GEFFS
MANUFACTURING, INC.
1-888-447-2882

Safety & Training
Manual BM 624 with Plus One Control

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Training Objectives

Our objective or goal is to train your crew on the safety and operation of our chip spreader. These fundamentals will allow you to work safely, and more efficiently, thus having less down time and better production.

The training literature provided is a guideline. The actual training sessions may vary depending on the experience and knowledge of the people being trained.

Orientation

1. Step by step coverage through the safety and training manual. Open discussions for questions and or concerns.
2. Hands on training. (This is done in a gravel yard or another location that can easily be cleaned or scooped back up).
3. Written test
4. Mechanic and Technician orientation.

Oil Chip Spreading to insure operator competency with spreader.

1. Job site review.

This training is provided for new spreader purchase when included with purchase of spreader. This training is to provide operators and maintenance personnel with adequate knowledge to safely use the GEFFS chip spreader.

Additional training sessions are available to train personnel not trained with the initial training session call for scheduling and pricing.

Safety

1. All moving parts:

a. **Never** wear loose clothing around moving parts.

b. **Never** put your hands or feet in an area of moving parts.

2. Pressure areas:

a. Check and release any pressure before removing a hydraulic or air line.

3. Machine Areas:

a. **Conveyors** - The conveyors are designed to move heavy loads of material to the front hopper. Never put your hands near the conveyor belts while running the conveyors. Do not wear loose clothing near conveyors.

b. **Communication -** Always use good communication when more than one person is operating or working on the machine. When working on the machine, remove the ignition key when possible.

c. **Drivelines -** When working on the chipspreader , use caution around all drive lines. The front PTO is working whenever the engine is running.

d. **Metering Arm -** Never get in between the metering arm and the machine. This is a crush zone.

e. **Fan and Fan Belts -** Use caution in this area, not to get tangled up with hands or clothing.

f. **Swing Arm -** The swing arm rests on top of the decks. Always remember to step over the swing arm.

g. **Steps, Decks, and Ladders -** Use hand rails when possible. The material can be slippery when wet. Do not get on and off the machine while it is moving. Always sit down or hold on when the machine is moving.

h. **Brakes and Steering -** On a dual control machine the extra brake and steering set up is live at all times. Only use one set at a time.

4. Hoppers:

a. **Expanding or Contracting -** The hopper wings are a crush zone . Stay clear of moving wings. When operating, make sure no one is in the crush zone.

b. **Individual Gates –** While the machine is running, never put your hand inside the hopper. When the power is turned off the air gates will slam shut. The hydraulic part of the gates is a crush zone. When working on the gates, remove the key from the ignition so the machine cannot be started.

c. **Augers -** Never get inside of a hopper with the machine running.

d. **Hopper Chain Drive -** Never remove safety cover while operating the feed roll and agitator shaft. Keep clear of chain and gears.

5. Elements:

a. **Hills -** When on hills or steep inclines check parking brakes. Do not assume they are adjusted. There is a lot of weight with a fully loaded spreader.

b. **Power Lines -** When operating always watch for power lines overhead, as your dump trucks could catch them.

c. **Tree's -** Tree branches can knock an operator off of his machine, or badly injure them.

d. **Traffic on Roads -** Your chip spreader is a wide machine. Get to know how close you can get to other objects and cars.

Please keep all guards, covers, and shields in place. They are for your safety and the safety of others around the machine.

Training

Machine Basics:

1. Hand operated throttle. Decrease the throttle position when slowing down or stopping.

2. The brakes are air over hydraulic on the front, and air on the rear. There are 2 brake pedals, one on each operator station. Both brake pedals are active at the same time.

3. There are 2 steering stations, one at each operator stations. As with the brakes both steering stations are active at the same time.

4. This machine is equipped with driving lights, tail and stop lights, turn signals, work lights, strobe light, and hazard lights.

5. The air horn is mounted under the deck on the left side. It is operated by a push button on the operators control console. There is no horn button on the steering wheel.

6. If your machine is equipped with the 4x4 option, you will find a switch on the control console that will control your 2 and 4 wheel drive option.

7. Park brake will not release until the air pressure is 60psi or above.

8. Clutch disconnect switch. The clutch disconnect is operated by the switch on the control console. When the clutch disconnect is off, the machine will brake normally. When the clutch disconnect is on, the machine will gradually brake. This will allow the machine to come to a stop without sliding in the aggregate.

Expandable Hopper Option:

1. Make sure the front hopper is empty before expanding or shrinking the hopper size.

2. With the machine running, put the machine in manual mode, and open the gates about 1/4 of the way open.

3. Now do one side at a time. Turn the hydraulic valve on front of the hopper for the left or the right side. This charges the hydraulic rams. Use the lever to move the side out to the desired width, and hang the add-on gates.
Make sure the gates are together before using the hydraulics to pull the wings together. With the lever pull the side up into place pulling the gates together. Then back off the tension on the gates from the side, so the gates will move freely. Close the hydraulic valve, and repeat the process for the other side. Make sure when you are done adjusting the hopper that both hydraulic valves are shut, **or your steering will not operate**.

4. Once the gates have been added to the width you want, close the gates and put the machine back in auto so it will calibrate its closed position.

Hydraulic Hitch:

1. There are 2 hydraulic functions on the hitch.
    a. Height adjustment: By using the toggle switch on the control panel, you can raise and lower the hitch to line up with the dump trucks draw bar.
    b. Positive Lock: There is a red push button in the front of the throttle handle. When you push and hold the button it releases the lock. And when you release the button it locks again.

2. The hitch is also free floating. This allows the hitch to float and follow the height of the dump trucks draw bar, when going over uneven surfaces.

3. It is not recommended to back both vehicles into each other. This could result in damage to the hitch. The recommended procedure is to back one vehicle at a time. Before the vehicles connect with each other, push and hold the hitch release button on the throttle to open the lock for the trucks draw bar to go inside of the lock. Once inside release the button to lock the hitch.

4. To unhook a truck, push and hold the release button on the throttle handle. After the truck is released you can let go of the button. Caution: Be sure the dump bed has been lowered before releasing the truck.

