

**HSL-CD4/HSM-CD7  
Rutherford Decorator  
High Speed Logic  
Keypad Quick Reference**

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01/2004

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Revised 26 January 2004

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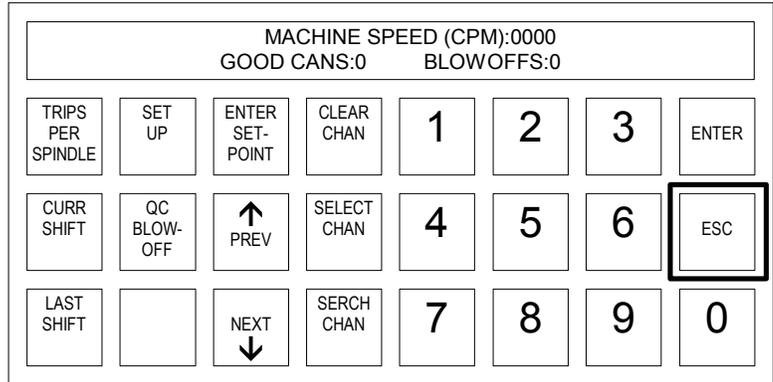


# CONVENTIONS USED IN THIS MANUAL

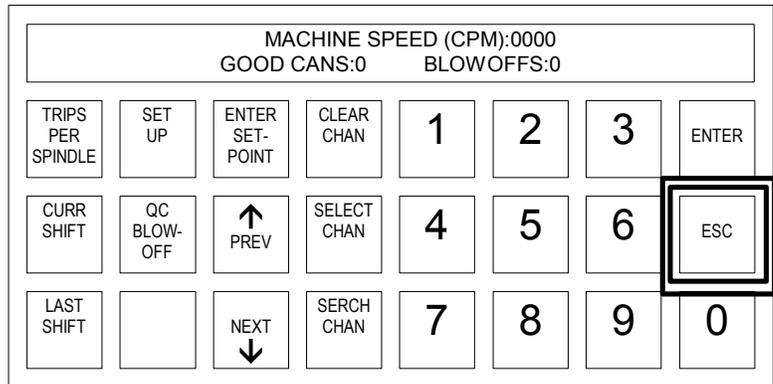
This manual is provided as a quick reference for entering parameters through the HSM-CD7 keypad. For complete details on the parameters that can be set through the HSM-CD7 keypad or for additional information on the HSM-CD7 in general, refer to the HSM-CD7 User's Manual.

The following conventions are used through-out this manual.

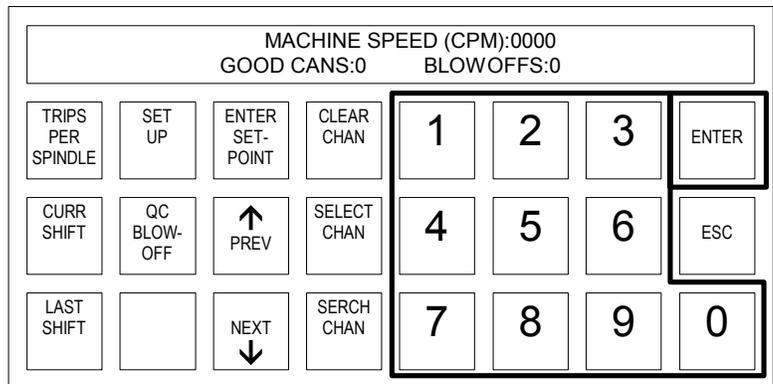
- 1) This indicates to depress that key one time.



- 2) This indicates to press that key two or more times as directed.



- 3) This indicates to enter a numeric value on the numeric keypad. Enter the desired number by depressing the corresponding numeric keys and then press the "ENTER" key to enter the number. If keypad entry error is made while a number is being entered, simply press the "ESC" key. The number will revert back to the original value at which time the correct number can be re-entered.



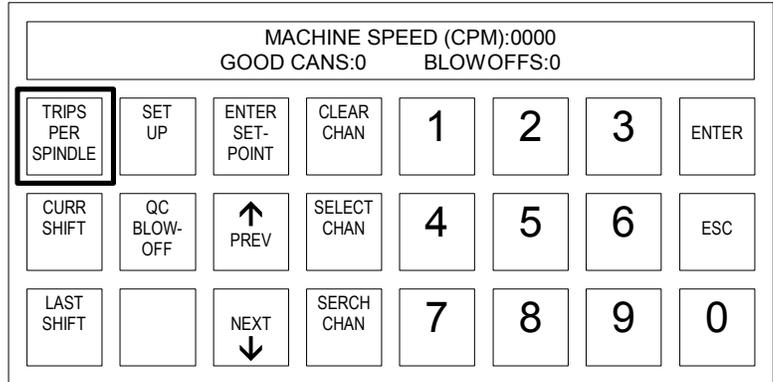
# SECTION 1

## VIEWING TRIPS PER SPINDLE

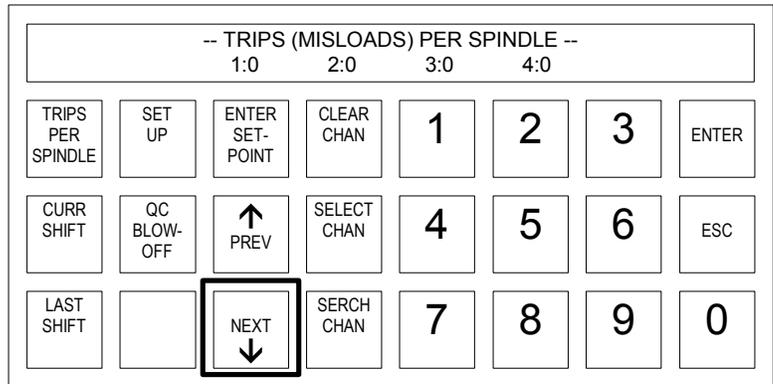
The Trips per Spindle data menu displays the total number of trips for each spindle since the last reset or end of shift. The Number of trips per spindle data menu is provided to aid in the trouble-shooting of a loading problem with a spindle or spindles. The operator can reset these counts at any time to aid in the trouble-shooting process.

To display the Trips per Spindle data perform the following:

- 1) With the main menu displayed, press the “TRIPS PER SPINDLE” key.

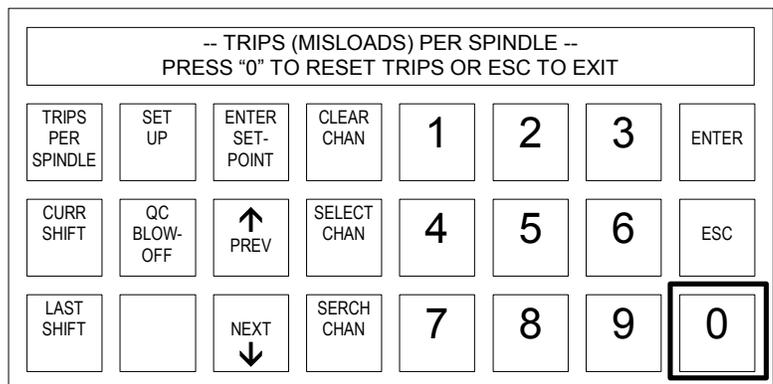


- 2) The trips (mis-loads) per spindle counts for the first four stations are displayed. The data is arranged with 4 stations shown on each screen. Press the “NEXT” key to advance through all stations or the “PREV” key to retard back to previous stations.



- 3) The final screen of this menu, prompts the user to reset the counts, press the “0” key to reset the counts or the “ESC” key to return to the main menu.

Note: The “ESC” key can be used at any time to abort the Trips per Spindle data menu and return to the main menu.

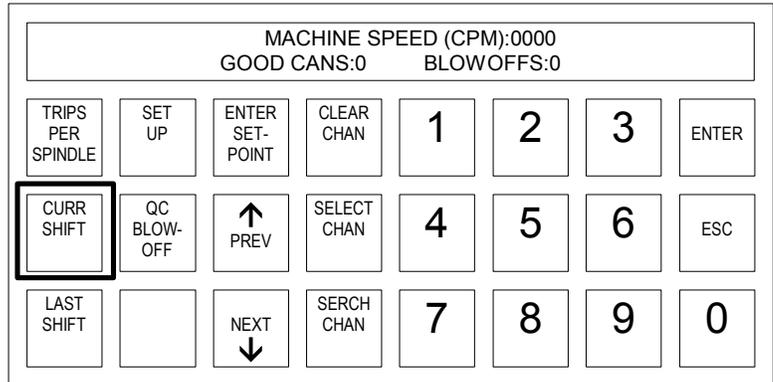


## SECTION 2 VIEWING CURRENT SHIFT DATA

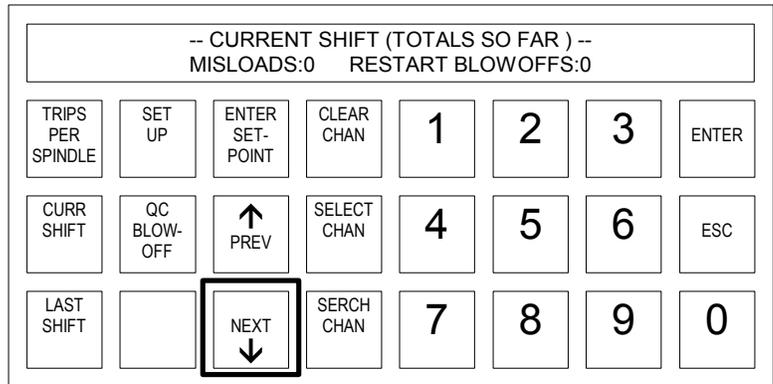
The Current Shift data menu displays the total number of “Blow-Offs” from the machine, the total number of “Mis-Loads” (trips), the total number of “Restart Blow-Offs”, the total number of “Manual Blow-Offs”, the total number of “QC Blow-Offs”, and the total “Trips (Mis-loads) per Spindle (1:-24:)” accumulated so far into the current shift. Note that the current shift total “Good Can” count and total “Blow-Offs” count is displayed as part of the main menu.

