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1. GENERAL INFORMATION

This service manual contains information and instructions for providing instrument service on the Micromeritics AccuPyc 1340, and is intended for use by Micromeritics' factory-trained and supported service personnel.

Organization of the manual

The AccuPyc service manual is organized as follows:

Chapter 1  GENERAL INFORMATION
Provides general information about the service manual and its contents.

Chapter 2  FUNCTIONAL DESCRIPTION
Provides a functional description of analyzer components.

Chapter 3  ANALYSIS SEQUENCE
Provides a description of the analysis sequence.

Chapter 4  PREINSTALLATION
Provides Preinstallation requirements and checklist.

Chapter 5  INSTALLATION
Provides Installation Instructions.

Chapter 6  OPERATOR TRAINING
Provides a checklist for training operators on the use of the AccuPyc analyzer.

Chapter 7  MAINTENANCE DOCUMENTS
Provides scheduled maintenance documents.

Chapter 8  CALIBRATION PROCEDURE
Provides a copy of the Factory Calibration Procedure.
## Using This Manual

This manual is most efficiently used from the Micromeritics web site. However, it can be downloaded to a portable media device, such as a CD or a USB stick.

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<th>Chapter 9</th>
<th>MECHANICAL AND ELECTRICAL DRAWINGS</th>
</tr>
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<tbody>
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<tr>
<td></td>
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<th>Chapter 11</th>
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<tr>
<td></td>
<td>software?</td>
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<th>Chapter 12</th>
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<tbody>
<tr>
<td></td>
<td>Provides links to current versions of the operator manuals.</td>
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<table>
<thead>
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<th>Chapter 13</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Provides a syllabus for training service personnel.</td>
</tr>
</tbody>
</table>
2. FUNCTIONAL DESCRIPTION

Overview

This section describes the systems and components that comprise the AccuPyc 1340 instrument. It includes graphics showing the location of the major systems, modules, and components, as well as the functional descriptions.

The AccuPyc 1340 pycnometer is a fast, fully automatic density analyzer that provides high-speed, high-precision volume and density measurements on a wide variety of materials including powders, objects, and slurries. The AccuPyc 1340 analyzes solids and slurries having volumes from 0.1 cm$^3$ to 350 cm$^3$.

The 1340 features
- completely automatic operation
- optional FoamPyc software for measuring open- and closed-cell foam materials
- optional graphical user interface
- optional Inserts to provide multiple cell volumes for the 10 cm$^3$ and 100 cm$^3$
- temperature-control version that can be connected to an external bath for analyses at specific temperatures
- a "glove-box" model for analyses in controlled environments
New Product Features

Cabinetry & Exterior

- A new 350 cm³ version has been added to the fleet of AccuPycs
- Ability to add up to 5 additional analytical units via interface cables.
- Alpha-numeric data entry allows any combination of characters and digits to be entered into text fields when an optional USB keyboard is attached to the Control Unit.
- 1340 input fields allow for more character strings than the 1330 AccuPyc.
- The 1340, when connected to an intranet connection, has the ability to send e-mail with HTML formatted results at the conclusion of every analysis.
- Direct mass balance interface capabilities. The 1340 can be directly connected to a mass balance (via RS-232 on the stand-alone unit or USB on the Windows-interface) that can transfer the sample mass without transcription errors.
- The AccuPyc II 1340 can be connected to a USB printer.

Controller Module

- The LCD will display 4 lines of 20 characters whereas the 1330 displayed 2 lines.
- In the case multiple analyzers are connected to the control unit, the keypad will be able to select which analyzer is being worked on.
- Valve states will be indicated on the alpha numeric display.

Analyzer Module

- IC Sensor transducers replace the Setra transducer

PCBs

- All new PCB boards are used in the AccuPyc 1340.
1340 Software

Stand-alone Unit

- Software will be distributed electronically or through USB sticks.

Windows-interface Unit

- Standard Windows features.
- Standard MIC user interface.
- Compatible with any printer supported by Windows.
- Convenient storage and retrieval of historical data.
- The 1340 Windows interface allows the use of a keyboard and mouse for menu manipulation and data input. This allows for faster and more reliable method of data entry.
- Presents analysis data in graphical or tabular form.
- Exports reports in a suitable format for incorporation into word processor and spreadsheet programs.
- Accepts sample identification fields from a compatible bar code reader.
- Accepts sample mass from a compatible USB laboratory balance.
- Time-based pressure equilibration monitoring.
- Run-based displacement volume monitoring.
- New calculations include total solids concentration and total pore volume, and measured skeletal volume.
- New sequencing of analyses.
- Automatic export at end of analysis.
Instrument Components

The AccuPyc 1340 Pycnometer is comprised of these major components and systems:

- Cabinetry
- Interior/Analyzer Block
- Software
- Schematic Diagram
- Printed Circuit Boards (PCBs)
- Power Module

The following sections in the chapter describe the function and location of these components.

