

Instructions to Install Retrofit Kit **National 145 Machine**

****TURN POWER OFF OF MACHINE BEFORE INSTALLATION****
READ ALL INSTRUCTIONS BEFORE STARTING INSTALLATION

RVMC-NATL145 Retrofit Kit Contents

PART NAME	QUANTITY	PART NUMBER
PCBA, RVMC National 145/146/147/148 Retrofit VMC	1	10-0259-00
Cable, Nat'l 145 Keypad	1	11-0190-21
Cable, Nat'l 145 Display	1	11-0194-22
Cable, MDB Ext	1	11-1700-06
Cable, Nat'l 145/147 Pulse	1	11-0196-21
Assembly, Nat'l 145 Display	1	05-1137-00
Lens, Nat'l 145 Display	1	05-0138-00
Assembly, Nat'l 146 DEX	1	05-1163-00
FOR DROP SENSOR OPTION		
Kit, Nat'l 145 Sensor	1	10-0075-00
Kit, Cable Clamp	1	05-0157-00

Tools Needed:

Screwdriver, Philips
Nut Driver, ¼" and 3/8"

EXISTING VMC REMOVAL

1. Fully open the vending machine door.
2. Locate circuit board mounting plate (top right of the machine).
3. Remove 1 screw from bottom of mounting plate.
4. Unplug all cables connected to the Vending Machine Controller (VMC) on "front" and "bottom" sides.

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Figure 1

5. Mounting plate can be lifted out for VMC removal and installation of new boards.
6. Disconnect any remaining cables from VMC.
7. Remove all screws holding in VMC. **Save all hardware for future use installing new control board.** See Figure 2

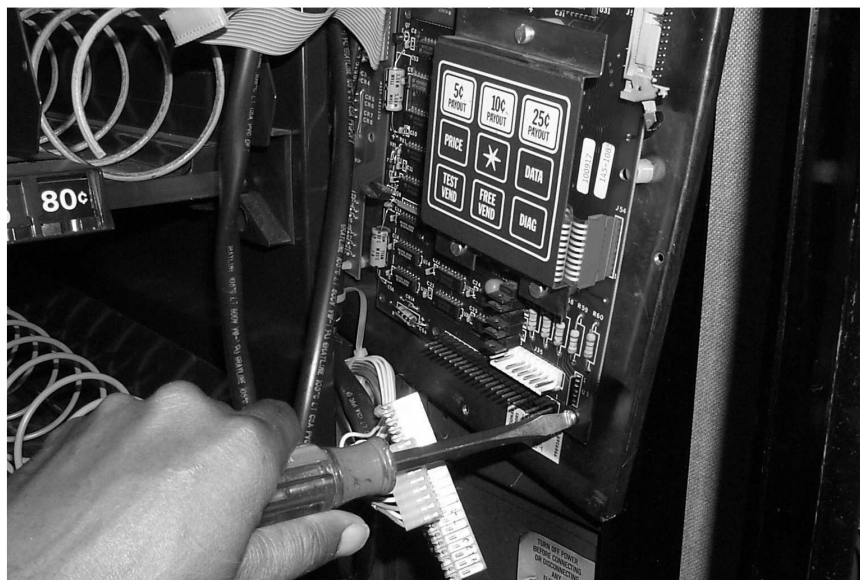


Figure 2

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NEW VMC INSTALLION

8. Locate the VMC in the kit. This will mount directly onto the existing standoffs using the same mounting holes. See Figure 3 for correct orientation (board is labeled **145/146 BOTTOM** to indicate the proper direction). Use 7 of the original screws for mounting.

