of three pages. "AFI values" exists only on Page 1.

Doppler Measurement Program set-up

Obstetrical Doppler study Measurement Program
 [Initialize] [Program] [Cancel] [Confirm]

Doppler Measured item Select

	PI	RI	S/D	pkS	pkD	AVG	VTI
Uterine Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Umbilical Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Mid. Cerebral Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Decending Aorta	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
OB Other 1	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
OB Other 2	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]

Range Table

UmA-RI	UmA-PI	MCA-RI	MCA-PI		
Shinozuk	Shinozuk	Shinozuk	Shinozuk		

Select item with <TRACKBALL> and <SET> key.

Report Display Type Page1 set-up

SetUp Display Report Type Page 1
 [Initialize] [Program] [Cancel] [Confirm]

OB Study Name
 1:[Basic] 2:[Extended] 3:[Early OB]
 4:[Amni/ CVS] 5:[AFI-BPP] 6:[Anatomy] 7:[Twins]

Report Display Page Select

OB Study No.	1	2	3	4	5	6	7
Page1 Numerical	[ON]	[ON]	[ON]	[OFF]	[ON]	[OFF]	[ON]
Page1 Graphical	[ON]	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[ON]
Page1 FW Graph	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Page1 GA Graph1	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Page1 GA Graph2	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Page1 GA Graph3	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Page2 Numerical	[OFF]	[ON]	[OFF]	[OFF]	[ON]	[OFF]	[OFF]
Page2 Graphical	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page2 FW Graph	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page2 GA Graph1	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page2 GA Graph2	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page2 GA Graph3	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 Numerical	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 Graphical	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 FW Graph	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 GA Graph1	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 GA Graph2	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Page3 GA Graph3	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]

[Page ↓] [Page ↑]

Report Display Type Page2 set-up

SetUp Display Report Type Page 2
 [Initialize] [Program] [Cancel] [Confirm]

OB Study Name
 1:[Basic] 2:[Extended] 3:[Early OB]
 4:[Amni/ CVS] 5:[AFI-BPP] 6:[Anatomy] 7:[Twins]

Report Display Page Select

OB Study No.	1	2	3	4	5	6	7
Doppler Study	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Doppler Graph1	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Doppler Graph2	[ON]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]
Doppler Graph3	[OFF]	[ON]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
AFI-BPP	[OFF]	[OFF]	[OFF]	[OFF]	[ON]	[OFF]	[OFF]
Amnio/ CVS study	[OFF]	[OFF]	[OFF]	[ON]	[ON]	[OFF]	[OFF]
Anatomy C.L. 1A	[ON]	[ON]	[ON]	[ON]	[OFF]	[ON]	[ON]
Anatomy C.L. 2A	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]	[OFF]
Anatomy C.L. 1B	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]	[OFF]
Anatomy C.L. 2B	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[ON]	[OFF]
Anatomy C.L. 1C	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]
Anatomy C.L. 2C	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]	[OFF]

Report Data Sequence [A] [B]
 Report Average Function
 Activity [ON] [OFF] Copy [ON] [Off]
 Report data storage number [1] [2] [3] [4]

[Page ↓] [Page ↑]

Report Printer set-up

SetUp Report Printer
 [Cancel] [Confirm]

Report Printer
 [HP Desk Jet Printer 660C - PCL3]

Sheet [US Letter]
 Print Style

Title:	Style	Size	Position
Site :	[Uplight]	[Medium]	[Center]
Text :	[Uplight]	[Medium]	[Left]

Title

Site Information

15-2. PRESET set-up (OB-Program)

Anatomy Check List set-up

```

Anatomy Check List page1
[Initialize] [Program] [Cancel] [Confirm]

Heading           Selection  Comments
Fetal Number      :           :
Presentation      :           :
Heart Activity    :           :
4 Ch. View        :           :
Outflow Tract     :           :
Placental Pos.    :           :

Placental Loc.    :           :
Plac. Grade       :           :
Cord Vessels      :           :
Cord Insertion   :           :
Head              :           :
Ventricles        :           :
Spine             :           :
Stomach           :           :
Diaphragm        :           :
Bladder          :           :
L Kidney          :           :
R Kidney          :           :
L Arm             :           :
R Arm             :           :
L Leg             :           :
R Leg            :           :
    
```

Others set-up

```

Others
[Initialize] [Program] [Cancel ] [Confirm]

Measurement Stage Type
[Multi Display ] [Single Display ]

Measurement Stage Average Display
[ON ] [OFF]

BPP Scoring Criteria
[Vintzileos et al.] [Manning et al. ]

F.W. Unit
[Grams      ] [Pounds&Ounces]

CGW EDC Data Display for FW calculation
[ON ] [OFF]
    
```

[Remark] The Anatomy Check List consists of two pages.

Formed Comment set-up

```

[Formed Comment]
[Initialize] [Program] [Cancel ] [Confirm]

-----
Format  Left  Right      Left  Right
        P : S P : S      P : S P : S
1[F] [**:**] [**:**]   6. [F] [**:**] [**:**]
2[F] [**:**] [**:**]   7. [F] [**:**] [**:**]
3[F] [**:**] [**:**]   8. [F] [**:**] [**:**]
4[F] [**:**] [**:**]   9. [F] [**:**] [**:**]
5[F] [**:**] [**:**]  10. [F] [**:**] [**:**]
-----

Formed Comment Area
    
```

15-2-2. Setting the Contents of OB Measurement Program

<Setting procedure>

- ① Select "Contents of OB Measurement Program".
 (The procedures for displaying Contents of OB Measurement Program 1, 2 and 3 are identical.)
 →The screen changes as shown below.

```

[Contents of OB Measurement Program Page1]
Preset Name [ OBST ]

Application [ OBST ]

[Initialize]          [Program]

GA Table             Ratio             FW:Equation           AFI values
1: [ ]              1: [ ]              1: [ ]               [ ]
2: [ ]              2: [ ]              2: [ ]
3: [ ]              3: [ ]              FW:Range/Growth
4: [ ]              4: [ ]              Table
5: [ ]              User's Name           Measurement
6: [ ]              [ ] [ ] [ ] [ ]      Method
Use <TRACKBALL> and <SET> key for the selection
    
```

Contents of the measurement menu on the touch panel.

Exit :
The Preset Set Up screen re-appears.

Cancel:
The immediately previous screen re-appears.

- ② Move the arrow to [Initialize], then press the SET switch.
 → A sub-menu that enables the built-in tables to be transferred in a single operation is displayed.

```

--- Factory Default ---

Select the factory default

[Tokyo U]           [USA Basic]
[Osaka U 1SD]       [USA Extended]
[Osaka U 1.5SD]
[Osaka U 2SD]
[Hadlock]
[Campbell]
[Hansmann]

[Cancel]
Confirm:Set key
    
```

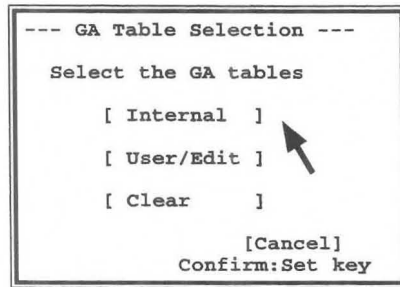
- ③ Using the arrow, select the name of the table that you wish to register, then press the SET switch.
 → The contents of the "Contents of OB Measurement Program" screen are changed to the selected contents.
- ④ If you wish to change any of the set items in the Contents of OB Measurement Program screen, move the arrow to the item concerned (GA Table, Ratio, FW Equation, FW Range Growth Table, AFI values, Measurement Method, User's name), and press the SET switch.
 → The system automatically goes into the Program status, and sub-menus are displayed, so perform registration according to the messages on the screen.

(1) Changing the GA Table contents

The GA Table area holds up to 18 tables. You can copy an internal table provided by the system or enter or edit user data for use.

<Making and changing a registration>

- ① Move the arrow to a [GA Table] item to be changed, then press the SET switch.
→ The following sub-menu is displayed.



[Remark]

To clear the "GA Table Selection" sub-menu, move the arrow to [Cancel], then press the SET switch.

- ② Move the arrow to [Internal], [User/Edit] or [Clear], then press the SET switch.
→ If you select [Internal], the built-in GA tables are transferred.
If you select [User/Edit], you can create a new table.
If you select [Clear], the GA table for the selected item is erased.

(1)-1. Internal (copying an internal table)

- ③ Using the trackball move the arrow to [Internal], then press the SET switch.
→ A list of built-in tables is displayed.

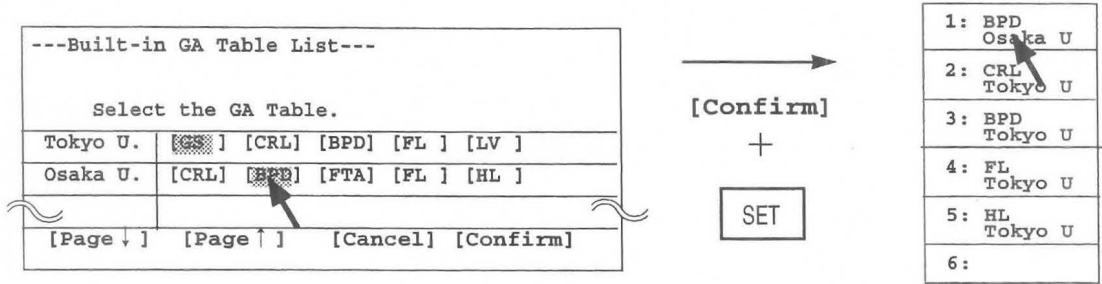
---Built-in GA Table List---					
Select the GA Table.					
Tokyo U.	[GS]	[CRL]	[BPD]	[FL]	[LV]
Osaka U.	[CRL]	[BPD]	[FTA]	[FL]	[HL]
Hadlock	[BPD]	[HC]	[AC]	[FL]	
HAD-90%	[HC]	[AC]	[FL]		
Jeanty	[FL]	[HL]	[TIB]	[ULNA]	[BD]
JEA-95%	[FL]	[HL]	[TIB]	[ULNA]	[RAD]
Campbell	[BPD]	[HC]	[AC]	[FL]	
Hansmann	[CRL]	[BPD]	[OFD]	[HC]	[TTD] [AC]
Hansmann	[FL]	[HL]			
Mertz	[TIB]	[FIB]	[HL]	[RAD]	[ULNA]
[Page ↓]	[Page ↑]	[Cancel]	[Confirm]		

Currently registered table is displayed in grey.

The system displays a list of the internal tables.

15-2. PRESET set-up (OB-Program)

- ④ Move the arrow to the internal table to be newly registered, then press the **SET** switch.
 - The specified table name is highlighted. Using the trackball, move the arrow to **[Confirm]**, then press the **SET** switch.



→ The registration procedure is ended, and the display reverts to the "Contents of OB Measurement Program" screen.

[Remark]

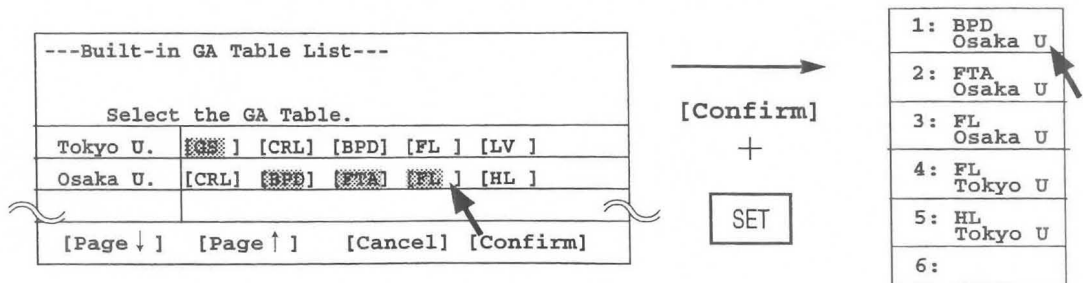
To cancel the registration operation, select **[Cancel]** or select **Cancel** before selecting **[Confirm]**.

[Remark]

1. Several tables can be selected at the same time (batch transfer method).

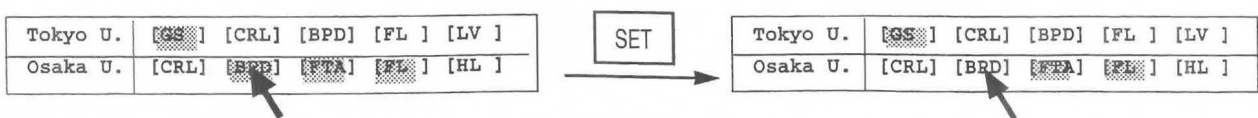
This function is useful when you want to register several internal tables.

Before selecting **[Confirm]**, move the arrow to the item to be changed and press the **SET** switch. Up to six tables (if GA Table 1 is selected) are registered in the selected sequence.



2. To cancel a registration, press the **SET** switch a second time.

To cancel a table that has been registered, move the arrow to the table to be canceled, then press the **SET** switch again. This operation is used to cancel individual table registrations.

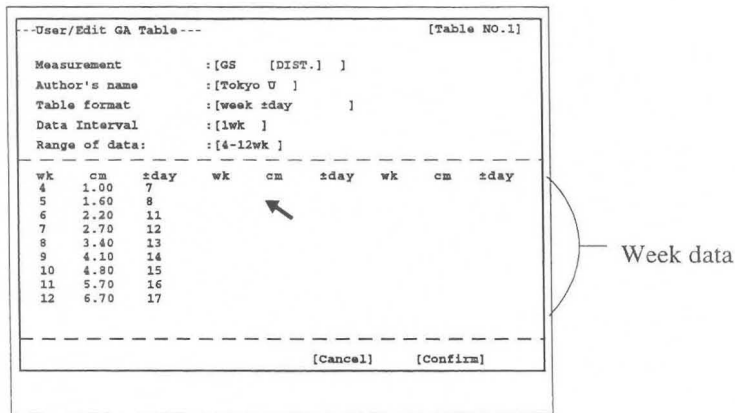


(1)-2. User/Edit (creating a user table)

Perform this operation to change the following contents:

- [Measurement]Parameter name and measurement method
- [Author's name].....Author's name or hospital name, comment
- [Table Format].....Table format specification
(select from Week ± Day, Week ± 1SD, %tile, and Measurement ± Day)
- [Data Interval]Interval for number of week data
- [Range of data]Range of number of week data
- [Number of week data]...Measurement data, gestational age data, error data

- ① Using the trackball, move the arrow to [User/Edit], then press the SET switch.
→ The GA table input sub-menu is displayed.



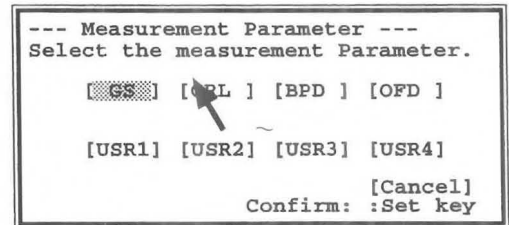
[Remark]

If a table was previously entered through "Internal" operation, the system displays the contents of that table for editing.

- ② Move the arrow to the inside of [] corresponding to the item that you wish to change, then press the SET switch.
→ A sub-menu is displayed, so carry out registration according to the message in the sub-menu.

Changing [Measurement]

- ① Move the arrow to the inside of [] of Measurement, then press the SET switch.
→ A parameter table is displayed.
(The selected parameters are highlighted.)
- ② Move the arrow to the parameter that you wish to change, then press the SET switch.
→ The sub-menu disappears.



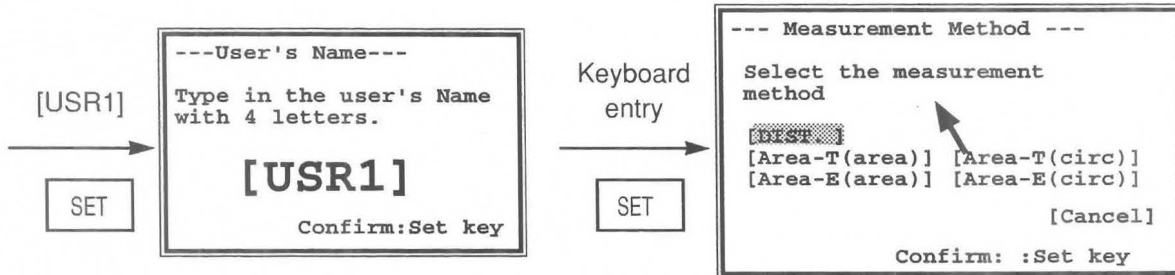
[Remark]

If you selected a parameter other than USR 1-4 from the parameter list, the User/Edit submenu automatically displays the measurement method of the parameter in brackets to the right of the parameter.

15-2. PRESET set-up (OB-Program)

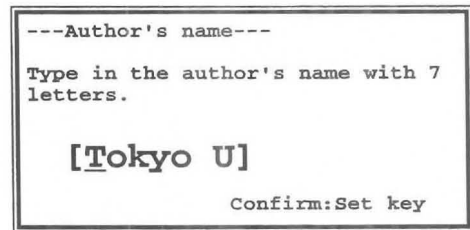
[When one of USR1 - USR 4 is selected]

To register an unlisted name, select a USR1 - USR 4 parameter. The system displays the User's Name submenu. Enter the parameter name with up to four characters from the keyboard, then press the SET switch. Next, the system displays the Measurement Method submenu. Select the measurement method with the arrow, then press the SET switch.



Changing [Author's Name]

- ① Move the arrow to the inside of [] of Author's Name, then press the SET switch.
 - The keyboard entry sub-menu is displayed, so enter the name of the author (institution name) using no more than seven letters, then press the SET switch.

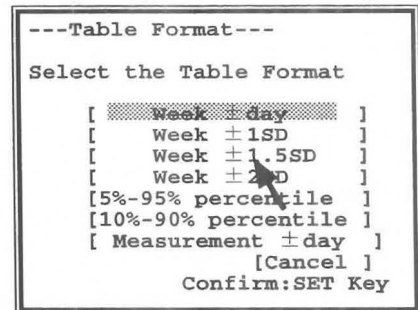


Changing [Table Format]

- ① Move the arrow to the inside of [] of Table format, then press the SET switch.
 - Select a format using the arrow, then press the SET switch.

[Remark]

If you change the Table Format at this point, the system clears the information in the Data Interval, Range of data, and number of weeks fields.



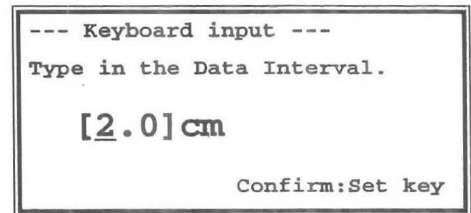
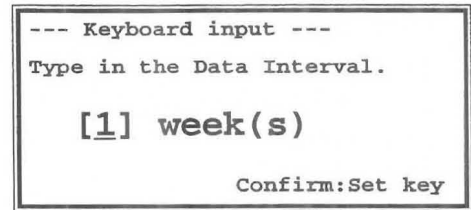
[Remark]

<Table Format items>

- Week±day** : Input method that uses standard values for number of weeks. Enter the error in number of days.
- Week±1SD** : Input method that uses standard values for number of weeks. Enter the standard deviation for error calculation.
- Week±1.5SD**
- Week±2SD**
- 5%-95% percentile** : Enter the distribution of the corresponding gestational week in the sequence 5%-50%-95% values, based on the measurement value.
- 10%-90% percentile** : Enter the distribution of the corresponding gestational week in the sequence 10%-50%-90% values, based on the measurement value.
- Measurement±day** : Input method that uses number of weeks for measurement values. Enter the error in number of days.

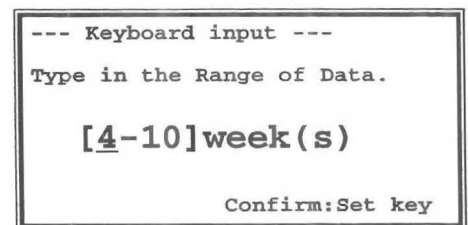
Changing [Data Interval]

- ① Move the arrow to the inside of [] of Data Interval, then press the SET switch.
 - The sub-menu for making an entry from the keyboard is displayed, so enter the data interval for the week data from the keyboard.
- ② For example, if you selected Measurement ± Day using the Table format item, enter the data interval as shown below.



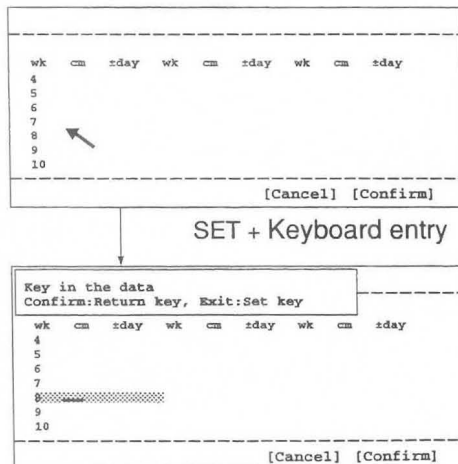
Changing [Range of data]

- ① Move the arrow to the inside of [] of Range of data, then press the SET switch.
 - The sub-menu for making an entry from the keyboard is displayed, so enter the range of data (from what week to what week) to be displayed.



Changing [Week data]

- ① Move the arrow to the item in the week data to be changed, then press the SET switch.
 - A highlighted display with an underline cursor appears, so input the new value from the keyboard.



Move the arrow in the number of week data area.

Move the highlighted area with the underline cursor anywhere in the week data area. The system displays operation messages.

The cursor with highlighted area can be moved with the trackball anywhere in the week data area.

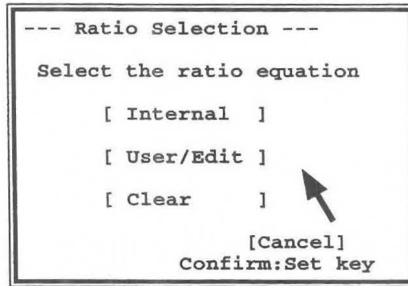
- ② Press the Return key.
 - The entered data is finalized.
- ③ Press the SET switch.
 - The week data entry function is canceled, and the arrow is displayed.
- ④ Upon completion of all setting work, move the arrow to [Confirm], then press the SET switch.
 - The display reverts to the "Contents of OB Measurement Program" screen.
 - If you do not perform this operation, the previous data will remain.

(2) Changing the Ratio contents

The Ratio area holds up to four tables. You can copy an internal calculation equation provided by the system or enter or edit user data for use.

<Making and changing a registration>

- ① Move the arrow to the **Ratio** item to be changed, then press the **SET** switch.
→ The following sub-menu appears.



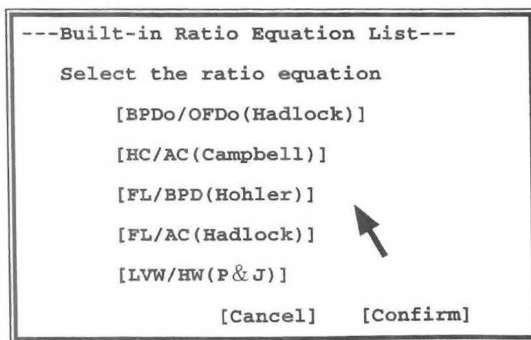
[Remark]

To clear the Ratio Selection sub-menu, move the arrow to **[Cancel]**, then press the **SET** switch.

- ② Move the arrow to **[Internal]**, **[User/Edit]** or **[Clear]**, then press the **SET** switch.
→ If you select **[Internal]**, the built-in Ratio equation is transferred.
If you select **[User/Edit]**, you can create a new Ratio equation.
If you select **[Clear]**, the ratio equation for the selected item is erased.

(2)-1. Internal (copying an internal Ratio Equation)

- ① Using the trackball, move the arrow to **[Internal]**, then press the **SET** switch.
→ A table of built-in Ratio equations is displayed.



The system displays a list of the internal ratio equations.

Currently registered equations are displayed in grey.

- ② Move the arrow to the ratio equation to be registered, then press the **SET** switch.
→ The selected ratio equation is highlighted.
- ③ Using the trackball, move the arrow to **[Confirm]**, then press the **SET** switch.
→ Registration is completed, and the Contents of OB Measurement Program screen re-appears.

[Remark]

To cancel the registration operation, select **[Cancel]** or select **Cancel** before selecting **[Confirm]**.

[Remark]

1. **Several ratio equations can be selected at the same time (batch transfer method).**

Before selecting **[Confirm]**, move the arrow to the item to be changed and press the **SET** switch. Up to four equations can be selected. The selected equations are registered in the selected sequence (same as for **GA table** registration).

2. **To cancel a registration, press the SET switch a second time.**

For details, refer to Pages 15-17.

(2)-2. User/Edit (creating a user-defined ratio equation)

Perform this operation to change the following contents:

[Author's name].....Author's name or hospital name, comment

[Parameters].....Numerator and denominator of the ratio equation

[Data Interval]Interval of range data

[Range of Data]Range of range data

[Range data].....Upper and lower values of normal range for gestational age

```

--- Ratio Normal Range Table--- [Table NO.1]
Author's name      :[      ]
Parameters         :[ /    ]
Data Interval      :[ wk ]
Range of data:    :[ -   wk ]
-----
wk  Lower  Upper  wk  Lower  Upper  wk  Lower  Upper
-----
                                     [Cancel] [Confirm]
Use <TRACKBALL> and <SET> key for the selection
  
```

- ① Using the trackball, move the arrow to **[User/Edit]**, then press the **SET** switch.
→ The sub-menu for entering a table is displayed.

[Remark]

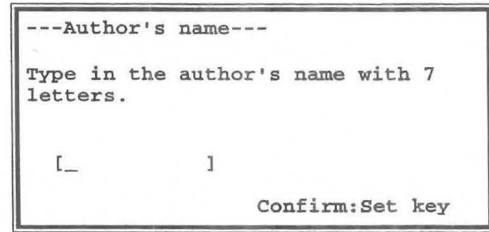
If a table was previously entered through "Internal" operation, the system displays the contents of that table for editing.

- ② Move the arrow to the inside of [] for the item that you wish to change, then press the **SET** switch.
→ A sub-menu is displayed, so carry out registration according to the message in the sub-menu.

15-2. PRESET set-up (OB-Program)

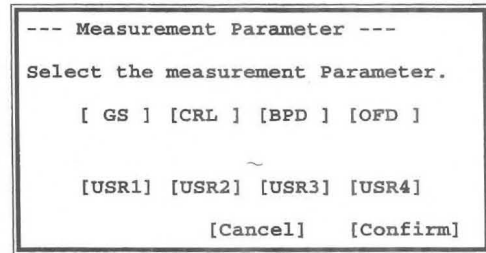
Changing [Author's name]

- ① Move the arrow to the inside of [] of Author's name, then press the SET switch.
 - The system displays the "Author's name" submenu. From the keyboard, enter the name of the author or institution with up to seven letters, then press the SET switch.



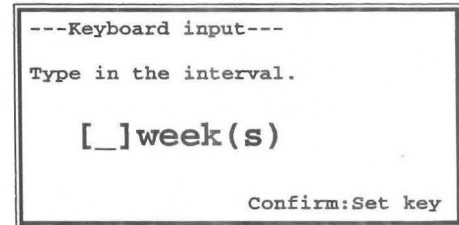
Changing [Parameters]

- ① Move the arrow to the inside of [] of Parameters, then press the SET switch.
 - The system displays the "Measurement Parameter" submenu.
- ② Move the arrow to the item that you wish to make the numerator, then press the SET switch.
- ③ Move the arrow to [Confirm], then press the SET switch.
- ④ Next, using the same procedure, move the arrow to the item that you wish to make the denominator, then press the SET switch.



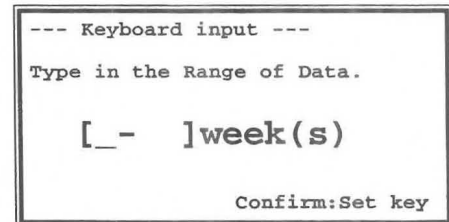
Changing Data Interval

- ① Move the arrow to the inside of [] of Data Interval, then press the SET switch.
 - The system displays a keyboard input menu.
- ② Enter the Range data interval from the keyboard.



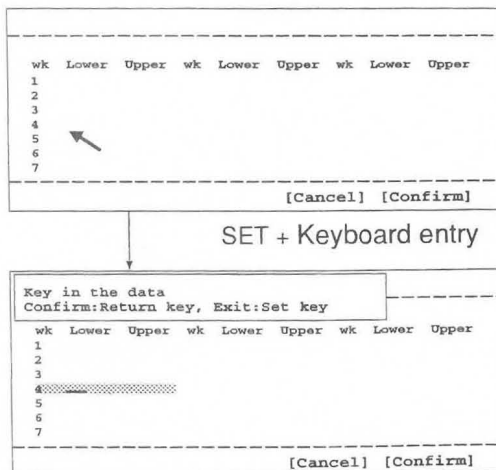
Changing [Range of Data]

- ① Move the arrow to the inside of [] of Range of Data, then press the SET switch.
 - The system displays a "Keyboard input" submenu. From the keyboard, enter values to indicate the period (from which week to which week) for which data is to be displayed.



Changing [Ratio Range data]

- ① Move the arrow to the range data item to be changed, then press the SET switch.
 - The system displays a cursor in a highlighted area. Enter a value from the keyboard.



Move the arrow in the range data area.
 Move the highlighted area with cursor anywhere in the range data area. The system displays operation messages.

The highlighted area with cursor can be moved with the trackball anywhere in the range data area.

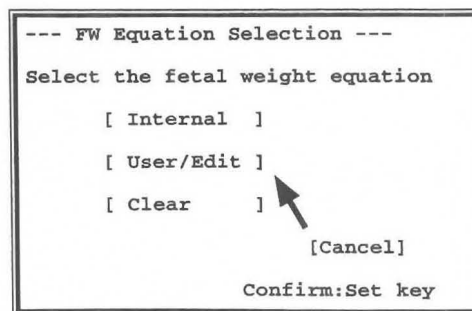
- ② Press the Return key.
→ The entered data is finalized.
- ③ Press the **SET** switch.
→ The week data entry function is canceled, and the arrow is displayed.
- ④ Upon completion of all setting work, move the arrow to **[Confirm]**, then press the **SET** switch.
→ The display reverts to the "Contents of OB Measurement Program" screen.
If you do not perform this operation, the previous data will remain.

(3) Changing the Fetal Weight Equation contents

The **FW Equation** area can hold up to two fetal weight equations. In addition, you can register a **FW Range Growth Table** for each equation to display the standard deviation and the standard table. You can copy an internal calculation equation provided by the system or enter or edit a calculation equation.

<Making and changing a registration>

- ① Move the arrow to the **[FW Equation]** item to be changed, then press the **SET** switch.
→ The following sub-menu is displayed.



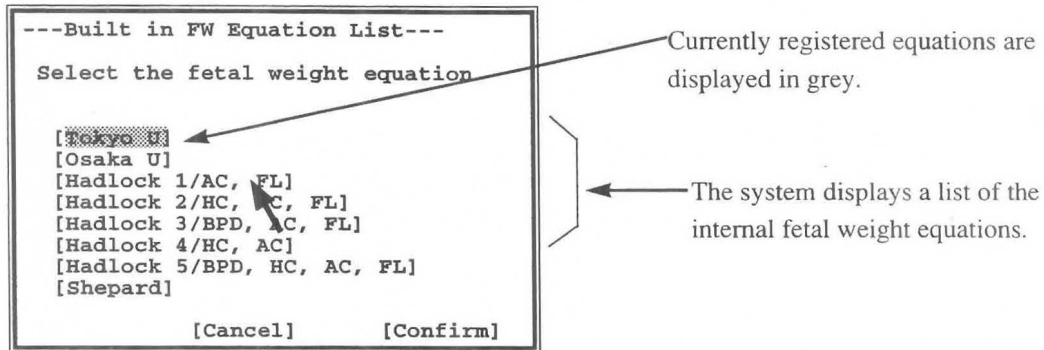
[Remark]

To clear the "FW Equation Selection" submenu, move the arrow to **[Cancel]**, then press the **SET** switch.

- ② Move the arrow to **[Internal]**, **[User/Edit]** or **[Clear]**, then press the **SET** switch.
→ If you select **[Internal]**, the built-in FW Equation is transferred.
If you select **[User/Edit]**, you can create a new FW Equation.
If you select **[Clear]**, the FW Equation for the selected item is erased.

3)-1. Internal (copying an internal fetal weight equation)

- ① Using the trackball, move the arrow to the inside of [] of Internal, then press the SET switch.
 - A list of built-in fetal weight equations is displayed.



- ② Move the arrow to the FW equation to be registered, then press the SET switch.
 - When an equation is registered, the equation name is highlighted. Using the trackball, move the arrow to [Confirm], then press the SET switch.
 - The registration procedure is ended, and the display reverts to the "Contents of OB Measurement Program" screen.

[Remark]

To cancel the registration operation, select [Cancel] or select Cancel before selecting [Confirm].

[Remark]

1. Several fetal weight equations can be selected at the same time (batch transfer method).
 Before selecting [Confirm], move the arrow to the item to be changed and press the SET switch. Up to four equations can be selected. The equations are registered in the selected sequence (same as for the GA table registration).
2. To cancel a registration, press the SET switch a second time.

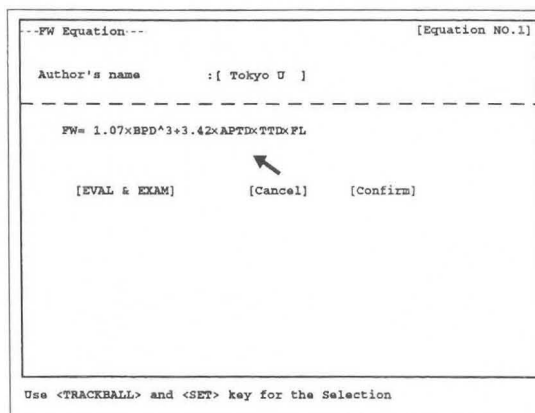
For details, refer to page 15-17.

(3)-2. User/Edit (creating a user-defined fetal weight equation)

Perform this operation to change the following contents:

Author's nameAuthor's name or hospital name, comment
 Equation.....Equation for fetal weight calculation

- ① Move the arrow to the inside of [] of User/Edit, then press the SET switch.
 → The system displays the "FW Equation" submenu for fetal weight equation input.



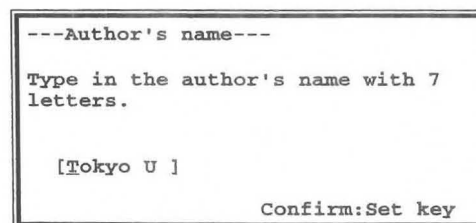
[Remark]

If a equation was previously entered through "Internal" operation, the system displays the contents of that equation for editing.

- ② Move the arrow to the inside of [] corresponding to the item that you wish to change, then press the SET switch.
 → A sub-menu is displayed, so carry out registration according to the message in the sub-menu.

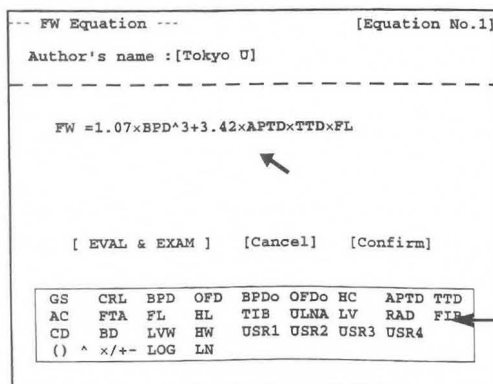
Changing [Author's name]

- ① Move the arrow to the inside of [] of Author's name, then press the SET switch.
 → The system displays the Author's name submenu. From the keyboard, enter the name of the author or institution with up to seven letters, then press the SET switch.



Creating a calculation equation

- ① Move the arrow to equation creation area, then press the SET switch.
 → The system displays a cursor and a list of parameters and operators that can be registered in the equation.



Parameters and operators that can be registered in the calculation equation are displayed here.

15-2. PRESET set-up (OB-Program)

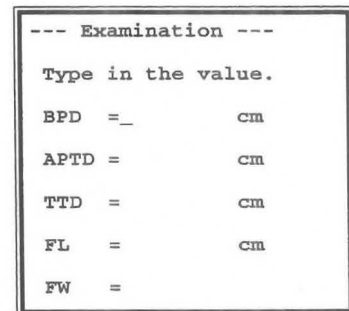
- ② Enter a calculation formula from the keyboard (max 180 characters), then press the **SET** switch.
 - The system evaluates the entered calculation formula, and if there is no error it registers the formula.

[Remark]

The system will detect an error if you enter a mathematically undefined operation (for example, $3+ \times 2$). Ensure that coefficients consist of no more than 20 characters including the decimal point. The system calculates the distance in centimeter units. When entering the equation, pay attention to coefficients.

<Equation evaluation by EVAL&EXAM>

- ① Move the arrow to **[EVAL&EXAM]**, then press the **SET** switch.
 - The system displays the parameters that were registered in the equation. Move the underline cursor display to a parameter, enter a value from the keyboard, then press the **SET** switch or the return key.
- ② The underline cursor move to the next item. Enter a value for the next parameter from the keyboard.
 - After you enter values for all parameters, the system displays the value calculated by the registered equation in the "FW=" area.

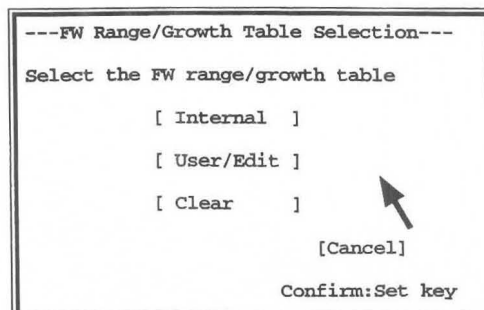


- ③ To terminate input, select **Cancel** in the menu.
- ④ After entering all settings, be sure to move the arrow to **[Confirm]** and to press the **SET** switch.
 - The display reverts to the "Contents of OB Measurement Program" screen.
 - Note that if you do not perform this operation, the system resets the data to the previous one.

4) Changing the contents of the Range/Growth Table

<Making and changing a registration>

- ① Move the arrow to the item in the Range/Growth Table of FW Equation 1 that you wish to change, then press the **SET** switch.
 - The following sub-menu is displayed.



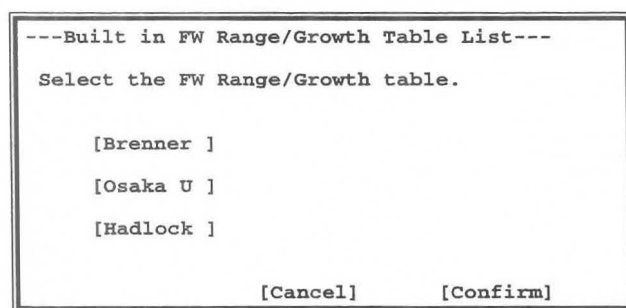
[Remark]

To clear the "FW Range/Growth Table Selection" submenu, move the arrow to [Cancel], then press the SET switch.

- ② Move the arrow to [Internal], [User/Edit] or [Clear], then press the SET switch.
- If you select [Internal], the built-in Range/Growth Table is transferred.
 - If you select [User/Edit], you can create a new Range/Growth Table Equation.
 - If you select [Clear], the Range/Growth Table for the selected item is erased.

(4)-1. Internal (copying an internal FW range/growth table)

- ① Using the trackball, move the arrow to [Internal], then press the SET switch.
- A list of built-in fetal weight range tables is displayed.



← A list of built-in fetal weight range tables is displayed here.
If there are currently registered tables, they are highlighted.

- ② Move the arrow to the built-in FW range/growth table to be registered, then press the SET switch.
- When a table is registered, the table name is highlighted. Using the trackball, move the arrow to [Confirm], then press the SET switch.
 - The registration procedure is ended, and the display reverts to the "Contents of OB Measurement Program" screen.

[Remark]

To cancel the registration operation, select [Cancel] or select Cancel before selecting [Confirm].

[Remark]

1. Several FW range/growth tables can be selected at the same time. (batch transfer method)
Before selecting [Confirm], move the arrow to the item to be changed and press the SET switch. Up to two table can be selected. The selected tables are registered in the selected sequence (same as for GA table registration).
2. To cancel a registration, press the SET switch a second time.

For details, refer to Page 15-16.

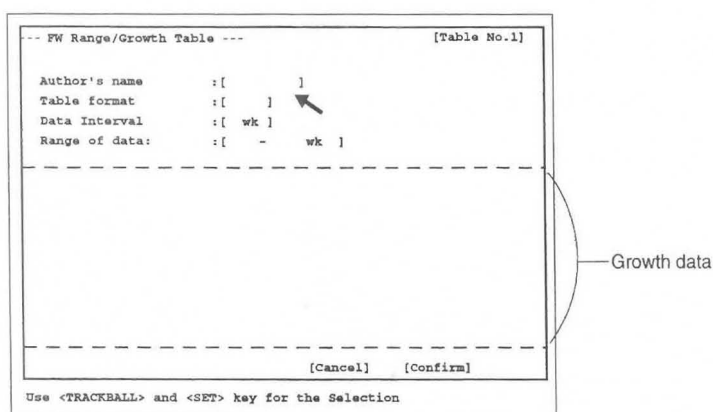
15-2. PRESET set-up (OB-Program)

(4)-2. User/Edit (creating a user-defined FW range/growth table)

Perform this operation to change the following contents:

- [Author's name]Author's name or hospital name, comment
- [Table Format]Table format specification (Select from Week \pm Day, Week \pm 1SD, percentile, and Measurement \pm Day)
- [Data Interval]Interval of Growth data
- [Range of Data]Range of Growth data
- [Growth data].....Setting the **Normal** value with respect to the gestational week, and also the **Lower** and **Upper** values with respect to the **Normal** value

- ① Move the arrow to the inside of [] of User/Edit, then press the **SET** switch.
 → The system displays the "FW Range/Growth Table" submenu for table input.



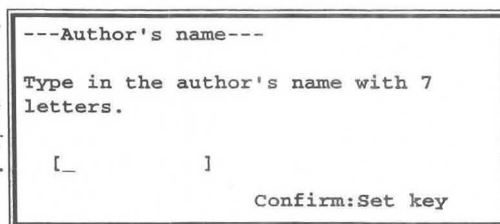
[Remark]

If a table was previously entered through "Internal" operation, the system displays the contents of that table for editing.

- ② Move the arrow to the item to be changed, then press the **SET** switch.
 → The system displays a submenu for the selected item. Edit the item according to the displayed messages.

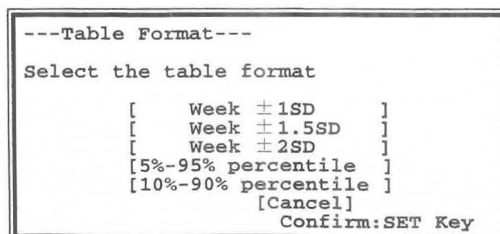
Changing [Author's name]

- ① Move the arrow to the inside of [] of Author's name, then press the **SET** switch.
 → The system displays the "Author's name" submenu. From the keyboard, enter the name of the author or institution with up to seven letters, then press the **SET** switch.



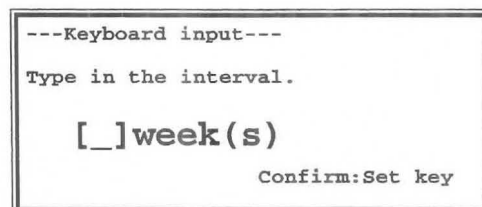
Changing [Table Format]

- ① Move the arrow to the inside of [] of Table Format, then press the **SET** switch.
 → If you change the Table Format at this point, the system clears the growth data information.



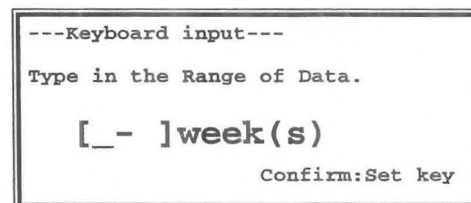
Changing [Data Interval]

- ① Move the arrow to the inside of [] of Data Interval, then press the **SET** switch.
 - The system displays a "Keyboard input" menu. From the keyboard, enter the number of weeks for the growth data interval.



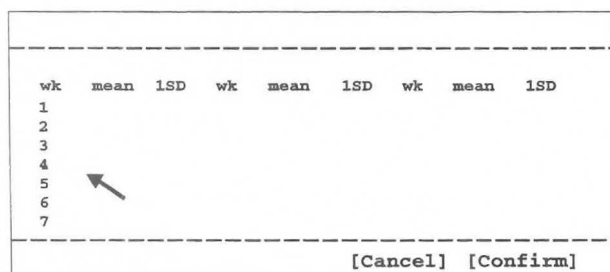
Changing [Range of Data]

- ① Move the arrow to the inside of [] of Range of Data, then press the **SET** switch.
 - The system displays a "Keyboard input" submenu. From the keyboard, enter values to indicate the period (from which week to which week) for which data is to be displayed.



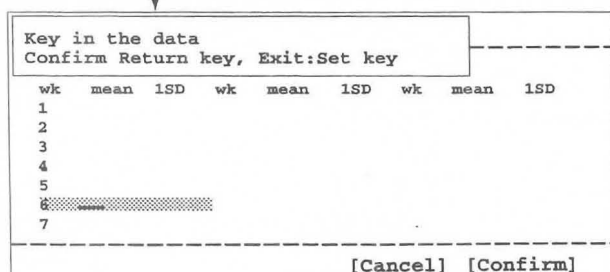
Changing [Growth data]

- ① Using the trackball, move the arrow to the item in the Growth data that you wish to change, then press the **SET** switch.
 - The system displays a cursor in a highlighted area. Enter a value from the keyboard.



Move the arrow in the growth data area.

SET +keyboard entry



Move the highlighted area with cursor anywhere in the growth data area. The system displays operation messages.

The highlighted area with cursor can be moved with the trackball anywhere in the growth data area.

- ② Press the Return key.
 - The entered data is finalized.
- ③ Press the **SET** switch.
 - The Growth entry function is canceled, and the arrow is displayed.
- ④ Upon completion of all setting work, move the arrow to **[Confirm]**, then press the **SET** switch.
 - The display reverts to the "Contents of OB Measurement Program" screen. If you do not perform this operation, the previous data will remain.

15-2. PRESET set-up (OB-Program)

(5) When you wish to change the contents of AFI values

You can register one kind of calculation formula in **AFI values**.

You can either copy a built-in calculation formula and use it, or input data to a blank calculation formula or modify data that you previously input and use the formula.

[Remark] AFI values can only be set using Contents of OB Measurement Program 1.

<Method of registering or changing an item in AFI values>

- ① Move the arrow to the item of **AFI values** that you wish to change, and press the **SET** switch.

→The following sub-menu appears.

```

--- AFI vaues Selection ---
Select the AFI values.

      [ Internal ]
      [ User/Edit ]
      [ Clear    ]

                                  [Cancel ]
                                  Confirm: SET key
    
```

[Remark] When you move the arrow to **[Cancel]** and press the SET switch, the sub-menu is erased.

- ② Move the arrow to **[Internal]**, **[User/Edit]** or **[Clear]**, and press the SET switch.

→If you select **[Internal]**, the built-in table is transcribed.

If you select **[User/Edit]**, you can create a new table.

If you select **[Clear]**, you can erase the table containing the selected item.

(5) -1. Internal (Copying a built-in table)

- ① Using the trackball, move the arrow to **[Internal]**, and press the **SET** switch.

→A list of built-in AFI tables is displayed.

```

--- Built-in Table List ---
Select the AFI values.
  [ Moore   ] [ Jeng et.al ]
                                [Cancel ] [Confirm]
    
```

A list of the formulas contained in the equipment is displayed.

If there is a currently registered table, it is displayed in highlighted form.

- ② Move the arrow to the built-in Ratio formula that you wish to newly register, and press the **SET** switch.

→The specified formula is displayed in highlighted form.

- ③ Using the trackball, move the arrow to **[Confirm]**, and press the **SET** switch.

→Upon completion of registration, the Contents of OB Measurement Program 1 screen re-appears.

[Remark]

To cancel registration work, either select **[Cancel]** or select **Cancel** on the touch panel before selecting **[Confirm]**.

[Remark]

To cancel a registration, press the **SET** switch twice.

For details, refer to P15-18.

(2) -2. User/Edit (When the user creates an AFI formula)

Here, you can change the following contents.

Author's nameName of author or hospital name, and comment

Table FormatSpecification of table format (Select from Week \pm 1SD, Week \pm 1.5SD, Week \pm 2SD, 5%-95% Percentile, 10%-90% Percentile, Lower-Mid-Upper, and Lower-Upper)

Data IntervalRange data step

Range of dataRange of Range curve

RangeデータSetting the **Normal** value with respect to the gestational week, and also the **Lower** and **Upper** values with respect to the **Normal** value

- ① Using the trackball, move the arrow to **[User/Edit]**, and press the **SET** switch.

```

--- AFI values in normal pregnancy ---
Author's name   :
Table Format    :
Data Interval  :
Range of Data  :
-----
wk  Lower  Mid  Upper   wk  Lower  Mid  Upper
-----
[Page ↑ ] [Page ↓ ]           [Cancel ] [Confirm]

```

→The table input sub-menu appears.

[Remark]

If a table has been input using an **"Internal"** operation, the contents are displayed, enabling you to change them.

- ② Move the arrow into [] corresponding to the item that you wish to change, and press the **SET** switch.
→The sub-menu appears, so carry out a registration operation according to the messages in the sub-menu.

15-2. PRESET set-up (OB-Program)

Changing the Author's name

- ① Move the arrow into [] of **Author's Name**, and press the **SET** switch.
 →Enter the name of the author (or institution) from the keyboard using no more than 10 characters, and press the **SET** switch.

```

--- Author's Name ---
Type in the author's name with 10
letters.

[           ]

Confirm: SET key
    
```

Changing the Table Format

- ① Move the arrow into [] of **Table Format**, and press the **SET** switch.

[Remark]

When **Table** format changes, the information concerning **Data interval**, **Range of data**, and gestational week data is cleared.

```

--- Table Format ---
Select the table format.

[ week ± 1 SD           ]
[ week ± 1.5SD         ]
[ week ± 2 SD          ]
[ 5% - 95% percentile ]
[ 10% - 90% percentile ]
[ Lower-Mid-Upper     ]
[ Lower-Upper         ]

[Cancel ]
Confirm: SET key
    
```

Changing the Data Interval

- ① Move the arrow into [] of **Data Interval**, and press the **SET** switch.
 →Enter the step for the **Range** data.

```

--- Keyboard input ---
Type in the Data Interval

[ ] Week(s)

Confirm: SET key
    
```

Changing the Range of data

- ① Move the arrow into [] of **Range of data**, and press the **SET** switch.
 →Enter the values that indicate from what week to what week is to be displayed.

```

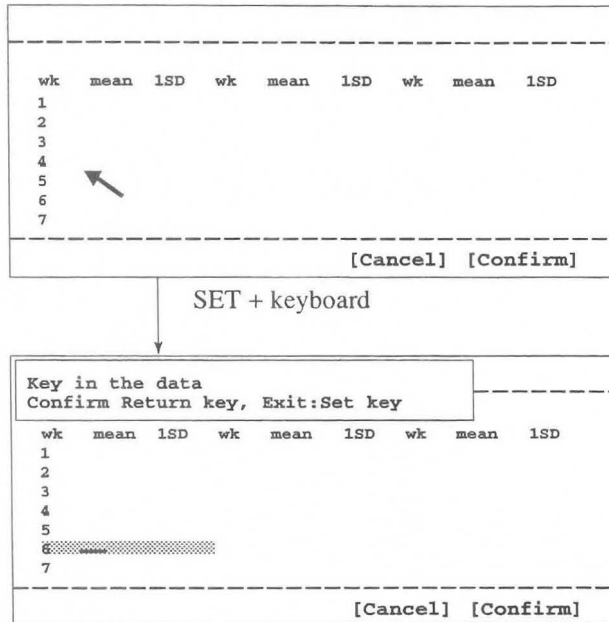
--- Keyboard input ---
Type in the Range of Data.

[ - ] Week

Confirm: SET key
    
```


Changing Growth data

- ① Using the trackball, move the arrow to the item in **Growth** data to be changed, and press the **SET** switch.
 →A highlight display and underline cursor appear, so enter a numerical value from the keyboard.



The arrow moves inside the Growth data area.

The highlight display and underline cursor move inside the **growth** data area, and an operation message appears.

By using the trackball, you can move the highlight display and underline cursor freely within the Growth data area.

- ② Press the Return key.
 →The entered data is finalized.
- ③ Press the **SET** switch.
 →The **Growth** input function is terminated, and the arrow re-appears.
- ④ Once all setting work is completed, move the arrow to **[Confirm]**, and press the **SET** switch.
 →The Contents of OB Measurement Program screen re-appears.
 If you do not perform this operation, the previous data remains unchanged.

(6) Changing the User's Name contents

The **User's Name** area allows you to create up to four parameter names.

You can set **User's Name** even when setting "GA Table" or "Ratio". The method of making or changing a registration is the same as above.

Move the arrow to the item in **User's Name** that you wish to change.

Enter a parameter name of no more than four characters, and select the measurement method. (For details, refer to P15-16.)

(7) Changing the Measurement Method contents

The Measurement Method area allows you to select the measurement method type for **HC**, **AC**, and **FTA**.

- ① Move the arrow to **Measurement Method**, then press the **SET** switch.
→ The following keyboard entry menu is displayed.

```

---Measurement Method---

Select the measurement method.

HC : [Area-E] [Area-F]
AC : [Area-E] [Area-F]
FTA : [Area-E] [Area-F]
HC calculation parameters.
      [BPD, OFD] [BPD, OFD]
Name selection [APD, TTD] [APD, TAD]
                [Cancel] [Confirm]
  
```

This submenu allows you to select the measurement method for AC, HC, and FTA; to select the parameters for calculating HC; and to change the parameter names for APTD and TTD.

- ② Move the arrow to the item to be changed, then press the **SET** switch.

[Remark]

To cancel registration work, either select **[Cancel]** instead of **[Confirm]**, or select **Cancel**.

- ③ Using the trackball, move the arrow to **[Confirm]**, then press the **SET** switch.
→ The registration procedure is ended, and the display reverts to the "Contents of OB Measurement Program" screen.
If you do not perform this operation, the previous data will remain.

15-2-3. Setting Doppler Measurement Program

When using **Doppler Measurement Program**, you can set Doppler measurement for each of uterine artery, umbilical artery, middle cerebral artery, aorta, and two other measurements.

You can also register RI and PI range tables in the report, and display the report.

<Setting procedure>

Changing a Doppler measurement item

- ① Select **Doppler Measurement Program**, and press the **SET** switch.

→The screen changes as shown below.

Obstetrical Doppler study Measurement Program							
[Initialize]		[Program]		[Cancel]		[Confirm]	
Doppler Measured item Select							
	PI	RI	S/D	pkS	pkD	AVG	VTI
Uterine Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Umbilical Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Mid. Cerebral Artery	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Deccending Aorta	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
OB Other 1	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
OB Other 2	[ON]	[ON]	[ON]	[ON]	[ON]	[ON]	[OFF]
Range Table							
Select item with <TRACKBALL> and <SET> key.							

- ② To change a measurement item, move the arrow to the item concerned, and press the **SET** switch.
→The set state changes over.

- ③ Using the trackball, move the arrow to **[Confirm]**, and press the **SET** switch.
→Registration is completed, and the Obstetrical Measurement Program screen re-appears.
If you do not perform this operation, the previous data remains unchanged.

[Remark]

To cancel registration work, either select **[Cancel]** or press **Cancel** on the liquid crystal panel before selecting **[Confirm]**.

15-2. PRESET set-up (OB-Program)

Changing a range table

- ① Move the arrow into the Range Table frame, and press the **SET** switch.

→The screen changes as shown below.

```

--- Doppler Range Table Selection ---
Select the Range Table.

[ Internal ]
[ User/Edit ]
[ Clear    ]

                                [Cancel ]
                                Confirm: SET key

```

[Remark]

If you move the arrow to **[Cancel]** and press the **SET** switch, the above sub-menu is erased.

- ② Move the arrow to **[Internal]**, **[User/Edit]** or **[Clear]**, and press the **SET** switch.

→If you select **[Internal]**, a built-in range table is transcribed.

If you select **[User/Edit]**, you can create a new range table.

If you select **[Clear]**, you can erase the range table containing the selected item.

(1) -1. Internal (Copying a built-in table)

- ① Using the trackball, move the arrow to **[Internal]**, and press the **SET** switch.

→A list of built-in range tables is displayed.

```

--- Built-in Table List ---
Select the Table.

[ Uma-PI (Shinozuka) ]
[ Uma-RI (Shinozuka) ]
[ MCA-PI (Shinozuka) ]
[ MCA-RI (Shinozuka) ]

                                [Cancel ] [Confirm]

```

- ② Move the arrow to the built-in range table that you wish to newly register, and press the **SET** switch.
- The specified table appears in highlighted form, so using the trackball move the arrow to **[Confirm]**, and press the **SET** switch.
- Upon completion of registration, the Contents of OB Measurement Program screen re-appears.

[Remark]

To cancel registration work, select **[Cancel]** before selecting **[Confirm]**.

(1) -2. User/Edit (Creating a fetal weight formula)

Here, you can change the following contents.

- Range Table Name.....Name of the range table
- Author's name.....Author of the range table
- Table Format.....Selection from week \pm 1SD, week \pm 1.5SD, week \pm 2SD, 5%-95% percentile, 10%-90% percentile, Lower-Mid-Upper, and Lower-Upper
- Parameters.....Selection of parameters
- Data IntervalNumber of steps of range data
- Range of DataRange of growth data

```

--- Doppler Range/Growth Table ---
Range Table Name :[      ]
Author's name    :[      ]
Table Format      :[      ]
Parameters       :[      ]
Data Interval    :[  wk]
Range of Data    :[  -  wk]
-----
wk Lower Upper      wk Lower Upper
-----
[Page ↑] [Page ↓] [Cancel ] [Confirm]
    
```

Changing the Range Table Name

- ① Move the arrow into [] of Range Table Name, and press the SET switch.
→Enter the range table name from the keyboard using no more than eight characters, and press the SET switch.

```

--- Range Table Name ---
Type in the author's name with 8
letters.
[      ]
Confirm: SET key
    
```

Changing the Author's name

- ① Move the arrow into [] of Author's Name, and press the SET switch.
→Enter the author's name (institution name) from the keyboard using no more than eight characters, and press the SET switch.

```

--- Author's Name ---
Type in the author's name with 8
letters.
[      ]
Confirm: SET key
    
```

Changing the Table Format

- ① Move the arrow into [] of **Table Format**, and press the **SET** switch.

[Remark]

When the **table format** is changed, the information concerning the **Data Interval**, **Range of data**, and gestational week data shown below is cleared.

```

--- Table Format ---
Select the table format.
[ week ± 1 SD      ]
[ week ± 1.5SD    ]
[ week ± 2 SD      ]
[ 5% - 95% percentile ]
[ 10% - 90% percentile ]
[ Lower-Mid-Upper   ]
[ Lower-Upper       ]
                    [Cancel ]
                    Confirm: SET key
    
```

Changing Parameters

- ① Move the arrow into [] of **Measurement Parameter**, and press the **SET** switch .

→Select the measurement name that you wish to assign to the graph, and press the **SET** switch.

```

--- Measurement Parameter ---
Select the Measurement Parameter.
[Uterine ] [ Umbili. ] [ MCA   ]
[Aortic  ] [Other1  ] [Other2  ]
                    [Cancel ]
                    Confirm: SET key
    
```

- ② The **Parameter** menu appears.

→Select a parameter, and press the **SET** switch.

```

--- Parameter ---
Select the Parameter.
[ RI ] [ PI ] [S/D ]
[pkD ] [pkS ] [AVG ] [VTI ]
                    [Cancel ]
                    Confirm: SET key
    
```

Changing the Data Interval

- ① Move the arrow into [] of **Data Interval**, and press the **SET** switch.

→Enter the step of the **Range** data.

```

--- Keyboard input ---
Type in the Data Interval
[ ] Week(s)
                    Confirm: SET key
    
```

Changing the Range of Data

- ① Move the arrow into [] of Range of data, and press the SET switch.
→Enter the values that indicate from what week to what week is to be displayed.

---Keyboard input---

Type in the Range of Data.

[_ -] week(s)

Confirm: Set key

Changing Growth data

- ① Using the trackball, move the arrow to the item in the Growth data area to be changed, and press the SET switch.
→A highlight display and underline cursor appear, so enter a numerical value from the keyboard.

wk	Lower	Upper
20		
21		
22		
23		
24		

[Cancel] [Confirm]

SET + keyboard

wk	Lower	Upper
20	1.3	1.4
21		
22		
23		
24		

[Cancel] [Confirm]

The arrow moves inside the growth data area.

The highlight display and underline cursor move inside the **growth** data area, and an operation message appears.

By using the trackball, you can move the highlight display and underline cursor freely within the growth data area.

- ② Press the Return key.
→The entered data is finalized.
- ③ Press the SET switch.
→The **growth** input function is terminated, and the arrow re-appears.
- ④ Once all setting work is completed, move the arrow to [Confirm], and press the SET switch.
→The Contents of OB Measurement Program screen re-appears.
If you do not perform this operation, the previous data remains unchanged.

15-2. PRESET set-up (OB-Program)

15-2-4. Setting Report Display Type

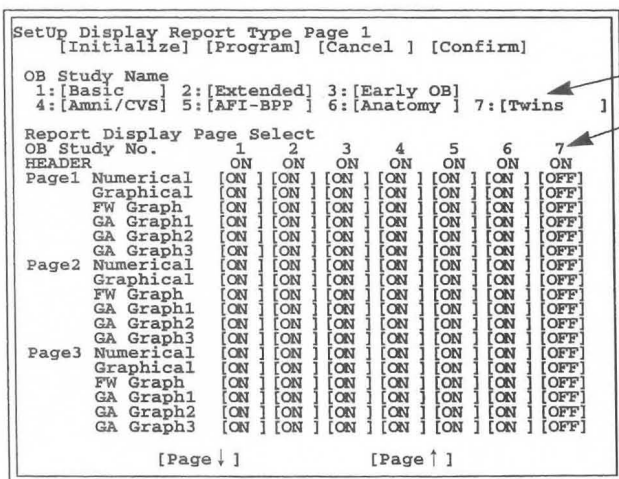
Report Display Type enables you to set 7 types of report displays, and for each type of report display to freely set the number of pages of the report to be displayed on the screen.

Although you can freely set 7 report display types, the following report display types have already been set in the equipment as initial settings.

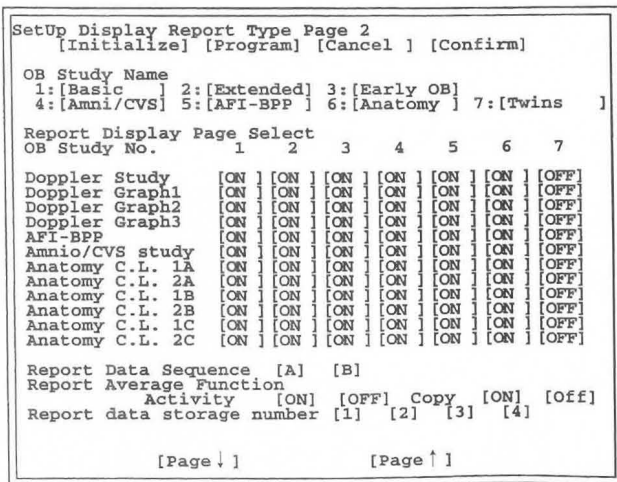
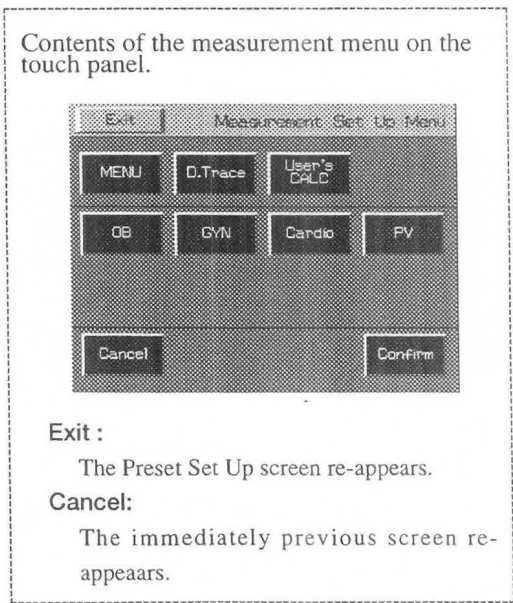
- 1. Basic : Report display for normal pregnancy
- 2. Extended : Report display for high risk pregnancy
- 3. Early OB : Report display for the initial stage of pregnancy
- 4. Amni/CVS : Report display based mainly on the results of amniotic fluid sampling
- 5. AFI-BPP : Report display of the amount of amniotic fluid sampled and the results of evaluating the BPP (Biophysical profile score)
- 6. Anatomy : Report display of the results of evaluating the Anatomy Check list
- 7. Twins : Display of report of evaluation results for twins or triplets

<Setting procedure>

- ① Select Report Display Type, then press the SET switch.
→ The screen changes as shown below.



7 types of report displays
(These applications correspond to numbers 1 to 7.)



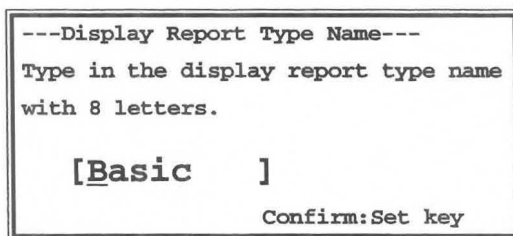
- ② If you wish to change any of the set items in the **Set Up Display Report Type** screen, move the arrow to the desired item, and press the **SET** switch.
 - The system automatically goes into the Program status, and sub-menus are displayed, so perform registration according to the messages on the screen.

(1) How to change the contents of Report Display Set Name

The **Report Display Set Name** function is intended to enable you to set six report display names, then set the contents of the pages displayed using the page turning operation on the report screen.

<Making or changing a registration>

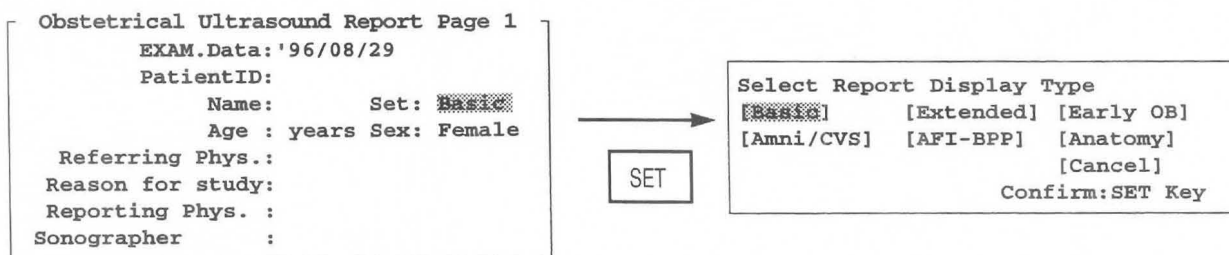
- ① Move the arrow to the item in **Report Display Set Name** that you wish to change, then press the **SET** switch.
 - The keyboard entry sub menu shown below appears.



- ② Enter the report display name from the keyboard using no more than eight characters, then press the **SET** switch.

[Report]

Report Display Set Name set here is displayed in Header Page of the report, enabling you to select a report display name.



15-2. PRESET set-up (OB-Program)

(2) How to change the contents of Report Display Page Select

Report Display Page Select is intended to enable you to select a report to be displayed for each report display type in Report Display Set Name.

You can set the following pages.

- Header : Be sure to display the patient information page.
- Page1 : Displays the contents set by **Contents of OB Measurement Program 1**.
This page is divided into six pages: **Numerical**, which displays the measurement results numerically, **Graphical**, which displays the gestation week obtained from multiple measurements in the form of a graph, **FW Graph**, which enables you to tell at a glance if the fetal weight is within the standard range, and **GA Graph 1~3**, which enable you to know the gestation week at a glance. You can select any one of these pages.
- Page2 : The contents set in **Contents of OB Measurement Program 2** are displayed.
Like Page1, this page is divided into six pages: **Numerical**, **Graphical**, **FW Graph**, and **GA Graph 1~3**.
- Page3 : The contents set in **Contents of OB Measurement Program 3** are displayed.
Like Page1, this page is divided into six pages: **Numerical**, **Graphical**, **FW Graph**, and **GA Graph 1~3**.
- Doppler Study : Displays the Doppler measurement result pages.
- Doppler Graph1~3 : Displays Doppler graphs on the report pages.
- AFI-BPP : Displays the amniotic fluid index and the results of evaluating the BPP.
- Amnio/CVS study : Displays the page containing the results of examining sampled amniotic fluid.
- Anatomy C.L.1,2 : Displays the page containing the results of evaluating the **Anatomy Check List**. This item consists of two pages which can be selected freely.

```

SetUp Display Report Type Page 1
[Initialize] [Program] [Cancel ] [Confirm]

OB Study Name
1:[Basic ] 2:[Extended] 3:[Early OB]
4:[Amni/CVS] 5:[AFI-BPP ] 6:[Anatomy ] 7:[Twin ]

Report Display Page Select
OB Study No.
HEADER
Page1 Numerical [ON ] [ON ] [ON ] [OFF] [ON ] [OFF] [ON ]
      Graphical [ON ] [ON ] [ON ] [OFF] [OFF] [OFF] [ON ]
      FW Graph [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
      GA Graph1 [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
      GA Graph2 [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
      GA Graph3 [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
Page2 Numerical [OFF] [ON ] [OFF] [OFF] [ON ] [OFF] [OFF]
      Graphical [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
      FW Graph [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph1 [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph2 [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph3 [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
Page3 Numerical [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
      Graphical [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
      FW Graph [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph1 [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph2 [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
      GA Graph3 [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]

[Page ↓ ] [Page ↑ ]
    
```

Corresponds to the Header Page

Corresponds to Contents of OB Measurement Program 1.

