ProAll Mobile Mixer

Operator's Manual
RANGER GUNITE

MX05000 February 2021
Rev 1.0

PROALL

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Contents

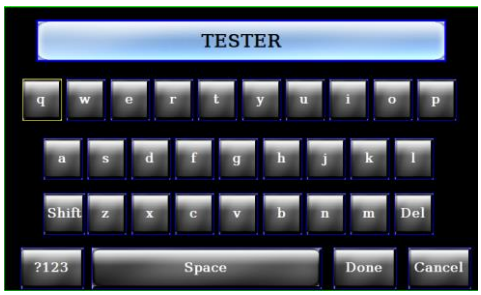
1. RANGER GUNITE

1.01 OPERATION

1. The display is fully touch-sensitive; there are no physical buttons to be pressed.

Some screens will have on-screen buttons to be tapped and certain fields can be activated for input, which will prompt a keypad for data entry.

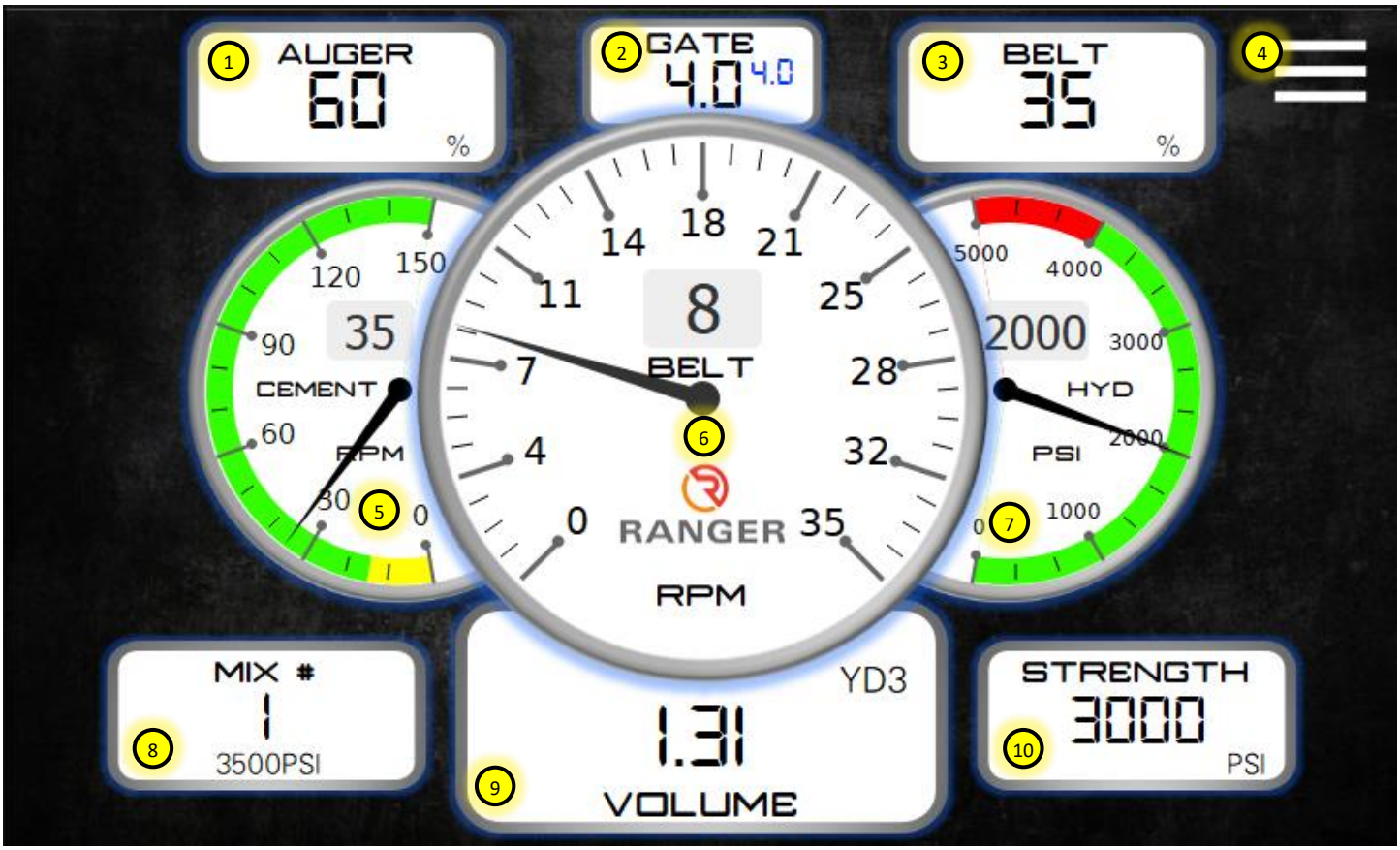
Keypads are associated with various fields on the display and allow the user to quickly enter a string or numeric values.



1. String Keypad

2. Numeric Keypad

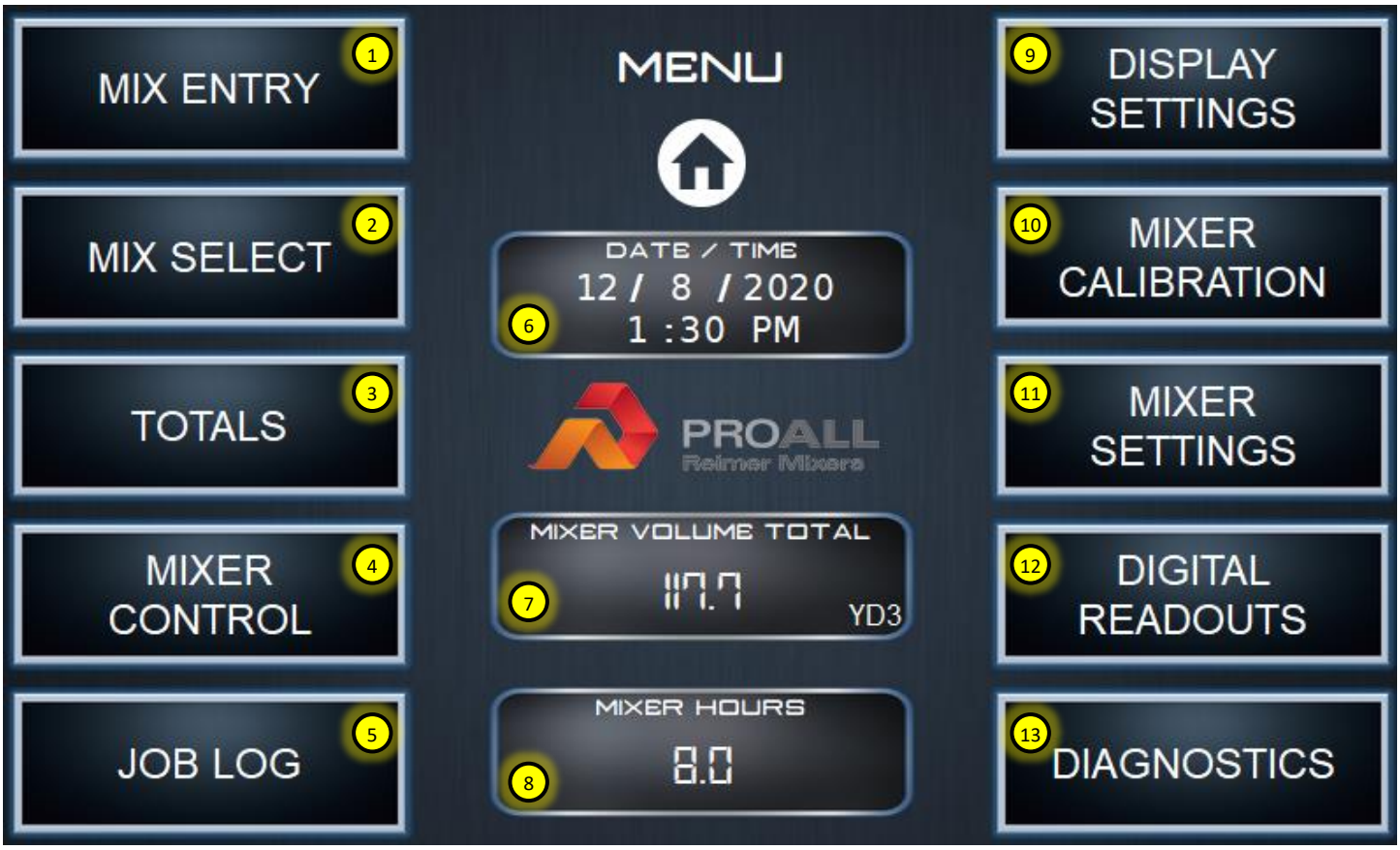
1.02 HOME SCREEN



1. Auger speed percentage. The auger speed is adjustable from 0-100%. Speed setting is dependant on the materials used and the production rates required. For gunite, this is typically set around 60-80%.
2. <u>With gate height verification sensor:</u>
   The center number is the actual gate height position.
   The small number in blue is the mix design gate position required.

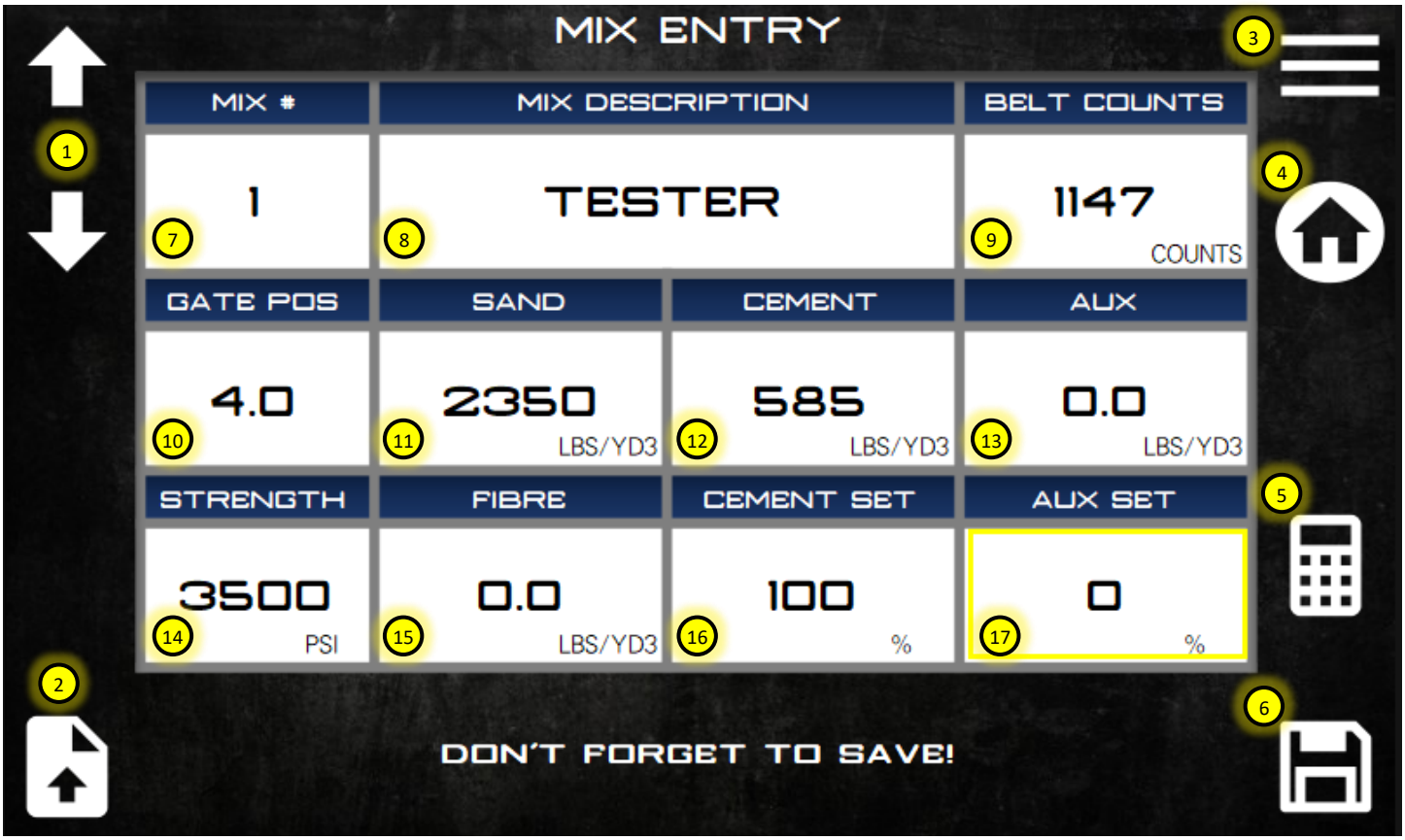
   <u>Without gate height verification sensor:</u>
   The large number is the mix design gate position.
3. Belt speed percentage. The belt speed is adjustable from 0-100%. Speed setting is dependant on the gunite pump production rate required.
4. MENU screen button. Pressing this will take the user to the main menu navigation screen.
5. Cement meter auger RPM. This gauge is used for reference to ensure the cement auger is on and turning.
6. Production rate/belt RPM gauge. Used to verify production speeds and belt RPM settings.
7. Hydraulic oil pressure. This is a reference for the load mixer and can be used for diagnostic purposes.
8. Selected mix design number. The mix number of the selected design on the Mix Select screen.
9. Total concrete volume currently produced.
10. Selected mix design strength.

