readwell Touch

ELISA Plate Analyzer

User Manual

Version: RBK 3.500A

ROBONIK®

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1. GENERAL INFORMATION

1.1. Warranty Information

Each Instrument is completely tested and guaranteed for twelve months from delivery
The warranty applies to all the mechanical and electrical parts. It is valid only for proper installation, use and maintenance in compliance with the instructions given in this manual.

ROBONIK will, at its discretion repair or replace parts, which may be found defective in the warranty period. The warranty does not include any responsibility for direct or indirect personal and material damages, caused by improper use or maintenance of the instrument.

Parts that are inherently subject to deterioration are excluded from the warranty. In case of defects due to misuse of the instrument, any travel and man-hour expenses will be charged extra.

In case of tenders warranty would be as per tender terms and conditions.

1.2. Technical Service

ROBONIK is always accessible to the customers for any kind of information about installation, use, maintenance and others. When asking for service, please refer to this manual and report the data reported on the identification label (serial number).

Only qualified technicians are entitled to repair instruments. The user should carry out ordinary maintenance.

The technical service of ROBONIK or an authorized service center with specialized technicians, with suitable instrumentation and original spare parts only, is always available for extraordinary maintenance (repair), under a yearly maintenance contract or on specific demand.

1.3. Contacts

Manufacturer:	European Authorized Representative
ROBONIK (INDIA) PVT LTD **A-374, TTC, MIDC Industrial Area,** **MAHAPE, NAVI MUMBAI – 400 710** **INDIA** **Tel: +91-22-67829700,** **Fax: +91-22-67829701** **Email: sales@robonikindia.com** **Website: www.robonik.in**	**Obelis s.a** **34, Av. de Tervuren, bte 44** **B-1040 Brussels, BELGIUM** **Tel: (32) 2. 732. 59. 54** **Fax: (32) 2. 732. 60. 03** **E-Mail: mail@obelis.net**

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2. GENERAL SAFETY WARNINGS

2.1.Danger – warnings symbols:

The following symbols are used to inform the user of the safety rules.

This symbol indicates generic danger. It means that, serious damage can occur to the operator if described precautions are not observed.

This symbol indicates HIGH ELECTRIC VOLTAGE. It is dangerous to touch any part having this label. Only qualified operators can access these components, after unplugging the instrument from the Supply.

This symbol indicates that the instrument involves the handling of samples, which can be infected (urine or human serum).   In this condition, infection or contamination might occur. Pay attention to the general safety warnings when in presence of such biological substances. Use Protective clothes, gloves and glasses.

This symbol in the user manual indicates that damages to the instrument or erroneous results could occur if the given warnings are not followed.

This symbol indicates a portion, which is particularly important, and should be studied carefully.

This symbol indicates a Protective Earth or Ground terminal.

General Symbols

Symbol for "Manufacturer"

Symbol for " IN VITRO DIAGNOSTIC MEDICAL DEVICE"

Symbol for "AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY"

2.2. Use of the Instrument

1. The instrument has to be used for the designed purposes under specified conditions, following proper procedures and safety rules by qualified personnel.

2. This manual contains instructions for operation performed by qualified personnel.

3. A qualified user has to make sure that environmental condition is suitable, the installation is correct, the use and maintenance are proper according to the general safety rules as well as to the particular precautions described in the manual. (However, he is not entitled to repair the instrument)

4. A qualified technician is entitled to maintain and repair the instrument using the original spare parts according to the given instructions.

5. Maintain room temperature and humidity as specified in the manual.

6. If the instrument is not used as described in the manual, the protection provided by the instrument may be impaired.

7. Alterations to the instrument are prohibited. The user is liable for any improper modification to the instrument, and for the deriving consequences.

8. Contact the MANUFACTURER service or authorized service center in case the instrument need extraordinary maintenance. Specialized technicians who will be able to repair the instrument using original spare parts will carry out the maintenance.

9. This IVD equipment complies with the emission and immunity requirements as per IEC61326 series.

10. **Warning**: This equipment has been designed and tested to CISPER11 Class A. In a domestic environment it may cause radio interference, in which case, you may need to take measures to mitigate the interference."

11. An advisory that the electromagnetic environment should be evaluated prior to operation of the device.

Warning: Do not use this device in close proximity to sources of strong electromagnetic radiation (e.g. unshielded international RF sources), as these may interfere with the proper operation.

3. INTRODUCTION

3.1. Description

readwell TOUCH is a user friendly micro plate Analyser. It is compact & lightweight. It is designed to measure and interpret enzyme immunoassay results, both monochromatically and bichromatically. It is intended for in vitro diagnostic use.

3.2. Special Features

The **readwell TOUCH** can accommodate a flat bottom as well as a round configuration. The carriage is designed in a way that the plate automatically moves smoothly and positions itself accurately in the optical measurement path. Readings are taken continuously. The average value is calculated and results are presented according to the option selected.

The **readwell TOUCH** operates on a WIDE voltage (90-270 volt). This eliminates the need for an external voltage stabilizer**.**

The **readwell TOUCH** has a special provision, which allows it to be used even when a printer is not available. Readings can be conveniently noted down manually.

The other special features of **readwell TOUCH** are as follows:

- Option of Lamp saving mode.

- Selection of both primary and secondary filters.

- Latest technology with battery backup for 250 tests, and more than 2500 results.

- Robust built in 52-column thermal printer with 384 stationary heads.

- Unique circuitry for long lamp life.

- Alphanumeric Patients ID entry.

- Editing of saved tests.

- Human machine user interface: Touch panel, Keypad

- Multi-standard curve up to 12 standard calibrations with one blank optional.

- Access to test by touch of key.

- Capability to connect to 80-column printer for direct report printout.

- Blank is optional.

- Setting of the Date and Time.

- Capable of storing, deleting and recalling tests.

- Multiple calibrator modes.

- Selection of duplicates for both calibrators and samples.

- Extensive software for Cut Off mode.

- Selection of Positive, Equivocal, Negative cut-off.

- Several pre-programmed calculation modes will help to facilitate data processing of enzyme immunoassays. These are menu driven modes for simple and error free operations.

  - ✓ ABSORBANCE MODE
  - ✓ SINGLE STANDARD MODE
  - ✓ CUT-OFF MODE
  - ✓ MULTISTANDARD MODE
  - ✓ % ABSORBANCE MODE
  - ✓ UPTAKE
  - ✓ KINETIC

3.3. Technical Specification of readwell TOUCH:

Human Machine Interface	TOUCH PANEL / KEYPAD
Linear measurement range	0.000 to 3.000 Absorbance Units (A)
Photometric Accuracy	$\pm$ 2% or 0.007 whichever is higher, from 0 to 1.5 A $\pm$ 3% from 1.5 A to 3.0 A
Drift	<0.005 A/hr
Photometric Linearity	2.5 A
Optical measurement	8 Channel
Filters Type of filter Wave Length Half Bandwidth Selection	Narrow band Interference 405nm, 450nm, 492nm, 630nm, with two optional filters namely – 560, and YYY (editable) 10nm $\pm$ 2nm Automatic by Stepper Motor
Light Source Display Curve Plotting	Tungsten halogen lamp, 20 Watts 6" Graphics LCD, Negative, Blue Transmissive, STN 320 x 240 dots Graphical Representation on Printer
Plate Carrier Movement	Precisely through the stepper motor
Printer	Built in Thermal Printer 52 columns
Memory	Battery backup supporting 2500 open channels 64 KB Non Volatile RAM
Analysis Mode	Absorbance Single Standard Cut-off Multi-Standard % Absorbance Uptake Kinetic
Connectivity / RS232 Serial Port / USB	9600 baud, 8 data, 1 stop, no parity bits / USB
Power Wattage Voltage	75 Watts 115-230 Volt $\pm$ 10%, 50/60 Hz
Operation Position	On horizontal flat, rigid and vibration free surface

Operating Conditions
    Temperature
     Relative Humidity
	From + 18°C to 35°C
	Up to 80%

Storage Conditions
    Temperature
     Relative Humidity
	From -10°C to 40°C
	Up to 80%

Enclosure	ABS Fire Retardant
Size (cm)	36 x 36 x 22 (lxbxh)
Weight (Approx.)	10 Kg

4. PACKAGING, TRANSPORT AND STORAGE

4.1. General Warnings

Instrument has to be decontaminated before packing for transportation.

4.2. Packaging

Packaging is needed whenever the instrument is to be transported or shipped by courier or other purposes.

To pack the instrument the following instructions has to be followed:

1. Decontaminate the instrument as explained on decontamination chapter of this manual.

2. Put the instrument into the original packaging box; Instrument has to be properly protected by plastic protective material. Put copy of Safety clearance certificate (copy of Safety clearance certificate is attached at the end of this manual)

3. Mark the packaging with address, instrument identification and warning labels

4.3. Instrument Transportation

The transportation of the instrument in unpacked condition must be limited within the room where it is used, to avoid damage.

4.4. Storage of Instrument

Before storing the instrument for a long period, pack it carefully as described above and store indoors.

Relative humidity has to be less than 85%, and temperature between -10ºC and 40ºC.

5. INSTRUMENT DESCRIPTION

5.1. Instrument Working Principle:

- Switch on and program the instrument.
- Place the plate firmly onto the carriage.
- Start the test, the plate will be conveyed inside and strip is placed precisely below the optical path. The measurement is carried out step by step.
- At the end of the cycle the results can be printed or user can save the plate data
- Results are also available at the RS232 Serial Port / USB Port.

On starting the test, the plate will be conveyed into the instrument.

Plate is moved in step by step by a well-controlled mechanism & each well is positioned precisely below the optical path. Optical density of each well is measured as explained below. Based on selected programming mode, sophisticated algorithms are used for analyzing the measured value & presenting the same on the printer, display & RS232 Serial Port / USB Port for computer Interface.

The following diagram represents the main functional elements of the instrument:

White light produced by the lamps is focused into a beam by the lens & passes through the sample. Part of the light is absorbed by the sample & the remaining light is transmitted. It is filtered by interference filters & focused onto the photodiodes. The photodiode converts the received light in to an electrical signal which is in-turn transformed into digital form, from which the microprocessor calculates the absorbance, taking in account of the blank & bichromatic selection.
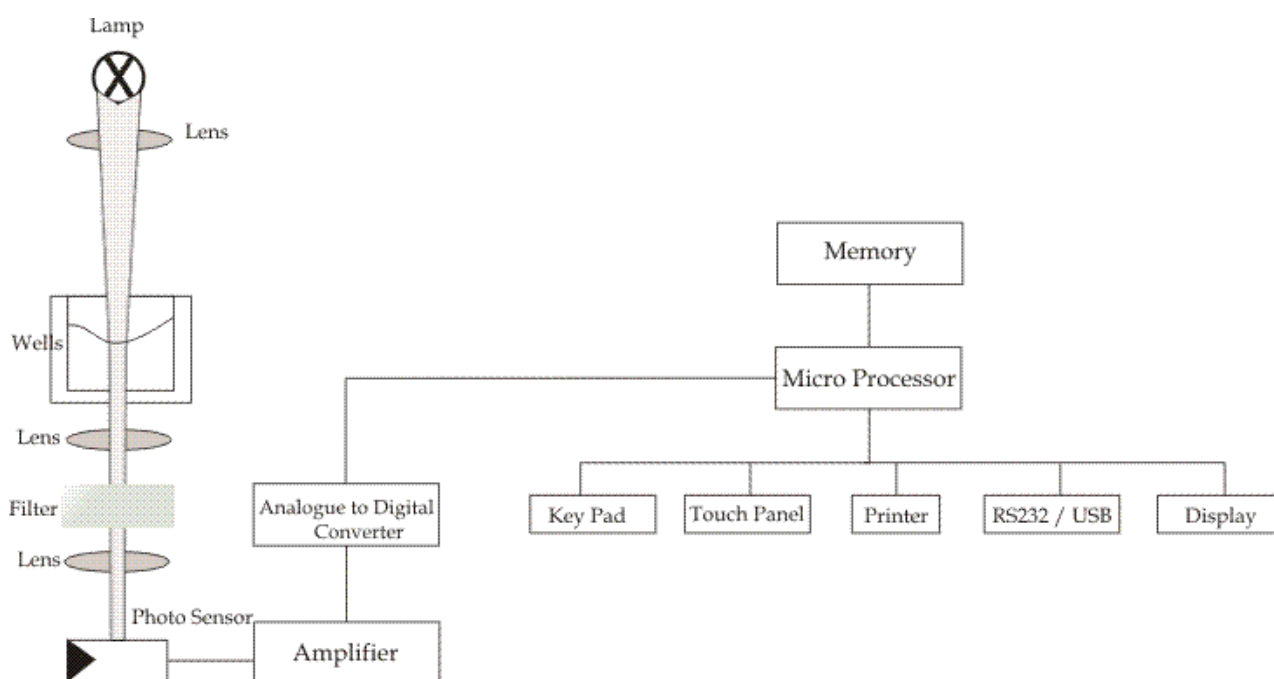
5.2. Perspective View

5.2.1. Front View:

Printer

Touch Screen

Keypad

Plate Carrier/ Holder

5.2.2. Rear View:

Ext. Printer connection

Contrast knob

Serial RS232 O/P

Cooling Fan

On / Off switch
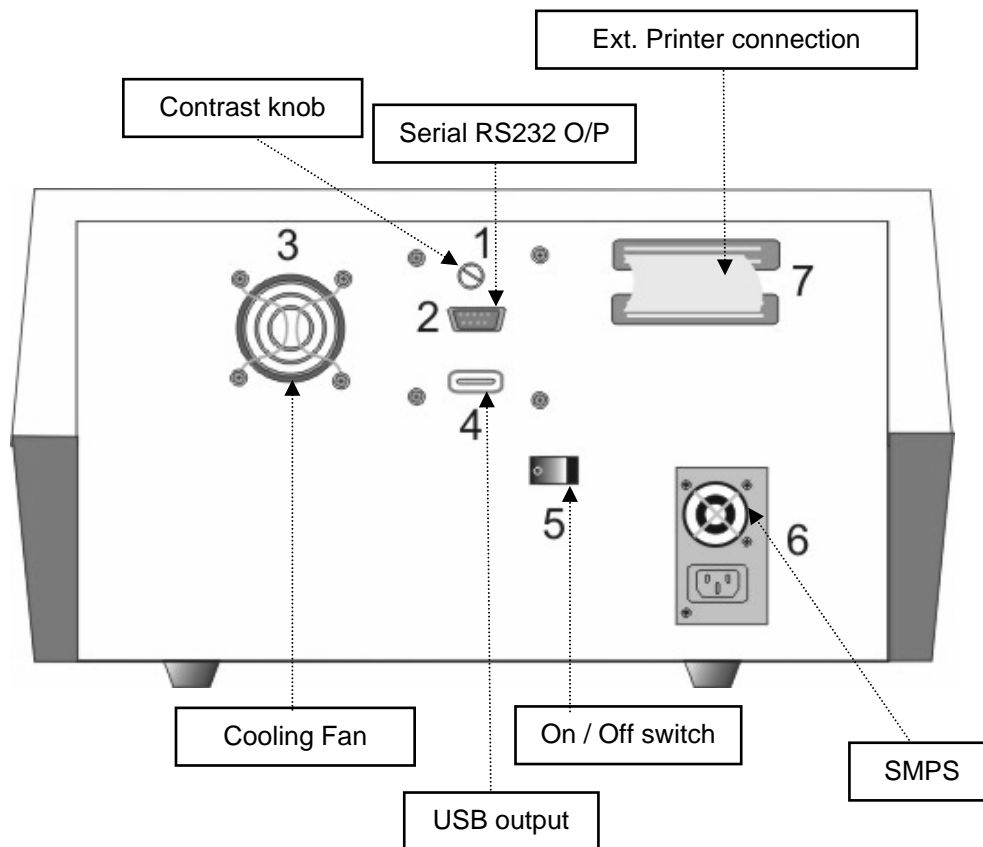
SMPS

USB output

1) Contrast Knob-use to adjust display contrast

2) Serial RS232 output

3) Cooling Fan

4) USB output

5) ON/OFF switch

6) SMPS

7) External printer connection

5.3. Keypad
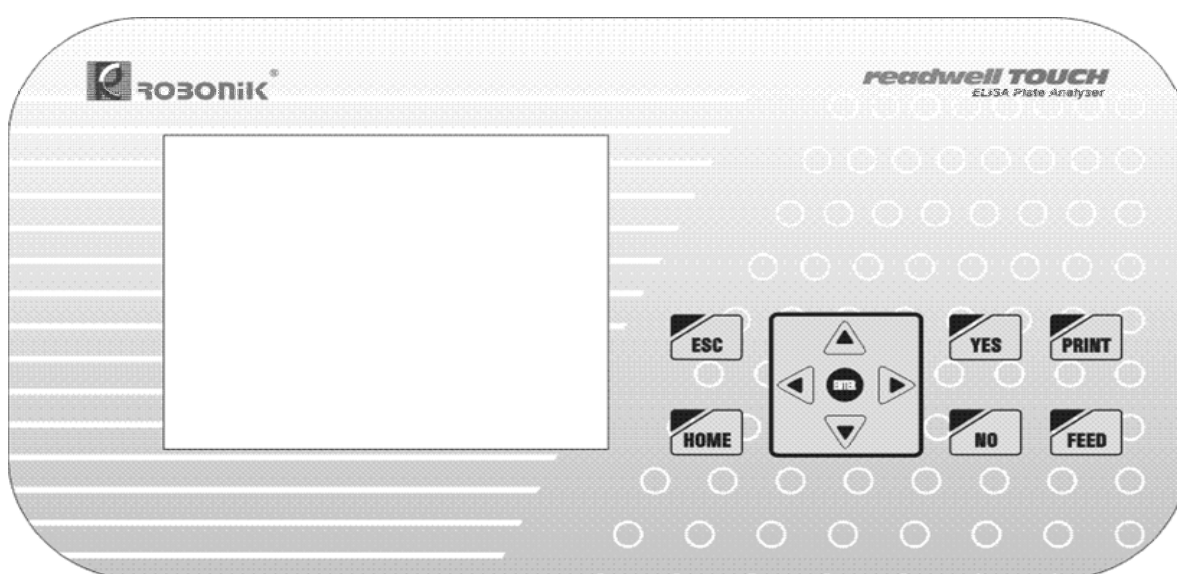
1) 'YES' key is used to select any 'YES' option on screen directly.

2) 'NO' key is used to select any 'NO' option on screen directly.

3) 'PRINT' key is used to get a printout of current screen displayed.

4) 'FEED' key is used for directly accessing the RUN screen of the selected test.

5) Navigation keys are used to select any option available on current screen.

6) 'ENTER' key is used to run any option selected by navigation keys.

7) 'ESC' key is used for escaping from any screen.

8) 'HOME' key is used for directly accessing the shaking mode (ie. SHAKER)

(refer 15.5 for more details on SHAKER)

(Note: Functions based on HOME & FEED keys operates only when it is in List Test screen or the first screen after initializing)

```
readwell TOUCH                      01/03/14
Clinic name / Serial Number          MENU
            Select Test
1. HBSAg          6. PER_ABS        RUN / SEL

2. HCVAb          7. CRP             PRINT

3. UPT            8. KIN             NEXT

4. TSH            9. SIN             PREV

5. CPC            10. CP             DEL

                                    PLATE
                                    DATA
```

User can select "List Test" screen as shown below-

```
        MAIN MENU                          TEST OPERATIONS

1 Test Operations           ESC      1 Select Test By Name        ESC

2 Technical Diagnosis                2 Select Test By Mode

3 Utilities                          3 Select Test By Number

4 View Plate                         4 List Tests

5 Serial Communication               5 Add New Test
```

```
Select Test                    ESC
1  HBSAg      S
2  HCVAb      M              RUN / SEL
3. UPT        U
4. TSH        M                PRINT
5. CPC        C
6. PER_ABS    P                NEXT
7. ABS        A
8. KIN        K                PREV
9. SIN        S
10 CP         C                DEL

                              PLATE
                              DATA
```
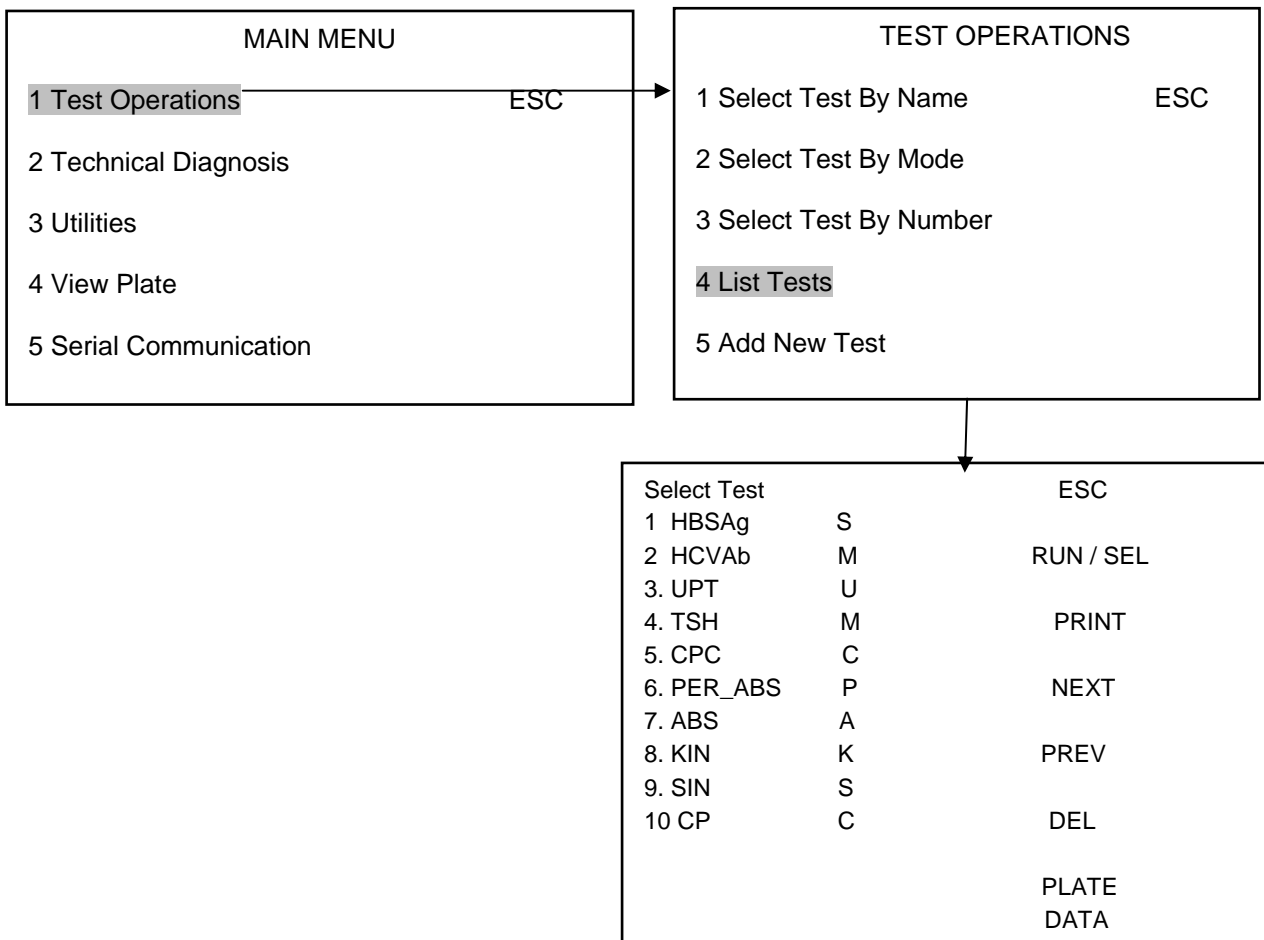
Select "FEED" button present on the keypad. It will display following screen for selecting the particular test. In this way user can directly run the selected test by just entering the valid test no.

Select Test		ESC
1 HBSAg	S	
2 HCVAb	M	RUN / SEL
3. UPT	U	
4. TSH	M	PRINT
5. CPC	C	
6. PER_ABS	P	NEXT
7. ABS	A	
8. KIN	K	PREV
9. SIN	S	
10 CP	C	DEL
Numeric Value: **7**		
1 2 3 4 5 6		ENTER
7 8 9 0 .		CLEAR

Name: ABS   NORM – ABSORBANCE

Pri : 450   Sec : 0   BL   N

ABS	ABS	ABS	ABS	ABS	ABS
1	2	3	4	5	6

ABS	ABS	ABS	ABS	ABS	ABS
7	8	9	10	11	12

Is Plate Loaded   ?   YES   /   NO

6. INSTALLATION PROCEDURE & VERIFICATION CRITERIA

6.1. Unpacking Instructions

Check accessories as per packing list.

Kindly store all packaging materials so as to use it to repack and ship for maintenance or servicing.

6.2. Placing the Instrument

The instrument has to be placed on a level bench.

Room temperature has to be between 10 to 35ºC with a relative humidity below 85%.

Protect the instrument from direct sunshine.

6.3. Power Supply Requirements

Plug the instrument into a power source by the locally available approved plug in cable.

Power cord should be CE, CSA, and UL marked.

115 - 230 Volt ± 10%, 50-60 Hz

6.4. Protective Grounding

Please make sure that electrical power source is properly grounded.

6.5. Printer

"**READWELL TOUCH**", an ELISA Analyser is equipped with a built in 52 columns easy load Thermal printer. Procedure to load the paper is as follows:

Opening the Paper Cover:

Slide the LEVER towards back of the printer to open lock of the Paper Cover.
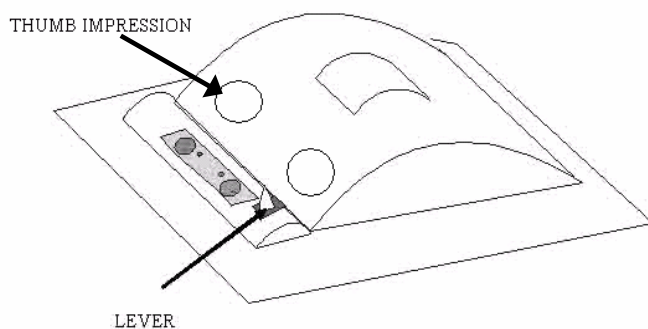
Closing the Paper Cover + replacement of paper roller:

Open the Paper Flap .

Remove the paper roller from the slot.

Now place the Thermal side of the paper roll at the top into the slot provided and then close the paper flap in the direction as shown in the following figure, till you get the locking sound. Use Thumb impressions to push the cover .

Press the paper feed switch until the paper feeds straight and smoothly.
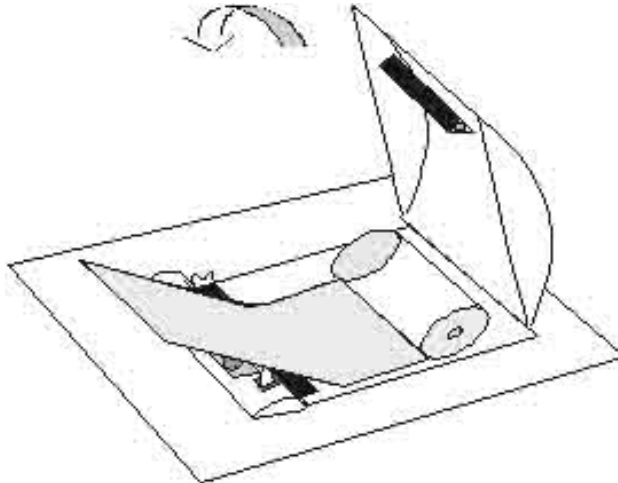
HINT:

When the paper is set correctly and when the closing of the paper cover is proper the FEED LED will not glow.

It keeps on flashing when the data is being printed.

When the paper is almost finished, red lines appear on both sides of the paper.

6.6. Start up Instructions

   Switch on the instrument.

   The instrument initializes all the parameters internally and carries out a power on self-test

   During Initializing it displays the string: "Please wait system initializing."

   It will display the ADDRESS screen after completing the initialization.

```
        ROBONIK (INDIA) PVT LTD
        A-374, TTC, MIDC Industrial Area,
        MAHAPE, NAVI MUMBAI – 400 710
                    INDIA
          Tel: +91-22-67829700,
          Fax: +91-22-67829701
```

The instrument will print the model name "readwell TOUCH", Version number, Clinic Name, current Date with Time.

```
readwell TOUCH                  01/03/14
Clinic name / Serial Number            MENU
          Select Test
1. HBSAg        6. PER_ABS          RUN / SEL

2. HCVAb        7. ABS              PRINT

3. UPT          8. KIN              NEXT

4. TSH          9. SIN              PREV

5. CPC          10. CP              DEL

                                    PLATE
                                    DATA
```

   User can select a saved test by first touching the required "Test Name" on the screen and then touch the "SEL" option to carry out further operation on the test.

   "RUN" option is used to directly run the selected test.

   "DEL": Deletes the selected test.

   If the numbers of tests are more than 10, "NEXT" and "PREV" options can be used for browsing through the list pages.

   "PRINT": For printing the test screen.

   "MENU" used to select Main menu screen.

   "PLATE DATA" this option helps the user to view the Plate Results easily by selecting this option present on the screen.

6.7. Touch Panel Check

READWELL TOUCH provides a *Touch sensitive LCD panel* **and a** *KEYPAD* for easy user interface**.**

The Menus are displayed and the text of the parameter forms the TOUCH ZONE.