Cabinetry

The cabinetry used for the AccuPyc provides the mounting structure for the analyzer system and comes in three major styles: control module with analyzer, control module without an analyzer a.k.a. the glove-box unit, and analysis unit.

Front

Control Module & Glove-box

The front panel of the control module is called the controller. Its components consist of the keyboard, the LCD screen, the power indicator, and the busy indicator. The controller has the ability to control up to six analysis modules.

- The keypad, on the stand alone version of the control module, enables the user to enter commands for the analyzer. Refer to the Software: Stand-Alone section for a detailed description of keypad functions.
- The LCD display consists of four lines and provides information about the analyzer and the current operation.
- The power indicator is a green LED and illuminates when the analyzer is turned on.
- The busy indicator is a blue LED and illuminates when an operation is in progress. Additionally, this indicator blinks when waiting for the operator to start an automatic...
operation.
† - The busy indicator is not on the glove-box version of the control module.

Analysis Module

The Analysis Module is used in conjunction with a control module. The front of the analysis module, like the control module, has two indicators to show the status of the analysis module.
- The power indicator is a green LED and illuminates when the analyzer is turned on.
- The busy indicator is a blue LED and illuminates when an operation is in progress. Additionally, this indicator blinks when waiting for the operator to start an automatic operation.

The results of the analysis are displayed either in the LCD screen of the control module, for the stand-alone option or the instrument schematic, for the Windows option.

Top

Control & Analysis Modules

The top panel contains the sample compartment in which the sample container is placed for analysis, or the standard(s) for calibration. The sample compartment should remain capped except when inserting or removing a sample. The compartment temperature becomes unstable when left uncapped, and may affect analysis results.

Some control modules, such as the glove-box version, do not contain a sample compartment.
Glove-box Module

If the analyses are performed in a controlled environment, a “glove-box” model of the control module may be appropriate. In the glove-box module, the analyzer is omitted from a control unit and is used in conjunction with an analysis unit. As such, the glove-box control module, has a smooth top with no cap.

Side

The left and right side panels for the AccuPyc 1340 are smooth panels and do not contain any openings that are essential to the operation of the instrument.
Rear

Control Module

There are two versions of the rear panel that the control module can have. The standard version of the rear panel of the controller module has an ethernet port, USB port, power switch, analysis module connector, gas inlet port, power adapter port, and RS-232 port. The temperature-controlled version of the Accupyc is similar to the standard version with the exception of having entry and exit ports for the circulating bath plumbing. To learn more about the temperature-controlled version of the Accupyc, refer to Interior/Analyzer Block: Temperature-Controlled Units section.

Glove-box Control Module

The components of the glove-box control module’s rear panel are the ethernet port, USB ports, power switch, power adapter connector, RS-232 port, and analysis module connector. The rear
panel of the glove-box control module differs from the standard control module because a glove-box module does not contain an analyzer. As such, there is no need to have a gas line connect to the module. Furthermore, with no analyzer block, the glove-box control module does not have a temperature-control option. Although, the glove-box control module does not have all the elements of a normal control module, the analyzer that it is connected to has a gas line and may be temperature-controlled.

**Analyzer Module**

Since the analyzer module is always connected to a control module, it does not require the same connectivity as control module. However, like the control module, the analyzer boasts two configurations: standard and temperature-controlled. The standard version of the rear panel of the analysis module has two analysis module connectors and a gas inlet port. The temperature-controlled version of the analysis module is similar to the standard version with the exception of having entry and exit ports for the circulating bath plumbing.

**Serviceable Components**

The cabinetry has no serviceable components.
Interior/Analyzer Blocks

Control Module

The control module interior is comprised of the analyzer block, three PCBs (excluding the boards that are attached to the purchased LCD display and keypad subassemblies). The analyzer block comes in three sizes: 1 cm³, 10 cm³, 100 cm³. Furthermore, the analyzer block can come with inserts that allow for the analysis of sample sizes smaller than the sample chamber. The 1 cm³ analysis block has a standard 0.1 cm³ for calibration purposes; the 100 cm³ block has 1 cm³ and 3.5 cm³ inserts available; and the 100 cm³ has the option of 10 cm³ and/or 35 cm³ inserts.

