



Atlas®

DEF Operation, Diagnostics, and Recommended Spare Parts Manual

MDE-5044C

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This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Approvals

Gasboy, Greensboro, is an ISO 9001:2000 registered facility.

Underwriters Laboratories (UL):

UL File#	Products listed with UL
MH4314	All dispensers and self-contained pumping units
MH10581	Key control unit, Model GKE-B Series Card reader terminals, Models 1000, 1000P Site Controller, Model 2000S CFN Series Data entry terminals, Model TPK-900 Series Fuel Point Reader System

California Air Resources Board (CARB):

Executive Order #	Product
G-70-52-AM	Balance Vapor Recovery
G-70-150-AE	VaporVac

National Conference of Weights and Measures (NCWM) - Certificate of Compliance (CoC):

Gasboy pumps and dispensers are evaluated by NCWM under the National Type Evaluation Program (NTEP). NCWM has issued the following CoC:

CoC#	Product	Model #	CoC#	Product	Model #	CoC#	Product	Model #
95-179	Dispenser	9100 Retail Series, 8700 Series, 9700 Series	91-019	Dispenser	9100 Commercial Series	05-002	Atlas	8700K, 8800K, 9100K, 9200K, 9800K
95-136	Dispenser	9800 Series	91-057	Controller	1000 Series FMS, 2000S-CFN Series			

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1 – Introduction

Purpose

This manual provides information on the operations, diagnostics, and recommended spare parts for the Atlas® Diesel Exhaust Fluid (DEF) dispensers.

Intended Users

This manual is intended to assist the Authorized Service Representative (ASR) or technician in troubleshooting, operating, and identifying the parts for the Atlas DEF dispenser.

Required Tools

The following tools are required for diagnosing and repairing the Atlas DEF dispenser:

- Digital Voltmeter
- Flat-blade and Phillips® Screwdrivers
- Set of Hydraulic Wrenches
- Rubber Mallet
- Magnetic Ring Tool (M10656B001) for units without M10257B002 Nozzle

Related Documents

Document Number	Title	GOLD SM Library
FE-356	Atlas Pump and Dispenser Field Wiring Diagram Instructions	Gasboy® Parts List & Wiring Diagrams
MDE-4331	Atlas Fuel Systems Installation Manual	Gasboy Atlas Pumps/Dispensers
MDE-4334	Commercial and Retail Series Atlas Start-up/Service Manual	Gasboy Atlas Pumps/Dispensers

Abbreviations and Acronyms

Term	Description
ASR	Authorized Service Representative
CPU	Central Processing Unit
DEF	Diesel Exhaust Fluid
E-CAL	Electronic Calibration
GOLD	Gilbarco® Online Documentation
I/O	Input/Output
J-box	Junction Box
LED	Light Emitting Diode
LSD	Least Significant Digit
MSD	Most Significant Digit
NEC®	National Electrical Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
PCA	Printed Circuit Assembly
PCB	Printed Circuit Board
RAM	Random Access Memory
ROM	Read Only Memory
W&M	Weights and Measures

2 – Important Safety Information

Notes: 1) Save this Important Safety Information section in a readily accessible location.

2) Although DEF is non-flammable, diesel is flammable. Therefore, for DEF cabinets that are attached to diesel dispensers, follow all the notes in this section that pertain to flammable fuels.

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.

Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain or service this equipment.

Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

⚠ WARNING

 The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

 You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gasboy equipment.

Evacuating, Barricading and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

Read the Manual

Read, understand and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call a Gasboy Authorized Service Contractor or call the Gasboy Support Center at 1-800-444-5529. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70®; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain or service this equipment in accordance with these codes, regulations and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

Replacement Parts

Use only genuine Gasboy replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gasboy replacement parts could create a safety hazard and violate local regulations.

Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

Alert Symbol

 This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury or damage to the equipment:

-  **DANGER:** Alerts you to a hazard or unsafe practice which will result in death or serious injury.
-  **WARNING:** Alerts you to a hazard or unsafe practice that could result in death or serious injury.
-  **CAUTION** with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.
- CAUTION** without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

Working With Fuels and Electrical Energy

Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF fluid lines.

Important Safety Information

No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

In an Emergency

Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

IMPORTANT: Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

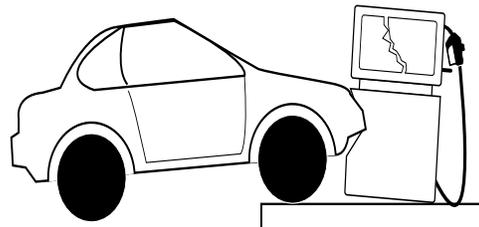
Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

Hazards and Actions

 WARNING	
	Spilled fuels, accidents involving pumps/dispensers, or uncontrolled fuel flow create a serious hazard.
	Fire or explosion may result, causing serious injury or death.
	Follow established emergency procedures. DEF is non-flammable. However it can create a slip hazard. Clean up spills promptly.