Loading Aggregate:

1. To load the rear hopper, raise the bed of the dump truck.

2. To load the front hopper, you must use the conveyors. The switches for the conveyors are mounted in the control panel. These switches are labeled right and left conveyors. There are 3 different ways to use the conveyors.
    a. Manual position - Center position on the switch. In this position the second operator on the front by the conveyors, operates the conveyors using the manual levers for left and right conveyors.
    b. Auto position - Down position on the switch. This is called - one man operation, because it allows one operator to control the conveyors from the operator station. When in auto position, the conveyors will run until the square D switches above the front hopper trip. This says the hopper is full and automatically shuts the conveyor down. When the switch trips back to its normal position, the conveyors turn back on thus running automatically.
    c. Momentary position - Up position on the switch. When the operator is holding the switch in this position, the conveyors will run continuously. This function by passes the square D switch, until the switch is released.
3. When you start running the conveyors to fill the front hopper, you need to adjust your front dividers. Undo the clamp on the diverter rods, and slide the diverters left or right until they are set to fill the hopper evenly. Only adjust when needed to change for changing widths.

Maintenance - It is very important to follow a regular maintenance schedule.

1. All fluids checked daily

2. All filters replaced as specified.

3. Grease zerks to be greased as specified.

4. With a new machine change the following after the first 40 hours:
    a. Hydraulic oil and filters.
    b. Engine oil and filter.
    c. Transmission oil and filter.

5. Use the chart provided in the operator's manual, or make your own chart to track the maintenance on your chip spreader.

6. Always use recommended fluids.

<u>Troubleshooting</u> - Always use qualified Technicians to troubleshoot and or repair.

1. The operator needs to perform a complete diagnostic check. This information will help the technicians in the field, or at the service department of the manufacturer.

2. Before calling a technician, check your operator settings and calibrations.

3. Explain any special occurrences or problems that happened before the machine failure.

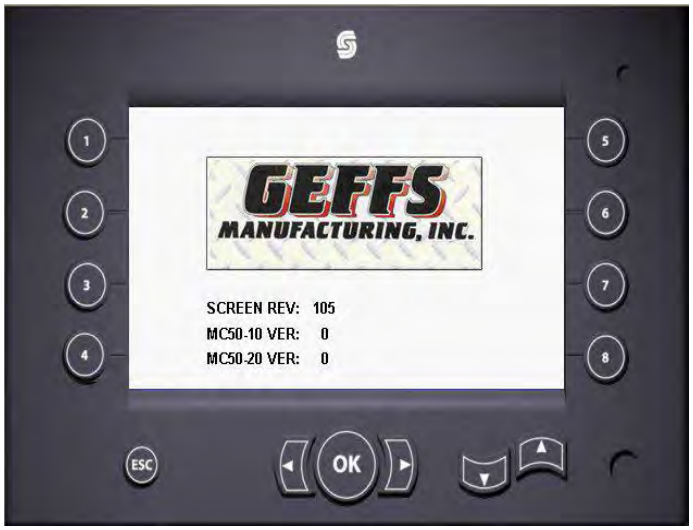
4. For further assistance call our service department. 1-888-447-2882.

a. **Description of Operation**

The Plus+1 Application Rate control system has two modes of operation, Automatic and Manual.
In Manual mode the main gate opening is controlled by the joystick rocker switch.
In Automatic mode the gate is controlled by machine speed and the Pounds per Square Yard (PSY) setting.

Before the machine can operate the Joystick and Gate Cylinder Sensor must be calibrated. This is done on the Setup Screen. To use the Automatic rate control the operator must setup calibration of the machine for proper aggregate rate. This is done on the Gate Calibration screen.
These calibrations are only required once unless changes are made or components replaced.

Start Screen:



This screen is displayed at power up and shows the current revision level of the installed Plus+1 software.

This screen is displayed for 5 seconds and then switches to the engine screen.

Engine Screen:
The Engine screen displays information from the engine.

Once the engine is started the screen will automatically switch to the Main Run Screen.
Engine RPM is controlled with the throttle lever.

Screen Navigation: Pressing the left arrow will switch to the Engine Faults Screen. The right arrow buttons will switch to the Main Run Screen. Pressing the ESC button will switch to the Main Run Screen.

Main Run Screen: (Expanded Gate Hopper screen shown)

This screen is the main application rate control.

Conveyors: Press Button 1 and 2 to turn on the respective conveyor. From the operator's station the conveyors will come on to full speed and off with the press of the button. The conveyors will be controlled via the hopper on/off control switches located in the hopper. This may be a button style limit switch or a paddle style limit switch.

Gate On/Off: Pressing button 3 will activate left to right control and button 4 activates right to left (the Left/Right Arrow icon will appear). Once active use the left or right arrow to scroll through the gates. (Since it is possible to turn off all gates from left to right or right to left, a red arrow indicator will appear to show which direction the gate has been turned off from.)
Pressing button 8 will turn all gates back on.
Gate icons are displayed as follows: Gray when off, Green when on and open. Red when they are on, but the main control is not on yet (Manual Mode), and Yellow when they are on, but the main control is not on yet (Auto Mode).

Auto/Manual Mode: Press the 'OK' button to toggle between Auto and Manual modes.

Manual Mode*:* The Gate position is controlled with the joystick rocker switch. Gate position graph will show the gate current position once the gates are opened. Any air gate set to on will open.
(Their icon will switch from Red to Green).

Auto Mode*:* The Gate position is controlled by the application rate software that utilizes the PSY setting, ground speed feet per minute (FPM) and the Mix number ratio. The gate will remain closed until two conditions have been met. A travel rate of 60 FPM or greater, and pressing the rocker switch in the open direction. At anytime the gate can be closed by pressing the rocker in the close direction.
The operator can increase or decrease the application rate by adjusting the PSY value. Make sure the conveyor speed controls are off (no Up/Down Arrow icons are on). Press and release either the Up or Down arrow button (the Up/Down Arrow icon will appear). Now use the Up or Down arrow to adjust the PSY value.

Screen Navigation: Pressing the right arrow will bring up the Functions Screen, the left arrow will switch to the Engine Screen (If either Gate On/Off functions are active the arrow buttons will not change screens). Button 4 will switch to the System Faults Screen and the ESC button will switch to the Engine Screen.

