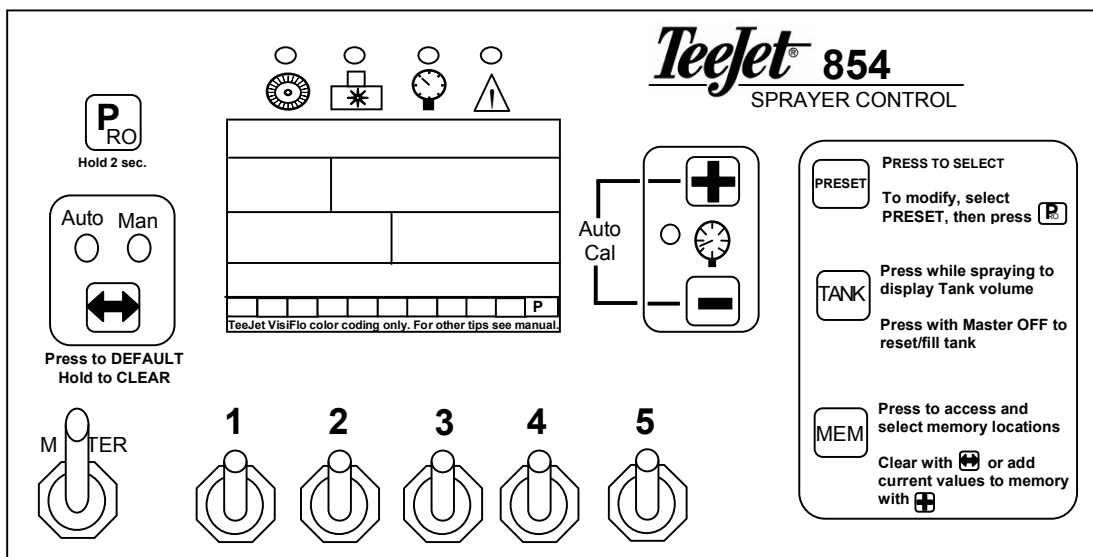


# TeeJet® 854

## Sprayer Control

Users Guide  
(1.09)



# Table Of Contents

<b>TABLE OF CONTENTS</b> .....	<b>2</b>
<b>INTRODUCTION</b> .....	<b>4</b>
<b>PROGRAMMING GUIDELINES</b> .....	<b>5</b>
IMPORTANT PRELIMINARY INFORMATION .....	5
<b>POWERING CONSOLE ON/OFF</b> .....	<b>6</b>
POWER ON .....	6
POWER OFF .....	6
<b>OEM PROGRAM MODE – TEEJET 854 CONTROLLER</b> .....	<b>7</b>
NUMBER OF BOOM SECTIONS ON THE SPRAYER .....	7
REGULATION PARAMETERS .....	8
<i>Minimum Regulating valve Voltage</i> .....	8
<i>Regulation Stop Band</i> .....	9
<i>Rotation Time of Regulating valve</i> .....	10
DISPLAY STABILIZATION .....	11
DATA DISPLAY SCREEN OPTIONS .....	11
CALIBRATE TIP LEVEL % .....	12
DIGITAL OUTPUT #2 .....	13
DUAL BOOM REGULATION MODE .....	14
FILL VALVE DEFAULT .....	15
AUTO POWER DOWN TIME .....	15
TEEJET COMMUNICATION SYSTEM (TCS) CONFIGURATION .....	16
<i>Job Operating System</i> .....	16
<i>Console Identification #</i> .....	16
MAXIMUM SPEED ACHIEVED .....	17
HIDDEN AREA COUNTER .....	17
PRESSURE TRANSDUCER CALIBRATION (P HI) .....	18
MEMORY SAVE FUNCTION .....	20
<b>SYSTEM SETUP MODE – TEEJET 854 CONTROLLER</b> .....	<b>21</b>
SELECTION OF WORKING UNITS .....	21
<i>Reset To Defaults</i> .....	22
SPEED SENSOR CALIBRATION .....	22
<i>Proximity/Magnetic Pulses</i> .....	22
DISTANCE COUNTER .....	24
FLOW METER SENSOR INSTALLED? .....	25
FLOW METER PULSES .....	25
<i>Manual Entry</i> .....	26
<i>Automatic Calibration</i> .....	26
FLOW SENSOR - MINIMUM FLOW CAPACITY .....	27
PRESSURE SENSOR INSTALLED? .....	28
PRESSURE TRANSDUCER LOW PRESSURE CALIBRATION (P REF) .....	28
<i>Auto Calibration</i> .....	29
PRESSURE TRANSDUCER MAXIMUM RATING (P HI) .....	29
SENSOR SELECTION .....	30
SECTION VALVE TYPE .....	30
PRESSURE REGULATING MODE .....	31
REGULATING VALVE CAPACITY .....	32
REGULATING VALVE SPEED – COARSE ADJUSTMENT .....	34

REGULATING VALVE SPEED - FINE ADJUSTMENT .....	35
TANK VOLUME .....	36
LOW TANK VOLUME ALARM .....	36
FILL FLOW METER CALIBRATION .....	37
<i>Manual Entry</i> .....	37
<i>Automatic Calibration</i> .....	37
COMMUNICATIONS .....	39
SIMULATED GROUND SPEED .....	40
<i>Low Speed</i> .....	40
<i>High Speed</i> .....	40
<i>How To Use</i> .....	40
AUTO MASTER OFF - SPEED .....	41
MINIMUM PRESSURE SETTING .....	41
MAXIMUM PRESSURE SETTING .....	42
AUDIBLE ALARM .....	42
DUAL BOOM SPEED (LIMIT #1).....	43
DUAL BOOM SPEED (LIMIT #2).....	44
MEMORY LOAD FUNCTION .....	45
<b>APPLICATION PRESET SETUP MODE.....</b>	<b>46</b>
TIP SPACING .....	46
# OF TIPS PER BOOM SECTION.....	47
DENSITY .....	47
<i>Alternate Density Used</i> .....	47
<i>Density Value</i> .....	47
TIP SELECTION.....	48
TARGET APPLICATION RATE.....	48
CALCULATION STEPS.....	49
<i>Known Pressure Calculation</i> .....	49
<i>Known Speed Calculation</i> .....	49
<b>OPERATING INSTRUCTIONS.....</b>	<b>50</b>
SPRAYER CHECKOUT .....	50
THE SPRAYING OPERATION .....	52
<b>FEATURES.....</b>	<b>53</b>
AREA/VOLUME DISPLAY .....	53
MEMORY FEATURE .....	54
<i>Viewing Memory information</i> .....	54
<i>Clearing Memory Locations</i> .....	54
<i>Saving Information To Memory</i> .....	55
<i>Exiting the Memory Locations</i> .....	55
APPLICATION ALARM .....	58
SENSOR LED ALARMS.....	58
NO SPEED ALARM .....	59
NO FLOW ALARM .....	59
NO PRESSURE ALARM .....	60
FLOW/PRESSURE DISCREPANCY ALARM .....	60
BOOST MODE.....	61
<i>Boost Up</i> .....	61
<i>Boost Down</i> .....	61
AUTO POWER DOWN .....	62
SMART SENSING .....	62
PRINTING .....	<b>ERROR! BOOKMARK NOT DEFINED.</b>

## Introduction

The programming of the 854 has been divided into three programming categories; OEM Setup Mode, System Setup Mode and User Setup Mode.

- The OEM Setup Mode contains mainly configuration steps for the Console. It is not recommended to change these steps unless instructed to do so. Changing the settings in the OEM Program Mode may adversely affect the performance of the controller.
- The System Setup Mode contains the programming steps that customize the controller to the sprayer or sprayer components. These include calibration steps and parameters that, once programmed, will likely never change.
- The Application Preset Setup Mode contains the settings that are most frequently changed: tip spacing, # of tips per boom section, density, nozzles used and target application rate.

**\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\***

The 854 is **NOT** compatible with solenoid type shut off valves. It should be used with Ball type valves **ONLY**.

Use of solenoid shut off valves will **void the warranty** of the console.











## Programming Guidelines

Make sure that all hardware components are properly installed and tested. Before you start the programming process you should confirm that the console and all sensors are working properly.

---

### IMPORTANT PRELIMINARY INFORMATION

Before you begin, we recommend that you review the following Programming Guidelines that control the programming process:

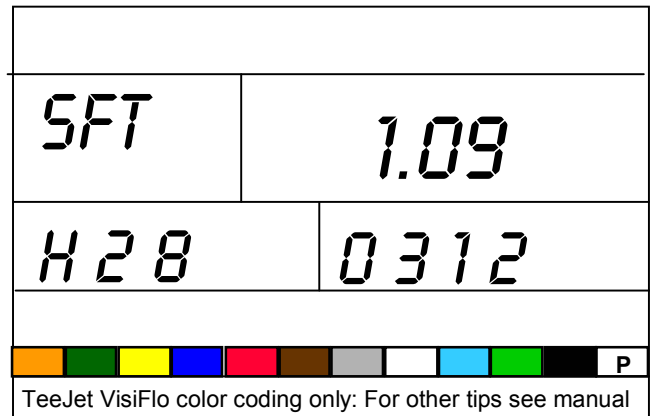
- To enter the program mode, see the appropriate program section you wish to enter in this manual. The master switch must be in the off position to enter any program mode.
- To exit any program mode press and hold the  key for 3 seconds, your inputs will be stored and the computer will exit the program mode. This action can be done at any time during the program process.
- To increase the value of a programmable digit, press the  key. To decrease the value, press the  key. These keys are located directly to the right of the display. For some programming steps, pressing and holding the  or  key will change the programmable value rapidly. Pressing the  or  key once will change the value by one increment.
- Pressing and holding the  key in some programming steps will set the value to "0".
- Pressing the  key once in some steps will reset the value to the factory default value.
- Pressing the  key will advance you to the next programming step. After the last programming step, the console will complete the program loop and return to the first programming step.

**Due to differences in fonts, some letters on the displays shown in this manual are not identical with the corresponding letters on the display of the controller. We tried to match them as close as possible.**

## Powering Console On/Off

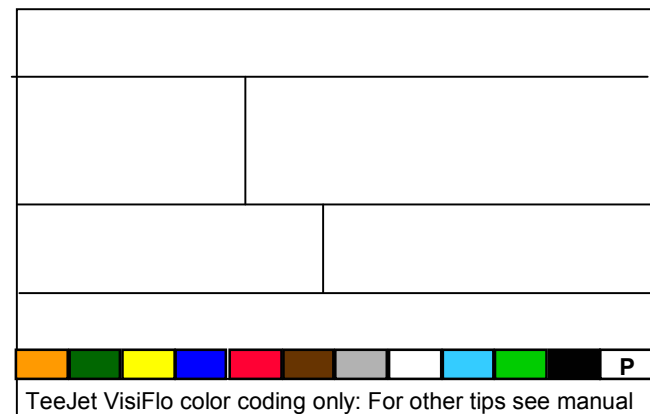
### POWER ON

- ✓ To power the 854 on press the **P** key once.
- ✓ Initially the console will display the software version in the top display and the serial number of the console in the bottom of the display.
- ✓ After 5 seconds the display will show the normal operating view.



### POWER OFF

- ✓ To manually power the console off, press the **[-]** and **P** keys simultaneously.
- ✓ The console will then save any new information (area and volume counters) to memory and will power off.








**The console also has an Auto Power Down feature. Refer to this in the features section of this manual.**

## OEM Program Mode – TeeJet 854 Controller

The OEM Program Mode contains mainly configuration steps for the console. The console is typically pre-configured before you receive it. It is not recommended to change these steps unless instructed to do so. Changing the settings in the OEM Program Mode may adversely affect the performance of the controller.






To enter the OEM Program Mode:

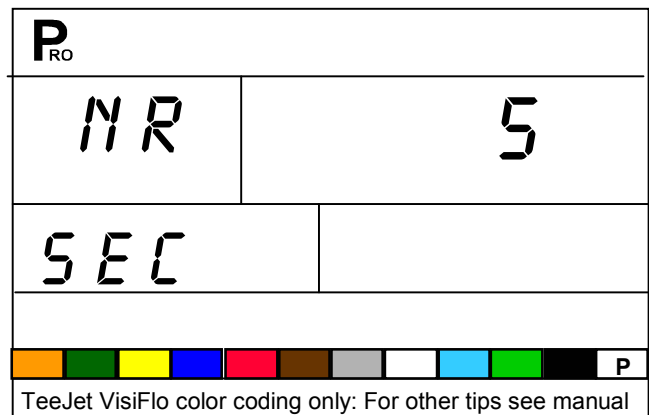
- ✓ Begin with console powered off.
- ✓ Press the  and  keys simultaneously to turn the console off if necessary.
- ✓ Press and hold the  and  keys. While holding, press the  key 4 times.
- ✓ Release all keys.

---

### NUMBER OF BOOM SECTIONS ON THE SPRAYER

In this step, the number of individual boom section switches actually present on the control console must be programmed (regardless of the number of boom sections that are on the sprayer).

- ✓ Use the  or  keys to modify the value.
- ✓ The number can be programmed from 1 to 11 switches.
- ✓ The number you enter here will determine the “Number of spray Tips per Boom Section” in the System Setup Mode.
- ✓ Pressing and holding the  key for 3 seconds will set the value to 1.
- ✓ Pressing the  key once will reset this value to the default value of 5.
- ✓ Press the  key to accept the value and to advance to the next program step.



## REGULATION PARAMETERS

The regulation algorithm will be configured with the next 3 parameters.

- **Minimum Regulating Valve voltage:** this is the minimum voltage that can be used to drive the regulating valve
- **Regulation Stop Band:** this is the maximum allowed error on the application rate
- **Rotation Time of Regulating Valve:** this is the total time for closing the regulating valve at maximum speed

These three OEM parameters depend on the regulating valve used and will be explained in more detail below.

### Minimum Regulating valve Voltage

The Console uses variable voltages to drive the regulating valve. The voltage selected here must be the minimum voltage that the regulating valve needs to make it turn at its slowest rotation speed.

(E.g. if the motor of the regulating valve turns with a minimum of 3.5 volt, then this number should be used here).

The effect of this parameter on the regulation behavior is shown in Fig. 1. This value must match the actual operation of the regulating valve used. Check with the valve manufacturer for this value.

