



Pricing Level and Membrane Switch Conversion Kits K93710-XX and K94417-01 For The Advantage® Series

Introduction

Purpose of This Manual

This manual provides installation instructions for pricing level conversion kits for The Advantage® Series pumps and dispensers. To determine which kit(s) to order, refer to the Quick Reference Conversion Charts for either Single-Level to Dual-Level Pricing or for Dual-Level to Single-Level Pricing in MDE-2742, The Advantage Series Kit and Options Guide.

Required Reading



Before installing the equipment, the installer must read, understand and follow

- this manual
- NFPA 30A, The Automotive and Marine Service Station Code
- NFPA 70, The National Electric Code
- applicable federal, state and local codes and regulations

Failure to read, understand and follow this manual and applicable codes may adversely affect the safe use and operation of the system.

Related Documents

Refer to the following manuals for more information:

MDE- 2531	Pump and Dispenser Start-Up/Service Manual
MDE-2620	The Advantage Series Graphics Application Service Manual
MDE-2634	Lever-On/Push-To-Start Conversion Kits For The Advantage Series
MDE-2687	The Advantage Series Display Filter Kits K93685 Install Manual
MDE-2742	The Advantage Series Kit and Options Guide
PT-1728	The Advantage Series Illustrated Parts Manual

Recommended Tools

- pliers
- pocket knife
- ratchet set
- screwdrivers, slotted and Phillips
- wrench set, Allen

Parts Lists

K93710-01 Single-Level To Dual-Level Price Per Unit (PPU) Conversion Kit

Description	Part Number	Qty.
backlight assembly, 1/2"	T17622-G8	1
board, display, dual PPU	T18705-G2	1
gasket, PPU window	N23142-01	1
mask, PPU display	T17830-01	1
window, PPU display lens	T17635-02	1

K93710-03 Cash/Credit Membrane Switch Kit for Dual- and Single-Level PPU

Description	Part Number	Qty.
switch, membrane	T19370-12	1

K93710-04 Dual-Level To Single-Level PPU Conversion Kit

Description	Part Number	Qty.
gasket, PPU window	N23142-01	1
plate, filler	N23143	1
window, PPU display lens	T17635-02	1

K93710-05 Push-To-Start Membrane Switch Kit For Dual PPU With CRIND®

Description	Part Number	Qty.
switch, push-to-start membrane	T19370-11	1

K94417-01 Membrane Switch Cable Assembly for 3- or 4-Grade

Description	Part Number	Qty.
board, 4-grade select	T19800-G1	1
bracket, lamps/STP interface board support	R19776-02	1
cable, grade select	R20311-G1	1
cables, grade select distribution *	T19731-G1	2
cables, grade select distribution *	T19731-G2	2
standoffs	Q10651-02	8

Note: * Installation will require either T19731-G1 cables with J136-A/F (5 position MTE style) connectors or T19731-G2 cables with Faston connectors.

Safety Information



Alert Symbol

This is a standard alert symbol. When you see this symbol, along with the following signal words and safety symbols, be alert to the potential for personal injury or damage to equipment.

Signal Words

These signal words alert you to important safety hazards.

<p>The hazard or unsafe practice may result in severe injury or death.</p>	<p>The hazard or unsafe practice could result in minor injury or damage to equipment.</p>	<p>The hazard or unsafe practice will result in severe injury or death.</p>



Safety Symbols

Electrocution Danger

Working on dispenser electronics without turning off power can lead to electrocution.



Know Location of Emergency Power Cutoff

NFPA-30A, Section 4-1.2, requires the installation of an easily accessible switch to shut off the power to all dispensing devices in the event of an emergency. Know the location of this switch before you begin work.



No Smoking

Sparks and embers from burning cigarettes or pipes can ignite fuels and their vapors.



No Open Flames

Open flames from matches, lighters, welding torches, etc. can ignite fuels and their vapors.



No Power Tools

Sparks from power tools (such as drills) can ignite fuels and their vapors.



No Vehicles In The Area

Moving vehicles in the area during service can create a potential for personal injury to you or others. Sparks from starting vehicles can ignite fuels and their vapors.



No People In The Area

Unauthorized people in the area during service can create a potential for personal injury to you and them.



Turn Power Off

Live power to a dispensing device creates a potential shock hazard. Always turn power off to the dispensing device and associated STPs when servicing the unit.



