E-PAK

MACHINERY, INC.

TOUCH SCREEN FILLER CONTROLS

Revision C

E-PAK Machinery, Inc.

1535 South Highway 39
LaPorte, Indiana 46350 USA
(800) 328-0466   www.epakmachinery.com

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1.0   SAFETY

1.1   GENERAL SAFETY

E-PAK Machinery designs and manufactures all of its products so they can be operated safely. However the real responsibility for safety rests with those who use and maintain these products. The following safety precautions are offered as a guide that if conscientiously followed, will minimize the possibility of accidents throughout the useful life of this equipment

Only those who have been trained and delegated to do so and have read and understood this Operator's Manual should operate all equipment. Failure to follow the instructions, procedures and safety precautions in this manual can result in accidents and injuries.

DO NOT modify the equipment except with written factory approval. Equipment modifications will void warranty.

Each day walk around the equipment and inspect for leaks, parts which are loose, missing or damaged components and parts out of adjustment. Perform all recommended daily maintenance noted in this manual.

EQUIPMENT SHOULD <u>ALWAYS</u> BE DE-ENERGIZED BEFORE MAKING MECHANICAL ADJUSTMENTS.

1.2   ELECTRICAL SHOCK
- To avoid electrical shock hazard, make sure this equipment is properly grounded.
- Keep all parts of the body and hand held tools, or other conductive *objects away from* exposed live-parts of electrical system. Maintain dry footing, stand on insulating surfaces and DO NOT contact any portion of the equipment when adjusting or making repair to exposed live parts of electrical system.
- Attempt repair methods only in clean, dry, well-lighted and ventilated area.
- Dangerous voltages are present within the electrical enclosures. DO NOT operate this equipment with electrical covers open or removed.

1.3   CONTACT MATERIALS COMPATIBILITY
E-PAK endeavors to make all contact parts compatible with buyer's products, if known. Because of the wide variety of possible products, E-PAK Machinery cannot be responsible or liable for ensuring compatibility of contact material with products. Evaluate material compatibility prior to machine use. Failure to follow this procedure can result in machine damage, fire, operator injury or death.

1.4   SAFETY COMPLIANCE LIABILITY
E-PAK endeavors to make machinery as safe to operate as possible. National, state and local laws related to safety in the workplace, apply primarily to the responsibilities of the employer, and not the equipment manufacturer. The seller agrees to cooperate with the buyer in finding feasible answers to compliance problems. However, because E-PAK has little control of the many factors which may significantly affect the environment that this equipment is installed, the seller does not warrant this equipment to be in compliance with OSHA or any like state or local laws or regulations. It is the buyer's responsibility to provide the modifications necessary to assure compliance with the laws and regulations at the point of installation. *<u>A complete inspection of product is necessary until the machinery is proven to produce acceptable results. This should also be performed after every changeover.</u>*

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2.0   INTITIAL START UP OF CONTROLS FOR FILLER OPERATION

1.   Make sure that the main disconnect is turned to the ON position and the E-Stop is not activated.
2.   Push the master start button to bring power to the touch screen.
3.   When the master start button is pushed it will illuminate.

This manual should be read completely before powering-up the Machine. Commissioning of the Machine should be preformed by a trained technician only after complete understanding of the Machine, and with products that match samples indicated to E-PAK Machinery if supplied.

3.0   START UP SCREEN (MAIN MENU)

There are two buttons that can be touched on the start up screen:

1.   Go to Set-Up Menu
   • When touched, this button will allow you to set-up all functions for filler operation, manually operate systems, and make necessary adjustments.

2. **Begin Production**
   • When touched, this button will allow you to go to the main operation screen which will allow you to operate the filler, and run production.

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4.0   GO TO SET-UP MENU

CONFIGURE FILLER FUNCTIONS	GO TO MANUAL TOGGLE OF FUNCTIONS	
LOAD / SAVE RECIPES	PIN INDEXING AUTO SET-UP	
CLEAN IN PLACE	BATCH COUNT	FILL AUTO SET-UP
SECURITY LOGIN	0000	LOGIN LEVEL 0 RETURN TO MAIN MENU

4.1   CONFIGURE FILLER FUNCTIONS
The first button is the **Configure filler functions** button.
- This button allows you to enable or disable certain filler functions.
- This button is safeguarded by a security code of **5541** to only allow the desired personnel access to this option. (see the section on security code for more information)
- When touched, this button will bring up 3 new screens which **all fill heads, head dive, drip tray, container locator, low tank fill hold, supply hold, containers available, and index type, (pin, star wheel, or shuttle).**

