

LabTec™

Methadone Dispenser

Manual

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Important Information:

SciLog has implemented a LabTec re-furbishing and loaner program. Sent in your LabTec Methadone Dispenser to SciLog for pump head cleaning and seal replacement. The service also includes functional testing, calibration as well as a written performance validation. The typical turn-around time for LabTec repairs is 2-5 days. You can rent a LabTec loaner from SciLog while your unit is being repaired. Contact SciLog at 1-800-955-1993 for shipping instructions.

Methadone dispensing by weight significantly reduces the end-of-day Methadone inventory discrepancies which frequently result from room temperature changes (causing changes in Methadone volume) and/or poorly executed pump calibrations. The recent software developed by SciLog allows Methadone dispensing by weight which greatly reduces Methadone inventory problems. In addition pump calibrations are not necessary when you dispense Methadone by weight.

However, an Ohaus "Explorer" balance hook-up is required. You need model 4001, 0.01gram readability (SciLog P/N: 100-4001B), as well as a RS-232 cable (SciLog P/N: 080-066). When you purchase the Ohaus balance from SciLog, all necessary balance parameters are already installed. Simply connect the Ohaus balance to the your LabTec and start dispensing.





The Smart Pump Company

Start-up: "Dispensing Methadone by Volume using a LabTec"

Equipment: You will need the following items to get started:

SciLog P/N	Description	Quantity
100-542METH	LabTec FM520 Methadone Dispenser	1 pc
080-073	RS232 Cable to Interface Smart pump to PC	1 pc
400-001	Stainless Steel Sinker	1 pc
400-216	Tygon size #16 Tubing	50 ft (1 pkg)
400-420	Stand and Clamps	1 set
400-492	Dispensing Tips, 5/pkg.	1 pkg
	Appropriate Methadone Reservoir	1 pc

Hardware Setup:

1. Unpack all the components, visually identify and inspect for damage.
2. At the dispensing station, place the Methadone reservoir to the far left, the LabTec to its right and the stand and clamps to the right of the LabTec. Position the dispensing tip over the appropriately sized container.
3. Connect the LabTec to the PC using the RS232 Interface Cable (p/n 080-073). Plug the 9 pin female end marked "PC" to the com port on the rear of the PC, and the 9 pin male end to the port on the rear of the LabTec marked "Printer".
4. Plug in and power up the LabTec.
5. Cut 2 pieces of the #16 Tygon tubing each 3-4 feet in length. One should be long enough to reach from the bottom of your Methadone reservoir to the pump, and the other from the pump to your dispensing stand without stretching or kinking.
6. Install the Sinker on the end of the tubing that goes in the Methadone bottle so that it is held at the bottom of the bottle. Insert the other end in the port on the pump head that is low on the left side all the way to the bottom of the port and tighten the nut.
7. Install the dispensing tip on one end of the other piece of tubing. Mount that end of the tubing in the clamp stand and position it so that it is just above the container. Fasten the tubing to the upright of the clamp stand with a cable tie or twist tie to stabilize it. Insert the other end of the tubing in the port on the pump head that is high on the right side. As above, insert it all the way to the bottom of the port and tighten the nut.
8. The unit will now communicate with your Treatment Program Software on the computer, and you should use their priming procedures to prime the unit with distilled water and be sure there are no leaks.

Program Editing and Execution:

Prior to shipment, each LabTec unit is factory calibrated utilizing a high-precision balance with a readability of 0.01 grams. A performance validation data sheet is enclosed with every LabTec unit. This performance validation data sheet summarizes the calibration data at 10.00 ml as well as the pump accuracy and reproducibility at 20.00 ml, 5.00 ml and at 2.00 ml.

1. When you first turn the unit on, it should power up in Serial Mode, and display the following:

SERIAL	CW	160.0ml/m
DOSE=106ml	TIME=05s	
A	B	C

2. If instead the following screen is seen, press the "C" button to Select, and the "A" button to Execute the Serial Mode, and the display will change to that shown above.

Mode Selct		SERIAL
Up	Down	Select
A	B	C

- SERIAL -		
Exec	Edit	Exit
A	B	C

Once the display shown in #1 above is shown on the unit, you are ready to use the priming, dispensing, maintenance and calibration procedures as outlined by the Treatment Program Software or your individual clinic. This is not meant to replace those procedures.

Pump Head Cleaning and Maintenance:

Cleaning the Pump Head: Flushing the pump head with distilled water before shutdown will suffice for most Methadone Clinics. Alternatively, you can also use a 50:50 mixture of distilled water and isopropyl alcohol (IPA) or an Alconox solution for cleaning purposes. Please be sure the Alconox is thoroughly dissolved before flushing the pump. Steam-distilled water can be purchased in larger food stores.

For cleaning purposes, you must pump the cleaning solution through the pump for 3-4 minutes and until the cleaning solution appears clear at the discharge port of the pump. If using Alconox or alcohol, a final 1-2 minute flush with distilled water is needed. Stop the pump and leave the distilled water in your pump head. Please do not leave Alconox in the pump head overnight. Do not remove the tubing from the distilled water until you are ready to prime the pump with Methadone the following day. **Do not leave Methadone in the pump head overnight. Preventive maintenance is very valuable and ensures a long operational pump life.**

NOTE: Never use tap water for flushing, the water "hardness" associated with most tap water supplies will cause the pump head to "freeze", i.e. the pump head becomes inoperable. If the LabTec unit is not used frequently or is to be stored for an extended period of time, use the cleaning procedure outlined above then fill a 12" piece of tubing with cleaning solution, connect the tubing between the pump inlet and outlet. Turn the pump on for a brief period to ensure the

pump head is filled with cleaning solution. This simple procedure prevents the pump head from drying out and thus remains operable for a long time.

SciLog has implemented a LabTec re-furbishing and loaner program. Send in your LabTec Methadone Dispenser to SciLog for pump head cleaning and seal replacement at least once a year to maintain its performance. The service also includes functional testing and calibration, as well as a written performance validation. The typical turn-around time for LabTec repairs is 2-5 days. You can rent a LabTec loaner from SciLog while your unit is being repaired. Contact SciLog at 1-800-955-1993 for shipping instructions and /or a Fax-Back Form for the program.

Calibration:

Prior to shipment, each LabTec unit is factory calibrated utilizing a high-precision balance with a readability of 0.01 grams. A performance validation data sheet is enclosed with every LabTec unit. This performance validation data sheet summarizes the calibration data at 10.00 ml. as well as the pump accuracy and reproducibility at 20.00 ml., 5.00 ml. and at 2.00 ml. Five measurements are made for each volume setting. The Average Dispensed Volume, the Standard Deviation (SD) as well as the Relative Standard Deviation (RSD) are calculated and are included in the Performance Validation data sheet. The Performance Validation Data shown below should be used as a "Bench Mark" in assessing the quality of your calibration data. For your calibrations use the following procedure:

1. Dispense five 10.00 ml. aliquots, weigh each aliquot (10.00 ml. of water weighs 10.00 gr.) on a balance, determine the average weight for the five aliquots. (Add up the five aliquot weights and divide the sum by five, this is your average aliquot weight.)
2. If the average aliquot weight is either larger than 10.05 gr. or smaller than 9.95 gr., you adjust the black, knurled Adjustment Ring by turning it *clockwise* to decrease the pump output. Alternatively, you turn the black, knurled Adjustment Ring *counter-clockwise* to increase the pump output.
3. For example, if your average aliquot weight is 9.80 gr., your accuracy is off by 0.20 gr. or 2%. Therefore, you must turn the black, knurled Adjustment Ring counter-clockwise from 200 to 204 to increase the pump output by 2%.

On the other hand, if your average weight is 10.50 gr. your accuracy is off by 0.5 gr. or 5%. Thus, you must turn the black, knurled Adjustment Ring clockwise from 200 to 190 to decrease the pump output by 5%.

4. After you have modified the Adjustment Ring position, dispense at least three 10-ml aliquots to check the improved dispensing accuracy. If necessary, repeat the procedure outlined in step 3 until your results are within the 9.95 gr. to 10.05 gr. range.
5. **Y-Intercept Adjustment:** (The following applies only to LabTec software V1.38AMS or higher). After you have completed the calibration at 10.00 ml., dispense three (3) aliquots of 2.00 ml. Calculate the average value for these three aliquots. If the average value is not 2.00 ml. +/- 0.03, you must adjust the Cal-Offset (see SETUP: Cal-Offset). Increase the Cal-Offset if the calculated average value is below 2.00 ml, decrease the Cal-Offset if the calculated average value is above 2.00 ml.

For example, if the average value is too large by 10%, then decrease the Cal-Offset by 10%. If the average value is too small by 10%, then increase the Cal-Offset by 10%.

6. Without making any further adjustments, the LabTec is now ready for dispensing any volume from 20.00 ml. to 2.00 ml. with high precision and accuracy. The following represents typical performance data:

	Dispensed Volume			
	20ml	10 ml(Cal)	5 ml	2 ml
1.	20.04	10.01	5.00	1.98
2.	20.05	9.99	5.01	1.97
3.	20.05	10.02	4.99	1.97
4.	20.05	10.02	4.98	1.98
5.	20.03	10.01	4.99	1.99
Ave:	20.04	10.01	4.99	1.98
SD:	0.01	0.01	0.01	0.01
RSD:	0.04%	0.12%	0.23%	0.42%

7. **Calibration Tools:** For volumetric calibration of the pump, the use of an electronic top-loading balance is strongly recommended. Use a convenient container, tare the balance with the container, and then dispense your calibration aliquot (e.g 10.00 ml.). Weigh the container plus aliquot, obtaining the weight of the aliquot off the balance. Write down the weight of the aliquot, i.e. 10.05 grams. Repeat the measurement and determine the average aliquot weight.

Caution: Do not use a graduated cylinder for calibration. Significant accuracy and precision errors will be introduced if you attempt to calibrate with a graduated cylinder.

LabTec Serial Mode: *Utility Program Statements*

LabTec Methadone Dispensers with installed software V1.38AMSW or higher can be controlled from a PC via the (Printer) RS-232 port. A SciLog RS-232 cable (P/N: 080-073) is required for interfacing the dispenser to your PC.

Use the directions provided in the "V1.38 Terminal Settings" document for setting communications parameters in the "Terminal" or "Hyper-Terminal" of your PC.