Corresponds to Contents of OB Measurement Program 2.

Corresponds to Contents of OB Measurement Program 3.

```

Setup Display Report Type Page 2
[Initialize] [Program] [Cancel ] [Confirm]

OB Study Name
1:[Basic ] 2:[Extended] 3:[Early OB]
4:[Amni/CVS] 5:[AFI-BPP ] 6:[Anatomy ] 7:[Twin ]

Report Display Page Select
OB Study No.      1      2      3      4      5      6      7

Doppler Study      [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
Doppler Graph1    [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
Doppler Graph2    [ON ] [ON ] [OFF] [OFF] [OFF] [OFF] [ON ]
Doppler Graph3    [OFF] [ON ] [OFF] [OFF] [OFF] [OFF] [OFF]
AFI-BPP           [OFF] [OFF] [OFF] [OFF] [ON ] [OFF] [OFF]
Amnio/CVS study   [OFF] [OFF] [OFF] [ON ] [ON ] [OFF] [OFF]
Anatomy C.L. 1A    [ON ] [ON ] [ON ] [ON ] [OFF] [ON ] [ON ]
Anatomy C.L. 2A    [OFF] [OFF] [OFF] [OFF] [OFF] [ON ] [OFF]
Anatomy C.L. 1B    [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [ON ]
Anatomy C.L. 2B    [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
Anatomy C.L. 1C    [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]
Anatomy C.L. 2C    [OFF] [OFF] [OFF] [OFF] [OFF] [OFF] [OFF]

Report Data Sequence [A] [B]
Report Average Function
Activity [ON] [OFF] Copy [ON] [Off]
Report data storage number [1] [2] [3] [4]

[Page ↓ ] [Page ↑ ]

```

[Remark]

Anatomy C.L. can display two pages, 1A and 2A, when the number of fetuses is Single, four pages, 1A, 2A, 1B and 2B, in the case of Twins, and six pages, 1A, 2A, 1B, 2B, 1C and 2C, in the case of Triplets.

<Making or changing a registration>

- ① Move the arrow to the frame that indicates whether the selection item **Report Display Page Select** is [ON] or [OFF], then press the **SET** switch.
→ The [ON, OFF] display switches over each time you press **SET** switch.

(3) Changing the contents of Report Data Sequence

Report Data Sequence is intended for changing over the feed sequence of the report pages.

There are two methods of changing the sequence, [A] and [B]. These are shown below.

[Remark]

Items for which the **Report Display Pages Select** setting is [OFF] are skipped, regardless of the **Report Data Sequence** [A], [B] setting.

(4) When you wish to change the contents of Report Average Function

You can change over the value to be transcribed by using **Activity** in **Report Average Function**.

If you select [On], the average value is transcribed. If you select [Off], the newest value is transcribed.

Copy is a function that transcribes the data registered in a report at the start of measurement.

If you select [On], the report data is transcribed at the start of measurement. If you select [Off], the data is not transcribed.

[Remark]

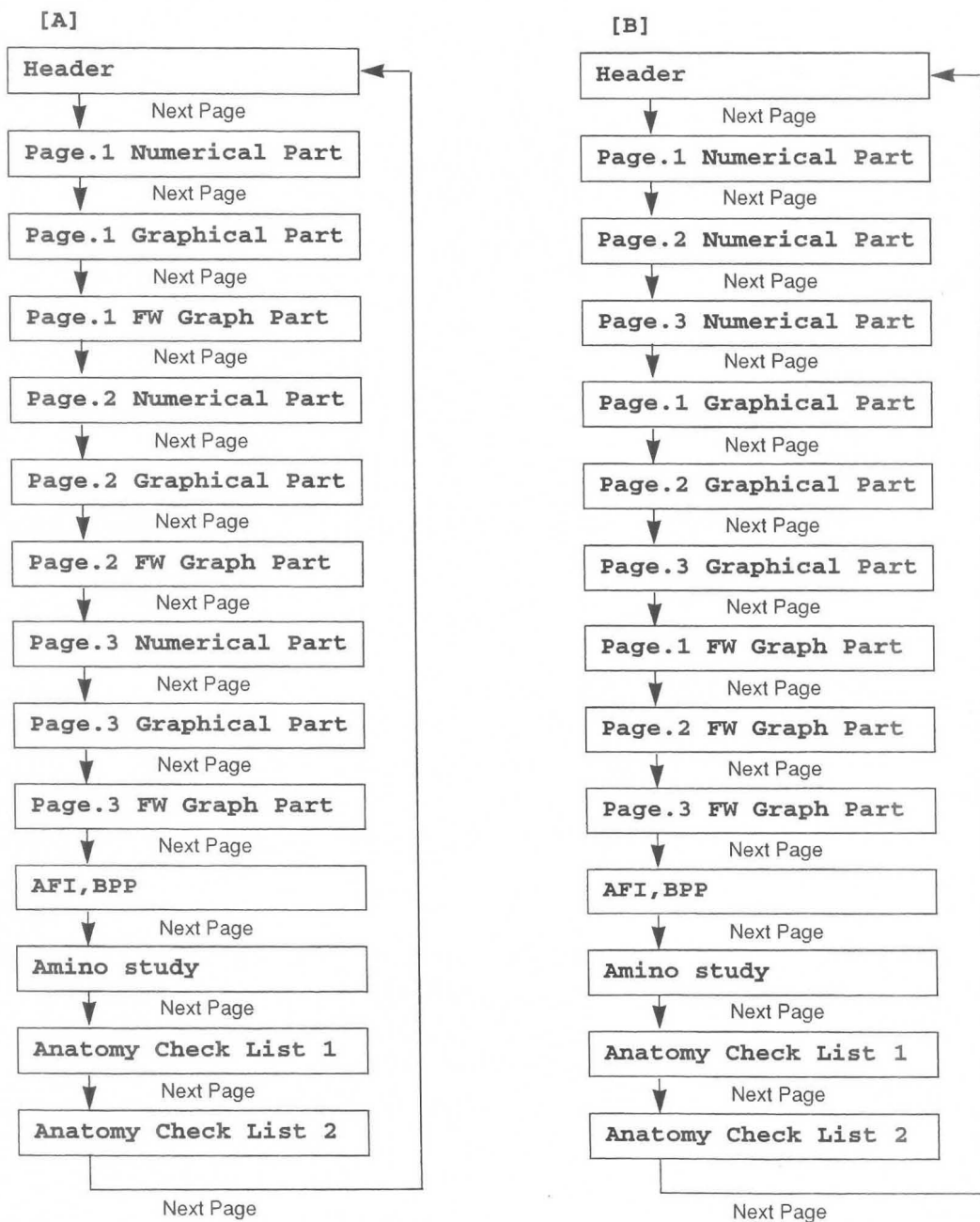
If **Report data storage number** is a number other than [1], the data is not transcribed even when **Copy** is [On].

(5) When you wish to change the contents of Report data storage number

Using **Report data storage number**, set the average number of sets of data to be used in the report.

You can set a number between [1] and [4].

<Report Data Sequence [A],[B]>



<Making or changing a registration>

- ① Move the arrow to selection item [A] or [B] of Report Data Sequence, then press the SET switch.
 - Each time you press the SET switch, the [A], [B] display switches over.
- ② Once you have completed all setting work, move the arrow to [Confirm], then press the SET switch.
 - The Contents of OB Measurement Program screen re-appears.
 - If you do not perform this operation, the previous data will remain.

15-2-5. Setting Report Printer

Report Printer is provided for outputting the contents of a report to a printer.

By connecting a printer to the equipment via a dedicated connector, you can record the measurement data obtained from an examination on A4 size or US letter size paper.

<Setting procedure>

- ① Select a Report Printer.
→The screen changes as follows.

SetUp Report Printer [Cancel] [Confirm]

Report Printer
[HP Desk Jet Printer 660C - PCL3]

Sheet
[US Letter]

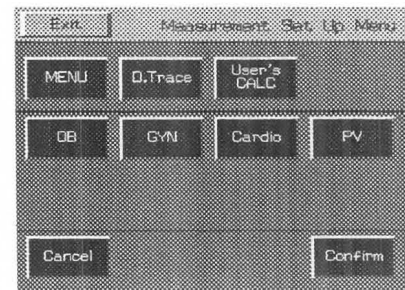
Print Style

Title:	Style	Size	Position
Site :	[Uplight]	[Medium]	[Center]
Text :	[Uplight]	[Medium]	[Left]

Title

Site Information

Contents of measurement menu on touch panel



Exit : Return to the Preset Set Up screen.

Cancel : Return to the previous screen.

- ② Move the arrow to [] of Report Printer, and press the SET switch.
→The following window appears.

Select the Report Printer

[HP Desk Jet Printer 660C - PCL3]

[HP Laser Jet Printer 2 Plus - PCL3]

[Cancel]

Confirm : SET key

- ③ Move the arrow to the name of the printer that you wish to select, and press the SET switch.
→The selected printer name appears in [] of Report Printer.

15-2. PRESET set-up (OB-Program)

- ④ Move the arrow to [] of **Sheet**, and press the **SET** switch.

→The following window appears.

```

Select the Sheet Size.
[US letter] [ A4 ]
[Cancel ]
Confirm : SET key
    
```

- ⑤ Move the arrow to the paper size of the paper printer than you wish to use, and press the **SET** switch.

→The selected printer paper size appears in [] of **Sheet**.

- ⑥ Move the arrow to [] of **Print Style**, and press the **SET** switch.

→One of the following windows appears depending upon the selected column.

If the **Style** column was selected

```

Select the Character type.
[Upright] [Italic ]
[Cancel ]
Confirm : SET key
    
```

If the **Size** column was selected

```

Select the Character Size.
[Normal]
[Medium]
[large ]
[Cancel ]
Confirm : SET key
    
```

If the **Position** column was selected

```

Select the print position.
[Left ]
[Center]
[Right ]
[Cancel ]
Confirm : SET key
    
```

- ⑦ Move the arrow to [] of the item that you wish to change, and press the **SET** switch.

→The selected contents appear in [] of **Print Style**.

- ⑧ Move the arrow into the **Title** box, and press the **SET** switch.

→The following window appears.

```

--- Print Title ---
Type in title strings with 80 letters
[
[
Confirm : SET key
    
```

- ⑨ Move the arrow to the beginning of the characters or word that you wish to change, enter the information from the keyboard, and press the **SET** switch.

→The entered information appears in the **Title** box.

15-2-6. Setting the Anatomy Check List

An **Anatomy Check list** is provided to ensure that fetal observation is carried out thoroughly.

You can add to the **Anatomy Check List** a simple questionnaire asking whether or not the operator made an observation, and whether or not the internal organs were visible.

The **Anatomy Check List** consists of two pages.

You can either transfer the entire **Anatomy Check List** built into the system, or set your own evaluation items.

Each **Heading** item has **Selection** items and **Comments**.

The **Selection** items are determined by the contents of the **Heading** item, so you cannot change them here.

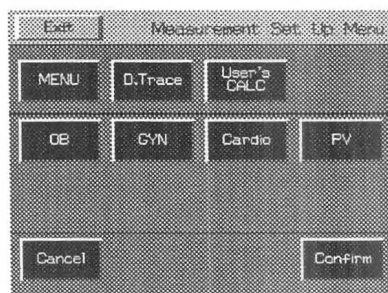
Enter comments using the report.

<Setting procedure>

- ① Select **Anatomy Check List**.
→ The screen changes as follows.

Anatomy Check List page1		
[Initialize] [Program] [Cancel] [Confirm]		
Heading	Selection	Comments
Fetal Number	:	:
Fetal Presentation	:	:
Cardiac Activity	:	:
Heart 4 chamber View	:	:
Outflow Tract	:	:
Placental Position	:	:
Placental location	:	:
Placental Grade	:	:
Cord Vessels	:	:
Cord Insertion	:	:
Head	:	:
Cerebral Ventricles	:	:
Spine	:	:
Stomach	:	:
Diaphragm	:	:
Urinary Bladder	:	:
Left Kidney	:	:
Right Kidney	:	:
Left Arm	:	:
Right Arm	:	:
Left Leg	:	:
Right Leg	:	:

Contents of the measurement menu on the touch panel.



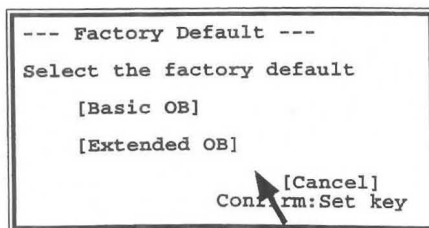
Exit :

The Preset Set Up screen re-appears.

Cancel:

The immediately previous screen re-appears.

- ② Move the arrow to **[Initialize]**, then press the **SET** switch.
→ A sub menu for transferring the entire **Anatomy Check List** built into the system appears.

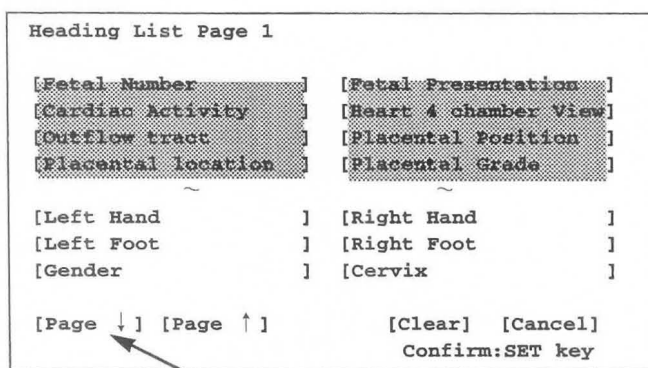


- ③ Using the arrow, select the name of **Anatomy Check List** that you wish to register, then press the **SET** switch.
→ The contents of the **Anatomy Check List** screen change to the selected contents.

[Remark]

Extended OB contains two pages' worth of information, so the contents of Anatomy Check List 2 also change.

- ④ Move the arrow to the item in Anatomy Check List that you wish to change, then press the SET switch.
→ The sub menu shown below appears on the screen.
- ⑥ Move the arrow to the word that you wish to newly register, then press the SET switch.



If there are words currently registered, they are displayed in gray.

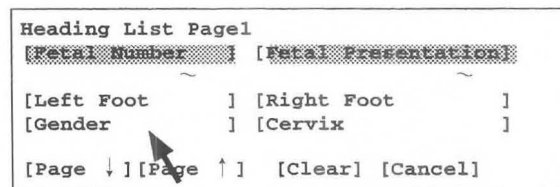
The tables built into the system are displayed as a list.

The list consists of two pages. Select ↓ or ↑.

→ The selected word is registered.

[Remark]

Selection is a selection item for a heading item. It is determined according to the item under Heading.



SET

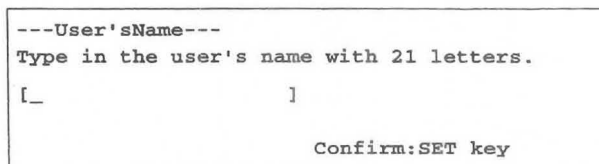
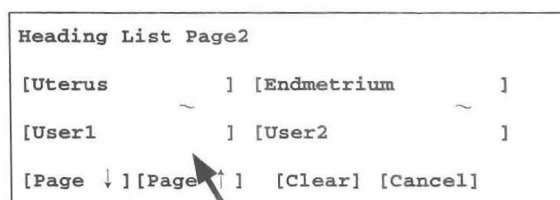
- ⑦ When you wish to register a word in Anatomy Check List contained in the system, select [Page ↓] or [Page ↑], then press the SET switch.

→ Heading List Page 2 is displayed.

Heading	Selection	Comment
Left Foot	:	

- ⑧ Select User 1 or User 2, then press the SET switch.

→ A sub menu is displayed. Enter the parameter name from the keyboard within 21 characters, then press the SET switch.



- ⑩ Once you have completed setting work, move the arrow to [Confirm], then press the SET switch.

→ The Contents of OB Measurement Program screen re-appears.
If you do not perform this operation, the previous data will remain.

15-2. PRESET set-up (OB-Program)

Items and selection items registered in the built-in Anatomy Check List

[For Basic]

Heading Item	Selection Item				
	Single	Twins	Triplets	Multiple	
Fetal Number	Single	Twins	Triplets	Multiple	
Fetal Presentation	Vertex	Breech	Transverse	Oblique	Other
Cardiac Activity	Regular	Irregular	Absent		
Heart 4 chamber View	Seen	Poorly seen	Not seen		
Outflow Tract	Seen	Poorly seen	Not seen		
Placental Position	Fundal	Anterior	Posterior	R-Lateral	L-Lateral
Placental Location	Fundal	Mid	Low		
Placental Grade	0	1	2	3	
Cord Vessels	3	2			
Cord Insertion	Seen	Poorly seen	Not seen		
Head	Seen	Poorly seen	Not seen		
Cerebral Ventricles	Seen	Poorly seen	Not seen		
Spine	Seen	Poorly seen	Not seen		
Stomach	Seen	Poorly seen	Not seen		
Diaphragm	Seen	Poorly seen	Not seen		
Urinary Bladder	Seen	Poorly seen	Not seen		
Left Kidney	Seen	Poorly seen	Not seen		
Right Kidney	Seen	Poorly seen	Not seen		
Left Arm	Seen	Poorly seen	Not seen		
Right Arm	Seen	Poorly seen	Not seen		
Left Leg	Seen	Poorly seen	Not seen		
Right Leg	Seen	Poorly seen	Not seen		

[For Extended]

Heading Item	Selection Item		
	Seen	Poorly seen	Not seen
Abdominal Wall	Seen	Poorly seen	Not seen
Lungs	Seen	Poorly seen	Not seen
Liver	Seen	Poorly seen	Not seen
Face	Seen	Poorly seen	Not seen
Orbits	Seen	Poorly seen	Not seen
Neck	Seen	Poorly seen	Not seen
Choroid Plexus	Seen	Poorly seen	Not seen
Posterior Fossa	Seen	Poorly seen	Not seen
Cisterna Magna	Seen	Poorly seen	Not seen
Cerebellum	Seen	Poorly seen	Not seen
Left Hand	Seen	Poorly seen	Not seen
Right Hand	Seen	Poorly seen	Not seen
Left Foot	Seen	Poorly seen	Not seen
Right Foot	Seen	Poorly seen	Not seen
Gender	Male	Female	Not seen

[For Others]

Heading Item	Selection Item		
Cervix	Seen	Poorly seen	Not seen
Uterus	Seen	Poorly seen	Not seen
Endometrium	Seen	Poorly seen	Not seen
Myometrium	Seen	Poorly seen	Not seen
Left Ovary	Seen	Poorly seen	Not seen
Right Ovary	Seen	Poorly seen	Not seen
Left Fallopian Tube	Seen	Poorly seen	Not seen
Right Fallopian Tube	Seen	Poorly seen	Not seen
Left Adnexa	Seen	Poorly seen	Not seen
Right Adnexa	Seen	Poorly seen	Not seen

15-2-7. Setting Others

Select **Others** when setting the method of displaying the measurement results, method of obtaining the average value, BPP score index, or setting the unit of fetal weight measurement. Each setting item is shown below.

1. Measurement Type :

Selection of whether to display multiple parameters simultaneously on the screen, or display only the ongoing parameter

2. Measurement Stage Average Display :

Selection of whether or not to display the average value on the measurement screen

3. BPP Scoring Criteria :

Selection of the scoring criteria for the BPP (biophysical profile score) advocated by Manning and Coworkers, or that advocated by Vintzileos

4. F.W.Unit :

Selection of unit of fetal weight to be displayed in the report

[Remark]

The data input method for the reference table is [gram] only. You cannot change it even if the [Pounds & Ounces] display is selected for F.W. Unit.

5. CGW/EDC Data Display for FW calculation :

Selection of whether or not to display CGW/EDC when measuring fetal weight

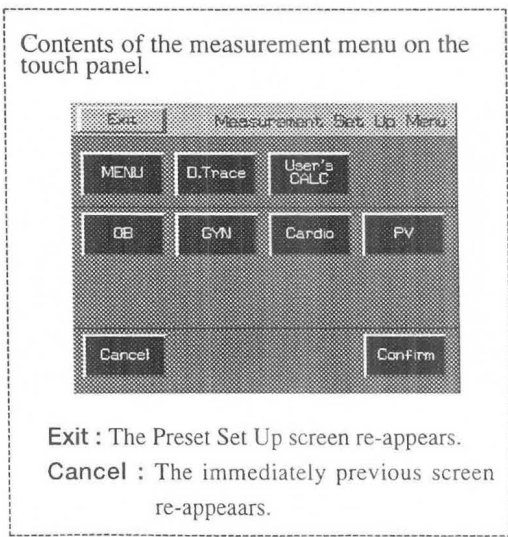
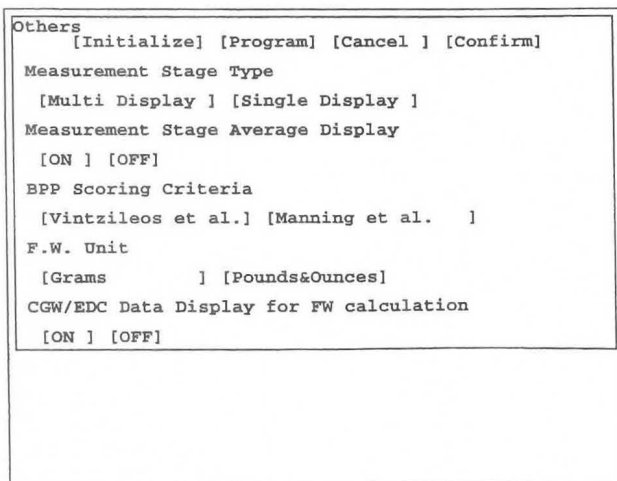
[Remark]

You cannot display the CGW/EDC value unless FW Range/Growth Table is registered as the fetal weight formula.

<Setting procedure>

- ① Select **Others**.

→ The screen changes as shown below.



- ② Using the arrow, select the item to be registered or changed, then press the **SET** switch.

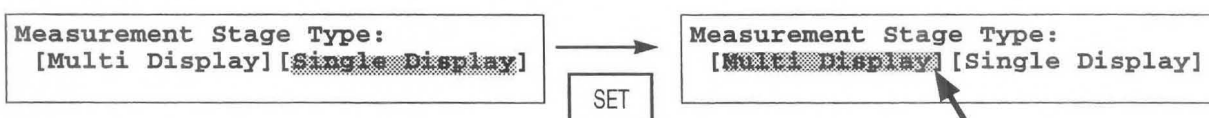
→ The highlight display moves to **[Program]**, enabling you to change an item.

(1) How to change the contents of Measurement Stage Type

Measurement Stage Type selects whether to display multiple parameters simultaneously on the screen, or display only the ongoing parameter.

<Making or changing a registration>

- q Move the arrow to [**Multi Display**] or [**Single Display**] of **Measurement Stage Type**, then press the **SET** switch.
 - The specified item is highlighted.



Example of measurement result display

Multi Display と Single Display

If you select [**Multi Display**], the results of calculating multiple parameters as shown in the figure below.

Measure BPD	→	Measure FL
+BPD : 50mm 20w6d±10d '96/09/28 Average : 20w6d±10d '96/09/28	+FL : 33mm 20w3d±17d '96/10/02 +BPD : 50mm 20w6d±10d '96/09/28 Average : 20w6d±10d '96/09/30	

If you select [**Single Display**], only the latest measurement result is displayed, even if multiple parameters were measured.

Measure BPD	→	Measure FL
+BPD : 50mm 20w6d±10d '96/09/28 Avg(1) : 20w6d±10d '96/09/28	+FL : 33mm 20w3d±17d '96/10/02 Avg(1) : 20w6d±10d '96/09/30	

* You can turn the **Average** (average value) display **ON** or **OFF** using [**Measurement Stage Average Display**] described on the next page.

The number marked (*) in **Avg** indicates the number of parameters used to obtain the average value.

[Remarks]

The **Average** value when **Multi Display** was selected is the average value obtained from the multiple measurement results currently displayed on the screen.

The **Average** value when **Single Display** was selected is the value obtained from the average value of all measurement parameters registered in the report, regardless of whether or not the parameters are displayed on the screen.

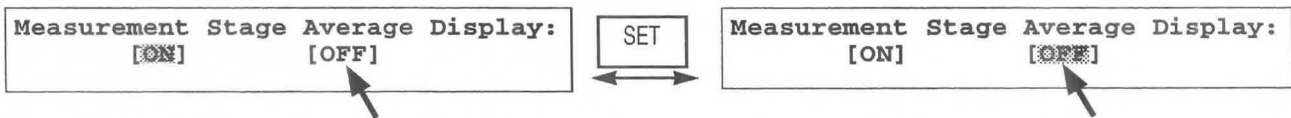
The **Average** value is obtained from the parameters transferred to the report, so unless you press the **SET** switch to transfer the parameters to the report the results of the ongoing measurement will not be calculated as the **Average** value.

(2) How to change the contents of Measurement Stage Average Display

Measurement Stage Average Display selects whether or not to display the average value of the parameters on the measurement screen.

<Making or changing a registration>

- q Move the arrow to [ON] or [OFF] of Measurement Stage Average Display, then press the SET switch.
 - If you select [ON], the setting that displays the average value on the measurement screen is activated.
 - If you select [OFF], the setting that does not display the average value is activated.



(3) How to change the contents of BPP Scoring Criteria

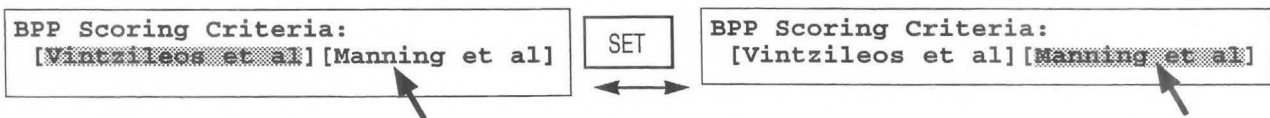
BPP is an abbreviation of Biophysical profile score. It is expressed as the total value of the calculated score points for the selection items selected by the operator in accordance with the evaluation criteria, based on information obtained from observation of ultrasound images of a fetus over a relatively long period.

This item is used mainly for high risk pregnancy management.

You can select the evaluation criteria advocated by Vintzileos and others, or that advocated by Manning and Coworkers, using a preset.

<Making or changing a registration>

- ① Move the arrow to [Vintzileos et al] or [Manning et al] on BPP Scoring Criteria, then press the SET switch.
 - The specified item is highlighted.



(4) How to change the contents of F.W. Unit

You can select the unit of fetal weight to be displayed in the report, from Grams and Pounds & Ounces. The measurement results and data entered to the reference table are displayed in Grams only.

<Making or changing a registration>

- ① Move the arrow to **[Grams]** or **[Pounds & Ounces]** of F.W. Unit, then press the **SET** switch.
→ The specified items is highlighted.



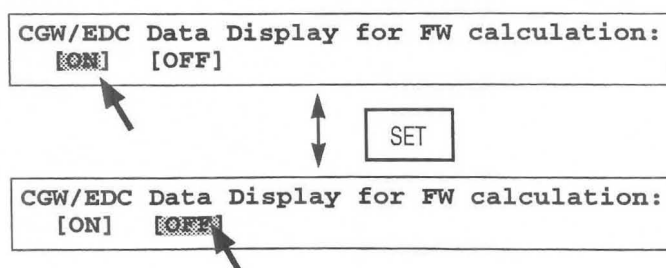
- ② Upon completion of setting work, move the arrow to **[Confirm]**, then press the **SET** switch.
→ The **Contents of OB Measurement Program** screen re-appears.
Unless you perform this operation, the previous data will remain.

(5) When you wish to change the contents of CGW/EDC Data Display for FW calculation

If the FW Range Growth table is registered as the FW formula, you can display the gestational week and the expected confinement date using the fetal weight measurement results.

<Method of registering or changing an item>

- ① Move the arrow to **[ON]** or **[OFF]** of CGW/EDC Data Display for FW calculation, and press the **SET** switch.
→The specified item appears in highlighted form.



- ② Upon completion of all setting work, move the arrow to **[Confirm]**, and press the **SET** switch.
→The Contents of OB Measurement Program screen re-appears.
If you do not perform this operation, the previous data remains unchanged.

15-2-8. Formed Comment Settings

The Formed Comment screen allows you to register format settings, titles, and comments for the Formed Comment area.

The method of setting Formed Comment is the same as that of cardiac function measurements of Section 14. Refer to 14-2-4 "Formed Comment Settings".

15-3. Measurement area

Measurement area is used to measure indexes for obstetrical measurements in B mode. It can be also used to indicate graphically whether or not the growth of a fetus is within the standard range, based on the measured results and the gestational week (LMP-GA) value at the time of measurement. (It can also be used to measure the gestational week and the weight of the fetus.)

This area can also be used to measure the amniotic fluid index.

The system transfers the measurement results to the report and allows the average of up to four measurements to be stored.

To register a measurement value to the report, you do not need to remeasure the indexes for fetal weight or ratio measurement. The indexes used in the obstetrical measurements are automatically incorporated in the fetal weight and ratio calculations that use the same indexes.

There are three obstetrical measurements that can be performed in the measurement area, "fetal measurement", "fetal weight measurement", and "amniotic fluid index measurement". When you select one of these, the screen changes as shown below.

<p>★For fetal measurement</p> <p style="text-align: center;">+</p> <p style="text-align: center;">+</p> <p> RPD mm w d ± d / / average: w d ± d / / </p>	<p>★For fetal weight measurement</p> <p style="text-align: center;">+</p> <p> FW(Tokyo U): g RPD mm XAPT D: mm TTD mm FL: mm </p>	<p>★For amniotic fluid measurement</p> <p style="text-align: center;">+</p> <p> AFI=0.0 +RUQ: , mm +RUQ: mm XLLQ: mm LLQ mm RLQ: mm </p>
--	--	--

1. Fetal measurements

For fetal measurements, the system calculates and displays the gestational age and estimated date of confinement from the measurement values when it has internal gestational age tables. Several items can be displayed at the same time.

2. Fetal weight measurements

For fetal weight measurements, the system measures several items, then it calculates and displays the fetal weight. For each fetal weight measurement item, the system assigns an individual caliper mark. First, the system displays a + mark, which corresponds to the topmost item. You can press the caliper switches or the touche panel menu items to select any item. You can also press the **SET** switch to select the items in sequence from the top item.

3. Amniotic fluid measurement

In amniotic fluid measurement, multiple items are measured, then the AFI value and item values are displayed.

A caliper mark is assigned to each item used for amniotic fluid measurement. Initially, a + mark corresponding to the highest item is displayed. By pressing the caliper mark switch or the touche panel menu items, you can freely select an item.

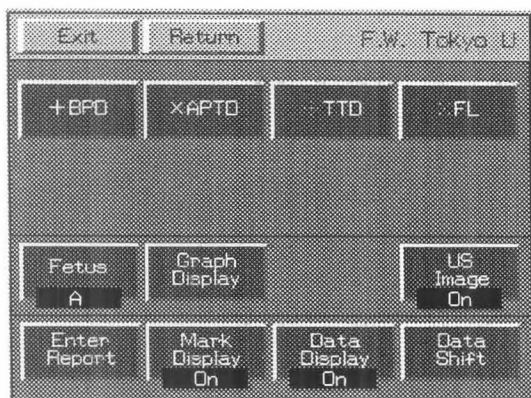
4. Twins and Triplets measurement

If you select "Twins" or "Triplets" in OB Study when performing fetal measurement or fetal weight measurement, you can perform measurement using the same table, separately for each fetus. In this case, the fetus names A, B and C appear in the result display.

15-3. Measurement area

<Description of measurement menu (Touch panel menu)>

When you select obstetrical measurement, an obstetrical measurement sub-menu appears on the touch panel. Each sub-menu (hereafter called "touch panel menu") has the following functions.



- ← Measurement title
- ← Measurement items assigned to a caliper mark
- The mark is appended to items transferred to a report.
- Sub-menus common to each measurement
Exit, US Image, Enter Report
Mark Display, Data Display, Data Shift
- ;The current status (On or Off) is displayed.

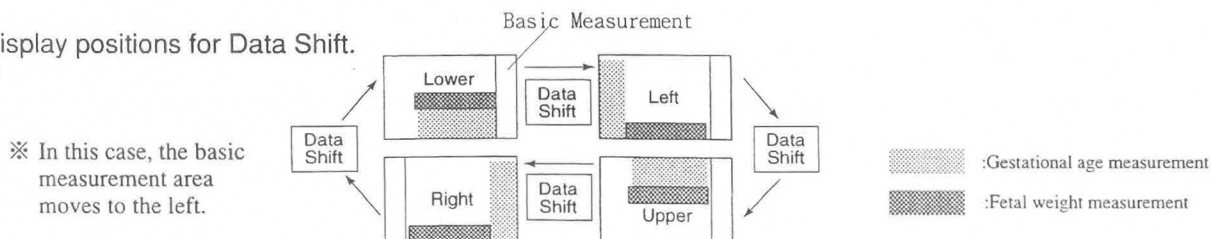
- Exit** : The measurement results and the caliper marks are all erased, and obstetric measurement is terminated. This function is displayed only for fetal weight measurement.
- +***, X***** : This item indicates the names of measurement items that support a caliper mark. It enables you to select a measurement item in the same way as by pressing the caliper mark switch.
- Return** : Obstetric measurement is terminated, but the measurement results and caliper marks remain displayed.
- Fetus** : Displayed when "Twins" or "Triplets" is set in OB Study. The fetus names A, B and C appear in the result display. (when OB Study is "Twins" or "Triplets")
- Graph Display** : The measurement values displayed on the screen are plotted in the graph which indicates the standard range. (Only the gestational week measurement that has an estimation obstetrical table, and fetal weight measurement that has a Fetal Weight Growth Table are displayed.)
- US Image** : Enables you to switch On/Off the function that temporarily erases an ultrasound image.
- Enter Report** : The measurement results generated up to that point in time are transferred to a report, then measurement is terminated, even if all measurement items have not been completed. The mark is appended to items transferred to the report.
- Mark Display** : You can switch On/Off the display of caliper marks other than the marks used for the ongoing measurement.
- Data Display** : You can switch On/Off the function that temporarily erases the measurement results.
- Data Shift** : You can move the measurement result area left, right, up or down.

[Remark]

Mark Display, Data Display, Data.Shift maintain their status until the power is turned off.

(Data Shift returns to its original status as a result of a New Patient or Preset change.)

Result display positions for Data Shift.



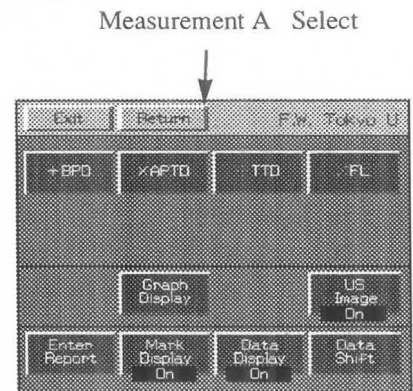
You can set in advance the position where the obstetrical measurement results are to be displayed using "MEASURE Move" in Display Control of "Preset".

For details of the setting method, refer to 11-5 "Preset".

15-3-1. Basic procedure for obstetrical measurements

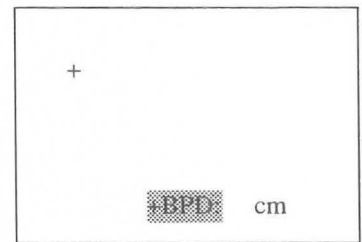
Here, a description is given of the operation method that is common to all obstetric measurements.

- ① Press the **MEASUREMENT** switch, then select the measurement name from the measurement menu of the touch panel.
→ The touch panel menu changes according to the selected measurement.



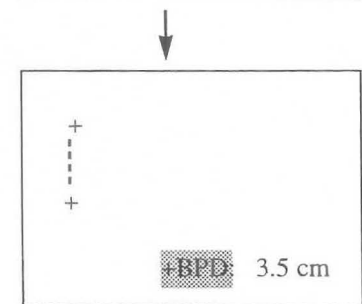
Also, the measurement item is displayed in highlighted form on the screen.

- ② A caliper mark (+) is displayed simultaneously, so move it to the measurement position using the trackball and **MARK REF** switch.



The method of operation using the **trackball** and **MARK REF** switch is the same as that for basic measurements.

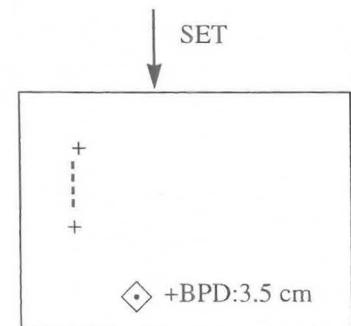
Basic measurement names are indicated in the measurement description of each item, so refer to the operation methods for the following basic operations.



	Reference page
<DIST.>	p13-4
<Area Trace>	p13-5
<Area Ellipse>	p13-6
<HeartRate>	p13-16

- ③ To make a correction, press the caliper mark switch once again, then carry out measurement again.
- ④ If you wish to erase the displayed results during measurement, set **Data Display** of the touch panel menu to **Off**. To erase an ultrasound image, set **US Image** to **Off**; to move the displayed results, press **Data Shift**; to display only the caliper marks used in the last measurement, set **Mark Display** to **Off**.

- ⑤ Upon completion of measurement, press the **SET** switch.
→ The measurement results are transferred to a report.
When a result is transferred to the report, it is prefixed with the mark .



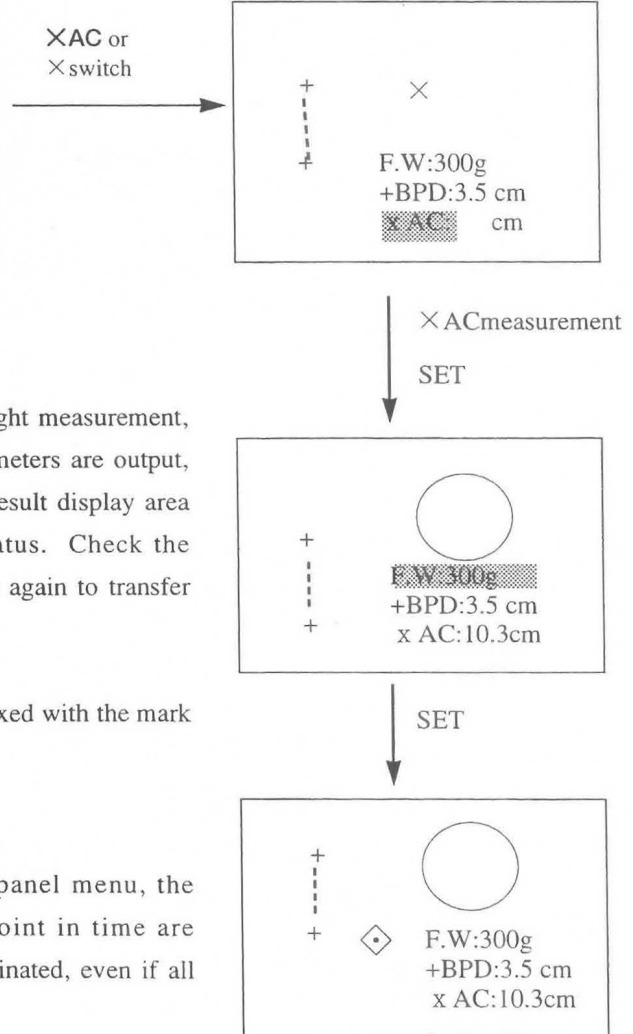
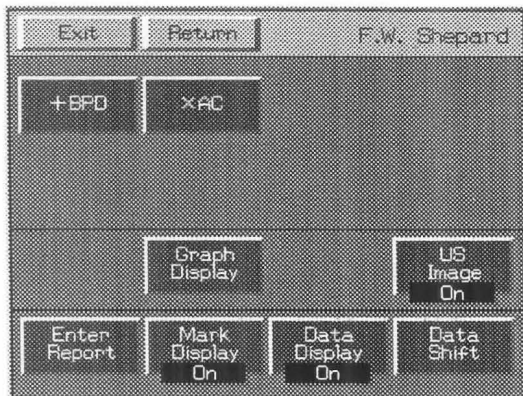
- ⑥ If you wish to append a different mark to the same measurement result, press the +, x, ∴, or ∴∴ caliper mark switch on the touch panel menu.
→ Perform steps ① to ⑤.

15-3. Measurement area

[Remark]

When measuring a number of items such as in fetal weight measurement, after performing step ② either press the caliper mark switch corresponding to the next measurement item, or select an item name on the touch panel menu, then press the **SET** switch. As a result, a new caliper mark will appear, so perform measurement in the normal way using the trackball and **MARK REF** switch.

<Touch panel menu>



- ⑦ When performing measurement, such as fetal weight measurement, in which the results computed using several parameters are output, press the **SET** switch to highlight the computed result display area and put the system into a transfer standby status. Check the measured values, then press the **SET** switch once again to transfer them to the report.

When a result is transferred to the report, it is prefixed with the mark .

- ⑧ If you select **Enter REPORT** in the touch panel menu, the measurement results generated up to that point in time are transferred to a report, then measurement is terminated, even if all measurement items have not been completed.

- ⑨ Upon completion of measurement, select **Return**, then **Clear**, from the touch panel menu, or press the **MEASUREMENT** switch.

→ The measurement marks and measurement results are all erased.

<Graph function>

This function is used to plot the measured values displayed on the screen in a graph which indicates the standard range. It appears when **Graph Display** is selected from the obstetric measurement menu.

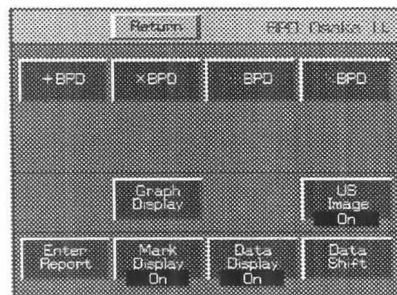
This function is displayed only for measurement of gestational week in which an obstetrical estimating table is used, and fetal weight measurement in which a fetal weight growth table is used. It corresponds to measurement which is displayed as **Graph Display** in the touch panel menu.

If **Graph Display** is not in the touch panel menu, a graph cannot be displayed, so check **OB-PROGRAM** of **PRESET** in advance. (A graph can be displayed without setting **PRESET** when measuring gestational week using the obstetrical table or a fetal weight standard value table incorporated in the equipment).

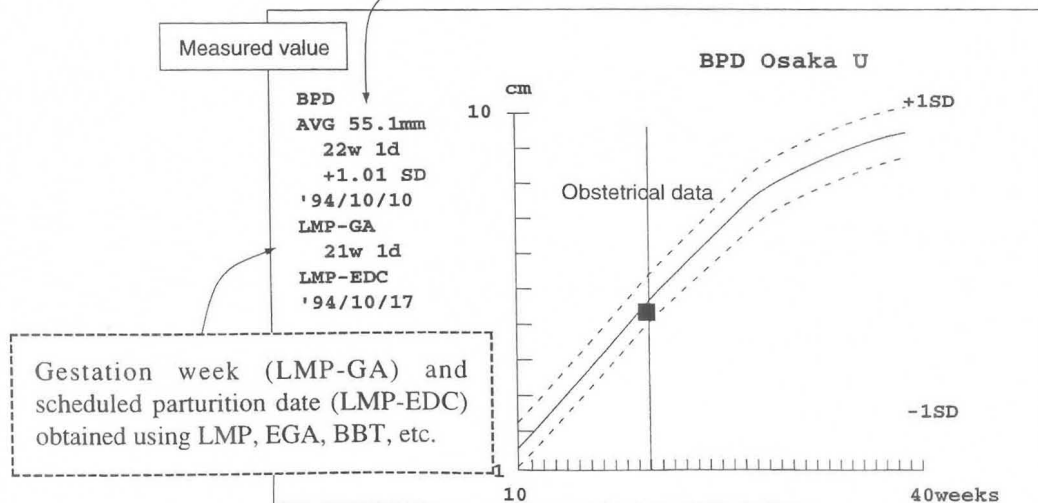
The measured values are plotted above the gestational week (LMP-GA) calculated using **LMP**, **EGA**, **BBT**, etc., so be sure to enter them when entering the ID.

[Graph display and precautions]

Touch panel menu



If a plurality of measurements is performed (if BPD performed twice, for example) during the same measurement session, the average value is plotted. This value is not the average value for a separate measurement (for example, when BPD and FL are measured).



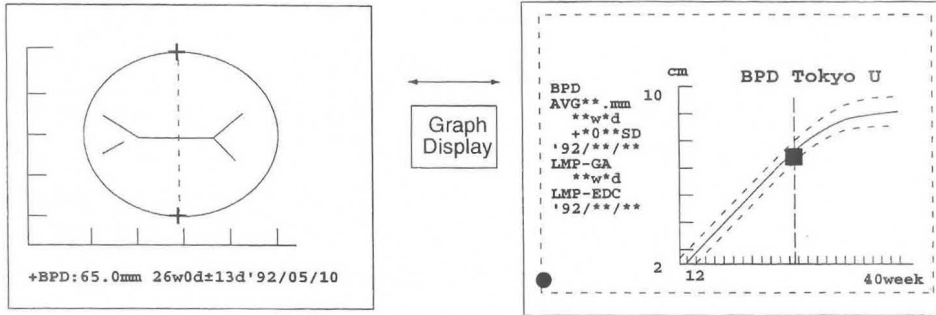
[Remark]

The above graph displays deviation data (\pm day or \pm 1SD) related to number of weeks in each obstetrical estimation table. It does not indicate the deviation (cm or mm) of the measured values, so use it only as a rough guide.

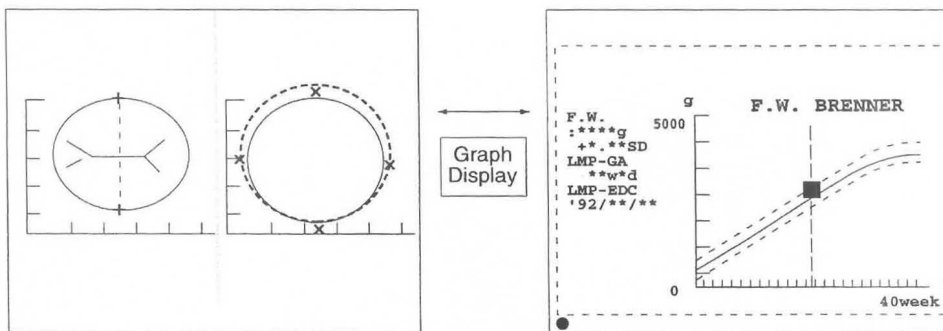
15-3. Measurement area

When **Graph Display** is selected, the screen changes as shown below.

Gestational week measurement



Fetal weight measurement



[Remark]

The **Mark Display** , **Data.Display** and **Data Shift** functions do not operate when **Graph Display** is selected.

15-3-2. Gestational age measurement

This example explains the BPD (Tokyo U) measurement.

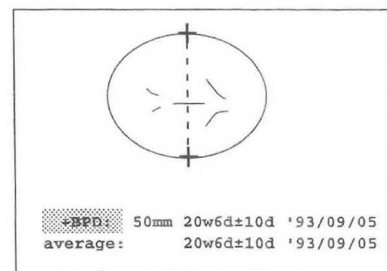
Note

Before starting an examination, always check that the date displayed on the monitor screen is correct. If the data is incorrect, invalid results may be displayed.

① Select "BPD (Tokyo U)".

→ A "+" mark appears at the center of the screen, so measure the biparietal diameter (using the same procedure as that for DIST.).

→ The system automatically calculates and displays the gestational age and estimated date of confinement.



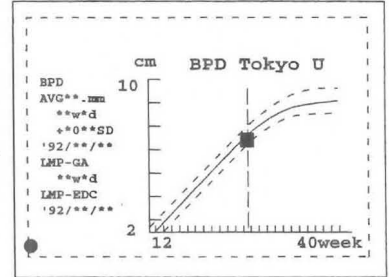
[Remark]

As necessary, select **US Image**, **Mark Display**, **Data Display**, **Data Shift** or **Enter REPORT** in the touch panel menu.

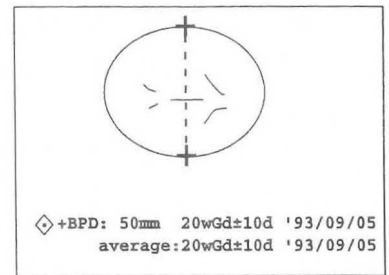
- ② Select **Graph Display** to display the measured values graphically.
 - When **Graph Display** is selected, a graph display appears on the screen.

[Remark]

Selecting **Graph Display** once again, causes the screen of ① to reappear.



- ③ To register the results to the report and the **Edit** screen, press the **SET** switch.
 - When the system registers the results to the report, it displays a mark, which cannot be moved with the trackball.



- ④ Upon completion of measurement, select **Clear** from the touch panel menu, or press the **MEASUREMENT** switch.
 - The measurement marks and all measurement results are erased.

[Remark]

- 1. When several obstetrical measurements are taken, the system also displays the average value for estimated date of confinement.

+BPD	: 50mm	20w	6d	±10d	'93/ 09/ 05
+FL	: 33mm	20w	3d	±17d	'93/ 09/ 08
average	: 20w	5d	±17d	'93/ 09/ 06	
Average of BPD and FL					

- 2. Measurement values for up to four measurements can be displayed. The same parameter can be measured four times.

+BPD	: 50 mm	20w	6d	±10d	'93/ 09/ 05
XBPD	: 48 mm	20w	3d	±17d	'93/ 09/ 08
+FL	: 33 mm	20w	3d	±17d	'93/ 09/ 08
+LV	: 49 mm	23w	5d	±12d	'93/ 08/ 16
average	: 23w	17d	±17d	'93/ 09/ 01	

- 3. For **HC** and **AC**, the circumference and area values can be entered from the area measurements. In the report, the circumference and area for **HC** can be automatically calculated and displayed from **BPD** and **OFD** (or **BPDo** and **OFDo** [can be selected]: distance measurement). **AC** and **FTA** can be automatically calculated and displayed from **TTD** and **APTD** (distance measurement). Note that the circumference and area values from the area measurement are registered with higher priority. When **HC**, **AC** are calculated automatically, they are displayed in the report as ***HC**.

15-3-3. Fetal weight measurement

The obstetrical measurements in this system include four methods of calculating the fetal weight.

1. Fetal weight pack measurement

In fetal weight pack measurement, you must measure several items for fetal weight calculation. The system assigns caliper marks to each measurement item.

FW (TOKYO)	=	g	
+BPD: mm		×APTD: mm	
∴TTD: mm		∴FL: mm	

2. Automatic fetal weight calculation

In automatic fetal weight calculation, once you measure the parameters required for fetal weight calculation, the system automatically calculates the fetal weight and displays it on the same screen.

[Remark]

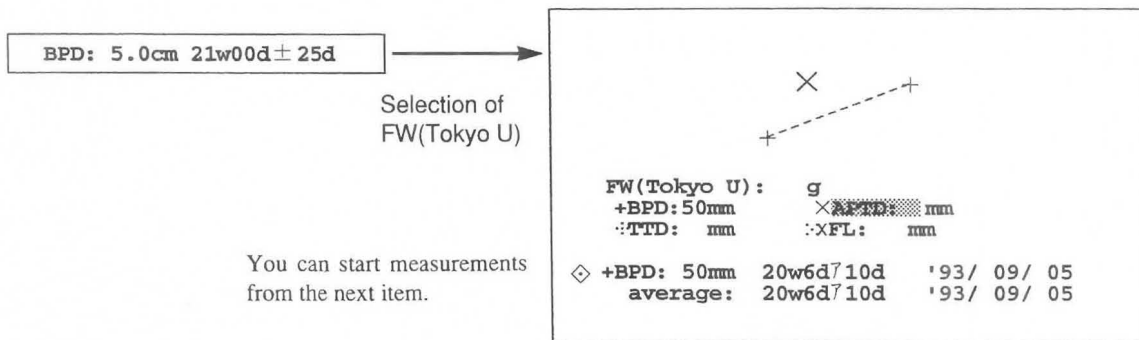
The above applies only when Measurement Display Type is set to [Multi Display] in a preset.

3. Combining of gestational age measurement and fetal weight pack measurement

If you measure some of the parameters required for a fetal weight equation during gestational age measurement then select the fetal weight equation, the system copies the measured values to the fetal weight pack measurement display. You do not need to remeasure the same parameters.

[Remark]

The above applies only when Measurement Display Type is set to [Multi Display] in a preset.



4. Calculation in the report page

After you complete the gestational age or fetal weight pack measurements and press the **SET** switch, the system stores the values in the report (the \diamond mark indicates that the values have been transferred to the report). The system then uses the values to calculate the fetal weight. (Each item can be measured up to four times.)

The Edit function at the report state can be used to enter or delete data from the keyboard.

The system calculates the fetal weight value in the report from average of all the values.

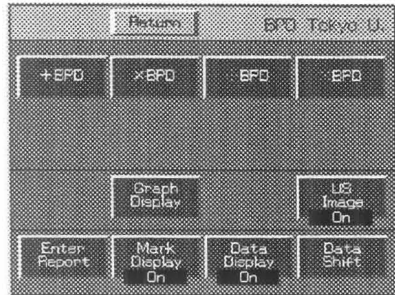
The following sections explain each procedure.

1. Fetal weight pack measurement

FW (Tokyo U) example

[Remark]

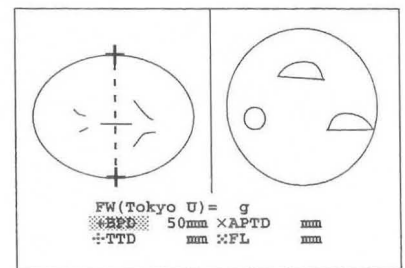
The following description is based on the assumption that Fetal Weight Growth Table has been assigned to "F. W. Brenner" to enable a graph to be displayed. In this case, the displayed touch panel menu is as shown below.



(For a description of the touch panel menu, refer to P15-44.)

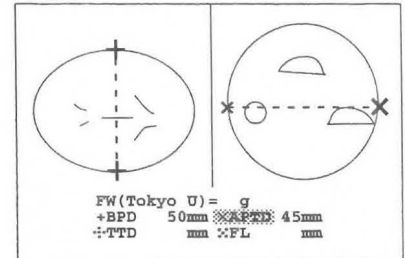
- ① Select **F. W. Tokyo U.**

→ A "+" mark for BPD measurement appears at the center of the screen, so perform biparietal diameter (BPD) measurement (using the same procedure as that for DIST.).



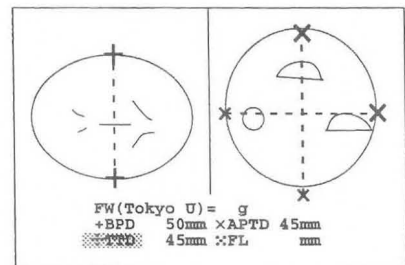
- ② Next, select **xAPT D.**

→ An "x" mark appears, so measure APTD in the same way as ①.



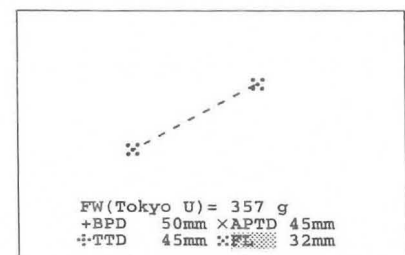
- ③ Next, select **:TTD.**

→ The "∴" mark appears, so measure TTD in the same way as ①.



- ④ Next, select **:∴FL.**

→ The "∴∴" mark appears, so measure FL in the same way as ①. Once the four measured values are obtained, the fetal weight is computed.



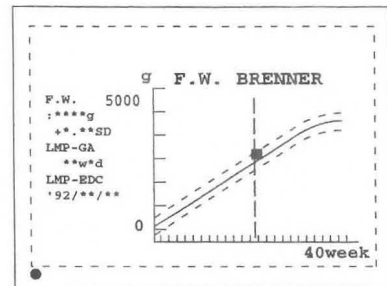
15-3. Measurement area

- ⑤ Select **Graph Display** to display the measured values graphically.
 → When **Graph Display** is selected, a graph display appears on the screen.

[Remark]

Selecting **Graph Display** once again, causes the screen of ④ to re-appear .

A graph can be displayed only when a fetal weight growth table is registered in advance.

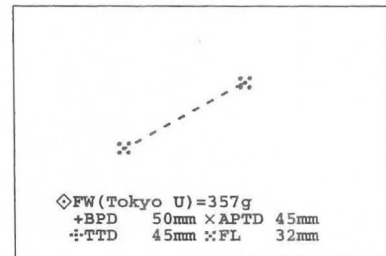


- ⑥ To register the results to the report and the **Edit** screen, press the **SET** switch twice.

→ When the system registers the results to the report, it displays a \diamond mark. The mark cannot be moved with the trackball.

- ⑦ Upon completion of measurement, select **Return**, then **Clear**, from the touch panel menu, or press the **MEASUREMENT** switch.

→ The measurement marks and measurement results are all erased.



2. Automatic fetal weight calculation

In automatic fetal weight calculation, once you measure the parameters required for fetal weight calculation, the system automatically calculates the fetal weight and displays it on the same screen.

[Remark]

The above applies only when Measurement Display Type is set to [Multi Display] in a preset.

Example in which FW Tokyo U is registered

Register the +BPD, +APTD, +FL, and TTD measurements in the preset.

- ① Select and measure **BPD**, **FL**, and **APTD**.
 → After each measurement, press the **SET** switch to register the value to the report and to display the \diamond mark.

- ② Next, select and measure **TTD**.
 → When the four measurement values required for the Tokyo University FW calculation method have been obtained, the system calculates the fetal weight.

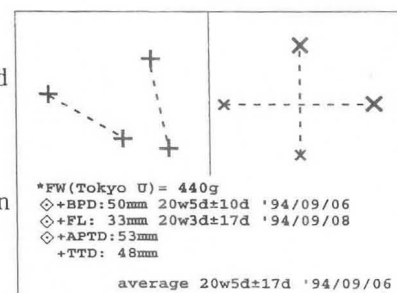
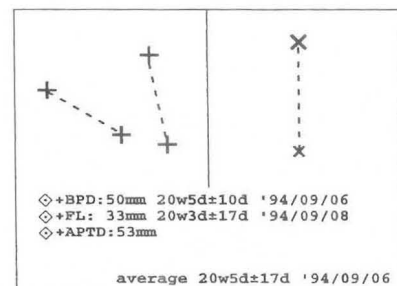
Press the **SET** switch to register the **TTD** value to the report and to display the \diamond mark.

[Remark]

The system calculates the fetal weight as soon as all parameters on the screen have been measured.

- ③ Upon completion of measurement, select **Clear** from the touch panel menu, or press the **MEASUREMENT** switch.

→ The measurement marks and all measurement results are erased.



3. Combination of gestational age measurement and fetal weight pack measurement

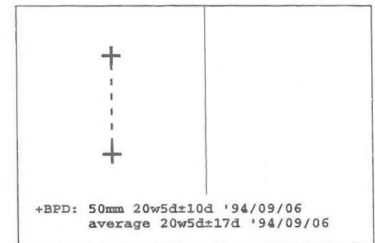
If you measure some of the parameters required for a fetal weight equation during gestational age measurement then select the equation, the system copies the measured values to the fetal weight pack measurement display. You do not need to remeasure the same parameters. You only need to measure the remaining parameters for fetal weight pack calculation to complete the operation.

[Remark]

The above applies only when Measurement Display Type is set to [Multi Display] in a preset.

Register the required measurements in the preset.

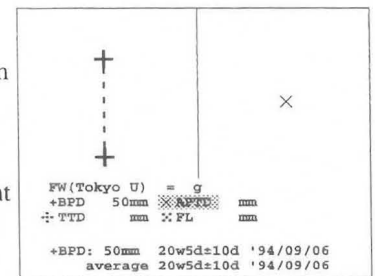
- ① First measure **BPD**.



- ② Next, select **FW (Tokyo U)**.

→ The value measured in advance is displayed, so perform measurement from the next APTD.

- ③ The rest of the procedure is the same as the procedure for fetal weight pack measurement.



4. Calculation in the report page

After you complete the gestational age or fetal weight pack measurements and press the **SET** switch twice. The system stores the values in the report (the \diamond mark indicates that the values have been transferred to the report). The system then uses the values to calculate the fetal weight. (Each item can be measured up to four times.)

If you select **Enter Report** in the touch panel menu, the measurement results generated up to that point in time are transferred to a report, then measurement is terminated.

The **Edit** function at the report state can be used to enter or delete data from the keyboard.

The system calculates the fetal weight value in the report from average of all the values.

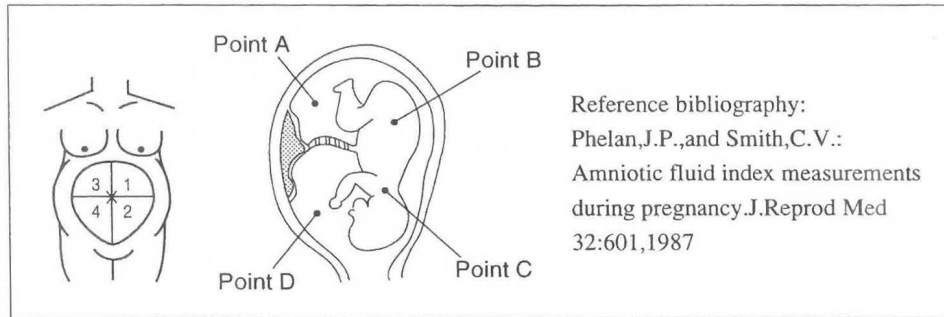
15-3. Measurement area

15-3-4. Amniotic fluid index measurement

Measure the free space at the front and back of the head and also the front and back of the abdomen, of the fetus in the womb.

[AFI measurement position and measurement method]

Diagram of the division of the uterus into four equal quadrants for determination of the amniotic fluid index. With the ultrasound transducer perpendicular to the table the vertical depth of the largest amniotic fluid pocket that is free of umbilical cord in each quadrant is measured.



The obstetrical measurements in this system include two methods of calculating the AFI.

1. AFI pack measurement

AFI pack measurement is a method of measuring multiple items for calculating the AFI. A caliper mark is assigned to each item.

Also, once a value is registered in a report, this value is copied during AFI measurement selection, so it is necessary to perform measurement once again.

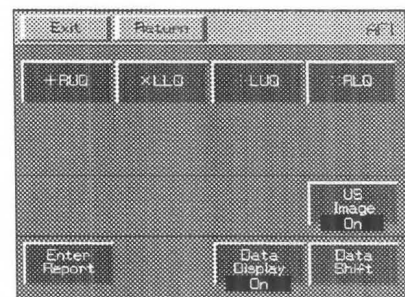
AFI calculates even one item.

Here, the latest measurement items and numerical values are displayed.

AFI=	RUQ=	mm
+RUQ:	mm	XLLQ: mm
∴LUQ:	mm	∴RLQ: mm

The result of each item is displayed the instant the SET switch is pressed after measurement.
If an item has already been measured and the result is registered in a report, that value is displayed.

(Touch panel menu)



For a description of the touch panel menu, refer to p15-47.

(Meanings of abbreviations)

- AFI: Amniotic Fluid Index: (AFI = RUQ + LUQ + LLQ + RLQ)
- RUQ: Right Upper Quadrant: Measurement value for right upper quadrant
- RLQ: Right Lower Quadrant: Measurement value for right lower quadrant
- LUQ: Left Upper Quadrant: Measurement value for left upper quadrant
- LLQ: Left Lower Quadrant: Measurement value for left lower quadrant

2. Calculations on the report page

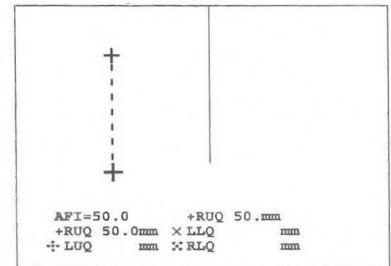
If you press the **SET** switch after completing measurement of the various items, the measurement values will be stored in the report. (Applicable to only the latest data for each item.)

You can also enter or delete data from the keyboard using the Edit function in the report area.

This completes the description of the method of performing each operation.

1. AFI pack measurement

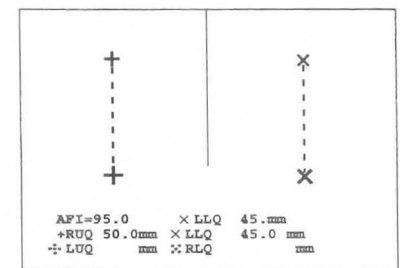
- ① Select **AFI**.
 - A "+" mark for AFI measurement appears at the center of the screen, so measure RUQ (using the same procedure as that for DIST.).
 - Press the **SET** switch to display AFI and RUQ.



- ② Next, select **XLLQ**.
 - The × mark appears, so measure LLQ in the same way as in ①.

Press the **SET** switch.

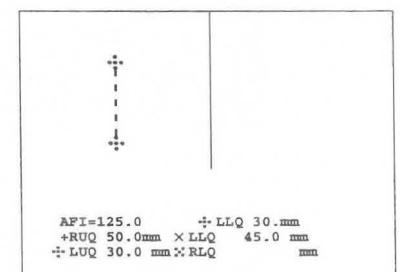
- AFI (=RUQ + LLQ) and LLQ appear.



- ③ Next, select **••LUQ**.
 - The •• mark appears, so measure LUQ in the same way as in ①.

Press the **SET** switch.

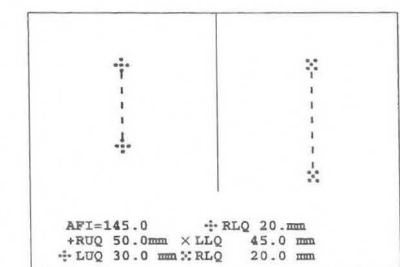
- AFI (=RUQ + LLQ + LUQ) and LUQ appear.



- ④ Next, select **••RLQ**.
 - The •• mark appears, so measure RLQ in the same way as in ①.

Press the **SET** switch.

- AFI (=RUQ+LLQ+LUQ+RLQ) and RUQ appear.



[Remark]

To correct a measurement value, select the corresponding caliper mark.

[Remark]

As necessary, select **US Image**, **Mark Display**, **Data Display**, **Data Shift** or **Enter REPORT** in the touch panel menu.

15-3. Measurement area

- ⑦ Upon completion of measurement, select **Return**, then **Clear**, from the touch panel menu, or press the **MEASUREMENT** switch.
 - The measurement marks and measurement results are all erased.

[Remark]

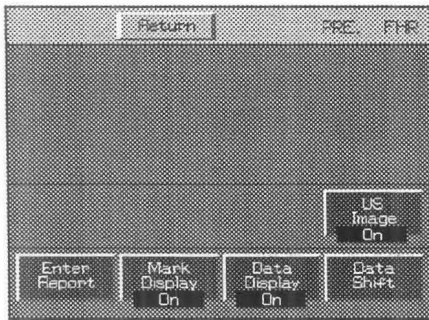
A parameter whose measurement has already been carried out and the measurement value registered in a report is displayed on the parameter corresponding to the measurement value as soon as AFI is selected.
 Start measurement from a parameter that has not been measured.

2. Calculation in a report page

If you press the **SET** switch after completing measurement of an item, the measurement value is stored in a report.(This applies only to the latest data for each item.)
 You can also enter or delete data from the keyboard using the Edit function in the report area.

15-3-5. Fetal heart rate measurement

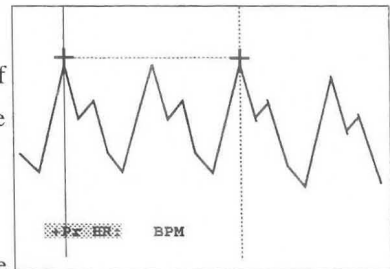
You can measure the heart rate of a fetus in the womb before and after sampling amniotic fluid.
 You can register the measurement results obtained from the M mode, in the Amnio/CVS study Page of the report.
 In this case, the displayed touch panel menu is as shown below.




(For a description of the touch panel menu, refer to P15-44.)

The method of operation in both the M mode is the same. Here, the method of operation in the M mode is described.

- ① Select **PRE.FHR** before performing a puncture, and select **POST FHR** after performing a puncture.
 - A "+" mark for performing measurement appears at the center of the screen, so measure the 2-beat interval (using the same procedure as that for Heart Rate).



- ② Upon completion of measurement, press the **SET** switch.
 - The results of measurement are registered in the report, and the  mark appears.
- ③ Upon completion of measurement, select **Clear** from the touch panel menu, or press the **MEASUREMENT** switch.
 - The measurement marks and all measurement results are erased.

15-3-6. Doppler measurements

You can perform Doppler measurements such as uterine, artery, umbilical artery, middle cerebral artery, and aorta measurements.

You can obtain the measurement values from the D mode, and register the measurement results in the Doppler study Page of the OB report.

Description using Umbilical (UmA) as an example

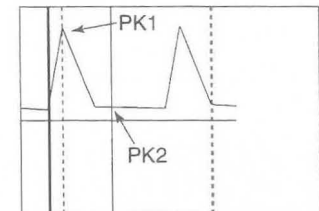
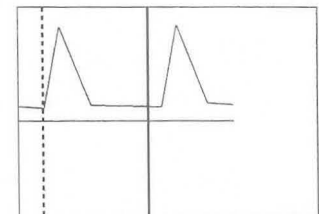
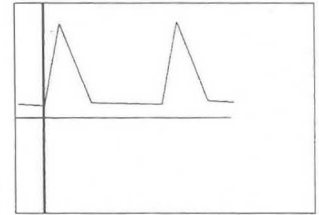
<When using auto trace>

- ① Display a Doppler spectrum image of the umbilical artery, and press the **FREEZE** switch.
Select **Umbilical** from the measurement menu.
→A solid line cursor for the auto trace appears.
- ② Move the solid line cursor to the starting point of the trace, and press the **Mark Ref.** switch.
→The solid line cursor separates.
- ③ Using the trackball, move the separated solid cursor to the end position, and press the **Mark Ref.** switch.
→The trace starts.
- ④ When the trace ends, the measurement results are displayed.