1.   The first and second screens will allow you to set up the number of fill heads that your filler has. They can be turned on or off from the first 2 screens.
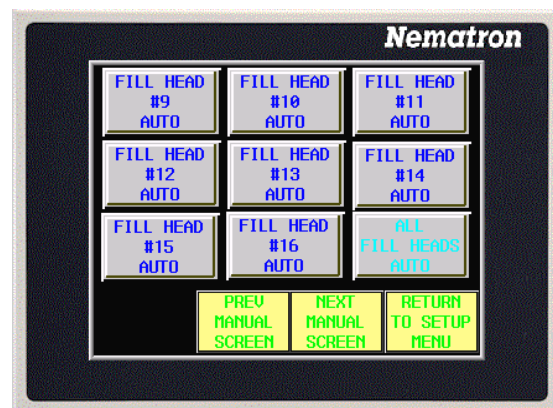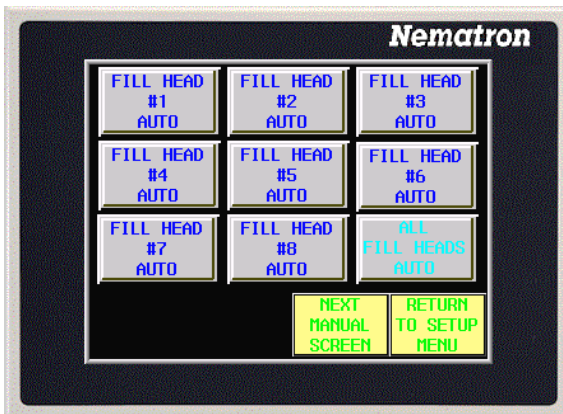
(the third screen contains the following functions)

2.   **Head Dive**- This function will be enabled if your filler is set up with diving heads that will dive into the container as it is filling.

3.   **Drip Tray**- This function will be enabled if your filler is set up with a drip tray that   will extend after a fill cycle to catch any drips preventing them from falling on

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the bottles.

4.   **Container Locator**- Also known as bottle grabbers, this function will allow an arm to extend that will hold the neck of the container in place while it is filling, to gain more control over the top of the container.

5.   **Low Tank Fill Hold**- This function will halt the filling process if the float that is in your supply tank is not satisfied that there is enough product in the tank. This will prevent the possibility of low fill weights. If enabled, the filler will not fill another set until there is enough product in the tank. When the tank is full, the filling process will resume.

6.   **Supply Hold**- This function will allow the operator interface to be linked with an electric pump, so if enabled, the pump will not run while the fill cycle is on.

7.   **Containers Available**- If your machine is set up with an eye upstream of the filler, and this function is enabled, that eye must have containers in front of it for the filler to operate.
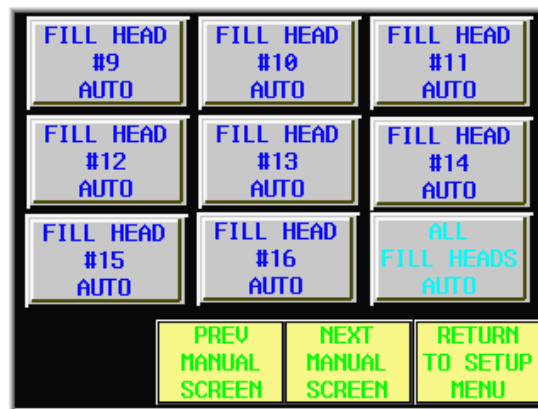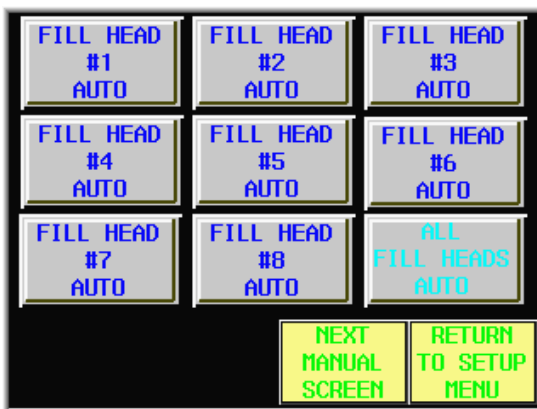
8.   **Index Type** (pin, star wheel, or shuttle)- This function will allow you to choose what type of indexing action your filler has, whether it uses an entry and exit gate (pin), a star wheel, or a shuttle type system.
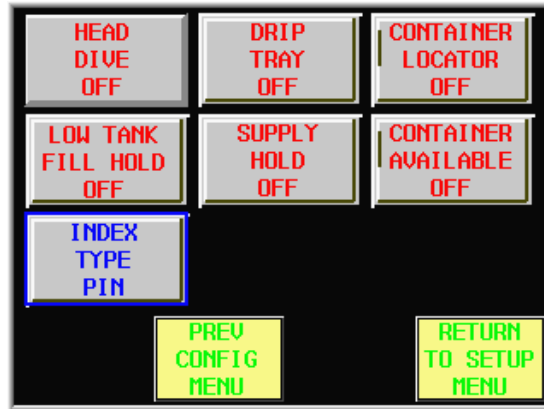
4.2   GO TO MANUAL TOGGLE OF FUNCTIONS
The second button on the set-up menu is the **Go To Manual Toggle of Functions.**
- When pushed, this button will allow you to manually operate all available filler functions.
1.   The first screen will allow you to operate the first set of fill heads.
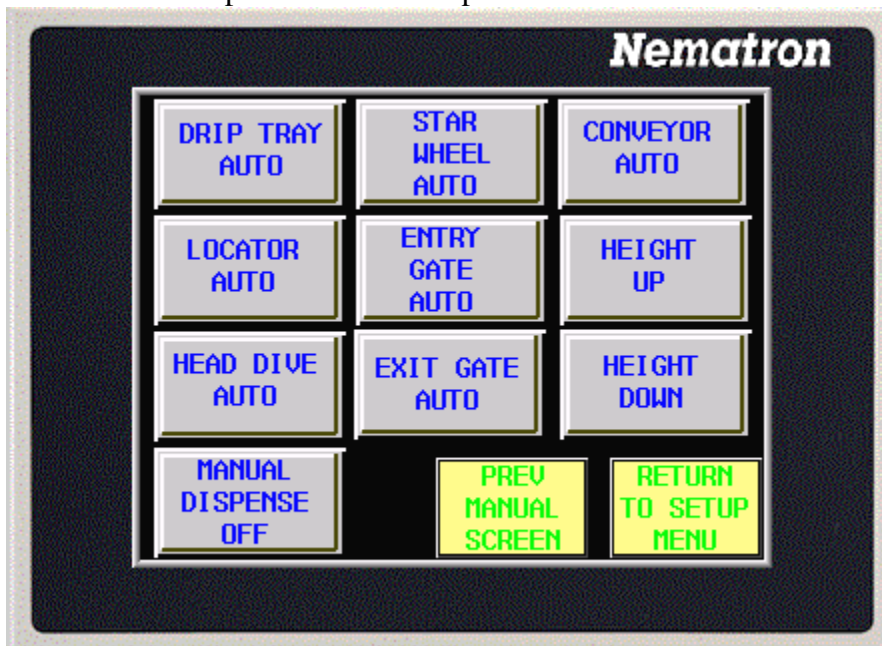2.   The second screen will allow you to operate the second set of fill heads.