To display the Current Shift counts perform the following:

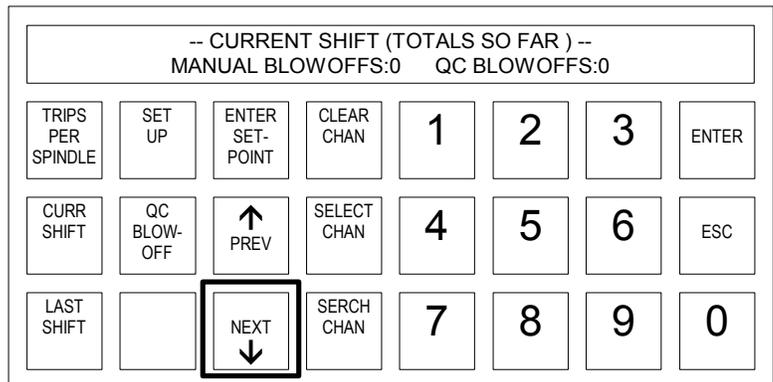
- 1) With the main menu displayed, press the “CURRENT SHIFT” key.



- 2) The number of mis-loads and the number of restart blow-offs is displayed on the first screen. Press the “NEXT” key to display the current number of manual blow-offs and QC blow-offs.



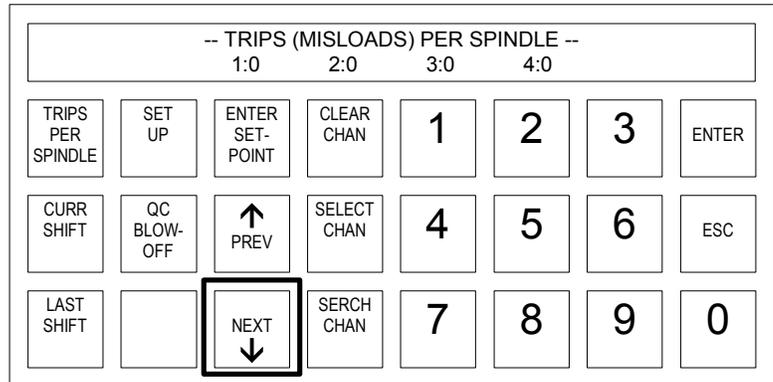
- 3) Press the “NEXT” key to view the trips (mis-loads) per spindle counts for the first four stations.



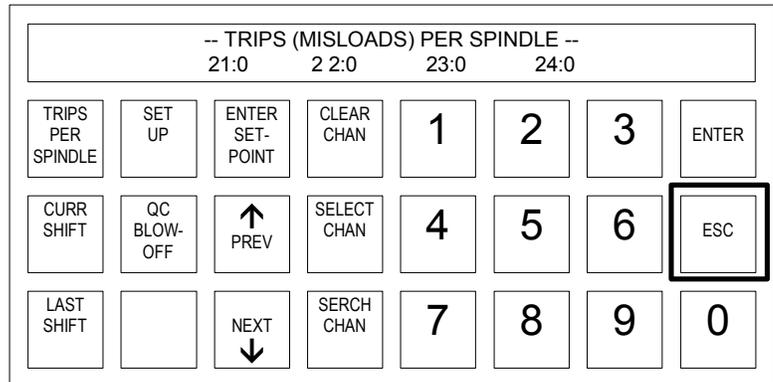
(Continued on Next Page)

## SECTION 2 VIEWING CURRENT SHIFT DATA

- 4) Press the “NEXT” key to view the trips (mis-loads) per spindle counts for the next four stations. These counts are arranged with 4 stations shown on each screen. Press the “NEXT” key to advance through all stations or the “PREV” key to retard back to previous stations.



- 5) Once the counts for all stations (24) have been observed, press the “ESC” key to return to the main menu.

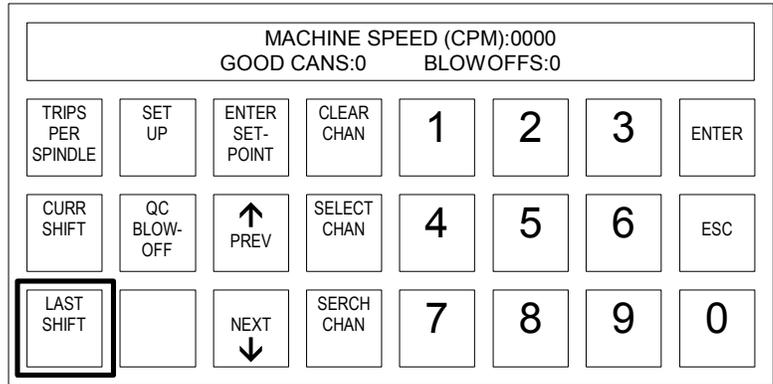


## SECTION 3 VIEWING LAST SHIFT DATA

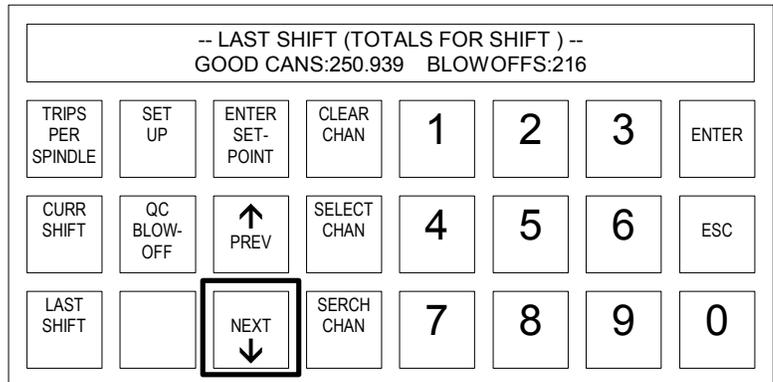
The Last Shift data menu displays the total number of “Good Cans”, the total number of “Blow-Offs”, the total number of “Mis-Loads” (trips), the total number of “Restart Blow-Offs”, the total number of “Manual Blow-Offs”, the total number of “QC Blow-Offs”, and the total “Trips (Mis-loads) per Spindle (1:-24:)” counts. This data is the totals for the last shift.

To display the Last Shift counts perform the following:

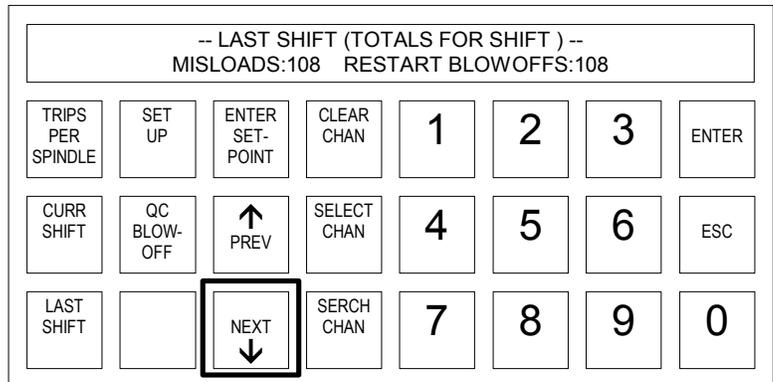
- 1) With the main menu displayed, press the “LAST SHIFT” key.



- 2) The number of good cans and the number of blow-offs for the last shift is displayed on the first screen. Press the “NEXT” key to display the number of mis-loads and the number of restart blow-offs.



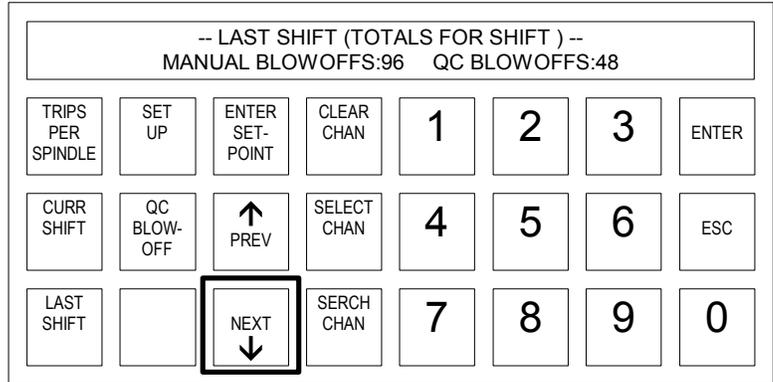
- 3) Press the “NEXT” key to display the number of manual blow-offs and QC blow-offs.



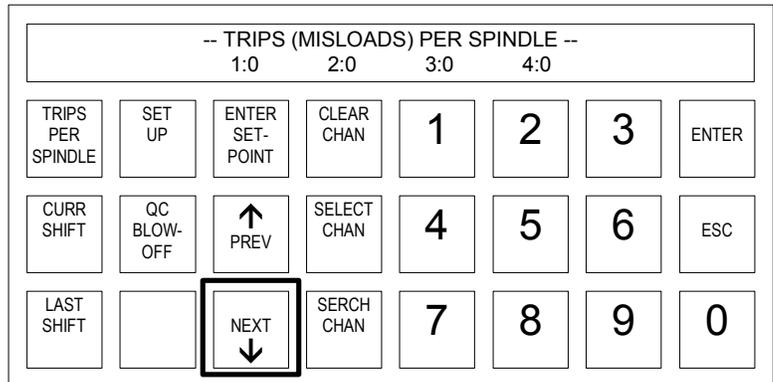
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## SECTION 3 VIEWING LAST SHIFT DATA

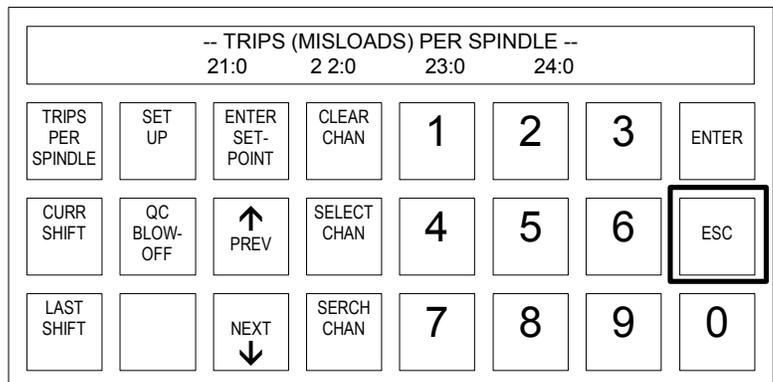
- 3) Press the “NEXT” key to view the trips (mis-loads) per spindle counts for the first four stations.