[Remark]

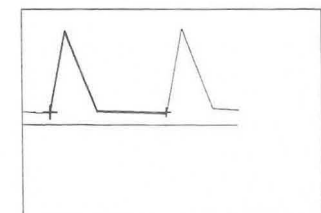
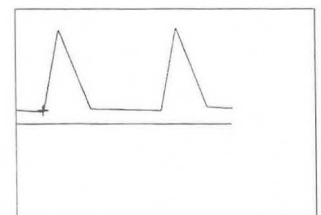
For details of the method of performing an auto trace, precautions, various settings, and so on, refer to 12-4-3. "Basic Method of Using the Auto Trace Function".

- ⑤ Once the values have been finalized, press the **SET** switch, and the highlight display moves to **[ENTER]**.
If you press the **SET** switch in this condition, the measurement results on the screen are sent as a batch to the report.



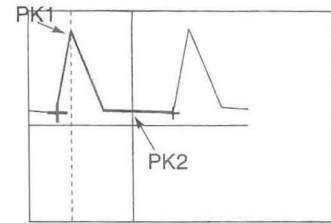
<When using manual trace>

- ① Press the "+" mark.
→The manual trace caliper appears.
- ② Move the "+" mark to the starting point of the trace, and carry out the trace.



15-3. Measurement area

- ③ When end point is reached, press the **Mark Ref.** switch.
→The measurement results and the vertical line that indicates the peak value of the spectrum pattern appear on the screen.
- ④ When the value has been finalized, press the **SET** switch and the highlight display moves to **[ENTER]**.
If you press the **SET** switch in this condition, the measurement results on the screen are sent as a batch to the report.



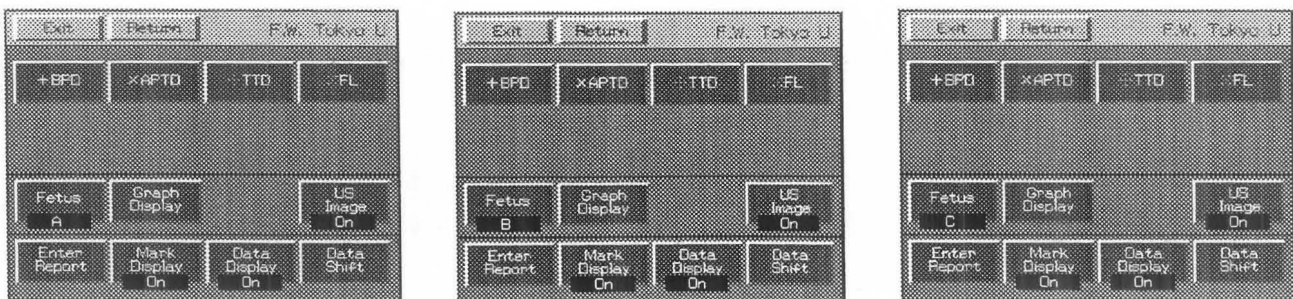
15-3-7. "Twins" and "Triplets" measurement

If Fetal Number of OB Study in "Obstetrical Measurement Program" in the Preset function is set to "Twins" or "Triplets", you can switch from one fetus to another when performing each of gestational week measurement, fetal weight measurement, fetal heart rate measurement and Doppler measurement.

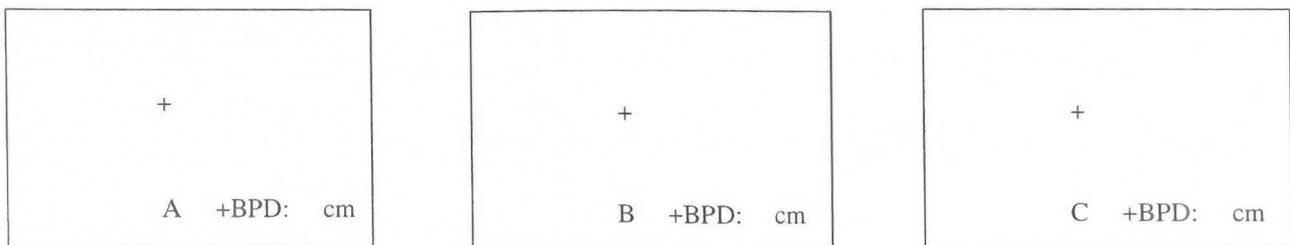
Each time you press **Fetus** on the touch panel, the fetus is switched one step in the sequence A→B→C→A, and the displayed results are also displayed for each fetus at a time.

You can also transfer the measurement results to the report.

<Touch panel display example>



<Measurement result display example>



15-4. Explanation of the REPORT area

The Report function arranges and displays on the monitor screen each index value and mean value for cardiac function measurement, together with related patient information.

To view the contents of the **REPORT** area at any time, simply press the **REPORT** switch.

When you press the **REPORT** switch, the system displays a report screen like the one shown below.

(The contents are the obstetrical measurement items that were set up in the **OB-Program**.)

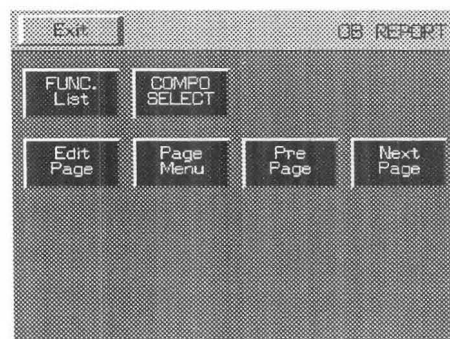
<Report Menu explanation>

```

Obstetrical Ultrasound Report Page1
Exam. Date: '97/11/29
Patient ID: ██████████ Set : Basic
Name:
Age:      years Sex: Female
Referring Phys.:
Reason for study:
Reporting Phys.:
Sonographer:

LMP-GA: **w*d      LMP-EDC: '**-****-**
Based On: LMP 'YY-MM-DD
           comments
  
```

Report menu



- FUNC List** : Contains **Application Change**, which enables the contents of the cardiac function measurement report to be observed in the report condition of obstetric measurement, and a function that outputs the information in the OB report to a printer.
- COMPO SELECT** : This function selects whether or not to include an abnormal value in the elements used when performing average calculation. Use it when you wish to remove an abnormal value.
This function is the menu that is displayed when **Report Page** is displayed.
- Edit Page** : Select this item to select up to four data items and to display a page containing data averages for those items. You can delete or correct the data.
※ If you select **Edit Page**, the menu item changes to **Report Page**.
- Page Menu** : Displays all of the titles of the report pages. When you select a title, the selected report page is displayed.
- Pre Page** : Advances to the next page.
- Next Page**

15-4. Explanation of the REPORT area

15-4-1. Explanation of the report pages

The report contains seven pages:

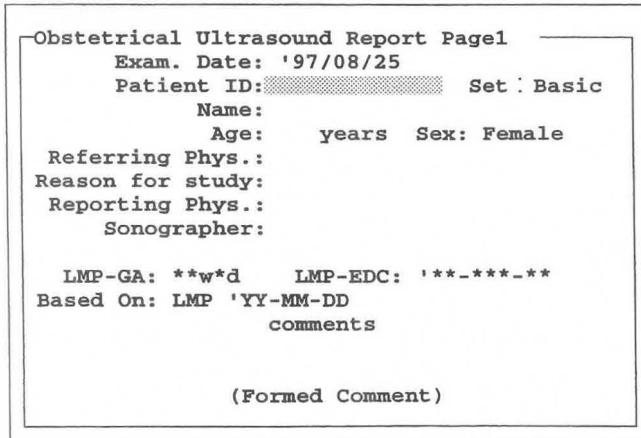
1. **Header Page** (Displays patient information.)
2. **Numerical Page** (This page displays the measurement results. Up to 3 pages can be displayed.)
3. **Graphical Page** (This is a graph page. Up to 3 pages can be displayed.)
4. **FW Graph Page** (This is the fetal weight graph page. Up to 3 pages can be displayed.)
5. **GA Graph Page** (This is a gestational week graph page. Up to 3 pages can be displayed.)
6. **Doppler Study Page** (The Doppler measurement value result display page is displayed.)
7. **Doppler Graph Page** (This is a Doppler measurement value graph page. Up to 3 pages can be displayed.)
8. **AFI-BPP Page** (Displays the amniotic fluid index and the BPP evaluation results)
9. **Amnio/ CVS study Page** (Displays the results of performing an amniotic fluid or chorionic villus sampling examination.)
10. **Anatomy C.L. Page** (This page displays the results of evaluation of the Anatomy Check List. A maximum of 2 pages can be displayed.)

When you press the **REPORT** switch, the system displays the Header page first. Use touch panel menu selections **Pre Page** or **Next Page** to change the pages.

<Explanation of each page>

[Report page 1 (patient information page)]

When you press the **REPORT** switch, the patient information page is displayed.



This page is used to display and input the following items:

1. EXAM.DateThe system timer automatically enters the current date. You can also enter the date manually when reproducing measurements.
2. Patient IDEnter the patient's ID number. ※
3. SetSelect the Set Name set in Set-Up Display Report Type in the preset.
4. NameEnter the patient's name. ※
5. AgeEnter the patient's age. ※
6. Referring Phys.Enter the name of the referring physician.

15-4. Explanation of the REPORT area

- 7. Reason for Study.....Enter the reason for the examination.
- 8. Reporting Phys.....Enter the name of the physician who created the report.
- 9. Sonographer.....Enter the name of the sonographer who examined the patient.
- 10. Based on :LMPEnter LMP, BBT,EGA or EDC.※
 LMP IS THE DEFAULT.
 The **BASED ON: xxx** field switches between **LMP**, **BBT**, **EGA** and **EDC** according to the ID information by New Patient.
- 11. CommentsEnter comments from the keyboard.
 (You can enter up to four lines of 46 characters each.)
- 12. Formed CommentThe system displays several comment items for the predetermined titles. To create a comment statement, select one of the items.
 (You can enter up to 10 lines of 46 characters each.)

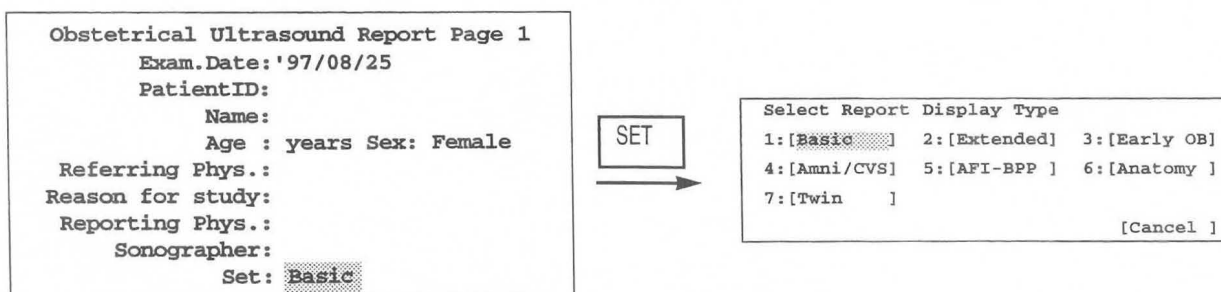
[Remark]

Regarding 2, 3, 4, 5 and 11, the entered ID information remains when the **NEW PATIENT** switch or the **ID** switch is pressed, so there is no need to re-enter this information.

To enter ID information for this page, first press the **ID** switch.

<Input method>

- ① Proceed with the item that you wish to change to a highlighted display.
 → The underline cursor is displayed, so enter the value from the keyboard.
 The methods of inputting the above items other than **Based on: LMP**, **Set:**, and **Formed Comment** (excluding **Selectable Comment Area**) are all identical.
 To delete the highlighted display, press the **MARKREF** switch.
- (1) Regarding the selection of **Set: Set name**
- ② Move the highlight display to the **Set** item, then press the **SET** switch.
 → 6 types of report displays appear.
- ③ Move the highlight display to the report display name that you wish to display, then press the **SET** switch.



15-4. Explanation of the REPORT area

[Remark]

The report pages that can be displayed by each type of report display during initialization are shown below. In order to display the report page for each study, set the table and formula in advance using OB-Program.

[Basic] Header Page Numerical Page1 Graphical Page1 FW Graph Page1 GA Graph Page1-1 GA Graph Page1-2 GA Graph Page1-3 Doppler Study Page Doppler Graph Page1 Doppler Graph Page2 Anatomy C.L.Page1A	[Extended] Header Page Numerical Page1 Numerical Page2 Graphical Page1 Graphical Page2 FW Graph Page1 FW Graph Page2 GA Graph Page1-1 GA Graph Page1-2 GA Graph Page1-3 GA Graph Page2-1 GA Graph Page2-2 GA Graph Page2-3 Doppler Study Page Doppler Graph Page1 Doppler Graph Page2 Doppler Graph Page3 Anatomy C.L.Page1A	[Early OB] Header Page Numerical Page1 Graphical Page1 Anatomy C.L.Page1A [AFI-BPP] Header Page Numerical Page1 Numerical Page2 AFI-BPP Page Amnio/CVS study Page [Anatomy] Header Page Anatomy C.L.Page1A Anatomy C.L.Page2A	[Amni/CVS] Header Page Amnio/CVS study Page Anatomy C.L.Page1A [Twin] Header Page Numerical Page1 Graphical Page1 FW Graph Page1 GA Graph Page1-1 GA Graph Page1-2 GA Graph Page1-3 Doppler Study Page Doppler Graph Page1 Doppler Graph Page2 Anatomy C.L.Page1A Anatomy C.L.Page1B
---	---	--	--

(2) Input for [BASED ON : XXX]

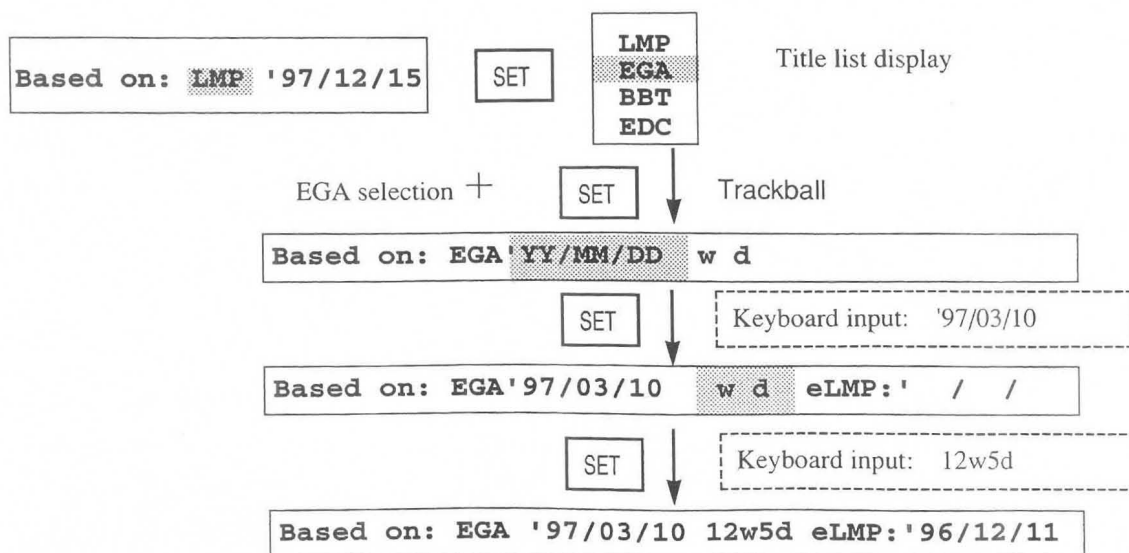
If you enter NEW PATIENT ID information in one of LMP, BBT and EGA, Based on : LMP, Based on : BBT, or Based on : EGA is displayed accordingly.

- ② Move the highlighted display to an item such as LMP, then press the SET switch.
→ The item titles are displayed.
- ③ Next, move the highlighted display for the item titles to the item to be selected, then press the SET switch.
→ The system displays the selected item title in the BASED ON field. Enter data from the keyboard, then press the SET switch.

Example: Changing LMP to EGA

[Remark]

The system automatically enters the LMP calculated from the examination date.



(3) Input for [FORMED COMMENT]

The system displays several comment items for the predetermined titles. To create a comment statement, select one of the items.

The **FORMED COMMENT** area consists of ten lines of 46 characters each.

- ① Move the highlighted display to the **FORMED COMMENT** area.
- ② Press the **SET** switch
→ Selectable Comment registered by Formed Comment of OB-Program is displayed.

[Remark]

If no comments were registered, **[CANCEL]** is displayed. Press the **SET** switch and enter comments from the keyboard. You can also enter comments from the keyboard even when comments are registered.

- ③ Move the highlighted cursor to the comment that you wish to select, then press the **SET** switch.
→ The comment is called.

15-4. Explanation of the REPORT area

(4) Numerical Page

Select **Next Page** to display the numerical page.

Display is capable of 3 pages maximum.

```

Obstetrical Ultrasound Report Page2
Exam. Date:
Patient ID:
Name:

LMP-GA : w d      Composite US-GA :, w d
LMP-EDC: 'YY/MM/DD      US-EDC : YY/MM/DD

GS (TOKYO U.)          C
CRL (TOKYO U.)         C
BPD (TOKYO U.)         C
LV (TOKYO U.)          C
FL (TOKYO U.)          C

EFW1(TOKYO U. ) [ BPD ,APTD,TTD ,FL ]

APTD:          TTD :          AC :
FAT :
    
```

This page is used to display seven main types of information:

1. EXAM Date, Patient ID, and Name
2. LMP-GA and LMP-EDC (gestational age and estimated date of confinement calculated from LMP), and US-GA and US-EDC (gestational age and estimated date of confinement calculated from the ultrasound images)
3. Calculated values, gestational age, and standard measurements for each parameter
4. Fetal weight
5. Measured values (except for the parameters displayed in 3.)
6. Ratio measurements
7. Composite Selection

<Numerical Page display example>

```

Obstetrical Ultrasound Numerical Page 1 (Twins)
Exam. Date:
Patient ID:
Name:

LMP-GA : w d      Fetus A      Fetus B
LMP-EDC: ' / /      ' w d      ' w d
Composite US-GA :      ' w d      ' w d
US-EDC:      ' / /      ' / /

<Fetus A>          <Fetus B>

GS :Tokyo U.          c          c
CRL :Tokyo U.         c          c
BPD :Tokyo U.         c          c
FL :Tokyo U.          c          c
LV :Tokyo U.          c          c

EFW1:Tokyo U. [BPD ,APTD,TTD ,FL ][BPD ,APTD,TTD ,FL ]
Fetus A      B      TTD :          AC :
APTD:
FTA :
    
```

For twins

```

Obstetrical Ultrasound Numerical Page 1 (Triplets)
Exam. Date:
Patient ID:
Name:

LMP-GA : w d / COMPO US-GA :A w d / B w d / C w d /
LMP-EDC: ' / /      US-EDC: ' / / ' / / ' / /

GS :Tokyo U.A          c          B          c
CRL :Tokyo U.A         c          B          c
BPD :Tokyo U.A         c          B          c
FL :Tokyo U.A          c          B          c
LV :Tokyo U.A          c          B          c

EFW1:Tokyo U.A [BPD ,APTD,TTD ,FL ]B [BPD ,APTD,TTD ,FL ]
C [BPD ,APTD,TTD ,FL ]

APTD:          TTD :          AC :
FTA :
    
```

For triplets

15-4. Explanation of the REPORT area

[Remark]

1. The displayed items change depending on the **OB-Program** settings. Not all of these items are always displayed.
2. Fetal weight and ratio are calculated from averages of all measurement results registered in the report. If a parameter required for calculation has not been registered, the system displays the parameter name in the results display area.
3. The system does not calculate the fetal weight or the **RATIO** values until the parameters set up in the **OB-Program** are measured. You can use the report for checking because it shows you which parameters have not been measured.

[Fetal weight display examples]

EFW (Tokyo U)[BPD, APTD, TTD, FL]	: When none of the parameters (BPD, APTD, TTD, FL) required for FW (Tokyo U) has been measured (registered)
EFW (Tokyo U) [FL]	: When only FL of the parameters (BPD, APTD, TTD, FL) required for FW (Tokyo U) has not been measured (registered)
EFW (Tokyo U) 500g	: The system displays the fetal weight because all parameters (BPD, APTD, TTD, FL) necessary for calculating FW (Tokyo U) have been measured
EFW (Tokyo U) 1565g (377-1003)	: When an F.W. growth table is defined, the system displays standard range values. (In the case of an SD display, $\pm x.xSD$ is displayed.)

* If the F.W. Growth table is **Brenner**, the value of **GA** is between 21 weeks and 44 weeks. If it is **Osaka U**, the value of **GA** is between 16 weeks and 40 weeks, and also the value of **FW** is displayed only within the range of the values in the table. In other cases, (****_****) is displayed.

[Ratio display examples]

BPD/OFD : 1.24 (1.24-1.05)	: The system displays the ratio value because BPD and OFD have been measured.
BPD/OFD :	: Either BPD or OFD has not been registered.

If a range table is registered for a ratio equation, the system displays the @ mark when a value is outside the normal range.

FL/BPD : 0.75 (0.71-0.87)	: A range table is registered.
@ FL/BPD : 0.88 (0.71-0.87)	: A range table is registered.
HC/AC : 0.86	: No range table is registered.
HC/AC : 0.86 (-)	: The LMP-GA value is outside the range defined by the range table.

When the system calculates **HC**, **AC**, or **FTA** based on an approximate equation, it displays an asterisk in front of the parameter.

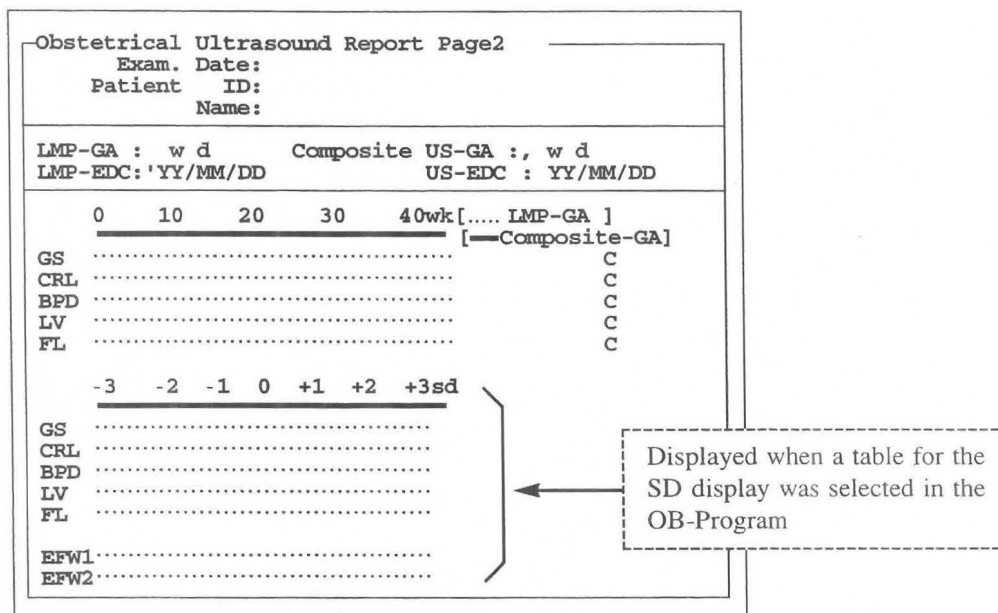
*HC	: Calculated with an approximate equation (HC is calculated from BPD and OFD, or BPD ₀ and OFD ₀ .)
*AC	: Calculated with an approximate equation (AC is calculated from APTD and TTD.)
*FTA	: Calculated with an approximate equation (FTA is calculated from APTD and TTD.)
If the parameter is actually measured after the calculation, the system erases the asterisk.	

15-4. Explanation of the REPORT area

(5) Graphical Page

Select **Next Page** to display the graph page.

Display is capable of 3 pages maximum.



This page is used to display four main types of information:

1. Exam Date, Patient ID, and Name
2. LMP-GA and LMP-EDC (gestational age and estimated date of confinement calculated from LMP), and US-GA and US-EDC (gestational age and estimated date of confinement calculated from the ultrasound images)
3. GA graph and SD graph (As with the Osaka University method, the system displays the SD graph only when the SD display has an assigned table.)
4. Composite Selection

The displayed items change depending on the **OB-Program** settings. Not all of these items are displayed.

<What is Composite Selection?>

At the report page and the graph page, you can specify whether or not the system includes registered data as components for calculating the average **US-GA** value. When C is displayed at the right of the screen, the data is included as a component for average calculation.

<Method of operation>

- ① Select **COMPO SELECT** from the touch panel menu.
→ The system displays a highlighted cursor on "C" at the right of the screen.
- ② Press the **SET** switch
→ [C] that was displayed disappears.
As a result, the calculation elements are canceled.
To re-display C, press the **SET** switch once again.

15-4. Explanation of the REPORT area

<Graphical Page display example>

Obstetrical Ultrasound Graphical Page 1 (Twins)			
Exam. Date:			
Patient ID:			
Name:			
LMP-GA :	w d	Fetus A	Fetus B
LMP-EDC:	/ /		
Composite US-GA :	' w d /	' w d /	
[-----LMP-GA]		[-----Composite-GA]	
	<Fetus A>		<Fetus B>
GS	-----	c	-----
CRL	-----	c	-----
BPD	-----	c	-----
FL	-----	c	-----
LV	-----	c	-----
EFW1	-----		-----

For twins

Obstetrical Ultrasound Graphical Page 1 (Triplets)				
Exam. Date:				
Patient ID:				
Name:				
LMP-GA :	w d	Fetus A	Fetus B	Fetus C
LMP-EDC:	/ /			
Composite US-GA :	' w d /	' w d /	' w d /	
[-----LMP-GA]		[-----Composite-GA]		
	<Fetus A>		<Fetus B>	<Fetus C>
GS	-----	c	-----	c
CRL	-----	c	-----	c
BPD	-----	c	-----	c
FL	-----	c	-----	c
LV	-----	c	-----	c
EFW1	-----		-----	-----

For triplets

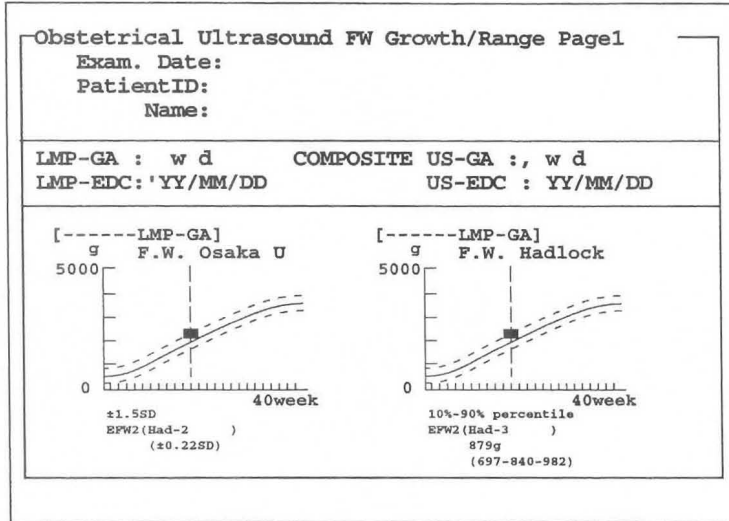
15-4. Explanation of the REPORT area

(6) FW Graph Page

The fetal graph page appears.

Display is capable of 3 pages maximum.

The measurement values of the gestational week (LMP-GA) obtained from the LMP, EGA, BBT, etc., are plotted, so be sure to enter these values when entering the ID.

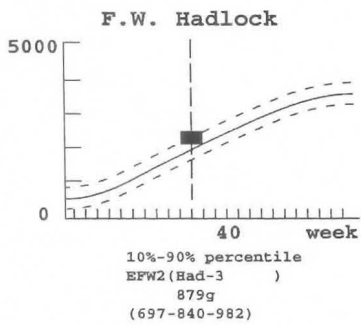


This page is used to display three main types of information:

1. Exam. Date, Patient ID, and Name
2. LMP-GA and LMP-EDC (gestational age and estimated date of confinement calculated from LMP), and US-GA and US-EDC (gestational age and estimated date of confinement calculated from the ultrasound images)
3. FW graph (Limited to fetal weight measurement in which the F.W. Range Growth is registered.)

The above displays change according to the setting of **OB-Program**, so they are not all necessarily displayed.

<Graph>



The center curve of the three curves displayed on the graph indicates the mean, and the two broken lines surrounding it indicate \pm SD or the percentile value.

The vertical straight line indicates the gestational week obtained from the LMP, BBT, EGA or EDC.

The A, B and C plotted values indicate the fetal weight for each fetus of triplets.

[Remark]

In the case of twins, the two points A and B are plotted.

△ Note

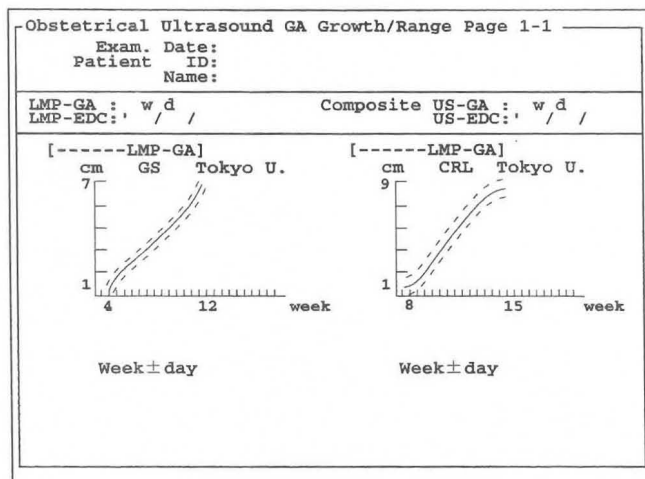
The above graph displays deviation data (\pm 1SD, \pm 1.5SD, \pm 2SD, 5-50-95 percentile, and 10-50-90 percentile) concerning gestational week for each fetal weight. It does not display the deviation (g) of the measurement value. Use it only as a rough guide.

(7) GA Graph Page

The gestational week graph page is displayed.

A maximum of nine pages can be displayed.

The measurement values are plotted on the gestational week (LMP-GA) obtained from LMP, EGA, BBT, and so on, so be sure to enter these values when entering the ID.

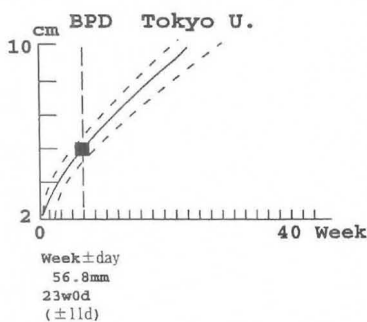


Mainly three kinds of information can be displayed on this page.

1. Examination date (EXAM.Date), Patient ID, and Name
2. LMP-GA, LMP-EDC (gestational week and expected confinement date calculated from LMP), US-GA, US-EDC (gestational week and expected confinement date obtained from the ultrasound image)
3. GA graph (Limited to measurement of gestational week in which GA Growth Range is registered)

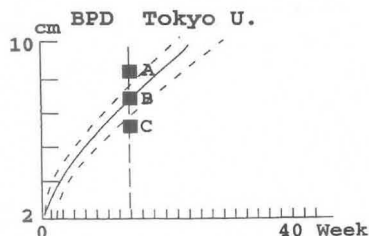
The displayed information differs with the **OB-Program** setting, so it is not necessarily all displayed.

<Graph>



Of the three lines displayed on the graph, the middle solid line is the Mean, and the two broken lines surrounding it indicate ± day.

The straight line drawn in the vertical direction indicates the gestational week value obtained from LMP, BBT, EGA or EDC.



A, B and C are the plotted values for the case of triplets.

[Remark] In the case of twins, two points, A and B, are plotted.

15-4. Explanation of the REPORT area

(8) Doppler Study Page

If you select **Next Page**, the Doppler report page is displayed.

```

Obstetrical Ultrasound Doppler Study Page (Twin)
Exam. Date:
Patient ID:
Name:

<OB Doppler>
      PI  RI  S/D  pkS  pkD  AVG
      (cm/s) (cm/s) (cm/s)
Lt.Uterine A.
Rt.Uterine A.
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Comments>
    
```

This page enables you to display the results of six Doppler measurements, that is, uterine artery, umbilical artery, middle cerebral artery, aorta, and two others (OB Other 1 and 2), in the form of a report.

[Remark]

The report items differ with the **OB-Program** setting, so they are not necessarily all displayed.

<Doppler Study Page display example>

```

Obstetrical Ultrasound Doppler Study Page (Twins)
Exam. Date:
Patient ID:
Name:

<OB Doppler>
      PI  RI  S/D  pkS  pkD  AVG  VTI
      (cm/s) (cm/s) (cm/s) (cm)
Lt.Uterine A.
Rt.Uterine A.

<Fetus A>
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Fetus B>
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Comments>
    
```

For twins

```

Obstetrical Ultrasound Doppler Study Page (Triplets)
Exam. Date:
Patient ID:
Name:

<OB Doppler>
      PI  RI  S/D  pkS  pkD  AVG  VTI
      (cm/s) (cm/s) (cm/s) (cm)
Lt.Uterine A.
Rt.Uterine A.

<Fetus A>
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Fetus B>
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Fetus C>
Umbilical A.
Mid Cerebral A.
Aortic
OB Other 1
OB Other 2

<Comments>
    
```

For triplets

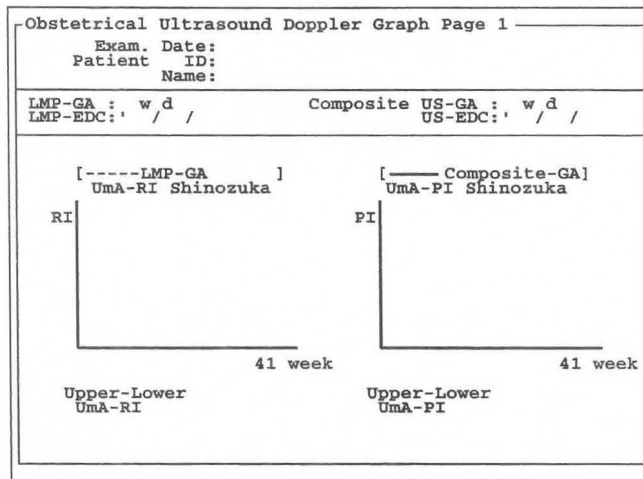
15-4. Explanation of the REPORT area

(9) Doppler Graph Page

The graph of the Doppler measurement results are displayed.

A maximum of three pages can be displayed.

The measurement results are plotted on the gestational week (LMP-GA) obtained from LMP, EGA, BBT, and so on, so be sure to enter these values when entering the ID.

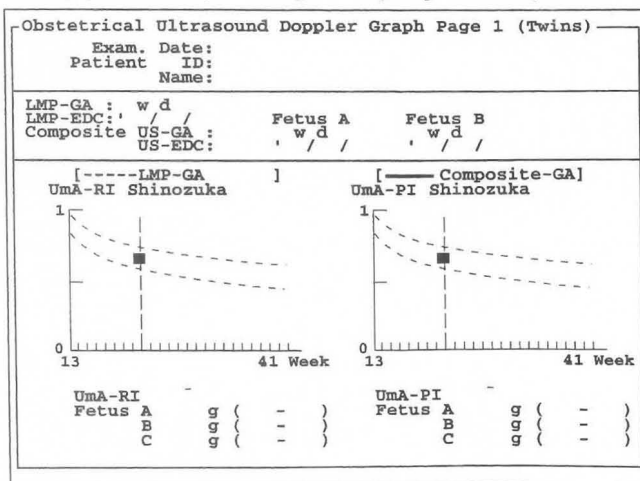


Mainly three kinds of information can be displayed on this page.

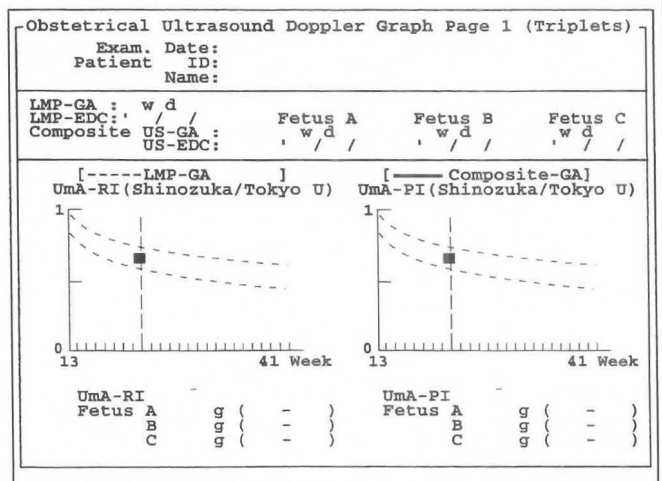
1. Examination date (EXAM.Date), Patient ID, and Name
2. LMP-GA, LMP-EDC (gestational week and expected confinement date calculated from LMP), US-GA, US-EDC (gestational week and expected confinement date obtained from the ultrasound image)
3. Doppler graph (Includes UmA-RI, UmA-PI, MCA-RI, and MCA-PI.)

The displayed information differs with the OB-Program setting, so it is not necessarily all displayed.

<Doppler Graph Page display example>



For twins



For triplets

15-4. Explanation of the REPORT area

(10) AFI-BPP Page

The results of evaluating the amniotic fluid index and BPP (Biophysical profile score) are displayed on the AFI-BPP Page.

```

Obstetrical Ultrasound AFI-BPP Page
  EXAM Date:
  Patient ID:
  Name:
  -----
<AFI>
RUQ =31.0mm  LLQ =22.2mm  AFI =120.5
LUQ =20.0mm  RLQ =50.3mm
Comments:
  -----
                                     <Biophysical
Profile> Vintzileos
Fetal Breathing      =
Fetal Tone           =
Fetal Movement      =
Non-Stress Test      =
Amniotic Fluid Volume =
Placental Grading    =
Total Score          =
Comments:
    
```

This page is used to display three main types of information:

1. Exam Date, Patient ID, and Name
2. Display of AFI (amniotic fluid index) results
3. Display of BPP score

<Meaning of BPP>

The examiner selects selection items according to the evaluation criteria, based on information obtained by observing ultrasound images of a fetus for a relatively long period. The scores corresponding to the selected items are added together and the total value displayed. This is the BPP.

There are two scoring criteria for the BPP, one advocated by Vintzileos et al., and the other advocated by Manning and Coworkers. You can set the desired criteria using a preset.

<Operation method>

AFI

- ① Using the trackball, move the highlight cursor to the right of Comments:.
- ② Enter a comment, then press the SET switch.

<Doppler Graph Page display example>

```

Obstetrical Ultrasound AFI-BPP Page (Twins)
  Exam. Date:
  Patient ID:
  Name:
  -----
<AFI>
RUQ=      mm  LLQ=      mm  AFI= (    -    )
LUQ=      mm  RLQ=      mm
Comments:

<Biophysical Profile> Vintzileos
Fetal Breathing      = Fetus A  Fetus B
Fetal Tone           = 2        2
Fetal Movement      = 1        2
Non-Stress Test      = 1        2
Amniotic Fluid Volume = 1        2
Placental Grading    = 1        2
Total Score          = 7        12
Comments:
    
```

For twins

```

Obstetrical Ultrasound AFI-BPP Page (Triplets)
  Exam. Date:
  Patient ID:
  Name:
  -----
<AFI>
RUQ=      mm  LLQ=      mm  AFI= (    -    )
LUQ=      mm  RLQ=      mm
Comments:

<Biophysical Profile> Vintzileos
Fetal Breathing      = Fetus A  Fetus B  Fetus C
Fetal Tone           = 2        2        0
Fetal Movement      = 1        2        0
Non-Stress Test      = 1        2        0
Amniotic Fluid Volume = 1        2        0
Placental Grading    = 1        2        0
Total Score          = 7        12        0
Comments:
    
```

For triplets

15-4. Explanation of the REPORT area

BPP

① Using the trackball, move the highlight cursor to the item used to enter the evaluation score, then press the SET switch.

```

<Biophysical Profile> Vintzileos
Fetal Breathing      = 
Fetal Tone           = 
Fetal Movement      = 
Non-Stress Test      = 
Amniotic Fluid Volume = 
Placental Grading    = 
                    Total Score = 
Comments:
    
```

② A pop-up menu for the selected item appears.

```

<Biophysical Profile> Vintzileos
Fetal Breathing      = 
Fetal Tone           = Present(2)
Fetal Movement      = Equivocal(1)
Non-Stress Test      = Not Present(0)
Amniotic Fluid Volume = 
Placental Grading    = 
                    Total Score = 
Comments:
    
```

③ Move the highlight cursor to the evaluation result, then press the SET switch.
 → The score values and total value appear on the screen.

```

Present(2)
Equivocal(1)
Not Present(0)
Cancel
    
```

SET

④ Carry out steps ① to ③ for all parameters.

```

<Biophysical Profile> Vintzileos
Fetal Breathing      = 2
Fetal Tone           = 
Fetal Movement      = 
Non-Stress Test      = 
Amniotic Fluid Volume = 
Placental Grading    = 
                    Total Score = 1
Comments:
    
```

⑤ Enter a comment.
 → Using the trackball, move the highlight cursor to the right of Comments:.

⑥ Enter a comment, then press the SET switch.

[Remark]

There are three selection items for the BPP according to Vintzileos: Present (2), Equivocal (1), and Not Present (0).

There are two selection items for the BPP according to Manning and Coworkers: Present (2) and Not Present (0).

The relation between the BPP evaluation criteria and score is shown on the following page.

15-4. Explanation of the REPORT area

1. Criteria for Scoring Biophysical Variables According to Vintzelios

Parameter	Present Score of 2	Equivocal Score of 1	Not Present Score of 0
Nonstress test	5 or more FHR accelerations of at least 15 bpm in amplitude and at least 15-seconds duration associated with fetal movement in a 20-minute period.(NST 2)	2 or 4 accelerations of at least 15 bpm and at least 15-seconds duration associated with fetal movements in a 20-minute period.(NST 1)	1 or 0 acceleration in a 20-minute period. (NST 0)
Fetal movement	At least 3 gross (trunk and limbs) episodes of fetal movements within 30 minutes. Simultaneous limb and trunk movements are counted as a single movement.(FM 2)	1 or 2 fetal movements within 30 minutes.(FM1)	Absence of fetal movements within 30 minutes.(FM 0)
Fetal breathing movement	At least 1 episode of fetal breathing of at least 60-seconds duration within a 30-minute observation period.(FBM 2)	At least 1 episode of fetal breathing lasting 30 to 60 seconds within 30 minutes.(FBM 1)	Absence of fetal breathing, or breathing lasting less than 30 seconds within 30 minutes.(FBM 0)
Fetal tone	At least 1 episode of extension of extremities with return to position of flexion and also 1 episode of extension of spine with return to position of flexion.(FT 2)	At least 1 episode of extension of extremities with return to position of flexion or 1 episode of extension of spine with return to point of flexion.(FT 1)	Extremities in extension. Fetal movements not followed by return to flexion. Open hand. (FT 0)
Amniotic fluid volume	Fluid evident throughout the uterine cavity. A pocket that measures 2 cm or more in vertical diameter.(AF 2)	A pocket that measures less than 2cm but more than 1cm vertical diameter.(AF 1)	Crowding of fetal small parts. Largest pocket less than 1cm in vertical diameter.(AF 0)
Placental grading	Placental grade 0,1, or 2.(PL2)	Placenta posterior; difficult to evaluate.(PL 1)	Placental grade 3.(PL 0)

FHR: fetal heart rate

Reference: Antony M. Vintzileos,MD, Winston A. Campbell, Chareles J. Ingardia,MD, and David J Nochimson,MD

The fetal biophysical profile and its predictive value.

Obstetrics and Gynecology 62:271-278,1983

2. Biophysical profile scoring According to Manning and Coworkers

Parameter	Present Score of 2	Not Present Score of 0
Breathing	30 seconds or more of breathing noted in 30-minute period.	Less than 30-second period or no breathing in 30 minutes.
Movement	3 or more gross body/limb movements in 30-minute period.	Less than 3 gross body/limb movements in 30 minutes.
Tone	At least 1 episode of flexion or extension with return to normal position in a 30-minute period.	Failure to observe any flexion or extension in a 30-minute period.
Fluid	One pocket of a amniotic fluid measuring 2cm in both vertical and horizontal planes.	Faiure to identify fluid pocket measuring 2cm in any plane.
Nonstress test	Negative or reactive test.	Less than 2 accelerations of at least 15 bpm.

TOTAL POSSIBLE SCORE 10

Reference: Frank A. Manning, M.D.,M.Sc.,F.R.C.S.

Lawrence D.Platt,M.D.

Louise Sipos.R.N.

Antepartum fetal evaluation:Development of a fetal biophysical profile Obstetrics and Gynecology 62:271-278,1983

15-4. Explanation of the REPORT area

(11) Amnio/CVS study Page

The results of sampling the amniotic fluid or chorionic villus sampling are displayed.

```

Obstetrical Ultrasound Amnio/CVS study Page
Exam. Date:
Patient ID:
Name:
<Amnio>
Puncture site: [ ] #of puncture : 1
Am't.Fluid withdrawn : 12.3cc
color of Fluid : Clear
FHR: Pre: 123BPM, Post: 123BPM
Placenta:

Comments:

<CVS>
Puncture site :RUQ #of puncture : 1
Am't.Fluid withdrawn : 12.3cc1s
color of Fluid : Clear
FHR: Pre: 123BPM, Post: 123BPM
Placenta:
Comments:

```

This page is used to display three main types of information:

1. Exam Date, Patient ID, and Name
2. Display the results of an amnio study.
3. Display the results of a chorionic villus sampling study.

<Displayed contents>

The displayed contents for both Amnio (amniotic fluid study) and CVS (chorionic villus sampling study) are identical.

1. Puncture site

The puncture site is divided into the four quadrants shown below. If you wish to perform sampling outside these quadrants, select Other.

- RUQ : Right Upper Quadrant
- RLQ : Right Lower Quadrant
- LUQ : Left Upper Quadrant
- LLQ : Left Lower Quadrant
- Other

2. Puncture Times (number of punctures)

Enter the number of times that a puncture was performed at the puncture site selected using Puncture site.

Enter the numerical value from the keyboard after the item "# of punctures" displayed on the screen.

3. Amniotic Fluid Withdrawn (amount of amniotic fluid withdrawn)

Key in the amount of amniotic fluid withdrawn by puncturing. The unit of the sampled amount is cc (cubic centimeters(s)). You can display the numerical value using up to four digits (including the decimal point).

4. Color of Fluid (visible properties of amniotic fluid obtained by puncturing)

The visible properties of the amniotic fluid obtained by puncturing are broadly divided into the following.

Clear, Bloody, Dark, None

5. Fetal Heart RATE

Key in the values of the M mode fetal heart rate calculated both before and after sampling the amniotic fluid, as stress management information. You can also use values transferred from the measurement values of the fetal heart rate calculated prior to the amniotic fluid puncture.

[Remark]

The calculated values in the case of twins or triplets are displayed separately as A, B and C.

Pre : BPM

Post : BPM

6. Placenta

Enter your impression of the placenta from the keyboard.

<Operation procedure>

- ① Using the trackball, move the highlight display to the item for entering the observation results (puncturing results), then press the SET switch.
- ② A pop-up menu for the selected item appears.
- ③ Move the highlight cursor to the evaluation result, then press the SET switch.
→ The highlight cursor moves to the next item.
- ④ Carry out steps ① to ③ for all parameters.
- ⑤ Using the trackball, move the highlight display to the right of one of the items "# of punctures", "Am't Fluid withdrawn", FHR (Fetal Heart Rate), "Placenta", and "Comments", key in the item, then press the SET switch.

```

<Amnio>  Vintzileos
Puncture site:  #of puncture:1
Am't.Fluid withdrwn : 12.3cc
color of Fluid   : Clear
FHR: Pre: 123BPM, Post: 123BPM
Placenta:
Comments:
    
```

SET

```

<Amnio>  Vintzile
Puncture site:  [RUQ ]
Am't.Fluid withdra : [RLQ ]
color of Fluid   : [LUQ ]
FHR: Pre: 123BPM, [LLQ ]
Placenta:       [OTHER ]
Comments:
                [CANCEL]
Confirm:SET Key
    
```

SET

```

[RUQ ]
[RLQ ]
[LUQ ]
[LLQ ]
[OTHER ]
[CANCEL]
Confirm:SET Key
    
```

```

<Amnio>  Vintzileos
Puncture site:  #of puncture:
Am't.Fluid withdrwn : 12.3cc
color of Fluid   : Clear
FHR: Pre: 123BPM, Post: 123BPM
Placenta:
Comments:
    
```

[Remark]

You can measure Fetal Heart in either the M mode or the D mode. By assigning the PRE-HR and POST-HR fetal heart rate measurements to the measurement menu, the results of measurements are automatically input to the report.

15-4. Explanation of the REPORT area

(12) Anatomy Check List Page

The Anatomy Check List Page is intended for making a questionnaire asking whether or not the operator made an observation, and whether or not the internal organs were visible.

The Anatomy Check List consists of Heading items, Selection items (Selection) and Comments.

The Anatomy Check List consists of two pages.

```

Obstetrical Ultrasound Anatomy Check List Page1
  EXAM Date:
  Patient ID:
  Name:
  Fetal Number      :      :
  Fetal Presentation :      :
  Cardiac Activity   :      :
  Heart 4 chamber View: :
  Outflow Tract     :      :
  Placental Position :      :
  Placental Location :      :
  Placental Grade   :      :
  Cord              :      :
  Cord Heading      : Selection: Comment
  Head              :      :
  Cerebral Ventricles : :
  Sprine            :      :
  Stomach           :      :
  Diaphragm        :      :
  Urinary Bladder  :      :
  Left Kidney       :      :
  Right Kidney      :      :
  Left Arm          :      :
  Right Arm         :      :
  Left Leg          :      :
  Right Leg         :      :
    
```

This page is used to display two main types of information:

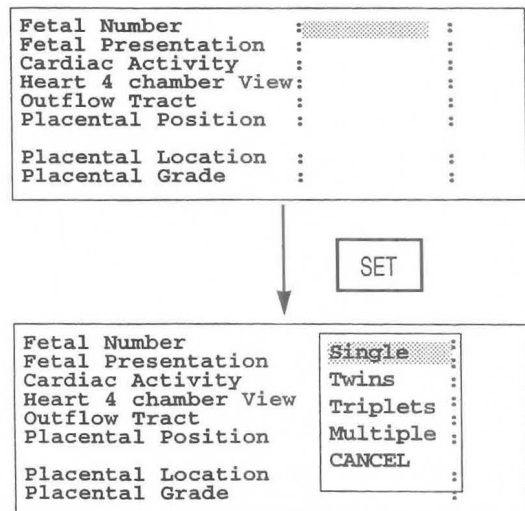
1. Exam Date, Patient ID, and Name
2. The heading items, selection items and comments of the Anatomy Check List are displayed.

[Remark]

This page displays an Anatomy Check List that conforms to the report display type set by Header page.

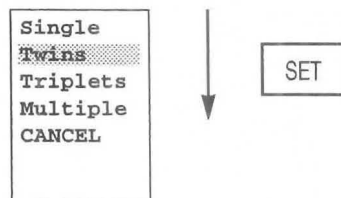
<Operation procedure>

- ① Using the trackball, move the highlight display to the Selection item corresponding to the **Heading** item that is to be checked, then press the **SET** switch.
- ② A pop-up menu for the selected item appears.



15-4. Explanation of the REPORT area

- ③ Move the highlight display to the check result, then press the SET switch.
→ The highlight display moves to the comment box.



- ④ Carry out steps ① and ② for all of the Heading items.

- ⑤ If you wish to enter a comment, move the highlight display using the trackball to the Comments box, enter a comment from the keyboard, then press the SET switch.

Fetal Number	:	Twin	:	<input checked="" type="checkbox"/>
Fetal Presentation	:		:	<input type="checkbox"/>
Cardiac Activity	:		:	<input type="checkbox"/>
Heart 4 chamber View:	:		:	<input type="checkbox"/>
Outflow Tract	:		:	<input type="checkbox"/>
Placental Position	:		:	<input type="checkbox"/>
Placental Location	:		:	<input type="checkbox"/>
Placental Grade	:		:	<input type="checkbox"/>

The heading items and selection items registered in the built-in Anatomy Check list are shown below.

[When the report display type is [Basic]]

Heading Item	Selection Item				
Fetal Number	Single	Twins	Triplets	Multiple	
Fetal Presentation	Vertex	Breech	Transverse	Oblique	Other
Cardiac Activity	Regular	Irregular	Absent		
Heart 4 chamber View	Seen	Poorly seen	Not seen		
Outflow Tract	Seen	Poorly seen	Not seen		
Placental Position	Fundal	Anterior	Posterior	R-Lateral	L-Lateral
Placental Location	Fundal	Mid	Low		
Placental Grade	0	1	2	3	
Cord Vessels	3	2			
Cord Insertion	Seen	Poorly seen	Not seen		
Head	Seen	Poorly seen	Not seen		
Cerebral Ventricles	Seen	Poorly seen	Not seen		
Spine	Seen	Poorly seen	Not seen		
Stomach	Seen	Poorly seen	Not seen		
Diaphragm	Seen	Poorly seen	Not seen		
Urinary Bladder	Seen	Poorly seen	Not seen		
Left Kidney	Seen	Poorly seen	Not seen		
Right Kidney	Seen	Poorly seen	Not seen		
Left Arm	Seen	Poorly seen	Not seen		
Right Arm	Seen	Poorly seen	Not seen		
Left Leg	Seen	Poorly seen	Not seen		
Right Leg	Seen	Poorly seen	Not seen		

15-4. Explanation of the REPORT area

[When the report display type is [Extended]]

Heading Item	Selection Item		
Abdominal Wall	Seen	Poorly seen	Not seen
Lungs	Seen	Poorly seen	Not seen
Liver	Seen	Poorly seen	Not seen
Face	Seen	Poorly seen	Not seen
Orbits	Seen	Poorly seen	Not seen
Neck	Seen	Poorly seen	Not seen
Choroid Plexus	Seen	Poorly seen	Not seen
Posterior Fossa	Seen	Poorly seen	Not seen
Cisterna Magna	Seen	Poorly seen	Not seen
Cerebellum	Seen	Poorly seen	Not seen
Left Hand	Seen	Poorly seen	Not seen
Right Hand	Seen	Poorly seen	Not seen
Left Foot	Seen	Poorly seen	Not seen
Right Foot	Seen	Poorly seen	Not seen
Gender	Male	Female	Not seen

[When the report display type is [Other]]

Heading Item	Selection Item		
Cervix	Seen	Poorly seen	Not seen
Uterus	Seen	Poorly seen	Not seen
Endometrium	Seen	Poorly seen	Not seen
Myometrium	Seen	Poorly seen	Not seen
Left Ovary	Seen	Poorly seen	Not seen
Right Ovary	Seen	Poorly seen	Not seen
Left Fallopian Tube	Seen	Poorly seen	Not seen
Right Fallopian Tube	Seen	Poorly seen	Not seen
Left Adnexa	Seen	Poorly seen	Not seen
Right Adnexa	Seen	Poorly seen	Not seen

15-4-2. Explanation of the Edit Page

The Edit Page displays the measurement values for each measurement (previous four trials) and the average values. When over four measurements are taken, the old data is deleted and new data is added.

The Edit page can be used to delete or correct measured data.

[Remark]

The above also applies when "Twins" or "Triplets" are selected in OB Study.

- ① To display the Edit page, select Edit Page from the REPORT menu.

Obstetrical Ultrasound Report Page2					
EXAM. Date:					
Patient ID:					
Name:					
	average	1	2	3	4
GS	mm				
CRL	mm				
BPD	mm				
APTD	mm				
TTD	mm				
AC	mm				
FTA	cm ²				
FL	mm				
LV	mm				
RUQ	mm				
RLQ	mm				
LUQ	mm				
LLQ	mm				

(Example)

The parameters that are displayed on the Edit page differ according to the OB-Program settings.

To close the Edit Page, press another function switch or the REPORT switch. If the Edit Page contains many items and extends over several pages, use Next Page and Pre Page to select the page.

<Operation>

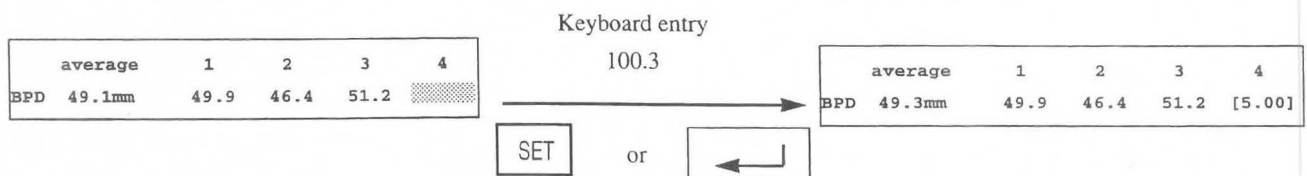
[Deleting registered data]

When you move the highlighted display, the system automatically displays a cursor. To delete an unwanted value, press the CLEAR switch on the keyboard.

If you then press the SET switch or the RETURN key, the system closes the gap left by the deleted data.

[Changing registered data]

To change a value, enter a number at the cursor from the keyboard, then press the SET switch or the return key



[Remark]

The system encloses the corrected value within brackets.

15-4. Explanation of the REPORT area

[Displaying data]

The system displays an asterisk in front of parameter values (HC, AC, FTA) that are calculated from other parameters.

(Example)

	average	1	2	3	4
*AC	123.5mm				

When AC is measured directly, the system erases the asterisk.

15-4-3. Explanation of FUNC LIST

When OB and CARDIO are assigned to the same preset measurement menu, the system has two application reports.

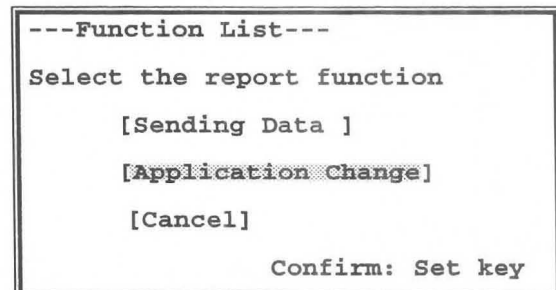
Select FUNC LIST to view the contents of the CARDIO measurement report from the OB measurement report mode.

You can select **FUNC LIST** to change the application of the report even during the report display and the **Edit** display.

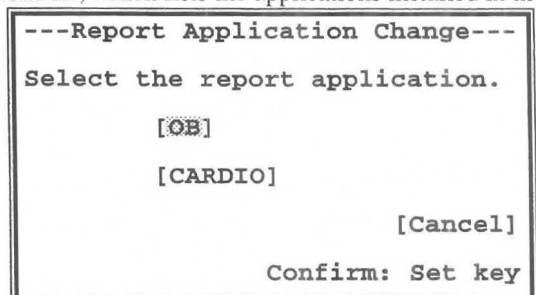
FUNC LIST can also be used to send measurement results to a PC using dedicated obstetric software (optional).

<Operation>

- ① When you select **FUNC LIST**.
 - The system displays the "Function List" submenu.
 - [Application Change]** is highlighted.
 - Press the **SET** switch.



- ② The system displays the "Report Application Change" submenu, which lists the applications installed in the system. Move the highlighted display, then press the **SET** switch.
 - The system changes all items in the report pages, including the patient information items, the report, and the edit format, to those for the selected application.



[Remark]

Select to transfer the measurement results to a PC using dedicated obstetric software (optional). For details of the operation method, refer to the instruction manual for the optional software.