Functions Screen:

This screen has controls various options for the Console Swing, Augers (not available with CCH Hopper) and Hitch Up/Down.

Console Swing: Press and hold button 1 to swing the console to the right. Stand on the left side of the console when operating the Swing Right function.
Press and hold button 5 to swing the console to the left Stand on the right side of the console when operating the Swing Left function.

Augers On/Off: (Not available with CCH Hopper). Press button 3 to turn the Left Auger on and off. Button 6 to toggle the Right Conveyor on and off.

Hitch Up/Down: Press and hold button 3 to raise the Hitch. Press and hold button 7 to lower it.

Hitch Open: Press and hold the button on the front of the joystick to open the hitch, release the button to close it (this function will work regardless of which screen is displayed).

Screen Navigation: Pressing the right arrow will bring up the Hydraulic Pressure Screen, the left arrow will switch to the Main Run Screen.
The ESC button will switch to the Main Run Screen.

Hydraulic Pressure Screen:

This screen displays the hydraulic pressure of the Work, Left Conveyor and Right Conveyor pumps.

Screen Navigation: Pressing the right arrow will bring up the Chip Distance Screen, the left arrow will switch to the Engine Screen (If either Gate On/Off functions are active the arrow buttons will not change screens).
Button 4 will switch to the System Faults Screen and the ESC button will switch to the Engine Screen.

Chip Distance Screen

This screen displays the distance traveled while chip spreading Totals will only advance when the gate is open.

Press button 4 for 5 seconds to reset the Trip Distance to zero.

Press button 8 for 5 seconds to reset Total Distance to zero.

Screen Navigation: Pressing the right arrow will bring up the System Faults Screen, the left arrow will switch to the Hydraulic Pressures Screen. The ESC button will switch to the Main Run Screen.

System Faults Screen

A red box will appear next to the problem that has been detected.

An “Offline” fault means that there not CAN communication with the device.

An input device fault (temp sensor, Pressure sensor, or Gate position) indicates that the value at the input pin is above or below the specified range. This could be an open or short circuit to the device.

The output faults indicate an open or short circuit for that output.

Screen Navigation: Pressing the right arrow will bring up the Engine Faults Screen, the left arrow will switch to the Chip Distance Screen. The ESC button will switch to the Main Run Screen.

Engine Faults Screen NOT AVAILABLE ON NON J1939 ENGINE UNITS

This screen will display any engine faults codes received from the engine controller. Button 5 and 6 are used to scroll through the fault codes.

Button 1 will toggle between Active and Inactive codes.

Button 7 will display a list of common faults that can cause engine shutdown.

The list of common codes shown can cause engine shutdown and may be something that can be addressed on-site. Contact the engine manufacturer for information on other codes.

Screen Navigation: Pressing the right arrow will bring up the Password Screen, the left arrow will switch to the System Faults Screen. The ESC button will switch to the Engine Screen.

Password Screen

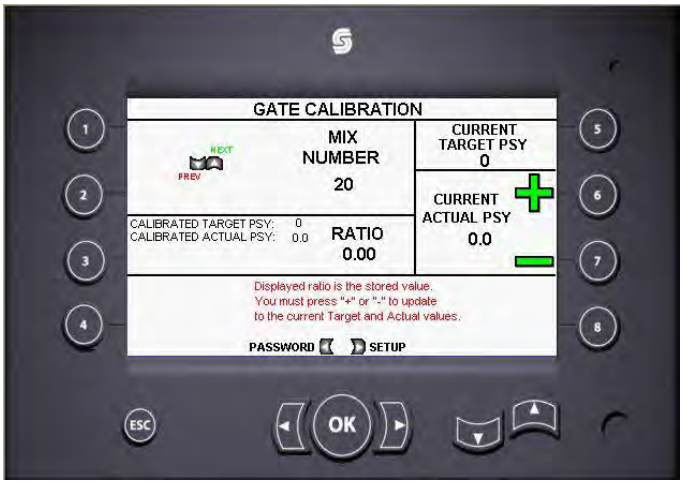
The Gate Calibration and Setup screens are password protected. The default password is **208,** but can be changed with the laptop service tool.

Press the Right or Left Arrow button to select the digit. Press the Up or Down arrow button to adjust the value.
Press the OK button to submit the password.

If the password is correct the Setup screen will appear. A wrong password will return to the Main screen.

Screen Navigation: The ESC button will switch to the Main Run Screen.

Gate Calibration Screen



This screen is used for calibrating the Mix ratio.

Pressing the Up or Down button will change the Mix number. This sets the mix that will be used in the Main Run Screen.

The current stored Ratio is displayed along with the Target and Actual PSY settings used in calibrating that ratio.

The Current Target PSY is the value set on the Main Run Screen.

Calibration of the Hopper Gate system:

5. Select the Target PSY (pounds per square yard) from the Main Run Screen.
6. Select the Mix number to use on the Gate Calibration screen.
7. Adjust the Current Actual PSY to match the Target PSY so the Ratio =1.00
8. Apply aggregate across 3’ x 3’ tarp.

9. Weigh applied material and adjust the Current Actual PSY to the measured weight.

The Calibrated Target PSY, Calibrated Actual PSY and Ratio will update to the new values and the Mix will maintain those values until a new calibration is performed.

Screen Navigation: Pressing the right arrow will bring up the Setup Screen, the left arrow will switch to the Password Screen. The ESC button will switch to the Main Run Screen.

Setup Screen

This screen is for setting brightness, low fuel level, Joystick and Gate cylinder input calibration.

Screen brightness:
The brightness is adjusted by pressing button 1 or 2. The brightness is also affected by internal screen temperature and can be automatically reduced.

Low Fuel Level Warning:
This is the percentage of fuel left in the tank where the low fuel indicator will come on.

Calibration:
The joystick and Gate Cylinder Sensor must be calibrated for the controller to be operational. The faults screen on the DP610 will show the NO CAL fault if the device has not been calibrated.

Joystick calibration **:**

1. Place the joystick full forward position.
2. Press the Joystick Reset button to clear any stored values.
3. Wait approx. 5 seconds for the controller to capture the joystick MAX position.
4. Shift the joystick to the full reverse position and wait approx. 5 seconds for the controller to capture the joystick MIN position.

