

# **USER'S MANUAL**

**FUTREX<sup>®</sup>-6100/XL**

## **Advanced Body Composition Analyzer**

**(Percent Body Fat)**

**FUTREX, INC.**  
130 Western Maryland Parkway  
Hagerstown, MD 21740

Version 3.0

**FUTREX-6100/XL USER'S MANUAL**

This manual provides you with all the information needed to operate the FUTREX-6100/XL

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**INTENDED USE**

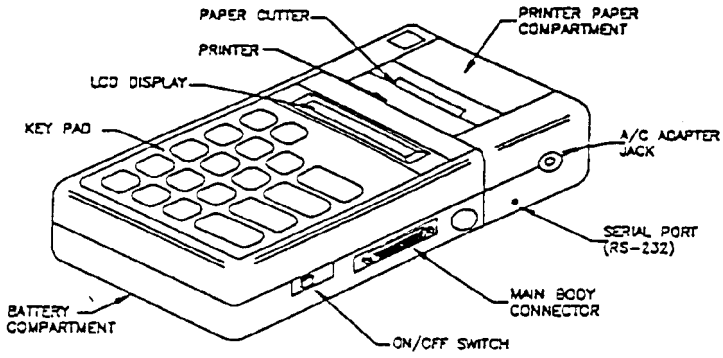
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The FUTREX-6100/XL intended use is for estimating percent body fat in males and females ages eighteen years and older.

**CAUTION:** The performance of the FUTREX-6100/XL for subjects using diuretics or estrogen replacement therapy has not been established.

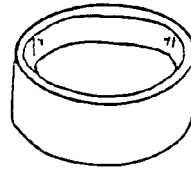
## MAJOR COMPONENTS

### 1. Main Body

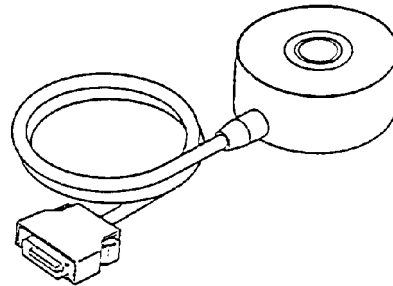


Definition of all keyboard controls are shown on page 4.

### 2. Optical Standard



### 3. Light Wand

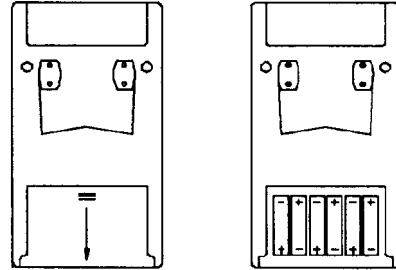


## PREPARATION

### 1. Battery Installation

Insert six 1.5 "AA" size batteries into the battery compartment located on the rear of the main body. Be sure the batteries are oriented as indicated in the battery compartment.

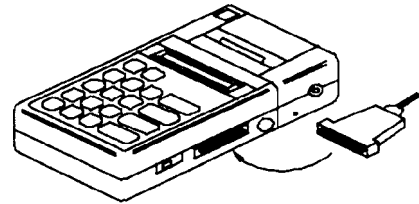
**NOTE:** Batteries must be alkaline. Other types will not work.



### 2. Connecting the Light Wand

Ensure the Light Wand Connector is attached to the Main Body Connector.

**NOTE:** Futrex recommends always leaving the Light Wand attached to the Main Body. This will avoid possible damage to the connector.

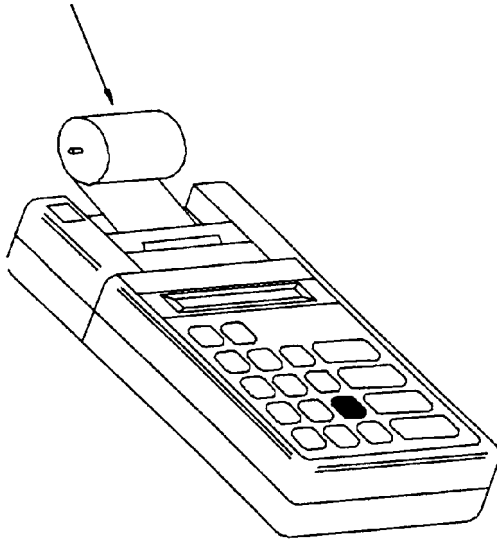


### 3. Printer Paper Installation

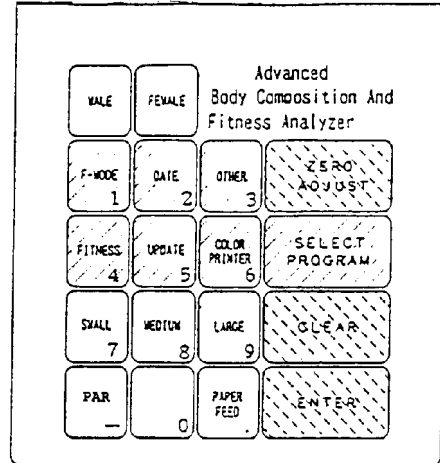
Remove the clear plastic cover from the printer.