Use Safety Barricades

Unauthorized people or vehicles in the work area are dangerous. Always use safety cones or barricades, safety tape and your vehicle to block the work area.



Wear Eye Protection

Spraying fuel from residual pressure in the lines can cause serious eye injuries. Always wear eye protection.

Read NFPA 30A and NFPA 70



Before servicing equipment, read, understand and be prepared to follow applicable information in the following codes:

- The National Electric Code (NFPA 70)
- The Automotive and Marine Service Code (NFPA 30A)
- Any national, state and local codes that may apply

Failure to service equipment in accordance with NFPA 30A and NFPA 70 may adversely affect the safe use and operation of the system.



Read All Related Manuals

Knowledge of all related procedures before you begin work is important. Read and understand all manuals thoroughly. If you do not understand a procedure, ask someone who does.

Before Beginning Installation



- 1 Read all instructions before beginning.
- 2 Follow all safety precautions, including:
 - Barricade work area.
 - Do not allow vehicles or unauthorized people in work area.
 - Do not use power tools in work area.
 - Do not permit smoking or open flames in work area.
 - Wear protective gear while performing this installation.
- 3 Record all mechanical and electronic totals.
- 4 Turn off all power to unit, unit lights and STPs.
 - Use system circuit breakers.
 - Multiple disconnects may be required.
 - Isolate each pump at distribution box.
 - Refer to MDE-2531, Pump and Dispenser Start-up and Service for OSHA lock-out/tag-out procedures.

	
WARNING	
	Working on dispenser electronics with power applied may result in electrocution and damage to electronic components.
	Power down unit before beginning work.

- 5 When system battery is present, turn off system battery by pressing CLEAR then ENTER on manager keypad.

Use Electrostatic Discharge Precautions



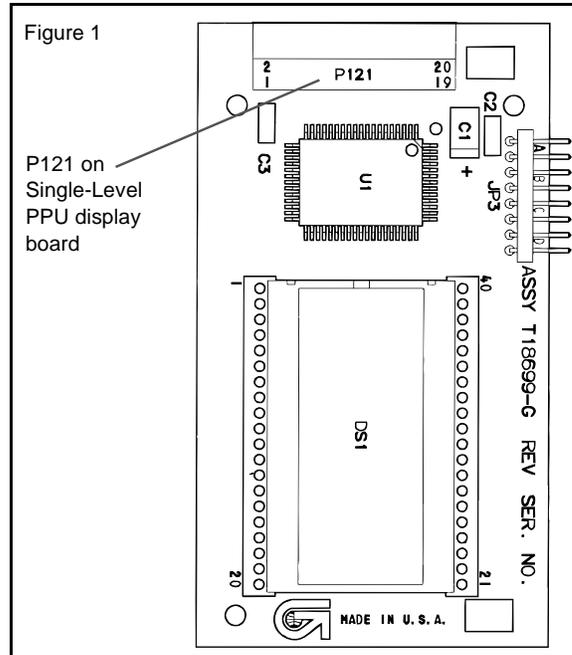
- 1 Place yourself at a neutral static-free potential.
- 2 Touch an unpainted metal surface.
- 3 Use a wrist strap connected to a grounded metal frame or chassis.

Note: Failure to use electrostatic discharge precautions may damage electronic components.