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3.   The third screen will allow you to operate the options that your filler was set up with.

*   These options include: Drip tray, Star Wheel, Conveyor, Locator, Entry Gate, Exit Gate, Head Dive, Height Up, Height Down, and Manual Dispense.

4.   When pushed, the **drip tray** will either extend or retract.

5.   When pushed, the **star wheel** air cylinder will either extend or retract allowing free movement of the star wheel.

6.   When pushed, the **conveyor** that runs underneath the filler will either start or stop.

7.   When pushed, the **locator** will either extend or retract.

8.   When pushed, the **entry gate** will either extend or retract.

9.   When pushed, the **exit gate** will either extend or retract.

10.   When pushed, the **head dive** button will allow you to dive the fill heads into the bottles or bring them out of the bottles. **NOTE**: Using the dive function in manual mode will cause the **drip tray** to lock up, so the heads will not inadvertently hit the drip tray. To utilize the drip tray again, pressing the **MASTER STOP** button and then pressing the **MASTER START** button will reset the drip tray.

11.   When pushed, the **height up** button, if equipped with a motor, will allow the fill heads to be raised to accommodate a taller container.

12.   When pushed, the **height down** button, if equipped with a motor, will allow the fill heads to be raised to accommodate a shorter container.

13.   When pushed, the manual dispense button will allow you to fill one set of containers to the predetermined set point.

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4.3 LOAD / SAVE RECIPIES

The third button on the set-up menu is **Load/ Save Recipes**.

• This button will allow you to store recipes in the memory of the PLC, so the next time that container and product is to be run, simply pull up that recipe, and set up the filler to accommodate the container and product. All timed functions will be stored.

• There can be a total of 50 recipes named and stored in the memory.

• When pushed, this button will bring up a screen that has an up arrow and a down arrow. When either arrow is pushed, you can scroll through the saved recipes to find the one that you want.

• From this screen you can also save a new recipe.

• When the save recipe button is pushed, a keypad will come up on the screen which will allow you to name the recipe whatever you want.
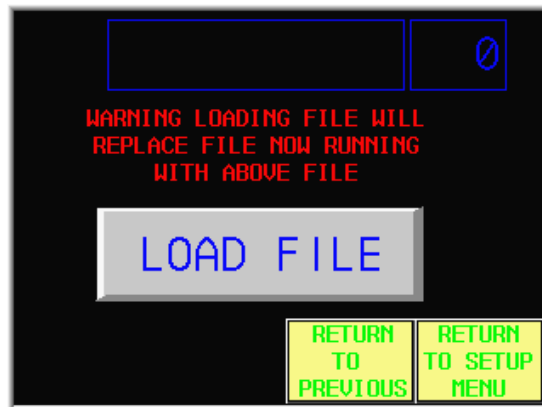
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4.4 PIN INDEXING AUTO SET - UP

The fourth button on the set-up menu is **Pin Indexing Auto Set-Up**.

