Introduction

Purpose

This manual provides instructions for installing the Atlas® 9800 Electronics.

Intended Users

This manual is intended for Gasboy®-trained and certified Authorized Service Contractors (ASCs).

Table of Contents

Required Tools

A Phillips® screwdriver is required for installing the Atlas 9800 Electronics.

Parts List

The following table lists the parts required for installing the Atlas 9800 Electronics:

Item #	Description	Part Number	Quantity
1	Printed Circuit Assembly (PCA), Central Processing Unit (CPU) Board	M06333KXXXX	1
2	Kit, 115 VAC Power Supply to replace C06397 or M07588A001	M12421K00X**	1
3	Atlas 9800 Power Supply Assembly	M15579K001	1
4	Kit, 230 VAC Power Supply to replace C06489 or M07588A003	M12422K00X**	1

Item #	Description	Part Number	Quantity
5	PCA, Serial Electronically Erasable Programmable Read Only Memory (EEPROM)*	M06656K00X	1
	• 9800K Software	M06656K001	
	• 9850 Software	M06656K002	
	• 9840K Software	M06656K003	
	• 9800Q Software	M06656K004	
	• 9840Q Software	M06656K005	
	• 9800 ECAL Software	M06656K006	

**M06656K100 Kit of the latest versions of all these boards is also available.*
***X refers to the required number of displays, where X=1 for 1 display, X=2 for 2 displays, X=3 for 4 displays.*

Related Documents

Document Number	Title	GOLD℠ Library
MDE-4255	Gasboy Warranty Policy Statement for USA and Canada	• Gasboy Policy Documents • Gasboy Safety and Warranty Docs
MDE-4334	Commercial and Retail Series Atlas Start-up/Service Manual	Gasboy Atlas Pumps/Dispensers
MDE-4363	Atlas Fuel Systems Owner's Manual	Gasboy Atlas Pumps/Dispensers
MDE-4998	Main Display Assembly (M12158A004) for Atlas 9800	Gasboy Atlas Pumps/Dispensers
MDE-4331	Atlas Fuel Systems Installation Manual	Gasboy Atlas Pumps/Dispensers

Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
ATC	Automatic Temperature Compensation
CFN	Cash Flow Network
CPU	Central Processing Unit
DEF	Diesel Exhaust Fluid
EEPROM	Electronically Erasable Programmable Read Only Memory
EM	Electro-mechanical
FMS	Fuel Management System
GOLD	Gilbarco Online Documentation
J-box	Junction Box
LED	Light Emitting Diode
NEC®	National Electric Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Hazard Association
PCA	Printed Circuit Assembly
PCU	Pump Control Unit
STP	Submersible Turbine Pump

Warranty

For warranty information, refer to *MDE-4255 Gasboy Warranty Policy Statement for USA and Canada*. For any warranty-related queries, contact Gasboy's Warranty Department at its Greensboro location.

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 Gilbarco 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)

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 Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. 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 Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

Federal Communications Commission (FCC) Warning

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.

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 lines.

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.

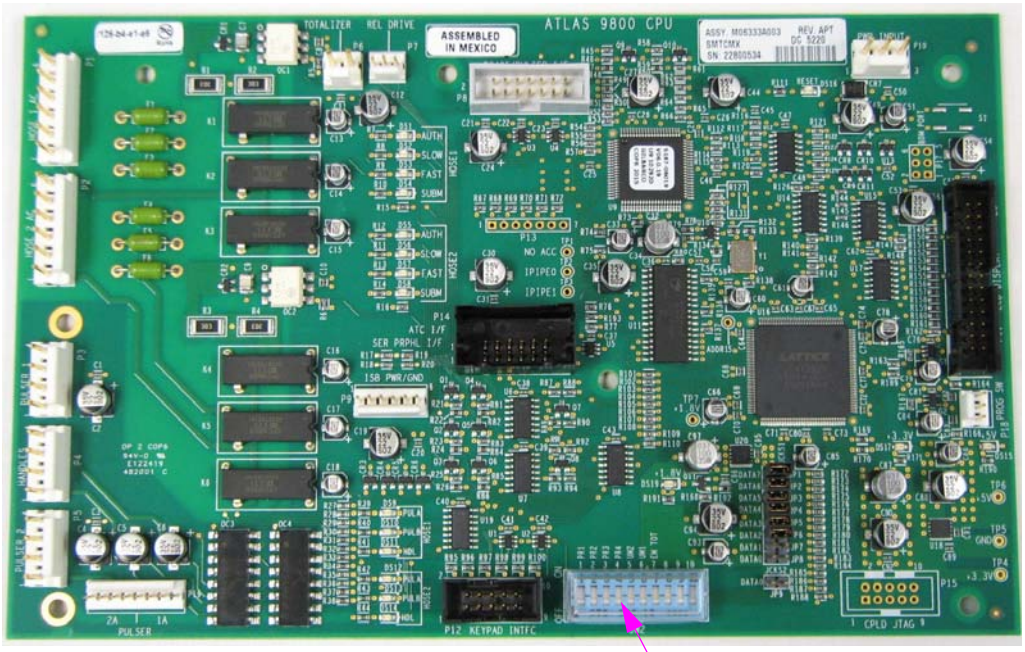
Atlas 9800 Parts

Atlas 9800 CPU Board (M06333KXXXX)

Features of the Atlas 9800 CPU board are as follows:

- Accepts either 115 or 230 VAC on AUTH line inputs.
- Compatible with all RS-485 I/F Boards (C06389, M05248A001, M06725A001).
- Compatible with all Pulse-out I/F Boards (C06425, C06746, M05158A001, M05158A002, M05158A003, M06587A001).
- Replaces 9800 CPU Boards (C06391, C06392, C06393, C06394, C06500, C06501, C06502, C06503, M05346A001, M05346A002, M05346A003, M05346A004).
- Requires new Power Supply M15579K001 (refer to "Atlas 9800 Power Supply Assembly (M15579K001)" on page 6).
- Requires Automatic Temperature Compensation (ATC) Kit (M08218K001) for models (9850A/Q, 9850K, 9852A/Q, 9853A/Q, and 9840A/Q) where ATC is present.

Figure 1: Atlas 9800 CPU Board



The following table lists the CPU boards with corresponding software type and pump type:

Note: The following software types can be loaded on any one of the CPU boards by using the appropriate Serial EEPROM Board (M06656K00X).

