KNIGHT

IDEX CORPORATION

ILCS Version 2.0 System Programming Manual

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MENU MAP

1 *** DISPENSER *** MEMORY FUNCTIONS

- Clear pump volumes
- Clear sum/cycle report
- Clear batch count
- Load factory defaults
- Set external memory module ID

2 *** DISPENSER *** SETUP ROUTINES

- Change dispenser ID #
- Change main access code
- Set date and time
- Set unit of measure
- Set flush time
- Set simultaneous pump operation

3 *** DISPENSER *** REPORT SETUP ROUTINES

- Change user access code
- Change user password
- Change formula access
- Change report name
- Change chemical names
- Change product costs
- Change formula names
- Set shift times
- Set operating zone

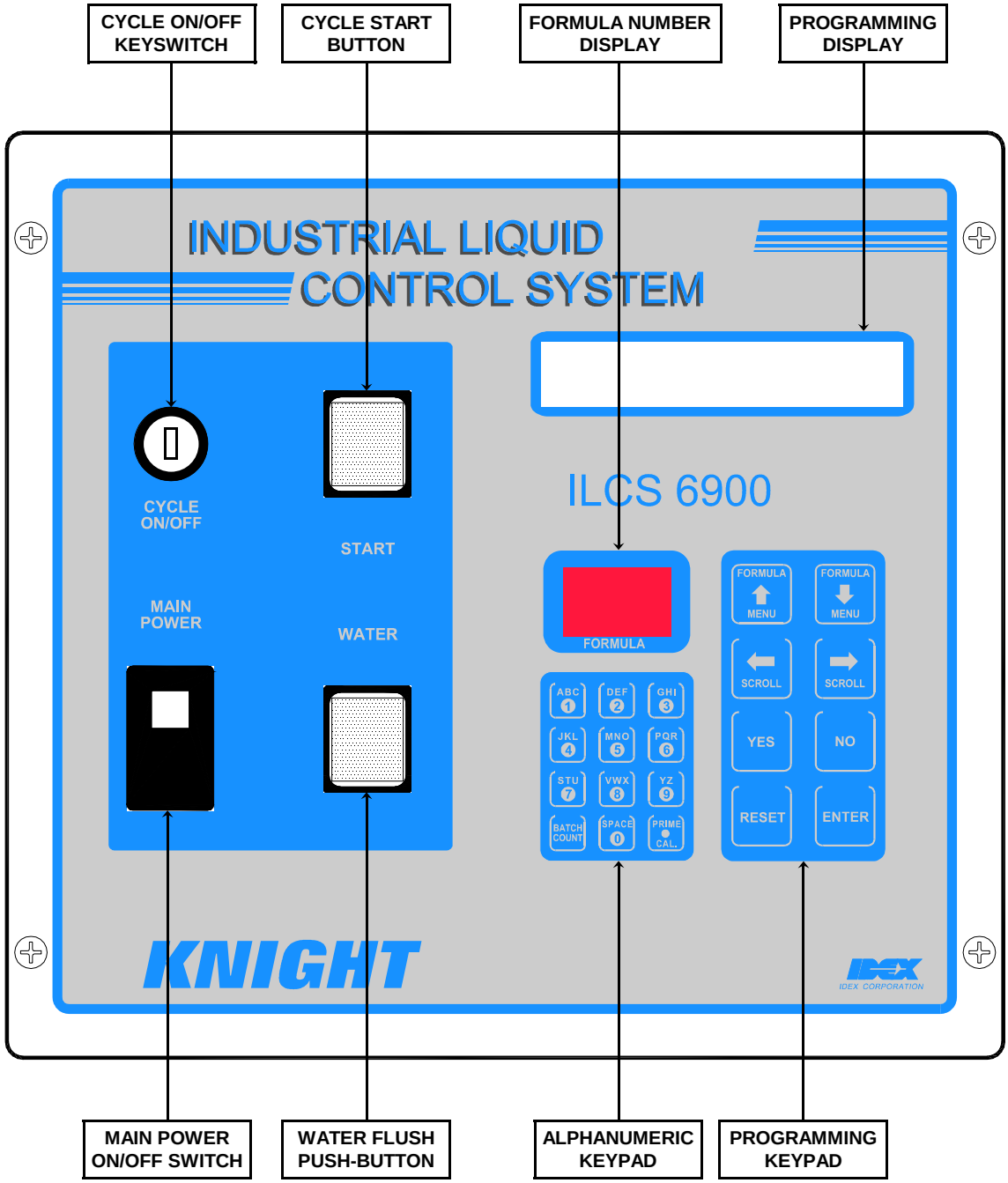
4 *** DISPENSER *** MAINTENANCE SCHEDULE