15-5. Data in the fetal growth table inside the system

GA Table

Table No. 1 GS: Gestational sac
(Tokyo University method)

GS (cm)	Gestational week (age of fetus in weeks)	
	± day	
1.00	4	7
1.60	5	8
2.20	6	11
2.70	7	12
3.40	8	13
4.10	9	14
4.80	10	15
5.70	11	16
6.70	12	17

Table No. 2 CRL: Crown rump length
(Tokyo University method)

CRL (cm)	Gestational week (age of fetus in weeks)	
	± day	
1.40	8	7
2.10	9	7
2.90	10	7
3.70	11	7
4.60	12	7
5.70	13	7
7.10	14	8
8.80	15	14

Table No. 4 FL: Femur length
(Tokyo University method)

FL (cm)	Gestational week (age of fetus in weeks)	
	± day	
3.23	20	17
3.44	21	18
3.65	22	19
3.87	23	21
4.09	24	22
4.31	25	24
4.54	26	25
4.76	27	25
4.98	28	25
5.19	29	28
5.41	30	30
5.61	31	32
5.82	32	35
6.01	33	38
6.19	34	42
6.37	35	46
6.53	36	50
6.68	37	54
6.82	38	57
6.93	39	60
7.04	40	64

Table No. 5 LV: Length of vertebrae
(Tokyo University method)

LV (cm)	Gestational week (age of fetus in weeks)	
	± day	
4.05	21	7
4.39	22	9
4.71	23	11
5.01	24	12
5.30	25	14
5.57	26	17
5.82	27	19
6.06	28	21
6.30	29	24
6.51	30	25
6.72	31	28
6.93	32	31
7.13	33	34
7.32	34	35
7.51	35	38
7.70	36	40
7.89	37	42
8.08	38	44
8.27	39	46
8.47	40	48

Table No. 3 BPD: Biparietal diameter (Tokyo University method)

BPD (cm)	Gestational week (age of fetus in weeks)		BPD (cm)	Gestational week (age of fetus in weeks)	
	± day			± day	
2.00	12	7	6.84	27	13
2.40	13	7	7.12	28	13
2.76	14	7	7.38	29	14
3.10	15	7	7.64	30	15
3.38	16	8	7.88	31	16
3.72	17	8	8.12	32	16
4.05	18	9	8.34	33	18
4.39	19	10	8.55	34	20
4.71	20	10	8.74	35	25
5.04	21	10	8.92	36	25
5.35	22	10	9.08	37	25
5.67	23	11	9.23	38	25
5.97	24	11	9.36	39	25
6.27	25	12	9.47	40	25
6.56	26	13			

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Table No. 6 A×T: APTD×TTD
(Tokyo University method)

wk	cm ²	± day
16	12.18	8
17	14.02	8
18	16.04	8
19	18.22	8
20	20.57	8
21	23.09	9
22	25.77	9
23	28.61	9
24	31.61	10
25	34.75	10
26	38.03	11
27	41.43	11
28	44.96	12
29	48.59	12
30	52.32	13
31	56.12	14
32	59.99	15
33	63.91	15
34	67.86	16
35	71.82	17
36	75.78	17
37	79.71	18
38	83.59	18
39	87.39	19
40	91.10	19
41	94.69	20

Table No. 7 CRL: Crown rump length
(Osaka University method)

CRL (cm)	Gestational week	
	(age of fetus in weeks)	±1SD (cm)
0.87	7	0.16
1.30	8	0.26
2.04	9	0.37
3.00	10	0.48
4.12	11	0.58
5.30	12	0.69
6.49	13	0.79

Table No. 8 BPD: Biparietal diameter
(Osaka University method)

BPD (cm)	Gestational week	
	(age of fetus in weeks)	±1SD
1.33	10	0.19
1.72	11	0.20
2.09	12	0.21
2.46	13	0.22
2.82	14	0.23
3.18	15	0.24
3.52	16	0.25
3.86	17	0.26
4.20	18	0.27
4.53	19	0.28
4.85	20	0.29
5.17	21	0.29
5.48	22	0.30
5.79	23	0.31
6.09	24	0.32
6.39	25	0.32
6.67	26	0.33
6.95	27	0.34
7.23	28	0.34
7.49	29	0.35
7.74	30	0.35
7.98	31	0.36
8.21	32	0.36
8.43	33	0.37
8.62	34	0.37
8.80	35	0.37
8.96	36	0.38
9.10	37	0.38
9.21	38	0.38
9.30	39	0.39
9.36	40	0.39

Table No. 9 FTA: Fetal trunk cross
sectional area

FTA (cm ²)	Gestational week	
	(age of fetus in weeks)	±1SD (cm ²)
5.60	14	1.2
7.30	15	1.4
9.20	16	1.6
11.30	17	1.8
13.50	18	2.0
15.80	19	2.3
18.40	20	2.5
21.00	21	2.8
23.80	22	3.1
26.80	23	3.4
29.90	24	3.7
33.10	25	4.0
36.50	26	4.4
39.90	27	4.7
43.40	28	5.1
47.10	29	5.4
50.80	30	5.8
54.50	31	6.2
58.30	32	6.7
62.10	33	7.1
65.80	34	7.5
69.50	35	8.0
73.20	36	8.4
76.80	37	8.9
80.20	38	9.4
83.50	39	9.9
86.60	40	10.4

Table No. 10 FL: Femur length
(Osaka University method)

FL (cm)	Gestational week	
	(age of fetus in weeks)	± 1SD (cm)
0.94	13	0.21
1.26	14	0.22
1.57	15	0.22
1.88	16	0.22
2.18	17	0.23
2.47	18	0.23
2.75	19	0.24
3.03	20	0.24
3.30	21	0.24
3.57	22	0.25
3.83	23	0.25
4.08	24	0.25
4.32	25	0.26
4.56	26	0.26
4.78	27	0.27
5.01	28	0.27
5.22	29	0.27
5.43	30	0.28
5.63	31	0.28
5.82	32	0.29
6.01	33	0.29
6.19	34	0.29
6.36	35	0.30
6.53	36	0.30
6.69	37	0.31
6.84	38	0.31
6.98	39	0.31
7.12	40	0.32

Table No. 11 HL: Humerus length
(Osaka University method)

HL (cm)	Gestational week	
	(age of fetus in weeks)	± 1SD (cm)
1.01	13	0.20
1.31	14	0.21
1.59	15	0.21
1.87	16	0.21
2.15	17	0.22
2.41	18	0.22
2.67	19	0.22
2.91	20	0.23
3.15	21	0.23
3.38	22	0.23
3.61	23	0.24
3.82	24	0.24
4.03	25	0.24
4.23	26	0.25
4.42	27	0.25
4.60	28	0.25
4.78	29	0.26
4.94	30	0.26
5.10	31	0.26
5.25	32	0.27
5.39	33	0.27
5.53	34	0.27
5.65	35	0.28
5.77	36	0.28
5.88	37	0.28
5.98	38	0.29
6.08	39	0.29
6.16	40	0.29

Table No. 12 BPD: Biparietal diameter (Hadlock)

BPD (cm)	Gestational week		BPD (cm)	Gestational week	
	(age of fetus in weeks)	± day		(age of fetus in weeks)	± day
2.00	12w1d	6	6.10	25w0d	9
2.10	12w4d	6	6.20	25w2d	9
2.20	12w6d	6	6.30	25w5d	9
2.30	13w1d	6	6.40	26w1d	9
2.40	13w2d	6	6.50	26w3d	9
2.50	13w4d	6	6.60	26w6d	9
2.60	13w6d	6	6.70	27w1d	9
2.70	14w1d	6	6.80	27w4d	9
2.80	14w4d	6	6.90	28w0d	9
2.90	14w5d	6	7.00	28w2d	9
3.00	15w0d	6	7.10	28w5d	9
3.10	15w2d	6	7.20	29w1d	9
3.20	15w4d	6	7.30	29w4d	9
3.30	15w6d	6	7.40	29w6d	9
3.40	16w1d	6	7.50	30w3d	14
3.50	16w4d	6	7.60	30w6d	14
3.60	16w6d	6	7.70	31w1d	14
3.70	17w1d	6	7.80	31w4d	14
3.80	17w3d	6	7.90	32w0d	14
3.90	17w5d	6	8.00	32w4d	14
4.00	18w0d	10	8.10	32w6d	14
4.10	18w2d	10	8.20	33w2d	14
4.20	18w4d	10	8.30	33w6d	14
4.30	18w6d	10	8.40	34w1d	14
4.40	19w1d	10	8.50	34w5d	14
4.50	19w4d	10	8.60	35w1d	14
4.60	19w6d	10	8.70	35w4d	14
4.70	20w1d	10	8.80	36w1d	25
4.80	20w4d	10	8.90	36w4d	25
4.90	20w6d	10	9.00	37w0d	25
5.00	21w1d	10	9.10	37w4d	25
5.10	21w4d	10	9.20	38w0d	25
5.20	21w6d	10	9.30	38w4d	25
5.30	22w1d	10	9.40	38w6d	25
5.40	22w4d	10	9.50	39w3d	25
5.50	22w6d	10	9.60	39w6d	25
5.60	23w1d	10	9.70	40w4d	25
5.70	23w4d	10	9.80	41w0d	25
5.80	23w6d	10	9.90	41w4d	25
5.90	24w1d	9	10.00	42w0d	25
6.00	24w4d	9			

Table No. 13 HC: Head circumference (Hadlock)

Gestational week			Gestational week		
HC	(age of fetus in weeks)	± day	HC	(age of fetus in weeks)	± day
8.00	13w3d	9	23.50	25w3d	16
8.50	13w5d	9	24.00	25w6d	16
9.00	14w0d	9	24.50	26w3d	16
9.50	14w2d	9	25.00	26w6d	16
10.00	14w4d	9	25.50	27w4d	16
10.50	15w0d	9	26.00	28w0d	16
11.00	15w2d	9	26.50	28w1d	16
11.50	15w4d	9	27.00	29w1d	16
12.00	15w6d	9	27.50	29w6d	16
12.50	16w2d	9	28.00	30w2d	19
13.00	16w4d	9	28.50	31w0d	19
13.50	17w0d	9	29.00	31w4d	19
14.00	17w2d	9	29.50	32w1d	19
14.50	17w5d	9	30.00	32w6d	19
15.00	18w1d	11	30.50	33w4d	19
15.50	18w3d	11	31.00	34w1d	19
16.00	18w6d	11	31.50	34w6d	19
16.50	19w1d	11	32.00	35w4d	19
17.00	19w4d	11	32.50	36w2d	24
17.50	20w0d	11	33.00	37w0d	24
18.00	20w3d	11	33.50	37w5d	24
18.50	20w6d	11	34.00	38w4d	24
19.00	21w1d	11	34.50	39w1d	24
19.50	21w4d	11	35.00	40w0d	24
20.00	22w1d	11	35.50	40w6d	24
20.50	22w4d	11	36.00	41w4d	24
21.00	23w0d	11			
21.50	23w3d	11			
22.00	23w6d	11			
22.50	24w3d	16			
23.00	24w6d	16			

Table No. 14 AC: Abdominal circumference (Hadlock)

Gestational week			Gestational week		
AC	(age of fetus in weeks)	± day	AC	(age of fetus in weeks)	± day
10.00	15w4d	13	25.50	29w5d	15
10.50	16w1d	13	26.00	30w1d	21
11.00	16w4d	13	26.50	30w4d	21
11.50	16w6d	13	27.00	31w1d	21
12.00	17w2d	13	27.50	31w4d	21
12.50	17w6d	13	28.00	32w1d	21
13.00	18w1d	14	28.50	32w4d	21
13.50	18w4d	14	29.00	33w1d	21
14.00	19w1d	14	29.50	33w4d	21
14.50	19w4d	14	30.00	34w1d	21
15.00	20w0d	14	30.50	34w4d	21
15.50	20w3d	14	31.00	35w1d	21
16.00	20w6d	14	31.50	35w4d	21
16.50	21w2d	14	32.00	36w1d	18
17.00	21w5d	14	32.50	36w4d	18
17.50	22w1d	14	33.00	37w1d	18
18.00	22w4d	14	33.50	37w4d	18
18.50	23w1d	14	34.00	38w1d	18
19.00	23w4d	15	34.50	38w5d	18
19.50	24w0d	15	35.00	39w1d	18
20.00	24w4d	15	35.50	39w5d	18
20.50	24w6d	15	36.00	40w1d	18
21.00	25w3d	15	36.50	40w6d	18
21.50	25w6d	15			
22.00	26w2d	15			
22.50	26w6d	15			
23.00	27w2d	15			
23.50	27w5d	15			
24.00	28w1d	15			
24.50	28w5d	15			
25.00	29w1d	15			

Table No. 15 FL: Femur length (Hadlock)

FL (cm)	Gestational week (age of fetus in weeks)		FL (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
1.00	12w6d	10	4.50	24w4d	22
1.10	13w1d	10	4.60	24w6d	22
1.20	13w3d	10	4.70	25w2d	22
1.30	13w4d	10	4.80	25w5d	22
1.40	13w6d	10	4.90	26w1d	22
1.50	14w1d	10	5.00	26w4d	22
1.60	14w4d	10	5.10	27w0d	22
1.70	14w6d	10	5.20	27w3d	22
1.80	15w1d	10	5.30	27w6d	22
1.90	15w3d	10	5.40	28w1d	22
2.00	15w5d	10	5.50	28w5d	22
2.10	16w0d	10	5.60	29w1d	22
2.20	16w2d	10	5.70	29w4d	22
2.30	16w4d	10	5.80	30w0d	22
2.40	16w6d	10	5.90	30w4d	22
2.50	17w1d	10	6.00	30w6d	22
2.60	17w4d	10	6.10	31w3d	22
2.70	17w6d	10	6.20	31w6d	22
2.80	18w1d	10	6.30	32w2d	22
2.90	18w4d	10	6.40	32w6d	22
3.00	18w6d	10	6.50	33w2d	22
3.10	19w1d	10	6.60	33w6d	22
3.20	19w4d	10	6.70	34w1d	22
3.30	19w6d	10	6.80	34w5d	22
3.40	20w2d	10	6.90	35w1d	22
3.50	20w5d	10	7.00	35w5d	22
3.60	21w0d	10	7.10	36w1d	22
3.70	21w3d	10	7.20	36w5d	22
3.80	21w6d	10	7.30	37w1d	22
3.90	22w1d	10	7.40	37w5d	22
4.00	22w4d	10	7.50	38w2d	22
4.10	22w6d	10	7.60	38w6d	22
4.20	23w2d	22	7.70	39w2d	22
4.30	23w5d	22	7.80	39w6d	22
4.40	24w1d	22	7.90	40w3d	22

Table No. 16 HC: Head circumference (Had-90%)

(week)	10-90% Data form		
	10%	50%	90%
14	9.10	9.70	10.30
15	10.40	11.00	11.60
16	11.70	12.40	13.10
17	13.00	13.80	14.60
18	14.20	15.10	16.00
19	15.50	16.40	17.40
20	16.70	17.70	18.70
21	17.80	18.90	20.00
22	18.90	20.10	21.30
23	20.10	21.30	22.50
24	21.10	22.40	23.70
25	22.20	23.50	24.90
26	23.20	24.60	26.00
27	24.10	25.60	27.10
28	25.10	26.60	28.10
29	25.90	27.50	29.10
30	26.80	28.40	30.00
31	27.60	29.30	31.00
32	28.40	30.10	31.80
33	29.00	30.80	32.60
34	29.70	31.50	33.30
35	30.40	32.20	34.10
36	30.90	32.80	34.70
37	31.40	33.30	35.20
38	31.90	33.80	35.80
39	32.20	34.20	36.20
40	32.60	34.60	36.60

Table No. 17 AC: Abdominal circumference (Had-90%)

(week)	10-90% Data form		
	10%	50%	90%
14	6.70	7.30	7.90
15	7.90	8.60	9.30
16	9.10	9.90	10.70
17	10.30	11.20	12.10
18	11.50	12.50	13.50
19	12.60	13.70	14.80
20	13.80	15.00	16.30
21	14.90	16.20	17.60
22	16.00	17.40	18.80
23	17.00	18.50	20.00
24	18.10	19.70	21.30
25	19.10	20.80	22.50
26	20.10	21.90	23.70
27	21.10	23.00	24.90
28	22.00	24.00	26.00
29	23.00	25.10	27.20
30	23.90	26.10	28.30
31	24.90	27.10	29.40
32	25.80	28.10	30.40
33	26.70	29.10	31.50
34	27.50	30.00	32.50
35	28.30	30.90	33.50
36	29.20	31.80	34.40
37	30.00	32.70	35.40
38	30.80	33.60	36.40
39	31.60	34.40	37.30
40	32.40	35.30	38.20

Table No. 18 FL: Femur length (Had-90%)

(week)	10-90% Data form		
	10%	50%	90%
14	1.30	1.40	1.50
15	1.60	1.70	1.90
16	1.80	2.00	2.20
17	2.20	2.40	2.60
18	2.50	2.70	2.90
19	2.70	3.00	3.30
20	3.00	3.30	3.60
21	3.20	3.50	3.80
22	3.50	3.80	4.10
23	3.70	4.10	4.50
24	4.00	4.40	4.80
25	4.20	4.60	5.00
26	4.50	4.90	5.30
27	4.60	5.10	5.60
28	4.90	5.40	5.90
29	5.10	5.60	6.10
30	5.30	5.80	6.30
31	5.50	6.00	6.50
32	5.60	6.20	6.80
33	5.80	6.40	7.00
34	6.00	6.60	7.20
35	6.20	6.80	7.40
36	6.40	7.00	7.60
37	6.60	7.20	7.90
38	6.70	7.40	8.10
39	6.80	7.50	8.20
40	7.00	7.70	8.40

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Table No. 19 FL: Femur length (Jeanty)

Gestational week			Gestational week		
FL (cm)	(age of fetus in weeks)	± day	FL (cm)	(age of fetus in weeks)	± day
1.00	12w4d	16	4.60	25w3d	16
1.10	12w6d	16	4.70	25w6d	16
1.20	13w2d	16	4.80	26w1d	16
1.30	13w4d	16	4.90	26w4d	16
1.40	13w6d	16	5.00	27w0d	15
1.50	14w1d	16	5.10	27w3d	16
1.60	14w4d	16	5.20	27w6d	16
1.70	14w6d	16	5.30	28w1d	16
1.80	15w1d	16	5.40	28w4d	16
1.90	15w4d	16	5.50	29w1d	16
2.00	15w6d	16	5.60	29w4d	16
2.10	16w2d	16	5.70	29w6d	16
2.20	16w4d	16	5.80	30w2d	16
2.30	16w6d	16	5.90	30w5d	15
2.40	17w2d	16	6.00	31w1d	16
2.50	17w4d	16	6.10	31w4d	16
2.60	18w0d	15	6.20	32w0d	15
2.70	18w2d	16	6.30	32w3d	16
2.80	18w5d	15	6.40	32w6d	16
2.90	19w0d	15	6.50	33w2d	16
3.00	19w3d	16	6.60	33w5d	15
3.10	19w6d	16	6.70	34w1d	16
3.20	20w1d	16	6.80	34w4d	16
3.30	20w4d	16	6.90	35w0d	15
3.40	20w6d	16	7.00	35w4d	16
3.50	21w1d	16	7.10	35w6d	16
3.60	21w4d	16	7.20	36w3d	16
3.70	22w0d	15	7.30	36w6d	16
3.80	22w3d	16	7.40	37w2d	16
3.90	22w5d	15	7.50	37w5d	15
4.00	23w1d	16	7.60	38w1d	16
4.10	23w4d	16	7.70	38w4d	16
4.20	23w6d	16	7.80	39w1d	16
4.30	24w2d	16	7.90	39w4d	16
4.40	24w5d	15	8.00	40w0d	15
4.50	25w0d	15			

Table No. 20 HL: Humerus length (Jeanty)

HL (cm)	Gestational week (age of fetus in weeks)		HL (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
1.00	12w4d	19	4.10	24w6d	20
1.10	12w6d	19	4.20	25w2d	19
1.20	13w1d	19	4.30	25w5d	20
1.30	13w4d	19	4.40	26w1d	19
1.40	13w6d	19	4.50	26w5d	20
1.50	14w1d	19	4.60	27w1d	19
1.60	14w4d	19	4.70	27w5d	20
1.70	14w6d	19	4.80	28w1d	19
1.80	15w1d	19	4.90	28w6d	20
1.90	15w4d	19	5.00	29w2d	19
2.00	15w6d	20	5.10	29w6d	19
2.10	16w2d	20	5.20	30w2d	20
2.20	16w5d	20	5.30	30w6d	19
2.30	17w1d	20	5.40	31w3d	19
2.40	17w3d	19	5.50	32w0d	20
2.50	17w6d	19	5.60	32w4d	19
2.60	18w1d	19	5.70	33w1d	20
2.70	18w4d	20	5.80	33w4d	20
2.80	19w0d	20	5.90	34w1d	19
2.90	19w3d	19	6.00	34w6d	20
3.00	19w6d	19	6.10	35w2d	20
3.10	20w2d	19	6.20	35w6d	20
3.20	20w5d	20	6.30	36w4d	19
3.30	21w1d	19	6.40	37w1d	19
3.40	21w4d	19	6.50	37w5d	20
3.50	22w0d	20	6.60	38w2d	20
3.60	22w4d	19	6.70	38w6d	20
3.70	22w6d	20	6.80	39w4d	19
3.80	23w3d	20	6.90	40w1d	19
3.90	23w6d	19			
4.00	24w2d	20			

Table No. 21 TIB: Tibia length (Jeanty)

TIB (cm)	Gestational week (age of fetus in weeks)		TIB (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
1.00	13w3d	20	4.10	25w5d	20
1.10	13w5d	20	4.20	26w1d	21
1.20	14w1d	21	4.30	26w4d	21
1.30	14w3d	20	4.40	27w1d	21
1.40	14w6d	21	4.50	27w4d	21
1.50	15w1d	21	4.60	28w0d	20
1.60	15w4d	21	4.70	28w4d	21
1.70	15w6d	21	4.80	29w0d	20
1.80	16w1d	21	4.90	29w3d	20
1.90	16w4d	21	5.00	29w6d	21
2.00	17w0d	20	5.10	30w3d	20
2.10	17w3d	20	5.20	30w6d	21
2.20	17w6d	21	5.30	31w3d	20
2.30	18w1d	21	5.40	31w6d	21
2.40	18w4d	21	5.50	32w3d	20
2.50	18w6d	21	5.60	32w6d	21
2.60	19w2d	20	5.70	33w3d	20
2.70	19w5d	20	5.80	33w6d	21
2.80	20w1d	21	5.90	34w3d	20
2.90	20w4d	21	6.00	34w6d	21
3.00	21w0d	20	6.10	35w3d	20
3.10	21w3d	20	6.20	35w6d	21
3.20	21w6d	21	6.30	36w4d	21
3.30	22w1d	21	6.40	37w0d	20
3.40	22w4d	21	6.50	37w4d	21
3.50	23w1d	21	6.60	38w0d	21
3.60	23w4d	21	6.70	38w4d	21
3.70	23w6d	21	6.80	39w1d	21
3.80	24w3d	20	6.90	39w5d	20
3.90	24w6d	21			
4.00	25w2d	20			

Table No. 22 ULNA: Ulna length (Jeanty)

ULNA (cm)	Gestational week		ULNA (cm)	Gestational week	
	(age of fetus in weeks)	± day		(age of fetus in weeks)	± day
1.00	13w1d	21	4.40	28w2d	22
1.10	13w4d	21	4.50	28w6d	21
1.20	13w6d	21	4.60	29w3d	22
1.30	14w1d	22	4.70	29w6d	22
1.40	14w4d	22	4.80	30w4d	22
1.50	15w0d	22	4.90	31w1d	22
1.60	15w3d	22	5.00	31w4d	22
1.70	15w5d	22	5.10	32w1d	22
1.80	16w1d	21	5.20	32w6d	22
1.90	16w4d	21	5.30	33w3d	22
2.00	16w6d	22	5.40	34w0d	22
2.10	17w2d	22	5.50	34w4d	22
2.20	17w5d	22	5.60	35w1d	22
2.30	18w1d	21	5.70	35w6d	21
2.40	18w4d	21	5.80	36w3d	22
2.50	19w0d	22	5.90	37w1d	22
2.60	19w3d	22	6.00	37w5d	22
2.70	19w6d	21	6.10	38w2d	22
2.80	20w2d	22	6.20	39w0d	22
2.90	20w6d	22	6.30	39w4d	22
3.00	21w1d	22	6.40	40w2d	22
3.10	21w5d	22			
3.20	22w1d	21			
3.30	22w5d	22			
3.40	23w1d	21			
3.50	23w4d	22			
3.60	24w1d	21			
3.70	24w4d	22			
3.80	25w1d	21			
3.90	25w4d	22			
4.00	26w1d	21			
4.10	26w5d	22			
4.20	27w1d	22			
4.30	27w5d	22			

Table No. 23 BD: Binocular Distance (Jeanty)

BD (cm)	Gestational week		BD (cm)	Gestational week	
	(age of fetus in weeks)	± day		(age of fetus in weeks)	± day
1.50	10w3d	24	5.10	31w6d	23
1.60	11w0d	24	5.20	32w4d	24
1.70	11w4d	24	5.30	33w0d	24
1.80	12w1d	24	5.40	33w4d	24
1.90	12w6d	23	5.50	34w1d	24
2.00	13w3d	23	5.60	34w6d	23
2.10	14w0d	23	5.70	35w3d	23
2.20	14w4d	23	5.80	36w0d	23
2.30	15w1d	24	5.90	36w4d	23
2.40	15w6d	23	6.00	37w1d	24
2.50	16w3d	23	6.10	37w6d	23
2.60	17w0d	23	6.20	38w3d	23
2.70	17w4d	23	6.30	39w0d	23
2.80	18w1d	24	6.40	39w4d	23
2.90	18w6d	23	6.50	40w1d	24
3.00	19w3d	23			
3.10	20w0d	24			
3.20	20w4d	24			
3.30	21w1d	24			
3.40	21w5d	24			
3.50	22w2d	24			
3.60	22w6d	24			
3.70	23w4d	24			
3.80	24w1d	23			
3.90	24w5d	23			
4.00	25w2d	23			
4.10	25w6d	23			
4.20	26w4d	24			
4.30	27w1d	23			
4.40	27w5d	23			
4.50	28w2d	23			
4.60	28w6d	23			
4.70	29w4d	24			
4.80	30w1d	23			
4.90	30w5d	24			
5.00	31w2d	24			

Table No. 24 FL: Femur length
(Jea-95%)

FL (week)	95% Data form		
	5%	50%	95% cm
11	--	0.60	--
12	--	0.90	--
13	0.60	1.20	1.90
14	0.50	1.50	1.90
15	1.10	1.90	2.60
16	1.30	2.20	2.40
17	2.00	2.50	2.90
18	1.90	2.80	3.10
19	2.30	3.10	3.80
20	2.20	3.30	3.90
21	2.70	3.60	4.50
22	2.90	3.90	4.40
23	3.50	4.10	4.80
24	3.40	4.40	4.90
25	3.80	4.60	5.40
26	3.90	4.90	5.30
27	4.50	5.10	5.70
28	4.50	5.30	5.70
29	4.90	5.60	6.20
30	4.90	5.80	6.20
31	5.30	6.00	6.70
32	5.30	6.20	6.70
33	5.60	6.40	7.10
34	5.70	6.50	7.00
35	6.10	6.70	7.30
36	6.10	6.90	7.40
37	6.40	7.10	7.70
38	6.20	7.20	7.90
39	6.40	7.40	8.30
40	6.60	7.50	8.10

Table No. 25 HL: Humerus length
(Jea-95%)

HL (week)	95% Data form		
	5%	50%	95% cm
11	--	0.60	--
12	0.30	0.90	1.00
13	0.50	1.30	2.00
14	0.50	1.60	2.00
15	1.10	1.80	2.60
16	1.20	2.10	2.50
17	1.90	2.40	2.90
18	1.80	2.70	3.00
19	2.20	2.90	3.60
20	2.30	3.20	3.60
21	2.80	3.40	4.00
22	2.80	3.60	4.00
23	3.20	3.80	4.50
24	3.10	4.10	4.60
25	3.50	4.30	5.10
26	3.60	4.50	4.90
27	4.20	4.60	5.10
28	4.10	4.80	5.20
29	4.40	5.00	5.60
30	4.40	5.20	5.60
31	4.70	5.30	5.90
32	4.70	5.50	5.90
33	5.00	5.60	6.20
34	5.00	5.70	6.20
35	5.20	5.80	6.50
36	5.30	6.00	6.30
37	5.70	6.10	6.40
38	5.50	6.10	6.60
39	5.60	6.20	6.90
40	5.60	6.30	6.90

Table No. 26 TIB: Tibia length
(Jea-95%)

TIB (week)	95% Data form		
	5%	50%	95% cm
11	--	0.40	--
12	--	0.70	--
13	0.40	1.00	1.70
14	0.20	1.30	1.90
15	0.50	1.60	2.70
16	0.70	1.90	2.50
17	1.50	2.20	2.90
18	1.40	2.40	2.90
19	1.90	2.70	3.50
20	1.90	2.90	3.50
21	2.40	3.20	3.90
22	2.50	3.40	3.90
23	3.00	3.60	4.30
24	2.80	3.90	4.50
25	3.10	4.10	5.00
26	3.30	4.30	4.90
27	3.90	4.50	5.10
28	3.80	4.70	5.20
29	4.00	4.90	5.70
30	4.10	5.10	5.60
31	4.60	5.20	5.80
32	4.60	5.40	5.90
33	4.90	5.60	6.20
34	4.70	5.70	6.40
35	4.80	5.90	6.90
36	4.90	6.00	6.80
37	5.20	6.10	7.10
38	5.40	6.20	6.90
39	5.80	6.40	6.90
40	5.80	6.50	6.90

Table No. 27 ULNA: Ulna length
(Jea-95%)

ULNA (week)	95% Data form		
	5%	50%	95% cm
11	--	0.50	--
12	--	0.80	--
13	0.30	1.10	1.80
14	0.40	1.30	1.70
15	1.00	1.60	2.20
16	0.80	1.90	2.40
17	1.10	2.10	3.20
18	1.30	2.40	3.00
19	2.00	2.60	3.20
20	2.10	2.90	3.20
21	2.50	3.10	3.60
22	2.40	3.30	3.70
23	2.70	3.50	4.30
24	2.90	3.70	4.10
25	3.40	3.90	4.40
26	3.40	4.10	4.40
27	3.70	4.30	4.80
28	3.70	4.40	4.80
29	4.00	4.60	5.10
30	3.80	4.70	5.40
31	3.90	4.90	5.90
32	4.00	5.00	5.80
33	4.30	5.20	6.00
34	4.40	5.30	5.90
35	4.70	5.40	6.10
36	4.70	5.50	6.10
37	4.90	5.60	6.20
38	4.80	5.70	6.30
39	4.90	5.70	6.60
40	5.00	5.80	6.50

Table No. 28 Radius: Radius length (Jea-95%)

Radius (week)	95% Data form		
	5%	50%	95% cm
11	--	0.50	--
12	--	0.70	--
13	--	1.00	--
14	0.80	1.30	1.20
15	1.20	1.50	1.90
16	0.90	1.80	2.10
17	1.10	2.00	2.90
18	1.40	2.20	2.60
19	2.00	2.40	2.90
20	2.10	2.70	2.80
21	2.50	2.90	3.20
22	2.40	3.10	3.40
23	2.60	3.20	3.90
24	2.70	3.40	3.80
25	3.10	3.60	4.00
26	3.00	3.70	4.10
27	3.30	3.90	4.50
28	3.30	4.00	4.50
29	3.60	4.20	4.70
30	3.40	4.30	4.90
31	3.40	4.40	5.30
32	3.70	4.50	5.10
33	4.10	4.60	5.10
34	3.90	4.70	5.30
35	3.80	4.80	5.70
36	4.10	4.80	5.40
37	4.50	4.90	5.30
38	4.50	4.90	5.30
39	4.60	5.00	5.40
40	4.60	5.00	5.40

Table No. 29 BPD: Biparietal diameter (Campbell)

BPD (cm)	Gestational week (age of fetus in weeks)	
		± day
2.40	13	
2.80	14	7
3.20	15	7
3.70	16	7
4.10	17	7
4.40	18	7
4.70	19	8
5.10	20	8
5.40	21	8
5.80	22	8
6.10	23	9
6.40	24	9
6.70	25	9
7.00	26	10
7.30	27	10
7.50	28	11
7.80	29	11
8.00	30	12
8.30	31	13
8.50	32	14
8.70	33	15
8.90	34	17
9.10	35	19
9.30	36	20
9.50	37	21
9.70	38	
9.80	39	
10.00	40	

Table No. 30 HC: Head circumference (Campbell)

HC (cm)	Gestational week (age of fetus in weeks)	
		± day
11.50	14	10
12.60	15	10
13.70	16	11
14.80	17	12
15.90	18	13
17.00	19	14
18.10	20	15
19.20	21	16
20.40	22	17
21.50	23	17
22.70	24	17
23.80	25	17
24.90	26	18
26.00	27	19
27.10	28	19
28.10	29	20
29.00	30	21
29.90	31	22
30.80	32	25
31.50	33	27
32.00	34	29
32.50	35	29
33.00	36	30
33.50	37	30
34.00	38	35
34.30	39	
34.50	40	

Table No. 31 AC: Abdominal circumference (Campbell)

AC (cm)	Gestational week (age of fetus in weeks)	
		± day
9.00	14	14
10.10	15	15
11.20	16	15
12.30	17	15
13.40	18	15
14.50	19	15
15.60	20	16
16.70	21	16
17.80	22	16
18.80	23	17
19.90	24	18
21.00	25	19
22.10	26	19
23.10	27	20
24.20	28	20
25.30	29	20
26.40	30	21
27.50	31	22
28.60	32	22
29.70	33	25
30.80	34	28
31.70	35	30
32.50	36	30
33.10	37	30
33.80	38	30
34.40	39	
35.00	40	

Table No. 32 FL: Femur length
(Campbell)

FL (cm)	Gestational week (age of fetus in weeks)	± day
1.80	15	6
2.20	16	6
2.50	17	6
2.80	18	7
3.00	19	7
3.30	20	7
3.60	21	7
3.90	22	8
4.20	23	8
4.40	24	8
4.70	25	9
4.90	26	10
5.20	27	10
5.40	28	11
5.60	29	12
5.80	30	13
6.10	31	14
6.30	32	15
6.50	33	17
6.60	34	18
6.80	35	20
6.90	36	22
7.10	37	
7.20	38	
7.40	39	
7.50	40	

Table No. 33 CRL: Crown rump length
(Hansmann)

CRL (cm)	Gestational week (age of fetus in weeks)	± day
1.10	7	
1.30	8	9
1.80	9	9
2.60	10	8
3.60	11	8
4.70	12	8
6.00	13	8
7.30	14	9
8.60	15	9
9.70	16	8
11.00	17	8
12.00	18	8
13.00	19	8
14.00	20	9
15.00	21	11
16.10	22	11
17.50	23	11

Table No. 34 BPD: Biparietal diameter
(Hansmann)

BPD (cm)	Gestational week (age of fetus in weeks)	± day
2.00	12	8
2.40	13	8
2.80	14	8
3.20	15	8
3.50	16	8
3.80	17	8
4.20	18	9
4.60	19	9
4.90	20	9
5.20	21	10
5.60	22	11
5.90	23	12
6.20	24	12
6.50	25	13
6.80	26	14
7.10	27	15
7.40	28	16
7.70	29	18
8.00	30	20
8.20	31	21
8.50	32	23
8.70	33	25
8.90	34	27
9.10	35	30
9.30	36	30
9.50	37	30
9.60	38	30
9.80	39	30
9.90	40	30
10.00	41	30
10.10	42	30

Table No. 35 OFD: Occipital frontal
diameter (Hansmann)

OFD (cm)	Gestational week (age of fetus in weeks)	± day
3.10	14	10
3.80	15	9
4.10	16	8
4.60	17	8
5.00	18	8
5.40	19	9
5.80	20	9
6.30	21	10
6.70	22	10
7.20	23	11
7.60	24	12
8.00	25	14
8.40	26	15
8.80	27	16
9.10	28	17
9.50	29	19
9.80	30	21
10.00	31	23
10.30	32	26
10.50	33	32
10.70	34	32
10.90	35	32
11.10	36	32
11.20	37	32
11.30	38	32
11.40	39	35
11.50	40	39

Table No. 36 HC: Head circumference (Hansmann)

HC (cm)	Gestational week (age of fetus in weeks)	
	± day	
10.60	14	8
11.50	15	8
12.70	16	8
14.00	17	8
15.20	18	8
16.40	19	9
17.60	20	9
19.00	21	9
20.30	22	9
21.50	23	10
22.60	24	10
24.00	25	11
25.10	26	12
26.30	27	13
27.40	28	14
28.40	29	15
29.30	30	17
30.30	31	20
31.10	32	22
31.80	33	23
32.50	34	27
33.20	35	31
33.70	36	31
34.00	37	31
34.40	38	31
34.70	39	31
34.90	40	35

Table No. 37 TTD: Transverse trunk diameter(Hansmann)

TTD (cm)	Gestational week (age of fetus in weeks)	
	± day	
1.70	12	7
2.00	13	7
2.40	14	7
2.70	15	8
3.10	16	8
3.40	17	9
3.70	18	9
4.00	19	10
4.40	20	11
4.70	21	12
5.00	22	13
5.30	23	14
5.60	24	15
5.90	25	15
6.20	26	16
6.50	27	17
6.90	28	17
7.20	29	18
7.40	30	19
7.80	31	20
8.10	32	21
8.30	33	22
8.60	34	25
8.90	35	28
9.20	36	31
9.40	37	31
9.70	38	31
9.90	39	31
10.10	40	31
10.30	41	31
10.50	42	33

Table No. 38 AC: Abdominal circumference(Hansmann)

AC (cm)	Gestational week (age of fetus in weeks)	
	± day	
5.30	12	
6.30	13	
7.50	14	
8.50	15	
9.70	16	
10.70	17	
11.60	18	
12.60	19	
13.50	20	
14.50	21	
15.50	22	
16.50	23	
17.30	24	
18.30	25	
19.10	26	
20.20	27	
21.10	28	
22.20	29	
23.00	30	
24.00	31	
24.90	32	
25.80	33	
26.80	34	
27.70	35	
28.70	36	
29.60	37	
30.60	38	
31.50	39	
32.00	40	

Table No. 39 HL: Humerus length (Hansmann)

HL (cm)	Gestational week (age of fetus in weeks)	
	± day	
1.10	13	19
1.40	14	19
1.70	15	19
2.00	16	20
2.30	17	19
2.50	18	19
2.80	19	20
3.00	20	19
3.30	21	19
3.50	22	20
3.70	23	20
3.90	24	19
4.10	25	20
4.30	26	20
4.50	27	20
4.70	28	20
4.90	29	20
5.10	30	20
5.30	31	20
5.50	32	20
5.70	33	20
5.90	34	19
6.10	35	20
6.30	36	19
6.50	37	20
6.70	38	20
6.90	39	19

Table No. 40 FL: Femur length
(Hansmann)

FL (cm)	Gestational week (age of fetus in weeks)	
	age of fetus in weeks	± day
1.00	13	
1.20	14	7
1.60	15	7
1.80	16	8
2.20	17	9
2.50	18	10
2.80	19	10
3.10	20	11
3.40	21	11
3.60	22	12
3.90	23	13
4.10	24	14
4.40	25	14
4.70	26	15
4.90	27	15
5.10	28	16
5.40	29	16
5.60	30	17
5.90	31	18
6.10	32	19
6.30	33	20
6.50	34	21
6.70	35	22
6.90	36	23
7.10	37	23
7.30	38	23
7.40	39	23
7.50	40	23

Table No. 41 GS (Rempen)

GS (cm)	(age of fetus in weeks)	± day	GS (cm)	(age of fetus in weeks)	± day
0.30	5w0d	10d	3.90	9w2d	10d
0.40	5w1d	10d	4.00	9w3d	10d
0.50	5w2d	10d	4.10	9w4d	10d
0.60	5w2d	10d	4.20	9w5d	10d
0.70	5w3d	10d	4.30	9w6d	10d
0.80	5w4d	10d	4.40	9w6d	10d
0.90	5w5d	10d	4.50	10w0d	10d
1.00	5w5d	10d	4.60	10w1d	10d
1.10	5w6d	10d	4.70	10w2d	10d
1.20	6w0d	10d	4.80	10w3d	10d
1.30	6w1d	10d	4.90	10w4d	10d
1.40	6w2d	10d	5.00	10w5d	10d
1.50	6w2d	10d	5.10	10w6d	10d
1.60	6w3d	10d	5.20	11w0d	10d
1.70	6w4d	10d	5.30	11w1d	10d
1.80	6w5d	10d	5.40	11w2d	10d
1.90	6w6d	10d	5.50	11w3d	10d
2.00	6w6d	10d	5.60	11w4d	10d
2.10	7w0d	10d	5.70	11w5d	10d
2.20	7w1d	10d	5.80	11w6d	10d
2.30	7w2d	10d	5.90	12w0d	10d
2.40	7w3d	10d	6.00	12w1d	10d
2.50	7w4d	10d	6.10	12w2d	10d
2.60	7w4d	10d	6.20	12w3d	10d
2.70	7w5d	10d	6.30	12w4d	10d
2.80	7w6d	10d	6.40	12w5d	10d
2.90	8w0d	10d	6.50	12w6d	10d
3.00	8w1d	10d	6.60	13w0d	10d
3.10	8w2d	10d	6.70	13w1d	10d
3.20	8w3d	10d	6.80	13w2d	10d
3.30	8w3d	10d	6.90	13w3d	10d
3.40	8w4d	10d	7.00	13w4d	10d
3.50	8w5d	10d	7.10	13w5d	10d
3.60	8w6d	10d	7.20	14w0d	10d
3.70	9w0d	10d	7.30	14w1d	10d

Table No. 42 CRL (Rempen)

CRL (cm)	(age of fetus in weeks)	± day	CRL (cm)	(age of fetus in weeks)	± day
0.20	6w0d	6d	3.60	10w2d	6d
0.30	6w1d	6d	3.70	10w2d	6d
0.40	6w2d	6d	3.80	10w3d	6d
0.50	6w3d	6d	3.90	10w4d	6d
0.60	6w4d	6d	4.00	10w5d	6d
0.70	6w5d	6d	4.10	10w5d	6d
0.80	6w6d	6d	4.20	10w6d	6d
0.90	7w0d	6d	4.30	11w0d	6d
1.00	7w1d	6d	4.40	11w0d	6d
1.10	7w2d	6d	4.50	11w1d	6d
1.20	7w3d	6d	4.60	11w2d	6d
1.30	7w4d	6d	4.70	11w2d	6d
1.40	7w5d	6d	4.80	11w3d	6d
1.50	7w6d	6d	4.90	11w4d	6d
1.60	7w6d	6d	5.00	11w4d	6d
1.70	8w0d	6d	5.10	11w5d	6d
1.80	8w1d	6d	5.20	11w5d	6d
1.90	8w2d	6d	5.30	11w6d	6d
2.00	8w3d	6d	5.40	12w0d	6d
2.10	8w4d	6d	5.50	12w0d	6d
2.20	8w5d	6d	5.60	12w1d	6d
2.30	8w5d	6d	5.70	12w1d	6d
2.40	8w6d	6d	5.80	12w2d	6d
2.50	9w0d	6d	5.90	12w3d	6d
2.60	9w1d	6d	6.00	12w3d	6d
2.70	9w2d	6d	6.10	12w4d	6d
2.80	9w3d	6d	6.20	12w4d	6d
2.90	9w3d	6d	6.30	12w5d	6d
3.00	9w4d	6d	6.40	12w5d	6d
3.10	9w5d	6d	6.50	12w6d	6d
3.20	9w6d	6d	6.60	12w6d	6d
3.30	9w6d	6d	6.70	13w0d	6d
3.40	10w0d	6d	6.80	13w0d	6d
3.50	10w1d	6d	6.90	13w1d	6d

Table No. 43 BPD (Rempen)

BPD (cm)	(age of fetus in weeks)	± day	BPD (cm)	(age of fetus in weeks)	± day
0.30	6w6d	8d	7.00	13w1d	6d
0.40	7w1d	8d	7.10	13w2d	6d
0.50	7w3d	8d	7.20	13w2d	6d
0.60	7w5d	8d	7.30	13w3d	6d
0.70	8w0d	8d	7.40	13w3d	6d
0.80	8w2d	8d	7.50	13w4d	6d
0.90	8w4d	8d	7.60	13w4d	6d
1.00	8w6d	8d	7.70	13w4d	6d
1.10	9w1d	8d	7.80	13w5d	6d
1.20	9w3d	8d			
1.30	9w5d	8d			
1.40	10w0d	8d			
1.50	10w2d	8d			
1.60	10w4d	8d			
1.70	10w6d	8d			
1.80	11w1d	8d			
1.90	11w3d	8d			
2.00	11w5d	8d			
2.10	12w0d	8d			
2.20	12w2d	8d			
2.30	12w4d	8d			
2.40	12w6d	8d			
2.50	13w1d	8d			
2.60	13w3d	8d			
2.70	13w5d	8d			

Table No. 44 BPD (Merz)

(week)	5%	50%	95%cm
13	2.30	2.60	3.00
14	2.50	2.90	3.30
15	2.80	3.20	3.60
16	3.10	3.50	3.90
17	3.50	3.90	4.30
18	3.80	4.20	4.60
19	4.10	4.60	5.00
20	4.50	4.90	5.30
21	4.80	5.20	5.70
22	5.10	5.60	6.00
23	5.40	5.90	6.40
24	5.70	6.20	6.70
25	6.10	6.50	7.00
26	6.40	6.80	7.30
27	6.60	7.10	7.70
28	6.90	7.40	7.90
29	7.20	7.70	8.20
30	7.40	8.00	8.50
31	7.70	8.20	8.80
32	7.90	8.50	9.00
33	8.10	8.70	9.20
34	8.30	8.90	9.50
35	8.50	9.10	9.70
36	8.70	9.20	9.80
37	8.80	9.40	10.00
38	8.90	9.50	10.10
39	9.00	9.60	10.30
40	9.10	9.70	10.30
41	9.10	9.80	10.40

Table No. 45 OFD (Merz)

(week)	5%	50%	95%cm
13	2.80	3.20	3.60
14	3.10	3.50	4.00
15	3.50	3.90	4.30
16	3.90	4.30	4.80
17	4.30	4.70	5.20
18	4.70	5.20	5.60
19	5.10	5.60	6.10
20	5.60	6.00	6.50
21	6.00	6.50	6.90
22	6.40	6.90	7.40
23	6.80	7.30	7.80
24	7.20	7.70	8.20
25	7.50	8.10	8.60
26	7.90	8.40	9.00
27	8.20	8.80	9.30
28	8.60	9.10	9.70
29	8.90	9.40	10.00
30	9.20	9.70	10.30
31	9.40	10.00	10.60
32	9.70	10.20	10.80
33	9.90	10.50	11.10
34	10.10	10.70	11.30
35	10.30	10.90	11.50
36	10.40	11.00	11.60
37	10.50	11.20	11.80
38	10.60	11.30	11.90
39	10.70	11.40	12.00
40	10.80	11.40	12.10
41	10.80	11.50	12.10

Table No. 46 HC (Merz)

(week)	5%	50%	95%cm
13	8.40	9.60	10.80
14	9.40	10.60	11.90
15	10.50	11.80	13.00
16	11.70	13.00	14.30
17	13.00	14.30	15.60
18	14.20	15.50	16.80
19	15.50	16.80	18.10
20	16.70	18.10	19.40
21	18.00	19.30	20.70
22	19.20	20.60	22.00
23	20.40	21.80	23.20
24	21.60	23.00	24.40
25	22.70	24.10	25.60
26	23.80	25.30	26.70
27	24.80	26.30	27.80
28	25.80	27.30	28.90
29	26.80	28.30	29.90
30	27.70	29.20	30.80
31	28.20	30.10	31.70
32	29.30	30.90	32.50
33	30.00	31.60	33.30
34	30.70	32.30	34.00
35	31.30	32.90	34.60
36	31.80	33.50	35.20
37	32.20	33.90	35.60
38	32.60	34.30	36.10
39	32.90	34.60	36.40
40	33.10	34.90	36.60
41	33.20	35.00	36.80

Table No. 47 TTD (Merz)

(week)	5%	50%	95%cm
13	1.80	2.20	2.60
14	2.10	2.50	2.90
15	2.50	2.90	3.30
16	2.80	3.20	3.70
17	3.10	3.60	4.00
18	3.50	3.90	4.40
19	3.80	4.30	4.80
20	4.10	4.60	5.10
21	4.40	5.00	5.50
22	4.80	5.30	5.80
23	5.10	5.60	6.20
24	5.40	6.00	6.50
25	5.70	6.30	6.90
26	6.00	6.60	7.20
27	6.30	7.00	7.60
28	6.70	7.30	7.90
29	7.00	7.60	8.30
30	7.30	7.90	8.60
31	7.60	8.20	8.90
32	7.80	8.50	9.20
33	8.10	8.80	9.60
34	8.40	9.10	9.90
35	8.70	9.40	10.20
36	8.90	9.70	10.50
37	9.20	10.00	10.80
38	9.40	10.20	11.00
39	9.70	10.50	11.30
40	9.90	10.70	11.60
41	10.10	10.90	11.80

Table No. 48 APTD (Merz)

(week)	5%	50%	95%cm
13	1.70	2.10	2.50
14	2.00	2.40	2.80
15	2.30	2.80	3.20
16	2.70	3.10	3.60
17	3.00	3.50	3.90
18	3.30	3.80	4.30
19	3.70	4.20	4.70
20	4.00	4.50	5.00
21	4.30	4.80	5.40
22	4.60	5.20	5.70
23	5.00	5.50	6.10
24	5.30	5.90	6.40
25	5.60	6.20	6.80
26	5.90	6.50	7.10
27	6.20	6.80	7.50
28	6.50	7.20	7.80
29	6.80	7.50	8.10
30	7.10	7.80	8.50
31	7.40	8.10	8.80
32	7.70	8.40	9.10
33	8.00	8.70	9.40
34	8.30	9.00	9.70
35	8.50	9.30	10.00
36	8.80	9.60	10.30
37	9.00	9.80	10.60
38	9.30	10.10	10.90
39	9.50	10.30	11.10
40	9.70	10.60	11.40
41	9.90	10.80	11.60

Table No. 49 AC (Merz)

(week)	5%	50%	95%cm
13	5.50	6.70	8.00
14	6.50	7.80	9.10
15	7.60	8.90	10.20
16	8.60	10.00	11.40
17	9.60	11.10	12.50
18	10.70	12.20	13.60
19	11.70	13.20	14.80
20	12.70	14.30	15.90
21	13.80	15.40	17.00
22	14.80	16.50	18.10
23	15.80	17.50	19.30
24	16.80	18.60	20.40
25	17.80	19.60	21.50
26	18.80	20.70	22.60
27	19.80	21.70	23.60
28	20.70	22.70	24.70
29	21.70	23.70	25.70
30	22.50	24.70	26.80
31	23.50	25.70	27.80
32	24.40	26.60	28.80
33	25.30	27.60	29.80
34	26.20	28.50	30.80
35	27.00	29.40	31.70
36	27.90	30.30	32.70
37	28.70	31.10	33.60
38	29.40	31.90	34.40
39	30.10	32.70	35.20
40	30.80	33.40	36.00
41	31.40	34.10	36.70

Table No. 50 FL (Merz)

(week)	5%	50%	95%
13	0.80	1.10	1.40
14	1.10	1.50	1.80
15	1.50	1.80	2.10
16	1.80	2.10	2.50
17	2.10	2.40	2.80
18	2.40	2.70	3.10
19	2.70	3.00	3.40
20	2.90	3.30	3.70
21	3.20	3.60	4.00
22	3.50	3.90	4.20
23	3.70	4.10	4.50
24	4.00	4.40	4.80
25	4.20	4.60	5.00
26	4.50	4.90	5.30
27	4.70	5.10	5.50
28	4.90	5.30	5.80
29	5.10	5.60	6.00
30	5.30	5.80	6.20
31	5.50	6.00	6.40
32	5.70	6.20	6.70
33	5.90	6.40	6.90
34	6.10	6.60	7.10
35	6.30	6.80	7.30
36	6.50	7.00	7.40
37	6.60	7.10	7.60
38	6.80	7.30	7.80
39	6.90	7.40	7.90
40	7.10	7.60	8.10
41	7.20	7.70	8.20

Table No. 51 TIB: Tibia length (Merz)

(week)	5%	50%	95%cm
13	0.60	0.90	1.20
14	0.90	1.20	1.50
15	1.20	1.50	1.80
16	1.50	1.80	2.10
17	1.80	2.10	2.40
18	2.10	2.40	2.70
19	2.30	2.60	3.00
20	2.60	2.90	3.20
21	2.80	3.10	3.50
22	3.00	3.40	3.70
23	3.30	3.60	4.00
24	3.50	3.80	4.20
25	3.70	4.10	4.40
26	3.90	4.30	4.70
27	4.10	4.50	4.90
28	4.30	4.70	5.10
29	4.50	4.90	5.30
30	4.60	5.10	5.50
31	4.80	5.20	5.60
32	5.00	5.40	5.80
33	5.10	5.60	6.00
34	5.30	5.70	6.20
35	5.40	5.90	6.30
36	5.60	6.00	6.50
37	5.70	6.20	6.60
38	5.80	6.30	6.70
39	5.90	6.40	6.90
40	6.00	6.50	7.00
41	6.10	6.60	7.10

Table No. 52 FIB: Fibula Length
(Merz)

(week)	5%	50%	95%cm
13	0.50	0.80	1.10
14	0.80	1.10	1.40
15	1.10	1.40	1.70
16	1.40	1.70	2.00
17	1.70	2.00	2.30
18	1.90	2.30	2.60
19	2.20	2.50	2.90
20	2.40	2.80	3.10
21	2.70	3.00	3.40
22	2.90	3.30	3.60
23	3.10	3.50	3.80
24	3.30	3.70	4.10
25	3.50	3.90	4.30
26	3.80	4.10	4.50
27	3.90	4.30	4.70
28	4.10	4.50	4.90
29	4.30	4.70	5.10
30	4.50	4.90	5.30
31	4.70	5.10	5.50
32	4.80	5.20	5.70
33	5.00	5.40	5.80
34	5.10	5.60	6.00
35	5.30	5.70	6.10
36	5.40	5.80	6.30
37	5.50	6.00	6.40
38	5.60	6.10	6.50
39	5.70	6.20	6.60
40	5.80	6.30	6.70
41	5.90	6.30	6.80

Table No. 53 HL: Humerus length
(Merz)

(week)	5%	50%	95%cm
13	0.70	1.00	1.30
14	1.00	1.30	1.70
15	1.40	1.70	2.00
16	1.70	2.00	2.30
17	2.00	2.30	2.60
18	2.20	2.60	2.90
19	2.50	2.80	3.20
20	2.70	3.10	3.40
21	3.00	3.30	3.70
22	3.20	3.60	3.90
23	3.40	3.80	4.20
24	3.70	4.00	4.40
25	3.90	4.20	4.60
26	4.10	4.50	4.80
27	4.30	4.70	5.00
28	4.50	4.80	5.20
29	4.60	5.00	5.40
30	4.80	5.20	5.60
31	5.00	5.40	5.80
32	5.10	5.50	6.00
33	5.30	5.70	6.10
34	5.40	5.90	6.30
35	5.60	6.00	6.40
36	5.70	6.10	6.60
37	5.80	6.30	6.70
38	5.90	6.40	6.80
39	6.00	6.50	6.90
40	6.10	6.60	7.00
41	6.20	6.60	7.10

Table No. 54 RAD: Radius Length
(Merz)

(week)	5%	50%	95%cm
13	0.30	0.60	0.90
14	0.60	1.00	1.30
15	1.00	1.30	1.60
16	1.20	1.60	1.90
17	1.50	1.80	2.20
18	1.70	2.10	2.40
19	2.00	2.30	2.60
20	2.20	2.50	2.90
21	2.40	2.80	3.10
22	2.60	3.00	3.30
23	2.80	3.20	3.50
24	3.00	3.30	3.70
25	3.20	3.50	3.90
26	3.30	3.70	4.10
27	3.50	3.90	4.20
28	3.60	4.00	4.40
29	3.80	4.20	4.50
30	3.90	4.30	4.70
31	4.10	4.40	4.80
32	4.20	4.60	5.00
33	4.30	4.70	5.10
34	4.40	4.80	5.20
35	4.50	4.90	5.30
36	4.60	5.00	5.40
37	4.70	5.10	5.50
38	4.80	5.20	5.60
39	4.90	5.30	5.70
40	4.90	5.30	5.80
41	5.00	5.40	5.80

Table No. 55 ULNA: Ulna length
(Merz)

(week)	5%	50%	95%cm
13	0.50	0.80	1.10
14	0.80	1.10	1.40
15	1.20	1.50	1.80
16	1.50	1.80	2.10
17	1.70	2.10	2.40
18	2.00	2.30	2.70
19	2.30	2.60	2.90
20	2.50	2.80	3.20
21	2.70	3.10	3.40
22	3.00	3.30	3.70
23	3.20	3.50	3.90
24	3.40	3.70	4.10
25	3.60	3.90	4.30
26	3.80	4.10	4.50
27	4.00	4.30	4.70
28	4.20	4.50	4.90
29	4.30	4.70	5.10
30	4.50	4.90	5.20
31	4.60	5.00	5.40
32	4.80	5.20	5.60
33	4.90	5.30	5.70
34	5.10	5.50	5.90
35	5.20	5.60	6.00
36	5.30	5.70	6.10
37	5.40	5.80	6.30
38	5.50	5.90	6.40
39	5.60	6.00	6.50
40	5.70	6.10	6.60
41	5.80	6.20	6.60

Table No. 56 CRL: Crown rump length (Robinson)

CRL (cm)	Gestational week (age of fetus in weeks)		CRL (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
0.60	6w2d	5	6.80	13w1d	5
0.80	6w5d	5	7.00	13w2d	5
1.00	7w1d	5	7.20	13w3d	5
1.20	7w4d	5	7.40	13w4d	5
1.40	7w6d	5	7.60	13w5d	5
1.60	8w1d	5	7.80	13w6d	5
1.80	8w3d	5			
2.00	8w5d	5			
2.20	9w0d	5			
2.40	9w1d	5			
2.60	9w3d	5			
2.80	9w5d	5			
3.00	9w6d	5			
3.20	10w1d	5			
3.40	10w2d	5			
3.60	10w4d	5			
3.80	10w5d	5			
4.00	10w6d	5			
4.20	11w1d	5			
4.40	11w2d	5			
4.60	11w3d	5			
4.80	11w4d	5			
5.00	11w6d	5			
5.20	12w0d	5			
5.40	12w1d	5			
5.60	12w2d	5			
5.80	12w3d	5			
6.00	12w4d	5			
6.20	12w5d	5			
6.40	12w6d	5			
6.60	13w0d	5			

Table No. 57 CRL: Crown rump length (Nelson)

CRL (cm)	Gestational week (age of fetus in weeks)		CRL (cm)	Gestational week (age of fetus in weeks)	
1.00	8w1d		7.20	13w3d	
1.20	8w2d		7.40	13w4d	
1.40	8w3d		7.60	13w6d	
1.60	8w5d		7.80	14w0d	
1.80	8w6d		8.00	14w1d	
2.00	9w0d		8.20	14w2d	
2.20	9w1d		8.40	14w3d	
2.40	9w2d		8.60	14w5d	
2.60	9w4d		8.80	14w6d	
2.80	9w5d		9.00	15w0d	
3.00	9w6d				
3.20	10w0d				
3.40	10w1d				
3.60	10w3d				
3.80	10w4d				
4.00	10w5d				
4.20	10w6d				
4.40	11w0d				
4.60	11w2d				
4.80	11w3d				
5.00	11w4d				
5.20	11w5d				
5.40	11w6d				
5.60	12w0d				
5.80	12w2d				
6.00	12w3d				
6.20	12w4d				
6.40	12w5d				
6.60	13w0d				
6.80	13w1d				
7.00	13w2d				

Table No. 58 BPD: Biparietal diameter (Kurtz)

BPD (cm)	Gestational week		BPD (cm)	Gestational week		BPD (cm)	Gestational week	
	(age of fetus in weeks)	± day		(age of fetus in weeks)	± day		(age of fetus in weeks)	± day
2.00	12w0d	0	5.10	20w6d	11	8.20	32w4d	10
2.10	12w0d	0	5.20	21w1d	12	8.30	33w0d	11
2.20	12w5d	4	5.30	21w4d	12	8.40	33w3d	12
2.30	13w0d	4	5.40	21w6d	13	8.50	34w0d	12
2.40	13w1d	4	5.50	22w1d	13	8.60	34w2d	13
2.50	13w4d	4	5.60	22w4d	13	8.70	35w0d	11
2.60	13w5d	4	5.70	22w6d	12	8.80	35w3d	12
2.70	14w0d	4	5.80	23w1d	12	8.90	36w1d	12
2.80	14w2d	5	5.90	23w4d	11	9.00	36w4d	12
2.90	14w4d	5	6.00	23w6d	12	9.10	37w1d	9
3.00	14w6d	5	6.10	24w1d	12	9.20	37w6d	8
3.10	15w1d	6	6.20	24w4d	11	9.30	38w2d	7
3.20	15w2d	6	6.30	24w6d	11	9.40	39w0d	8
3.30	15w4d	6	6.40	25w2d	11	9.50	39w5d	8
3.40	15w6d	6	6.50	25w4d	11	9.60	40w2d	8
3.50	16w1d	7	6.60	26w0d	11	9.70	41w0d	8
3.60	16w3d	7	6.70	26w3d	10	9.80	41w6d	9
3.70	16w5d	8	6.80	26w5d	10			
3.80	17w0d	8	6.90	27w1d	9			
3.90	17w2d	8	7.00	27w4d	8			
4.00	17w4d	8	7.10	27w6d	8			
4.10	17w6d	10	7.20	28w2d	8			
4.20	18w1d	12	7.30	28w5d	8			
4.30	18w3d	13	7.40	29w1d	7			
4.40	18w6d	13	7.50	29w4d	7			
4.50	19w1d	15	7.60	30w0d	7			
4.60	19w3d	14	7.70	30w2d	8			
4.70	19w5d	13	7.80	30w4d	8			
4.80	20w0d	13	7.90	31w1d	10			
4.90	20w2d	12	8.00	31w4d	10			
5.00	20w4d	11	8.10	32w1d	10			

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Table No. 59 CRL: Crown rump length (Daya)

CRL (cm)	Gestational week (age of fetus in weeks)	± day	CRL (cm)	Gestational week (age of fetus in weeks)	± day	CRL (cm)	Gestational week (age of fetus in weeks)	± day
0.20	6w1d	5	3.40	10w2d	5	6.60	12w5d	6
0.30	6w2d	5	3.50	10w3d	5	6.70	12w6d	5
0.40	6w3d	5	3.60	10w3d	5	6.80	12w6d	6
0.50	6w4d	5	3.70	10w4d	5	6.90	12w6d	5
0.60	6w5d	5	3.80	10w5d	5	7.00	13w0d	6
0.70	6w6d	5	3.90	10w6d	5	7.10	13w0d	5
0.80	7w0d	5	4.00	10w6d	5	7.20	13w0d	6
0.90	7w1d	5	4.10	11w0d	5	7.30	13w1d	6
1.00	7w2d	5	4.20	11w0d	5	7.40	13w1d	5
1.10	7w3d	5	4.30	11w1d	5	7.50	13w1d	6
1.20	7w4d	5	4.40	11w2d	5	7.60	13w1d	6
1.30	7w5d	5	4.50	11w2d	5	7.70	13w2d	6
1.40	7w6d	5	4.60	11w3d	5	7.80	13w2d	6
1.50	8w0d	5	4.70	11w4d	5	7.90	13w2d	6
1.60	8w1d	5	4.80	11w4d	5	8.00	13w2d	5
1.70	8w2d	5	4.90	11w5d	5			
1.80	8w3d	5	5.00	11w5d	5			
1.90	8w4d	5	5.10	11w6d	5			
2.00	8w5d	5	5.20	11w6d	5			
2.10	8w6d	5	5.30	12w0d	6			
2.20	8w6d	5	5.40	12w0d	5			
2.30	9w0d	5	5.50	12w1d	5			
2.40	9w1d	5	5.60	12w1d	5			
2.50	9w2d	5	5.70	12w2d	5			
2.60	9w3d	5	5.80	12w2d	5			
2.70	9w4d	5	5.90	12w3d	6			
2.80	9w4d	5	6.00	12w3d	5			
2.90	9w5d	5	6.10	12w3d	5			
3.00	9w6d	5	6.20	12w4d	6			
3.10	10w0d	5	6.30	12w4d	5			
3.20	10w1d	5	6.40	12w5d	6			
3.30	10w1d	5	6.50	12w5d	5			

Table No. 60 CD: Cerebellar Diameter (Hill)

CD (cm)	Gestational week (age of fetus in weeks)		CD (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
1.40	15w1d	7	5.00	36w5d	22
1.50	15w5d	7	5.10	37w1d	22
1.60	16w4d	7	5.20	37w4d	22
1.70	17w1d	7	5.30	37w5d	22
1.80	17w6d	7	5.40	38w0d	22
1.90	18w4d	13	5.50	38w2d	22
2.00	19w2d	13	5.60	38w4d	22
2.10	20w0d	13			
2.20	20w5d	13			
2.30	21w3d	13			
2.40	22w1d	13			
2.50	22w5d	13			
2.60	23w4d	13			
2.70	24w1d	14			
2.80	24w6d	14			
2.90	25w4d	14			
3.00	26w1d	14			
3.10	26w6d	14			
3.20	27w4d	14			
3.30	28w1d	14			
3.40	28w5d	14			
3.50	29w3d	14			
3.60	30w0d	17			
3.70	30w4d	17			
3.80	31w1d	17			
3.90	31w5d	17			
4.00	32w2d	17			
4.10	32w5d	17			
4.20	33w3d	17			
4.30	33w6d	17			
4.40	34w3d	17			
4.50	34w5d	17			
4.60	35w2d	17			
4.70	35w5d	17			
4.80	36w1d	22			
4.90	36w4d	22			

Table No. 61 GS: Gestational Sac (Hellman)

GS (cm)	Gestational week (age of fetus in weeks)		GS (cm)	Gestational week (age of fetus in weeks)	
		± day			± day
1.00	5w0d		4.60	10w1d	
1.10	5w1d		4.70	10w2d	
1.20	5w2d		4.80	10w3d	
1.30	5w3d		4.90	10w4d	
1.40	5w4d		5.00	10w5d	
1.50	5w5d		5.10	10w6d	
1.60	5w6d		5.20	11w0d	
1.70	6w0d		5.30	11w1d	
1.80	6w1d		5.40	11w2d	
1.90	6w2d		5.50	11w3d	
2.00	6w3d		5.60	11w4d	
2.10	6w4d		5.70	11w5d	
2.20	6w5d		5.80	11w6d	
2.30	6w6d		5.90	12w0d	
2.40	7w0d		6.00	12w1d	
2.50	7w1d				
2.60	7w2d				
2.70	7w3d				
2.80	7w4d				
2.90	7w5d				
3.00	7w6d				
3.10	8w0d				
3.20	8w1d				
3.30	8w2d				
3.40	8w3d				
3.50	8w4d				
3.60	8w5d				
3.70	8w6d				
3.80	9w0d				
3.90	9w1d				
4.00	9w2d				
4.10	9w3d				
4.20	9w4d				
4.30	9w5d				
4.40	9w6d				
4.50	10w0d				

Table No. 62 FL: Femur length (Hohler)

FL (cm)	Gestational week (age of fetus in weeks)	FL (cm)	Gestational week (age of fetus in weeks)
1.00	12w0d	4.50	24w3d
1.10	12w2d	4.60	24w6d
1.20	12w4d	4.70	25w2d
1.30	12w6d	4.80	25w5d
1.40	13w2d	4.90	26w1d
1.50	13w4d	5.00	26w4d
1.60	13w6d	5.10	27w0d
1.70	14w1d	5.20	27w3d
1.80	14w4d	5.30	27w6d
1.90	14w6d	5.40	28w2d
2.00	15w1d	5.50	28w5d
2.10	15w3d	5.60	29w1d
2.20	15w6d	5.70	29w4d
2.30	16w1d	5.80	30w0d
2.40	16w4d	5.90	30w4d
2.50	16w6d	6.00	31w0d
2.60	17w1d	6.10	31w3d
2.70	17w4d	6.20	31w6d
2.80	17w6d	6.30	32w2d
2.90	18w2d	6.40	32w6d
3.00	18w4d	6.50	33w2d
3.10	19w0d	6.60	33w5d
3.20	19w3d	6.70	34w2d
3.30	19w5d	6.80	34w5d
3.40	20w1d	6.90	35w2d
3.50	20w3d	7.00	35w5d
3.60	20w6d	7.10	36w1d
3.70	21w2d	7.20	36w5d
3.80	21w4d	7.30	37w1d
3.90	22w0d	7.40	37w5d
4.00	22w3d	7.50	38w1d
4.10	22w6d	7.60	38w5d
4.20	23w2d	7.70	39w2d
4.30	23w4d	7.80	39w5d
4.40	24w0d	7.90	40w2d
		8.00	40w5d

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Table No. 63 BPD: Biparietal diameter (Sabbagha)

BPD (cm)	Gestational week (age of fetus in weeks)	± day	BPD (cm)	Gestational week (age of fetus in weeks)	± day
3.50	16w0d	9	6.60	26w0d	16
3.60	16w2d	12	6.70	26w2d	16
3.70	16w5d	16	6.80	26w5d	17
3.80	17w0d	14	6.90	27w0d	16
3.90	17w2d	14	7.00	27w2d	18
4.00	17w5d	12	7.10	27w5d	17
4.10	18w0d	14	7.20	27w5d	21
4.20	18w2d	14	7.30	28w0d	21
4.30	18w5d	14	7.40	28w2d	24
4.40	19w0d	14	7.50	28w5d	23
4.50	19w2d	14	7.60	29w0d	26
4.60	19w5d	14	7.70	29w5d	23
4.70	20w0d	14	7.80	30w0d	21
4.80	20w2d	14	7.90	30w2d	21
4.90	20w5d	14	8.00	30w5d	23
5.00	21w0d	14	8.10	31w0d	23
5.10	21w2d	14	8.20	31w2d	26
5.20	21w5d	14	8.30	32w0d	26
5.30	21w5d	12	8.40	32w2d	26
5.40	22w0d	12	8.50	33w0d	26
5.50	22w2d	12	8.60	33w2d	28
5.60	22w5d	12	8.70	34w0d	30
5.70	23w0d	12	8.80	34w2d	30
5.80	23w2d	14	8.90	35w2d	30
5.90	23w5d	14	9.00	35w5d	28
6.00	24w0d	16	9.10	36w2d	28
6.10	24w2d	16	9.20	36w2d	23
6.20	24w5d	17	9.30	36w5d	21
6.30	25w0d	16	9.40	37w0d	19
6.40	25w2d	14	9.50	37w2d	19
6.50	25w5d	14			

Table No. 64 FL: Femur length (Warda)

FL (cm)	Gestational week (age of fetus in weeks)	± day	FL (cm)	Gestational week (age of fetus in weeks)	± day
1.00	13w1d	9	7.00	36w3d	26
1.20	13w5d	10	7.20	37w2d	27
1.40	14w3d	11	7.40	38w1d	27
1.60	14w6d	11	7.60	39w0d	28
1.80	15w4d	12	7.80	39w6d	29
2.00	16w1d	12	8.00	40w6d	29
2.20	16w6d	12			
2.40	17w4d	13			
2.60	18w1d	13			
2.80	18w6d	14			
3.00	19w5d	14			
3.20	20w3d	15			
3.40	21w1d	15			
3.60	21w6d	16			
3.80	22w5d	16			
4.00	23w4d	17			
4.20	24w2d	18			
4.40	25w1d	18			
4.60	25w6d	19			
4.80	26w5d	19			
5.00	27w4d	20			
5.20	28w3d	20			
5.40	29w2d	21			
5.60	30w1d	22			
5.80	31w0d	22			
6.00	31w6d	23			
6.20	32w6d	24			
6.40	33w5d	24			
6.60	34w4d	25			
6.80	35w4d	26			

Table No. 65 FL: Femur length
(O'Brien)

(WK)	(cm)	± 2SD
14	1.66	0.25
15	1.99	0.23
16	2.20	0.30
17	2.52	0.29
18	2.96	0.31
19	3.24	0.31
20	3.48	0.25
21	3.75	0.41
22	4.09	0.39
23	4.35	0.36
24	4.64	0.35
25	4.80	0.46
26	5.11	0.50
27	5.30	0.32
28	5.44	0.41
29	5.73	0.43
30	5.87	0.38
31	6.15	0.45
32	6.28	0.42
33	6.49	0.46
34	6.57	0.44
35	6.77	0.48
36	6.95	0.46
37	7.08	0.43
38	7.18	0.56
39	7.42	0.51
40	7.54	0.56

Table No. 66 CD: Cerebellar Diameter
(Goldstein)

CD (week)	10%	50%	90%
15	1.00	1.40	1.60
16	1.40	1.60	1.70
17	1.60	1.70	1.80
18	1.70	1.80	1.90
19	1.80	1.90	2.20
20	1.80	2.00	2.20
21	1.90	2.20	2.40
22	2.10	2.30	2.40
23	2.20	2.40	2.60
24	2.20	2.50	2.80
25	2.30	2.80	2.90
26	2.50	2.90	3.20
27	2.60	3.00	3.20
28	2.70	3.10	3.40
29	2.90	3.40	3.80
30	3.10	3.50	4.00
31	3.20	3.80	4.30
32	3.30	3.80	4.20
33	3.20	4.00	4.40
34	3.30	4.00	4.40
35	3.10	4.05	4.70
36	3.60	4.30	5.50
37	3.70	4.50	5.50
38	4.00	4.85	5.50
39	5.20	5.20	5.50

Table No. 67 AFI values (Moore)

(week)	5%	50%	95% cm
16	7.90	12.10	18.50
17	8.30	12.70	19.40
18	8.70	13.30	20.20
19	9.00	13.70	20.70
20	9.30	14.10	21.20
21	9.50	14.30	21.40
22	9.70	14.50	21.60
23	9.80	14.60	21.80
24	9.80	14.70	21.90
25	9.70	14.70	22.10
26	9.70	14.70	22.30
27	9.50	14.60	22.60
28	9.40	14.60	22.80
29	9.20	14.50	23.10
30	9.00	14.50	23.40
31	8.80	14.40	23.80
32	8.60	14.40	24.20
33	8.30	14.30	24.50
34	8.10	14.20	24.80
35	7.90	14.00	24.90
36	7.70	13.80	24.90
37	7.50	13.50	24.40
38	7.30	13.20	23.90
39	7.20	12.70	22.60
40	7.10	12.30	21.40
41	7.00	11.60	19.40
42	6.90	11.00	17.50

Table No. 68 AFI values (Jeng, et. al.)