CPU Boards	Software Type	Pump Type
M06333K9800K	9800K	9852K, 9853K
M06333K9850	9850	9850A*, 9850Q, 9850K
M06333K9840K	9840K	9840K
M06333K9800AQ	9800Q	9852A/Q, 9853A/Q, 9822A/Q, 9823A/Q/K
M06333K9840AQ	9840Q	9840A, 9840Q
M06333KECAL	9800K	9862KX, 9872KX

**If the serial number is lower than 472238, use the M06333K9800AQ CPU Board or appropriate EEPROM board.*

Atlas 9800 Power Supply Assembly (M15579K001)

Features of the Atlas 9800 power supply are as follows:

- Required for M06333 CPU Boards (refer Figure 1 on page 5).
- Compatible with the following 9800 CPU Boards: C06391, C06392, C06393, C06394, C06500, C06501, C06502, C06503, M05346A001, M05346A002, M05346A003, M05346A004, and M06333KXXXX.
- Required for Atlas PRIME.
- Replaces current power supplies (9800) as shown in the following table:

Description	Old Power Supply Part Number	Replacement Power Supply Part Number
Kit to replace 115 VAC PS with Battery	C06397, M07588A001	M12421K00X*
115 VAC PS without Battery	C06396, M07588A002	M15579K001
Kit to replace 230 VAC PS with Battery	C06489, M07588A003	M12422K00X*
230 VAC PS without Battery	C06488, M07588A004	M15579K001

**X refers to the required number of displays, where X=1 for 1 display, X=2 for 2 displays, X=3 for 4 displays.*

Figure 2: Atlas 9800 Power Supply Assembly

Atlas 9800 Serial EEPROM Board (M06656K00X)

Features of the Atlas 9800 Serial EEPROM board are as follows:

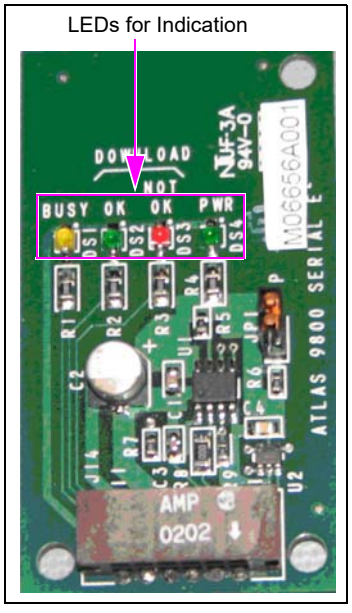
- Used to reprogram the software on the new Atlas 9800 CPU board (refer Figure 1 on page 5).

Serial EEPROM Board	Software Type	Pump Type
M06656K001*	9800K	9852K, 9853K
M06656K002*	9850	9850A, 9850Q, 9850K
M06656K003*	9840K	9840K
M06656K004*	9800Q	9852A/Q, 9853A/Q, 9822A/Q, 9823A/Q/K
M06656K005*	9840Q	9840A, 9840Q
M06656K006*	9800K	9862KX, 9872KX

**M06656K100 Kit of the latest versions of all of these boards is also available.*

- Provides Light Emitting Diode (LED) indicators to monitor software transfer.

Figure 3: LED Indicators

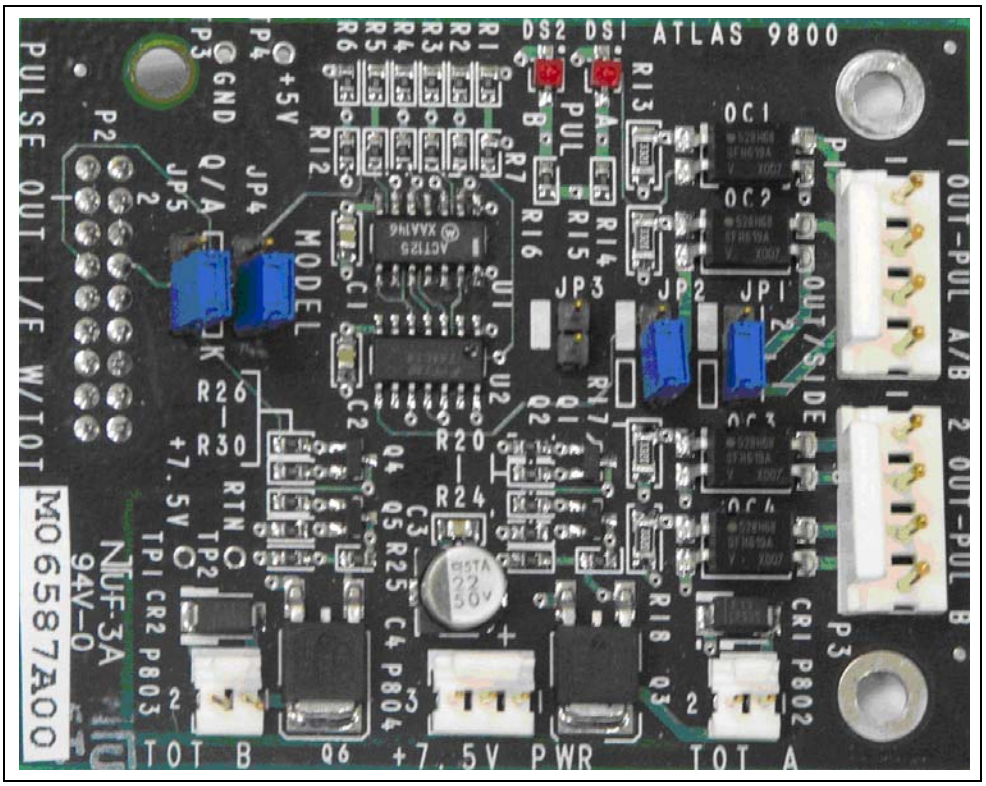


Atlas 9800 Pulse-out I/F Board with EM Totalizer Drive (M06587A001)

Features of the Atlas 9800 Pulse-out I/F board with Electro-mechanical (EM) Totalizer Drive are as follows:

- Provides up to two dual channel outputs per hose.
- Compatible with 9800 CPU Boards (C06391, C06392, C06393, C06394, C06500, C06501, C06502, C06503, M05346A001, M05346A002, M05346A003, M05346A004, and M06333KXXXX).
- Can be used in place of existing 9800 dual channel Pulse-out I/F Boards (C06746, M05158A002).
- Can be used in place of existing 9800 dual Pulse-out I/F Boards (C06425, M05158A001).
- Can be used in place of existing 9800 I/F Board (M05158A003).