• Also called an A.S.U., this button will allow you to set up the timed operations of the filler with exception to the fill heads.
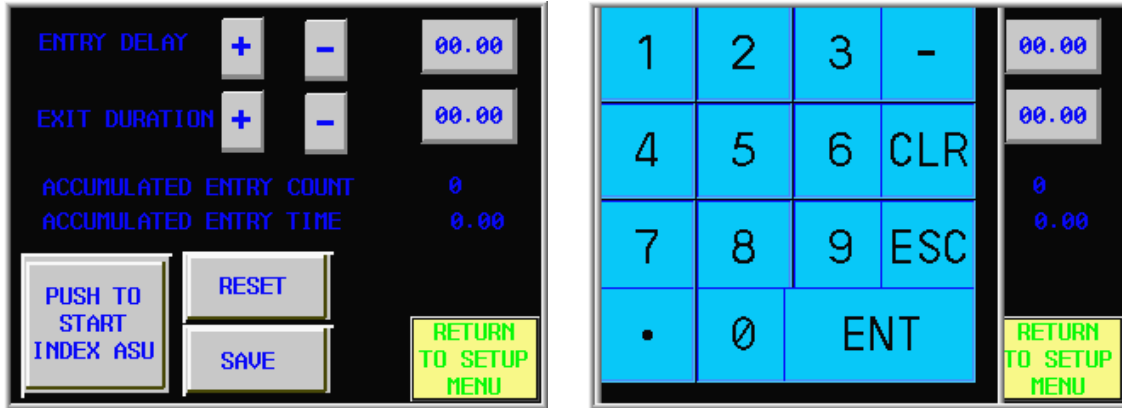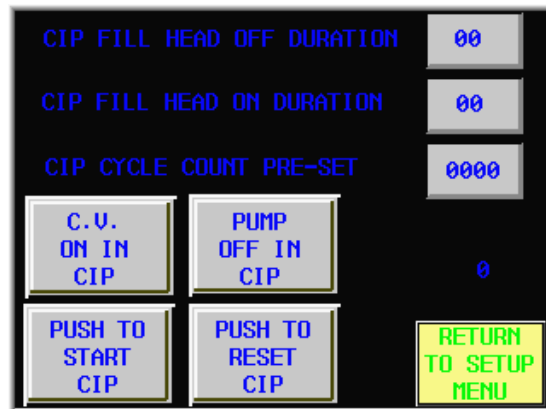

1. To use this function, you must first tell the PLC how many bottles are to be filled at one time. This number can be changed on the **Begin Production** side of the screen. It can be found in the **adjust timers/ counters** button, which will be discussed later.

2. After the number of container count is set, and all mechanical set-up of the filler has been performed, put that number of containers at the infeed side of the filler, in front of the count eye.

3. Next, touch the Push to Start Index A.S.U. button.
   • This will begin the process of setting up the timed functions of the filler.
   • The conveyor, exit gate, entry gate, drip tray, and container locator may move, so use caution.
   • When done, you can either save that A.S.U. or reset it and perform another one.
   • When saved, you can either begin production, or perform other tasks by using the touch screen.

4.5 CLEAN IN PLACE (C.I.P.)

The fifth button on the set-up menu is **C.I.P.** (Clean In Place)

• This option will only be used if your filler is designed with it.

• If your filler is equipped with this option, it will allow you to rinse out the supply tank, all fill heads and pumps.

• From this screen you can set the amount of time for each stage of rinsing, and the number of times it is rinsed.

•

NOTE: Using the **C.I.P.** mode will cause the

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drip tray to lock up, so the heads will not inadvertently hit the drip tray. To utilize the drip tray again, pressing the **MASTER STOP** button and then pressing the **MASTER START** button will reset the drip tray.
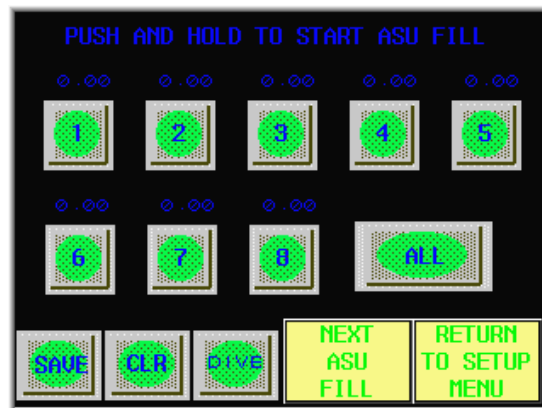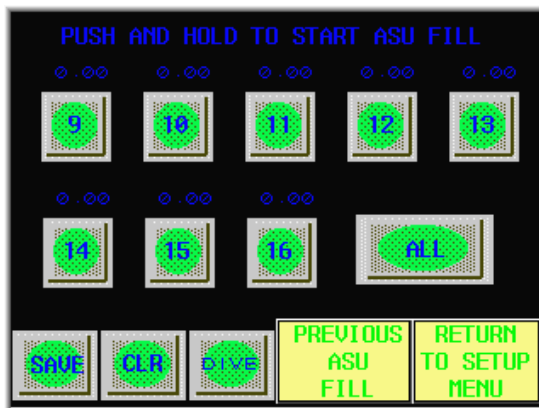
4.6   BATCH COUNT
        The sixth button on the set-up menu is **Batch Count**.
        • This function will allow you to set up the number of containers that are to be ran.
        • When the predetermined amount of containers has been filled, the machine will shut down. Then you must tell it whether you want to reset that batch and run the same amount over, or change it.
        • Also, from this screen, you can look at the amount of containers that are left to be ran. As the containers are filled, that number will reduce by the amount of bottles that are filled per set.
        • If you do not want to use this function, just push the **batch counter off** button.

