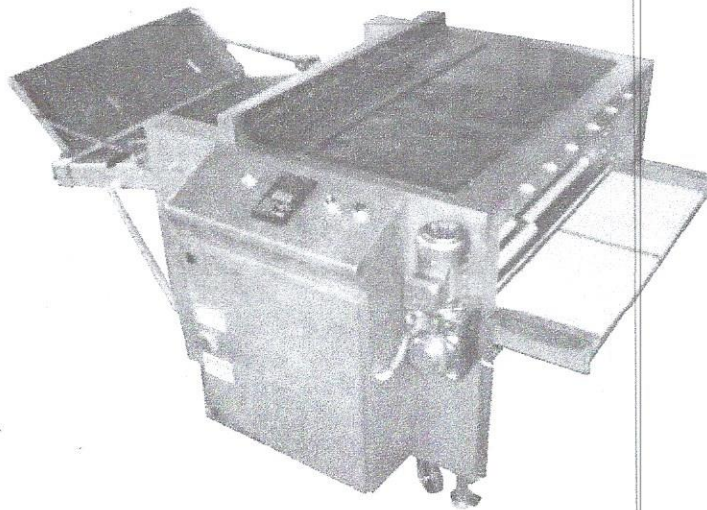




**Manufacturers of Tortilla and Tortilla Chip Processing Equipment Since 1945**

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## **JCF-3F-CSPS** **FLOUR TORTILLA COUNTER STACKER**



## **OPERATION MANUAL**

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*Thank you for purchasing the J.C. Ford C.S.P.S. Counter Stacker.*

**IN ORDER TO ENSURE YEARS OF SAFE AND RELIABLE USE,  
PLEASE READ THIS MANUAL IN ITS ENTIRETY ALONG WITH  
ALL ILLUSTRATIONS AND SCHEMATICS PRIOR TO  
INSTALLATION AND OPERATION OF THIS EQUIPMENT.**

**IF YOU HAVE ANY QUESTIONS OR COMMENTS, PLEASE CALL  
JC FORD CO. AT (714) 871-7361 AND REQUEST OUR SERVICE  
DEPARTMENT.**

**con-cen-ter-ing** To draw toward a common center.

## SAFETY

### READ CAREFULLY

Injury to person and/or damage to machinery will result if proper **CARE** is not taken whenever operating this equipment.

Management must instruct operators fully on the safe and proper operation of this equipment. They must also enforce compliance to these procedures.

**KEEP ALL SAFETY PANELS IN PLACE WHILE MACHINE IS IN OPERATION.**

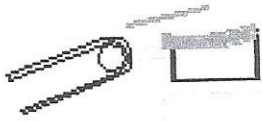
**DO NOT PROBE WITH ANYTHING INTO AREAS WHERE PARTS ARE MOVING.**

**DO NOT PLACE HANDS OR ANYTHING ELSE INTO AREAS OF THE MACHINE WHERE PROCESS MATERIAL(S) ARE MIXED, FED, OR OTHERWISE WORKED OR CONVEYED IN SOME MANNER.**

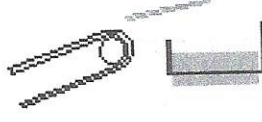
When doing **ANYTHING** to the machine besides normal operation, the electrical breaker must be "locked" in the OFF position. Before unlocking the power shut-off, all covers and safety devices must be put back in place.

**DO NOT: - WORK ON COUNTER STACKER WHEN RUNNING**

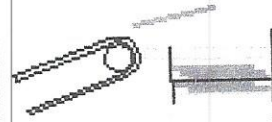
# QUICK REFERENCE



CANISTER SIZE  
TOO SMALL



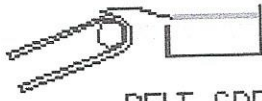
CANISTER SIZE  
CORRECT



CANISTER SIZE  
TOO BIG



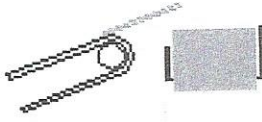
BELT SPEED  
TOO SLOW



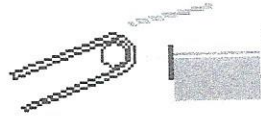
BELT SPEED  
CORRECT



BELT SPEED  
TOO FAST



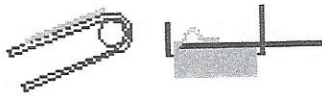
STEP DOWN  
TOO HIGH



STEP DOWN  
CORRECT



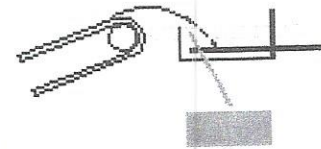
STEP DOWN  
TOO LOW



FORK DELAY  
TOO SHORT



FORK DELAY  
CORRECT



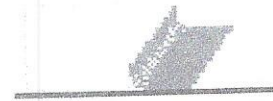
FORK DELAY  
TOO LONG



BOTTOM DWELL  
TOO LONG



BOTTOM DWELL  
CORRECT



BOTTOM DWELL  
TOO SHORT

## INTRODUCTION

### 1.0 Introduction:

The J.C. Ford Model CSPS (Counter Stacker Pneumatic Servo) Counter Stacker is designed to provide customers with a highly dependable, efficient and cost-effective way of counting and stacking tortillas in clean, neat, accurate stacks.