Touch screen Layout

```
Name:              POS- CutOff              ESC

Pri: 405     Sec: 0                         SAVE

       No  Factor  QC    QCVal  Mes.    Rem
BL   0             N
NC   0   1.000     N
PC   0   1.000     N
LC   0   1.000     N
CC   0   1.000     N
CUTFAC: 0.000
CUTABS:
QC1        N       Interpretation :
QC2        N       Greyzone % (N)
QC3        N       Cut off Index (Y)
QC4        N       Range   Pos: 0.000
                           Neg: 0.000
```

Above is the generic representation of a Test Screen. The Highlighted zones are TOUCH ZONES, which are active. On touching the "Touch Zone" of a parameter, a sub menu/menu is displayed or the requested action is carried out. The rest of the "Touch Zone" is deactivated.

For Example: To activate the selection

Enter the primary filter value to touch any point in the shaded area "Pri" on the LCD screen.

On proper selection the analyser responds with blinking of the parameter text and also the TOUCH ZONE and a submenu is displayed.

To enter Test Name: Touching the "Name" touch zone provides an alphanumeric screen.

Enter the Test name by touching the Touch zone of that variable. The selected value blinks and is displayed next to the parameter.

Selection Indicator

Selected on screen item is shown in a shaded background. When the screen first displays, the default selection is shown. Pressing a selection either highlights that item or activates it.

6.8. Micro Titer Plate Carriage
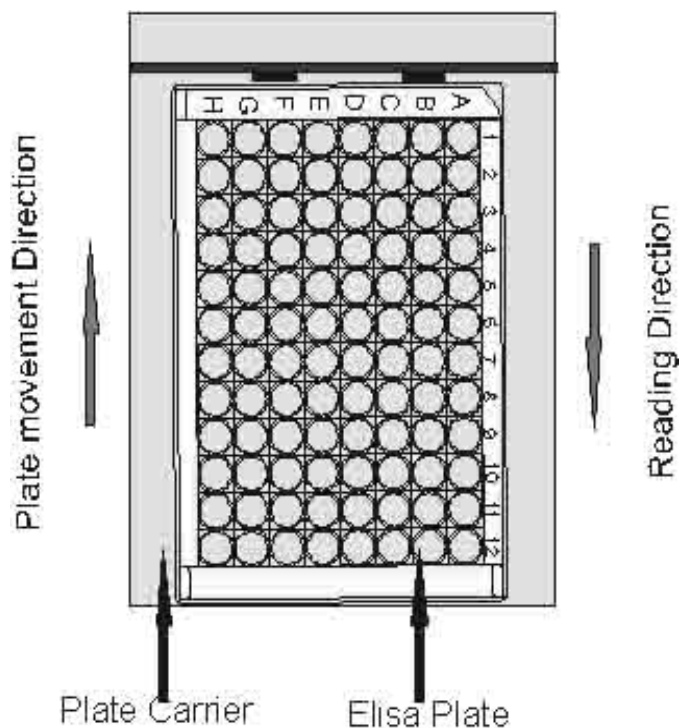
The instrument is provided with a micro titer plate carriage to move the micro titer plate inside. This carriage is driven by stepper motor with timing belt. It places each well of plate exactly below the optical path of each channel. The plate carrier is moved by a well controlled stepper motor drive.

6.9. Plate Loading & Pipetting Procedure

Controls and Sample pipetting procedure in case of CUT OFF:

Maximum number of Blanks = 5

Maximum number of Controls:

1. Negative Control = 05

2. Positive Control = 05

3. Low Positive Control = 05

Pipetting sequence should be as shown below.
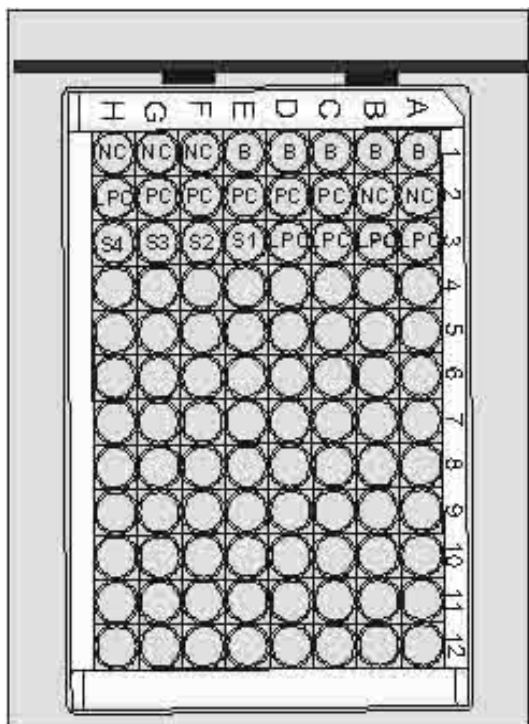
6.10. Readings Check

Checking of readings should be done through controls reading within range specified in data sheet of controls (care should be taken while preparing and pipetting controls and reagents, reagent and control expiry dates need to be checked).

7. PRECAUTIONS

1.Do not use any sharp objects on the Touch Screen. Always use the STYLUS provided to operate the touch panel.

2.Always check for proper grounding before installation. Never operate the instrument when ground wire is removed.

3. Do not attempt to open the instrument and make repairs without proper technical training. Do not allow unauthorized persons to operate or repair the instrument.

4. Use a clean plate and follow the instructions for blanking and standardizing. Do not read any wells containing bubbles or dust particles.

5. The volume of sample, calibrators and blanks should be identical for correct readings. The absorbance is proportionate to the path length. Pipetting should also be proper.

6. Monitoring of the printed values or displayed values during operation may help detect an error. Check the linearity and calibration of the instrument regularly against some standard reference.

7. Check the micro wells before use. They should be scratch-free. The micro well track in the **READWELL TOUCH** has been designed in such a way that the micro wells are totally protected from scratches.

8.Recheck the reading of high OD (above 2A).

9. Place Plate carefully on the tray.

10. Ensure that the main power switch is in OFF position before connecting.

11. Plug the instrument to the AC mains. Confirm proper grounding for trouble

free operation.

12. Connect the printer only when the instrument is OFF.

8. PROGRAMMING MODES

8.1. Absorbance Mode

In this mode the instrument gives only absorbance values of all wells of the respective plate.

Programming a New Test:

A. Select "Test Operation"   **B. Select "Add New Test"**

MAIN MENU	
1 Test Operations	ESC
2 Technical Diagnosis	
3 Utilities	
4 View Plate	
5 Serial Communication	
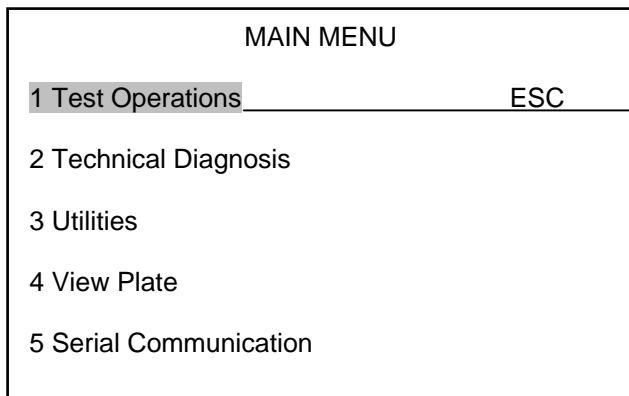
TEST OPERATIONS	
1 Select Test By Name	ESC
2 Select Test By Mode	
3 Select Test By Number	
4 List Tests	
5 Add New Test	
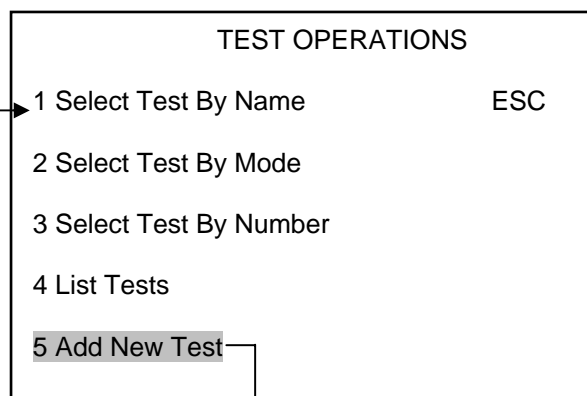
C. Select mode of operation "Absorbance" in "Add New Test"

Select Test Mode	ESC
1> Absorbance	0
2> Single Standard	0
3> Cut off	0
4> Multi Standard	0
5> Percent Absorbance	0
6> Uptake	0
7> Kinetic	0

D. Enter "Test Name"

NORM – ABSORBANCE		
Name :	BL N	ESC
Pri : 405	Sec : 0	
	NORM	
MODE		
	DIFF	

```
        NORM – ABSORBANCE
Name:
        ABS
A   B   C   D   E   F   G   H
I   J   K   L   M   N   O   P   ENTER
Q   R   S   T   U   V   W   X   CLEAR
Y   Z   ,   -   +   _   1   2
3   4   5   6   7   8   9   0
```
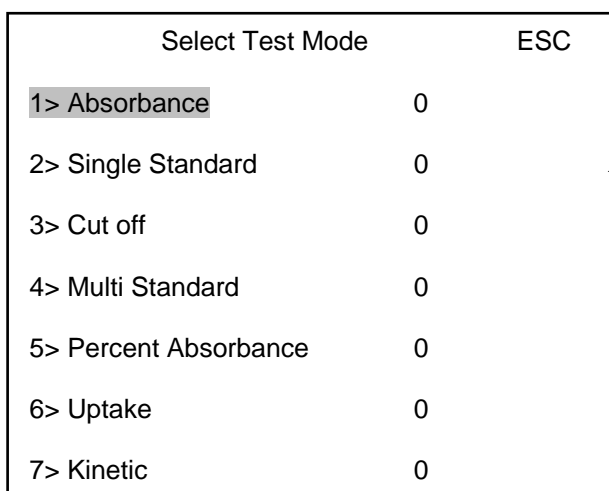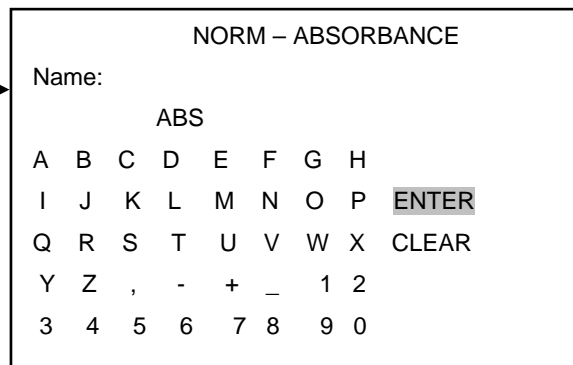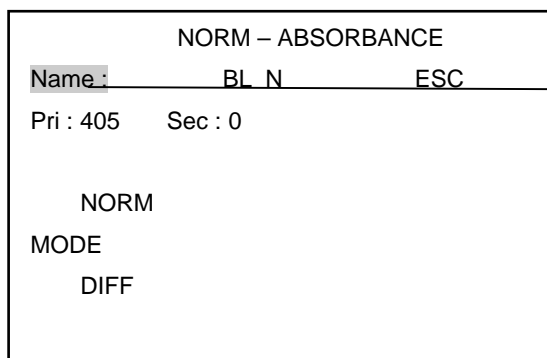
E. Select primary and secondary filter

```
        NORM – ABSORBANCE
Name: ABS      BL  N       ESC
Pri : 405    Sec : 0


   NORM
MODE
   DIFF
```

```
Pri:  405                    ESC
Sec:  0



Select Filter Val:
  0      405     450
  492    630     NA
   NA    560     YYY
```
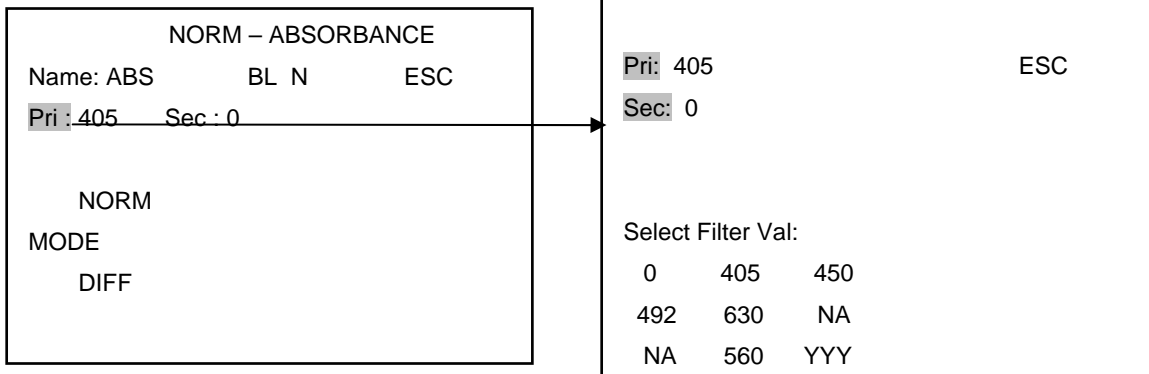
F. If blank is required select "BL"

```
        NORM – ABSORBANCE
Name : ABS        BL  Y       ESC


Pri : 450    Sec : 0          SAVE

   NORM
MODE
   DIFF
```
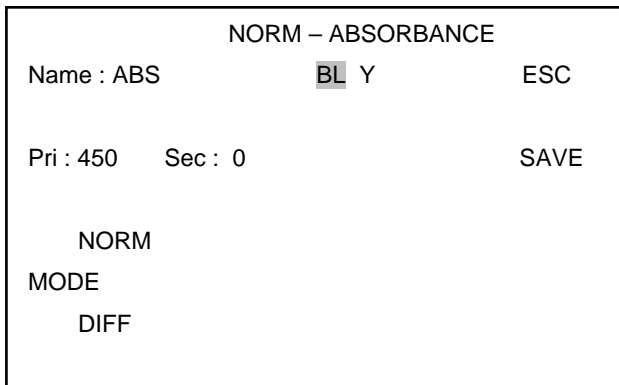
If you select "BL Y", it will read first well first strip 'A1' as a blank and subtract the absorbance of blank well from all other well's absorbance.

G. In absorbance mode there are two modes of operations

Normal Absorbance Mode: Instrument gives the absorbance of each and every well.

Select touch zone "NORM".

Differential Absorbance Mode: Instrument shows the difference of absorbance between odd number wells and even number wells. For Example,- Strip 1- Strip 2, Strip 3 - Strip 4, Strip 5 - Strip 6. For this Mode select touch zone "DIFF".

In Normal Mode

```
        NORM – ABSORBANCE
Name:          BL  N       ESC


Pri : 405    Sec : 0          SAVE


   NORM
MODE
   DIFF
```

In Differential Mode

```
        DIFF – ABSORBANCE
Name:                        ESC


Pri : 405    Sec  : 0         SAVE


   NORM
MODE
   DIFF
```
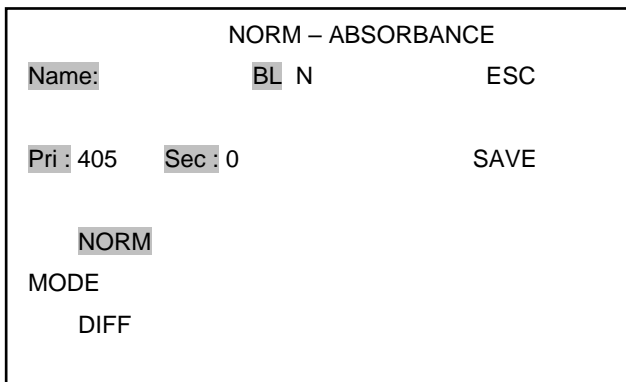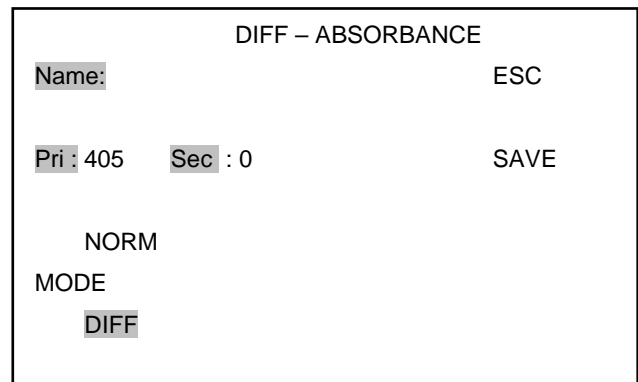
8.2. Single Standard

In this mode the instrument accepts the calibrator singly or in duplicate and then calculates the concentration based on the single point standard curve passing through the point 0.000

A single calibrator/standard of a known concentration is used to calibrate the instrument so that the concentration of unknown samples can be calculated according to Beer's Law. The absorbance are read at user selected wavelengths. If Blank is selected, instrument will automatically blank on the first well and subtract its absorbance from each subsequent well. The second well is treated as the calibrator/standard well. The third well is also treated as calibrator/standard well if the calibrator/standard is in duplicate.

CALCULATION:

Sample Concentration = (Calibrator concentration /Calibrator Abs.) x Sample Abs

```
┌─────────────────────────────────────────────────────────┐
│  Name: SIN_STD          SINGLE STANDARD                  │
│  Pri: 450   Sec: 0          BL  Y   0.000   CAL 1   ESC   │
│                             DUP N          DUP N   SAVE   │
│  HI CO : N        High>      Low<                         │
│                                                          │
│  LO CO: N         High>      Low<                         │
│                                                          │
│  Interpret'n: N   Range   High>                          │
│                           Low<                           │
│                                                          │
└─────────────────────────────────────────────────────────┘
```

Entry of all the parameters is similar to Multi standard mode (Please refer Multi standard for entry of parameters)

8.3. Cut Off Mode

In this mode Cut-Off point is determined for interpretation of specimens as per formula given in the reagent manual. The negative controls are read followed by the positive controls, Cut-off control, low positive control. Blanking on the first well is optional. The instrument calculates the average of the negative controls and the average of the positive control, Cut-off controls and Low positives are also calculated.

Programming a New Test:

A. Select "Add New Test"

```
    TEST OPERATIONS        ESC

1 Select Test By Name

2 Select Test By Mode

3 Select Test By Number

4 List Tests

5 Add New Test
```

B. Select mode of operation "Cut-Off" in "Add New Test"

```
        Select Test Mode          ESC

1> Absorbance              0

2> Single Standard         0

3> Cut off                 0

4> Multi Standard          0

5> Percent Absorbance      0

6> Uptake                  0

7> Kinetic                 0
```

C. Entry of test name

Select touch Zone "Name:"

Name:			POS- CutOff			
Pri: 405	Sec: 0					ESC
No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL 0		N				
NC 0	1.000	N				
PC 0	1.000	N				
LC 0	1.000	N				
CC 0	1.000	N				
CUTFAC: 0.000						
CUTABS:						
QC1	N		Interpretation :			
QC2	N		Greyzone % (N)			
QC3	N		Cut off Index (Y)			
QC4	N		Range Pos : 0.000			
			Neg : 0.000			

Alphanumerical characters will appears on the screen as shown below after touching "Name" on the screen. Enter the name of the test by selecting the individual characters one by one. After selecting all the characters select Enter option in touch screen for confirmation of test Name.

Name:			POS- CutOff				
		HBSAG					
A	B	C	D	E	F	G	H
I	J	K	L	M	N	O	P	ENTER
Q	R	S	T	U	V	W	X	CLEAR
Y	Z	,	-	+	_	1	2
3	4	5	6	7	8	9	0

D. Selection of Primary and secondary filters.

Select zone "Pri:" on the touch screen

```
Name: HBSAG                 POS- CutOff
Pri: 405  Sec: 0                          ESC
      No  Factor  QC    QCVal  Mes.   Rem   SAVE
BL   0            N
NC   0   1.000    N
PC   0   1.000    N
LC   0   1.000    N
CC   0   1.000    N
CUTFAC: 0.000
CUTABS:
QC1     N            Interpretation :
QC2     N            Greyzone % (N)
QC3     N            Cut off Index (Y)
QC4     N            Range   Pos : 0.000
                             Neg : 0.000
```

```
Pri:    450                              ESC
Sec:    630


Select Filter Val:
  0     405    450
 492    630    NA
 NA     560    YYY
```

Select the required filters either Monochromatic or Bichomatic by selecting the filter values from 'Select Filter Val' region

E. According to the reagent manual, change Blank, NCs, PCs to 'YES' for QC check.

```
Name: HBSAG                 POS- CutOff
Pri: 450    Sec: 630                      ESC
      No  Factor  QC    QCVal  Mes.   Rem   SAVE
BL   0            N
NC   0   1.000    N
PC   0   1.000    N
LC   0   1.000    N
CC   0   1.000    N
CUTFAC: 0.000
CUTABS:
QC1     N            Interpretation :
QC2     N            Greyzone % (N)
QC3     N            Cut off Index (Y)
QC4     N            Range   Pos : 0.000
                             Neg : 0.000
```

F. Entry of Blank and Blank QC values

Select "BL" to enter blank details.

	No	Factor	QC	QCVal	Mes.	Rem	

Name: HBSAG   POS- CutOff

Pri: 450 Sec: 630   ESC

	No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL	0		Y	0.000	0.000		
NC	0	1.000	Y	0.000	0.000		
PC	0	1.000	Y	0.000	0.000		
LC	0	1.000	N				
CC	0	1.000	N				

CUTFAC: 0.000

CUTABS:

QC1	N	Interpretation :
QC2	N	Greyzone % (N)
QC3	N	Cut off Index (Y)
QC4	N	Range Pos : 0.000
		Neg : 0.000

G. After selecting "BL", enter total number of blanks by selecting No. of Blanks.
(Maximum 5 blank).

No. of Blanks = 1   ESC

Values Of BL <= 0.000

Numeric Value: 1

1   2   3   4   5   6   ENTER

  7   8   9   0   .   CLEAR

H. Enter the QC value of the blank by selecting the touch Zone "Values of BL <="

No. of Blanks = 1   ESC

Values Of BL <= 0.000

Numeric Value: 0.100

1   2   3   4   5   6   ENTER

  7   8   9   0   .   CLEAR

I. Entry of Negative control and its QC values

Select touch Zone "NC"

```
Name: HBSAG                    POS- CutOff
Pri: 450  Sec: 630                            ESC
     No  Factor   QC      QCVal  Mes.   Rem    SAVE
BL   1            Y       0.100
NC   0   1.000    Y
PC   0   1.000    Y
LC   0   1.000    N
CC   0   1.000    N
CUTFAC: 0.000
CUTABS:
QC1     N        Interpretation:
QC2     N        Greyzone % (N)
QC3     N        Cut off Index (Y)
QC4     N        Range   Pos: 0.000
                        Neg: 0.000
```

J. Enter Number of Negative controls by selecting touch Zone "No. of NC's" (maximum 5 Negative Controls). Enter the QC value of the Negative Control by selecting the touch Zone "Value of NC" and enter the value of X given in the reagent manual by selecting Zone "Values Of X".

```
No. of NC's = 3                  ESC
Values Of X = 1.000
Value of NC <= 0.150



Numeric Value
1  2  3   4  5   6     ENTER
  7  8  9  0   .      CLEAR
```

K. After the entry of "No. of NC's", select ESC. The below screen will appear on the display.

```
Name: HBSAG                    POS- CutOff
Pri: 450  Sec: 630                              ESC
      No  Factor   QC     QCVal   Mes.    Rem    SAVE
BL   1            Y      0.100
NC   3   1.000   Y      0.150
PC   0   1.000   Y
LC   0   1.000   N
CC   0   1.000   N
CUTFAC: 0.000
CUTABS:
QC1      N             Interpretation :
QC2      N             Greyzone % (N)
QC3      N             Cut off Index (Y)
QC4      N             Range   Pos : 0.000
                               Neg : 0.000
```

L. Entry of Positive Controls (PC).

Select touch Zone "PC".

```
Name: HBSAG              POS- CutOff
Pri: 450  Sec: 630                              ESC
      No  Factor   QC     QCVal   Mes.    Rem    SAVE
BL   1            Y      0.100
NC   3   1.000   Y      0.150
PC   0   1.000   Y
LC   0   1.000   N
CC   0   1.000   N
CUTFAC: 0.000
CUTABS:
QC1      N             Interpretation:
QC2      N             Greyzone % (N)
QC3      N             Cut off Index (Y)
QC4      N             Range   Pos : 0.000
                               Neg : 0.000
```

M. After selecting "No. of PC's", the screen below will appear on the display. Enter number of Positive Controls by Selecting Zone "No. of PC's" (Maximum 5). Enter the QC value of the Positive Control by selecting the touch Zone "Value of PC >=" and enter the value of Y given in the reagent manual by selecting Zone "Values Of Y".

```
No. of PC's = 2                    ESC

Values Of Y= 1.000
Value of PC >= 0.500




Numeric Value:
1  2  3  4  5  6    ENTER
   7  8  9  0  .    CLEAR
```

N. **After entering the details of PCs, escape from the screen by selecting "ESC" option.**

Below screen will appear on the display:

```
Name: HBSAG                    POS- CutOff
Pri: 450  Sec: 630                      ESC
     No Factor  QC    QCVal Mes.   Rem   SAVE
BL  1          Y     0.100
NC  3   1.000  Y     0.150
PC  2   1.000  Y     0.500
LC  0   1.000  N
CC  0   1.000  N
CUTFAC: 0.000
CUTABS:
QC1    N              Interpretation :
QC2    N              Greyzone % (N)
QC3    N              Cut off Index (Y)
QC4    N              Range   Pos : 0.000
                              Neg : 0.000
```

NOTE: Same way you can enter values for LC (lower positive controls) and CC (Cut of Controls)

O. Entry of CUT-OFF FACTOR:

Select touch Zone "CUT FAC" in order to enter the value for Cut Off Factor.

```
Name: HBSAG                    POS- CutOff
Pri: 450  Sec: 630                          ESC
     No   Factor  QC    QCVal  Mes.   Rem   SAVE
BL   1            Y     0.100
NC   3   1.000    Y     0.150
PC   2   1.000    Y     0.500
LC   0   1.000    N
CC   0   1.000    N
CUTFAC: 0.000
CUTABS:
QC1      N              Interpretation:
QC2      N              Greyzone % (N)
QC3      N              Cut off Index (Y)
QC4      N              Range   Pos: 0.000
                                Neg: 0.000
```

After selecting the "CUTFAC", it will display following screen.

```
                               ESC
Value of Cut Factor = 0.000
```

```
                                      ESC
Value of Cut Factor = 0.200



Numeric Value:
1   2   3   4   5   6        ENTER
  7   8   9   0   .          CLEAR
```

Enter the Value for Cut Off Factor and select ESC option to come out to the test parameter screen.

P. Entry of Cut off absorbance equation:

Select touch Zone "CUTABS"

	No	Factor	QC	QCVal	Mes.	Rem	
Name: HBSAG			POS- CutOff				
Pri: 450 Sec: 630							ESC
	No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL	1		Y	0.100			
NC	3	1.000	Y	0.150			
PC	2	1.000	Y	0.500			
LC	0	1.000	N				
CC	0	1.000	N				
CUTFAC: 0.200							
CUTABS:							
QC1	N			Interpretation :			
QC2	N			Greyzone % (N)			
QC3	N			Cut off Index (Y)			
QC4	N			Range Pos : 0.000			
				Neg : 0.000			

After selecting the "CUTABS" below screen will come on the display.

CUTABS: ESC

CUTABS: ESC
CUT ABS = **NC + PC + CF**
NC   PC   LC   CC   CF   ENTER
+   -   ,   *   %   CLEAR
▶1   2   3   4   5   6
7   8   9   0   .
(   )
Sqrt Lg ALg   Ln   ALn   Abs

For entering the CUTABS equation, user has to select CUTABS present on the screen.

Now enter the equation as given in the reagent manual or else select ESC option in order to come out of the CUTABS screen.

Whereas, NC = Mean of NCs * Factor X   Sqrt = Square root

PC = Mean of PCs * Factor Y   Lg = LOG   Aln = Anti Natural LOG

LC = Mean of LCs * Factor W   Ln = Natural LOG

CC = Mean of CCs * Factor Z   Abs. = any absolute value

CF = Cut off Factor   ALg = Anti LOG

For Example :

For equation <u>CUT OFF ABS = (0.45 * NC) + (0.35 * PC) + 0.10</u>, the formula can be entered in two ways.

1. Enter the values as it is i.e. <u>CUTABS = (0.45*NC) + (0.35*PC) + 0.010</u>. Keep the multiplication factors X, Y, W, Z of controls NC, PC, CC and LC a constant number '01'. (Numbers, mathematical functions and symbols for NC, PC, CC, LPC can be selected from the screen).

OR

2. In second method the formula can be entered as <u>CUT ABS = NC + PC + CF</u>. (Since the Value of X, Y, Z, W is entered in the QC option of NC, PC, CC, LPC and Cut off factor in the CUT FAC option, there is no need to enter the same data again). Means here Multiplication Factor for NC = X = 0.45

Multiplication factor for PC = Y = 0.35 and the value of cut of factor = CUT FAC = 0.100.

This is because here NC = Mean of NCs * Factor X, PC = Mean of PCs * Factor Y as mentioned above.