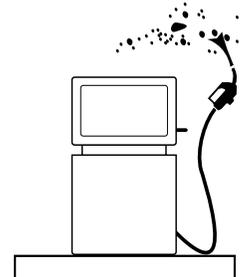
The following actions are recommended regarding these hazards:



Collision of a Vehicle with Unit



Fire at Island



Fuel Spill

- Do not go near a fuel spill or allow anyone else in the area.
- Use station EMERGENCY CUTOFF immediately. Turn off all system circuit breakers to the island(s).
- Do not use console E-STOP, ALL STOP, and PUMP STOP to shut off power. These keys do not remove AC power and do not always stop product flow.
- Take precautions to avoid igniting fuel. Do not allow starting of vehicles in the area. Do not allow open flames, smoking or power tools in the area.
- Do not expose yourself to hazardous conditions such as fire, spilled fuel or exposed wiring.
- Call emergency numbers.

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3 – Operation Modes

Fueling Process

Fueling at Idle State

When the dispenser is at idle state, the following will occur while fueling:

- Electronic head-assembly display shows the last sale or a decimal point.
- Dispenser is in the prime state and urea is at the intake of the Solenoid Valve (M02321B005).
- The nozzle is removed from a cold weather dispenser or handle is turned on a warm weather dispenser.
- Display resets and shows all 8s, then 0s with decimal point.
- Solenoid valve opens (with an audible click).
- Nozzle is inserted into the tank labeled for urea.
- Nozzle is squeezed and product is dispensed.
- Display shows the amount of product being dispensed.
- Nozzle is turned OFF and product stops dispensing.
- Nozzle is returned to the cradle or the handle is turned OFF.
- Solenoid valve closes and the fueling transaction is terminated.
- Display shows the total amount of product dispensed.

Cold Weather DEF Dispenser

The following will occur in cold weather DEF unit while fueling:

- The dispenser is primed and the product is at the intake of the solenoid valve.
- When the nozzle is removed, sensor switch sends signal to 9800 Central Processing Unit (CPU) Board (M06333KECAL):
 - Side 1 Handle Light Emitting Diode (LED) lights.
 - Customer display shows all 8s, then 0s with decimal point.
 - Side 1 Fast, Slow, and Sub LEDs light.
 - Submersible motor activates in the tank.
 - 9800 CPU board sends the AC hot signal to the solenoid valve.
 - Solenoid valve opens.
- The product flows and enters into the Coriolis Meter/Pulser Assembly (M10006B501) or Magmeter (M16502B001) and then to the nozzle (hose jumps).
- When the nozzle is opened, product starts to flow.
- The Coriolis meter or Magmeter senses and monitors the product flow and sends the pulse signal to the Coriolis Meter Interface Board (M10030A001) and then to the 9800 CPU board.
- The pulse A LED flashes for pump #1 on the 9800 CPU board.
- If the optional Dual Pulse Input/Output (I/O) Board (M06587A001) is attached to the 9800 CPU board, the pulser LED will flash when product flow is detected.
- When fueling stops, pulser LEDs on the 9800 CPU board and optional dual pulse I/O board stop flashing.
- Customer display shows the total amount of product dispensed in gallons.
- Nozzle is placed back into the cradle, dispenser motor stops, and the solenoid valve closes.
- The Fast, Slow, and Sub LEDs on the 9800 CPU board are now OFF. END OF TRANSACTION.

IMPORTANT INFORMATION

The DEF nozzle with the blue cover requires a magnetic actuator to dispense the product. The DEF nozzle with the black cover does not require a magnetic actuator.

DEF LED Functions - Cold Weather Units

9800 CPU Board

The following table shows the LEDs on the 9800 CPU board:

LED	LED Status	Condition
Pump Handle	On	Nozzle out
Pulser	On (Flashing)	Product flowing
+5 VDC	On	Always
Slow LED		
Fast LED	On	Nozzle out and authorized
Sub LED		

Coriolis Meter Interface Board

The following table shows the LEDs on the Coriolis meter interface board:

LED	LED Status	Condition
CR 1	On	+24 VDC power supply enabled
CR 2	-	-
CR 3	On	Meter side 'A' enabled with the pump handle
CR 4	On	+5 VDC power supply enabled
CR 5	Off	Pump not in frozen state

Temperature Control Board

The following table shows the LEDs on the temperature control board:

LED	LED Status	Condition
CR 1	On	Power supplied to the fan
CR 2	On	Power supplied to the heater

Note: Both CR 1 and CR 2 will activate together when the thermostats detect a temperature of 43 °F (6.1 °C) in the cabinet.

DEF Warm Weather Units

DEF warm weather units operate and function the same as the DEF cold weather units without the functions of the heater/fan assembly, thermostats, and temperature control board, as these items are not included in the DEF warm weather unit.

4 – Diagnostics, Calibration, and Troubleshooting

DEF Dispenser Problems

The following section is provided to guide you through possible DEF dispenser problems. For more information, refer to *MDE-4331 Atlas Fuel Systems Installation Manual*, *MDE-4334 Commercial and Retail Series Atlas Start-up/Service Manual*, and *FE-356 Atlas Pump and Dispenser Field Wiring Diagram Instructions*.