Installation

Single-Level To Dual-Level Conversions

Removing Old Hardware



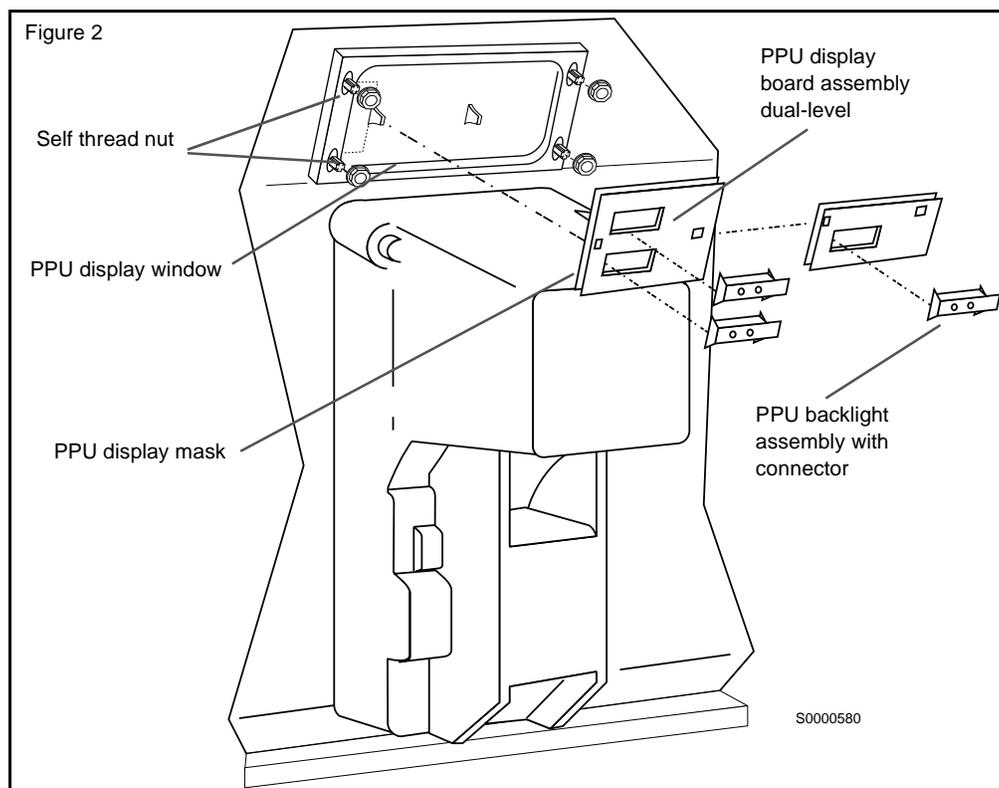
Perform the following steps for each hose.

- 1 Open main access door. Refer to MDE-2531, Pump and Dispenser Start-Up/Service Manual for access instructions.
- 2 Unplug J121 ribbon connector from P121 on price per unit (PPU) display board.

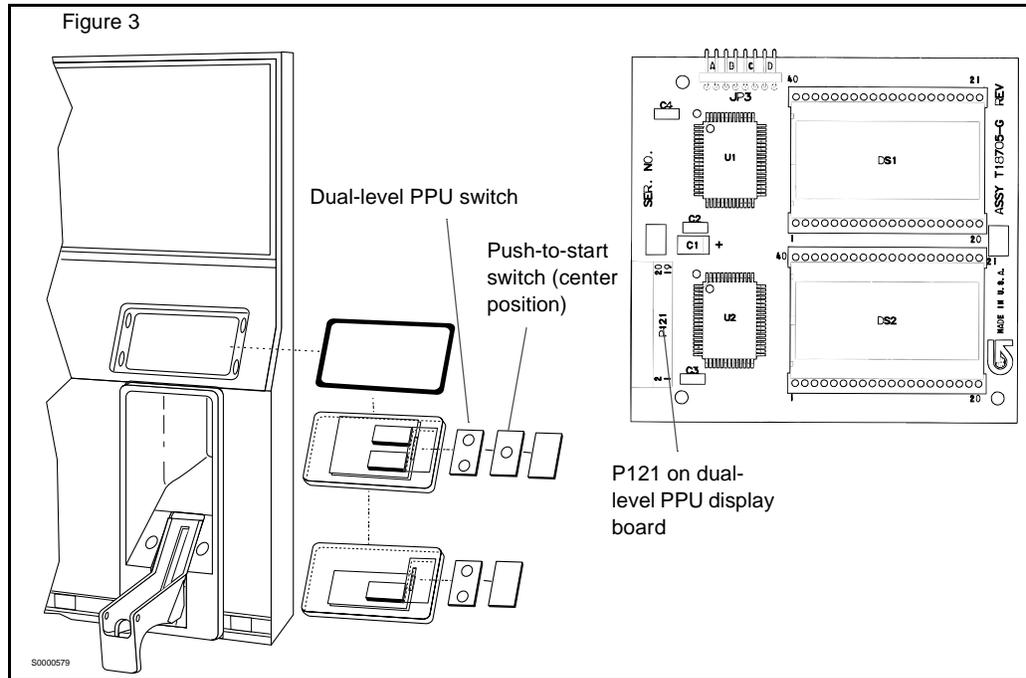
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Removing PPU Display Board

- 1 Unplug J122 backlight connector from backlight assembly.
- 2 Remove the PPU display board, backlight assembly and display mask. Save backlight assembly for reassembly. Note jump jack settings on board.
 - Remove four nuts from back of PPU display window. Set nuts aside for reassembly.
 - Remove display window and window gasket. Dispose of window and gasket.