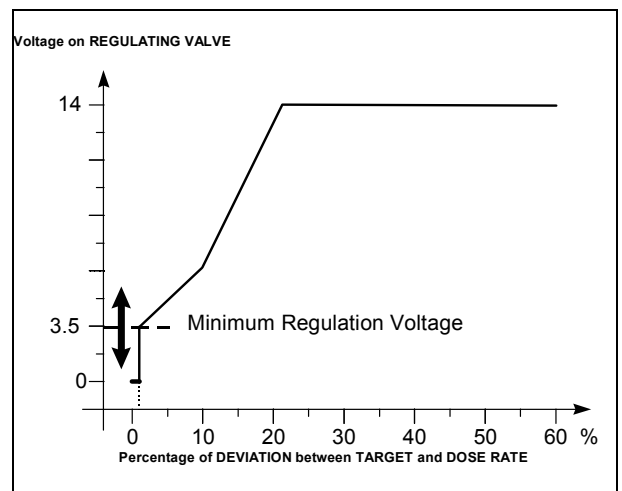
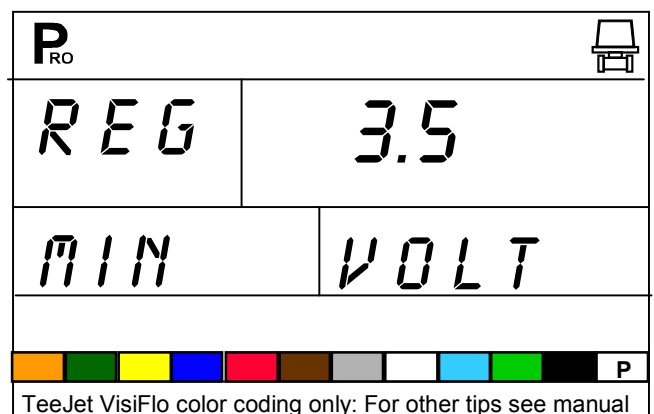


Fig. 1 Minimum Regulation Voltage

- ✓ Use the **+** or **-** keys to change the voltage.
- ✓ Pressing and holding the **↔** key for 3 seconds will set the value to 0.0.
- ✓ Pressing the **↔** key once will set the value to the default value of 3.5 Volt

The standard  
**TeeJet Regulating Valve**  
 Minimum Voltage is:  
**3.5v**



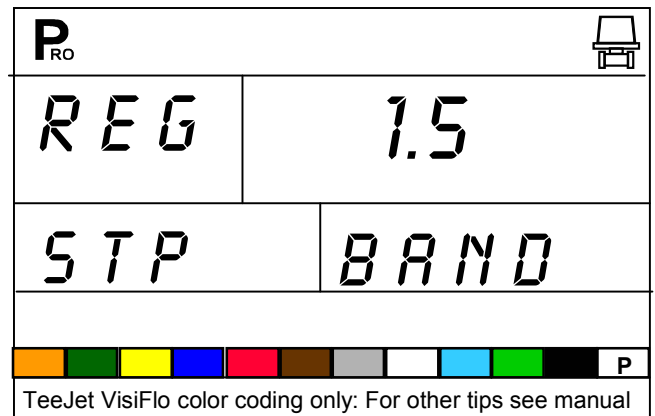


If 12V is selected as minimum voltage then no variable voltage regulation is done, instead, a pulse regulation is done. This is necessary when using solenoid operated regulating valves (e.g. a Ramsay valve).

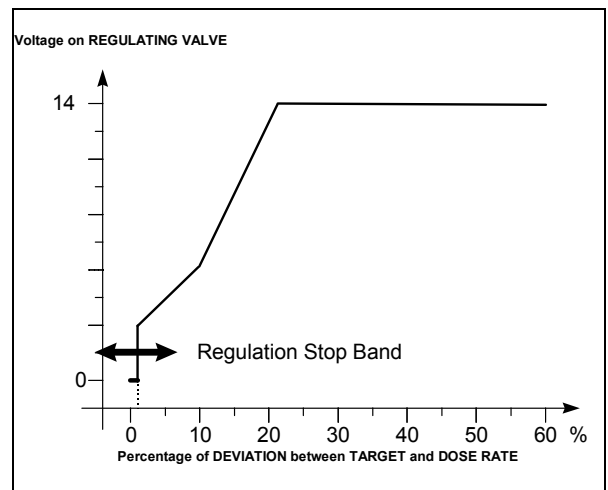
## Regulation Stop Band

The regulation stop band is the maximum error percentage allowed on the application rate before the regulating valve will react. (E.g. if a stop band of 1.5% is selected, then there is no action on the regulating valve if the actual application rate is within 1.5% of the target rate). This minimum percentage is used to prevent the regulating valve from oscillating in a narrow band around the target point.

- ✓ Use the  $\oplus$  or  $\ominus$  keys to change the regulation stop band (value is expressed in error percentage). The maximum value is 10.0%.
- ✓ Pressing and holding the  $\text{HOLD}$  key for 3 seconds will set the value to 0.0.
- ✓ Pressing the  $\text{HOLD}$  key once will set the value to the default setting of 1.5%.
- ✓ Press the  $\text{P}$  key to accept the value and advance to the next regulation step.



The effect of this parameter on the regulation behavior is shown in Fig. 2.

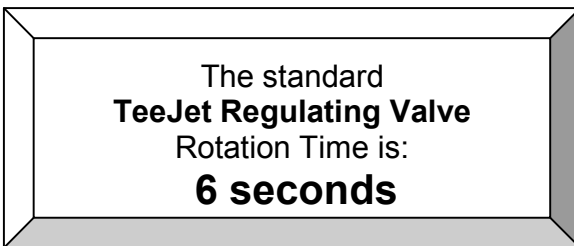
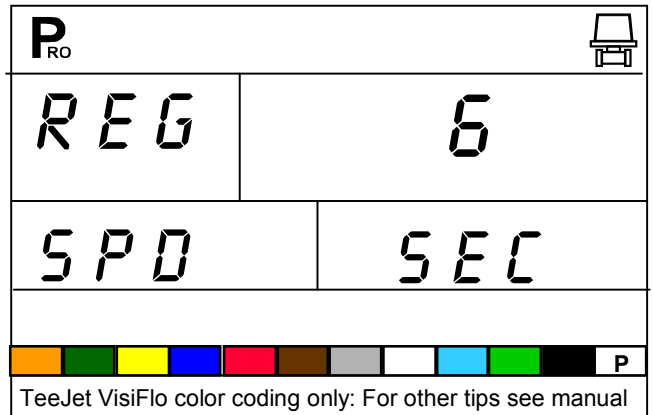


**Fig. 2 Regulation Stop Band**

## Rotation Time of Regulating valve

This programming step is used to select the rotation time of the regulating valve. This time is the number of seconds the regulating valve needs to turn from the complete closed to the complete open position at the nominal voltage (e.g. 14V).

- ✓ Use the **+** or **-** keys to change the rotation time of the regulating valve in seconds (minimum 0s, maximum 50s).
- ✓ Pressing and holding the **↔** key for 3 seconds will set the value to 0.0.
- ✓ Pressing the **↔** key once will set the value to the default setting of 6 seconds.
- ✓ Press the **P** key to accept the value and advance to the next regulation step.



This parameter is used by the Console to influence the regulation speed. This value must match the actual operation of the regulating valve used. Check with the valve manufacturer for this value.

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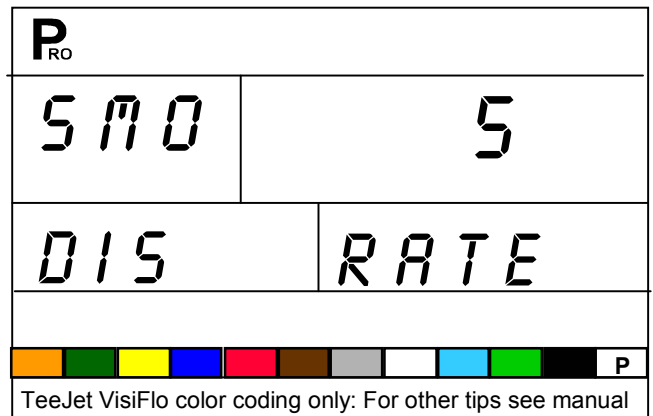
## DISPLAY STABILIZATION

This programming step is used stabilize the Application rate being displayed during minor adjustments of the control system. The controller will continue to make the necessary adjustments at all times. Enter the % of allowable change from the target rate in this step.

E.g.: Target rate of 20 GPA with 5% programmed for Display Stabilization. Display will show 20 GPA any time the actual rate is +/- 5% or:

19.0 - 21.0 GPA Actual = 20.0 GPA on display.

- ✓ Use the **+** or **-** keys to change the value.
- ✓ Pressing and holding the **↔** key for 3 seconds will set the value to 0.0.
- ✓ Pressing the **↔** key once will set the value to the default setting of 5%.
- ✓ Press the **P** key to accept the value and advance to the next step.
- ✓ This value is limited to 20%. 0% will disable this setting.

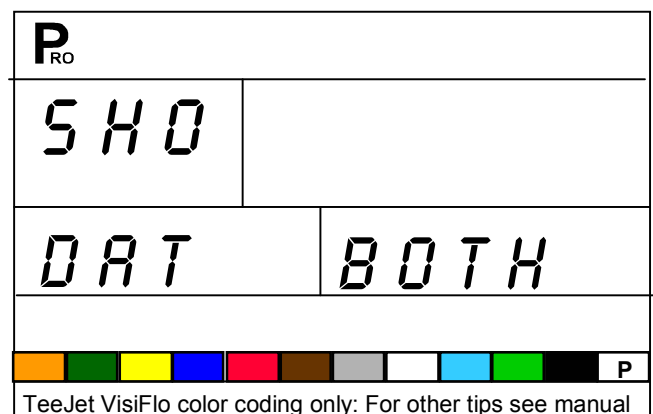


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## DATA DISPLAY SCREEN OPTIONS

The lower right hand display used during normal operating mode can be customized to show:

- Volume Sprayed
- Area Covered
  - Both (alternating every 3 seconds).
- ✓ Use the **+** or **-** keys to change the data to be displayed.
- ✓ Press the **P** key to accept the value and advance to the next step.



---


## CALIBRATE TIP LEVEL %

If both a pressure sensor and flow meter are installed and being used, the 854 will use one sensor to cross check the other for errors in the system.

The primary sensor (used for regulation) will be selected in the Sensor Select step of the System Setup Mode. The opposite sensor will automatically be used for cross checking purposes.

This step sets the % of allowable error between the sensors before an alarm is activated. All sprayer systems will have some discrepancy between pressure and flow due to pressure drops and positioning of the sensors.

- ✓ Use the **+** or **-** keys to change the % of allowable error.
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next step.

<b>P<sub>RO</sub></b>	
<i>CAL</i>	<i>50</i>
<i>TIP</i>	<i>LEV</i>
	
TeeJet VisiFlo color coding only: For other tips see manual	

It is recommended that this value be left at  
**50%**  
Unless instructed otherwise.

## DIGITAL OUTPUT #2

The primary output from the console computer is used to drive the pressure regulating valve. A second output is available and can be configured for the following uses.

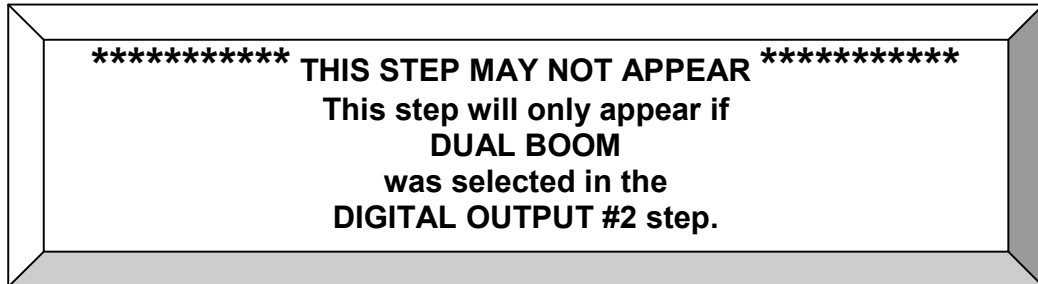
- **Not Used** – The second digital output will not be used.
  - **Dual Boom** – Used to control a shut off valve on a second boom line that is automatically activated based on speed or pressure.
  - **Fill Valve** – Used to automatically shut off a valve or switch during a tank filling operation when used with a tank fill flow meter.
- ✓ Use the **+** or **-** keys to change the value.
  - ✓ Press the **P** key to accept the value and advance to the next step.

<b>P<sub>RO</sub></b>	
<i>OUT</i>	<i>2</i>
<i>NOT</i>	<i>USED</i>
TeeJet VisiFlo color coding only: For other tips see manual	

<b>P<sub>RO</sub></b>	
<i>OUT</i>	<i>2</i>
<i>DUA</i>	<i>BOOM</i>
TeeJet VisiFlo color coding only: For other tips see manual	

<b>P<sub>RO</sub></b>	
<i>OUT</i>	<i>2</i>
<i>FIL</i>	<i>VALV</i>
TeeJet VisiFlo color coding only: For other tips see manual	

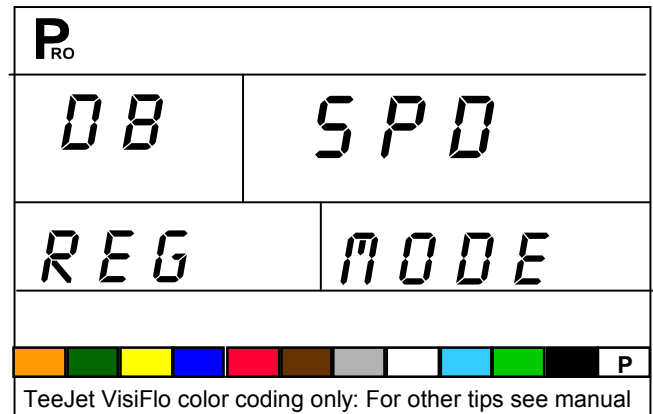
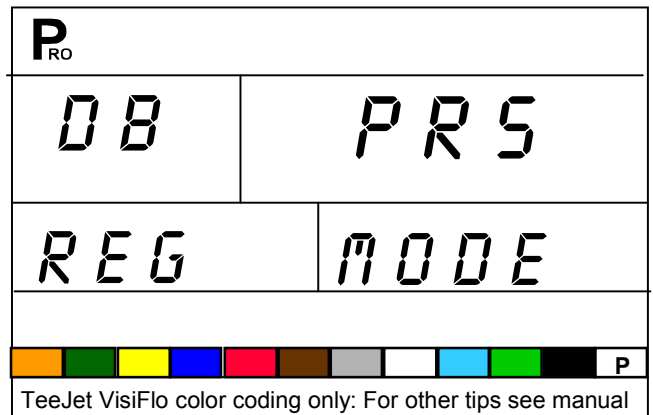
## DUAL BOOM REGULATION MODE



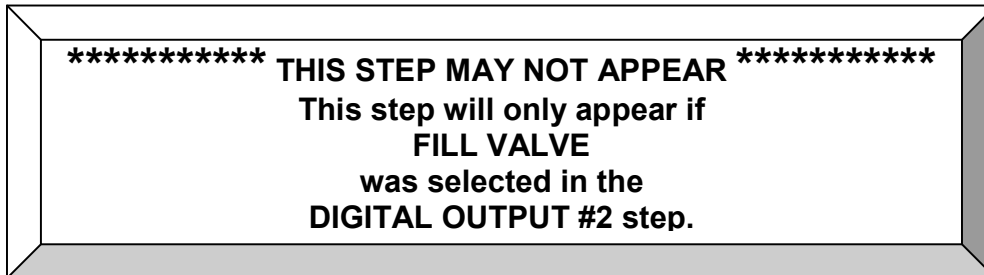
The dual boom feature can be regulated by either speed (**SPD**) or pressure (**PRS**).

- E.g. When you reach X MPH (Km/h) the second boom line will turn ON/OFF
- E.g. When you reach X PSI (bar) the second boom line will turn ON/OFF
- ✓ Use the **+** or **-** keys to change the value.
- ✓ Press the **P** key to accept the value and advance to the next step.

The selected value will determine how programming steps appear in the System Setup Mode. Specific speed or pressure values to be used during operation will be selected in the System Setup Mode.

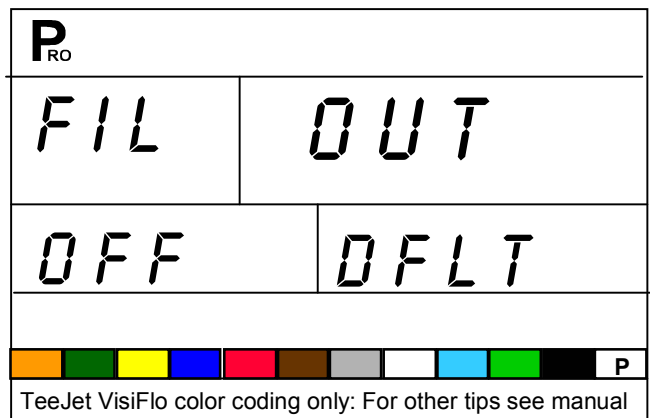


## FILL VALVE DEFAULT



This step indicates the normal operating state of the fill valve being used.