1.03 MENU



1. Mix designs are loaded and entered here.
2. Customer required mix design is selected here.
3. Current mix totals before reset.
4. Redundant mixer controls, over-rides and function selections can be found here.
5. The last 25 jobs are stored here. They can be viewed or re-printed.
6. Current date and time.
7. Lifetime production since in operation. Total is updated after reset.
8. Total hours the belt has run.
9. Set date and time, units, print data selection and display brightness can be found here.
10. Calibration data for powders and aggregates are entered here.
11. Configuration values for the mixer are entered here.
12. Digital Readouts. Digital display of mix process values such as counts and rpm.
13. Hydraulic and electrical diagnostics can be viewed here along with an alarm log, for troubleshooting purposes.
14. Home shortcut. Return to the Home screen.

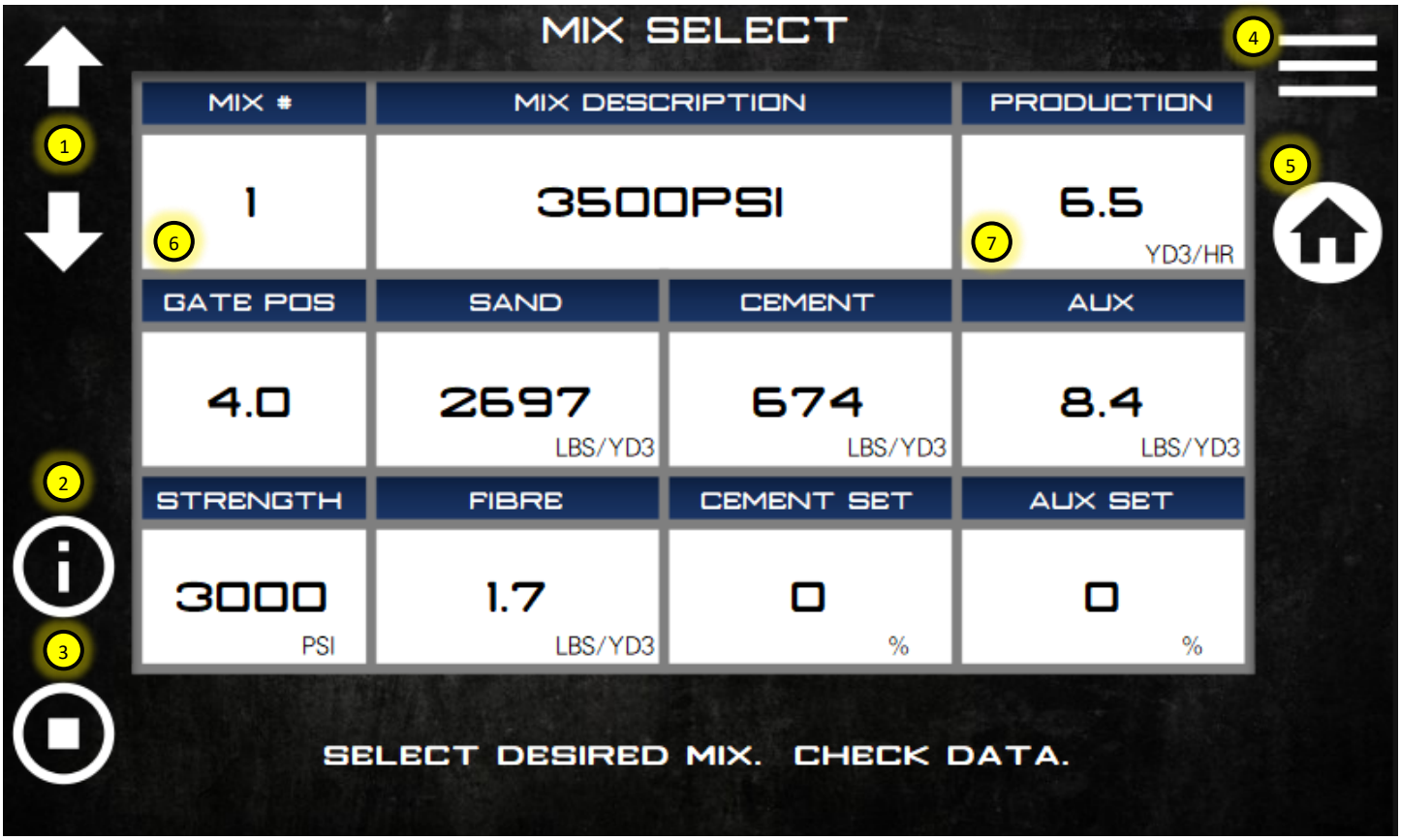
1.04 MIX ENTRY



1. Use the arrows to navigate through the different mix designs database.
2. Load button. Mix designs can be loaded from a USB stick. The mix design file is a specially formatted CSV file. This file can be loaded from a previous back or edited in Excel and loaded back in.
3. Menu shortcut. Return to the main menu.
4. Home shortcut. Return to the home screen.
5. Calculate button. The display can calculate the gate setting value and the total counts required. These values are calculated depending on the aggregate and powder materials selected in the calibration screens.
6. Save button. It saves the current mix design.
7. Mix design number. The mix entry menu can hold up to 50 mix designs. Select the mix number by navigating using the up and down arrows.
8. Define a name for your mix design.
9. Belt counts can be auto-calculated or manually entered if calculated elsewhere.
10. Gate position can be auto-calculated or manually entered if calculated elsewhere.
11. Sand weight required for the mix design.
12. Cement weight required for the mix design.
13. Aux weight required for the mix design. Aux is an optional powder feeder.
14. Mix design strength.
15. Fibre weight required for the mix design, if equipped.
16. Cement set is always 100% unless optional lean valving installed. Lean setting dependant on the valve installed, but typically 50%.
17. Aux set is the auxiliary powder feeder setting relative to the belt.

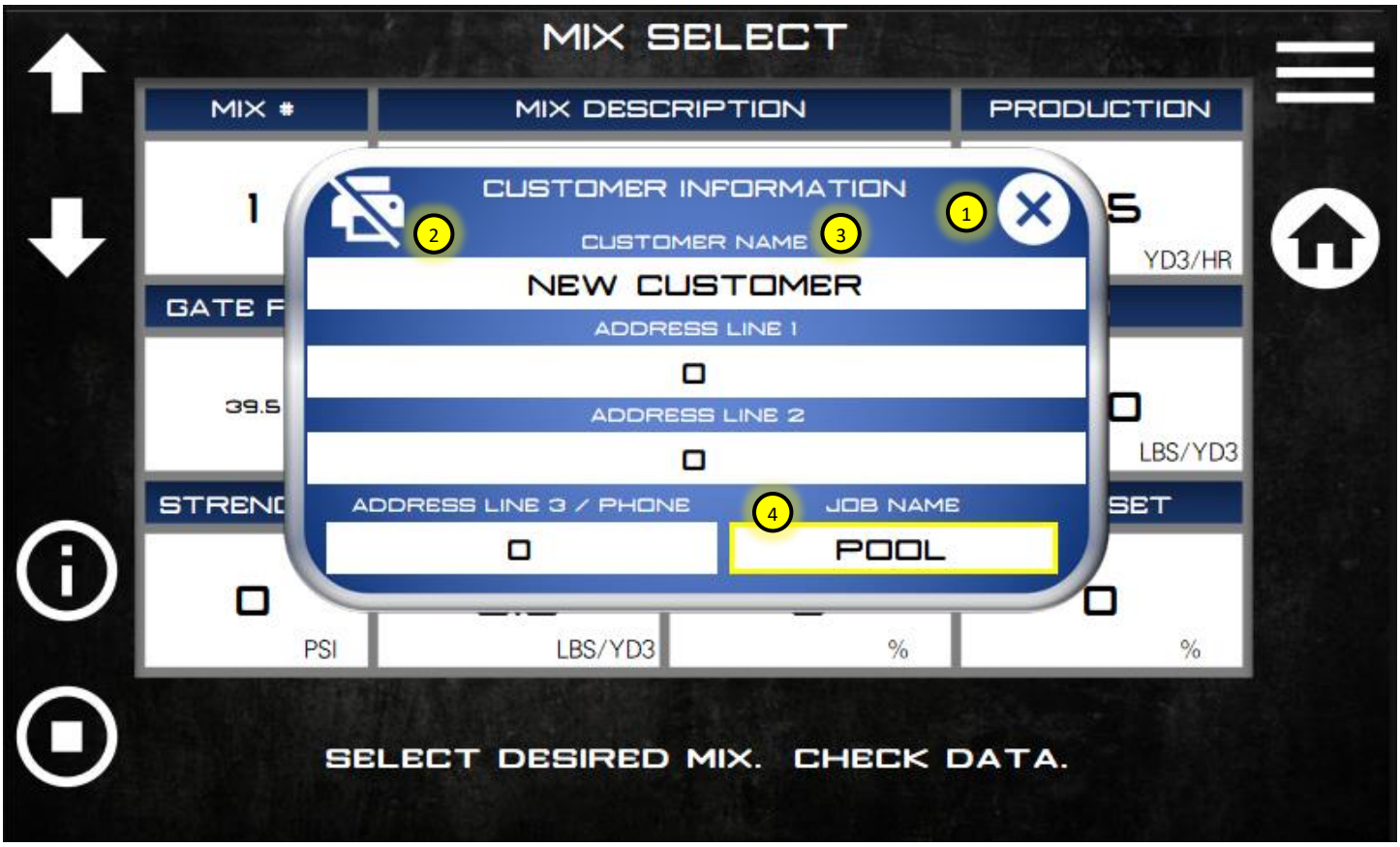
1.05 MIX SELECT

1.05.1 MAIN SCREEN



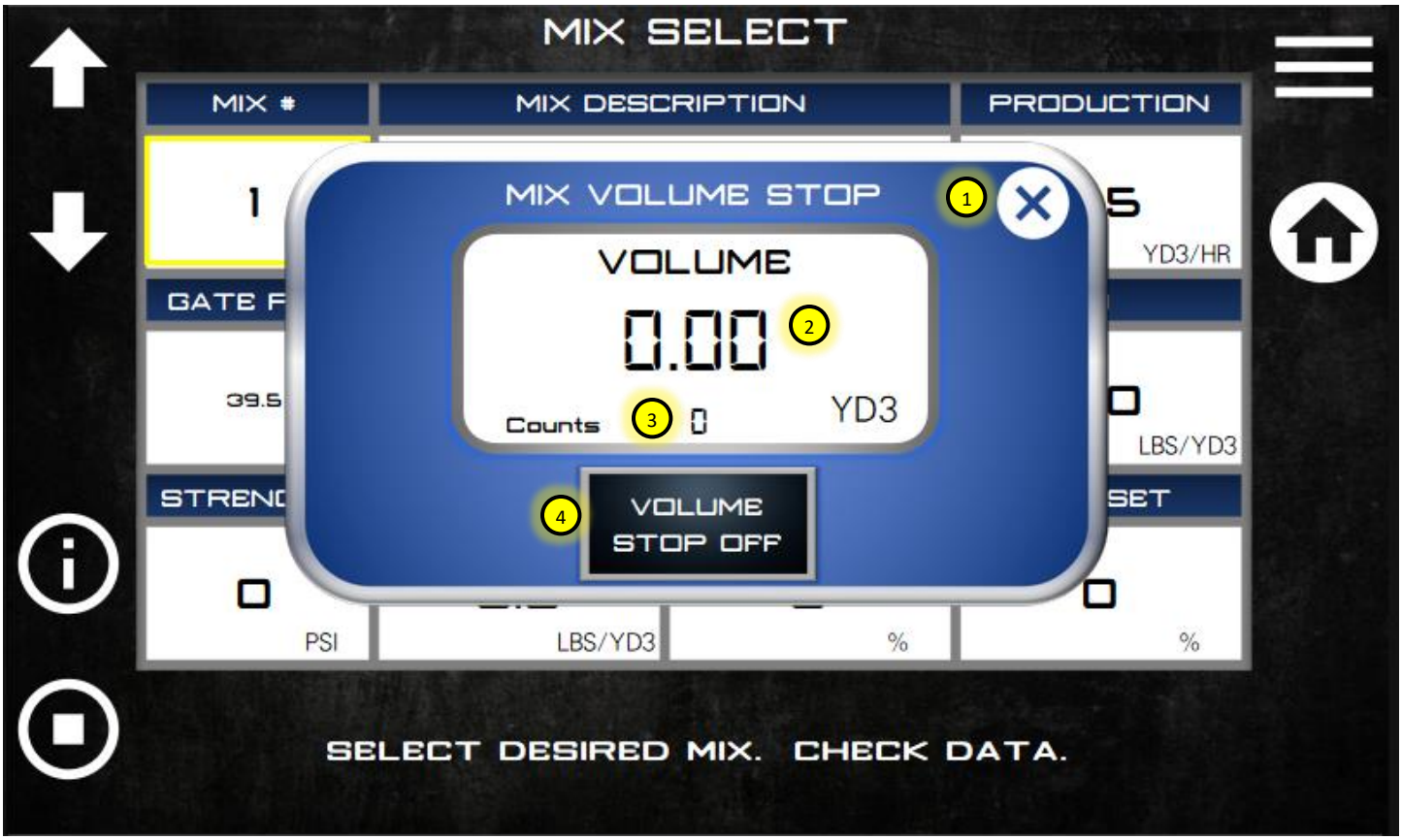
1. Use the arrows to navigate through the different mix designs database.
2. Customer and job information enter a pop-up window. *See page 9.*
3. Volume stop entry pop-up window. *See page 10*.
4. Menu shortcut. Return to the main menu.
5. Home shortcut. Return to the home screen.
6. Customer required mix design is selected here.
7. Calculated max production rate based on the maximum belt speed setting.

