HSM-CUP7
CUPPER
HIGH SPEED LOGIC MODULE
KEYPAD QUICK REFERENCE

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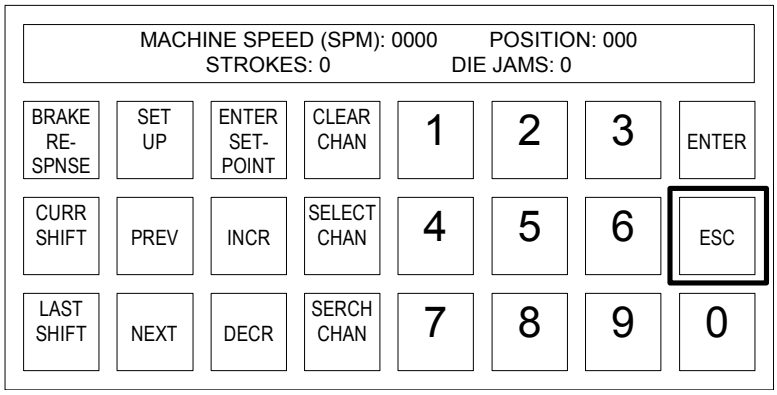
CONTENTS

CONVENTIONS USED IN THIS MANUAL

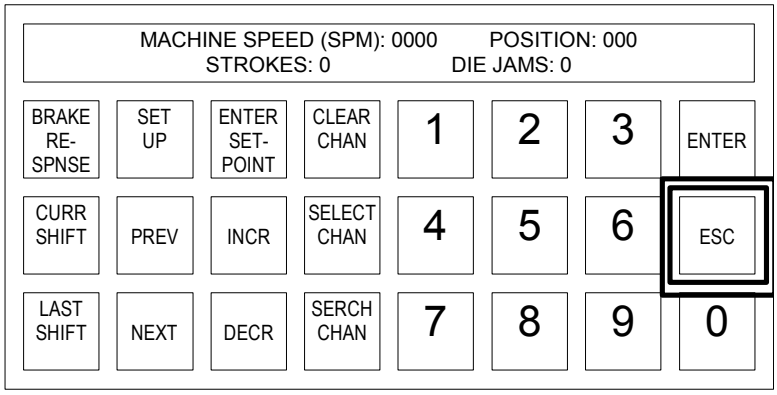
This manual is provided as a quick reference for entering parameters through the HSM-CUP7 keypad. For complete details on the parameters that can be set through the HSM-CUP7 keypad or for additional information on the HSM-CUP7 in general, refer to the HSM-CUP7 User's Manual.

The following conventions are used through-out this manual.

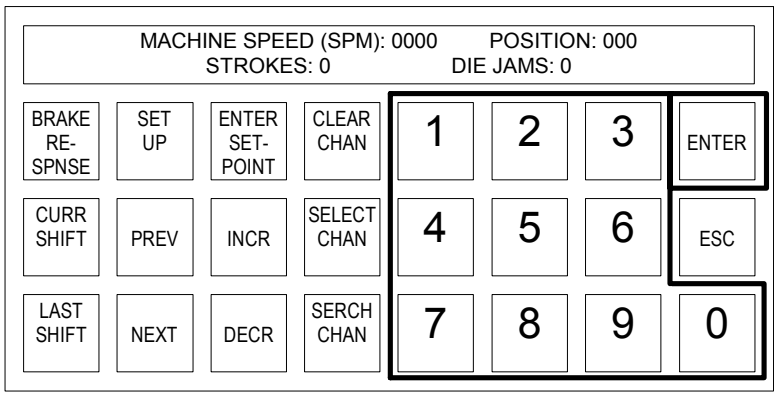
1) This indicates to depress that key one time.



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



3) 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.

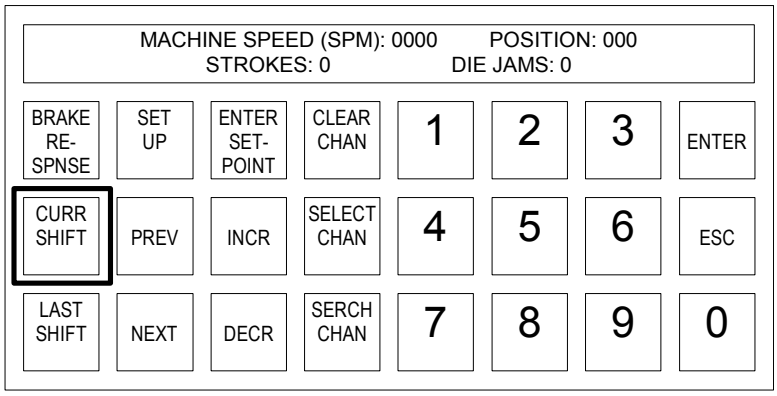


SECTION 1
VIEWING CURRENT SHIFT DATA

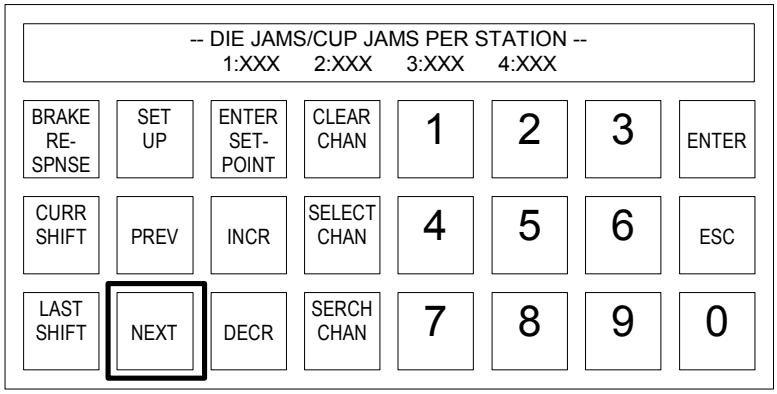
The Current Shift data menu displays the "Die Jams/Cup Jams" per station fault counts accumulated so far into the current shift. Note that the current shift total stroke count and total die jam count is displayed as part of the main menu.

To display the Current Shift counts perform the following:

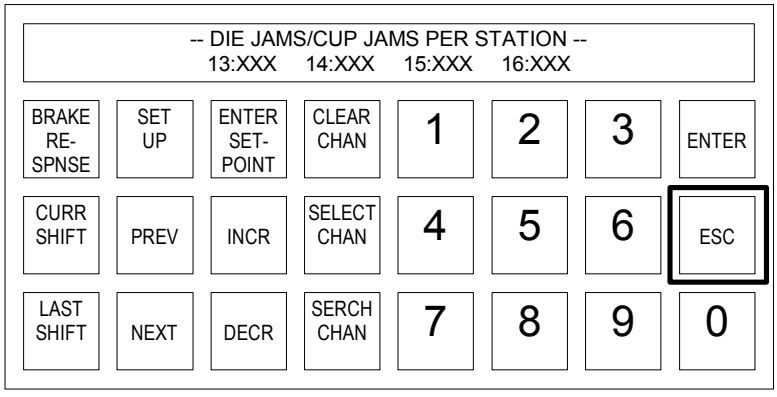
1) With the main menu displayed, press the "CURRENT SHIFT" key.



2) The number of die jams/cup jams for the first 4 stations is displayed on the first screen. Press the "NEXT" key to view the die jam/cup jam faults per station 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.



3) Once the counts for all stations have been observed, press the "ESC" key to return to the main menu.