4.7   AUTOMATIC SET – UP (FILL A.S.U.)
        The seventh button on the set-up menu is the **Fill A.S.U.** (Automatic Set Up)
        • This function will allow you to set the amount of time that the fill heads are open, allowing product to flow into the containers.
        • From this screen you can either set up a single fill head at a time, or set them all up together.
        • It is recommended that this function only be used to get the times close. Fine tuning should be performed from the **production screen** to ensure the proper amount of product is going into the container every time.
        • If using a diving head system, you must first push the dive button, which will set the fill heads down in the containers to simulate the filling process.
        • When the amounts of time on each fill head are close, push the save button so the PLC will retain those numbers and fine tuning can be performed on the production screen.

4.8   SECURITY LOGIN
        The eighth button on the set-up menu is the **security login**.
        • When touched, this button will bring up a keypad that will allow you to type in the correct security code to access utilities only to be seen by the appropriate personnel.

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This is the end of the Set-Up menu.

5.0   BEGIN PRODUCTION

At the Start-Up screen, the second, and last button, is the **Begin Production** button.
•   When pushed, this button will allow you access to functions that can be performed during normal filling operations.
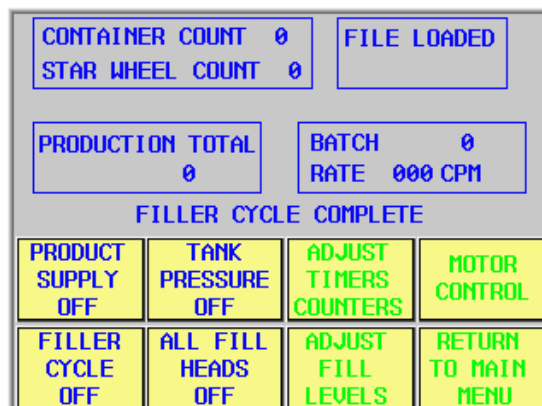

The top half of the screen shows the operator:
•   **Container count**- When the empty containers pass the bottle count eye, the number in this block will increase.
•   **Star wheel count**- If equipped with a star wheel, when the pins on the bottom of the star wheel pass over the proximity sensor, the number in this block will increase.
•   **File loaded**- If using a recipe stored in the memory of the PLC, when loaded, the name of the recipe will be displayed in this block.
•   **Production total**- This number tells you how many containers have been ran during a given amount of time. This number will increase when filled containers have been produced. To clear out this count and start over from zero, press and hold on this block for 5 seconds and the number will return to zero.
•   **Batch**- This block will tell you how many containers there are to be ran.
•   **Rate**- This block, if equipped, will tell the operator how many containers per minute are being produced.

The middle portion of the screen is used for messages or warnings.
•   If detected, for example, messages will flash across the screen telling the operator that a specific filler function is completed, or that an E-stop has been pressed.

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5.1   PRODUCT SUPPLY
The first button on the production screen is the **Product Supply**.
- This button will allow you to turn on/ off the float system.

5.2   FILLER CYCLE
The second button on the production screen is the **Filler Cycle**.
- This button allows the operator to run the filler either in automatic or for a single cycle.
- For the filler to run in continuous operation, push the button until it says **Filler Cycle Auto**.
- This will start up the filler and it will continue to run until either the operator shuts it off, or a specific function of the filler is not satisfied.
- To run only one cycle push the Filler Cycle button twice.