Figure 4: Atlas 9800 Pulse-out I/F Board with EM Totalizer Drive

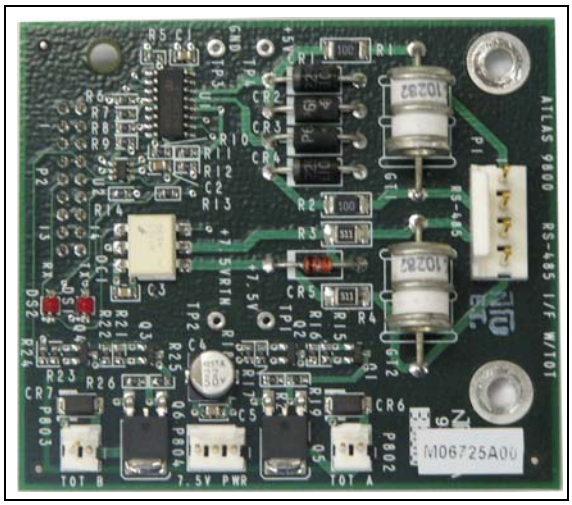


K-Pump RS-485 with Totalizer (M06725A001)

The features of K-Pump RS-485 with Totalizer board are as follows:

- Allows RS-485 communications between 9800 and a Cash Flow Network (CFN) PLUS System, TopKAT™ PLUS Electronic System or Atlas PRIME.
- Compatible with 9852K, 9853K, 9850K, 9840K, 9852A/Q, 9853A/Q, 9840A/Q, 9822A/Q, 9823A/Q/K, 9862KX, 9872KX.
- Compatible with 9800 CPU Boards (C06391, C06392, C06393, C06394, C06500, C06501, C06502, C06503, M05346A001, M05346A002, M05346A003, M05346A004, M06333KXXXX).
- Can be used in place of previous 9800 RS-485 I/F Board C06389 and M05248A001.
- Required for Atlas PRIME.

Figure 5: K-Pump RS-485 with Totalizer



Accessing Electronic Components

⚠ WARNING

Always remove AC power from the pump/dispenser before servicing the unit. Failure to turn off the unit before servicing may result in serious injury or death.

To access the electronic components, proceed as follows:

1 Unlock and remove the front panel on the pump/dispenser.

2 Remove the two bolts/screws located over the tabs of the bezel assembly. Lift the bezel assembly upwards and out to remove. For Atlas PRIME units, refer to "*Removing the Bezel Assembly" section of MDE-4334 Commercial and Retail Series Atlas Start-up/Service Manual or MDE-4363 Atlas Fuel Systems Owner's Manual*.
Note: For A and Q models with front load nozzle, remove the nozzle boot plastic shroud (two screws) before removing the bezel assembly.

3 Loosen the two screws that secure the display panel, remove them if required, and pivot the display panel down.

Installing Atlas 9800 Power Supply Assembly (M15579K001)

If the existing power supply is a working M07588A00X or M15579K001 assembly, proceed to "Installing Atlas 9800 CPU Board (M06333KXXXX)" on page 12.

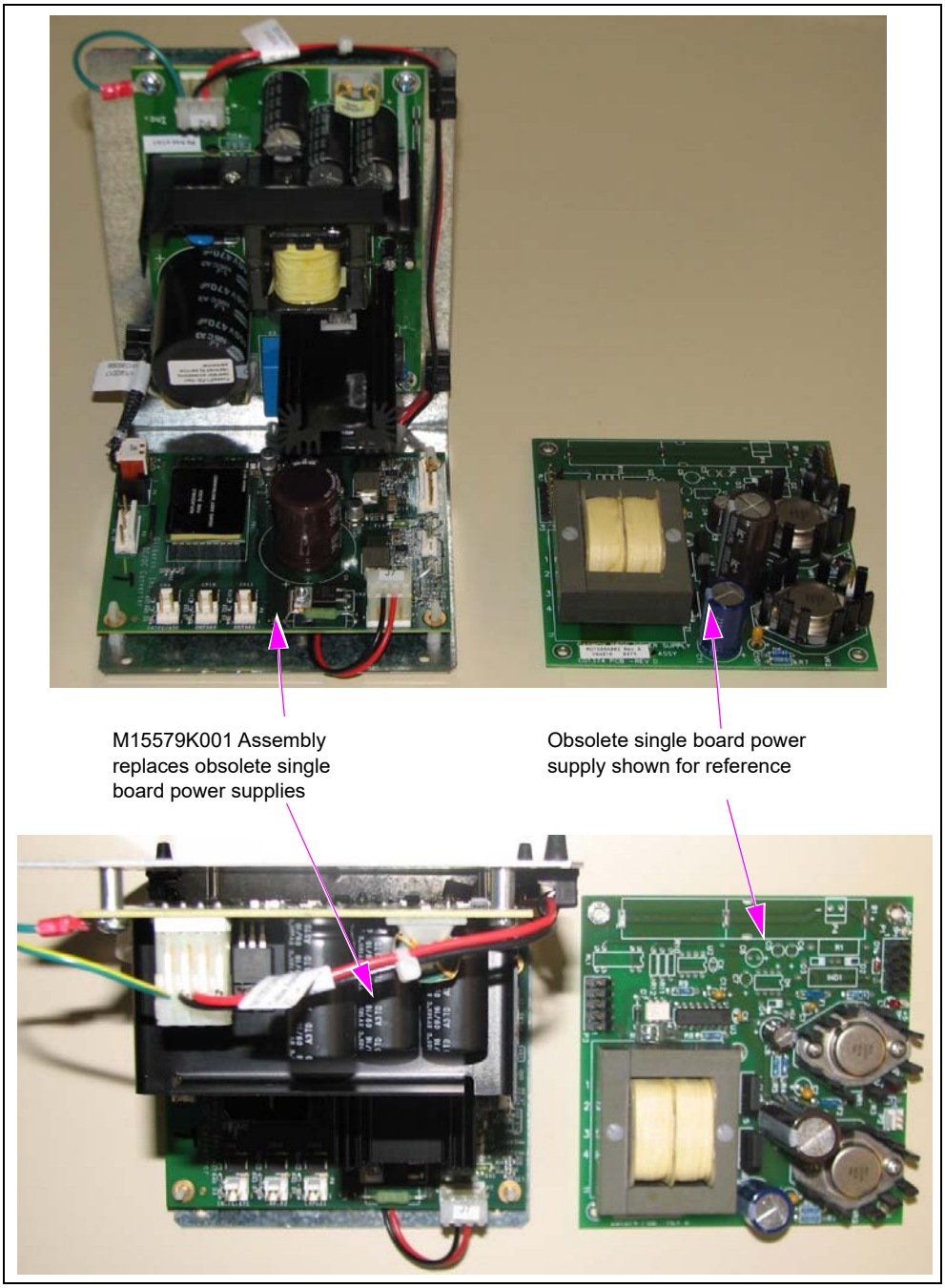
To install the Atlas 9800 power supply, proceed as follows:

⚠ WARNING

Always remove AC power from the pump/dispenser before servicing the unit. Failure to turn off the unit before servicing may result in serious injury or death.