The following components are also included in the control module:
- Analysis Controller PC board
- Controller Interconnect PC board
- ARM CPU Controller PC board
- Power indicator LED
- Module status LED
- LCD display subassembly
- Keypad subassembly
- 30 PSIG sample pressure transducer
• Three latching solenoid valves that represent the fill, expansion, and vent valves
• RTD block temperature sensor
• Serial output interface, with power output protection, for additional analysis module connection
• Gas inlet and vent
• Sample cell block with expansion chamber and plumbing
• Sample cell
• Cell cap

**Glove-Box Control Module**

The glove-box version of the control module interior is quite different from the standard control module as it does not contain an analyzer block nor does it contain the associated parts of an analyzer block. This is done for situations where analyses are done in an inaccessible location and the sample chamber or analyzer block needs to be in a controlled environment. The glove-box control module has two PCBs (excluding the boards that are attached to the purchased LCD display and keypad subassemblies). Additionally, since there is no block, there is no need for a sample cell cap as is shown on the standard control and analysis modules or the blue module status LED.

The following components are included in the glove-box control module:
• Controller Interconnect PC board
• ARM CPU Controller PC board
• Power indicator LED
• LCD display subassembly
• Keypad subassembly
• Serial interface to controller module, with power input filter
• Serial output interface, with power output protection, for additional analysis module connection
Analyzer Module

The analyzer module interior, like the control module has an analysis block, and has only one PCB. The analyzer block comes in four sizes: 1 cm³, 10 cm³, 100 cm³, and 350 cm³. Again, the analyzer blocks have the option of having inserts for the analysis of smaller samples than the chamber’s maximum capacity. The 1 cm³ analysis block has a standard 0.1 cm³ for calibration purposes; the 100 cm³ block has 1 cm³ and 3.5 cm³ inserts available; and the 100 cm³ has the option of 10 cm³ and/or 35 cm³ inserts.

The analyzer consists of the sample block with supporting electronics and plumbing.

The following components are included in the analyzer:

- Analysis Controller PC board
- Power indicator LED
- Module status LED
- 30 PSIG sample pressure transducer
- Three latching solenoid valves that represent the fill, expansion, and vent valves
- RTD block temperature sensor
- Serial interface to controller module, with power input filter
- Serial output interface, with power output protection, for additional analysis module
- Gas inlet and vent
- Sample cell block with expansion chamber and plumbing
- Sample cell
- Cell cap
- Optional cell inserts
Temperature-Controlled Units

The 1340TC model allows regulation of the sample chamber’s temperature with a circulating bath. The temperature-controlled version of the AccuPyc is available only with the 10 cm³ or 100 cm³ sample cells. Temperature controlled analyzers will also have inlets and outlets on the rear panel of a unit to attach the user-supplied constant-temperature bath.

In the instance that a customer has a temperature-controlled unit, service men may need to perform maintenance to the plumbing units housed within the AccuPyc.

Serviceable Components

None
Once the software is loaded into the stand-alone version of the AccuPyc, the 1340 is operated through the keypad. The controller will have two PC boards to provide main processor control of the instrument, program and data storage, power distribution, internal and external communications, peripheral connections, user interface, and analyzer interface. The controller also contains the initial boot block software.

The 1340 pycnometer performs operations via the keypad interface. Most of the keys on the 4x4 keypad have two functions. The primary function is printed on the keypad in black text, while the secondary function is printed above the primary function in blue text. The secondary functions are accessed by pressing the blue Alt button located in the upper right corner of the keypad. The following tables describe in detail the functions that the AccuPyc can perform.
### Table 2-1. Standard Keys