Ensure the display reads "READY" or "ZERO ADJUST". Start feeding the paper into the slit inside the Paper Roll Compartment by pressing the PAPER FEED key.

**NOTE: The paper must be cut square prior to inserting.**



#### 4. Keyboard Functions



Same "hatched" keys are the same color

## BODY FAT MEASURING PROCEDURE

1. Turn Power Switch ON. The display will read "FUTREX-6100/XL", followed by the software identification number, then "Advanced Body Composition Analyzer".
2. The FUTREX-6100/XL must be Zero Adjusted.

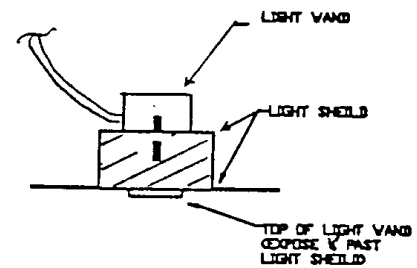
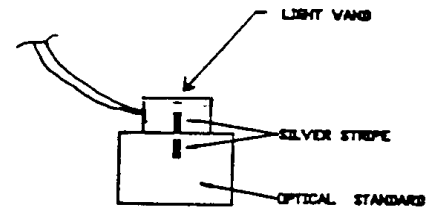
! Insert Light Wand into Optical Standard.

**NOTE:** It is important to line the silver colored stripe on the Optical Standard with the silver stripe on the Light Wand. These alignment marks ensure that the Optical Standard is read exactly the same each time.

! Press the ZERO ADJUST key. The display will flash "Reading...". Once the zero adjustment has been completed, the display will read "READY".

! Remove the Light Wand from the Optical Standard. Then install the Light Shield on the Light Wand (allow the Light Wand to protrude from the edge of the shield by about 1/4 of an inch). Line up the silver stripe on the Light Wand with the silver stripe on the Optical Standard.

**NOTE:** The Light Shield is provided to prohibit external light from interfering with the estimations of percent body fat. Therefore, this shield must always be used when making a measurement.



3. To start the measurement sequence press ENTER. This will activate the display and printer that will request what data is to be entered.

! ID #: ----0. If you only desire to display and print out the Body Fat readings, just press ENTER.

**NOTE:** If you desire the F-6100/XL to save the data in its internal memory, use procedure described on page 9 through 13.

! Enter Sex. Press the MALE or FEMALE key.

! Enter Birth Date: Month, press ENTER  
Day, press ENTER  
Year, press ENTER

**NOTE:** Minimum age is eighteen years.

! Enter Height in in. or cm. (Refer to page 24 to switch between English and Metric units). Use keyboard numbers to enter the height, then press ENTER.

! Enter Weight in lbs or kgs.

4. The display will then say "Ready to Read".

! Place the Light Wand on the center of biceps of dominant arm (the arm you write with). Press firmly; use enough force to leave a slight ring on the arm when the Light Wand is removed. Page 8 describes the procedure for locating the exact measurement point.

**NOTE:** It is important to:

- ! Aim the silver stripe on the Light Wand directly toward the shoulder.
- ! Keep the arm relaxed (do not permit the subject to flex his/her muscles). A relaxed biceps can be achieved by having the subject seated while resting his arm (elbow bent) on a table. The hand should be open with the palm facing up.
- ! Use the Light Shield to block the external light. Avoid measurements under strong lights (e.g. direct sunlight).

- ! Press the Measurement Button on the Light Wand. The display will flash "Reading..." during the optical measurement. When the measurement has been completed, the display will read "Remove & Replace".

**CAUTION:** Do not move the Light Wand while the word "Reading" is displayed.

- ! When "Remove & Replace" is displayed, remove the Light Wand and then replace it on the same point on the biceps for a second measurement.
- ! Press the Measurement Button. The display will again flash "Reading..."
- ! Percent body fat will then be printed and displayed.
- ! Press CLEAR to perform another measurement.

5. When finished, turn Power Switch to OFF.

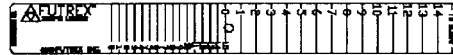
**NOTE:** The FUTREX-6100/XL will sound a warning signal if the user has not pressed any key for two minutes. Ten seconds later it will then automatically shut off unless the user presses a key.