Gate Cylinder Calibration**:**

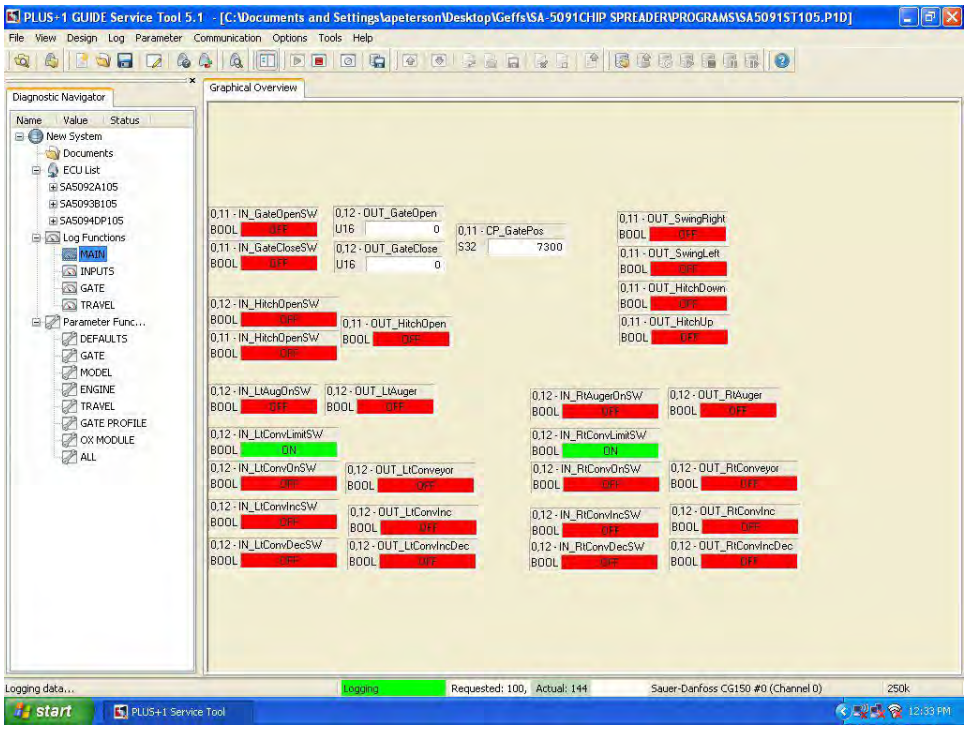
1. On the Main Run Screen place the Gate in Manual Mode.
2. Use the rocker switch on the joystick to place the gate cylinder in the fully retracted position.

3. Press the Gate Cyl Reset button to clear any stored values.
4. Wait approx. 5 seconds for the controller to capture the Gate MAX position.
5. Use the rocker switch to place the gate cylinder in the fully retracted position
6. Wait approx. 5 seconds for the controller to capture the Gate MIN position.

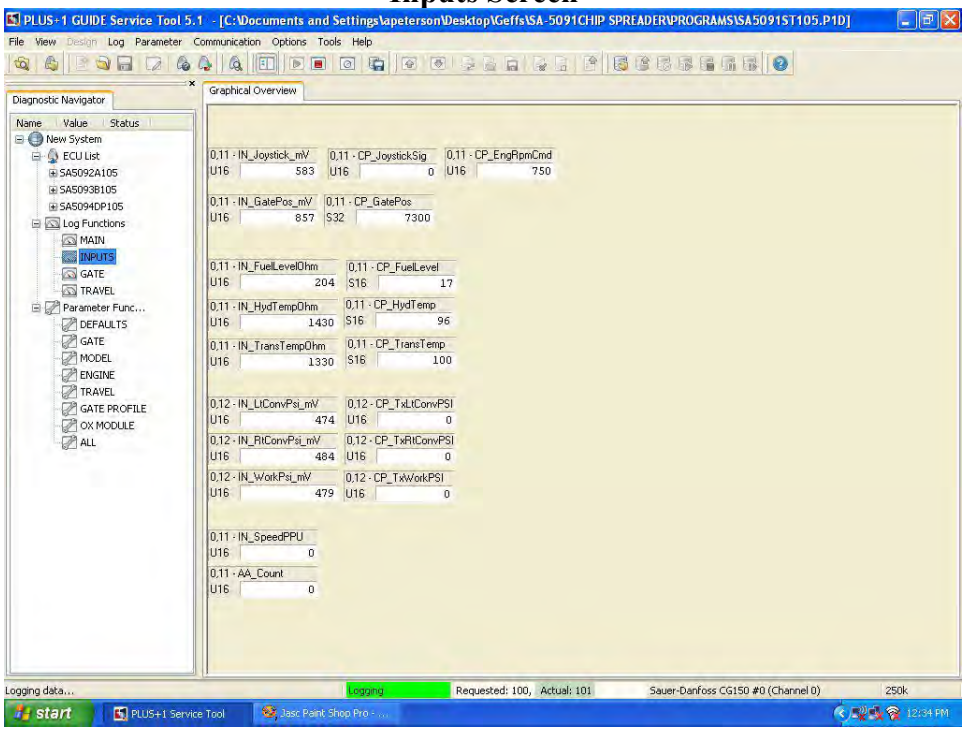
Screen Navigation: Pressing left arrow will switch to the Gate Calibration Screen. The ESC button will switch to the Main Run Screen.