1.05.2 CUSTOMER INFORMATION



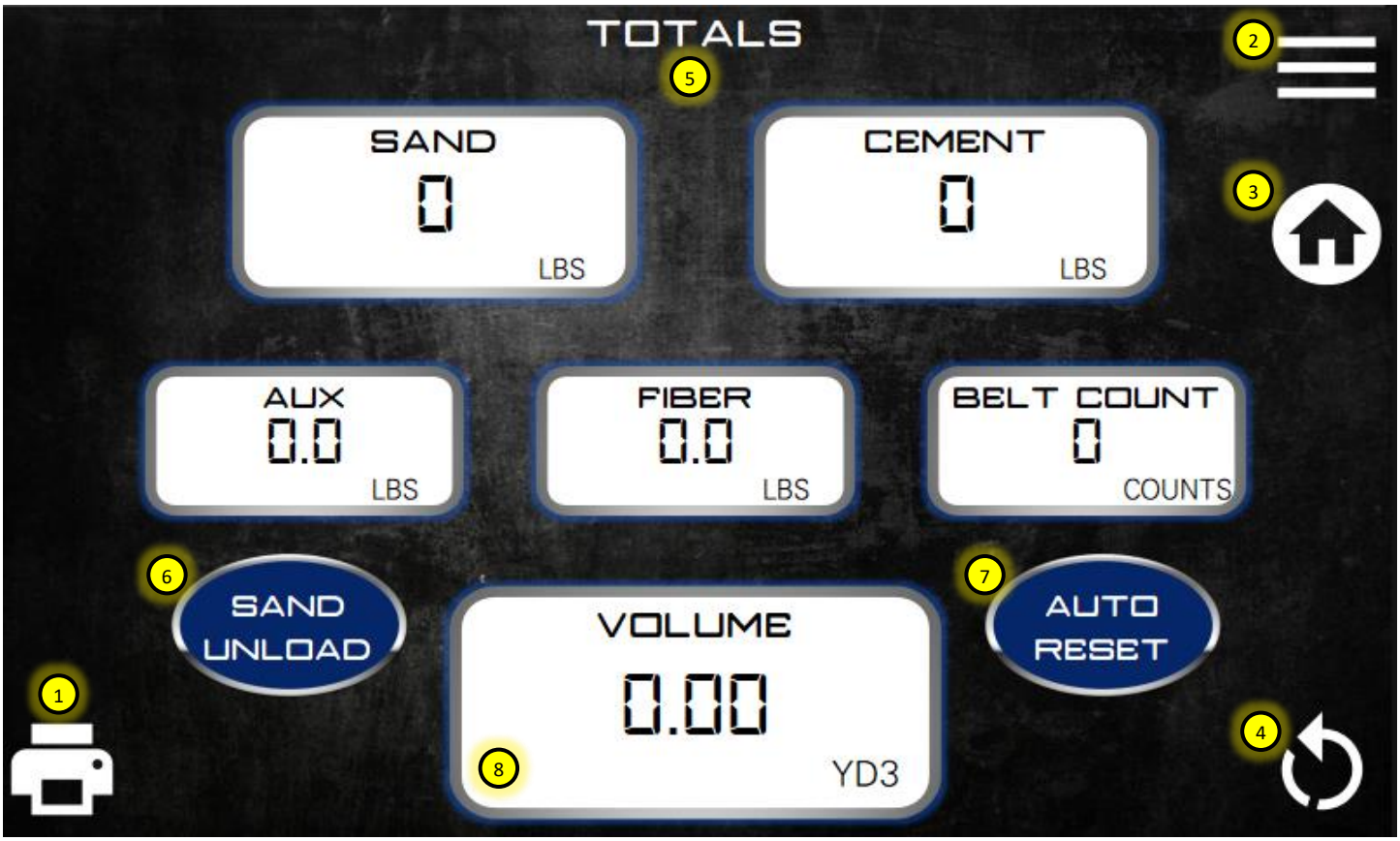
1. Close pop-up when selection is complete.
2. Select if the customer information is to be printed on the job ticket or not.
3. Enter customer information here. This data would be printed on the ticket if this print option is active.
4. A specific job name can be entered here. This job name is printed on the job ticket and stored in the mix/job log.

1.05.3 VOLUME STOP



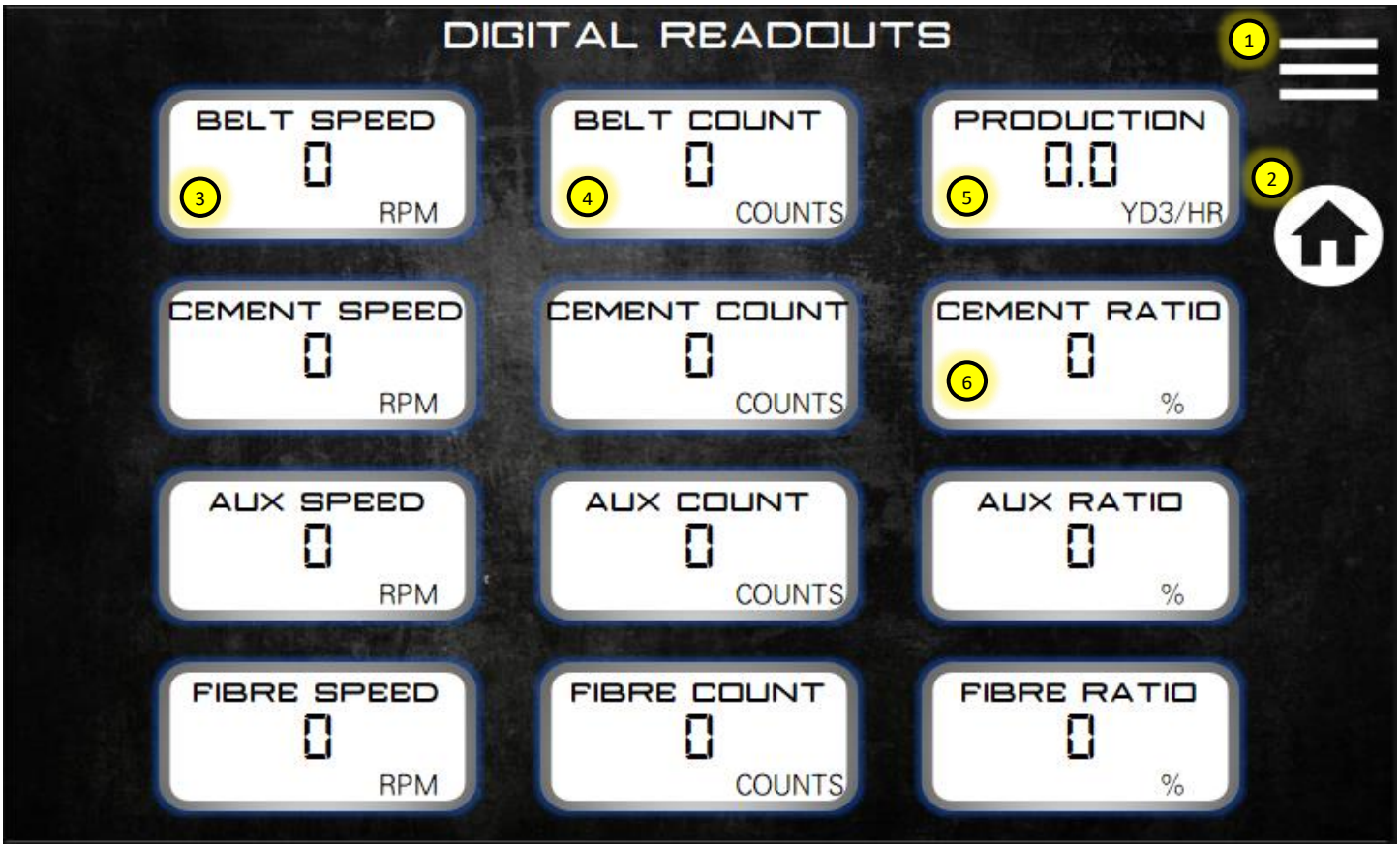
1. Close pop-up when selection is complete.
2. The total volume mixed before the belt will automatically stop.
3. The total belt count before the belt stops.
4. Button to activate the volume stop function.

1.06 TOTALS



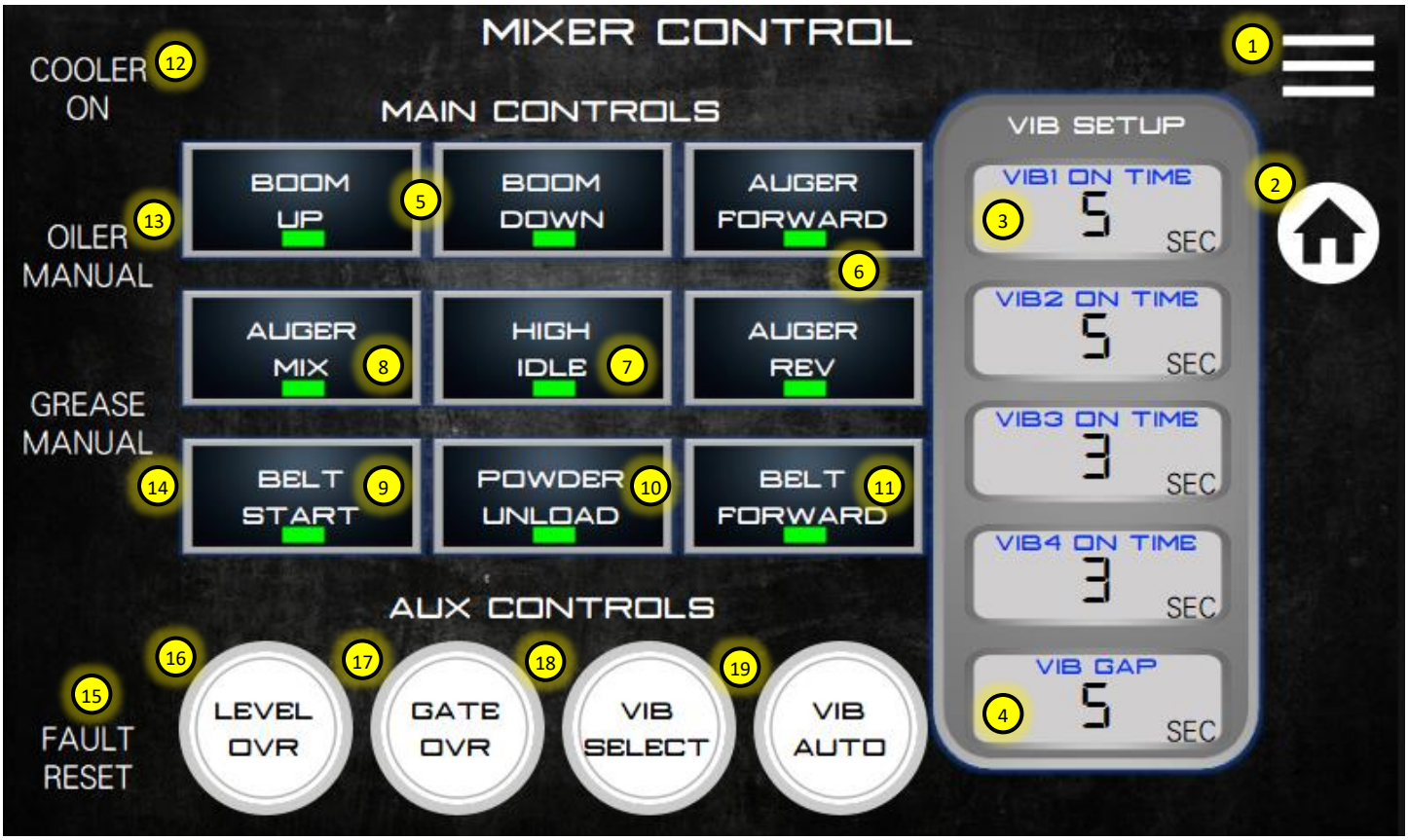
1. Print a ticket by touching this button.
2. Menu shortcut. Return to the main menu.
3. Home shortcut. Return to the home screen.
4. Reset totals by touching this button. A reset acknowledgment screen will appear. The operator must select “yes” to finish the reset of totals and log the job to the memory.
5. Totals are calculated using values from the mix design database and belt counts.
6. Press this button if Sand is to be unloaded without cement. The cement total will not calculate, but it will log an aggregate unload event in the mix log.
7. Auto reset ON will activate the totals reset page after the ticket print has been completed. The reset screen will still appear if a reset is not desired and “no” can be selected to skip the reset.
8. Total volume produced before a reset. This value is the same on the home screen.