<table>
<thead>
<tr>
<th>Key</th>
<th>Used To</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 through 9</td>
<td>Enter the numbers 0 through 9</td>
</tr>
<tr>
<td>. (decimal)</td>
<td>Enter a decimal point, a dash for sample or instrument ID, a slash for date, or a colon for time</td>
</tr>
<tr>
<td>ENTER</td>
<td>Complete an entry or begin an action</td>
</tr>
<tr>
<td>CHOICE</td>
<td>Display the next message when in display mode.</td>
</tr>
<tr>
<td></td>
<td>Display the next multiple choice item when in a command mode.</td>
</tr>
<tr>
<td>CLEAR</td>
<td>Clear a message when in display mode.</td>
</tr>
<tr>
<td></td>
<td>Clear an entry when in a command mode.</td>
</tr>
<tr>
<td>SAVE</td>
<td>Save the information you entered and return to display mode.</td>
</tr>
<tr>
<td>ALT key</td>
<td>The <strong>ALT</strong> key changes the keypad mode. The keypad may be used in either primary function mode or alternate function mode.</td>
</tr>
<tr>
<td></td>
<td>When you press the <strong>ALT</strong> key to enter alternate function mode, a plus sign (+) appears in the upper right corner of the display and the commands written above the keys become available.</td>
</tr>
<tr>
<td></td>
<td>When you complete the operation accessed using the <strong>ALT</strong> key, you automatically exit the alternate mode and return to the <strong>Reload</strong> prompt.</td>
</tr>
<tr>
<td></td>
<td>If you press the <strong>ALT</strong> key by mistake and do not wish to use the alternate functions, simply press <strong>ALT</strong> again to exit the alternate mode and return to the <strong>Reload</strong> prompt.</td>
</tr>
</tbody>
</table>
### Table 2-2. Key Combinations for Alternate Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Key(s)</th>
<th>Used To</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZERO</td>
<td>ALT + 0</td>
<td>Zero the pressure transducer.</td>
</tr>
<tr>
<td>CALIBRATE</td>
<td>ALT + . (decimal)</td>
<td>Calibrate the pycnometer.</td>
</tr>
<tr>
<td>MANUAL</td>
<td>ALT + 1</td>
<td>Enables manual mode, allowing you to open and close the Fill (Key 7), Expand (Key 8), and Vent (Key 9) valves. The state of the valve is shown on the second line of the display, where X = closed and O = open. Press <strong>ALT + CLEAR</strong> to exit manual mode and return to the <strong>Reload</strong> prompt.</td>
</tr>
<tr>
<td>FILL</td>
<td>7</td>
<td>Open or close the Fill valve; the first character on the second line represents the Fill valve. You must be in manual mode for this function.</td>
</tr>
<tr>
<td>EXPAND</td>
<td>8</td>
<td>Open or close the Expansion valve. The second character on the second line represents the Expansion valve. You must be in manual mode for this function.</td>
</tr>
<tr>
<td>VENT</td>
<td>9</td>
<td>Open and close the Vent valve; the third character on the second line represents the Vent valve. You must be in manual mode for this function.</td>
</tr>
<tr>
<td>SET UP</td>
<td>ALT + 2</td>
<td>Display or edit analysis parameters, report options, calibration data, data transmission parameters, unit types, operating language, and date and time.</td>
</tr>
<tr>
<td>TRANSMIT</td>
<td>ALT + 3</td>
<td>Transmit analysis or calibration data over the serial line. Transmit a partial report if an automatic operation is in progress.</td>
</tr>
<tr>
<td>ESCAPE</td>
<td>ALT + CLEAR</td>
<td>Discard all data entered in the current mode and return to display mode. Cancel an automatic operation if in progress. Exit manual mode.</td>
</tr>
<tr>
<td>ANALYZE</td>
<td>ALT + 4</td>
<td>Perform an analysis.</td>
</tr>
<tr>
<td>REVIEW</td>
<td>ALT + 5</td>
<td>Review completed analysis or calibration data.</td>
</tr>
</tbody>
</table>
Table 2-2. Key Combinations (continued)

<table>
<thead>
<tr>
<th>Function</th>
<th>Key(s)</th>
<th>Used To</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINT</td>
<td>ALT + 6</td>
<td>Print an analysis or calibration report. If an automatic operation is in progress, print a partial report.</td>
</tr>
<tr>
<td>UNIT</td>
<td>ALT + CHOICE + [unit number]</td>
<td>Select the unit you plan to use for the current operation. This command is used when multiple analysis units are attached. For example; you have five units attached and you plan to use unit three for the next analysis. Press ALT + CHOICE + 3; any command you use will apply to unit three. You can also use the UNIT command to view the progress of an analysis when multiple units are attached. For example; you have analyses in progress on units one, two, and three. Press ALT + CHOICE + 2 to view the status of the analysis on unit two.</td>
</tr>
</tbody>
</table>

Refer to the Operator’s Manual for more information on the operation of the keypad version of the AccuPyc.

