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Printing Instructions:

- **Print double-sided, black-and-white or gray scale, from the original file document SASS-9801, latest revision.**
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C-SASS OPERATION MANUAL MODEL 82230 ADDENDUM

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1 INTRODUCTION

1.1 About This Manual

This document is organized with the most important information toward the front of the manual. All users should read and understand the sections on setup, operation, and field audits. Toward the back are sections that provide in-depth information on subjects such as diagnostics and accessories. These sections should be consulted as needed.

This manual is periodically revised for maximum accuracy and to incorporate new features or updates. User feedback is welcome. Electronic versions of this manual are available upon request.

1.2 Technical Service

Should you still require support after consulting your printed documentation, we encourage you to contact one of our expert Technical Service representatives during normal business hours of 7:00 a.m. to 4:00 p.m. Pacific Standard Time, Monday through Friday. In addition, technical information and service bulletins are often posted on our website. Please contact us and obtain a Return Authorization (RA) number before sending any equipment back to the factory. This allows us to track and schedule service work and to expedite customer service.

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Please have your instrument serial number available when contacting the manufacturer. On most models manufactured by Met One Instruments, it will be located on a silver product label on the unit, and also printed on the calibration certificate. The serial number will begin with a letter and be followed by a unique four or five digit number such as F8029 or M20584.

1.3 Carbon Monitoring

The C-SASS is designed to collect low concentration species (such as carbon particulate) that may be present in the ambient air. It accomplishes this task by using a higher flow volume of 22 LPM through a specific PM_{2.5} size selector on one channel. The remaining four channels utilize the standard 6.7 LPM flow rate and are suitable for conventional sampling.

The measurement of ambient carbon particulate is outlined in the United States National PM_{2.5} μ m Chemical Speciation Network. The C-SASS sampler's high flow channel has been designed to meet the USEPA requirements for carbon measurements for comparability with the rural Interagency Monitoring of Protected Visual Environments (IMPROVE) PM_{2.5} carbon concentration data.

1.4 What's Different in the C-SASS?

The C-SASS replaces the critical orifice in channel number four with an active flow controller that maintains flow at 22 LPM. The sharp cut cyclone and canister located in the sample head at position number 4 are replaced with a 25mm filter canister and 22LPM PM2.5 cyclone. This allows the channel to capture carbon particulate at the higher flow rate. The carbon sample canister uses a 25 mm filter holder instead of the traditional 47 mm holder found on the other four channels.



Figure 1-1

Carbon Sampling Canister Installed in Head



Figure 1-2

Carbon Sampling Canister and Cyclone



Figure 1-3

Carbon Channel Flow Controller

The flow sensor, tubing, and connectors for this channel have been updated to accommodate the added volume of air passing through them. In addition, the pump has changed to be able to provide the required additional capacity and the firmware in the control box revised. The pump box and sample head assemblies have been modified to enable them to house the unique pump and canister/cyclone assemblies.

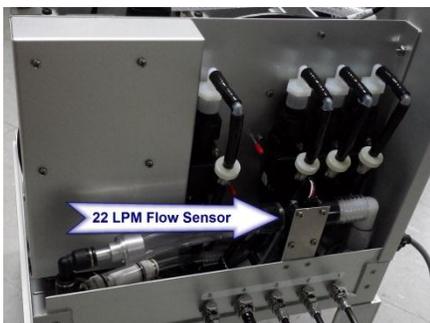


Figure 1-4

Carbon Channel Flow Sensor



Figure 1-5

Carbon Connector Configuration



Figure 1-6

Carbon Pump Installation

All routine maintenance can still be done in the field. The sample canisters are still transported to the laboratory for inspection, cleaning, and changing of sampling substrates.

2 SITE SELECTION and SETUP

Use the following information to correctly assemble, configure, and deploy the sampler. Installation of the sampler should ideally be performed by personnel familiar with environmental monitoring equipment. There are no special precautions or handling concerns except for the normal level of care required for handling scientific equipment. Refer to the instructions and diagrams on the following pages.

When unpacking a new instrument, verify that the contents are undamaged. If the shipping cartons are damaged, notify the carrier immediately. Verify that the included accessories are correct and complete. If anything is missing, contact the technical service department at service@metone.com or (541) 471-7111.

2.1 Site Selection

The guidelines provided in the SASS-9800 manual apply to the C-SASS, as well. There are no additional siting requirements.

2.2 Deployment

Deployment of the C-SASS follows the same basic steps as for the standard SASS. Make sure you are using the C-SASS components! Standard SASS parts will not fit the special carbon canister elements, cyclones, etc. All carbon monitor specific sample components may only be installed on channel four. See Section **Error! Reference source not found.** for details.

3 SETUP AND OPERATING PROCEDURES

The C-SASS is connected to power and operations begin in the same manner as the standard SASS. Most of the testing and sampling is performed in the same way. Any differences are noted in the following sections.

3.1 Flow Testing

The guidelines provided in the SASS-9800 manual apply to the C-SASS, with the following exception:

The values for canisters 1, 2, 3, and 5 should be between 6.6 and 6.8 LPM of flow. The value for canister 4 should be between 21.6 and 22.4 LPM or $\pm 2\%$ of 22LPM.

If the flow value is far outside these ranges, then check use the trouble shooting information contained in Section 6.0 of the SASS-9800 manual.

3.2 Event Manager

The guidelines provided in the SASS-9800 manual apply to the C-SASS, as well.

3.3 Flow Audits and Calibration for Carbon Channel

The guidelines provided in the SASS-9800 manual apply to the C-SASS, as well. The only exception is that channel four flow rate will be maintained at 22 LPM.

4 MAINTENANCE and TROUBLESHOOTING

This section provides information about routine maintenance, identifying errors and alarms, and performing diagnostic tests if a problem is encountered on the C-SASS

4.1 *Met One Recommended Periodic Maintenance*

The guidelines provided in the SASS-9800 manual apply to the C-SASS, as well. There are no additional maintenance requirements.

4.2 *Sampler Error and Alarm Descriptions*

All errors and alarms are the same as those listed in the SASS-9800 manual.

4.3 *Basic Problem and Cause/Solution Table*

The guidelines provided in the SASS-9800 manual apply to the C-SASS, as well. The only exception is that channel four flow rate should be maintained at 22 LPM.

5 ACCESSORIES and PARTS

5.1 *Consumables, Replacement Parts, and Accessories*

The C-SASS utilizes most of the same spare parts as the standard SASS. Additional components and those that are different from the standard SASS are listed here.

Calibration & Service Tools

Description	Part Number	Graphic
Defender 520-High Flow (300ml/min to 30 LPM)	BX-311	

Vacuum Pumps & Pump Parts

Description	Part Number	Graphic
Pump, Vacuum	680872	
Muffler, Pump Exhaust	580293	

Flow System Components

Description	Part Number	Graphic
Flow Sensor, Mass, 0-200 LPM, Internal Assembly	970611	
Automatic Flow Controller(22LPM flow controller)	82387	
Filter Assembly, Pisco In-line	580291	
Filter Element Only, Pisco In-line	580292	

Inlet Components

Description	Part Number	Graphic
22LPM PM2.5 Cyclone	82358	
C-SASS 25mm filter Canister	82359	
O-ring, 22LPM PM2.5 Cyclone, Top	720060	
O-ring, 22LPM PM2.5 Cyclone, Bottom	720080	
O-ring, 25mm Filter Canister, Small (2 per)	720075	
O-ring, 25mm Filter Canister, Filter Side, Internal	720063	