Before beginning any troubleshooting session, it is advisable to follow these steps:

- Perform a visual inspection of the dispenser to ensure that it is installed according to *MDE-4331 Atlas Fuel Systems Installation Manual*.
- Ensure that all cables and switch settings are connected and set properly according to *MDE-4331 Atlas Fuel Systems Installation Manual* and *MDE-4334 Commercial and Retail Series Atlas Start-up/Service Manual*.
- Measure the DC power supply output voltages to ensure that they are proper operating tolerances.
- Observe all the LEDs on all the Printed Circuit Boards (PCB)s to ensure that proper signal is present.
- Observe the customer display and verify if any error messages are present.
- Verify if this is a new start-up or an existing unit, and for how long has it been in operation.

Note: Before beginning any troubleshooting session, it is helpful to use the “Flow Chart” on page 4-3 and the “Atlas DEF Block Diagram” on page 4-4.

The following table shows possible symptoms, causes, and corrective actions:

Problem 1: Entire unit is down/dead.	
Symptoms	<ul style="list-style-type: none"> • No customer display. • Display is blank. • Unable to reset unit. • Unable to dispense product. • No LEDs lit on any PCBs.
Possible Causes	<ul style="list-style-type: none"> • No 115 VAC feed to dispenser. • Dispenser's circuit breaker is OFF. • Blown system fuse. • Loose or disconnected AC wiring in Junction Box (J-box).
Corrective Action	<ul style="list-style-type: none"> • Turn on AC breaker for the dispenser, if OFF. • Ensure 115 VAC input at all power supplies. • Check system fuse if AC is not present at the power supply. • Check and measure the AC voltage in the J-box, if all of the above fails.

IMPORTANT INFORMATION

A 9800 power supply that is not functional or that functions intermittently can cause the symptoms mentioned in “[Problem 1: Entire unit is down/dead.](#)” also.

Problem 2: No product dispenses/flows.

Symptoms	<ul style="list-style-type: none"> • Dispenser electronically resets. • Display shows all 0s. • No error messages. • No product dispenses.
Possible Causes	<ul style="list-style-type: none"> • Solenoid valve does not activate. • 9800 CPU board does not send the AC signal to the solenoid valve or submersible motor in the tank. • Bad submersible motor in the product's tank. • Bad Coriolis meter interface board (possibly due to the Coriolis meter). • Bad nozzle. • Check valve is stuck at the closed position.
Corrective Action	<ul style="list-style-type: none"> • Listen to the solenoid valve opening. • Feel the hose jump. • Observe fast, slow, and sub LEDs on the 9800 CPU board. • Check fast and slow fuses on the 9800 CPU board; replace if open. • If the solenoid valve activates, check for proper AC signal at the sub fuse on the 9800 CPU board. • Replace the fuse, if open. If the fuse is OK but there is no sub LED, replace the 9800 CPU board. • If the 9800 CPU board displays a proper AC signal, open the inlet line to verify if the product flows when the unit is on. • Replace the submersible motor, if there is no product flow at the inlet. • Verify if the check valve is not stuck at the closed position by loosening the inlet cap. Also, verify if the product is present.

Problem 3: Dispenser does not calibrate.

Symptoms	<ul style="list-style-type: none"> • Display shows error code 993 on DEF unit. • No product can be dispensed.
Possible Causes	<ul style="list-style-type: none"> • Air in product line needs to be purged. • Product leak in the plumbing. • Bad 9800 CPU board or program. • Very low product level in the tank. • Product contamination.
Corrective Action	<ul style="list-style-type: none"> • Verify that the tank is not low in product; request a delivery if the product level is low. • Recalibrate the DEF unit by performing the calibration procedure described later in this section or in <i>MDE-4331 Atlas Fuel Systems Installation Manual</i> and <i>MDE-4334 Commercial and Retail Series Atlas Start-up/Service Manual</i>. • Dispense product until there is no visual evidence of air in the product (may take two to three Prover cans). • Check for any product leaks in all the product lines and the internal plumbing. Correct the leaks, if visible. • Verify that the filter is clean and free of debris. • Change the 9800 CPU board, if all of the above fails.

Problem 4: DEF unit dispenses product very slowly, slow flow.

Symptoms	<ul style="list-style-type: none"> • No error messages appear, but the product dispenses very slowly as in slow flow mode.
Possible Causes	<ul style="list-style-type: none"> • Dirty filter, product contamination. • Check valve not opening completely. • Defective solenoid valve. • Defective 9800 CPU board. • Defective submersible motor in tank. • Defective nozzle filter or the nozzle.
Corrective Action	<ul style="list-style-type: none"> • Remove inlet filter and replace, if dirty. • On the 9800 CPU board, measure for 115 VAC on both sides of the fast flow fuse (F2). • If AC is not present, perform a continuity test across the F2 fuse. Replace the fuse, if open. • If the F2 fuse is not open, replace the 9800 CPU board. • If 115 VAC is present on the blue and black wire on the two stage solenoid valve, replace the solenoid valve. • Check the submersible motor to see if it is not running at full speed due to low voltage or defective motor. • DEF nozzle could restrict the flow (remote possibility); replace the nozzle and retry dispensing the product.

Diagnostics Procedure for Cold Weather Problems

Figure 4-1 shows the flow chart of diagnostics procedure for cold weather problems for Atlas 9862 DEF units.