### 1.1 Controls:

The CSPS is very simple to operate. There are two speed pots to control the belt speed and the canister agitation. All other counter stacker functions: stack counts, step counts and dwells are controlled through the keypad.

### 1.2 Safety Design:

As with all JC Ford products, safety of operation is a prime concern in the design of CSPS Counter Stacker. The CSPS is equipped with see-thru safety covers, and stainless steel guards for hand and finger protection. The CSPS is also equipped with an E-stop button, which not only stops all machine functions, but also cuts-off system air pressure and releases all the pneumatic components.

### 1.3 Advantages of using the CSPS:

- Easy to install and ready to operate
- Direct drive motor reduces maintenance time and cost
- Conveyor speed, height and angle easily adjusts
- Canisters easily changed, for quick change over
- CSPS can accommodate tortilla sizes from 6-14 inches
- Machine automatically switches to 2-3 or 4 row mode
- Canister oscillations, easily adjusted
- Servos provide greater product control
- Servos can compensate for cylinder wear
- Servos utilize regular, low cost, air cylinders
- Automatic lane reset feature prevents jams from occurring
- Wash down friendly design

#### 1.4 General Specifications:

Mechanical Specification  
Cylinder Qty: \_\_\_\_\_ 4 vertical, 4 horizontal  
Number of Rows: \_\_\_\_\_ 2,3  
Tortilla Sizes: \_\_\_\_\_ 6"-14"  
Max Stacking Rate: \_\_\_\_\_ 2000 dz/hr\*  
Max Stack Height \_\_\_\_\_ 6"  
Min Stack Count \_\_\_\_\_ 8 tortillas\*\*  
Air Consumption Rate: \_\_\_\_\_ 2-20 cfm\*\*\*  
Materials of Construction  
Frame: \_\_\_\_\_ 304 stainless steel  
Drive Electrical Specifications  
Electrical Service: \_\_\_\_\_ 230/480V, 3 phase, 60 Hz  
Current Draw: \_\_\_\_\_ 2-4 amps.  
Motor Output Speed: \_\_\_\_\_ 34 rpm  
Controls: \_\_\_\_\_ AB inverters

\*Based on 48 count stacks, shorter stacks require more frequent discharge cycles, and therefore limit peak output slightly.

\*\*Assumes a high production rate of two tortillas per second, per row. Machine requires slightly less than three seconds to discharge a stack. Slower production rates will facilitate smaller counts.

\*\*\*Machine typically uses 2-4 cfm during normal operation; however, the electrical enclosure utilizes a Vortex cooler to cool the electrical cabinet. In plants with very high ambient temperatures, the Vortex cooler may cycle on and raise the cfm to 20.

## INSTALLATION

### 2.0 Installation:

#### 2.1 Equipment/Tools for Installation:

- Forklift, with extensions

#### 2.2 Unloading:

In order to minimize damage, remove the equipment carefully from the truck. Lift machine from the sides only, making sure forks reach through to other side. **Do not lift** machine by the agitator motor bracket, which runs across the bottom between the two bearing boxes.

#### 2.3 Inspection:

Check for damage during shipment. If there is any visible damage, report it immediately to JC Ford Company and the freight company. Check the shipping lists with the number of crates, packages and parts to be sure everything has arrived. If there are any shortages, report them immediately.

**Check all nuts, bolts, and electrical connections to be sure none have become loose in transit.**

#### 2.4 Service and Utilities Requirements:

- Electrical service: 480 VAC, 230 VAC, 208 VAC
- **Clean, dry**, 5-6 Bars (70-87 PSI) pressure regulated air for optimum performance

**CAUTION:** ALL ELECTRICAL WORK MUST BE DONE BY A QUALIFIED ELECTRICIAN AND MUST BE IN ACCORDANCE WITH ALL LOCAL AND NATIONAL CODES.

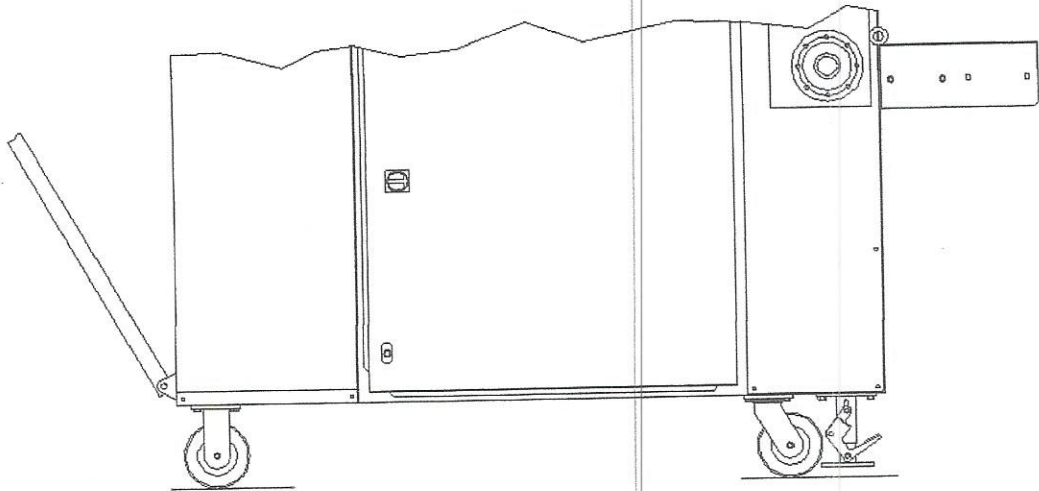
**CONTROL CONSOLE:** Three Phase input power must be brought to console. Connect 3-phase power, as required on the serial tag. Size circuit breaker for **Safety Disconnect Box** (by others) according to amp rating stamped on serial tag. **Do not change unit wiring**