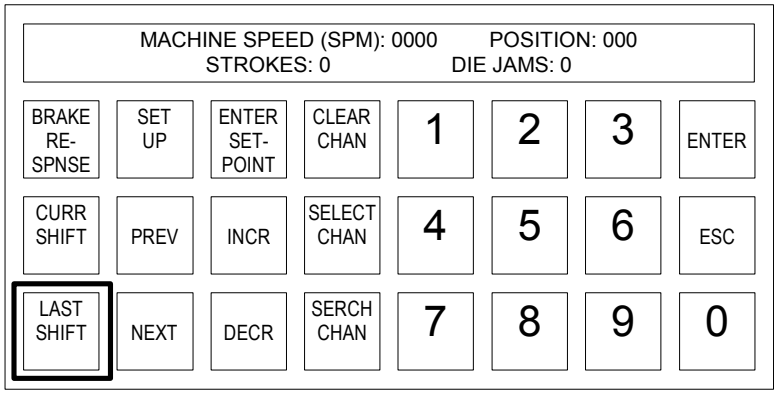


SECTION 2
VIEWING LAST SHIFT COUNTS

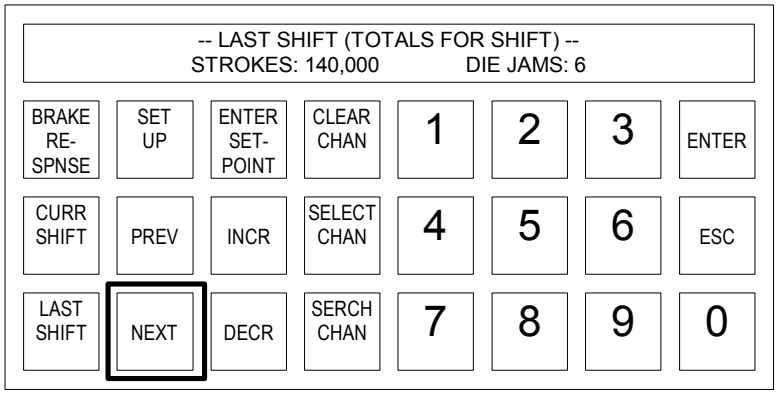
The Last Shift data menu displays the "Total Stroke" count and the "Total Die Jam" fault count, and the "Die Jam/Cup Jam" per station counts. This data is the totals for the last shift.

To display the Last Shift counts, perform the following:

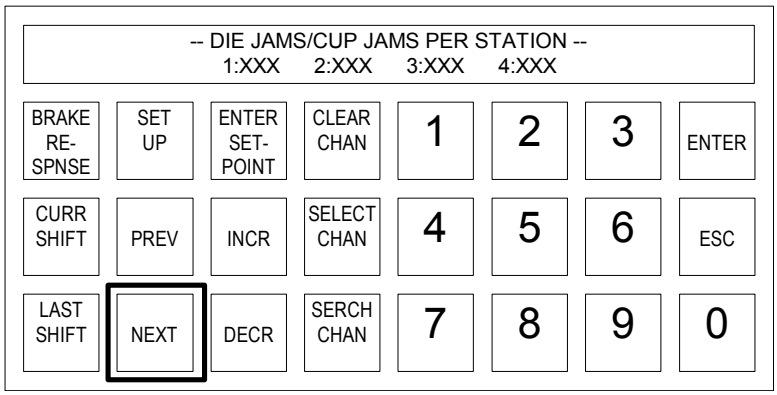
1) With the main menu displayed, press the "LAST SHIFT" key.



2) The total good can count and short can fault count for the last shift will be displayed. Press the "ESC" key to return back to the main menu when finished viewing the counts.



3) Once all the data has been viewed, press the "ESC" key to return to the main menu.

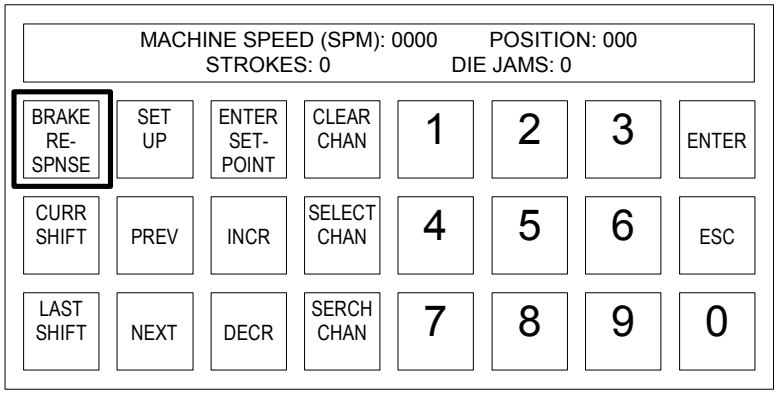


SECTION 3
DISPLAY BRAKE RESPONSE

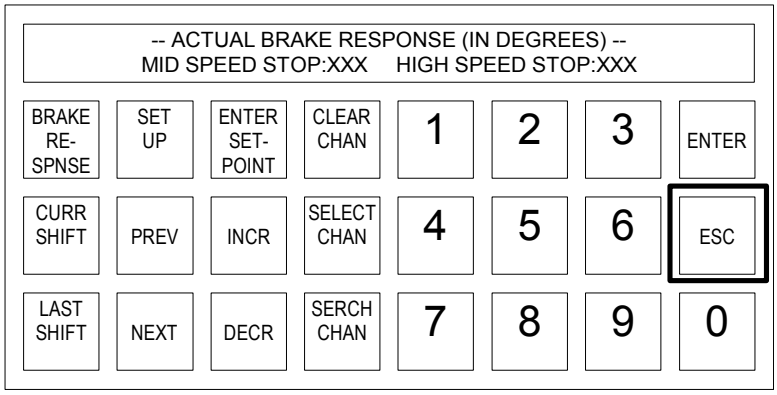
The brake response screen displays the brake response for both the mid speed and high speed stops. The response is the number of degrees it takes the press to stop from when the clutch is de-activated for a TDC stop to the position that the machine comes to rest.

To display the brake response, perform the following:

1) With the main menu displayed, press the "BRAKE RESPNSE" key.



2) Both the mid and the high speed brake response from the last respective stops are displayed. When finished viewing the responses, press the "ESC" key to return back to the main menu.

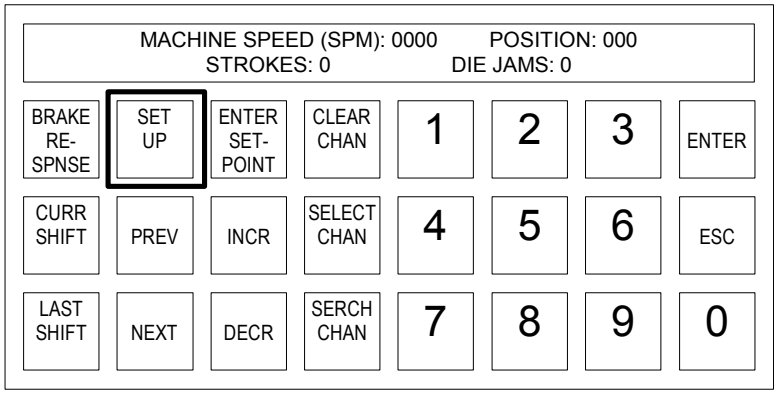


SECTION 4
ENABLE BRAKE WEAR COMPENSATION

The brake wear compensation feature is used to stop the press at TDC regardless of the actual braking response of the clutch/brake. Enabling the brake wear compensation consists of enabling the feature and setting both the high speed and low speed desired stopping positions (the angular position that the main crank is at when the machine stops).