- If the fill valve is normally **open** during the spraying operation then the valve default = **ON**.
- If the fill valve is normally **closed** during the spraying operation then the valve default = **OFF**
- ✓ Use the **+** or **-** keys to change the value.
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next regulation step.

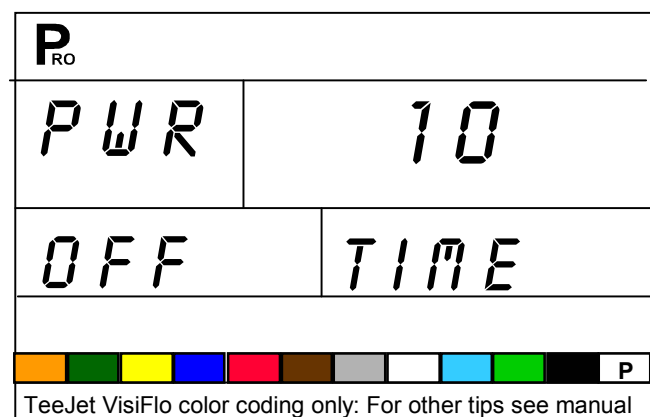
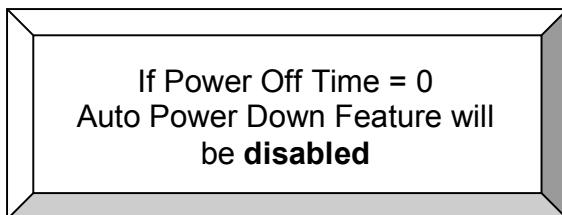


## AUTO POWER DOWN TIME

The 854 console is designed to automatically power down after 10 minutes with no activity from the sensors or operator.

The length of time can be adjusted in this step.

- ✓ Use the **+** or **-** keys to change the power down time
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next regulation step.



## TEEJET COMMUNICATION SYSTEM (TCS) CONFIGURATION

If you have NOT purchased the TeeJet Communication System (TCS) package for this console, the next 2 programming steps will not pertain to your spraying operation. If this is the case these values should be left at the default settings.

### Job Operating System

- **Job No – (DEFAULT)** Console will use application parameters entered by the operator only
- **Job Only** – Console will use application parameters entered from the TeeJet Communication System only
- **Job Both** – Console will accept application parameters from both the operator and the TeeJet Communication System

P <sub>RO</sub>	
JOB	
	NO
TeeJet VisiFlo color coding only: For other tips see manual	

- ✓ Use the **+** or **-** keys to change the value.
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next regulation step.

### Console Identification #

The TeeJet Communication System (TCS) is capable of monitoring and communicating with several consoles at one time. Therefore each console communicating with a single TCS needs to be assigned a unique identification #.

**DEFAULT = 1**

- ✓ Use the **+** or **-** keys to change the value.
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next regulation step.

P <sub>RO</sub>	
CON	1
ID	
TeeJet VisiFlo color coding only: For other tips see manual	



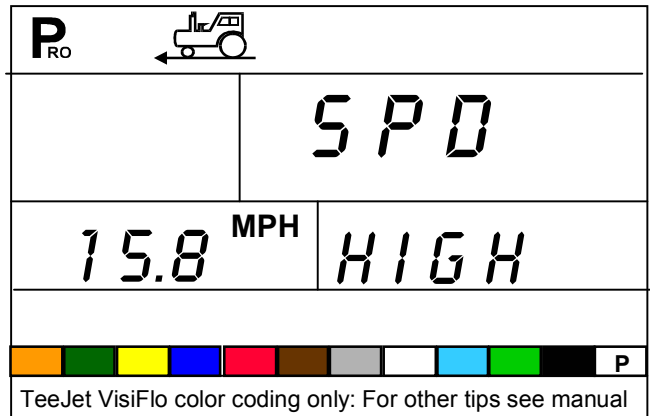
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## MAXIMUM SPEED ACHIEVED

This feature records the maximum speed achieved by the sprayer.

This value can only be cleared by an authorized TeeJet Dealer, Distributor or Representative.

- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



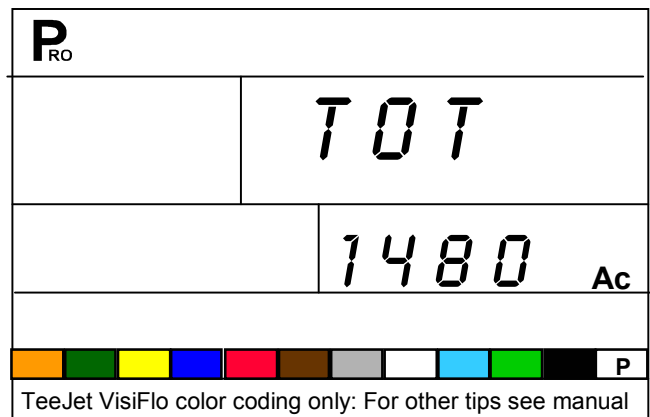
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## HIDDEN AREA COUNTER

The Hidden area counter can only be viewed and cleared in this step.

This value can only be cleared by an authorized TeeJet Dealer, Distributor or Representative.

- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



## PRESSURE TRANSDUCER CALIBRATION (P HI)

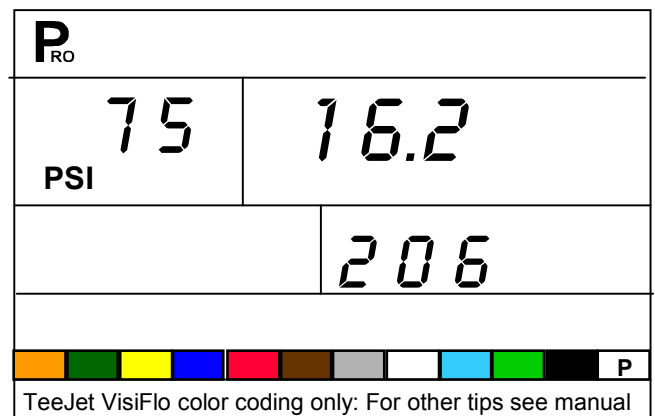
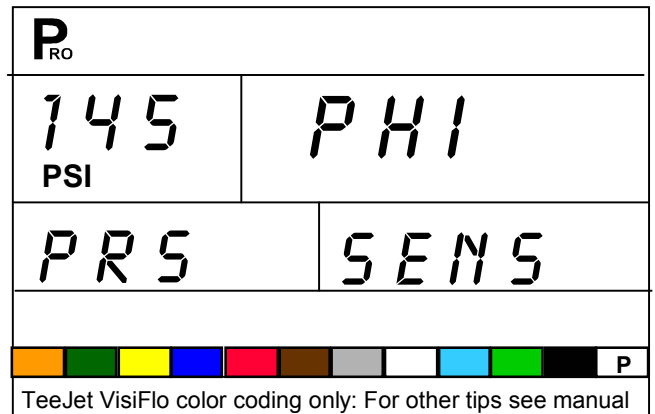
\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\*  
 If the console has not been previously programmed in the  
 System Setup Mode for use with a pressure sensor.


### \*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\*

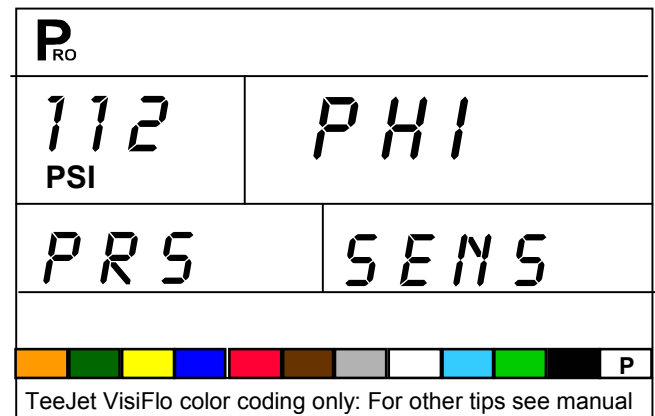
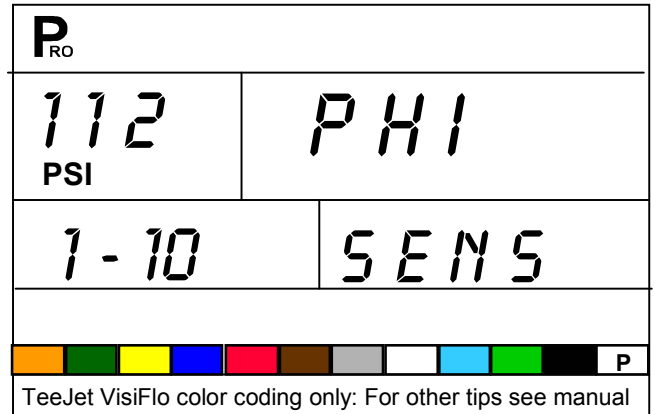
It is NOT recommended that this calibration procedure be conducted initially. It should **ONLY** be conducted if a known pressure drop exists between the Pressure Transducer and the spray tips. This calibration should only be run if a TeeJet representative recommends you do so.

The pressure sensor can be auto calibrated to compensate for pressure loss between the pressure transducer and the spray tips.

- ✓ Press and hold the **+** and **-** keys to start the Auto Calibration process. The lower left hand screen will go blank
- ✓ Place a manual pressure gauge (must be an accurate pressure gauge) in the spray line as close to the spray tips as possible.
- ✓ Activate the pump and boom sections to be used for calibration.
- ✓ Turn the Master switch ON
- ✓ Use the **+** or **-** keys to adjust the pressure on the manual pressure gauge near the tips to the pressure you wish to use for calibration. The higher the pressure the better.
- ✓ Shut the Master switch off.
- ✓ Use the **+** or **-** keys to adjust the displayed pressure to match the actual pressure at which you will calibrate.
- ✓ Activate the pump and boom sections to be used for calibration.
- ✓ Confirm that the actual pressure matches the displayed pressure.
- ✓ Press the **P<sub>RO</sub>** key to start calibration.
- ✓ The console will count 0-10 during the calibration.



- ✓ Your new Pressure Transducer Maximum Rating will be displayed.
- ✓ This value will automatically be carried over to the System Setup Mode.
- ✓ Press the  key to advance to the next step.



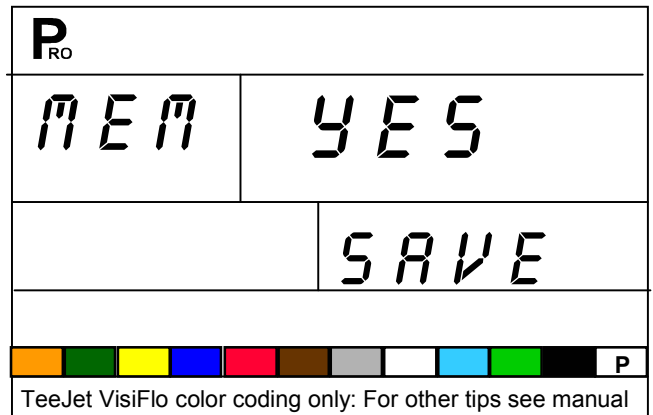
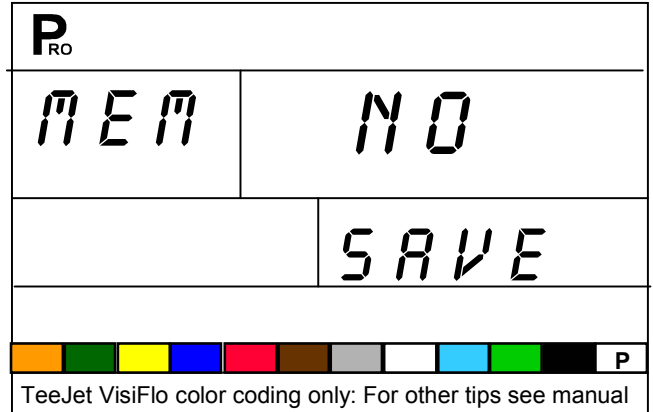
## MEMORY SAVE FUNCTION

Allows a custom set of programming parameters to be saved. Typically this would be done after the console has been completely programmed (all 3 programming sections completed).

Selecting YES at this step saves all program settings to memory. These settings can be recalled in the System Setup Mode at the Mem Load function step.

This function is typically used to get the console back to a starting point after unknown changes have been made to the program modes.

- ✓ Use the **+** or **-** keys to select either YES or NO
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



- This completes the OEM programming of the TeeJet 854. Pressing the **P<sub>RO</sub>** key again will take you to the beginning step.
- Press and hold the **P<sub>RO</sub>** key to exit and save the OEM setup mode.
- This can be done at any time during OEM programming.
- The console exits the OEM program mode to the normal operating mode.

## System Setup Mode – TeeJet 854 Controller

The System Setup Mode contains the programming steps that customize the controller to the sprayer or sprayer components. These include calibration steps and parameters that, once programmed, will likely never change.

To enter the Program Mode, starting from the normal operating mode, press and hold the **P** key for 3 seconds. The first programming step should appear on the display.

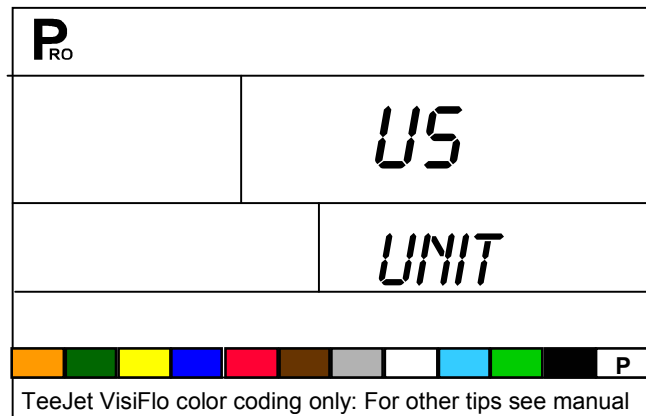
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### SELECTION OF WORKING UNITS

In this step select which units you will be using.

The 854 is capable of working in:

- GPA (Gallons Per Acre)
  - trf (Turf Gallons /1000ft<sup>2</sup>)
  - IMP (Imperial Gallons Per Acre),
  - nh<sub>3</sub> (lbs. Of N Per Acre)
  - SI (Metric Liters Per Hectare)
- 
- ✓ Use the **+** and **-** keys to select the appropriate units.
  - ✓ Press the **P** key to accept the value and advance to the next program step.






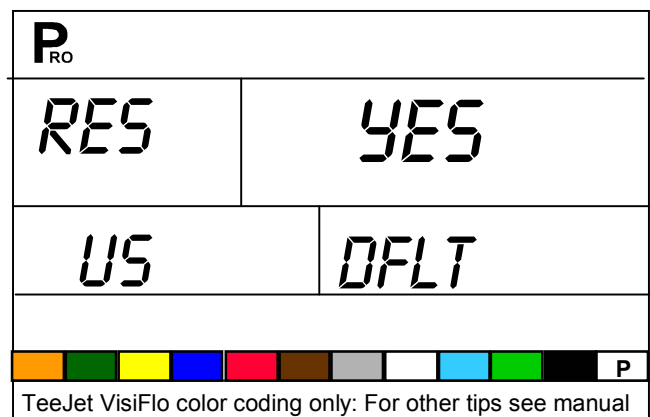
## Reset To Defaults

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***

**If you did NOT make any changes to the units, this step will be skipped and you will automatically be advanced to Speed Sensor Calibration Step.**

If you made a change to the units in the first programming step, before advancing to the next step the console will ask if you would like to reset all the program parameters to defaults specified for the units you have chosen.