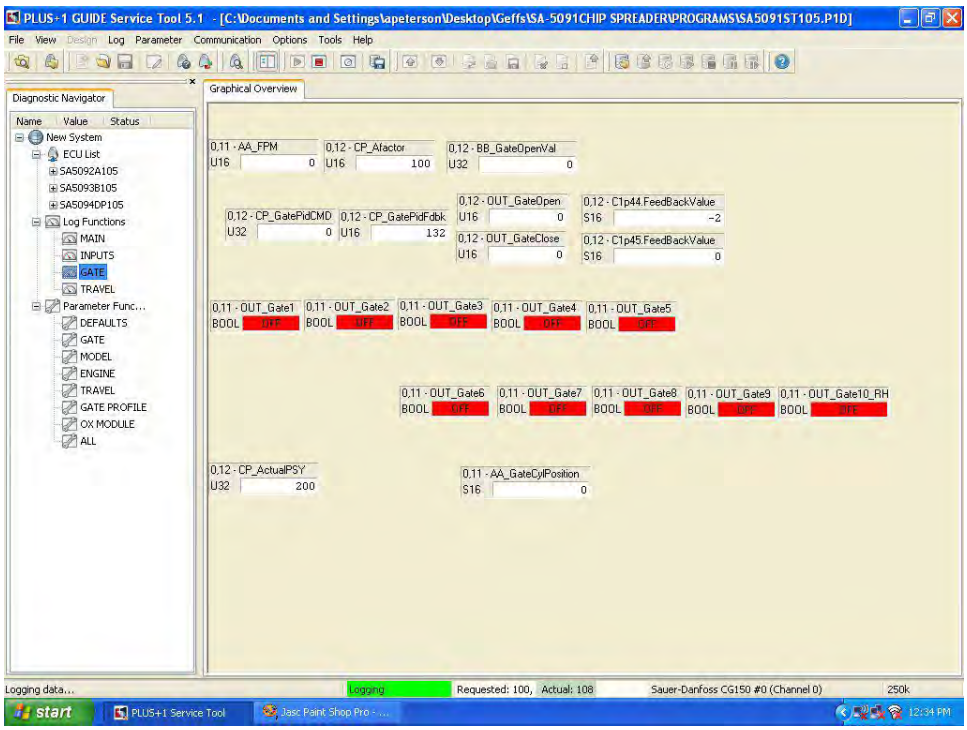
b. Service Tool

Main Screen

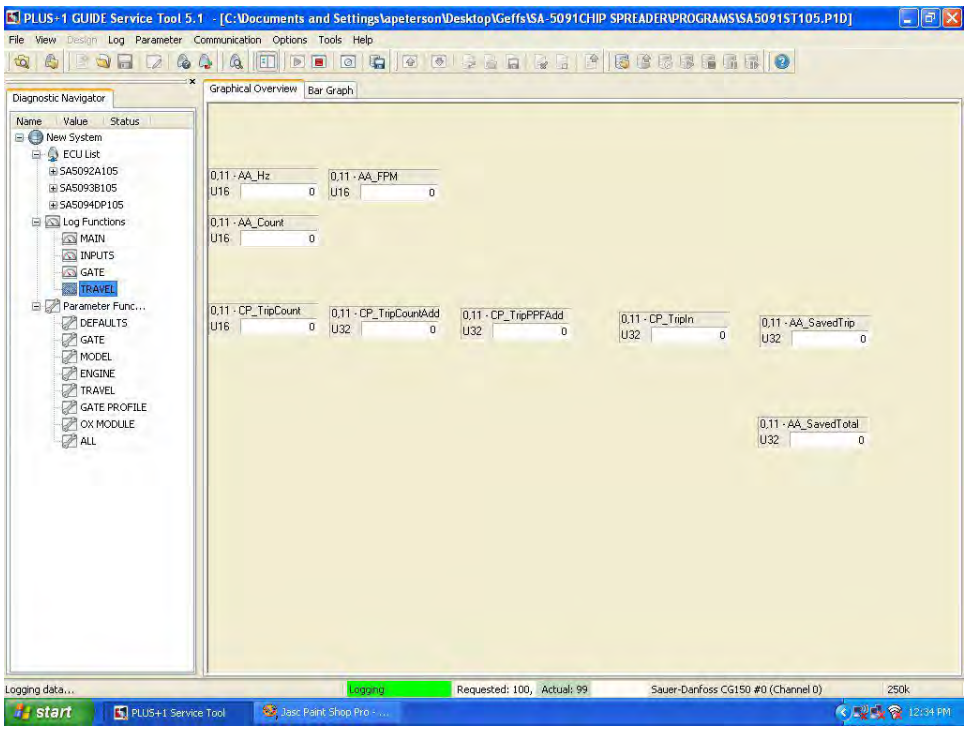


Inputs Screen

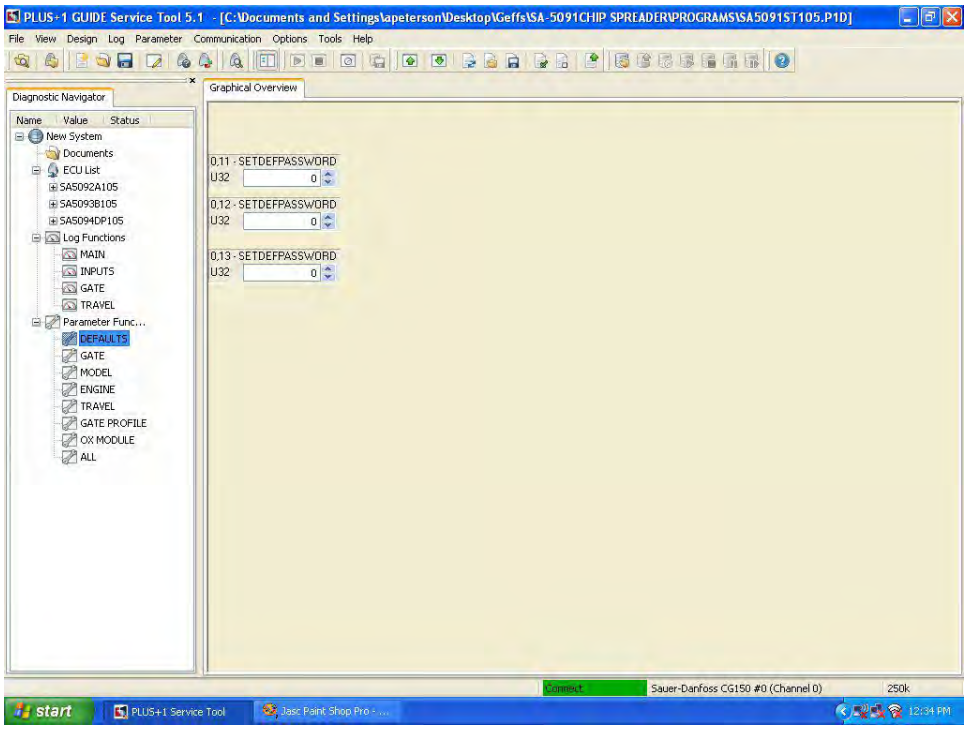




Travel Screen

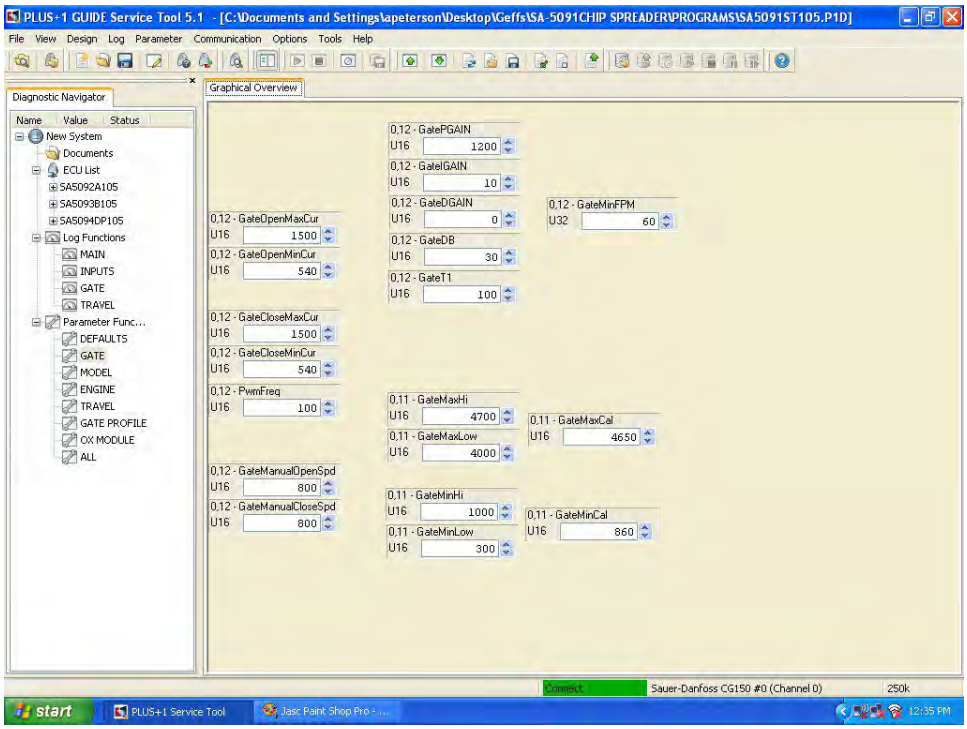