The LabTec Methadone Dispensers are serially controlled with a fixed command set. Each command must be followed by a carriage return and a line feed character:

- * A **Abort**, this stops the dispensing cycle immediately.
- * Vxxx **Volume** to be dispensed. This is a three-digit value. For example, this should be stated as V050 for 5.0ml; V070 to dispense 7.0ml. The dispensing cycle starts in the current pump direction.
- * Wxxxx **Weight** to be dispensed. (Default parameters are set in the Weight Dispensing Mode). This is a four-digit value, example: W0200, unit will dispense 2.00 grams.
- * X **Repeat**, begins a dispensing cycle for the current dispense volume or weight
- * F **Forward**, sets the current pump direction in the clockwise direction, the display will show CW.
- * R **Reverse**, sets the current pump direction counter-clockwise, the display will show CCW.
- * P **Prime**, sets the dispenser to "Prime", i.e. fills the system for a programmed time "T".
- * E **Empty**, empties the system by reversing the flow back to the reservoir for a programmed time interval "T".
- * Cxx **Command**, sets the prime/empty time to a value between 1-99. This must be a two-digit number.
- * T **Time**, current time interval for prime/empty cycle.
- * S **Status**, dispenser reports status

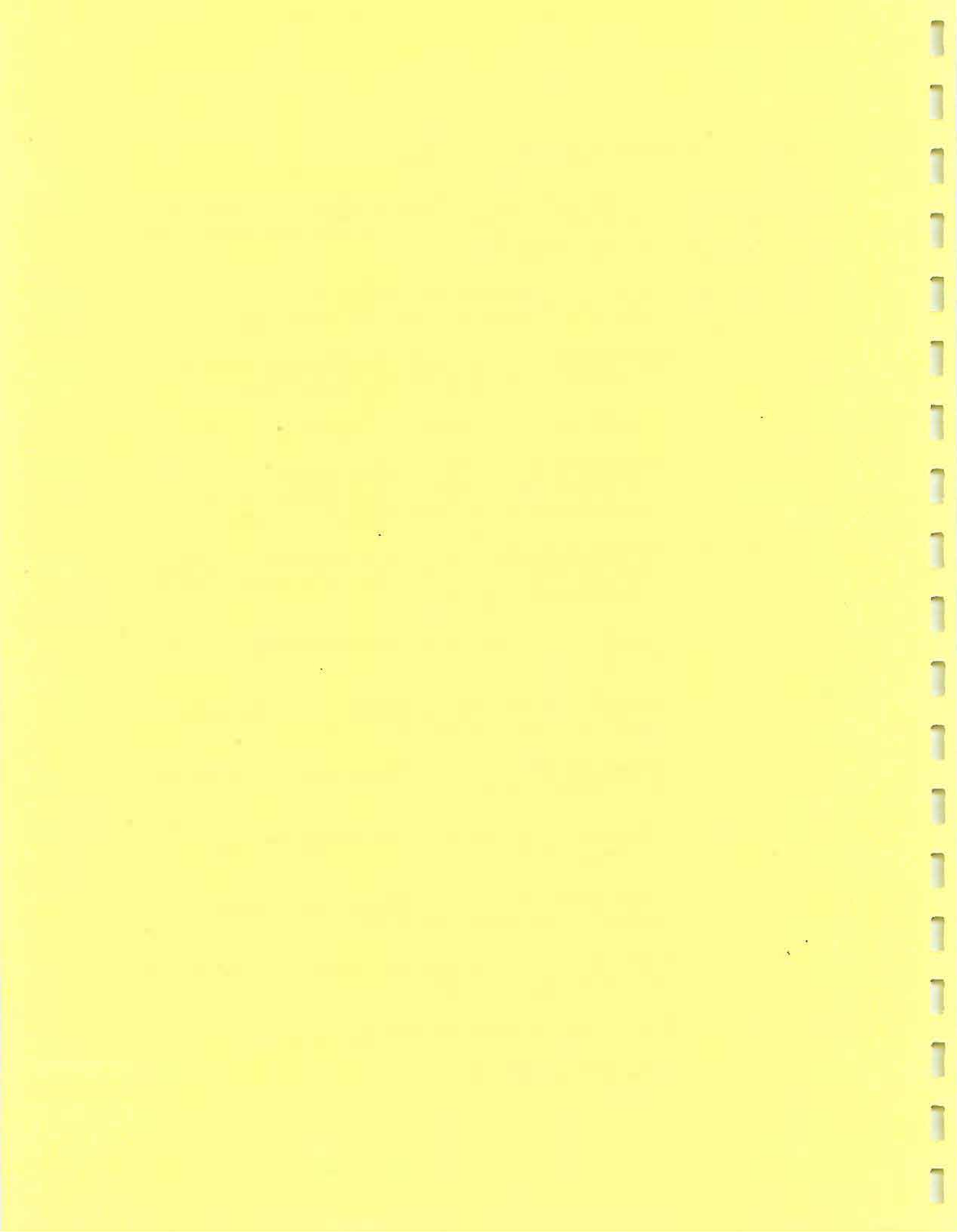


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Safety Information:

Be sure to read and observe the following requirements!

Before connecting the LabTec™ Methadone Dispenser to mains, make sure that the mains voltage corresponds to the voltage rating given on back panel of the pump.

Opening the LabTec™ cover exposes live parts. Therefore, the cover must not be removed. If repair should be required, return the pump to the factory.

If opening of the LabTec™ cover is inevitable, the pump must first be disconnected from all voltage sources.

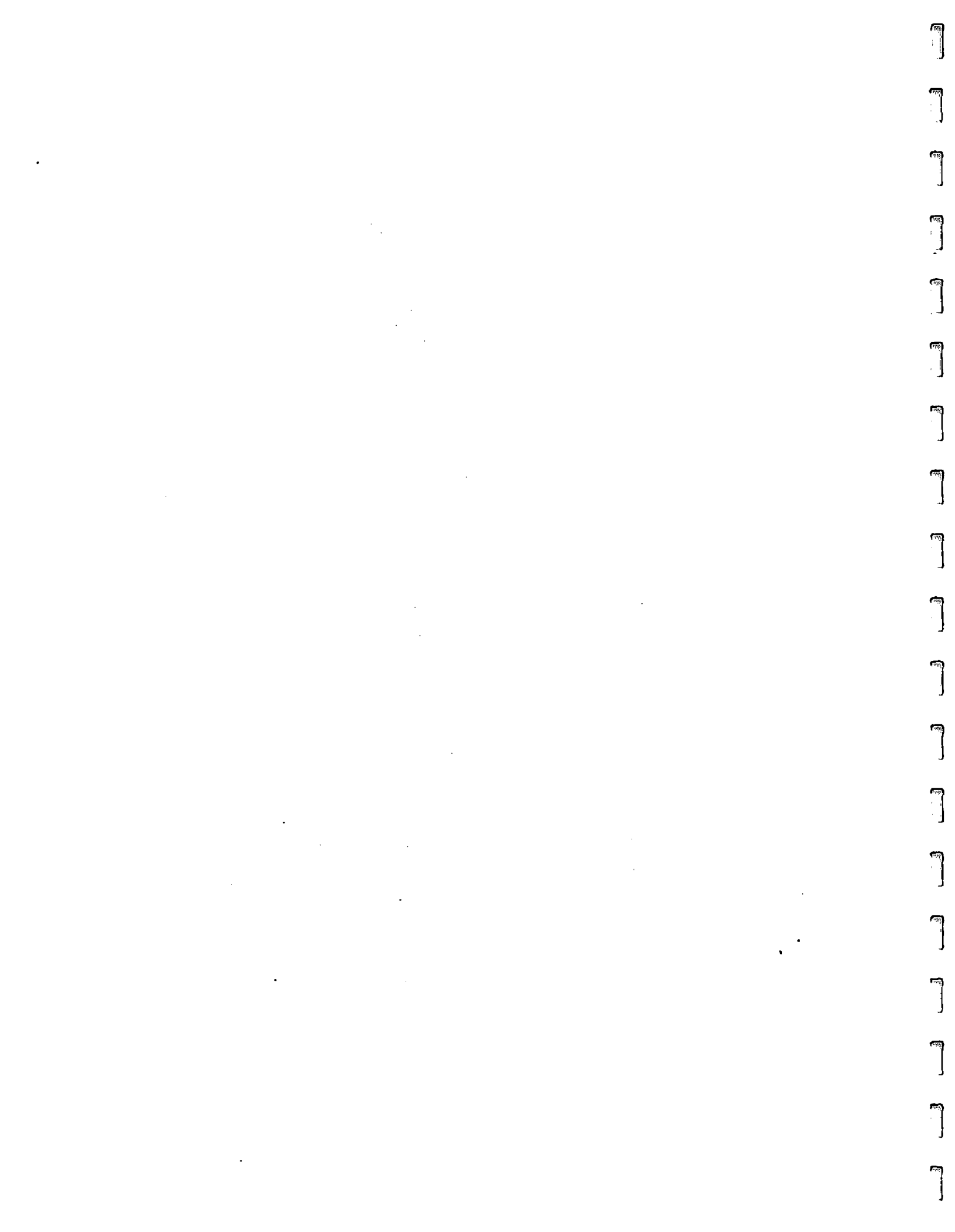
Make sure that the mains plug has been pulled out.

Repair or adjustment of an opened LabTec™ Methadone Dispenser under voltage must be carried out only by a skilled person who is aware of the hazard involved.

Whenever it is likely that the protection has been impaired, the LabTec™ must be made inoperative and secured against any unintended operation. The protection is likely to be impaired if, for example:

- The LabTec™ shows visible damage
- The LabTec™ fails to perform as intended
- After prolonged storage at temperature above 70°C
- After severe transport stresses

Before re-commissioning the LabTec™, a professional routine test according to EN 61010-1 must be performed.



Installation & Start-Up



Installation of the LabTec™ Methadone Dispensing pump must be carried out only by trained personnel in accordance with the relevant regulations and this operations manual.

Make sure that the technical specifications and input ratings of the LabTec™ are observed. See “LabTec™ Specifications”

The LabTec™ must be connected to a properly grounded power supply receptacle.

The LabTec™ location must not block access to the power disconnect point for the power supply.

The protection provided by this equipment may be impaired, if the LabTec™ is used in a manner or for purposes not specified by the manufacturer, SciLog, Inc.



Start-up of the LabTec™ must be carried out only by trained personnel in accordance with the relevant regulations and this operations manual.

Before first start-up, a parameter setting procedure and/or a parameter review must be performed by supervisory personnel.

User selected parameters are stored in the LabTec memory and are battery backed for approximately one (1) year. After longer power outages these data can be lost.



Maintenance & Cleaning:



The LabTec™ Methadone Dispenser is maintenance free. The pump head and associated pump tubing must be flushed with distilled water or isopropanol for at least 2 minutes prior to pump shutdown.



To remove dust, dirt and stains, the outer surfaces of the LabTec™ may be wiped using a soft, non-fluffing cloth moistened with water. If required, you may also use a mild detergent or 2-propanol.