- 4) Press the “NEXT” key to view the trips (mis-loads) per spindle counts for the next four stations. These counts are arranged with 4 stations shown on each screen. Press the “NEXT” key to advance through all stations or the “PREV” key to retard back to previous stations.



- 5) Once the counts for all stations (24) have been observed, press the “ESC” key to return to the main menu.



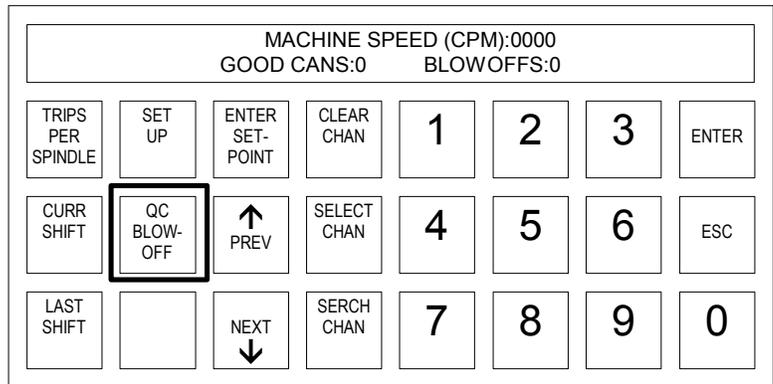
## SECTION 4

### Q.C. SELECT-A-CAN BLOW-OFF

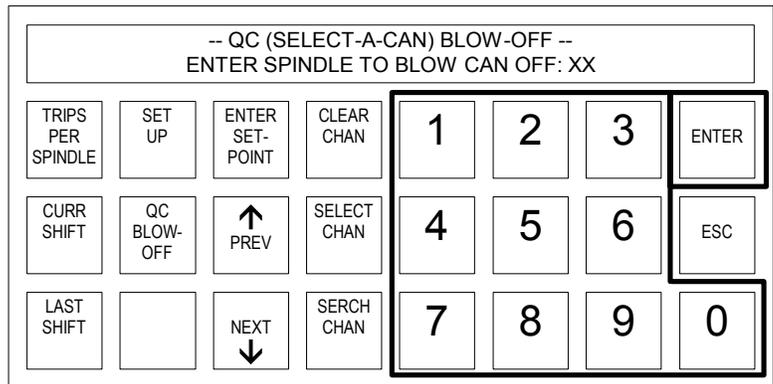
The QC blow-off key is used to “Blow-Off” a can from a selected spindle at the pin chain QC blow-off port.

To blow-off a can, perform the following:

- 1) With the main menu displayed, press the “QC BLOW-OFF” key.



- 2) The display will then prompt to enter a can to blow off. Use the numeric keypad to enter the desired spindle to blow the can off of and press “ENTER”.



## SECTION 5 SET NUMBER OF PINS TO PIN CHAIN BLOW-OFF PORT

The number of pins to Pin Chain blow-off port is the number of pins from the spindle wheel to disk transfer location to the first can blown off at the Pin Chain blow-off port minus two.

To set the number of pins to the Pin Chain blow-off port, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000							
GOOD CANS:0				BLOWOFFS:0			
TRIPS PER SPINDLE	<b>SET UP</b>	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		NEXT ↓	SERCH CHAN	7	8	9	0

- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.

1: SET CARRIAGE/VARNISH RESPONSE TIMES							
2: SET PIN CHAIN/QC BLOW-OFF PARAMETERS							
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	<b>2</b>	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		NEXT ↓	SERCH CHAN	7	8	9	0

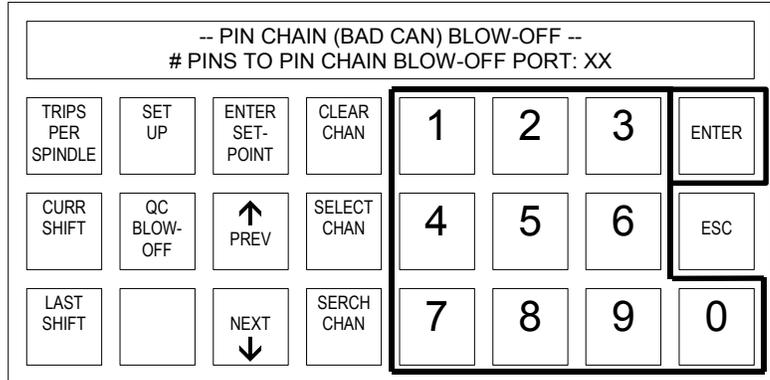
- 3) Press the “NEXT” key until the “# Pins to Pin Chain Blow-Off Port” prompt is displayed.

-- PIN CHAIN (BAD CAN) BLOW-OFF --							
# CANS TO BLOW-OFF AT INFEEED OPEN: XX							
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		<b>NEXT ↓</b>	SERCH CHAN	7	8	9	0

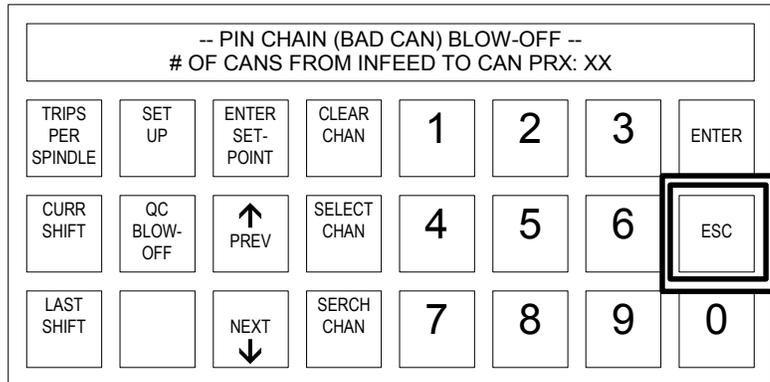
## SECTION 5

### SET NUMBER OF PINS TO PIN CHAIN BLOW-OFF PORT

- 4) On the numeric keypad, enter the number of pins to the Pin Chain blow-off port and press “ENTER”.



- 5) The number of pins to Pin Chain blow-off port is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



## SECTION 6 SET NUMBER OF CANS FROM INFEED TO CAN PRX

The number of cans from infeed to can PRX is the number of stations from the can gate solenoid to can/no can sensor.

To set the number of cans from infeed to can PRX, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000 GOOD CANS:0      BLOWOFFS:0									
TRIPS PER SPINDLE	<b>SET UP</b>	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.

1: SET CARRIAGE/VARNISH RESPONSE TIMES 2: SET PIN CHAIN/QC BLOW-OFF PARAMETERS									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	<b>2</b>	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

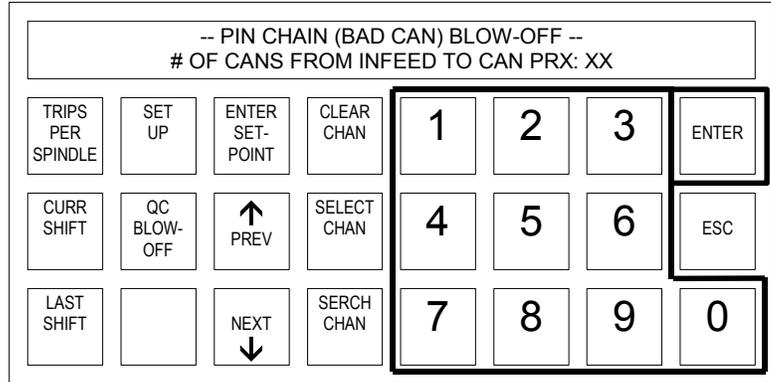
- 3) Press the “NEXT” key until the “# of Cans from Infeed to Can PRX” prompt is displayed.

-- PIN CHAIN (BAD CAN) BLOW-OFF -- # CANS TO BLOW-OFF AT INFEED OPEN: XX									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		<b>↓ NEXT</b>	SERCH CHAN	7	8	9	0		

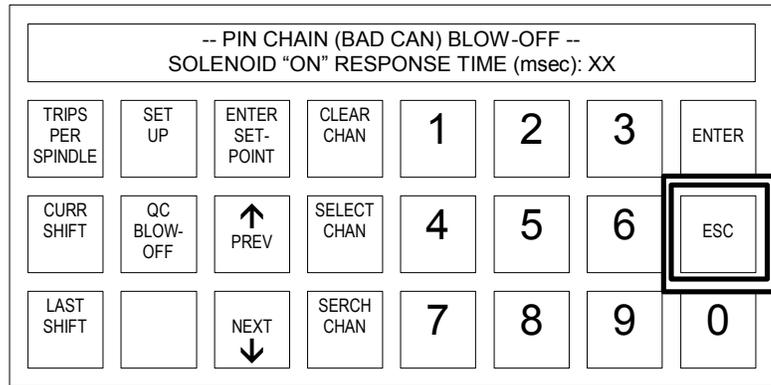
## SECTION 6

### SET NUMBER OF CANS FROM INFEED TO CAN PRX

- 4) On the numeric keypad, enter the number of stations from the can gate solenoid to can/no can sensor and press “ENTER”.



- 5) The number of cans from the infeed solenoid to the can/no can sensor is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



## SECTION 7

### SET NUMBER OF CANS TO BLOW-OFF FOR EACH MISLOAD

The number cans to blow-off for each misload is the number of cans blown off at the pin chain port when one misloaded can is detected (typically set at 3 cans).

To set the number of cans to blow-off for each misload, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000									
GOOD CANS:0					BLOWOFFS:0				
TRIPS PER SPINDLE	<b>SET UP</b>	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.

1: SET CARRIAGE/VARNISH RESPONSE TIMES									
2: SET PIN CHAIN/QC BLOW-OFF PARAMETERS									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	<b>2</b>	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

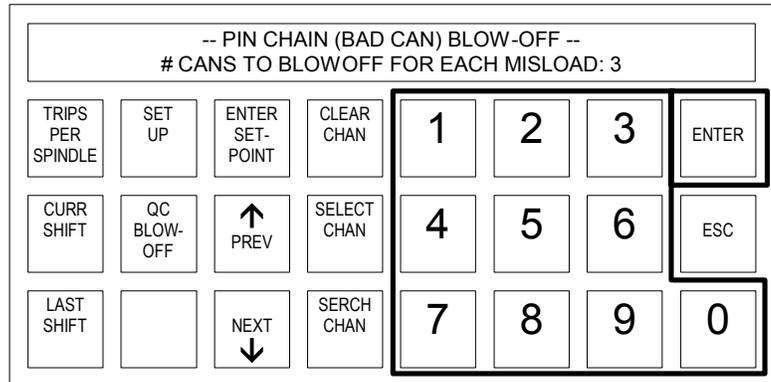
- 3) Press the “NEXT” key until the “# Cans to Blowoff for Each Misload” prompt is displayed.