Windows Front End

The Windows Front End version of the AccuPyc software allows for control of the instrument through software developed by Micromeritics to run on the Microsoft Windows. Windows versions of the instrument are compatible with each other and analyzers and all kinds of other stuff too.

FoamPyc

The FoamPyc option for the AccuPyc 1330 Density Analyzer lets you measure, calculate, and report the percentage of open cell volume in blocks of foamed or cellular plastic, glass, rubber, or metal.

These foamed materials have thin membranes or walls that separate internal cavities or cells. These cells can be open or interconnecting, closed or non-connecting, or a combination of open and closed. With the FoamPyc flashcard, you can determine the percentage of sample volume occupied by open cells, as well as closed cells.

If the FoamPyc option is purchased, the FoamPyc embedded software will be pre-loaded for the customer.
The schematic diagram of the AccuPyc is displayed on the computer screen by the AccuPyc software. The schematic diagram is only available on AccuPycs having the Windows-based front end option. Otherwise, the software for the AccuPyc is preloaded and embedded into the controller of a Control Module. The schematic shows:

- The current state of each valve: a green circle indicates an open valve, while a white (yellow, if in manual mode) circle represents a closed valve.
- The pressure reading from the transducer.
- The current temperature within the AccuPyc on a temperature-controlled model.

The AccuPyc can be operated in manual mode via the computer screen. When in manual mode, the user can control the state of any of the valves on the screen by double-clicking the valves to open and close them or right-clicking on a specific valve with a pointer device to open and close the valves.

1 - Fill valve
2 - Expansion valve
3 - Vent valve
4 - Transducer
5 - Temperature sensor
6 - Sample chamber†
7 - Expansion chamber†

† - In the 1cc model of the AccuPyc, the sample passes through the expansion chamber before making its way into the sample chamber. As such, items 6 & 7 are reversed on the schematic for the 1cc Windows front-end version.
Printed Circuit Boards

Analysis Controller Board

The analysis controller board is responsible for controlling the functions of the analyzer block. These functions include opening and closing the valves as well as reading the temperature and pressure within the block. The analysis controller board is attached to the block assemblies. The manner in which it is attached to the block assembly is via a custom designed sheet metal bracket. This board is found in all unit configurations that have an analysis block. As such, the glove-box control module does not have an analysis controller board.

Controller Interconnect Board

The controller interconnect board is responsible for supplying power to instrument and controlling the functions of the LCD display and the keypad. The AccuPyc receives DC power via a power input connector on the controller interconnect board. This power input will be switched and filtered. The main power switch will also be located on the back next to the power connector. The test points located on this board verify that the appropriate voltage and current is running on the board. This board is found in both the standard and glove-box versions of the control module.
ARM CPU Controller

The ARM CPU controller board is responsible for the connectivity of external devices to the AccuPyc 1340. The components consists of an ethernet connector to communicate to a network, USB connectors for devices such as a keyboard or a printer, and the RS-232 port connector to connect to a computer. This board is found in both the standard and glove-box versions of the control module.

Serviceable Components

None of the PCBs in the AccuPyc 1340 is repairable. As such, there are no serviceable components on the PCBs. If a board becomes defective, it must be replaced with an entirely new board.

- Analysis Controller Board
- Controller Interconnect Board
- ARM CPU Controller
Power Module

Control Module

The main power switch to the instrument is located on the rear panel above the power connector. Power for the 1340 is provided by an external DC power supply attached to the control unit.

The power supply has a universal input range of 100VAC to 240VAC, 47-63Hz and is designed to handle +5VDC at 5A and +12VDC at 5A. It uses a standard IEC AC power cord. The DC power supply for the control module has a shielded DC output cable with a 5-pin DIN connector. Test points for the DC input power will be provided inside on the controller interconnect PCB.

Analysis Module
The control module distributes power to the analysis module through analysis interface cables. The control module is capable of providing power for the 1340 controller and up to five analysis modules. The interface cables are shielded with an 8-pin mini-DIN connector on each end. Each analysis module has output connectors to receive and distribute DC power to other analysis modules.
3. ANALYSIS SEQUENCE

This chapter steps you through an analysis, showing the state of the valves and manifold during each step. Double-click on the following link to access the analysis sequence.