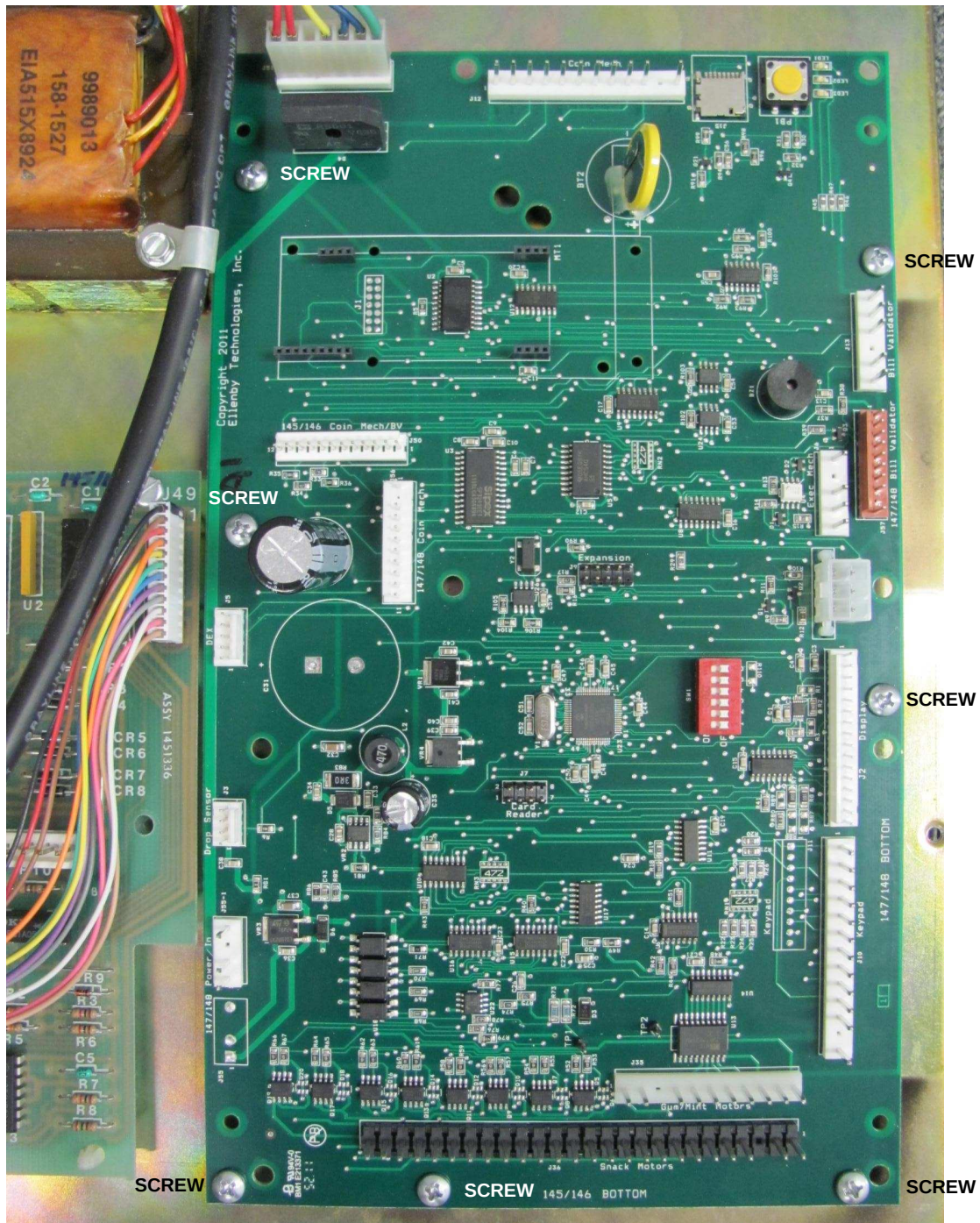


Figure 3

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EXISTING DISPLAY REMOVAL

9. Remove the cover on the front panel of door held in place with two screws. The cover is mounted behind the display. See Figure 4.



Figure 4

10. Remove all connections to the display board and remove the 4 screws holding the board. See Figure 5.

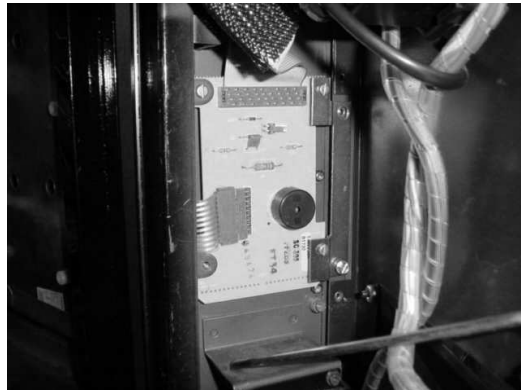
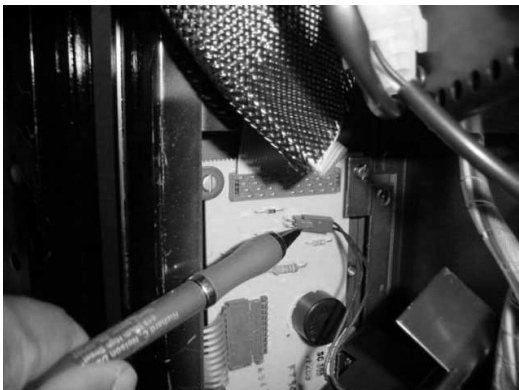


Figure 5

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NEW LENS/DISPLAY INSTALLATION

11. Locate eight caps and screws along this front panel. These screws are attaching the front cover to the front panel. Remove the screws and caps in order to remove the display lens, shown below in Figure 6. This will be replaced with the **05-0138-00**, included in the kit and shown in Figure 7. Once the **05-0138-00** is in position, the caps and screws can be replaced. Please make sure it is secure in its place before securing the screws.