-- PIN CHAIN (BAD CAN) BLOW-OFF --									
# CANS TO BLOW-OFF AT INFEED OPEN: XX									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		<b>↓ NEXT</b>	SERCH CHAN	7	8	9	0		

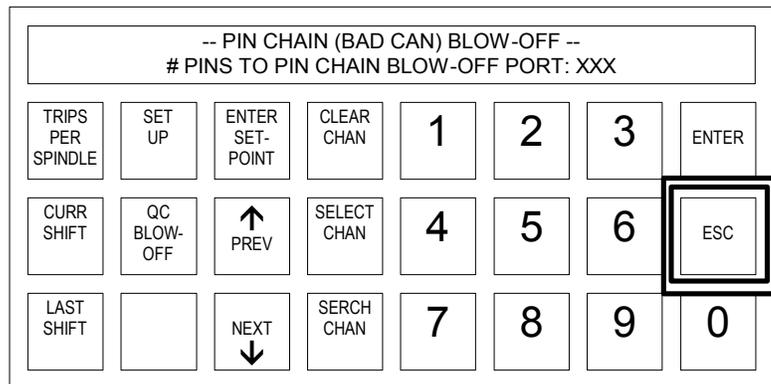
## SECTION 7

### SET NUMBER OF CANS TO BLOW-OFF FOR EACH MISLOAD

- 4) On the numeric keypad, enter the number of cans to blow-off at the Pin Chain blow-off port for each misload and press “ENTER”.



- 5) The number of cans to blow-off for each misload is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



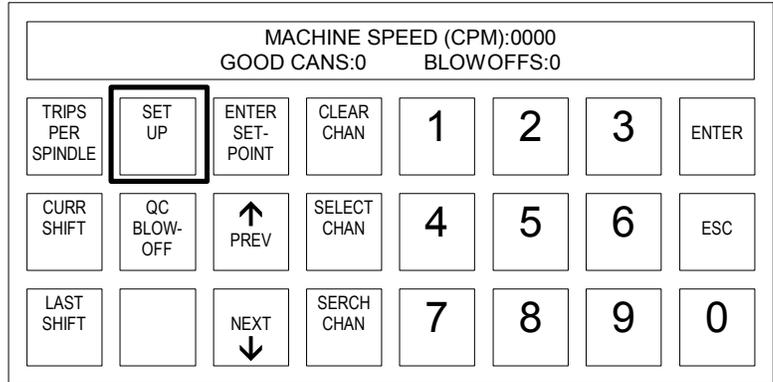
## SECTION 8 SET PRINT CARRIAGE TRIP RESPONSE TIMES

The response time is defined as the time from actuation of the solenoid to either the first break with blanket (Retract (out) response time) or the first contact with blanket (Extend (in) response time). The response times are usually set at 40 to 50 milliseconds.

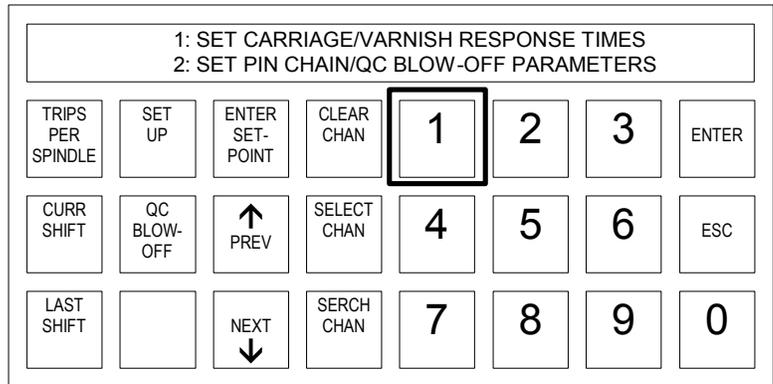
To set the print carriage response times, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

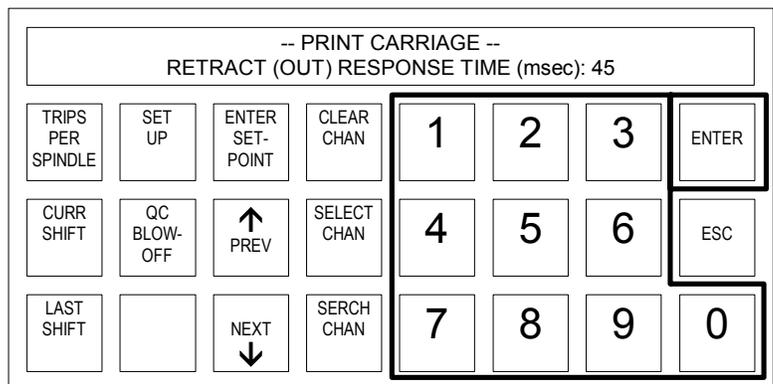
Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



- 2) Press the “1” key to enter the “Set Carriage/Varnish Response Times” menu.



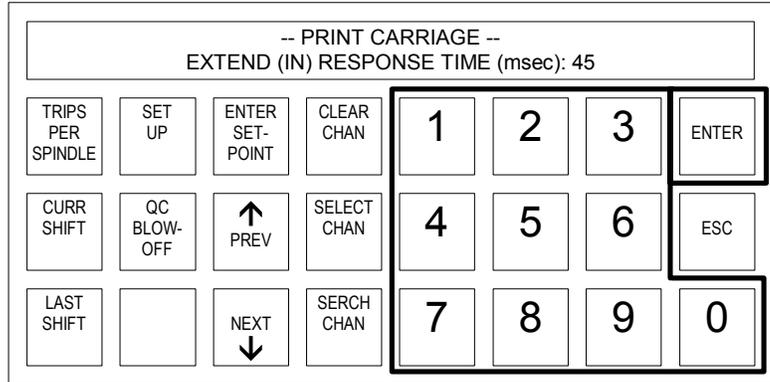
- 3) On the numeric keypad, enter the print carriage retract (out) response time in milliseconds and press “ENTER”.



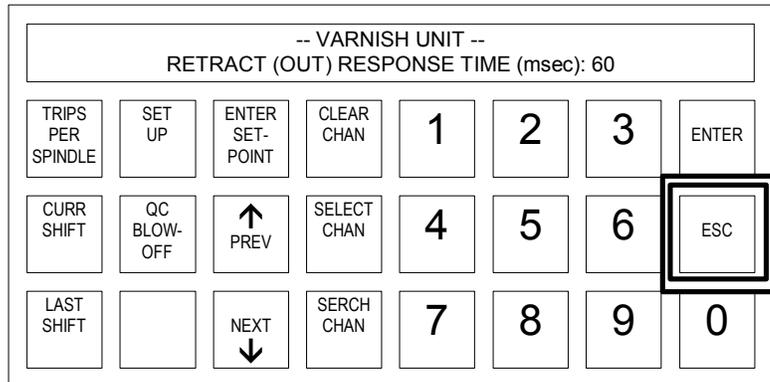
## SECTION 8

# SET PRINT CARRIAGE TRIP RESPONSE TIMES

- 5) On the numeric keypad, enter the print carriage extend (in) response time in milliseconds and press “ENTER”.



- 5) The print carriage response times are now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



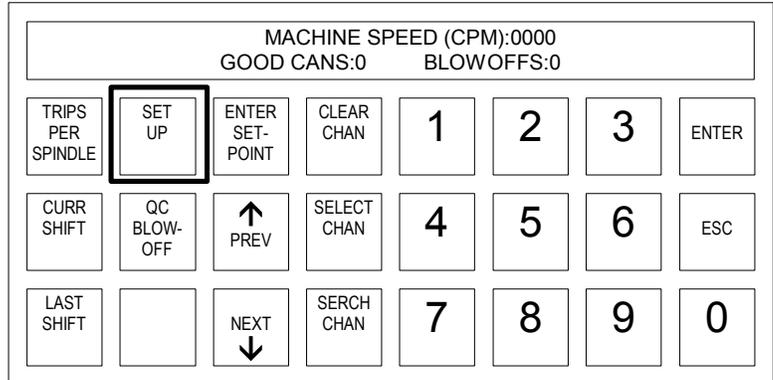
## SECTION 9 SET VARNISH UNIT TRIP RESPONSE TIEMS

The response time is defined as the time from actuation of the solenoid to either the first break with varnish wheel (Retract (out) response time) or the first contact with varnish wheel (Extend (in) response time). The response times are usually set at 60 milliseconds.

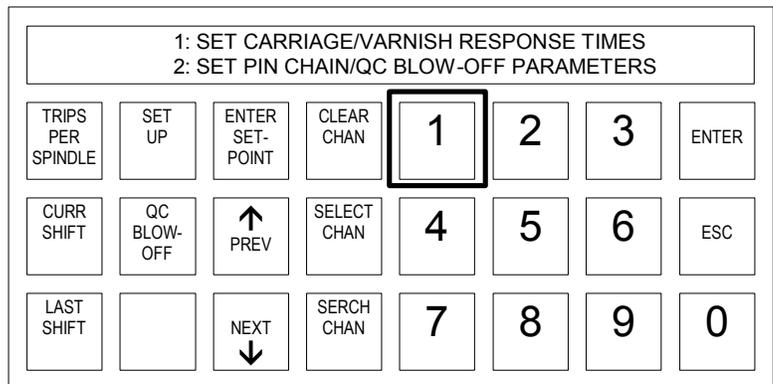
To set the varnish unit response times, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

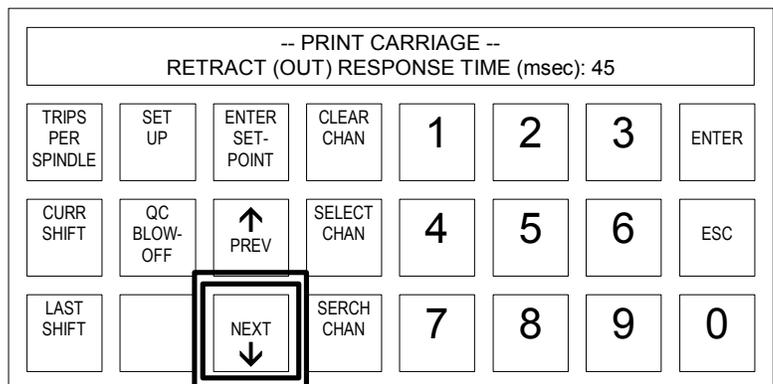
Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



- 2) Press the “1” key to enter the “Set Carriage/Varnish Response Times” menu.