- ✓ Use the  or  key to select either yes or no.
- ✓ Press the  key to begin resetting or advance to the next step.

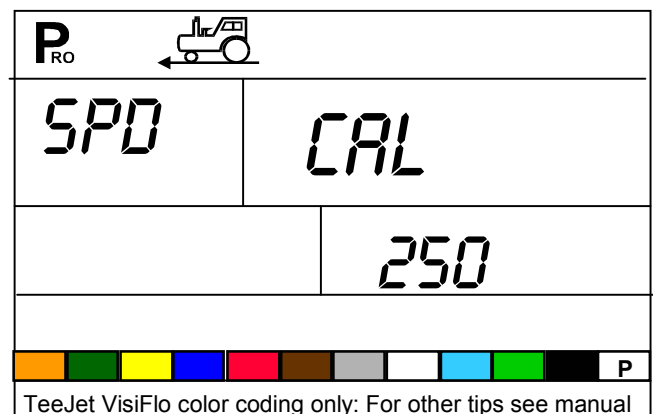


## SPEED SENSOR CALIBRATION

**During Speed Calibration, the 854 will automatically sense if a Wheel Speed or Radar Speed Sensor is being used.**

### Proximity/Magnetic Pulses

The speed sensor needs to be calibrated in order to provide the proper speed and area readings. The value for this step is the number of pulses generated by the speed sensor in 300 ft.

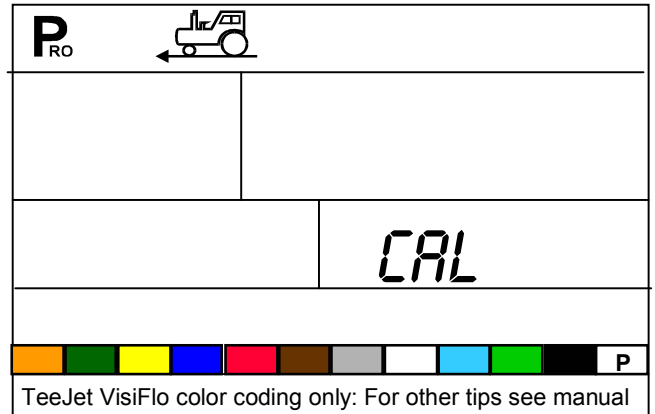


### **Automatic Calibration:**

- ✓ Mark off a distance of exactly 300 ft.
- ✓ Press and hold the **+** and **-** keys simultaneously for 3 seconds to activate the auto calibration mode.

**When the auto calibration mode has been activated, “CAL” will be displayed at the lower right of the display.**

- ✓ Now start driving toward the start point of the of 300 ft. (100 meter) course.
- ✓ As you cross the start point press the **+** key once to begin the calibration process.
- ✓ Continue across the course and the 854 will count the pulses as the sprayer moves.
- ✓ As you cross the end point, press the **+** key once. The number displayed is your speed calibration number.
- ✓ If the console determines that a radar speed sensor is connected, “rAd” will be displayed in the lower left quadrant of the display.





**The speed at which you drive over the course is not important.**

**The auto speed calibration process should take place with the sprayer tank ½ full.**

**It is best to repeat the automatic speed calibration process at least twice and use the average of the speed calibration numbers.**


**To manually enter the radar calibration value, first press the **P<sub>RO</sub>** and **+** keys simultaneously to put the console into radar mode. When the control console is in the radar mode, “RAD” will be displayed in the lower left of the console display. Now use the **+** or **-** keys to adjust the value. Pressing the **↔** Auto/Man key will reset the speed calibration to the default value.**

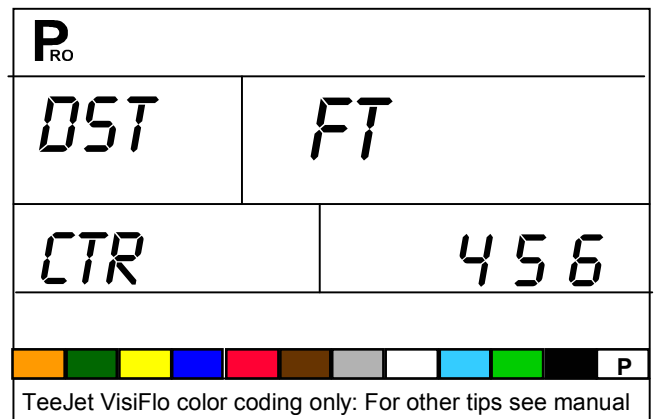
- ✓ When the correct value has been entered, press the  key to validate this value and advance to the next step.

**If the auto calibration mode has been activated, no other functions are possible until the console receives speed pulses for calibration. To deactivate the auto calibration mode, press the  key until a number is displayed.**

## DISTANCE COUNTER

This step is a feature, not a calibration step. No specific value needs to be entered here for the controller to operate correctly.

- ✓ This feature will measure distance in feet (meters).
- ✓ Can be used to confirm Automatic Speed Calibration (see note below).
- ✓ To activate the counter, turn the Master Boom Switch on.
- ✓ **To avoid actually spraying during this task, toggle the individual boom sections off.**
- ✓ To stop the counter, turn the Master Boom Switch off.
- ✓ To clear an existing distance, press and hold the  key and hold for 3 seconds.



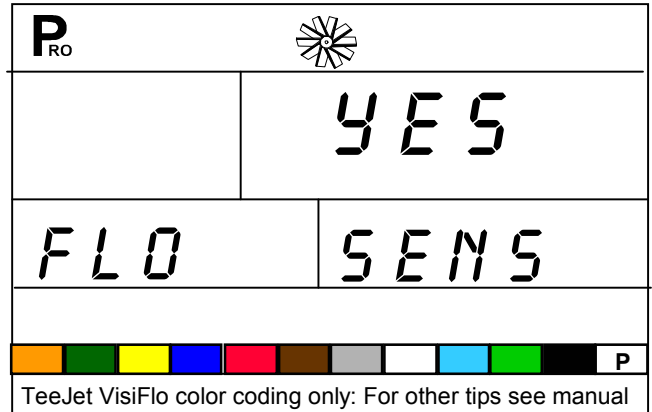
**To confirm Automatic Speed Calibration, first complete the calibration procedure. Advance to Distance Counter step. Drive across the same 300 foot course turning the Master Switch ON at the start point and OFF at the finish point. Distance measured should be 300 feet (+/- 6 feet).**



## FLOW METER SENSOR INSTALLED?

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
**If other programming steps have indicated that a flow sensor IS present.\*\***

- ✓ This step indicates if a flow meter has been installed on the sprayer.
- ✓ Use the **+** or **-** keys to adjust the value.
- ✓ Select YES if a flow meter is installed or NO if a flow meter will not be used.
- ✓ Press the **P** key to validate this value and advance to the next step.

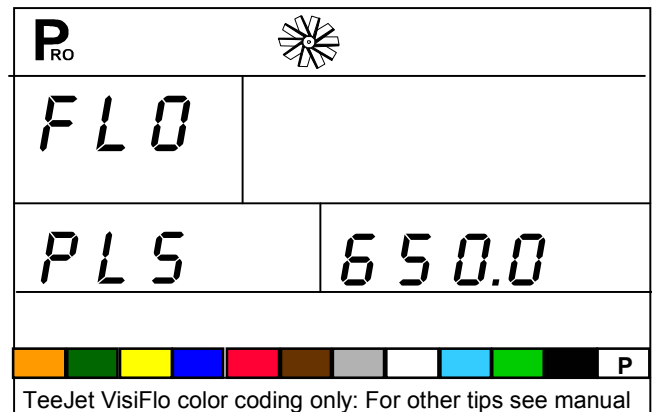


## FLOW METER PULSES

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
**It only appears if the Flow Meter Installed step is set to YES.**

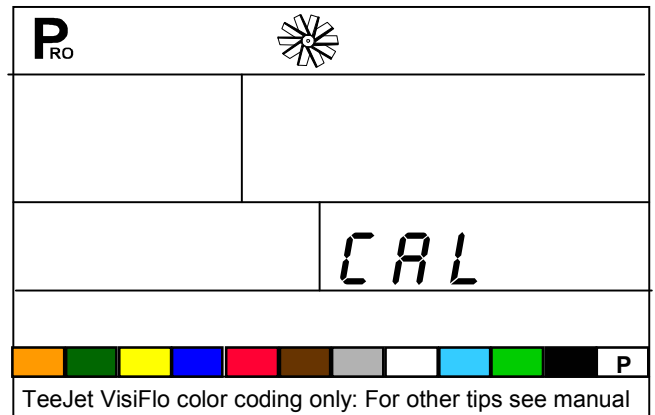
In this step the flow meter calibration number can be entered manually from the factory calibrated tag or an auto-calibration procedure can be activated to determine the flow meter pulses based on a know volume of fluid.

- The auto-calibration procedure is recommended for maximum accuracy



## Manual Entry

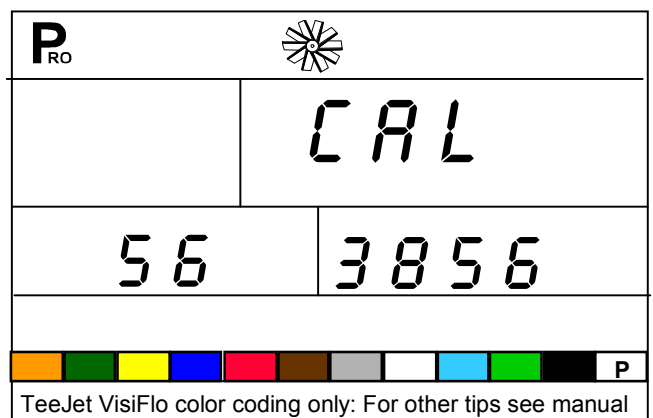
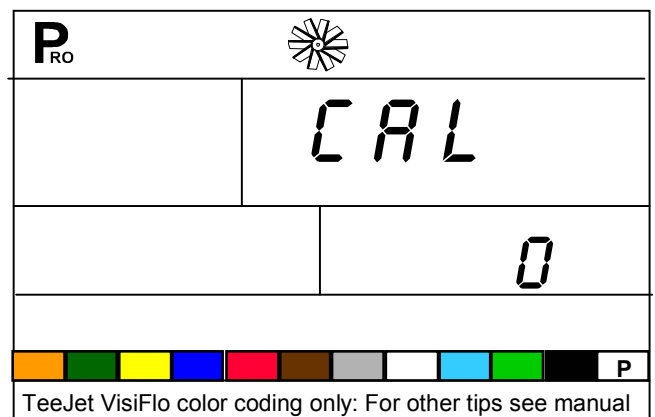
- ✓ First locate the factory calibrated flow meter pulse rate tag on the flow meter.
- ✓ If this varies from the default value (it usually does) of the console, use the **+** or **-** keys to modify the value.
- ✓ Press the **P** key to advance to the next step.




## Automatic Calibration

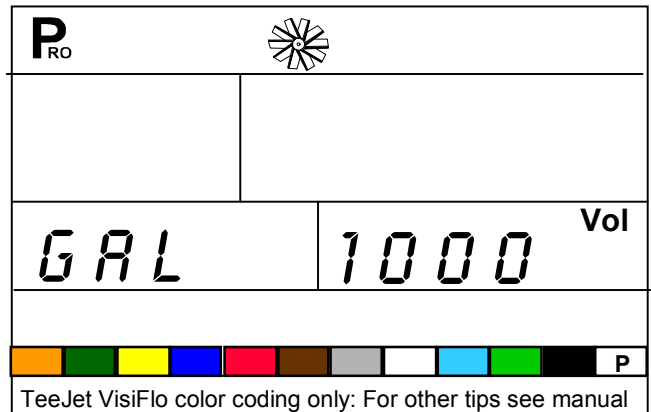
To complete an automatic calibration of the flow meter:

- ✓ Press and hold the **+** and **-** keys simultaneously for 3 seconds. This will clear the existing value and initiate the calibration procedure.
- ✓ "CAL" will be displayed in the screen. This indicates that the controller is ready to begin the calibration process.
- ✓ Engage the sprayer pump.
- ✓ Push the **+** key to activate the calibration.
- ✓ Now turn the boom sections on and begin spraying a known volume of fluid (e.g. 100 gallons).
- ✓ As you spray the known amount, the console will count the pulses.
- ✓ After the known volume has been sprayed, turn the Master switch off to stop counting pulses.
- ✓ Now press the **P** key. The console will now ask what volume was sprayed.
- ✓ Use the **+** and/or **-** keys to adjust the value to match the volume sprayed in gallons (liters).
- ✓ Now press the **P** key to return to the programming mode.
- ✓ Your new flow meter calibration number will be displayed.



- ✓ To accept this value press the  key to advance to the next step.
- ✓ If you wish to repeat the calibration procedure refer to the steps above.




**A volume of at least 50 gallons (200 liters) should be sprayed during calibration. The more volume used for calibration the more accurate the flow meter will be.**

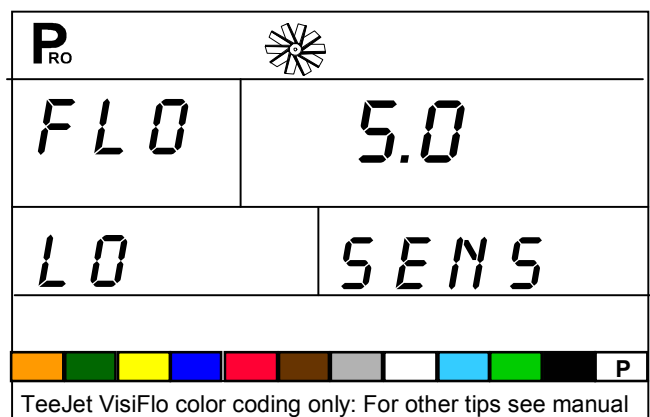


## FLOW SENSOR - MINIMUM FLOW CAPACITY

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
**If the console has not been previously programmed for use with a pressure sensor**

With both a pressure and flow sensor installed, the 854 will determine when the flow rate has dropped below the capacity of the flow meter being used and will automatically switch to pressure based regulation. When the flow rate again reaches an acceptable level for the flow meter to regulate, the 854 will automatically switch back to flow based regulation.

- ✓ Use the  or  keys to enter the minimum recommended flow rate in GPM (LPM) of the flow meter installed on the sprayer.
- ✓ This information can be found in the manufacturer's literature.
- ✓ Minimum flow rates for TeeJet flow meters are listed in the table below.
- ✓ Press the  key to accept the value and advance to the next step.






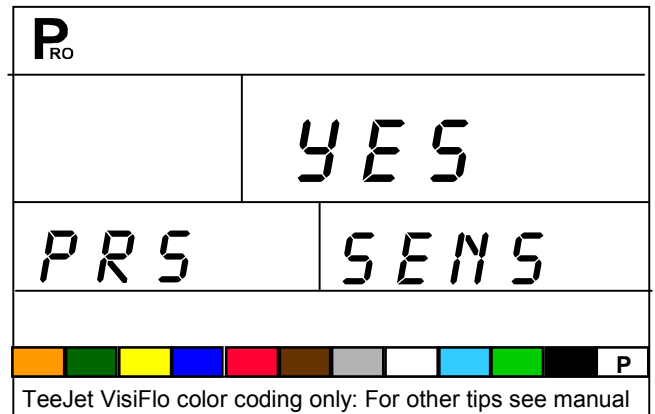
Nominal Flow Meter Size	Minimum Flow Rate In GPM (l/min)
1/2"	0.79 GPM (3 l/min)
3/4"	1.9 GPM (7 l/min)
1"	2.6 GPM (10 l/min)
801-PP-RUB	2.5 GPM (9.5 l/min)
1 1/2"	9.2 GPM (35 l/min)
2"	19 GPM (72 l/min)

## PRESSURE SENSOR INSTALLED?

If you select NO in this step, the next 2 steps in the manual will not appear in the console programming selection.