Installing Kit In Model

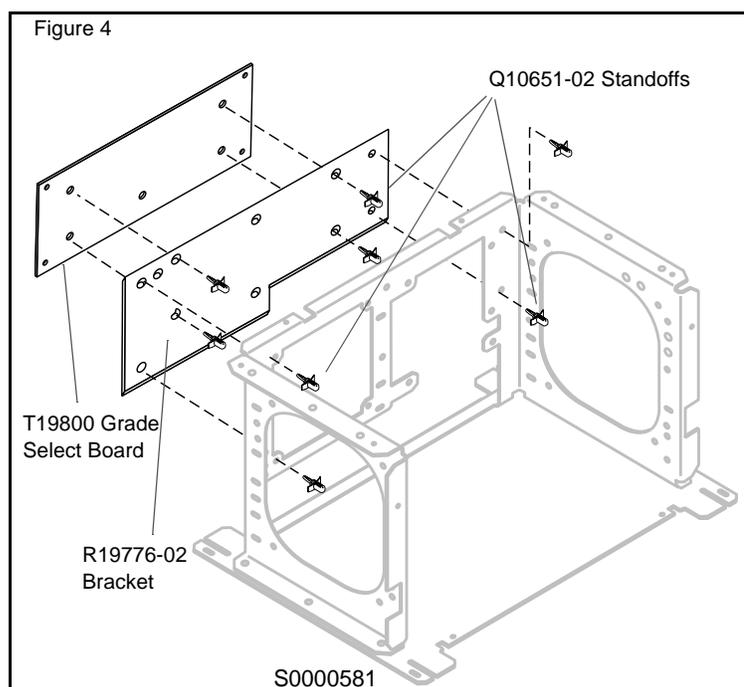


- 1 Replace PPU display window according to the following steps:
 - Install new window gasket and display window. Make sure switch slots are on right-hand side of window when looking at model front.
 - Install four nuts set aside for reassembly in Step 2 of “Removing PPU Display Board” on page 7, using them to secure display window.

Note: Do not overtighten nuts or display window will break.
- 2 Install two PPU display filters on dual PPU display board. See MDE-2687, The Advantage® Display Filter Kits, for installation instructions.
- 3 Install jump jacks on dual PPU display board. Use same settings as single PPU display board that was removed. Install dual-level PPU display mask. Carefully snap dual PPU display board into place behind display mask See “Figure 2” on page 7.
- 4 Install two 5.2 volt backlight assemblies (reuse one assembly from single PPU display board) on dual PPU display board.
- 5 Connect J121 ribbon cable to P121 on the dual PPU display board.
- 6 Reconnect a J122 backlight connector for each backlight assembly.
- 7 For models requiring membrane switches (refer to Quick Reference Conversion Charts in MDE-2742, The Advantage® Series Kit and Options Guide), install the membrane switch using the following steps:
 - Insert switch flextail through slot on right-hand side of PPU lens.
 - Place switch into filler plate cutout.
 - Secure switch applying even pressure to adhere. Do not bend switch.

Installing R19776-02 Bracket for T19800-G1 Board

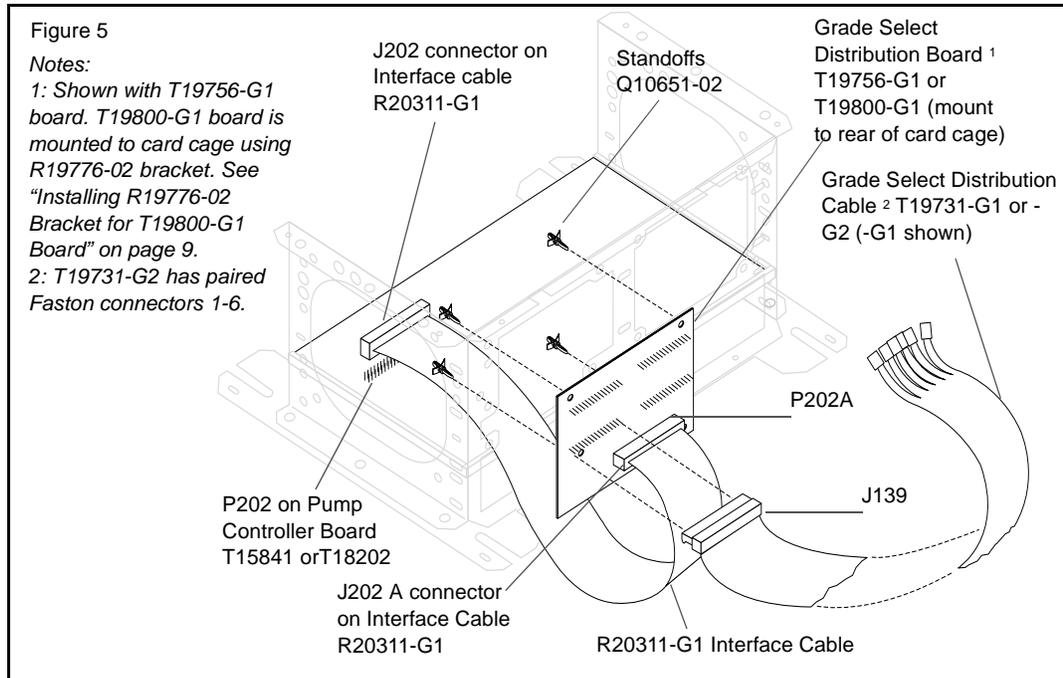
Bracket is used for 8-hose card cage only.