- Date dispenser installed
- Date squeeze tube last changed
- Date squeeze tube last lubed

5 *** DISPENSER *** PROGRAMMING ROUTINES

- Prime pumps
- Calibrate pumps
- Manually enter pump flow rates
- Program formulas

ILCS CONTROLLER DIAGRAM



MOVING THROUGH THE MENUS

ILCS programming is done through the use of menu selections. Any menu can be entered by pressing the ENTER button, or exited by pressing RESET (or in some cases MENU ⇩ or ⇧). Its that simple! Each of the main menu headings give an idea of what information can be found, entered, or changed. Within each main menu selection are several screen "prompts" that walk you through the complete programming process step-by-step.

Below is an example of the main display when you are not in the programming menus. The main display is more commonly referred to as the *default display*, and appears when the system is in normal operating mode.

FORMULA 01 **DATE 05/11 TIME 14:32:54**	The default display shows the present formula name on the top line. The bottom line of the display will alternate between date/ time and the message ENTER USER PASSWORD. The "user password" should not be confused with systems access code. User passwords allow multiple persons to operate the system for dispensing chemicals, whereas the access code allows entry into the menus for programming. From the default display, you must enter the main access code (following) to begin programming.

ACCESS CODES

The ILCS system has two access codes for protection:

- The "main" access code, allows entry into ALL of the menus and functions of the system.
- The "user" access code allows printing reports with WinReporter PC software, without the ability of changing programmed information.

  Systems are shipped from the factory with both access codes set to zero. Only a person with the "main" access code can change the "user" access code. (changing codes is explained later in this manual). If desired the two access codes can be the same, however the user will then have access to ALL of the functions of the system, including the ability of changing programmed information.

TO PROGRAM DISPENSER PRESS "ENTER" ...

ENTER ACCESS CODE **THEN PRESS ENTER**	From the default display shown above, press the ENTER button. The screen at left should appear. If the screen at left does not appear, wait 2 seconds, press RESET, then press ENTER. When you see the screen at left, type in the access code and press ENTER. Remember, for a new system, the access code will be zero (until you change it later). Follow the programming steps for each section, starting on the next page.

IMPORTANT NOTES:

- Leading zeroes on main access code, user access code, and user passwords, are not required to be entered. For example, a user password of "010" can be typed in as "10", then press ENTER.
- Its recommended to clear pump volumes, sum/cycle report, and batch count, then loading factory defaults prior to initial programming of formulas. See MEMORY FUNCTIONS [menu 1] for details.
- If at any time you get lost in the programming and are not sure what to do, press the RESET button until the section menu heading appears, then proceed.

1 *** DISPENSER *** MEMORY FUNCTIONS

- Clear pump volumes
- Clear sum/cycle report
- Clear batch count
- Load factory defaults
- Set external memory module ID

CLEAR PUMP VOLUMES ?
PRESS: YES OR NO

NO YES

This menu selection is used to do the following:

– All formula volume amounts are set to zero
– All pump flow rates and product costs are set to zero

Press YES to begin clearing, or press NO to move on to the next menu selection without clearing.

ARE YOU SURE ?
PRESS: YES OR NO

NO YES

You are then asked if you really do want to use this command. Press YES if you are sure, or press NO to move on to the next menu selection without clearing.

CLEARING ALL
PUMP VOLUMES

This message indicates that the clearing process is active. When the process is complete, the next menu item will appear.

CLEAR SUM/CYCLE REPORT ?
PRESS: YES OR NO

NO YES

This menu selection is used to clear the summary and cycle report memory (also known as the batch tracking report). Press YES to begin clearing, or press NO to move on to the next menu selection without clearing.