## LOCATING THE BICEPS MEASURING SITE

The estimation must always be performed at the same site on the arm -- the midpoint of the biceps. This is easily accomplished using the following technique:

- !       **Unfold the Biceps Locator into a straight ruler.**
- !       **Place the edge of the Biceps Locator labeled TO UNDERARM at the lower edge of the crease of the underarm (i.e. the anterior axillary crease of the dominant arm).**

**NOTE:** The arm must be relaxed with the elbow slightly bent.



**Biceps Locator**



- !       **Measure the length of the arm between the underarm crease and the center of the elbow crease (i.e. the acromion), using the scale printed on the Biceps Locator.**
  - !       **Remember the number on the ruler next to the elbow crease.**
- !       **Locate this same number on the ruler starting from the UNDERARM end. This estimate represents half way between the armpit and the elbow (i.e. "belly" of the biceps muscle). More technically stated: Measure along the anterior line of the biceps halfway between the antecubital fossa and the acromion.**
- !       **Using a pen, place a small line on the side of the arm adjacent to the Biceps Locator. This is the site where FUTREX-6100/XL measurements should always be made.**

## DATA STORAGE CAPABILITY

### 1. Introduction

The FUTREX-6100/XL has the capacity to store subject data (height, weight, percent body fat, etc.) by identification number. These data are used for:

- ! Estimating a previously stored subject.
- ! Developing a Fitness Analysis Program.
- ! Developing an Update Analysis Program.

### 2. Entering Data for a New Subject

Use the following procedure to save the data of a person that has not been previously measured:

- ! Turn Power Switch ON. When ZERO ADJUST is displayed press ZERO ADJUST key.
- ! When READY is displayed press ENTER. Display will show ID #\_\_.
- ! Enter an unused ID Number for the subject (any number from 1 to 9999). Then press ENTER. (If you don't want to permanently store the subject's personal data, Press 0, and use the procedure described on page 5).
- ! The display will ask NEW SUBJECT?
  - ! If it is a new subject, again press ENTER.
  - ! If you had typed in a wrong ID Number, press CLEAR, then press ENTER.

- ! ENTER NAME. Press the MALE key to step through the letters of the alphabet, numbers and symbols. When the letter displayed on the screen is correct press SELECT PROGRAMS.
- ! Press the MALE key to step through the second letter. Press SELECT PROGRAMS once the correct second letter is displayed. Continue pressing the MALE key and SELECT PROGRAMS key until the name is correctly entered (up to 22 characters). When the entire name has been entered, press the SELECT PROGRAM key and then ENTER.

**NOTE:**

- ! For a quick and easy reference, Futrex suggests you use the subject's initials rather than the full name.
- ! The FEMALE key can be used to step backwards through the symbols, numbers or letters or to step backwards if the correct letter was passed by mistake.
- ! The CLEAR key erases the last character selected.

- ! ENTER BIRTH DATE. (Enter in the following order: month, day, year). Press ENTER after each.
- ! ENTER SEX. Press the MALE or FEMALE key.
- ! ENTER HEIGHT. Enter height in inches or cm (whole numbers only: e.g. 68 in. is acceptable, 68.5 will not be accepted). Refer to page 24 to change between English and Metric units. Press ENTER.
- ! ENTER BODY FRAME SIZE. Press the SMALL, MEDIUM, or LARGE key. (Refer to page 15 for methods to determine frame size).
- ! Enter ACTIVITY LEVEL. This value corresponds to your daily activity during normal working hours. Press 1 for Light (e.g. office work). Press 2 for Medium (e.g. mail carrier, house cleaning). Press 3 for Heavy (e.g. construction, laborer).

**NOTE:** The frame size, activity level and F.I.T. entries are not used in the determination of percent body fat (this information is only used in the Fitness Analysis described on page 16).

! ENTER F.I.T. VALUE. The following procedure provides a quantitative method to determine a subject's Physical Activity Rating.

A subject's F.I.T. value is a function of 3 parameters:  $F.I.T. = \text{Frequency} * \text{Intensity} * \text{Time}$ .

! Frequency - How often the exercise is performed.

! Intensity - How much energy is expended during exercise.

! Time - How many minutes the exercise is performed during each session.

FREQUENCY: 5 - Daily or almost daily (6 or 7 times per week)

4 - 3 to 5 times per week

3 - 1 or 2 times per week

2 - A few times per month

1 - Less than once per month

Enter Frequency Value. Press ENTER.