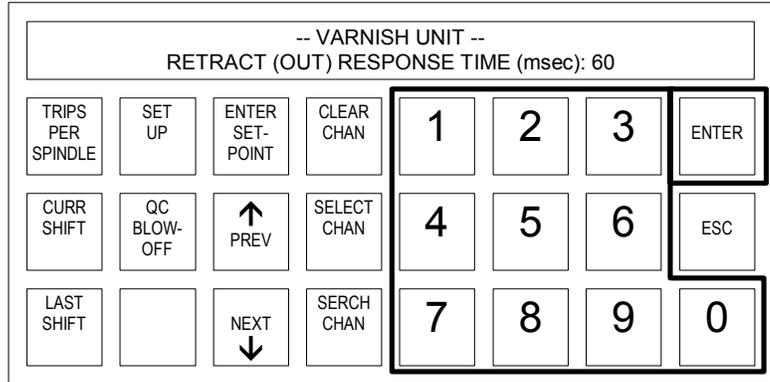
- 3) Press the “NEXT” key until the “Varnish Unit, Retract (out) Response Time (msec)” prompt is displayed.



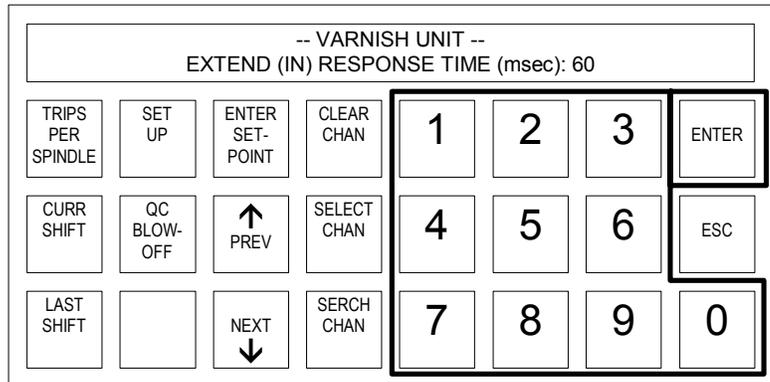
## SECTION 9

# SET VARNISH UNIT TRIP RESPONSE TIMES

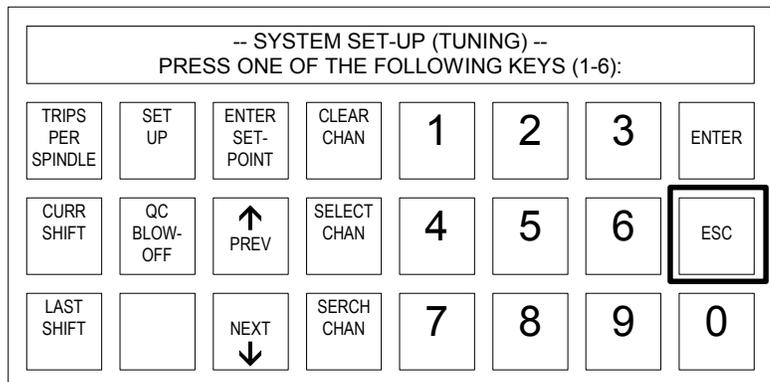
- 4) On the numeric keypad, enter the varnish unit retract (out) response time in milliseconds and press “ENTER”.



- 5) On the numeric keypad, enter the varnish unit extend (in) response time in milliseconds and press “ENTER”.



- 6) The varnish unit response times are now set. Press the “ESC” key to return to the main menu.



# SECTION 10

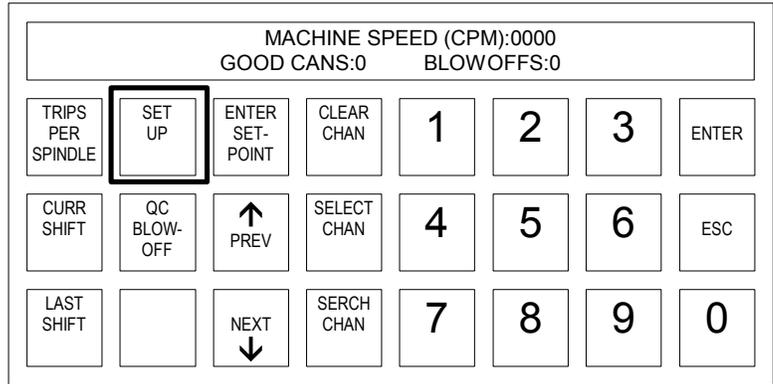
## SET NUMBER OF CANS TO BLOW-OFF AT RESTART (INFEED OPEN, PRINT & VARNISH)

When the infeed is first opened the HSM-CD7 can be set to blow-off a number of cans. A valid range is 0 to 99 cans to blow-off when the infeed is first opened. When the machine is restarted the HSM-CD7 can be set to blow-off a number of cans from the print station and from the varnish station. A valid range is from 0 to 99 cans to blow-off at restart.

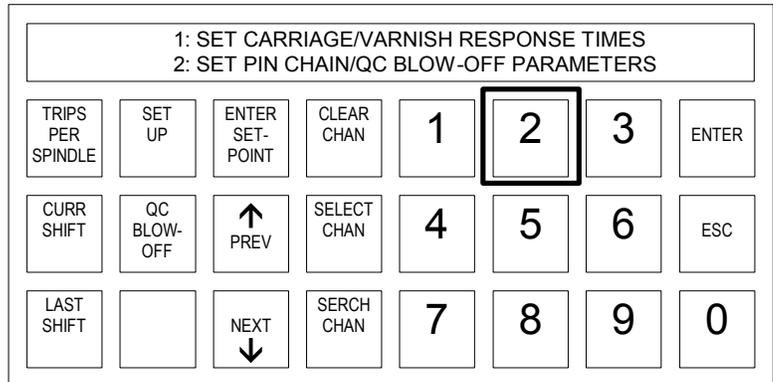
To set the number of cans to blow-off when the infeed is first opened or at the print or varnish stations at restart of the machine, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



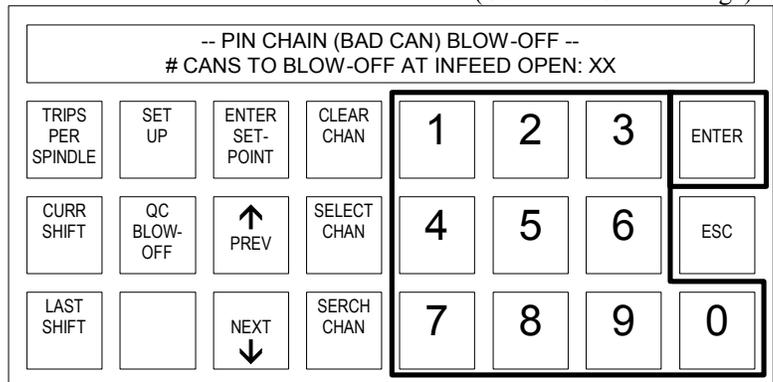
- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.



- 3) On the numeric keypad, enter the number of cans to blow-off at infeed open and press “ENTER”.

Note: The “NEXT” key can be used to advance to the “Number to Blow-Off from Print at Restart” prompt.

(Continued on Next Page)

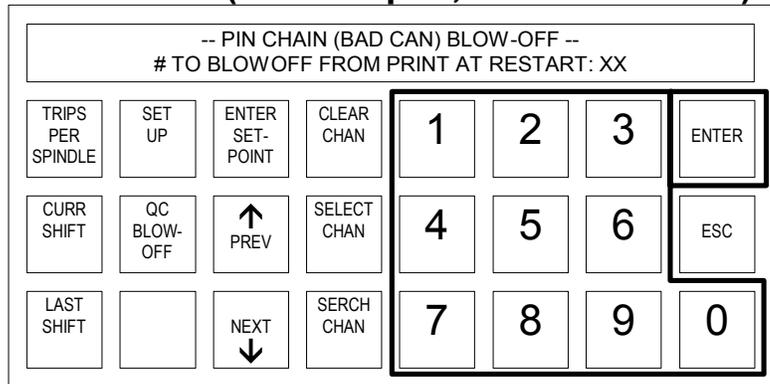


## SECTION 10

# SET NUMBER OF CANS TO BLOW-OFF AT RESTART (Infeed Open, Print & Varnish)

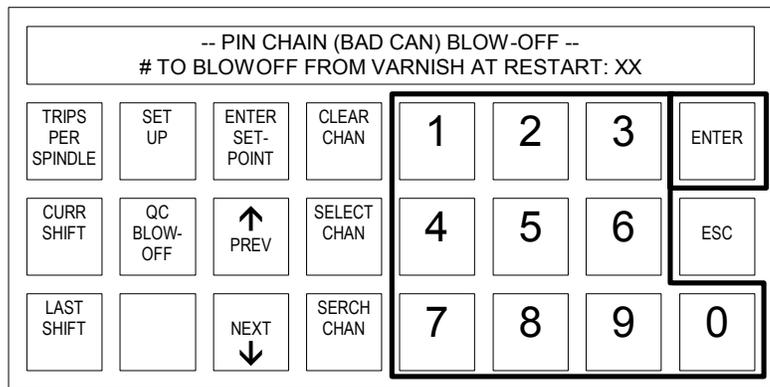
- 4) On the numeric keypad, enter the number of cans to blow-off from the print station at restart and press “ENTER”.

Note: The “NEXT” key can be used to advance to the “Number to Blow-Off from Varnish at Restart” prompt. The “PREV” key can be used to retard to the previous menu.