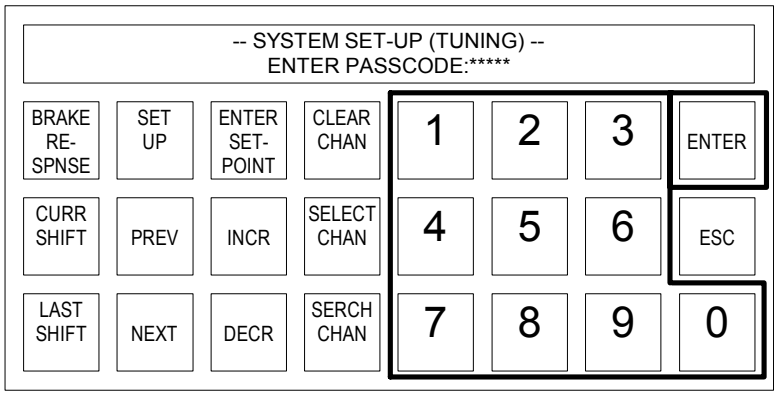
To enable the brake wear compensation perform the following:

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

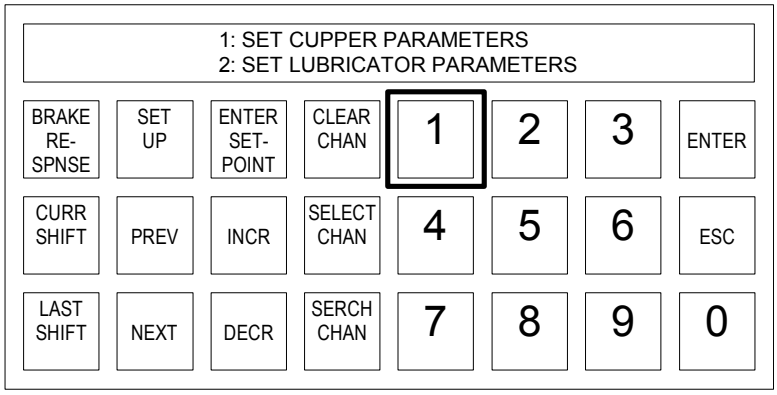


2) Enter the 5 digit passcode on the numeric keypad and press "ENTER".

   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User's manual for details on setting the passcode.



3) Press the "1" key to enter the "Set Bodymaker Parameters" menu.



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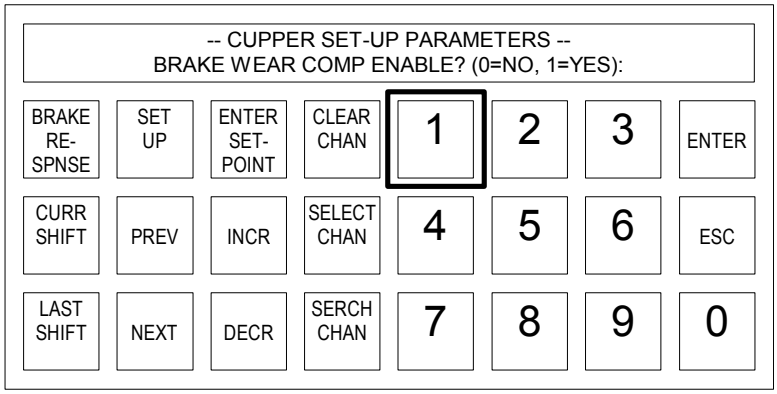
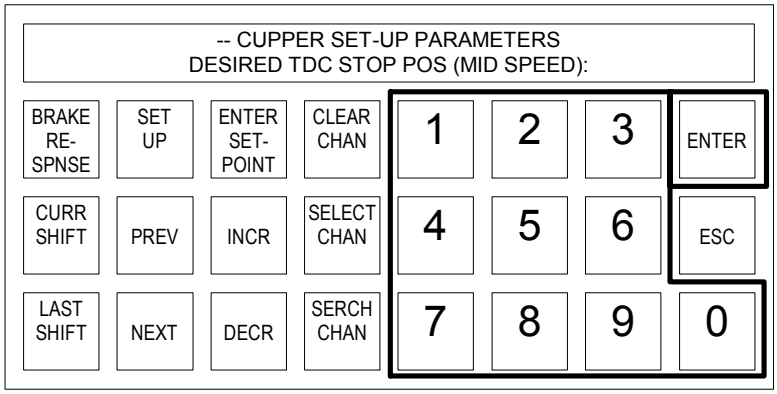
SECTION 4
ENABLE BRAKE WEAR COMPENSATION

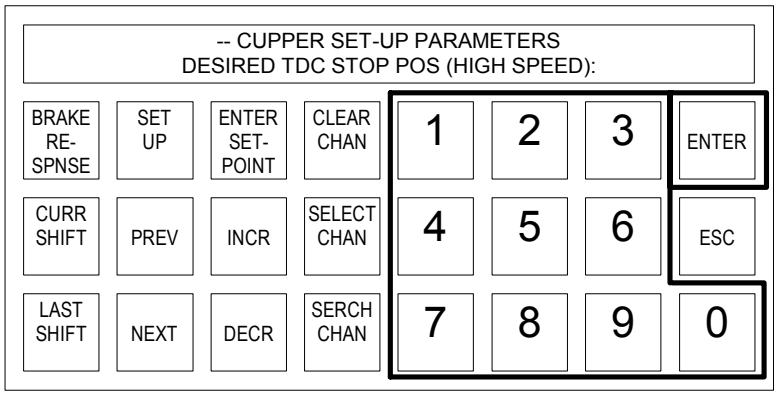
4) At the “Brake Wear Comp Enable?” prompt, press the “1” (YES) key if the brake wear compensation is to be enabled. If the brake wear compensation is to be disabled, press the “0” (NO) key instead and skip steps (5) and (6) following.



5) On the numeric keypad, enter the desired mid speed stopping position in degrees and press “ENTER”.

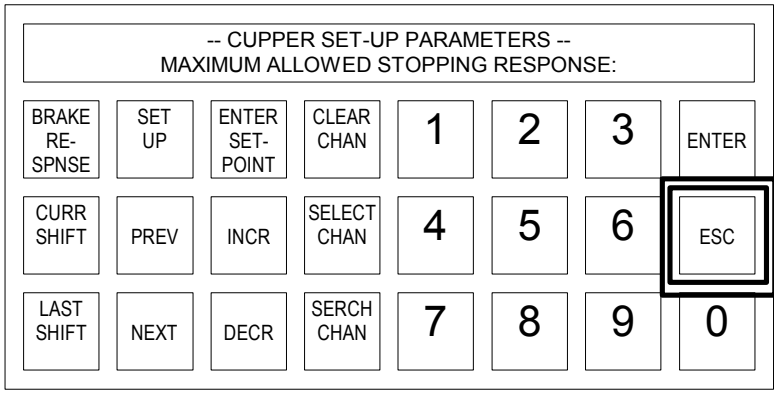


6) On the numeric keypad, enter the desired high speed TDC stopping position in degrees and press “ENTER”.



SECTION 4
ENABLE BRAKE WEAR COMPENSATION

7) The Brake wear compensation is now enabled. Press the “ESC” key to return to the primary set-up menu. Press the “ESC” key again to return to the main menu.

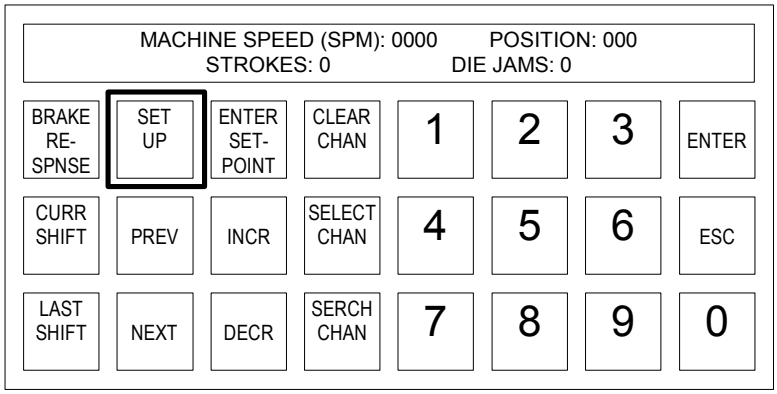


SECTION 5
SET MAXIMUM ALLOWED STOPPING RESPONSE

The "Maximum Allowed Stopping Response" defines what the maximum allowed brake response is before the "Brake Response Too Long" alarm is generated. If the actual brake response, when a TDC stop is performed, is longer than this value, the alarm is generated. If the actual response is less than this value, the alarm is not generated.