Figure 4-1: Flow Chart

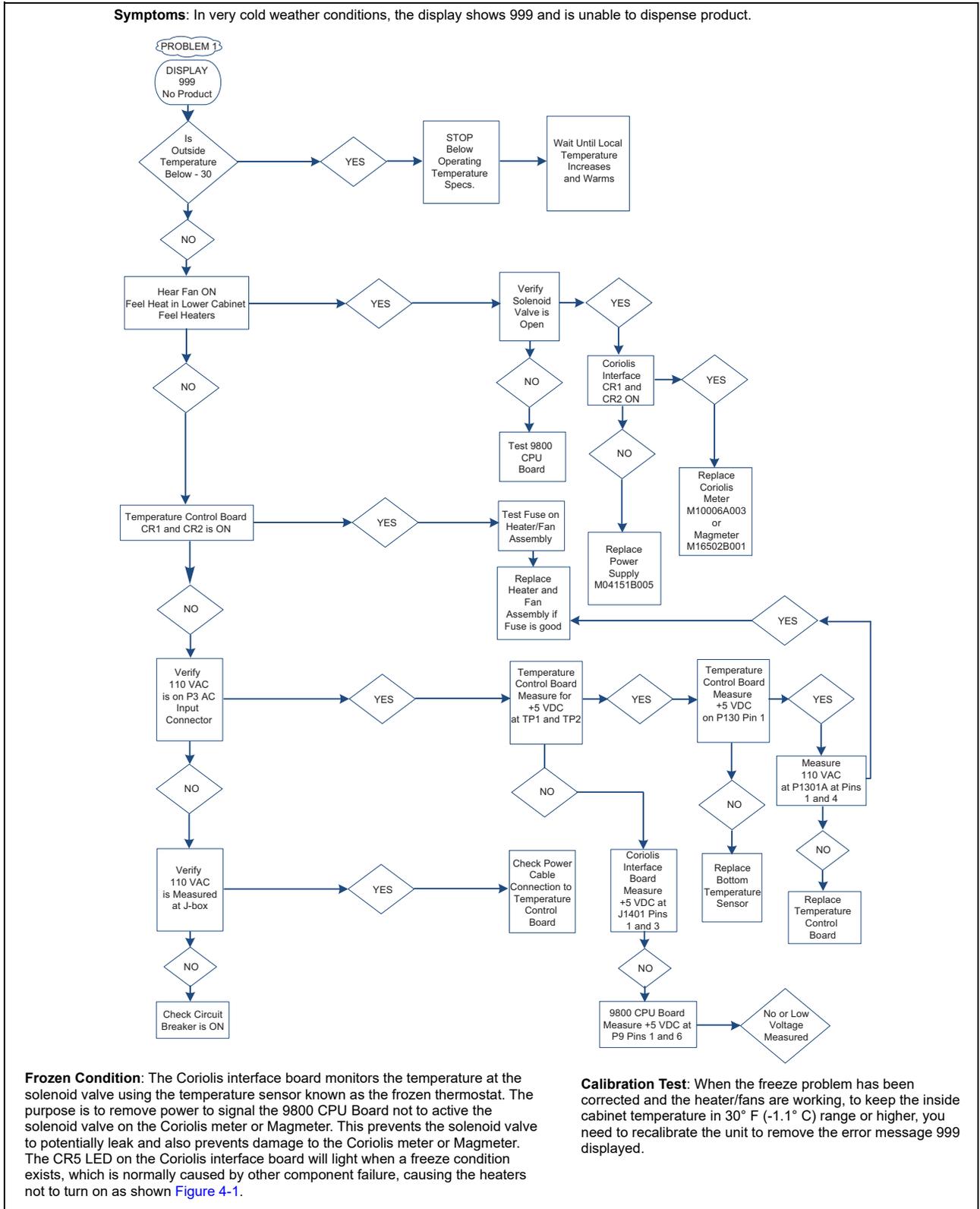
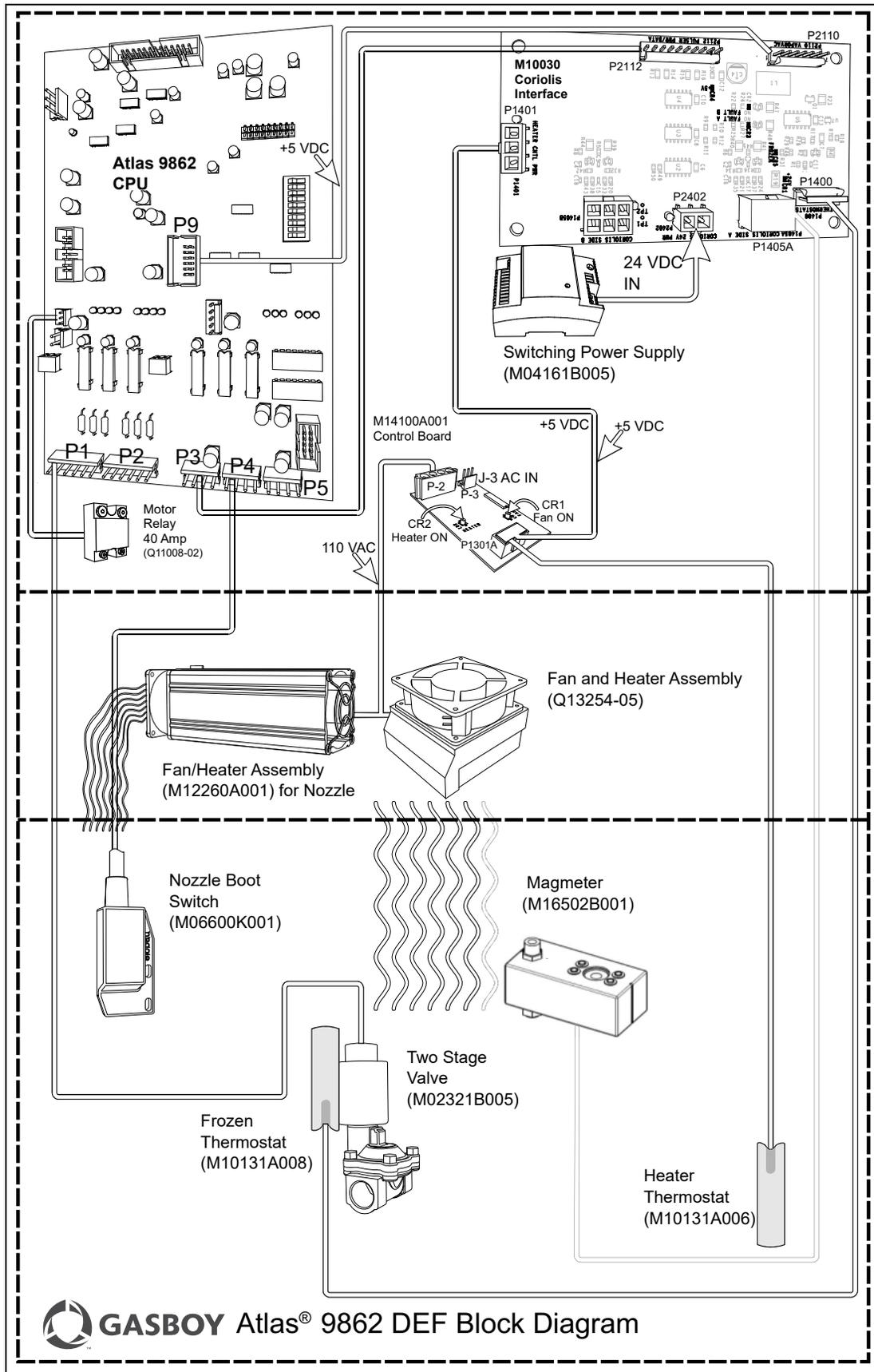