1. Check the existing power supply. If the existing supply is not a M07588A00X or M15579K001, or if it is not working, it must be replaced. For the correct replacement part number, refer to "Atlas 9800 Power Supply Assembly (M15579K001)" on page 6.
2. Ensure to disconnect AC power to the pump/dispenser.
3. Disconnect the AC power cable from the P3 connector. Disconnect the DC cables from the P2 and P1 connectors.
4. Unscrew and remove all the screws that hold the power supply. Retain the screws for installing the new power supply.
5. Remove the power supply. For models with plastic standoffs, after the screws are removed, carefully unsnap the power supply from the standoffs and remove it. Remove any standoffs that may have remained on the power supply and place them back into the plate where the power supply was mounted (see Figure 6 on page 11).

Figure 6: Power Supply



6 Install the new power supply on the standoffs. Ensure that the P1 connector is closest to the CPU board and P3 connector is away from the CPU. If the pump model is 9822 or 9823, the P1 connector is closest to the pump-handle assembly.

7 Reinstall the screws removed in step 4 on page 10. For models with plastic standoffs, carefully push the power supply onto the plastic standoffs before installing the screws.

8 Reconnect the following:
- Cables and AC power to the P3 connector.
- Display backlight to the P2 connector.
- CPU DC to the P1 connector.

Installing Atlas 9800 CPU Board (M06333KXXXX)

To install the Atlas 9800 CPU board, proceed as follows:

⚠ WARNING

Always remove AC power from the pump/dispenser before servicing the unit. Failure to turn off the unit before servicing may result in serious injury or death.

1. Check the existing power supply. If the existing supply is not a M07588A00X or M15579K001 assembly, it must be replaced. For details, refer to "Installing Atlas 9800 Power Supply Assembly (M15579K001)" on page 10.

2. Ensure that the AC power to the pump/dispenser is disconnected. Remove the DC cable from the P1 connector on the power supply.

3. If the pump/dispenser does not have ATC installed, proceed to step 4. If the pump/dispenser model is one of the following - 9850A/Q, 9850K, 9852A/Q, 9853A/Q, 9840A/Q, the ATC support bracket (that holds the ATC black box) must be replaced. Use the M08218K001 Kit to install the new bracket.

4. If the pump/dispenser has a RS-485 or pulse-out I/F board, remove the screws that secure the I/F board and disconnect it from the existing CPU board.

5. Disconnect all cables going to the connectors on the CPU board. Ensure that you note the connectors and cables so that they can be reconnected to the correct connector.

6. Unscrew and remove all the screws securing the CPU board. Retain the screws for installing the new CPU board.

7. Remove the CPU board. For models with plastic standoffs, carefully unsnap the CPU board from the standoffs and remove it. Remove any standoffs that may have remained on the CPU board and place them back into the plate where the board was mounted.

8. The new CPU Board (M06333KXXXX) can be configured for various operating conditions using the jumpers JP1 to JP9. Check these jumpers and change, if required. Jumper settings must be changed with the power to the pump/dispenser "Off". CPU board only reads new jumper settings during power up.

JP1 - Baud Rate

This jumper selects the baud rate for the RS-485 communications.

Baud Rate	JP1
1200	Jumpered
9600	Open

JP2 - Mode

This jumper selects the mode in which the pump/dispenser operates. Set the mode to "Online" if the pump/dispenser communicates to a controlling system (for example, Atlas PRIME, Islander PRIME, Gasboy TopKAT PLUS or CFN PLUS System). Set the mode to "Standalone" for all other configurations [for example, Gasboy Series 1000 Fuel Management System (FMS) or no controlling system].

Mode	JP2
Standalone	Jumpered
Online	Open

JP3, JP4 - Leak Detect Delay

These jumpers select the delay time used by leak detectors in Submersible Turbine Pump (STP) applications. The delay time is the period between the activation of the submersible pump and the activation of the slow flow valve. The delay time must be set according to the type of leak detector installed on the STP to allow for a normal leak test for each transaction. The delay time must be set to 0 seconds for suction pumps.

Delay Time	JP3	JP4
0 seconds	Jumpered	Jumpered
4 seconds	Jumpered	Open
5 seconds	Open	Jumpered
6 seconds	Open	Open

JP5 - Hose Pressurization

For US Gallons (always in Hose Pressurization mode), this jumper is ignored. This jumper is used to determine if hose pressurization is used. If enabled, the slow flow valve is opened before reset is complete, to allow the hose to be pressurized before fuel dispensing begins.

Pressurization	JP5
Enabled	Jumpered
Disabled	Open

JP6 - Authorization

This jumper allows activation or non-activation of the pump/dispenser from an external source (for example, an FMS). When jumpered, a 115/230 VAC signal must be present on the Control Feed/authorization line (refer to the wiring diagram for your model pump/dispenser) for pump activation to occur (required setting for Gasboy Series 1000). When open, the Control Feed line signal is ignored (required setting for Standalone mode).

Authorization	JP6
Enabled	Jumpered
Disabled	Open

Note: For JP6 Authorization, in Standalone mode, the authorization signal must be present to activate the pump.

JP7 - Electronic Totalizers

This jumper must be open for normal operation (electronic totals protected). When jumpered, this allows the electronic totals to be reset.

Totalizers	JP7
Reset	Jumpered
Normal	Open

JP8 - Pump Disable Detection

This jumper allows the pump/dispenser to detect or ignore a pump disable (RS-485 break character). When detection is enabled, the pump/dispenser will monitor the RS-485 communications for a pump disable signal. When received, any transaction in progress will be halted and then completed. This setting must only be used when the pump/dispenser is communicating to a Gasboy CFN System. This setting must be disabled (jumpered) for all other configurations (for example, Gasboy TopKAT or Standalone).

Detection	JP8
Disabled	Jumpered
Enabled	Open

JP9

This jumper is spare and not in use.

9 CPU Board (M06333KXXXX) can also be configured for various operating conditions using the switch positions SW2-1 through SW2-10. Check these switches and change, if required. Switch settings must be changed with the power to the pump/dispenser “Off”. CPU board only reads new switch settings during power up.