Standards:

The LabTec Methadone Dispenser meets the following generic standards:



- Safety Requirements: EN 61010-1: 1993
- Electromagnetic Emission: EN 50081-1: 1992
- Immunity to Interference: EN 50082-1: 1992

Description of this Manual:

This operations manual provides following information:

- Safety Requirements
- Product Specifications
- Hardware, Part A
- Software, Part B



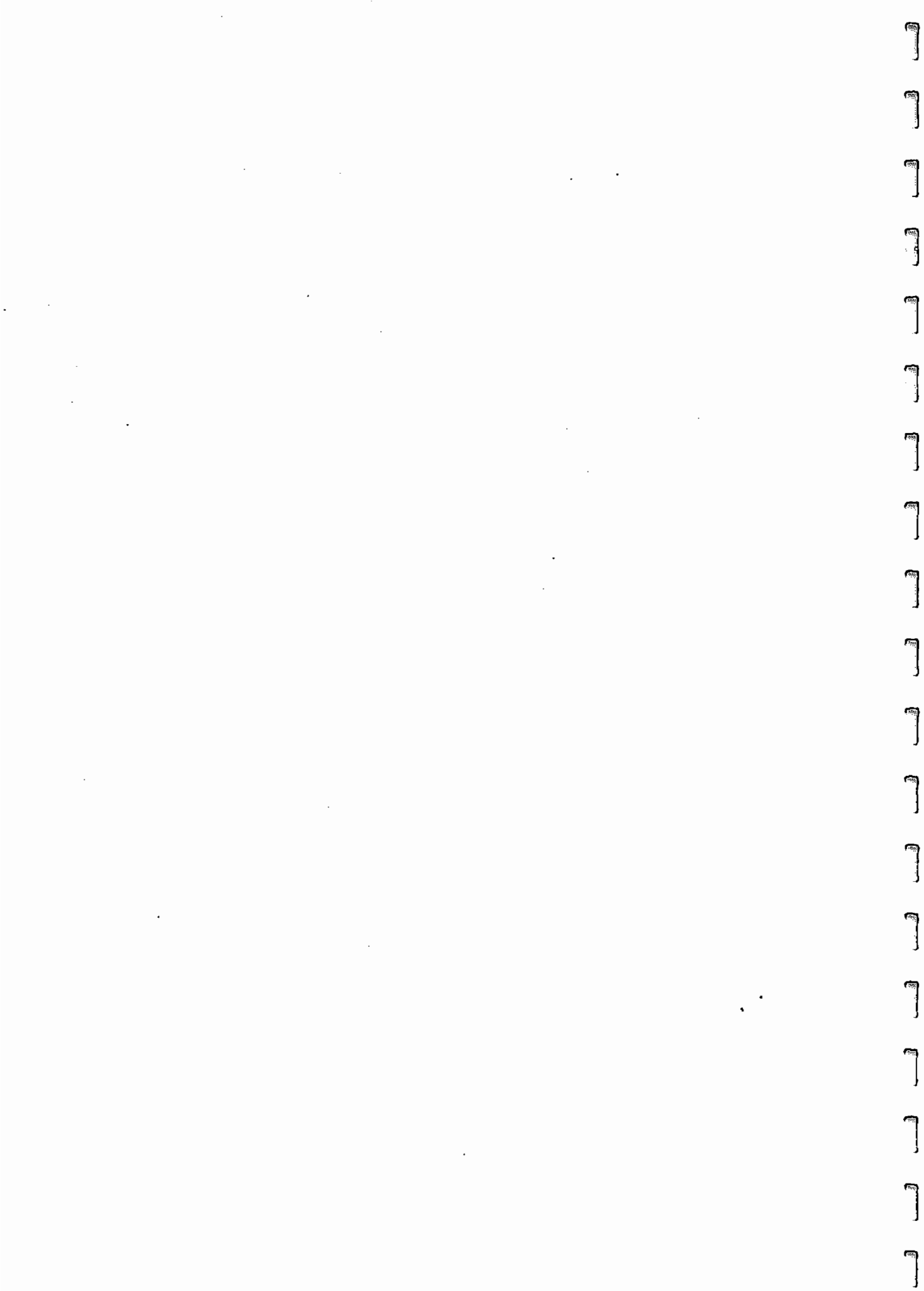
WARNING:

Warning means that ignoring the given instructions may lead to malfunction or damage of the instrument or other equipment and to personal injury.



NOTE:

Note calls your attention to important information. *Italics* are used to further emphasize certain information.



Introduction:

The LabTec™ Methadone Dispenser provides a high precision, high accuracy, programmable dispensing capability. The LabTec utilizes an optically encoded motor, ensuring a highly reproducible dispensing performance.

Inspections: Unpack the LabTec and accessories carefully from the carton. Cross check the contents against your purchase order to verify that all parts are included and undamaged.

Please do the inspection now, even if the LabTec is not used immediately. Many carriers must receive damage claims within seven days of delivery. Please retain all packing material so the unit may be shipped safely, if necessary.

If you need assistance, please call:

SciLog Inc
Customer Service
Tel: (800) 955-1993
Fax: (608) 824-0509
E-mail: Scilog@scilog.com

SciLog Customer Service personnel will be able to serve you more efficiently if you have the following information:

- Serial number (back panel) and model name of the equipment.
- Installation procedure you used.
- Concise list of symptoms.
- List of operating procedures and conditions you were using when problem arose.

Warranty Repair: Units covered under warranty will be repaired and returned to you at no charge. If you have any questions about applicability, please contact SciLog.

Non-warranty Repair: For out-of-warranty repair, contact the SciLog Customer Service Department. A SciLog representative will discuss service options with you and can assist in making arrangements to return the equipment, if necessary.

Return Procedure: Before returning any SciLog equipment, contact SciLog to obtain a Return Merchandise Authorization (RMA) Number. To return a piece of equipment:

- Carefully pack the unit to prevent damage in transit. Check with SciLog regarding the proper method of shipment. No responsibility is assumed by SciLog for damage caused by improperly packaged instruments. Indicate the RMA Number on the carton and on the packing slip.
- Always insure for the replacement value of the unit.
- Include a description of the symptoms, your name, return address, phone number, RMA number and purchase order to cover repair costs, return and shipping charges, if your institution requires it. Ship to:

SciLog, Inc.
8845 S Greenview Dr, #4
Middleton, WI 53562-2562

Limited Warranty: SciLog Inc., warrants instruments or equipment manufactured by SciLog for a period of one year from the date of shipment, against defects in material and workmanship under normal use and service (as described in the operations manual which accompanies such equipment). This warranty will be voided in the event the equipment is altered or modified by, or at the direction of, anyone other than SciLog personnel. Any defect covered by this warranty shall be corrected by replacing or repairing, at SciLog's option, parts determined by SciLog to be defective.

The foregoing warranty is exclusive of all other warranties, whether expressed or implied, including any warranties of merchantability and any warranties of fitness for purpose, but without limitations thereto, are expressly excluded.

Pump heads are expressly excluded from the SciLog warranty. Check with the original pump head manufacturer for their return policy.

Under no circumstances shall SciLog be liable for any consequential damages, or any direct or incidental damages, arising out of any breach of any expressed or implied warranty or otherwise, except only in the case of personal injury where applicable law requires such liability.

Carefully package returned instruments to prevent damage and insure them against possible damage or loss. SciLog will not be responsible for damage that results from careless packing. This warranty is not assignable.

LabTec™ Methadone Dispenser: Specifications

Mechanical:

Dimension: 5.75" (14.6 cm) W x 8.5" (21.6 cm) H x 11"(27.9 cm)D

Weight: 14 lbs (6.4 kg).

Enclosure: Aluminum / Steel; Corrosion Resistant, Recessed Handle.

Pump:RH1-CKC piston pump head. Material of construction: Kynar and Ceramic

Electrical:

Power: 115 / 230 V, 60 / 50 Hz, 75 Watts; double fused, Fuse Rating: TIAL 250V (CE: IR35A, 250VAC)

Motor: Variable speed, 3400 RPM (nominal) motor, RPM maximum at 24 VDC, 3.0 Amps; optically encoded, servo-controlled.

Operating Range: 4 to 40° C, 100% Humidity.

Motor Encoder: 120 lines per motor revolution.

I/O Ports:

1. First serial port labeled "Balance", Male DB9 connector, connects to OHAUS "Explorer" balance.
2. Second serial port labeled "Printer," Female DB9 connector, connects to user PC or Printer.
3. Phone jack connector labeled "Foot Switch" for remote "RUN" / "STOP" control of Vitex via foot switch.
4. DB37 labeled "External I/O" is not used in Methadone dispensing

Display: Two line LCD, 20 characters each line, back-lit.

Data Entry: Membrane keyboard with auditory feedback.

Software:

- Main menu with the following five (5) operational modes.
- Serial Mode: Normal Methadone dispensing mode, implemented on power up
- Volumetric Dispensing: For emergency use only
- Weight Dispensing: Requires an OHAUS electronic balance.
- Setup: Selection of user preferences and interface options.
- Manual: Simple pump control; no alarms.

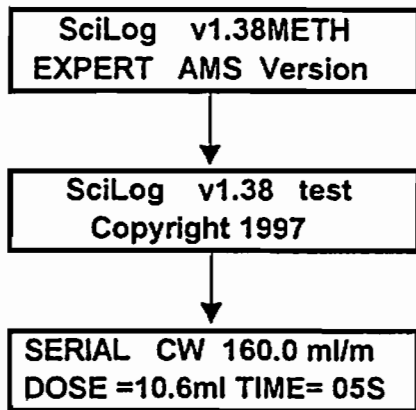
Parts List: LabTec Methadone Dispenser

- 100-542METH** **LabTec *Methadone Dispensing System*:** comes with RH1-CKC piston pump head and a 3400 RPM motor. The unit is calibrated for immediate use, includes performance validation report for each system. The LabTec software (V1.38METH or higher) includes a volume dispensing option (for emergency use) as well as methadone weight dispensing option (reduces inventory discrepancies). The LabTec is designed to work specifically with AMS software.
- 100-542 Loaner** **LabTec *Loaner*:** One (1) week rental of LabTec for emergency use. Rental can be extended on a weekly bases.
- Repair** **LabTec *Repair Service*:** Includes cleaning of RH1-CKC pump head and pump seal replacement. Service includes functional testing, calibration and performance validation report. Any additional service parts are billed separately. Repair turn-around time 2-5 working days. You can rent a Loaner unit while your LabTec is being repaired.
- 100-4100B** **Ohaus "Explorer" Balance:** 4100 gram capacity, 0.01 gram readability. All communications parameter installed and tested by SciLog, ready for use.
- When you dispense Methadone by weigh, a pump calibration is not required. The use the balance will significantly reduce Methadone inventory discrepancies which are caused primarily by room temperature changes (i.e. changes in Methadone volume) and/or poor pump calibrations.*
- 080-066** **Ohaus Balance Cable:** Required for Methadone by weight dispensing connects LabTec to Ohaus "Explorer" balance.
- 080-059** **Foot Switch** for remote Stop/Start of LabTec.
- 080-042** **Replacement RH1-CKC Pump Head,** use with ¼"OD Tygon tubing.
- 400-001** **Small Glass Sinker:** Prevents tubing from coiling in the Methadone solution. Also prevents tubing from getting stuck (sucked) to the inside walls of Methadone reservoir.
- 400-216** **Tygon Tubing:** ¼ OD x 25feet, tubing fits into RH1-CKC pump head.
- 400-420** **Stand & Clamps:** holds dispensing tip of cup

Part A: *LabTec Hardware & Calibration*

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1.0 LabTec Start-up



The LabTec has been specifically designed for Methadone Dispensing.