- 1 Install R19776-02 bracket on to rear of card cage using four Q10651-02 standoffs.
- 2 Install T19800-G1 board on to rear of card cage with remaining four Q10651-02 standoffs as shown.

Installing Grade Select Board

Make the following connections:

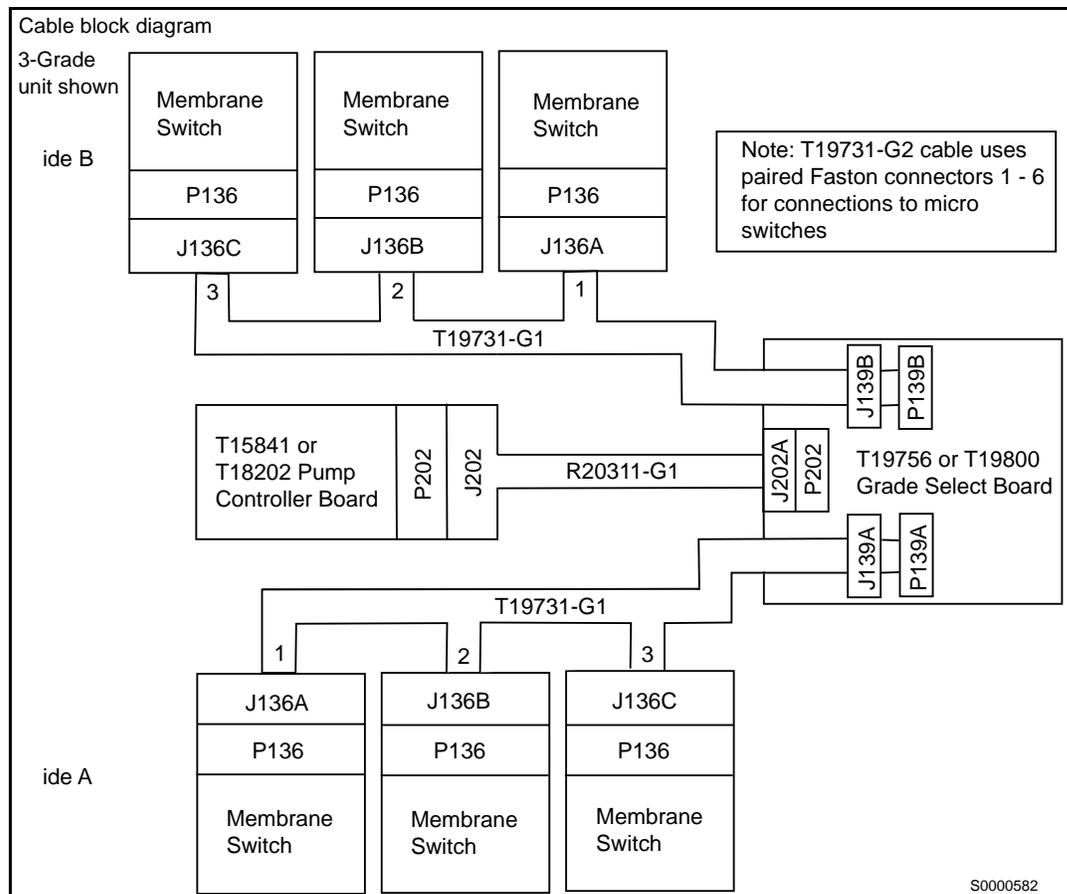


Refer To Cable Block Diagram (See page 11) To Connect

	To	On
J202 of R20311-G1 cable by routing cable through back of card cage. Be careful not to twist the cable so that proper pin connection alignment is made.	P202	pump controller board T15841, T18202 or T20005
J202 of R20311-G1 by routing cable around bottom edge of T19756-G1 or T19800-G1 board (Do not twist. Cable pin connectors must maintain alignment to each other). See "Figure 5" on page 10.	P202A	grade select distribution board T19756-G1 or T19800-G1
For A Side, J139 of T19731-G1 cable by routing cable to rear of card cage	P139A (top connector) for 2-, 4-, 6 hose MPDs and 6-hose blenders and MPD 8-hose or P139A (bottom connector) for Single-hose MPD or Blender, and Single Hose + 1	
For B Side, J139 of T19731-G1 cable by routing cable to back of card cage	P139B (top connector) for 2-, 4-, 6 hose MPDs and 6-hose blenders and MPD 8-hose or P139B (bottom connector) for Single-hose MPD or Blender, and Single Hose + 1	