- INTENSITY:**
- 5 - Aerobic Activities that result in sustained heavy breathing and perspiration (e.g. high impact aerobics, running, speed swimming, distance cycling).
  - 4 - Intermittent aerobic activities that result in sustained heavy breathing and perspiration (e.g. tennis, racquet-ball, squash).
  - 3 - Moderate aerobic activity (e.g. normal bike riding, jogging, low impact aerobics).
  - 2 - Moderate aerobic activity (e.g. recreational volleyball, moderate speed walking).
  - 1 - Light Aerobic activity (e.g. normal walking, golfing).
- Enter Intensity Value. Press ENTER.

- TIME:**
- 4 - Over 30 minutes
  - 3 - 20 - 30 minutes
  - 2 - 10 - 20 minutes
  - 1 - Under 10 minutes
- Enter Time Value. Press ENTER.

**NOTE:** This entry is used to calculate caloric expenditure and is not used to determine percent body fat.

! Enter Weight in lbs or kgs. Refer to page 24 to switch between English and Metric Units. Press ENTER.

! The FUTREX-6100/XL is "Ready to Read" - (i.e. ready to perform body fat estimations). Refer to page 5 for the description of the measurement sequence.

### 3. Estimating a Previously Stored Subject

When a subject data has been previously stored, subsequent estimations can be made without re-entry of personal information (height, sex, etc.).

! Turn Power Switch ON.

! Zero Adjust the FUTREX-6100/XL (refer to page 5).

! Press ENTER when FUTREX-6100/XL displays "Ready".

! Enter Subject's ID Number (e.g. 1-9999). Press ENTER.

! Enter current Weight in lbs. or kgs. Press ENTER.

! FUTREX-6100/XL is "Ready to Read" - (i.e. ready to perform the body fat estimations). Refer to page 5 for description of the measurement sequence.

**NOTE:** This new body fat percentage will be stored as the current value, whereas, the previous percentage will become the initial reading. Both values will be used in the Update Analysis Printout (refer to page 17).

#### **4. Fitness Analysis Printout**

To print a Fitness Analysis using previously stored subject data:

- ! Press SELECT PROGRAMS key, then FITNESS key.
- ! Enter Subject ID Number. Press ENTER.
- ! FUTREX-6100/XL will print out the Fitness Analysis. See page 16.

#### **5. Update Analysis Printout**

To print an Update Analysis using previously stored subject data (both the initial and current weight and body fat values must be stored in the instrument in order to use this program):

- ! Press SELECT PROGRAMS key, then UPDATE key.
- ! Enter Subject ID Number. Press ENTER.
- ! FUTREX-6100/XL will print out the Update Analysis based on the comparison between the subject's initial and current weight and body fat percentage. See page 17.

## FRAME SIZE

There are several methods used to determine the body's Frame Size. Futrex does not recommend any specific method but does provide two techniques often used (ankle girth and wrist girth). (The FUTREX-6100/XL does not use Frame Size during the percent body fat estimation. Frame size is used only to determine the Recommended Weight in accordance with the Metropolitan Life Insurance Height and Weight Tables.)

! **Ankle Girth Method**

! Measure the ankle girth at the smallest point above the ankle with the tape as tight as possible.

! Determine Frame Size from standards listed below.

	Small Frame	Medium Frame	Large Frame
Men	Less than 8 in.	8 to 9.25 in.	Greater than 9.25 in.
Women	Less than 7.5 in.	7.5 to 8.75 in.	Greater than 8.75 in.

! **Wrist Girth Method**

! Place your left thumb and middle finger around your right wrist and gently squeeze your fingers together.

! Determine Frame Size from Standards listed below:

! Small Frame - Fingers overlap

! Medium Frame - Fingers touch

! Large Frame - Fingers do not touch

**Note: If you have long fingers, this method may underestimate your frame size.**

## PROGRAM PRINTOUTS

The FUTREX-6100/XL provides four analysis programs:

1. Fitness Analysis
2. Update Analysis
3. Physical Analysis Ratings
4. Color Forms

### 1. Fitness Analysis

This program compares a subject's current weight and percent body fat to the medically recommended values. The program prints diet and activity suggestions to facilitate reaching the recommended fat/weight levels.

**NOTE: Always consult a health professional before beginning any diet and exercise program.**

A Fitness Analysis printout can be obtained by:

- ! Either recalling a subject's stored data (refer to page 13).
- ! Or entering subject's data directly into the Fitness Analysis Program:
  - ! Turn Power Switch ON.
  - ! Press the CLEAR Key to cancel the product name display.
  - ! Press the SELECT PROGRAM Key, then press the FITNESS Key.
  - ! Enter ID#. Press ENTER. Enter Name (or initials). Then press ENTER. Then Enter Birth Date. Press ENTER again.
  - ! Enter Sex. Press the MALE or FEMALE Key.