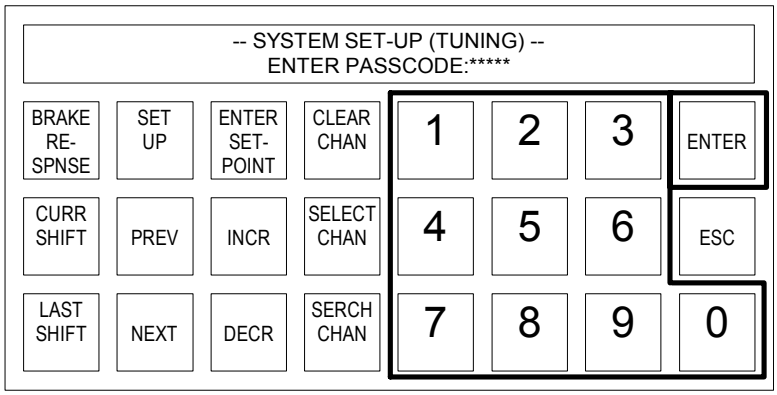
To set the "Maximum Allowed Stopping Response", perform the following:

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

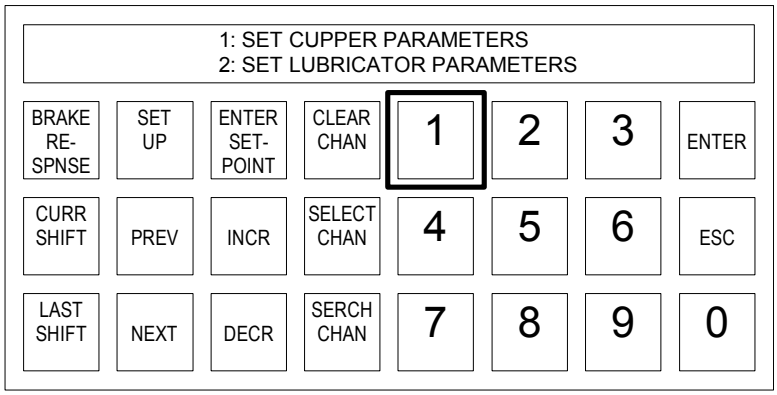


2) Enter the 5 digit passcode on the numeric keypad and press "ENTER".

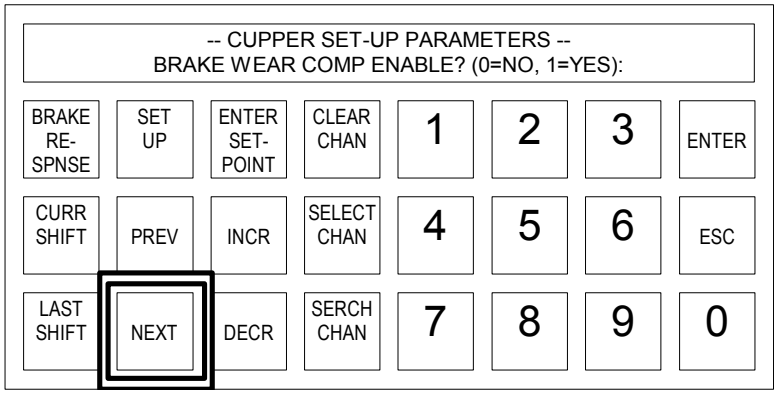
   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User's manual for details on setting the passcode.



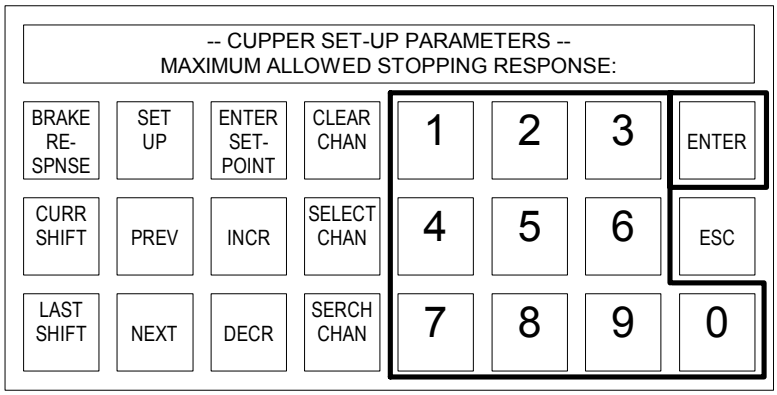
3) Press the "1" key to enter the "Set Bodymaker Parameters" menu.



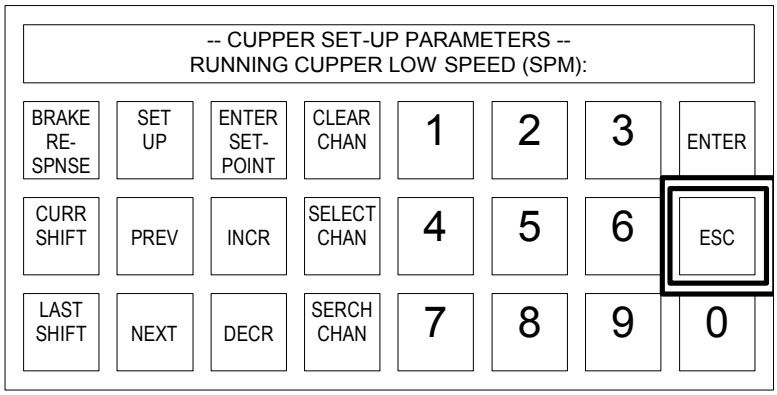
4) Press the "NEXT" key until the "Maximum Allowed Stopping Response" prompt is displayed.



5) On the numeric keypad, enter the desired maximum allowed stopping response in degrees and press "ENTER".



6) The maximum allowed stopping response 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.

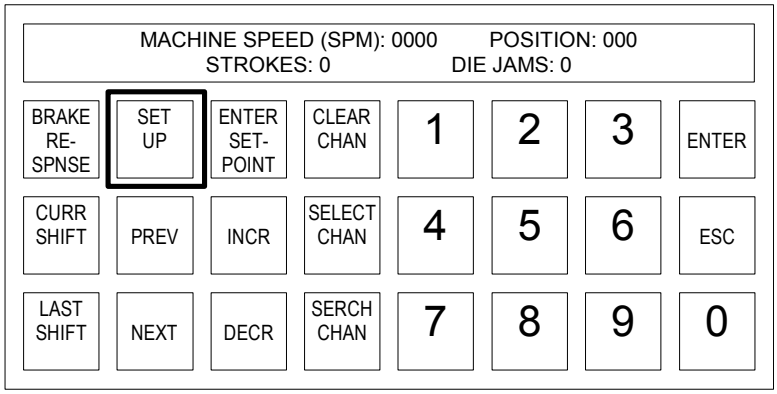


SECTION 6
SET CUPPER RUNNING LOW AND HIGH SPEEDS

The “Cupper Running Low and High” speeds are the actual speeds that the Cupper will run at when the respective speed is selected. Note that the values entered are not used as speed references to make the Cupper actually run at the respective speed but are instead simply references to switch between the TDC high, mid and low timing, etc.