Note: A switch in the closed position indicates that the switch is “On” (towards the center of the CPU board).

SW2-1 through SW2-4

These four switches serve a dual purpose: as an address setting when communicating through RS-485 I/F (for example, Gasboy CFN systems), or as a pulser output rate selector when in Pulse-out I/F configuration (for example, Gasboy Series 1000 FMS).

Address Switches (if JP2 is Open)

A unique address identifier must be set when the pump/dispenser is communicating through RS-485 I/F. The unique address must correspond to the address of a unique Pump Control Unit (PCU) configured in a Gasboy CFN, Atlas PRIME, Fleet Plus, or TopKAT system. There are 16 possible address combinations and up to 16 pumps (single or twin) can be connected through the RS-485 I/F. Addressing must start at 1 and continue sequentially through 16. The physical wiring order does not have to correspond with the address order; that is, the first pump/dispenser on the RS-485 does not have to be address 1.

Address	SW2-1	SW2-2	SW2-3	SW2-4
1	Closed	Closed	Closed	Closed
2	Open	Closed	Closed	Closed
3	Closed	Open	Closed	Closed

Address	SW2-1	SW2-2	SW2-3	SW2-4
4	Open	Open	Closed	Closed
5	Closed	Closed	Open	Closed
6	Open	Closed	Open	Closed
7	Closed	Open	Open	Closed
8	Open	Open	Open	Closed
9	Closed	Closed	Closed	Open
10	Open	Closed	Closed	Open
11	Closed	Open	Closed	Open
12	Open	Open	Closed	Open
13	Closed	Closed	Open	Open
14	Open	Closed	Open	Open
15	Closed	Open	Open	Open
16	Open	Open	Open	Open

Pulse Output Rate Switches (if JP2 is Jumpered)

When the pump/dispenser is connected to an external controlling equipment that requires pulse output signals (for example, Gasboy Series 1000), the pulse signals are sent through the pulse-out I/F board. Setting Switches SW2-1 through SW2-3 configures the Pulse-out rate required by the monitoring equipment. Pulse-out rate represents the pulses per unit (gallon, liter, or imperial gallon).

Pulse Rate	SW2-1	SW2-2	SW2-3
1:1	Closed	Closed	Closed
10:1	Open	Closed	Closed
100:1	Closed	Open	Closed
250:1	Open	Open	Closed
500:1	Closed	Closed	Open
None	Open	Closed	Open
None	Closed	Open	Open
None	Open	Open	Open

Maximum pulse output rate that can be achieved depends on the model of the pump/dispenser and the unit of measure. Pulse output rate of 1000:1 is not supported when using the CPU board.

Note: 9800 refers to models 9852, 9853, 9822, and 9823.

Unit of Measure	9800 Models	9840A/Q Models	9840K Models	9850 Models
US Gallons	500:1	500:1	500:1	100:1
Liters	100:1	100:1	10:1	10:1
Imperial Gallons	500:1	500:1	500:1	100:1

Note: If a valid pulse-out rate is not selected, the CPU will not output pulses.

Leading zeros are always suppressed in the tens and hundreds place to the left of the decimal point. In Standalone mode, positions to the right of the decimal point are displayed based on the pulse output rate and unit of measure selected.

Pulse Rate	Gallons - US or Imperial	Liters and/or 9850
1:1	XXX	XXXX
10:1	XXX.X	XXXX.X
100:1	XXX.XX	XXXX.XX
250:1	XXX.XXX	XXXX.XX
500:1	XXX.XXX	XXXX.XX

Timeout Switch (if JP2 is Jumpered)

When the pump/dispenser is in the Standalone mode, including Pulse-out I/F configurations, it will turn off an active hose outlet if it does not detect input pulses for 4 minutes and 15 seconds.

Timeout	SW2-4
Enabled	Closed
Disabled	Open

SW2-5 and SW2-6 - Unit of Measure Selection

These two switches set the unit of measure (US gallons, liters, or Imperial gallons) that the pump/dispenser will use to meter fuel.

Unit of Measure	SW2-5	SW2-6
US Gallons	Closed	Closed
Liters	Open	Closed
Imperial Gallons	Closed	Open
NOT USED (default US Gallons)	Open	Open

SW2-7 - EM Totalizer Enable

This switch is only used on K model pumps/dispensers (excluding the 9850K model). When closed (“On”), it enables the pump/dispenser to drive electro-mechanical totalizers used on some K models pump. On A and Q models, this switch must be set to disabled (open).

EM Totalizer	SW2-7
Enabled	Closed
Disabled	Open

SW2-8 - BDM Enable

This switch must be open for normal operation.

SW2-9 - Software Load Enable

This switch must be open for normal operation. When this switch is closed, it enables loading the new software (refer to “Loading New CPU Software” on page 21).

SW2-10

This switch is not used (or close it to ground input).

10 Set the new CPU board on the standoffs. Reinstall the screws removed in step 6 on page 12. For models with plastic standoffs, ensure that the metal standoffs are under the mounting holes located between P2 and P3, and the outside corner next to P5. Carefully push the new CPU board onto the standoffs before installing the screws.

11 Reconnect all the cables disconnected in step 5 on page 12. Reconnect the DC cable to P1 of the power supply.

12 Apply power to the pump/dispenser and note the display(s). The first set of numbers displayed will be the software version (for example, 06013), the second set is the software type (for example, 9800 1), and the third set is the firmware version (for example, 01008).

Ensure that the displayed software type is correct for the pump/dispenser model that the CPU is installed in (refer to the following table). If it is, proceed to step 13. If not, proceed to "Loading New CPU Software" on page 21.

Displayed Software Type	Corresponding Pump/Dispenser Model
"9800 1"	Corresponds to the 9800Q Software: 9852A/Q, 9853A/Q, 9822A/Q, 9823A/Q/K
"9800 2"	Corresponds to the 9800K Software: 9852K, 9853K, 9862KX, 9872KX
"9800 3"*	Corresponds to the 9800K Software: 9862KX*, 9872KX*
"9840 1"	Corresponds to the 9840Q Software: 9840A, 9840Q
"9840 2"	Corresponds to the 9840K Software: 9840K
"9850"	Corresponds to all 9850 Software: 9850A, 9850Q, 9850K

**Version 06.0.20 or later.*

13 Reassemble the pump/dispenser by proceeding to "Accessing Electronic Components" on page 9 and follow the steps in reverse order.