- Analysis Sequence
4. PREINSTALLATION

This chapter contains the Preinstallation Instructions and Checklist for the AccuPyc 1340. This document helps to ensure that the customer has prepared the laboratory for installation of the instrument and that the supplies, equipment, and personnel are available for installation.

Double-click on the following link to access the preinstallation instructions and checklist.

**Preinstallation Instructions and Checklist** P/N: 134-42870-01.
5. INSTALLATION

Installation instructions for the AccuPyc 1340 analyzers are located as follows:

- **AccuPyc 1340 Keypad version**: Chapter 2 of the operator’s manual.

- **AccuPyc 1340 Windows version**: This is a user-installed product; therefore it contains an installation video on the setup CD.

- **FoamPyc 1340 Keypad version**: Chapter 2 of the operator’s manual.

- **FoamPyc 1340 Windows version**: Chapter 2 of the operator’s manual.
6. OPERATOR TRAINING

The Operator Training Checklist is used in conjunction with the operator’s manual and software to train the person(s) who will be operating the analyzer. Click below to access the Operator Training Checklist.

- Operator Training Checklist, P/N: 134-42870-03.
7. MAINTENANCE DOCUMENTS

The documents listed below are included in Service PM kits, which may be purchased by the user for proper maintenance of his analyzer. Use of these PM plans also help to prolong the life of the analyzer.

- **Maintenance Schedule**, P/N: 134-42890-00
- **Scheduled Maintenance Checklist**, P/N: 134-42891-00
- **Scheduled Maintenance Procedures**, P/N: 134-42892-00
- **As-Found Datasheet**, P/N: 134-42893-00
- **Calibration Certificate**, P/N: 134-42894-00
8. CALIBRATION PROCEDURE

This chapter contains the calibration and test procedure used in Micromeritics’ Final Assembly Department. It is provided as a reference so that you will be familiar with the calibration procedures and instrument tests that are performed on the instrument during manufacture.

The methods used at the factory may differ from the methods documented in Chapter 7, Maintenance Documents. Use the established service calibration and test procedure unless otherwise directed by a Micromeritics Service Manager or Service Specialist.

- Product Calibration Procedure, P/N: 134-34000-76.
9. MECHANICAL AND ELECTRICAL DRAWINGS

This section contains mechanical and electrical drawings for the AccuPyc 1340. These drawings show assemblies in great detail. Some parts listed in these prints may be available only as an assembly or in a kit.

Do not provide copies of these drawings to a customer.

Mechanical

Refer to the following table for a list of the mechanical prints. Double-click on the part number to view the print.

<table>
<thead>
<tr>
<th>Print Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control Module (CM)</strong></td>
<td></td>
</tr>
<tr>
<td>003-63813-20</td>
<td>Cable, ribbon, 20 Cond, Twst PR, N 201</td>
</tr>
<tr>
<td>134-34000-00</td>
<td>Assembly, Semi-Final, 1CC CM</td>
</tr>
<tr>
<td>134-34000-01</td>
<td>Assembly, Semi-Final, 10CC CM</td>
</tr>
<tr>
<td>134-34000-02</td>
<td>Assembly, Semi-Final, 100CC CM</td>
</tr>
<tr>
<td>134-34000-03</td>
<td>Assembly, Semi-Final, Temp-Controlled 10CC CM</td>
</tr>
<tr>
<td>134-34000-04</td>
<td>Assembly, Semi-Final, Temp-Controlled 100CC CM</td>
</tr>
<tr>
<td>134-34000-05</td>
<td>Assembly, Semi-Final, No Analyzer Block CM</td>
</tr>
<tr>
<td>134-34001-00</td>
<td>Assembly, Top CM with Block</td>
</tr>
<tr>
<td>134-34001-02</td>
<td>Assembly, Top CM without Block (Glovebox)</td>
</tr>
<tr>
<td>134-34005-00</td>
<td>Assembly, Base CM</td>
</tr>
<tr>
<td><strong>Analysis Module</strong></td>
<td></td>
</tr>
<tr>
<td>134-34000-06</td>
<td>Assembly, Semi-Final, 1CC AM</td>
</tr>
<tr>
<td>134-34000-07</td>
<td>Assembly, Semi-Final, 10CC AM</td>
</tr>
<tr>
<td>134-34000-08</td>
<td>Assembly, Semi-Final, 100CC AM</td>
</tr>
<tr>
<td>134-34000-09</td>
<td>Assembly, Semi-Final, 350CC AM</td>
</tr>
<tr>
<td>134-34000-10</td>
<td>Assembly, Semi-Final, Temp-Controlled 10CC AM</td>
</tr>
<tr>
<td>134-34000-11</td>
<td>Assembly, Semi-Final, Temp-Controlled 100CC AM</td>
</tr>
<tr>
<td>134-34001-01</td>
<td>Assembly, Top AM</td>
</tr>
<tr>
<td>Print Number</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>134-34005-01</td>
<td>Assembly, Base AM</td>
</tr>
<tr>
<td>134-34005-02</td>
<td>Assembly, Base, 350CC AM</td>
</tr>
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</table>