If <u>'CUTOFF ABS' = (NC + PC) / 6</u>. This can be entered as it is CUTABS = (NC + PC) / 6 by keeping the multiplication factors X, Y, W, Z of controls NC, PC, CC and LC a constant number '01'.

OR

As you know in mathematics (NC + PC) / 6 = (NC / 6) + (PC / 6) =
(1/6) * NC + (1/6) * PC = (0.166 * NC) + (0.166 * PC),

So, you can enter same equation as CUT ABS = NC + PC, by entering

Multiplication Factor for NC = X = 0.166, multiplication factor for PC = Y = 0.166.

This is because here NC = Mean of NCs * Factor X, PC = Mean of PCs * Factor Y as mention above.

Q. QC1, QC2, QC3 & QC4. can be used for any QC Checking of the test provided in reagent manual.

For example some kit may give QC check equation like| PCx – NCx |> 0.500,

PC / NC > 15, etc. This equation can be entered by selecting these QC options. Select touch zone 'N'. It will change to 'Y', as shown in the below screen. Now select touch zone 'QC1' and enter QC equation.

	No	Factor	QC	QCVal	Mes.	Rem	SAVE
Name: HBSAG			POS- CutOff				
Pri: 450 Sec: 630							ESC
BL	1		Y	0.100			
NC	3	1.000	Y	0.150			
PC	2	1.000	Y	0.500			
LC	0	1.000	N				
CC	0	1.000	N				
CUTFAC: 0.200							
CUTABS: NC + PC + CF							
QC1	>	Y		Interpretation :			
QC2	N			Greyzone % (N)			
QC3	N			Cut off Index (Y)			
QC4	N			Range Pos : 0.000			
				Neg : 0.000			

Enter equation of QC and value of QC check by selecting touch zone 'QC1 Value' & 'QC1 equat'**.**

```
Enter QC Value and Equation:
QC1 Value: 0.000                    ESC
QC1 Equat :
```

```
Enter QC Value and Equation:
QC1 Value: 0.500
QC1 Equat :



Numeric Value
1     2     3     4     5     6          ENTER
   7     8     9     0     .             CLEAR
```

```
Enter QC Value and Equation:
QC1 Value: 0.000                    ESC
QC1 Equat

QC Equat:      PC – NC
NC  PC  LC       CC      SA        ENTER
+    -    ,        *       %         CLEAR
1    2    3        4       5       6
7    8    9        0       .
(                                   )
Sqrt Log ALog    Ln      ALn     Abs
```
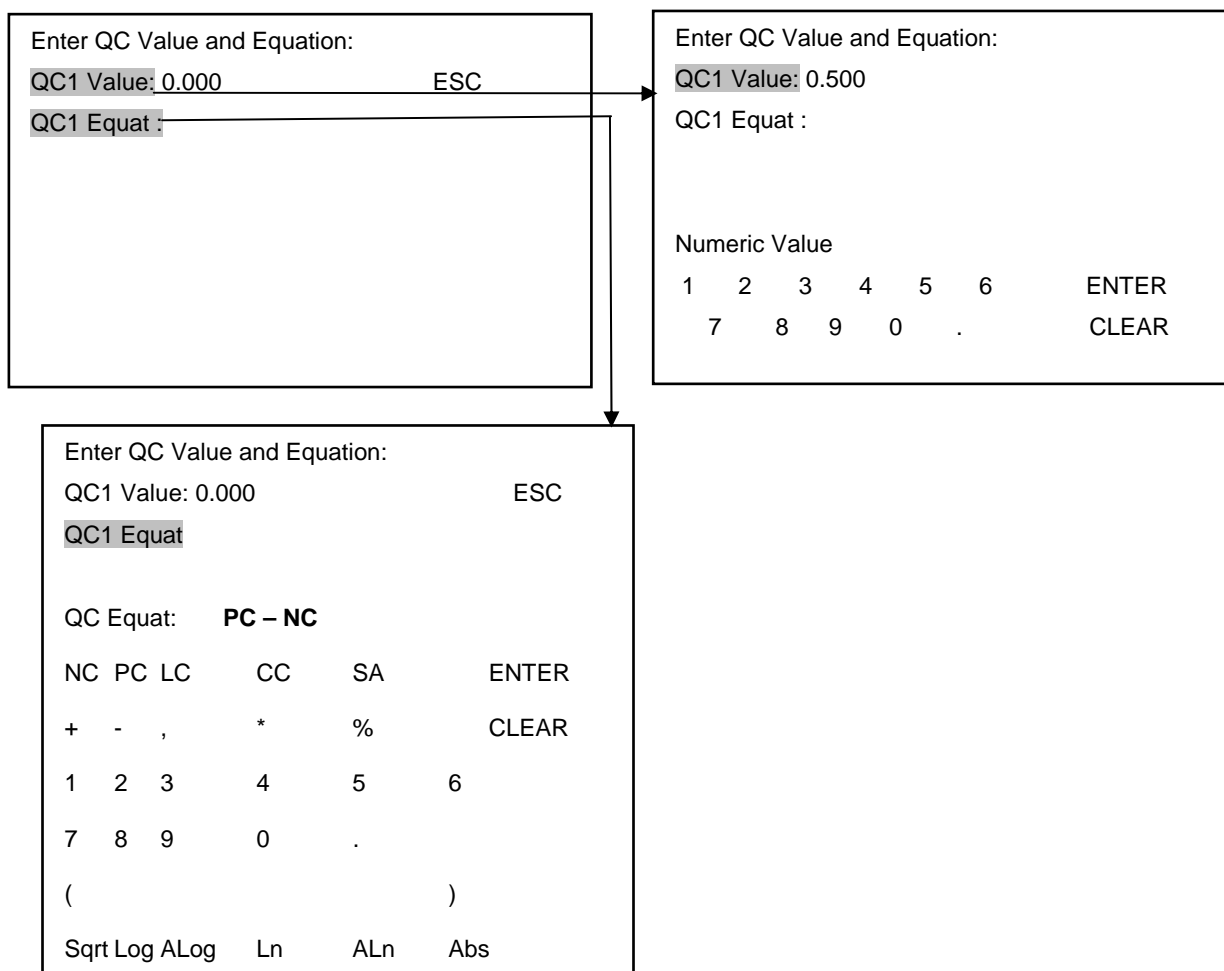
Same way you can enter QC equations for QC2, QC3 and QC4.

*NOTE:

On screen it is mentioned that "QC1 > Y". In most of the reagent inserts it is mentioned that QC value should be greater than some constant value. Sometimes in the box insert it is mentioned that the value should be less than some constant value. In such case, you can change the symbol from "QC1 > Y" to "QC1 < Y", only by selecting a symbol of comparison.

If any QC check is selected to 'YES' option, the system will not save the test without entering the QC equation and QC check value of equation.

R. Interpretation of samples

Enter RANGE for interpretation of results either in percentage (Greyzone) or positive and negative values of INDEX, as a ratio of (Sample Abs. / Cutoff Abs.). If Cutoff Index range or Greyzone is not mentioned do not enter any values. Instrument will do the interpretation with references to the Cut off absorbance.

R.1. Interpretation by GREYZONE percentage

Select touch zone 'Greyzone % (N)'

```
Name: HBSAG                    POS- CutOff
Pri: 450  Sec: 630                          ESC
     No  Factor  QC    QCVal  Mes.   Rem   SAVE
BL  1             Y    0.100
NC  3   1.000    Y    0.150
PC  2   1.000    Y    0.500
LC  0   1.000    N
CC  0   1.000    N
CUTFAC: 0.200
CUTABS: NC + PC + CF
QC1  >  Y  0.500      Interpretation :
QC2     N            Greyzone % (N)
QC3     N            Cut off Index (Y)
QC4     N            Range   Pos : 0.000
                             Neg : 0.000
```

If you enter 'Greyzone' percentage '10.00', instrument will show you the same as shown in screen. It makes the 'Cutoff Index Range' option 'NO'. This means when you are using a 'Greyzone' option the 'Cut off Index Range' option will not work.

```
Enter % Value:                  ESC
```

```
Enter % Value :
% Value = 10.00



Numeric Value :
1    2    3    4    5    6    ENTER
   7    8    9    0    .      CLEAR
```

Enter Greyzone percentage value
Select ESC option after entering Greyzone % value to come out to the parameter screen.

NOTE: If you don't select any option for interpretation of sample results, the instrument will take Cutoff Absorbance as a reference.

It will give "Positive' remark to sample absorbance greater than cutoff and 'Negative' to sample absorbance less than cutoff.

Name: HBSAG			POS- CutOff			
Pri: 450 Sec: 630						ESC
	No	Factor	QC	QCVal	Mes.	Rem SAVE
BL	1		Y	0.100		
NC	3	1.000	Y	0.150		
PC	2	1.000	Y	0.500		
LC	0	1.000	N			
CC	0	1.000	N			
CUTFAC: 0.200						
CUTABS: NC + PC + CF						
QC1 > Y 0.500			Interpretation :			
QC2	N		Greyzone % (Y) 10.00			
QC3	N		Cut off Index (N)			
QC4	N		Range			

R.2. Interpretation by 'Cutoff Index Range"

It is also provided to do the interpretation using 'Cutoff Index' by entering normal range for 'Positive' and 'Negative'.

	No	Factor	QC	QCVal	Mes.	Rem	
Name: HBSAG				POS- CutOff			
Pri: 450 Sec: 630							ESC
	No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL	1		Y	0.100			
NC	3	1.000	Y	0.150			
PC	2	1.000	Y	0.500			
LC	0	1.000	N				
CC	0	1.000	N				

CUTFAC: 0.200
CUTABS: NC + PC + CF
QC1 > Y 0.500   Interpretation :
QC2   N   Greyzone % (N)
QC3   N   Cut off Index (Y)
QC4   N   Range   Pos : 0.000
                              Neg : 0.000

Cut off Index is the ratio of Sample Absorbance / Cut off Absorbance.

When you select 'Cutoff Index' –'Y', the 'Greyzone %' will become 'NO', means inactive.

In 'Cutoff Index', provide the range for interpretation, the positive and negative value of ratio (Sample Abs. / Cutoff Abs.)

RESULT RANGE: ESC
POSITIVE   >= 0.000

NEGATIVE <= 0.000

RESULT RANGE: ESC
POSITIVE   >= 1.000

NEGATIVE <= 0.000

Numeric Value
1   2   3   4   5   6   ENTER
   7   8   9   0   .   CLEAR

In case of 'Cutoff Index Range ',

It gives the 'Positive' remarks to sample having index value, a ratio of …

(Sample abs. / Cutoff Abs.) greater than or equal to entered 'POSITIVE' value and

it gives 'Negative' remarks to sample having index value, a ratio of

(Sample abs. / Cutoff Abs.) less than entered 'NEGATIVE' value.

The sample having index value in between 'POSITIVE' and 'NEGATIVE" range get remarks 'Equivocal' = 'EQ'.

After entering the Interpretation values (ie. conditions for interpretation) the screen will be displayed as follows -

Name: HBSAG			POS- CutOff			
Pri: 450 Sec: 630						ESC
	No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL	1		Y	0.100		
NC	3	1.000	Y	0.150		
PC	2	1.000	Y	0.500		
LC	0	1.000	N			
CC	0	1.000	N			
CUTFAC: 0.200						
CUTABS: NC + PC + CF						
QC1 > Y 0.500			Interpretation :			
QC2	N		Greyzone % (N)			
QC3	N		Cut off Index (Y)			
QC4	N		Range Pos : 1.000			
			Neg : 0.900			

For example:

If you enter POS >= 1.0 and NEG <=0.9.

Then, the sample will get POSITIVE remarks having INDEX Value,

(Sam. Abs./ Cutoff Abs.) >= 1.000.

The sample will get NEGATIVE remarks having INDEX Value,

(Sam. Abs./ Cutoff Abs.) <= 0.900.

The sample will get EQUIVOCAL remarks having INDEX Value,

(Sam. Abs./ Cutoff Abs.) in the range from 0.900 to 1.000.

S. To save the test after entering all the parameters, select 'SAVE' option.

Name: HBSAG			POS- Cut Off			
Pri: 450 Sec: 630						ESC
	No	Factor	QC	QCVal	Mes.	Rem	SAVE
BL	1		Y	0.100		
NC	3	1.000	Y	0.150		
PC	2	1.000	Y	0.500		
LC	0	1.000	N			
CC	0	1.000	N			
CUTFAC: 0.200						
CUTABS: NC + PC + CF						
QC1 > Y 0.500			Interpretation :			
QC2	N		Greyzone % (Y) 10.00			
QC3	N		Cut off Index (N)			
QC4	N		Range			

8.4. Reverse Cut Off Mode

For Reverse Cut Off mode, select touch zone 'POS'- Cut Off key. It will change to REV- Cut Off.

```
Name:                    REV- CutOff
Pri: 405 Sec: 0                              ESC
    No  Factor  QC    QCVal  Mes.   Rem   SAVE
BL  0            N
NC  0   1.000    N
PC  0   1.000    N
LC  0   1.000    N
CC  0   1.000    N
CUTFAC: 0.000
CUTABS:
QC1     N            Interpretation:
QC2     N            Greyzone % (Y)  10.00
QC3     N            Cut off Index (N)
QC4     N                   Range
```

In Reverse Cut Off Mode, programming of test is the same as Positive Cut off Mode. Only QC check conditions for blanks and controls get reversed. In the 'INTERPRETATION', sample absorbance, which is lesser than cut off absorbance, gets remarked POSITIVE. Sample absorbance higher than cut off absorbance, gets remarked NEGATIVE. This is exactly the opposite to normal POSITIVE Cut Off Mode. Same way in case you select 'Cutoff Index Range'.

8.5. Multi Standard Mode:

In this mode the instrument accepts a maximum of 12 calibrators and calculates concentration based on the best-fit curve. Graph is printed with Absorbance on Y-axis and concentration on X-axis.

Programming a New Test:

A. Select Main Menu/Test Operation/Add New Test   **B. Select Touch Zone "Multi Standard"**

TEST OPERATIONS	ESC
1 Select Test By Name	
2 Select Test by Mode	
3 Select Test by Number	
4 List Tests	
5 Add New Test	

Select Test Mode		ESC
1> Absorbance	0	
2> Single Standard	0	
3> Cut off	0	
4> Multi Standard	0	
5> Percent Absorbance	0	
6> Uptake	0	
7> Kinetic	0	

After selecting Multistandard mode it will display following screen -

```
Name:            MULTISTANDARD
Pri: 405    Sec: 0      BL N        CAL 2     ESC
                        DUP N       DUP N
                                              SAVE

HI CO : N     High>        Low<


LO CO: N      High>        Low<


Interpret'n: N    Range    High>
                           Low<

Graph :  LINEAR


Y vs X :  ABS vs CONC
```

C. Entry of Test Name

Test Name can be entered by Selecting Touch Zone "Name:"

Procedure for entering the test name is same as that of the Cut Off mode. Refer Test Name entry in Cut off mode for further details.

D. Selection of Primary and secondary filters

Select Touch Zone "Pri:"

```
Name:   MUL_4P            MULTISTANDARD
Pri: 405    Sec: 0       BL N        CAL 2      ESC
                         DUP N        DUP N
                                                 SAVE
HI CO : N      High>        Low<

LO CO: N       High>        Low<

Interpret'n: N    Range     High>
                            Low<
Graph :  LINEAR

Y vs X :  ABS vs CONC
```

```
Pri:    405                              ESC
Sec:    0
```

```
Pri:    450                              ESC
Sec:    0



Select Filter Val:
  0      405      450
 492     630      NA
 NA      560     YYY
```

Select the Filters as per details given in the reagent manual

E. Selection of Blank

Select Touch Zone "BL". Instrument will display the message "Blank required Yes/No" at the bottom of the Screen, select "Yes" if blank is required.

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec:  0    BL N _____ CAL 2    ESC
                       DUP N        DUP N
                                              SAVE
HI CO : N      High>         Low<

LO CO: N       High>         Low<

Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR

Y vs X :  ABS vs CONC
```

```
Name:    MUL_4P          MULTISTANDARD
Pri: 450    Sec:  0    BL N       CAL  2          ESC
                       DUP N         DUP N
                                                  SAVE
HI CO : N      High>        Low<

LO CO: N        High>       Low<

Interpret'n : N    Range       High>
                               Low<
Graph :   LINEAR

Blank Required ?          YES    /    NO
```

F. Entry of Standard Concentration

Select touch Zone "CAL" to enter Number of calibrators and its concentration.

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec:  0    BL Y  0.000  CAL 2    ESC
                       DUP N        DUP N
                                            SAVE
HI CO : N      High>         Low<

LO CO: N       High>         Low<

Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR

Y vs X :  ABS vs CONC
```
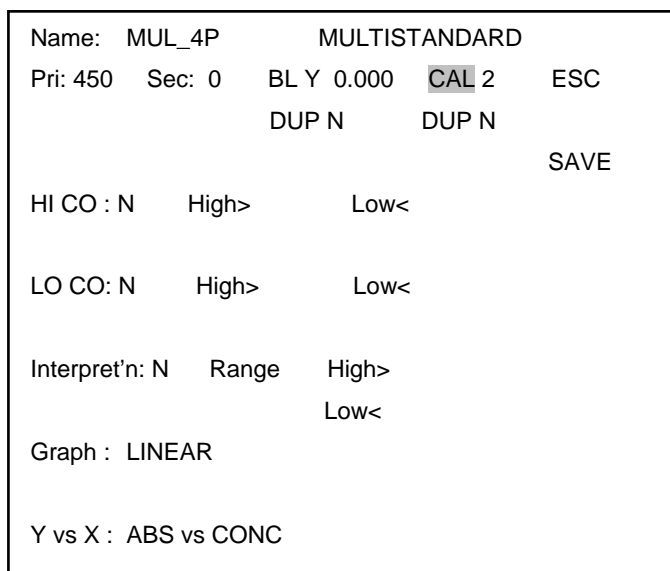
After selecting "CAL", it will display following screen:

Select Touch Zone "No. Of Calibrators". Numeric screen will be displayed at the bottom of the screen.

Select the number of calibrators (User can select min 2 and max. 12 standard in this mode).

Whereas in case of 4 Parameter, user can select min. 5 and max.12 calibrators.

```
No Of Calibrator: 2                ESC

No      Conc     Abs
1       0.000    0.000

2       0.000    0.000
```

```
No Of Calibrator: 2                ESC

No      Conc     Abs
1       0.000    0.000

2       0.000    0.000


Numeric Value

1    2    3    4    5    6      ENTER
     7    8    9    0    .      CLEAR
```
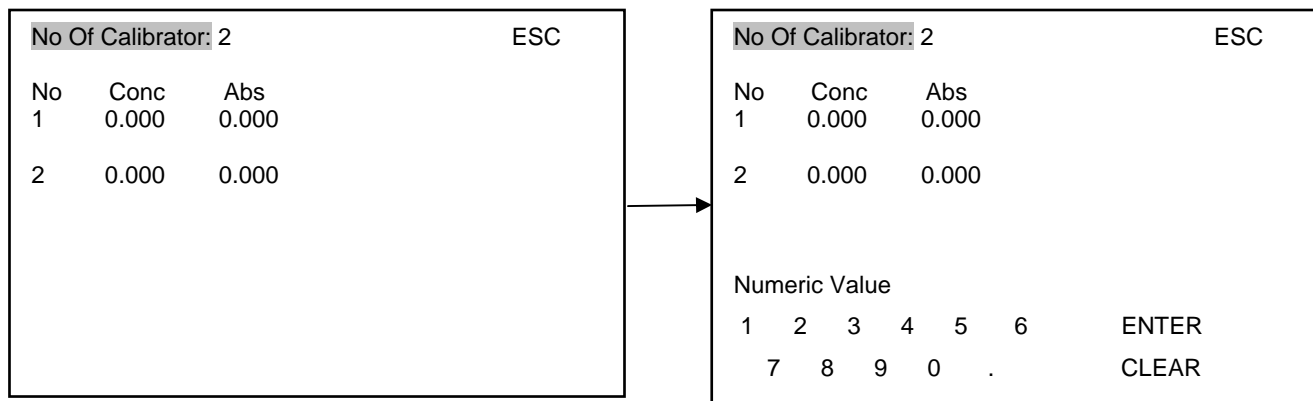
Concentration Entry:

After entering the number of calibrators, concentration and absorbance column will come on the display as shown below.

To enter concentration values select 0.000 in Conc. column corresponding to the standard and enter the concentration value. e.g. for entering Concentration of standard 4 Select 0.000 in fourth row of Conc. Column and enter the concentration by selecting the numerals.

(Note: 1. The concentration values should be either in ascending or descending order.

```
No Of Calibrator 7                          ESC
No   Conc     Abs        No   Conc    Abs
1    0.000    0.000      7    10.00   0.000
2    0.500    0.000
3    1.000    0.000
4    2.500    0.000
5    5.000    0.000
6    7.500    0.000
Numeric Value

1    2    3    4    5    6      ENTER
     7    8    9    0    .      CLEAR
```

Screen after entry of calibration will be displayed as follows -

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0    BL Y  0.000    CAL 7        ESC
                         DUP N          DUP N
                                                  SAVE

HI CO : N      High>        Low<


LO CO: N       High>        Low<


Interpret'n: N    Range     High>


                     Low<
Graph :  LINEAR
```

For Duplicate Blank:

Select touch zone "DUP" below the "BL Y" After selecting "DUP" instrument will display message "Duplicate Blank? Yes/ No" as shown below. Select "Yes" for Duplication of Blank.

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0    BL Y  0.000  CAL 7      ESC
                       DUP N         DUP N
                                              SAVE
HI CO : N      High>        Low<


LO CO: N       High>        Low<


Interpret'n: N    Range     High>
                     Low<
Graph :  LINEAR


Y vs X :  ABS vs CONC
```

```
Name:    MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0     BL Y  0.000  CAL 7         ESC
                         DUP N          DUP N

                                                  SAVE
HI CO : N      High>         Low<


LO CO: N       High>         Low<


Interpret'n: N    Range      High>
                     Low<
Graph :   LINEAR


Duplicate Blank?                YES   /    NO
```

For Duplicate Calibrators:

To select Duplicate Calibrator select Touch Zone "DUP" below the "CAL 7". After selecting "DUP" instrument will display message "Duplicate Calibrator? Yes/No" as shown below. Select "Yes" for Duplication of calibrators.

```
Name:  MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0     BL Y 0.000   CAL 7     ESC
                       DUP Y        DUP N
                                              SAVE
HI CO : N      High>        Low<

LO CO: N       High>        Low<

Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR

Y vs X :  ABS vs CONC
```

```
Name:  MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0     BL Y 0.000   CAL 7     ESC
                       DUP Y        DUP N
                                              SAVE
HI CO : N      High>        Low<

LO CO: N       High>        Low<

Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR


Duplicate Calibrator?            YES   /   NO
```

Screen after standard entry & selection of duplicate – Blank & Calibrators.

```
Name:  MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0     BL Y 0.000   CAL 7     ESC
                       DUP Y        DUP Y
                                              SAVE
HI CO : N      High>        Low<

LO CO: N       High>        Low<

Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR


Y vs X :  ABS vs CONC
```

H. Graph type along with its scales:

There are three types of graphs in Multistandard. They are mentioned as follows -

1. Linear (LINEAR)
2. Point to Point (PT TO PT)
3. 4 Parameter

There are five types of scales for X and Y axis

LOGABS vs CONC (X-axis = Concentration v/s Y-axis = LOG of ABS.)

ABS vs LOGCONC (X-axis = LOG of concentration v/s Y-axis = Absorbance)

LOGITABS VS LOGCONC (X-axis = LOG of concentration v/s Y-axis = LOGIT of Absorbance)

ABS vs CONC (X-axis = Concentration v/s Y-axis = Absorbance)

LOGABS vs LOGCONC (X-axis = LOG of concentration v/s Y-axis = LOG of absorbance)

Selection of Graph

Select Graph type as per the details given in the reagent manual by selecting Touch Zone "Graph".

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0      BL Y 0.000    CAL 7      ESC
                        DUP Y         DUP Y
                                                 SAVE

HI CO : N      High>        Low<


LO CO: N       High>        Low<


Interpret'n: N    Range    High>
                           Low<
Graph :  LINEAR


Y vs X :  ABS vs CONC
```
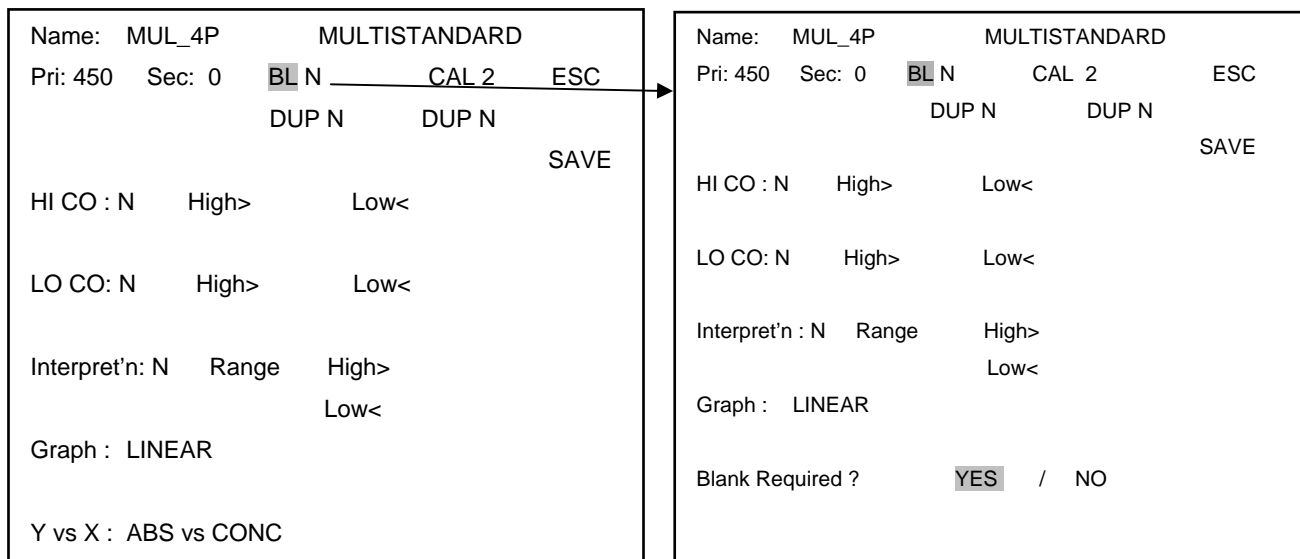
1. LINEAR Mode graph type:

After Selecting the "Graph" option present in the test parameter screen, it will display

following screen.

Select Graph type as Linear and its Scale type as per the details given in the reagent manual.

```
Graph :  LINEAR                              ESC
Y vs X :  ABS vs LOGCONC


TYPE                    SCALE
LINEAR               LOGABS vs CONC
                     ABS vs LOGCONC
PT TO PT             LOGITABS vs LOGCONC
                     ABS vs CONC
4 PARAMETER       LOGABS vs LOGCONC
```
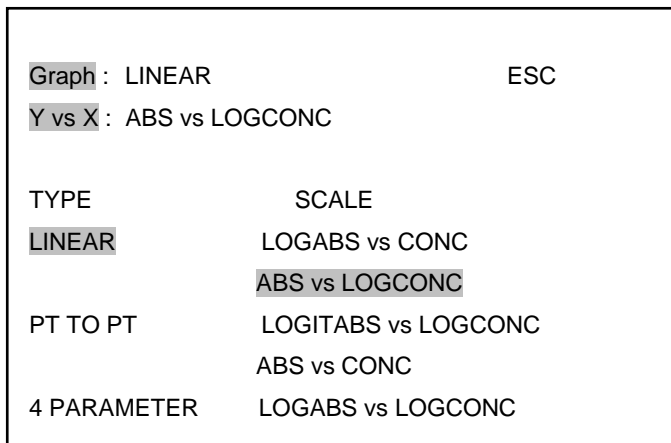

2. POINT TO POINT Graph Type:

Select touch zone "PT to PT" and its scale type as 'LOGABS vs. CONC'. (as per the details given in

the reagent manual)

```
Graph Type :     PT TO PT                        ESC
Y vs X :  ABS vs CONC


TYPE                    SCALE
LINEAR               LOGABS vs CONC
                     ABS vs LOGCONC
PT TO PT             LOGITABS vs LOGCONC
                     ABS vs CONC
4 PARAMETER       LOGABS vs LOGCONC
```

3. 4 PARAMETER Graph Type:

Select touch zone "4 PARAMETER" and it will automatically selects it's **default** scale type as "ABS vs CONC".User have to remember this regarding 4-Parameter mode.