NOTE: This will only clear the time stamps in the basic system memory. To clear the time stamps in the external memory module, you must use the ILCS WinReporter PC software.

CLEARING ALL SUM/CYCLE
INFORMATION

This message indicates that the clearing process is active. When the process is complete, the next menu item will appear.

GO TO NEXT PAGE

1 *** DISPENSER *** MEMORY FUNCTIONS

- Continued

CLEAR BATCH COUNT ?
PRESS: YES OR NO

NO YES

This menu selection is used to zero out the batch count (this is the digital counter that appears on the screen when pressing the BATCH COUNT button on the control panel). Press YES to begin clearing, or press NO to move on to the next menu selection without clearing.

CLEARING BATCH COUNT

This message indicates that the clearing process is active. When the process is complete, the next menu item will appear.

LOAD FACTORY DEFAULTS ?
PRESS: YES OR NO

NO YES

This menu selection is used to load factory default settings:

- Unit of measure is set to US
- Flush time is set to 10 seconds / drain after set to 2 seconds
- Simultaneous pump setting is turned OFF
- All user passwords are set to zero / user names are reset
- Formula access is set to enable for all users on all formulas
- Report name is cleared (blanked out)
- Chemical names and formula names are reset
- Shift start times are reset: 1 = 06:00 / 2 = 11:00 / 3 = 17:00
- Operating zone is set for 00:00 to 24:00
- Maintenance schedule dates are set to zero

Press YES to begin loading factory defaults (also known as “clearing the setup“) or press NO to move on to the next menu selection without loading factory defaults.

ARE YOU SURE ?
PRESS: YES OR NO

NO YES

You are then asked if you really do want to use this command. Press YES if you are sure, or press NO to move on to the next menu selection without loading.

CLEARING SETUP
***** PLEASE STAND BY *****

This message indicates that the clearing process is active (factory defaults are being loaded at this point). When the process is complete, the next menu item will appear.

GO TO NEXT PAGE

1 ***** DISPENSER *****
MEMORY FUNCTIONS

- Continued

SET EXT MEM MODULE ID ?
PRESS: YES OR NO

NO YES

This menu selection is used to set the ID number of the external memory module to match the dispenser's ID.

Press NO for a new installation, or if the external memory module ID had been set previously.

Press YES if you have changed the dispenser ID in menu #2. Be sure the unit is not be multi-linked (with other dispensers) while performing this step.

ARE YOU SURE ?
PRESS: YES OR NO

NO YES

You are then asked if you really do want to use this command. Press YES if you are sure, or press NO to return back to the menu heading without setting.

SETTING EXT MEM MODULE
***** ID TO CURRENT ID *****

This message indicates that the ID number of the external memory module is being set to the dispenser's current ID number. When the process is complete, you will be returned back to the menu heading.

MEMORY FUNCTIONS MENU HEADING

2 *** DISPENSER *** SETUP ROUTINES

- Change dispenser ID #
- Change main access code
- Set date and time
- Set unit of measure
- Set flush time
- Set simultaneous pump operation

CHANGE DISPENSER ID# ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change the dispenser ID number. The dispenser ID number has two purposes:

(1) It is printed in the upper-left corner of reports to identify which dispenser the report came from. This can be helpful when more than one dispenser is installed at the location.

(2) When running ILCS WinReporter (optional), the ID number is used for "logging on" to the dispenser from the computer. Several dispensers can be connected together in a daisy chain format known as "multilinking". If using multilink, be sure each dispenser has its own separate ID number before attempting to logon.

Press YES to invoke the command, or press NO to move on to the next menu selection. If the ID number is changed, you must set the ID of the external memory module in menu #1.

NEW DISPENSER ID# 00
THEN PRESS ENTER

Use the number buttons to enter a 2-digit ID number, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

CHANGE MAIN ACCESS CODE ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change the main access code. Press YES to invoke the command, or press NO to move on to the next menu selection.