Defaults Parameters Screen

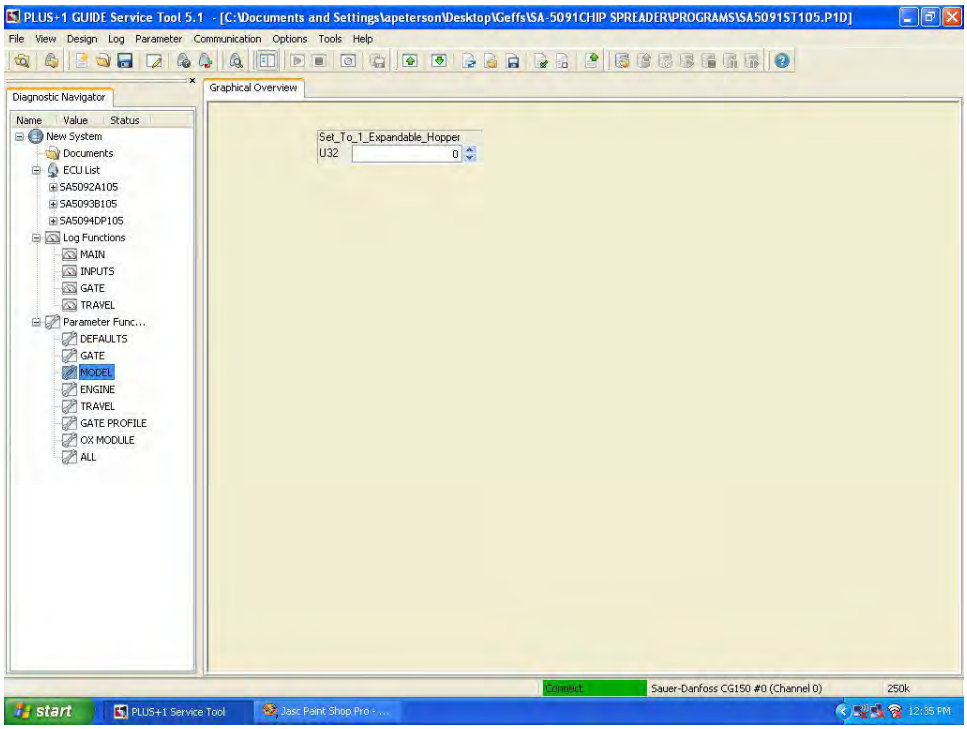


Press the “Upload Parameters From ECU” button.
Enter 2012 into the SETDEFPASSWORD BOXES and press the “Download Parameters to ECU” button
to reset parameters to the factory defaults.