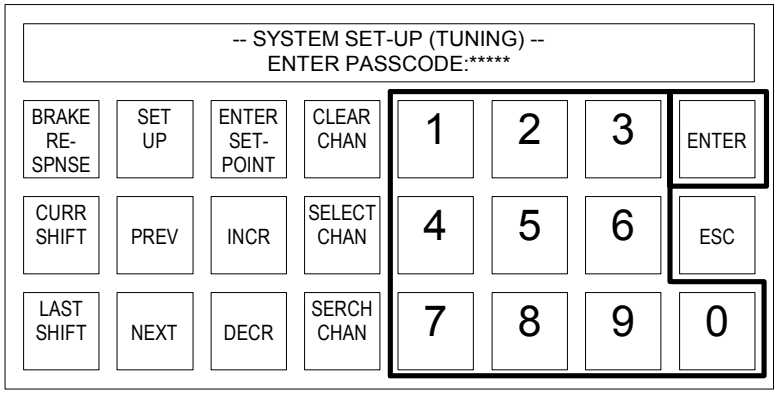
To set the bodymaker high and low speed references, perform the following:

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

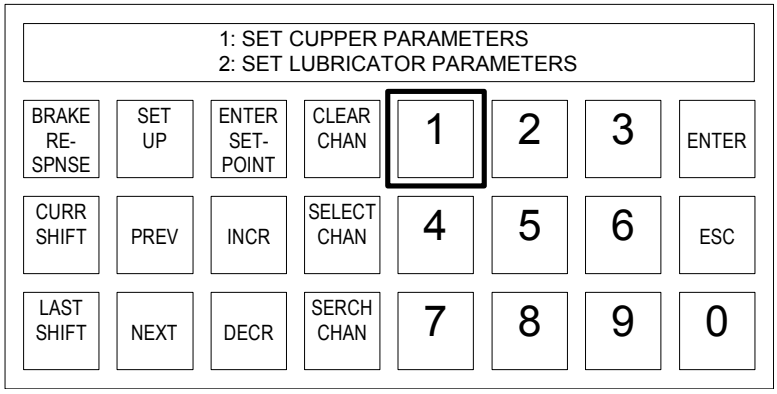


2) Enter the 5 digit passcode on the numeric keypad and press “ENTER”.

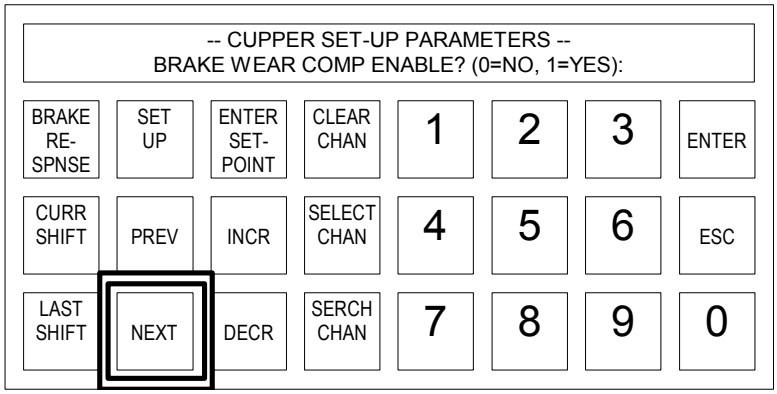
   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User’s manual for details on setting the passcode.



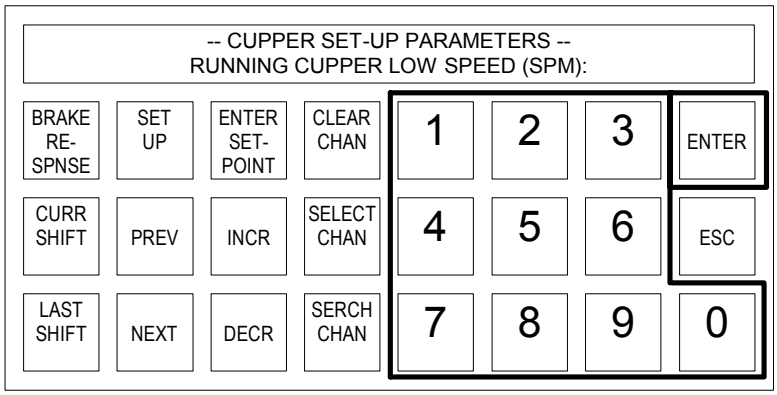
3) Press the “1” key to enter the “Set Bodymaker Parameters” menu.



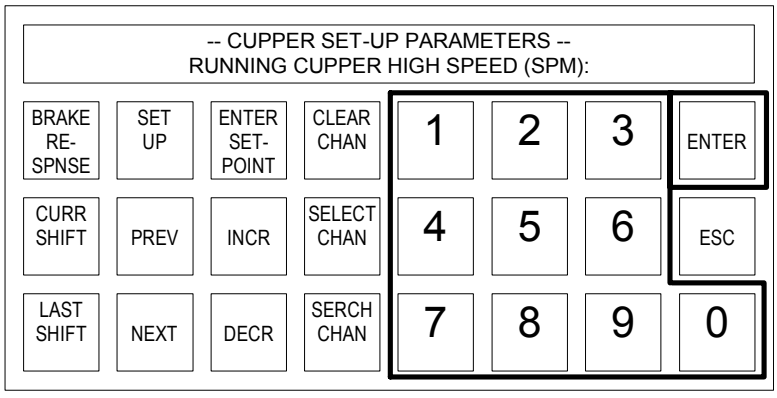
4) Press the “NEXT” key until the “Running Bodymaker Low Speed” prompt is displayed.



5) On the numeric keypad, enter the actual speed in strokes per minutes that the Cupper will run at when it s in low speed and press “ENTER".



6) On the numeric keypad, enter the actual speed in strokes per minute that the Cupper will run at when it is in high speed and press “ENTER”.



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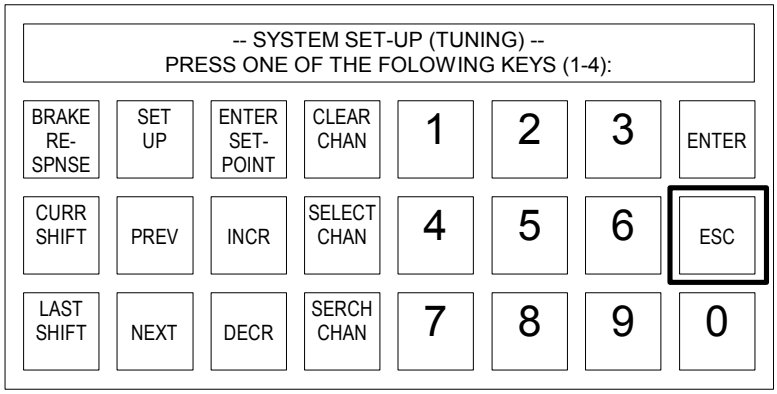
SECTION 6
SET CUPPER RUNNING LOW AND HIGH SPEEDS

7) The bodymaker running low and high speeds are now set. Note that when the high speed value is entered, the primary set-up menu is returned to. From here press the “ESC” key to return back to the main menu.

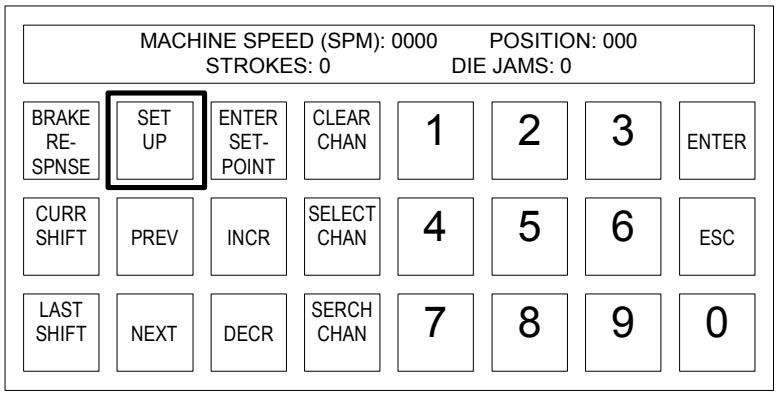


SECTION 7
SET LUBRICATOR SPEED REFERENCES

The Lubricator speed references are used to actually control the speed of the Lubricator via the 0-10 volt analog output of the HSM-CUP7 module. The references include the maximum speed (speed at which the output is at the full 10 volts) and the minimum (idle) speed (speed Lubricator runs at with Cupper stopped).