MAIN ACCESS CODE = 000
THEN PRESS ENTER

Use the number buttons to enter a 3-digit main access code, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

SET DATE & TIME ?
PRESS: YES OR NO

NO YES

This menu selection allows you to set the time and date. Press YES to invoke the command, or press NO to move on to the next menu selection.

HOUR 00 MINUTE 00
MONTH 00 DAY 00 YR 00

Use number buttons to set date and time (military format, 13:00 = 1:00 PM) then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

GO TO NEXT PAGE

2 ***** DISPENSER *****
SETUP ROUTINES

- Continued

UNIT OF MEASURE = US
1=US 2=METRIC 3=IMPERIAL

This menu selection allows you to change the unit of measure. Use the number buttons to choose the desired unit of measure. Press the MENU ⇩ button to move on to the next menu selection.

FLUSH TIME 10 SEC
TO DRAIN AFTER 02 SEC

Disregard this menu for systems without flush manifold.

This menu selection allows you to set flush time (how long the flush solenoid is activated after the chemical injection) and "to drain after" time (the time delay before the optional 3-way valve is activated). These settings let you custom tailor the system to meet your particular flush and drain requirements. Use the number buttons to set the times and, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

Factory defaults and minimum settings are as follows:

Flush: Default is 10 seconds / minimum is 2 seconds.
To Drain After: Default is 2 seconds / minimum is 2 seconds.

SIMULTANEOUS PUMPS = OFF
1=OFF 2=ON

This menu selection allows you to choose if you want all pumps to operate simultaneously. When this selection is on, all pumps will run at the same time. When this selection is off, pumps will run in sequence from left to right (lowest number to highest). Use the number buttons to make your selection. Press the MENU ⇩ button to move on to the next menu selection.

FLUSH ERROR SAMPLING
DELAY = 00 SECONDS

Disregard this menu for systems without flush manifold.

This menu selection allows you to set the amount of time that the optional flow sensor switch can "break" contact before giving a flush error. Use the number buttons to set the sampling time and, then press ENTER. Leave the setting at 00 if a flow switch is not used (typical for most flush manifold applications). Press the MENU ⇩ button to move on to the next menu.

SETUP ROUTINES MENU HEADING

3 ***** DISPENSER *****
REPORT SETUP ROUTINES

- Change user access code
- Change user password
- Change formula access
- Change report name
- Change chemical names
- Change product costs
- Change formula names
- Set shift times
- Set operating zone

CHANGE USER ACCESS CODE ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change the user access code. Press YES to invoke the command, or press NO to move on to the next menu selection.

USER ACCESS CODE = 000
THEN PRESS ENTER

Use the number buttons to set the user access code, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

CHANGE USER PASSWORD ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change user passwords. Press YES to invoke the command, or press NO to move on to the next menu selection.

001 000 USER ID NAME 01
CHANGE VALUES THEN ENTER

Use the SCROLL buttons and alphanumeric keypad to enter a 3-digit password and descriptive name (up to 15 characters) for the user ID number shown (3-digit number on the left side of display) then press ENTER. Use MENU ⇩ or ⇧ to review or change the password and descriptive name of other user ID numbers. Press RESET when finished and you will be returned to the previous screen.

GO TO NEXT PAGE

3 *** DISPENSER *** REPORT SETUP ROUTINES

- Continued

CHANGE FORMULA ACCESS ?
PRESS: YES OR NO

NO YES

This menu selection allows you to restrict the users access to specific formulas. Press YES to invoke the command, or press NO to move on to the next menu selection.

001 FORM-01 02 03 04
USER ID NAME 1 1 1 1

TO CHANGE: Type in the user ID number and press ENTER. Then use the SCROLL buttons to move to the cursor below the formula you wish to change. Choose 1 (enabled) or 0 (disabled) for each formula shown (note: the PRIME/CAL button will change all formulas shown to 0) and press ENTER. When ENTER is pressed, you are only changing the formula number "set" that is shown on the display. To change other formulas, use MENU ⇩ or ⇧ then make your changes to the formula set shown and press ENTER again. The following paragraphs explain the information shown on the window.

Top line: The first three digits are the user ID number (001 - 400). The next set of double digits represent the formula numbers.