The three display windows on the left are the "Power-up Displays" of the LabTec and are displayed when you initially turn on the power. During start-up the LabTec performs a self-test while the word "test" is flashing.

When the third window is displayed, the LabTec is ready to receive and execute dosing request from your computer

However, before you start dispensing Methadone, make sure you have checked and secured the cable connection (RS-232 cable) between your computer and the LabTec. One end of the cable must be connected to the "Printer" port of the LabTec, while the other end is connected to one of the available COM ports on your computer. **NOTE:** If the system has been initially installed by SciLog, do not make any changes. Your LabTec dispensing system is ready for use.

At this point you may want to review the LabTec re-calibration and maintenance procedures that your Methadone Clinic has established. Follow these instructions carefully! If you have any questions regarding re-calibration or maintenance of the LabTec, contact your supervisor.

The following comments are not intended to replace the established procedures of your Methadone Clinic, instead, they are designed to help you better utilize the advantages of your LabTec dispensing system:

- 1. The LabTec has been carefully calibrated by the manufacturer (SciLog Inc), If you just received and unpacked your LabTec unit, you must let the dispenser come to room temperature before you start dispensing.*
- 2. Carefully read the information contained in the Performance Validation Report prepared by SciLog prior to shipment. The Report shows the high level of reproducibility, and accuracy that is routinely achieved with the LabTec. The Performance Validation Data should be used as a "Bench Mark" in assessing the quality of you re-calibrations. NOTE: SciLog calibrated the LabTec with distilled water and not with Methadone.*
- 3. Carefully re-calibrate the LabTec using Methadone as your calibration solution. Do not rely on a single measurement, instead, dispense three (3) calibration volumes, then take the average of your three measurements. The average value represents the best value.*

2.0 LabTec Methadone Dispenser: *Overview*

The LabTec pump provides high precision, high accuracy, programmable Methadone dispensing capability. The LabTec utilizes an optically encoded, servo-controlled motor, assuring a highly reproducible pump performance. The LabTec dispensing pump comes with RH1 piston pump head (SciLog P/N:080-402) which is powered by 3400 RPM motor (SciLog P/N: 010-017).

2.1 PumpSense™: *Pump Overload Protection*

When Methadone is allowed to dry inside the piston pump head, the LabTec software will recognize this condition and go into a stand-by mode, the pump motor is turned off and the following message is displayed:

CHECK YOUR PUMP HEAD
Press Any Key

Before continuing with your pumping application, remove the defective pump head and either clean the pump head (see NOTE below and Cleaning Instructions) or replace with a new, functional pump head. The PumpSense™ feature has been implemented as a failsafe device to protect your pump head and motor control circuit from permanent damage.

NOTE: *SciLog has implemented a LabTec re-furbishing and loaner program. Sent in your LabTec unit to SciLog for pump head cleaning and seal replacement. The service also includes functional test, calibration as well as a written performance validation. The typical turn-around time for LabTec repairs is 2-5 days. You can rent a LabTec loaner from SciLog while your unit is being repaired. Contact SciLog at 1-800-955-1993 for shipping instructions.*

2.2 Pump Head/Motor:

The LabTec™ comes with a 3400 RPM, optically encoded, servo-controlled motor and a RH1-CKC piston pump head. Materials of construction: the pump cylinder is made of Kynar, the pump piston is made out of ceramic. Both Kynar and ceramic are inert materials and do not interact/react with Methadone.

3.0 Front Panel:

The front panel consists of a user interface that includes an alphanumeric display and a membrane keypad to select operational modes. The display is a two line, 20 characters each; liquid crystal display (LCD). The display is back lit to allow easy viewing over a wide range of lighting conditions.

4.0 Back Panel:

4.1 PC to Pump Connection: A "PC to Pump" Cable (SciLog P/N: 087-073) must be connected between the LabTec (Serial Port 2 labeled "Printer") and your computer. The "Printer" port (Female DB9) on your LabTec is located below the DB37 labeled "External I/O".

4.2 Balance Port: The Serial Port 1 is labeled as "Balance" allows you to interface with an Ohaus top-loading balance. The special balance cable (SciLog P/N: 080-066) is required for interfacing with the OHAUS "Explorer" balance. The LabTec will automatically implement the correct parameters for communicating with an OHAUS balance. Check that the proper communications parameters are also implemented in the balance you are using.

4.3 Foot Switch Port: Interfaces with SciLog foot switch (P/N: 080-059) and allows remote Start / Stop of the LabTec.

4.4 External I/O Port: Not used for Methadone dispensing.

5.0 LabTec Cleaning & Maintenance: *RH1-CKC Pump Head*

Cleaning the Pump Head: Flushing the pump head with distilled water before shutdown will suffice for most Methadone Clinics. Alternatively, you can also use a 50:50 mixture of distilled water and isopropyl alcohol (IPA) for cleaning purposes. Steam-distilled water can be purchased in larger food stores.

NOTE: Never use tap water for flushing, the water "hardness" associated with most tap water supplies will cause the pump head to "freeze", i.e. the pump head becomes inoperable.

For cleaning purposes, you must pump the cleaning solution through the pump for about two (2) minutes or until the cleaning solution appears clear at the discharge port of the pump. Stop the pump and leave the cleaning solution in your pump head. Do not remove the tubing from the solution reservoir until you are ready to prime the pump with Methadone the following day. **Do not leave Methadone in the pump head overnight. Preventive maintenance is very valuable and ensures a long operational pump life.**

NOTE: If the LabTec unit is not used frequently or is to be stored for an extended period of time, use the cleaning procedure outlined above then fill a 12" piece of tubing with cleaning solution, connect the tubing between the pump inlet and outlet. Turn the pump on for a brief period to ensure the pump head is filled with cleaning solution. This simple procedure prevents the pump head from drying out and thus remains operable for a long time.

6.0 LabTec Calibration:

Prior to shipment, each LabTec unit is factory calibrated utilizing a high-precision balance with a readability of 0.01 grams. A performance validation data sheet is enclosed with every LabTec unit. This performance validation data sheet summarizes the calibration data at 10.00 ml as well as the pump accuracy and reproducibility at 20.00 ml, 5.00 ml and at 2.00 ml. Five measurements are made for each volume setting. The Average Dispensed Volume, the Standard Deviation (SD) as well as the Relative Standard Deviation (RSD) are calculated and are included in the Performance Validation data sheet. The Performance Validation Data shown below should be used as a "Bench Mark" in assessing the quality of your calibration data. For your calibrations use the following procedure:

1. Dispense five 10.00 ml aliquots, weigh each aliquot (10.00 ml of water weighs 10.00 gr) on a balance, determine the average weight for the five aliquots. (Add up the five aliquot weights and divide the sum by five, this is your average aliquot weight.)
2. If the average aliquot weight is either larger than 10.05 gr. or smaller than 9.95gr, you adjust the black, knurled Adjustment Ring by turning it *clockwise* to decrease the pump output. Alternatively, you turn the black, knurled Adjustment Ring *counter-clockwise* to increase the pump output.
3. For example, if your average aliquot weight is 9.80 gr, your accuracy is off by 0.20gr or 2% . Therefore, you must turn the black, knurled Adjustment Ring counter-clockwise from 200 to 204 to increase the pump output by 2%.

On the other hand, if your average weight is 10.50 gr. your accuracy is off by 0.5 gr or 5%. Thus, you must turn the black, knurled Adjustment Ring clockwise from 200 to 190 to decrease the pump output by 5%.

4. After you have modified the Adjustment Ring position, dispense at least three 10-ml aliquots to check the improved dispensing accuracy. If necessary, repeat the procedure outlined in step 3 until your results are within the 9.95gr to 10.05gr. range.
5. **Y-Intercept Adjustment:** (The following applies only to LabTec software V1.38METH or higher). After you have completed the calibration at 10.00 ml, dispense three (3) aliquots of 2.00 ml. Calculate the average value for these three aliquots. If the average value is not 2.00 ml +/- 0.03, you must adjust the Cal-Offset (see SETUP: Cal-Offset). Increase the Cal-Offset if the calculated average value is below 2.00 ml, decrease the Cal-Offset if the calculated average value is above 2.00 ml.

For example, if the average value is too large by 10%, then decrease the Cal-Offset by 10%. If the average value is too small by 10%, then increase the Cal-Offset by 10%.

6. Without making any further adjustments, the LabTec is now ready for dispensing any volume from 20.00 ml to 2.00 ml with high precision and accuracy. The following represents typical performance data:

	Dispensed Volume			
	20ml	10 ml(Cal)	5 ml	2 ml
1.	20.04	10.01	5.00	1.98
2.	20.05	9.99	5.01	1.97
3.	20.05	10.02	4.99	1.97
4.	20.05	10.02	4.98	1.98
5.	20.03	10.01	4.99	1.99
Ave:	20.04	10.01	4.99	1.98
SD:	0.01	0.01	0.01	0.01
RSD:	0.04%	0.12%	0.23%	0.42%

7. **Calibration Tools:** For volumetric calibration of the pump, the use of an electronic top-loading balance is strongly recommended. Use a convenient container, tare the balance with the container, then dispense your calibration aliquot (e.g 10.00ml). Weigh the container plus aliquot, obtain the weight of the aliquot off the balance. Write down the weight of the aliquot, i.e. 10.05 grams. Repeat the measurement and determine the average aliquot weight.