(week)	mean	ISD cm
13	9.70	1.70
14	9.70	1.70
15	13.70	3.50
16	13.70	3.50
17	12.50	3.40
18	12.50	3.40
19	14.30	3.10
20	14.30	3.10
21	14.50	3.30
22	14.50	3.30
23	15.20	3.30
24	15.20	3.30
25	16.40	5.30
26	16.40	5.30
27	16.40	4.80
28	16.40	4.80
29	17.00	5.00
30	17.00	5.00
31	15.60	4.20
32	15.60	4.20
33	16.50	4.70
34	16.50	4.70
35	16.00	4.90
36	16.00	4.90
37	16.50	4.90
38	16.50	4.90
39	14.00	4.80
40	14.00	4.80
41	13.70	5.50
42	13.70	5.50

FW GROWTH Table

Table No. 69 FW: Fetal weight (Brenner)

(week)	10%	50%	90%(g)
21	280	410	860
22	320	480	920
23	370	550	990
24	420	640	1080
25	490	740	1180
26	570	860	1320
27	660	990	1470
28	770	1150	1660
29	890	1310	1890
30	1030	1460	2100
31	1180	1630	2290
32	1310	1810	2500
33	1480	2010	2690
34	1670	2220	2880
35	1870	2430	3090
36	2190	2650	3290
37	2310	2870	3470
38	2510	3030	3610
39	2680	3170	3750
40	2750	3280	3870
41	2800	3360	3980
42	2830	3410	4060
43	2840	3420	4100
44	2790	3390	4110

Table No. 70 FW: Fetal weight (Osaka U)

(wk)	(g)	±ISD
16	137g	29g
17	176g	31g
18	223g	35g
19	280g	42g
20	347g	50g
21	425g	60g
22	512g	71g
23	611g	83g
24	720g	96g
25	839g	110g
26	968g	125g
27	1106g	140g
28	1253g	155g
29	1407g	171g
30	1568g	188g
31	1735g	204g
32	1906g	222g
33	2079g	239g
34	2254g	257g
35	2428g	276g
36	2600g	296g
37	2767g	317g
38	2928g	339g
39	3080g	362g
40	3220g	387g

Ratio Normal Range

Table No. 71 FW: Fetal weight (Hadlock)

(week)	10%	50%	90%(g)
10	29	35	41
11	37	45	53
12	48	58	68
13	61	73	85
14	77	93	109
15	97	117	137
16	121	146	171
17	150	181	212
18	185	223	261
19	227	273	319
20	275	331	387
21	331	399	467
22	398	478	559
23	471	568	665
24	556	670	784
25	652	785	918
26	758	913	1068
27	876	1055	1234
28	1004	1210	1416
29	1145	1379	1613
30	1294	1559	1824
31	1453	1751	2049
32	1621	1953	2285
33	1794	2162	2530
34	1973	2377	2781
35	2154	2595	3036
36	2335	2813	3291
37	2513	3028	3543
38	2686	3236	3786
39	2851	3435	4019
40	3004	3619	4234

Table No. 72 CI: BPD₀/OFD₀ (Hadlock)

GA (wk)	Lower	Upper
14	0.7	0.86
15	0.7	0.86
16	0.7	0.86
17	0.7	0.86
18	0.7	0.86
19	0.7	0.86
20	0.7	0.86
21	0.7	0.86
22	0.7	0.86
23	0.7	0.86
24	0.7	0.86
25	0.7	0.86
26	0.7	0.86
27	0.7	0.86
28	0.7	0.86
29	0.7	0.86
30	0.7	0.86
31	0.7	0.86
32	0.7	0.86
33	0.7	0.86
34	0.7	0.86
35	0.7	0.86
36	0.7	0.86
37	0.7	0.86
38	0.7	0.86
39	0.7	0.86
40	0.7	0.86

Table No. 73 HC/AC (Campbell)

GA (wk)	Lower	Upper
13	1.14	1.31
14	1.14	1.31
15	1.05	1.39
16	1.05	1.39
17	1.07	1.29
18	1.07	1.29
19	1.09	1.26
20	1.09	1.26
21	1.06	1.25
22	1.06	1.25
23	1.05	1.21
24	1.05	1.21
25	1.04	1.22
26	1.04	1.22
27	1.05	1.22
28	1.05	1.22
29	0.99	1.21
30	0.99	1.21
31	0.96	1.17
32	0.96	1.17
33	0.96	1.11
34	0.96	1.11
35	0.93	1.11
36	0.93	1.11
37	0.92	1.05
38	0.92	1.05
39	0.87	1.06
40	0.87	1.06
41	0.93	1.00
42	0.93	1.00

Table No. 74 FL/BPD (Hohler)

GA (wk)	Lower	Upper
23	0.71	0.87
24	0.71	0.87
25	0.71	0.87
26	0.71	0.87
27	0.71	0.87
28	0.71	0.87
29	0.71	0.87
30	0.71	0.87
31	0.71	0.87
32	0.71	0.87
33	0.71	0.87
34	0.71	0.87
35	0.71	0.87
36	0.71	0.87
37	0.71	0.87
38	0.71	0.87
39	0.71	0.87
40	0.71	0.87

15-123

Table No. 75 FL/AC (Hadlock)

GA (wk)	Lower	Upper
21	0.20	0.24
22	0.20	0.24
23	0.20	0.24
24	0.20	0.24
25	0.20	0.24
26	0.20	0.24
27	0.20	0.24
28	0.20	0.24
29	0.20	0.24
30	0.20	0.24
31	0.20	0.24
32	0.20	0.24
33	0.20	0.24
34	0.20	0.24
35	0.20	0.24
36	0.20	0.24
37	0.20	0.24
38	0.20	0.24
39	0.20	0.24
40	0.20	0.24
41	0.20	0.24
42	0.20	0.24

Table No. 76 LVW/HW (P&J)

GA (wk)	Lower	Upper
15	0.38	0.74
16	0.46	0.68
17	0.49	0.67
18	0.41	0.61
19	0.41	0.57
20	0.38	0.54
21	0.31	0.53
22	0.29	0.51
23	0.26	0.42
24	0.27	0.43
25	0.29	0.37
26	0.24	0.36
27	0.23	0.34
28	0.18	0.45
29	0.22	0.37
30	0.26	0.34
31	0.23	0.36
32	0.26	0.36
33	0.25	0.37
34	0.23	0.33
35	0.26	0.31
36	0.23	0.34
37	0.24	0.34
38	0.22	0.33

Doppler Range Table

Table No. 77 UmA-PI (Shinozuka)

(week)	10%	90%
13	1.29	2.58
14	1.20	2.22
15	1.13	1.97
16	1.08	1.79
17	1.05	1.66
18	1.02	1.57
19	1.00	1.50
20	0.99	1.45
21	0.97	1.41
22	0.96	1.37
23	0.95	1.35
24	0.94	1.33
25	0.92	1.31
26	0.91	1.29
27	0.90	1.27
28	0.88	1.25
29	0.87	1.23
30	0.85	1.21
31	0.82	1.19
32	0.80	1.16
33	0.78	1.14
34	0.75	1.12
35	0.73	1.10
36	0.70	1.08
37	0.68	1.06
38	0.67	1.05
39	0.66	1.04
40	0.66	1.03
41	0.67	1.03

Table No. 78 UmA-RI (Shinozuka)

(week)	10%	90%
13	0.76	0.96
14	0.73	0.92
15	0.71	0.89
16	0.69	0.86
17	0.67	0.84
18	0.66	0.83
19	0.65	0.81
20	0.64	0.80
21	0.64	0.79
22	0.63	0.78
23	0.62	0.78
24	0.62	0.77
25	0.61	0.77
26	0.61	0.76
27	0.60	0.75
28	0.59	0.75
29	0.58	0.74
30	0.57	0.74
31	0.56	0.73
32	0.55	0.72
33	0.54	0.71
34	0.53	0.70
35	0.52	0.70
36	0.51	0.69
37	0.50	0.68
38	0.50	0.67
39	0.50	0.67
40	0.50	0.67
41	0.50	0.67

Table No. 79 MCA-PI (Shinozuka)

(week)	10%	—	90%
21	1.51	—	2.02
22	1.56	—	2.19
23	1.59	—	2.34
24	1.62	—	2.46
25	1.64	—	2.54
26	1.65	—	2.60
27	1.65	—	2.63
28	1.65	—	2.63
29	1.63	—	2.61
30	1.61	—	2.57
31	1.58	—	2.52
32	1.54	—	2.45
33	1.49	—	2.38
34	1.44	—	2.30
35	1.38	—	2.21
36	1.32	—	2.13
37	1.25	—	2.05
38	1.19	—	1.98
39	1.12	—	1.92
40	1.05	—	1.87
41	0.99	—	1.83

Table No. 80 MCA-RI (Shinozuka)

(week)	10%	—	90%
21	0.77	—	0.86
22	0.78	—	0.89
23	0.79	—	0.91
24	0.80	—	0.92
25	0.80	—	0.93
26	0.80	—	0.94
27	0.80	—	0.94
28	0.80	—	0.95
29	0.80	—	0.94
30	0.79	—	0.94
31	0.79	—	0.93
32	0.78	—	0.92
33	0.77	—	0.91
34	0.76	—	0.90
35	0.75	—	0.89
36	0.73	—	0.88
37	0.72	—	0.87
38	0.70	—	0.86
39	0.68	—	0.85
40	0.66	—	0.84
41	0.64	—	0.83

References

Table No. 12 Hadlock (BPD: Biparietal diameter)

Reference: Fetal Biparietal Diameter : A Critical Re-evaluation of the Relation to Menstrual Age by means of Real-time Ultrasound.
Hadlock FP, Deter RL, Harrist RB, Park SK
Journal of Ultrasound in Medicine 1:97, 97-104

Table No. 13 Hadlock (HC: Head circumference)

Reference: Fetal Head Circumference : Relation to Menstrual Age
Hadlock FP, Deter RL, Harrist RB, Park SK
AJR 138:649-653, April 1982

Table No. 14 Hadlock (AC: Abdominal circumference)

Reference: Fetal Abdominal Circumference as a Predictor of Menstrual Age
Hadlock FP, Deter RL, Harrist RB, Park SK
AJR 139:367-370, August 1982

Table No. 15 Hadlock (FL: Femur length)

Reference: Fetal Femur Length as a Predictor of Menstrual Age :
Sonographically Measured
Hadlock FP, Deter RL, Harrist RB, Park SK
AJR 138:875-878, May 1982

Table Nos. 16 to 18 Hadlock

Reference: 『Estimating fetal age ; Computer-assisted analysis of multiple fetal growth parameters』 (Radiology 1984 ; 152 : 497 - 501)
Table Data : 90 percentile data form 《Growth format》

Table Nos. 19 to 23 Jeanty (FL: Femur length), (HL: Humerus length), (TIB:Tibia length), (ULNA: Ulna length), (BD: Bonocular distance)

Reference: Estimation of Gestational Age from Measurements of Fetal Long Bones
Jeanty P, Rodesch F, Delbeke D, Dumont JE
Journal of Ultrasound in Medicine 3:75-79, February 1984

Table Nos. 24 to 28 Jeanty

Reference: 『Fetal limb biometry』 (Radiology 1983 ; 147 : 602)
Table Data : 95 percentile data form 《Growth format》

Table Nos. 29 to 32 Campbell (BPD: Biparietal diameter), (FL: Femur length), (HC: Head circumference), (AC: Abdominal Circumference)

Materials provided:
Professor Campbell's Group at Harris Birthright Centre,
King's College Hospital

Table Nos. 33 to 40 Hansmann (CRL: Crown rump length), (BPD: Biparietal diameter), (OFD: Occipital frontal diameter), (HC: Head circumference), (FL: Femur length), (HL: Humerus length), (TTD: Transverse trunk diameter), (AC: Abdominal circumference)

Reference: Ultrashalldiagnostick in Geburtshilfe und Gynakologie
Hansmann M., Hackeloer B.J. and Staudach A
Springer-Verlag, Berlin, Heidelberg, New York, Tokyo 1985

[English version]

Ultrasound Diagnosis in Obstetrics and Gynecology
Hansmann M., Hackeloer B.J. and Staudach A
Springer-Verlag, Berlin, Heidelberg, New York, Tokyo 1985

Table Nos. 41 to 43 Rempen

Reference: Biometrie in der Frühgravidität (I.Trmenon)
Der Frauenarzt, 32, 4/1991

Table Nos. 44 to 55 Merz

Reference: Das normale fetale Wachstumsprofil ein einheitliches Modell zur Berechnung von Normkurven für die gängigen Kopf- und Abdomenparameter sowie die großen Extremitätenknochen. Ultraschall in Med. 17(1996),153 - 162
Table Data : 95 percentile data form 《Growth format》

Table No. 56 Robinson (CRL: Crown rump length)

Reference: A Critical Evaluation of Sonar "Crown-Rump Length" Measurements
Robinson HP, Fleming JEE
British Journal of Obstetrics and Gynecology
82:702-710, September 1975

Table No. 57 Nelson (CRL: Crown rump length)

Reference: Comparison of Methods for Determining Crown-Rump Measurement by Real-Time Ultrasound Nelson LH
Journal of Clinical Ultrasound 9:67-70, February 1981

Table No. 58 Kurtz (BPD: Biparietal diameter)

Reference: Analysis of Biparietal Diameter as an Accurate Indicator of Gestational Age
Kurtz AB, Wapner RJ, Kurtz RJ, Dershaw DD, Rubin CS, Beuglet CC Journal of Clinical Ultrasound 8:319-326, August 1980

Table No. 59 Daya

Reference: [Accuracy of gestational age estimation by means of fetal crown-rump length measurement.]
(American Journal of Obstetrics & Gynecology
1993 ; 168 : 903 - 908) Table Data : 9 《Dating format》

Table No. 60 Hill

Reference: The Transverse Cerebellar Diameter in Estimating Gestational Age in the Large for Gestational Age Fetus.
Table Data : 《Dating format》

Table No. 61 Hellman

Reference: [Growth and development of the human fetus prior to the 20th week of gestation] (American Journal of Obstetrics & Gynecology 1969 ; 103 : 784 - 800)
Table Data : 《Dating format》

Table No. 62 Hohler (FL: Femur length)

Reference: Fetal Femur Length : Equation for Computer Calculation of Gestational Age from Ultrasound Measurements
Hohler CW, Quetel TA
American Journal of Obstetrics and Gynecology 143:479-481, June 1981

Table No. 63 Sabbagha (BPD: Biparietal diameter)

Reference: Sonar Biparietal Diameter : I. Analysis of Percentile Growth Differences in Two Normal Populations Using Same Methodology
Sabbagha RE, Barton FB, Barton BA
American Journal of Obstetrics and Gynecology 126:479-484, October 1976

Table No. 64 Warda (FL: Femur length)

Reference: Fetal Femur Length : A Critical Reevaluation of the Relationship to Menstrual Age
Warda AH, Deter RL, Rossavik IK, Carpenter RJ, Hadlock FP
American Journal of Obstetrics and Gynecology 66(1):69-75, July 1985

Table No. 65 O'Brien

Reference: Assesment of Gestational Age in the Second Trimester by Real-Time Ultrasound Measurement of the Femur Length.
O'Brien GD, Queennan JT, Campbell S
(American Journal of Obstetrics & Gynecology 139:540-545, Mar. 1981) Table Data : 《Growth format》

Table No. 66 Goldstein

Reference: Cerebellar measurements with ultrasonography in the evaluation of fetal growth and development.
AM J. Obstet. Gynecol. 156:1065-1069,1987

Table No. 67 AFI values in normal pregnancy (5%-50%-95% value)

Reference: 『The amniotic fluid index in normal human pregnancy』
Moore TR, Cayle JE
American Journal of Obstetrics and Gynecology 1990 ; 162 : 1168
Table Data : 95 percentile data form

Table No. 68 AFI values in normal pregnancy (1SD value)

Reference: Cherng-Jye Jeng, et. al.
The Journal of Reproductive Medicine Volume 35, Number 7
/July 1990

Table No. 69 Brenner (FW: Fetal weight)

Reference: A Standard of Fetal Growth for the United States of America
Brenner WE, Edelman DA, Hendricks CH
American Journal of Obstetrics and Gynecology 126:555-564,
November 1976

Table No. 71 Hadlock

Reference: In Utero Analysis of Fetal Growth : A Sonographic Weight standard.
Hadlock FP, Harrist RB, Martinez-Poyer J
Radiology 181:129-133,1991

Table No. 72 Hadlock (CI: BPD₀/OFD₀)

Reference: Estimated Fetal Age : Effect of Head Shape on BPD
Hadlock FP, Deter RL, Carpenter RJ, Park SK
American Journal of Roentgenology 137:83-85, July 1981

Table No. 73 Campbell (HC/AC)

Reference: Ultrasound Measurements of the Fetal Head to Abdominal Circumference
Ratio in the Assessment of Growth Retardation
Campbell S, Thoms A
British Journal of Obstetrics and Gynecology 84:165-174,
March 1977

Table No. 74 Hohler (FL/BPD)

Reference: Comparison of Ultrasound Femur Length and Biparietal Diameter in Late Pregnancy
Hohler CW, Quetel TA
American Journal of Obstetrics and Gynecology 141:759-762,
December 1981

Table No. 75 Hadlock (FL/AC)

Reference: A Date-Independent Predictor of Intrauterine Growth Retardation :
Femur Length/Abdominal Circumference Ratio
Hadlock FP, Deter RL, Harrist RB, Roecker E, Park SK
American Journal of Roentgenology 141:979-984,
November 1983

Table No. 76 P&J:Pretorius & Johnson

(LVW / HW, LVW:lateral ventricular body width,HW:hemispheric width)
Reference: Fetal Lateral Ventricular Ratio Determination During the Second Trimester
Dolores H Pretorius, Julia A Drose,Michael L.Manco-Johnson.
J Ultrasound Med 5: 121-124, March 1986

Evaluation of Fetal Intracranial Anatomy by Static and Real-Time Ultrasound
Michael L. Johnson, Morgan G . Dunne, Lawrence A Mack, Carop L. Rashbaum
J Clin Ultrasound 8 : 311-318, August 1980

Table No. 77~80 Shinozuka (UmA-PI, UmA-RI, MCA-PI, MCA-RI)

Reference: Ultrasound in Obstetrics and Gynecology
(N. Shinozuka's Home Page)
Norio Shinozuka
<http://www.shinozuka.com/>

16. GYNECOLOGICAL MEASUREMENTS

This instrument can perform the following gynecological measurements.

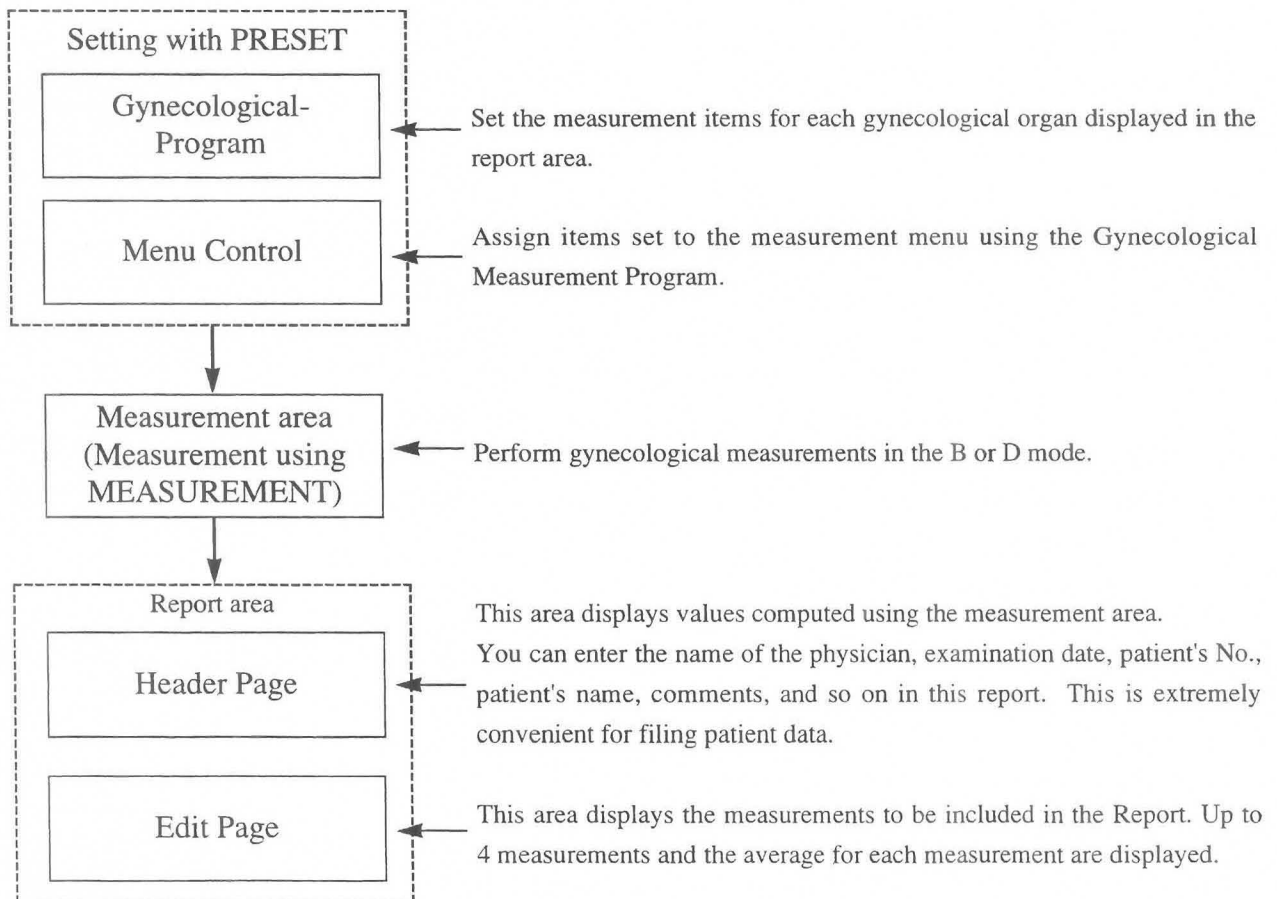
- ① B mode measurements :
 - Uterus size measurement
 - Endometrium thickness measurement
 - Cervix size measurement
 - Ovary size measurement
 - Follicles size measurement

- ② D mode measurements :
 - Measurement of blood flow signals related to the uterus
 - Measurement of blood flow signals related to the ovaries
 - Measurement of blood flow signals related to other gynecological organs

[Remark]

The above measurement results can be made into a report.

16-1. Creating the Gynecology Report



This section consists of 32 pages.

16-2. Description of Computed Measurement Items and Each Index

16-2. Description of Computed Measurement Items and Each Index

The gynecological measurements contained in this instrument are as follows.

<B mode measurement table>

Menu display	Description of measurement
Uterus	The three axes of the uterus are measured using the distance measurement function, then the data for these three axes are inserted in the formula shown below, and the volume of the uterus computed. $\text{Volume}=0.523 \times \text{Length} \times \text{AP} \times \text{Width}$
Endometrium	The thickness of the endometrium is computed using the distance measurement function.
Cervix	The three axes of the cervix are computed using the distance measurement function.
Rt./Lt. Ovary	The three axes of each ovary are computed using the distance measurement function, then the data for these three axes are inserted in the formula shown below, and the volume of the ovary computed. $\text{Volume}=0.523 \times \text{Length} \times \text{AP} \times \text{Width}$
Rt./Lt. Follicles	The length and the width of follicles are computed using the distance measurement function.

<D mode measurement table>

Menu display	Description of measurement
Uterus	This measurement computes the following items by tracing the blood flow data related to the uterus. (PI, RI, S/D, pkS, pkD, AVG)
Rt./Lt. Ovary	This measurement computes the following items by tracing the blood flow data related to each ovary. (PI, RI, S/D, pkS, pkD, AVG)
GYN other 1~3	This measurement computes the following items by tracing the blood flow data for other blood vessels related to gynecological organs. (PI, RI, S/D, pkS, pkD, AVG)

16-3. Gynecological Measurement Program and Menu Control

Configure the measurement and computational items using the Gynecological Measurement Program, then use menu control to configure the measurement menu.

- When using the **Gynecological Measurement Program**, select the parameters to be displayed in the measurement results and also the parameters to be displayed in the report.

The following settings can be made.

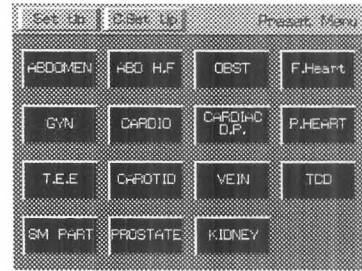
- 1 Select B Measured items** : Uterus (Length, A-P, Width, Volume)
Cervix (Length, A-P, Width)
Endometrium (Thickness)
Rt./Lt. Ovary (Length, A-P, Width, Volume)
Rt./Lt. Follicle (Length, Width)
 - 2 Select Dop Measured items** : Uterus (PI, RI, S/D, pkS, pkD, AVG)
Rt./Lt. Ovary (PI, RI, S/D, pkS, pkD, AVG)
GYN Other (PI, RI, S/D, pkS, pkD, AVG)
 - 3 Select Report Function** : Registering detailed settings of the measurement data to be displayed in the report
- In **Menu Control**, assign the measurement menu for each mode.

16-3. Gynecological Measurement Program and Menu Control

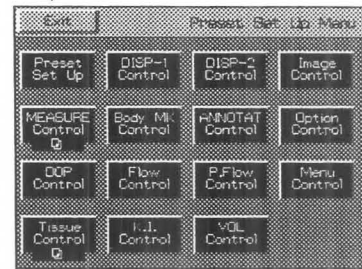
16-3-1. Gynecological Measurement Program

- ① Press the PRESET switch, then select Set up Menu.
- ② Select MEASURE Control.
- ③ When you select GYN from [Set up MEASURE] menu, the GYN Program page is displayed.

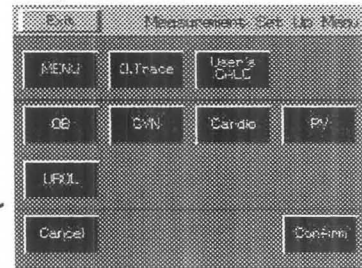
PRESET



Set up Menu



MEASURE



GYN

[Gynecological Measurement Program]

Preset Name []

Application []

Select B Measured items

Select Dop Measured items

Select Report Function

Use <TRACKBALL> and <SET> key for the selection.

- Select when setting items to be measured in the B mode.
- Select when setting items to be measured in the DOP mode.
- Select when making detailed settings for measurement data to be displayed in the report.

16-3. Gynecological Measurement Program and Menu Control

- ④ Move the arrow to Select B Measured Items, Select Dop Measured Items, or Select Report Function, then press the **SET** switch.
 - When a selection is made, the corresponding screen appears, as shown below.

Selection B Measured Items selection

```

--- GYN. B Study Measurement Program ---
  [Initialize]      [Program]
Select B Measured items
<Uterus>
+ Length  [ON]  [OFF]
x A-P     [ON]  [OFF]
+ Width   [ON]  [OFF]      Volume  [ON]  [OFF]
<Cervix>
+ Length  [ON]  [OFF]
x A-P     [ON]  [OFF]
+ Width   [ON]  [OFF]
<Endometrium>
+ Thickness [ON]  [OFF]
<Rt./Lt. Ovary>
+ Length  [ON]  [OFF]
x A-P     [ON]  [OFF]
+ Width   [ON]  [OFF]      Volume  [ON]  [OFF]
<Follicles Measured Method>
  [Distance] [2-Caliper] [Cross-Caliper]
                                     [Confirm]
Select item with <Trackball> and <SET> key.
    
```

Select Dop Measured Items selection

```

-----GYN. Dop Study Measurement Program-----
  [Initialize]      [Program]
Select Doppler Measured items
          PI  RI  S/D  pkS  pkD  AVG
<Uterus>  [ON] [ON] [ON] [ON] [ON] [ON]
<Rt./Lt. Ovary> [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 1>  [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 2>  [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 3>  [ON] [ON] [ON] [ON] [ON] [ON]
                                     [Confirm]

Select item with <Trackball> and <SET> key.
    
```

Selection Report Function selection

```

-----GYN. Report Function Program-----
  [Initialize]      [Program]

1. Report Average Function
   Activity  [ON] [OFF]

2. Select Uterus Volume Unit
           [cc] [g] [cm']

3. Select Rt./Lt. Ovary Volume Unit
           [cc] [g] [cm']

4. Select Report Display page
   Header   page  [ON]
   B GYN Study page [ON] [OFF]
   B Follicles page [ON] [OFF]
   Dop Study page  [ON] [OFF]

5. Report data Storage number
           [1] [2] [3] [4]
                                     [Confirm]

Select item with <Trackball> and <SET> key
    
```

16-3. Gynecological Measurement Program and Menu Control

16-3-2. Setting Select B Measurement Items

You can set whether or not to display the measurement items and computation items for measuring each index in the B mode.

[Remark]

Data for a selection item that is not displayed is not transferred to the report.

(1) Items that can be selected using Select B Measured Items

Measurement name	Items for which a "display" or "not display" setting can be made
Uterus	Length, A-P, Width, Volume
Cervix	Length, A-P, Width
Endometrium	Thickness
Rt./Lt. Ovary	Length, A-P, Width, Volume

(2) Setting procedure

```

--- GYN. B Study Measurement Program ---
  [Initialize]          [Program]
Select B Measured items
<Uterus>
+ Length  [ON]  [OFF]
x A-P    [ON]  [OFF]
÷ Width   [ON]  [OFF]      Volume  [ON]  [OFF]
<Cervix>
+ Length  [ON]  [OFF]
x A-P    [ON]  [OFF]
÷ Width   [ON]  [OFF]
<Endometrium>
+ Thickness [ON]  [OFF]
<Rt./Lt. Ovary>
+ Length  [ON]  [OFF]
x A-P    [ON]  [OFF]
÷ Width   [ON]  [OFF]      Volume  [ON]  [OFF]
<Follicles Measured Method>
  [Distance] [2-Caliper] [Cross-Caliper]
                               [Confirm]
Select item with <Trackball> and <SET> key.
    
```

When the "Select B Measured Items" screen appears, move the arrow to [ON] or [OFF] of the item to be changed, then press the SET switch.

Once all changes have been completed, move the arrow to [Confirm], then press the SET switch.

→ All of the changed items are finalized.

[Remark]

If the Volume item is set to [ON], the distance measurement function for the necessary three axes cannot be set to [OFF].

16-3. Gynecological Measurement Program and Menu Control

16-3-3. Setting Select Doppler Measurement Items

You can set whether or not to display the measurement items and computation items for measuring each index in the Doppler mode.

[Remark]

Data for a selection item that is not displayed is not transferred to the report.

(1) Items that can be selected using Select Doppler Measured Items

Measurement name	Items for which a "display" or "not display" setting can be made
Uterus	PI, RI, S/D, pkS, pkD, AVG
Rt./Lt. Ovary	PI, RI, S/D, pkS, pkD, AVG
GYN Other 1	PI, RI, S/D, pkS, pkD, AVG
GYN Other 2	PI, RI, S/D, pkS, pkD, AVG
GYN Other 3	PI, RI, S/D, pkS, pkD, AVG

(2) Setting procedure

```

-----GYN. Dop Study Measurement Program-----
      [Initialize]      [Program]
Select Doppler Measured items
      PI   RI   S/D   pkS   pkD   AVG
<Uterus>  [ON] [ON] [ON] [ON] [ON] [ON]
<Rt./Lt. Ovary> [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 1>  [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 2>  [ON] [ON] [ON] [ON] [ON] [ON]
<GYN Other 3>  [ON] [ON] [ON] [ON] [ON] [ON]
                                           [Confirm]

Select item with <Trackball> and <SET> key
  
```

When the "Select Doppler Measured Items" screen appears, move the arrow to [ON] or [OFF] of the item to be changed, then press the SET switch.

→ Each time you press the SET switch, the item indicated by the arrow switches between [ON] and [OFF].

Once all changes have been made, move the arrow to [Confirm], then press the SET switch.

→ All of the changed items are finalized.

[Remark]

You cannot change the names <GYN Other 1>, GYN Other 2> or <GYN Other 3>.

16-3. Gynecological Measurement Program and Menu Control

16-3-4. Setting Select Report Function

You can perform more detailed settings for handling data in a report that was measured in the B mode or the Doppler mode.

(1) Setting procedure

```

-----GYN. Report Function Program-----
      [Initialize]      [Program]

1. Report Average Function
   Activity      [ON] [OFF]

2. Select Uterus Volume Unit
                   [cc] [g] [cm³]

3. Select Rt./Lt. Ovary Volume Unit
                   [cc] [g] [cm³]

4. Select Report Display page
   Header      page [ON]
   B GYN Study page [ON] [OFF]
   B Follicles page [ON] [OFF]
   Dop Study page [ON] [OFF]

5. Report data Storage number
                   [1] [2] [3] [4]
                                     [Confirm]

Select item with <Trackball> and <SET> key
    
```

When the "Select Report Function" screen appears, move the arrow to the item to be changed, then press the SET switch.

Once all changes have been made, move the arrow to [Confirm], then press the SET switch.

→ All of the changed items are finalized.

Report Average Function

This item is used to select either the average value of the data registered in Edit page, or the latest measured values, to be displayed as the data in the report page.

- ON : Average value of each parameter displayed in Edit Page is displayed.
- OFF : The latest values are displayed as the results in the report.

Select Uterus Volume Unit

This item is used to select the measurement unit to be used to display the result of computing the uterus volume.

- cc : The uterus volume is displayed in cc.
- g : The uterus volume is displayed in g.
- cm³ : The uterus volume is displayed in cubic centimeters.

Select Rt./Lt. Ovary Volume Unit

This item is used to select the measurement unit to be used to display the result of computing the ovary volume.

- cc : The ovary volume is displayed in cc.
- g : The ovary volume is displayed in g.
- cm³ : The ovary volume is displayed in cubic centimeters.

Select Report Displayed page

This function is used to set the display page when displaying a report of the final results.

- Header page : The header page is always displayed regardless of whether or not another page is selected.
- B GYN Study page : This item enables you to select whether or not to display the page containing the results obtained by B mode measurement.
- B Follicles page : This item enables you to select whether or not to display the page containing the result obtained by follicle measurement.
- Dop. Study page : This item enables you to select whether or not to display the page containing the results obtained by Doppler mode measurement.

Report data storage number

This function is used to select the number of individual measurements, for each parameter that are used for the average value. (e.g. BPD, AC)

[Remark]

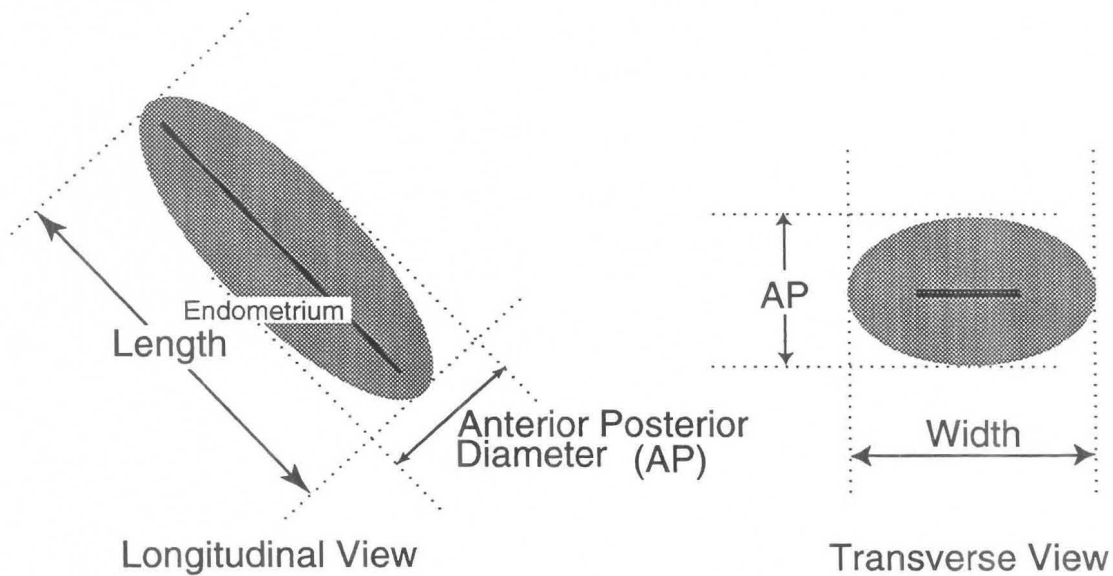
You can store up to four data.

16-4. Measuring Uterus Size

The size of the uterus is measured using the following two slice images.

First, the three axes of the uterus are measured using the distance measurement function, then the data for these three axes is inserted into the following formula, and the volume of the uterus computed.

<Measurement position>

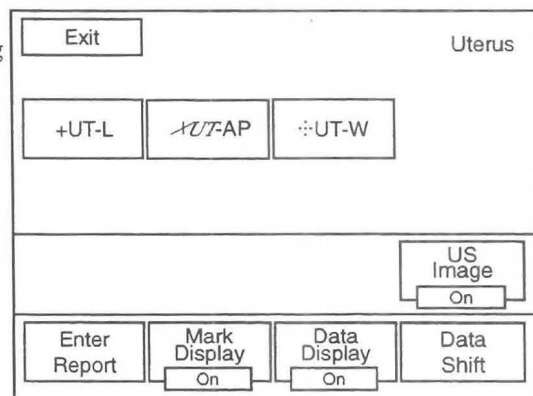


Computation formula: $Volume = 0.523 \times Length \times AP \times Width$

<Operation method>

The measurement procedure described here is the method which is started by pressing the **MEASUREMENT** switch.

If **Uterus** is selected from the measurement menu, the following menu appears on the screen.



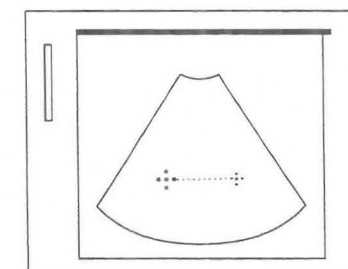
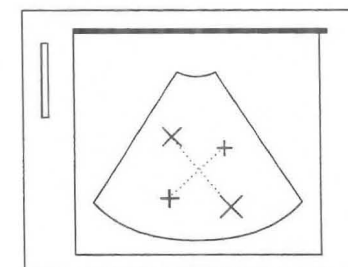
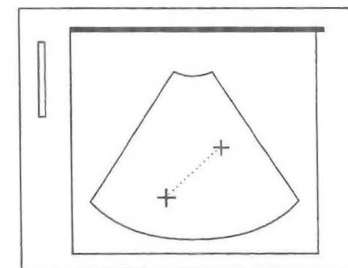
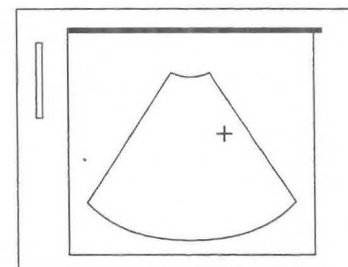
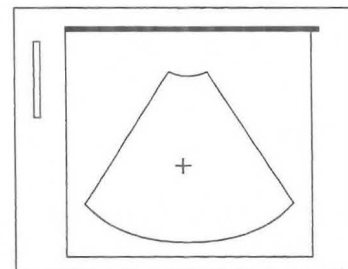
16-4. Measuring Uterus Size

- ① Display the major axis image of the uterus on the screen.
- ② Press the **MEASUREMENT** switch, and select **Uterus**.
→ The "+" mark appears at the center of the screen.
- ③ Measure the length of the uterus (UT-L) from the major axis image.
→ Using the trackball, move the "+" mark to the starting point of measurement.
- ④ Press the **MARK REF** switch.
→ The "+" mark divides into a large mark and a small mark. The large mark is movable. Move the large mark to the end point of measurement.

[Remark]

The movable mark can be switched over by pressing the **MARK REF** switch.

- ⑤ Next, measure the anterior posterior diameter of the uterus (UT-AP).
→ Press the "×" switch, or the **SET** switch.
Perform measurement using the same operation as for the "+" mark.
- ⑥ Next, display the minor axis image.
- ⑦ Measure the width of the uterus (UT-W) from the minor axis image.
→ Press the "⋄" switch, or the **SET** switch.
Perform measurement using the same operation as for the "+" mark.
- ⑧ Once measurement of the three axes is completed, the volume is computed internally, and the result displayed on the screen.



16-4. Measuring Uterus Size

- ⑨ If you press the **SET** switch after measuring the three axes, the [ENTER] area is highlighted.
If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.
- ⑩ Upon completion of measurement, select **1. Exit** to return to the measurement menu.

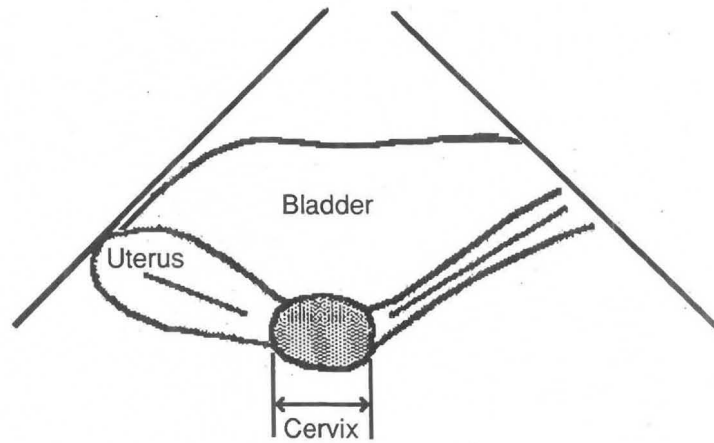
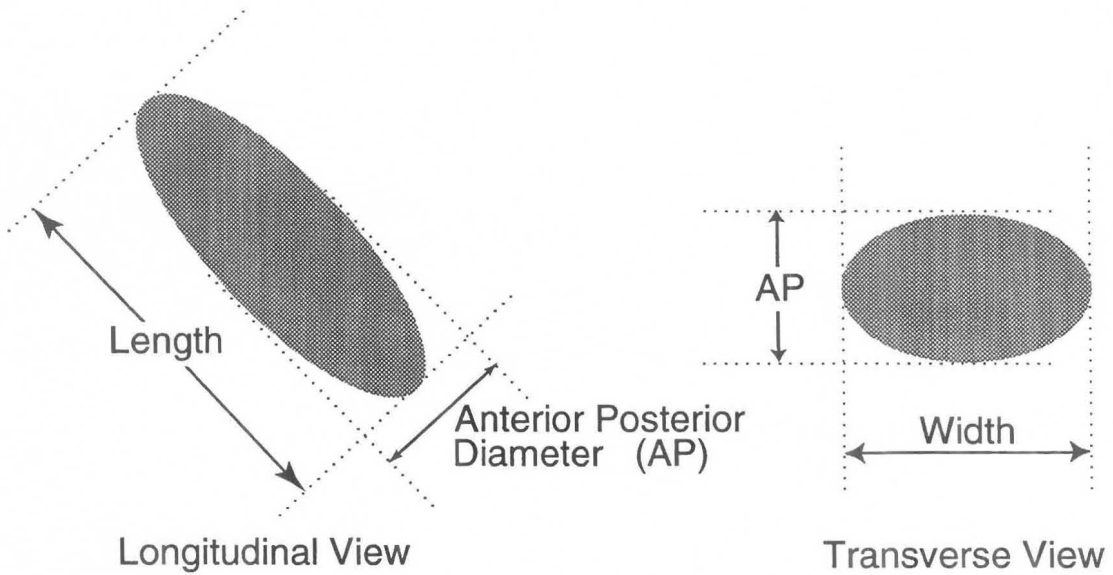
<Uterus measurement result display>

Uterus		Volume :	cc	← Volume : Uterus volume
+UT-L:	mm	XUT-AP:	mm	← UT-L : Uterus length UT-AP : Uterus anterior posterior diameter
∴UT-W:	mm	[ENTER]		← UT-W : Uterus width

16-5. Measuring the Cervix Size

The size of the cervix is measured using the following two slice images.

First, the three axes of the cervix are measured using the distance measurement function, then the data for these three axes is inserted into the following formula, and the volume of the cervix computed.

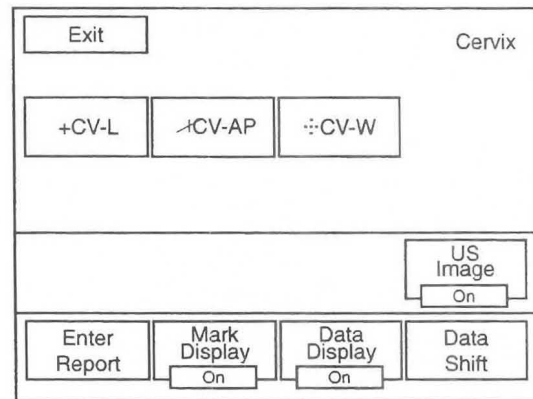


16-5. Measuring the Cervix Size

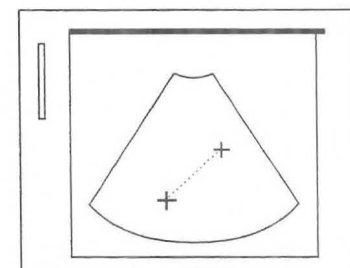
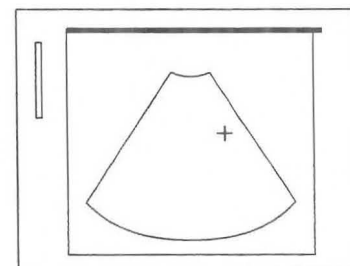
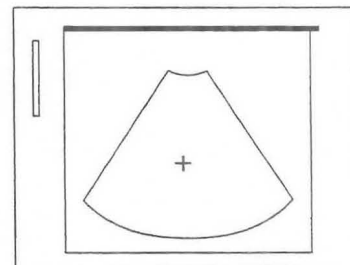
<Operation method>

The measurement procedure described here is the method which is started by pressing the **MEASUREMENT** switch.

If **Cervix** is selected from the measurement menu, the menu changes as follows.



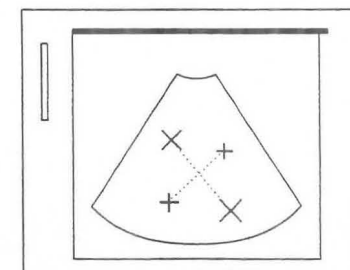
- ① Display the major axis image of the cervix on the screen.
- ② Press the **MEASUREMENT** switch, and select **Cervix**.
→ The "+" mark appears at the center of the screen.
- ③ Measure the length of the cervix (CV-L) from the major axis image.
→ Using the trackball, move the "+" mark to the starting point of measurement.
- ④ Press the **MARK REF** switch.
→ The "+" mark divides into a large mark and a small mark. The large mark is movable. Move the large mark to the end point of measurement.



[Remark]

The movable mark can be switched over by pressing the **MARK REF** switch.

- ⑤ Next, measure the anterior posterior diameter of the cervix (CV-AP).
→ Press the "×" switch, or the **SET** switch.
Perform measurement using the same operation as for the "+" mark.



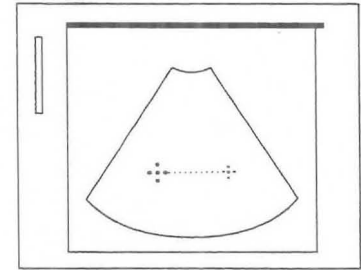
16-5. Measuring the Cervix Size

⑥ Next, display the minor axis image.

⑦ Measure the width of the cervix (CV-W) from the minor axis image.

→ Press the "⋮" switch, or the SET switch.

Perform measurement using the same operation as for the "+" mark.



⑧ If you press the SET switch after measuring the three axes, the [ENTER] area is highlighted.

If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

⑨ Upon completion of measurement, select 1. Exit to return to the measurement menu.

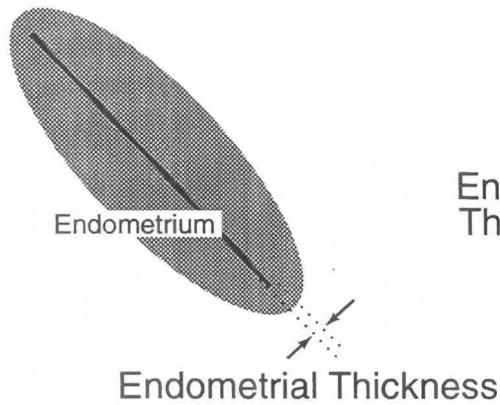
<Cervix measurement result display>

Cervix				
+CV-L:	mm	XCV-AP:	mm	← CV-L : Cervix length CV-AP : Cervix anterior posterior diameter
⋮CV-W:	mm	[ENTER]		← CV-W : Cervix width

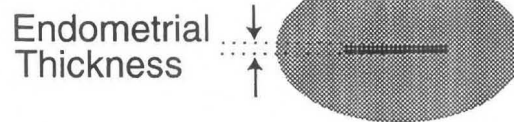
16-6. Endometrium Measurement

The endometrial thickness is measured using one of the following slice images.

Measurement is performed in the same slice plane as that used to measure the size of the uterus.



Longitudinal View

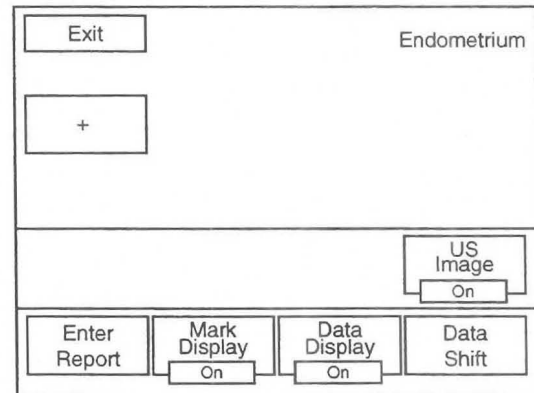


Transverse View

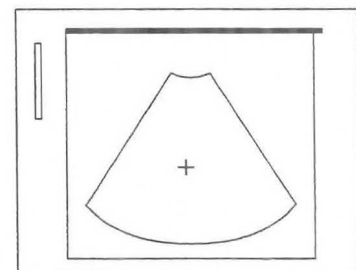
<Measurement method>

The measurement procedure described here is the method which is started by pressing the **MEASUREMENT** switch.

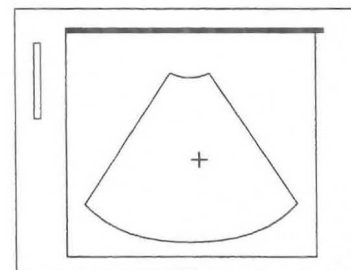
If **Endometrium** is selected from the measurement menu, the menu changes as follows.



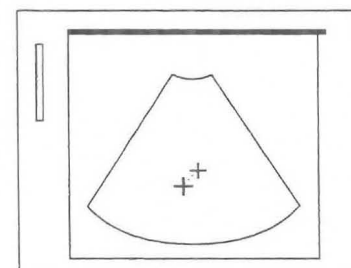
- ① Display the major axis of the uterus on the screen.
- ② Press the **MEASUREMENT** switch, and select **Endomet.**
→ The "+" mark appears at the center of the screen.



- ③ Measure the endometrial thickness from the major axis image.
→ Using the trackball, move the "+" mark to the starting point of measurement.



- ④ Press the **MARK REF** switch.
→ The "+" mark divides into a large mark and a small mark.
The large mark is movable. Move the large mark to the end point of measurement.



[Remark]

The movable mark can be switched over by pressing the **MARK REF** switch.

- ⑤ If you press the **SET** switch, the [ENTER] area is highlighted.
If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.
- ⑥ Upon completion of measurement, select **1. Exit** to return to the measurement menu.

<Endometrium measurement result display>

```

Endometrium :
+ :      mm      [ENTER]      ←+ : Endometrial thickness
  
```

16-7. Ovary Size Measurement

The size of each ovary is measured using two slice images, of the vertical axis and the horizontal axis, respectively.

First, the three axes of the ovary are measured using the distance measurement function, then the data for these three axes is inserted into the following formula, and the volume of the ovary computed.

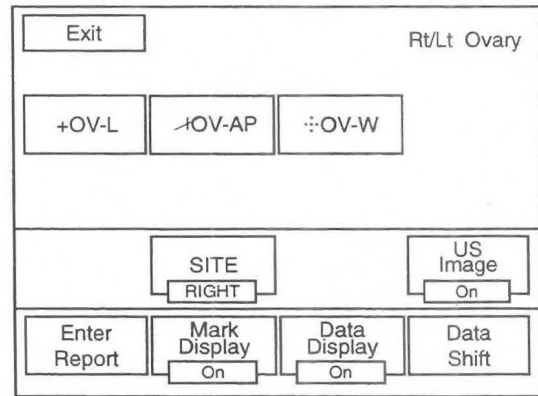
<Measurement position>

Computation formula: $\text{Volume} = 0.523 \times \text{Length} \times \text{AP} \times \text{Width}$

<Operation method>

The measurement procedure described here is the method which is started by pressing the **MEASUREMENT** switch.

If **Rt/Lt Ovary** is selected from the measurement menu, the menu changes as follows.

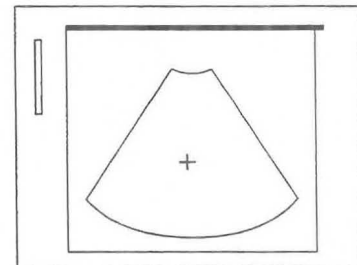


- ① Display the major axis image of the right ovary on the screen.

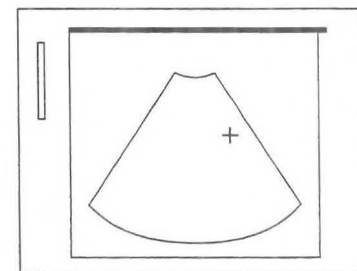
[Remark]

To measure the left ovary, first select **SITE** so that the display changes over to **LEFT**. The subsequent operation is the same for both ovaries.

- ② Press the **MEASUREMENT** switch, and select **Rt/Lt Ovary**.
→ The "+" mark appears at the center of the screen.

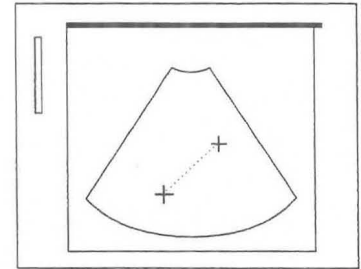


- ③ Measure the length of the right ovary (OV-L) from the major axis image.
→ Using the trackball, move the "+" mark to the starting point of measurement.



16-7. Ovary Size Measurement

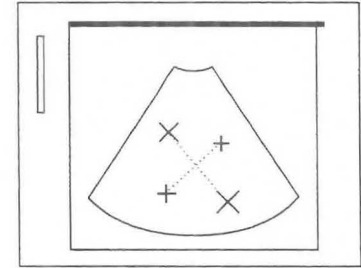
- ④ Press the **MARK REF** switch.
 - The "+" mark divides into a large mark and a small mark. The large mark is movable. Move the large mark to the end point of measurement.



[Remark]

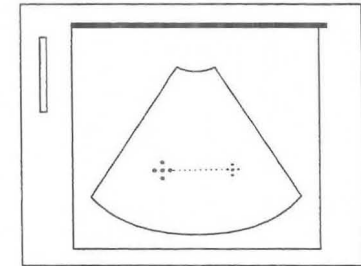
The movable mark can be switched over by pressing the **MARK REF** switch.

- ⑤ Next, measure the anterior posterior diameter of the right ovary (OV-AP).
 - Press the "×" switch, or the **SET** switch. Perform measurement using the same operation as for the "+" mark.



- ⑥ Next, display the minor axis image.

- ⑦ Measure the width of the right ovary (OV-W) from the minor axis image.
 - Press the "∴" switch, or the **SET** switch. Perform measurement using the same operation as for the "+" mark.



- ⑧ Once measurement of the three axes is completed, the volume is computed internally, and the result displayed on the screen.
- ⑨ If you press the **SET** switch after measuring the three axes, the [ENTER] area is highlighted. If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.
- ⑩ Upon completion of measurement, select **1. Exit** to return to the measurement menu.

<Rt/Lt Ovary measurement result display>

Rt. Ovary	Volume :	cc	← Volume : Volume of ovary
+OV-L:	mm	×OV-AP:	mm ← OV-L : Length of ovary OV-AP : Anterior posterior diameter of uterus
∴OV-W:	mm	[ENTER]	← OV-W : Width of ovary

16-8. Measuring Follicle Size

For measuring the size of the follicle, the diameter or two axes intersecting at a right angle of the follicle are measured using the distance measurement function.

A maximum of eight follicles can be measured at a time.

<Operation method>

The measurement procedure described here is the method which is started by pressing the **MEASUREMENT** switch.

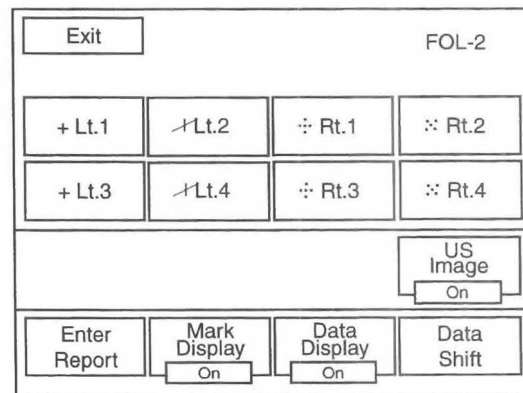
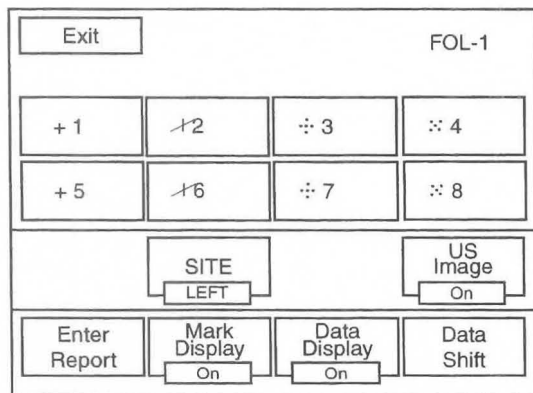
If **FOL-1** or **FOL-2** is selected from the measurement menu, the following menus appear.

The basic measurement tool is the same for both **FOL-1** and **FOL-2**.

In **FOL-1**, eight follicles for each side can be measured at a time, and in **FOL-2**, four follicles.

[Remark]

In **FOL-1**, in order to select right and left follicle measurement, select the **SITE** which switches between **LEFT**↔**RIGHT**.

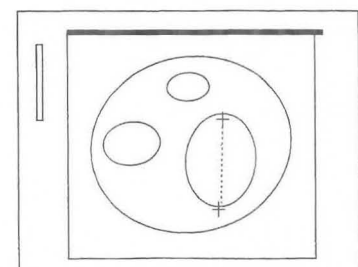
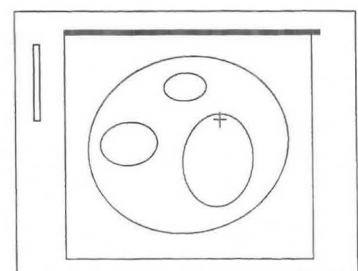


<Distance is selected on the Preset>

- ① Press the **MEASUREMENT** switch, and select **FOL-1**.
→The "+" mark appears at the center of the screen.
- ② Measure the diameter of a follicle.
→ Using the trackball, move the "+" mark to the starting point of measurement.
- ③ Press the **MARK REF** switch.
→ The "+" mark divides into a large mark and a small mark.
The large mark is movable.
Move the large mark to the end point of measurement.

[Remark]

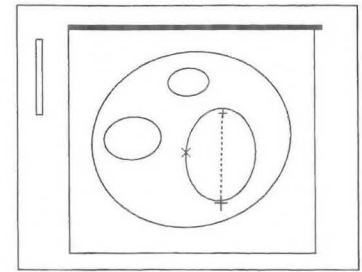
The movable mark can be switched over by pressing the **MARK REF** switch.



- ④ Measure the diameter of another follicle.
 → Press the "×2" switch on the touch panel.
 Perform measurement using the same operation as for the "+" mark.

[Remark]

Another caliper mark appears by pressing the SET switch or the caliper mark switch.



- ⑤ If the measured data is correct, press the Enter Report on the touch panel to transfer the data displayed on the screen to the report.
- ⑥ Upon completion of measurement, select **Exit** to return to the measurement menu.

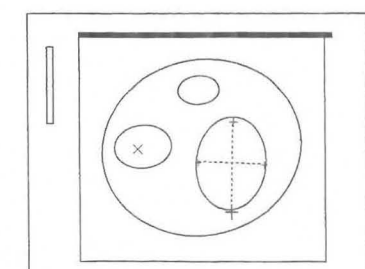
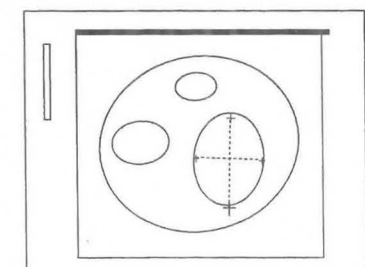
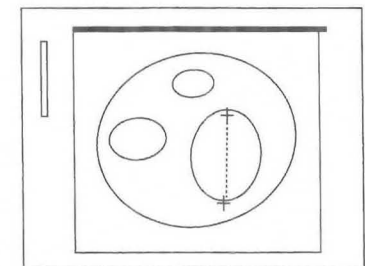
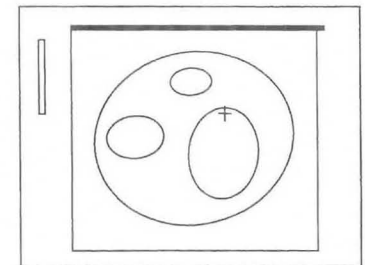
<When 2-Caliper is selected on the Preset>

- ① Press the **MEASUREMENT** switch, and select **FOL-1**.
 →The "+" mark appears at the center of the screen.
- ② Measure the length of a follicle.
 →Using the trackball, move the "+" mark to the starting point of measurement.
- ③ Press the **MARK REF** switch.
 →The "+" mark divides into a large mark and a small mark. The large mark is movable. Move the large mark to the end point of measurement.
- ④ Press the **MARK REF** switch again.
 →The "+" mark for the other axis appears. Perform measurement using the same operation as for the first axis.
- ⑤ Measure the length of another follicle.
 →Press the "×2" switch on the touch panel. Perform measurement using the same operation as for the "+" mark.

[Remark]

Another caliper mark appears by pressing the SET switch or the caliper mark switch. The length of another follicle can be measured even when the width of the first follicle is not measured.

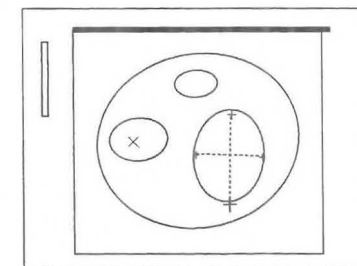
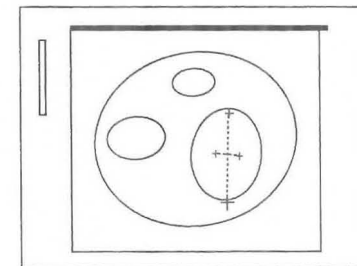
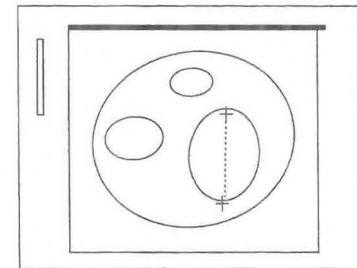
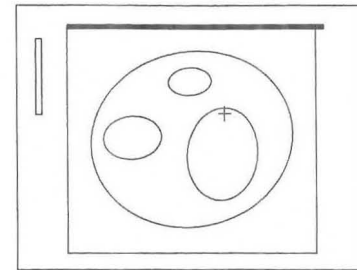
- ⑥ If the measured data is correct, press the Enter Report on the touch panel to transfer the data displayed on the screen to the report.
- ⑦ Upon completion of measurement, select **Exit** to return to the measurement menu.



16-8. Measuring Follicle Size

<When Cross-Caliper is selected on the Preset>

- ① Press the **MEASUREMENT** switch, and select **FOL-1**.
→The "+" mark appears at the center of the screen.
- ② Measure the length of a follicle.
→Using the trackball, move the "+" mark to the starting point of measurement.
- ③ Press the **MARK REF** switch.
→The "+" mark divides into a large mark and a small mark. The large mark is movable. Move the large mark to the end point of measurement.
- ④ Press the **MARK REF** switch again.
→The "+" mark for the other axis appears at the middle of the first axis.
- ⑤ Using the trackball, measure the width of the follicle.
[Remark]
The movable mark can be switched over by pressing the **MARK REF** switch.
- ⑥ Measure the length of another follicle.
→Press the "×2" switch on the touch panel.
Perform measurement using the same operation as for the "+" mark.



[Remark]

Another caliper mark appears by pressing the **SET** switch or the caliper mark switch. The length of another follicle can be measured even when the width of the first follicle is not measured.

- ⑦ If the measured data is correct, press the Enter Report on the touch panel to transfer the data displayed on the screen to the report.
- ⑧ Upon completion of measurement, select **Exit** to return to the measurement menu.

<Rt/Lt Follicle measurement result display>

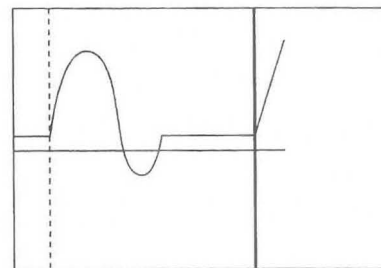
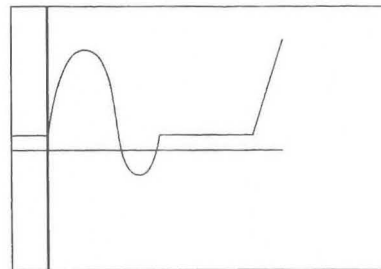
FOL-1:1 axis		FOL-1:2 axis		FOL-2:1 axis		FOL-2:2 axis	
Lt. Follic.	Lt. Follic.	Lt. Follic.	Lt. Follic.	Lt. Follic.	Lt. Follic.	Lt. Follic.	Lt. Follic.
+1: cm	+1: cm	+1: cm	+1: cm	+1: cm	+1: cm	+1: cm	+1: cm
X2: cm	X2: cm	X2: cm	X2: cm	X2: cm	X2: cm	X2: cm	X2: cm
÷3: cm	÷3: cm	÷3: cm	÷3: cm	÷3: cm	÷3: cm	÷3: cm	÷3: cm
×4: cm	×4: cm	×4: cm	×4: cm	×4: cm	×4: cm	×4: cm	×4: cm
+5: cm	+5: cm	+5: cm	+5: cm	Rt. Follic.	+5: cm	+5: cm	+5: cm
X6: cm	X6: cm	X6: cm	X6: cm	+5: cm	X6: cm	X6: cm	X6: cm
÷7: cm	÷7: cm	÷7: cm	÷7: cm	÷7: cm	÷7: cm	÷7: cm	÷7: cm
×8: cm	×8: cm	×8: cm	×8: cm	×8: cm	×8: cm	×8: cm	×8: cm
	+5: cm		+5: cm				
			cm				
	X6: cm		cm			Rt. Follic.	
			cm			+1: cm	
	÷7: cm		cm			cm	
			cm			cm	
	×8: cm		cm			X2: cm	
			cm			cm	
			cm			cm	
						÷3: cm	
						cm	
						×4: cm	
						cm	
						cm	

16-9. Measuring Blood Flow Through the Uterine Artery

There are two methods of measuring blood flow through the uterine artery, a method in which the region of the Doppler pattern to be measured is specified, the Doppler pattern automatically traced and the resulting data computed, and a method in which the manual trace function is selected, the Doppler pattern traced using the trackball and the resulting data computed.

<When auto tracing is used>

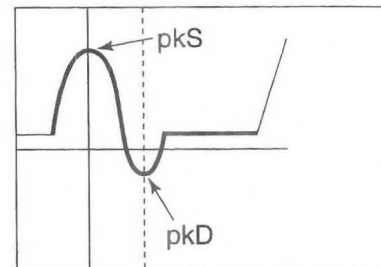
- ① Press the **MEASUREMENT** switch, and select **Uterus**.
→ A solid line cursor appears at the center of the screen to enable the trace range to be determined.
- ② Using the trackball, move the solid line cursor to the starting point of measurement, then press the **MARK REF** switch.
→ The solid line cursor changes to a broken line, and also a movable solid line cursor appears.
- ③ Using the trackball, move the separated solid line cursor to the end point of measurement.



[Remark]

The solid line cursor does not move to the left of the broken line cursor.

- ④ Once the tracing range has been determined, press the **MARK REF** switch.
→ Tracing starts, and when the trace is completed the results of measurement are displayed.
The peak lines that indicate pkS and pkD appear.



[Remark]

A detection error sometimes occurs, so correct the position of the peak lines using the trackball.

You can move the solid line cursor, so press the **MARK REF** switch and change over pkS and pkD.

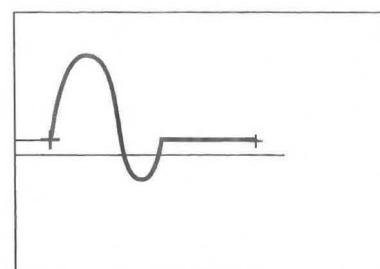
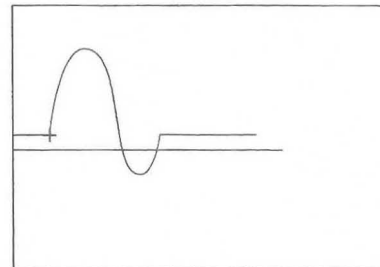
- ⑤ Upon completion of tracing, the measured results are displayed.
- ⑥ If you press the **SET** switch, the **[ENTER]** area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.
- ⑦ Upon completion of measurement, select **Exit** to return to the measurement menu.

16-9. Measuring Blood Flow Through the Uterine Artery

<When manual tracing is used>

If satisfactory results cannot be obtained using auto tracing, carry out manual tracing.

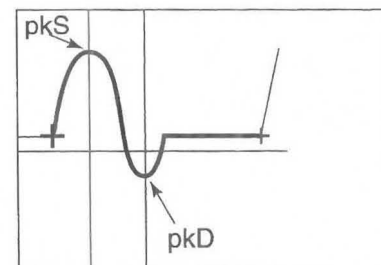
- ① Once again press the "+" switch.
→ The "+" mark appears at the center of the screen.
- ② Using the trackball, move the "+" mark to the starting point of the trace.
- ③ Press the **MARK REF** switch.
→ The "+" mark is fixed at the starting point. If you move the trackball, a movable bright line appears.
- ④ Using the trackball, trace the Doppler waveform.



[Remark]

If you turn the rotary encoder counterclockwise, the trace will disappear a little at a time, enabling you to make correction. To repeat measurement from the beginning, press the "+" mark, then repeat the above procedure from step ②.

- ⑤ Using the trackball, move the bright line to the end point of the trace, then press the **MARK REF** switch.
Peak lines that indicate pkS and pkD appear.
- ⑥ Using the trackball, set pkS and pkD.
→ You can move the solid line cursor, so press the **MARK REF** switch and change over pkS and pkD.
- ⑦ If you press the **SET** switch, the [ENTER] area is highlighted.
If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.
- ⑧ Upon completion of measurement, select **Exit** to return to the measurement menu.



16-9. Measuring Blood Flow Through the Uterine Artery

<Uterus measurement result display>

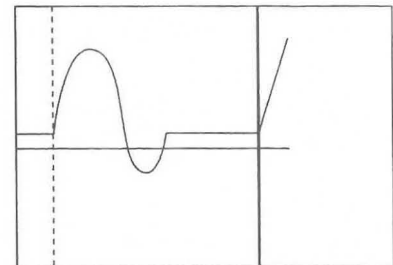
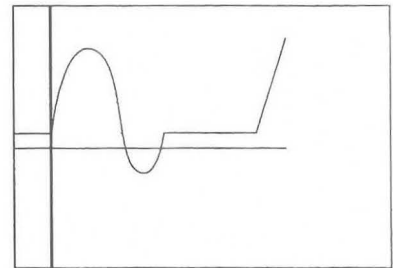
Uterus				
PI:	RI:	S/D:		PI : Pulsatility Index
pkS:	cm/s	pkD:	cm/s	RI : Resistance Index
AVG:	cm/s	[ENTER]		S/D : Ratio of systolic to diastolic flow velocity
				pkS : Flow velocity at peak systole
				pkD : Flow velocity at peak diastole
				AVG : Average flow velocity

16-10. Measuring Blood Flow Through the Ovarian Artery

There are two methods of measuring blood flow through the ovarian artery, a method in which the region of the Doppler pattern to be measured is specified, the Doppler pattern automatically traced and the resulting data computed, and a method in which the manual trace function is selected, the Doppler pattern traced using the trackball and the resulting data computed.

<When auto tracing is used>

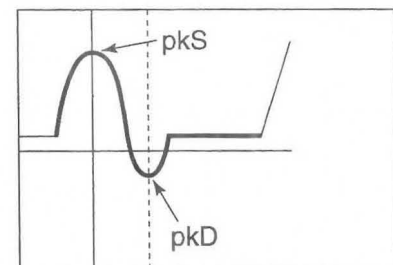
- ① Press the **MEASUREMENT** switch, and select **Rt/Lt Ovary**.
→ A solid line cursor appears at the center of the screen to enable the trace range to be determined.
- ② Using the trackball, move the solid line cursor to the starting point of measurement, then press the **MARK REF** switch.
→ The solid line cursor changes to a broken line, and also a movable solid line cursor appears.
- ③ Using the trackball, move the separated solid line cursor to the end point of measurement.



[Remark]

The solid line cursor does not move to the left of the broken line cursor.