5.3   TANK PRESSURE
The third button on the production screen is the **Tank Pressure** button.
- If equipped, this button will turn on the pressure switches, allowing the holding tank to become pressurized which, when the fill heads are opened, the pressure in the tank will push the product into the containers.
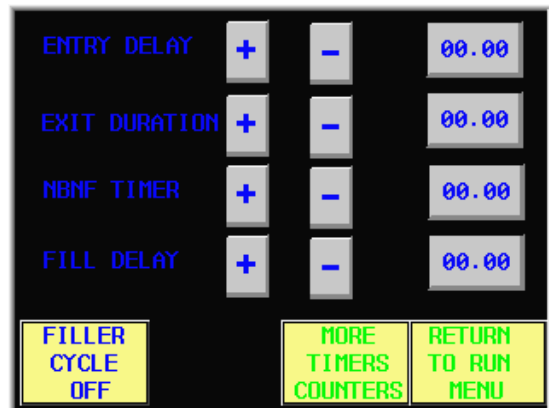
5.4   ALL FILL HEADS
The fourth button on the production screen is the **All Fill Heads** button.
- When pushed, this button will either turn all of the fill heads on or turn them off when the cycle is started.

5.5   ADJUST TIMERS / COUNTERS
The fifth button on the production screen is the **Adjust Timers/ Counters** button.
- When pushed, this button will bring up screens that will allow all timers and counters to be adjusted.
- **Entry Delay**- This button will allow you to change the amount of time that the entry gate is extended.
- **Exit Duration**- This button will allow you to change the amount of time that the exit gate is retracted into its cylinder.
- **NBNF Timer** (No Bottle No Fill) - The amount of time the bottle count sensor must be blocked before cycling.
- **Fill Delay**- This button will allow you to change the amount of time that the empty containers sit under the fill heads before they open and the containers start filling.
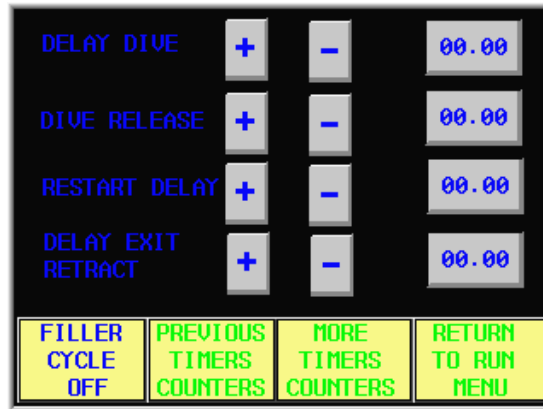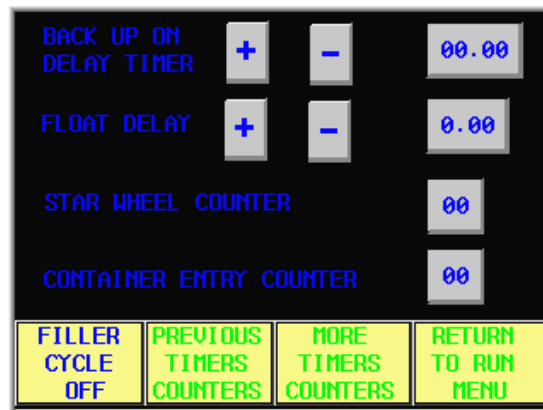
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- **Delay Dive**- This button will allow you to change the amount of time that the empty containers sit under the fill heads before the heads dive into the containers and the filling process begins.
- **Dive Release**- This button will allow you to change the amount of time that the fill heads stay down inside the bottles if the filler is equipped with diving heads.
- **Restart Delay**- This button will allow you to change the amount of time that the filler stays dormant until the next set of bottles is allowed into the filler after a filling cycle has been completed.
- **Delay Exit Retract**- This button will allow you to change the amount of time that the exit gate stays extended after the filling cycle has been completed.

DELAY DIVE	+	−	00.00
DIVE RELEASE	+	−	00.00
RESTART DELAY	+	−	00.00
DELAY EXIT RETRACT	+	−	00.00
FILLER CYCLE OFF	PREVIOUS TIMERS COUNTERS	MORE TIMERS COUNTERS	RETURN TO RUN MENU

- **Back Up On Delay Timer**- This button will allow you to change the amount of time that it takes the filler to shut down if equipped with a jam eye at the discharge side of the filler.
- **Float Delay**- This button will allow you to change the amount of time that the check valve(s) stay closed after the float tells the PLC that the hold tank needs more product.
- **Star Wheel Counter**- This button will allow you to change the number of pins that need to be counted by the proximity sensor under the star wheel. This would be used if the star wheel is changed to one with more or less pockets, or if the bottle count changes.
- **Container Entry Counter**- This button will allow you to change the number of containers that the count eye needs to count before the filling process begins.