Bottom line: The first thirteen characters indicate the user's descriptive name. The numbers below the formula numbers show which formulas this user can access. 1 means the formula is allowed, 0 means the formula is not allowed.

TO VIEW: Type in the user ID number and press ENTER. The screen will display current settings for each formula. Use MENU ⇩ or ⇧ to choose other formula numbers.

Press RESET when finished and you will be returned to the previous screen.

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3 ***** DISPENSER *****
REPORT SETUP ROUTINES

- Continued

CHANGE REPORT NAME ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change the report name. Press YES to invoke the command, or press NO to move on to the next menu selection.

The screen will be blank with only a blinking cursor displayed. Use the alphanumeric buttons to set the report name (up to 23 characters on each line) and the SCROLL buttons to move the cursor position, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

CHANGE CHEMICAL NAMES
PRESS: YES OR NO

NO YES

This menu selection allows you to change the chemical names. Press YES to invoke the command, or press NO to move on to the next menu selection.

PUMP 01
PUMP-01

Choose pump number and press ENTER. Move cursor (SCROLL) to set the product name and press ENTER. Repeat for all pumps. Press MENU ⇩ when finished.

CHANGE PRODUCT COSTS ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change the product costs. Press YES to invoke the command, or press NO to move on to the next menu selection.

PUMP 01 $00.00 /GALS

Choose pump number and press ENTER. The screen will display the current value. Move cursor (SCROLL) to enter the product cost and press ENTER. Repeat for all pumps. Press MENU ⇩ when finished.

GO TO NEXT PAGE

3 ***** DISPENSER *****
REPORT SETUP ROUTINES

- Continued

CHANGE FORMULA NAMES ?
PRESS: YES OR NO

NO YES

This menu selection allows you to change formula names. Press YES to invoke the command, or press NO to move on to the next menu selection.

FORMULA 01
FORMULA 01

Choose the formula number on the top line and press ENTER. The current formula name will appear on the bottom line. Move the cursor to the bottom line (SCROLL) and use alphanumeric buttons to enter the formula name, then press ENTER. Repeat for all formulas. Press MENU ⇩ when finished.

WANT TO SET SHIFT TIMES ?
PRESS: YES OR NO

NO YES

This menu selection allows you to enter shift times. Press YES to invoke the command, or press NO to move on to the next menu selection.

START TIMES #1 06:00
#2 11:00 #3 17:00

Use the number buttons to enter the shift start times, then press ENTER. Time must be in military format (i.e. 13:00 = 1:00 PM) Press the MENU ⇩ button to move on to the next menu selection.

SET OPERATING ZONE ?
PRESS: YES OR NO

NO YES

This menu selection allows you to set the operating zone. The operating zone is the time range in which formulas can be access to dispense. Formulas cannot be access to dispense during any time outside the operating zone. Press YES to invoke the command, or press NO to move on to the next menu selection.

START TIME 00:00
END TIME 24:00

Use the number buttons to set the start and end times of the operating zone, then press ENTER. Time must be in military format (i.e. 13:00 = 1:00 PM) Press the MENU ⇩ button to move on to the next menu.

REPORT SETUP ROUTINES MENU HEADING

4 ***** DISPENSER *****
MAINTENANCE SCHEDULE

- Date dispenser installed
- Date squeeze tube last changed
- Date squeeze tube last lubed

DISPENSER INSTALLED
00/00/00

This menu selection allows you to set the installation date. Use the number buttons to set the date, then press ENTER. Press the MENU ⇩ button to move on to the next menu selection.

SQUEEZE TUBES CHANGED
PUMP 01 00/00/00

This menu selection allows you to set the date that the squeeze tubes were last changed. Use the number buttons to set the date, then press ENTER. Do this for each pump in the system Press the MENU ⇩ button to move on to the next menu selection.

SQUEEZE TUBES LAST LUBED
PUMP 01 00/00/00

This menu selection allows you to set the date that the squeeze tubes were last lubed. Use the number buttons to set the date, then press ENTER. Do this for each pump in the system Press the MENU ⇩ button to move on to the next menu selection.