- ④ Once the tracing range has been determined, press the **MARK REF** switch.
→ Tracing starts, and when the trace is completed the results of measurement are displayed.
The peak lines that indicate pkS and pkD appear.



[Remark]

A detection error sometimes occurs, so correct the position of the peak lines using the trackball. You can move the solid line cursor, so press the **MARK REF** switch and change over pkS and pkD.

- ⑤ Upon completion of tracing, the measured results are displayed.
- ⑥ If you press the **SET** switch, the [ENTER] area is highlighted. If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.
- ⑦ Upon completion of measurement, select **Exit** to return to the measurement menu.p

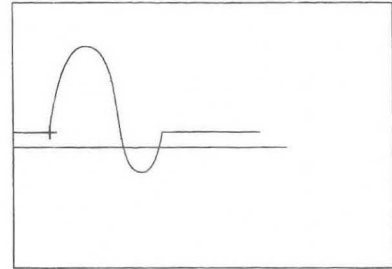
16-10. Measuring Blood Flow Through the Ovarian Artery

<When manual tracing is used>

If satisfactory results cannot be obtained using auto tracing, carry out manual tracing.

- ① Once again press the "+" switch.

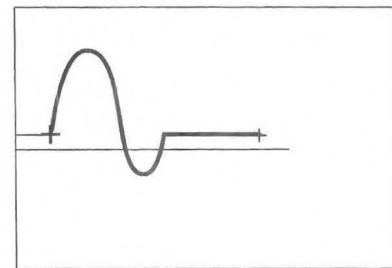
→ The "+" mark appears at the center of the screen.



- ② Using the trackball, move the "+" mark to the starting point of the trace.

- ③ Press the **MARK REF** switch.

→ The "+" mark is fixed at the starting point. If you move the trackball, a movable bright line appears.

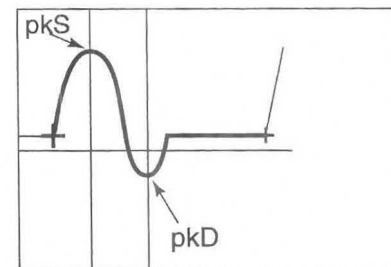


- ④ Using the trackball, trace the Doppler waveform.

[Remark]

If you turn the rotary encoder counterclockwise, the trace will disappear a little at a time, enabling you to make correction. To repeat measurement from the beginning, press the "+" mark, then repeat the above procedure from step ②.

- ⑤ Using the trackball, move the bright line to the end point of the trace, then press the **MARK REF** switch.
Peak lines that indicate pkS and pkD appear.



- ⑥ Using the trackball, set pkS and pkD.

→ You can move the solid line cursor, so press the **MARK REF** switch and change over pkS and pkD.

- ⑦ If you press the **SET** switch, the [ENTER] area is highlighted.

If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

- ⑧ Upon completion of measurement, select **Exit** to return to the measurement menu.

16-10. Measuring Blood Flow Through the Ovarian Artery

<Rt/Lt Ovary Measurement result display>

Rt/Lt Ovary

PI: **RI:** **S/D:**
pkS: **cm/s** **pkD:** **cm/s**
AVG: **cm/s** **[ENTER]**

PI : Pulsatility Index

RI : Resistance Index

S/D : Ratio of systolic to diastolic flow velocity

pkS : Flow velocity at peak systole

pkD : Flow velocity at peak diastole

AVG : Average flow velocity

16-11. Report Display

This area is used to arrange and display each index value and the average value for gynecological measurements, as well as related patient data, on the display screen.

You can observe the contents of a report by pressing the **REPORT** switch.

By pressing the **REPORT** switch, the following patient data page is displayed.

<Entering patient data>

You can enter patient data in advance in the report area.

```

GYNECOLOGY Report page
Exam. date : '99/04/01
Patient ID : ██████████
Name :
Age :   years (YYYY/MM/DD)
Referring MD :
Reason for Study :
Reporting MD :
Sonographer :

LMP : 'YY/MM/DD
Gravida :
Para :
Abortus :
Ectopic :

--- COMMENTS ---
    
```

You can display and enter the following items.

1. Exam.Date : The date of the ultrasound examination is automatically entered by the internal timer.
2. Patient ID : Enter the patient's ID No.
3. Name : Enter the name of the patient.
4. Age : Enter the age and date of birth of the patient.
5. Referring MD : Enter the name of the physician who requested the examination.
6. Reason for Study : Enter the reason for the examination.
7. Reporting MD : Enter the name of the physician who made the report.
8. Sonographer : Enter the name of the examiner.
9. LMP (BBT, EGA) : Enter data related to the pregnancy of the patient, such as the last menstrual period.
10. Gravida, Para, Abortus, Ectopic : Enter data related to the patient's pregnancy history.
11. Comment : Enter comments from the keyboard.

<Operation procedure>

- ① Enter the patient data, then carry out measurement.
- ② Press the **REPORT** switch.
 → The header page of the report is displayed.
- ③ To select the next page, select **Next Page**.
 To select the previous page, select **Pre Page**.

<Items displayed on each page>

Header page for gynecological report

Displays the patient data page.

```

  _____ GYNECOLOGY Report Page _____
  Exam. date : '99/04/01
  Patient ID :
  Name :
  Age :          years (YYYY/MM/DD)
  Referring MD :
  Reason for Study :
  Reporting MD :
  Sonographer :

  _____
  LMP : 'YY/MM/DD
  Gravida :
  Para :
  Abortus :
  Ectopic :

  _____
  - - - Comments - - -
  
```

Page for B mode measurement items

Displays data that was measured using a B mode image, and also computed data.

```

  _____ GYNECOLOGY Report Page _____
  Exam. date: '99/04/01
  Patient ID:
  Name:

  _____
  LMP : 'YY/MM/DD   Gravida :   Para :
                   Abortus :   Ectopic:

  _____
  <Uterus> Volume(cc):
  Length(mm) :      AP(mm) :      Width(mm) :
  Endometrial Thickness(mm) :
  Position :
  <Cervix>
  Length(mm) :      AP(mm) :      Width(mm) :
  <Comments>

  _____
  - - - Right - - -Ovaries- - - Left - - -
  Length (mm):      Length (mm):
  AP (mm):          AP (mm):
  Width (mm):       Width (mm):
  Volume (cc):      Volume (cc):
  Tubes :
  <Comments>
  
```

16-11. Report Display

Spectrum Doppler measurement item page

Displays data that was measured using a Doppler spectrum image, and also computed data.

GYNECOLOGY Report Page						
Exam. date: '99/04/01						
Patient ID:						
Name:						
LMP : 'YY/MM/DD		Gravida:		Para :		
		Abortus:		Ectopic:		
<GYN Doppler>						
	PI	RI	S/D	pkS	pkD	AVG
				(cm/s)	(cm/s)	(cm/s)
Uterine :						
Rt. Ovary :						
Lt. Ovary :						
Other 1 :						
Other 2 :						
Other 3 :						
<Comments>						

Measured result edit page (1/2)

Displays all B mode image measured data on an edit screen.

GYNECOLOGY Edit Page						
Exam. date: '99/04/01						
Patient ID:						
Name:						
LMP : 'YY/MM/DD		Gravida:		Para :		
		Abortus:		Ectopic:		
- Uterus -						
	AVG.	1	2	3	4	
UT-L :	mm					
UT-AP :	mm					
UT-W :	mm					
- Endometrium -						
	AVG.	1	2	3	4	
Endome :	mm					
- Cervix -						
	AVG.	1	2	3	4	
CV-L :	mm					
CV-AP :	mm					
CV-W :	mm					

Measured result edit page (2/2)

Displays all B mode image measured data on an edit screen.

GYNECOLOGY Edit Page						
Exam. Date: '99/04/01						
Patient ID:						
Name:						
LMP : 'YY/MM/DD		Gravida:		Para :		
		Abortus:		Ectopic:		
- Right Ovary -						
	AVG.	1	2	3	4	
OV-L :	mm					
OV-AP :	mm					
OV-W :	mm					
- Left Ovary -						
	AVG.	1	2	3	4	
OV-L :	mm					
OV-AP :	mm					
OV-W :	mm					

17. Peripheral Vessel Measurements

You can compute % stenosis of blood vessels in the neck, upper extremities and lower extremities, from the diameter and area of each blood vessel, and also compute the flow velocity ratio and flow volume from the blood flow Doppler velocity obtained by Doppler measurement.

These measurements can be done on the following blood vessels.

1. Neck Study

You can measure flow velocity and flow velocity ratio for the following blood vessels, for each of left and right sides of the body, during both the systole and the diastole.

CCA (Common Carotid Artery)

Divided into Proximal CCA and Distal CCA according to the measurement point.

The artery nearer the heart is the Proximal CCA, and that farther from the heart is the Distal CCA.

BIFUR. (Bifurcation)

The point where the common carotid artery divides into the internal carotid artery and the external carotid artery is called a bifurcation.

ICA (Internal Carotid Artery)

ECA (External Carotid Artery)

VERT (Vertebral Artery)

S/D Ratio (Can be used freely for blood vessels other than the above.)

2. Upper Extremity Study

You can compute the flow volume and also the indexes such as PI, RI, and so on, from the flow velocity and blood vessel diameter, for each of the left and right blood vessels, during both the systole and the diastole.

3. Lower Extremity Study

Like the upper extremity study, you can compute the flow volume and also the indexes such as PI, RI, and so on, from the flow velocity and blood vessel diameter, for each of the left and right blood vessels, during both the systole and the diastole.

4. % Stenosis Study

You can compute the % stenosis from distance measurement or area measurement.

This section consists of 36 pages.

17-1. Description of Measurement Items to be Computed and Indexes

17-1 Description of Measurement Items to be Computed and Indexes

The items for peripheral vessel measurement (hereafter called PV measurement) that are contained in the equipment are as follows.

<Neck Artery>

■ Measurement table

Menu name		Measurement item name	Parameter to be computed	Applicable screen
D.CCA	Distal Common Carotid Artery	D.CCApk D.CCAed	S/D Ratio=D.CCApk/D.CCAed If ICA has been computed, Ratio=ICA/D.CCA	D-mode
P.CCA	Proximal Common Carotid Artery	P.CCApk P.CCAed	S/D Ratio=P.CCApk/P.CCAed If ICA has been computed, Ratio=ICA/P.CCA	D-mode
BIFUR.	Bifurcation	BIFURpk BIFURed	S/D Ratio=BIFURpk/BIFURed	D-mode
ICA	Internal Carotid Artery	ICApk ICAed	S/D Ratio=ICApk/ICAed	D-mode
ECA	External Carotid Artery	ECApk ECAed	S/D Ratio=ECApk/ECAed	D-mode
VERT	Vertebral Artery	VERTpk VERTed	S/D Ratio=VERTpk/VERTed	D-mode
ES/D Ratio	Systolic/Diastolic Ratio	PkS PkD	S/D Ratio=Pks/PkD	D-mode

17-1. Description of Measurement Items to be Computed and Indexes

■ Meaning of measurement item names

Measurement item name		Meaning
D.CCApk	Distal CCA peak Systolic Velocity	Peak systolic velocity on Doppler pattern of distal common carotid artery
D.CCAed	Distal CCA peak Diastolic Velocity	End diastolic velocity on Doppler pattern of distal common carotid artery
P.CCApk	Proximal CCA peak Systolic Velocity	Peak systolic velocity on Doppler pattern of proximal common carotid artery
P.CCAed	Proximall CCA peak Diastolic Velocity	End diastolic velocity on Doppler pattern of proximal common carotid artery
BIFURpk	Bifurcation peak Systolic Velocity	Peak systolic velocity on Doppler pattern of bifurcation
BIFURed	Bifurcation peak Diastolic Velocity	End diastolic velocity on Doppler pattern of bifurcation
ICApk	ICA peak Systolic Velocity	Peak systolic velocity on Doppler pattern of internal carotid artery
ICAed	ICA peak Diastolic Velocity	End diastolic velocity on Doppler pattern of internal carotid artery
ECApk	ECA peak Systolic Velocity	Peak systolic velocity on Doppler pattern of external carotid artery
ECAed	ECA peak Diastolic Velocity	End diastolic velocity on Doppler pattern of external carotid artery
VERTpk	VERT peak Systolic Velocity	Peak systolic velocity on Doppler pattern of vertebral artery
VERTed	VERT peak Diastolic Velocity	End diastolic velocity on Doppler pattern of vertebral artery
Pks	peak Systolic Velocity	Peak systolic velocity on Doppler pattern
Pkd	peak Diastolic Velocity	End diastolic velocity on Doppler pattern

17-1. Description of Measurement Items to be Computed and Indexes

<Upper/Lower Extremity Study>

■ Measurement table

Menu name		Measurement item name	Parameter to be computed	Applicable image
Upper EXTERM.	Upper Extremity (automatic computation)	PSV CSA	EDV, MVEL, VTI (automatic computation) PI= PSAV-EDV /MVEL RI= PSAV-EDV /PSV SV=CSA × VTI FV=MVEL × CSA × 60sec	D-mode
Lower EXTERM.	Lower Extremity (automatic computation)	PSV CSA	EDV, MVEL, VTI (automatic computation) PI= PSAV-EDV /MVEL RI= PSAV-EDV /PSV SV=CSA × VTI FV=MVEL × CSA × 60sec	D-mode

■ Meaning of measurement item name

Measurement item name		Meaning
PSV	Peak Systolic Velocity	Peak systolic velocity on Doppler pattern
EDV	End Diastolic Velocity	End diastolic velocity on Doppler pattern
MVEL	Mean Velocity	Mean flow velocity
VTI	Velocity Time Integral	Velocity time integral
CSA	Cross Sectional Area	Cross-sectional area

< %Stenosis Study >

■ Measurement table

Menu name		Measurement item name	Parameter to be computed	Applicable image
%STENO A.	%Stenosis Area (% stenosis (area measurement))	Vessell Residual	%STENO A=(Vessel area-Residual area) / Vessel Area × 100	B-mode
%STENO D.	%Stenosis Diameter (% stenosis (distance measurement))	Vessell Residual	%STENO D=(Vessel diameter-Residual diameter) / Vessel Diameter × 100	B-mode

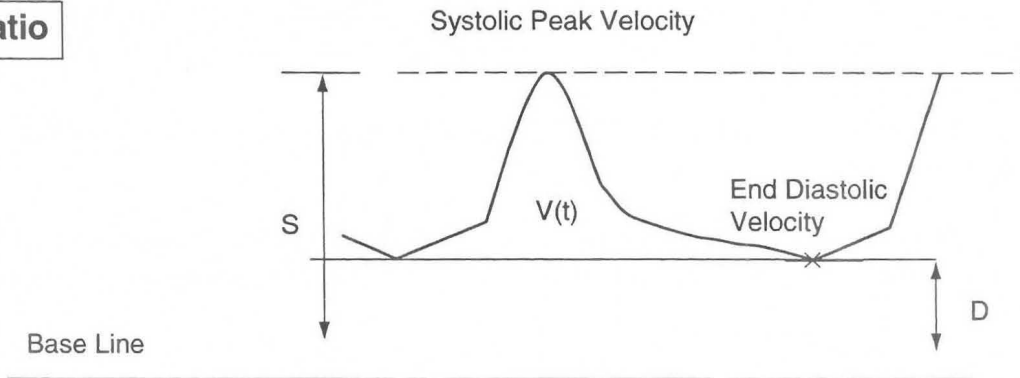
■ Meaning of measurement item name

Measurement item name		Meaning
Vessel Residual	Vessel cross sectional area (or Distance) Residual cross area (or Distance)	Cross-sectional area (or diameter) of blood vessel at normal part Cross-sectional area (or diameter) of blood vessel at stenosis

17-1. Description of Measurement Items to be Computed and Indexes

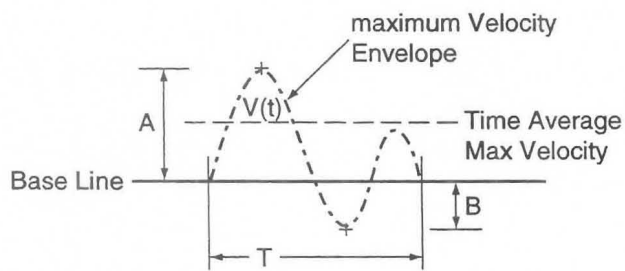
■ Example of measurement method

S/D Ratio



$$S/D \text{ Ratio} = | \text{Systolic Peak Velocity} / \text{End Diastolic Peak Velocity} |$$

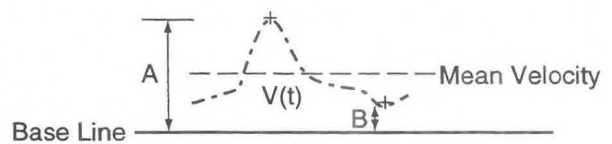
P.I.



$$\text{Time Mean Velocity} = | \int V(t) dt / T |$$

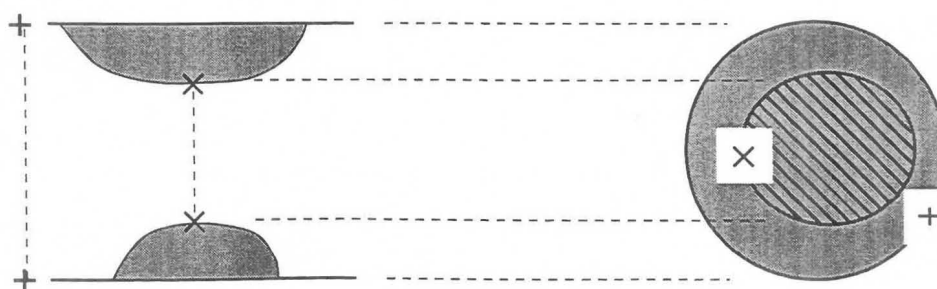
$$P.I. = | (A-B) / \text{mean} |$$

R.I.



$$R.I. = | (A-B) / A |$$

%STENO A , %STENO D



+ : A mm ← Vessel (Original lumen)
 × : B mm ← Residual (Real lumen)

+ : C cm² ← Vessel (Original lumen)
 × : D cm² ← Residual (Real lumen)

$$\%STENO D = (A - B) / A \times 100$$

$$\%STENO A = (C - D) / C \times 100$$

17-2. Making Settings Using the Preset Function (PV-Program)

You can perform various setting work such as assigning the method of inputting computation formula, computation items and comments, report display items, and measurement menus, using the Preset function.

Carry out setting work using PV-Program and Menu Control of the Preset function. (PV means Peripheral Vessel.)

Menu Control permits you to assign a measurement menu that can be called by the MEASUREMENT switch, and also to register USER switches. For the setting method refer to 11-7 "Preset".

The following is a description of PV-Program.

- **PV-Program** is used to select the parameters to be displayed in the measurement results and measurement report, and also to select tools for performing flow velocity and trace measurement.

You can make the following settings.

1. Neck Study

Here, settings are made for each of the CCA, ICA, ECA, BIFUR, VERT and S/DRATIO measurements. The "Setup Measured items" and "Setup Formula Trace form" functions are available.

Setup Measured items: You can select parameters for each measurement (excluding S/D Ratio).

Setup Trace form: You can select a flow velocity measurement mark for each measurement.

2. Setup Upper Extremity Study

Here, Upper EXTREM. measurement is carried out.

Setup Measure items: You can select measurement parameters.

CSA measurement method: You can select the CSA (blood vessel cross-sectional area) measurement method.

3. Setup Lower Extremity Study

In this study, Lower EXTREM. measurement settings are made.

Setup Measured items: You can select measurement parameters.

CSA measurement method: You can select the method of measuring CSA (blood vessel cross-sectional area)

4. Setup % Stenosis

Here, the % STENO A measurement method is set.

5. Setup Report Function

Here, settings related to Report Page and Edit Page of the PV report are made.

6. Formed Comment

Here, titles and comments that appear in the report are registered.

[Remark]

Formed Comment is a function that registers the titles and selections (comment list) in the Remarks box on the patient information page of the report.

A comment list can be used to advantage by registering in it remarks written on the patient's chart. You can freely use the comment list for other items as well.

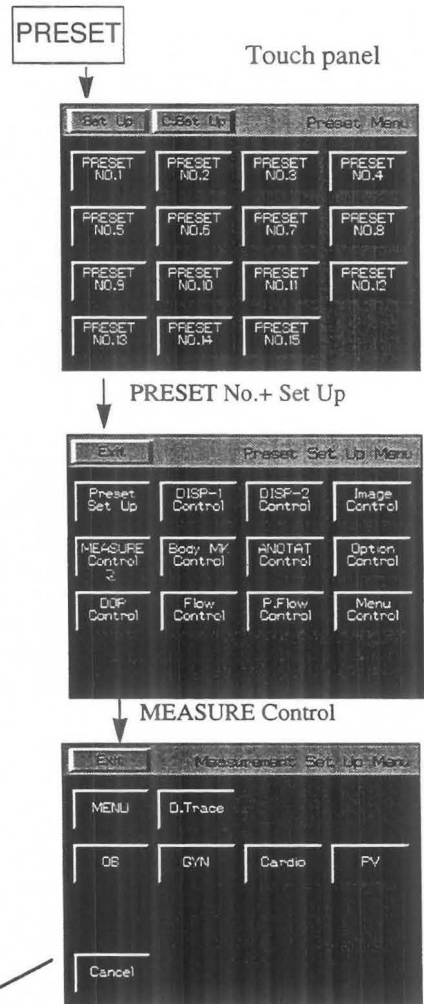
17-2. Making Settings Using the Preset Function (PV-Program)

17-2-1. PV-Program

PV-Program is used to select parameters used for measurement and also to select parameters to be displayed in a report.

Open the PV-Program page using the following procedure.

- ① Press the **PRESET** switch, select Preset No. to be changed, then select **Set Up**.
- ② Select **MEASURE Control**.
- ③ To change PV-Program, select **PV**.
→ The screen changes to the PV-Program page.



[Peripheral Vascular Measurement Program]
Preset Name [Carotid]

Application [PV]

- 1. Setup Carotid Study
- 2. Setup Upper Extremity Study
- 3. Setup Lower Extremity Study
- 4. Setup %stenosis
- 5. Setup REPORT Function
- Formed Comment

Use <TRACKBALL> and <SET> key for the selection.

Select when you wish to select items to be displayed in the measurement results or the measurement method.

1. Setting CCA, ICA, ECA, BIFUR, VERT, and S/D Ratio measurement
2. Setting Upper EXTREM measurement
3. Setting Lower EXTREM measurement
4. Setting % STENO A

Select when you wish to change the Report page of a PV report or an Editsetting.

Select when you wish to change the contents of Formed Comment.

17-2. Making Settings Using the Preset Function (PV-Program)

- ④ Move the arrow to the desired item, and press the **SET** switch.
 → The screen that appears when each item is selected is shown below.

When "1. Setup Carotid Study" is selected

```

-----
Contents of Carotid Study Measurement Program
-----

1.Setup Measured items
2.Setup Formula Trace form

[Confirm]
Confirm: SET key

-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

When "2. Setup Upper Extremity Study" is selected

```

-----
Upper Extremity Study Measurement Program
-----
[Initialize] [Program]
-----

1.Select Measured items
Peak Sys VEL. [ON] [OFF]
End Dias VEL. [ON] [OFF]
Mean VEL. [ON] [OFF]
VTI [ON] [OFF]
PI [ON] [OFF]
RI [ON] [OFF]
Stroke VOL [ON] [OFF]
Flow VOL [ON] [OFF]

2.Select Formula Trace From
<CSA> [Diam.] [Trace] [Ellipse]

[Cancel ]
[Confirm]

-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

When "3. Setup Lower Extremity Study" is selected

```

-----
Lower Extremity Study Measurement Program
-----
[Initialize] [Program]
-----

1.Select Measured items
Peak Sys VEL. [ON] [OFF]
End Dias VEL. [ON] [OFF]
Mean VEL. [ON] [OFF]
VTI [ON] [OFF]
PI [ON] [OFF]
RI [ON] [OFF]
Stroke VOL [ON] [OFF]
Flow VOL [ON] [OFF]

2.Select Formula Trace From
<CSA> [Diam.] [Trace] [Ellipse]

[Cancel ]
[Confirm]

-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

When "4. Setup %Stenosis" is selected

```

-----
%Stenosis Measurement Program
-----
[Initialize] [Program]
-----

1.Select Formula Trace From
<%STENO Area>
[Diam.] [Trace] [Ellipse]

[Cancel ]
[Confirm]

-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

17-2. Making Settings Using the Preset Function (PV-Program)

When "5. Setup REPORT Function" is selected

```

-----
Vascular Study Report SETUP Program
-----
[Initialize]      [Program]
-----
1.Report Display Page Setup

Header            ON
Carotid Artery   [ON ] [OFF]
VERT., BIFUR. & S/D [ON ] [OFF]
%Stenosis        [ON ] [OFF]
Upper Extremity  [ON ] [OFF]
Lower Extremity  [ON ] [OFF]

                                [Cancel ]
                                [Confirm]
-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

When "Formed Comment" is selected

```

-----
Formed Comment
-----
[Initialize] [Program] [ Cancel] [ Confirm]
-----
Format      Left      Right      Left      Right
            P : S      P : S      P : S      P : S
1[H] [11:12] [11:12] 1[H] [11:12] [11:12]
2[H] [11:12] [11:12] 1[H] [11:12] [11:12]
3[H] [11:12] [11:12] 1[H] [11:12] [11:12]
4[H] [11:12] [11:12] 1[H] [11:12] [11:12]
5[H] [11:12] [11:12] 1[H] [11:12] [11:12]
-----
Formed Comment Area
...5...0...5...0...5...0...5...0...5...
...5...0...5...0...

1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9 10
-----
Use <TRACKBALL> and <SET> key for the selection.
    
```

17-2-2 Setting 1. Setup Carotid Study

- ① Select **1. Setup Carotid Study**.
→ The screen changes as follows.

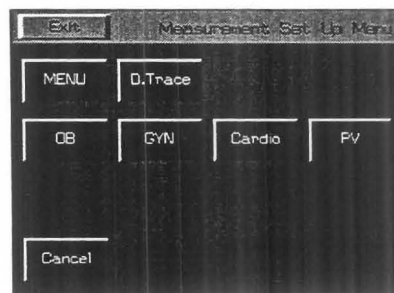
```

-----
Contents of Carotid Study Measurement Program
-----

1.Set up Measured items
2.Set up Formula Trace Form

                                [Cancel ]
                                Confirm: SET key
-----
use <TRACKBALL> and <SET> key for the selection.
    
```

Contents of measurement menu on touch panel



Exit :
The Preset Set Up screen re-appears.

Cancel :
The previous screen re-appears.

- ② Move the arrow to **1. Set up Measured items** or **2. Set up Formula Trace Form**, then press the **SET** switch.
→ You can change the contents of each item.

17-2. Making Settings Using the Preset Function (PV-Program)

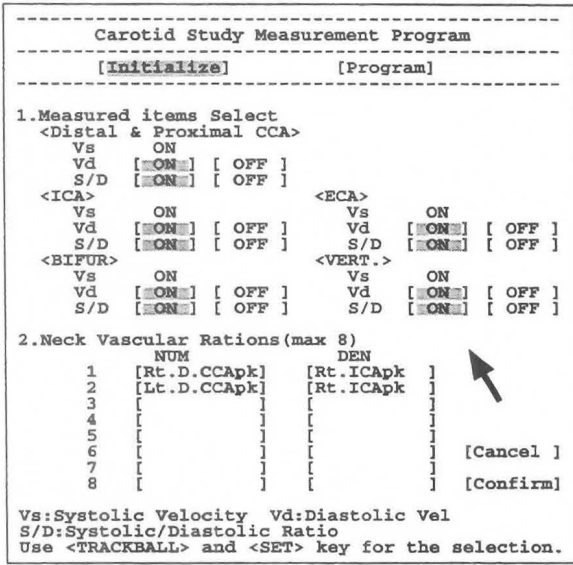
(1) Setting "Set up Measured items"

You can delete items that are not measured so that they do not appear on the measurement result screen or the report screen.

The items that can be deleted differ according to each measurement.

- ① Select **1. Set up Measured items**.

→ The screen changes as follows.



The meanings of the abbreviations are displayed at the bottom of the screen.

Vs: Systolic Velocity
 (= Systolic velocity for each measurement)

Vd: Diastolic Velocity
 (= Diastolic velocity for each measurement)

S/D: Systolic/Diastolic Ratio
 (= S/D Ratio for each measurement)

Of the above, Vd and S/D can be erased so that they do not appear on the screen.

Using 1. Measurement item Select, select the items that you wish to display on both the measurement result screen and the report screen. If the [OFF] status is highlighted, the item will not be displayed.

- ② If you wish to change the status of a set item, move the arrow to [] alongside that item, then press the **SET** switch.

→ The **Program** status is automatically activated.

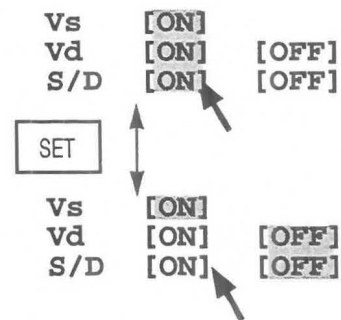
Items whose [ON] status is highlighted are the items displayed in the current measurement results.

- ③ Move the arrow to the item that you do not wish to display, then press the **SET** switch.

→ The highlight display moves to the [OFF] status, and the selected item is not displayed on the measurement result screen.

- ④ Press the **SET** switch.

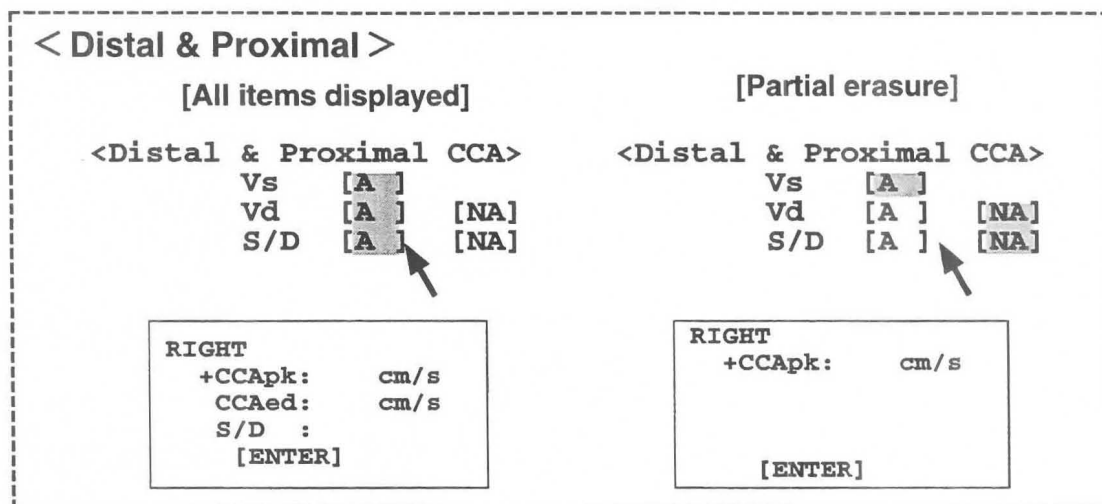
→ The highlight display returns to the [ON] status.



17-2. Making Settings Using the Preset Function (PV-Program)

[Remark]

You cannot select or deselect [Vs]. [S/D] and [Vd] are selected as a pair, so if you change [S/D], [Vd] will also change. (Likewise, if you change [Vd], [S/D] will also change.)



2. Neck Vascular Ratios enables you to select up to 8 Ratio formulas displayed on the Carotid Page in the report.

- ⑤ Move the arrow to the desired [] in the NUM column, then press the **SET** switch.
 - The measurement items that can be registered appear on the right side
- ⑥ Turn the rotary switch to move the highlight display, then press the **SET** switch.
 - The item in the selected [] is registered.
- ⑦ Next, move the arrow to the DEN column, and carry out steps ⑤ and ⑥.

```

Peak Sys V
Right
  D.CCApk
  P.CCApk
  ICAPk
  ECApk
Left
  D.CCApk
  P.CCApk
  ICAPk
  ECApk

End Dias
Right
  D.CCApk
  P.CCApk
  ICAPk
  ECApk
Left
  D.CCApk
  P.CCApk
  ICAPk
  ECApk

[Cancel]
[Clear ]
    
```

17-2. Making Settings Using the Preset Function (PV-Program)

<Report display position>

(Example)

NUM	DEN
1 [Rt.ICApk]	[Rt.ICAed]
2 [Rt.ECApk]	[Rt.ECAed]
3 [Lt.ICApk]	[Rt.ICApk]

If you make the following settings, this report screen will appear.

Peripheral Vascular Report			
Exam.Date: 'YY/MM/DD			
Patient ID:			
Carotid Artery Study			
RIGHT		LEFT	
ECA (m/s)	ICA (m/s)	ECA (m/s)	ICA (m/s)
Vs :	Vs :	Vs :	Vs :
Vd :	Vd :	Vd :	Vd :
S/D:	S/D:	S/D:	S/D:
BIFUR. (m/s)	Vd :	BIFUR. (m/s)	Vd :
Vs :	S/D:	Vs :	S/D:
Vd :	Vs :	Vd :	Vs :
S/D:	Vd :	S/D:	Vd :
	S/D:		S/D:
Distal Proximal		Distal Proximal	
CCA (m/s)		CCA (m/s)	
Vs :	Vs :	Vs :	Vs :
Vd :	Vd :	Vd :	Vd :
S/D:	S/D:	S/D:	S/D:
Ratio			
Rt.ICApk	/Rt.ICAed:	Rt.ECApk	/Rt.ECAed:
Lt.ICApk	/Rt.ICApk:	/	/
/	:	/	:
/	:	/	:
---Comments---			

⑤ If you do not wish to set anything, either select **Cancel** on the touch panel, or move the arrow to [Cancel], then press the **SET** switch.

⑥ Once you have completed all settings, move the arrow to [**Confirm**], then press the **SET** switch.

→ The display returns to the **Contents of PV Measurement Program** screen.

If you do not carry out this step, the previous data will remain.

(2) Setting Set up Formula Trace Form

Select the mark to be displayed during flow velocity measurement, and also the method of performing %STENO A area measurement.

① Select **Set up Formula Trace Form**.

→ The screen changes as follows.

Carotid Study Measurement Program				
[Initialize]		[Program]		
1.Select Formula of Trace From				
<CCA>	[D.Trace]	[Bar]	[Point]	[Cross]
<ICA>	[D.Trace]	[Bar]	[Point]	[Cross]
<ECA>	[D.Trace]	[Bar]	[Point]	[Cross]
<BIFUR.>	[D.Trace]	[Bar]	[Point]	[Cross]
<VERT.>	[D.Trace]	[Bar]	[Point]	[Cross]
<S/D RATIO>	[D.Trace]	[Bar]	[Point]	[Cross]
				[Cancel]
				[Confirm]
Use <TRACKBALL> and <SET> key for the selection				

17-2. Making Settings Using the Preset Function (PV-Program)

[Remark]

Select Trace Form enables you to set the mark to be used for measurement and also the measurement method.

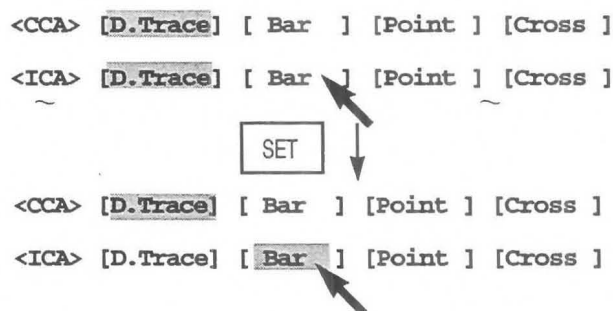
Select the method and one of the marks displayed using Peak VEL (flow velocity measurement).



* If you select D. trace, you can select whether to use auto trace or manual trace, for each measurement. For details, see the PRESET page.

- ② If you wish to change the status of each set item, move the arrow to the desired status, then press the **SET** switch.

- ③ If you move the arrow to the desired measurement mark or method, then press the **SET** switch, the highlight display will move to that item.



- ④ If you do not wish to set anything, either select **Cancel** on the touch panel, or move the arrow to [**Cancel**], then press the **SET** switch.
- ⑤ Once you have completed all settings, move the arrow to [**Confirm**], then press the **SET** switch.
 → The display returns to the **Contents of PV Measurement Program** screen.
 If you do not carry out this step, the previous data will remain.

17-2-3 Setting 2. Set up Upper Extremity Study, and 3. Set up Lower Extremity Study

The method of performing setting work for Upper Extremity Study and LowerExtremity Study is the same. The following procedure uses Upper Extremity Study as an example.

- ① Select **2. Set up Upper extremity Study**
 → The screen changes as follows.

17-2. Making Settings Using the Preset Function (PV-Program)

(Example of Lower Extremity Study)

Upper Extremity Study Measurement Program		
[Initialize]	[Program]	
1. Select Measured items		
Peak Sys VEL.	[ON]	[OFF]
End Dias VEL.	[ON]	[OFF]
Mean VEL.	[ON]	[OFF]
VTI	[ON]	[OFF]
PI	[ON]	[OFF]
RI	[ON]	[OFF]
Stroke VOL	[ON]	[OFF]
Flow VOL	[ON]	[OFF]
2. Select Formula Trace From		
<CSA>	[Diam.]	[Trace] [Ellipse]
		[Cancel]
		[Confirm]
Use <TRACKBALL> and <SET> key for the selection.		

Lower Extremity Study Measurement Program		
[Initialize]	[Program]	
1. Select Measured items		
Peak Sys VEL.	[ON]	[OFF]
End Dias VEL.	[ON]	[OFF]
Mean VEL.	[ON]	[OFF]
VTI	[ON]	[OFF]
PI	[ON]	[OFF]
RI	[ON]	[OFF]
Stroke VOL	[ON]	[OFF]
Flow VOL	[ON]	[OFF]
2. Select Formula of Trace From		
<CSA>	[Diam.]	[Trace] [Ellipse]
		[Cancel]
		[Confirm]
Use <TRACKBALL> and <SET> key for the selection.		

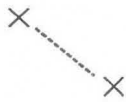
* The contents of the touch panel menu do not change.

- ② Using **1. Select Measured items**, select the items that you wish to display in the measurement results and the report screen.

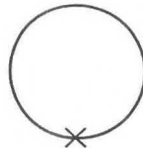
If the [ON] status of an item is highlighted, the item will be displayed. If the [OFF] status is highlighted, the item will not be displayed.

You can select the status of an item by moving the arrow to [ON] or [OFF], then pressing the **SET** switch.

- ③ **2. Select Formula of Trace Form** enables you to select the method of measuring the CSA (Cross Sectional Area).



Diam. (Same as basic measurement Dist.)
The value for distance measurement is obtained using the formula $\pi / 4 \times r^2$.



Trace (Same as Area Trace)
Used to obtain the area enclosed by the bright line.



Ellipse (Same as Area Ellipse)
Used to obtain the area of an ellipse from the two orthogonally intersecting

Move the arrow to the method that you wish to use, then press the **SET** switch.

- ④ If you do not wish to set anything, either select **Cancel** on the touch panel, or move the arrow to **[Cancel]**, then press the **SET** switch.

- ⑤ Once you have completed all settings, move the arrow to **[Confirm]**, then press the **SET** switch.

→ The display returns to the **Contents of PV Measurement Program** screen.

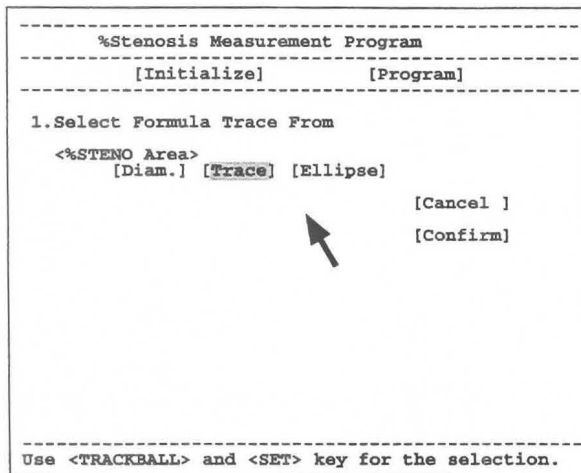
If you do not carry out this step, the previous data will remain.

17-2. Making Settings Using the Preset Function (PV-Program)

17-2-4. Setting Setup %Stenosis

Select the method of performing B mode %STENO A measurement.

- ① Select **4. Setup %Stenosis**.
→ The screen becomes as follows.



Select one of the following three measurement methods.

[Diam]: Same as Dis. basic measurement

[Trace]: Same as Area Trace basic measurement

[Ellipse]: Same as Area Ellipse basic measurement

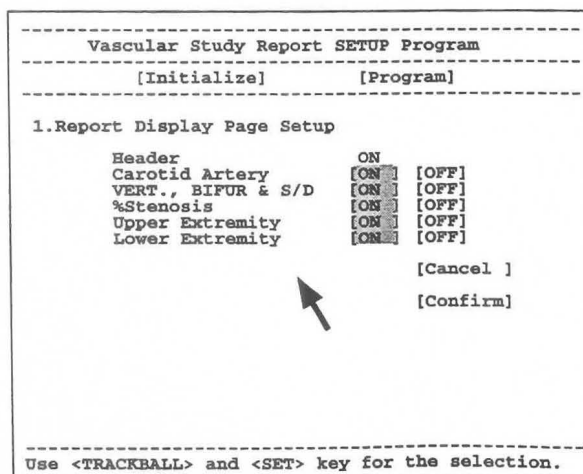
* The contents of the touch panel remain unchanged.

- ② Move the arrow to the method that you wish to use, then press the **SET** switch.
- ③ If you do not wish to set anything, either select **Cancel** on the touch panel, or move the arrow to **[Cancel]**, then press the **SET** switch.
- ④ Once you have completed all settings, move the arrow to **[Confirm]**, then press the **SET** switch.
→ The display returns to the **Contents of PV Measurement Program** screen.
If you do not carry out this step, the previous data will remain.

17-2-5. Setting Setup REPORT Function

Select the pages to be displayed in the report.

- ① Select **5.Setup REPORT Function**.
→ Select **5. Setup REPORT Function**.



- Header : Patient information page (Be sure to set to ON.)
- Carotid Artery : Report page for CCA, IC and ECA
- VERT.,BIFUR&S/D : Report page for VERT, BIFUR and S/D Ratio
- %STENOSIS : Report page for %STENO.D and %STENO A
- Upper Extremity : Upper extremity report page
- Lower Extremity : Lower extremity report page

* The contents of the touch panel menu do not change.

17-2. Making Settings Using the Preset Function (PV-Program)

- ② Move the arrow to [ON] of the page that you wish to display, or to [OFF] of the page that you do not wish to display, then press the **SET** switch.
- ③ If you do not wish to set anything, either select **Cancel** on the touch panel, or move the arrow to [**Cancel**], then press the **SET** switch.
- ④ Once you have completed all settings, move the arrow to [**Confirm**], then press the **SET** switch.
→ The display returns to the **Contents of PV Measurement Program** screen.
If you do not carry out this step, the previous data will remain.

17-2-6. Setting Formed Comment

Formed Comment enables you to register settings, titles and comments in the **Formed Comment** area.

The **Formed Comment setting method** is the same as the cardiac function measurement of **Section 14**.

Refer to **14-2-4 Setting Formed Comment**.

17-3. Measurement Area

The measurement area is used in the D mode to measure each index during PV measurement. It also enables you to transfer the measurement results to a report.

A caliper mark is assigned to each measurement.

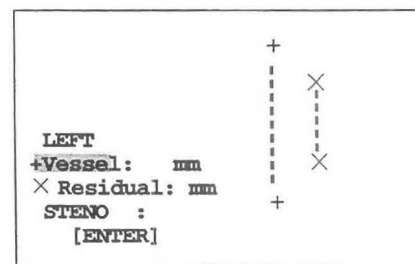
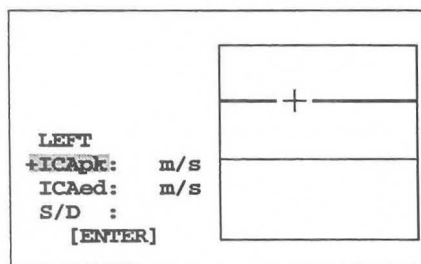
First, a mark is assigned to the topmost item.

For a measurement that consists of a number of measurement items, you can freely select an item by pressing the caliper switch or the item name on the touch panel. You can also select an item sequentially from the top item by pressing the **SET** switch.

[Remark]

If you canceled the freeze state, then changed the mode or display depth, you cannot select an item with the **SET** switch. In this case, select the desired item with the caliper switch.

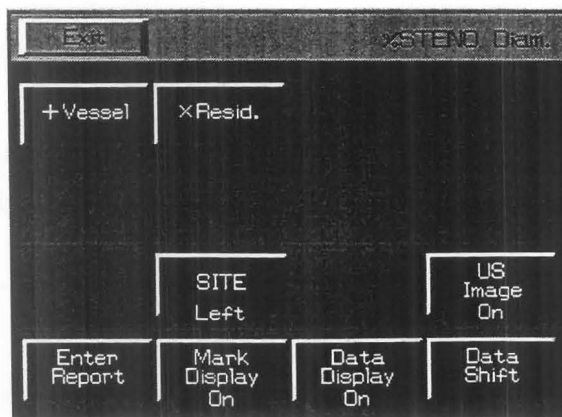
Display example



17-3-1. Measurement menu (touch panel menu)


When you select PV measurement, PV measurement sub-menus are displayed on the touch panel.

Each sub-menu has the function shown below.



← Measurement title

← Measurement items assigned to the caliper marks (Some items are not displayed.)

Items assigned to the report are indicated by the  mark.

← Sub-menu common to each measurement


Exit, US Image, Enter Report, Mark Display, Data Display, Data Shift, SITE (Left or Right)

: Current status (On or OFF is displayed.)

Exit : All measurement results and caliper marks are erased, and PV measurement is terminated.

SITE : **Left** and **Right** are switched over. (This applies to **Left** and **Right** of the report pages.)

17-3. Measurement Area

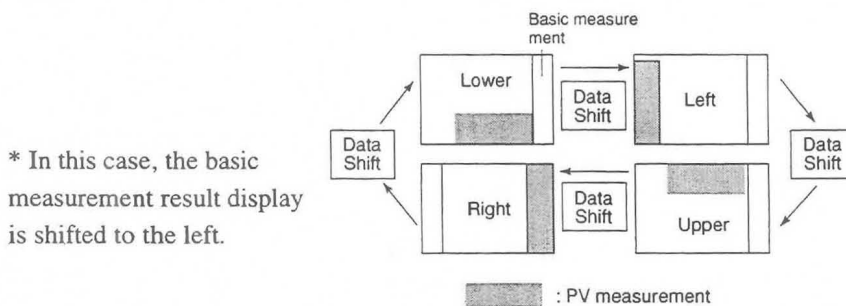
- US Image** : US Image: Enables you to turn **ON or OFF** the function that temporarily erases the ultrasound image.
- Enter Report** : When you select this item, it transfers the measurement results to the report, and terminates measurement, even if all measurement items have not been executed. The items that are transferred to the report are indicated by the  mark.
- Mark Display** : Mark Display: Turns **ON or OFF** the display of caliper marks other than those used for the measurement currently taking place.
- Data Display** : Enables you to turn **ON or OFF** the function that temporarily erases the measurement results.
- Data Shift** : Enables you to shift the measurement area left, right, up or down.

[Remark]

The current status of Mark Display, Data Display, and Data Shift is held until the power is switched Off.

[Remark]

Concerning the results of **Data Shift**



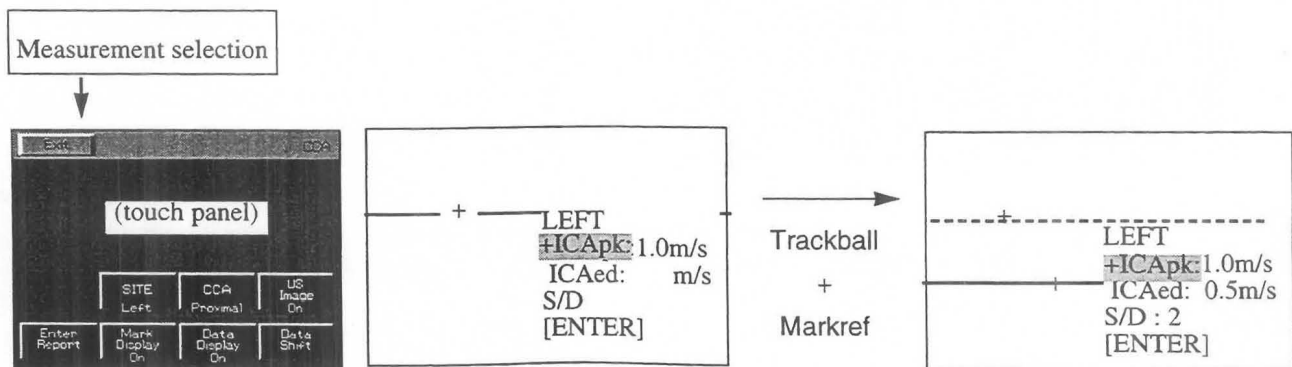
* In this case, the basic measurement result display is shifted to the left.

You can first set the display position of the PV measurement results using "**MEASURE Move**" in Display Control of the Preset function. For details of the setting method, refer to 11-7 "Preset".

17-3-2. Basic procedure for PV measurement

The following is a description of the common procedure for performing PV measurement.

- ① Select the measurement name.
 - The LCD menu changes to the menu for the measurement that has started. The measurement items are also displayed on this screen.
 - When this screen appears, a caliper mark (+) also appears, so align it with the measurement position using the trackball and the **MARK REF** switch. (when the measurement method is set to [Bar])



[Remark]

The method of using the trackball and the **MARK REF** switch is the same as for basic measurement.

The basic measurement name is indicated in the description of measurement for each item, so refer to the operation method for the following basic operation.

	Reference page
<D.VEL.> (BAR, POINT, CROSSmethod)	p13-18
<Area Trace>	p13-5
<DIST.>	p13-4
<Area Trace>	p13-5
<Area Ellipse>(D. Trace method)	p13-6

- ② To change over left and right of the measurement position, select **Left** or **Right** on the touch panel.



When you make a selection, the display of the first line of the measurement results switches over.

LEFT		RIGHT
+pkS:		+pkS:
m/s		m/s
pkD:	m/s	pkD:
S/D	m/s	S/D
[ENTER]		[ENTER]

- ③ If you wish to repeat steps ① and ②, press the caliper mark once again, then perform measurement once again.
- ④ If you wish to erase the measurement results during measurement, set **Data Display** to Off. To erase an ultrasound image, set **US Image** to Off. To shift the displayed results, press **Data Shift**. If you wish to display only the caliper mark used for the last measurement, set **Mark Display to Off**.

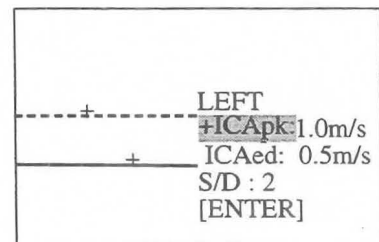
[Remark]

When you wish to measure a number of items, such as in the case of **%STENO Diam** or **%STENO Area**, after carrying out step ① either press the caliper mark switch corresponding to the item to be measured next, or select the item name from the touch panel, then press the **SET** switch. As a result, a new caliper mark appears, so carry out measurement using the trackball and the **MARKREF** switch in the same way as in step ①.

- ⑤ Once you have completed all measurements, press the **SET** switch so as to move the highlight display to **[ENTER]**, then press the **SET** switch once again.

All of the measurement results on the screen are sent to the report.

If you select Enter Report on the touch panel, the results at that point in time will be sent to the report, and measurement will be terminated, even if measurement has not been completed.



17-3. Measurement Area

17-3-3. Method of performing various measurements

There are 7 PV measurements for each measurement position, and Left and Right measurements can be performed for each PV measurement.

- CCA (Comon carotid artery)**.....Measurement of common carotid artery
(Measurement can be divided into Distal CCA and Proximal CCA.)
- ICA (Internal carotid artery)**.....Measurement of internal carotid artery
- ECA (External carotid)**Measurement of external carotid artery
- BIFUR (Bifurcation)**.....Measurement of bifurcation of common carotid artery
- VERT (Vertebral artery)**.....Measurement of vertebral artery
- Upper EXTREM (Upper Extremity)**.....Measurement of artery of upper extremity
- Lower EXTREM (Lower Extremity)**Measurement of artery of lower extremity
- S/D RATIO (Systolic/Diastolic Ratio)**.....Measurement of Systolic/Diastolic ratio

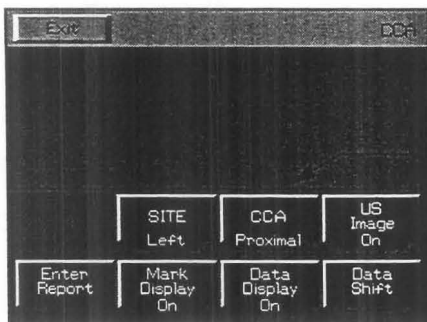
- %STENO A (% Stenosis Area)**Measurement of % stenosis (area)
- %STENO D (% Stenosis Distance)**.....Measurement of % stenosis (distance)

The latest measurement data for all of these measurements can be grouped together in the report.
(However, For ICA measurement alone, you can store measurement data for up to three measurements.)

(1) Measurement for each measurement position

The following is a description of **CCA, ICA, ECA, VERT, BIFUR, and S/D Ratio** measurement.
The method of performing each measurement is the same, so the description is based on CCA as an example.
The measurement procedure is described for the case where "D. Trace" is selected using the Preset function. For the case where [BAR], [CROSS], or [POINT] is selected, refer to the operation method for the basic procedure of PV measurement described in 17-3-2 on Page 17-18.

The measurement menu is shown below.



← The measurement names to be selected (CCA, ICA, ECA, VERT, BIFUR, S/D Ratio) are displayed.

CCA Proximal is displayed only during CCA measurement.

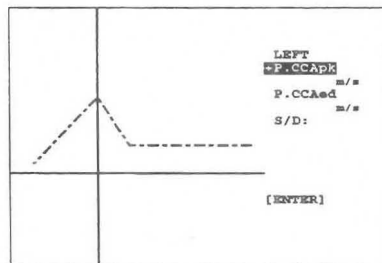
See Page 17-16 for a description of the touch panel.

<Measurement procedure>

<When using auto trace>

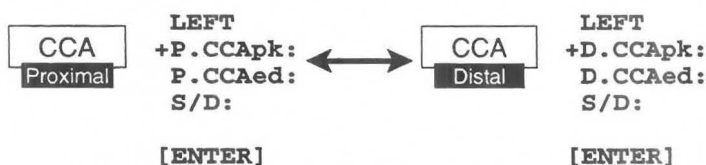
- (1) Display the blood flow pattern for the left common carotid artery, and select CCA.

→ The measurement results are displayed and also a solid cursor for determining the trace range appears at the center of the screen.

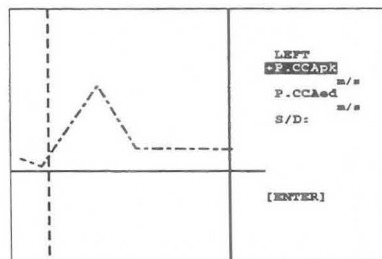


[Remark]

In the case of CCA measurement, the measurement results are first used for proximal CCA (side nearer the heart). If you wish to change the measurement point to Distal CCA (side farther from the heart), press **CCA** on the touch panel, and the display will switch over.

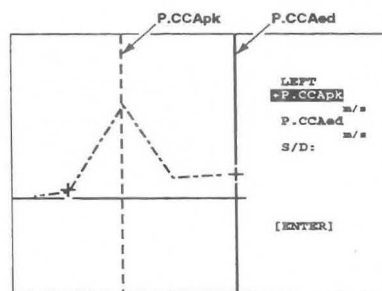


- ② Using the trackball, move the solid line cursor to the start point of the trace, then press the **MARK REF** switch.



- ③ Using the trackball, move the separated solid line cursor to the trace end point. Once you have specified the trace range, press the **MARK REF** switch.

→ The trace starts.



- ④ When the trace is completed, the measurement results are displayed. Lines that indicate the maximum value (pk) and the maximum value (ed) appear. Simultaneously, S/D Ratio is computed.

[Remark]

Detection errors sometimes occur, so using the trackball correct the lines so that they coincide with the Peak Systolic Point and the End Diastolic Point, respectively.

[Remark]

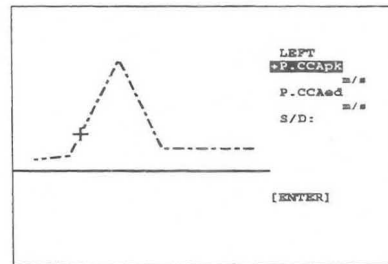
For details of the method of performing an auto trace and also caution items and the various settings, refer to the basic auto trace operation method in 12-4-3.

17-3. Measurement Area

- ⑤ If the data obtained using an auto trace is not appropriate, you can carry out a manual trace instead. To perform a manual trace, press the caliper switch (+ mark). By doing this, all of the displayed auto trace data will be deleted. Once you have entered the manual trace mode, you cannot return to the auto trace mode.

<when you wish to perform a manual trace after the auto trace>

- ① Press the + mark.
 - A "+" mark appears at the center of the screen. Using the trackball, move the "+" mark to the start point, and carry out the trace. (Same operation as P.I.)



- ② When the trace is completed and you press the **MARK REF** switch, lines that indicate pk and ed appear, so if necessary carry out correction.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data Shift, and Enter Report** on the touch panel.

- ③ Upon completion of measurement, press the **SET** switch. The highlight display moves to **[ENTER]**, so press the **SET** switch once again to send the measurement results on the screen to the report.

[Remark]

For CCA, ECA, BIFUR, VERT, and S/D RATIO measurement, only the latest data is transferred to the report, and the previous measured data is deleted.

For ICA measurement alone, you can store measurement data for up to three measurements.

If you register data for a fourth measurement, the data for the first or second measurement, whichever is smaller, is deleted.

- ④ Measure the right common carotid artery. Display the blood flow pattern for the right carotid artery, then select **Left** on the touch panel.
 - The display switches to **Right**. Subsequently, carry out measurement using the same procedure as for Left.
- ⑤ Upon completion of measurement, select **Exit** from the touch panel, or press the **MEASUREMENT** switch.
 - All of the measurement marks and the corresponding measurement results are deleted.

[ICA/CCA automatic computation function]

If you perform CCA measurement, then ICA measurement or ICA measurement, followed by CCA measurement, the ICA/CCA ratio will be automatically computed in the measurement result display area.

```

RIGHT
+P.CCApk
XXXXcm/s

[ENTER]

ICA/P.CCA
=XXXXX
    
```

※ ICA/CCA is displayed when the highlight display moves to [ENTER].

Example of vertical display pattern

[Remark]

You can store up to three ICA in the report. If there are several ICA data, the largest value will be displayed. During P.CCA measurement ICA/P.CCA is displayed, and during D.CCA measurement ICA/D.CCA is displayed.

<Example of measurement result display>

<p>Example of CCA result display</p> <pre> RIGHT +D.CCApk: ← Peak systolic flow velocity on Doppler pattern of common cm/s carotid artery D.CCAed: ← End diastolic flow velocity on Doppler pattern of common cm/s carotid artery S/D: ← S/D Ratio [ENTER] (D=Distal, P=Proximal) </pre>		<p>For horizontal display</p> <pre> RIGHT +D.CCApk: cm/s D.CCAed: cm/s S/D: [ENTER] </pre>
<p>Example ICA result display</p> <pre> RIGHT +ICApk: ← Peak systolic flow velocity on Doppler pattern of internal cm/s carotid artery ICAed: ← End diastolic flow velocity on Doppler pattern of internal cm/s carotid artery S/D: ← S/D Ratio [ENTER] </pre>		<pre> RIGHT +ICApk: cm/s ICAed: cm/s S/D: [ENTER] </pre>
<p>Example of ECA result display</p> <pre> RIGHT +ECApk: ← Peak systolic flow velocity on Doppler pattern of external cm/s carotid artery ECAed: ← End diastolic flow velocity on Doppler pattern of external cm/s carotid artery S/D: ← S/D Ratio [ENTER] </pre>		<pre> RIGHT +ECApk: cm/s ECAed: cm/s S/D: [ENTER] </pre>
<p>Example of ICA/CCA automatic computation result display</p> <pre> LEFT +P.CCApk: cm/s [ENTER] ICA/P.CCA: ← Ratio </pre>		<pre> ICA/P.CCA: LEFT +P.CCApk: cm/s [ENTER] LEFT +P.CCApk: cm/s [ENTER] ICA/P.CCA: </pre>
<p>Example of BIFURCATION result display</p> <pre> RIGHT +BIFURpk: ← Peak systolic flow velocity on Doppler pattern of common cm/s carotid artery BIFURed: ← End diastolic flow velocity on Doppler pattern of common cm/s carotid artery S/D: ← S/D Ratio [ENTER] </pre>		<pre> RIGHT +BIFURpk: cm/s BIFURed: cm/s S/D: [ENTER] </pre>
<p>Example of VERTEBRAL result display</p> <pre> RIGHT +VERTpk: ← Peak systolic flow velocity on Doppler pattern of vertebral cm/s artery VERTed: ← End diastolic flow velocity on Doppler pattern of vertebral cm/s artery S/D: ← S/D Ratio [ENTER] </pre>		<pre> RIGHT +VERTpk: cm/s VERTed: cm/s S/D: [ENTER] </pre>
<p>Example of S/D Ratio result display</p> <pre> LEFT +pkS: ← Peak systolic flow velocity on Doppler pattern cm/s pkD: ← End diastolic flow velocity on Doppler pattern cm/s S/D: ← S/D Ratio [ENTER] </pre>		<pre> LEFT +pkS: cm/s pkD: cm/s S/D: [ENTER] </pre>

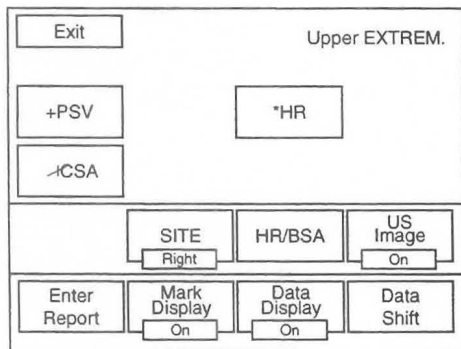
17-3. Measurement Area

(2) Example of measurement for upper and lower extremities

The following is a description concerning Upper EXTREM and Lower EXTREM.

The operation method for both of Upper EXTREM and Lower EXTREM is the same, so the following description uses Upper EXTREM as an example.

The measurement procedure is based on the assumption that you selected "D.Trace" using the Preset function. The measurement menu is shown below.



← The selected measurement name (Upper EXTREM or Lower EXTREM) is displayed.

For a description of the touch panel, see Page 17-16.

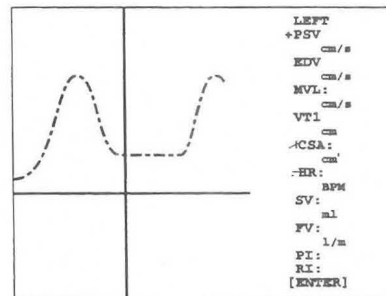
<Measurement procedure>

<When auto trace is used>

- ① Display the blood flow pattern of the left upper extremity, and select

Upper EXTREM.

→ A solid line cursor for determining the trace range appears at the center of the screen.

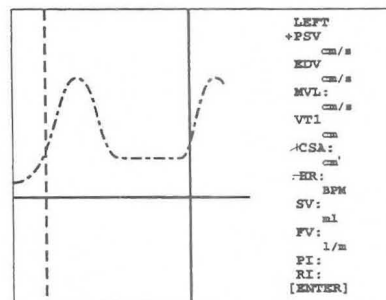


- ② Using the trackball, move this solid line cursor to the trace start position, and press the **MARK REF** switch.

- ③ Using the trackball, move the separated solid line cursor to the trace end position.

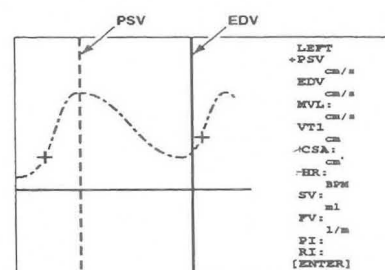
Once you have specified the trace range, press the **MARK REF** switch.

→ The trace starts.



17-3. Measurement Area

- ④ When the trace is completed, the measurement results are displayed.
 Lines that indicate the maximum value (PSV) and the maximum value (EDV) appear.
 Simultaneously, PSV, EDV, MVEL, VTI, PI and RI are computed.



[Remark]

Detection errors sometimes occur, so using the trackball correct the lines so that they coincide with the Peak Systolic Point and the End Diastolic Point, respectively.

[Remark]

For details of the method of performing an auto trace and also caution items and the various settings, refer to the basic auto trace operation method in 12-4-3.

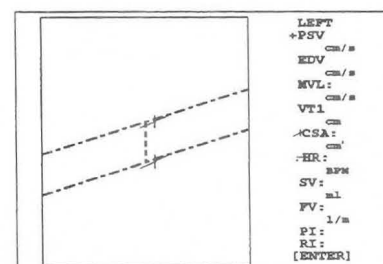
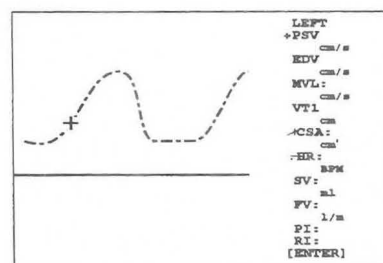
- ⑤ If the data obtained using an auto trace is not appropriate, you can carry out a manual trace instead.
 To perform a manual trace, press the caliper switch (+ mark). By doing this, all of the displayed auto trace data will be deleted. Once you have entered the manual trace mode, you cannot return to the auto trace mode.

[Remark]

If you press the × switch after an auto trace, the system will proceed to CSA measurement. In this case, the trace line is held, however if the image display status differs due to cancellation of the freeze condition or a change in the mode, for example, the trace line will be deleted, and only the results will be displayed.

<when using a manual trace after the auto trace>

- ① Press the + mark.
 → A "+" mark appears at the center of the screen.
 Using the trackball, move the "+" mark to the start point, and carry out the trace. (Same operation as P.I.)
- ② When the trace is completed and you press the **MARK REF** switch, lines that indicate PSV and EDV appear, so if necessary carry out correction.
- ③ Next, display a B mode image, and select × CSA.
 → A "×" marks appear at the center of the image.
 Measure the blood vessel diameter. (Same operation as that for DIST.)



[Remark]

The above is applicable to the case where the CSA measurement formula is [Diam].

In the case of [Trace] perform the same operation as that of Area Trace, and in the case of [Ellipse] perform the same operation as that of Area Ellipse.

17-3. Measurement Area

- ④ If ECG is not displayed, select \div HR, and measure the heart rate.

[Remark]

As necessary, select US Image, Mark Display, Data Display, Data Shift, and Enter Report on the touch panel.

- ⑤ Upon completion of measurement, press the **SET** switch. The highlight display moves to **[ENTER]**, so press the **SET** switch once again to send the measurement results on the screen to the report.

[Remark]

Only the latest data is transferred continuously to the report, and the data for the previous measurement is deleted.

- ⑥ Measure the right upper extremity artery.
 Display the Doppler pattern for the right upper extremity artery, and select **Left** on the touch panel.
 → The display changes to **Right**.
 Subsequently, perform measurement using the same procedure as that for Left.
- ⑦ Upon completion of measurement, select **Exit** from the touch panel, or press the **MEASUREMENT** switch.
 → All of the measurement marks and the corresponding measurement results are deleted.

<Example of measurement result display>

Example of Upper EXTREM and Low EXTREM result display																					
<p>RIGHT</p> <p>+PSV: ← Peak systolic flow velocity on the Doppler pattern cm/s</p> <p>EDV: ← End diastolic flow velocity on Doppler pattern cm/s</p> <p>MVEL: ← Mean flow velocity cm/s</p> <p>VTI: ← Velocity time integral cm</p> <p>xCSA: ← Diameter cross-sectional area cm²</p> <p>÷ HR: ← Heart rate BPM</p> <p>SV: ← Stroke Volume (per heartbeat) ml</p> <p>FV: ← Flow Volume (flow rate) ml/m</p> <p>PI: ← Pulsatility Index</p> <p>RI: ← Resistance Index</p> <p>[ENTER]</p>	<div style="border: 1px dashed black; padding: 5px; margin-bottom: 10px; text-align: center;"> Example of horizontal display </div> <p>RIGHT</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">+PSV:</td> <td style="width: 25%;">cm/s</td> <td style="width: 25%;">EDV:</td> <td style="width: 25%;">cm/s</td> </tr> <tr> <td>MVEL:</td> <td>cm/s</td> <td>VTI:</td> <td>cm</td> </tr> <tr> <td>xCSA:</td> <td>cm²</td> <td>SV:</td> <td>ml</td> </tr> <tr> <td>÷ HR:</td> <td>BPM</td> <td>FV:</td> <td>ml/m</td> </tr> <tr> <td>PI:</td> <td></td> <td>RI:</td> <td></td> </tr> </table> <p>[ENTER]</p>	+PSV:	cm/s	EDV:	cm/s	MVEL:	cm/s	VTI:	cm	xCSA:	cm²	SV:	ml	÷ HR:	BPM	FV:	ml/m	PI:		RI:	
+PSV:	cm/s	EDV:	cm/s																		
MVEL:	cm/s	VTI:	cm																		
xCSA:	cm²	SV:	ml																		
÷ HR:	BPM	FV:	ml/m																		
PI:		RI:																			

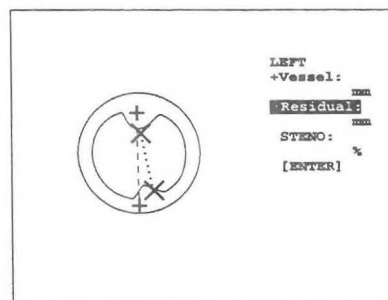
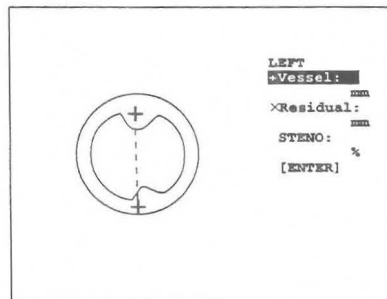
(3) B mode % stenosis measurement

<%STENO Diam. measurement procedure>

%STENO Diam enables you to use distance measurement on a B mode image to obtain the % stenosis.

- ① Using the B mode, display a cross-sectional image of the blood vessel, then select %STENO Diam.
 - A "+" mark appears at the center of the screen, so measure the diameter of the blood vessel at a normal position. (Using the DIST. operation)

- ② Select × Residual.
 - An "×" mark appears at the center of the screen, so measure the diameter of the blood vessel at the stenosis point using the same method.
 - The % stenosis (%STENO) is computed.



The subsequent procedure is the same as for CCA.

<Example of %STENO Diam. measurement result display>

<pre> LEFT +Vessel: ← Blood vessel diameter at normal position mm XResidual: ← Blood vessel diameter at stenosis point mm S/D: ← % stenosis % [ENTER] </pre>	<p style="text-align: center;">For horizontal display</p> <pre> LEFT +Vessel: mm XResidual: mm STENO: % [ENTER] </pre>
---	---

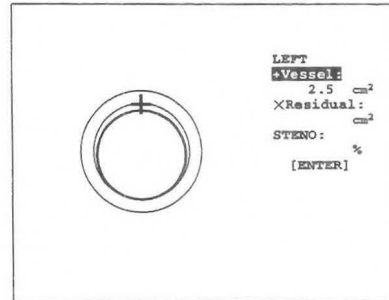
17-3. Measurement Area

<%STENO Area measurement procedure>

%STENO Area enables you to use area measurement on a B mode image to obtain the % stenosis.

The measurement procedure is based on the assumption that you selected "Trace" using the Preset function.

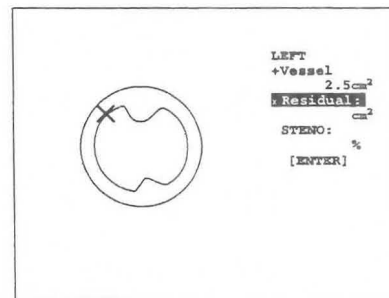
- ① Using the B mode, display a cross-sectional image of a blood vessel, and select "**%STENO Area**".
 - A "+" mark appears at the center of the screen, so measure the area of the blood vessel at a normal position. (Using the same procedure as that for Area Trace)



[Remark]

If you select [Diam] using the Preset function, use the same procedure as that for DIST. If you select [Ellipse], use the same procedure as that for Area Ellipse.

- ② Select **× Residual**.
 - An "×" mark appears at the center of the screen, so measure the area of the blood vessel at the stenosis point using the same method.
 - The % stenosis (%STENO) is computed.



The subsequent procedure is the same as for CCA.

<Example of %STENO Area. measurement result display>

<pre> LEFT +Vessel: ← Blood vessel area at normal position cm XResidual: ← Blood vessel area at stenosis point cm S/D: ← % stenosis % [ENTER] </pre>	<p style="text-align: center;">For horizontal display</p> <pre> LEFT +Vessel: cm XResidual: cm STENO: % [ENTER] </pre>
---	--

17-4. Report

Report is a function that arranges and displays on the screen the various indexes used in PV measurement and also related patient data.

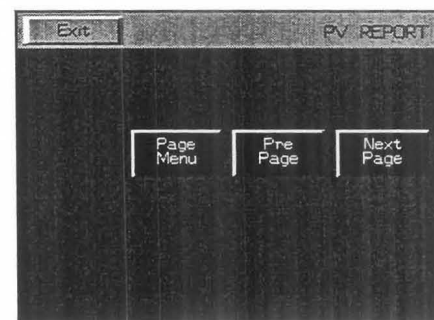
Whenever you press the **REPORT** switch, you can observe the results on the screen.

When you press the **REPORT** switch, the following patient data page appears.

If you press the **REPORT** switch while PV measurement is starting, the page corresponding to that measurement will appear on the screen, and the report menu will appear on the touch panel.

Peripheral Vascular Report			
Exam. Date:	'97/08/25		
Patient ID:	[REDACTED]		
Name:	[REDACTED]		
Height:	cm	Sex:	Female
Weight:	kg	Age:	years
Referring Phys.:			
Reason for Study:			
Reporting Phys.:			
Sonographer:			
COMMENTS			

Report menu



<Menu description>

Exit : Exits from the PV measurement report.

Page menu : There are a total of 6 report pages consisting of patient data pages and result display pages. When you select Page menu, a list of report pages appears, enabling you to directly call the necessary page.

Pre Page : There are a total of 6 report pages. Use Pre Page or Next Page to directly call the desired page. (Pages corresponding to items that are not measured are not displayed.)

Next Page

17-4. Report

17-4-1. Description of the report pages

There are a total of six **report pages**. These are as follows.

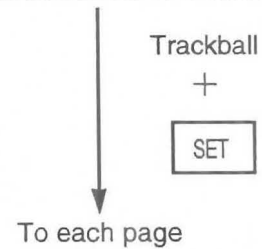
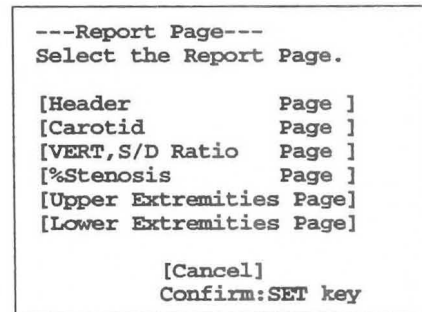
Header Page	Patient data page
Carotid Page	Common carotid artery, internal carotid artery, and external carotid artery measurement report
VERT., S/D Ratio Page	Vertebral artery and S/D Ratio measurement report
%STENOSIS Page	%STENOSIS measurement report
Upper Extremities Page	Upper extremity artery measurement report
Lower Extremities Page.....	Lower extremity artery measurement report

Registered data is displayed at the end of each of Carotid Page, VERT., S/D Ratio Page, %STENOSIS Page, Upper Extremities Page, and Lower ExtremitiesPage.

For ICA alone in Carotid Page, you can register data for up to three measurements.

The selection method is as follows.

- ① When you select **Page Menu** in the report menu, the submenu shown at right appears on the screen, so using the trackball move the highlight display to the report page that you wish to display, then press the **SET** switch.
- ② When you wish to select one page at a time, select **Pre Page or Next Page**.



(1) HEADER PAGE

When you select [Header page], the patient data page appears.

You can also enter patient data in advance.

Peripheral Vascular Report			
Exam. Date:	'97/08/25		
Patient ID:	[REDACTED]		
Name:			
Height:	cm	Sex:	Female
Weight:	kg	Age:	years
Referring Phys.:			
Reason for Study:			
Reporting Phys.:			
Sonographer:			
COMMENTS			
(Formed Comment)			

You can enter and display the following data.

1. Examination date (Exam. Date).....The date is automatically input by a timer in the equipment. You can also enter it manually during playback measurement.
2. Patient's ID (Patient ID).....Enter the patient No. ※
3. Patient's name (Name).....Enter the patient's name. ※
4. Patient's height (Height), and weight (Weight)
.....Enter the patient's height and weight. ※
5. Patient's sex.....Enter the sex of the patient. ※
6. Patient's age (Age).....Enter the age of the patient. ※
7. Referring PhysEnter the name of the physician who requested the examination.
8. Reason for StudyEnter the reason for the examination.
9. Reporting Phys.Enter the name of the physician who made the report.
10. Sonographer.....Enter the name of the examiner.
11. Comments.....Enter comments from the keyboard.
(You can enter comments consisting of a total of 46 characters × 4 lines.)
12. Formed comment.....Several candidate comments are displayed for predetermined titles. You can make a comment statement by selecting one of these candidate comments.
(You can enter a maximum of 46 characters × 10 lines)

[Remark]

Items 2, 3, 4, 5 and 6, which constitute **ID** information entered using the **NEW Patient** switch and **ID** switch, can be carried over, so there is no need to re-enter these items. **ID** information entered on this page is input when the **ID** switch is pressed.

<Input method>

When you move the highlight display to the item that you wish to change, an underline cursor appears, so enter the desired value from the keyboard, and press the return key or the **SET** switch.

If you wish to delete the highlight display, press the **MARK REF** switch.

(2) Formed Comment input

Formed Comment is a method of creating a comment statement by selecting one of several candidate comments for predetermined titles.

A 46 characters × 10 line **Formed Comment** area is provided.

- ① Move the highlight display to the **Formed Comment** area.
- ② Press the **SET** switch.
→ **Selectable comments** registered as a **Formed Comment in the PV-Program** is displayed.

[Remark]

If nothing is registered, "**Cancel**" will appear. In this case, you can press the **SET** switch, and directly enter a comment from the keyboard.

You can also enter a comment from the keyboard even if comments have been registered.

- ③ Move the highlight display to the comment that you wish to select, and press the **SET** switch.
→ The selected comment is called.

(3) Carotid Page

Carotid Page is used to display the results of CCA, ICA and ECA measurement.