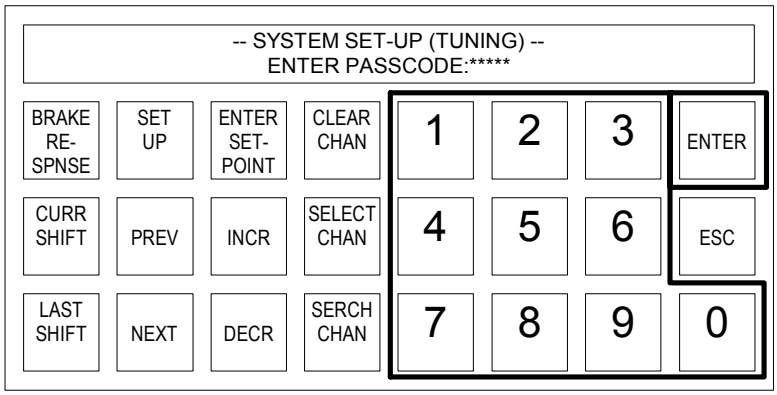
To set the Lubricator speed references, perform the following:

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

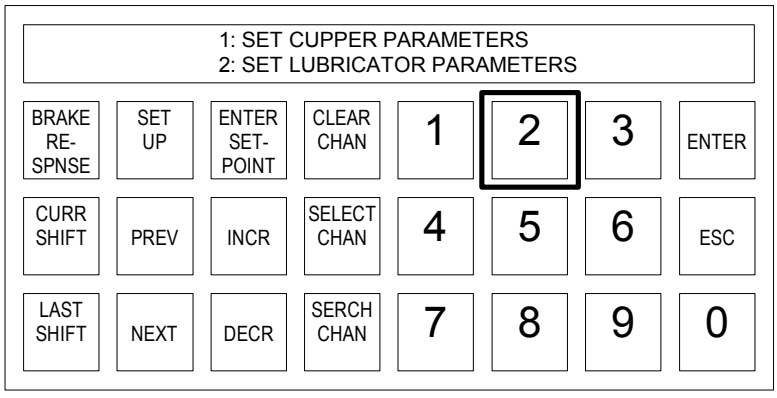


2) Enter the 5 digit passcode on the numeric keypad and press "ENTER".

   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User's manual for details on setting the passcode.



3) Press the "2" key to enter the "Set Trimmer Parameters" menu.



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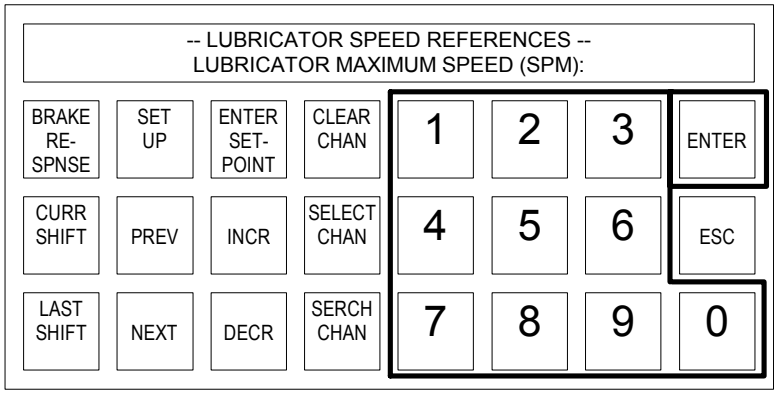
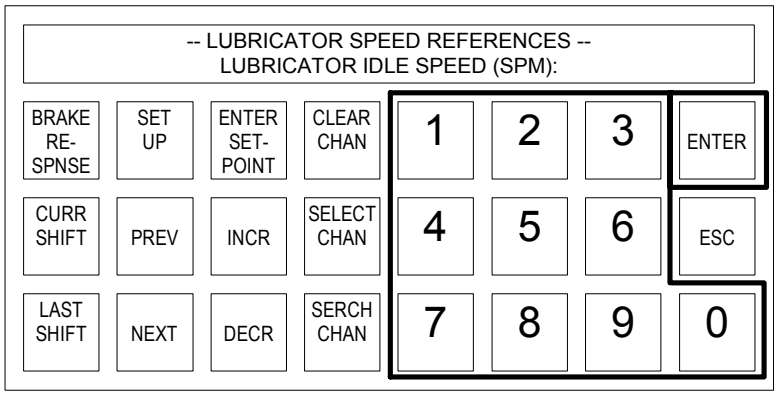
SECTION 7
SET LUBRICATOR SPEED REFERENCES

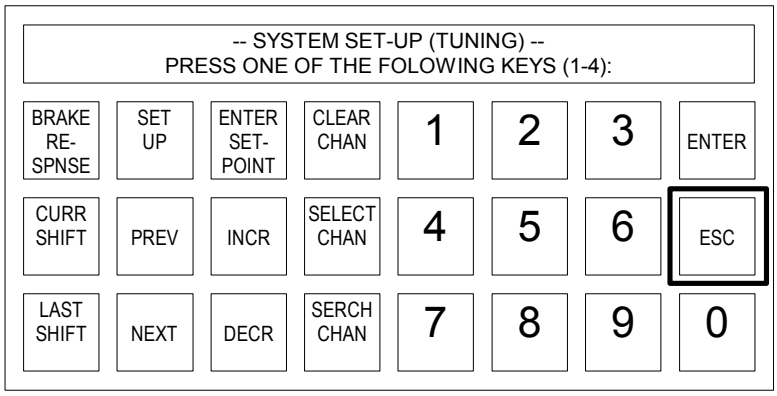
4) On the numeric keypad, enter the desired Lubricator maximum speed in strokes per minute and press “ENTER”. This is the speed that the analog output will be at 10 volts.



5) On the numeric keypad, enter the desired Lubricator idle speed in strokes per minute and press “ENTER”.



6) The Lubricator speed references are now set. Note that when the Lubricator Idle speed offset is entered, the primary set-up menu is returned to. From here press the “ESC” key to return to the main menu

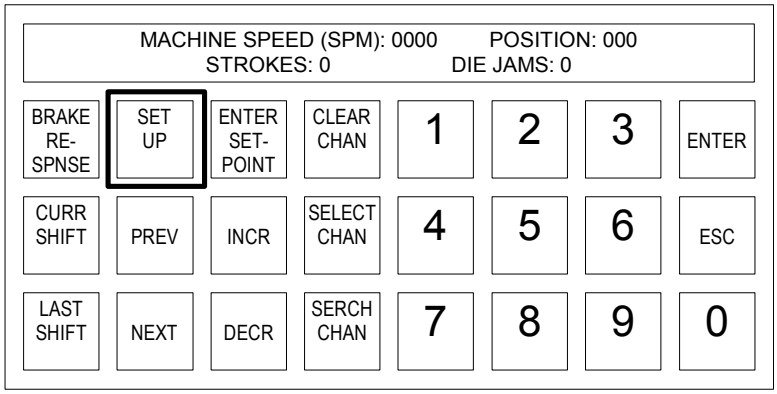


SECTION 8
ZERO MACHINE (SET RESOLVER OFFSET)

Top Dead Center (TDC) is defined as the zero position of the machine. Since the HSM-CUP7 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.