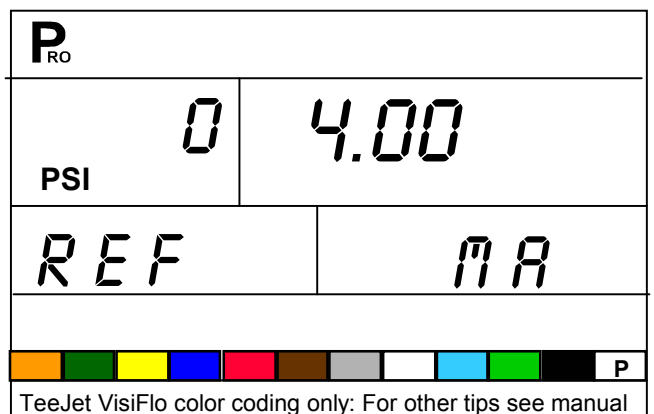
This step indicates if a pressure sensor has been installed on the sprayer.

- ✓ Use the  or  key to adjust the value.
- ✓ Select YES if a pressure transducer is installed
- ✓ Select NO if a pressure transducer will NOT be used.
- ✓ Press the  key to accept the value and advance to the next step.



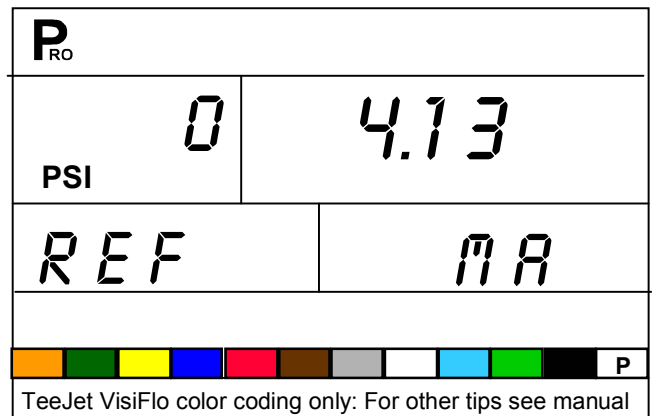
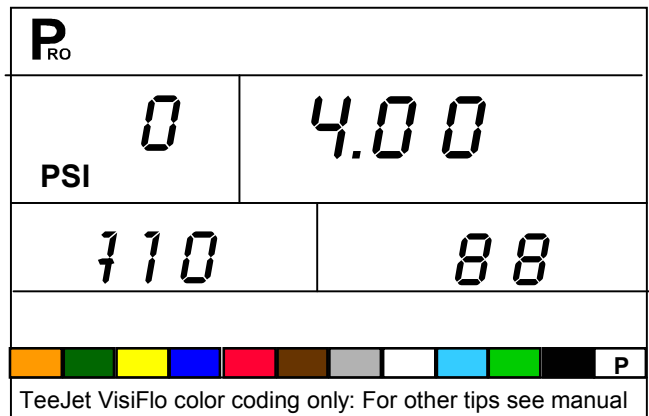
## PRESSURE TRANSDUCER LOW PRESSURE CALIBRATION (P REF)

This step is used to calibrate the "0" pressure setting of the pressure transducer installed in your system. The pressure transducer used with the 854 is a current type transducer and uses a 4-20 mA reading. 4.0 mA represents 0 pressure.



## Auto Calibration

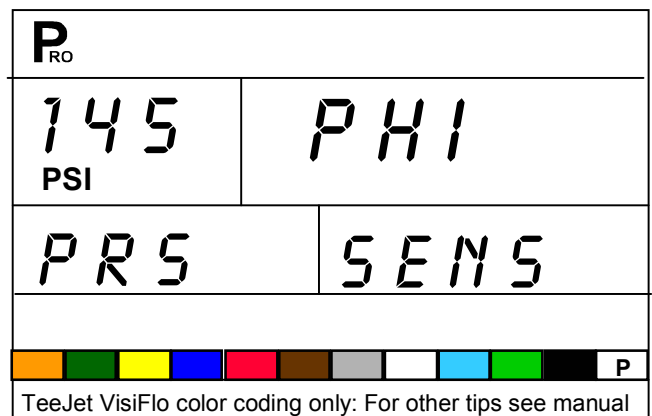
- ✓ Make sure that the sprayer pump is turned off and there is absolutely no pressure in the system (release pressure held by boom control valves and nozzle body check valves).
- ✓ In some cases it may be best to remove the sensor from the plumbing system to complete the calibration.
- ✓ Press and hold the **+** and **-** keys simultaneously for 3 seconds to activate the auto-calibration feature.
- ✓ The lower left portion of the display will count 1-10 during the calibration.
- ✓ When the display finishes counting, a number close to 4.0 (+/- 0.2) should be displayed.
- ✓ The low pressure value of the transducer is now calibrated.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



## PRESSURE TRANSDUCER MAXIMUM RATING (P HI)

This step is used to set the maximum rating of the pressure transducer in your system. This number can be found stamped on the pressure transducer itself.

- ✓ If your transducer has a maximum rating of 145 psi (10 bar) and that number is shown in the display, then advance to the next step by pressing the **P<sub>RO</sub>** key.
- ✓ If however, the maximum rating is 363 psi (25 bar), use the **+** or **-** keys to change the value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



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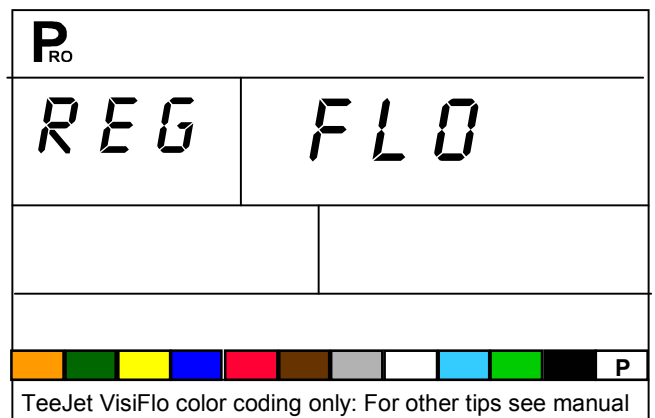
## SENSOR SELECTION

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
**It will only appear if both sensors (pressure and flow sensors) have been installed and programmed.**

The 854 system can be used with either a flow meter, pressure transducer or both. This step tells the computer which sensor you will be using on your sprayer to control the regulation.

- ✓ Use the **+** or **-** key to select either “FLO” for flow meter or “PrS” for pressure sensor.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.

If both sensors have been installed on the sprayer, this step will determine which is the primary sensor for regulation. If “FLO” is selected, the flow meter will be used to control flow and the pressure transducer will be used only to display the actual pressure. If “PRS” is selected, the pressure transducer will be used to control the flow and display the actual pressure.



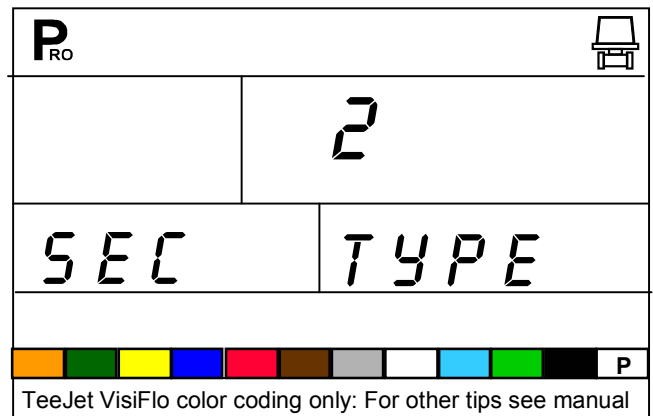
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## SECTION VALVE TYPE

This step distinguishes the type of on-off boom control valves being used. There are 2 types of valves that can be used, 2 way and 3 way.

- A **2 way** control valve is simply an on/off valve. Flow is either directed to the boom section(s) or it is blocked.
- A **3 way** control valve is known as a by-pass valve. Flow continuously passes through this valve. When the valve is activated (on), flow is directed to the boom section(s). When the valve is not activated (off), flow is directed through a bypass port, back to the supply tank.


- ✓ Change the value if needed by pressing the **+** or **-** keys.
- ✓ Press the **P** key to accept the value and advance to the next step.





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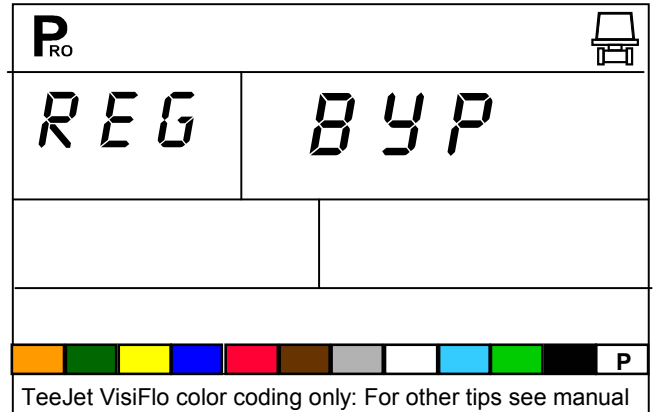
## PRESSURE REGULATING MODE

This step tells the 854 where the regulating valve has been plumbed. Once set correctly, this value should not change unless the regulating valve is physically moved to a new point in the plumbing.




- ✓ The default value “BYP” indicates that the pressure regulating valve is plumbed in a bypass line.
- ✓ If this is correct press the  key to accept the value and advance to the next step.

When programmed in the **bypass mode**, with the controller in “MAN” mode, the pressure regulating valve should:



- close when the  key is pressed
- open when the  key is pressed

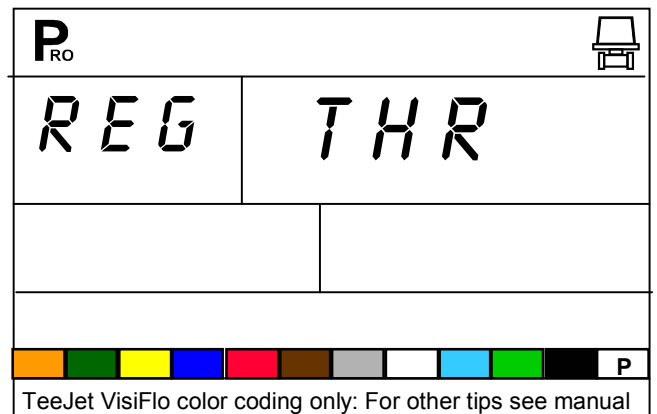


If you have plumbed the pressure regulating valve in a supply line to the booms, this is considered a throttling position.

- ✓ Use the  or  key to change the value to “thr” (throttling mode).
- ✓ By doing this, you have reversed the polarity that the console uses to control the regulating valve.
- ✓ Press the  key to advance to the next step.

When programmed in the **throttling mode** with the controller in “MAN” mode, the valve should

- open when the  key is pressed
- close when the  key is pressed







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## REGULATING VALVE




## CAPACITY

Enter the maximum flow capacity of the regulating valve you are using in Gallons Per Minute (GPM). The regulating parameters needed to drive the regulating valve smoothly depend on the size of the valve. This step optimizes these parameters for the size of valve you are using.

- ✓ Use the  or  keys to adjust the value so that it matches the maximum flow capacity (GPM) of the regulating valve you are using.
- ✓ Press the  key to advance to the next step

Reference the valve manufacturer's literature to determine the flow capacity of the regulating valve.

<b>P</b> <sub>RO</sub>	
<i>REG</i>	
<i>CAP</i>	<i>32</i>
	

### Common TeeJet Regulating Valves

344AE-2RL.....	27 GPM
344AE-2RB .....	30 GPM
344AE-2PR.....	12 GPM
AA346ZR.....	85 GPM
AA346ZRB .....	85 GPM

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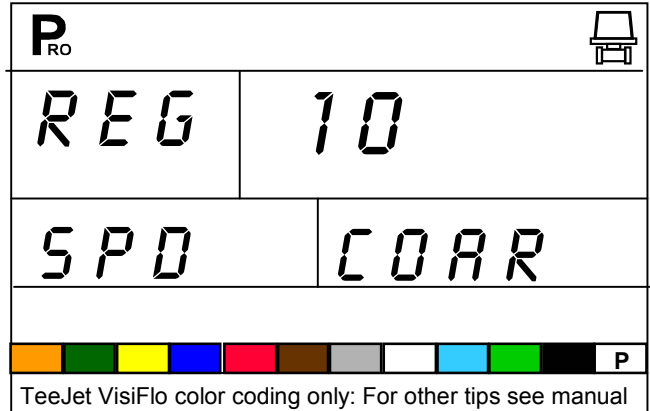
## REGULATING VALVE SPEED – COARSE ADJUSTMENT

This step allows you to adjust the speed of the pressure regulating valve to accommodate different application needs. Operating conditions may necessitate a higher or lower response speed for the regulating valve.

The **coarse adjustment** controls the speed of the valve when large adjustments in flow are required by the controller.

- ✓ Use the **+** or **-** keys to increase or decrease the response time.
- ✓ Any number between 0 and 19 may be selected.

**0 = Slow : 19 = Fast**



If your regulating valve is plumbed in a **by-pass line**, the valve speed coarse adjustment number of **15** works very well in most applications.

If your regulating valve is plumbed in the **throttling position** (supply line), start with a valve coarse adjustment speed number of **5** and adjust the number according to your application requirements.

- ✓ Press the **P** key to accept the value and advance to the Fine Adjustment setting.

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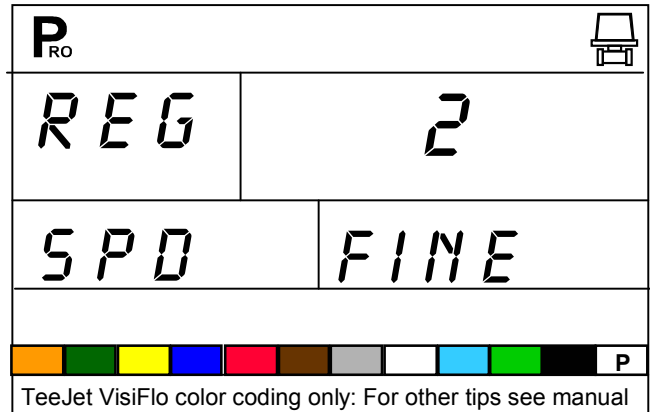
## REGULATING VALVE SPEED - FINE ADJUSTMENT

The **fine adjustment** controls the speed of the valve when small adjustments in flow are required by the controller.

- ✓ Use the **+** or **-** keys to increase or decrease the response time.
- ✓ Any number between 0 and 9 may be selected.

**0 = Slow : 9 = Fast**

It is recommended that you **start** with a fine adjustment speed of **2**. This works well in most situations. This number may need to be optimized during the spraying operation.



- ✓ To accept your Fine Adjustment Speed Factor and advance to the next step, press the **P<sub>RO</sub>** key.