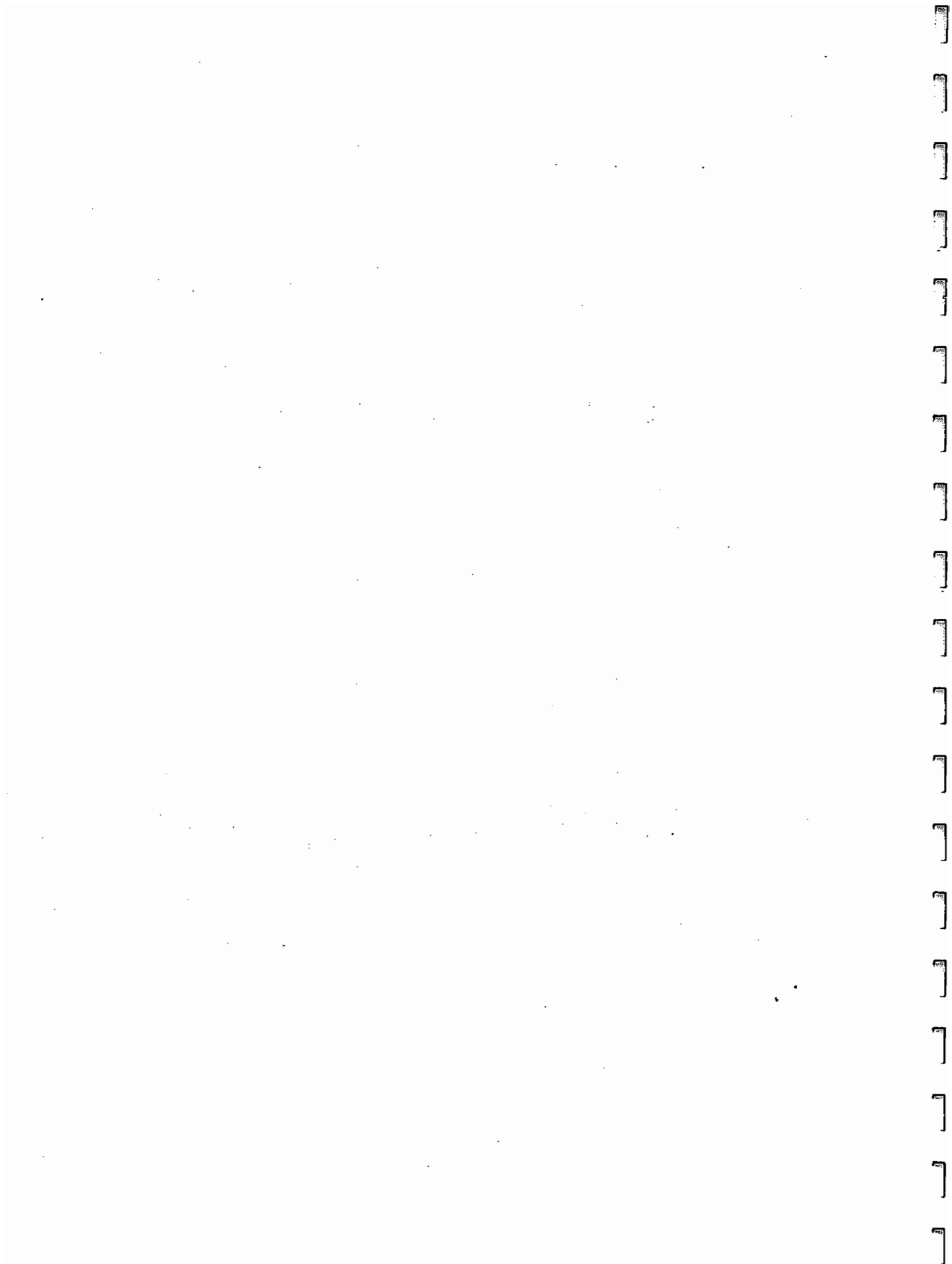
Caution: *Do not use a graduated cylinder for calibration. Significant accuracy and precision errors will be introduced if you attempt to calibrate with a graduated cylinder.*

8. **Dispensing by Weight:** In contrast to dispensing Methadone by volume which necessitates frequent (daily) pump calibration, dispensing Methadone by weight does not require any calibration and provides greater long-term accuracy. The software may already have provisions for Methadone dispensing by weight. By connecting to an Ohaus "Explorer" balance (model 4001, 0.01 gr readability), the LabTec reads the balance and stops pumping when the desired weight of Methadone has been dispensed.

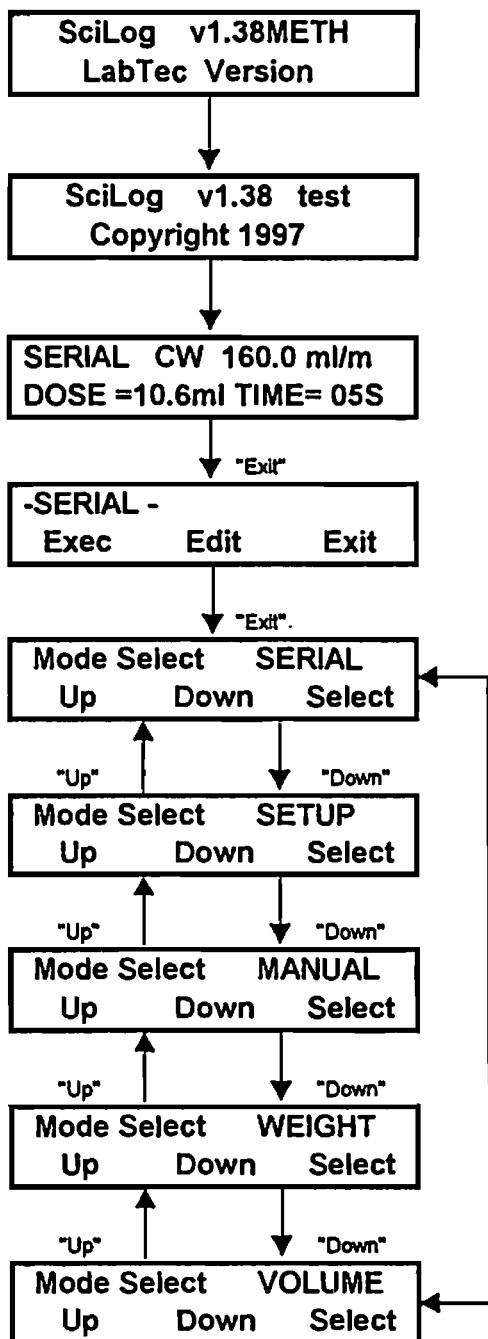
Note: *Methadone dispensing by weight significantly reduces the end-of-day Methadone inventory discrepancies which frequently result from room temperature changes (causing changes in Methadone volume) and/or poorly executed pump calibrations.*

Part B: *LabTec Methadone Dispenser*

1.0 Main Menu	B1
2.0 Methadone Dispensing by Volume	B2
3.0 Volume: Master Calibration	B4
4.0 Volume: Re-calibration	B6
5.0 Methadone Dispensing by Weight	B8
6.0 Setup Mode:	B10



1.0 Main Menu



The first tree display windows on the left are the "Power-up displays" of the LabTec and are displayed when you initially turn on the power. During start-up the LabTec performs a self-test while the word "test" is flashing

When the SERIAL window is displayed, the LabTec is ready to receive and execute dosing requests from your computer.

Press the EXIT key twice to get to the main menu. Use the EDIT key if you want to modify the SERIAL mode parameters.

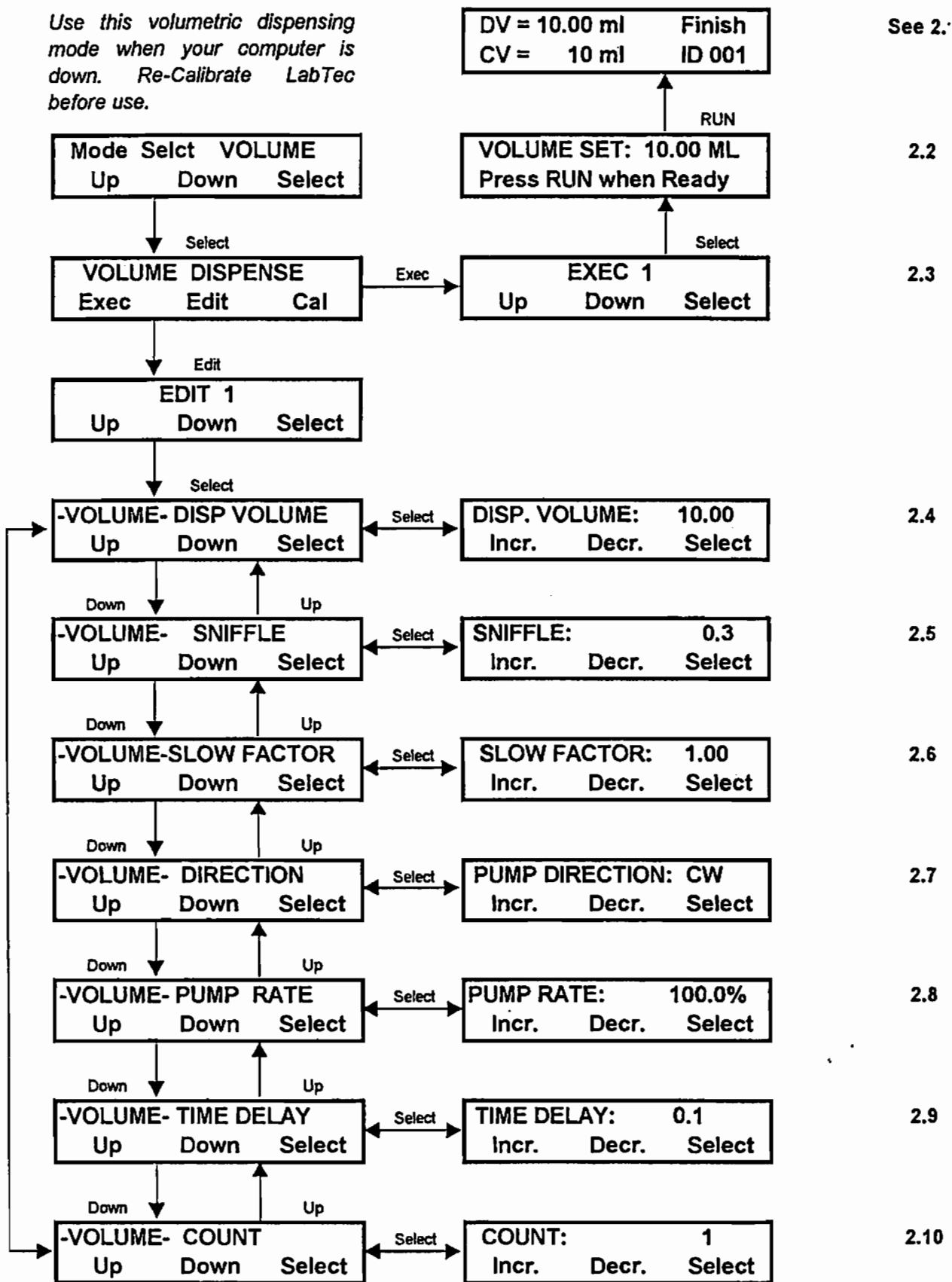
In SETUP you can select certain user preferences including the SETUP CAL OFFSET parameter discussed on page A3

The MANUAL mode allows you to manually STOP and RUN the LabTec as well as changing the pump direction, CW and CCW
In WEIGHT you need to hook up to a Ohaus "Explorer" balance to dispense Methadone by weight. Calibration not required

The VOLUME mode is used in emergency when your computer is down. Requires calibration.

2.0 Methadone Dispensing by Volume: For Emergency Use Only

Use this volumetric dispensing mode when your computer is down. Re-Calibrate LabTec before use.



2.0 Methadone Dispensing by Volume: *For Emergency Use Only*

This operational mode should only be used when your computer is down, i.e. not operational. The Volume Dispensing mode can be implemented from the front panel of your LabTec and does not require a computer hook up. However before can use the Volume Dispensing mode you must manually calibrate the LabTec, see pages B4 through B7.