## 2.5 Caster & floor lock installation:

The casters and floor locks may require installation. Each castor is bolted on with four 3/8" SS bolts, flat washer, split washer and nut. Carefully support the machine, and verify that it safe to work on. Bolt the rigid casters (2) on each of the corners closest to the in feed conveyor. Bolt each of the floor locks (2) on each of the corners closest to the discharge end of the machine. Be sure to orient the floor lock, such that the lock lever is facing in the same direction as the discharging tortillas. Install the swivel castors

In the remaining holes in front of the floor locks. See diagram.

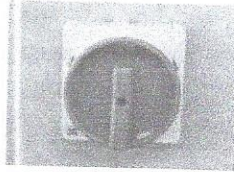


## OPERATION

### 3.0 Operation:

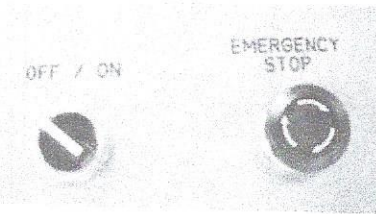
#### 3.1 Controls:

##### 3.1.1 Main Power



The Main power disconnect is located on the control box door. To power up machine, simply turn main disconnect to the "ON" position. The screen should then light up, and run through a brief start up phase.

##### 3.1.2 Start/Stop



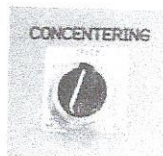
To Start the machine first verify that the E-stop switch is not depressed, then simply turn the "ON / OFF" switch to the ON position. To stop the machine you can either turn the "ON / OFF" switch off or depress the E-stop button. Please note that the E-stop button will illuminate when it is depressed. To turn the E-stop off, simply turn the red button clockwise until it pops back up.

##### 3.1.3 Belt Speed



To increase speed, turn speed pot clockwise. To reduce speed, turn speed pot counter-clockwise. Note, belt speed will vary between 98 fpm and 443 fpm; turning speed pot to zero will not stop belt.

##### 3.1.4 Centering Speed



The Centering speed pot varies the speed at which the canisters are oscillated. To increase the frequency of oscillation, turn the speed pot clockwise. To decrease the frequency of the oscillations, turn the speed pot counter-

clockwise. **Note: Some earlier machines may not have this feature; they were equipped with two small electrical vibratory motors.**



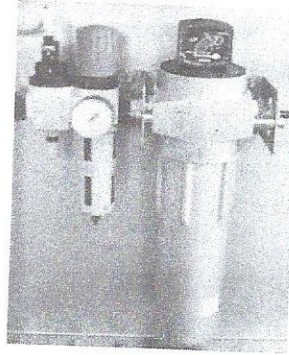
### 3.1.5 Keypad

The keypad is used to control the following functions: **Stack Count**, which sets the total count for each tortilla stack (I.E. 36 count). **Step Count**, which sets the number of tortillas per each step the stacking elevator, will move down (I.E. 8 tortillas). **Bottom Dwell**, which sets the amount of time the stacking elevator will remain down to allow the tortillas to be carried away by the discharge belting. **Fork Delay**, which sets the amount of time the forks will wait to slide forward after the photo eye counts the last tortilla of the current stack. For more detailed keypad instruction turn to section 3.2.5 of this manual. In addition to these controls, the keypad can also tell the operator the current production rate.



### 3.1.6 Reset Buttons

The reset button(s) are located on the back of the machine directly above the tortilla stack discharge area. Each button has it's own corresponding lane, which it can reset. The buttons become illuminated when the machine is switched on, and will turn off, when pressed. The buttons can activate two different machine modes. For example, should the operator spot a tortilla with major defects, the operator can choose to reset the lane. This can be done by simply pressing the lane's corresponding reset button once. This will cause the count to be discontinued and the current stack to be discharged. The lane will then immediately resume its normal counting state. Should a jam occur, the operator could **press and hold down** the reset button. While the reset button is **held down**, the lift arms for this lane will remain down, and the interrupt slide forks will remain retracted. This should allow any jammed tortillas to fall through the canister and be removed by the discharge belting. When the jam has been cleared, the operator can release the reset button, and the lane will immediately resume it's normal counting state. **Note: Never use your hands to clear jammed tortillas while the machine is running. Never place any rigid or metallic objects into the counter stacker while the machine is running. Doing so may cause serious injury and or damage the machine.**