Figure 4-2: Atlas DEF Block Diagram



 **GASBOY Atlas® 9862 DEF Block Diagram**

IMPORTANT INFORMATION

The DEF nozzle with the blue cover requires a magnetic actuator to dispense the product. The DEF nozzle with the black cover does not require a magnetic actuator.

Atlas 9862 DEF Dispenser Status/Error Codes

Code	Status
01	Random Access Memory (RAM) failure
02	Read Only Memory (ROM) failure
55	Power failure
56	Pulser error
57	Timed out
58	Limit cutoff
59	Flow error meter 1
60	Flow error meter 2
99	Product unavailable
554	Power failure (calibration mode)*
564	Pulser failure (calibration mode)*
574	Timed out (calibration mode)*
584	Limit cutoff (calibration mode)*
993	Invalid calibration factor*
994	Invalid calibration transaction

**During calibration testing.*

Customer Display

Code	Definition
7	Calibration switch on
5, 10, 15, 20, 50	Prover can sizes

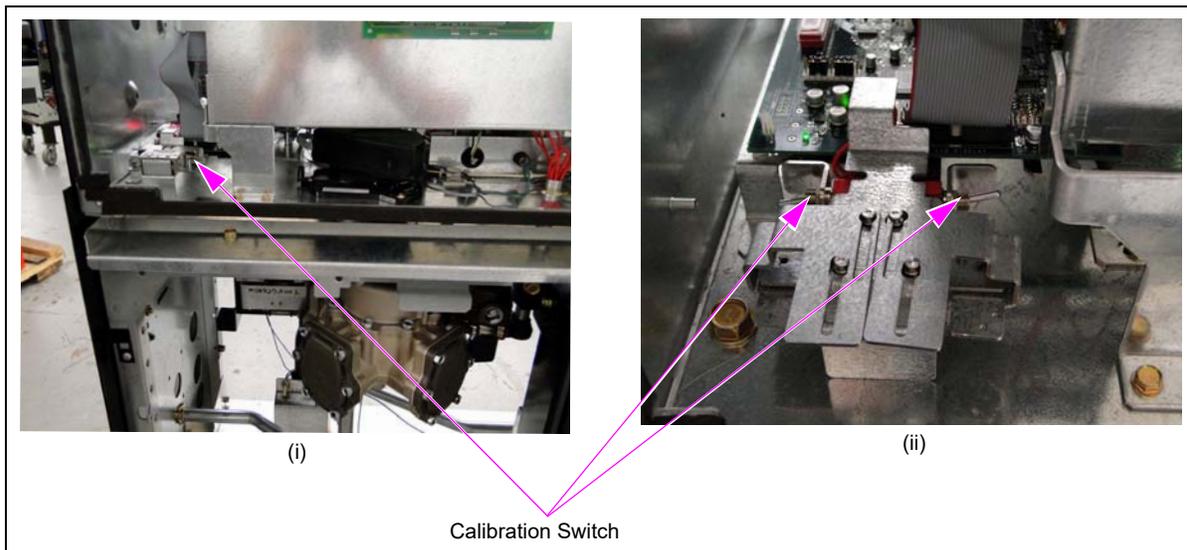
Electronic Calibration (E-CAL) Adjustment for E-85/DEF Unit

The E-85/DEF unit must be calibrated electronically. To calibrate the unit, proceed as follows:

Notes: 1) If the unit is two-sided, then the calibration procedure must be performed individually on each side.