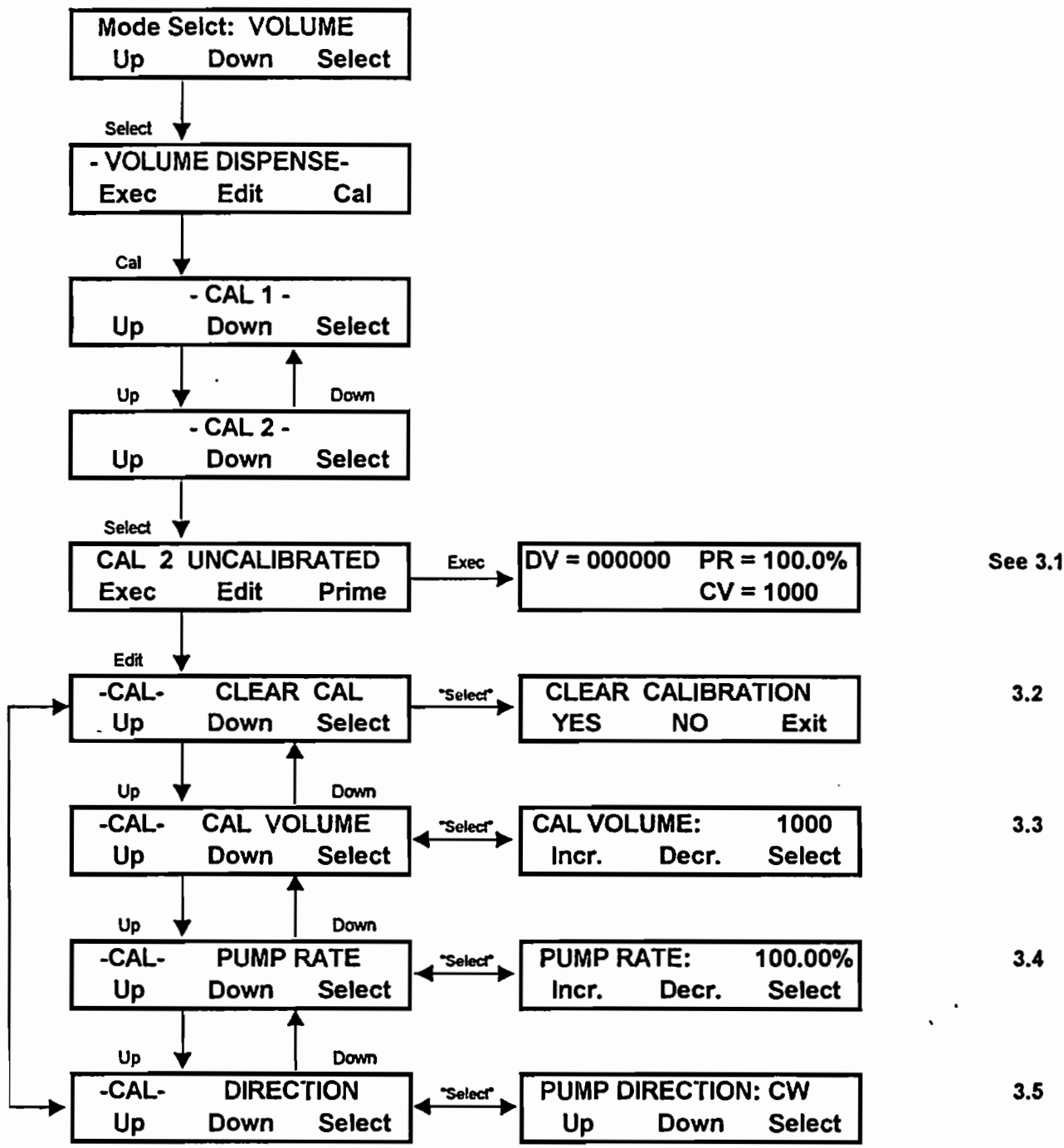
In contrast to the LabTec calibration outlined on page A3, the manual calibration requires you to enter a calibration volume, (e.g. 250 ml) and a pump speed (e.g. 100%). These parameters are selected in the cal-sub mode of the Volume Dispensing mode, see page B4 and B5.

For volumetric batch dispensing, the typical precision and accuracy ranges from 0.5% to 1.0 % depending somewhat on the pump rate. The dispensing precision and accuracy Volume Dispensing mode will generally improve with lowering of the pump rate, i.e. going from 100% to 80% pump speed.

NOTE: Use "Up" and "Down" keys to make a selection, then press the "Select" to implement the selection.

- 2.1 This is the "RUN" display showing the delivered volume (DV) as well as the cumulative volume (CV). DV is the batch volume you dispensed while the CV stands for the total volume of all the batches you dispensed since you powered up the LabTec.
- 2.2 This is the "Stand-by" display. At this point you must press the "RUN" key to initiate a dispensing
- 2.3 Up to 10 different dispensing volumes can be stored. You must press the "Select" and "RUN" keys to start dispensing the selected volume.
- 2.4 **DISP. VOLUME:** Defines the Methadone volume to be dispensed in terms of milliliters. For example, if you want to dispense 12.00 ml, use the "Incr" key to scroll to 12.00 ml, then press "Select". **Default Setting: 10.00ml**
- 2.5 **SNIFFLE:** The SNIFFLE function consists of a brief pump reversal to suck back the droplet that typically hangs at the dispensing tip. The SNIFFLE function avoids carry-over between dispensing cycles and provides for a cleaner dispensing environment. **Default Setting: 0.5 sec.**
- 2.6 **SLOW FACTOR:** Defines the solution volume that is dispensed slowly at the end of the dispensing cycle. For example, if the Methadone volume to be dispensed is 10.00 ml, then the SLOW FACTOR is selected to be approximately 10% or 1.00 ml. When the LabTec initiates volumetric Methadone dispensing, the first 9.00ml (90% of total) will be dispensed at a high pump rate (e.g.100% of max), while the last 1.00 ml will be dispensed slowly to avoid overshooting the target volume. **Default Setting: 1.00 ml**
- 2.7 **PUMP DIRECTION:** Defines pump head rotation; this parameter can be changed from clockwise (CW, default) to counter clockwise (CCW). **Default Setting: CW**
- 2.8 **PUMP RATE:** Defines the relative pump speed (0% to 100% of max.) with which the Methadone is being dispensed.. Typically this parameter is set at 100% (default), however, a slower pump speed is advisable if excessive back splashing should occur. **Default: 100%**
- 2.9 **TIME DELAY:** Defines the time delay between dispensing cycles (0 to 50 sec.)
- 2.10 **COUNT:** Defines how often the dispensing cycle will be repeated. For example, when the COUNT = 10. Then the selected Methadone volume will be dispensed 10 times with a chosen time delay between each dispensing. **Default Setting: 1**

3.0 Volume: Master Calibration, Edit



3.0 Volume: *Master Calibration, Edit*

The LabTec has two (2) volumetric calibration features, namely, a **Master Calibration** as well as a **Re-Cal** feature (see pages B6 & B7):

The **Master Calibration** is the initial calibration required for a given combination of pump head, and pump motor.

NOTE: The Master Calibration only has to be done once for a given pump head / pump motor combination. Any future fine-adjustment can be accomplished with the quick **RE-CAL** feature, which is accessible through the **RE-Cal** key at the LabTec front panel.

The **Re-Cal** feature (see pages B6 & B7) in contrast, allows you to quickly update a stored Master Calibration. The Re-Cal function will compensate for this change in pump output by adjusting the stored calibration curve.

The procedure for a Master Calibration is simple and straightforward: As indicated in the flow-chart, located on the opposite page, first press the **CAL** key, then select **CAL 1**.

3.1 This is the display during the calibration, **DV** stands for the number of optical encoder pulses (100 pulses per motor shaft revolution), **PR** represents the pump speed (typically 100%), **CV** stands for the calibration volume (use a 250 ml volumetric flask or alternatively use an electronic balance, readability 0.01 gram)

3.2 For "**CLEAR CALIBRATION?**" enter "**YES**", the old calibration has now been removed.

3.3 For "**CAL VOLUME**" enter "**250**", provided you are using a 250ml volumetric flask. Enter "**100**" if you use a 100ml volumetric flask. **NOTE:** The larger the Cal Volume, the more accurate the calibration will be.

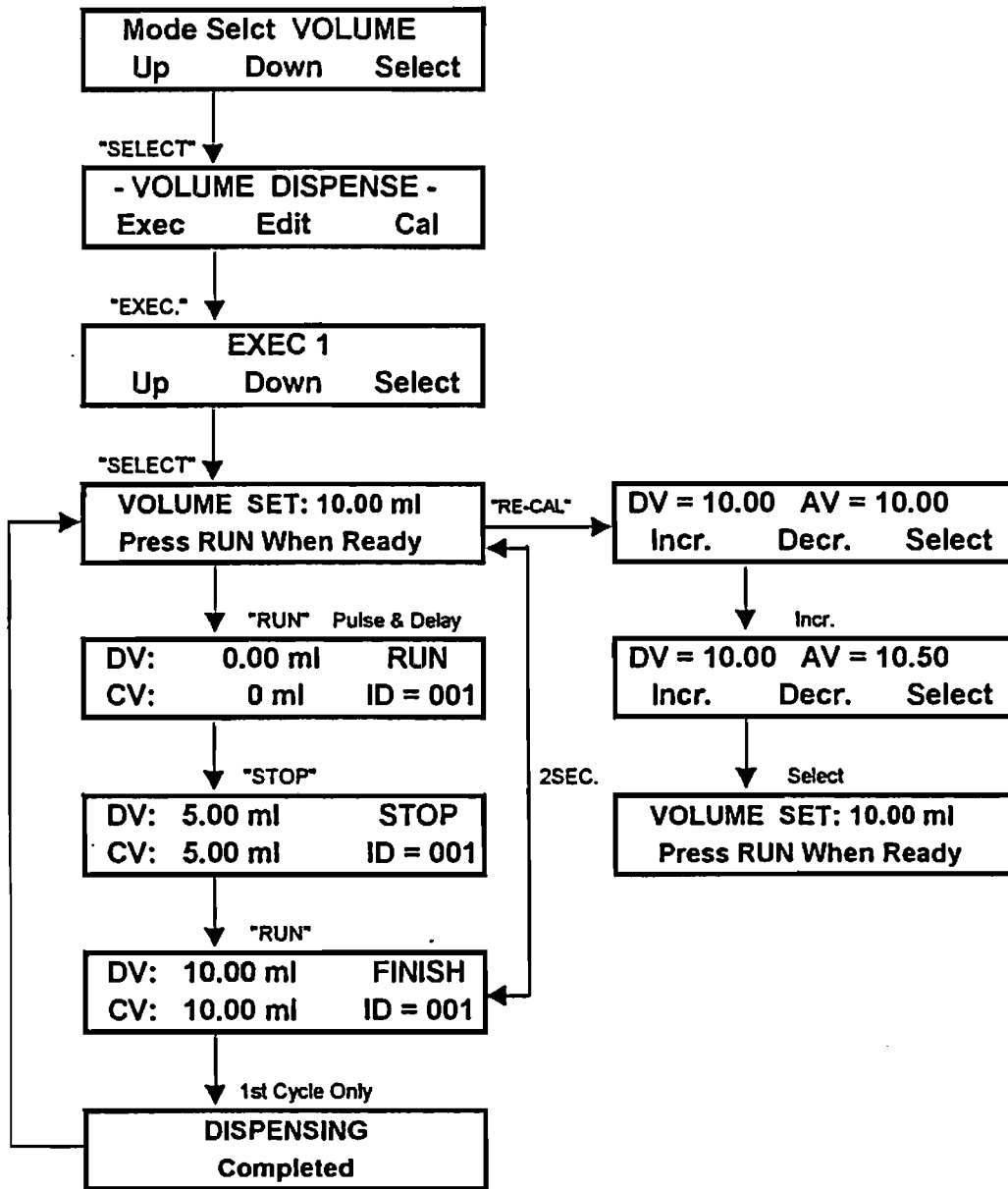
3.4 The next step involves the selection of the "**PUMP RATE**". For most volumetric dispensing applications the calibration pump rate is set at 100%.