1.07 DIGITAL READOUTS



1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. This column of values is the various functions RPM readings.
4. This column is used for calibration and diagnostics purposes. Belt counts used in volume calculation.
5. Running production rate.
6. Ratio is the difference in belt speed versus cement/aux and fibre speed.

1.08 MIXER CONTROL



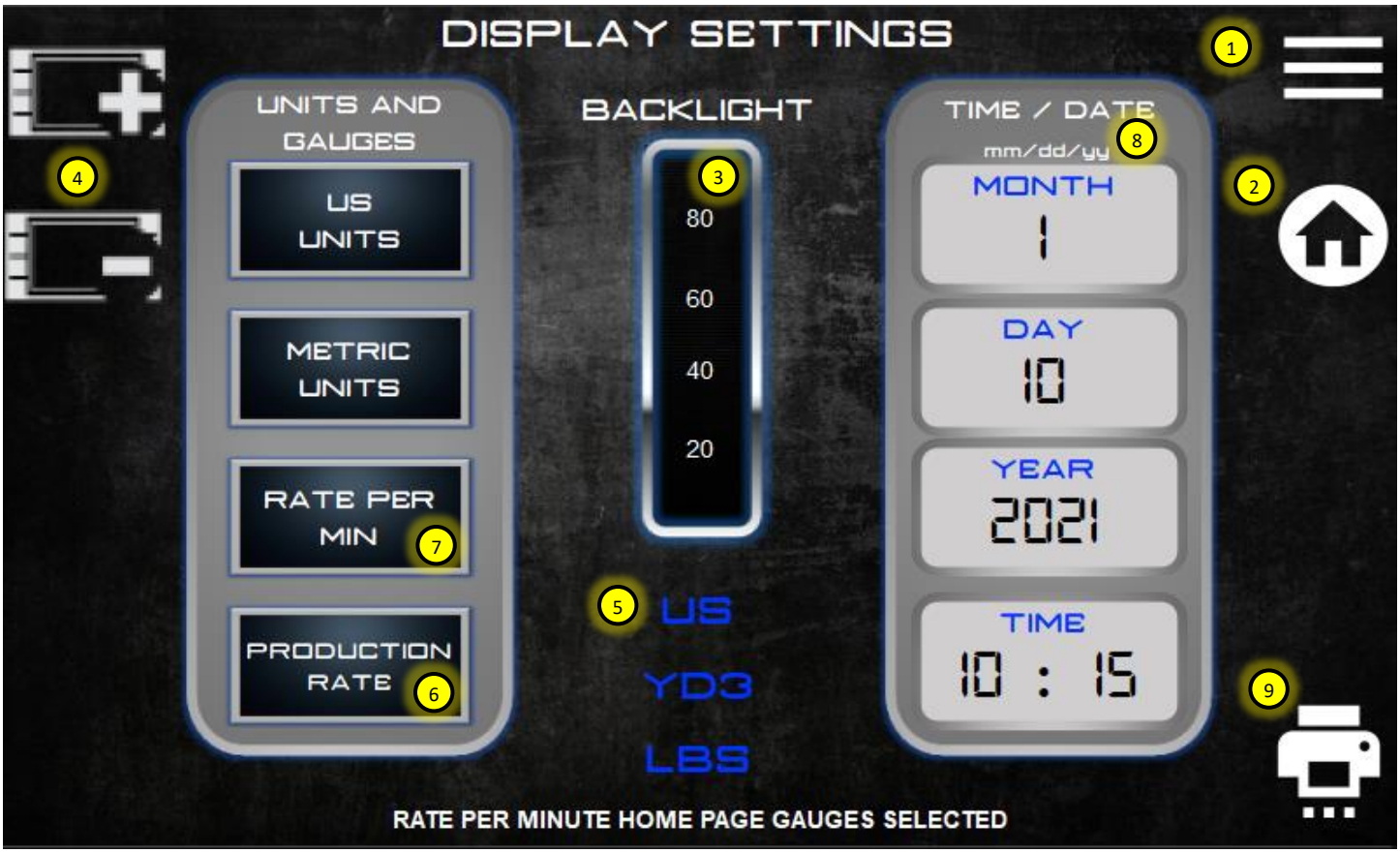
1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Auto vibrator set-up times are adjusted here. Total on-time in seconds for each vibrator can be set. VIB1-SAND Front, VIB2-SAND Back, VIB3-Cement and VIB4-Aux
4. VIB gap time is the delay between each vibrator ON sequence.
5. Momentary Boom Up and Down.
6. Momentary Auger Forward and Auger Reverse.
7. High engine idle trigger.
8. Latched Auger Mix (Latching is done on ECU)
9. Belt / Mix Start.
10. Cement / Aux Unload. Bypasses the belt drive circuit to unload powders only.
11. Momentary Belt Forward.
12. Manually turn oil cooler ON. Typically used to verify oil cooler operation.
13. Manually run chain oiler when belt running. It does not wait for the total belt revolutions cycle to start the sequence. It will automatically shut-off after 60 seconds of continuous belt operation.
14. Manually run mix auger grease system.
15. Fault reset is a momentary button used to reset/clear any alarms on the display.
16. Level over-ride function. This will over-ride any low-level sensors like cement low or gate material in case of malfunction or to finish a job.
17. Gates over-ride function. This will allow the operator to temporarily over-ride the gate height sensors. If left on the belt counts are recorded in the log from start to finish of height over-ride.

18. Press Vib select button to activate the vibrator autoselect mode. If this button is activated the operator can press any of the required vibrators on the keypad to be in auto mode. The keypad vibrator button amber LED will come on to indicate the vibrator is in auto sequence. Once the required vibrators are selected, press Vib select again to turn off selection mode.
19. Vib auto will run the automatic vibrator sequence even if the belt/mixer isn't running.

1.09 JOB LOG

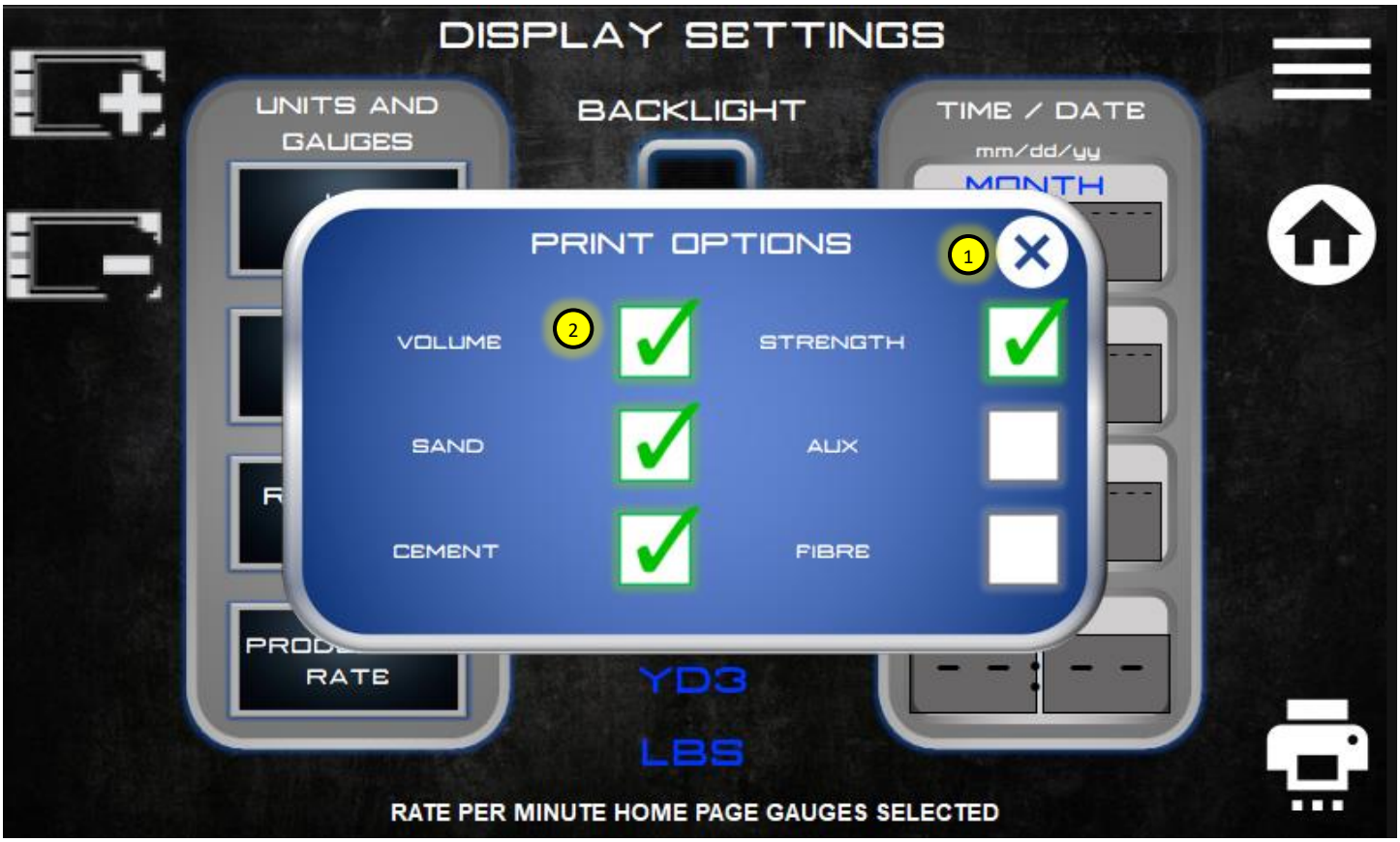
1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Selected job log number. Max number of jobs in the log is 25. After 25 the log writes over the first and subsequent jobs.
4. Print currently selected job.
5. Reset job numbers to start at 1.
6. Mix log data total. The mix log is independent of the job log and stores all jobs completed or reset by the mixer operator. This data is not viewable on the display but can be copied to a USB stick for review in Excel.
7. Index the job log up or down using the arrow keys.