**Adjusting agitation volumes can often assist the regulating valve operation.**

**This speed value can be adjusted to optimize system performance. If you notice that the valve seems to “search” for the programmed application rate by cycling the pressure up and down continuously, reduce the number until the “searching” is minimized or eliminated. Conversely, a higher number will increase the valve response speed and speed up the rate of adjustment.**

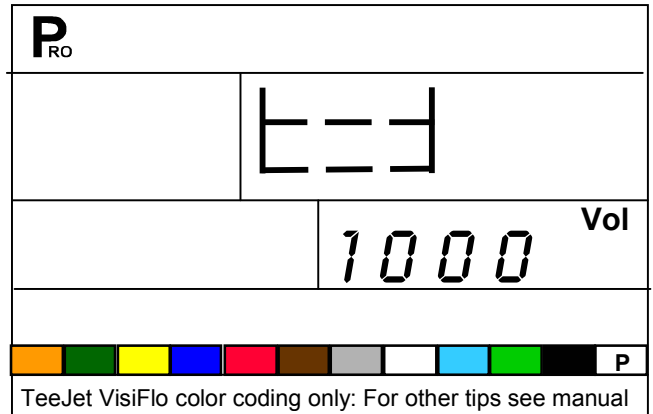
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## TANK VOLUME

In addition to accumulating the total volume applied, the 854 will count the volume down from your maximum tank contents to 0 gallons (liters). This allows you to check the volume remaining in the tank at any time.

- ✓ Use the **+** and **-** keys to enter the maximum volume of the sprayer tank in gallons (liters).
- ✓ Press the **P** key to accept the value and advance to the next step.

**Tank volume markings are not always accurate. Maximum tank volume should be checked with a fill flow meter or by weight**



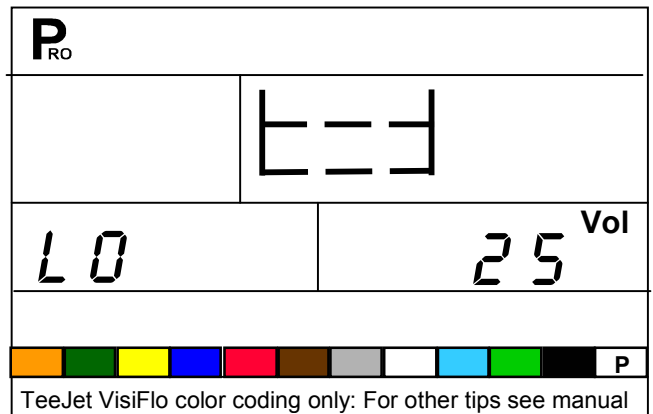
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## LOW TANK VOLUME ALARM

The TeeJet 854 console will alert you when you are reaching the end of a tank.

- ✓ Use the **+** or **-** key to enter the volume in which you would like the console to alert you. A value of 0 will disable this feature.

A visual alarm is displayed when you reach the low tank level warning. See the Features - Tank Volume Section for more details



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## FILL FLOW METER CALIBRATION

The TeeJet 854 has the capability of reading signals from a second flow meter for tank filling purposes. This feature must be activated by the organization selling this console kit and will require an additional flow meter. The 854 can also be connected to a valve or switch for automatic shut off of the filling operation.

If you will **NOT** be using a fill flow meter, skip this step by pressing the **P<sub>RO</sub>** key to advance to the next step.

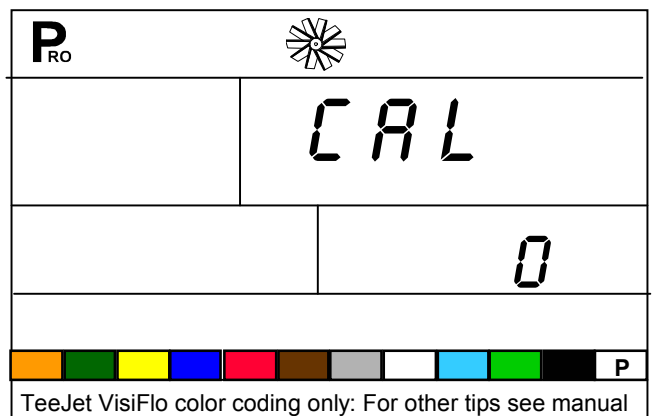
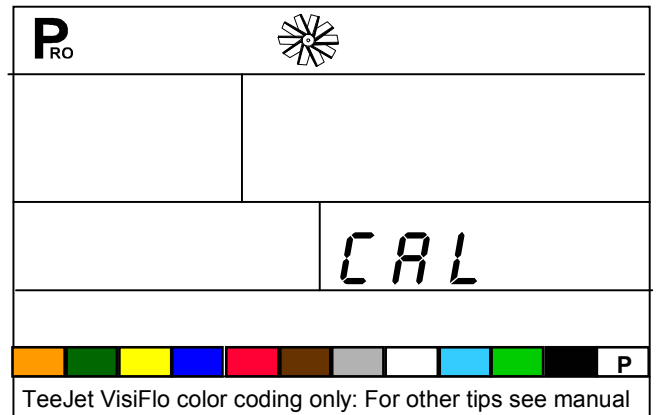
### Manual Entry

- ✓ First locate the factory calibrated tag on the flow meter.
- ✓ If this varies from the default value (it usually does), use the **+** or **-** keys to modify the value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.

### Automatic Calibration

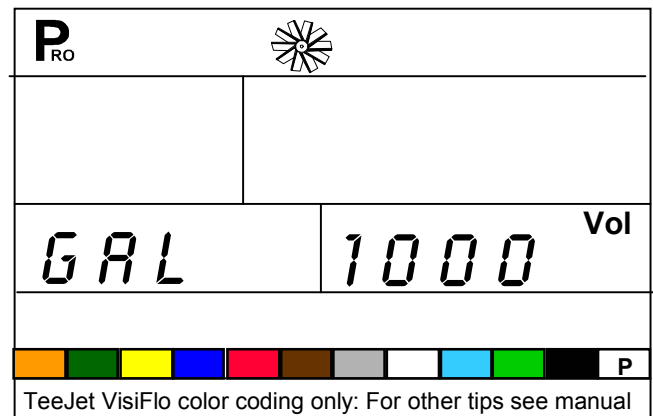
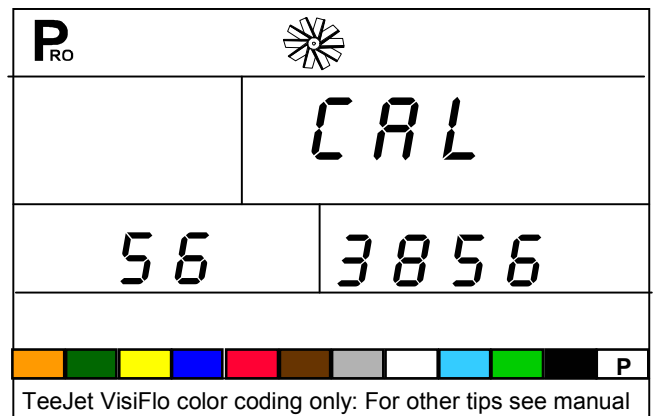
To complete an automatic calibration of the flow meter:

- ✓ Press and hold the **+** and **-** keys simultaneously for 3 seconds. This will clear the existing value and initiate the calibration procedure.
- ✓ "CAL" will be displayed in the screen. This indicates that the controller is ready to begin the calibration process.
- ✓ Engage the sprayer pump.
- ✓ Push the **+** key to activate the calibration.
- ✓ Now turn the boom sections on and begin spraying a known volume of fluid (e.g. 100 gallons/liters).
- ✓ As you spray the known amount, the console will count the pulses.
- ✓ After the known volume has been sprayed out, turn the Master switch off to stop counting pulses.
- ✓ Now press the **P<sub>RO</sub>** key.



- ✓ The console will now ask what volume was sprayed.
- ✓ Use the **+** and/or **-** keys to adjust the value to match the volume sprayed (in gallons/liters).
- ✓ Now press the **P** key to return to the programming mode.
- ✓ Your new flow meter calibration number will be displayed.
- ✓ To accept this value press the **P** to advance to the next step.

If you wish to repeat the calibration procedure refer to the steps above.



**To achieve an accurate flow meter calibration, a volume of at least 50 gallons (200 liters) should be sprayed during calibration. The more volume used for calibration the more accurate the flow meter will be.**

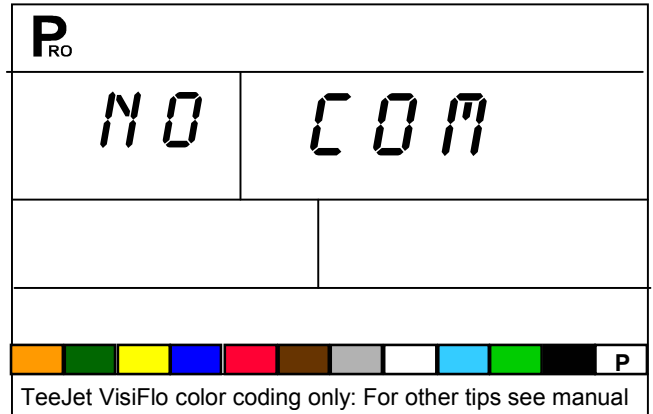
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## COMMUNICATIONS

This step lets you select what type of communication you will be using (if any).

The choices available are:

- “no con” (no communications)
  - ”cnt prt” (Contractor printing),
  - “usr prt” (User printing)
  - “gps” (Global Positioning System / Variable Rate communication capability)
  - “log” (Downloading to a PC on the go capability)
  - “pc” ( PC link – not used).
- 
- ✓ Use the **+** and **-** keys to select the type of communication you will be using.
  - ✓ Press the **P<sub>RO</sub>** key to advance to the next step.



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## SIMULATED GROUND SPEED

Simulated ground speed allows you to check out the functions and operations of the console and of the sprayer, spraying water, without actually moving the sprayer. This can and should be done prior to any spraying activity.

The 854 has a low and high simulated ground speed. This allows you to switch between the two to simulate a speed change to ensure the console is regulating properly during the Sprayer Checkout.

### Low Speed

- ✓ Use the **+** and **-** keys to adjust the value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the High Simulated speed step.

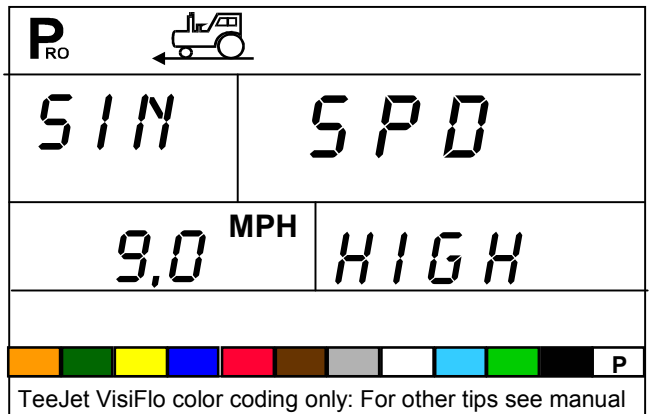
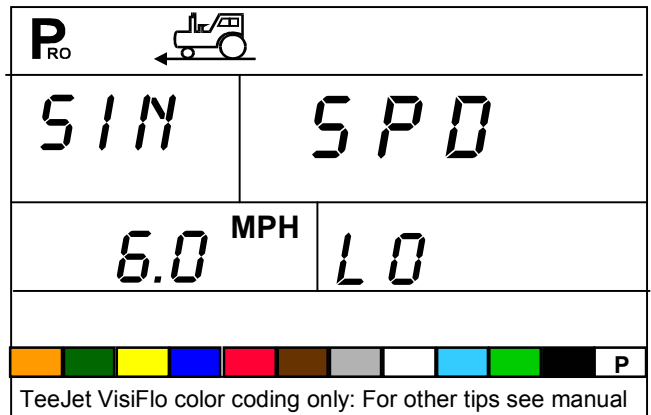
### High Speed

- ✓ Use the **+** and **-** keys to adjust the value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next programming step.

### How To Use

To activate the simulated speed, while in the normal operating mode with the master switch ON

- ✓ Press the **P<sub>RO</sub>** and **-** keys for low simulated speed
- ✓ Press the **P<sub>RO</sub>** and **+** keys for high simulated speed.



**Once the sprayer begins moving and the 854 receives actual speed pulses, the simulated speed feature is deactivated. If you are using a Radar Speed Sensor, disconnect the Radar connection from the main console. Because of the sensitivity of this speed sensor, any movement can disable simulated speed.**



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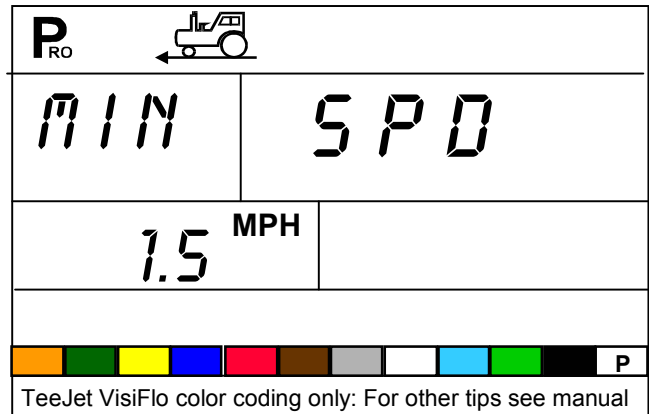
## AUTO MASTER OFF - SPEED

Your TeeJet 854 will automatically shut the boom sections off at the speed programmed. This eliminates an operator function when you slow to a stop or turn around.

- ✓ Use the **+** or **-** keys to adjust the speed value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.

When the sprayer speed goes above this speed, the boom sections will turn back on.

Set this value to 0 to disable this feature.



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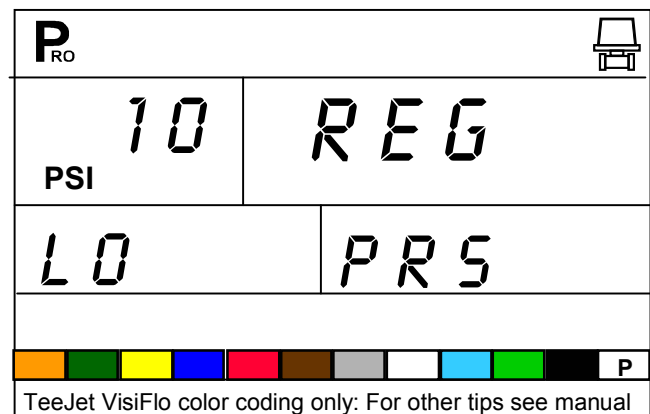
## MINIMUM PRESSURE SETTING

Set the minimum pressure that the sprayer will be allowed to regulate to. Sometimes when the sprayer speed slows down, the control system will regulate the pressure so low that it falls below the manufacturer's recommended pressure for the spray tip or reduces system flow to the point where the flow meter will stall.

This is typically set to the minimum recommended pressure range for the spray tips being used.

- ✓ Use the **+** or **-** keys to adjust the minimum pressure.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.

I.e. If this step is set to 15 psi (1.0 bar) the console, in automatic mode, will not regulate pressure below 15 psi(1.0 bar).



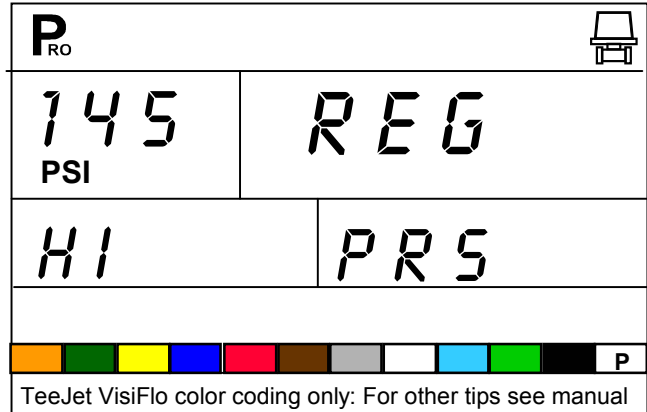
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## MAXIMUM PRESSURE SETTING

Set the maximum pressure that the sprayer will be allowed to regulate to. This will help ensure that the spraying pressure does not go beyond the recommended pressure range of the spray tips being used.

- ✓ Use the **+** or **-** keys to adjust the maximum pressure.
- ✓ Press the **PRO** key to advance to the next step.