3.5 The selected pump "**DIRECTION**" (**CW** or **CCW**) depends on the instrumental setup. For example you select **CW** (clockwise) pump direction when the solution is to be pumped from left to right, select **CCW** (counter- clockwise) when the solution is to be pumped from right to left.

CAL-Procedure: Select Cal - 1, press "**Exec**" (key "**A**") then press "**RUN**" key. The LabTec will start dispensing solution into the volumetric flask. Press the "**STOP**" key as soon as the solution level reaches the volumetric mark. The LabTec will display: "**Calibration Completed ?**", press "**Yes**". The Calibration has now been stored in the LabTec memory. Leave the **CAL 1** mode by pressing the "**EXIT**" key.

4.0 Volume: Re-Calibration

Use of the front panel RE-CAL Key for quick Re-calibration



4.0 Volume: *Re-calibration, use of the Re-Cal key*

The LabTec has two volumetric calibration features, namely, a **Master Calibration** (see pages B4 and B5) as well as a **Re-Cal** feature.

The Master Calibration only has to be done once for a given pump head / pump tube combination. Any fine-adjustment of the stored Master Calibration curve can be readily accomplished with a quick **Re-Cal**. The Re-Cal feature is accessible through the **Re-Cal** key at the LabTec front panel.

As shown on the opposite page, the **Re-Cal** feature is active when the following display is shown:

VOLUME SET: 10.00 ml Press RUN When Ready
--

Press the **Re-Cal** key at the LabTec front panel, the following display will appear:

DV = 10.00 AV = 10.00
Incr. Decr. Select

Only the **AV** parameter (**AV**= Average Value) can be changed in this display, use the "**Incr.**"(key "A") and "**Decr.**" (key "B") to adjust the **AV** parameter.

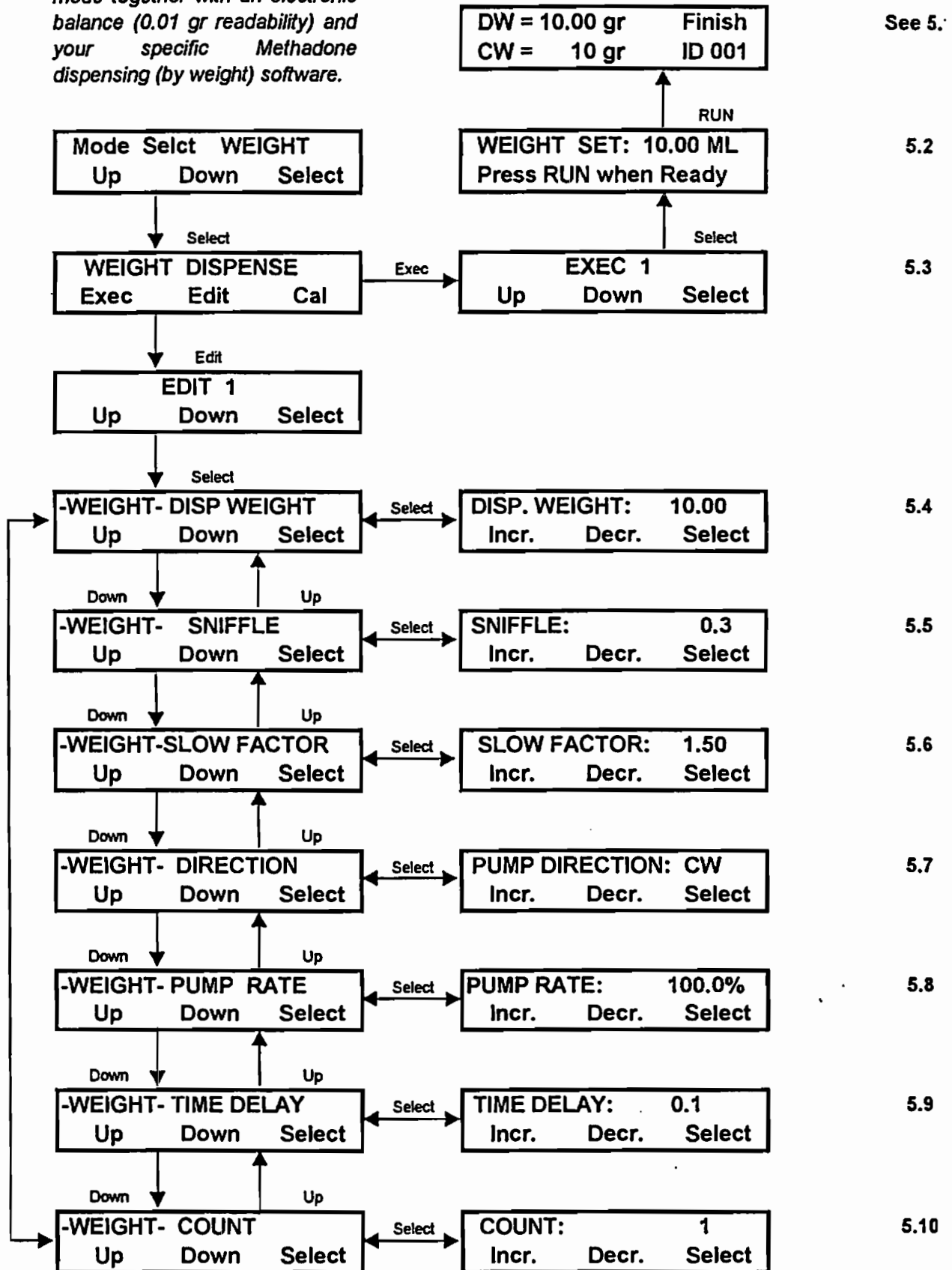
For re-calibration purposes, you should dispense at least **three (3) aliquots** (distilled water) of your selected volume; e.g. 10.00 ml. Record the weight of each aliquot, then determine the average (**AV**) aliquot weight. Use an electronic top-loading balance (readability: 0.01 grams) to weigh each aliquot. For example, assume that you obtained the following values:

Trial 1	10.50 g
Trial 2	10.80 g
Trial 3	10.40 g
AV = Average Value:	10.57 g

In this example, you would adjust (assume 1.00ml = 1.00 grams) the **AV** parameter to 10.57; the LabTec will automatically correct the stored calibration curve. You may want to repeat the **Re-Cal** in order to check the improved dispensing accuracy.

5.0 Methadone Dispensing by Weight: *Requires Hook-up of Electronic Balance.*

Use this **WEIGHT** dispensing mode together with an electronic balance (0.01 gr readability) and your specific Methadone dispensing (by weight) software.



5.0 Weight: *Methadone Dispensing by Weight, Edit*

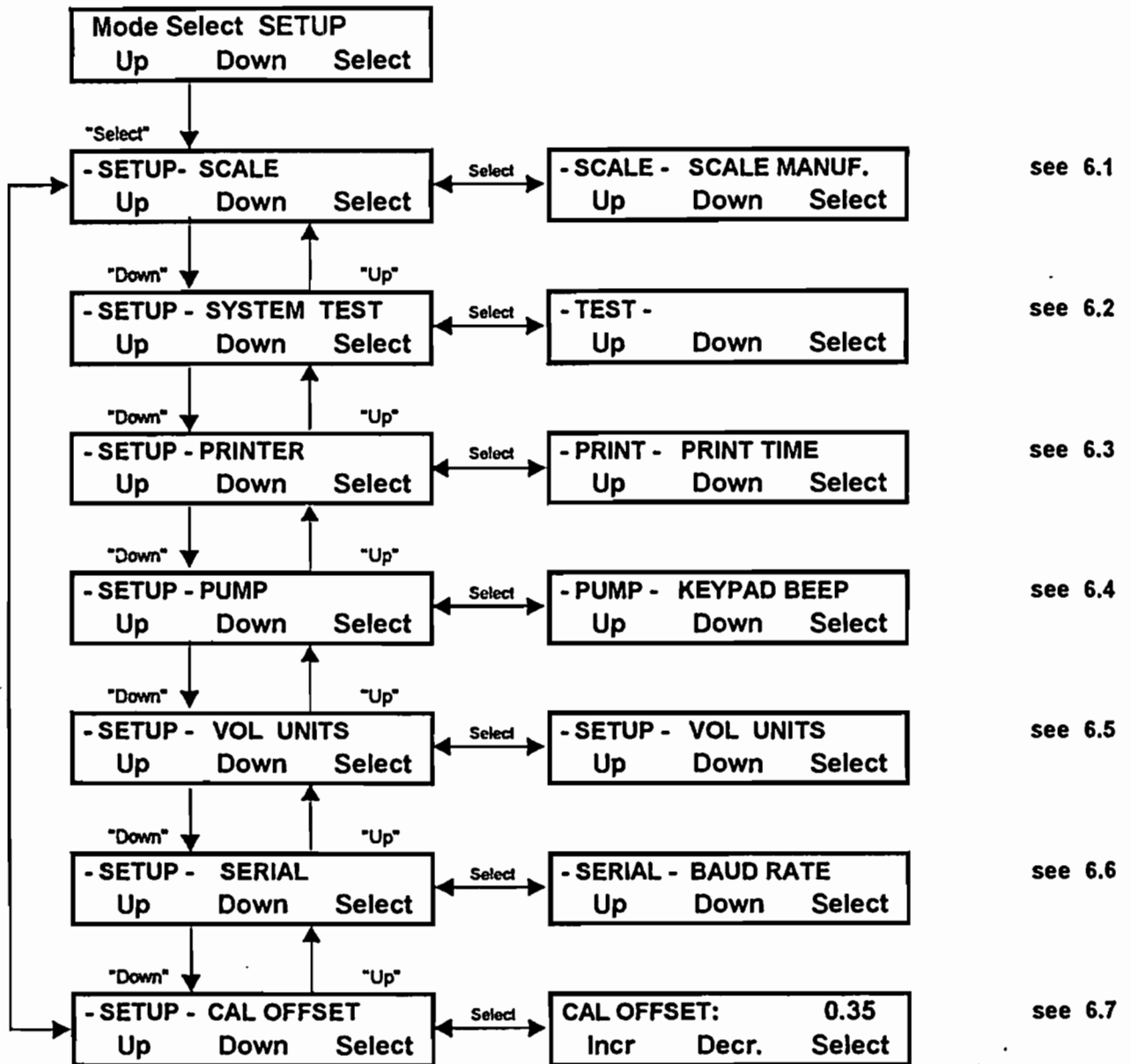
SUMMARY: In the Weight Dispense mode, the LabTec is connected to an electronic, top-loading balance while dispensing Methadone by weight. The **SETUP: Scale** sub mode (see pages B10, B11 & B12) provides electronic balance options, i.e. balances that can be interfaced with the LabTec: select "Ohaus". The Ohaus "Explorer" balance (must have 0.01gram readability) is connected to Serial Port 1 labeled "Balance" (see 4.2, page A2)

When executing the Weight Dispensing mode (press "Exec") the LabTec will display "SCALE INITIALIZATION // Please Wait". While this message is being displayed, the LabTec checks the balance communication. If balance communication is not possible the LabTec will display "SCALE ERROR // Hit any key". Check the RS-232 cable connection as well as the communications parameters in your balance also make sure you have selected the correct balance manufacturer in the LabTec **SETUP: Scale** sub mode.