**Common Prints**

<table>
<thead>
<tr>
<th>Print Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>003-60805-00</td>
<td>Cable, RTD, 1000 Ohm, 2-Wire</td>
</tr>
<tr>
<td>003-63806-00</td>
<td>Cable, LED, Blue</td>
</tr>
<tr>
<td>003-63807-00</td>
<td>Cable, LED, Green</td>
</tr>
<tr>
<td>134-34004-00</td>
<td>Assembly, Block, 1CC</td>
</tr>
<tr>
<td>134-34004-01</td>
<td>Assembly, Block, 10CC</td>
</tr>
<tr>
<td>134-34004-02</td>
<td>Assembly, Block, 100CC</td>
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<tr>
<td>134-34004-03</td>
<td>Assembly, Block, 350CC</td>
</tr>
<tr>
<td>134-34004-04</td>
<td>Assembly, Block, 10CC Temp-Controlled</td>
</tr>
<tr>
<td>134-34004-05</td>
<td>Assembly, Block, 10CC Temp-Controlled</td>
</tr>
</tbody>
</table>

**Electrical**

Refer to the following table for a list of the electrical drawings. Double-click on the part number to view the print.

<table>
<thead>
<tr>
<th>Print Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>134-17702-011</td>
<td>PCB, Controller Interconnect</td>
</tr>
<tr>
<td>134-17702-511</td>
<td>Schematic, Controller Interconnect</td>
</tr>
<tr>
<td>003-17634-00</td>
<td>ARM CPU Controller</td>
</tr>
</tbody>
</table>

**Control Module**

**Analysis Module**

<table>
<thead>
<tr>
<th>Print Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>134-17723-011</td>
<td>PCB, Analysis Controller</td>
</tr>
<tr>
<td>134-17703-511</td>
<td>Schematic, Analysis Controller</td>
</tr>
</tbody>
</table>
10. SERVICE PARTS