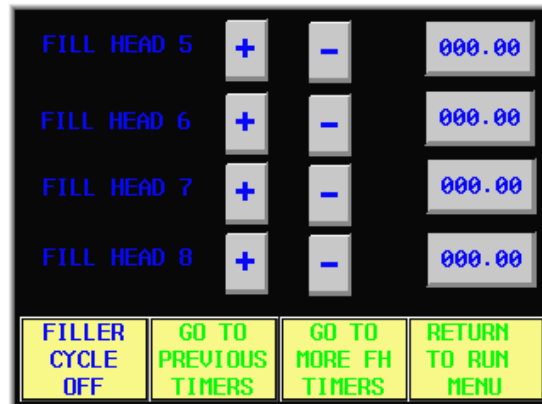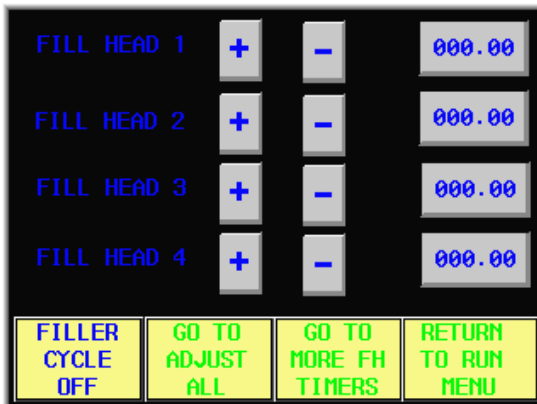| BACK UP ON DELAY TIMER	+	−	00.00
FLOAT DELAY	+	−	0.00
STAR WHEEL COUNTER			00
CONTAINER ENTRY COUNTER			00
FILLER CYCLE OFF	PREVIOUS TIMERS COUNTERS	MORE TIMERS COUNTERS	RETURN TO RUN MENU

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- **Shuttle Delay Timer**- If equipped with a shuttle system, this button will allow you to change the amount of time before the shuttle assembly extends pushing containers under the fill heads.
- **Container Available On Delay**- If equipped, this button will allow you to change the amount of time that the container available eye looks for empty containers before shutting down the filling process. If this eye does not see containers within a given amount of time, it will not allow the entry gate to open, or the star wheel to disengage, letting empty containers into the filling area.
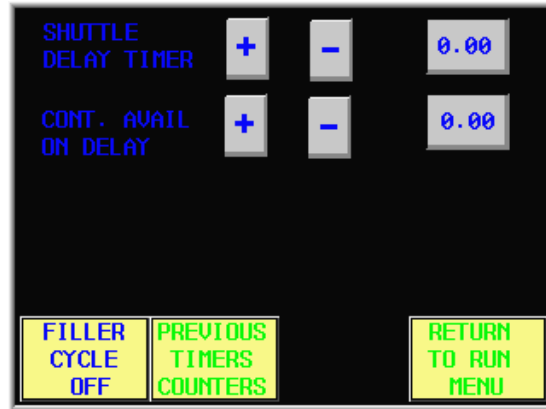
5.6   ADJUST FILL LEVELS

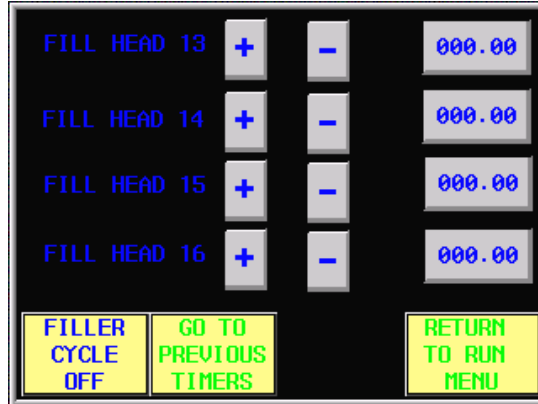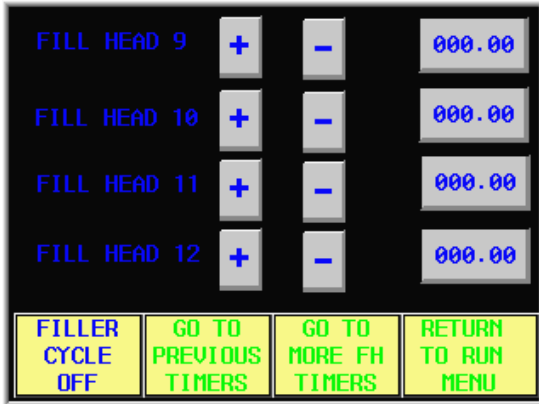The sixth button on the production screen is the **Adjust Fill Levels** button.

- When pushed, this button will allow the operator to change the amount of time that the fill heads remain open. This is how you adjust the weight or appearance of the product in the container.
- The operator can either select any single fill head for adjustment, or change them all by using the arrow keys behind the **Go To Adjust All** button.

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FILL HEAD 9	+	–	000.00
FILL HEAD 10	+	–	000.00
FILL HEAD 11	+	–	000.00
FILL HEAD 12	+	–	000.00
FILLER CYCLE OFF	GO TO PREVIOUS TIMERS	GO TO MORE FH TIMERS	RETURN TO RUN MENU

FILL HEAD 13	+	–	000.00
FILL HEAD 14	+	–	000.00
FILL HEAD 15	+	–	000.00
FILL HEAD 16	+	–	000.00
FILLER CYCLE OFF	GO TO PREVIOUS TIMERS		RETURN TO RUN MENU

5.7   FILL BY WEIGHT

This function allows you enter in a target weight and an actual weight, and then automatically correct/change your fill time. The number that you enter in for your weight is not in (lb.) or (kg.), it is just a number of reference, and it does not use decimal points.