NOTE: Use "Up" and "Down" keys to make a selection, then press "Select" to implement the selection.

- 5.1 This is the "RUN" display showing the delivered Methadone weight (DW) for customer 001 as well as the cumulative Methadone weight (CW). DW is the batch weight for customer 001 while the CW stands for the total weight of Methadone dispensed for all the customers since you last powered up the LabTec.
- 5.2 This is the "Stand-by" display. At this point you must press the "RUN" key to initiate dispensing.
- 5.3 Up to 10 different Methadone dispensing weights can be stored. You must press the "Select" and "RUN" keys to start dispensing the selected weight.
- 5.4 **DISP. WEIGHT:** Defines the dispensed weight in terms of grams. For example, if you want to dispense 12.00 grams, use the "Incr", key to scroll to 12.00, then press "Select".
- 5.5 **SNIFFLE:** The SNIFFLE function consists of a brief pump reversal to suck in the droplet that typically hangs at the end of the dispensing tip. The length of time for the pump reversal is user-selectable from 0 to 2.0 seconds. The SNIFFLE function allows you to avoid carry-over between dispensing cycles and provides for a cleaner dispensing environment.
- 5.6 **SLOW FACTOR:** Defines the solution weight that is dispensed slowly at the end of the dispensing cycle. For example, if the total solution to be dispensed weighs 10.00 grams, then the SLOW FACTOR is selected to be approximately 15% or 1.5 grams. When the LabTec initiates weight dispensing, the first 8.5 grams (85% of total) will be dispensed at a high pump rate (e.g.100% of max.), while the last 1.5 grams (15% of total) will be dispensed slowly to avoid overshooting the target weight. The SLOW FACTOR as well as the LabTec pump rate is user-selectable.
- 5.7 **PUMP DIRECTION:** Defines pump head rotation; this parameter can be changed from clockwise (CW, default) to counter clock-wise (CCW).
- 5.8 **PUMP RATE:** Defines the relative pump speed (0% to 100% of max.) with which the solution is being dispensed. Typically, this parameter is set at 100% (default), however, a slower pump speed is advisable if excessive back splashing should occur.
- 5.9 **TIME DELAY:** Defines the time interval, in seconds, between dispensing cycles
- 5.10 **COUNT:** Defines how often the dispensing cycle will be repeated. For example, when COUNT = 10, then the selected DISP. WEIGHT (Methadone weight) will be dispensed 10 times.

6.0 Setup: *Edit*



6.0 Setup: Edit

Summary: The Setup menu consists of seven (7) entries. In 6.1 Setup: Scale, you select from five (5) different manufacturer of electronic balances: Sartorius, Mettler, Ohaus , Ohaus 2 and Toledo. For Methadone dispensing select "Ohaus" (SciLog P/N: 100-4100B), for detail see page B12. By choosing Ohaus for scale manufacturer the LabTec automatically selects and implements the correct communications protocol for an Ohaus "Explorer" balance. In 6.2 Setup: System Test you can diagnose the electronic outputs of the LabTec. For testing purposes you need a set of test jumpers (P/N: 080-058). In 6.3 Setup: Printer, the communications parameters for hooking up to a SciLog printer (Cable: P/N: 080-095) or a PC (RS-232 Cable for Serial Port 2: P/N: 080-073) are selected. In 6.4 Setup: Pump certain user-preferences can be selected, whereas the in 6.5 Setup: Vol Units you can toggle the displayed and printed volumetric units from "ml" to " μ l". In 6.6 Setup: Serial allows you to set the communications parameter for Serial Port 1 (RS-232 Cable: P/N: 080-050) labeled "Balance". 6.7 Setup: Cal Offset (see page A4, Y-Intercept Adjustment) Used to offset calibration bias at small dispensing volumes.

NOTE: Use "Up" and "Down" keys to make a selection, then press "Select" to implement that selection.

- 6.1 Setup: Scale** The following electronic scales can be accommodated by the LabTec: Mettler PM and PG Series balances (Mettler); Ohaus GT Series, GT "Precision Advanced" models (Ohaus) as well as the Ohaus "Explorer" Series, for "Explorer" setup see page B12. . The Ohaus High Capacity "IP" Series can be used when the "Ohaus2 " parameter is selected and the Sartorius MC-1 Series can be interfaced when "Sartorius" is the selected manufacturer.
- 6.2 Setup: System Test** Allows you to diagnose the outputs of the LabTec; requires you to connect a set of test jumpers (P/N 080-058) into the DB37 labeled "I/O" port for testing.
- 6.3 Setup: Printer:** Select communications parameters for SciLog printer (P/N 080-095) or PC. Default settings are for communications with a printer, select Print Time (1), (one update per minute), Baud Rate 9600 w/Printer, 1200 w/PC Stop Bits 2, Parity None, Word Length 8, Print Delay = 4 sec. for printer, Print Delay = 0 sec. for PC. See Page B12 for printout format.
- 6.4 Setup: Pump** Select the following user preferences: Keypad Beep (On/Off), Switch Configuration (Level / Pulse, input at Foot Switch port), Factory Reset: (Resets all variable pump parameters to their original, factory defaults). Motor Start (Hard / Soft-Ramp), Power Up (Mode/Menu), LCD Adjust (Display Contrast Adjust), ASCII Feedback (On / Off, output at Serial Port 1 labeled "Balance", need RS-232 cable (P/N 080-050)).
- 6.5 Setup: Vol. Unit** User-selected volumetric units, either milliliters (ml) or microliter (μ l), selected units will be displayed as well as printed out. *Requires volumetric re-calibration (RE-Cal key) when changed.*
- 6.6 Setup: Serial** User-selectable communications parameters for the Serial Port 1 labeled "Balance" Default values: Baud Rate: 9600; Address: 0; Stop Bits: 2; Parity: None; Word length: 8.
- 6.7 Setup: Cal Offset** See page A4 for instructions, "Y-Intercept Adjustment"

6.10 "Explorer" Series Ohaus Balances: *For Methadone dispensing you need an "Explorer" balance (SciLog P/N: 100-4001B) with 0.01 gram readability*

You need a SciLog balance cable (P/N: 080-066). Delta range balances with movable Fine Range™ cannot be accommodated.

Select the following parameters from the Ohaus Setup Menu: Press the Ohaus Balance "SETUP" button at the front panel. From the "READOUT" menu, select the following parameters:

Filter:	2
Stable:	1d
Auto O:	Off

From the "RS-232" menu select the following parameters:

Baud:	9600
Parity:	None
Data:	7
Stop:	2

Verify that all of the above parameters have been entered and accepted by the balance. In the LabTec SETUP mode, select SETUP: SCALE, then select OHAUS. Connect the balance cable (P/N 080-066) marked "Ohaus" to the balance. The LabTec is now able to communicate with the Ohaus balance.

6.30 LabTec Print-out Format:

6.31 Dispensing By Volume:

LabTec: EXEC 1: DISP. VOLUME = 10.00 ml; COUNT = 4; RATE = 100%; DATE:

ID = 1;	CV = 10.03;	DV = 10.03;	ST = FINISH
ID = 2;	CV = 20.58;	DV = 10.55;	ST = STOP
ID = 2;	CV = 30.58;	DV = 10.00;	ST = FINISH
ID = 3;	CV = 40.60;	DV = 10.02;	ST = FINISH
ID = 4;	CV = 50.65;	DV = 10.05	ST = FINISH

6.32 Dispensing By Weight:

LabTec: EXEC 1: DISP. WEIGHT = 10.00 gr; COUNT = 4; RATE = 75%; DATE:

ID = 1;	CW = 10.05;	DW = 10.05;	ST = FINISH
ID = 2;	CW = 20.10;	DW = 10.05;	ST = FINISH
ID = 3;	CW = 30.13;	DW = 10.03;	ST = FINISH
ID = 4;	CW = 40.63;	DW = 10.50;	ST = STOP
ID = 4;	CW = 50.67;	DW = 10.04;	ST = FINISH

NOTE: Immediate data printout when "STOP" key is pressed; all other data are printed out at the completion of the dispensing cycle. The following abbreviations are used in the printout.

ID=Sample #	DW=Diluent Weight	DV=Dil. Volume
ST=Status	CV=Cumul. Volume	CW= Cumulative. Weight/Volume

V. 1.80 METH Hyper Terminal Settings:

LabTec to PC: PC connections via Serial Port 2 labeled "Printer Port" require a SciLog RS-232 Cable (P/N: 080-073).

Caution: If you are using third-party software for Methadone dispensing and inventory control, contact your software vendor first before changing any of the Hyperterminal settings.

The following terminal setting procedure is intended for PC's with a Windows 95/98 software installation. Press the Windows 95/98 START button in the lower left corner of your screen, select "Programs", then "Accessories", then "Communications", then select and open the "HyperTerminal" folder. Locate and double-click on the HyperTerminal icon. (Hyperterm)

1. From the "Connection Description" screen, select an icon and enter a file name, i.e. LabTec. Press "OK".
2. From the "Phone Number" screen, select "Direct to Com 1" in the box labeled "Connect using:" or select any other available Com Port. Press "OK".
3. From the "Com 1 Properties" screen, select the following parameters:
 - a. Bits per Second: 9600
 - b. Data Bits: 8
 - c. Parity: None
 - d. Stop Bits: 2
 - e. Flow Control: NonePress "OK"
4. Go to the "File" menu, and open "Properties". From the "LabTec Properties" screen, select the "Settings" tab, and enter the following:
 - a. Terminal Keys: Select
 - b. Emulation: TTY
 - c. Backscroll Buffer: 500
5. While still in the "Settings" screen, press the "ASCII Setup" button and select the following from the "ASCII Setup" screen:
 - a. Send Line Ends with Line Feed: Select
 - b. Echo Typed Characters Locally: Select
 - c. Line Delay: 10 msec.
 - d. Character Delay: 10 msec.
 - e. Append Line Feeds: No Selection
 - f. Wrap Lines that exceed.....: No SelectionPress "OK" at the bottom of the "LabTec Setup" screen.
Press "OK" at the bottom of the "LabTec Properties – Settings" screen.