MAINTENANCE SCHEDULE MENU HEADING

5 *** DISPENSER *** PROGRAMMING ROUTINES

- Prime pumps
- Calibrate pumps
- Manually enter pump flow rates
- Program formulas

PRIME PUMPS ?
PRESS: YES OR NO

NO YES

This menu selection allows you to prime each chemical pump. Press YES to invoke the command, or press NO to move on to the next menu selection.

PRIME PUMP 01
PUSH PRIME TO START/STOP

Choose the pump number you wish to prime. Press PRIME to start and stop the pump. Repeat for as each pump desired. Press the MENU ⇩ button to move on to the next menu selection.

CALIBRATE PUMPS ?
PRESS: YES OR NO

NO YES

This menu selection allows you to calibrate the chemical pumps. Press YES to invoke the command, or press NO to move on to the next menu selection.

NOTE: Pumps must have a flow rate for formulas to be valid.

MANUALLY ENTER FLOW RATE
PRESS: YES OR NO

NO YES

If you know the exact flow rate of the pump, you can choose to manually enter the value instead of calibrating, however it is recommended to calibrate each pump as flow rates can vary due to chemical viscosity. Press YES to invoke the command, or press NO to move on to the next menu selection.

FLOW RATES PER MINUTE
P-01 000.0 OZ

Choose the pump number and press ENTER while the blinking cursor is on the pump number. Move the cursor to the right using SCROLL, then set the flow rate and unit of measure (PRIME/CAL button alternates between gallons / ounces, or liters / milliliters) and press ENTER. Repeat for all pumps required. Press the MENU ⇩ button to move on to the next menu selection.

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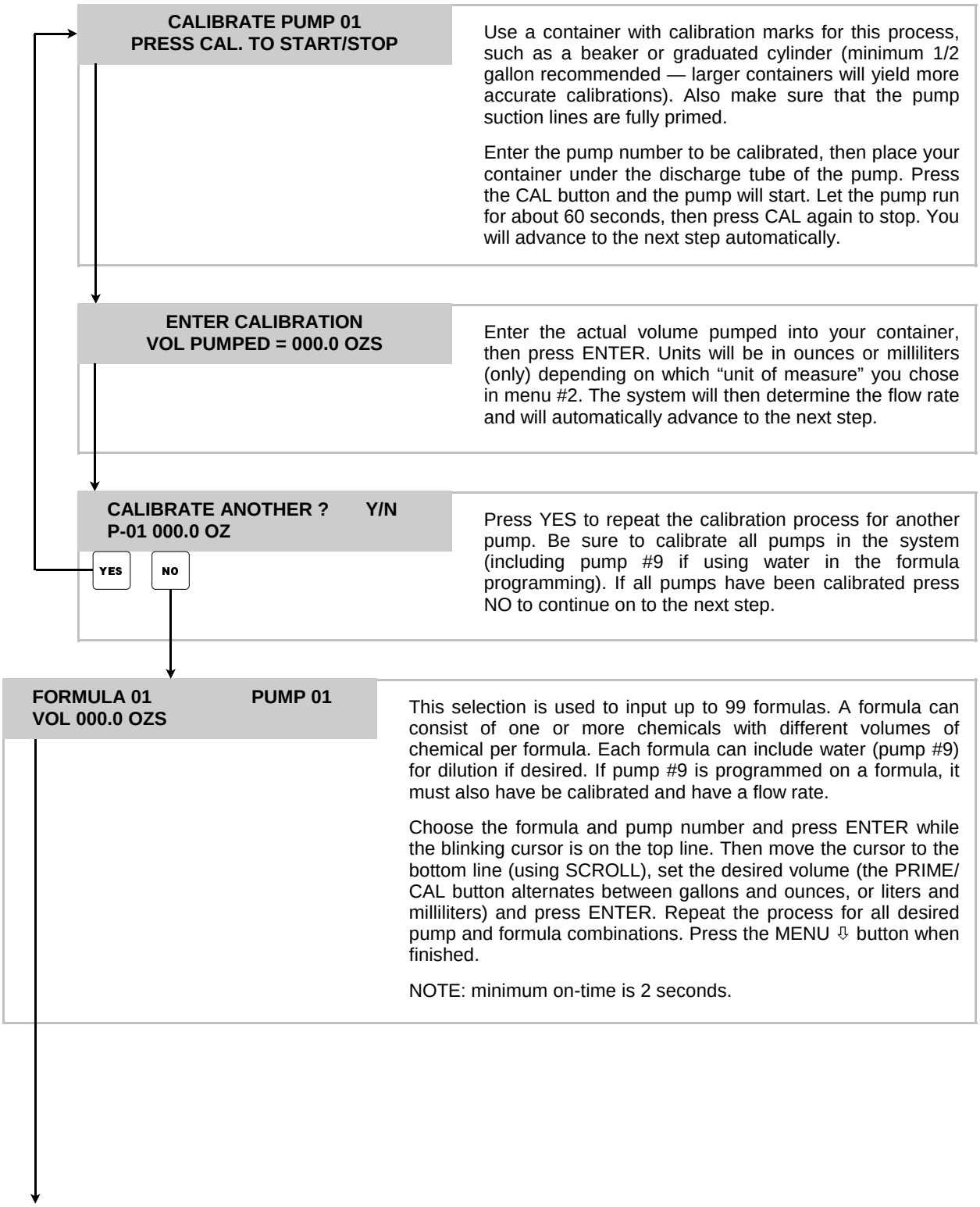
FORMULA 01 PUMP 01
VOL 000.0 OZS