2) The calibration switch is located on the J-box side of all three E-85 unit types (see [Figure 4-3](#)).

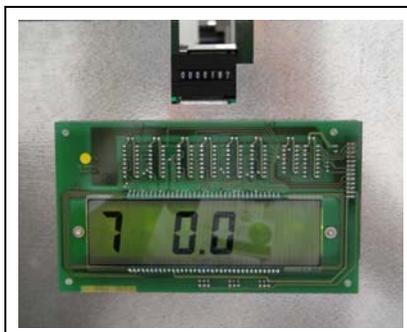
Figure 4-3: Calibration Switch and J-box



- 1 Slide the back cover and turn the calibration switch to “Calibrate” position (up).
 - a Locate the calibration assembly, slide the Weights and Measures (W&M) seal metal cover toward the exterior of the unit.
 - b Locate the inside switch for side B or the outside switch for side A. Place the switch in the up position to activate the calibration procedure.

Number “7” appears in the Most Significant Digit (MSD), left-most digit of the pump display and will remain throughout the procedure (see [Figure 4-4](#)).

Figure 4-4: Turning on Calibration Switch



After five seconds, the Prover can size appears in the two Least Significant Digits (LSD), right-most digit of the pump display (see [Figure 4-5](#)). The can size will appear for five seconds before advancing to the next can size. The display will continue to scroll through can sizes until the nozzle is removed and pump handle is switched ON.

Note: If the nozzle is not removed within 10 minutes of turning the switch to calibrate position, error code 574 appears (57 indicates time out and 4 indicates calibration mode error). Turn the calibration switch to OFF position (down) to clear the error.

Figure 4-5: Displaying Can Size



- 2 After the required can size appears on the display, remove the nozzle and switch on the pump handle. This selects the can size for calibration.

Note: If the pump handle is switched on for an inappropriate can size and if the dispensing has not started, switch OFF the pump handle. Scrolling will resume. If dispensing has begun, switch OFF the pump handle, turn the calibration switch to the OFF position, and restart calibration from step 1 on [page 4-6](#).

- 3 Dispense fuel into the Prover can exactly to the zero mark. The uncalibrated volume appears.

IMPORTANT INFORMATION

DEF fluid tends to dissipate air much more slowly than gasoline or diesel fuel. Wait for three minutes and gently tap the prover can with a rubber mallet to ensure entrapped air is dissipated and an accurate reading can be taken.

- Notes:*
- 1) If the fuel/DEF is not dispensed within four minutes (about) of switching ON the pump handle (or within the time period set by the controller for pulser time out), the error code 574 appears, indicating that the pump handle must be switched OFF to clear the error. Scrolling will resume after you replace the nozzle.
 - 2) If the fuel/DEF dispensing has started but stopped and the pump times out, the calibration switch must be turned to the OFF position. Otherwise, error code 993 appears as shown in [Figure 4-6](#) (99 indicates that the product is not available and 3 indicates that the product is not calibrated). The procedure must then be restarted from step 1 on [page 4-6](#).

Figure 4-6: Displaying Error Code



- 4 Switch off the pump handle and return nozzle to boot. After three seconds, the calibration factor appears on the display for three seconds, and then zeros are displayed, indicating that the meter is now calibrated. No further transactions will be allowed until the calibration switch is turned to the OFF position.
Note: If an additional transaction is attempted, error code 994 appears (99 indicates product not available and 4 indicates calibration mode error). Turn the calibration switch to the OFF position and switch OFF the pump handle to clear the error. The error code 993 appears, indicating that the calibration procedure must be restarted from step 1 on [page 4-6](#).
- 5 Turn the calibration switch to the OFF position and slide the switch cover back over the switch.

Calibration and Accuracy Checks - DEF Dispensers

IMPORTANT INFORMATION

The settling time for freshly dispensed DEF is longer than for gasoline or diesel. Therefore, a three-minute wait time between dispensing the DEF into the Prover can and taking the reading from the sight glass is recommended.

IMPORTANT INFORMATION

Units must be properly purged before calibration or calibration verification. Incomplete purging of air can result in inaccurate calibration or errors in calibration verification testing.

CAUTION

A stainless steel prover can must be used to calibrate DEF. Do not use a can that has been used for other fluids. Contaminated DEF can cause damage to vehicle engines, contaminated fuel can corrode dispenser material(s), vehicle catalytic converter(s), or damage vehicle engines.

An ELAFIX 40 Magnetic Adapter (M10656B001) must be pushed over the spout when you dispense DEF into the Prover can during calibration or service.