1.09 DISPLAY SETTINGS



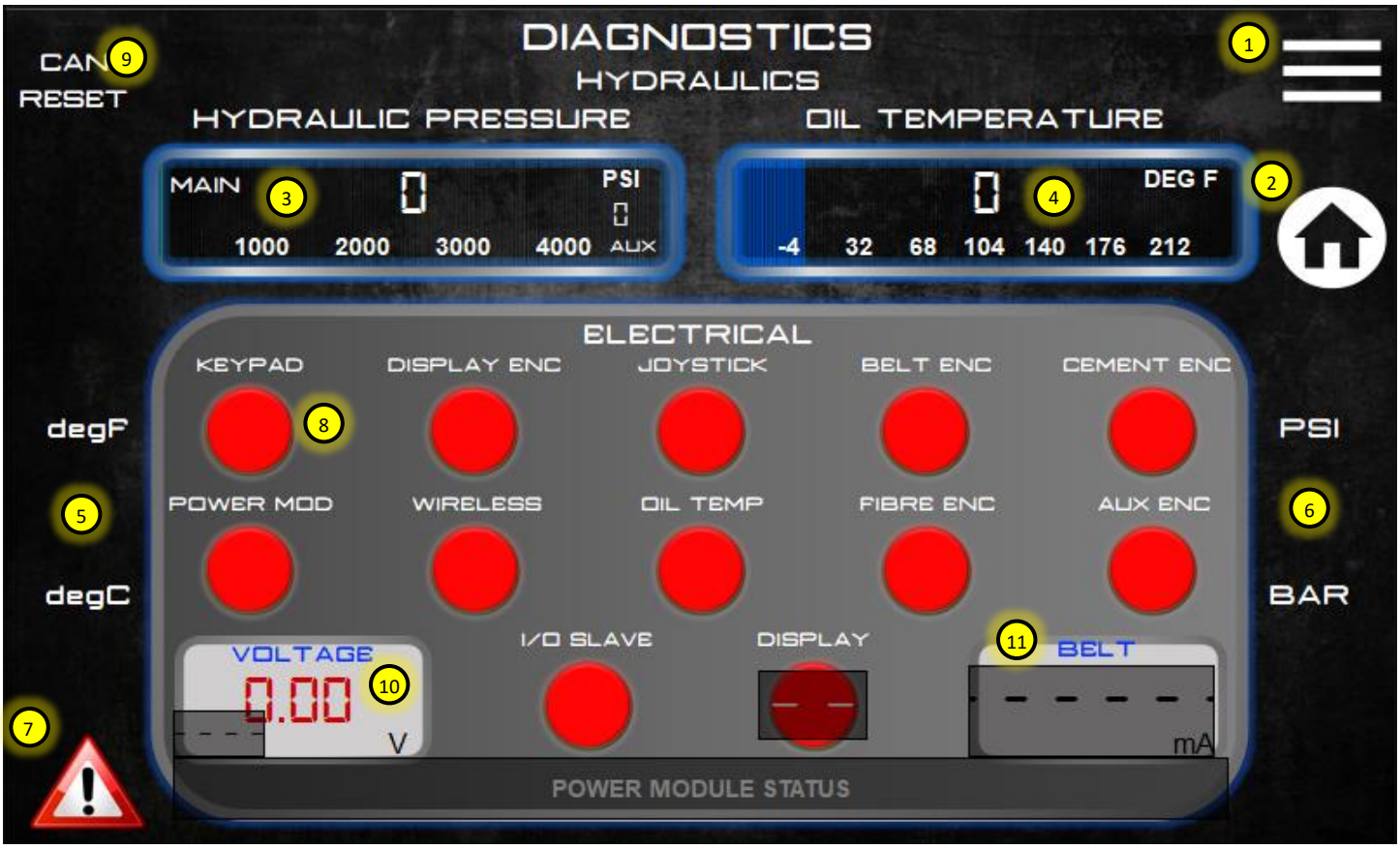
1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Display backlighting adjustment percentages can be viewed on the bar graph.
4. Display backlighting UP or DOWN.
5. Units selection. Volume and weight units are shown in blue along with the units system selected. The units are selected on the US and Metric units keys.
6. Production rate gauges. All gauges on the HOME screen can be changed to show the actual production rate per hour or unit volume.
7. Rate per minute gauges. All gauges on the HOME screen can be changed to show actual revolutions per minute.
8. Time and date setting. Touch the mm/dd/yy to select dd/mm/yy if desired.
9. Printer settings pop-up. Select what you want to print on a job ticket. *See page 17.*

1.09.1 PRINTER SETTINGS



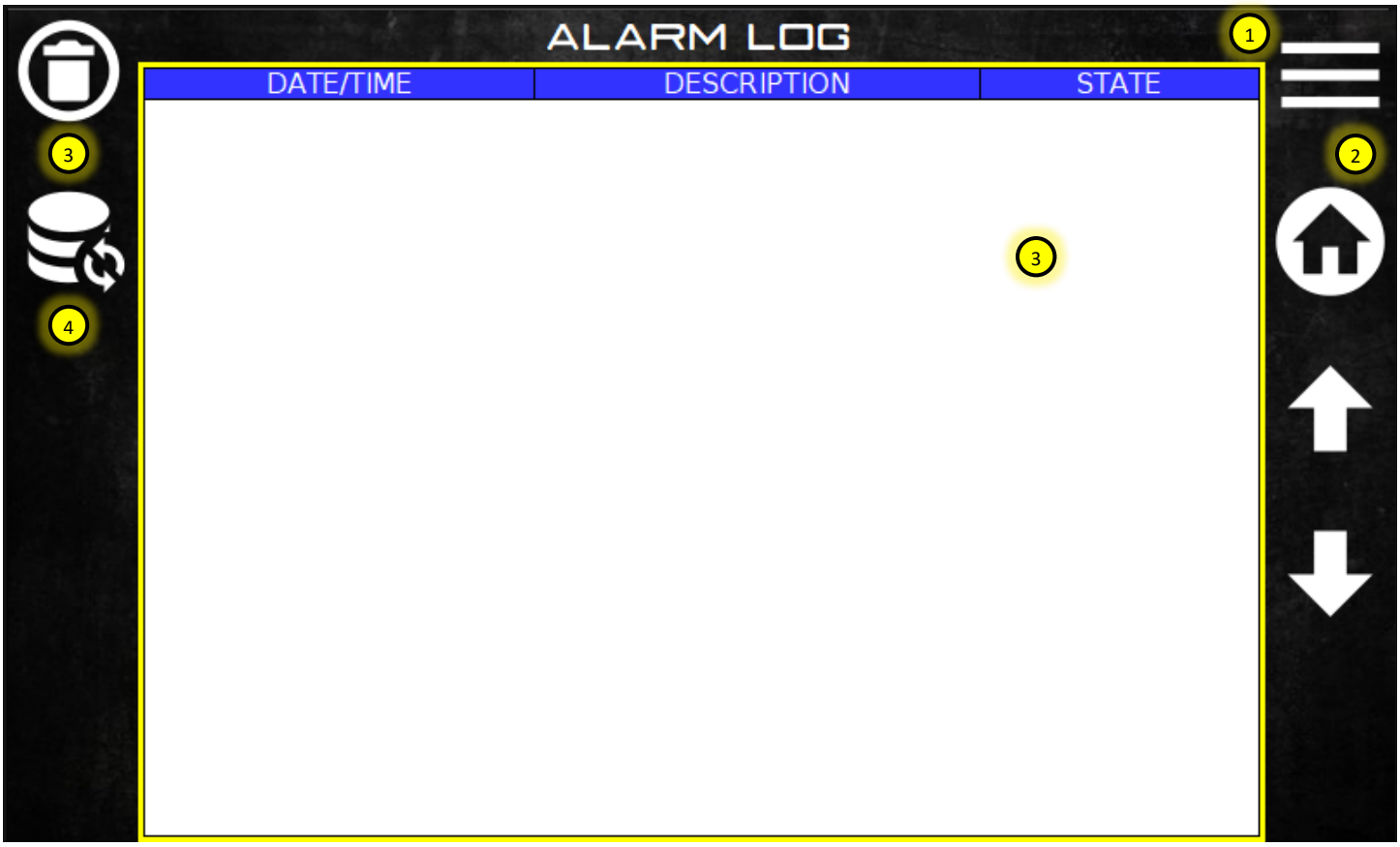
1. Close pop-up when selection is complete.
2. Select the desired items to print on a job ticket if mixer equipped with printer.

1.10 DIAGNOSTICS



1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Hydraulic pressure. Shows current outlet pressure on the main pump. Also shows auxiliary pump pressure if equipped with hydraulic gunite pump outputs.
4. Oil temperature. Shows current hydraulic oil temperature.
5. Oil temperature units can be changed here.
6. Hydraulic pressure units can be changed here.
7. Alarm log. Screen showing the history of alarms. *See page 19*.
8. CANBUS and input device diagnostics. Any device on the CANBUS communication network is monitored to ensure it is sending data to the computer. If the indicator is red then the device either does not exist (optional component) or there is a fault/disconnect somewhere in the system.
9. CAN Reset is used to initialize or reset the CAN devices' communication parameters. Typically used when installing a new device.
10. Voltage at the input pin of ECU/computer.
11. Individual electrical device current draw can be checked here. Touch the name in blue and use the up/down touch keys to select a device to monitor. The current draw is in milliamps.

1.11 ALARM LOG

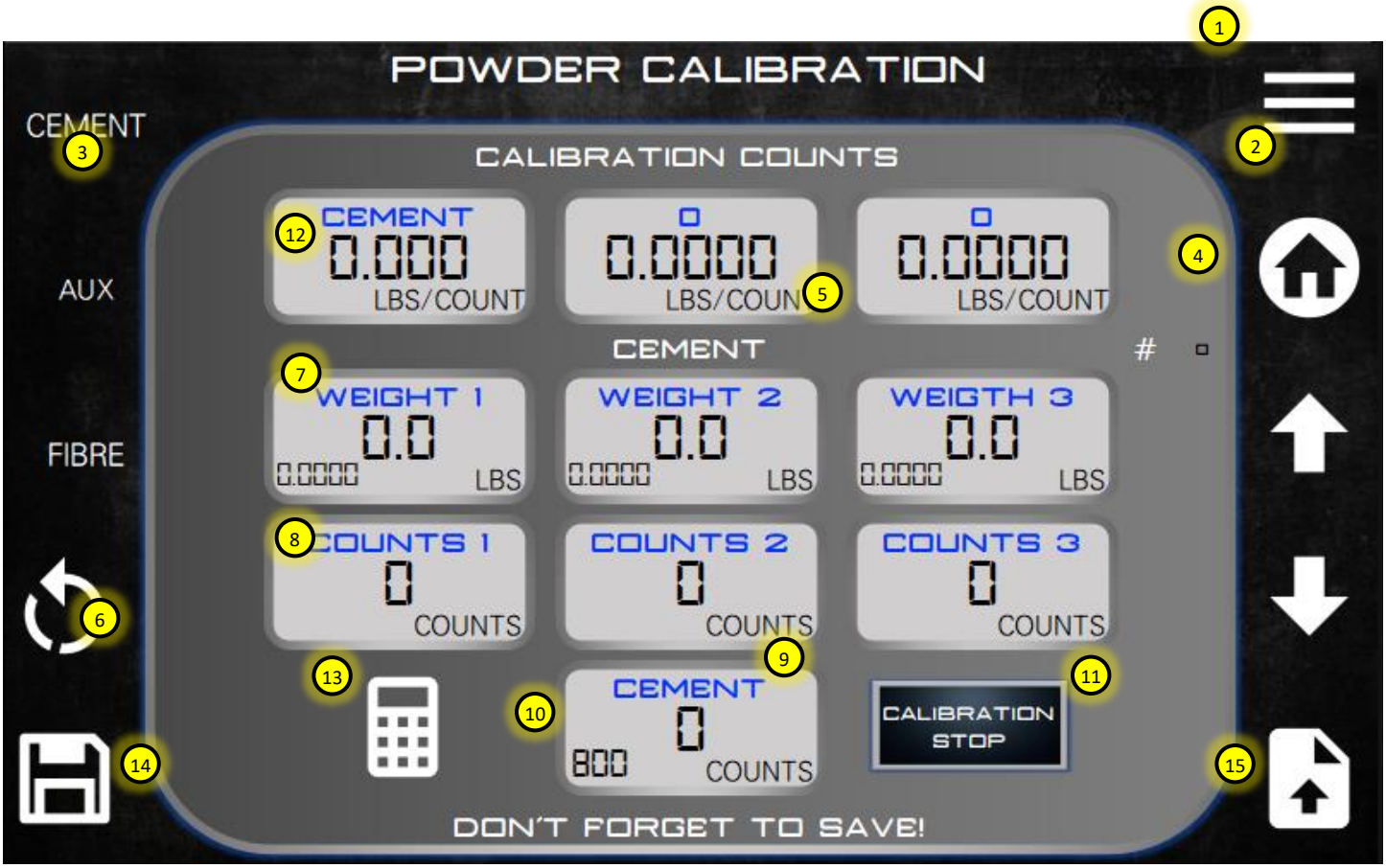


1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Alarm log table. The table will store up to 100 alarm points. After 100 it writes over the first alarm and continues writing over previous alarms. To scroll through the alarm log, touch the log table. The border will turn green. Use the up/down arrow keys to scroll through the table.
4. The alarm log can be deleted and started new by pressing DELETE.
5. The alarm log can be refreshed if alarms are occurring while in the alarm log screen. The log is automatically refreshed when the alarm log is selected from the diagnostics screen.