This section contains a list of approved repair parts for this instrument. The Quantity column reflects the quantities included in the Service Parts Kit, P/N: 134-33680-00.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>003-20829-00</td>
<td>1</td>
<td>Display assembly 20 x 4</td>
</tr>
<tr>
<td>003-40054-00</td>
<td>1</td>
<td>Power supply, external 5&amp;12 V</td>
</tr>
<tr>
<td>003-51809-02</td>
<td>1</td>
<td>Keypad switch, 16-key numeric</td>
</tr>
<tr>
<td>003-55624-00</td>
<td>1</td>
<td>Transducer, 0-30 psi gauge SST</td>
</tr>
<tr>
<td>003-60621-00</td>
<td>1</td>
<td>Cable, USB A/B, 10 ft.</td>
</tr>
<tr>
<td>003-60623-00</td>
<td>1</td>
<td>Cable, 8 wire mini din, 2 ft.</td>
</tr>
<tr>
<td>003-60623-01</td>
<td>1</td>
<td>Cable, 8 wire mini din, 25 ft.</td>
</tr>
<tr>
<td>003-63801-00</td>
<td>1</td>
<td>Cable, CAT5, 8 cond, RJ45, RJ45, N, 120</td>
</tr>
<tr>
<td>003-63813-20</td>
<td>1</td>
<td>Cable, ribbon, 20 cond, twst pr, N, 201</td>
</tr>
<tr>
<td>004-16007-00</td>
<td>1</td>
<td>Grease, Vacuum, Apiezon H, 25-G tube</td>
</tr>
<tr>
<td>004-25022-00</td>
<td>5</td>
<td>O-ring, -012 70 Duro Buna-N</td>
</tr>
<tr>
<td>004-25076-00</td>
<td>6</td>
<td>O-ring, -015 70 Duro Buna-N</td>
</tr>
<tr>
<td>004-25466-00</td>
<td>6</td>
<td>O-ring, -010 70 Duro Buna-N</td>
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<tr>
<td>004-25467-00</td>
<td>6</td>
<td>O-ring, -14 Kalrez</td>
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<tr>
<td>004-25468-01</td>
<td>12</td>
<td>O-ring, -007 70 Duro Buna-N</td>
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<tr>
<td>004-25469-00</td>
<td>8</td>
<td>O-ring, -014 70 Duro Buna-N</td>
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<tr>
<td>004-25537-00</td>
<td>1</td>
<td>Fitting, 3/16 Barb x 1/16 Npt</td>
</tr>
<tr>
<td>004-25566-01</td>
<td>1</td>
<td>Check valve</td>
</tr>
<tr>
<td>004-25575-00</td>
<td>6</td>
<td>O-ring, -019 70 Duro Buna-N</td>
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<tr>
<td>004-25577-00</td>
<td>6</td>
<td>O-ring, -033 70 Duro Buna-N</td>
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<tr>
<td>004-25581-00</td>
<td>6</td>
<td>O-ring, -044 70 Duro Buna-N</td>
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<tr>
<td>004-25628-00</td>
<td>1</td>
<td>Bearing, needle, 1/4 ID x .438 OD</td>
</tr>
<tr>
<td>004-25637-00</td>
<td>6</td>
<td>O-ring, .549 x .05 70 Duro Buna-N</td>
</tr>
<tr>
<td>004-25689-00</td>
<td>6</td>
<td>O-ring, -037 70 Duro Buna-N</td>
</tr>
<tr>
<td>Part Number</td>
<td>Quantity</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>004-25975-00</td>
<td>2</td>
<td>Fitting, 10-32 to 1/8-in. Barbed</td>
</tr>
<tr>
<td>004-27042-00</td>
<td>5</td>
<td>Frit, 20 µm SS 1/2 DX 1/16 T</td>
</tr>
<tr>
<td>004-27044-00</td>
<td>5</td>
<td>Frit, 0.5 µm SS 1/16 DX 1/16 T</td>
</tr>
<tr>
<td>008-16045-00</td>
<td>1</td>
<td>Grease, high vacuum</td>
</tr>
<tr>
<td>133-25826-01</td>
<td>3</td>
<td>Assembly, tube</td>
</tr>
<tr>
<td>133-25826-02</td>
<td>3</td>
<td>Assembly, tube, block transducer 10 CC</td>
</tr>
<tr>
<td>133-25826-03</td>
<td>3</td>
<td>Assembly, tube, inlet 100 CC block</td>
</tr>
<tr>
<td>133-60804-00</td>
<td>3</td>
<td>Valve, mini Maglatch 12 VDC</td>
</tr>
<tr>
<td>133-60815-00</td>
<td>3</td>
<td>Assembly, cable valves 1 CC</td>
</tr>
<tr>
<td>134-17634-011</td>
<td>1</td>
<td>CPU, 1340, PC104 ARM9</td>
</tr>
<tr>
<td>134-17702-011</td>
<td>1</td>
<td>Controller interconnect</td>
</tr>
<tr>
<td>134-17723-011</td>
<td>1</td>
<td>Analysis controller</td>
</tr>
<tr>
<td>134-25812-00</td>
<td>1</td>
<td>Window, LCD display</td>
</tr>
</tbody>
</table>
A demo version of the AccuPyc 1340 software for is available for either the Windows AccuPyc II 1340 for Windows or the AccuPyc 1340 FoamPyc for Windows. Double-click the demo software version you wish to view.

- **AccuPyc II 1340 for Windows**
- **AccuPyc 1340 FoamPyc for Windows**
A printed operator’s manual is shipped with every AccuPyc 1340 analyzer. Analyzers operated in a Windows environment also have an electronic copy accessible from the Help menu.

Listed below are the operator manuals available for the AccuPyc 1340 series analyzers. Click the document you wish to view:

- **AccuPyc 1340 Keypad version**, part number 134-42801-01
- **AccuPyc 1340 Windows version**, part number 134-42802-02
- **FoamPyc 1340 Keypad version**, part number 134-42803-01
- **FoamPyc 1340 Windows version**, part number 134-42804-01
13. SERVICE TRAINING

Service Training is provided to service personnel so that they can become familiar with the AccuPyc II 1340 system. Click Service Training below to view training slides.

- Service Training