- ! Enter Height. Press ENTER. Then Enter Body Frame Size. Press the SMALL, MEDIUM or LARGE Key (refer to page 15 to determine frame size).
- ! Enter Activity Level (this value corresponds to your daily activity during normal working hours).  
Press 1 for Light (e.g. office work)  
Press 2 for Moderate (e.g. mail carrier, package delivery)  
Press 3 for Heavy (e.g. construction, laborer).
- ! Enter F.I.T. Level. Refer to page 11 to determine the frequency, intensity and time of subject's exercise program.
- ! Enter Weight. Press ENTER.
- ! Enter the Percent Body Fat obtained from the FUTREX-6100/XL. Press ENTER and the Fitness Analysis will then be printed.
- ! When finished, turn Power Switch OFF.

## 2. Update Analysis

This printout compares your previous weight and percent body fat with your current values.

**NOTE: Always consult a health professional before beginning any diet and exercise program.**

The Update Analysis Printout can be obtained by using two alternate procedures:

- ! Either recalling stored subject data (refer to page 13).
- ! Or entering subject data directly into Fitness Analysis Program:
  - ! Turn Power Switch ON.
  - ! Press the SELECT PROGRAM Key, then press the UPDATE Key.
  - ! Enter ID #. Press ENTER (default is "0"). If storing subject's personal data in the FUTREX-6100/XL memory, ID #.

- ! Enter Name. Press ENTER.
- ! Enter Birth Date. Press ENTER. Then Enter Sex. Press the MALE or FEMALE Key.
- ! Enter Height in inches or cm. Press ENTER. Then enter Body Frame. Press the SMALL, MEDIUM or LARGE Key (refer to page 15 to determine frame size).
- ! Enter Activity Level (this value corresponds to your daily activity during normal working hours). Press ENTER.
  - Press 1 for Light (office work)
  - Press 2 for Moderate (mail delivery)
  - Press 3 for Heavy (construction)
- ! Enter F.I.T. Level. Refer to pages 11 and 12 to determine the frequency, intensity and time of subject's exercise program. Press ENTER after each entry.
- ! Enter Current Weight in lb or kg. Press ENTER.
- ! Enter Current Percent Body Fat. This is the value most recently obtained using the FUTREX-6100/XL. Press ENTER.
- ! Enter Date of Original Reading. Enter month, day and year of initial reading (e.g. 10/31/93).
- ! Enter Original Weight. This value refers to the weight of the subject prior to starting any weight loss program. Press ENTER.
- ! Enter Original Percent Body Fat obtained from the FUTREX-6100/XL prior to starting any body fat gain/loss program. Press ENTER and the Update Analysis will be printed.
- ! When finished, turn Power Switch OFF.

**NOTE: The FUTREX-6100/XL will sound a warning signal if the user has not pressed any key for two minutes.**

### 3. P.A.R. Report Procedure

The following will list, in detail, the steps required to generate a P.A.R. Report:

- ! Connect RS232 cable to Epson printer and FUTREX-6100/XL.
- ! Load paper into Epson printer.
- ! Turn Power Switch ON.
- ! Press ZERO ADJUST key.
- ! Press SELECT PROGRAM key, then press PHYSICAL RATINGS key (PAR).

**Alternate #1 - Using Subject ID#**

- a) Enter ID# (refer to page 9 DATA STORAGE CAPABILITY).
- b) Enter Systolic pressure (in mmHg).
- c) Enter Diastolic pressure (in mmHg).
- d) Enter Resting Heart Rate (BPM).
- e) Enter Vital Capacity (in cc).
- f) Enter Aerobic Capacity (in BPM).

- g) Enter Sit & Reach Distance (in in. or cm.).
- h) Enter number of Sit-ups.
- i) Enter number of Push-ups.
- j) Enter Grip Strength (in kgs.).
- k) Epson printer will now generate report.

**Alternate #2 - Entering Subject Data Manually (not using Subject ID#)**

- ! Display will ask for "ID#", press ENTER.
- ! Enter NAME.
- ! Enter birth month and press ENTER.
- ! Enter birth day and press ENTER.
- ! Enter birth year and press ENTER.
- ! Enter Male or Female.
- ! Enter Height (in inches or cm.).
- ! Enter Weight (in lbs. or kgs.).
- ! Enter Body Fat %.
- ! Follow Steps b) through k) of Alternate #1

#### **4. 4-Page, 4-Color Report Procedure**

The following will list, in detail, the steps required to generate a 4-Page, 4-Color Report:

- ! Connect RS232 cable to Epson printer and FUTREX-6100/XL.
- ! Load paper into Epson printer.
- ! Turn Power Switch ON.
- ! Press Zero Adjust key.
- ! Press SELECT PROGRAM key, then press COLOR PRINTER key.