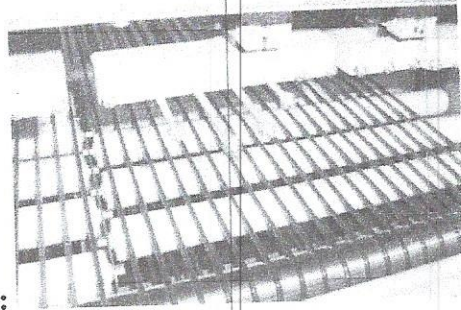
### 3.1.6 Pneumatic Service Unit

The machine uses dry, filtered, compressed air to power the pneumatic servos for the tortilla stacking elevators, as well as for the horizontal fork cylinders. The service unit consists of a solenoid controlled dump valve, a filter regulator and a coalescing filter. The solenoid valve is controlled by turning the machine on and off, with either the ON/OFF switch or the E-stop, and allows all the compressed air to be vented. The filter regulator is used as a first stage 5-micron filter with an auto-drain reservoir to eliminate condensation. The filter regulator also regulates the system pressure, ideally set between 5 and 6 bars. Finally, there is the coalescing filter (1 micron) to remove any and all remaining oil or water vapor. It too, is equipped with an auto-drain for any condensation. **Note: the Pneumatic Service unit is intended to be used, in addition to your own filter and air drier system. Clean, dry air is the most important key to years of trouble-free operation.**



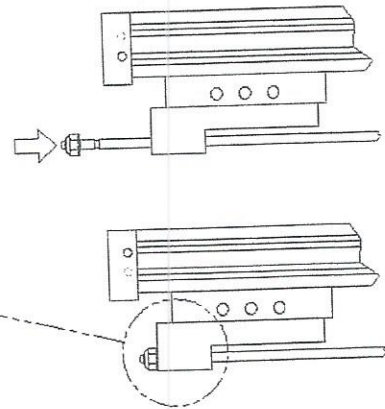
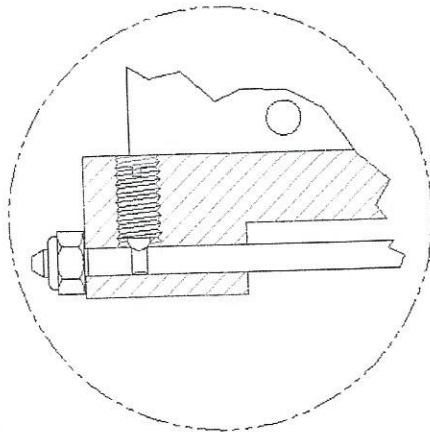
### 3.1.7 Photo Sensors:

Retro-reflective photo eyes (sensors) are used to count the incoming tortillas. There is one photo eye for each row of product. Each photo eye will have a corresponding reflector (or strip of reflective tape) to reflect the laser signal back to the sensor. When a tortilla passes under the photo eye, it will momentarily break this beam of light and signal to the PLC to count one tortilla. The photo eye has two LED indicator lights on it, one green and one yellow. The green LED indicates that the sensor has power. The yellow LED indicates that there is a signal being reflected back to the sensor. Both LED lights must be present for the machine to function properly. Under normal operation, the tortillas passing under the photo eye sensors will break the light beam very briefly. When the photo eye is blocked for longer than half a second, the PLC will signal the lane to reset itself. This will cause the current count to be discontinued and the current stack to be discharged. The lane will then immediately resume its normal counting state.

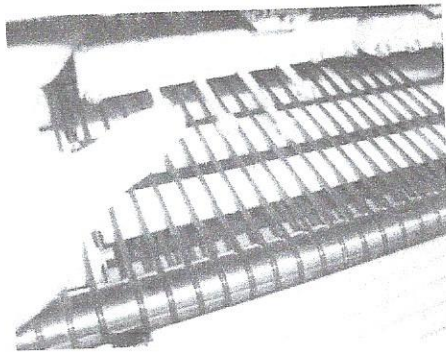


### 3.1.8 Interrupt Slide Fork Rods:

The counter stacker is equipped with “break-away” rods. Should a major jam, or any other blockage occur, the interrupt slide forks are designed to pop-out. This prevents the rods from being bent or damaged, or from damaging the canisters. The rods are notched with a small groove. Inside the rod carrier, there are small ball nose spring plungers. These plungers hold the rods firmly, until they encounter excessive force, in which case the ball will pop-up out of the groove and allow the rod to slide back.

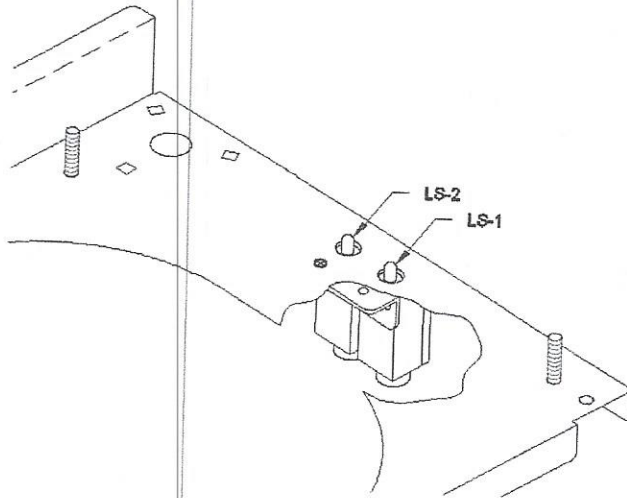


After any major jam is removed, always check to see if any rods have “popped out”, and push them back into position.