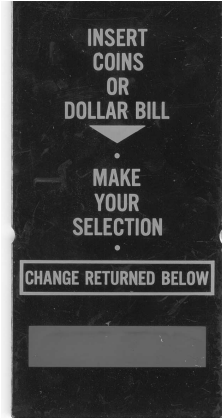


Figure 6



Figure 7

12. Install the display assembly, **05-1137-00** using the two of the screws that held the lens bracket. Make sure the display is facing through the front of the machine. Refer to Figure 8.



Figure 8

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HARNESS INSTALLATION

- **J36** - The **motor connection** is an existing cable with a 21 pin connector. This plugs into **J36** located near the bottom side of the board. Pin 3 is keyed (Pin 1 toward the right of the VMC). Note that 5 of the pins on the left side of the J36 will not be connected.
- **J35** - The **gum & mint motor** connection is an existing cable with a 9 pin connector. This plugs into **J35** located near the bottom of the board. Pin 3 is keyed (Pin 1 toward the left of the VMC). Note that 2 of the pins on the right side of the J35 will not be connected.
- **J51** - The **power** connection is an existing cable with a 7 pin connector. This plugs into **J51** located near the top left of the board. Pin 3 is keyed (Pin 1 toward the left of the VMC).
- **J50** - The **Micromech** connection is an existing 11 position cable coming from an existing adapter board. The cable plugs into **J50** which is directly above the large capacitor near the center top of the VMC.
- **J10** - The **keypad** connection uses the kit supplied **11-0190-21** cable with a 10 pin male connector at 0.100" spacing on one end and a 13 pin connector at 0.156" spacing. The male connector plugs directly into the keypad tail. There will be a **triangle marking** on the tail connector and the cable connector to indicate pin 1. Please make sure these markings are matched up. The other end will plug into **J10** on the bottom right of the VMC.
- **J2** - The **display** connection uses the kit supplied **11-0194-22** cable with 16 pin connectors on both ends. Plug one end into **J2** near the right middle of the VMC. The other end will plug directly into the display. Make sure pin 1 (black wire) of each connector is matched up.
- **J13** – If a **pulse bill validator with escrow** is installed, its connection uses the kit supplied **11-0196-21** cable. There will be a ribbon cable coming from the bill validator with a small module at the end. On this module, there is a 2 x 9 header. There is a mating connector on one end of **11-0196-21** that will plug into this header. The other end will plug directly into **J13** near the right top of the VMC.
- **J4** – If **MDB money acceptors** are installed, their connection uses the kit supplied **11-1700-06** cable. This cable is needed to extend the 2 x 3 cable that will be coming from the MDB coin mech and/or bill validator.

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SENSOR KIT INSTALLATION (Option – If not used proceed to DEX CONNECTION)

13. On either side of the bin, remove the deflector plate by removing three screws. Do this for both sides. Refer to Figures 9 & 10.



Figure 9



Figure 10

14. Remove small roller from the lock side of the bin door. You will need to use a spacer (2"x 4"), a narrow screwdriver and an adjustable wrench. You need to access the roller screw through the slot at the top of the product bin. See Figures 11, 12 & 13.



Figure 11

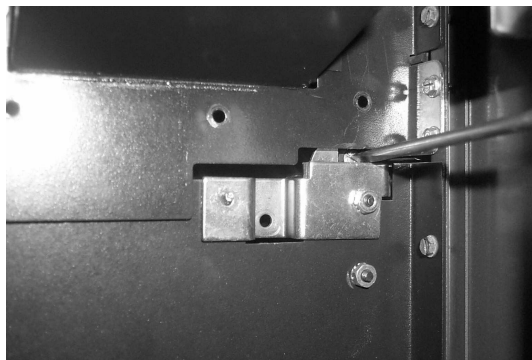


Figure 12



Figure 13

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15. Remove the 2 screws on the product bin and install the emitter bracket behind the product bin on the lock side of door. Use the same screws that were removed earlier in this step. See Figure 14.