##### **Alternate #1 - Using Subject ID#**

- ! Enter ID# (refer to page 9 DATA STORAGE CAPABILITY).
- ! Epson printer will now generate report.

##### **Alternate #2 - Entering Subject Data Manually (not using Subject ID#)**

- ! Display will ask for "ID#", press ENTER.
- ! Enter NAME.
- ! Enter birth month and press ENTER.
- ! Enter birth day and press ENTER.
- ! Enter birth year and press ENTER.

- ! Enter Male or Female.
- ! Enter Height (in inches or cm.).
- ! Enter Frame size.
- ! Enter Activity Level (1=light, 2=medium, 3=heavy) and press ENTER.
- ! Enter Frequency (1-5) and press ENTER.
- ! Enter Intensity (1-5) AND PRESS ENTER.
- ! Enter Time (1-4) and press ENTER.
- ! Enter Weight (in lbs. or kgs.).
- ! Enter Body Fat %.
- ! Epson printer will now generate report.

## FUNCTION MODE

### Function Mode Options

- ! F1 - Selection of English or Metric units.
- ! F2 - Not used.
- ! F3 - Not used.
- ! F4 - Not used.
- ! F5 - Selection of Warning Signal that two minutes have passed without any key being pressed.
- ! F6 - Not used.
- ! F7 - Not used.
- ! F8 - Not Used.

### Entering into the Function Mode

- ! Turn Power Switch ON.
- ! Press the SELECT PROGRAM Key.
- ! Press the F-MODE Key.
- ! The Letter "F\_" will appear on the screen.

### F1 - Selection of English or Metric Units

The subject's height and weight values can be printed in:

- ! English (lbs/in), or
- ! (Kg/cm) units. After entering the Function Mode:
  - ! "F" is displayed, type "1".
  - ! Display will either show "English" or "Metric".
  - ! If you desire to change, press the SELECT PROGRAMS pushbutton. Then press "CLEAR".

### F5 - Two Minute Warning Beeper

A beeper will sound if no key has been pressed for two minutes. The purpose of the beeper is to alert the user that the instrument is still turned on. This "beeper alert" can be turned off by the following procedure.

- ! When "F" is displayed, type 5.
- ! Display will show whether or not the warning is on.
- ! If you desire to change the beeper warning from ON to OFF, or from OFF to ON, press the SELECT PROGRAM pushbutton.
- ! Then press CLEAR.
- ! The display will read "READY". The FUTREX-6100/XL is ready to perform body fat estimations.

## THE "OTHER" KEY

The OTHER Key allows the user to:

- ! Communicate with an external computer through a RS-232 link.
- ! Change Stored Subject Data.
- ! Add Stored Subject Data.
- ! Delete Stored Subject Data.

### RS-232

The RS-232 link allows the user to transfer the subject I.D. number, name and corresponding personal data to an external personal computer.

The personal computer software which communicates with the FUTREX-6100/XL needs to have been copied to the hard disk of your PC computer (refer to the FUTREX-6100/XL PC Software Manual).

To transfer the data:

- ! Attach the RS-232 Communication Cable to the personal computer and the instrument.
- ! Turn on the FUTREX-6100/XL.
- ! Press the SELECT PROGRAMS Key.

- ! Press the OTHER Key until the display shows "RS-232".
- ! Press ENTER and the display will read "DATA LINK".
- ! Type "F6100/XLPC" into the PC computer. Follow the instructions provided with the PC software. This software program automatically downloads data through a standard RS-232 interphase with a baud rate of 9600 from the FUTREX-6100/XL and stores it on the PC computer.

**Change Data on a Subject that has been Previously Stored**

Allows the user to correct the data within the FUTREX-6100/XL stored subject data file.

- ! To change Subject Data:
  - ! Turn ON the FUTREX-6100/XL.
  - ! Press the SELECT PROGRAMS Key.
  - ! Repetitively press the OTHER Key until the "SUBJECT DATA" is shown on the display. Press ENTER.
  - ! Enter the I.D.#. Then press ENTER.
  - ! Enter NAME. Refer to page 10 for name entry.
  - ! Press ENTER.
    - ! Press ENTER again if the information displayed is correct.
    - ! If the display is incorrect, change the entry. For the above weight example, enter in 112 lbs. Press ENTER to store the corrected weight value.