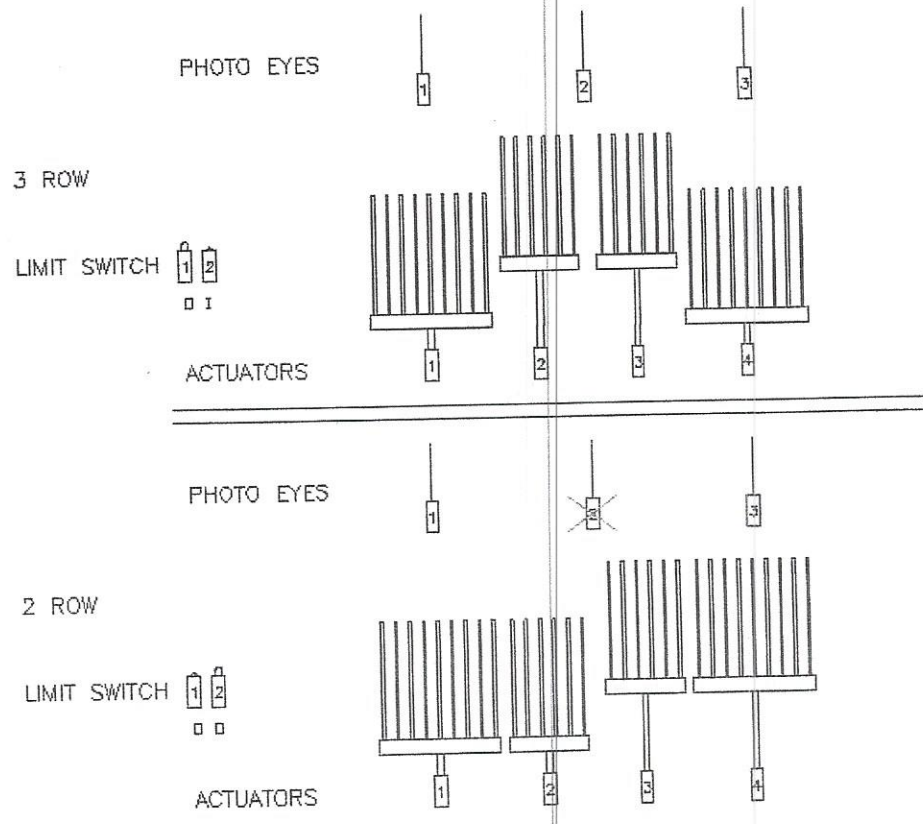
### 3.1.9 Mode Selector Switches:

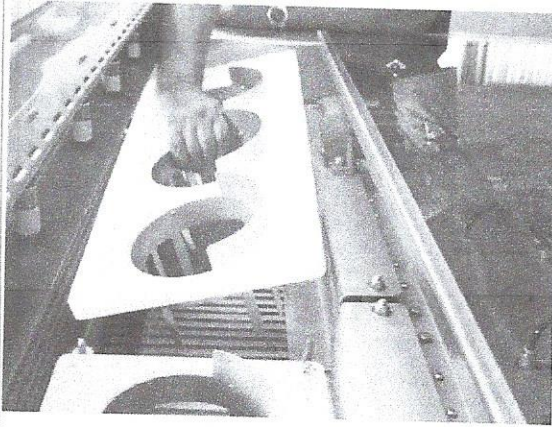
The Flour Counter Stacker is capable of handling a wide range of tortilla sizes and row combinations. The machine can be run in 3 or 2-row mode. In three-row mode, the counter stacker can run tortillas ranging in size from 6-10 inches in diameter. In two-row mode, the machine can run tortillas ranging in size from 12-14 inches in diameter.



Each canister set will have a combination of small holes on the underside of the plastic plate. These holes are located directly above the mode selector switches and will depress these switches in any of four possible combinations: 4 row mode LS1=I & LS2=O (not available with this model), 3 row mode LS1=O & LS2=I, 2 row mode LS1=O & LS2=O, and finally if both switches are depressed a fault will occur. There is no mode where both LS1 and LS2 will be depressed.

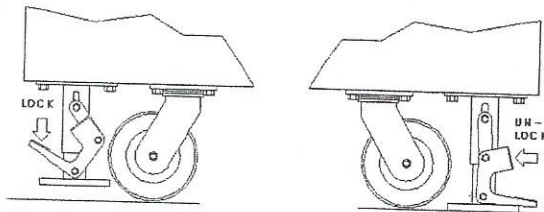
Once the selected size canister is installed in the counter stacker, the mode selector switches will indicate to the PLC what combination to run the six vertical and six horizontal cylinders in. They will also indicate to the PLC which of the five counting photo eyes to monitor. The operator does not control what mode the machine is running in, this is always controlled by the canister set placed in the machine (IE a three row canister set will place the machine in three row mode, and so on).





### 3.2 Operating the CSPS

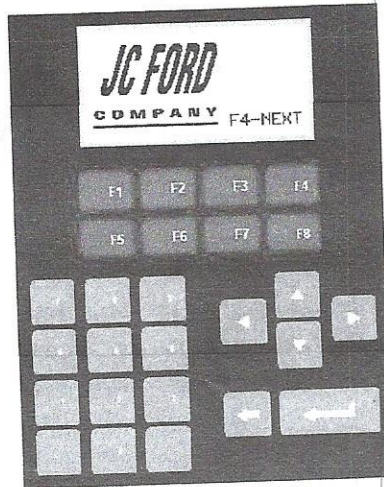
- 3.2.1 Identify the size of tortilla that is to be counted, and place the corresponding canister set in the machine. The canister set can be removed / installed by simply removing the stainless steel wing nuts and placing the canister inside (as pictured), or by releasing the toggle clamps (on some machines). Be sure to place the canister set such that the reflectors are below the photo eyes. For best results, the canister set should be approximately 1/2" larger in diameter than the finish diameter of the tortillas.
- 3.2.2 Verify the machine is connected to dry compressed air, and that the pressure is adequate (70-90) PSI. Ensure power source is connected and on.
- 3.2.3 Position the counter stacker behind your existing cooling conveyor and set the floor locks. The floor locks are located at the discharge end of the machine. To lock the machine in place, simply depress the lock tab (see figure). To unlock floor locks, simply kick the unlock tab (see figure).