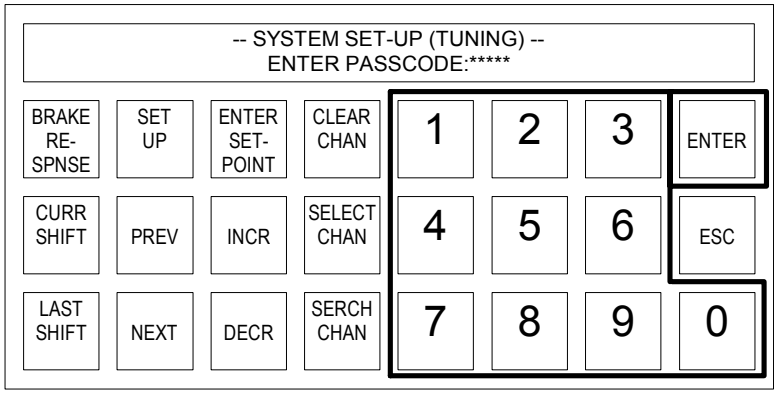
To zero the resolver, position the machine at Top Dead Center and perform the following:

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

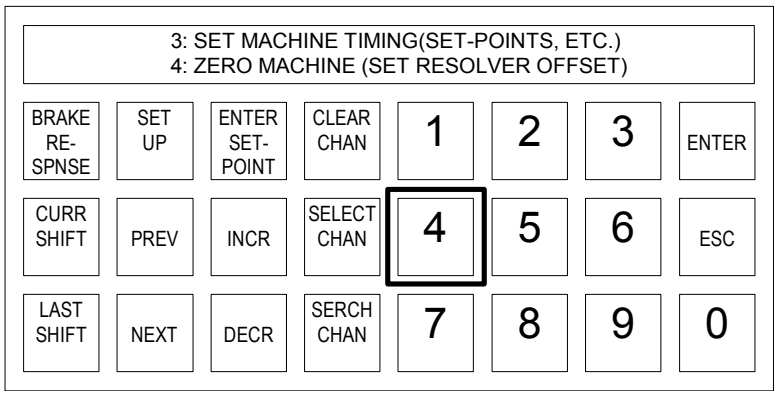


2) Enter the 5 digit passcode on the numeric keypad and press "ENTER".

   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User's manual for details on setting the passcode.



3) Press the "4" key to enter the "Zero Machine" menu.



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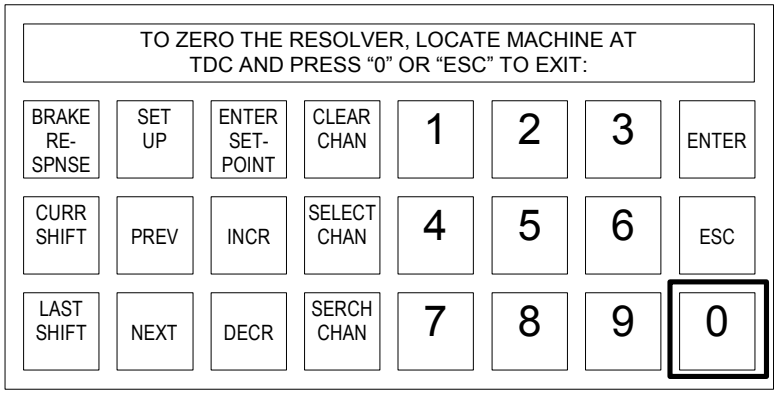
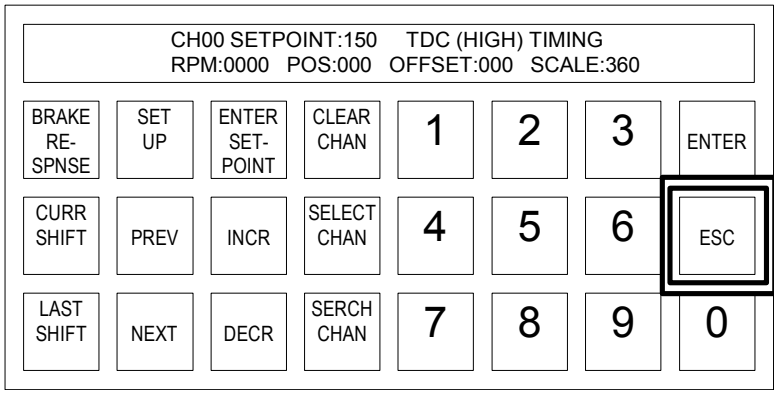
SECTION 8
ZERO MACHINE (SET RESOLVER OFFSET)

4) Press the “0” key to zero the resolver. The HSM-CUP7 will calculate the offset required to make the current position “000” and display this number in the “Offset” field.



5) 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.



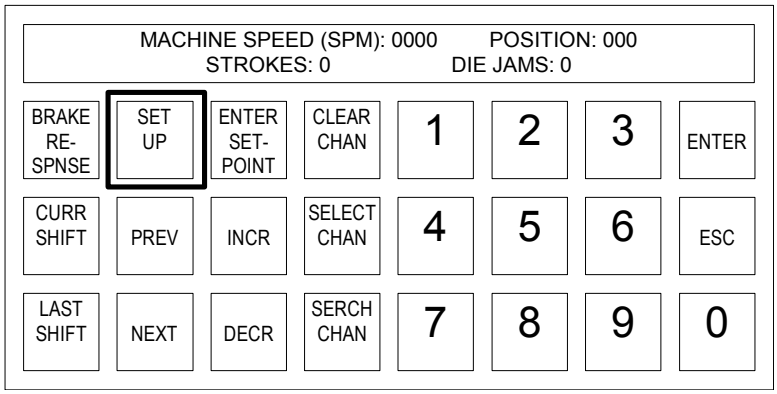
SECTION 9
ADJUSTING TIMING CHANNEL SET-POINTS

The timing channels of the HSM-CUP7 are defined as follows:

CH00: TDC (High) timing
CH01: TDC (Mid) timing
CH02: TDC (Low) timing
CH03: Air Strip (High) timing
CH04: Air Strip (Mid) timing
CH05: Air Strip (Low) timing
CH06: Cup Drop Window timing
CH07: PLC timing

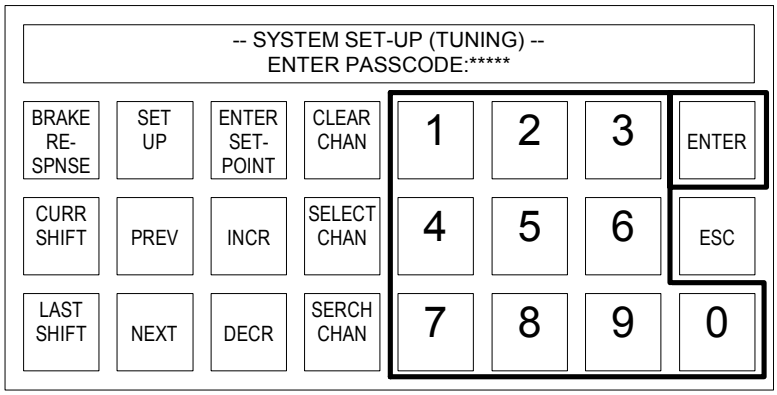
To adjust any of the above timing channels, perform the following:

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



2) Enter the 5 digit passcode on the numeric keypad and press "ENTER".

   Note: The passcode is set by the user as desired. Refer to the HSM-CUP7 User's manual for details on setting the passcode.