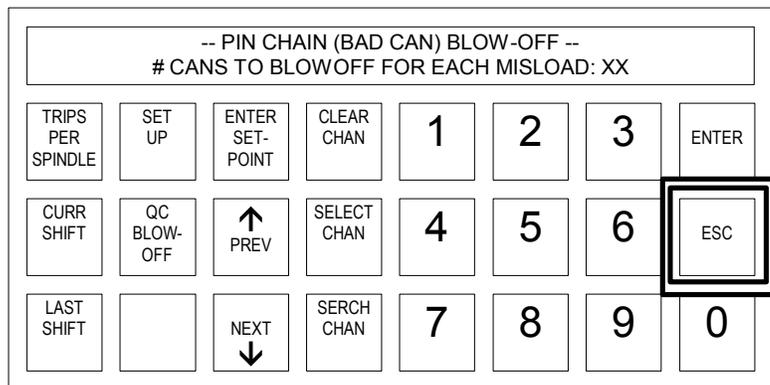


- 5) On the numeric keypad, enter the number of cans to blow-off from the varnish station at restart and press “ENTER”.

Note: The “PREV” key can be used to retard to the previous menu.



- 6) The number of cans to blow-off at restart is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



# SECTION 11

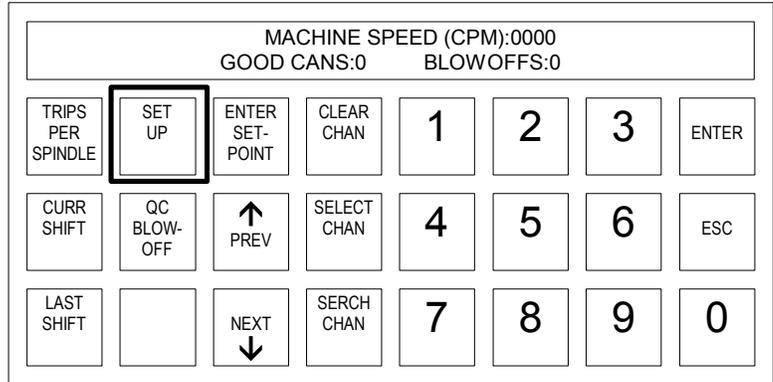
## SET QC BLOW-OFF SHIFT OFFSET

The QC blow-off shift offset is the number of spindles difference from detection of the spindle #1 flag to the QC blow-off port. This is a number between 1 and 24 and is empirically set by selecting spindle #1 for blow-off and adjusting this value until the can from spindle #1 is the can that is blown off.

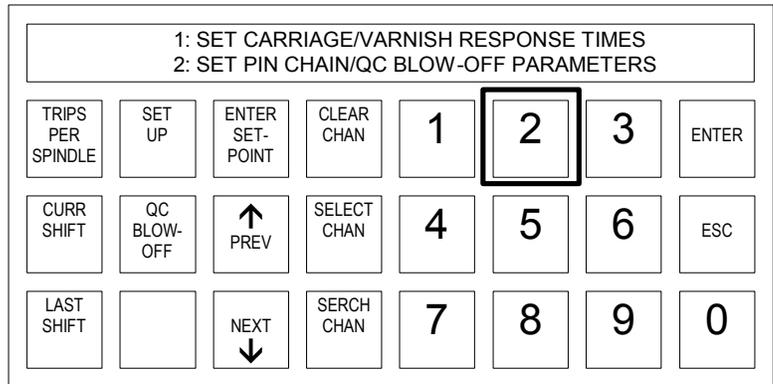
To set the QC blow-off shift offset, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

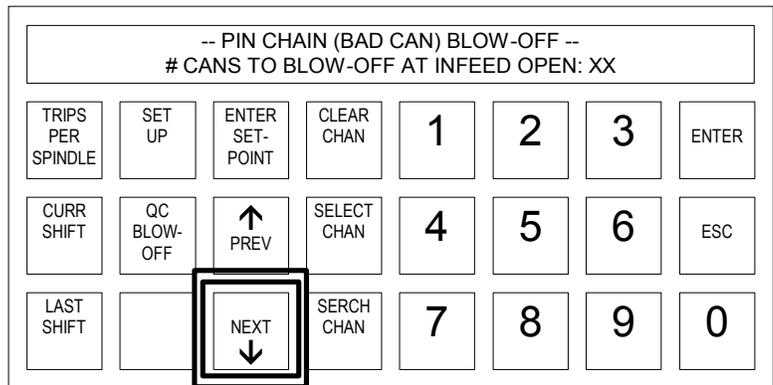
Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.



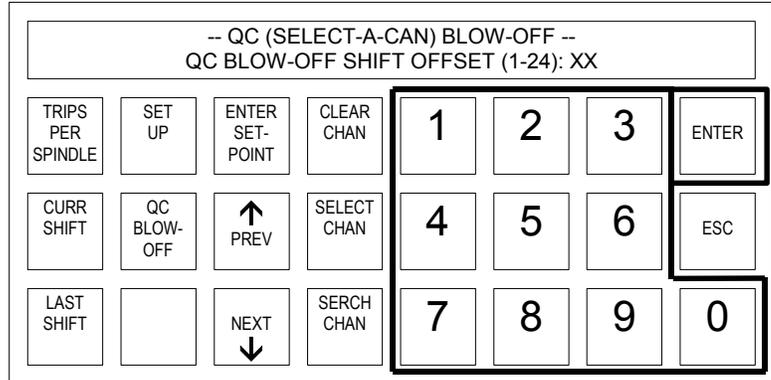
- 3) Press the “NEXT” key until the “QC (select-a-can) blow-off, QC blow-off shift offset (1-24)” prompt is displayed.



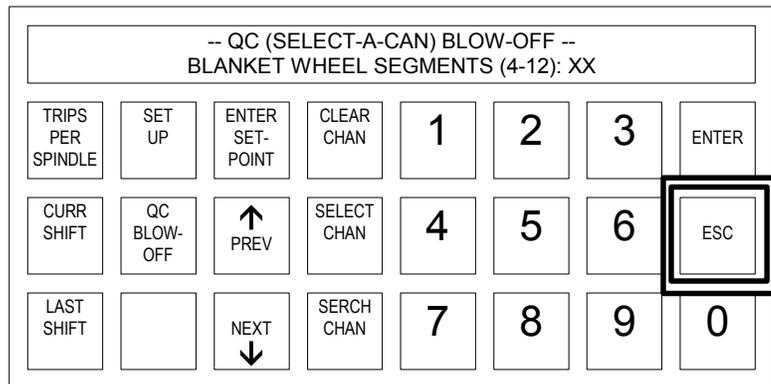
## SECTION 11

### SET Q.C. BLOW-OFF SHIFT OFFSET

- 4) On the numeric keypad, enter the number of spindles difference from detection of the spindle #1 flag to the QC blow-off port and press “ENTER”.



- 5) The QC blow-off shift offset is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



## SECTION 12 SET NUMBER OF BLANKET WHEEL SEGMENTS

The blanket wheel segments is the number of segments on the blanket wheel.

To set the number of blanket wheel segments, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000 GOOD CANS:0 BLOWOFFS:0									
TRIPS PER SPINDLE	<b>SET UP</b>	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.

1: SET CARRIAGE/VARNISH RESPONSE TIMES 2: SET PIN CHAIN/QC BLOW-OFF PARAMETERS									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	<b>2</b>	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0		

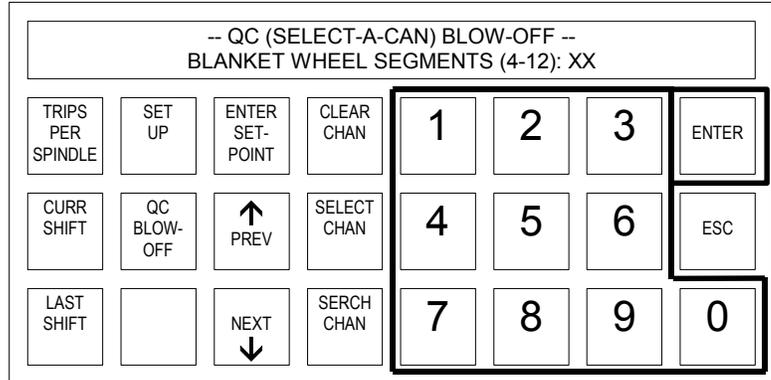
- 3) Press the “NEXT” key until the “QC (select-a-can) blow-off, Blanket Wheel Segments (4-12)” prompt is displayed.

-- PIN CHAIN (BAD CAN) BLOW-OFF -- # CANS TO BLOW-OFF AT INFEED OPEN: XX									
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER		
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC		
LAST SHIFT		<b>↓ NEXT</b>	SERCH CHAN	7	8	9	0		

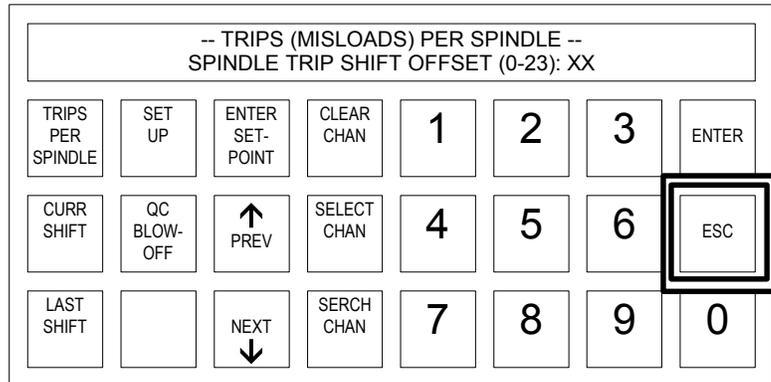
## SECTION 12

### SET NUMBER OF BLANKET WHEEL SEGMENTS

- 4) On the numeric keypad, enter the number of blanket wheel segments and press “ENTER”.



- 5) The number of blanket wheel segments is now set. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.



## SECTION 13 SET SPINDLE TRIP SHIFT OFFSET

The spindle trip shift offset is the number of spindles difference from detection of the spindle #1 flag to the Can/No Can sensor. This is a number between 0 and 23 and is empirically set such that a mis-loaded can on spindle #1 increments the spindle #1 count in the “Trips per spindle” menu.

To set the spindle trip shift offset, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000								GOOD CANS:0		BLOWOFFS:0	
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER				
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC				
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0				

- 2) Press the “2” key to enter the “Set Pin Chain/QC Blow-Off Parameters” menu.