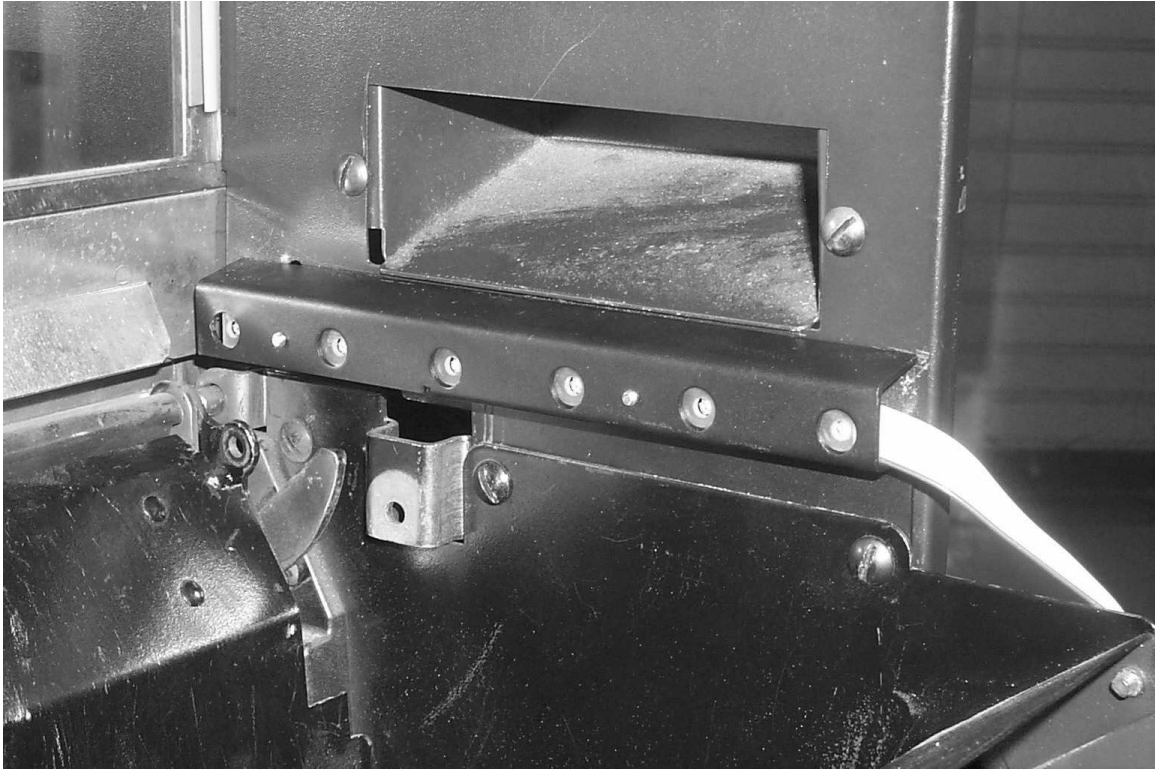


Figure 14

16. Remove the 2 screws on the product bin and install the sensor bracket behind the product bin on the hinge side of door. Use the same screws that were removed earlier in this step. See Figures 15 & 16.



Figure 15



Figure 16

17. Route the ribbon cable between the 2 sensor boards underneath the product bin.

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DEX CONNECTION

18. The kit supplied **05-0163-00** DEX connector bracket is installed above the VMC using three of the existing mounting standoffs and screws. See Figure 17. Once installed, plug the 4 pin connector into **J3** near the left middle of the VMC.

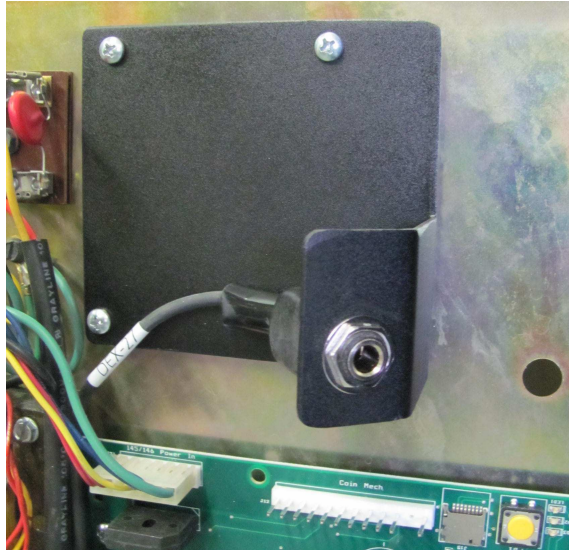


Figure 17

FINISH

19. **J55-1, J56 and J57** will not be connected on the VMC.
20. The sliding bracket (with the boards mounted on) can now slide back into the machine SLOWLY. Be sure to reinstall the screw on the circuit board mounting plate.