Each time a meter is calibrated, a volume of DEF is generated. This DEF must be properly managed and cannot be discarded into the storm drain or where it can possibly reach surface water or groundwater. If the DEF is to be returned to the supplier, store it in a closed leak-proof container.

Avoid dispersal of spilled material and runoff. Ensure that DEF does not come in contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air).

DEF poured back into the tank must be kept clean. Do not allow DEF to become contaminated during handling.

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5 – Recommended Spare Parts

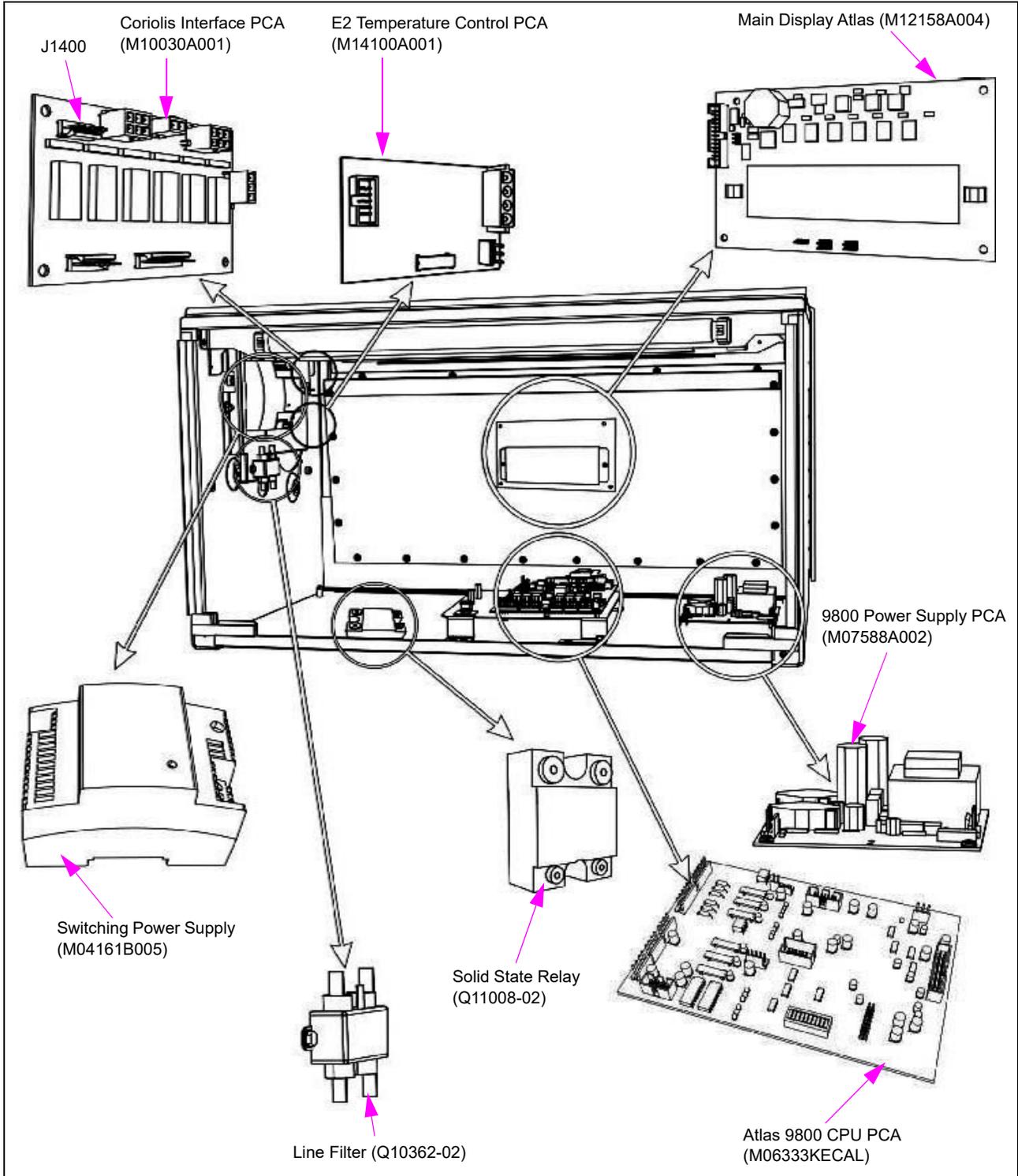
Electronic Head Assembly

The following table lists the recommended spare parts for the electronic head assembly of the Atlas DEF dispenser:

Part Number	Part Description
M10030A001	Coriolis Interface Printed Circuit Assembly (PCA)
M14100A001*	E2 Temperature Control PCA
M06333KECAL	Atlas 9800 CPU PCA
M05110A002	AC Bracket Cable
M10131A006*	Heater Thermostat
M12260A001*	Fan/Heater Assembly for Nozzle
M10131A008*	Frozen Thermostat
M04161B005	Switching Power Supply
M07588A002	9800 Power Supply PCA
Q11008-02	Solid State Relay
M12158A004	Main Display Atlas