1.12 MIXER CALIBRATION

1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Press the button to go to the powder calibration screen. Cement, Aux, and Fibre are calibrated here.
4. Press the button to go to the gates calibration screen. Sand is calibrated here.

1.12.1 POWDER CALIBRATION



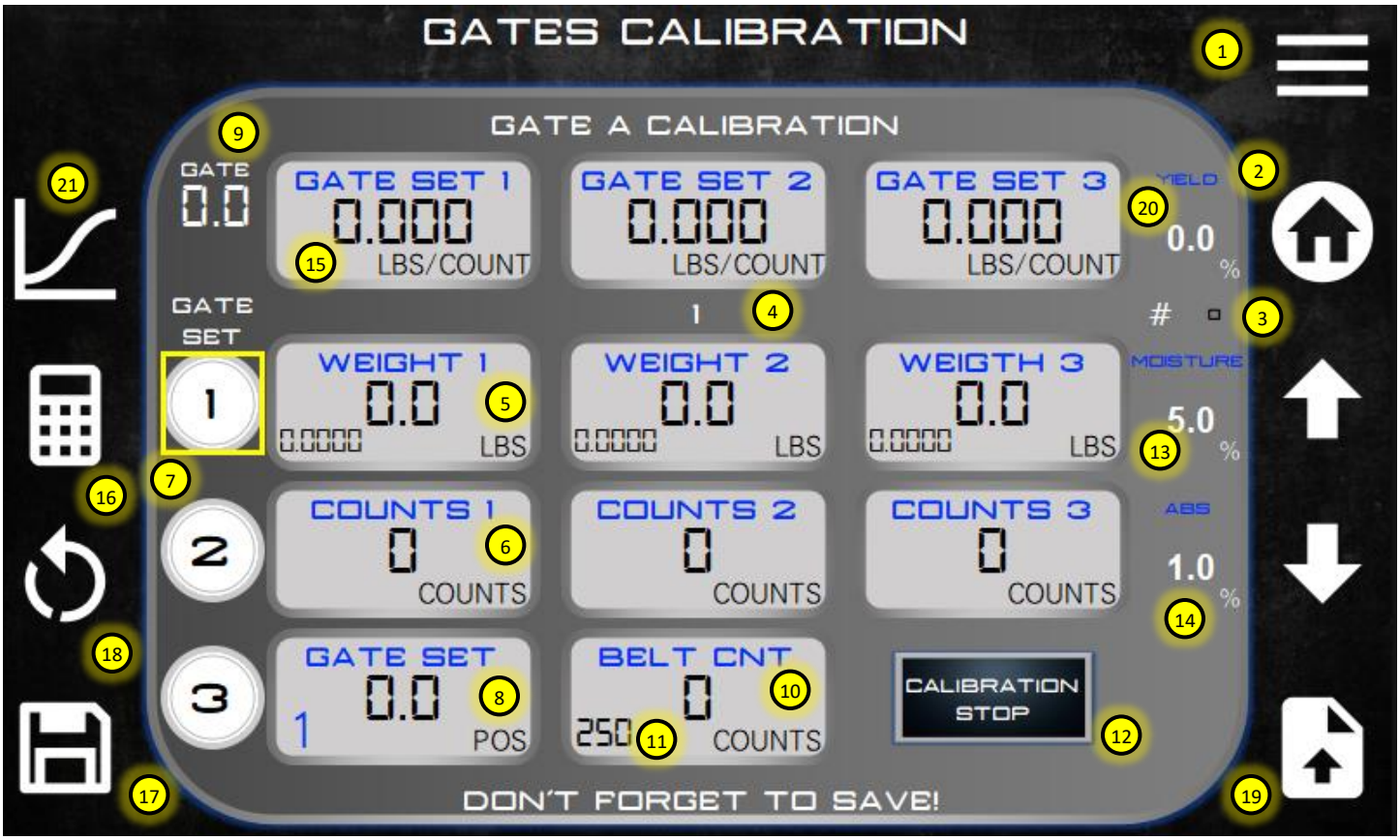
1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Powder or auxiliary calibration can be selected from the list using the touch screen. Once selected the "Name" will change (see item #4) to show the current type.
4. Up to 5 different types can be selected per powder/auxiliary. Each type having its own unique set of calibration data. To select the type use the up / down arrow keys until the desired type is shown.
5. Name associated with type 1-5. This name can be edited by touching the value and entering the new name on the keyboard.
6. Reset trial and trial load pop-up. *See page 23.*
7. Value of the weight measured for each trial. By touching the field the user can manually enter values using the keyboard. The number on the bottom left is the calculated auger output for each trial. This is used as a reference to ensure trials are consistent and correct values are being entered.
8. Value of the counts measured for each trial. By touching the field the user can manually enter the values using the keyboard.
9. Auger counts. This is the total count of the auger in the trial and is not related to the belt counts.
10. Calibration stop counts can be entered here. These are the counts that the mixer will automatically stop at when calibrating each trial.
11. Button to activate the calibration stop function.
12. Calculated average output of the auger, based on trial data. This value can also be entered manually if the calibration data is stored elsewhere.
13. The calculate button should be pressed whenever new data is entered into the trials.

14. Data is automatically saved when new values are entered, however, it is a good idea to SAVE before a material type is changed or a calculation is done.
15. Calibration files can be loaded onto the display using the USB port. Calibration files can be copied to a USB stick and re-loaded at any time or edited in Excel and loaded.

1.12.1.1 POWDER CALIBRATION RESET AND TRIALS

1. Close pop-up when selection is complete.
2. Load the counts generated by the auger in each trial using the load buttons. The button numbers refer to the trials/samples collected 1 thru 3.
3. Reset the auger counter to zero to start the next trial.
4. Zero all the existing trials to start over and re-enter trial data.

1.12.2 GATES CALIBRATION



1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Up to 10 different sands can be selected. Each type having its own unique set of calibration data. To select the type use the up / down arrow keys until the desired type is shown.
4. Name associated with type 1-10. This name can be edited by touching the value and entering the new name on the keyboard.
5. Value of the weight measured for each trial. By touching the field the user can manually enter values using the keypad. The number on the bottom left is the calculated gate output for each trial. This is used as a reference to ensure trials are consistent and correct values are being entered.
6. Value of the counts measured for each trial. By touching the field the user can manually enter the values using the keyboard.
7. Up to 3 different gate settings can be used to calculate the slope of the gate curve. Each gate trial should have a unique gate position associated with it (ie. Gate trial 1 is set at 4.0, 2 at 6.0, etc.). All three do not need to be used, but you must use at least two for the calculator to work properly.
8. Position the gate is set at for calibration trial.
9. The actual gate position if mixer equipped with gate height sensor.
10. This is the total count of the belt in the trial.
11. Calibration stop counts can be entered here. These are the counts that the mixer will automatically stop at when calibrating each trial.
12. Button to activate the calibration stop function.
13. Moisture content of the material during testing. Used to ensure the calibrated weight of sand is SSD weight.

14. Absorption percentage of the material. This value is used to correct for SSD moisture contents if moisture reading is not free moisture.
15. Calculated average weight per count for each gate position in the calibration.
16. Calculate the average weight per count for the current trial.
17. Data is automatically saved when new values are entered, however, it is a good idea to SAVE before the gate is changed or a calculation is done.
18. Reset trial and trial load pop-up. *See page 27.*
19. Calibration files can be loaded onto the display using the USB port. Calibration files can be copied to a USB stick and re-loaded at any time or edited in Excel and loaded.
20. Yield correction allows the user to enter a +/- value to correct the calibrated curve to match yield test results.
21. Calculated gate slope/curve based on trial data. This curve is used to calculate the gate settings on the mix entry screen. *See page 26.*

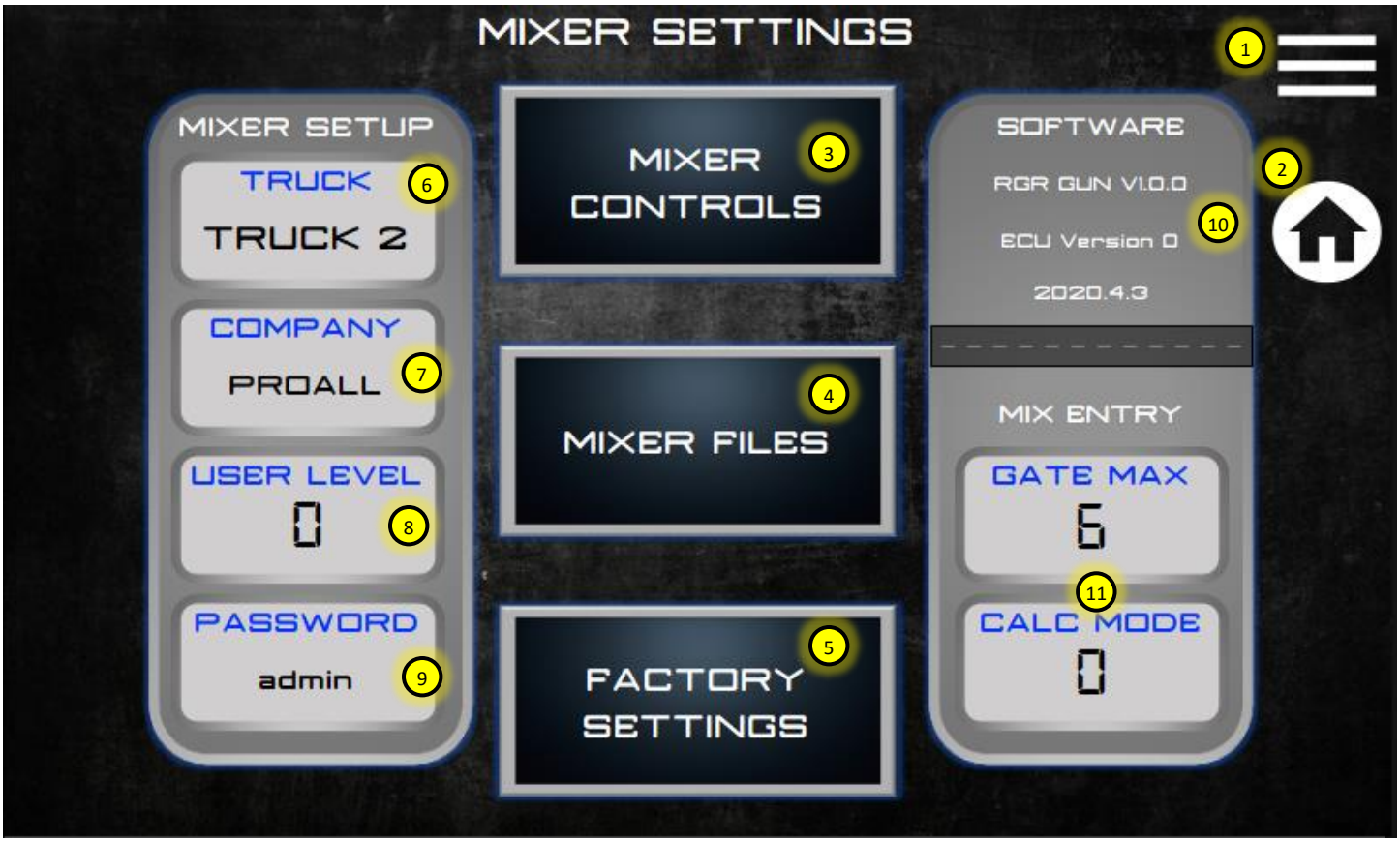
1.12.2.1 GATE CURVE SLOPE

1. Close pop-up when selection is complete.
2. The gate curve slope is shown here. This is the linear slope of the gate setting versus the weight per count of the belt. This value can be manually entered if known when calculating mix designs.

1.12.2.2 GATES CALIBRATION RESET AND TRIALS

1. Close pop-up when selection is complete.
2. Load the counts generated by the auger in each trial using the load buttons. The button numbers refer to the trials/samples collected 1 through 3.
3. Reset the belt counter to zero to start the next trial.
4. Zero all the existing trial values for the selected gate setting to start over and re-enter trial data.