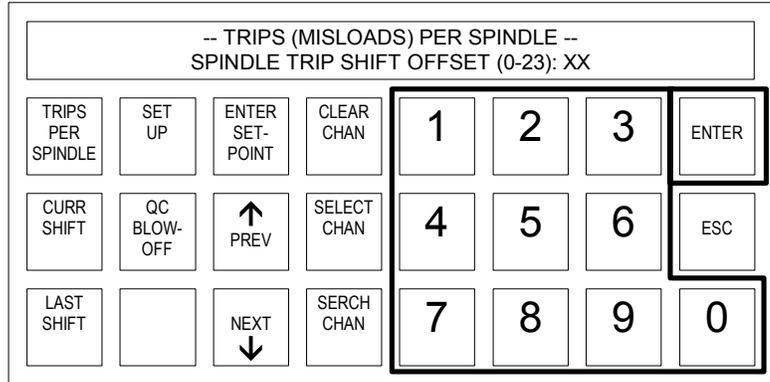
1: SET CARRIAGE/VARNISH RESPONSE TIMES											
2: SET PIN CHAIN/QC BLOW-OFF PARAMETERS											
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER				
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC				
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0				

- 3) Press the “NEXT” key until the “Trips (misloads) per Spindle, Spindle Trip Shift Offset (0-23)” prompt is displayed.

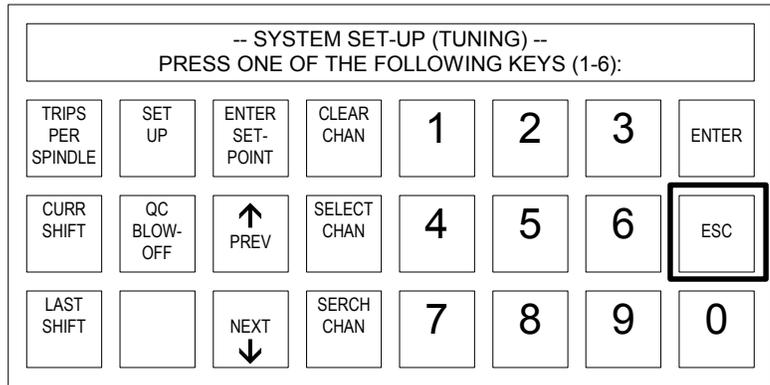
-- PIN CHAIN (BAD CAN) BLOW-OFF --											
# CANS TO BLOW-OFF AT INFEEED OPEN: XX											
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER				
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC				
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0				

## SECTION 13 SET SPINDLE TRIP SHIFT OFFSET

- 4) On the numeric keypad, enter the number of spindles difference from detection of the spindle #1 flag to the QC blow-off port and press “ENTER”.



- 5) The spindle trip shift offset is now set. Press the “ESC” key to return to the main menu.



## SECTION 14

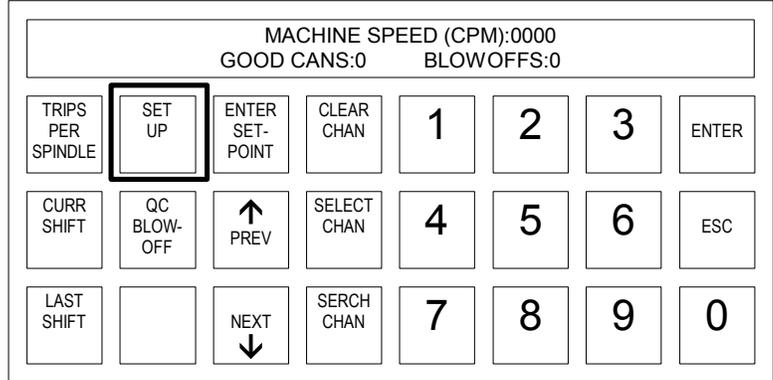
### SET NUMBER OF SHIFTS TO VARNISH UNIT

The number of shifts to varnish unit is the number of spindles from the Can Sensor to the varnish unit minus 2. In general, this is set such that the varnish unit retracts out on the can ahead of the misloaded spindle. For older generation Rutherford Decorators, this is set to "5". For newer decorators, this is set to "4".

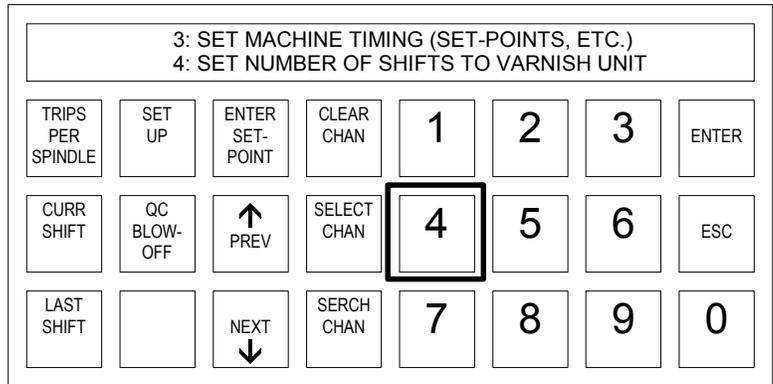
To set the number of shifts to varnish unit, perform the following:

- 2) With the main menu displayed, press the "SET-UP" key.

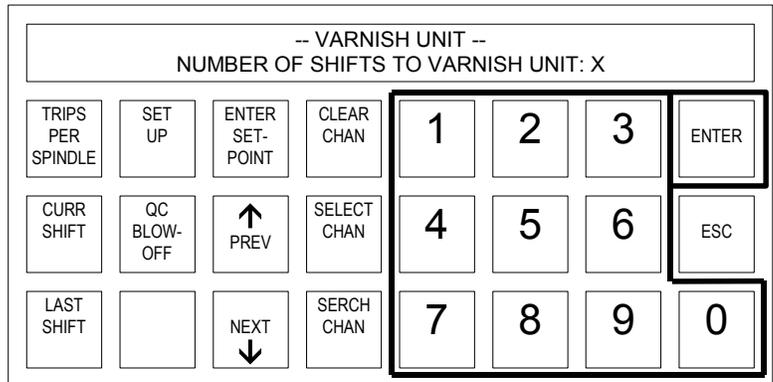
Note: The primary set-up menu is only when the "Set-Up Enable" input is ON.



- 2) Press the "4" key to enter the "Set Number of Shifts to Varnish Unit" menu.



- 3) On the numeric keypad, enter the number of spindles from the Can Sensor to the varnish unit minus 2 and press "ENTER". For older generation Rutherford Decorators, this is set to "5". For newer decorators, this is set to "4".



## SECTION 14 SET NUMBER OF SHIFTS TO VARNISH UNIT

- 4) The number of shifts to varnish unit is now set. Press the “ESC” key to return to the main menu.

-- SYSTEM SET-UP (TUNING) -- PRESS ONE OF THE FOLLOWING KEYS (1-6):							
TRIPS PER SPINDLE	SET UP	ENTER SET- POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW- OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		NEXT ↓	SERCH CHAN	7	8	9	0

## SECTION 15 ZERO MACHINE (SET RESOLVER OFFSET)

Machine zero is defined at the point where the spindle is aligned with the V notch at the top backside of the machine frame. Since the HSM-CD7 uses a resolver for machine timing instead of an encoder, the zero of the machine can be set electronically instead of having to move the shaft of the resolver as would have to be done on an encoder.

To zero the resolver, position the machine at machine zero and perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.

MACHINE SPEED (CPM):0000 GOOD CANS:0 BLOWOFFS:0							
TRIPS PER SPINDLE	<b>SET UP</b>	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0

- 2) Press the “5” key to enter the “Zero Machine” menu.

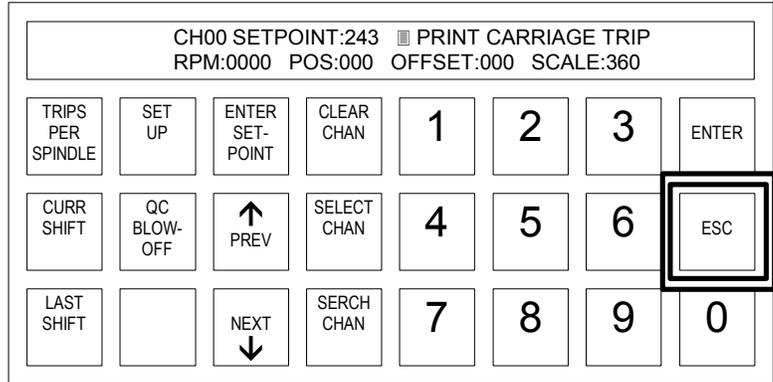
5: ZERO MACHINE (SET RESOLVER OFFSET) 6: VIEW CRITICAL INPUT POSITIONS							
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	<b>5</b>	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0

- 3) Press the “0” key to zero the resolver. The HSM-CD7 will calculate the offset required to make the current position “000” and display this number in the “Offset” field.

TO ZERO THE RESOLVER, LOCATE MACHINE AT ZERO AND PRESS “0” OR “ESC” TO EXIT:							
TRIPS PER SPINDLE	SET UP	ENTER SET-POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW-OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	<b>0</b>

## SECTION 15 ZERO MACHINE (SET RESOLVER OFFSET)

- 4) The resolver is now zeroed. Press the “ESC” key to exit the timing channel set-points menu. Press the “ESC” key again to exit back to the main menu.