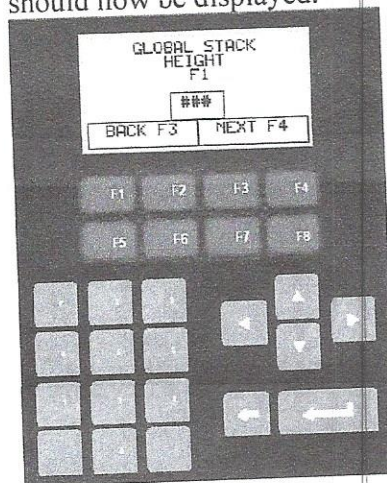
- 3.2.4 Adjust the tortilla slide shoot so that it is in a 4 to 5 o'clock position with respect to the cooling conveyor discharge. Then adjust the individual lane separators so that they provide the incoming tortillas with the best possible centering. The more centered the tortillas come into the stacking canisters, the better the finished stacks will look.



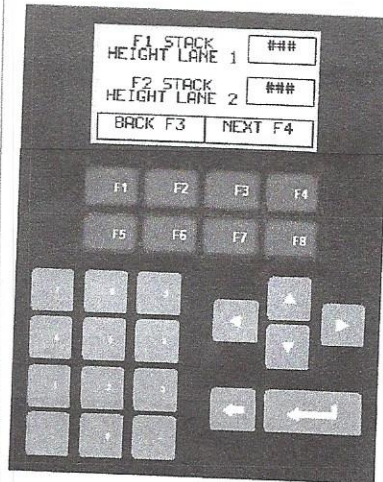
- 3.2.5 Turn the main power on, and wait while the machine initializes. You should see all six of the tortilla lift arms come to the full upward position. You should also see all six interrupt fork slides retract. The following screen should now be displayed.



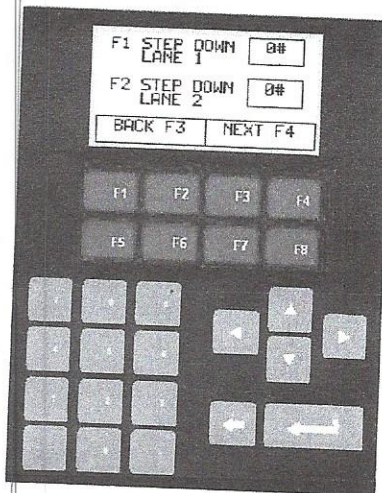
This is the title screen and will always appear on start-up. The keypad has eight **Function** keys, an **Enter** key (the arrow key with the longer tail), and a numeric keypad. The function key **F4** will bring up the next screen. The function key **F3** will bring you back to the previous screen. Press **F4**, and the following screen should now be displayed.



This is the **Global Stack Height** screen. To advance to the next screen, press **F4**. To set the desired count or stack height for all lanes (I.E. 36 count), press **F1**. The number screen will come up. Enter the desired count, and press enter. Press **F4** again, and the following screen should now be displayed

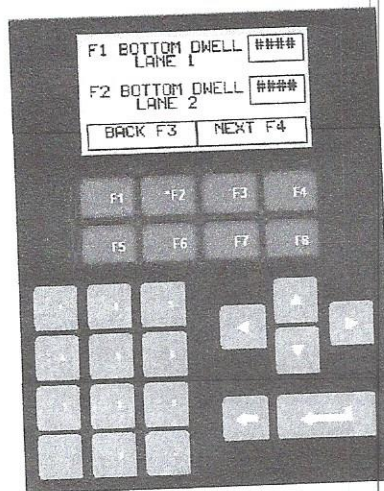


This is one of the two **Stack Height** screens. To advance to the next screen, press F4. These screens can override the count set on the *global stack height* screen. With these screens, it is possible to run different counts on different lanes. To set the desired count or stack height on lane one (I.E. 36 count), press F1. The number screen will come up. Enter the desired count, and press Enter. To change/set the stack count for lane two, press F2 and repeat the same steps. To change the other four lanes, simply press F4 and follow these same steps, on each of the subsequent stack height screens. Press F4 again, and the following screen should now be displayed.