```
Graph Type :  4   PARAMETER                 ESC
Y vs X :  ABS vs CONC


TYPE                 SCALE
LINEAR               LOGABS vs CONC
                     ABS vs LOGCONC
PT TO PT             LOGITABS vs LOGCONC
                     ABS vs CONC
4 PARAMETER          LOGABS vs LOGCONC
```
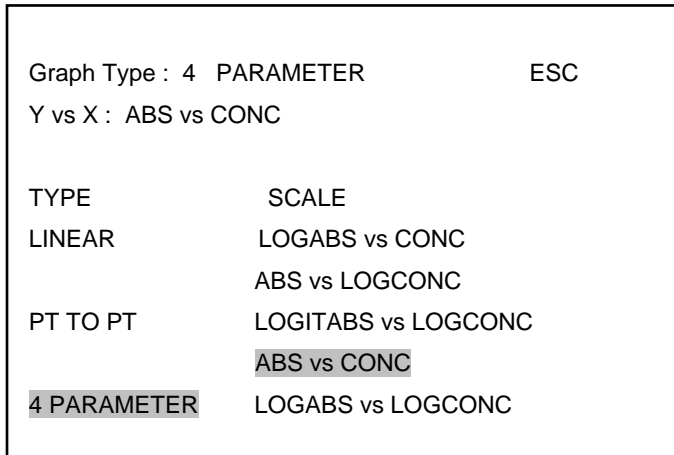
Select the scale type touching the required zone.

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec:  0     BL Y  0.000    CAL 7      ESC
                        DUP Y          DUP Y
                                               SAVE

HI CO : N      High>         Low<


LO CO: N       High>         Low<


Interpret'n: N     Range     High>
                             Low<


Graph :  4 PARAMETER


Y vs X :  ABS vs CONC
```
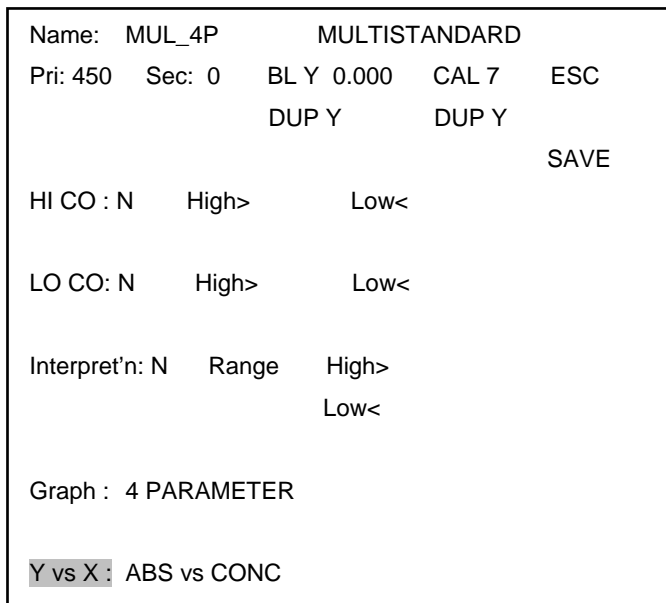
I. Selection of Controls

For High control select touch zone 'HI CO: N' Following message appears: "High Control Required? Yes / No". Select 'YES' and then enter range of control "HIGH" and "LOW".

```
Name:   MUL_4P          MULTISTANDARD

Pri: 450    Sec: 0      BL Y 0.000   CAL 7       ESC
                        DUP Y         DUP Y
                                                 SAVE

HI CO : N      High>          Low<


LO CO: N       High>          Low<


Interpret'n: N     Range    High>
                            Low<
Graph :   4 PARAMETER


High Control Required?              YES   /    NO
```

Enter range of control "HIGH" and "LOW" as per reagent manual.

```
Enter High Range Value:          ESC
High    0.000
Low     0.000
```

```
Enter High Range Value:          ESC
High    25.03
Low     10.54



Numeric Value
1     2     3     4     5     6      ENTER
   7     8     9     0     .         CLEAR
```

Similarly, for Low Control select touch zone 'LO CO: N' It will display the message "Low Control Required? Yes / No". Select 'YES' and then enter range of control "HIGH" and "LOW".

```
Name:   MUL_4P            MULTISTANDARD
Pri: 450    Sec: 0     BL Y  0.000    CAL 7      ESC
                       DUP Y           DUP Y
                                                 SAVE

HI CO : N       High>  25.03   Low<  10.54


LO CO: N        High>          Low<


Interpret'n: N     Range     High>
                             Low<
Graph :  4 PARAMETER


Low Control Required?            YES  /    NO
```

(Note: Entry of LO CO is similar to that of HI CO)

J. Normal Range selection for interpretation of samples:

For interpretation of specimen result (POSITIVE or NEGATIVE), enter normal range given in REAGENT MANUAL. Select "Interpretation: N". It will change to "Interpretation: Y". Then select "HIGH>" and "LOW<" to enter normal range.

```
Name:   MUL_4P            MULTISTANDARD
Pri: 450    Sec: 0     BL Y  0.000    CAL 7      ESC
                       DUP Y           DUP Y
                                                 SAVE
HI CO : Y       High>  25.03       Low<  10.54


LO CO: Y        High>  16.61       Low<  5.45


Interpret'n: Y     Range     High>  0.000
                             Low<  0.000
Graph :  4 PARAMETER


Y vs X :  ABS vs CONC
```

All the results whose concentration is coming above the High Range will be considered as positive and coming below the Low Range will be consider as negative. The results having concentration in between High and Low range will get remarks 'Equivocal' = 'EQ'.

Enter Normal Range for positive and negative samples.

```
Enter HIGH Range value:
High>  0.000                         ESC


Low<   0.000
```

```
Enter HIGH Range value:
High>  15.25                         ESC


Low<  9.46




Numeric Value
  1      2     3     4     5     6        ENTER
     7      8     9     0      .          CLEAR
```

After entering all the parameters save the test by selecting "SAVE" option.

```
Name:   MUL_4P          MULTISTANDARD
Pri: 450    Sec: 0    BL Y  0.000    CAL 7    ESC
                      DUP Y          DUP Y
                                              SAVE
HI CO : Y      High>  25.03      Low< 10.54

LO CO: Y       High> 16.61       Low< 5.45

Interpret'n: Y   Range    High> 15.25
                          Low< 9.46
Graph :  4 PARAMETER

Y vs X :  ABS vs CONC
```

(*Same way you can make a test for Single standard, % Absorbance and uptake)

8.6. Percentage Absorbance

The Percentage Absorbance Mode requires one calibrator (read singly or duplicate). In this mode, calibrator is considered to have a concentration of 100%. The absorbance's of unknown samples are read and compared to the calibrator absorbance, and reported as % concentration of calibrator. Refer 8.5 for parameter entry.

```
Name:              % ABSORBANCE

Pri: 405    Sec: 0        BL Y  0.000     CAL  1      ESC
                         DUP N          DUP N
                                                    SAVE

HI CO : N     High>           Low<


LO CO: N      High>           Low<


Interpret'n: N     Range      High>
                              Low<
```

8.7. Uptake

In this mode the instrument accepts the calibrator singly or in duplicate and then calculates the concentration based on the single point standard curve passing through the point 0.000

A single calibrator/standard of a known concentration is used to calibrate the instrument so that the concentration of unknown samples can be calculated according to Beer's Law

Sample Concentration = <u>Calibrator Absorbance * Calibrator Concentration</u>

Sample Absorbance

```
Name:              UPTAKE

Pri: 405   Sec:  0    BL  N        CAL 1     ESC
                      DUP N        DUP N
                                           SAVE

HI CO : N     High>          Low<


LO CO: N      High>          Low<


Interpret'n: N     Range     High>
                             Low<
```
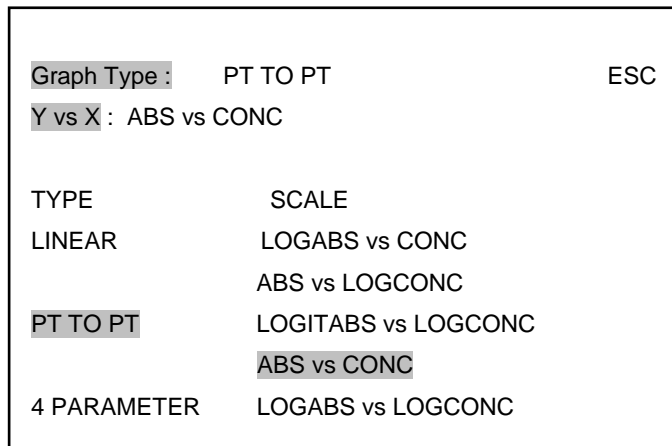
Please refer 8.5 for parameter entry.

8.8. Kinetic

After entering Test Name and Filter values, select Read Time and Read Period.

```
                KINETIC                                          KINETIC
Name:   KIN                    ESC              Name:   KIN                    ESC

Pri: 450       Sec: 0          SAVE             Pri: 450       Sec: 0          SAVE

Read Time:    1  min.                           Read Time:    1  min.

Read Period:  15   sec.                         Read Period:  15   sec.

                                                Numeric Value
                                                 1    2    3    4    5    6    ENTER
                                                   7    8    9    0    .    CLEAR
```

"Read Time" is total read period of the whole test. You need to enter it only in minutes.

```
                KINETIC
Name:   KIN                    ESC

Pri: 450       Sec: 0          SAVE

Read Time:    1  min.

Read Period:  15   sec.

Numeric Value
 1    2    3    4    5    6    ENTER
   7    8    9    0    .    CLEAR
```

"Read Period" is time interval between two readings. User must enter it in seconds.

Finally select the "Save" option in order to save the test in KINETIC mode

```
                KINETIC
Name:   KIN                    ESC

Pri: 450       Sec: 0          SAVE

Read Time:    1  min.

Read Period:  15   sec.
```

9. RECALLING AND RUNNING OF STORED TEST/PROGRAMS

MAIN MENU	
1 Test Operations	ESC
2 Technical Diagnosis	
3 Utilities	
4 View Plate	
5 Serial Communication	

TEST OPERATIONS	
1 Select Test By Name	ESC
2 Select Test by Mode	
3 Select Test by Number	
4 List Tests	
5 Add New Tests	
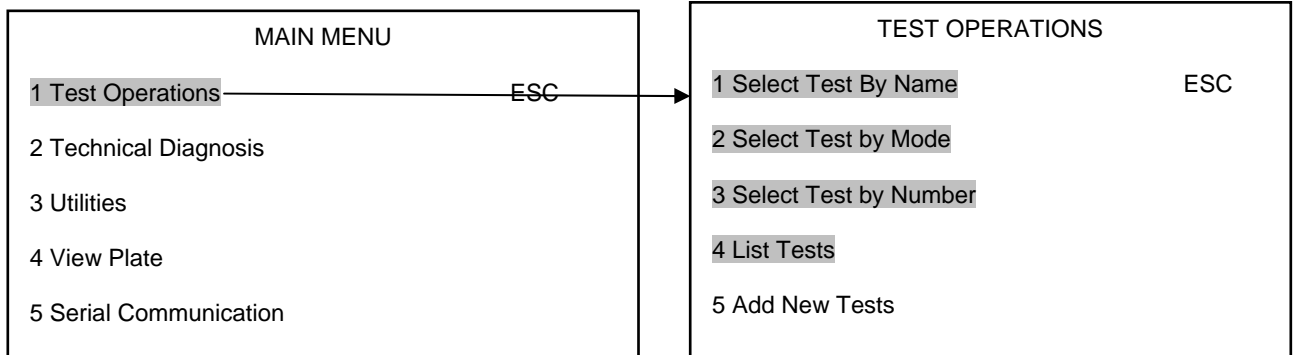
Test can be recalled by Name, Mode, Number or by List test.

The entire saved tests are available on the List Test or on the first screen after initialization.

User can directly RUN the test by selecting RUN option present on the screen.

TEST OPERATIONS	
1 Select Test By Name	ESC
2 Select Test By Mode	
3 Select Test By Number	
4 List Tests	
5 Add New Tests	

Select Test		ESC
1 HBSAG	C	RUN / SEL
2 TSH	M	PRINT
3 ABS	A	NXT
4 MUL_4P	M	PREV
5 CP	C	DEL
		PLATE DATA
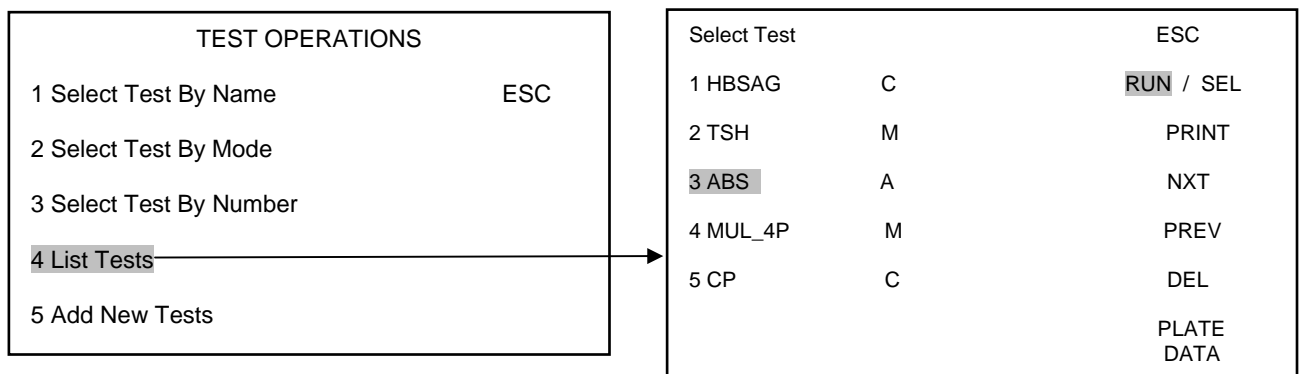
Tests can be selected with the help of SEL option present on the Select Test screen in order to

EDIT / PRINT the test parameters entered before saving the test.

Select Test		ESC
1 HBSAG	C	RUN / SEL
2 TSH	M	PRINT
3 ABS	A	NXT
4 MUL_4P	M	PREV
5 CP	C	DEL
		PLATE DATA

NORM – ABSORBANCE		
Name : ABS	BL N	ESC
Pri : 450 Sec : 0		EDIT
NORM		RUN
MODE		
DIFF		PRINT
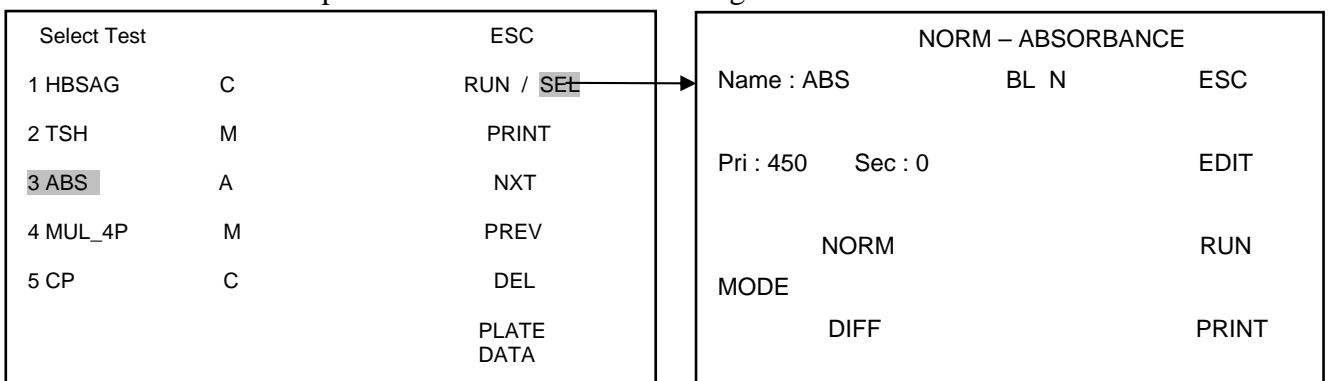
9.1. Absorbance Mode:

Select the test and point to RUN option

TEST OPERATIONS	
1 Select Test By Name	ESC
2 Select Test By Mode	
3 Select Test By Number	
4 List Tests	
5 Add New Tests	

Select Test		ESC
1 HBSAG	C	RUN / SEL
2 TSH	M	PRINT
3. ABS	A	NXT
4 MUL_4P	M	PREV
5 CP	C	DEL
		PLATE DATA

On selecting RUN option it will display following screen.

The instrument will ask "Is Plate Loaded?   YES / NO", select 'Yes'. Instrument will read the absorbance using mechanical plate movement. After completion of reading it will ask:

"Is Plate Removed? YES / NO". Remove the plate and Select 'YES'.

Name: ABS   NORM – ABSORBANCE
Pri : 450   Sec : 0   BL   N
ABS   ABS   ABS   ABS   ABS   ABS
1   2   3   4   5   6
ABS   ABS   ABS   ABS   ABS   ABS
7   8   9   10   11   12
Is Plate Loaded   ?   YES   /   NO

Name: ABS   NORM – ABSORBANCE
Pri : 450   Sec : 0   BL   N
ABS   ABS   ABS   ABS   ABS   ABS
1   2   3   4   5   6
ABS   ABS   ABS   ABS   ABS   ABS
7   8   9   10   11   12
Is Plate Removed   ?   YES   /   NO

Details of absorbance of all wells in table format for each strip will be displayed on the screen as shown below.

```
Name: ABS        NORM – ABSORBANCE
Pri : 450   Sec : 0              BL    N
ABS     ABS     ABS     ABS     ABS     ABS
 1       2       3       4       5       6
0.028   0.145   0.100   0.017   0.089   0.135
 --      --
 --
 --
 --
0.071   0.123   0.113   0.054   0.116   0.060

ABS     ABS     ABS     ABS     ABS     ABS
 7       8       9      10      11      12
0.362   0.078   0.410   1.440   0.746   0.224
 --      --
 --
 --
 --
0.112   0.111   0.093   2.568   0.396   0.015
ESCPRINTMATRIX        SEND PLATE    LOAD NEXT
```

In this operation if you keep BLANK YES

The first well of first strip will be considered as blank and instrument will give the absorbance of remaining all well with blank subtraction from original absorbance.

The "PRINT MATRIX" will print the details of entire plate with well identification and absorbance of that well, like…..

A

W1	W2	W3	W4	W5	W6
0.125	0.250	0.350	0.450	0.550	0.650..

Using "SEND PLATE" plate data can be sent to computer using either USB or SERIAL RS232.

"LOAD NEXT" is used to load the Next Plate in order to get the absorbance of next plate

Example Print-out of ABSORBANCE test obtained from READWELL TOUCH

After running the plate in Absorbance mode, user can take the print of the result in the form of Print matrix which will be printed as follows –

NORM-ABSORBANCE

Name : ABS

BL   N

Pri : 450   Sec : 0
ABS, 21/07/08,
A

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.028	0.145	0.100	0.017	0.089	0.135	0.362	0.078	0.410	1.440	0.746	0.224

B

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.058	0.151	0.386	2.553	0.111	1.479	2.593	0.081	2.517	0.781	0.730	0.005

C

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.065	2.596	0.135	0.142	0.141	0.182	0.108	0.112	1.585	1.530	0.405	2.635

D

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.072	0.150	2.630	0.143	2.650	0.077	0.159	0.170	1.504	0.071	0.426	0.222

E

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
2.541	0.140	0.149	0.091	0.166	0.173	2.653	0.191	0.097	2.659	0.252	0.222

F

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
2.614	2.682	0.185	0.130	2.648	0.167	0.176	0.071	2.686	0.853	0.907	0.426

G

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.056	0.163	2.571	0.155	0.147	0.119	2.618	0.081	0.085	0.070	0.407	2.591

H

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.071	0.123	0.113	0.054	0.116	0.060	0.112	0.111	0.093	2.568	0.396	0.015.

Differential Absorbance Mode: In differential absorbance mode the instrument will give the absorbance difference each set of "ODD" number strip and EVEN number strip.

Name: ABS			DIFF– ABSORBANCE		
ABS	ABS	ABS	ABS	ABS	ABS
Pri : 450 Sec : 0					

ABS	ABS	ABS	ABS	ABS	ABS
1	2	3	4	5	6
	0.900		1.700		0.900
	0.200		1.000		1.800
	0.300		1.100		1.900
	0.400		1.200		2.000
	0.500		1.300		2.100
	0.600		1.400		2.200
	0.700		1.500		2.300
	0.800		1.600		2.400
ABS	ABS	ABS	ABS	ABS	ABS
7	8	9	10	11	12
	0.100		0.900		1.700
	0.200		1.000		1.800
	0.300		1.100		1.900
	0.400		1.200		2.000
	0.500		1.300		2.100
	0.600		1.400		2.200
	0.700		1.500		2.300
	0.800		1.600		2.400

ESC   PRINTMATRIX   SEND PLATE   LOAD NEXT

It is showing the absorbance only for even number strips. This absorbance values are actually differences between each well of strip 1 and well of strip 2.You can get the difference between set of 1-2, 3-4, 5-6, 7-8, 9-10 and 11-12. It is not possible to change this combination.

In "PRINT MATRIX", you will get the print of entire plate data with actual absorbance of each well and difference of absorbance between ODD well and EVEN well, like

A

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.300	0.279	0.524	0.497	0.816	0.499	0.082	0.474	0.651	0.331	0.394	0.562
0.000	0.021	0.000	0.028	0.000	0.316	0.000	-0.391	0.000	0.320	0.000	-0.168

B

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.506	0.584	0.648	0.194	0.472	0.457	0.822	0.346	0.679	0.387	1.047	0.130
0.000	-0.077	0.000	0.453	0.000	0.015	0.000	0.476	0.000	0.292	0.000	0.918

9.2. Cut off Mode

After recalling the test saved in Cut-Off mode, it will display following screen.

User can take the print of the test parameters by selecting "PRINT" option present on the screen. It will print all the details of the test parameters alongwith QC equations.

Name: HCV			POS- Cut Off			
Pri: 450	Sec: 0				ESC	
	No	Factor	QC	QCVal	Mes.	EDIT
BL	1		Y	0.100	0.000	RUN
NC	2	1.000	Y	0.150	0.000	PRINT
PC	2	1.000	Y	0.500	0.000	
LC	0	1.000	N			
CC	0	1.000	N			
CUTFAC: 0.100						
CUTABS: 0.1*PC+CF						
QC1	N		Interpretation :			
QC2	N		Greyzone % (Y) 10.00			
QC3	N		Cut off Index (N)			
QC4	N		Range			
To change values press EDIT						

A) For running the test in CUTOFF mode select the particular test and point to RUN option present on the "List Test" screen.

Select Test		ESC
1 TSH	M	RUN / SEL
2 ABS	A	PRINT
3 HCV	C	NXT
4 MUL_4P	M	PREV
5 CP	C	DEL
		PLATE DATA

Name: HCV		POS- Cut Off									
Pri: 450 Sec: 0										ESC	
No. of Samples: 0										RUN	
DUP N		SIMUL			PID						
1	2	3	4	5	6	7	8	9	10	11	12
B											
NC											
NC											
NC											
PC											
PC											

B) It shows the 12 strips horizontal with 8 wells vertical with blanks and controls loaded in first strip. Select the 'No. of Samples' and enter the total Number of samples you want to load with the help of numeric screen displayed at the bottom of the screen.

```
Name: HCV              POS- Cut Off

Pri: 450    Sec: 0                    ESC

No. of Samples: 0                    RUN

DUP N          SIMUL          PID

1   2   3   4   5   6   7   8   9   10   11   12

B

NC

NC

NC

PC

PC

Numeric Value: 10

  1     2     3     4     5     6      ENTER

      7     8     9     0      .       CLEAR
```

```
Name: HCV                  POS- Cut Off

Pri: 450    Sec: 0                      ESC

No. of Samples: 10                      RUN

DUP N          SIMUL          PID

1   2   3   4   5   6   7   8   9   10   11   12

B    S3

NC   S4

NC   S5

NC   S6

PC   S7

PC   S8

S1   S9

S2   S10
```

C) After entering No. of samples, select RUN. The plate-loading tray will come out and the following message will appear: "Is plate loaded? YES / NO"

```
Name: HCV                POS- Cut Off

Pri: 450      Sec:  0                    ESC

No. of Samples: 10                       RUN

DUP N          SIMUL          PID

1   2   3   4   5   6   7   8   9   10   11   12

B    S3

NC   S4

NC   S5

NC   S6

PC   S7

PC   S8

S1   S9

S2   S10

Is Plate Loaded    ?          YES  /  NO
```

D) Here the plate is loaded in the direction that controls should go in first. Select "YES".

The instrument will read the controls and samples.

Following message appears: "Is plate removed? YES / NO". Remove the plate and select YES.

```
Name: HCV                POS- Cut Off

Pri: 450    Sec:  0                            ESC

No. of Samples: 10                             RUN

DUP N          SIMUL        PID

1    2    3    4    5    6    7    8    9    10   11   12

B    S3

NC   S4

NC   S5

NC   S6

PC   S7

PC   S8

S1   S9

S2   S10

     Is Plate Removed?              YES    /    NO
```

E) After selecting YES, result screen will appear with the measured values of average blank, average of all controls and the cut off absorbance. To check the results of samples, select option 'Display value'

```
Name: HCV              POS- Cut Off

Pri: 450   Sec:  0                        ESC

    No   Factor   QC    QCVal   Mes.   Rem   ACCEPT

BL   1            Y     0.100   0.050        TEST

NC   2   1.000    Y     0.150   0.098

PC   2   0.100    Y     0.500   2.658        PRINT

LC   0   1.000    N

CC   0   1.000    N

CUTFAC: 0.200           CUTABS: 0.563        Display
                                             VALUE

QC1  2.560       QC2

QC3              QC4                         LOAD
                                             NEXT

Range % 10.00
```

F) 'DISPLAY VALUE' option will display the result of all samples along with the controls selected.

```
Name: HCV              POS- Cut Off            ESC

Pri: 450  Sec:  0          BL   Y

Range    PERCENTAGE % 10.00                    NXT
                           Pos: 0.330

CUT ABS= 0.300         Neg: 0.270             PREV

NO    SAMP   ABS    AVG    INDEX   REM    PID

A1    B       0.050   0.050

B1    NC

--

--

G1    S1      0.200   0.200   0.254   NEG    PQR-1

H1    S2      1.854   1.854   7.245   POS    PQR-2

PRINT          SAVE            PRINT        PLATE
RESULTS        RESULTS         MATRIX       OPT.
```

G) By selecting 'ACCEPT TEST' option you can save this test with the details of controls absorbance. Next time it is possible to run the same test without loading controls. This means that the previous stored values of controls can be used.

All the details are in table format, as per row and column shown on the screen. You can obtain the print of the same format by selecting option 'PRINT RESULTS'. To check the results of next samples, choose option 'NXT', and then print it in format as shown on the screen by option 'Print Results'

You can obtain the print in matrix format, by selecting option 'PRINT MATRIX'.

In matrix form you will get the print as per your tray/plate for all the wells. Instrument prints seven different parameters in print matrix for a single well.