## SECTION 16 ADJUSTING TIMING CHANNEL SET-POINTS

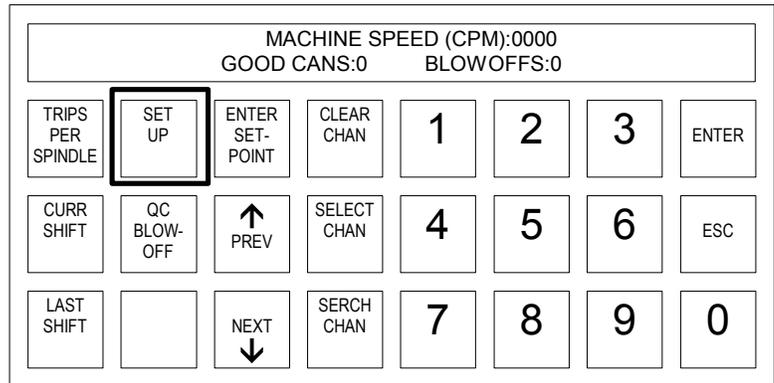
The timing channels of the HSM-CD7 are defined as follows:

- CH00: Print Carriage Trip
- CH01: Varnish Unit Trip
- CH02: Can Clock Timing
- CH03: Damaged (LO) Timing
- CH04: Damaged (HI) Timing
- CH05: Pin Chain Blow-Off
- CH06: Blow-Off Timing
- CH07: Can Gate Timing
- CH10: PLC Clock Timing

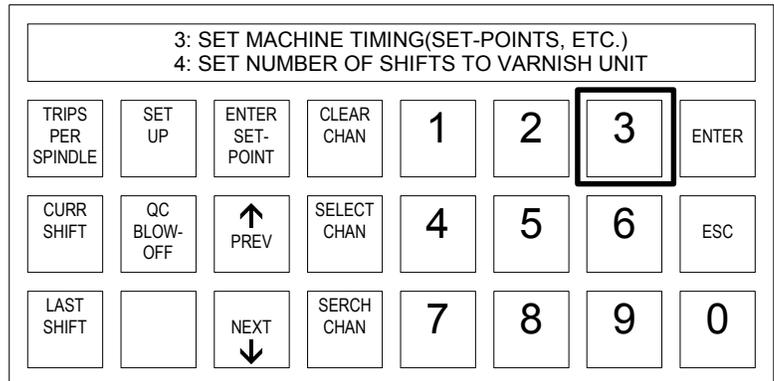
To adjust any of the above timing channels, perform the following:

- 1) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



- 2) Press the “3” key to enter the “Set Machine Timing” menu.

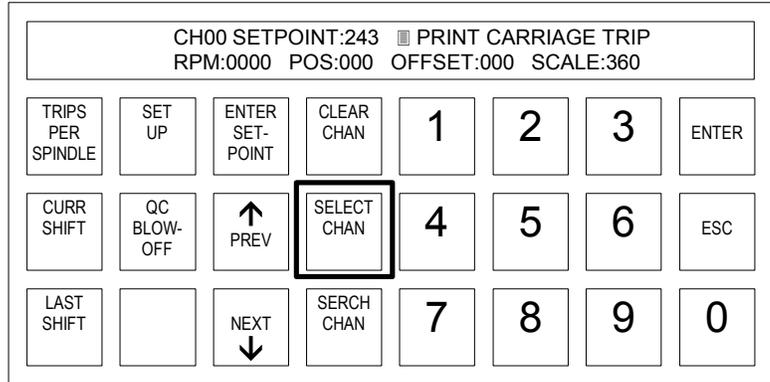


## SECTION 16

# ADJUSTING TIMING CHANNEL SET-POINTS

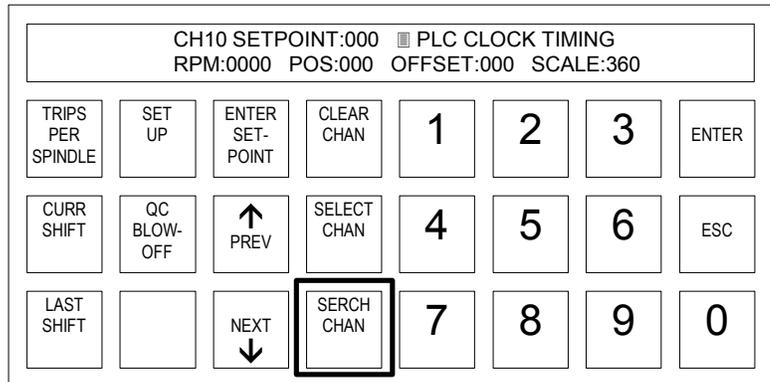
- 3) Press the “SELECT CHAN” key and enter the channel number to be adjusted on the numeric keypad and then press “ENTER”.

Note: The “NEXT” and “PREV” keys can also be used to advance to the next channel or retard to the previous channel. The following examples will use channel 10 as the selected channel.



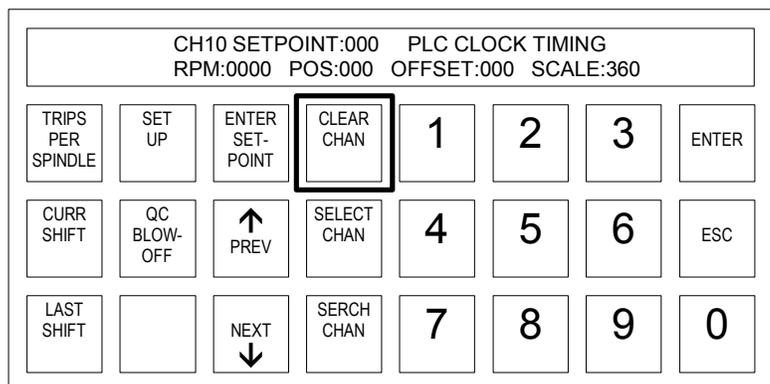
- 4) To view the location of the existing set-point, press the “SEARCH CHAN” key repeatedly. The location the set-point turns “ON” will be displayed with the “state” indicator solid. Locations where the set-point turns “off” will be displayed with the “state” indicator “off”.

Write down the “ON” and “off” set-point locations for later use.



To adjust the set-point, perform the following:

- 1) Press the “CLEAR CHAN” key to clear the existing set-point.



## SECTION 16 ADJUSTING TIMING CHANNEL SET-POINTS

(Continued on Next Page)

- 2) Press the “ENTER SET-POINT” key.

CH10 SETPOINT:___				PLC CLOCK TIMING			
RPM:0000 POS:000				OFFSET:000 SCALE:360			
TRIPS PER SPINDLE	SET UP	<b>ENTER SET- POINT</b>	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW- OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0

- 3) On the numeric keypad, enter the position, in degrees, where the set-point should go “ON” and press “ENTER”

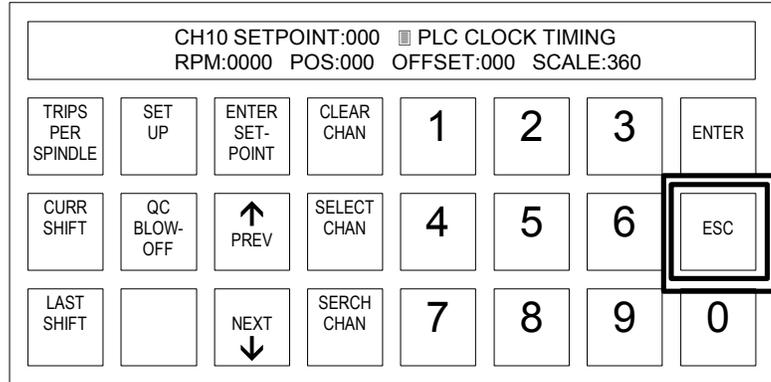
“ON” SETPOINT:___				PLC CLOCK TIMING			
RPM:0000 POS:000				OFFSET:000 SCALE:360			
TRIPS PER SPINDLE	SET UP	ENTER SET- POINT	CLEAR CHAN	1	2	3	<b>ENTER</b>
CURR SHIFT	QC BLOW- OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0

- 4) On the numeric keypad, enter the position, in degrees, where the set-point should go “off” and press “ENTER”

“OFF” SETPOINT:___				PLC CLOCK TIMING			
RPM:0000 POS:000				OFFSET:000 SCALE:360			
TRIPS PER SPINDLE	SET UP	ENTER SET- POINT	CLEAR CHAN	1	2	3	ENTER
CURR SHIFT	QC BLOW- OFF	↑ PREV	SELECT CHAN	4	5	6	ESC
LAST SHIFT		↓ NEXT	SERCH CHAN	7	8	9	0

## SECTION 16 ADJUSTING TIMING CHANNEL SET-POINTS

- 5) The timing channel has now been adjusted. Press the “ESC” key to return back to the primary set-up menu. Press the “ESC” again to return back to the main menu.



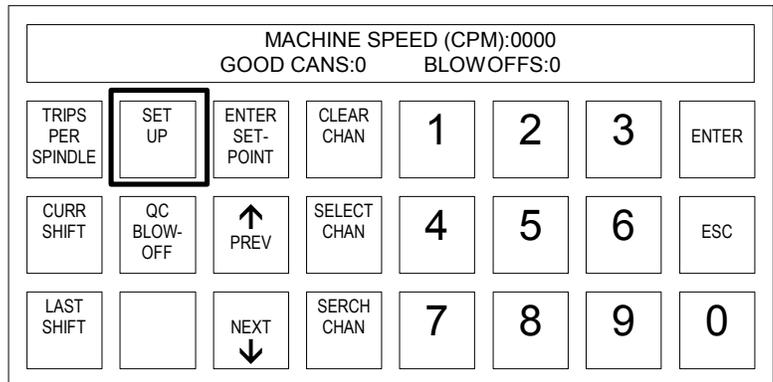
## SECTION 17 VIEW CRITICAL INPUT POSITIONS

This selection is used to view the “On” position of the Can/No Can sensor.

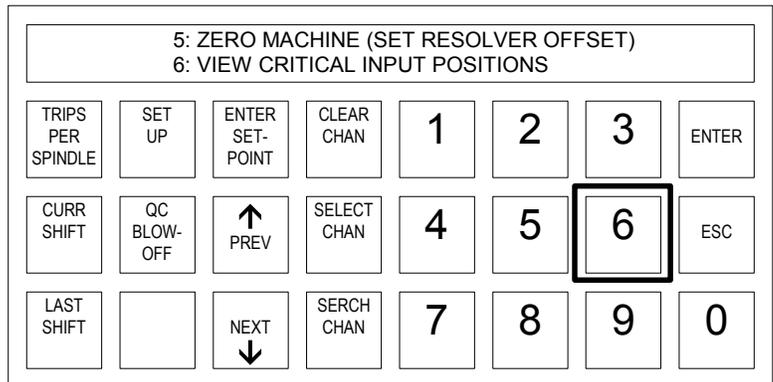
To view the critical input positions perform the following:

- 2) With the main menu displayed, press the “SET-UP” key.

Note: The primary set-up menu is only when the “Set-Up Enable” input is ON.



- 2) Press the “6” key to enter the “View Critical Input Positions” menu.



- 3) Verify the location of the Can/No Can sensor. Place a can on a spindle and slowly jog it past the sensor. The sensor should first see the can at between 300 and 0 degrees. If it does, the location of the sensor is correct.

Press the “ESC” key to exit the view critical input positions menu. Press the “ESC” key again to exit back to the main menu.