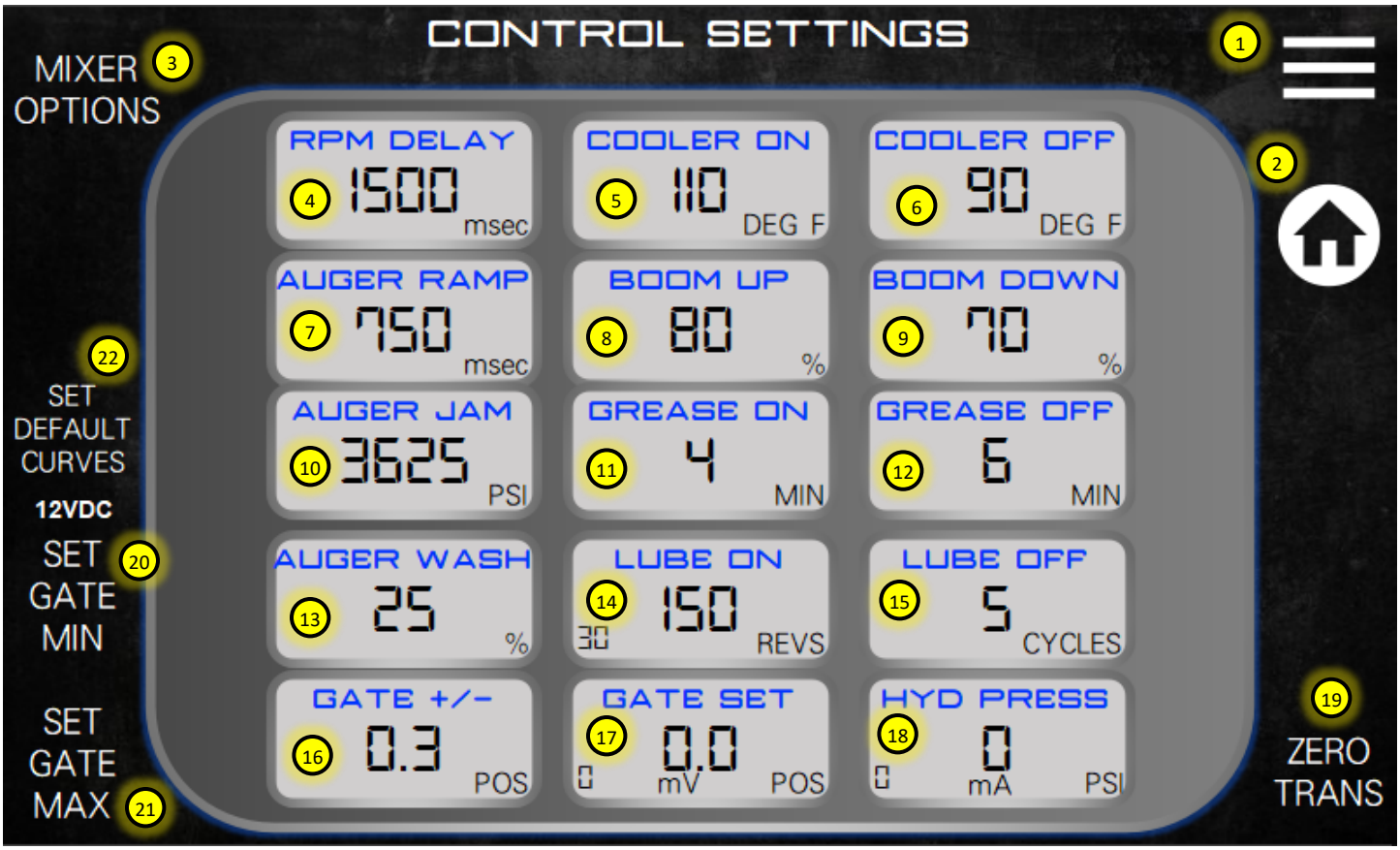
1.13 MIXER SETTINGS



1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Mixer Controls settings screen. *See page 29.*
4. Mixer files screen. *See page 32.*
5. Factory Settings screen. This screen is password protected and only used for factory mixer parameters.
6. Change unique truck number here.
7. To change company information press this object and a pop-up screen will appear with company information. *See page 33.*
8. Basic user level control can be set here. There are 4 different levels of password protection for the screens. Each level is shown below:

   Level 0: All menu screens are accessible without password protection.
   Level 1: Mix Entry and Mix Calibration are password protected.
   Level 2: Same as level 1 plus Mixer Settings are password protected.
   Level 3: Same as level 2 plus Job Log is password protected.
9. The password required to enter level protected screens.
10. Software version information.
11. Gate max is currently only used in error checking for mix design calculation.
    Calculation mode is not currently used in this version. Mix design calculations are based on cement weight at 100% setting by default.

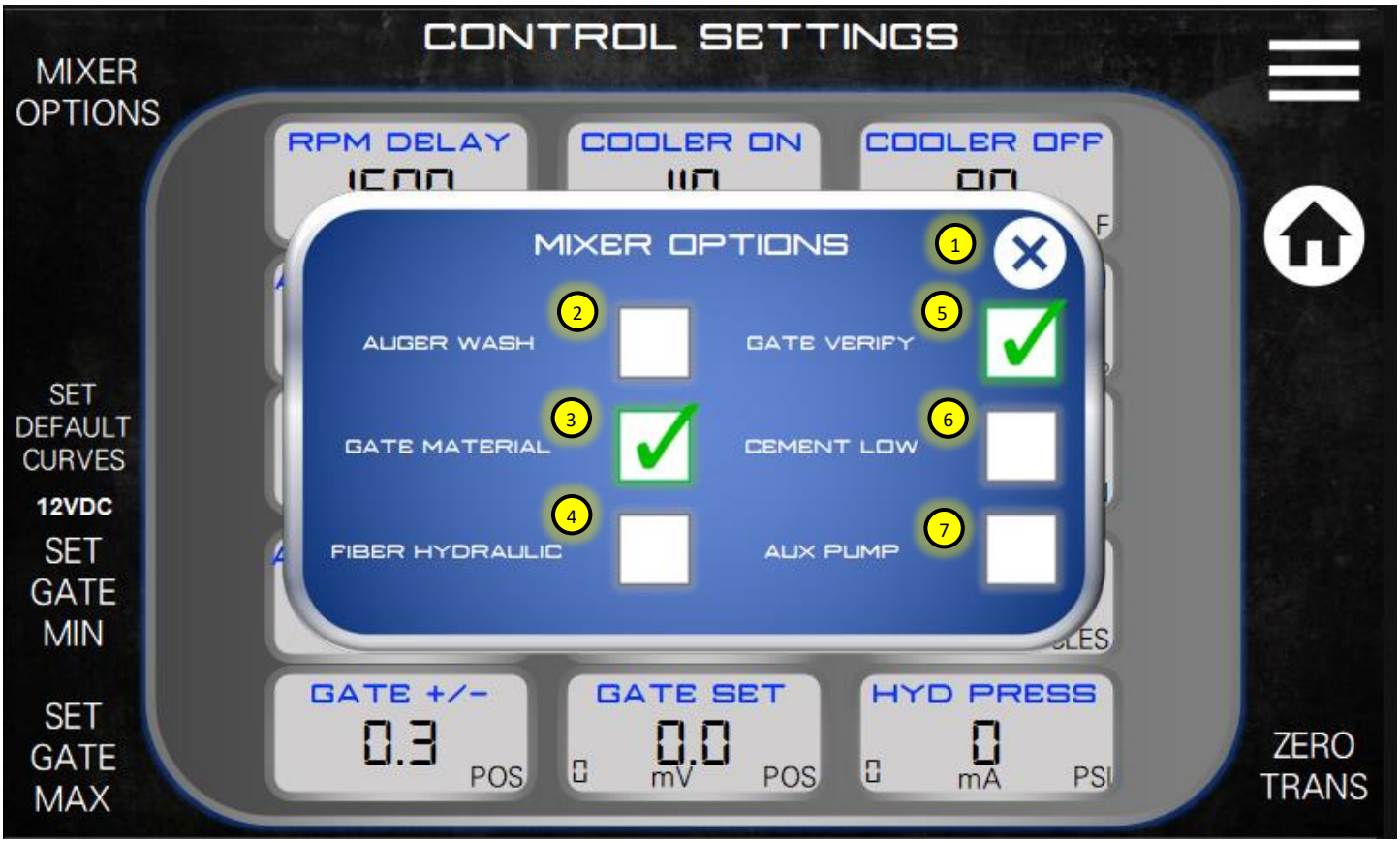
1.13.1 CONTROL SETTINGS



1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Press here to select mixer options pop-up. *See page 31.*
4. RPM delay time. This is the time the control system allows the high idle to get up to speed before it activates the mix mode. This only works when the auto-link mode is activated if the mixer is equipped with an auto-link button.
5. Temperature that the oil cooler will start.
6. Temperature that the oil cooler will turn off.
7. Mix auger ramp controls how fast the auger starts from a stopped state. Used to stabilize auger windup.
8. Maximum speed settings for boom up. Do not set it to zero.
9. Maximum speed settings for boom down. Do not set it to zero.
10. Max pressure setting of mix auger that will trigger a mix stop. Used to stop conveyor if mix auger is jammed to ensure material build-up in the mix bowl. This feature not currently active on this version.
11. Mix auger grease ON time. This is the elapsed time the greaser will run before turning off. Only applies to mixer controlled grease pumps and not stand-alone units.
12. Mix auger grease OFF time. This is the elapsed time the greaser will stay off before starting again.
13. Auger wash speed. When wash out mode is selected the mix auger speed will be adjusted to this value. This allows the operator to do a washout without having to manually turn the mix auger speed down. This feature not active in this version. Would only apply to mixers equipped with wash water.
14. Chain lube ON trigger. This value indicates how many revolutions of the conveyor need to occur before a chain lube cycle is started.

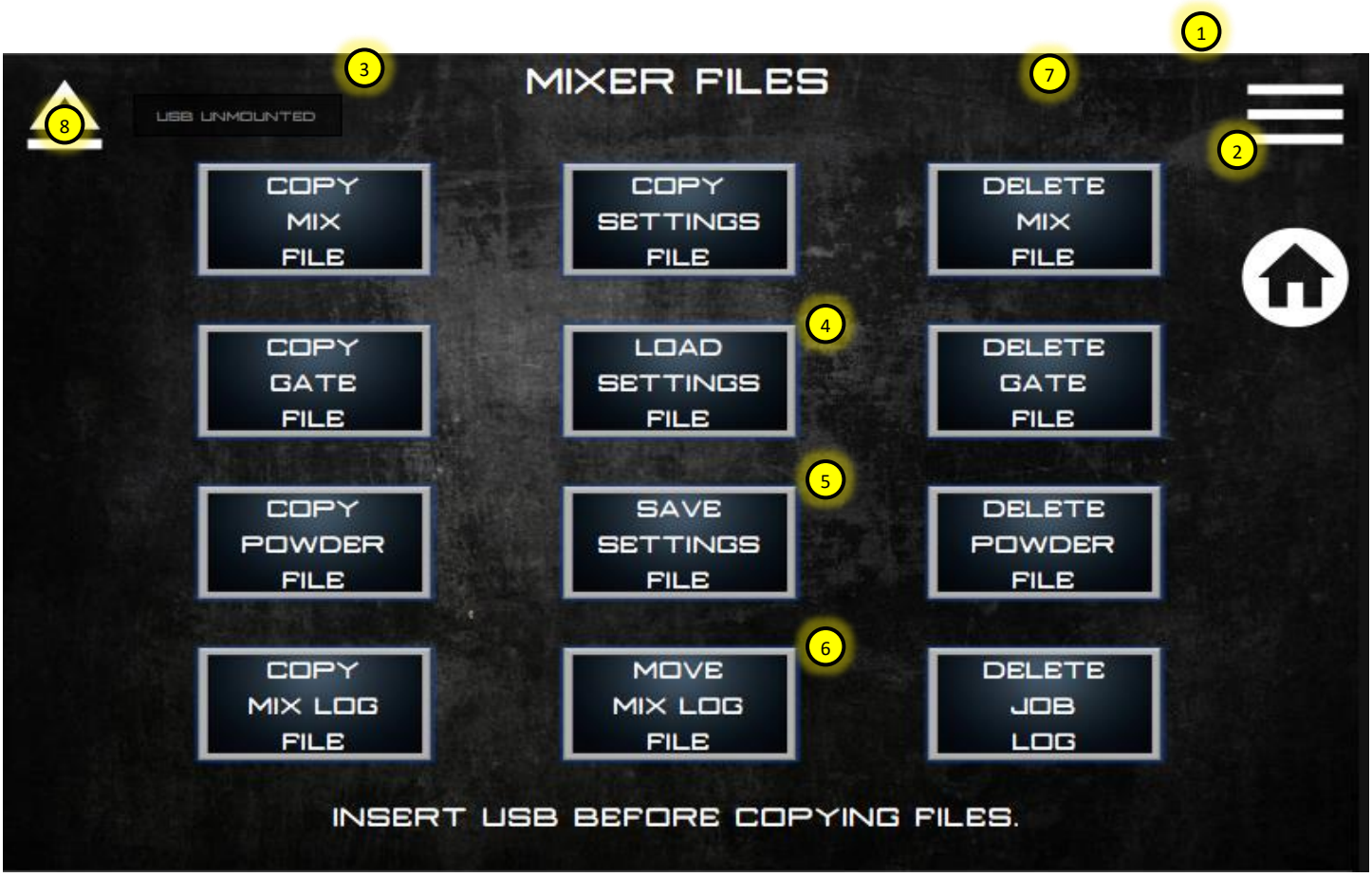
15. This value indicates how many cycles of the chain lube pump will occur of one revolution of the chain.
16. If the mixer is equipped with gate position sensors, a tolerance can be set here to allow the operator to adjust the gates without error in this +/- range. A fault will occur if the actual gate position vs. mix design setting is outside of this tolerance.
17. Gate position sensor calibration value. Center value is the current gate position scaled value. The small number on the bottom left is the actual sensor reading in millivolts.
18. Main hydraulic pressure reading. The small number on the bottom left is the actual sensor reading in milliamps.
19. Press this button only when the hydraulic pumps are off (PTO off) to zero the pressure transducer readings.
20. To calibrate/scale the gate position sensor, rotate the wheel until the gate hits the belt. The mechanical dial indicator should be set to zero. Press the Set Gate Min button to zero the sensor value. The sensor should read between 275mV and 400mV at the zero setting.
21. Rotate the wheel to a gate position of 12 and press Set Gate Max. The gate position sensor should now be calibrated to the gate.
22. Touching this function will load all default control curves and settings for either 12VDC or 24VDC systems.