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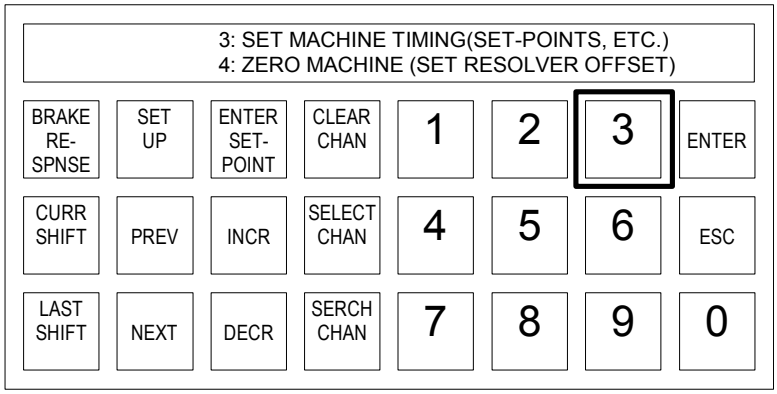
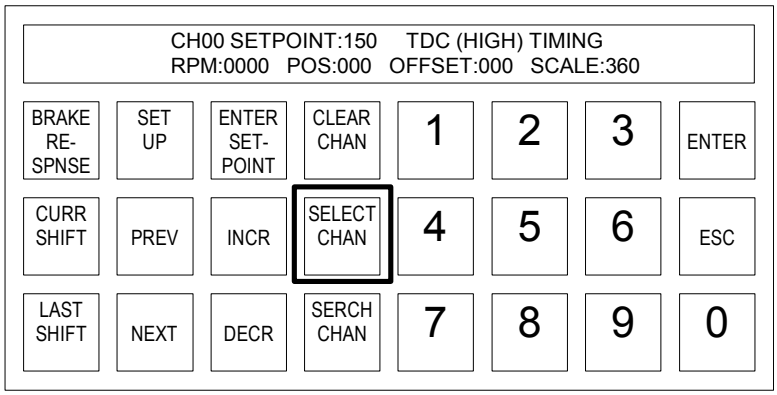
SECTION 9
ADJUSTING TIMING CHANNEL SET-POINTS

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



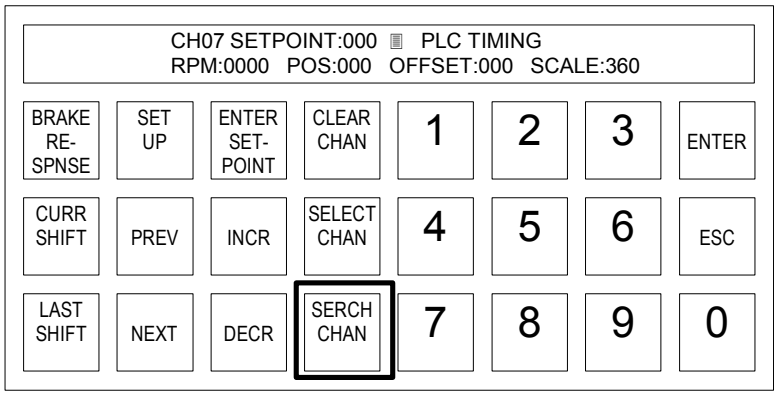
4) Press the “SELECT CHAN” key and enter the channel number to be adjusted on the numeric keypad and then press “ENTER”.

   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 07 as the selected channel.



5) 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”.

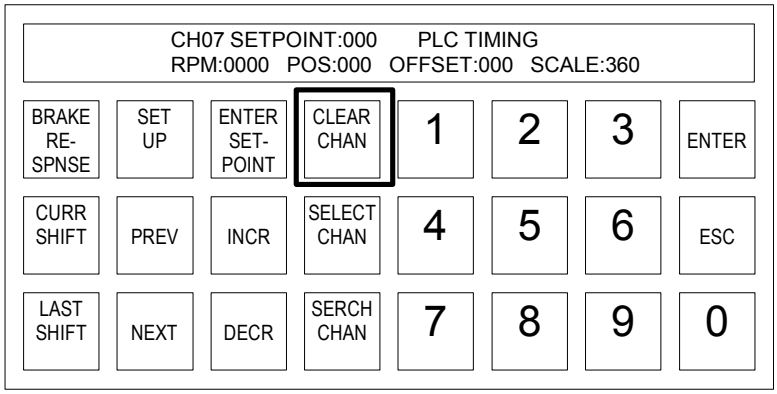
   Write down the “ON” and “off” set-point locations for later use.



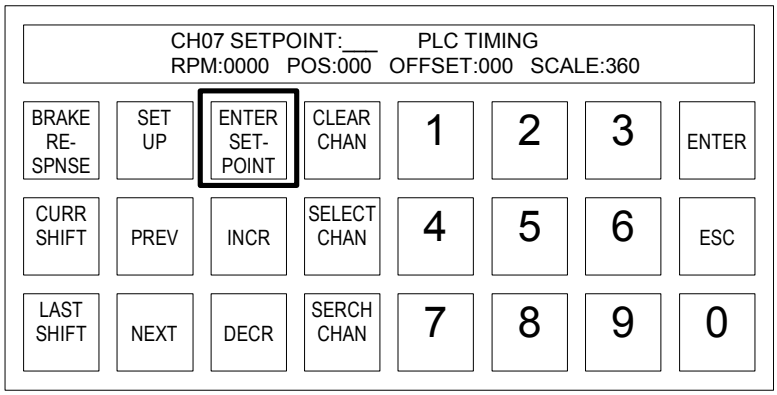
SECTION 9
ADJUSTING TIMING CHANNEL SET-POINTS

To adjust the set-point, perform the following:

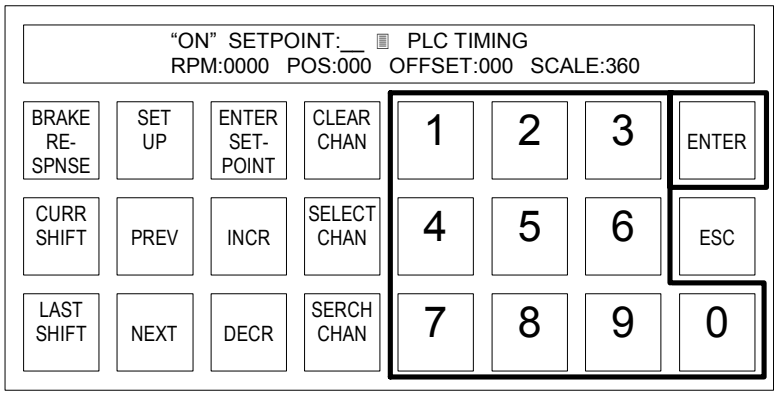
6) Press the “CLEAR CHAN” key to clear the existing set-point.



7) Press the “ENTER SET-POINT” key.



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



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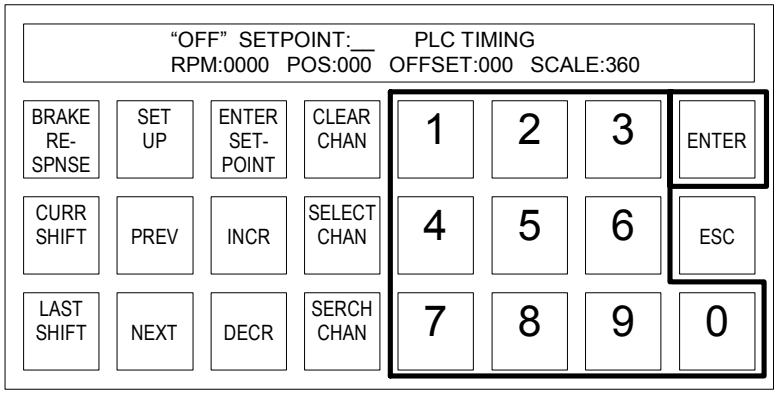
SECTION 9
ADJUSTING TIMING CHANNEL SET-POINTS

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



10) 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.