- ! Continue to press ENTER or change the entries until the FUTREX-6100/XL reads "READY". Press ENTER and the FUTREX-6100/XL is ready to perform a percent body fat estimation.

#### Store Data on a New Subject

Allows the user to store data collected from a new subject in the FUTREX-6100/XL data base.

To add a new subject:

- ! Turn on the FUTREX-6100/XL.
- ! Press the SELECT PROGRAMS Key.
- ! Repetitively press the OTHER Key until "NEW SUBJECT" appears on the display. Then press ENTER.
- ! Type in new subject I.D. number.
- ! Follow steps outlined on page 9 for proper data entry.
- ! Repeat the above steps to add another subject.

#### Delete a Stored Subject

Allows the user to permanently delete a stored subject from the FUTREX-6100/XL data base.

To delete a stored subject's datafile:

- ! Press the SELECT PROGRAMS Key.
- ! Repetitively press the OTHER Key until "DELETE SUBJECT" appears on the display. Press ENTER.

! Enter subject number to be deleted.

! The FUTREX-6100/XL will read "DELETE SUBJECT #\_\_\_".

! If this is the correct subject number to delete press ENTER.

! If this is not the correct subject number to delete, press CLEAR. The FUTREX-6100/XL will display "#\_\_\_ NOT DELETED".

! Repeat this procedure to delete another subject file.

## DATE/TIME (DATE) KEY

### Introduction

The DATE Key or Date/Time key allows the user to change:

- !      **Date**
- !      **Time**
- !      **Numeric Settings**

### Date

To change the date format stored within the FUTREX-6100/XL:

- !      **Press the SELECT PROGRAMS Key.**
- !      **Press the DATE Key and step to the DATE selection. Press ENTER and the current date will be displayed.**
- !      **To change displayed format press the "-" key and step through the valid formats: MMDDYY, DDMMYY, YYMMDD.**
- !      **To change the delimiters (separators) between month, day and year press the "." key and step through the valid delimiters: "/", "-" and ".".**
- !      **To change the date - Example: 08/16/92 or MMDDYY:**
  - !          **Press "1" to change the month.**
  - !          **Press "2" to change the day.**
  - !          **Press "3" to change the year.**
- !      **To store the selected date and date format, press ENTER.**

### Time

To change the time or time format stored with the FUTREX-6100/XL:

- ! Press the **SELECT PROGRAMS** Key.
- ! Repetitively press the **DATE** key Time selection. Press **ENTER** and the current time will be displayed.
- ! To change displayed time format, press the "-" key and step through the valid formats: 12 hour (AM, PM) and 24 hour clock.
- ! To change the delimiters between hour, minutes and seconds, press the "." key and step through the valid delimiters: ":", ":", and ":",
- ! To change the time - Example 16:24:14 (24 hour clock):
  - ! Press "1" to change the hour.
  - ! Press "2" to change the minutes.
  - ! Press "3" to reset the seconds to zero.
- ! To store the selected time and time format, press **ENTER**.

#### Numeric Settings

To change the numeric settings:

- ! Press the **SELECT PROGRAMS** Key.
- ! Press the **DT** Key and step to the time selection. Press **ENTER** and the current numeric setting will be displayed.
- ! To change the displayed numeric setting, press the "." key to toggle between the valid decimal delimiters and thousands separators: "9,999.99" and "9.999,99", respectively.

## ENTERING YOUR COMPANY'S NAME

You may enter a two line heading that will be printed at the top of each body fat printout:

- 1) Turn the unit ON and wait for "ZERO ADJUST" message
- 2) Press SELECT PROGRAM
- 3) Press OTHER key approximately 6 times until "COMPANY NAME" appears
- 4) Press ENTER
- 5) Enter first line of company name (up to 28 letters) using the following procedure:
  - ! Press MALE key to step through the letters of the alphabet, numbers and symbols. When the letter displayed on the screen is correct press SELECT PROGRAMS.
  - ! Press MALE key to step through the second letter. Press SELECT PROGRAMS once the correct second letter is displayed. Continue pressing the MALE key and SELECT PROGRAMS key until the name is correctly entered (up to 22 characters). When the entire name has been entered, press the SELECT PROGRAM key and then ENTER.