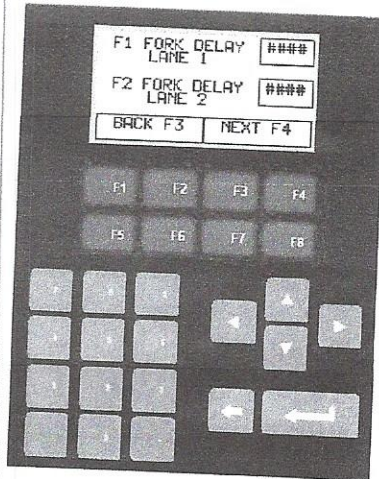


This is one of the two **Step Down** screens. To advance to the next screen, press F4. The Step Down count controls how often the lift arms step down, to allow for more tortillas to be stacked in the canister. It is important that the lift arms do not move down too slowly, or too quickly. If the lift-arm steps down too often, the hole will become too deep and tortillas will begin to fold. If the

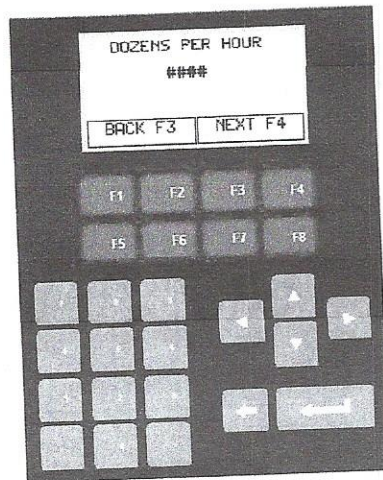
lift-arm steps down too slowly, the canister will overflow. Since the step distance is fixed (approximately 1/4"), this number will be a function of how thick the tortillas are. For tortillas that are very thin, the number may be high. For tortillas that are very thick, the number will be smaller. To set the desired step count (I.E. every 5 tortillas), press **F1**. The number screen will come up. Enter the number of tortillas, and press Enter. To change/set the step count for lane two, press **F2**, and repeat the same steps. To change the other four lanes, simply press **F4**, and follow these same steps. Press **F4** again, and the following screen should now be displayed.



This is one of the two **Bottom Dwell** screens. To advance to the next screen, press **F4**. The bottom dwell controls how long each of the lift arms will stay down to allow for the stacked tortillas to be discharged. Bottom dwell is a function of how fast the belting is moving and the diameter of the stacked tortillas. This setting does not require frequent adjustment, and the factory settings will probably work fine. However, should the factory setting not be sufficient, simply press **F1**. The number screen will come up. Enter the dwell time in milliseconds (I.E. 1200ms), and press enter. To change/set the bottom dwell for lane two, press **F2**, and repeat the same steps. To change the other four lanes, simply press **F4**, and follow these same steps. Typically your bottom dwell is correct when the lift arms move upward, just after the discharged tortilla stack clears them. If the discharged tortilla stack is bumped, or toppled by the lift arms moving back up, then your bottom dwell is set to low. If the tortilla canister is overflowing while the previous stack is being discharged, then your bottom dwell is set too long. Press **F4** again, and the following screen should now be displayed.



This is one of the two **Fork Delay** screens. To advance to the next screen, press F4. The fork delay controls how long each of the interrupt slide forks will wait to close the canister opening, after the final tortilla is counted. When counting a continuous steam of tortillas, it is necessary to separate the last tortilla counted from the first tortilla of the next stack. The machine performs this task by rapidly closing the void in the canister, created by the lift-arms lowering the counted tortilla stack down onto the discharge belting. When the last tortilla is counted (I.E. number 36, of a 36 count), the PLC signals the interrupt slide forks to close off the canister. In high-speed production this timing becomes very critical. Typically your fork delay is correct when, the interrupt slide forks are fully extended just before the first tortilla lands in the canister. If the interrupt fork slides are snagging the top tortilla or spearing it before it has fully landed, the fork delay is set too low. If the tortilla stack is lowered and the new incoming tortilla is speared, the fork delay is set too long. This setting does not require frequent adjustment, and the factory settings will probably work fine. However, should the factory setting not be sufficient, simply press **F1**. The number screen will come up. Enter the fork delay time in milliseconds (I.E. 225ms), and press enter. To change/set the fork delay for lane two, press **F2**, and repeat the same steps. To change the other four lanes, simply press **F4**, and follow these same steps. Press **F4** again, and the following screen should now be displayed.



This is the **Dozens Per Hour** screen. To advance to the next screen, press F4. The dozens per hour screen will show the instantaneous production rate. When the machine is first powered up, the screen typically displays 0 dozens/hr. The production rate will not be refreshed for thirty seconds. The machine will monitor production during this time and then display it on the screen. This screen is intended to be used as a tool to indicate general performance. Press F4 again, and the Title screen should now be displayed again.

### 3.3 CSPS Air consumption:

For optimum performance, please provide an air source capable of supplying up to 20 CFM.

3.3.1	Bore	=	32mm, each
	Surface Area	=	1.25 square inches, each
	Force @ 80psi	=	99 pounds, each
	Stroke	=	9.8" each
	Cylinder Vol.	=	12.25 cubic inches, each
	CFM	=	2-4 total, without Vortex cooler on.

## PERIODIC MAINTENANCE AND REPAIR

### 4.0 Periodic Maintenance and Repair

#### 4.1 Safety:

Do not operate, clean, or perform any work on this machine until you have read this instruction manual and have been fully trained for that task. Never power up or operate this machine with any guard or cover removed.

### **DANGER !**

**Keep hands out of machine when it is running**

#### 4.2 Lubricants (ref manufactures operating and maintenance manual)

**Pneumatics:** The machine's pneumatic system comes pre-lubricated and should last for the lifetime of the machine, **when supplied with clean dry air**. The use of oil or oil injectors will adversely affect the performance of the servo valves.

**Mechanical Bearings:** All the roller and linear bearings come pre-lubricated; however, in time they may require some additional lubrication. It is strongly recommended that additional lubrication be applied sparingly. Over lubrication can cause bearing seals to blowout and ultimately shorten bearing life.