For A Side, connectors 1-6* of T19731-GX cable by routing cable around left backside of card cage and underneath power supplies. Continue routing through cable clamps on left side of module (near hinge) and clamps on top side of nozzle boots. Repeat for B Side.	P136	of membrane switches

Note: *Use connectors 1 through 3 for a three-grade model or 1 through 4 for a four-grade model of T19731-G1 when connecting to the switches. (See "Cable block diagram" on page 11.).

Note: Do not twist interface cable R20311-G1 while routing or connecting. Alignment of pin connectors must be maintained as shown.



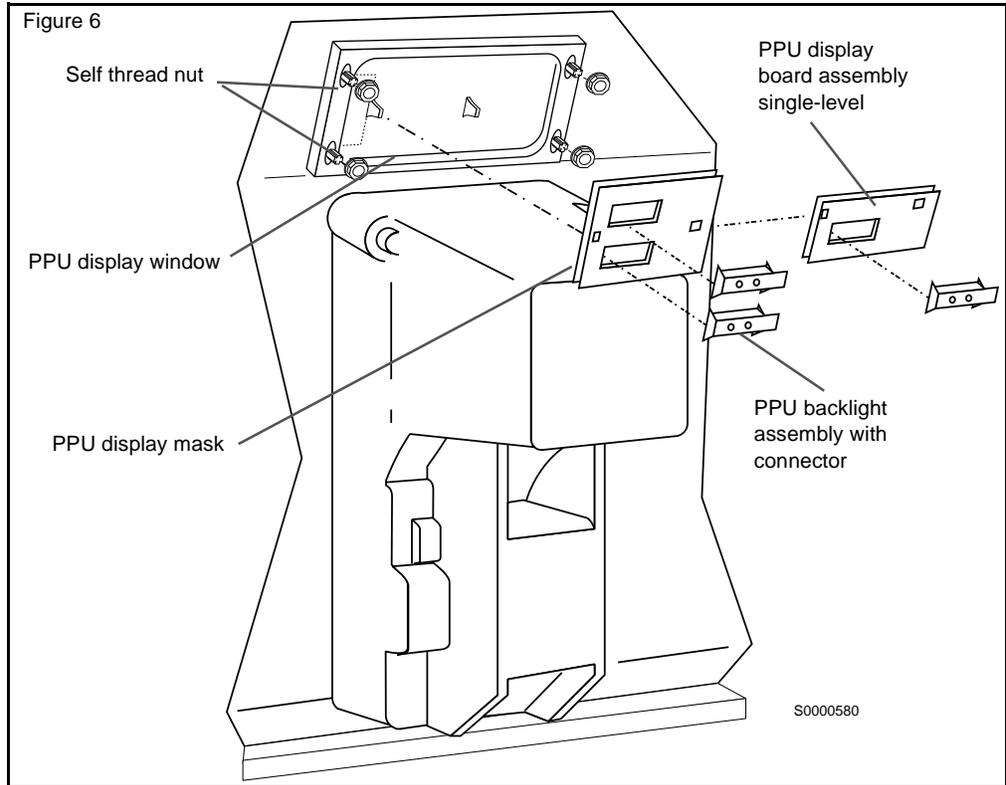
Completing Single-Level To Dual-Level Conversions

- 1 Close and secure main access door.
- 2 Install new PPU graphics. Refer to MDE-2620, The Advantage® Series Graphics Application Service Manual for installation instructions.
- 3 Power up model. Refer to MDE-2531, Pump and Dispenser Start-Up/Service Manual.
- 4 Program each side for cash/credit operation. Refer to MDE-2531.
- 5 Download prices to the dispensers. Refer to MDE-2531.
- 6 Check for proper operation.