Installing Atlas 9800 Pulse-out I/F with EM Totalizer Drive Board (M06587A001)

JP1, JP2, and JP3

This board assembly can be configured for use in one of the following pump/dispenser configurations:

- Dual Channel, Single Hose Pulse-out I/F (refer Figure 7 on page 19)
- Single Channel, Dual/Single Hose Pulse-out I/F (refer Figure 8 on page 19)
- Dual Channel, Dual Hose Pulse-out I/F (refer Figure 9 on page 20)
- Dual Channel, Dual Hose Pulse-out I/F for 9850KXTW1 or 9850KXTW2 Ultra-Hi (refer Figure 10 on page 20)

The following table shows the jumper settings and wires to connect to in the Junction Box (J-box), based on the configuration. The numbers identify the hose (1 or 2), the letters identify the channel (A or B).

Check JP1 - JP3 jumpers and change them, if required. The jumper settings must be changed only when the power to the pump/dispenser is removed, to protect the circuit that they are connected to.

Default configuration is Single Channel, Dual/Single Hose Pulse-out I/F. When configured for Dual Channel, Single Hose Pulse-out I/F, or Single Channel, Dual/Single Hose Pulse-out I/F, the P3 Connector is not connected.

When configured for Dual Channel, Dual Hose Pulse-out I/F, the P3 connector is used.

	Jumper Settings			
	Single Channel, Dual/Single Hose Pulse-out I/F (Default Setting)	**Dual Channel, Single Hose Pulse-out I/F**	**Dual Channel, Dual Hose Pulse-out I/F (except 9850KXTW1 & 9850KXTW2)**	**Dual Channel, Dual Hose Pulse-out I/F (9850KXTW1 or 9850KXTW2)**
Wire Color	**JP1 Position 1 JP2 Position 1 JP3 Open**	**JP1 Position 2 JP2 Position 2 JP3 Open**	**JP1 Position 2 JP2 Position 2 JP3 Jumpered**	**JP1 Position 2 JP2 Position 2 JP3 Jumpered**
Red	Pulse out Side 1	Pulse out Side1A	Pulse out Side 1A	Pulse out Side 1A
Green	Pulse out Side 2	Pulse out Side1B	Pulse out Side 1B	Pulse out Side 1B
White	Common Return	Side 1A Return	Side 1A Return	Channel A Return
Black	No Connection	Side 1B Return	Side 1B Return	Channel B Return
Brown	No Connection	No Connection	Pulse out Side 2A	N/A
Orange	No Connection	No Connection	Pulse out Side 2B	N/A
Yellow	No Connection	No Connection	Side 2A Return	N/A
Gray	No Connection	No Connection	Side 2B Return	N/A
Blue**	No Connection	No Connection	N/A	Pulse out Side 2A*
Violet**	No Connection	No Connection	N/A	Pulse out Side 2B*

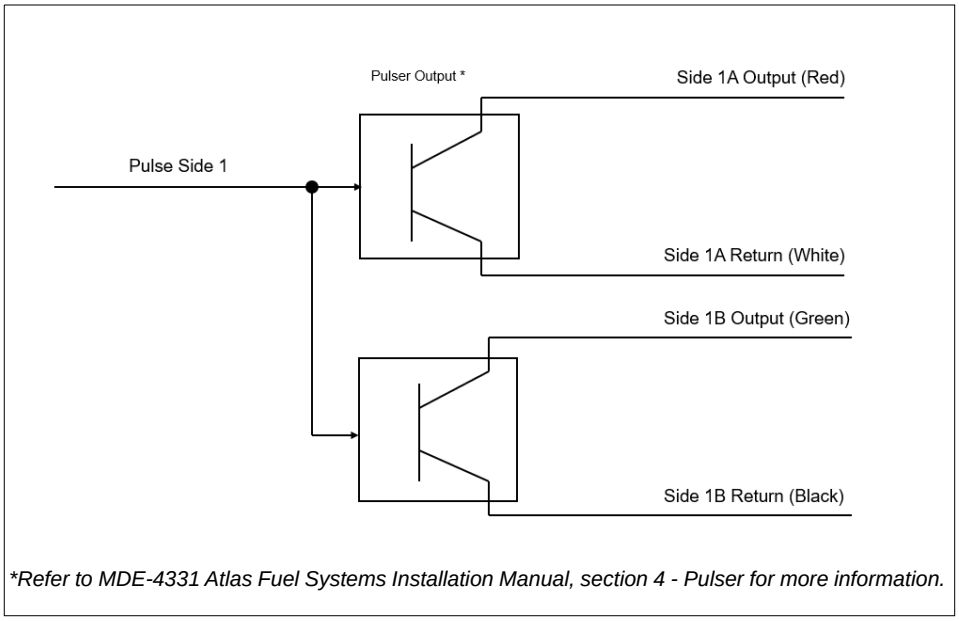
**Requires DC conduit M05683A004 Revision B or later.*
***9850K models only.*

JP4 and JP5

When this board is used in a model A or Q pump/dispenser or 9850K, jumpers JP4 and JP5 are set to the Q/A position. When this board is used for all other K models except 9850K, these jumpers must be in the K position.