- To setup this option, go into the set-up screen, and run a standard automatic set-up (ASU for Fill).
- Then go to the Begin Production screen, and then push the Adjust Fill Levels button.

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- Your fill heads should already have times on them.
- Push the (FH 1 VOL) button for the first fill head, and your weigh screen will appear.
- Enter in your Fill Target weight by pushing the fill target number, enter in your target number, and push enter. NOTE: This only need be done once, when the target number is entered, it transfers to all of the fill heads.
- Weigh your bottle for fill head number 1.
- Enter in your Fill Actual weight by pushing the fill actual number, enter in your weight, and push enter.
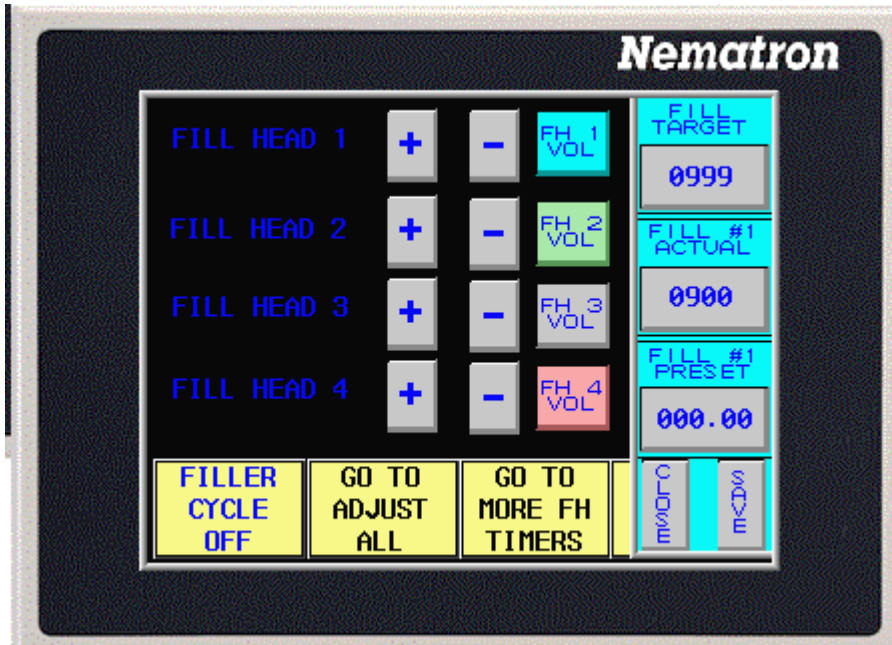
- When your fill numbers are entered, push the save button, to lock the numbers in the system, and your fill time will automatically change.
- Next, move on to you're the next fill head and push it's volume button (FH 2 VOL), and repeat the last five steps.
- When you are finished with all of your fill head, return to the run menu, and you are ready to start filling.

WARNING: The FILL ACTUAL button work just like the FILL TARGET button. Once you enter in an actual fill weight, it will transfer in to all of the fill heads. So if your actual weight is the same as your target weight, DO NOT just push the save button. You must either (enter in the Fill Actual weight and then push the save button), or (just push the CLOSE button, and your fill time will stay the same.

NOTE: When you enter in a new Fill Actual weight on one fill head, and it changes the Fill Actual weight on all fill heads, this does NOT mean that all fill head times will be changed, just the fill head that you are entering, and saving the changes too.

5.8   MOTOR CONTROLS
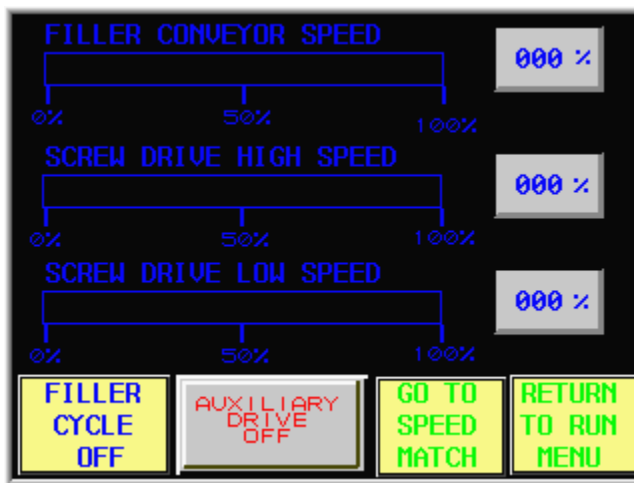The seventh button on the production screen is the **Motor Control** button.
•   This button will allow the operator the change the speed of the conveyor running through the filling area.
•   There is also an **Auxiliary Drive Speed** option that allows the operator, if equipped, to change the speed of a second motor.

This is the end of the Production Screen.

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