Go to the next page (after calibration steps) for details on this menu selection

GO TO NEXT PAGE

5 *** DISPENSER *** PROGRAMMING ROUTINES

- Continued



OPERATION

When all system programming is complete, you will be ready for operation. Check that all chemical lines are primed and that the water source is turned on if using a flush manifold.

(1) Press Main Power switch to ON position.

(2) Insert the key and turn to the right (key cannot be removed when on).

(3) Place container under the discharge spout.

(4) Type in your user password and press ENTER — if your password was accepted, the display will flash a brief acknowledgement and you will then see the following.

FORMULA 01 **SELECT FORMULA/HIT START**	– The top line will show the current formula name. – The bottom line will alternate between the date/time and the display shown to the left. Use ⇧/⇩ to choose the desired formula, then press **START**. If the message "ACCESS RESTRICTED" appears, it indicates that the current user is not allowed to dispense the formula selected. Otherwise, the unit will operate as follows.

- Chemicals will begin pumping, starting with the lowest number pump to the highest number (if there is more than one chemical programmed in the formula).
- If simultaneous pumps option is turned ON, then all pumps on the formula will run together (if there is more than one chemical programmed in the formula).
- The display will count down the remaining time left to pump.
- When pumps are finished, the flush will activate for its programmed time, and the 3-way valve (if used) will activate after the time set to drain after.
- If the RESET button is pressed during operation, you will then see the following message.

ABORT CURRENT BATCH? **PRESS: YES OR NO**	– If you press NO, the system will finish the batch as normal. – If you press YES, you will then see the following.

FLUSH SYSTEM? **PRESS: YES OR NO**	Choose if you want to flush the system from any remaining chemical. The pumps will not run during this function. When finished, the system will return to the default display and will record the *actual* amount dispensed (instead of the *programmed* amount) in the batch tracking memory.

NOTES

DISCLAIMER

Knight Inc. does not accept responsibility for the mishandling, misuse, or non-performance of the described items when used for purposes other than those specified in the instructions. For hazardous materials information consult label, MSDS, or Knight Inc. Knight products are not for use in potentially explosive environments. Any use of our equipment in such an environment is at the risk of the user, Knight does not accept any liability in such circumstances.

WARRANTY

All Knight controls and pump systems are warranted against defects in material and workmanship for a period of ONE year. All electronic control boards have a TWO year warranty. Warranty applies only to the replacement or repair of such parts when returned to factory with a Knight Return Authorization (KRA) number, freight prepaid, and found to be defective upon factory authorized inspection. Bearings and pump seals or rubber and synthetic rubber parts such as “O” rings, diaphragms, squeeze tubing, and gaskets are considered expendable and are not covered under warranty. Warranty does not cover liability resulting from performance of this equipment nor the labor to replace this equipment. Product abuse or misuse voids warranty.

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