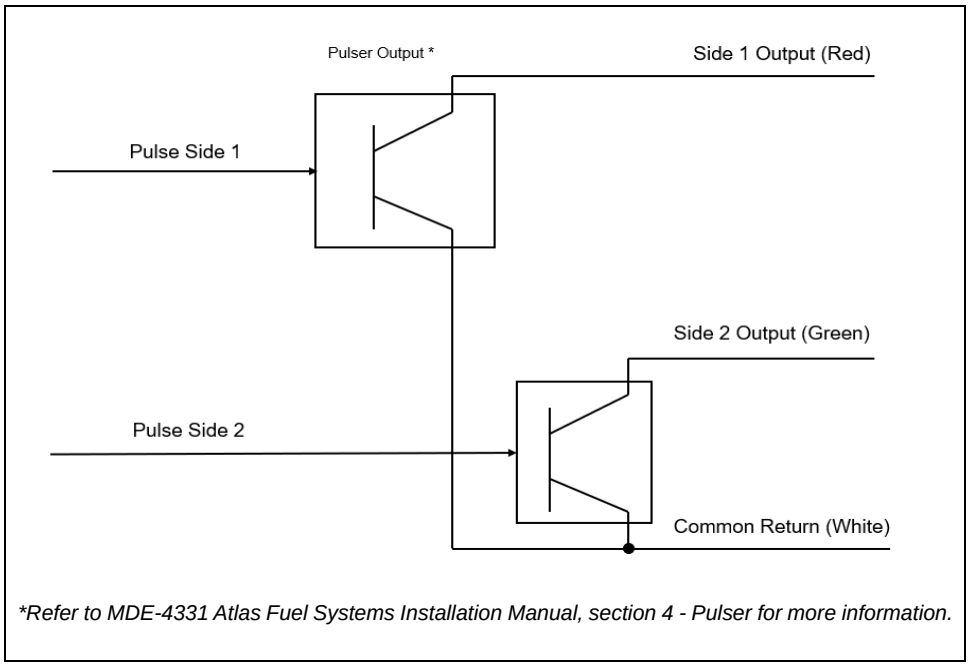
Configurations

Figure 7: Dual Channel, Single Hose Pulse-out I/F



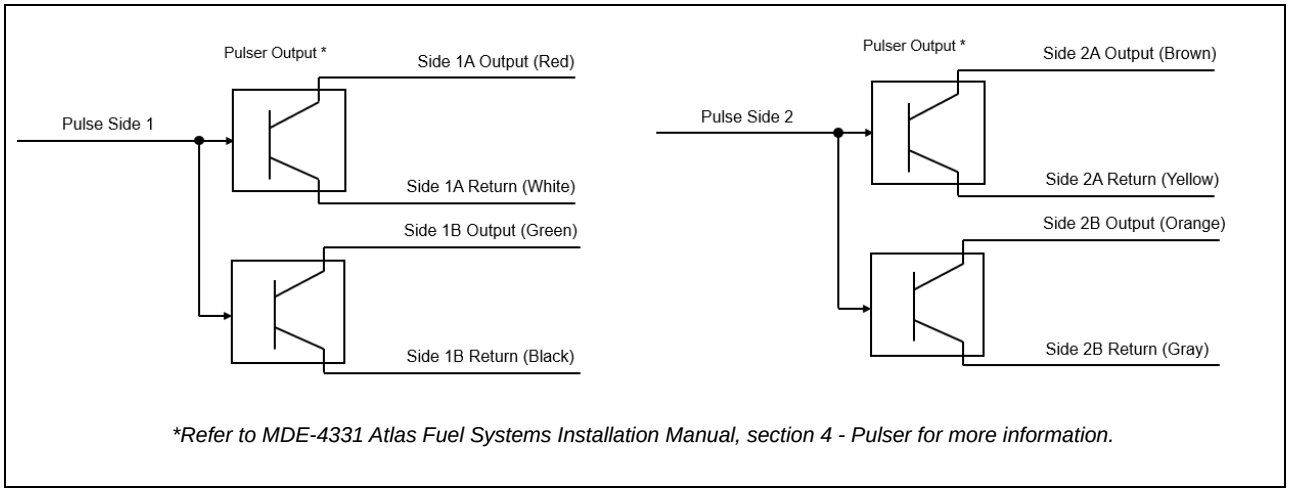
**Refer to MDE-4331 Atlas Fuel Systems Installation Manual, section 4 - Pulser for more information.*

Figure 8: Single Channel, Dual/Single Hose Pulse-out I/F (Default Setting)



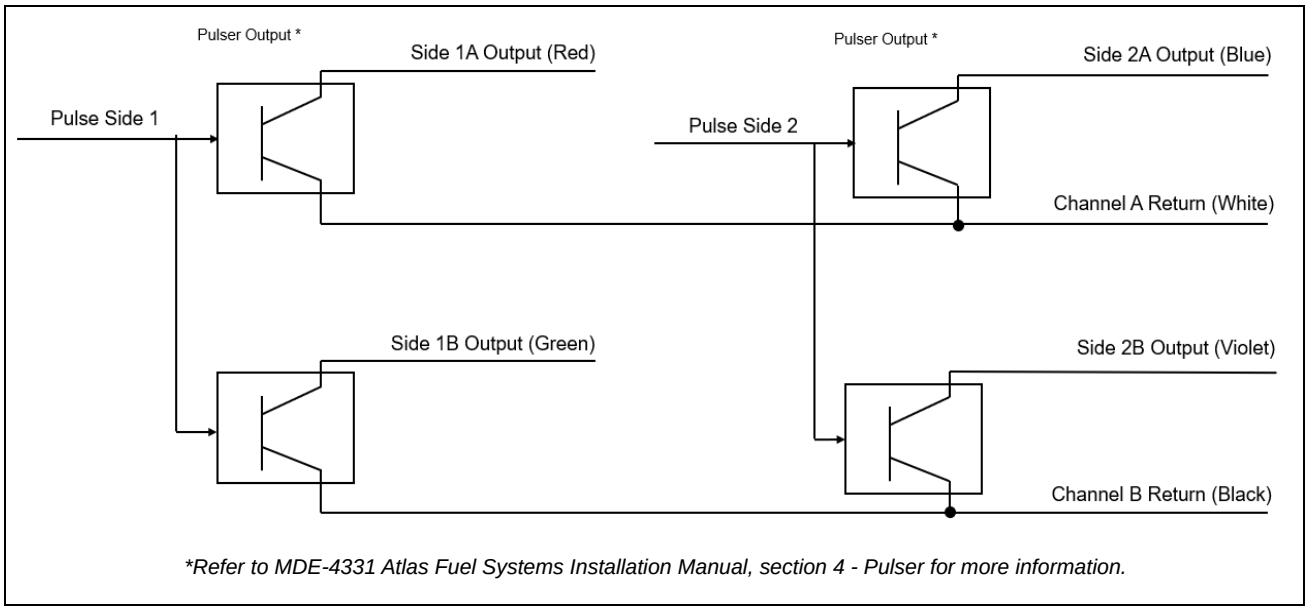
**Refer to MDE-4331 Atlas Fuel Systems Installation Manual, section 4 - Pulser for more information.*

Figure 9: Dual Channel, Dual Hose Pulse-out I/F



**Refer to MDE-4331 Atlas Fuel Systems Installation Manual, section 4 - Pulser for more information.*

Figure 10: Dual Channel, Dual Hose Pulse-out I/F on 9850KXTW1 or 9850KXTW2 Ultra-Hi



**Refer to MDE-4331 Atlas Fuel Systems Installation Manual, section 4 - Pulser for more information.*

Loading New CPU Software

CPU board is configured and programmed before shipping from the factory. In the event the software must be changed, proceed as follows:

⚠ WARNING

Always remove AC power from the pump/dispenser before servicing the unit. Failure to turn off the unit before servicing may result in serious injury or death.