```

Peripheral Vascular Report
Exam. Date: '97/08/25
Patient ID:
Name:
----- Carotid Artery Study -----
                RIGHT                LEFT
ECA (m/s)      ICA (m/s)      ECA (m/s)      ICA (m/s)
Vs :           Vs :           Vs :           Vs :
Vd :           Vd :           Vd :           Vd :
S/D:           S/D:           S/D:           S/D:
BIFUR. (m/s)   Vd :           BIFUR. (m/s)   Vd :
Vs :           S/D:           Vs :           S/D:
Vd :           Vs :           Vd :           Vs :
S/D:           Vd :           S/D:           Vd :
                S/D:                          S/D:

Distal          Proximal          Distal          Proximal
  CCA (m/s)      Vs :           CCA (m/s)      Vs :
Vs :           Vd :           Vs :           Vd :
Vd :           S/D:           Vd :           S/D:
S/D:           Vs :           S/D:           Vs :

----- Ratio -----
Rt.ICApk /Rt.ICAed : .   Rt.ICAed /Rt.D.CCAed: .
Rt.ICApk /Rt.D.CCApk: .   Rt.ICAed /Rt.D.CCAed: .
/           :           /           :
/           :           /           :

--- Comments ---
    
```

By using this page, you can display the following six items.

1. Examination date (Exam. Date) and patient's ID (Patient ID), patient's name (Name)
2. ECA (S, D)Flow velocity for external carotid artery at Peak Systolic/End Diastolic
3. ICA (S, D)Flow velocity for internal carotid artery at Peak Systolic/End Diastolic
(You can register measurement data for up to three measurements.)
4. CCA (S, D)Flow velocity for common carotid artery at Peak Systolic/End Diastolic
(Divided into Distal and Proximal.)
5. BIFURFlow velocity at bifurcation of internal carotid artery and external carotid artery
6. RatioRatio formula setting using the Preset function
Used when various items are measured. The ratio is computed.

Data concerning items that were deleted using the Preset function or measurement items that were not measured are not displayed.

You can freely enter comments (highlight display part) from the keyboard.

(4) VERT, S/D Ratio Page

VERT, S/D Ratio Page enables you to display the results of VERT measurement and S/D Ratio measurement.

Peripheral Vascular Report		
Exam. Date: 'YY/MM/DD		
Patient	ID:	12345678911234
Name: 12345678901234567890123		
Vertebral Artery Study		
	RIGHT	LEFT
pkS (m/s)	0.70	1.08
pkD (m/s)	0.25	0.41
S/D	2.80	2.64
Systolic/Diastolic Ratio STUDY		
	RIGHT	LEFT
pkS (m/s)	0.70	1.08
pkD (m/s)	0.25	0.41
S/D	2.80	2.64
---COMMENTS---		
Comments (Free Comments)		

This page enables you to display the following four items.

1. Examination date (Exam. Date) and patient's ID (Patient ID), patient's name (Name)
2. pkSPeak Systolic flow velocity at the vertebral artery or other blood vessel
3. pkDEnd Diastolic flow velocity at the vertebral artery or other blood vessel
4. S/DFlow velocity ratio at Peak Systolic/End Diastolic

Data concerning items that were deleted using the Preset function or measurement items that were not measured are not displayed.

You can freely enter comments (highlight display part) from the keyboard.

[Remark]

You can change characters at the underlined part. (Underlines are not displayed on the screen.)

Move the highlight display in the comment area to the underlined part, enter the desired characters from the keyboard, then press the Return key or the **SET** switch.

(5) % STENOSIS Page

The % Stenosis Page enables you to display the %STENO measurement results.

Peripheral Vascular Report		
Exam. Date: 'YY/MM/DD		
Patient ID: 12345678911234		
Name: 12345678901234567890123		
%STENOSIS by Diameter		
	RIGHT	LEFT
Vessel (cm)	0.55	1.03
Residual (cm)	0.53	0.55
STENO D	3.3	46.3
%STENOSIS by Area		
	RIGHT	LEFT
Vessel (cm)	0.94	0.68
Residual (cm)	0.11	0.09
STENO A	87.8	86.0
---COMMENTS---		
<div style="background-color: #cccccc; padding: 5px;"> Comments (Free Comments) </div>		

This page enables you to display the following four items.

1. Examination date (Exam. Date) and patient's ID (Patient ID), patient's name (Name)
2. Vessel, Residual.....Blood vessel diameter or cross-sectional area at each point along the blood vessel
3. %STEN D.....% stenosis computed according to blood vessel diameter
4. %STEN A.....% stenosis computed according to blood vessel cross-sectional area

Data concerning items that were deleted using the Preset function or measurement items that were not measured are not displayed.


You can freely enter comments (highlight display part) from the keyboard.

[Remark]

You can change characters at the underlined part. (Underlines are not displayed on the screen.)

Move the highlight display in the comment area to the underlined part, enter the desired characters from the keyboard, then press the Return key or the **SET** switch.

(6) Concerning the [Lower Extremities Page]

Peripheral Vascular Report		
Exam. Date:	'97/08/25	
Patient ID:		
Name:		
----- Lower Extremities Artery Study -----		
	RIGHT	LEFT
PSV	(m/s)	
EDV	(m/s)	
RI		
PI		
MVEL.	(m/s)	
VTI	(cm)	
CSA	(cm ²)	
SV	(ml)	
Flow vol	(l/min)	
HR	(BPM)	
----- Comments -----		
		

This page enables you to display the following five items.

1. Examination date (Exam. Date) and patient's ID (Patient ID), patient's name (Name)
2. PSV, EDV.....Peak systolic velocity and end diastolic velocity detected using the Trace method
3. RI, PI, VTI.....RI, PI and VTI detected using the Trace method
4. CSACross-sectional area of blood vessel
5. SV, Flow Vol.....Blood flow volume through blood vessel to be measured

18. OTHER MEASUREMENTS

18-1. Volume Slice (volume measurement)

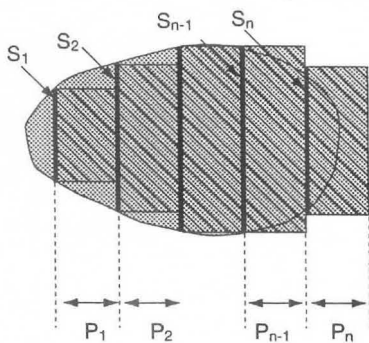
The slice is measured by tracing a plurality of sliced B cross-section images, then multiplying the traced cross-sectional area by the slice pitch value.

18-1-1. Index to be calculated

The volume and the presumed circle area ratio (PCAR) which is used as the index of the thyroid gland are calculated from each slice cross-section and slice pitch (mm).

The calculation method is as follows.

Method of calculating volume



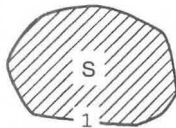
- S1, S2...** Each slice cross-sectional area (Measured using the same scanning method as employed for Area-Trace of the basic measurement.)
Number of slices is no limit.
- P1, P2...** Slice pitch (mm)
Determined by the touch panel menu Pitch of Slice Volume. The pitch can be changed between 1 mm and 99 mm, and is input from the keyboard.

Calculation equation

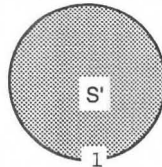
$$\text{Volume} = \{S1 \times P1 + S2 \times P2 + \dots + Sn \times Pn\}$$

Method of calculating PCAR

The ratio between the horizontal slice image area corresponding to the maximum area, and the presumed circle that has the same circumference as the perimeter of this slice image is called the PCAR (Presumed Circle Area Ratio). This is an index at which urination is difficult due to an enlarged prostate.



Horizontal slice image corresponding to the maximum area



Presumed circuit Δ of circumference 1

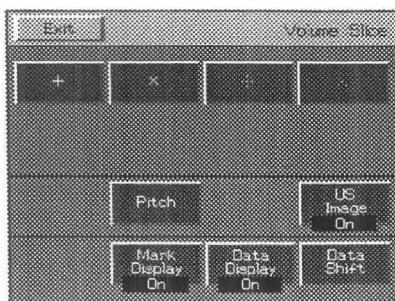
Calculation equation

$$\text{Area } S' \text{ of presumed circle} = \pi \times (1/2\pi)^2$$

$$\text{Presumed circle area ratio (PCAR)} = S / S'$$

18-1-2. Measurement menu (Touch panel menu)

If you select Volume Slice measurement, the following menu appears.



- Exit** : Terminates Volume Slice measurement.
- +, X, ⋮, ⋮** : Supports the caliper mark switch.
- Pitch** : Determines the slice interval.
- US Image** : Enables you to switch On/Off the function that temporarily erases an ultrasound image.
- Mark Display** : You can switch On/Off the display of caliper marks other than the marks used for the ongoing measurement.
- Data Display** : You can switch On/Off the function that temporarily erases the measurement results.
- Data Shift** : You can move the measurement result area left, right, up or down.

This section consists of 36 pages.

18-1-3. Method of Measuring Slice Volume

Basic operation method

Measure each slice area from S1 to Sn indicated on the previous page.

By pressing the **SET** switch after each slice area has been measured, the volume is calculated. You can change

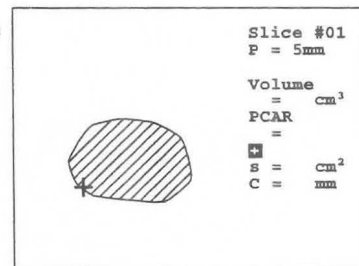
① Select **Volume Slice**.

→ A "+" mark appears at the center of the screen, so move it to the starting position using the trackball.

② Press the **MARK REF** switch, then perform a trace using the trackball.

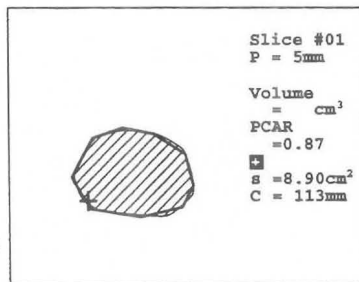
(This is the same as **Area Trace** of basic measurements.)

→ To make a correction, turn the rotary encoder.



③ Press the **MARK REF** switch.

→ The trace closes, and the area, circumference and **PCAR** are calculated.

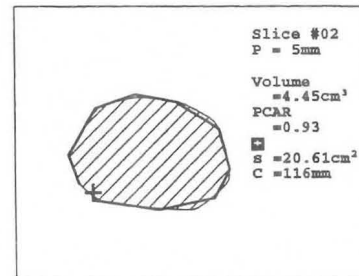


④ Press the **SET** switch

→ The previous measured results are erased, and measurement of the next slice starts.

In this example, display an image of the 5 mm shifted cross-section, and perform the same operation as ① to ③.

As a result of this operation, the volume up to **Slice #02** is measured.



Similarly, when measuring the next cross-section, repeat operations ① to ③.

The volume is progressively renewed.

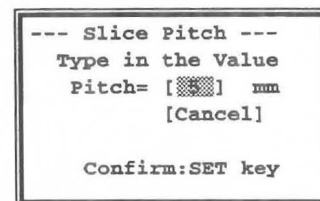
[Remark]

If you wish to change the slice pitch, select **Pitch** in the touch panel menu.

The pop-up menu shown at right is displayed, so enter the desired pitch from the keyboard, and press the **SET** switch.

(The factory setting is 5 mm.)

To erase the pop-up menu, move the highlighted display to **[Cancel]**, then press the **SET** switch.

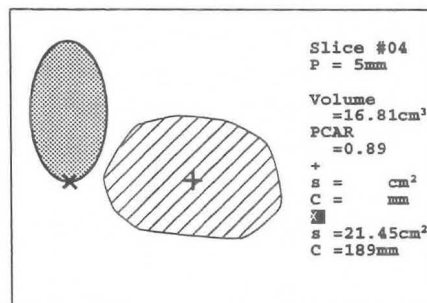


18-1. Volume Slice (volume measurement)

- ⑤ If you wish to join the volumes of two different slices, press a different caliper switch (×, ⋮, or ⋮) or a different mark in the touch panel menu.

→ Perform the same operations as ① to ③.

The volume obtained from the cross-sectional area traced with + and the pitch is added to the volume obtained from the cross-sectional area traced with × and the pitch, and the resulting volume is displayed.



The above also applies to the ⋮ and ⋮ switches as well.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu..

- ⑥ Upon completion of measurement, select **Exit** from the touch panel menu, or press the **MEASUREMENT** switch.

→ The measurement marks and all measurement results are erased.

<Displaying the slice volume measured results>

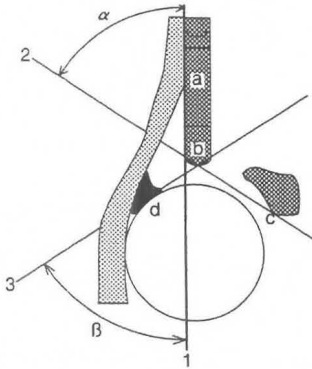
Slice#01	← Number of image slices currently being measured
P= mm	← Entered slice pitch
Volume	← Volume calculated and added from area and pitch
= cm³	
PCAR	← PCAR value currently being measured
=	
+	← Area and circumference measured with the + mark
s= cm²	
C= mm	
×	← Area and circumference measured with the × mark
s= cm²	
C= mm	
⋮	←Area and circumference measured with the ⋮ mark
s= cm²	
C= mm	
⋮	←Area and circumference measured with the ⋮ mark
s= cm²	
C= mm	

18-2. Hip Joint Angle

This measurement function is used in the area of orthopedics for early diagnosis of dislocation of the hip joint in new born babies and infants.

Estimate the type of dislocation from the age of the infant and the bone angle.

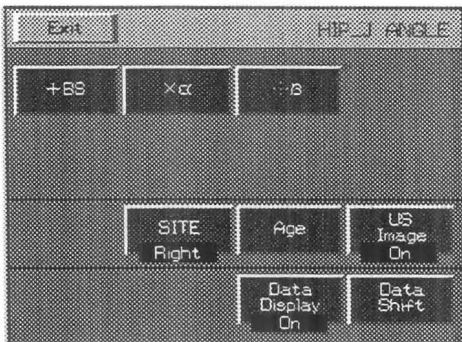
18-2-1. Measurement Position



1. Base line
2. Bony roof line
3. Cartilage roof line
- α . Bony roof angle
- β . Cartilage roof angle
- a. Point where the acetabular perichondrium and the iliac wall meet
- b. Bony acetabular rim
- c. Lower iliac margin
- d. Main echo of the acetabular labrum

18-2-2. Measurement menu (Touch panel menu)

If you select HIP J ANGLE, the following menu appears.



Exit : Terminates bone angle measurement.

+BS, ×α, ∴β : This item indicates the names of measurement items that support a caliper mark. It enables you to select a measurement item in the same way as by pressing the caliper mark switch.

SITE : Switches between Left and Right.

Age : Sets the age of the patient.

US Image : Enables you to switch **On/Off** the function that temporarily erases an ultrasound image.

Data Display : You can switch **On/Off** the function that temporarily erases the measurement results.

Data Shift : You can move the measurement result area left, right, up or down.

18-2-3. Method of Performing Bone Angle Measurement

Display a slice image of the hip joint, freeze it, then, using the **Image Rotation** switch, turn it so that it is standing on its side.

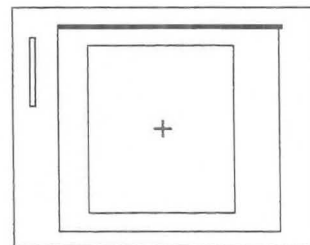
You can select an item using the touch panel menu, caliper mark switch or **SET** switch.

Note

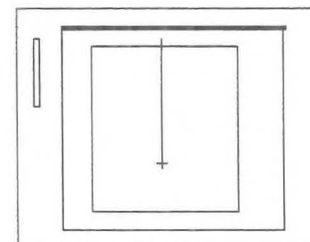
You cannot perform this measurement on an image other than a 1B image. Be sure to perform measurement on a 1B image.

18-2. Hip Joint Angle

- ① Select Hip J Angle using the **MEASUREMENT** switch.
→ The "+" mark for setting the base line appears at the center of the screen.



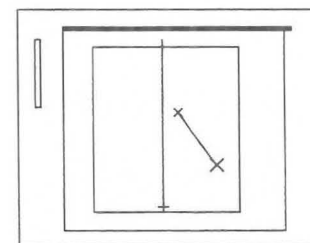
- ② Set the base line.
→ Using the trackball, move the "+" mark to the point where the acetabular perichondrium and the iliac wall meet, then press the **MARK REF** switch.



[Remark]

The "+" mark divides into a large mark and a small mark, and the large mark can move.

- ③ Using the trackball, draw the base line along the iliac wall.



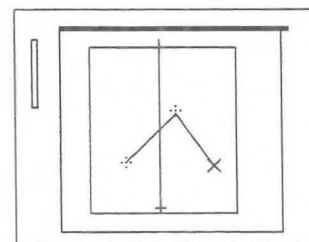
- ④ Measure the α angle.
→ Select $\times \alpha$.
The base line is drawn to both ends of the image area. The " \times " mark appears to the right of the starting point near the base line.

- ⑤ Move the " \times " mark to the starting point (bony acetabular rim) for measuring the α angle (bony roof angle) near the base line, then press the **MARK REF** switch.

[Remark]

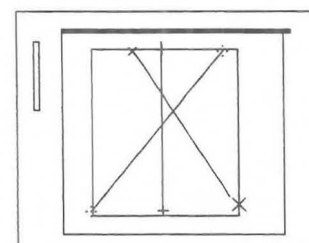
The mark divides into a large mark and a small mark, and the large mark can move.

- ⑥ Measure the β angle.
→ Select $\ddot{\cdot} \beta$.
The " $\ddot{\cdot}$ " mark is displayed divided into a large mark and a small mark. (The α starting point is common to β .)



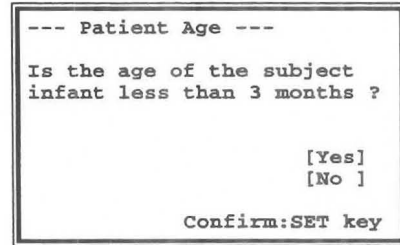
Using the trackball, move the " $\ddot{\cdot}$ " mark to the end point (the brightest point on the acetabular labrum).

- ⑦ Press the **SET** switch.
→ This completes bone angle measurement.
Each line expands to fill the entire image area.



18-2. Hip Joint Angle

- ⑧ Set the age of the patient.
 - If you select **Age** from the touch panel menu, a pop-up menu is displayed.
 - If the age of the subject infant is less than 3 months,select [Yes]. If not, select [NO]



[Remark]

You can also set the age of the patient in advance , or reset the patient's age. However,if you press the **NEW PATIENT** switch,the set age is deleted.

[Remark]

As necessary, select **US Image**, **Data Display**, **Data.Shift** in the touch panel menu..

- ⑨ Upon completion of measurement, select **Exit** from the touch panel menu, or press the **MEASUREMENT** switch.
 - The measurement marks and all measurement results are erased.

<Hip Joint Angle measured result display>

```

ANGLE OF
HIP JOINT

RIGHT
+BS.Line ← Baseline
X α : 60° ← α angle 60 degrees
∴ β : 55° ← β angle 55 degrees
TYPE ← Type of dislocation
= I
[END]
    
```

Classification of dislocation (Based on Graf's classification)

Sub Classification TYPE	Evaluation criteria			Result display type
	α	β	Patient	
I	$\alpha \geq 60^\circ$		every	I
IIa	$50^\circ \leq \alpha \leq 59^\circ$		age less then 3months	IIa
IIb	$50^\circ \leq \alpha \leq 59^\circ$		age 3months or more	IIb
IIc	$43^\circ \leq \alpha \leq 49^\circ$	$\beta \leq 77^\circ$	every	IIc
D	$43^\circ \leq \alpha \leq 49^\circ$	$\beta > 77^\circ$	every	D
III	$\alpha < 43^\circ$		every	III, IV
IV	$\alpha < 43^\circ$		every	III, IV
	$50^\circ \leq \alpha \leq 59^\circ$		age unknown	IIa, IIb
	$43^\circ \leq \alpha \leq 49^\circ$		every	IIc, D
	Other cases	Other cases		??

18-3. VCR Playback Measurement

It is possible to execute measurement on playback images from VCR displayed on the monitor of this system. By recording images of patient on a VCR, every measuring function is available after the examination is over. This will make your examination more efficient.

[Remark]

To execute measurements on playback images, record images on which no measurements are executed. Otherwise the measurement marks and measurement values will overlap each other so as to make the values unreadable.

18-3-1. Auto Calibration and Manual Calibration

Basically, no calibration is required as the system automatically executes calibration. However, if the condition of the recording is not good, the system may not execute calibration.

In this case, it is necessary to calibrate the image data manually. This operation is called "manual calibration". After performing this operation, you can perform a normal measurement operation.

18-3-2. Operation method for VCR playback measurement

<When using auto calibration>

To perform playback measurement, press the **INT/EXT** switch to activate the **VCR playback** status.

- ① Press the **INT/EXT** switch to activate the **EXT status**.
- ② Play back the **VCR** tape.
- ③ When a desired image is displayed, press the **FREEZE** switch.
- ④ Select and press a **MEASUREMENT** switch, **USER** switch, or caliper switches to activate the measuring function.
→ Follow each procedure for measurement.

18-3. VCR Playback Measurement

[Remark]

If the results of measurement performed in the INT status have not been deleted, the following message appears.

```

----- WARING -----
All the measurement results will be
DELETED !!
Are you sure ?
If yes, Select "YES" by the trackball
then press SET, and MEASURE.
If no, Select "NO" by trackball
then press SET.
                                     [ YES ]
                                     [ NO  ]

```

- ⑤ If it is OK to delete the results of measurement performed in the INT status, confirm the highlighted display is at [YES], then press the **SET** switch.
- The message is deleted, so press the **MEASUREMENT** switch, **USER** switch or caliper mark switch to start the desired measurement, then perform measurement according to the measurement procedure.
 - If you do not wish to delete the results of measurement performed in the INT status, move the highlighted display to [NO] with the trackball, and press the **SET** switch, or press the **MEASUREMENT** switch once again.
- The message is deleted, and the system returns to the status of ③.

[Remark]

So long as you do not delete the results of measurement in the INT status, you cannot perform measurement on a VCR image.

<When using manual calibration>

- ① Press the **INT/EXT** switch.
- ② Play back images on the VCR.
- ③ Press the **FREEZE** switch.
 - Image playback stops.

[Remark]

The VCR tape does not stop in this case. (This does not apply to when the SONY SVO-9500MD4 is connected.)

- ④ Press the **MEASUREMENT** switch.
 - If manual calibration is necessary, the following messages are displayed.

```

----- VCR TAPE READ ERROR -----
Unable to read calibration code
from VCR tape.
Take Action (A) or (B) bellow:
(A) Unfreeze, release VCR pause,
then freeze again to start measurement.
(B) Press a corresponding <MODE> key,
calibrate manually, then start measurement.

```

If you wish to try auto calibration once again, press the **FREEZE** switch once again. (A)
 To perform manual calibration, press the mode switch that matches the displayed image. (B)

(When using a single mode such as the B, M or D mode)

<B-mode>

- ① Press the **B** switch.
 → B calibration starts, and the calibration menu appears.

- ② Enter the date displayed on the playback image from the keyboard, then press the **SET** switch or the **CR** switch.

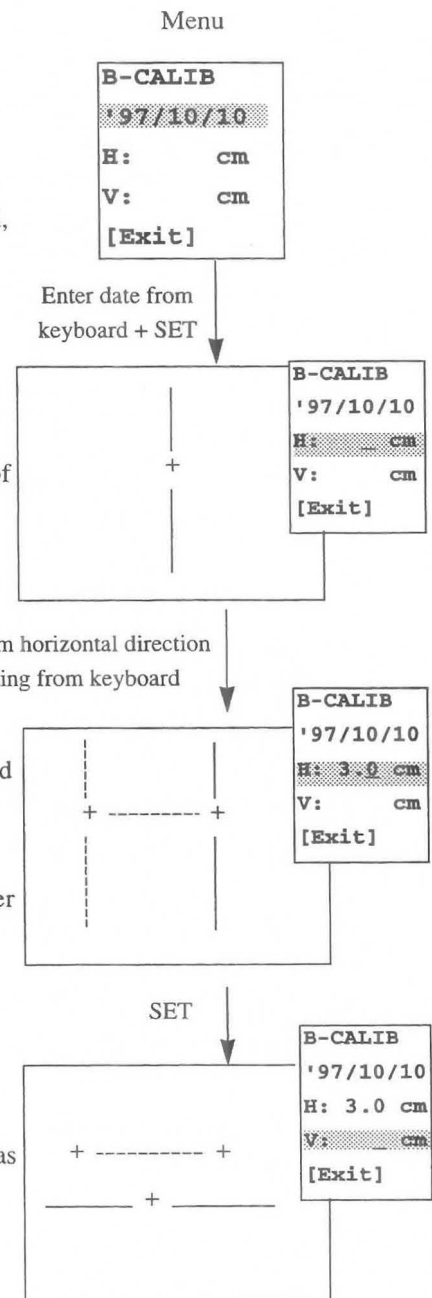
→ The horizontal direction setting caliper mark appears.

- ③ Using the trackball, move the caliper mark to the starting point of the position to be set.

- ④ Press the **MARK REF** switch to separate the caliper marks.
 → Using the trackball, move one of the caliper marks to the end point of the position to be measured.

- ⑤ Enter a numerical value between the horizontal direction caliper marks.

- ⑥ Press the **SET** switch or **CR** switch.
 → The vertical direction setting caliper mark appears.
 The operation method for the vertical direction is the same as steps ③ to ⑤.

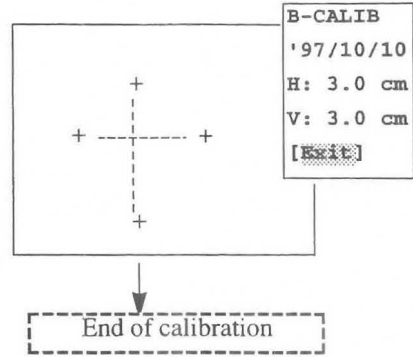


18-3. VCR Playback Measurement

- ⑦ If the highlighted display is at [Exit], press the **SET** switch or the **CR** switch.
 → This ends the setting work for B mode calibration.

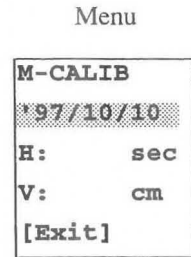
[Remark]

If the highlighted display is at **[Exit]**, you can change the H and V settings by moving the highlighted display using the rotary switch. (Common to all modes)



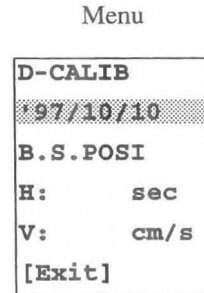
<M-mode>

- ① Press the **M** switch.
 → M calibration starts, and the calibration menu appears.
- ② Enter the date displayed on the playback image, then press the **SET** switch or the **CR** switch.
- ③ Set the horizontal and vertical directions of the M mode using the same procedure as steps ③ to ⑦ of B mode calibration.
- ④ Put the highlighted display in the [Exit] status, then press the **SET** switch or the **CR** switch.
 → This ends setting work for M mode calibration.



<D-mode>

- ① Press the **D** switch.
 → D calibration starts, and the calibration menu appears.
- ② Enter the date displayed on the playback image, then press the **SET** switch or the **CR** switch.
- ③ The baseline setting mark appears at the center of the screen.
- ④ Using the trackball, align the baseline with the baseline of the image, then press the **SET** switch or the **CR** switch.
- ⑤ Set the horizontal and vertical directions of the D mode using the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑥ Press the **SET** switch or the **CR** switch.
 → This ends setting work for D mode calibration.



(When using multiple modes such as the 2B, B/M or B/D mode)

<2B-mode image>

- ① Press the **B:B** switch.
→ 2B calibration starts, and the calibration menu appears.
- ② Enter the date displayed in the playback image, then press the **SET** switch or the **CR** switch.
→ The 2B1 area setting caliper switch is displayed.
- ③ Set the 2B1 area.
→ Using the trackball, move the caliper mark to the top left of the image display area, then press the **MARK REF** switch.
- ④ Move one of the separated caliper marks to the bottom right of the image display area, then press the **SET** switch or the **CR** switch.
→ The 2B1 area is finalized.
- ⑤ Set the 2B2 area.
→ Set the 2B1 area using the same procedure.
- ⑥ Set the horizontal and vertical directions of the 2B1 area.
→ Use the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑦ Set the horizontal and vertical directions of the 2B2 area.
- ⑧-1. If the 2B2 area can be set identically to the 2B1 area, select (Y), then press the **SET** switch or the **CR** switch.

Menu

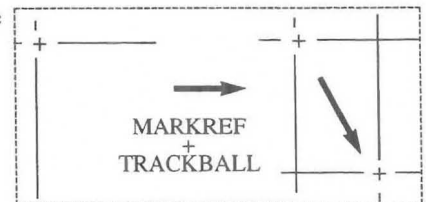
```

2B-CALIB
'97/10/10
I.Area(2B1)
I.Area(2B2)
2B1-CALIB
H:      cm
V:      cm
2B2-CALIB
Same as 2B1
(Y) (N)
H:      cm
V:      cm
[Exit]
    
```

Enter date from
keyboard + SET

```

2B-CALIB
'97/10/10
I.Area(2B1)
I.Area(2B2)
2B1-CALIB
H:      cm
V:      cm
2B2-CALIB
Same as 2B1
(Y) (N)
H:      cm
V:      cm
[Exit]
    
```



```

2B-CALIB
'97/10/10
I.Area(2B1)
I.Area(2B2)
2B1-CALIB
H: 3.0 cm
V: 3.0 cm
2B2-CALIB
Same as 2B1
(Y) (N)
H:      cm
V:      cm
[Exit]
    
```

```

2B-CALIB
'97/10/10
I.Area(2B1)
I.Area(2B2)
2B1-CALIB
H: 3.0 cm
V: 3.0 cm
2B2-CALIB
Same as 2B1
(Y) (N)
H:      cm
V:      cm
[Exit]
    
```

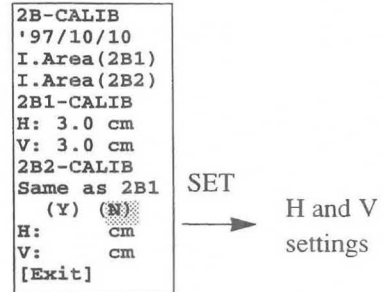
SET

```

2B-CALIB
'97/10/10
I.Area(2B1)
I.Area(2B2)
2B1-CALIB
H: 3.0 cm
V: 3.0 cm
2B2-CALIB
Same as 2B1
(Y) (N)
H: 3.0 cm
V: 3.0 cm
[Exit]
    