Dual-Level To Single-Level Conversions

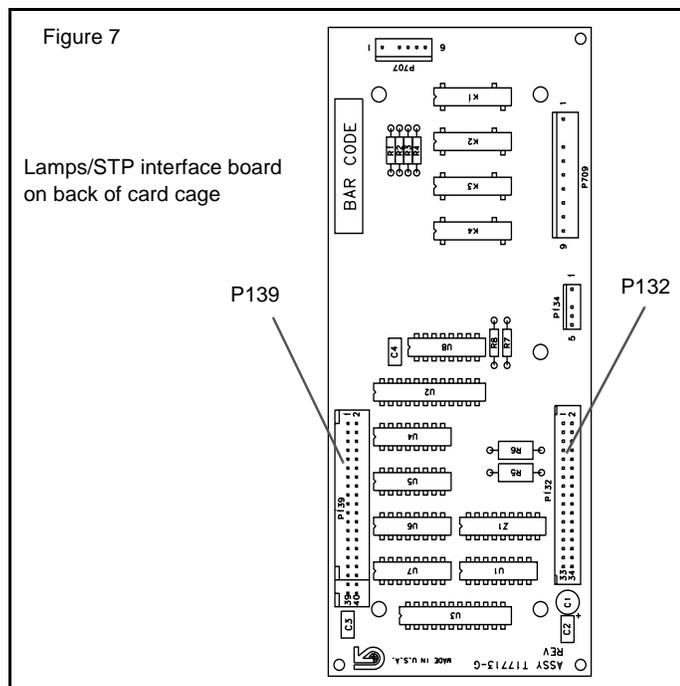
Removing Old Hardware

Open main access door. Refer to MDE-2531, Pump and Dispenser Start-Up/Service Manual for access instructions.



For converting units to be without membrane switches

- 1 Remove the PPU display board and display mask from window, and save.
- 2 Remove four nuts from back of PPU display window. Keep nuts for reassembly.
- 3 Remove display window and window gasket.
- 4 Disconnect J132 from P132 and J139 from P139 on the lamps/STP interface board on back of card cage. See “Figure 7” on page 13.



- 5 Unplug the membrane switch from J136 connector.
- 6 Remove the PPU graphics and membrane switch from the PPU display panel by prying them out from the front with a pocket knife.

For units with membrane switches

- 7 Remove the PPU graphics and membrane switch from the PPU window by prying it out from the front with a pocket knife.

Installing Kit In Model

For converting units to be without membrane switches

- 1 Replace the PPU display window using the following steps:
 - Install new window gasket and PPU display window. Make sure the switch slots are located on the right-hand side of window when looking at the model front.
 - Install four nuts removed earlier to secure display window. Do not overtighten nuts.
- 2 Install display mask removed earlier. Carefully snap PPU display board back into place behind display mask.
- 3 Install filler plate.

Continued

For converting models with membrane switches

- 1 Install the new membrane switch using the following steps (See “Figure 2” on page 7.):
- 2 Insert switch flextail through slot on right-hand side of PPU lens.
- 3 Place switch into filler plate cutout.
- 4 Secure switch applying even pressure to adhere. Do not bend switch.

Returning Unit To Working Condition

- 1 Close and secure main access door.
- 2 Install new PPU graphics. Refer to MDE-2620, The Advantage® Series Graphics Application Service Manual for installation instructions.
- 3 Power up model. Refer to MDE-2531, Pump and Dispenser Start-Up/Service Manual.
- 4 For converting from dual-level model to single-level model, refer to Section 5, Programming, in MDE-2531, or code the software as follows:
 - Command = Code 12
 - Function = Code 4
 - Configuration = Code 3 (Level 2 or bottom display level sent by console or CRIND™)
- 5 Download prices to the dispensers. Refer to MDE-2531.
- 6 Check for proper operation.