ROW IDENTIFICATION	A, B, C,D,……
WELL NUMBER	W1, W2, W3, W4…..
WELL ID OR SAMPLE NUMBER	BL, NC, PC, OR S1, S2, S3, …..
PATIENT IDENTIFICATION	RAMESH, VIKAS, etc.
WELL ABSORBANCE	0.050, 0.098, 0.085, …
SAMPLE CONCENTRATION	0.738, 0.689, 2.578,…
INTERPRETATION / REMARKS	POS or NEG or EQ

Example Print-out of POS-CUTOFF test obtained from READWELL TOUCH

POS-CutOff

```
Name : HCV
Pri : 450          Sec : 0
        NO Factor      QC      QCVal Meas.
BL      1              Y       0.100
NC      2      0.000   Y       0.150   0.000
PC      2      0.100   Y       0.500   0.000
LC      0      1.000   N
CC      0      1.000   N
CUTFAC :       0.100
CUTABS :       .1*PC+CF
QC1     N      Interpretation :
QC2     N      Greyzone%(Y)   10.0
QC3     N      Cutoff   Index (N)
               Range
QC4     N
```

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```
A
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
B       S4      S12     S20     S28     S36     S44     S52     S60     S68     S76     S84
        OPD13   OPD21   OPD29   OPD37   OPD45   OPD53   OPD61   OPD69   OPD77   OPD85   OPD93
0.002   0.147   0.091   0.011   0.083   0.127   0.362   0.072   0.400   1.454   0.743   0.222
0.000   1.302   0.803   0.099   0.737   1.122   3.201   0.636   3.533   12.84   6.564   1.959
        POS     NEG     NEG     NEG     POS     POS     NEG     POS     POS     POS     POS
B
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
NC      S5      S13     S21     S29     S37     S45     S53     S61     S69     S77     S85
        OPD14   OPD22   OPD30   OPD38   OPD46   OPD54   OPD62   OPD70   OPD78   OPD86   OPD94
0.062   0.145   0.382   2.535   0.116   1.470   2.573   0.512   2.515   0.071   0.003
0.000   1.278   3.372   22.39   1.024   12.99   22.73   1.011   22.22   6.597   6.608   0.025
        POS     POS     POS     EQ      POS     POS     EQ      POS     POS     POS     NEG

C
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
NC      S6      S14     S22     S30     S38     S46     S54     S62     S70     S78     S86
        OPD15   OPD23   OPD31   OPD39   OPD47   OPD55   OPD63   OPD71   OPD79   OPD87   OPD95
0.040   2.573   0.129   0.159   0.133   0.217   0.077   0.091   1.584   1.557   0.502   2.638
0.000   22.72   1.136   1.405   1.177   1.917   0.677   0.804   13.99   13.75   4.434   23.30
        POS     POS     POS     POS     POS     NEG     NEG     POS     POS     POS     POS
D
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
PC      S7      S15     S23     S31     S39     S47     S55     S63     S71     S79     S87
        OPD16   OPD24   OPD32   OPD40   OPD48   OPD56   OPD64   OPD72   OPD80   OPD88   OPD96
0.080   0.157   2.630   0.141   2.642   0.058   0.155   0.159   1.515   0.071   0.423   0.209
0.000   1.389   23.23   1.246   23.33   0.516   1.370   1.403   13.38   0.628   3.732   1.850
        POS     POS     POS     POS     NEG     POS     POS     POS     NEG     POS     POS
E
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
PC      S8      S16     S24     S32     S40     S48     S56     S64     S72     S80     S88
        OPD17   OPD25   OPD33   OPD41   OPD49   OPD57   OPD65   OPD73   OPD81   OPD89   OPD97
2.562   0.172   0.198   0.061   0.182   0.165   2.656   0.156   0.080   2.616   0.259   0.224
0.000   1.517   1.751   0.536   1.612   1.457   23.46   1.377   0.705   23.11   2.291   1.978
        POS     POS     NEG     POS     POS     POS     POS     NEG     POS     POS     POS
F
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
S1      S9      S17     S25     S33     S41     S49     S57     S65     S73     S81     S89
OPD10   OPD18   OPD26   OPD34   OPD42   OPD50   OPD58   OPD66   OPD74   OPD82   OPD90   OPD98
2.626   2.612   0.055   0.116   2.649   0.188   0.176   0.052   2.638   0.855   0.899   0.419
23.19   23.07   0.483   1.023   23.40   1.660   1.553   0.460   23.30   7.548   7.942   3.699
POS     POS     NEG     EQ      POS     POS     POS     NEG     POS     POS     POS     POS

G
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
S2      S10     S18     S26     S34     S42     S50     S58     S66     S74     S82     S90
OPD11   OPD19   OPD27   OPD35   OPD43   OPD51   OPD59   OPD67   OPD75   OPD83   OPD91   OPD99
0.049   0.140   2.595   0.138   0.142   0.117   2.611   0.081   0.403   0.050   0.403   2.579
0.429   1.234   22.92   1.215   1.252   1.035   23.06   0.672   0.717   0.441   3.564   22.78
NEG     POS     POS     POS     POS     EQ      POS     NEG     NEG     NEG     POS     POS
H
W1      W2      W3      W4      W5      W6      W7      W8      W9      W10     W11     W12
S3      S11     S19     S27     S35     S43     S51     S59     S67     S75     S83     S91
OPD12   OPD20   OPD28   OPD36   OPD44   OPD52   OPD60   OPD68   OPD76   OPD84   OPD92   OPD100
0.061   0.109   0.002   0.071   0.076   0.131   0.109   0.101   0.082   2.560   0.399   0.015
0.538   0.964   0.018   0.631   0.670   1.157   0.960   1.896   0.721   22.61   3.527   0.132
NEG     EQ      NEG     NEG     NEG     POS     EQ      NEG     NEG     POS     POS     NEG
```

9.2. A. Invalid Assay in Cut Off Mode

If any individual control behaves incorrectly and it's absorbance is not satisfying the QC check value of that control, the following message appears: "Invalid Assay" and a remark "HI" or "LO" for that particular control. OR if the QC1, QC2, QC3 and QC4, which has an other QC condition of controls (like some reagent manual gives condition PC-NC > 0.2 or NC/PC > 0.5) the following message appears: "Invalid Assay" and a remark either 'HI' or 'LO' for that QC condition.

Name: HBSAG			POS- Cut Off			
Pri: 405 Sec: 0						ESC
No	Factor	QC	QCVal	Meas.	Rem	ACCEPT
BL 1		Y	0.100	0.105	HI	TEST
NC 3	1.000	Y	0.150	0.200	HI	
PC 2	0.100	Y	0.500	0.456	LO	PRINT
LC 0	1.000	N				
CC 0	1.000	N				
CUTFAC: 0.200			CUTABS: 0.563			DISPLAY
						VALUE
QC1 2.560 HI	QC2					
QC3		QC4				LOAD
Invalid Assay						NEXT

(NOTE: The absorbance of controls should not go above 3.50. If it is > than 3.50, it will show the remark 'HI' for that control. In such a case edit the control absorbance.)

In such case, delete an individual control, so that the average of remaining controls will satisfy the QC condition of that control as per reagent manual.

To select any control for deleting, you must select the touch zone as shown in the above screen.

When you select any particular control for deleting (suppose you have selected Negative Control (NC), 'HI' or 'LO' remark appear on the screen.

"Select EDIT / DEL key to proceed". To delete the control select 'DEL'. After deleting that control, the absorbance of that control will become zero and the average of controls will also get changed. Select 'ESC' option to come back to the Result screen.

```
NC VALUE :      0.200                    ESC

NC1    0.150                              DEL

NC2    0.350    HI

NC3    0.200    HI
```

When you go back, you will get the edited values for average of control with no remark for any control and no "Invalid Assay" message.

*NOTE:

Make the blank absorbance valid in case the absorbance doesn't meet the QC conditions.

If necessary valid the control absorbance because the absorbance of the blank affect the absorbance of all controls and samples.

It is recommended that, for a test with single blank and single control, if absorbance doesn't satisfy QC conditions or if all controls of any single type (means all NC controls or all PC controls) doesn't meet the QC, the test will become totally invalid. It is not possible to make the VALID TEST and new controls have to be loaded.

9.3. Multistandard:

After recalling the test in multistandard mode it will display following screen. Take the print of the test parameters if required and select "Run" option. Or else you can directly run the test from the List Test screen.

Multi Standard Mode

```
Name:   TSH                MULTISTANDARD

Pri: 450    Sec: 0     BL Y  0.000     CAL 7        ESC
                       DUP N           DUP Y        EDIT
                                                    RUN
HI CO: Y      High> 25.03      Low< 10.54    PRINT


LO CO: Y       High> 16.61       Low< 5.45


Interpret'n: Y   Range     High> 15.25
                           Low< 9.46

Graph:   4 PARAMETER


Y vs X :  ABS vs CONC
To change values press EDIT
```

A) For running the test in MUL_STD mode select the particular test and point to RUN option present on the screen. On selecting RUN option it will display following screen.

```
Select Test                    ESC          Name: TSH              MULTISTANDARD       ESC
1. HBSAg       C                             Pri: 450     Sec: 0
2. HCVAb       M            RUN / SEL        No. of samples: 0                          RUN
3. UPT         U                             DUP  N            SIMUL         PID
4. TSH         M            PRINT             1   2   3   4   5   6   7   8   9   10  11  12
5. CPC         C                              B
6. PER_ABS     P            NEXT             C1
7. CRP         C                             C2
8. KIN         K            PREV             C3
9. SIN         S                             C4
10. CP         C            DEL              C5
                                             C6
                            PLATE            C7
                            DATA             HI CO: 0                LO CO: 0
                                             COL                    COL
                                             ROW                    ROW
```

B) To enter total No. of HI controls, select "HI CO:" option and enter numeric value.

```
Numeric Value
1       2       3       4       5       6       ENTER
    7       8       9       0       .           CLEAR
```

C) If you select No. of HI controls = 2, then you have to locate the position of HI controls by selecting column number and row number.

For column number entry select "COL" option and enter column number.

```
HI CO : 2
ROW             COL
                 2
                 3


Please Enter Col Entry:     1
Numeric Value:
1   2   3   4   5   6      ENTER
    7   8   9   0   .      CLEAR
```

For row entry select "ROW" option and enter row position.

```
HI CO : 2
ROW     COL
  A      2
  B      3



Please Enter Row Entry:    1
Row Entry:
A   B   C   D   E   F   G   H   ENTER
                                CLEAR
```

Similarly, you can enter No. of LO Controls and locate its positions.

D) You can locate Controls from first well or after last calibrator to last well of strip 12 in any test.

Suppose you select column 2 & row A for first HI control and column 2, row B for second HI control then the location of HI control will be display on screen as shown below.

```
Name: TSH              MULTISTANDARD
Pri: 450     Sec: 0                        ESC
No. of samples: 0                          RUN
DUP  N          SIMUL          PID
 1    2    3    4    5    6    7    8    9   10   11   12
 B    HC
C1    HC
C2
C3
C4
C5
C6
C7
HI CO: 2
COL
ROW
```

E) Select No. of samples you want to run. In case of 10 samples, it will load 10 samples as follows -

```
Name: TSH              MULTISTANDARD
Pri: 450     Sec: 0                        ESC
No. of  samples : 10                       RUN
DUP  N          SIMUL          PID
 1    2    3    4    5    6    7    8    9   10   11   12
 B    HC   S5
C1    HC   S6
C2    LC   S7
C3    LC   S8
C4    S1   S9
C5    S2   S10
C6    S3
C7    S4
HI CO: 2              LO CO: 2
COL                   COL
ROW                   ROW
```

F) Now Select RUN option so that readings can be taken in MULTI STANDARD mode.

The plate holder will come out and will display the message string- "Is Plate loaded YES / NO". The plate has to be loaded in such a way that the direction of the calibrators should go in first and then select 'YES'.

The instrument will read the absorbance of calibrators and samples. And finally display the string- "Is plate removed? YES / NO". Remove the plate and select 'YES'. The plate holder will go inside and following screen will be flashed on the display.

(Note: It takes maximum 6 min only in case of 4 parameter)

```
Name:        MULTI STANDARD              ESC
Pri:    Sec:     BL          CAL              NXT
                 DUP         DUP              PREV
Range   High >  Low <
HI CO :  High >           Low <              SAVE
LO CO :  High >           Low <              RESULT
NO      SAMP    ABS    AVG    CONC    REM    PID




Please Wait…………
It may take maximum 6 minutes.
LOAD   PRINT   PLATE   VIEW   ACCEPT   PRINT
NXT     MATRIX  OPT.   GRAPH  TEST    RESULTS
```

After reading it will display all the details of calibrators, samples and controls on the screen as shown below-

```
Name: TSH              MULTI STANDARD      ESC
Pri: 450  Sec: 0            BL   Y       CAL 7
                       DUP  N        DUP  N
Range   High > 15.25     Low <  9.46          NXT
HI CO :  High > 25.03    Low <  10.54
LO CO :  High > 16.61    Low <   5.45         PREV
NO      SAMP   ABS    AVG    CONC   REM   PID
A1      B      0.050  0.050                SAVE
B1      C1     0.070  0.070   0.000        RESULT
C1      C2     0.257  0.257   2.500
--
--
--
G1      S1     0.200  0.200   2.100  NEG   TSH-1
H1      S2     1.854  1.854   9.845  POS   TSH-2
LOAD    PRINT        PLATE  VIEW   ACCEPT      PRINT
NXT     MATRIX  OPT.   GRAPH   TEST      RESULTS
```

All the details as per row and column are shown on the screen. The printout of the same format can be obtained by selecting 'PRINT RESULTS'. To check the results of next samples, select 'NXT' and print the format shown on screen by option 'Print Results'.

You can get the print in matrix format, by selecting 'PRINT MATRIX'.

In matrix form you will get the print as per your plate for all the wells. Instrument will print seven different parameters in print matrix for a single well as follows:

ROW IDENTIFICATION	A,B, C,D,……
WELL NUMBER	W1, W2, W3, W4…
WELL ID OR SAMPLE NUMBER	B, C1, C2, C3, OR S1, S2, S3,..
PATIENT IDENTIFICATION	RAMESH, VIKAS, etc.
WELL ABSORBANCE	0.050, 0.098, 0.085, …
SAMPLE CONCENTRATION	0.738, 0.689, 2.578…
INTERPRETATION / REMARKS	POS, NEG, EQ,

Remember that Negative sign result is interpreted as zero both in printout as well as on screen. Example Print-out of MultiStandard test obtained from READWELL TOUCH

MULTI STDS

```
Name : TSH
Pri : 450 Sec : 0
BL      N           DUP       N
CAL     7           DUP       N
Graph :             4 PARAMETER
Y vs X :    ABS          vs        CONC
HI     CO : N     High >
                  Low<
LO     CO : N     High>
                  Low<
Range    Y        High>      6.000
                  Low<       4.000
No                Con              Abs
1                 0.000            2.500
2                 17.000           2.010
3                 51.000           1.340
4                 170.000          0.860
5                 510.000          0.470
6                 1700.000         0.230
7                 3400.000         0.100

Origin at : x = 0.000, y = 0.000
x / div =  0.625, y / div = 0.126
```


T4, 21/07/08,

A

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C1	S2	S10	S18	S26	S34	S42	S50	S58	S66	S74	S82
PID		OP02	OP10	OP40	OP26							
ABS	2.500	2.566	0.711	0.728	0.796	0.423	0.744	0.728	0.768	0.141	0.700	0.151
CON	0.000	10.00	3.175	3.226	3.275	1.880	2.203	2.240	2.255	0.527	2.141	0.475
REM			NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG	NEG

B

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C2	S3	S11	S19	S27	S35	S43	S51	S59	S67	S75	S83
PID		OP03	OP11	OP40	OP27							
ABS	2.010	2.485	1.432	1.448	1.412	0.755	0.709	0.756	0.729	0.173	0.700	0.134
CON	17.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C3	S4	S12	S20	S28	S36	S44	S52	S60	S68	S76	S84
PID		OP40	OP12	OP20	OP28							
ABS	1.340	2.603	0.081	0.801	0.154	0.448	0.155	0.161	2.547	0.766	0.854	2.625
CON	51.000	10.43	0.273	2.382	0.516	1.963	0.523	0.533	10.30	2.340	2.444	10.43
REM		POS	NEG	NEG	NEG	NEG	NEG	NEG	POS	NEG	NEG	POS

D

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C4	S5	S13	S21	S29	S37	S45	S53	S61	S69	S77	S85
PID		OP05	OP13	OP21	OP29							
ABS	0.860	2.609	0.092	0.804	0.153	0.800	0.156	0.157	2.615	0.803	0.803	2.589
CON	170.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

E

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C5	S6	S14	S22	S30	S38	S46	S54	S62	S70	S78	S86
PID		OP06	OP14	OP22	OP30							
ABS	0.470	1.520	0.155	0.846	0.154	2.616	0.531	0.454	0.448	2.386	1.542	1.431
CON	510.00	4.772	0.532	2.600	0.532	7.579	1.547	1.487	1.539	11.15	4.738	4.386
REM		EQ	NEG	NEG	NEG	POS	NEG	NEG	NEG	POS	EQ	EQ

F

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C6	S7	S15	S23	S31	S39	S47	S55	S63	S71	S79	S87
PID		OP07	OP15	OP23								
ABS	0.230	1.584	0.161	0.924	0.162	1.533	0.363	0.393	0.440	3.096	1.549	1.497
CON	1700.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

G

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	C7	S8	S16	S24	S32	S40	S48	S56	S64	S72	S80	S88
PID		OP08	OP16	OP24								
ABS	0.100	1.490	1.410	1.410	0.149	1.456	0.159	2.447	2.637	1.415	1.454	1.453
CON	3400.00	4.478	4.337	4.393	0.520	7.114	0.510	9.689	10.24	4.293	4.376	4.442
REM		EQ	EQ	EQ	NEG	POS	NEG	POS	POS	EQ	EQ	EQ

H

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
ID	S1	S9	S17	S25	S33	S41	S49	S57	S65	S73	S81	S89
PID	OP01	OP09	OP17	OP25								
ABS	1.539	1.498	1.478	1.524	0.161	2.520	0.146	2.489	2.503	1.453	1.468	1.511
CON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

G) **On selecting 'View Graph:', it displays the Graph screen with all the details of X-axis and Y-axis. Select 'PRINT' option to obtain the print out.**

```
Origin at : X =0.000    , y = 0.000
X / div = 2.500   , y / div = 0.150          ESC
3.000

                                              PRINT

                                              EDIT

2.000        -|-


1.000


0.001
      0.000      10.00      20.00      30.00      40.00
```
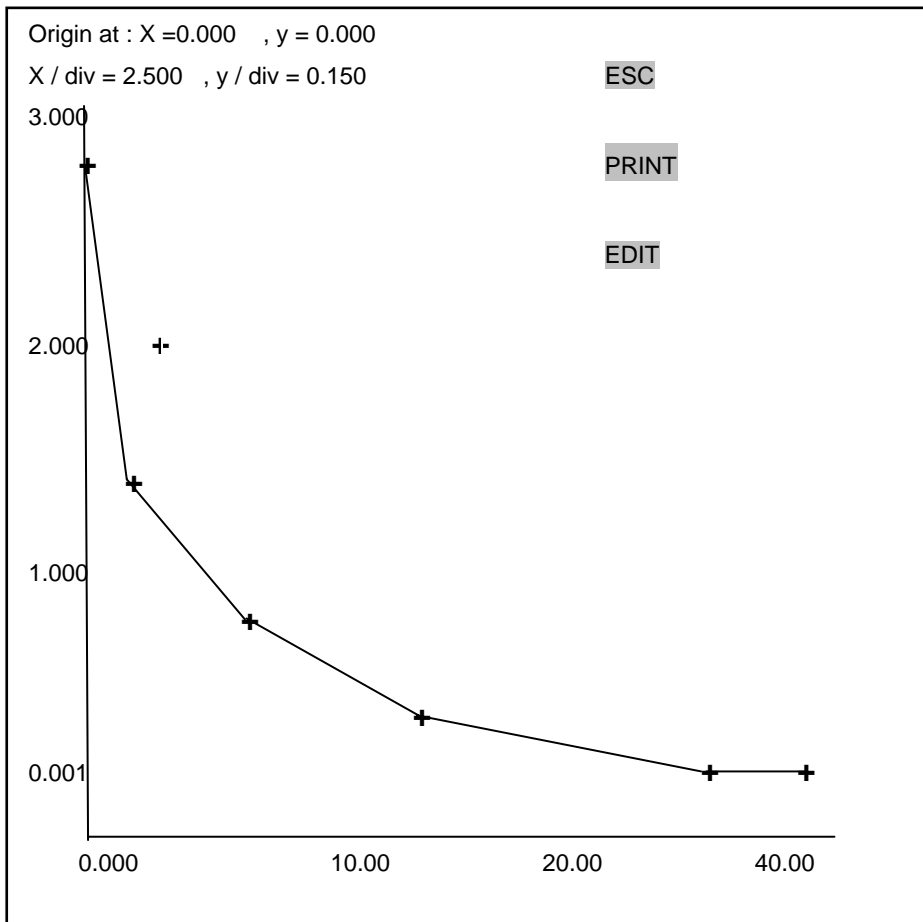
Select 'ACCEPT TEST' option to save this test with the details of calibrator absorbance. It is possible to run the same test without loading calibrators. The previous graph can be used for new samples.

(* **NOTE:** If you do not want to run the calibrators each time, please select "ACCEPT TEST" option to save graph, whenever you run the test with calibrators.)

9.3.A. Invalid assay in Multi standard Mode

In Multi standard, the absorbance of calibrators should be in increasing or decreasing from one calibrator to the next calibrator. If any calibrator/s behave(s) incorrectly you will obtain a message "Invalid Assay" at the bottom of the screen.

```
Name: TSH              MULTI STANDARD            ESC

Pri: 450  Sec: 0       BL Y    CAL 7

Range   High > 16.61   Low < 10.30               NXT

HI  CO :  High >        Low <

LO CO :  High >         Low <                     PREV

NO    SAMP  ABS    AVG    CONC   REM    PID

A1    B      0.050  0.050                         SAVE

B1    C1     0.070  0.070  0.000                  RESULT

C1    C2     0.257  0.257  2.500

---

---

---

Invalid Assay

LOAD    PRINT     PLATE    VIEW      ACCEPT    PRINT
NXT     MATRIX    OPT.     GRAPH:    TEST      RESULTS
```

If Assay is Invalid then "Accept Test", "Save Results", "Print Matrix", "Save Plate" options are blocked. In such a case, select VIEW GRAPH option and change the ASSAY to VALID with the help of EDIT option present on the Graph screen.

```
CAL 1      2.562        ESC          CAL1        2.562

CAL 2      1.865                     CAL2        2.259

CAL 3      2.050                     CAL3        2.050

CAL 4      1.054                     CAL4        1.054

CAL 5      0.648                     CAL5        0.648

CAL 6      0.356                     CAL6        0.356

CAL 7      0.045                     CAL7        0.045
                                     Numeric Value: 2.250

                                     1   2   3   4   5   6    ENTER
                                        7   8   9   0   .     CLEAR
```

You can easily select any particular calibrator by touching the particular touch zone and edit the absorbance of that. After editing the calibrator's absorbance select "ESC". A message will appear: "PLEASE WAIT…" and then the modified graph will appear on the screen.

If calibrator's value being edited in Multistandard mode then "*Mod…" string is displayed in the print.

9.4. Kinetic:

Select "RUN" to start to run the test in Kinetic mode.

```
                   KINETIC
  Name : KIN                         ESC


  Pri : 450   Sec : 0                EDIT


  Read Time :    1    min.           RUN


  Read Period :   15   sec.          PRINT

```

Or else you can directly run the test from the List Test screen by selecting RUN option present on the screen.

```
  Select Test                ESC
  1. HBSAg        C
  2. HCVAb        M          RUN / SEL
  3. UPT          U
  4. TSH          M             PRINT
  5. CPC          C
  6. PER_ABS      P             NEXT
  7. CRP          C
  8. KIN          K             PREV
  9. SIN          S
  10. CP          C             DEL


                               PLATE
                               DATA
```

The "D/M" means delta per minute of reaction. When test will over, instrument will show you the "D/M" values of reaction done in each well.

Name: KIN			KINETIC		
Pri : 450	Sec : 0				
D/M	D/M	D/M	D/M	D/M	D/M
1	2	3	4	5	6
D/M	D/M	D/M	D/M	D/M	D/M
7	8	9	10	11	12
Is Plate Loaded ?			YES / NO		

Name: KIN			KINETIC		
Pri : 450	Sec : 0				
D/M	D/M	D/M	D/M	D/M	D/M
1	2	3	4	5	6
D/M	D/M	D/M	D/M	D/M	D/M
7	8	9	10	11	12
Is Plate Removed ?			YES / NO		

It is showing the "D/M" values for each and every well in table format.

Name: KIN			KINETIC		
Pri : 450	Sec : 0				
D/M	D/M	D/M	D/M	D/M	D/M
1	2	3	4	5	6
0.020	0.002	0.010	0.035	0.056	0.001
0.030	0.056	0.075	0.100	0.068	0.090
--	---	---	---	---	---
--	---	---	---	---	---
D/M	D/M	D/M	D/M	D/M	D/M
7	8	9	10	11	12
0.020	0.002	0.010	0.0.35	0.056	0.001
0.030	0.056	0.075	0.100	0.068	0.090
---	---	---	---	---	---
ESC	PRINTMATRIX		SEND PLATE		LOAD NEXT

In "PRINT MATRIX", you will get the print of entire plate data with initial absorbance of each sample, average delta values of each sample and "D/M" values of each well, like…

A
W1   W2   W3   W4   W5   W6
0.200   0.100   1.200   0.300   2.600   0.900.. these are initial absorbance.
0.010   0.001   0.005   0.017   0.028   0.001.. these are average delta values.
0.020   0.002   0.010   0.035   0.056   0.001.. these are "D/M" values of each sample.
B
W1   W2   W3   W4   W5   W6
0.300   0.100   1.200   0.200   2.600   0.800..
0.015   0.028   0.037   0.050   0.034   0.045..
0.030   0.056   0.075   0.100   0.068   0.090..

On selecting "SEND PLATE" option user can send the plate data to computer with the help of USB or SERIAL communication.

"LOAD NEXT" is used to load the next plate.

- **Example Print-out obtained from READWELL TOUCH**

KINETIC

Name : KIN_450

Pri : 450   Sec : 0

Read Time   1 min

Read Period   15 sec

KIN_D, 21/07/08,
A

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.160	2.653	0.843	0.831	0.889	0.515	0.835	0.822	0.838	0.228	0.786	0.232
0.028	-0.004	-0.004	0.002	-0.002	-0.008	-0.008	0.020	0.017	-0.003	0.005	0.008

B

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.139	2.577	1.502	1.511	1.493	0.861	0.793	0.832	0.805	0.233	0.813	0.226
0.061	0.004	-0.002	0.020	0.026	0.023	0.011	-0.012	0.030	-0.004	0.022	0.015

C

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.502	2.700	0.168	0.878	0.278	0.523	0.236	0.252	2.592	0.867	0.963	2.720
0.042	0.001	0.004	0.011	0.014	0.014	0.029	0.037	0.005	0.030	0.009	0.018

D

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.536	2.730	0.196	0.897	0.260	0.897	0.257	0.255	2.720	0.907	0.912	2.698
0.015	0.014	0.027	0.013	0.035	0.043	0.027	0.012	-0.000	0.030	0.004	-0.016

E

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0.936	1.608	0.264	0.938	0.282	2.711	0.635	0.556	0.568	2.462	1.655	1.542
0.036	0.024	0.021	0.027	-0.005	-0.008	-0.006	0.005	0.009	0.021	0.007	0.014

F

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
1.009	1.706	0.289	1.132	0.313	1.707	0.568	0.554	0.604	3.155	1.682	1.647
0.078	0.055	0.057	0.055	0.044	0.077	0.067	0.040	0.040	0.012	0.036	0.054

G

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
1.559	1.565	1.448	1.485	0.225	1.523	0.239	2.547	2.715	1.490	1.542	1.532
0.027	0.021	0.026	0.027	0.022	0.022	0.027	0.054	0.013	0.033	0.031	0.012

H

W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
1.618	1.595	1.581	1.615	0.250	2.646	0.274	2.564	2.616	1.598	1.576	1.613
0.050	0.031	0.047	0.018	0.037	0.017	0.079	0.007	-0.020	0.050	0.022	0.003

(Note: Same Procedure can be used to create and run the test in all other modes, like

Single Standard, % Absorbance & Uptake)

10. RERUNNING ACCEPTED TESTS / PROGRAMS

"ACCEPT TEST" option is used to store the data of controls or calibrators. After running any test first time with controls or calibrators, user can select the option "Accept Test" to save the data of controls or calibrators, so that next time when you want to load the same test, there is no need to load controls or calibrators in ELISA plate. You can use previously stored data. If user recall the test with saved parameters then "Using stored values" strings should appeared in the printout.

A) In "CUT OFF" Mode:

```
Name: HCV               POS- Cut Off

Pri: 450    Sec: 0                                    ESC
    No   Factor   QC     QCVal   Mes.    Rem   ACCEPT
BL   1            Y      0.100   0.050          TEST
NC   3   1.000    Y      0.150   0.098
PC   2   0.100    Y      0.500   2.658          PRINT
LC   0   1.000    N
CC   0   1.000    N
CUTFAC: 0.200           CUTABS: 0.563          Display
                                               VALUE

QC1 2.560        QC2
QC3              QC4                            LOAD
                                               NEXT
Range % 10.00
```

B) In "Multi standard" Mode:

```
Name: TSH               MULTI STANDARD        ESC

Pri: 450    Sec: 0      BL Y      CAL 7
Range   High > 16.61    Low < 10.30           NXT
HI CO : High >          Low < 0.000
LO CO : High >          Low <                 PREV
NO    SAMP   ABS    AVG    CONC    REM    PID
A1    B      0.050  0.050                      SAVE
B1    C1     0.070  0.070  0.000               RESULT
C1    C2     0.257  0.257  2.500
---
---
G1    S1     0.200  0.200  2.100   NEG   TSH-1
H1    S2     1.854  1.854  9.845   POS   TSH-2
LOAD    PRINT    PLATE     VIEW    ACCEPT   PRINT
NXT     MATRIX   OPT.      GRAPH   TEST     RESULTS
```

When you want to run such an accepted test, select that particular test for instant 'CUTOFF' mode and point to 'RUN' option present on the Select Test screen.

```
Name: HCV              POS- Cut Off
Pri: 450  Sec: 0                          ESC
No. of Samples: 0                         RUN
DUP N          SIMUL          PID
1    2    3    4    5    6    7    8    9    10    11    12




      Load Blank?                 YES   /   NO

```

```
Name: HCV              POS- Cut Off
Pri: 450     Sec: 0                       ESC
No. of Samples: 0                         RUN
DUP N          SIMUL          PID
1    2    3    4    5    6    7    8    9    10    11    12




Load Controls?                  YES   /   NO

```

This time, the blank and controls will not be loaded directly and you will get the following questions: "Load Blank? YES / NO" and "Load Controls? YES / NO".
If you are running both, select 'YES', and if you want to use earlier stored data of controls select 'NO', so that you can run only samples to get their results without loading Blank and Controls.
If you want to load only 'Blank', select "Load Blank? YES" and
"Load Controls? NO".
In case if you are using previously Stored "Blank" and "Controls" then it will print
following strings in the printout-
"Using Blank Stored value….." and "Using Controls Stored value…."

C) In Multi Standard / Single Standard / % Absorbance / Uptake Mode:

Name: TSH MULTI STANDARD Pri: 450 Sec: 0 ESC No. of Samples: 0 RUN DUP N SIMUL PID 1 2 3 4 5 6 7 8 9 10 11 12 **Load Blank ?** **YES / NO**	Name: TSH MULTI STANDARD Pri: 450 Sec: 0 ESC No. of Samples: 0 RUN DUP N SIMUL PID 1 2 3 4 5 6 7 8 9 10 11 12 **Load Calibrators?** **YES / NO**

In Calibrator Mode, after asking "Load Blank? Yes / No" you will get the following question "Load Calibrators? Yes / No". If you are loading new calibrators and want the results of samples as per new graph select "Load Calibrators? YES".

Or else, If you are not loading new calibrators and want to use previously stored graph select "Load Calibrators? No".

If you want to load only 'Blank', select "Load Blank? YES" and "Load Calibrators? NO".

In case if you are using previously Stored "Blank" and "Calibrators" then it will print following strings in the printout-

"Using Blank Stored value….." and "Using Calibrator Stored value…."

NOTE: User can view the Saved Graph from the Test parameter screen before re-running the same test.