```

18-3. VCR Playback Measurement

- ⑧-2 If you selected a setting for the 2B2 area that is different to that of the 2B1 area (N), set the horizontal and vertical directions of the 2B2 area using the same procedure as steps ③ to ⑦ of B mode calibration.



- ⑨ Move the highlighted display to [Exit], then press the **SET** switch or the **CR** switch.
→ This completes the setting procedure for 2B mode calibration.

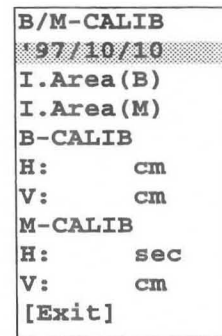
[Remark]

If the highlighted display is at [Exit], you can change the H and V settings by moving the highlighted display using the rotary switch. (Common to all modes)

<B/M mode>

- ① Press the **B/M** switch.
→ B/M calibration starts, and the calibration menu appears.
- ② Enter the date displayed on the playback screen, then press the **SET** switch.
→ The B area setting caliper mark appears.
- ③ Set the B area.
→ Perform the same procedure as steps ③ and ④ of 2B mode calibration.

Menu



- ④ Set the M area.
→ Perform the same procedure as steps ③ and ④ of 2B mode calibration.
- ⑤ Set the horizontal and vertical directions of the B area using the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑥ Set the horizontal and vertical directions of the M area as well using the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑦ Press the **SET** switch.
→ This completes the setting procedure for B/M mode calibration.

<B/D mode>

Menu

B/D-CALIB
'97/10/10
I.Area (B)
I.Area (D)
B-CALIB
H: cm
V: cm
D-CALIB
H: sec
V: cm/s
[Exit]

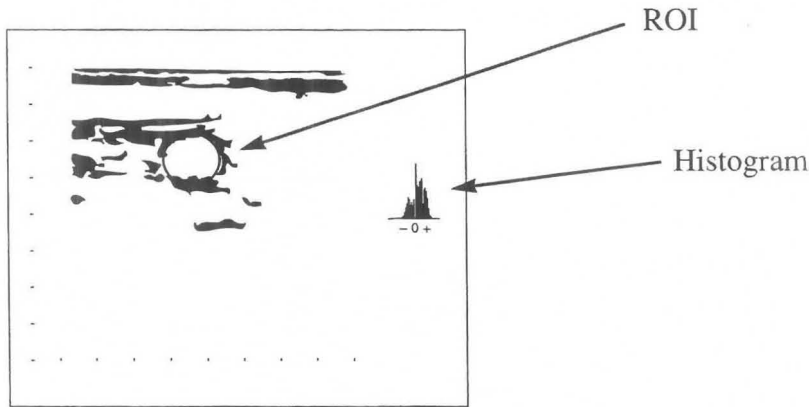
- ① Press the B/D switch.
→ B/D calibration starts, and the calibration menu appears.
- ② Enter the date displayed on the playback image, then press the SET switch.
→ The B area setting caliper mark appears.
- ③ Set the B area.
→ Perform the same procedure as steps ③ and ④ of 2B mode calibration.
- ④ Set the D area.
→ Perform the same procedure as steps ③ and ④ of 2B mode calibration.
- ⑤ Perform B mode calibration.
→ Set the horizontal and vertical directions of the B area using the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑥ Perform D mode calibration.
→ The baseline mark appears at the center of the screen.
- ⑦ Using the trackball, align the baseline setting mark with the baseline of the image, then press the SET switch.
- ⑧ Set the horizontal and vertical directions of the D area using the same procedure as steps ③ to ⑦ of B mode calibration.
- ⑨ Press the SET switch.
→ This completes the setting procedure for B/D mode calibration.

18-5. B Flow Histogram (when an option is connected)

In the B + Flow mode, you can display the color (blood flow signal) intensity of an arbitrary area of a slice image using a histogram. A color histogram displays the area ratio between a black and white image and a color (blood flow) image in an arbitrary area, as a percentage.

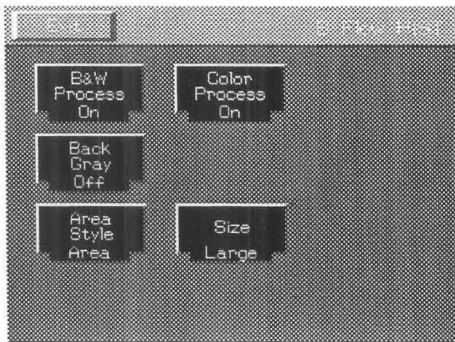
A histogram can also be used to process power flow information as well.

Note
Freeze the image before carrying out measurement.



18-5-1. Measurement menu (touch panel menu)

When B Flow Histogram measurement is selected, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Color Post Process :

Use to set whether or not to apply image processing to a color image.

Back Gray :

Use to set whether or not to superimpose a histogram on the displayed results of basic measurement.

Area Style :

Use to set the shape of the ROI of a histogram.

Size :

Use to set the displayed size of a histogram.

18-4-2. B Flow HIST operation method

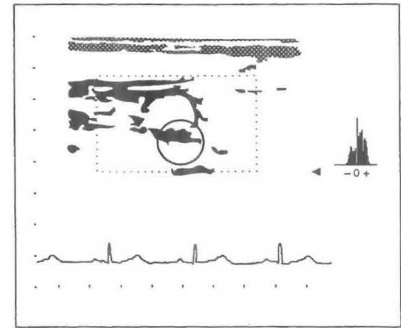
Before starting measurement, display the screen to be measured using the search function.

- ① Select B Flow HIST from the menu.

→A circular ROI (region of interest) appears on the screen.

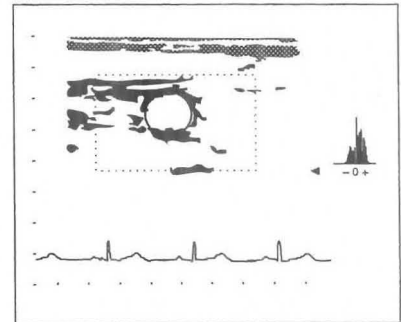
[Remark]

If you select Area of Area Style, a circular ROI appears. If you select Box, a square ROI appears. If you select Trace, a "+" mark appears.



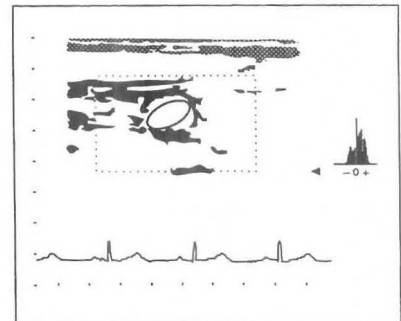
- ② Using the trackball, move the ROI to a position that surrounds the blood vessel to be measured.

→A color histogram and the measurement results are displayed.



- ③ Press the **MARK REF** switch.

→The ROI becomes a dotted line. Next, enlarge or reduce the ROI using the trackball, and rotate the ROI using the rotary encoder so that its size matches the part to be examined.



- ④ Once again, press the **MARK REF** switch.

→The ROI becomes a solid line, and can be moved using the trackball.

- ⑤ Using the trackball, move the ROI to the position to be measured and wait for several seconds.

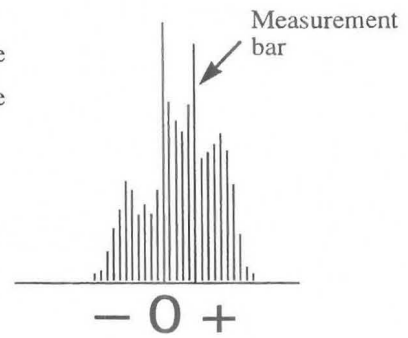
→The measurement results shown below and also a histogram of the color signals are displayed.

<Measurement results>

Ab	* * . * * cm ²	Area of ROI
Ac	* * . * * cm ²	Area of color (power) information part inside the ROI
BCR	* * . * * %	Ratio of the area of the color (power) information part inside the ROI to the total area of the ROI

18-4. B Flow Histogram

- ⑦ With the ROI displayed as a solid line, turn the rotary encoder.
 →A measurement bar appear on the histogram, and the area on the measurement bar and also the measurement bar ratio are displayed.



<Measurement results>

<p>Area * * . * * cm²</p> <p>R * * . * * %</p> <p>Ab * * . * * cm²</p> <p>Ac * * . * * cm²</p> <p>BCR * * . * * %</p>	<p>Area of the gradations on the measurement bar of the color histogram</p> <p>Ratio of the area of the gradations on the measurement bar to the area of the entire color histogram</p> <p>Area of the ROI</p> <p>Area of color (power) information part inside the ROI</p> <p>Ratio of the area of the color (power) information part inside the ROI to the total area of the ROI</p>
--	---

- ⑧ After the end of measurement, if you select Exit on the touch panel, or press the MEASUREMENT switch, the measurement marks and the measurement results are all erased.

18-5. Flow Profile (when an option is connected)

Flow profile is a function that uses color Doppler information to measure the volume of blood flowing through a blood vessel.

It is suitable only for elliptical blood vessels through which blood flows in one direction, such as the carotid artery. It is not suitable for performing measurement at places where there is turbulence.

Flow Profile can also be used to process power flow information as well.

In the case of power flow, there is no unit of flow volume, so the FVI (Flow Volume Index) is displayed.

$$\text{FVI} = \text{Size of each gradation [dB]} \times \text{Number of gradations [cm}^2] \div \text{Frame rate [Frames/Sec]} = \text{**.**}[dB.cm2.sec/Frame]$$

You can also display a profile of black and white information.

In the case of black and white information, **A-mode**, which is brightness information, is displayed as a profile.

Note

When performing flow measurement, be sure to display an ECG.
 When there is no ECG display, you cannot perform flow measurement accurately.

Note

During measurement, measurement errors will increase, so observe the following conditions.

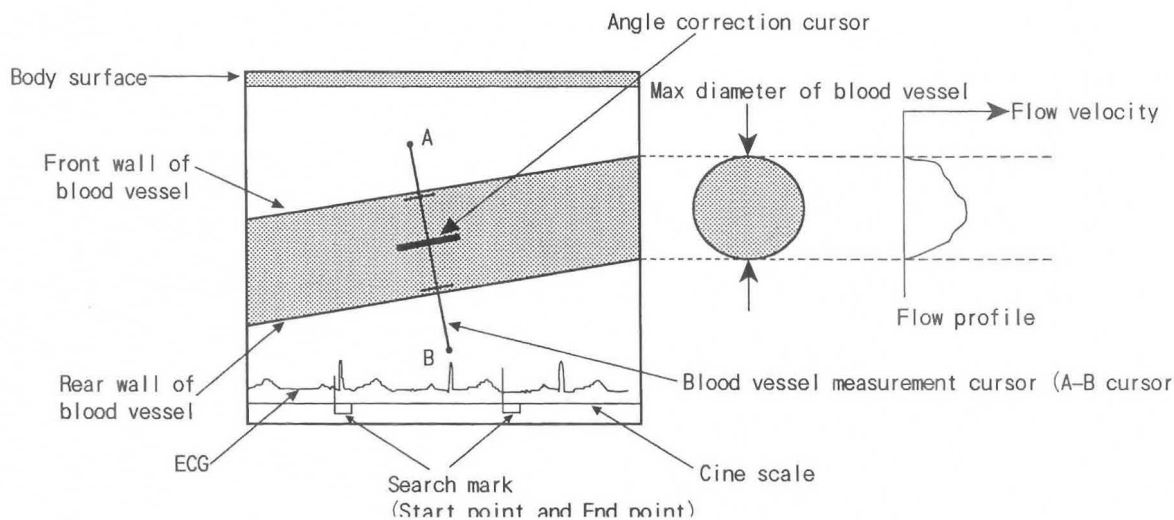
- Display a long-axis cross-sectional image at the point where the diameter of the blood vessel is a maximum.
- Use this method on blood vessels through which blood flows in one direction.
- Set the flow velocity to the minimum range at which aliasing does not occur.
- Adjust the flow gain so that the inside of the blood vessel is filled with color flow as far as possible. Also, ensure that color flow noise is minimal.
- Set the flow filter as low as possible.
- Adjust the blood vessel diameter cursor [A-B] so that it is as near perpendicular to the blood vessel as possible.
- Perform angle correction.
- Set Color Smooth to Off.

Note

Freeze the image before carrying out measurement.

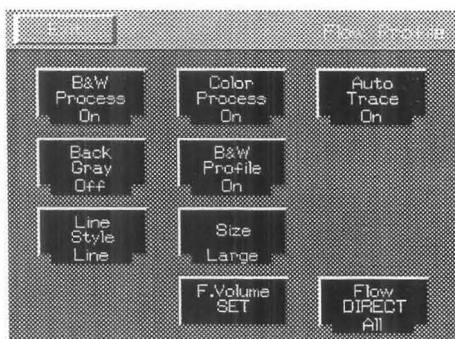
18-5. Flow Profile

18-5-1. Flow profile



18-5-2. Measurement menu (touch panel menu)

When you select Flow profile measurement, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Color Post Process :

Use to set whether or not to apply image processing to a color image.

Auto Trace :

Use to set whether or not the equipment automatically recognizes the range of blood flow when obtaining the average flow velocity of a flow profile.

Back Gray :

Use to set whether or not to superimpose a histogram on the displayed results of basic measurement.

B&W Profile :

Use to set the method of displaying a flow profile waveform and a black and white image profile.

Line Style :

Use to set the kind of flow profile waveform display.

Size :

Use to set the display size of the flow profile waveform.

F. Volume SET :

Use to start flow volume measurement.

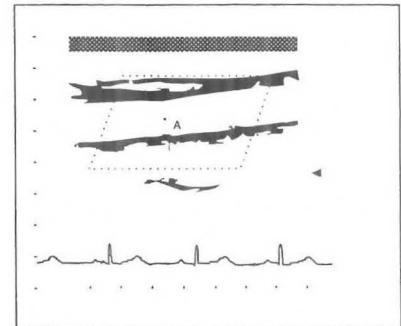
Flow DIRECT :

Use to set the flow velocity direction to one of three directions when measuring the flow volume.

18-5-3. Flow Profile operation method

① **Select Flow Profile**

→Caliper mark "A" for flow volume measurement (Profile) appears at the center of the screen.



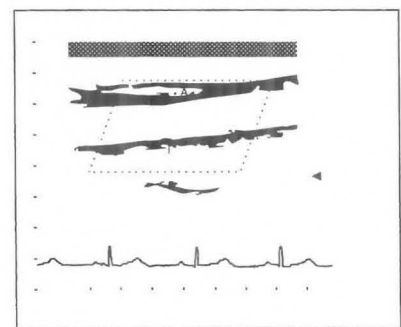
② Using the trackball, set caliper mark $\lambda A \mp$ at a point near the front face of the front wall of the blood vessel.

③ Press the **MARK REF** switch.

→The caliper mark divides into A-B, which becomes a cursor. Also, a profile graph appears.

[Remark]

When you press the **MARK REF** switch, the movable mark switches over.

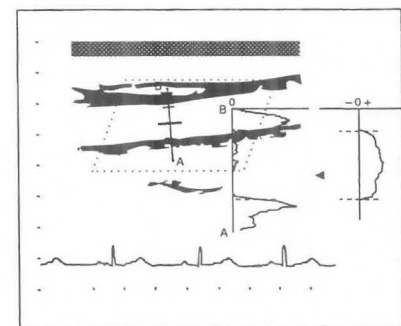


④ Move cursor A-B using the trackball.

Set caliper mark $\lambda A \mp$ so that cursor A-B passes immediately outside the rear wall of the blood vessel.

[Remark]

If you set caliper marks $\lambda A \mp$ and "B" at points remote from the blood vessel wall, it may not be possible to accurately measure the color flow part. For this reason, set the marks outside the blood vessel wall at points as close as possible to it.



⑤ Set the center bar (angle correction cursor) of cursor A-B so that the cursor is parallel to the blood vessel.

→When Auto Trace of the menu is ON, the distance measurement bars automatically appear at positions corresponding to the blood vessel walls.

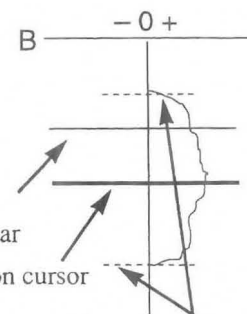
When Auto Trace is OFF, turn the rotary encoder, and move the distance measurement bars to positions corresponding to the blood vessel walls.

⑥ Turn the rotary encoder.

→The flow velocity measurement bars move up or down.

Flow velocity measurement bar

Angle correction cursor

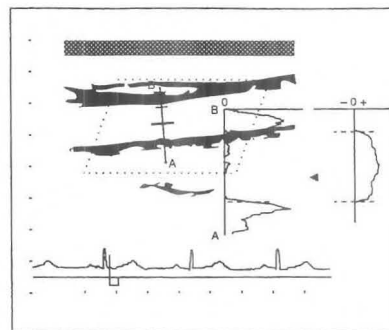


A Distance measurement bars

⑦ Press the **SET** switch to switch over the movable flow velocity measurement bar.

18-5. Flow Profile

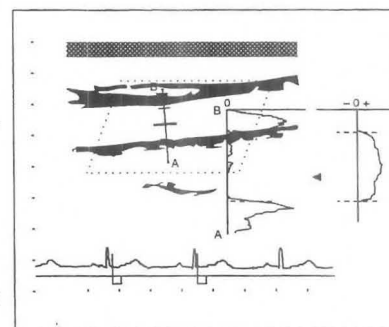
- ⑧ Select F. Volume SET on the touch panel.
 →If the ECG appears normally, and the R wave can be detected, flow volume measurement for the last heartbeat immediately before the image was frozen starts.
 Upon completion of computation, the results appear at bottom right of the screen.



- ⑨ If you wish to measure the flow volume for another heartbeat, press the SEARCH switch.
 →The cine scale and the search mark appear at the bottom of the screen.

- ⑩ Using the trackball, move the search mark to the start point of flow volume measurement.

- ⑪ Press the MARK REF switch.
 →The search mark separates. The movable search mark appears as a solid line, and the set search mark as a dotted line.



- ⑫ Move the search mark.
 →The measurement results are renewed in real time.

[Remark]

If it is necessary to perform angle correction, press the ANGLE switch, then correct the angle using the rotary encoder.

- ⑬ After the end of measurement, if you select Exit on the touch panel, or press the MEASUREMENT switch, the measurement marks and the measurement results are all erased.

<Measurement results>

Dist	* * . * * cm	Distance between two lines on the flow profile waveform
Vel	* * . * * cm/s	Flow velocity value on the flow velocity measurement bar
EL	* * . * * dB	Brightness level of the black and white information on the flow velocity measurement bar
Mean	* * . * * cm/s	cm/s Average velocity between two lines on the flow profile waveform
FV	* * * . * ml /f	Flow volume per frame of the displayed ultrasound image
FV	* * * . * ml /b	Flow volume per heartbeat set on the cine scale
FV	* * * . * ml /m	Flow volume per minute

(Power flow)

Display a B + Power Flow mode image, then carry out steps ① to ⑬ above.

[Remark]

There is no unit of flow volume so the FVI (Flow Volume Index) is displayed.

$FVI = \text{Size of each gradation}[\text{dB}] \times \text{Number of gradations} [\text{cm}^2]/\text{Frame rate}$

$[\text{Frame/Sec}] = * * . * * [\text{dB} \cdot \text{cm}^2 \cdot \text{sec}/\text{Frame}]$

<Measurement results>

Dist	* * . * * cm	Distance between two lines on the flow profile waveform
Pwr	* * . * * dB	Gradation value on the flow volume measurement bar
EL	* * . * * dB	Gradation value of black and white information on the flow volume measurement bar
Mean	* * . * * dB	Average gradation value between two lines on the flow profile waveform
FVI	* * * . * /f	Index per frame of the displayed ultrasound image
FVI	* * * . * /b	Index per heartbeat set on the cine scale.
FVI	* * * . * /m	Index per minute

18-6. B TDI Profile (when an option is connected)

TDI profile is a function that measures the velocity of motion of the cardiac muscle, for example, from the B TDI mode, by means of a B mode TDI Flow image.

It can also be used to process PW Doppler information as well.

In the case of black and white information, **A-mode**, which is brightness information, is displayed as a profile.

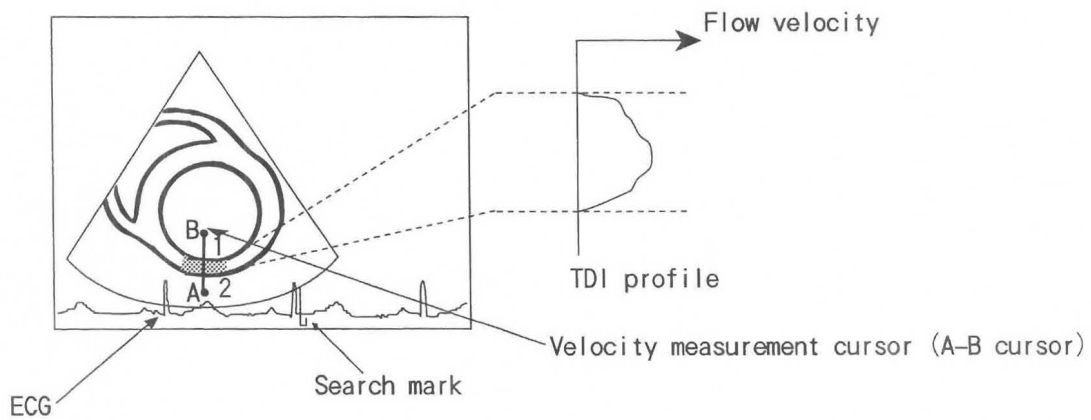
⚠ Note

Set the flow velocity to the minimum range at which aliasing does not occur.
Set the flow filter as low as possible.

⚠ Note

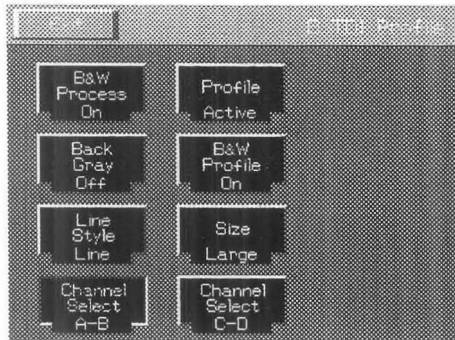
Freeze the image before carrying out measurement.

18-6-1. B TDI profile



18-6-2. Measurement menu (touch panel menu)

When you select B TDI Profile measurement, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Profile :

Use to select the profile to be displayed.

Back Gray :

Use to set whether or not to apply back gray to the measurement results, and also to set the caliper measurement result display to On or Off.

B&W Profile :

Use to set the method of displaying a TDI profile waveform and a black and white image profile waveform.

Line Style :

Use to set the kind of TDI profile waveform display.

Size :

Use to set the display size of the TDI profile waveform.

Channel Select A-B, C-D :

Use to switch between A-B and C-D measurement.

18-6-3. B TDI Profile operation method

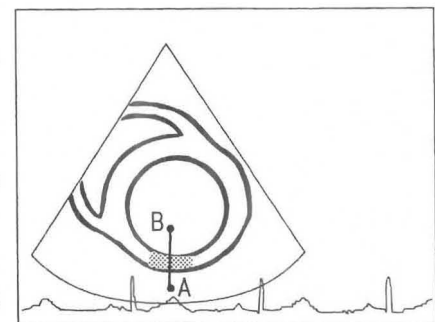
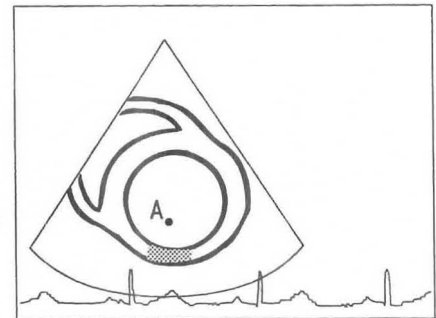
- ① Select **B TDI Profile**.
→Mark "A" appears at the center of the screen.
- ② Using the trackball, set mark "A" at the front face of the cardiac muscle wall.
- ③ Press the **MARK REF** switch.
→The caliper mark divides into A-B, which becomes a cursor.
Also, a profile graph appears.

[Remark]

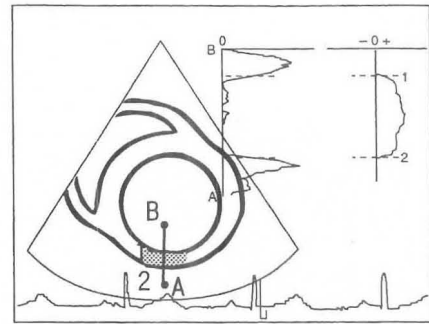
Bars 1 and 2 are displayed on the straight line AB resulting from the separation of mark A and mark B, for measuring velocity on tissue.

[Remark]

Pressing the **MARK REF** switch causes the movable mark to switch over.



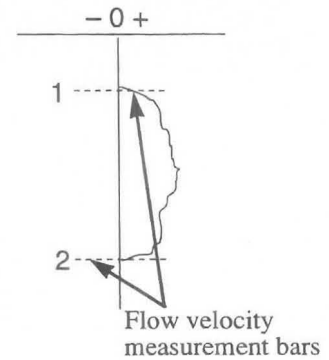
- ④ Move cursor A-B using the trackball.
 →Set cursor A-B so that caliper mark "B" is at a point immediately outside the cardiac muscle wall, and the cursor straddles the cardiac muscle wall.



- ⑤ Using the rotary encoder, move flow velocity measurement bars 1 and 2 up or down.

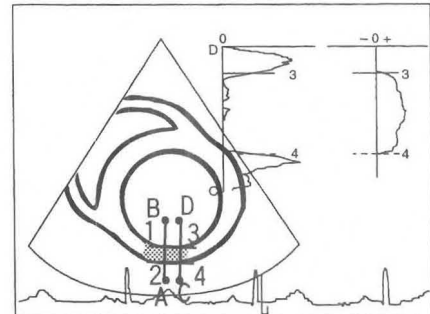
[Remark]

Switch over the bar that can move, using the SET switch.



- ⑥ Select Channel Select C-D from the menu.
 →Two-channel measurement starts, and another time axis bar is displayed.

- ⑦ You can perform the same measurement by carrying out steps ①~⑤.



- ⑧ After the end of measurement, if you select Exit on the touch panel, or press the MEASUREMENT switch, the measurement marks and the measurement results are all erased.

<Measurement results>

AB:M	* * . * * cm/s	Average flow velocity between two lines on the flow profile waveform
1:	* * . * * cm/s	Flow velocity on the flow velocity measurement bar near A
2:	* * . * * cm/s	Flow velocity on the flow velocity measurement bar near B
1-2:	* * . * * cm/s	Difference in velocity between 1 and 2
D:	* * . * * cm	Distance between bars 1 and 2
CD:M	* * . * * cm/s	Average flow velocity between two lines on the flow profile waveform
3:	* * . * * cm/s	Flow velocity on the flow velocity measurement bar near C
4:	* * . * * cm/s	Flow velocity on the flow velocity measurement bar near D
3-4:	* * . * * cm/s	Difference in velocity between 3 and 4
D:	* * . * * cm	Distance between bars 3 and 4

18-7. M Flow Profile (when an option is connected)

This function extracts color information from an M mode + color image, and measures the displacement and velocity distribution from the velocity information. It can also be used to process black and white information as well.

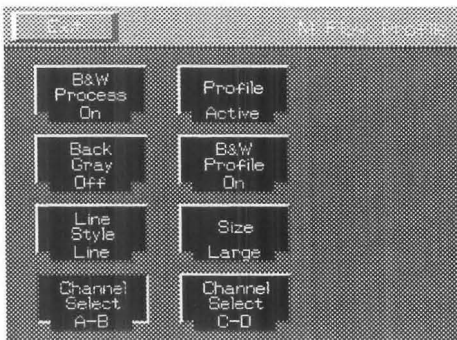
In the case of black and white information, **A-mode**, which is brightness information, is displayed as a profile.

Note

Freeze the image before carrying out measurement.

18-7-1. Measurement menu (touch panel menu)

When you select M Flow Profile measurement, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Profile :

Use to select the profile to be displayed.

Back Gray :

Use to set whether or not to apply back gray to the measurement results.

B&W Profile :

Use to set the method of displaying a black and white image profile waveform.

Line Style :

Use to set the kind of profile waveform display.

Size :

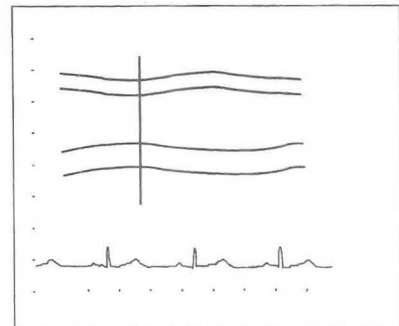
Use to set the display size of the profile waveform.

Channel Select A-B, C-D :

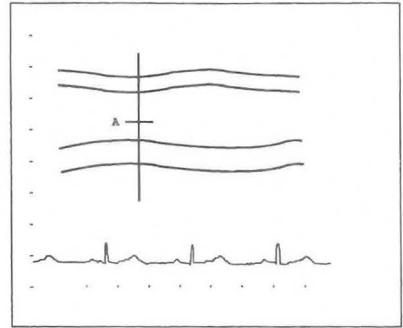
Use to switch between A-B and C-D measurement.

18-7-2. Flow Profile operation method

- ① Display a satisfactory B Flow/M mode image, then freeze it. Next, press the M mode switch to request an image. Select M Flow Profile.
→A time axis bar appears at the center of the screen.
- ② Using the trackball, move the time axis bar to the measurement position, then press the **MARK REF** switch.
→The time axis bar is fixed, and the A bar appears.



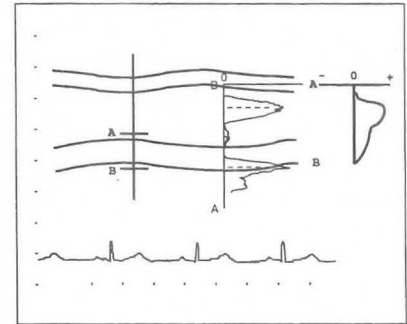
- ③ Using the trackball, move the A bar to the measurement position, then press the **MARK REF** switch.
 →The A bar is fixed, and the B bar appears.



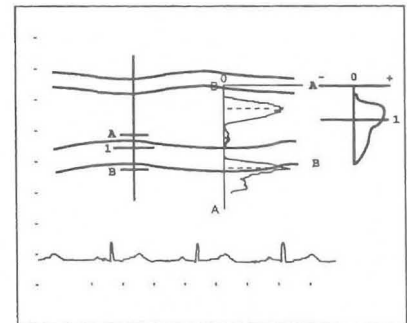
- ④ Using the trackball, move the B bar to the measurement position, then press the **MARK REF** switch.
 →The B bar is fixed, and the profile appears.

[Remark]

Each time you press the **MARK REF** switch, the function of the trackball switches in the sequence, Time axis bar → A bar → B bar → Time axis bar ...



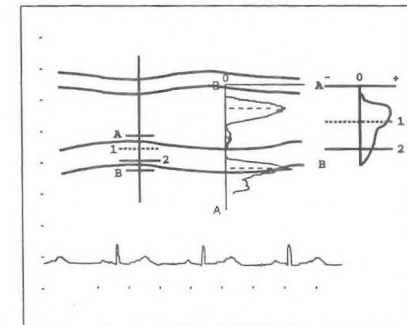
- ⑤ Press the **SET** switch.
 →One bar is displayed between A and B. One bar is displayed on the profile, and the velocity on the bar is displayed.



- ⑥ Press the **MARK REF** switch.
 →Two bars are displayed between A and B.
 Two bars are displayed on the profile, and the velocity on both bars is displayed.

[Remark]

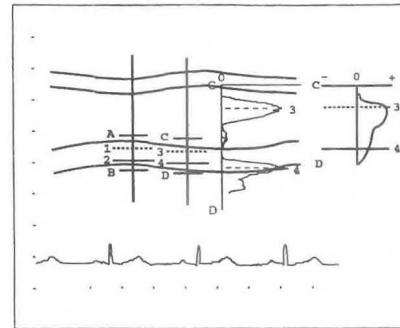
Pressing the **MARK REF** switch causes the movable bar to switch over.



18-7. M Flow Profile

⑦ Select the C-D measurement item from the menu, and start two-channel measurement.

⑧ You can perform the same measurement by carrying out steps ② ~ ⑥.



⑨ After the end of measurement, if you select Exit on the touch panel, or press the MEASUREMENT switch, the measurement marks and the measurement results are all erased.

[Remark]

If necessary, call the B mode image using the request function, and correct the angle on the B mode image using the rotary encoder.

<Measurement results>

AB:M	* * . * * cm/s	Average velocity between point A and point B
1:	* * . * * cm/s	Velocity at point 1
2:	* * . * * cm/s	Velocity at point 2
1-2:	* * . * * cm/s	Difference in velocity between 1 and 2
D:	* * . * * cm	Distance between bars 1 and 2
CD:M	* * . * * cm/s	Average velocity between point C and point D
3:	* * . * * cm/s	Velocity at point 3
4:	* * . * * cm/s	Velocity at point 4
3-4:	* * . * * cm/s	Difference in velocity between 3 and 4
D:	* * . * * cm	Distance between bars 3 and 4

18-8. M Flow Trace (when an option is connected)

This function traces an M + Flow mode image, extracts the TDI image of the cardiac muscle in the range of the M + Flow mode image, then measures the displacement and velocity distribution from the velocity information.

[Remark]

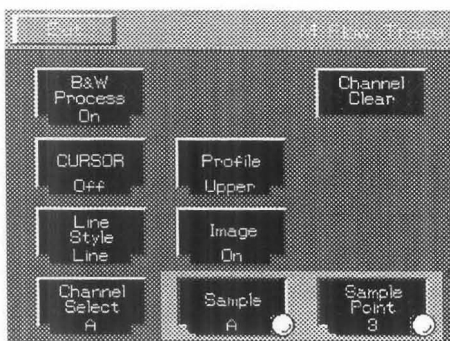
You can also perform this measurement on an arbitrary M mode image from the B Flow mode.

Note

Freeze the image before carrying out measurement.

18-8-1. Measurement menu (touch panel menu)

When M Flow Profile measurement is selected, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Channel Clear :

Use to erase the active channel of channels A and B.

CURSOR :

Use to set the solid line time axis cursor display to On or Off.

Profile :

Use to set the profile display to On or Off, and also to set the display position.

Line Style :

Use to set the kind of profile waveform display.

Image :

Use to set whether or not to display an M mode image during a profile display.

Channel Select :

Use to make channel A or B active.

Sample :

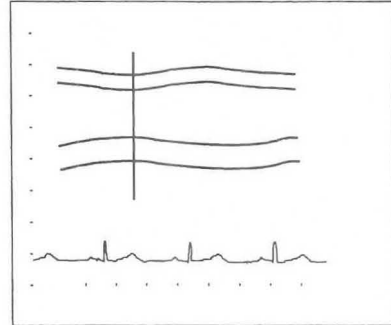
Use to set the conditions for estimating the velocity from the number of data points set using Sample Point.

Sample Point :

Use to set the number of data points on the trace line at which the velocity is to be measured during an auto trace.

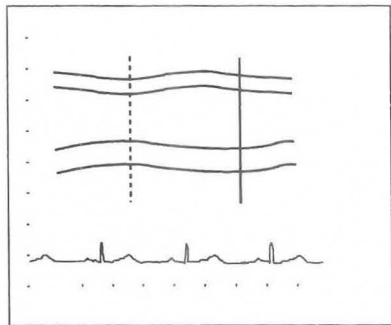
18-8-2. M Flow Trace operation method

- ① Display a satisfactory B Flow/M mode image, then freeze it.
Press the M mode switch to request an image.
Select **M Flow Trace** from the touch panel menu.
→The time axis cursor appears at the center of the screen.



- ② Using the trackball, move the time axis cursor left or right.

- ③ Press the **MARK REF** switch to separate the time axis cursor, then move the cursor with the trackball.



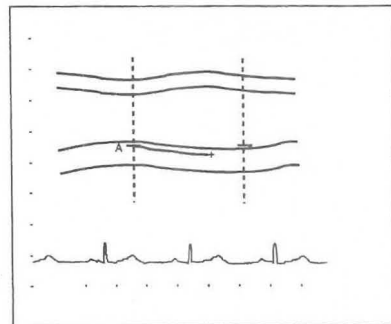
- ④ Press the **MARK REF** switch to display horizontal bar (A) on the time axis cursor.

- ⑤ Using the trackball, move horizontal bar (A) up or down, then press the **SET** switch. Auto trace starts, and the measurement results are displayed.

Pressing the **MARK REF** switch starts the manual trace.

[Remark]

As you roll the trackball, the trace advances. Turning the rotary encoder to the left causes the trace to be progressively erased.

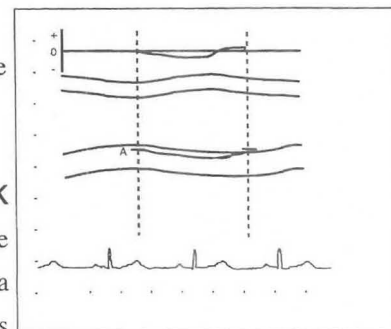


- ⑥ Press the **SET** switch at an arbitrary point in time. Auto trace takes place as far as the time axis cursor.

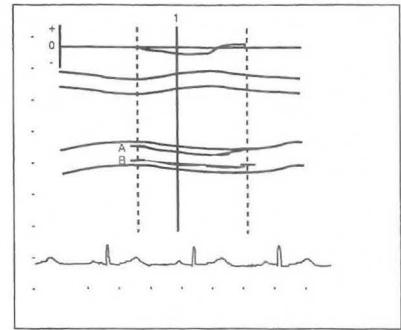
→The trace ends, and the measurement results and the profile are displayed.

[Remark]

If the trace does not reach the time axis cursor when you press the **MARK REF** switch, join the remaining part of the trace with a straight line. If the trace reaches or goes past the time axis cursor, erase the data corresponding to the part of the trace that has gone past the time axis cursor, then end the trace.



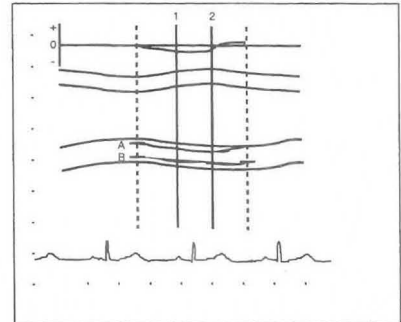
- ⑦ Select Channel Select on the menu to display horizontal bar (B) on the time axis cursor.
→You can perform measurement in the same way as for horizontal bar (A).



- ⑧ Press the **CURSOR** switch on the touch panel.
→Measurement cursor 1 appears.
One bar is displayed on the profile as well.

[Remark]

When you press the **MARK REF** switch, measurement cursor 2 appears. Switch between cursors 1 and 2 using the **MARK REF** switch.



- ⑨ Move the measurement cursor using the trackball.
- ⑩ After the end of measurement, if you select Exit on the touch panel, or press the **MEASUREMENT** switch, the measurement marks and the measurement results are all erased.

<Measurement results>

A

PV +* *. * * cm/s
- * *. * * cm/s

Maximum velocity in the section (+ direction)
Maximum velocity in the section (- direction)

MV +* *. * * cm/s
- * *. * * cm/s

Average velocity in the section (+ direction)
Average velocity in the section (- direction)

D * *. * * cm

Maximum displacement in the section

1V * *. * * cm/s

Velocity at the point of intersection of measurement cursor 1 and the A trace

2V * *. * * cm/s

Velocity at the point of intersection of measurement cursor 2 and the A trace

12 * *. * . * cm/s²

Acceleration between measurement cursors 1 and 2

B

PV +* *. * * cm/s
- * *. * * cm/s

Maximum velocity in the section (+ direction)
Maximum velocity in the section (- direction)

MV +* *. * * cm/s
- * *. * * cm/s

Average velocity in the section (+ direction)
Average velocity in the section (- direction)

D * *. * * cm

Maximum displacement in the section

1V * *. * * cm/s

Velocity at the point of intersection between measurement cursor 1 and the B trace

2V * *. * * cm/s

Velocity at the point of intersection between measurement cursor 2 and the B trace

12 * *. * . * cm/s²

Acceleration between measurement cursors 1 and 2

Time1 * * * ms

Time from the time axis bar (start) to measurement cursor 1

Time2 * * * ms

Time from the time axis bar (start) to measurement cursor 2

[Remark] Here, the results of only the measurements carried out are displayed.

18-9. M TDI Wall Thickness Measurement (when an option is connected)

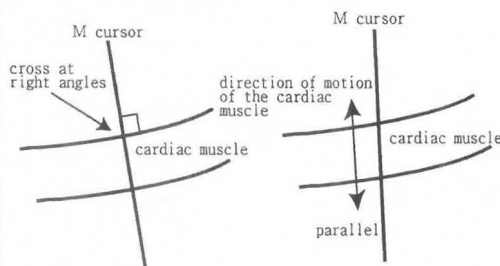
Using TDI of the M mode, measure the change in the cardiac muscle wall thickness.

[Remark] You can also perform this measurement on an M mode image from the B Flow mode.

⚠ Note

Freeze the image before carrying out measurement.

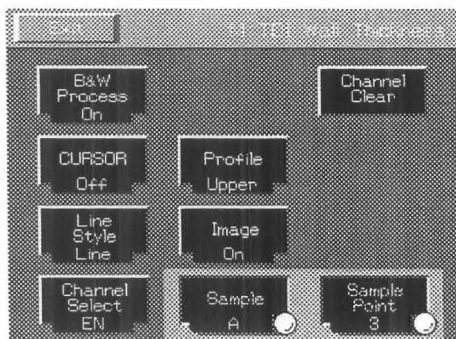
⚠ Caution



The auto-trace function operates correctly only when the cardiac muscle and the M cursor intersect each other at right angles, or when the direction of motion of the cardiac muscle is the same as the direction of the M cursor. In other cases, the auto-trace function does not operate correctly, so be very careful when setting the cursor.

18-9-1. Measurement menu (touch panel menu)

When you select M TDI Wall Thickness measurement, the following menu appears.



B&W Post Process :

Use to set whether or not to apply image processing to a black and white image.

Channel Clear :

Use to erase the active channel of channels EN and EP.

CURSOR :

Use to set the display of the solid line time axis cursor to On or Off.

Profile :

Use to set the profile display to On or Off, and also to set the display position.

Line Style :

Use to set the kind of profile waveform display.

Image :

Use to set whether or not to display an M mode image during a profile display.

Channel Select :

Use to switch over the active channel of EN, EP and Half. EN means the endocardium, EP the epicardium, and Half the mid-point between EN and EP.

Sample :

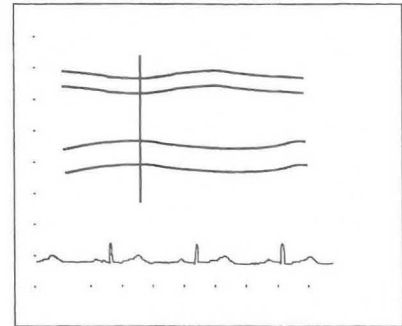
Use to set the conditions for estimating the velocity from the number of data points (3 points or 5 points) set using Sample Point.

Sample Point :

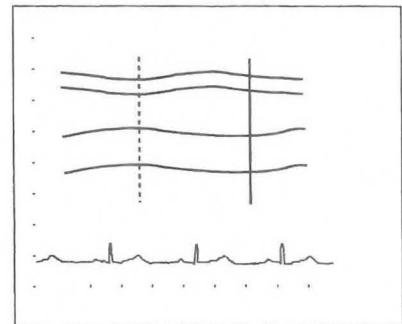
Use to set the number of data points on the trace line at which the velocity is to be measured during an auto trace.

18-9-2. M TDI Wall Thickness Measurement operation method

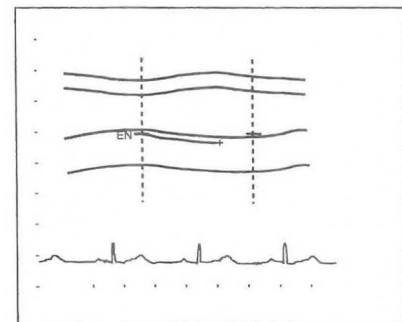
- ① Display a satisfactory B Flow/M mode image, then freeze it.
Next, press the M mode switch to request an image.
Select **M TDI Wall Thickness Measurement** from the touch panel.
→The start cursor appears at the center of the screen.



- ② Using the trackball, move the time axis cursor left or right.



- ③ Press the **MARK REF** switch to separate the time axis cursor, then move the cursor with the trackball.



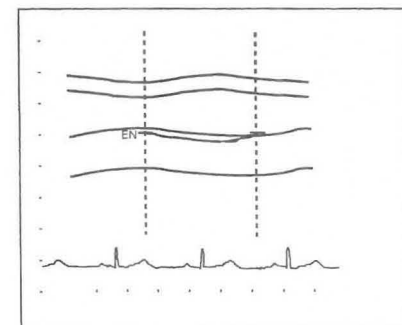
- ④ Press the **MARK REF** switch. Horizontal bar (EN) appears on the time axis cursor.

- ⑤ Using the trackball, move horizontal bar (EN) up or down, then press the **SET** switch. Auto trace starts, and the measurement results are displayed.

Press the **MARK REF** switch to start the manual trace.

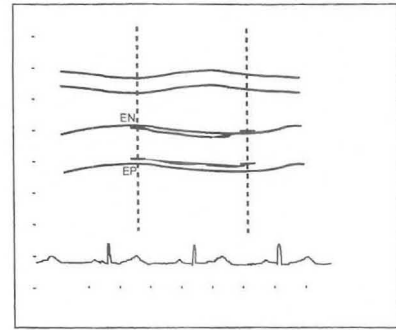
[Remark]

During a manual trace, if you turn the rotary encoder counterclockwise, the trace line is progressively erased, enabling you to repeat measurement. You can also press Channel Clear on the touch panel and repeat measurement.

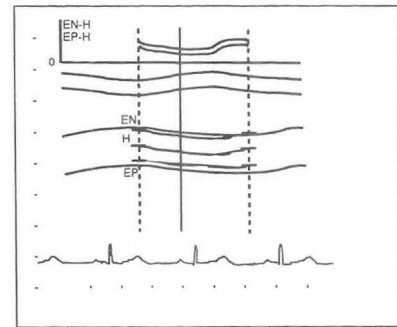


18-9. M TDI Wall Thickness Measurement

- ⑥ Select EP from Channel Select on the M Flow Trace menu. Horizontal bar (EP) is displayed on the time axis cursor.
 →You can perform measurement in the same way as for the case of horizontal bar (EN).



- ⑧ Select Half from Channel Select on the menu. Horizontal bar (H) appears on the start cursor mid-way between EN and EP.
 →H performs a trace mid-way between EN and EP. The distance between EN and H, and also the EP-H distance profile are displayed.



- ⑨ Press the **CURSOR** switch on the touch panel.
 →The measurement cursor appears.
 A bar appears on the profile as well.

- ⑩ Using the trackball, move the measurement cursor.

- ⑪ After the end of measurement, if you select Exit on the touch panel, or press the MEASUREMENT switch, the measurement marks and the measurement results are all erased.

<Measurement results>

Thickness

EN-H

MAX * . * . * cm

Maximum value of the difference between EN and H, for each time

MIN * . * . * cm

Minimum value of the difference between EN and H, for each time

* . * . *

MAX/MIN ratio

TIME * * * ms

Time at which the max value of the difference between EN and H is obtained
(from the time axis bar St)

EP-H

MAX * . * . * cm

Maximum value of the difference between EP and H, for each time

MIN * . * . * cm

Minimum value of the difference between EP and H, for each time

* . * . *

MAX/MIN ratio

TIME * * * ms

Time at which the maximum value of the difference between EP and H is obtained
(from the time axis bar St)

EN-H/EP-H

1 : * . *

Ratio based on EN-H as 1

MAX * . * . *

Maximum value of the ratio EN-H/EP-H, for each time

TIME * * * ms

Time at which the maximum value of the difference between EN and H is obtained
(from the time axis bar St)

ON CURSOR

EN-H * . * . * cm

Difference between EN and H at the cursor point

EP-H * . * . * cm

Difference between EP and H at the cursor point

EN-H/EP-H

* . * . *

Ratio of EN-H/EP-H at the cursor point

TIME * * * ms

Time from the time axis bar St to the cursor point

[Remark]

ON CURSOR appears only when Cursor is On.

19. Urological Measurements

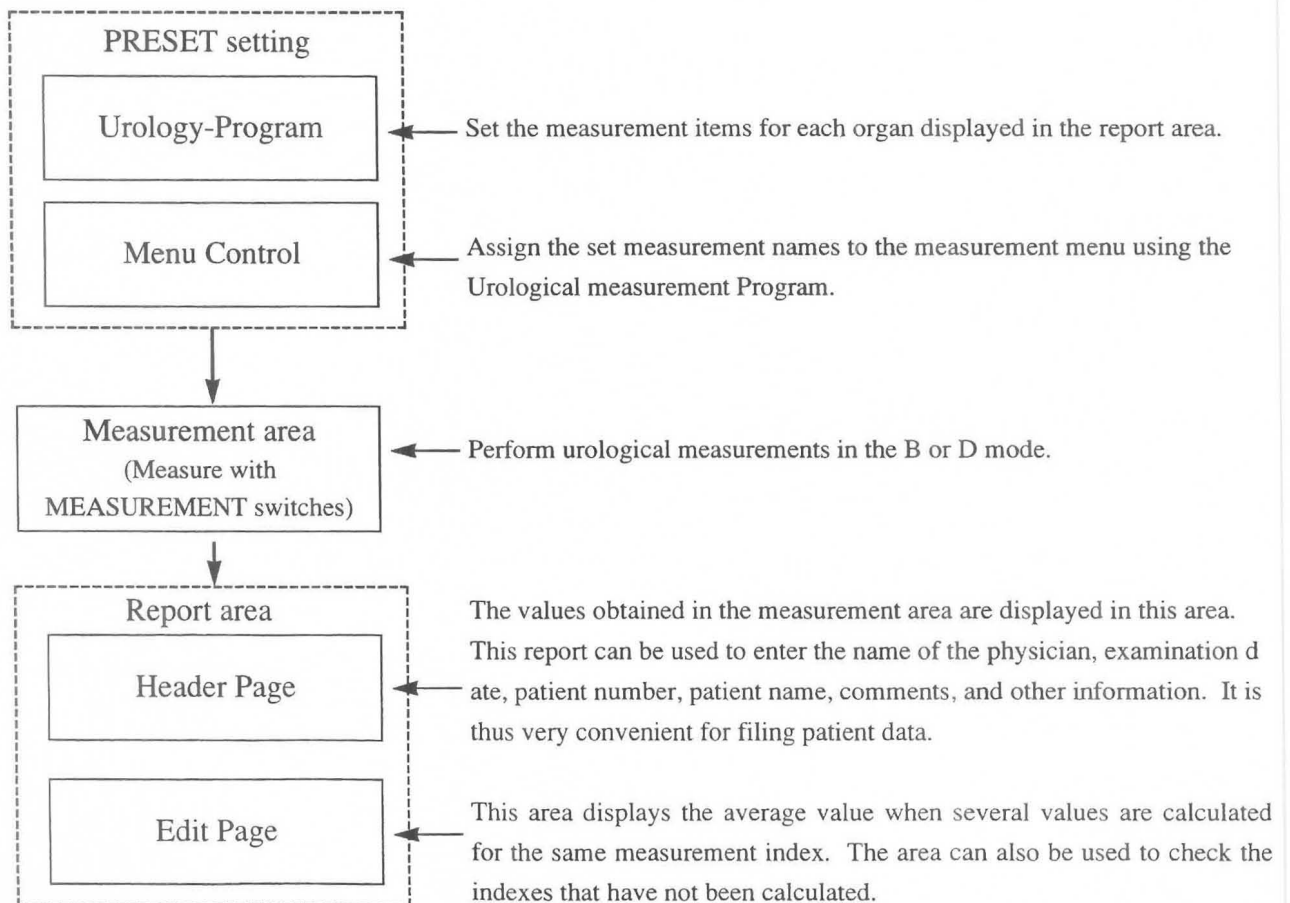
The urological measurements that can be performed with this equipment are as follows.

- ① B mode measurements : Prostate volume measurement
 Seminal vesicle measurement
 Bladder volume measurement
 Testicle volume measurement
 Renal volume measurement
 Cortical thickness measurement
 Adrenal measurement
- ② D mode measurement : Renal artery doppler measurement

[Remark]

The results of the above measurements can be output as a report.

19-1. Flow to Urology Report



This section consists of 32 pages.

19-2. Explanation of measurement items and indexes

19-2. Explanation of measurement items and indexes

The urological measurements contained in this equipment are as follows.

< B mode measurement list >

Menu name	Description of measurement
PSA Volume	The volume of the prostate gland is measured, and the following computation formulas are used to estimate the density of the special antigen of the prostate. $V = L \times W \times H \times 0.52$ $M - PSA = 0.12 \times V$ $PSA \text{ DENSITY} = \text{SERUM PSA} / V$
Seminal Vesicle	The thickness and length of the seminal vesicle are measured using the distance measurement function.
Bladder Volume	The three axes of the bladder are measured using the distance measurement function, then the data concerning these three axes is substituted into the following equation and computed as the volume. $\text{Volume} = \pi / 6 \times L \times W \times AP$
Testicular Volume	The thickness and length of the testicles are measured using the distance measurement function. $\text{Volume} = 0.65 \times L \times W \times AP$
Renal Volume	The thickness and length of the kidneys are measured using the distance measurement function. $\text{Volume} = 0.49 \times L \times W \times AP$
Cortical Thickness	The thickness of the renal cortices is measured using the distance measurement function.
Adrenal	The thickness and length of the adrenal glands are measured using the distance measurement function.

< D mode measurement list >

Menu name	Description of measurement
Renal Artery	This measurement enables the following items to be computed by tracing blood flow information pertaining to the blood vessels surrounding the kidneys. (PI, RI, S/D, pkS, pkD, AVG)

19-3. PRESET set-up (Urological measurement Program and Menu Control)

When making settings using the Preset function, set the measurement items and computation formulas using the Urological measurement Program, then assign them to the measurement menu using Menu Control.

- | | | |
|---|--|---|
| 1 | Prostate Volume Formula | Setting formula of PSA Volume measurement |
| 2 | PSA,mPSA,PSAD Coefficient Value [1.00] | Entering the coefficient value for converting to Tandem-R values. |

[Remark]

When measuring S-PSA, use Tandem-R (Hybritech Inc.).

If you use an assay other than that of Tandem-R, be sure to carry out correction.

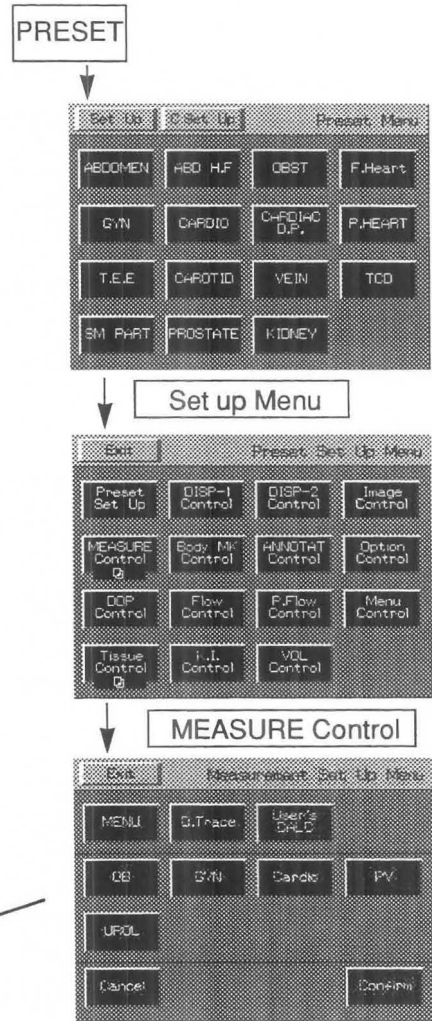
- | | | |
|---|---------------------------|--|
| 3 | Bladder Volume Formula | Setting formula of Bladder Volume Measurement |
| 4 | Testicular Volume Formula | Setting formula of Testicular Volume Measurement |
| 5 | Renal Volume Formula | Setting formula of Renal Volume Measurement |
| 6 | Report Function Select | Registering detailed settings for measurement data to be displayed in the report |

- For Menu Control, assign items to the measurement menu for each mode.

19-3. PRESET set-up (Urological measurement Program and Menu Control)

19-3-1. Urological Measurement Program

- ① Press the PRESET switch, then select Set-up Menu.
- ② Select MEASURE.
- ③ To change the Urological Measurement Program, set UROL.
 - The screen changes to the Urological Measurement Program page.
- ④ Move the arrow to the set item, then press the SET switch.
 - The screen changes over.



[Urological Measurement Program]

Preset Name []

Application []

Prostate Volume Formula

PSA,mPSA,PSAD Coefficient Value [0.90]

Bladder Volume Formula

Testicular Volume Formula

Renal Volume Formula

Report Function Select

Use <TRACKBALL> and <SET> key for the selection.

Select when setting the computation formula, and so on, for items to be measured in the B mode.

Select when finely setting the measurement data to be displayed in the report.

Setting the Prostate Volume Formula

You can set the computation formula for calculating PSA Volume.

- ① Using the trackball, move the arrow to **Prostate Volume Formula**, then press the **SET** switch.
→A sub-menu for entering the PSA Volume computation formula appears.

[B-mode UROL. Volume Formula]

Formula Name : [PSA vol]

VOL= 0.52 * H * L * W

Operator :
() * / + - LOG LN

Variables :
L W H AP a b c

Maximum Variables range is 3 digits or less.
Use <TRACKBALL & Rotary> and <SET> key for the selection.

Creating a computation formula

- ② Enter a computation formula (within 180 characters) from the keyboard, and select **Confirm**.
→The entered computation formula is evaluated, and if it contains no errors it is registered.
The screen returns to the **Urological Measurement Program** screen.

[Remark]

If you enter a formula that is not mathematically defined, an error will result.

(e.g. 3+ x 2)

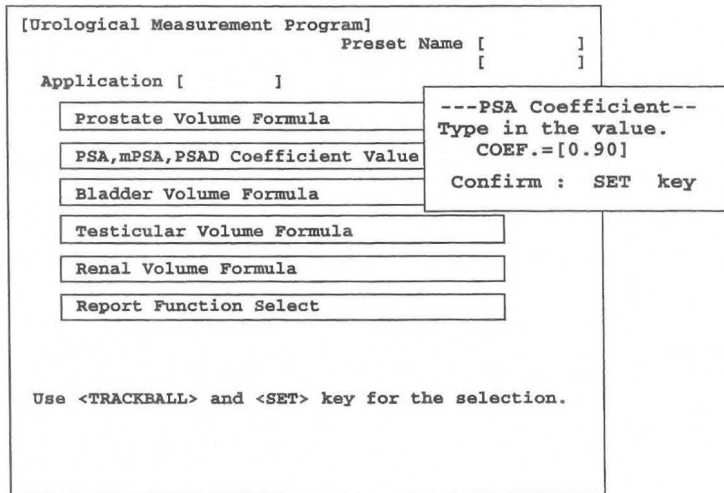
Also, use coefficients of no more than 20 characters including the decimal point.

The equipment always computes distance in cm, so be careful of the coefficients, and so on, when entering a formula.

Setting PSA, mPSA, PSAD Coefficient Value [0.90]

Enter the correction value for converting these values the Tandem-R values.

- ① Using the trackball, move the arrow to PSA, mPSA, PSAD Coefficient Value[0.90], then press the **SET** switch.
 →A pop-up menu for entering the coefficients appears.



- ② Enter the numerical values from the keyboard, then press the SET switch.
 →The screen returns to the **Urological Measurement Program** screen.

Setting Bladder Volume Formula

You can set a computation formula for calculating Bladder Volume.

- ① Using the trackball, move the arrow to **Bladder Volume Formula**, then press the **SET** switch.
→A sub-menu for entering the Bladder Volume computation formula appears.

[B-mode UROL. Volume Formula]

Formula Name : [Bladder Volume]

VOL= 3.14159 / 6 * L * W * AP

Operator :

() * / + - LOG LN

Variables :

L W H AP a b c

Maximum Variables range is 3 digits or less.
Use <TRACKBALL & Rotary> and <SET> key for the selection.

Creating a computation formula

- ② Enter a computation formula (within 180 characters) from the keyboard, and select **Confirm**.
→The entered computation formula is evaluated, and if it contains no errors it is registered.
The screen returns to the **Urological Measurement Program** screen.

[Remark]

If you enter a formula that is not mathematically defined, an error will result.

(e.g. 3+ x 2)

Also, use coefficients of no more than 20 characters including the decimal point.

The equipment always computes distance in cm, so be careful of the coefficients, and so on, when entering a formula.

Setting Testicular Volume Formula

You can set a computation formula for calculating Testicular Volume.

- ① Using the trackball, move the arrow to **Testicular Volume Formula**, then press the **SET** switch.
→A sub-menu for entering the Testicular Volume computation formula appears.

[B-mode UROL. Volume Formula]

Formula Name : [Testis Volume]

VOL= 0.65 * L * W * AP

Operator :

() * / + - LOG LN

Variables :

L W H AP a b c

Maximum Variables range is 3 digits or less.
Use <TRACKBALL & Rotary> and <SET> key for the selection.

Creating a computation formula

- ② Enter a computation formula (within 180 characters) from the keyboard, and select **Confirm**.
→The entered computation formula is evaluated, and if it contains no errors it is registered.
The screen returns to the **Urological Measurement Program** screen.

[Remark]

If you enter a formula that is not mathematically defined, an error will result.

(e.g. $3 + x 2$)

Also, use coefficients of no more than 20 characters including the decimal point.

The equipment always computes distance in cm, so be careful of the coefficients, and so on, when entering a formula.

Setting Renal Volume Formula

You can set a computation formula for calculating Renal Volume.

- ① Using the trackball, move the arrow to **Renal Volume Formula**, then press the **SET** switch.
→A sub-menu for entering the Renal Volume computation formula appears.

[B-mode UROL. Volume Formula]

Formula Name : [Renal Volume]

VOL= 0.49 * L * W * AP

Operator :
() * / + - LOG LN

Variables :
L W H AP a b c

Maximum Variables range is 3 digits or less.
Use <TRACKBALL & Rotary> and <SET> key for the selection.

Creating a computation formula

- ② Enter a computation formula (within 180 characters) from the keyboard, and select **Confirm**.
→The entered computation formula is evaluated, and if it contains no errors it is registered.
The screen returns to the **Urological Measurement Program** screen.

[Remark]

If you enter a formula that is not mathematically defined, an error will result.

(e.g. $3 + x^2$)

Also, use coefficients of no more than 20 characters including the decimal point.

The equipment always computes distance in cm, so be careful of the coefficients, and so on, when entering a formula.

Setting Report Function Program

You can set the report pages to be displayed, and also change settings related to the display of the measurement results.

UROLOGY Report Function Program	
[Initialize]	[Program]
1. Report average function	
Activity	[ON] [OFF]
2. Select report displayed page	
Prostate & SV study	ON
Bladder & Testicles study	[ON] [OFF]
Renal study	[ON] [OFF]
3. Report data storage number :	[1] [2] [3] [4]
4. Report printer	[Setup] [Confirm]
Select item with <TRACKBALL> and <SET> key.	

1. Report average function

Set whether or not to display the average values of the measurement results in the report.

2. Select report displayed page

Set the report pages to be displayed.

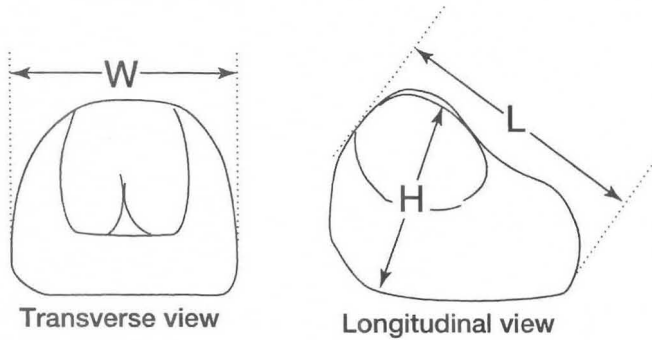
3. Report data storage number

You can select the number of measurements, from 1, 2, 3, and 4, for which the measurement results are to be displayed on the edit page, for one measurement item.

19-4. PSA (Prostate Specific Antigen) Volume Measurement

PSA Volume measurement involves measuring the volume of the prostate by means of trans-rectal scanning, then estimating the specific antigen of the prostate using the formula shown below.

19-4-1. Measurement Position



Calculation equation

$$V = L \times W \times H \times 0.52$$

$$mPSA = 0.12 \times V$$

$$PSA \text{ Density} = \text{Serum PSA} / V$$

[Remark]

To enter a Serum PSA value, select Serum PSA from the ID screen or the touch panel menu, then enter the value from the keyboard.

[Remark]

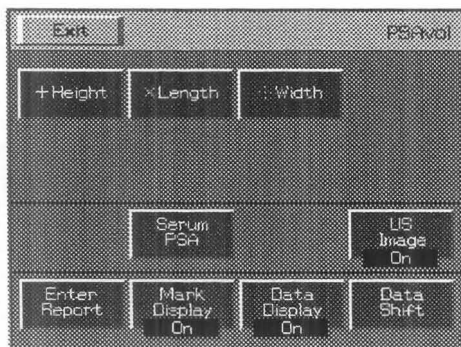
You can use the above computation formula if you are using the PSA kit marketed by "Tandem-R, Hybritech Inc., San Diego".

[Remark]

Measure L, W and H using the same procedure as that for the DIST. basic measurement.

19-4-2. Measurement menu (Touch panel menu)

If you select PSA Volume measurement, the following menu appears.



Exit : Terminates PSAvol measurement.

+Height, xWeight, :Width : This item indicates the names of measurement items that support a caliper mark. It enables you to select a measurement item in the same way as by pressing the caliper mark switch.

Serum PSA : Select when you wish to enter a serum PSA value from the keyboard.

US Image : Enables you to switch **On/Off** the function that temporarily erases an ultrasound image.

Enter Report : The measurement results generated up to that point in time are transferred to a report, then measurement is terminated, even if all measurement items have not been completed.

Mark Display : You can switch **On/Off** the display of caliper marks other than the marks used for the ongoing measurement.

Data Display : You can switch **On/Off** the function that temporarily erases the measurement results.

Data Shift : You can move the measurement result area left, right, up or down.

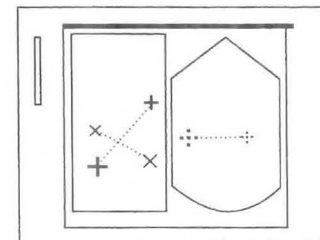
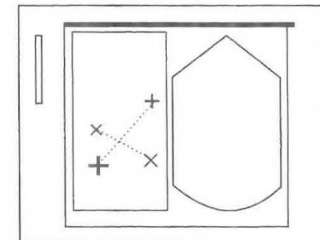
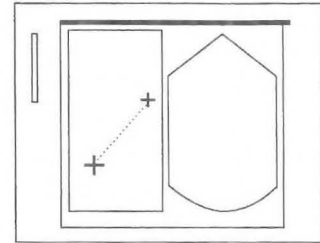
19-4-3. Method of Performing PSA Volume Measurement

You can select an item using the touch panel menu, caliper mark switch or **SET** switch.

19-4. PSA Volume Measurement

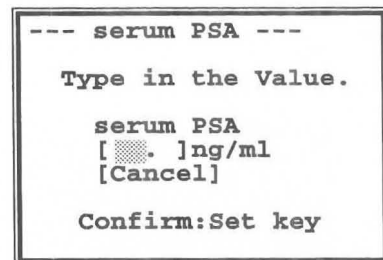
<Performing measurement in the 2B mode>

- ① Put the screen in the 2B mode, and display longitudinal and transverse view of the prostate.
- ② Select **PSA Vol.**
 → A "+" mark appears at the center of the screen, so measure the height from the long axis image with the trackball and **MARK REF** switch (using the same procedure as that for the **DIST.** basic measurement).
- ③ Next, measure the length.
 → Select **XLength** .
 Using the displayed "x" mark, perform measurement using the same procedure as that for **+Height**.
- ④ Measure the width from the short axis image.
 → Select **Width**.
 Using the displayed "•••" mark, perform measurement using the same procedure as that for **+Height**.



Once the measured values for the three axes have been obtained, the volume and mPSA of the prostate are displayed.

- ⑤ Select **Serum PSA** from the touch panel menu.
 → The screen shown at right appears, so enter a **Serum PSA** value from the keyboard.
 → Press the **SET** switch, and **PSAD (PSADensity)** appears.

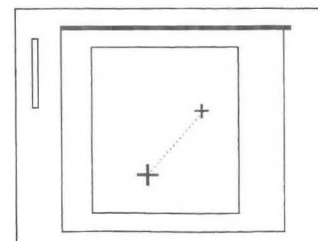


[Remark]

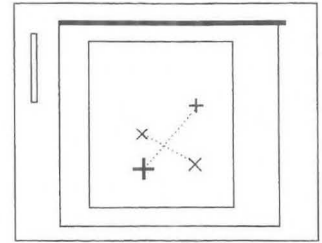
You can also enter the **Serum PSA** value in advance, or re-enter it. The entered **Serum PSA** value remains stored even if you exit from measurement. However, if you press the **NEW PATIENT** switch, this value is deleted.

<Performing measurement in the 1B mode>

- ① Display the longitudinal image of the prostate on the screen.
- ② Select **PSA Vol.**
 → A "+" mark appears at the center of the screen, so measure the height from the long axis image with the trackball and **MARK REF** switch (using the same procedure as that for the **DIST.** basic measurement).

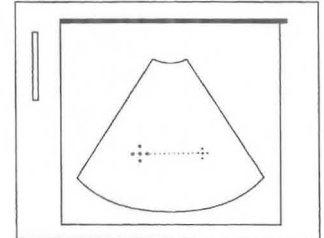


- ③ Next, measure the length.
→ Select **XLength**.
Using the displayed "x" mark, perform measurement using the same procedure as that for **+Height**.



- ④ Display the transverse view of the prostate on the screen.

- ⑤ Measure the width from the short axis image.
→ Select **∴Width**.
Using the displayed "∴" mark, perform measurement using the same procedure as that for **+Height**.
Once the measured values for the three axes have been obtained, the volume and mPSA of the prostate are displayed.



- ⑥ Next, using the same procedure as for measurement in the 2B mode, enter the **Serum PSA** value from the keyboard.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

- ⑦ Upon completion of measurement, select **Exit** from the touch panel menu, or press the **MEASUREMENT** switch.
→ The measurement marks and all measurement results are erased.

<PSA Volume measured result display>

PR. volume	
V: cm³	← Volume of prostate
+H: mm	← Height of prostate
XL: mm	← Length of prostate
∴W: mm	← Width of prostate
predicted PSA value	
PSA: ng/ml	← Serum PSA
mPSA: ng/ml	← predicted monoclonal PSA
PSAD:	←PSA Density

[Reference]

PSA Density

MITCHELL C. BENSON, IHN SEONG, CARL A. OLSSON, J. McMAHON AND WILLIAM H. COONER.
THE USE OF PROSTATE SPECIFIC ANTIGEN DENSITY TO ENHANCE THE PREDICTIVE VALUE OF INTERMEDIATE LEVELS OF SERUM PROSTATE SPECIFIC ANTIGEN.
THE JOURNAL OF UROLOGY vol.147,817~821, March 1992

monoclonal PSA

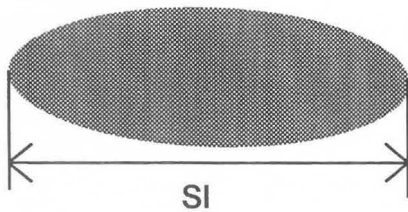
Peter J. Littrup MD, Fed LeE. MD, Curtis Mettin. PD.
Prostate Cancer Screening: Current Trends and Future Implications.
CA-A CANCER JOURNAL FOR CLINICIAANS Vol.42, No.4 JULY/AUGUST 1992

19-5. Seminal Vesicle Measurement

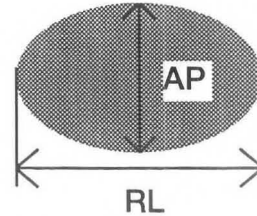
Seminal Vesicle measurement is the measurement of the size of the seminal vesicle.

The AP, RL and SI of the left and right seminal vesicle are measured using distance measurement.

(Measurement position)



Longitudinal View



Transverse View

19-5-1. Seminal Vesicle measurement procedure

(1) When performing measurement in the 2B mode (when using a trans-rectum biplane probe)

- ① Activate the 2B mode, then display major and minor axis images of the prostate gland.
- ② Press the **MEASUREMENT** switch, and select **Seminal Vesicle**.
→A “+” mark appears at the center of the screen, so using the trackball and the **MARKREF** switch, measure **AP** from the minor axis image.
- ③ Next, measure **RL**.
→Press the “×” switch or the **SET** switch.
Using the displayed “×” mark, measure **RL** using the same procedure as that used for **AP**.
- ④ Measure **SI** from the major axis image.
→Press the “∴” switch or the **SET** switch.
Using the displayed “∴” mark, measure **SI** using the same procedure as that used for **AP**.
- ⑤ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report of measurement, press the **SET** switch.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right.

(2) When performing measurement in the 1B mode

- ① Display the minor axis image of the seminal vesicle on the screen.
- ② Press the **MEASUREMENT** switch, and select **Seminal Vesicle**.
→A “+” mark appears at the center of the screen.
- ③ Measure **AP** from the minor axis image.
- ④ Next, measure **RL**.
- ⑤ Switch over the probe, and display the major axis image.
- ⑥ Measure **SI** from the major axis image.
- ⑦ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right.

<Seminal Vesicle measured result display>

```

RIGHT
Seminal-V
+AP : mm ← Height of Seminal Vesicle
xRL : mm ← Length of Seminal Vesicle
∴SI : mm ← Width of Seminal Vesicle

```

[ENTER]

```

LEFT
Seminal-V
+AP : mm ← Height of Seminal Vesicle
xRL : mm ← Length of Seminal Vesicle
∴SI : mm ← Width of Seminal Vesicle

```

[ENTER]

19-6. Bladder Volume Measurement

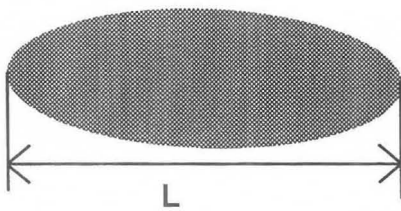
Bladder Volume measurement is the measurement of the size of the bladder.

The volume of the bladder is calculated using a computation formula.

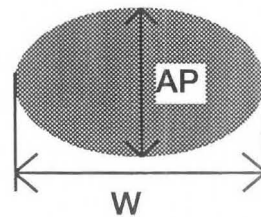
The major diameter and minor diameter of the minor axis image, and also the major diameter of the major axis image are measured using distance measurement.

Once the measurement values for all three axes have been computed, the volume is calculated.

(Measurement position)



Longitudinal View



Transverse View

Calculation equation $V = \pi/6 \times L \times W \times AP$

19-6-1. Bladder Volume measurement procedure

(1) When performing measurement in the 2B mode (when using a trans-rectum biplane probe)

- ① Activate the 2B mode, then display major and minor axis images of the bladder.
- ② Press the **MEASUREMENT** switch, and select **Bladder Volume**.
→ A “+” mark appears on the screen, so using the trackball and the **MARKREF** switch, measure **L** from the major axis image.
- ③ Measure **W** from the minor axis image.
→ Press the “×” switch or the **SET** switch.
Using the displayed “×” mark, measure **W** using the same procedure as that used for **L**.
- ④ Next, measure **AP**.
→ Press the “∴” switch or the **SET** switch.
Using the displayed “∴” mark, measure **AP** using the same procedure as that used for **L**.
Once the measurement values for all three axes have been computed, the volume of the bladder is displayed.
- ⑤ Upon completion of measurement, press the **SET** switch.
→ [ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **PRE-V** in the menu, the display changes to **PST-V**.

Subsequently, perform measurement in the same way as for the PRE-VOID.

(2) When performing measurement in the 1B mode

- ① Display the major axis of the bladder on the screen.
- ② Press the **MEASUREMENT** switch, and select **Bladder Volume**.
- ③ Measure **L** from the major axis image.
- ④ Switch over the probe, and display the minor axis image.
- ⑤ Measure **W** from the major axis.
- ⑥ Next, measure **AP**.
→ Once the measurement values for all three axes have been computed, the volume of the bladder is displayed.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

- ⑦ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted. If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **PRE-V** in the menu, the display changes to **PST-V**.

Subsequently, perform measurement in the same way as for the PRE-VOID.

<Bladder Volume measured result display>

```

PRE-VOID
Bladder V
V : ml ← Volume of bladder
+L : mm ← Length of bladder
xW : mm ← Width of bladder
∴AP : mm ← Height of bladder
  
```

[ENTER]

```

POST-VOID
Bladder V
V : ml ← Volume of bladder
+L : mm ← Length of bladder
xW : mm ← Width of bladder
∴AP : mm ← Height of bladder
  
```

[ENTER]

19-7. Testicular Volume Measurement

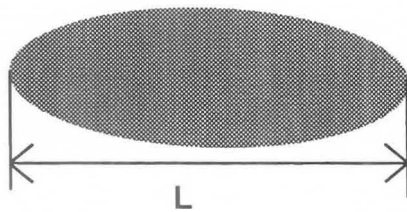
Testicular Volume measurement is measurement of the size of each testicle.

The volume of the testicle is calculated using a computation formula.

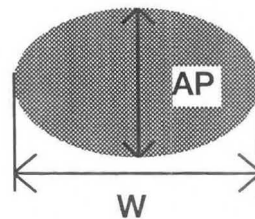
The major and minor diameters of the minor axis image and the major diameter of the major axis image are measured using distance measurement.

Once the measurement values for all three axes have been computed, the volume is calculated.

(Measurement position)



Longitudinal View



Transverse View

Computation formula $V=0.65 \times L \times W \times AP$

19-7-1. Testicular Volume measurement procedure

(1) When performing measurement in the 2B mode (when using a trans-rectum biplane probe)

- ① Activate the 2B mode, then display major and minor axis images of the testicle.
- ② Press the **MEASUREMENT** switch, and select **Testicular Volume**.
→ A “+” mark appears at the center of the screen, so using the trackball and the **MARKREF** switch, measure **L** from the major axis image.
- ③ Measure **W** from the minor axis image.
→ Press the “×” switch or the **SET** switch.
Using the displayed “×” mark, measure **W** using the same procedure as that used for **L**.
- ④ Next, measure **AP**.
→ Press the “⋮” switch or the **SET** switch.
Using the displayed “⋮” mark, measure **AP** using the same procedure as that used for **L**.
Once the measurement values for all three axes have been computed, the volume of the testicle is calculated.
- ⑤ Upon completion of measurement, press the **SET** switch.
→ [ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.
Subsequently, perform measurement in the same way as for the right.

(2) When performing measurement in the 1B mode

- ① Display the major axis image of the testicle.
- ② Press the **MEASUREMENT** switch, and select **Testicular Volume**.
- ③ Measure **L** from the major axis image.
- ④ Switch over the probe, and display the minor axis image.
- ⑤ Measure **W** and **AP** from the minor axis image.
→ Once the measurement values for all three axes have been computed, the volume of the testicle is displayed.
- ⑥ Upon completion of measurement, press the **SET** switch.
→ [ENTER] in the measurement result display area is highlighted. If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.
Subsequently, perform measurement in the same way as for the right

<Testicular Volume measurement result display>

RIGHT	
TESTIS V	
V : cc	← Volume of testicular
+L : mm	← Length of testicular
×W : mm	← Width of testicular
∴AP : mm	← Height of testicular
[ENTER]	
LEFT	
TESTIS V	
V : cc	← Volume of testicular
+L : mm	← Length of testicular
×W : mm	← Width of testicular
∴AP : mm	← Height of testicular
[ENTER]	

19-8. Renal Volume Measurement

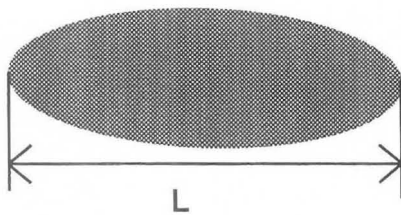
Renal Volume measurement is the measurement of the size of each kidney.

The volume of the kidney is calculated using a computation formula.

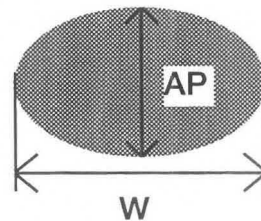
The major and minor diameters of the minor axis image, and the major axis of the major axis image are measured using distance measurement.

Once the measurement values for all three axes have been computed, the volume is calculated.

(Measurement position)



Longitudinal View



Transverse View

Computation formula $V=0.49 \times L \times W \times AP$

19-8-1. Renal Volume measurement procedure

(1) When performing measurement in the 2B mode (when using a trans-rectum biplane probe)

- ① Activate the 2B mode, and display major and minor axis images of the kidney.
- ② Press **MEASUREMENT** switch, and select **Renal Volume**.
→ A “+” mark appears on the screen, so using the trackball and the **MARKREF** switch, measure **L** from the major axis image.
- ③ Measure **W** from the minor axis image.
→ Press the “×” witch or the **SET** switch.
Using the displayed “×” mark, measure **W** using the same procedure as that used for **L**.
- ④ Next, measure **AP**.
→ Press the “⋮” switch or the **SET** switch.
Using the displayed “⋮” mark, measure **AP** using the same procedure as that used for **L**.
Once the measurement values for all three axes have been computed, the volume of the kidney is displayed.
- ⑤ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right.

(2) When performing measurement in the 1B mode

- ① Display the major axis image of the kidney.
- ② Press the **MEASUREMENT** switch, and select **Renal Volume**.
- ③ Measure **L** from the major axis image.
- ④ Switch over the probe, and display the minor axis image.
- ⑤ Measure **W** and **AP** from the minor axis image.
 - Once the measurement values for all three axes have been computed, the volume of the kidney is displayed.
- ⑥ Upon completion of measurement, press the **SET** switch.
 - **[ENTER]** in the measurement result display area is highlighted.
 - If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right.

< Renal Volume measurement result display >

RIGHT	
Renal Vol	
V : ml	← Volume of renal
+L : mm	← Height of renal
xW : mm	← Length of renal
∴AP : mm	← Width of renal
[ENTER]	
LEFT	
Renal Vol	
V : ml	← Volume of renal
+L : mm	← Height of renal
xW : mm	← Length of renal
∴AP : mm	← Width of renal
[ENTER]	

19-9. Cortical Thickness Measurement

Cortical Thickness measurement is measurement of the thickness of the renal cortex using distance measurement.

19-9-1. Cortical Thickness measurement procedure

- ① Display the major axis image of the kidney.
- ② Press **MEASUREMENT** switch, and select **Cortical Thickness**.
→ A “+” mark appears on the screen, so using the trackball and the **MARKREF** switch, measure the thickness of the renal cortex from the major axis image.
- ③ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right spectrum.

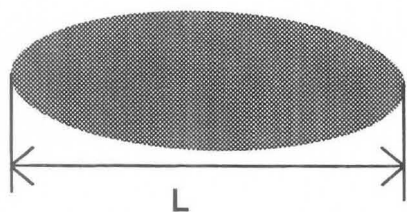
< Cortical Thickness measurement result display >

RIGHT Cortical
+T : mm ← Thickness of the renal cortex
[ENTER]
LEFT Cortical
+T : mm ← Thickness of the renal cortex
[ENTER]

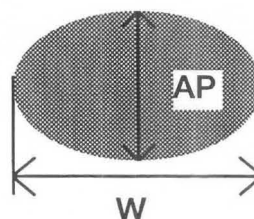
19-10. Adrenal Measurement

Adrenal measurement is the measurement of the thickness and length of each adrenal gland.

(Measurement position)



Longitudinal View



Transverse View

19-10-1. Adrenal measurement procedure

(1) When performing measurement in the 2B mode (when using a trans-rectum biplane probe)

- ① Activate the 2B mode, then display major and minor axis images of the adrenal gland.
- ② Press the **MEASUREMENT** switch, and select **Adrenal**.
→ A “+” mark appears on the screen, so using the trackball and the **MARKREF** switch, measure **L** from the major axis image.
- ③ Measure **W** from the minor axis image.
→ Press the “×” switch or the **SET** switch.
Using the displayed “×” mark, measure **W** using the same procedure as that used for **L**.
- ④ Next, measure **AP**.
→ Press the “⋮” switch or the **SET** switch.
Using the displayed “⋮” mark, measure **AP** using the same procedure as that used for **L**.
- ⑤ Upon completion of measurement, press the **SET** switch.
→[ENTER] in the measurement result display area is highlighted.
If the measured data is correct, press the **SET** switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right spectrum.

19-10. Adrenal Measurement

(2) When performing measurement in the 1B mode

- ① Display the major axis image of the adrenaline gland
- ② Press the **MEASUREMENT** switch, and select **Adrenal**.
- ③ Measure **L** from the major axis image.
- ④ Switch over the probe, and display the minor axis image.
- ⑤ Measure **W** from the major axis.
- ⑥ Next, measure **AP**.

[Remark]

As necessary, select **US Image, Mark Display, Data Display, Data.Shift** in the touch panel menu.

- ⑦ Upon completion of measurement, press the **SET** switch.
 →[ENTER] in the measurement result display area is highlighted.
 If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

Subsequently, perform measurement in the same way as for the right.

< Adrenal measurement result display >

RIGHT

Adrenal

+L : mm ← Length of adrenaline gland
 xW : mm ← Width of adrenaline gland
 ∴AP : mm ← Height adrenaline gland

[ENTER]

LEFT

Adrenal

+L : mm ← Length of adrenaline gland
 xW : mm ← Width of adrenaline gland
 ∴AP : mm ← Height adrenaline gland

[ENTER]

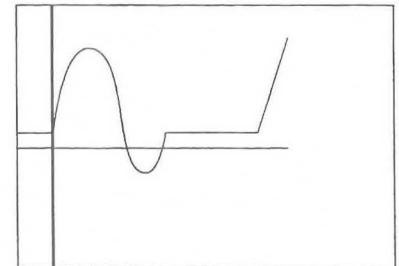
19-11. Renal Artery Doppler Measurement

Renal Artery Doppler measurement is measurement for computing the following items by tracing blood flow information pertaining to the blood vessels surrounding the kidney. (PI, RI, S/D, pkS, pkD, AVG)

<When using auto trace>

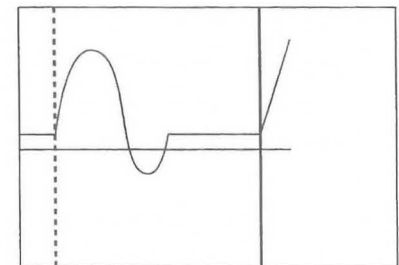
- ① Press the **MEASUREMENT** switch, and select **Renal Artery Doppler**.

→ A solid line cursor for determining the trace range appears at the center of the screen.



- ② Using the trackball, move the solid line cursor to the start position, then press the **MARK REF** switch.

→ The solid line cursor becomes a broken line, which can be moved.



- ③ Using the trackball, move the separated solid line cursor to the trace end position.

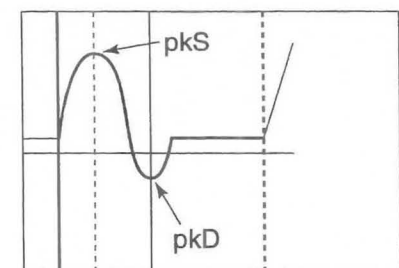
[Remark]

You cannot move the solid line cursor to the left side of the broken line cursor.

- ④ Once you have specified the trace range, press the **MARK REF** switch.

→ The trace starts. Upon completion of the trace, the measurement results are displayed.

Peak lines, which indicate Peak S and Peak D, appear.



[Remark]

Sometimes a detection error occurs, so correct the peak lines using the trackball.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT**.

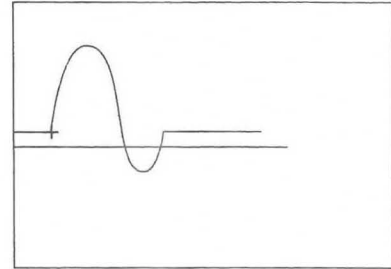
Subsequently, perform measurement in the same way as for the right.

19-11. Renal Artery Doppler Measurement

<When using a manual trace>

- ① Press the **MEASUREMENT** switch, and select **Renal Artery Doppler**.

→ A “+” mark for measurement appears at the center of the screen.



- ② Using the trackball, move the “+” mark to the start point.

- ③ Press the **MARK REF** switch.

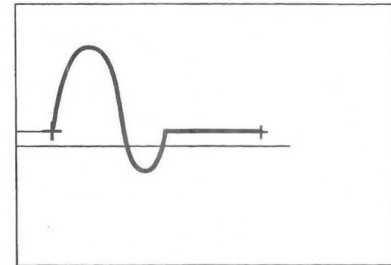
→ The “+” mark is fixed at the starting point, and when you roll the trackball a bright line is displayed.

- ④ Using the trackball, trace a spectrum pattern.

[Remark]

By turning rotary encoder 2 to the left, the trace will disappear a little at a time, enabling you to modify it.

To repeat measurement from the beginning, press the “+” mark twice, and start from step ②.



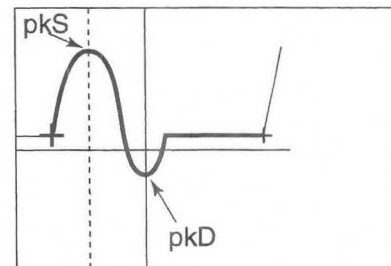
- ⑤ Press the **MARK REF** switch.

Peak lines that indicate Peak S and Peak D appear.

- ⑥ Using the trackball, set Peak S and Peak D.

→ The solid line can move.

The peak lines switch over when the **MARK REF** switch is pressed.



[Remark]

The range of motion of the peak line is from the start point to the end point of the trace.

[Remark]

When an angle is compensated, the velocity measurement values displayed on the screen automatically change according to the angle. (when the image is freeze)

- ⑦ Upon completion of measurement, press the **SET** switch.

→[ENTER] in the measurement result display area is highlighted.

If the measured data is correct, press the SET switch to transfer the data displayed on the screen to the report.

[Remark]

If you select **RIGHT** in the menu, the display changes to **LEFT** .

Subsequently, perform measurement in the same way as for the right.

<Renal Artery Doppler measurement result display>

```
RIGHT
Renal Art
+PI:      ← Pulsatility Index
  RI:      ← Resistance Index
  S/D:     ← S/D Ratio
  pkS:     ← Flow velocity at peak systole
           mm/s
  pkD:     ← Flow velocity at peak diastole
           mm/s
  AVG:     ← Mean velocity
           mm/s
[ENTER]
```

```
LEFT
Renal Art
+PI:      ← Pulsatility Index
  RI:      ← Resistance Index
  S/D:     ← S/D Ratio
  pkS:     ← Flow velocity at peak systole
           mm/s
  pkD:     ← Flow velocity at peak diastole
           mm/s
  AVG:     ← Mean velocity
           mm/s
[ENTER]
```


19-12. Report Display

In this area, each index for urological measurements, the average values, and related patient data is arranged and displayed on the monitor.

Pressing the **REPORT** switch causes the following page to be displayed.

You can enter patient data in the report area in advance.

From Exam. Date to Sonographer, the contents of all report pages are common to each other.

1. Exam.Date : This is the ultrasound examination date. The date is automatically input by a timer in the equipment.
2. Patient ID : Enter the patient ID.
3. Name : Enter the name of the patient.
4. Age : Enter the age or date of birth of the patient.
5. Referring Phys. : Enter the name of the doctor who requested the examination.
6. Reason for Study : Enter the reason for the examination.
7. Reporting Phys. : Enter the name of the doctor who made the report.
8. Sonographer : Enter the name of the examiner.

Description of Report page

<Prostate & SV Ultrasound Report>

This report displays the results of prostate and seminal vesicle measurements.

```

Prostate & SV Ultrasound Report
Exam. date : '00/02/14      Birth Date
Patient ID :                Age:  Y ('YY/MM/DD)
Name :
Referring Phys. :
Reason for Study :
Reporting Phys. :
Sonographer :

<Prostate>
PSA Level :      ng/ml      PSA Coefficient=0.90
mPSA :          ng/ml      PSA Density :   ng/ml/g
Volume :        cm3      H:   cm   L:   cm   W: cm
<Findings>
Mass:
Capsule:
Prostatitis:
Lesion location zone:
Biopsy
  -location:
  How many sticks:
<Digital findings>

Symmetry:
Echogenicity :
  RIGHT      LEFT
  RIGHT      CENTER  LEFT

<Seminal Vesicles>
Size
  AP:        cm      cm
  RL:        cm      cm
  SI:        cm      cm

<Comments>
    
```

<Prostate>

Displays the results obtained from PSA Volume measurement.

<Findings>

In the case **Mass, Symmetricity, Capsule, Echogenicity, Prostatiti, Lesion location zone**, you can select a comment from the pop-up menu and enter it.

(Example)

- ① Move the arrow to the gray highlighted item in the Capsule box, and press the SET switch.
→A pop-up menu appears.
- ② Using the trackball, select the comment that you wish to input, then press the SET switch.
→The comment is displayed in the report.

Prostate & SV Ultrasound Report			
Exam. date :	'00/02/14	Birth Date	
Patient ID :		Age:	Y ('YY/MM/DD)
Name :			
Referring Phys. :			
Reason for Study :			
Reporting Phys. :			
Sonographer :			
<Prostate>			
PSA Level :	ng/ml	PSA Coefficient	Capsule
mPSA :	ng/ml	PSA Density :	Intact
Volume :	cc	AP: cm L:	Disrupted
<Findings>			
Mass:		Symmetricity	
Capsule:		Echogenicity	
Prostatitis:		RIGHT	
Lesion location zone:		RIGHT CENTER LEFT	
Biopsy			
-location:			
How many sticks:			
<Digital findings>			
<Seminal Vesicles>			
Size	RIGHT	LEFT	
	AP: cm	cm	
	RL: cm	cm	
	SI: cm	cm	
<Comments>			

How many sticks : Enter the number of inserted puncture needles from the keyboard.

<Digital findings>

Enter the results of diagnosis from the keyboard.

<Seminal Vesicles>

The results of performing measurement on the seminal vesicles are displayed.

<Comments>

Enter a comment from the keyboard.

<Bladder and Testicles Ultrasound Report>

This report displays the results of performing measurement on the bladder and testicles.

```

Bladder & Testicles Ultrasound Report
Exam. date : '00/02/14      Birth Date
Patient ID :                Age:  Y ('YY/MM/DD)
Name :
Referring Phys. :
Reason for Study :
Reporting Phys. :
Sonographer :

<Bladder>
Void Volume :                ml
                        PRE-VOID      POST-VOID
Volume      :                ml        ml
Size        L :                cm        cm
            W :                cm        cm
            AP:                cm        cm

<Comments>

<Testicles>
                        RIGHT      LEFT
Volume      :                ml        ml
Size        L :                cm        cm
            W :                cm        cm
            AP:                cm        cm

<Comments>
    
```

<Renal Ultrasound Report>

This report displays the results of performing measurement on the kidneys.

```

Renal Ultrasound Report
Exam. date : '00/02/14      Birth Date
Patient ID :                Age:  Y ('YY/MM/DD)
Name :
Referring Phys. :
Reason for Study :
Reporting Phys. :
Sonographer :

<Kidney>
                        RIGHT      LEFT
Volume      :                ml        ml
Size        L :                cm        cm
            W :                cm        cm
            AP:                cm        cm
Cortical thickness :
Renal Artery RI :
Renal Artery PI :

<Findings>
<Comments>

<Adrenal>
                        RIGHT      LEFT
Size        L :                cm        cm
            W :                cm        cm
            AP:                cm        cm

<Comments>
    
```

Description of Edit page

The Edit Page displays the measurement values and the average values for each measurement.

[Remark]

The number of stored measurement values is set using the Preset function.

If the set number is exceeded, the oldest values are deleted and the new data is added instead.

You can delete or change measurement data.

To terminate measurement, press the **REPORT** switch.

- ① Select **Edit Page** of the report menu.

→The Edit page appears.

- ② To terminate measurement, press the **REPORT** switch.

If there are many items spanning several pages, select a page using **Next Page** or **Pre Page**.

<Operation method>

UROLOGY Edit Page 1/3						
Exam. Date:					Birth Date	
Patient ID:		Age:		Y ('YY/MM/DD)		
Name:						
- Prostate -						
	AP:	AVG.	1	2	3	4
	L :	cm				
	W :	cm				
- Seminal Vesicles -						
	AP:	AVG.	1	2	3	4
Right	RL:	mm				
	SI:	mm				
Left	AP:	mm				
	RL:	mm				
	SI:	mm				

<Deleting registered data>

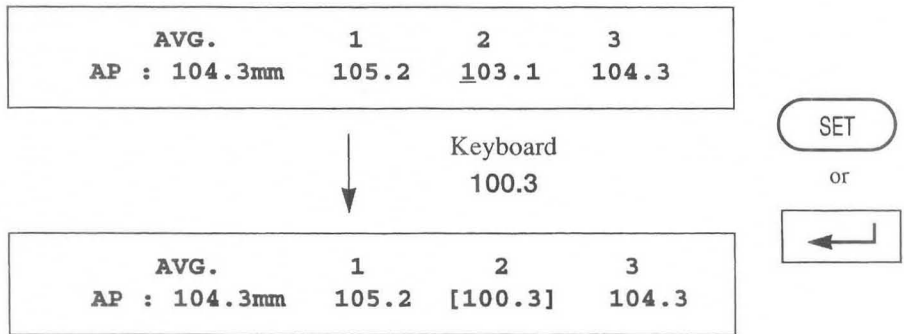
When you move the highlight display, an underline cursor automatically appears, so if an item of registered data is unwanted, press the **CLEAR** key on the keyboard.

Next, press the **SET** switch or the Return key to remove the gap formed when you deleted the data.

19-12. Report Display

<Changing registered data>

If you wish to change a numerical value, enter the new value at the location of the underline cursor from the keyboard, then press the **SET** switch or press the Return key.



[Remark]

The corrected data is enclosed by [].

■References

- 1.PSA Density → $PSAD = PSA / (0.52 * L * H * W)$ by the Hybritech assay (Tandem-R)
 MITCHELL C.BENSON, IHN SEONG WHANG, CARL A. OLSSON, DONALD J. McMAHON and
 WILLIAM H. COONER.: THE USE OF PROSTATE SPECIFIC ANTIGEN DENSITY TO ENHANCE THE
 PREDICTIVE VALUE OF INTERMEDIATE LEVELS OF SERUM PROSTATE SPECIFIC ANTIGEN.
 THE JOURNAL OF UROLOGY Vol.147,817-821, March 1992

- 2.monoclonal PSA → $mPSA = 0.12ng/ml/gm * TRUS \text{ Volume (cc)}$ by the Hybritech assay (Tandem-R)
 Peter J.Littrup MD, Fed Lee. MD, Curtis Mettin.PD.: Prostate Cancer Screening: Current Trends and Future
 Implications.
 CA-A CANCER JOURNAL FOR CLINICIANS VOL.42, No.4 JULY/AUGUST 1992