1. Disconnect AC power to the pump/dispenser. Remove the DC cable from the P1 connector on the power supply.
2. Set switch SW2-9 to the closed ("ON") position.
3. Select the appropriate Atlas 9800 Serial EEPROM board for the software type you want to load (refer to "Atlas 9800 Serial EEPROM Board (M06656K00X)" on page 7).
4. Ensure that JP1 is not jumpered on the Serial EEPROM board assembly. Carefully insert into the P14 connector located in the middle of the CPU board.
5. Connect the DC cable to the P1 connector on the power supply. Connect AC power to the pump/dispenser.
6. At this point, on the Serial EEPROM board assembly, the green "PWR" and yellow "BUSY" LEDs will illuminate. A few seconds later, the yellow "BUSY" LED will go off and the green "OK" LED will illuminate, indicating that the download is successful. Ensure that the green "OK" LED illuminates before proceeding. If the red "NOT OK" LED illuminates, repeat steps 1 to 6. If the red "NOT OK" LED illuminates after a second attempt, call your service representative or contact Gasboy Technical Service.
7. Disconnect AC power to the pump/dispenser. Remove the DC cable from the P1 connector on the power supply.
8. Set Switch SW2-9 to the open position.
   Note: If SW2-9 is left in the closed position, the unit will not display the software version, software type, and firmware version during power up.
9. Carefully remove the Serial EEPROM board assembly from the P14 connector.
10. Connect the DC cable to the P1 connector on the power supply.
11. Connect AC power to the pump/dispenser.

12 Verify that the displayed software type is correct for the pump/dispenser model on which the CPU is installed.

Displayed Software Type	Corresponding Pump Type
“9800 1”	Corresponds to the 9800Q Software: 9852A/Q, 9853A/Q, 9822A/Q, 9823A/Q/K
“9800 2”	Corresponds to the 9800K Software: 9852K, 9853K, 9862KX, 9872KX
“9800 3”*	Corresponds to the 9800K Software: 9862KX*, 9872KX*
“9840 1”	Corresponds to the 9840Q Software: 9840A, 9840Q
“9840 2”	Corresponds to the 9840K Software: 9840K
“9850”	Corresponds to all 9850 Software: 9850A, 9850Q, 9850K

**Version 06.0.20 or later.*

Installing Atlas 9800 Electronics is now complete.

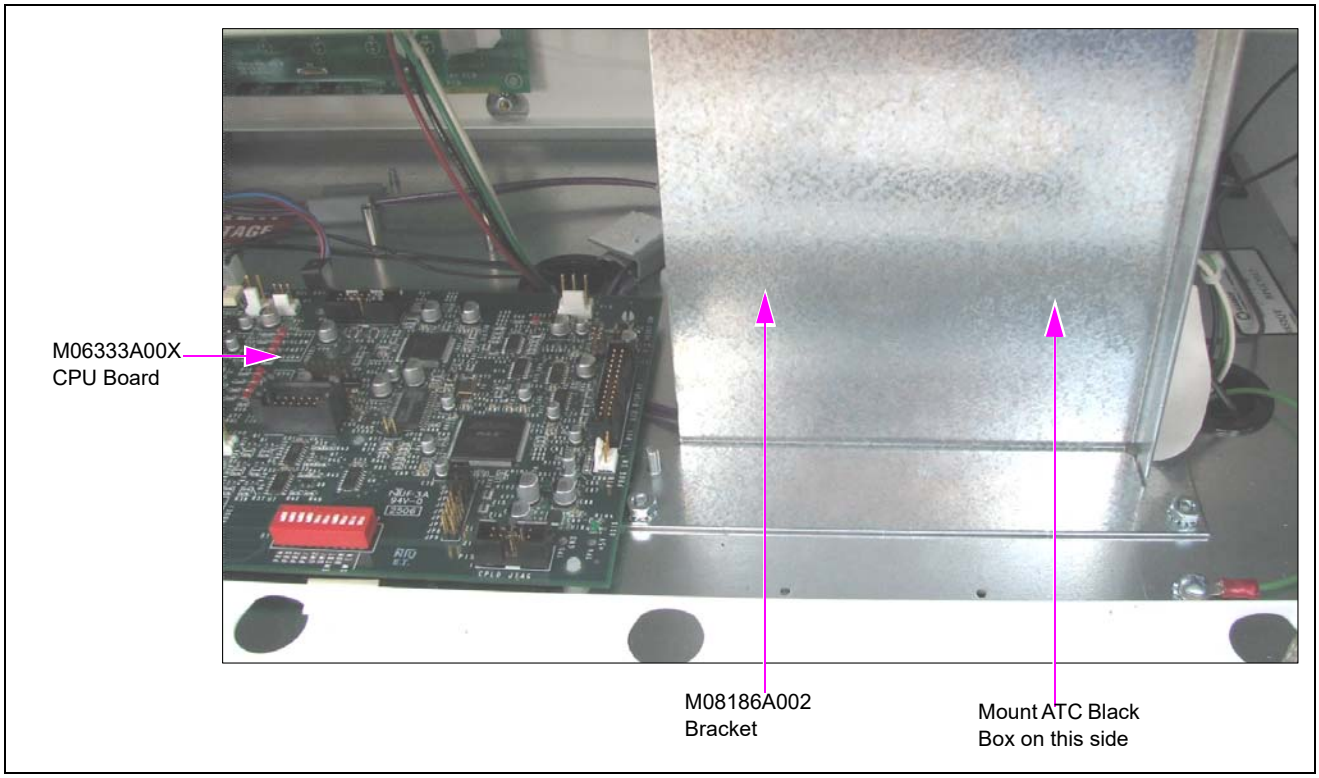
Upgrading to New M06333A00X CPU Board on a Unit with ATC

While installing a new M06333A00X CPU board in a 9852A, 9853A, 9852Q, 9853Q, or 9850 model dispenser with the old mounting bracket (046716), replace the old bracket with the new bracket (M08186A002) before the new CPU board can be installed. If you have a 9852K, 9853K, or 9840K model dispenser or if the dispenser has a new bracket and M06333A00X CPU board, do not change this bracket.

To change the bracket, proceed as follows:

1. Remove the existing bracket by removing the 8/32 (2X) nuts that secure the bracket to the platform. Keep the KEPS nuts to secure the new bracket.
2. Carefully remove the ATC black box from the mounting bracket.
3. Remove the foam tape (that held the box to the bracket) from the rear of the black box.
4. Install the new bracket using the 8/32 nuts removed in step 1 (see Figure 11).
5. Apply the K85492 16 foam tape to the back of the ATC black box.
6. Mount the ATC black box onto the new bracket (see Figure 11).

Figure 11: Upgrading to M0633A00X CPU Board



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