#### 4.3 Fastener Maintenance

Fasteners should be inspected after the first 24 hours of service, after 100 hours of service, and after 500 hours. Re-inspect semiannually thereafter.

#### 4.4 Gear box oil level

Reference NORD gear operating and maintenance instructions.

#### 4.5 Pneumatic Filtration

The machine is equipped with two separate filter elements. The first is a 5-micron filter element, which should be changed every four to six months. The second filter is the coalescing filter element. This filter has a differential pressure gauge, which can indicate excessive pressure due to a worn filter element. When pressure increases above the normal operating range, the filter element must be changed. Note: frequent changing of the 5-micron filter element will prolong life of the coalescing filter element, and is more cost effective.

## TROUBLE-SHOOTING

### 5.0 Troubleshooting:

Trouble	Possible Cause	Solution
No response from control panel controls	Power source not connected Fuse/breaker blown (refer to electrical dwg)	Ensure power source is connected Replace blown fuses
Motor does not run	Blown fuse(s) Inverter is in STOP mode rather than ON Motor protection device (overload) activated  E-stop activated	Replace blown fuses Reset sys by turning off/on power Reset protective device, Identify and correct cause for device activation Turn off, reset E-stop and turn back on
Machine is on, belts are running, but lift arms remain down	Machine is not connected to air Low air pressure Canister is not installed Canister is installed incorrectly	Connect machine to air Check setting on regulator, check plant air press Install stacking canister set Re-install stacking canister set correctly
Machine is on, belts are running, but one or more lift arms remain down	Low air pressure Canister is missing some reflectors Photo eye is blocked/dirty Photo eye is bad Photo eye connections/wiring Lift arm is blocked by some object Servo controller has faulted out	Check setting on regulator, check plant air press Replace missing reflectors Wipe off/clean photo eye lens Replace faulty photo eye See electrical schematic Remove obstruction Verify air pressure, and restart machine
Machine is on, and tortillas are coming in, but they are not being counted	Photo eye is blocked/dirty Photo eye is bad Photo eye connections/wiring PLC has faulted out	Wipe off/clean photo eye lens Replace faulty photo eye See electrical schematic Turn off machine, and power back up
Interrupter slide forks not extending/not retracting	Blown fuse(s) Cable damaged	Replace blown fuses Replace damaged cable
Tortillas are overflowing in the canister(s)	Step down set too high Wrong canister size, too small Bottom dwell timer set too long Tortilla stack is jammed	Decrease step down count Install correct size canisters Decrease bottom dwell timer Press & hold reset button, and clear jam
Tortillas are being forked, by interrupt slide forks	Step down set too high Fork delay set too low	Decrease step down count Increase fork delay
Tortillas are falling into the canisters and folding	Step down set too low	Increase step down count
Tortilla stacks are being tipped over by lift arms	Bottom dwell timer is set to short	Increase bottom dwell time
Tortilla counts are not correct always over, by one or more	Tortillas are over lapping on launch conveyor	Increase belt speed and in feed shoot angle Speed up cooling conveyor
Tortilla counts are not correct always short, by one or more	Interrupt fork extending too quickly	Increase fork delay
Tortillas not making it all the way to the canisters	In-feed belt speed set too slow In-feed conveyor set too low, or too flat	Increase in-feed belt speed Raise in-feed conveyor at pivot point Change in-feed conveyor angle by lowering end
Tortilla crashing into canister back stop or tail edge flipping up and folding	In feed belt speed set too fast	Decrease in-feed belt speed
Tortillas stacks look sloppy	Wrong canister size, too big Guides on in feed shoot misaligned Tortillas are misshapen, folded	Install correct size canisters Align guides to center tortillas better Check other up-stream machines

## PARTS

### 6.0 Parts:

#### 6.1 Spare Parts:

Filter Element LFP-D-MIDI-5M 159594  
Fines Filter Element Festo LFMA-1-H-A 162829  
Photo Eye Banner S18SP6LQ  
Reflector Banner BRT-35DM  
Bus Fuses GMA-250MA  
Horizontal Cylinder Festo DGPL-11/16"-8"-PPV-A-B 160918  
Horizontal Cylinder rebuild kit  
Vertical Cylinder Festo DNCM-32-250  
DNCM-32-250-P-POT2-A 528940  
Vertical Cylinder rebuild kit  
SPC200 Controller Power Card SPC-200-PWR-AIF 170175  
Axis Interface Festo SPC-AIF-POT 170521  
Proportional Valve Festo MPYE-5-1/8HF-010-B 151693  
Solenoid Valve Festo CPE10-M1BH-5L-M7 196927



## APPENDIX A

### 7.0 Supplemental Vendor Information:

#### 7.1 Vendor Information:

Acme Transformer Manual

Allen Bradley Variable Speed Drive Quick Reference  
Allen Bradley Variable Speed Drive Manual  
Allen Bradley MicroLogix 1200 Programmable Controller Manual  
Allen Bradley 1762-OW8 Relay Output Module Manual  
Allen Bradley Panel View 300 Keypad Manual  
Allen Bradley Power Supply 1606-XL Manual

Banner Photo Eye Manual

Festo SPC 200 Controller Manuals  
Festo Filter Regulator Manual  
Festo Fines Filter Manual  
Festo Standard Cylinder Manual  
Festo Electronic Proportional Directional Control Valve Manual

Roller Bearing Directions