```
Name:  TSH              MULTISTANDARD

Pri: 450    Sec: 0    BL Y 0.000    CAL 7      ESC
                      DUP Y         DUP Y      EDIT
                                               RUN
HI CO: Y     High> 25.03     Low< 10.54       PRINT


LO CO: Y     High> 16.61     Low< 5.45


Interpret'n: Y  Range    High> 15.25
                         Low< 9.46
Graph:   4 PARAMETER


Y vs X :  ABS vs CONC
To change values press EDIT
```

On selecting GRAPH option, it will display following screen where user can select "PLOT" option in order to view the Valid GRAPH Screen.

No	Conc	Abs	No	Conc	Abs
1	0.000	0.220			
2	10.00	0.454			
3	25.00	0.725			
4	50.00	1.026			
5	100.00	1.269			
6	150.00	1.850			
7	200.00	2.000			

ESC   PRINT   PLOT

The Graph screen will be displayed as shown below-

Origin at : X =0.000   , y = 0.000

X / div = 2.500   , y / div = 0.150   ESC

3.000

                                             PRINT

                                             EDIT

2.000

1.000

0.001

0.000   10.00   20.00   40.00
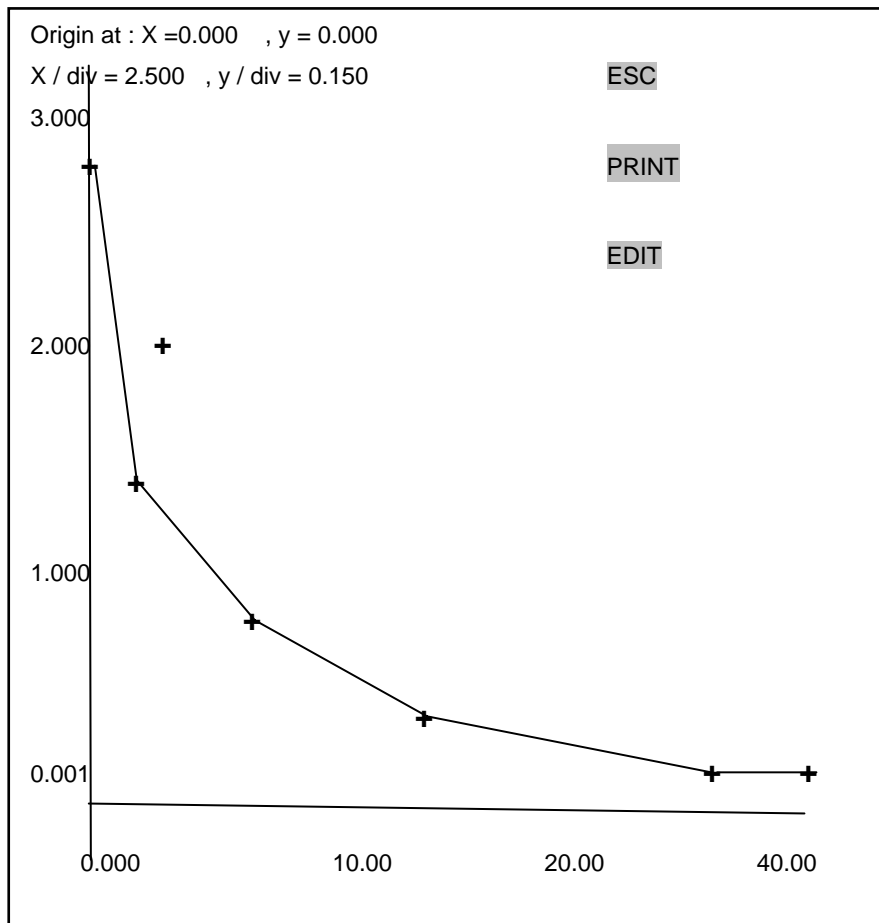
11. SAMPLE AND SAMPLE DUPLICATE

While loading the samples you can load a single sample in single well or a single sample in adjacent two well and finally the instrument will take the average of it known as Sample Duplicate. The instrument will load the controls / calibrators automatically in any new test or not accepted test. You have to provide the number of samples. If you are loading single samples keep "DUP"-No. Select "No. of Samples:" to enter total samples.

```
Name: HCV              POS- Cut Off
Pri: 450  Sec:  0                       ESC
No. of Samples: 0                       RUN
DUP N          SIMUL        PID
1   2   3   4   5   6   7   8   9   10   11
12
B
NC
NC
NC
PC
PC
```

```
Name: HCV              POS- Cut Off
Pri: 450  Sec:  0                           ESC

No. of Samples : 0                      RUN
DUP N          SIMUL        PID
1   2   3   4   5   6   7   8   9   10   11   12
B
NC
NC
NC
PC
PC
Numeric Value:  10
1       2       3       4       5       6     ENTER
    7       8       9       0       .         CLEAR
```

```
Name: HCV              POS- Cut Off
Pri: 450  Sec: 0                        ESC
No. of Samples : 10                     RUN
DUP N          SIMUL      PID
1   2   3   4   5   6   7   8   9   10   11   12
B   S3
NC  S4
NC  S5
NC  S6
PC  S7
PC  S8
S1  S9
S2  S10
```

If you want to load duplicate samples select "DUP" option and then enter the number of samples by selecting "No. of Samples"

```
Name: HCV              POS- Cut Off
Pri: 450  Sec:  0                    ESC
No. of Samples : 0                   RUN
DUP  Y          SIMUL        PID
1    2    3    4    5    6    7    8    9    10   11   12
B
NC
NC
NC
PC
PC
```

```
Name: HCV                  POS- Cut Off
Pri: 450  Sec:  0                        ESC
No. of Samples :    0                    RUN
DUP   Y            SIMUL          PID
1    2    3    4    5    6    7    8    9    10   11   12
B
NC
NC
NC
PC
PC
Numeric Value:  10
1    2    3    4    5    6              ENTER
   7    8    9    0    .                CLEAR
```

```
Name: HCV                  POS- Cut Off
Pri: 450  Sec:  0                        ESC
No. of Samples : 10                      RUN
DUP Y              SIMUL          PID
1    2    3    4    5    6    7    8    9    10   11   12
B    S2  S6  S10
NC   S2  S6  S10
NC   S3  S7
NC   S3  S7
PC   S4  S8
PC   S4  S8
S1   S5  S9
S1   S5  S9
```

(* Similarly, user can load the samples and Sample Duplicates in all other modes)

12. PATIENT IDENTITY / SAMPLE IDENTITY ENTRY

To enter Patient ID for all samples there is an option provided in loading screen shown as "PID"

After entering number of samples either single or duplicate, select "PID".

A) Individual PID entry -

```
Name: HCV              POS- Cut Off
Pri: 450  Sec: 0                        ESC
No. of Samples: 10                      RUN
DUP N        SIMUL         PID
1    2    3    4    5    6    7    8    9    10   11   12
B    S3
NC   S4
NC   S5
NC   S6
PC   S7
PC   S8
S1   S9
S2   S10
```

```
Sample       PID          ESC
   1
   2
   3
   4
   5
   6
   7                      NEXT
   8
   9                      PREV
  10                      SEQL
```

```
Sample       PID          ESC
   1      PRST123
   2
   3
   4
   5
   6
   7                      NEXT
   8
   9                      PREV
  10                      SEQL
```

```
              PRST123
A   B   C   D   E   F   G   H

I   J   K   L   M   N   O   P        ENTER

Q   R   S   T   U   V   W   X        CLEAR

Y   Z   ,   -   +   _   1   2

3   4   5   6   7   8   9   0
```
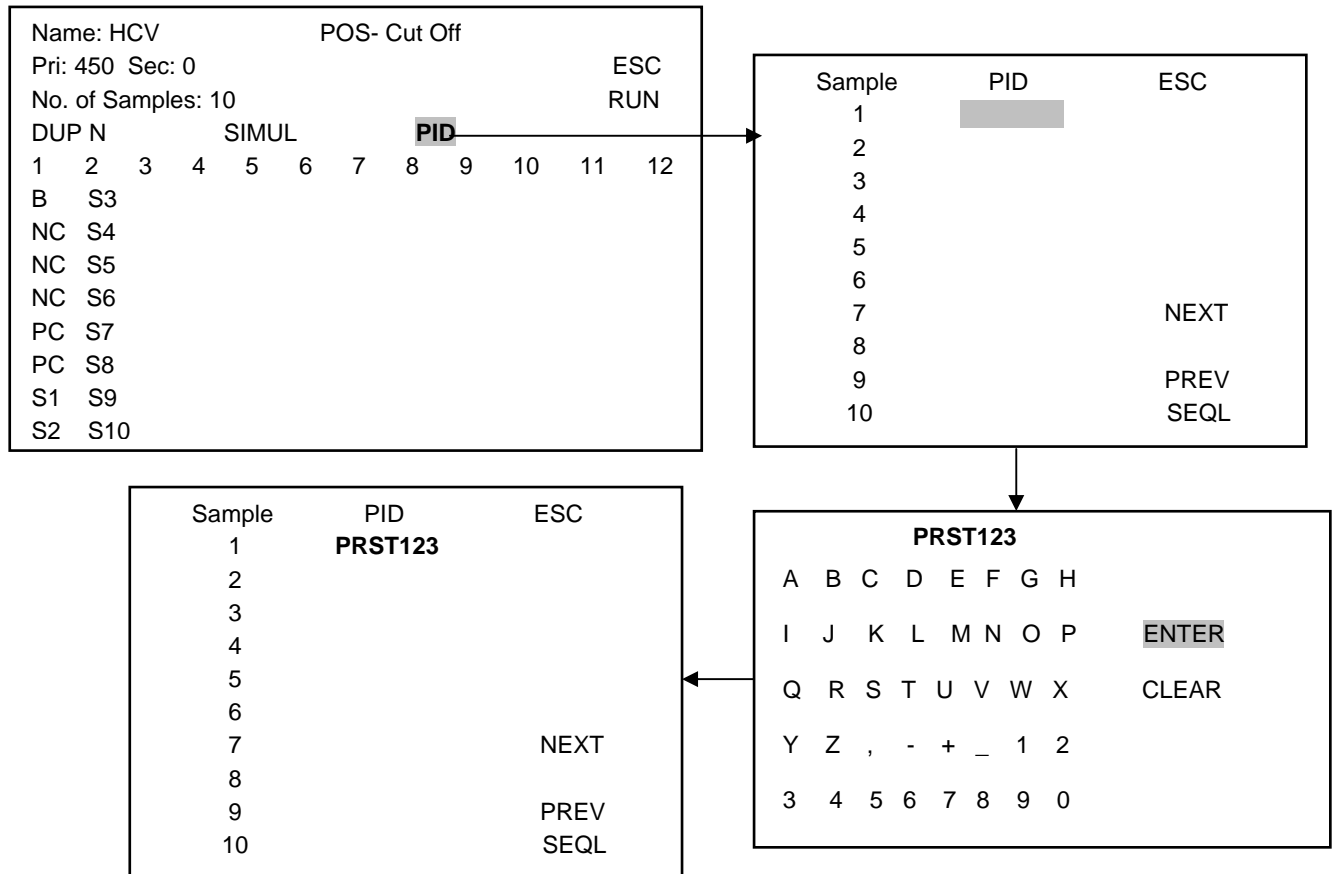
One by one you can enter name of each patient. The character length of PID is only 7 characters in the following combinations –

Since PID of the Patient is entered with the help of Alpha-numeric characters, the combination must be as mentioned below.

Alphabets	Numbers
4	3
3	4
2	5

For example -

1. In the first combination, user can enter PID with 4 Alphabets and 3 Numbers. That means, entered PID should be PQRS123

2. Similarly, for the second combination, user can enter PID with 3 Alphabets and 4 Numbers. And therefore, entered PID will be UTV1234

3. And for the third combination, user can enter PID with 2 Alphabets and 5 Numbers ie. PID will be displayed as RB12345

4. But one can't enter the PID with 1 Alphabet and 6 Numbers since its maximum numeric count is 65500.

   (Note: The same combinations should be used during SEQUENTIAL entry also.)

B) Sequential Patient ID Entry

This one by one entry will take more time, therefore one more option to enter Patient Ids is provided. This option is "SEQL" sequential entry.

If you select "PID" option for patient ID entry, the following question appears on the screen:

"Delete Previous PIDs? Yes / No". If you select NO, it will directly load the previously entered PIDs for sample and if you select YES, it will delete the previous PIDs.

Now select 'SEQL', it will display Alphanumeric screen where user can enter different sequential PIDs. Follow the steps below-

```
Enter Alphabets
              PRST
A  B  C  D  E  F  G  H
I  J  K  L  M  N  O  P        ENTER
Q  R  S  T  U  V  W  X        CLEAR
Y  Z  ,  -  +  _  1  2
3  4  5  6  7  8  9  0
```

Enter Initial Alphabets. Maximum 4 characters.

```
Enter Initial Sample number




Numeric Value: 01
1   2   3   4   5   6        ENTER
   7   8   9   0   .         CLEAR
```

Enter Initial Well Number. This is the starting well location of any particular batch.

S

S

```
Enter last sample number                          Enter initial PID number




Numeric Value: 10                                 Numeric Value: 123
 1   2   3   4   5   6      ENTER                   1   2   3   4   5   6      ENTER
     7   8   9   0   .      CLEAR                       7   8   9   0   .      CLEAR
```

Enter Initial PID Number. This is the starting number of any particular batch.	Enter last Well Number. This is the last well location of any particular batch.

The final screen will appear which displays the sequential IDs of patient samples for the well location that is selected.

```
   Sample        PID                ESC
      1         PRST123
      2         PRST124
      3         PRST125
      4         PRST126
      5         PRST127
      6         PRST128            NEXT
      7         PRST129
      8         PRST130            PREV
      9         PRST131
     10         PRST132            SEQL
```

Go to the next and previous screen with the help of "NEXT" and "PREV" option present on the screen.

(*NOTE: The entered PID get stored in instrument memory, until you delete it by using option, "Delete previous PIDs?   Yes / NO")

13. SAVE PLATE AND SAVE RESULTS

In all modes of operation, there are two options provided to store results.

A) In Cut Off mode:

```
Name: HCV              POS- Cut Off              ESC

Pri: 450  Sec: 0          BL  Y

Range PERCENTAGE % 10.00                         NXT


NO    SAMP   ABS   AVG   CONC   REM   PID        PREV
A1    B      0.050 0.050
B1    NC
--
--
--
--
--
--
PRINT         SAVE          PRINT        PLATE
RESULTS       RESULTS       MATRIX       OPT.
```

B) In Multi standard or any calibrator mode:

```
Name: TSH              MULTI STANDARD            ESC

Pri: 450  Sec: 0        BL  Y      CAL 7

Range   High > 16.61    Low < 10.30              NXT

HI  CO :  High >         Low <

LO CO :  High >          Low <                   PREV

NO    SAMP   ABS   AVG   CONC   REM   PID
A1    B      0.050 0.050                          SAVE
B1    C1     0.070 0.070  0.000                   RESULT
C1    C2     0.257 0.257  2.500
--
--
--
--
LOAD   PRINT    PLATE   VIEW    ACCEPT   PRINT
NXT    MATRIX   OPT.    GRAPH   TEST     RESULTS
```

If "PLATE OPT." is selected, you will obtain two options.

```
1. SAVE PLATE DATA          ESC


2. SEND PLATE DATA
```
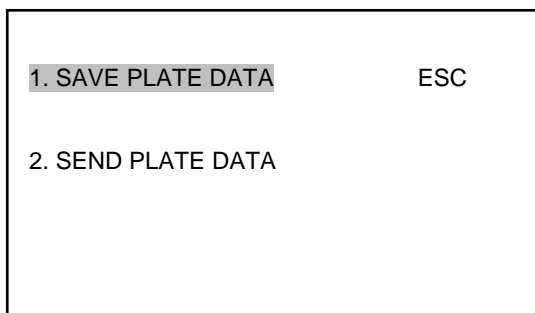
1. "SAVE PLATE DATA", it helps the user to save the entire plate information along with the control/calibrator information (maximum 10 plate data can be saved).

2. "SEND PLATE DATA" is used to send the data from instrument to computer through USB or serial RS232 connection.

If "SAVE RESULT" option is selected the information of samples only except controls/calibrators, with test name, patient ID and date will be saved.

"SAVE RESULTS" option is used to save the details related to samples.

14. VIEW STORED DATA

The stored plate or stored results appear on the screen by selecting option "View Plate" in "MAIN MENU".

```
          MAIN MENU
1 Test Operations          ESC
2 Technical Diagnosis
3 Utilities
4 View Plate
5 Serial Communication
```

```
1 PLATE RESULTS            ESC
2 PATIENT RESULTS
```
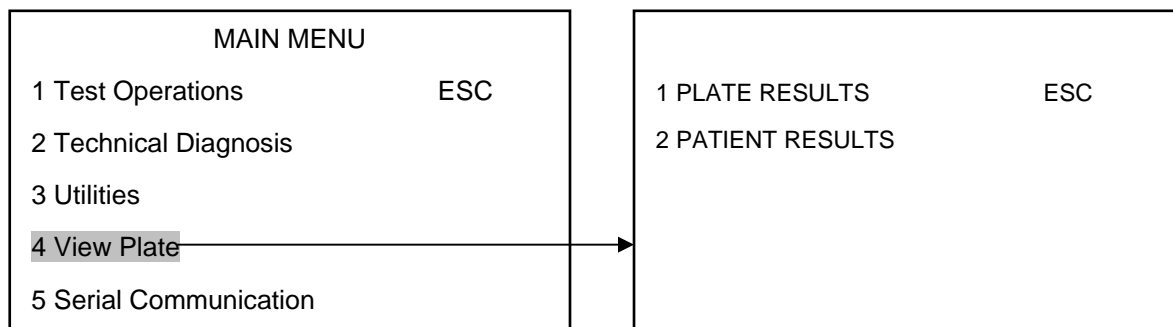
14.1. PLATE RESULT:

It displays the details of stored plate (last 10 plates) with date, test name and mode of operation in descending order. User can select any test to view its plate results by selecting this option.

```
1. PLATE RESULTS           ESC

2 PATIENT RESULTS
```

```
SIN
     02/03/14
NO   SAMP    ABS     AVG     RES    REM    PID
A1   C1      0.083   0.083   50.00
B1   S1      0.544   0.544   326.7  POS    VSP-1
C1   S2      0.367   0.367   220.3  NEG    VSP-2
D1   S3      0.538   0.538   322.9  POS    VSP-3
E1   S4      0.300   0.300   180.2  NEG    VSP-4
F1   S5      0.700   0.700   420.0  POS    VSP-5
--   --      ---     ---     ----   ---    ---
--   --      ---     ---     ----   ---    ---

G2   S14     0.326   0.326   195.6  NEG    VSP-14
H2   S15     0.491   0.491   294.7  EQ     VSP-15
ESC  NEXT  PREV  PRINTMATRIX  SENDDATA  PRINT
```

```
NO    DATE     TEST    MODE    ESC
4     02/03/14  SIN      S
3     01/03/14  TSH      M      SEL
2     28/02/14  HBSAG           C
1     25/02/14  CPC      C

4     02/03/14  SIN      S
Press Select key ot proceed
```

"Print Matrix" will print the details of entire plate in matrix format as explained earlier.

"Print" will print only the data displayed on screen.

"Send data" can be used to send the data from instrument to computer through USB or serial RS232 connection.

Note: User can directly view the details of Plate Results by accessing it through Plate Data option present on the Select Test screen.

```
Select Test                    ESC
1. HBSAg      C
2. HCVAb      M          RUN / SEL
3. UPT        U
4. TSH        M            PRINT
5. CPC        C
6. PER_ABS    P            NEXT
7. CRP        C
8. KIN        K            PREV
9. SIN        S
10. CP        C             DEL


                          PLATE
                          DATA
```

14.3. PATIENT RESULTS

It will show the details of all samples, saved in memory using option "SAVE RESULTS" in all different modes, as explain earlier. This option will display the data in table format as shown below. Test name, Mode of test operation, result of sample, PID and Remark will appear on the screen. The instrument has a memory to store 2500 sample results.

This option doesn't show the information of controls or calibrators.

```
                                    01 / 03 / 14
                                     Test    M    Result   PID    Remarks
1 PLATE RESULTS         ESC          MUL_4P  M    10.48    VSR1    EQ
                                     MUL_4P  M    12.63    VSR2    POS
2 PATIENT RESULTS ───────────┐       MUL_4P  M    7.450    VSR3    NEG
                             └──→     MUL_4P  M    13.80    VSR4    POS
                                     SIN     S    267.7    NRA1    EQ
                                     SIN     S    220.3    NRA2    NEG
                                     SIN     S    180.2    NRA3    NEG
                                     SIN     S    326.7    NRA4    POS
                                    ESC   NEXT   PREV   PRINT
```

"PRINT" is used to print the details as available on the screen.

"NEXT" and "PREV" options are used to browse through the pages so that one can view all the results one after the other.

NOTE:

1. When there is not enough memory the following message appears:

   "Memory Left for samples- First Samples Deleted"

   The instrument automatically deletes a number of samples that are stored in the beginning and then save the new samples at that location.

2. If a test is being deleted or edited then previously stored results of that particular test are displayed with their test mode as "X". But test name retained as it is.

01 / 03 / 14				
Test	M	Result	PID	Remarks
MUL_4P	X	10.48	VSR1	EQ
MUL_4P	X	12.63	VSR2	POS
MUL_4P	X	7.450	VSR3	NEG
MUL_4P	X	13.80	VSR4	POS
SIN	S	267.7	NRA1	EQ
SIN	S	220.3	NRA2	NEG
SIN	S	180.2	NRA3	NEG
SIN	S	326.7	NRA4	POS

ESC NEXT PREV PRINT

15. UTILITIES

UTILITIES consists of 10 different functions which can be viewed as follows-

```
                MAIN MENU
1 Test Operations                   ESC

2 Technical Diagnosis

3 Utilities

4 View Plate

5 Serial Communication
```

```
UTILITIES        Version (RBNK 3.500A)
1 Date and Time                    ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```
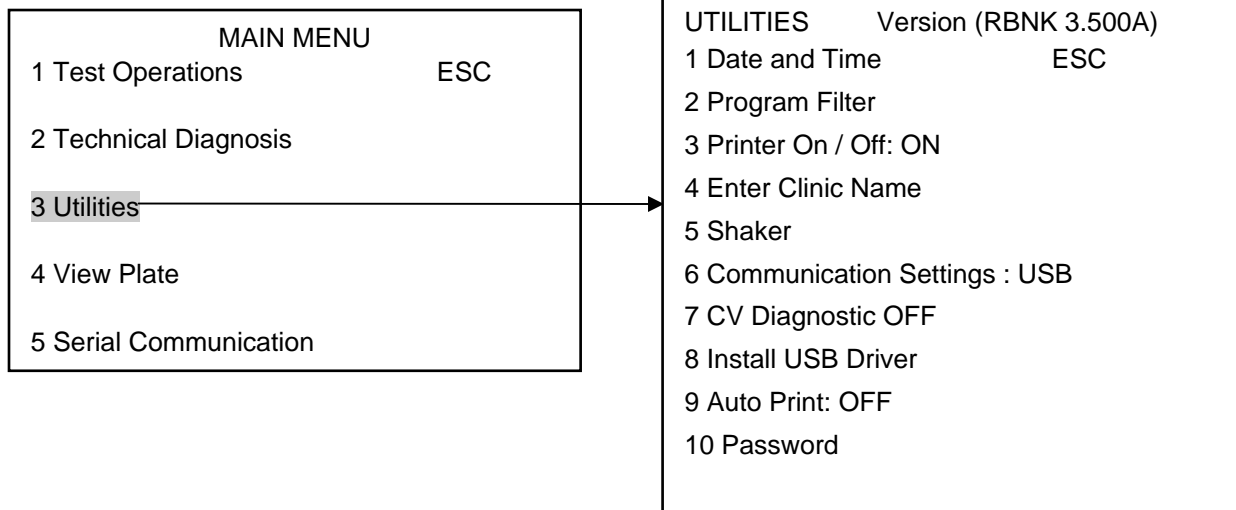
15.1. Date & Time Setting

This Utility helps the user to set current Date and Time.

```
UTILITIES        Version (RBNK 3.500A)
1 Date and Time                    ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings: USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
Date – DD / MM / YY                ESC

01 / 03 / 14


Time – Hrs  :  Min  :  Sec

12 : 30 : 10
```
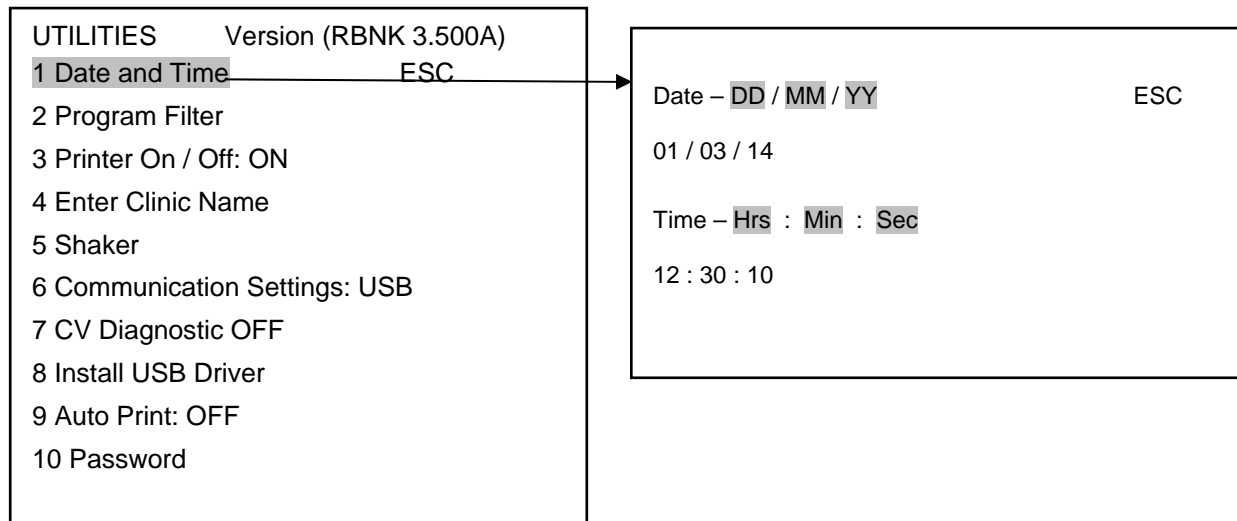
15.2. Program Filter

It consists of two editable filters and thus helps the user to edit the filters if any.

```
UTILITIES        Version (RBNK 3.500A)
1 Date and Time                 ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
Edit Filters?              YES  /  NO
```

```
XXX




Numeric Value :  405
 1     2     3     4     5     6          ENTER
     7     8     9     0     .           CLEAR
```

```
XXX   405
YYY




Numeric Value :  690
 1     2     3     4     5     6          ENTER
     7     8     9     0     .           CLEAR
```
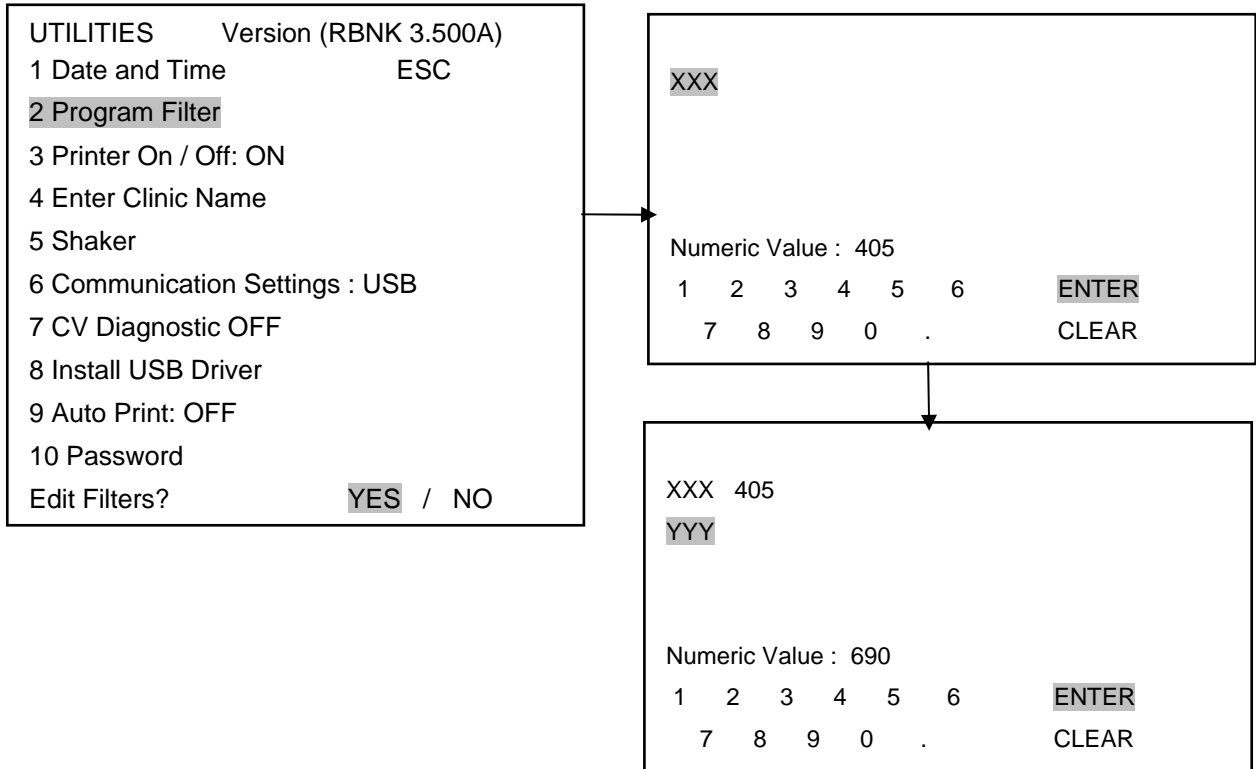
15.3. Printer On / Off setting:

Its a toggle between Printer ON and Printer OFF

```
UTILITIES        Version (RBNK 3.500A)
1 Date and Time                 ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```
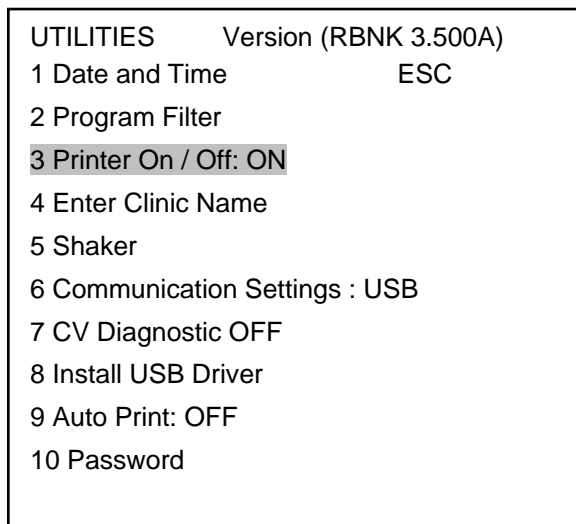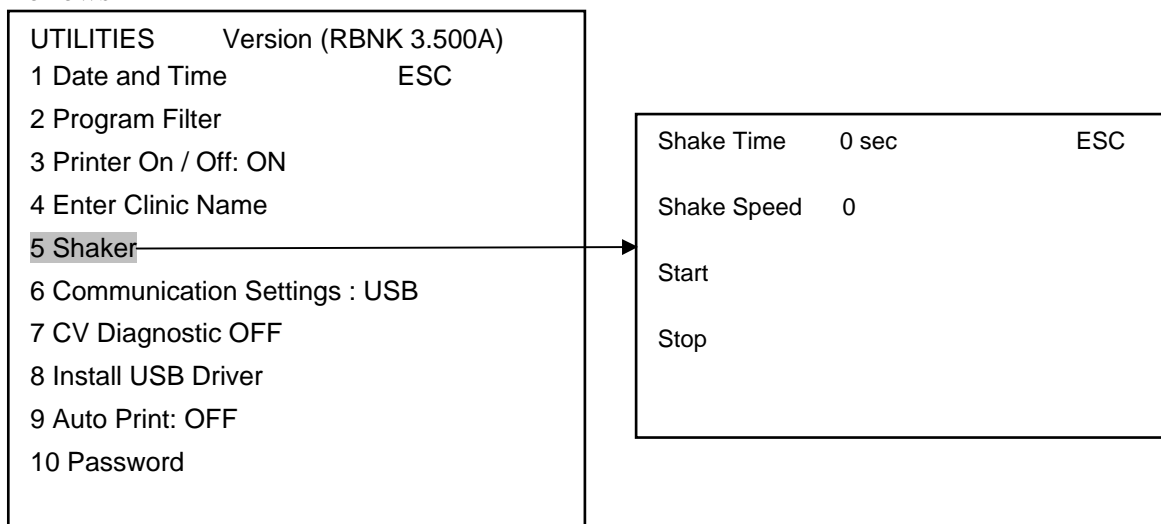
15.4. Enter Clinic Name:

Enter your Clinic Name and select "ENTER". The character length is maximum 19 characters.

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time                    ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
UTILITIES          Version (RBNK 3.500A)

CLINIC    MEDICARE

A   B   C   D   E   F   G   H

I   J   K   L   M   N   O   P        ENTER

Q   R   S   T   U   V   W   X        CLR

Y   Z   ,   -   +   _   1   2

3   4   5   6   7   8   9   0
```
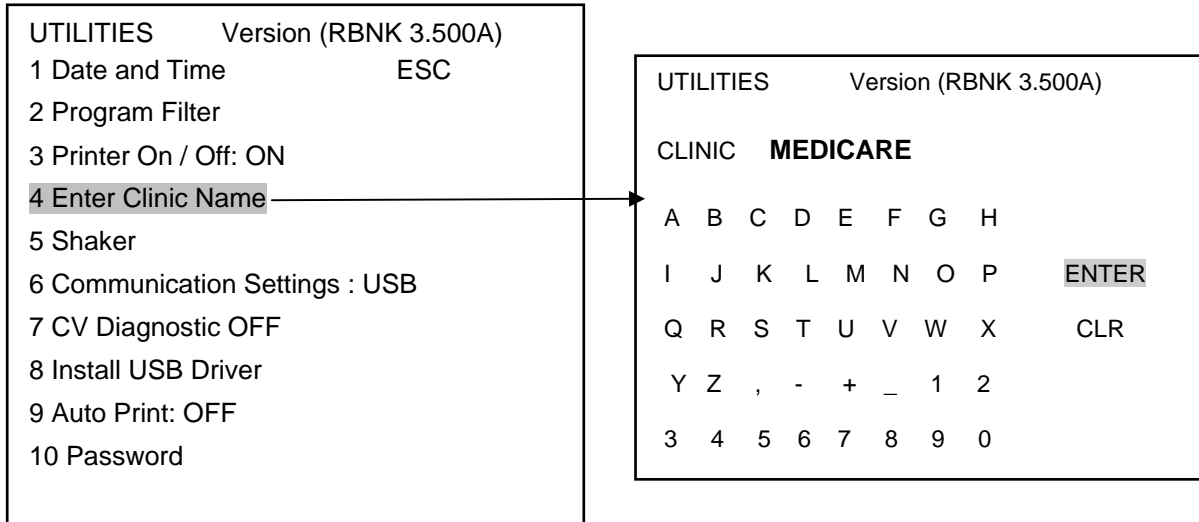
15.5. Shaker (Plate Shaking Mode)

Shaker is used for shaking the plate before running any test. The Shaker screen is displayed as follows –

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time                    ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
Shake Time       0 sec            ESC

Shake Speed      0

Start

Stop
```

```
┌──────────────────────────────────────┐          ┌──────────────────────────────────────┐
│ Shake Time      0 sec          ESC     │ ───────► │ Shake Time      0 sec          ESC     │
│                                        │          │                                        │
│ Shake Speed     0                      │          │ Shake Speed     0                      │
│                         │              │          │                                        │
│ Start                   │              │          │ Start                                  │
│                         │              │          │                                        │
│ Stop                    │              │          │ Stop                                   │
│                         │              │          │                                        │
│                         │              │          │ Numeric Value:    20                   │
│                         │              │          │ 1   2   3   4   5   6      ENTR        │
└─────────────────────────┼──────────────┘          │   7   8   9   0   .       CLR          │
                          │                         └──────────────────────────────────────┘
                          ▼
┌──────────────────────────────────────┐          ┌──────────────────────────────────────┐
│ Shake Time      20 sec         ESC     │          │ The total shake time can be entered    │
│                                        │          │ in seconds                             │
│ Shake Speed     0                      │          └──────────────────────────────────────┘
│                                        │
│ Start                                  │
│                                        │
│ Stop                                   │
│ Numeric Value:    05                   │
│ 1   2   3   4   5   6      ENTR        │
│   7   8   9   0   .       CLR          │
└──────────────────────────────────────┘
```

Regarding the "Shake Speed", there are 10 types of speeds. You can choose any speed by entering numbers from 1 to 10. The shaking speed increases as the number increases.

Speed	Respective RPM
1	200
2	210
3	220
4	230
5	240
6	250
7	260
8	270
9	280
10	290

After entering shake time and shake speed, select Start option. When "Start" is selected, the tray will come out and on the screen you will obtain a message "Is plate loaded? Yes / No". Load the plate and select YES option.

Shake Time	20 sec	ESC
Shake Speed	5	
Start		
Stop		

Shake Time	20 sec	ESC
Shake Speed	5	
Start		
Stop		
Is Plate Loaded?	Yes / NO	
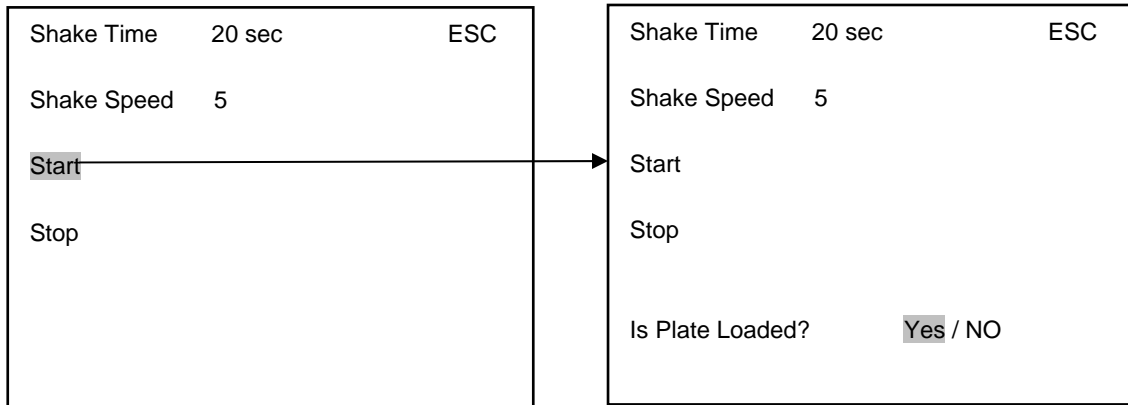
After selecting 'YES' the tray will go inside and instrument will do the shaking of plate for the given time period with selected speed.

When the shaking is finished, the plate holder will come out and display a message-

"Is plate removed? Yes / No". Remove the plate and select 'YES' to end the process.

Shake Time	20 sec	ESC
Shake Speed	5	
Start		
Stop		
Is Plate Removed ?	Yes / NO	
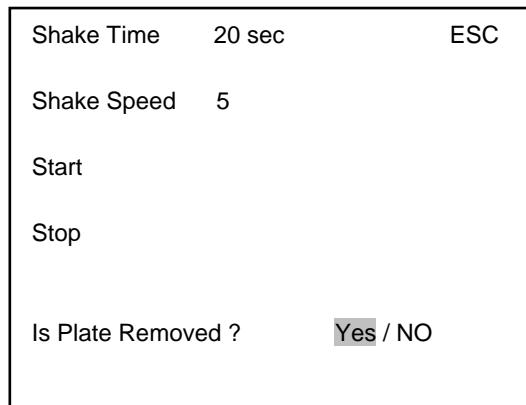
Similarly, to stop the Shaking process in between select "STOP" option present on the screen. After selecting STOP option it will display the message string – 'Is Plate Removed? YES / NO'. Select NO to terminate the ongoing process.

   Note: 'HOME' key is also used for directly accessing the shaking mode (ie. SHAKER)

15.6. Communication Settings:

It is a toggle between USB and SERIAL communication. User can either switch to USB or Serial communication by connecting their respective cables.
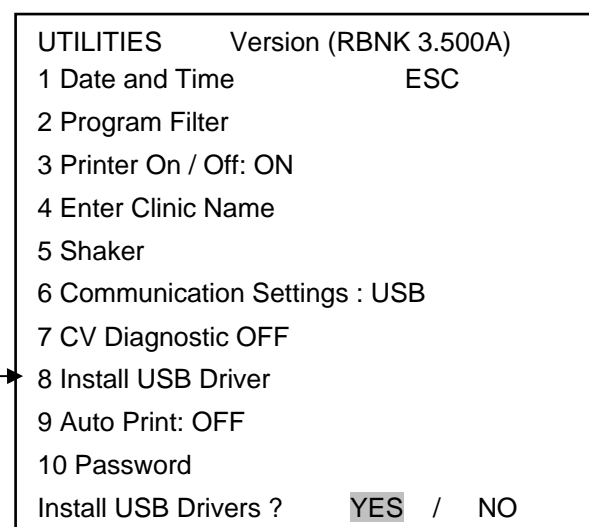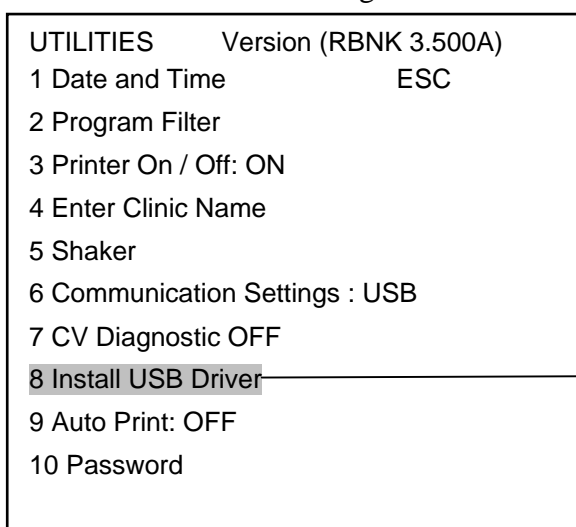
```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time              ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time              ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : SERIAL
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

This setting is very important, whenever you want to transfer data from instrument to computer. You can transfer data either using USB or by Serial RS232 cable.

NOTE: The option 7. "CV Diagnostic OFF" is not for users. It is for factory use only.

15.8. Install USB Driver:

This option present in the Utilities helps the user to install the USB Drivers in their respective computers. Remember that before installing the USB drivers you must first switch on to the USB communication settings.

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time              ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time              ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
Install USB Drivers ?        YES   /   NO
```
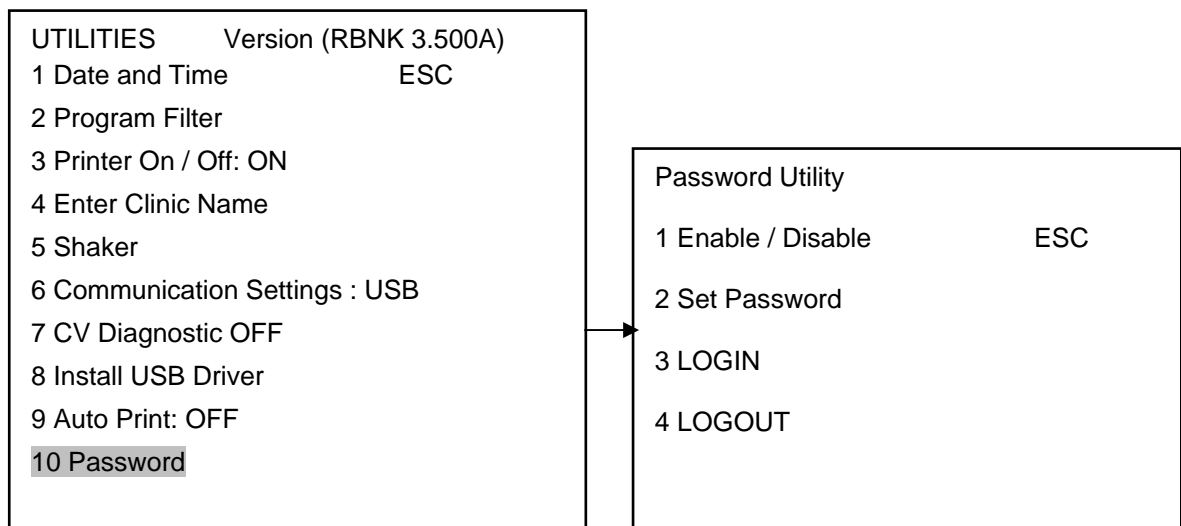
15.9. Auto Print: ON

It is a toggle key between Auto Print: ON and Auto Print: OFF.

After completing the running process it automatically takes the print of the result and its graph if any in order to maintain the record of the plate run in the form of hard copy.

Auto Print is active in all modes excluding ABS mode. For Auto Print, user must set the printer ON otherwise it will display the error string "Disable printer YES / NO?"
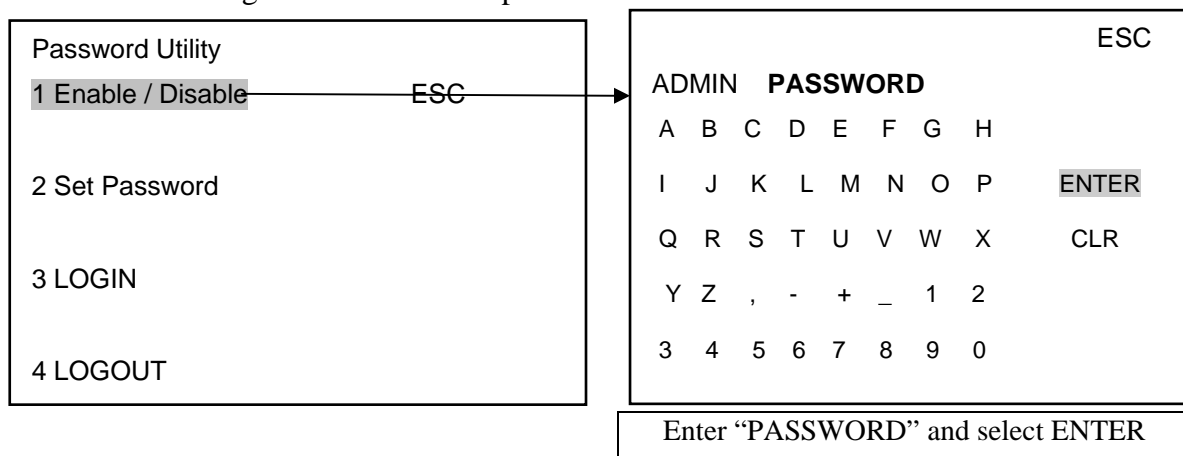
15.10. PASSWORD:

Select Password option in order to Set the Password so that one can't ADD, EDIT, DELETE and SEND / RECEIVE Test records without entering the valid Password.

```
UTILITIES      Version (RBNK 3.500A)
1 Date and Time                 ESC
2 Program Filter
3 Printer On / Off: ON
4 Enter Clinic Name
5 Shaker
6 Communication Settings : USB
7 CV Diagnostic OFF
8 Install USB Driver
9 Auto Print: OFF
10 Password
```

```
Password Utility

1 Enable / Disable              ESC

2 Set Password

3 LOGIN

4 LOGOUT
```

15.10.1. ENABLE / DISABLE:

Enable / Disable helps the user to set the Password or Remove the Password from the Password Utility. Enter Password with the help Alphanumeric screen which is displayed after selecting Enable / Disable option.

```
Password Utility

1 Enable / Disable        ESC

2 Set Password

3 LOGIN

4 LOGOUT
```

```
                                    ESC
ADMIN   PASSWORD
A  B  C  D  E  F  G  H
I  J  K  L  M  N  O  P      ENTER
Q  R  S  T  U  V  W  X       CLR
Y  Z  ,  -  +  _  1  2
3  4  5  6  7  8  9  0
```
Enter "PASSWORD" and select ENTER

15.10.2. SET PASSWORD:

This option helps to set the PASSWORD along with the USER name.

```
Password Utility

1 Enable / Disable          ESC

2 Set Password

3 LOGIN

4 LOGOUT
```

```
ADMIN   PASSWORD

A   B   C   D   E   F   G   H

I   J   K   L   M   N   O   P        ENTER

Q   R   S   T   U   V   W   X        CLR

Y   Z   ,   -   +   _   1   2

3   4   5   6   7   8   9   0
```

Enter "PASSWORD" and select ENTER

```
USER    MEDICARE

A   B   C   D   E   F   G   H

I   J   K   L   M   N   O   P        ENTER

Q   R   S   T   U   V   W   X        CLR

Y   Z   ,   -   +   _   1   2

3   4   5   6   7   8   9   0
```

Enter appropriate USER name and select ENTER
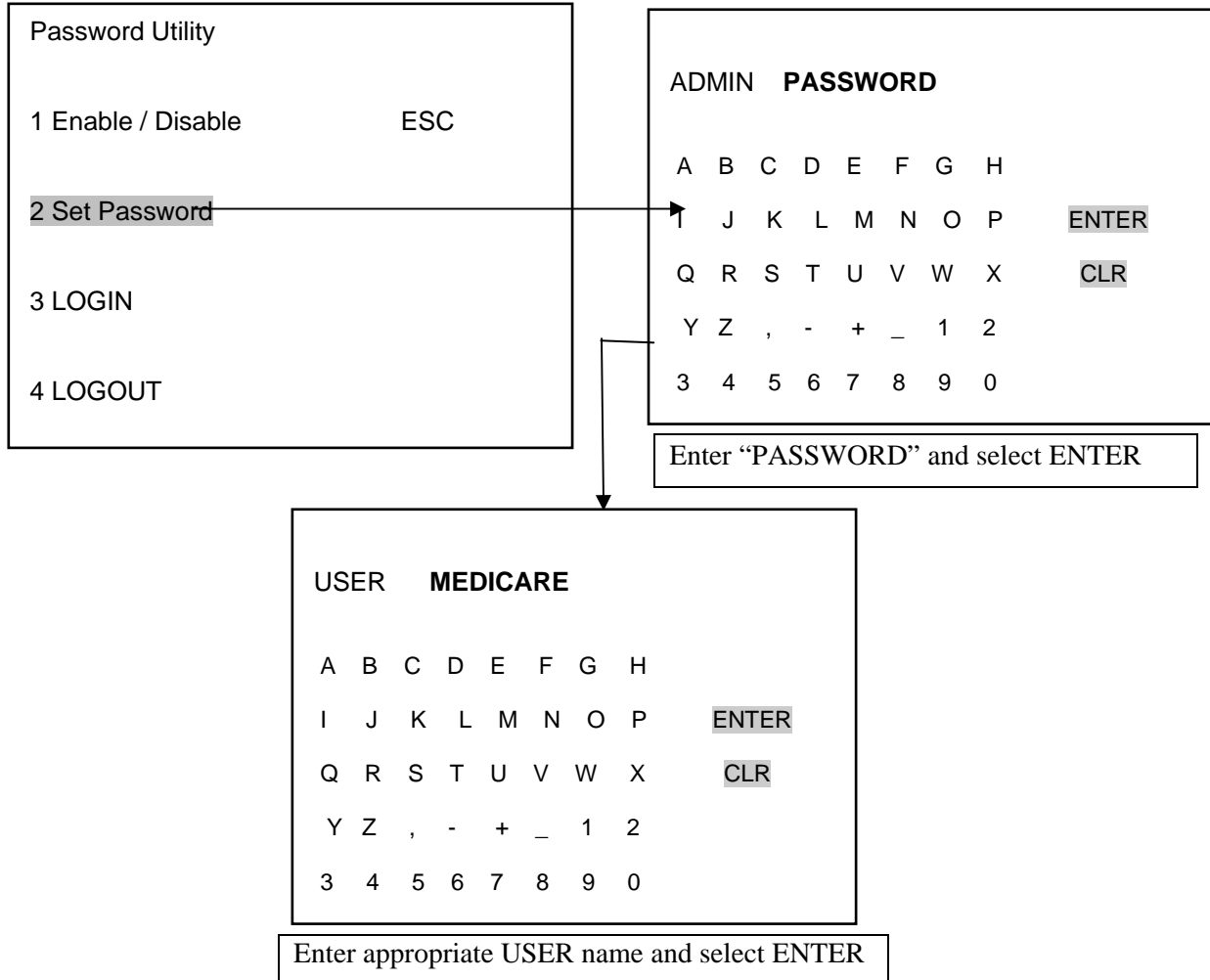
15.10.3. LOGIN:

After entering the Password user needs to select LOGIN.

```
Password Utility

1 Enable / Disable          ESC


2 Set Password


3 LOGIN


4 LOGOUT
```

```
USER    MEDICARE


A  B  C  D  E  F  G  H

I  J  K  L  M  N  O  P      ENTER

Q  R  S  T  U  V  W  X      CLR

Y  Z  ,  -  +  _  1  2

3  4  5  6  7  8  9  0
```

To Login/ enable user, enter the USER name and select ENTER

15.10.4. LOGOUT:

```
Password Utility

1 Enable / Disable          ESC


2 Set Password


3 LOGIN


4 LOGOUT
```

```
Password Utility

1 Enable / Disable          ESC


2 Set Password


3 LOGIN


4 LOGOUT
Logout
```

To Logout / disable user, select LOGOUT option
present on the screen

16. SERIAL COMMUNICATION

The instrument is equipped with an RS232 serial port for PC configuration ie. User-computer interface. A cable is available to link the instrument to PC.

RS232 DB9 (EiA/TIA 574)
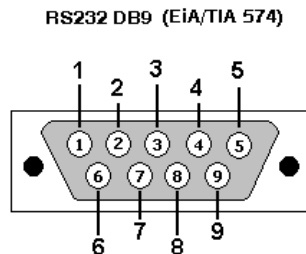
Communication will only start when both ends detect the presence of an active terminal or device.

RS232 port settings in a windows Operating system.

```
PORT SETTINGS

Bits per second   : 9600

Data Bits         : 8

Parity None       : None

Stop Bits         : 1

Flow control      : None
```

There is an option present on the Main menu screen named as SERIAL Communication which is used for transferring data from instrument to the computer and also from instrument to instrument.

```
MAIN MENU            ESC

1. Test Operations

2. Technical Diagnosis

3. Utilities

4. View Plate

5. Serial communications
```

16.1. Send Results:

SEND RESULTS helps the user to transfer all the Results stored in the instrument to the computer via Serial Communication.

Results can be send either through USB or SERIAL communication.

Before Sending the Results check whether the Serial cable / USB cable is connected to both the ends of the instrument and the computer respectively.

```
MAIN MENU
1. Test Operations              ESC
2. Technical Diagnosis
3. Utilities
4. View Plate
5. Serial communications
```

```
SERIAL COMM.
                                ESC
1 Send Results
2 Send Test Records
3 Receive Test Records
```

```
SERIAL COMM.          ESC
1 Send Results
2 Send Test Records
3 Receive Test Records




Sending…..
```

```
SERIAL COMM.              ESC
1 Send Results
2 Send Test Records
3 Receive Test Records




Send Results?       YES  /   NO
```
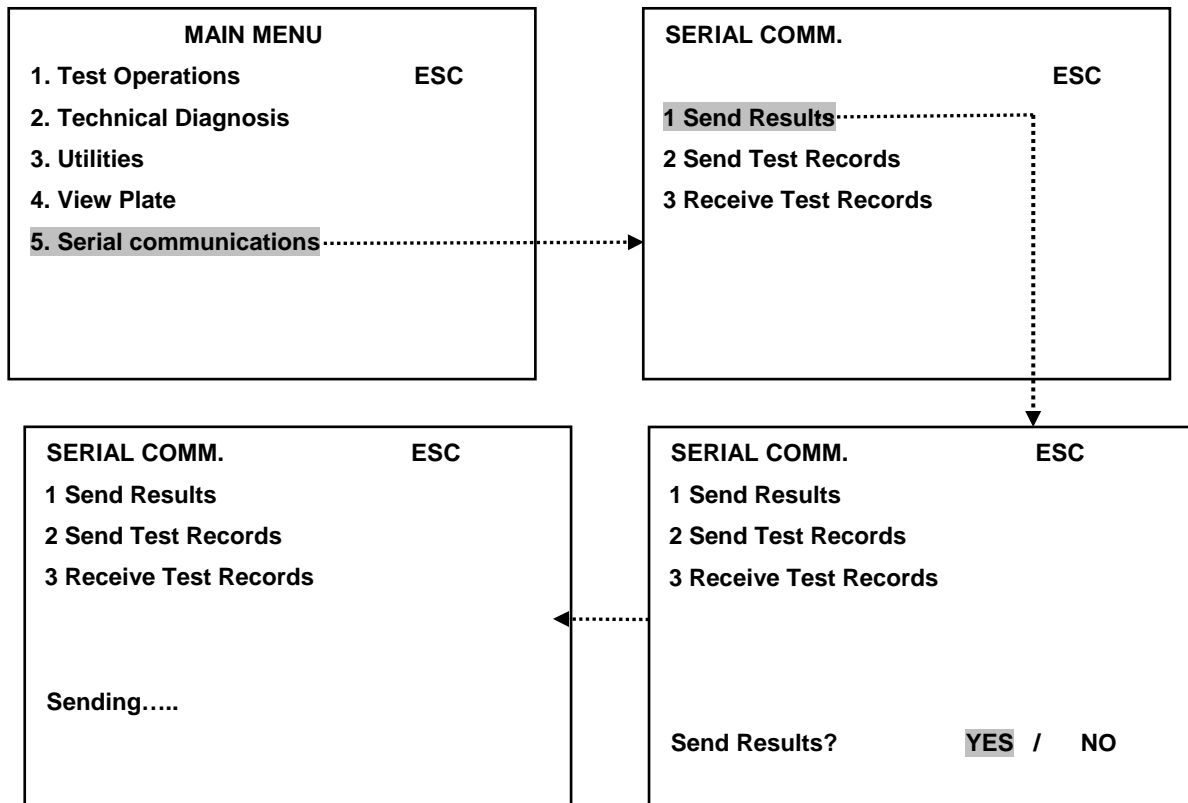
These Results are send through Application which are created in ".csv" format, Convert the corresponding format to Excel file which is created as shown below –

16.2. Send Test Records:

This option helps the user to send the Test Records created in one instrument to another instrument serially with the help of serial cable. And therefore one has to select serial communication in Utilities.
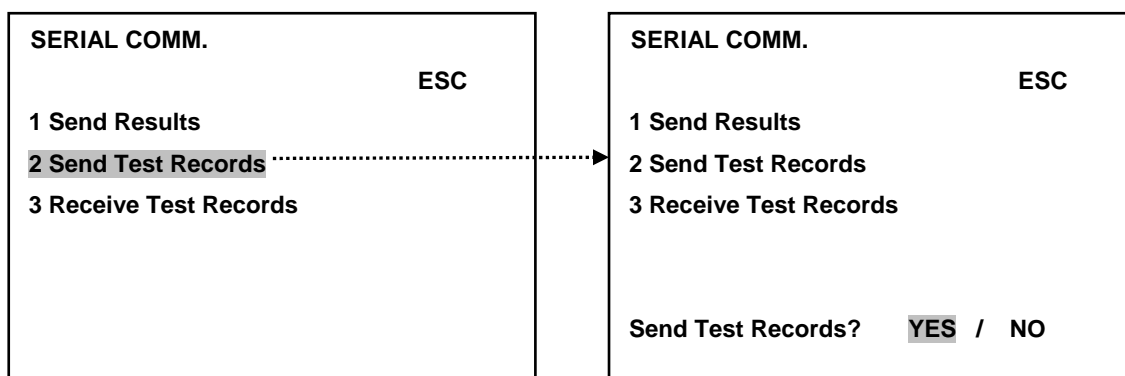
Suppose by default if Serial Communication is set to USB then it will display following screen with msg string.