This step can be used to help prevent spraying applications that contribute to drift.

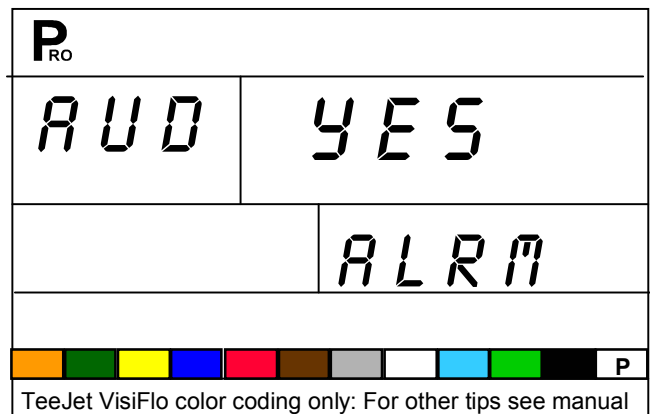


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## AUDIBLE ALARM

The audible alarm is used to alert the operator to problems with the sprayer control system. It is used in addition to visual alarms on the LCD display and LED sensor alarms above the screen.

- ✓ To activate the audible alarm use the **+** or **-** keys to chose YES.
- ✓ To deactivate the audible alarm use the **+** or **-** keys to chose NO.
- ✓ Press the **PRO** key to advance to the next step.

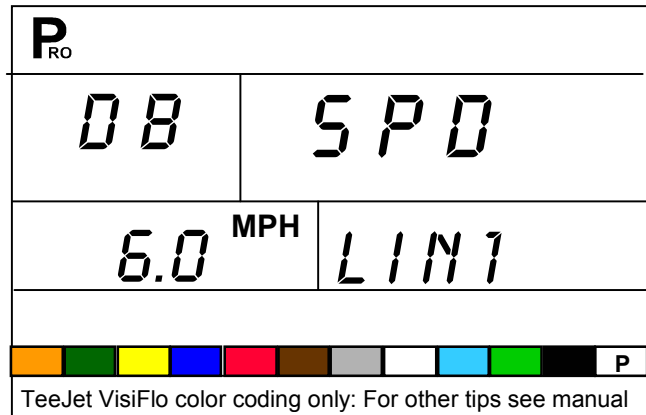


## DUAL BOOM SPEED (LIMIT #1)

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
It will only be present if the Dual Boom option was selected in the OEM programming mode and Speed was chosen as the controlling factor.

Limit #1 on the dual boom speed option is the speed at which the second boom will be **shut off**. As you slow down the system pressure will begin to drop, eventually to a point that the spray tips will no longer be able to develop a pattern. The Dual Boom Speed Limit #1 should be set to a point to shut off the second boom line before this occurs.

- ✓ Use the **+** or **-** keys to adjust the speed.
- ✓ Press the **P** key to advance to the next step.




## DUAL BOOM SPEED (LIMIT #2)

**\*\*\*\*\*THIS STEP MAY NOT APPEAR\*\*\*\*\***  
It will only be present if the Dual Boom option was selected in the OEM programming mode and Speed was chosen as the controlling factor.

Limit #2 on the dual boom speed option is the speed at which the second boom will be **turned on**. As you increase speed the system pressure will eventually reach the maximum recommended pressure for the spray tips being used. Driving faster (increasing pressure) will result in the tips creating drift prone droplets. The Dual Boom Speed Limit #2 should be set to a point to turn the second boom line on before this happens.

- ✓ Use the **+** or **-** keys to adjust the speed.
- ✓ Press the **P** key to advance to the next step.

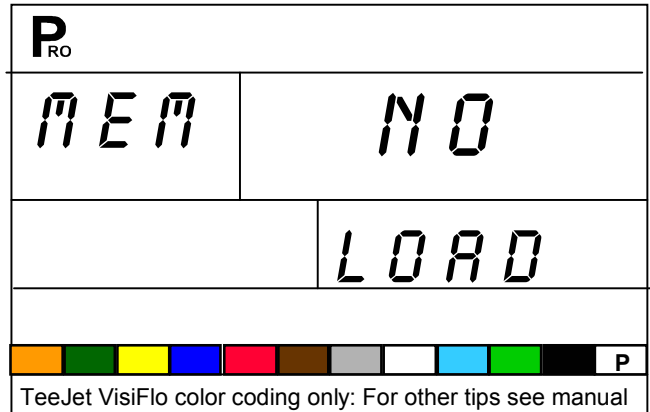
<b>P</b> <sub>RO</sub>	
08	SPD
12.0	MPH
	LIN2
	
TeeJet VisiFlo color coding only: For other tips see manual	

---

## MEMORY LOAD FUNCTION

The memory load function is used to restore all programming values to previously set values. A sprayer manufacturer may pre-program this console for specific parameters on a sprayer and save those values internally. If for some reason you need to get back to those pre-programmed values this step allows you to do that.

- ✓ Use the **+** or **-** keys to select either YES or NO.
- ✓ The default NO means that your programming values will be saved as you have entered them.
- ✓ The YES selection will likely change the program values to those programmed and saved by the manufacturer.



**WARNING!!** IT IS RECOMMENDED THAT YOU LEAVE THIS SETTING AT **NO** UNLESS OTHERWISE INSTRUCTED




- ✓ Press the **P<sub>RO</sub>** key to advance to the next step.
- ✓ This should take you to the beginning of the program mode.
- ✓ Now press and hold the **P<sub>RO</sub>** key for three seconds to exit the program mode and save the programming information to the computer's memory.


**For your protection, the 854 console will not automatically power down while in the Program Mode. You must exit properly as described above to enable the console's auto power down feature.**



**Cutting the power to the controller while in the Program Mode will not save any changes in the computers memory.**

## Application Preset Setup Mode

To access the Application Preset Setup Mode (Master switch must be OFF)




- ✓ Press the  key to display the current preset being used
- ✓ Pressing the  key again within 3 seconds will advance you to the next preset. This process can be continued through all 5 presets
- ✓ To program a particular preset, press the  key while that preset is displayed



P RO	
PST	15.0 GPA
- 2 -	
	
TeeJet VisiFlo color coding only: For other tips see manual	

**Example:** To program preset #2, press the  key until PST – 2 – is displayed then press the  key.

## TIP SPACING

Enter the spacing between the spray nozzles in Inches (cm)

- ✓ Use the  or  keys to adjust the value.
- ✓ Press the  key to advance to the next step

P RO	
	20
	- 2 -
	
TeeJet VisiFlo color coding only: For other tips see manual	

## # OF TIPS PER BOOM SECTION

Enter the number of tips on the boom section corresponding to boom switch #1.

- ✓ Use the **+** or **-** keys to adjust value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step

The number of tips programmed here will be specific to the preset being used. (i.e. preset – 2 – in this example)

<b>P<sub>RO</sub></b>		
SEC		6
1	- 2 -	
TeeJet VisiFlo color coding only: For other tips see manual		

- After programming the number of tips on boom section 1, pressing **P<sub>RO</sub>** will advance you to section 2.
- Continue programming the number of tips for each boom section until you have completed all 5 possible boom sections.
- If a particular boom section switch will not be used, set the value to 0.

## DENSITY

### Alternate Density Used

Will a product carrier other than water be used?

- ✓ Use the **+** or **-** keys to select YES or NO
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step

<b>P<sub>RO</sub> D</b>		
		NO
		DENS
TeeJet VisiFlo color coding only: For other tips see manual		

### Density Value

If this carrier has a density other than water (i.e. liquid fertilizers) enter the Density value here

- ✓ Use the **+** or **-** keys to change the value.
- ✓ Press the **P<sub>RO</sub>** key to advance to the next step

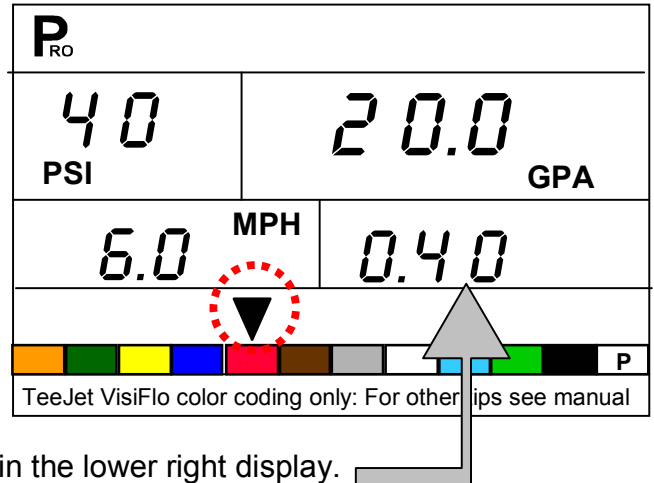
<b>P<sub>RO</sub> D</b>		
		1.28
		DENS
TeeJet VisiFlo color coding only: For other tips see manual		

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## TIP SELECTION

Select the appropriate color of the spray tip being used.

- ✓ Use the **+** or **-** keys to change toggle the flashing arrow to the corresponding color tab.
- ✓ Press the **P<sub>RO</sub>** key to select the color tab and advance to the next step
- The arrow should be over the color tab matching the color of the tips being used (must be ISO color coded tips).
- The flow rate of the tip in GPM (LPM) at 40 PSI (2 bar) is displayed in the lower right display.

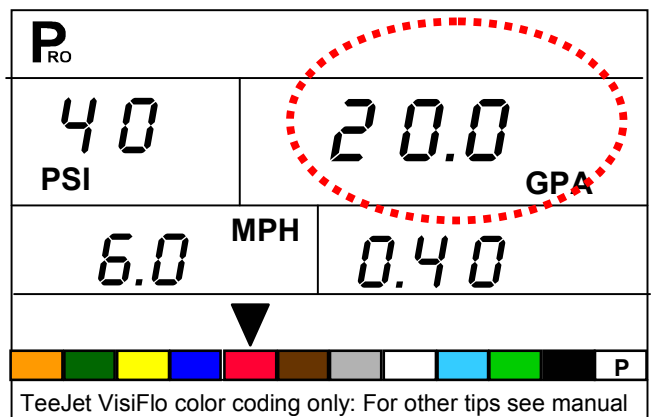


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## TARGET APPLICATION RATE

After selecting the tip to be used, the Target Application display should be flashing. If it is not, press the **P<sub>RO</sub>** key 3 or 4 times until the Target Application display is flashing.

- ✓ Press the **+** key to increase the target rate or **-** key to decrease the target rate.
- ✓ Press the **P<sub>RO</sub>** key to accept the value and advance to the next step.



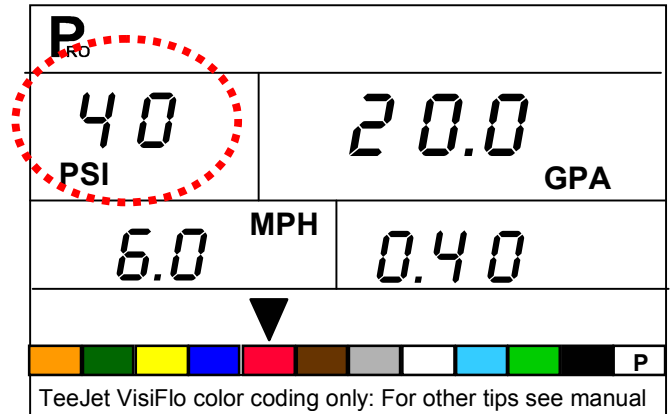


## CALCULATION STEPS

### Known Pressure Calculation

If you know approximately what you would like your operating pressure to be:

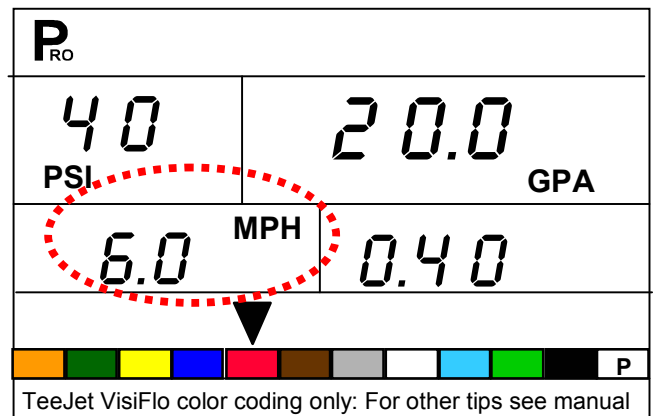
- ✓ Use the **+** or **-** keys to adjust this value.
- The 854 will immediately determine what the operating speed would need to be to achieve the target application rate at this pressure.
- If the speed indicated is too high, a set of smaller nozzles is needed.
- If the speed indicated is too low, a set of larger nozzles is needed.



- ✓ Press the **P** key to advance to the speed calculation step.

### Known Speed Calculation

- ✓ Use the **+** or **-** keys to adjust the indicated speed to a value that you know you will be traveling at.
- The 854 will immediately calculate what the pressure would need to be to maintain the target application rate at this speed.
- If the pressure is too high, you will need a set of larger nozzles or will have to slow down.
- If the pressure is too low, you will need a set of smaller nozzles or will have to speed up.



- ✓ Pressing the **P** key again will take you back to the Tip Selection Step.

You can continue to try different speed, pressure and tip combinations. Once you have determined the correct setting:

- ✓ Exit the Application Preset Mode by pressing and holding the **P** key for 2 seconds.

In the Application Preset Mode the tip color tab must match the actual tips being used.

# Operating Instructions







## SPRAYER CHECKOUT

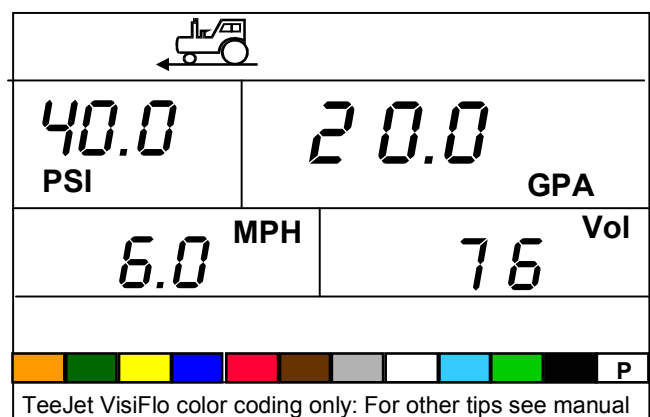
Before spraying check all connections related to the Sprayer Control System. Particular attention should be given to the sensors to be sure the console receives good uninterrupted signals. Be sure connections are made and the sensors are properly secured.





**Very Important: Whenever you are working around a sprayer or chemicals, be sure to wear protective clothing and eyewear.**

Partially fill the sprayer tank with water to flush the system and to make a visual check of the spray tips to be sure all tips are delivering a good spray pattern.






Follow these steps, in sequence, being sure the Master Boom Switch is in the "OFF" position:

- ◆ Be sure the tank shut-off valve is open.
- ◆ Start the engine, engage pump and set the rpm to that which will be used when spraying.
- ◆ Switch the computer on by pressing the  key.
- ◆ Ensure that the preset reference flow arrow matches the set of tips you are using. This can usually be ensured if the tip color matches the color tab on the console display.
- ◆ Ensure that the console recognizes the simulated speed. If the simulated speed has been disabled due to movement of the sprayer simply activate the simulated speed by first turning the Master boom switch on then pressing the  and  keys simultaneously for low simulated speed or pressing the  and  keys for high simulated speed.
- ◆ Turn "ON" the toggle switches for each of the spray boom sections on your sprayer.
- ◆ Press the  Auto/Man key so that the red LED light indicates "MAN" mode.



- ◆ Now, toggle the Master boom switch to “ON”.
- ◆ Adjust the pressure with the  and  keys. The pressure should increase when you press the  key and decrease when you press the  key.