**NOTE:**

- !      **The FEMALE key can be used to step backwards through the symbols, numbers or letters or to step backwards if the correct letter was passed by mistake.**
  
- !      **The CLEAR key erases the last character selected.**

6)      **Enter second line same way**

7)      **Press ENTER**

**The name is now programmed into your unit.**

## GENERAL SPECIFICATIONS

- 1) **MEASUREMENT**
  - ! **Measuring Principle:** Near Infrared Interactance Technique based on technology from the United States Department of Agriculture.
  - ! **Measuring Range:** 3% to 45%
- 2) **AGE LIMITS**                      eighteen years and older
- 3) **PRINTER OUTPUT**
  - ! **Fitness Analysis**
  - ! **Update Analysis**
  - ! **Reference Tables**
- 4) **POWER SOURCE:** Six AA 1.5V alkaline batteries or A/C adapter
- 5) **DIMENSIONS:**                      Main Body - 4.7 x 9.5 x 2.2 inches  
    Light Wand - 2.3 (dia.) x 0.8 (length) inches
- 6) **WEIGHT:**                                      2 lbs. (total) (1 kg.)

7)	<b>ACCESSORIES:</b>	Optical Standard	x1
		Printer Paper (rolls)*	x5
		"AA" Battery	x6
		Users Manual	x1
		Light Shield	x1
		Biceps Locator	x1
		Computer Disks	x1
		! Fitness Analysis for PC Computer	
		! F-6100/XL Coupon Program Windows 95 and 98	
		A/C Adapter	x1
		Carrying Case	x1
		Serial Cable for PC**	x1
		Packet: Color Printout Forms**	x1
		Serial Cable for Epson Printer**	x1
		EPSON 300XL Printer**	x1

\*One roll is supplied installed in the instrument's printer.

\*\*Optional

8) **ACCURACY OF THE DEVICE:**

Futrex instruments are as accurate as the Hydrostatic Weighing, which is universally considered to be the "Gold Standard" in body composition analysis.

**CE 0459**

**TROUBLESHOOTING**

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>POSSIBLE SOLUTION</b>
1) Display shows "LOW BATT"	Batteries are low.	Replace batteries.
2) Display shows "CONNECTION?"	<p>a) Bad connection between Light Wand and Light Wand Socket.</p> <p>b) Too much/too little light.</p>	<p>a) Be sure the Light Wand is properly inserted into the Socket.</p> <p>b) Be sure the Light Wand is properly seated in the Optical Standard when Zero Adjusting.</p>
3) Bad Repeatability	a) Inconsistent measurement technique.	<p>a) Make sure you are applying enough pressure between the Light Wand and the Subject's arm.</p> <p>b) The silver stripes on the Light Wand must be aligned with the line on the Optical Standard when Zero Adjusting.</p> <p>c) The silver stripe on the Light Wand must point toward the subject's shoulder.</p> <p>d) Use the Light Shield to block the external light. <b>Always</b> avoid measurements under strong lights (e.g. direct sunlight) because errors may occur.</p>

<p>4) Unusually high body fat readings (40% - 50%)</p>	<p>a) Too much light present during the reading.</p>	<p>a) Do not lift the Light Wand from the Subject's biceps until "Remove and Replace" appears on the display during the first estimation or the printer starts printing after the second estimation.</p> <p>b) Use the Light Shield to block the external light. Always avoid measurements under strong lights (e.g. direct sunlight) because errors may occur.</p>
<p>5) Printer Stops</p>	<p>a) Low batteries</p> <p>b) Bad battery contact.</p> <p>c) Bad AC connection.</p>	<p>a) Replace batteries. Alkaline batteries must be used.</p> <p>b) Remove batteries and clean tabs with isopropyl alcohol (rubbing alcohol).</p> <p>c) Unplug the AC Adapter from the wall socket and from the unit. Clean the adapter contact with isopropyl alcohol (rubbing alcohol).</p>
<p>6) Print is too light</p>	<p>a) Printing on wrong side of the paper.</p> <p>b) Print head is dirty.</p>	<p>a) Make sure paper is inserted to print on the "shiny" side of the paper.</p> <p>b) Clean the print head by carefully removing the Paper Cutter. Insert a clean piece of rough paper (a typical business card is ideal) between the print head and rear paper roller.</p> <p><b>CAUTION:</b> Do not bend the print head; pressure on the rear paper roller will allow the card to be inserted.</p>

7) Printer prints black lines.	a) Low batteries. b) Bad battery connections. c) Bad A/C adapter connection.	a) Replace batteries. Alkaline batteries must be used. b) Remove batteries and clean tabs with isopropyl alcohol (rubbing alcohol). c) Check connection.
8) "BATTERY ERROR" displayed when unit is turned on.	a) Internal memory failure.	Contact Futrex.
9) "INTERNAL ERROR" displayed.	a) Electronics malfunction.	Contact Futrex.

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