```
SERIAL COMM.                        ESC
1 Send Results
2 Send Test Records
3 Receive Test Records




   Invalid in USB communication !!!
```
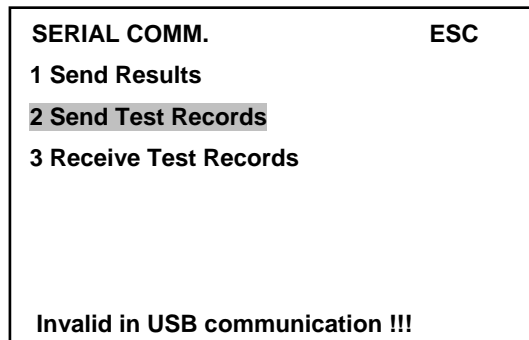
16.3. Receive Test Records:

This option is used for receiving the Test Records from one instrument to another. On selecting "Receive Test Records"; it will display the string – Download Test Records? Yes / No. Select "Yes" in order to receive the data from the other instrument.

```
SERIAL COMM.                               SERIAL COMM.
                    ESC                                          ESC
1 Send Results                             1 Send Results
2 Send Test Records                        2 Send Test Records
3 Receive Test Records  ·············▶      3 Receive Test Records



                                           Download Test Records ?   YES  /  NO
```
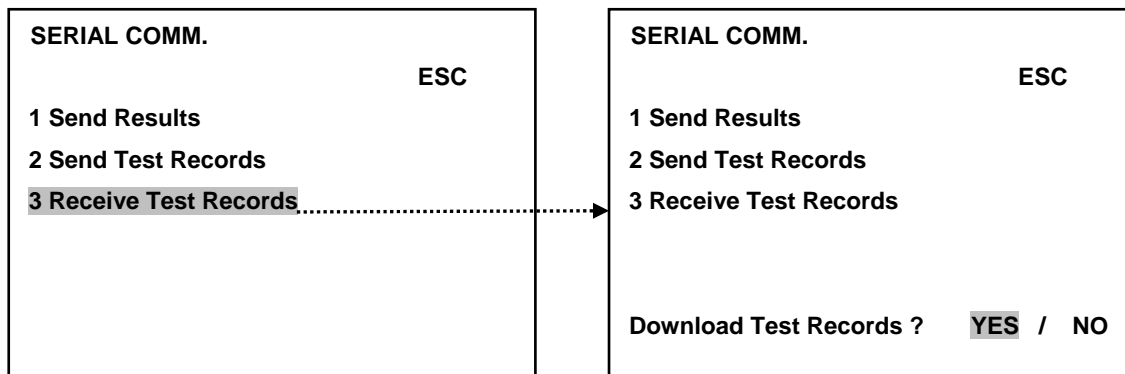
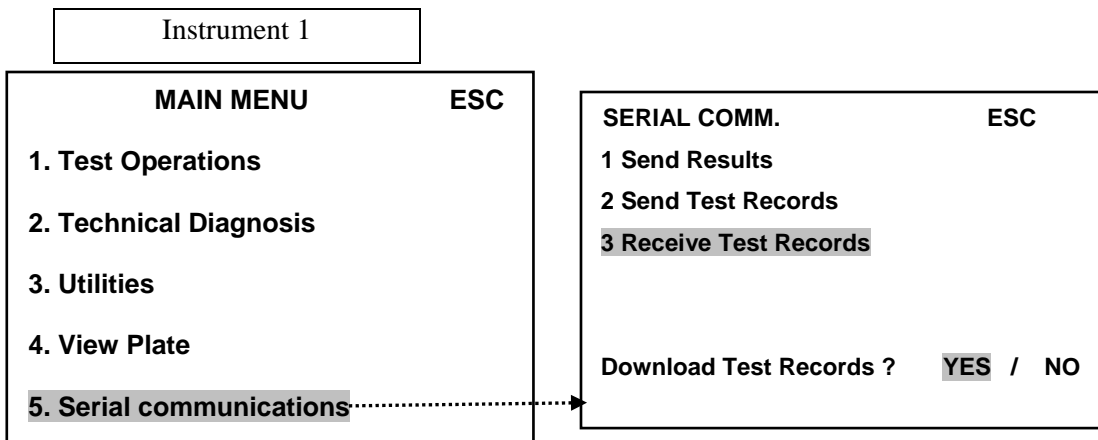 Note: 1. User must first restart the instrument before sending the data from one instrument to
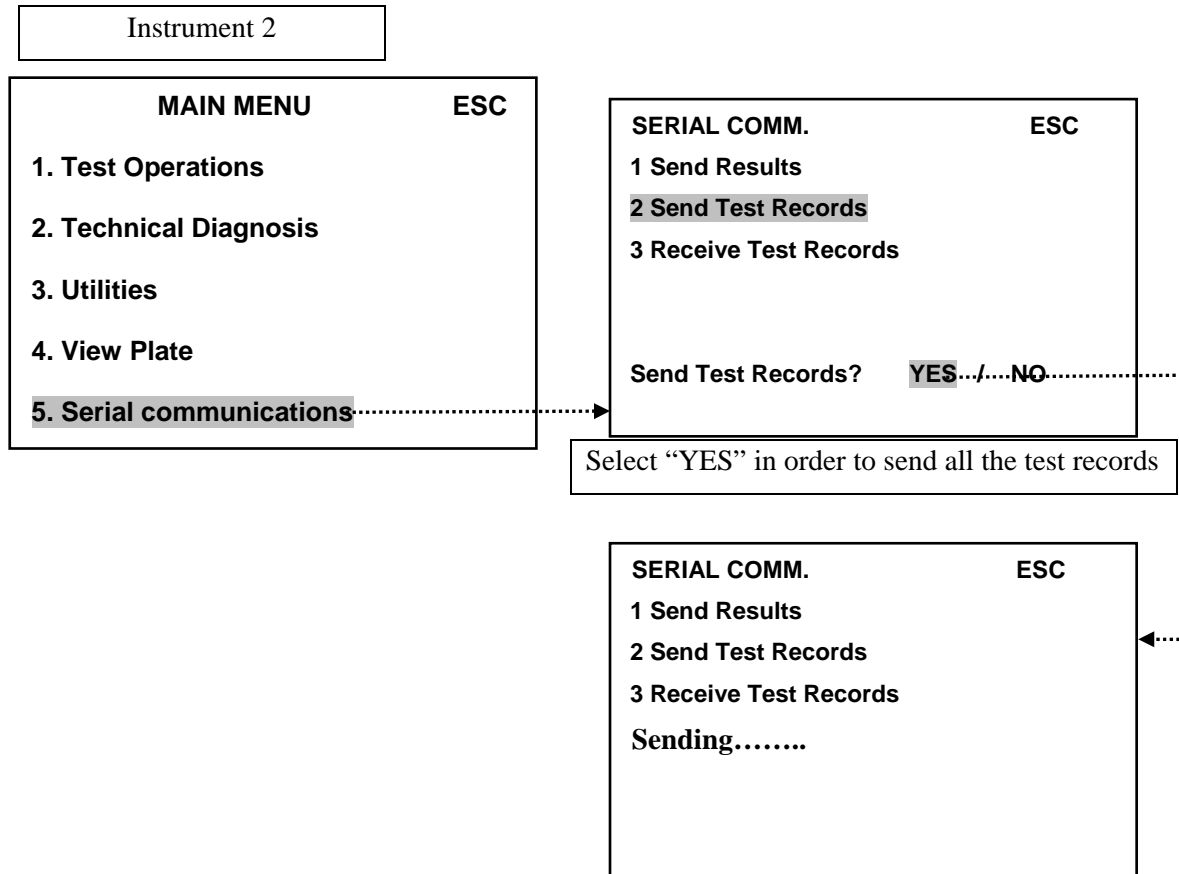   another.
      2. Remember that while transferring Test Records from one instrument to another
        one must first select "Receive Test Records" and then select
        "Send Test Records" in order to send the data from one instrument to another.
For instance, let us take an example which will show how the Test Records are
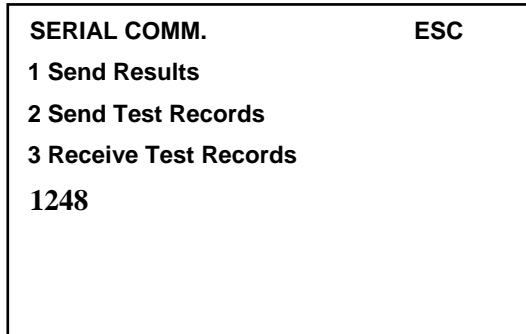transferred from instrument to instrument.

Let "Instrument 1" resemble the screen of the Instrument which will receive the Test
Records from other instrument. And "Instrument 2" resemble the screen of the
Instrument which will send the Test Records to other instrument.

Instrument 1

```
        MAIN MENU            ESC          SERIAL COMM.              ESC

  1. Test Operations                     1 Send Results

  2. Technical Diagnosis                 2 Send Test Records

  3. Utilities                           3 Receive Test Records

  4. View Plate

  5. Serial communications ········►     Download Test Records ?   YES  /   NO
```

Now for Sending Test Records switch on to Instrument 2.

Instrument 2

```
        MAIN MENU            ESC          SERIAL COMM.              ESC

  1. Test Operations                     1 Send Results

  2. Technical Diagnosis                 2 Send Test Records

  3. Utilities                           3 Receive Test Records

  4. View Plate

  5. Serial communications ········►     Send Test Records?    YES / NO
```

Select "YES" in order to send all the test records

```
                                         SERIAL COMM.              ESC

                                         1 Send Results

                                         2 Send Test Records

                                         3 Receive Test Records

                                         Sending……..
```

And similarly, Instrument 1 will display the following screen which denotes that the instrument is downloading the Test Records.

```
SERIAL COMM.                    ESC
1 Send Results
2 Send Test Records
3 Receive Test Records
 1248
```
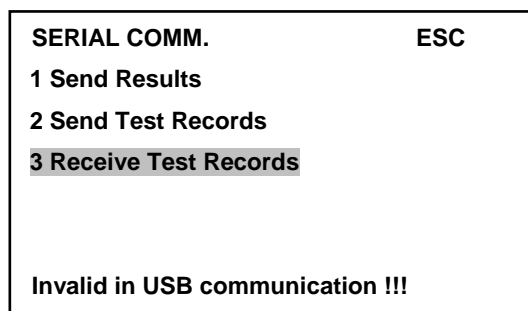
After completing the process of transferring the data, one must restart both the instrument and check for the data transferred between the instruments

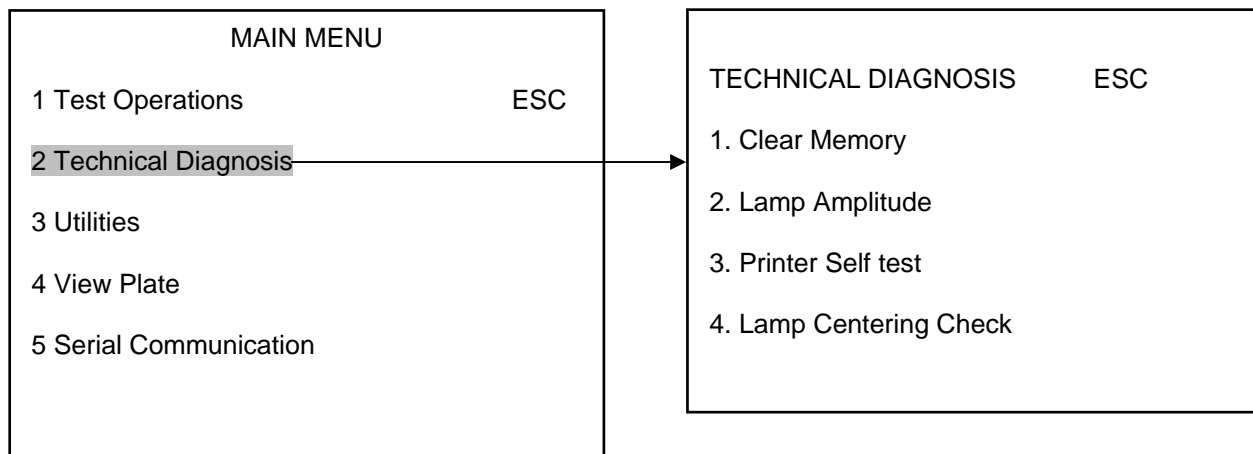In this way, one can transfer Test Records from instrument to instrument.

3. User can Send and Receive the Test Records only through serial cable and therefore one has to set the **Serial Communication: SERIAL** in Utilities.

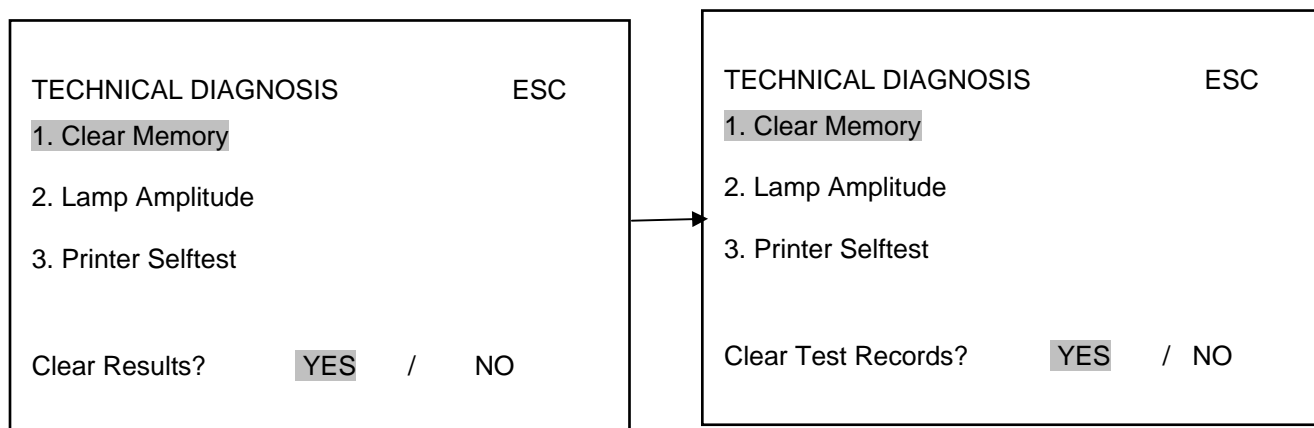If Serial Communication is set to USB, then it will display following screen –

```
SERIAL COMM.                    ESC
1 Send Results
2 Send Test Records
3 Receive Test Records


Invalid in USB communication !!!
```

17.   TECHNICAL DIAGNOSIS

Technical Diagnosis is present in "Main Menu".

MAIN MENU		TECHNICAL DIAGNOSIS ESC
1 Test Operations ESC		1. Clear Memory
2 Technical Diagnosis	→	2. Lamp Amplitude
3 Utilities		3. Printer Self test
4 View Plate		4. Lamp Centering Check
5 Serial Communication		

17.1. Clear Memory

This option is used to clear entire saved Test Records and Patient Results along with saved plates. The "Test Records" are the different kind of programmed test that are made in different modes of operation and saved in instrument program memory.
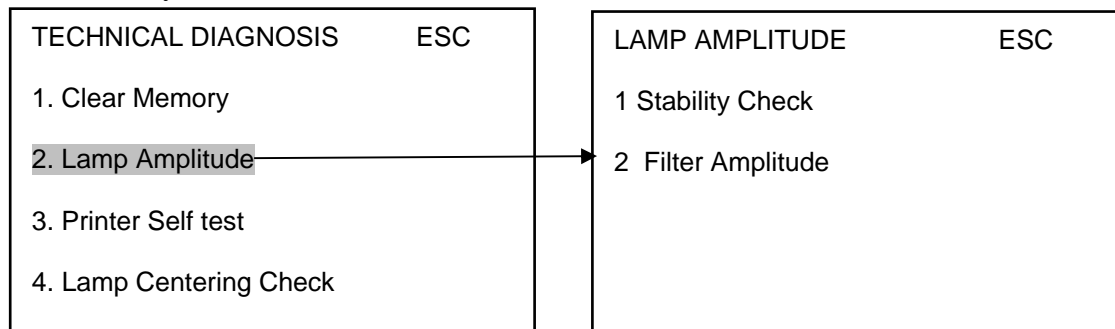
TECHNICAL DIAGNOSIS ESC		TECHNICAL DIAGNOSIS ESC
1. Clear Memory		1. Clear Memory
2. Lamp Amplitude		2. Lamp Amplitude
3. Printer Selftest	→	3. Printer Selftest
Clear Results? YES / NO		Clear Test Records? YES / NO

Select "Clear Memory", it will display the message string "Clear Results? Yes / No". Select "Yes" in order to clear the Results stored in the memory. This will only clear the Patient Results and Plate Results stored in the memory by displaying the message "Clearing Memory…." Similarly, another message string "Clear Test Records? Yes /No" will be displayed on the screen. These records are the Tests created in the particular modes. Select "Yes" to delete the Test Records stored in the memory.
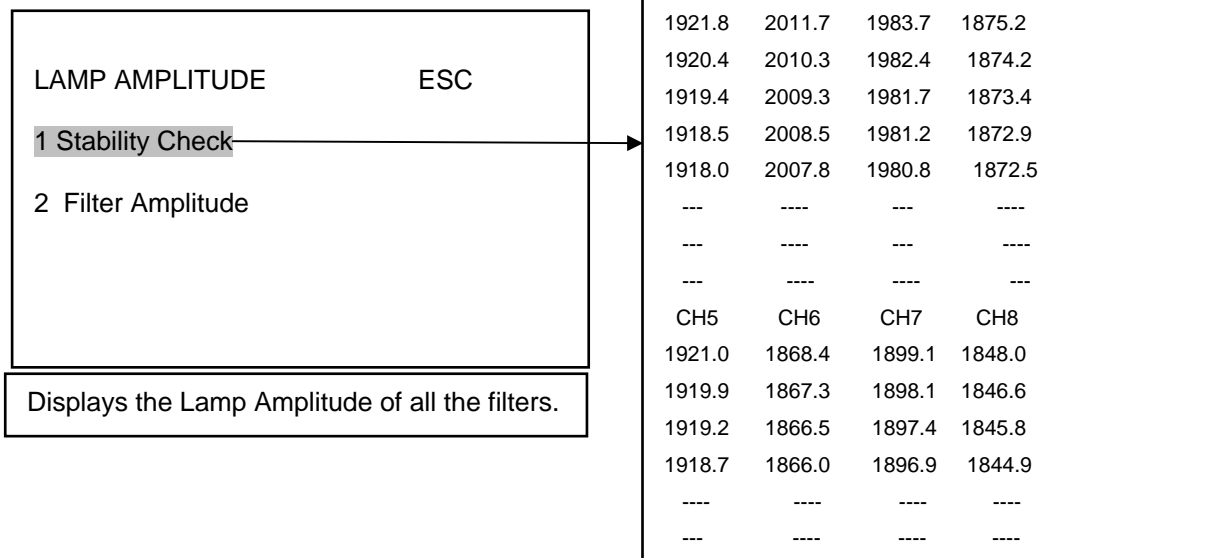
17.2. Lamp Amplitude

This option is used to check the light gain of filters used in the instrument. There are 8- channels used of same type. This option shows the gain of each channel filter in table format. In the

instrument the range of amplitude is from 600.00 to 2450.00. If the amplitude goes below 600.00 for any channel, the message "Amp –Low" will appear on the screen for that particular channel if the amplitude goes more than 2490.00, than the over range saturation voltage figure of 2500.00 will be passed.

The gains of filters are set within a required range. When you select this option, the lamps will turn ON, tray holder plate will comes out and the instrument will start showing amplitudes (gains) of all filters one by one.

```
TECHNICAL DIAGNOSIS        ESC

1. Clear Memory

2. Lamp Amplitude

3. Printer Self test

4. Lamp Centering Check
```

```
LAMP AMPLITUDE               ESC

1 Stability Check

2  Filter Amplitude
```

1. Stability Check:

```
LAMP AMPLITUDE               ESC

1 Stability Check

2  Filter Amplitude
```

```
Displays the Lamp Amplitude of all the filters.
```

```
Filter : 560                          ESC
  CH1      CH2      CH3      CH4
1921.8    2011.7   1983.7   1875.2
1920.4    2010.3   1982.4   1874.2
1919.4    2009.3   1981.7   1873.4
1918.5    2008.5   1981.2   1872.9
1918.0    2007.8   1980.8   1872.5
 ---       ----     ---      ----
 ---       ----     ---      ----
 ---       ----     ----     ---
  CH5      CH6      CH7      CH8
1921.0    1868.4   1899.1   1848.0
1919.9    1867.3   1898.1   1846.6
1919.2    1866.5   1897.4   1845.8
1918.7    1866.0   1896.9   1844.9
 ----      ----     ----     ----
 ---       ----     ----     ----
```

2. Filter Amplitude:

```
LAMP AMPLITUDE              ESC

1 Stability Check

2  Filter Amplitude
```

→

```
LAMP AMPLITUDE                    ESC

1 Stability Check

2  Filter Amplitude
Select Filter Val:
0           405         450

492         630         NA

 NA         560         YYY
```

Displays the Lamp amplitude of a single selected filter.

↓

```
Filter : 560                                 ESC
  CH1       CH2        CH3       CH4
 1997.6    1869.1     2042.2    2014.2
 1997.5    1868.9     2042.3    2014.3
 1997.2    1868.9     2042.3    2014.5
 1997.1    1868.9     2042.5    2014.6
 1997.0    1868.7     2042.6     2014.7
  ---       ----       ---       ----
  ---       ----       ---       ----
  ---       ----       ----       ---
  CH5       CH6        CH7       CH8
 1904.8    2007.7     1891.1    1935.2
 1904.7    2007.7     1891.1    1934.9
 1904.9    2007.7     1891.2    1935.0
 1905.1    2007.9     1891.3    1934.9
  ----      ----       ----      ----
  ---       ----       ----      ----
```

17.3. Printer Self test

It is used to check the printing of thermal printer. Is it printing perfectly or not?

When you select this, it will print first two lines of Technical Diagnosis Screen**.**

17.4. Lamp Centering Check:

NOTE: "Lamp Centering Check" is not for users. It is only for service purpose.

18. Trouble Shooting

	CAUSE /CORRECTIVE ACTION
1) Printer disabled Disable Printer YES / NO?	You will get this message, if paper is not loaded properly or lever is not at correct position. Check all possibilities. Also check ON LINE and FEED LED glowing or not and when you switch 'ON' the instrument check paper is moving forward or not. If LEDs are not glowing and paper is not moving forward contact service engineer.
2) "Check Light Path!!! CH x" Where 'x' is any channel number X = 1/2/3/4/5/6/7/8	You can get this message in any mode of operation. Before reading absorbance, instrument is checking the filter reference voltages of all 8 channels. If filter voltage of any channel is less than minimum required voltage, it will display a message "Check Light Path!!! CH x". Here 'x' is channel numbers having reference voltage less than minimum required. For ex. If reference voltage of channel 3 is less the message will be displayed "Check Light Path!!! CH 3". It will indicate all channel numbers having less reference voltage, like "Check Light Path!!! CH 1 3 6 " In such a case, there is a possibility of filter gain of that channel is reduced or intensity of lamp of that channel has become poor, so contact factory engineer.
3) Invalid Assay	If in the Cut Off and Multi standard mode the controls and standards are not ok then this error message will appear.
4) Memory Full	If Number of saved tests exceeds the memory limit of 250 tests then delete the unwanted tests and save the test.
	Using data receiving application on computer, 1) If you have not connected the data cable (USB or Serial) correctly, you will get this message. 2) If you have selected 'Communication Setting' (ref. 14.5), USB on instrument, and you have selected a

5) "Check USB Application on Computer Do you want to continue? YES / NO**"**	'Serial' communication on computer data receiving application, you will get this message. In such a case select 'USB' communication, on computer and select 'YES' key to transfer data. To avoid this message, connect proper data cable, select the same communication medium (USB or Serial), on computer data receiving application, which you have selected on instrument 'Communication Setting'.
6) Filter Movement Error!!! OR Filter Index Error!!!	Instrument will display this message, if there is problem with MOC sensor PCB or with filter tray stepper motor. The MOC sensors are used to detect the position of filter tray. These two sensors are mounted on bottom of the mechanism. One detects the home position and second detects the each filter position of filter tray. In such a condition we need to check the connection to these sensor and also the connection of stepper motor, which is used to move filter tray.
7) Plate Movement Error!!! OR Plate Index Error!!!	Instrument will display this message, if there is problem with MOC sensor PCB or with plate carrier stepper motor. The MOC sensors are used to detect the position of plate carrier. These two sensors are mounted on top of the mechanism. One detects the home position and second detects the each strip position of plate carrier. In such a condition we need to check the connection to these sensor and also the connection of stepper motor, which is used to move plate carrier.

19. DECONTAMINATION

19.1. Decontamination Procedure

If the instrument is to be shipped after being exposed to potentially hazardous material, it should be decontaminated. The following procedure outlines the method of decontaminating the instrument before packaging and shipment.

19.2. Purpose of Decontamination

Decontamination minimizes the risk to all who come in contact with the instrument during shipping, handling, and servicing.

19.3. General Considerations

- Any laboratory instrument that has been used for clinical analysis is considered a biohazard and should be decontaminated prior to handling. Intact skin is generally considered an effective barrier against infectious Organisms; however, small abrasions and cuts may not be always being visible. Prophylactic gloves must be worn when handling instruments that have not been decontaminated. Gloved hands should be considered contaminated at all times and must be kept away from eyes, mouth and nose at all times.

- Mucous membranes are considered prime entry routes for infectious agents. Wear eye protection and a surgical mask when there is a possibility of aerosols.

- Eating and drinking while decontaminating instruments is not advisable.

19.4. Procedure

- A solution of .5% Sodium Hypo Chlorite (NaOCL) solution (Bleach) is used. Commercial bleach is 5% NaOCL; household bleach is 3% NaOCL. When using commercial bleach, use a 10:1 mixture; if using household bleach, a 6:1 mixture is required. This is a caustic solution. It is important to wear gloves and eye protection when handling it.

- Wipe down the carrier and all exposed surfaces of the unit with the bleach solution. Remove the top shroud of the instrument and wipe down the top surface of the instrument base, as well as the inside of the top shroud.

- Reassemble the unit and discard the used gloves and towels.

20. SAFETY CLEARANCE CERTIFICATE

Please complete all information requests on this form prior to returning the instrument to   the manufacturer or your local distributor for servicing, repairs or return. Thank you for your co-operation.

Customer_____   Contact_____

Address ————————————————   Position————————————

Dept   _____   _____

Tel: _____   _____

Country ————————————————   Fax:————————————
Post Code _____

Model No. _____   Serial No. _____

Accessories
Returned
           _____

Date of Purchase (if known)
                _____

Complaint
           _____
_____
_____
_____

Has the equipment been exposed to any of the following: (*delete as applicable)

a) Blood, body fluids, pathological specimens   *YES/NO

If YES, please specify_____

_____

b) Other Biohazard   *YES/NO

If YES, Please specify
                _____

_____