1.13.1.1 MIXER OPTIONS



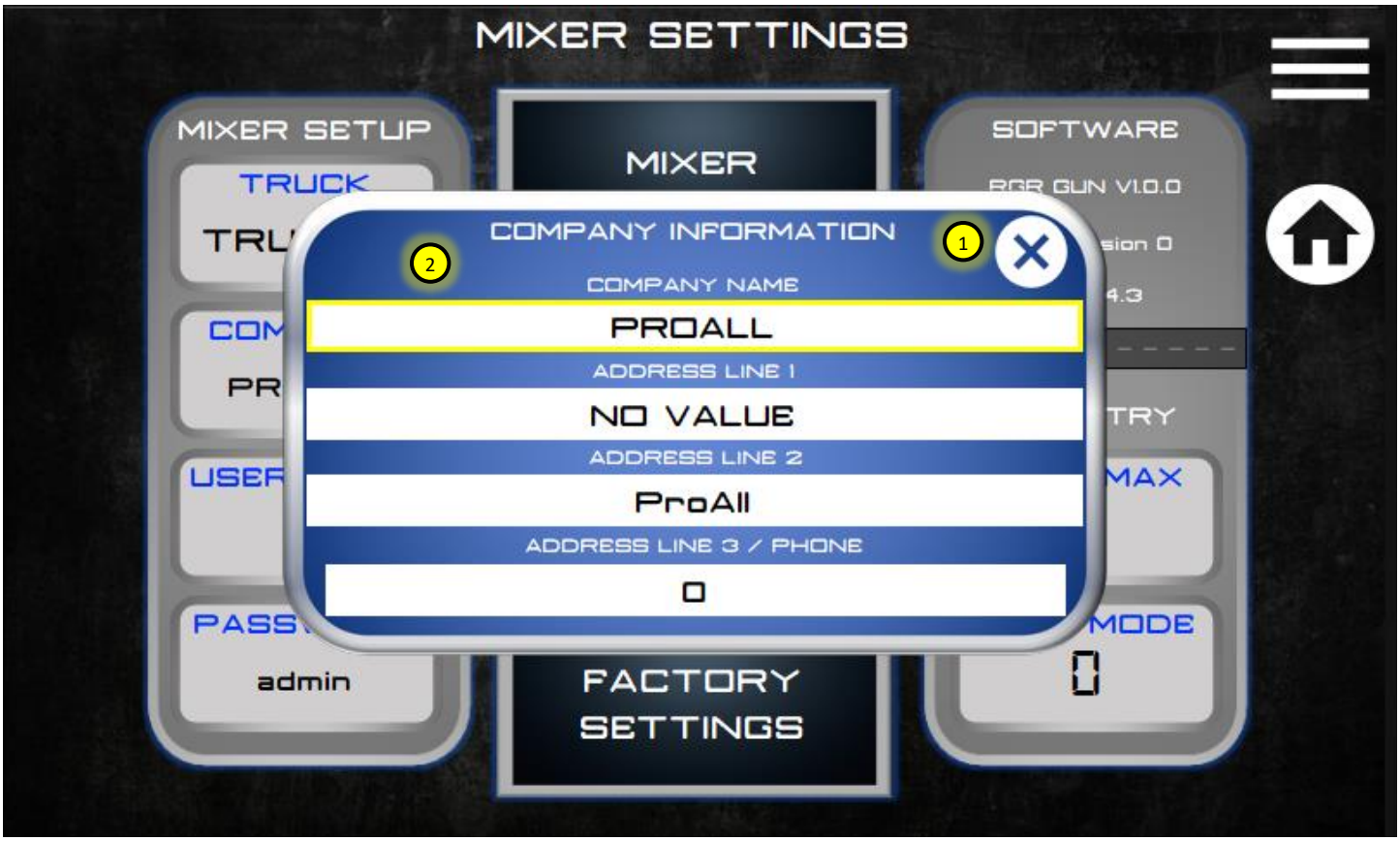
1. Close pop-up when selection is complete.
2. Auger wash is not active in this version.
3. Gate material is an ultrasonic sensor on the sand gate that monitors if sand is being metered by the gate or if the sand bin is empty. It will turn off the belt if no sand is detected.
4. Fibre hydraulic is an optional hydraulically driven pre-chopped fibre dispenser.
5. Gates verify is a sensor mounted on the gate wheel to measure gate position. It verifies if the gate height is properly set based on the mix selected.
6. Cement low is an option cement low-level sensor above the sump of the cement bin. This will stop the belt if no cement is detected above this level.
7. Aux pump is not active in this version.

1.13.2 FILE COPY



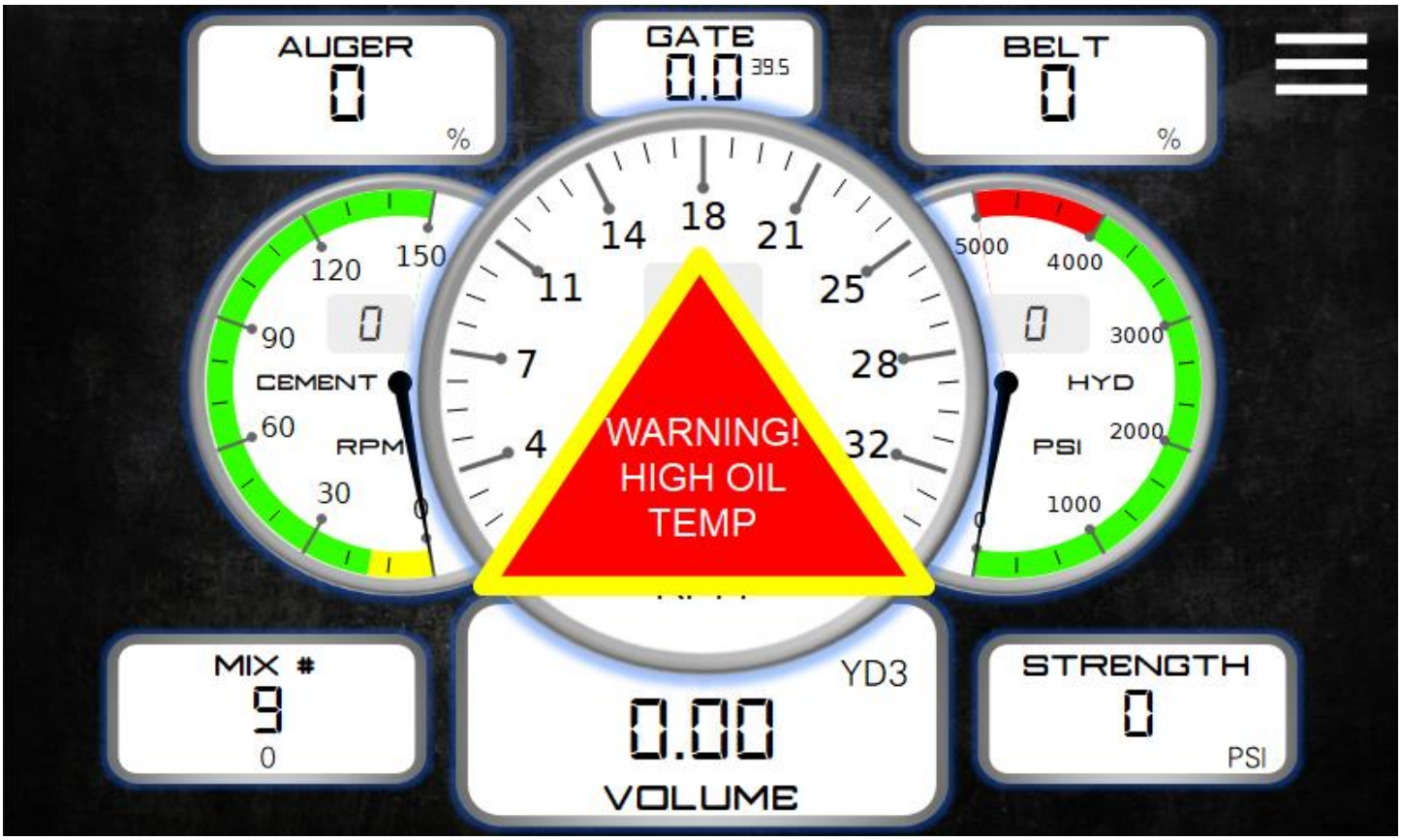
1. Menu shortcut. Return to the main menu.
2. Home shortcut. Return to the home screen.
3. Copy file buttons will copy the selected mixer file to a USB stick for backup or editing purposes. Make sure a USB stick is inserted into the back USB connector before pressing the copy button. The USB port is behind the display. Remove both of the front panel screws, and fold the panel down to access this port.
4. Mixer settings can be loaded onto the display. This is useful if a display is replaced and settings need to be changed from the defaults.
5. The mixer settings can be saved to a file. Mixer settings include all mixer settings, lube cycles, vibrator times, etc.
6. Move the mix log file to a USB stick and start from a new file.
7. Delete mixer files. Be careful not to delete a mixer file unless you are prepared to re-load or re-enter the data.
8. After files are copied the USB stick must be ejected before removing it from the display USB port. There is a message next to the eject button that shows the USB stick status.

1.13.3 COMPANY INFORMATION



1. Close pop-up when selection is complete.
2. Enter company information here. This data would be printed at the top of the job ticket.

1.14 ALARM SYMBOLS & TROUBLESHOOTING



Alarm messages, when activated, show on the screen in the form of a triangle with a brief description of the alarm. Depending on the alarm priority the alarm message may stay on the screen until the alarm is acknowledged by the operator. Lower priority alarms will show a blinking alarm message. Alarms can be removed by pressing Fault Reset in the Mixer Control screen or using one of the over-rides. Below is a summary of all alarms that are possible on the display.

Emergency Stop (E-Stop) pressed on the wireless remote (RED button). The mixer will stop when this alarm is activated. The alarm cannot be removed until the wireless E-Stop is reset.

The radio remote has lost the link to the receiver. This is typically caused when batteries need to be replaced or the remote is too far away from the receiver. If this alarm is activated the machine will stop. The operator must acknowledge the alarm by pressing the belt button on the mixer control knob (#5). The machine can then be run without the wireless.

Auger jam alarm. The mix auger pressure has reached the pressure limit as entered in the mixer settings screen and the belt stops. Check to see why pressure max has been reached (auger jammed) or increase pressure limit if need be.

The hydraulic oil temperature is reaching a critical limit and should be monitored. Check to ensure the cooler is running and oil levels are sufficient.

Cement low-level sensor activated. Must override to continue (see Mixer Control – *page 13*). To bypass this alarm temporarily the operator can select level over-ride on the mixer control screen.

Gate position alarm. The gate position is outside the tolerance allowed based on the selected mix gate position. To bypass this alarm the operator can select gates over-ride on the mixer control screen. The mixer will begin a start count and end count that shows when this gate setting was overridden. This will be logged in the mix log.

Gate level alarm. The sand bin is empty or the gate material sensor needs to be calibrated (teach) the trigger point/bottom of the gate. A teach switch is located on the main power distribution box. Set the gate all the way down to the belt and hold the teach switch until the sensor amber light flashes and stops. To bypass this alarm temporarily the operator can select level over-ride on the mixer control screen.

Low grease alarm. If the mixer is equipped with an automatic grease system then the grease level is low and needs to be topped up. To bypass this alarm temporarily the operator can select level over-ride on the mixer control screen.