Gate Parameters Screen

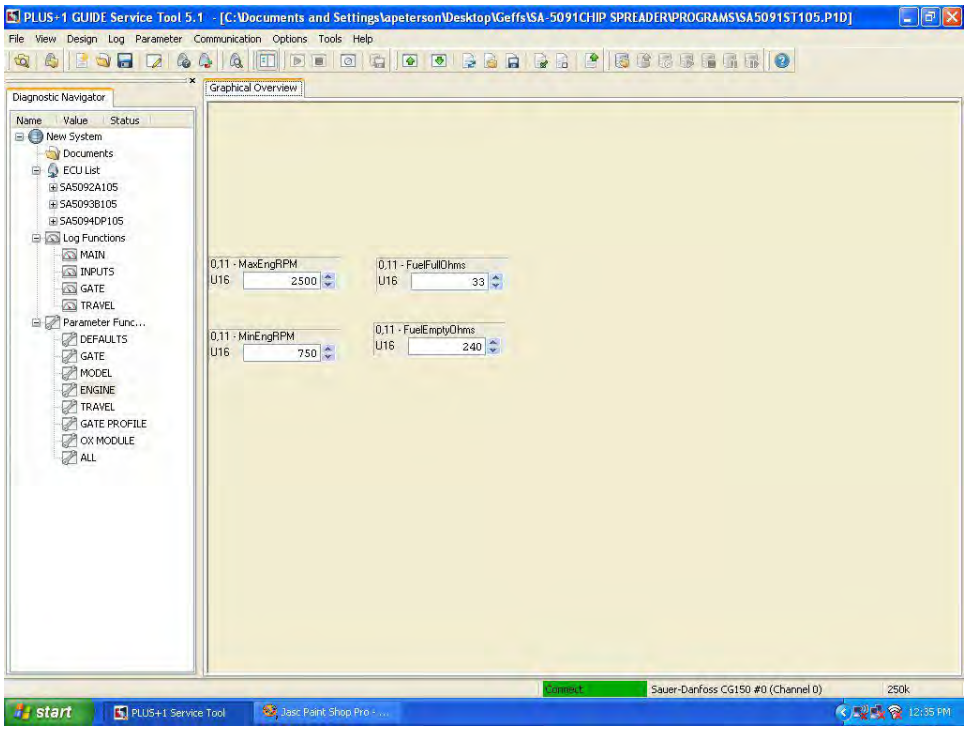


Model Parameters Screen

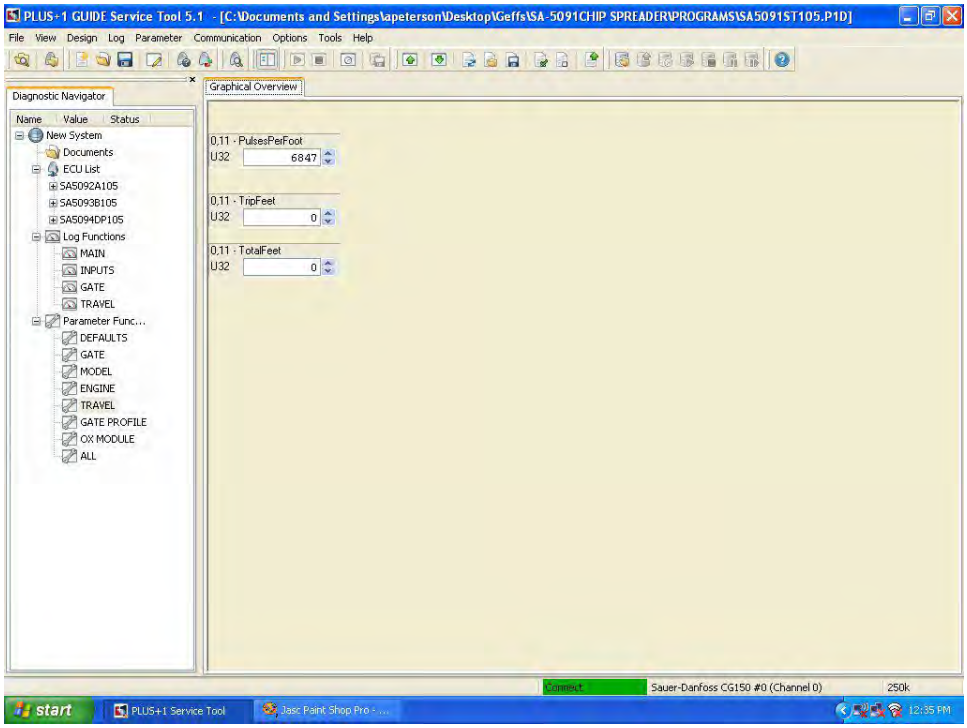


0 = CCH Hopper
1= Expandable Hopper
Enter value and press the “Download Parameters to ECU” button.