**Parts not used in warm weather units.*

Figure 5-1: Electronic Head Assembly



Lower Hydraulic Section

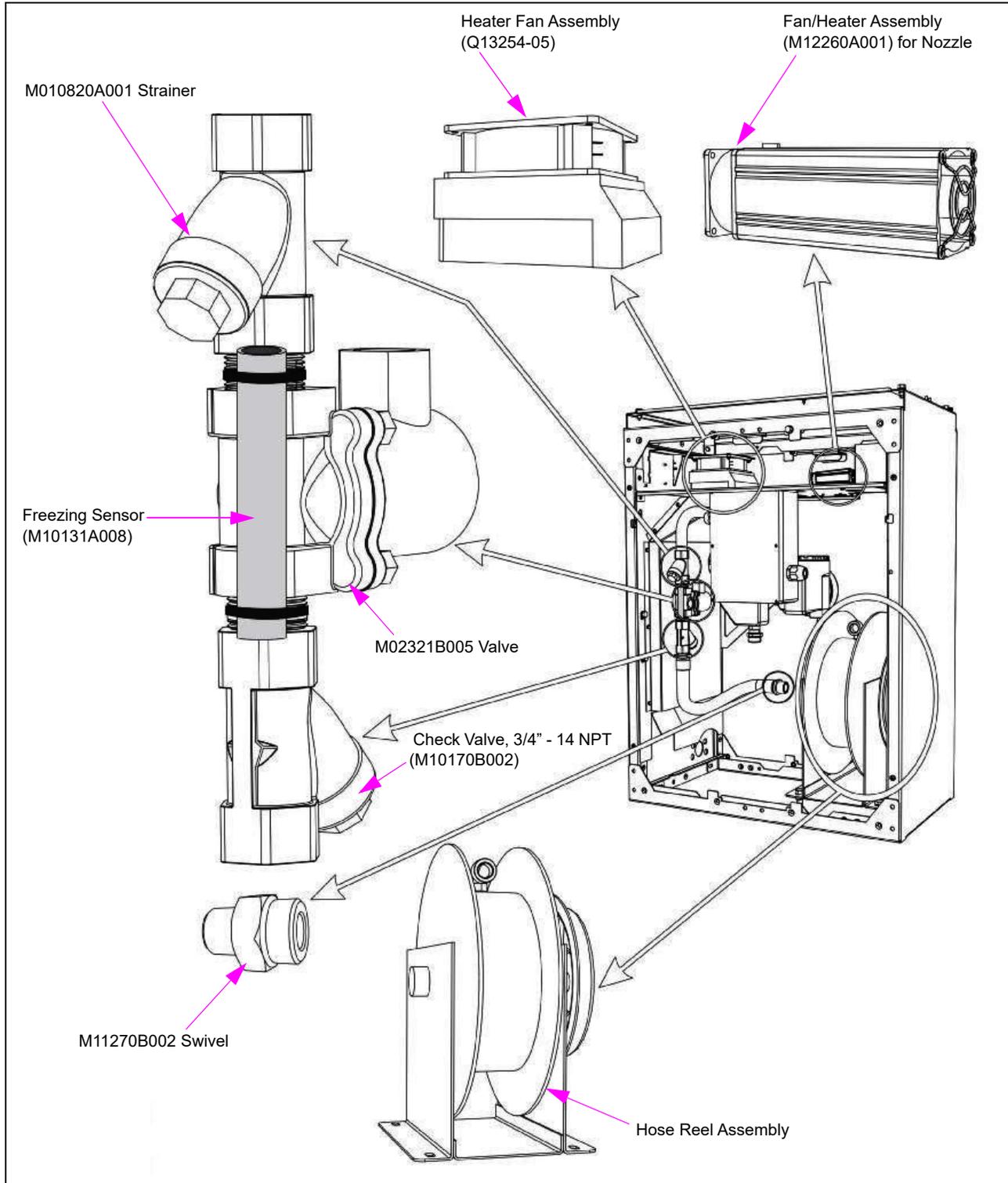
The following table lists the recommended spare parts for the lower hydraulic section of the Atlas DEF dispenser:

Part Number	Part Description
M10006A003	Coriolis Meter
M16502B001	Magmeter
M10006B501	Meter, Electronics Module
M10164B001	Flange Seal
M10258B001	Swivel SST DEF Breakaway
M10257B001	DEF Nozzle with Misfiling Option
M10257B002	DEF Nozzle Without Misfiling Option
M10170B002	Check Valve, 3/4" - 14 NPT
M10131A006*	Heater Thermostat
M10226B101	DEF Outlet Hose
M10820A001	Y-Strainer (Thread End)
M10820B002	Replacement Strainer
M02321B005	Valve/Coil
M06600K001	Nozzle Boot Switch

*Parts not used in warm weather units.

Note: Magnetic Ring Tool (M10656B001) is required for each technician servicing DEF units except when a M10257B002 Nozzle is used.

Figure 5-2: Atlas DEF Dispenser Hydraulics



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7300 West Friendly Avenue · Post Office Box 22087

Greensboro, North Carolina 27420

Phone 1-800-444-5529 · <http://www.gasboy.com> · Printed in the U.S.A.

MDE-5044C Atlas® DEF Operation, Diagnostic, and Recommended Spare Parts Manual · October 2020