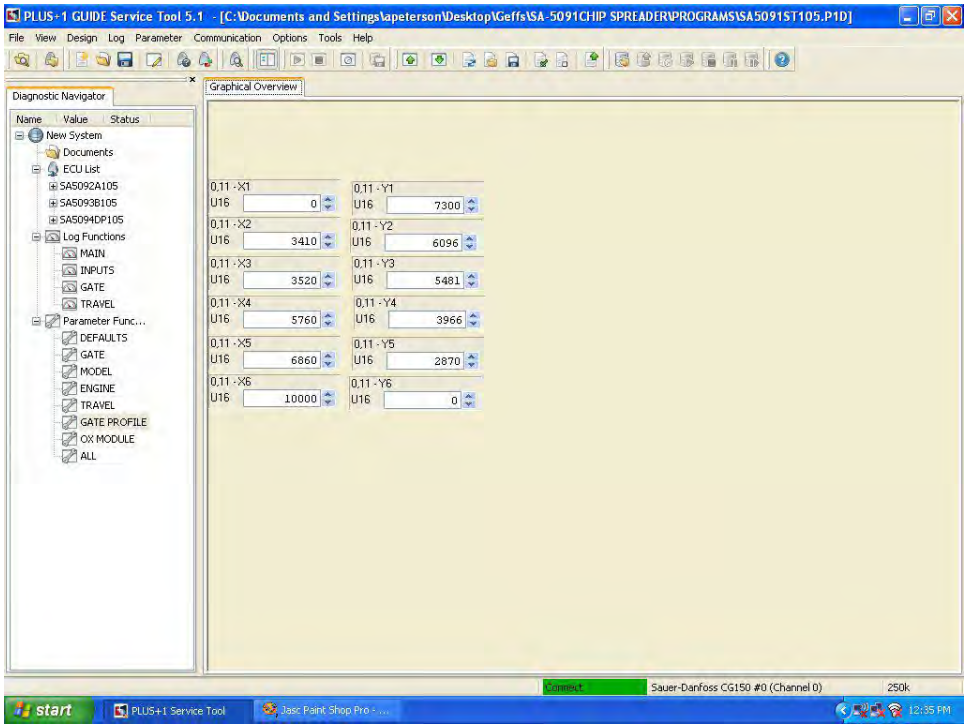
Engine Parameters Screen



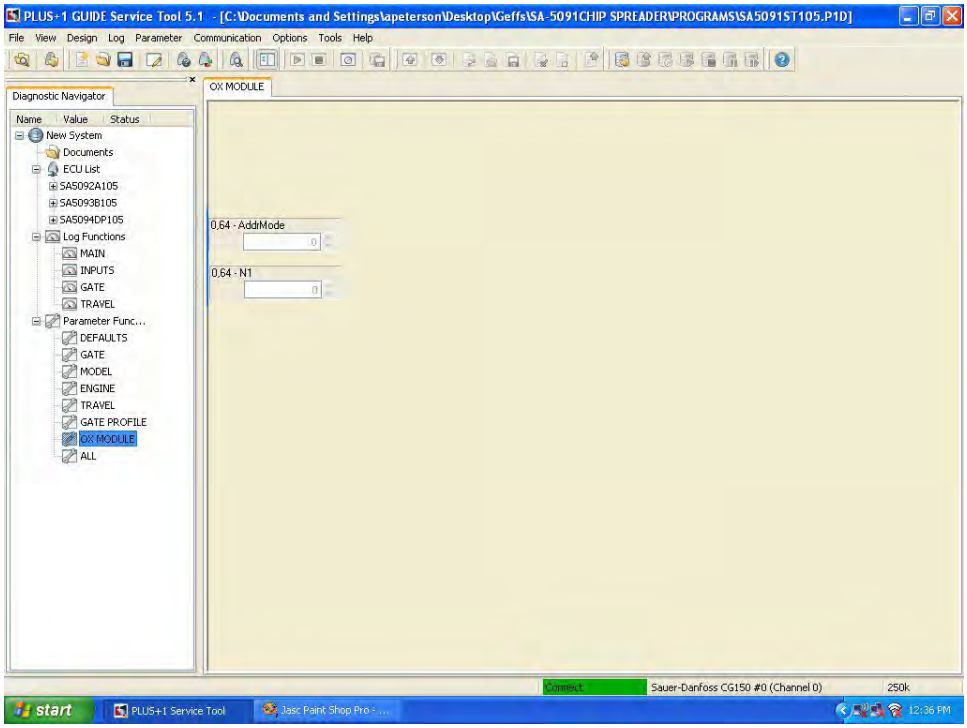
Travel Parameters Screen



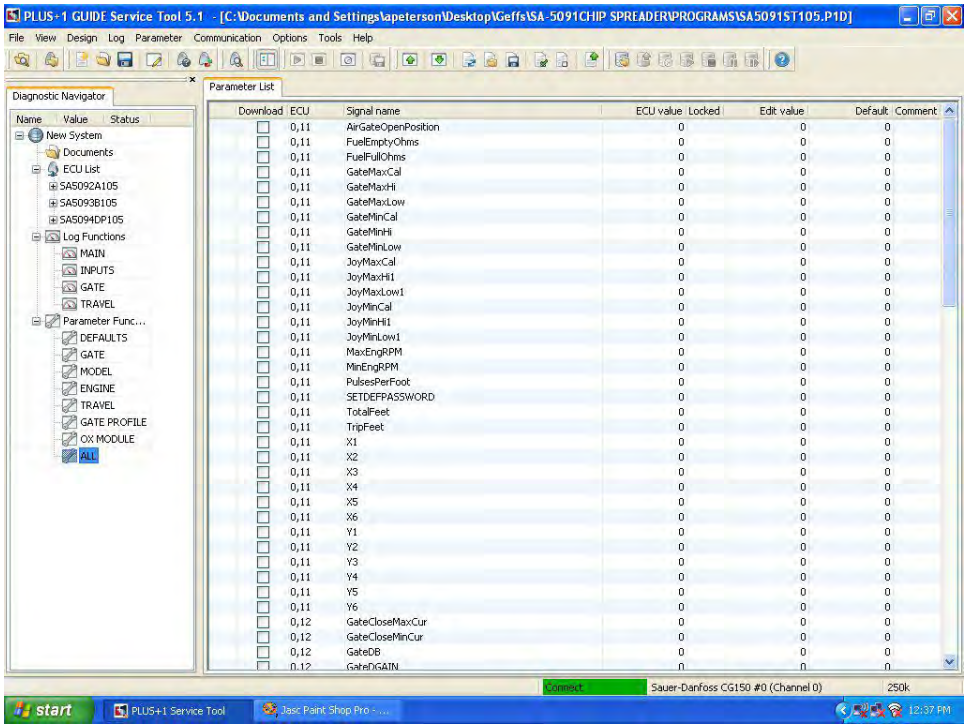
Gate Profile Parameters Screen



OX Module Parameters Screen



All Parameters Screen



This screen includes all parameters from each controller.
This can be exported to save a file of all machine parameters.

GEFFS Manufacturing
Chip Spreader Test

1. To activate the horn, you must:
    a. Push on the center of the steering wheel
    b. Push on the horn.
    c. Push the horn button on the control console with the key on and air built up on the system.
    d. Open the air valve.

2. The park brake will release at:
    a. 30 PSI
    b. 80 PSI
    c. 60 PSI
    d. 100 PSI

3. The hitch has 2 hydraulic functions, what are they?
    a. Height and length adjustment.
    b. Raise and lower the dump truck.
    c. Positive lock and height adjustment.
    d. To guide the dump truck into position and unlock.

4. The momentary position on the conveyor controls will bypass the automatic shut off and continue to fill or over flow the front hopper.
    True
    False

5. You calibrate the machine to:
    a. Adjust the FPM.
    b. Select the gate width.
    c. Match the PSY reading to the amount of material being applied.
    d. Keep the foreman happy.

6. The system settings allow the operator to customize his machine.
    True
    False

7. How does an operator clear out big rocks, sticks, and debris?
    a. Use his foot.
    b. Stop the machine and empty out all the material.
    c. Use a long stick.
    d. Use the gate clear function.

8. You can only adjust the PSY setting while the machine is stopped.
    True
    False

9. In manual mode the operator has complete control of the gate opening.
    True
    False

10. If the computer stops working, you can still adjust the gate width, and the gate opening.
    True
    False

11. An older machine should be serviced
    a. Just before chip seal season
    b. Just after chip seal season
    c. When the unit is broke down
    d. As recommended by the shop supervisor.

12. Individual gates can be adjusted on the fly.
    True
    False

Training Attendance Sheet

Company: _____ Date: _____
Location: _____