At this point, the sprayer will be activated and spray tip performance can be visually checked.

- ◆ Now press the  Auto/Man key so that the red LED light indicates “Auto” mode. The control console should regulate to the target application rate for the simulated speed indicated.
- ◆ Press the  and  keys simultaneously (while spraying) to switch the console to “high” simulated speed. The control console should increase the pressure and regulate to the target application rate for the new simulated speed.
- ◆ Press the  and  keys simultaneously (while spraying) to switch the console to “low” simulated speed. The control console should decrease the pressure and regulate to the target application rate for the new simulated speed.

To stop spraying, toggle the Master boom switch to “OFF”.



The above steps provide a quick way to check out your sprayer and computerized control system.

**However, it is recommended that you calibrate your entire sprayer to prepare the machine for operation and to diagnose spray tip wear. Worn tips can contribute to costly chemical waste and inaccurate spraying regardless of your use of a sprayer control. Calibration is important and necessary to obtain the benefits associated with a computerized sprayer control.**

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## THE SPRAYING OPERATION

You have filled the sprayer tank and have thoroughly mixed the solution. Your application rate has been determined as well as the nozzles you will be using, with the sprayer data programmed into the computer.

- ◆ Turn the control console on by pressing the  key.
- ◆ Toggle the individual boom switches to the “ON” position, for each of the booms on your sprayer.
- ◆ The  Auto/Man key should be switched to “AUTO”.
- ◆ In the Auto mode, when the Master boom switch is “OFF”, the target application rate as well as the target symbol will be displayed in the console display. When the Master boom switch is “ON”, the actual rate will be displayed and the target symbol will no longer appear.
- ◆ While spraying with the Master boom switch “ON”, the display will always display the actual application rate, vehicle speed, application area covered/total volume applied and pressure (only if a pressure transducer has been installed).
- ◆ As you get to the point where you will begin spraying, turn the Master boom switch to the “ON” position. This will activate the spraying operation. Maintain your usual vehicle speed for spraying. Moderate changes in vehicle speed will not affect your application rate, because such changes are compensated by automatic pressure increases or decrease by the controller.

If for any reason you need to stop, turn the Master boom switch to “OFF”.

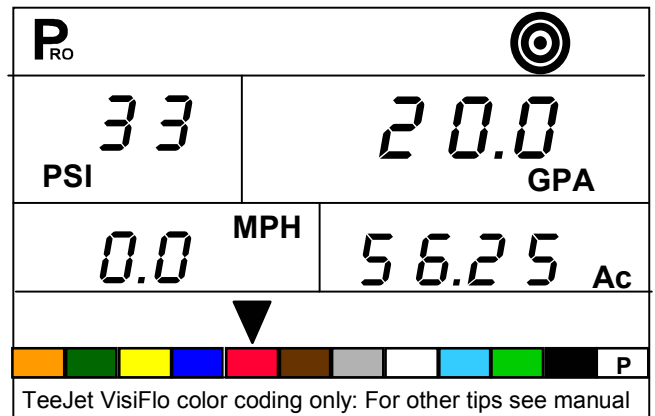
Alarm warnings can occur momentarily while the pressure regulating valve is searching for a new setting (i.e. after the close of a boom section or other change in normal operation). However, if the alarm stays on for a longer time, the valve may have reached its limit and your system will be unable to regulate flow beyond the limit.

# Features

## AREA/VOLUME DISPLAY

The 854 Sprayer Control will count application area and measure the total volume applied while the master boom switch is in the "ON" position.





- The area counter will measure treated acres and is dependent on the values programmed for the # of tips per boom section and the tip spacing.
- The volume measure is dependent on flow meter pulses if a flow meter is present or is calculated based on pressure signals from the Pressure Transducer.

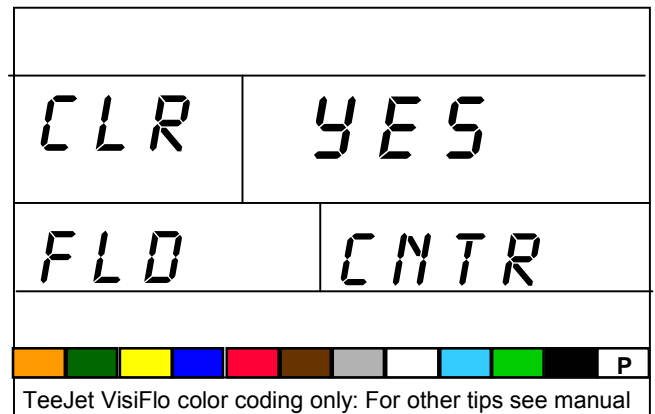


Depending on how the console was programmed in the OEM setup mode, the lower right of the display window will show:

- Volume Sprayed
- Area Covered
- Both (alternating every 3 seconds).

To clear the area counter/volume measure:

- ✓ Press and hold the  Auto/Man key for three seconds (Masterswitch must be off).
- ✓ The controller will ask if you are sure you want to clear the field counter.
- ✓ Use the  or  keys to select either YES or NO.
- ✓ Push the  key to accept and advance back to the normal operating mode.



**Note: The area/volume measure can only be cleared from the normal operating mode with the Master Boom Switch turned OFF.**

**\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\***

Clearing the area/volume counter in this manner will NOT save this information. If you wish to save this information refer to the Memory Feature in this manual.



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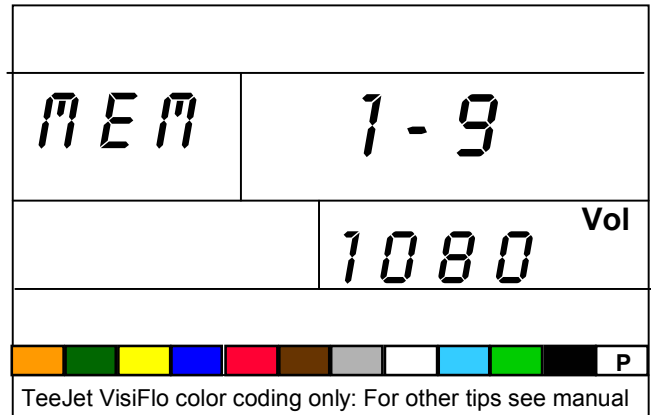
## MEMORY FEATURE

The TeeJet 854 has 9 individual memory locations as well as a Total Memory location. These memory locations store the volume and area accumulated since the last clearing of that display or since the last memory save function.

### Viewing Memory information




To view information stored in the memory locations:

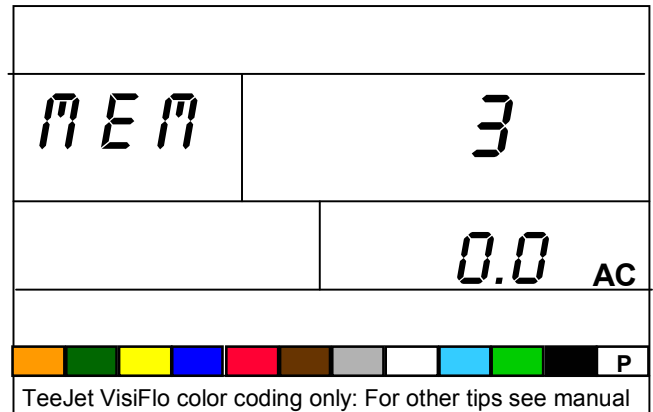
- ✓ Press the  key.
- ✓ Continue to press the  key to scroll through the different memory locations



### Clearing Memory Locations

To clear an existing value from a memory location:

- ✓ Press the  key.
- ✓ Continue to press the  key to scroll to the desired memory location.
- ✓ Press and hold the  key for 3 seconds.
- The value will clear the area/volume and volume readings to zero.
- To clear the Total Memory Location follow the same procedure.






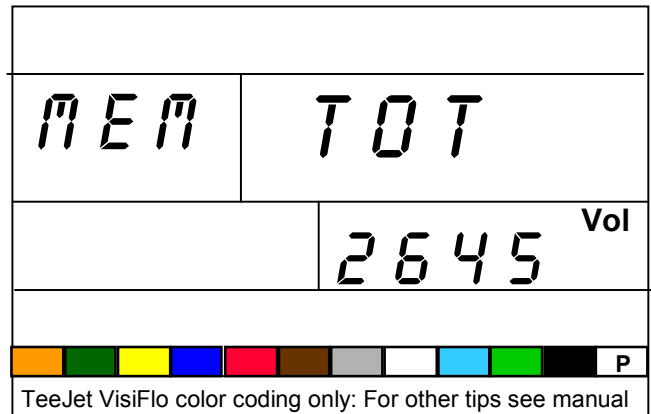
**\*\*\*\*\*WARNIG\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\***

Clearing the Total Memory Location will also clear  
**ALL** individual memory locations as well

## Saving Information To Memory

To save information to the memories:

- ✓ Press the  key.
- ✓ Continue to press the  key to scroll to the desired memory location.
- ✓ Press the  key to save the information.
- The console will automatically exit the Memory Feature and return to the normal operating mode.
- Any information saved to the individual memory locations will be added to the Total Memory as well.



**\*\*\*\*\*WARNIG\*\*\*\*\*WARNING\*\*\*\*\*WARNING\*\*\*\*\***

Saving information to a Memory Location that has an existing value will result in the SUM of the existing value and the new value being stored in the memory location.

**Example**

You have accumulated 50 Ac (Ha) and 1000 Gal (Lit) on console  
**Memory Location 1** has 100 Ac (Ha) and 2000 Gal (Lit) previously saved  
 If the new information is saved to Memory Location 1, the values will be added

$50 \text{ Ac (Ha)} + 100 \text{ Ac (Ha)} = 150 \text{ Ac (Ha)}$   
 $1000 \text{ Gal (Lit)} + 2000 \text{ Gal (Lit)} = 3000 \text{ Gal (Lit)}$

**Memory Location New Value = 150 Ac (Ha) and 3000 Gal (Lit)**

## Exiting the Memory Locations

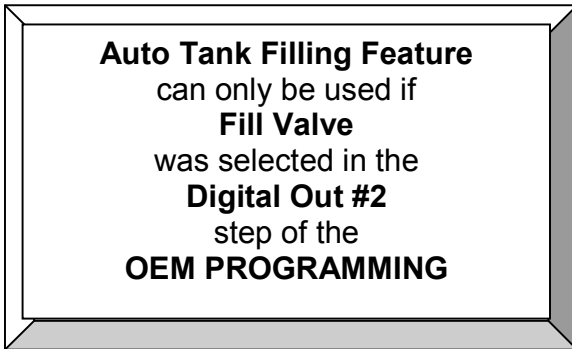
To exit the Memory Feature if no changes were made or after clearing a value:






Press and hold the  key for 3 seconds

The console will exit the Memory Feature and will be in the normal operating mode.


## TANK FEATURE

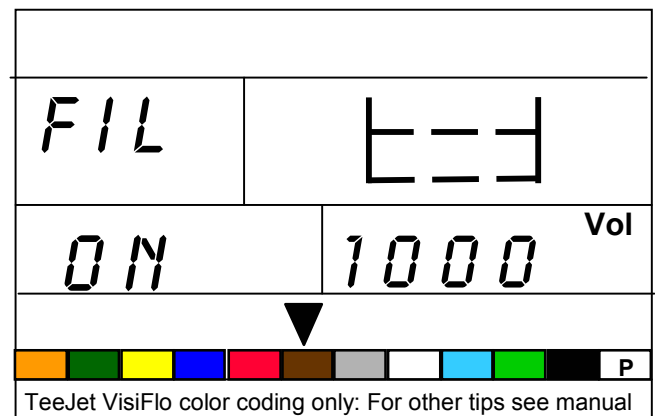
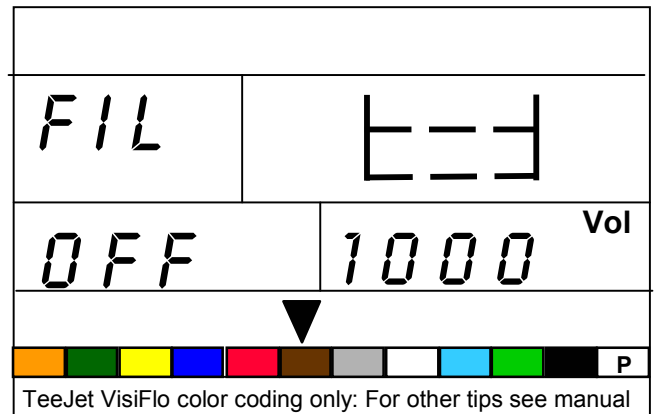
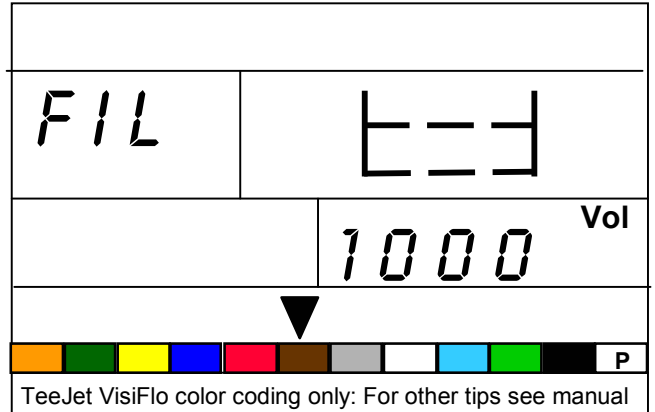
### Auto Tank Filling



- ✓ Master boom switch must be turned OFF.
- ✓ Press the  key.
- ✓ Use the  or  key to enter the volume you would like to add to the tank.
- ✓ Or, press the  key to set the volume to the maximum tank content.
- ✓ Press the  key to activate the procedure.
- ✓ Turn the Master Boom Switch ON to activate the Fill Valve (switch)

- The tank will then begin filling and the console will measure the volume.
- If you need to stop the filling process for any reason simply turn the Master Boom Switch OFF. You can stop and resume tank filling at any time.
- When the console has reached the volume to be filled it will automatically shut the valve (switch) off.

- ✓ When the process is complete, turn the Master Boom Switch OFF
- ✓ Press and hold the  key for 3 seconds to return to the normal operating mode.
- ✓ Resume spraying.








## Tank Volume Feature

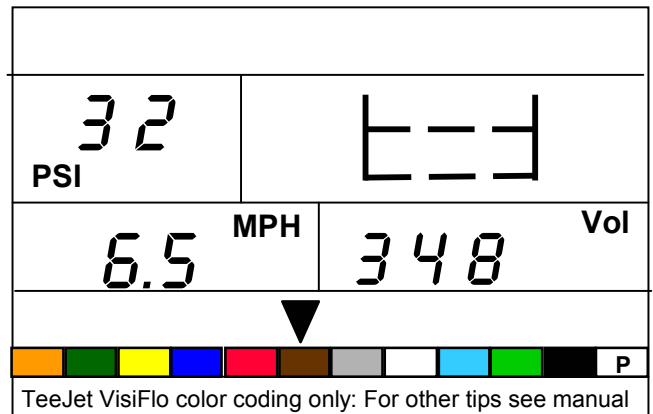
The console will count down the volume remaining in the tank and will alert the operator when the Lo Tank level has been reached. The Lo Tank level can be programmed by the operator in the System Setup Mode.

### Viewing Remain Tank Volume

- ✓ While spraying in the normal operating mode (with the Master Boom Switch and individual boom switches ON, press and hold the  key.
- ✓ The lower right display will show the volume remaining in the tank.

When the volume reaches the pre-programmed level:

- The audible alarm will activate
- The display will switch to the Tank Volume display.
- The operator must acknowledge the low tank level by pressing the  or  key. This will return the console to the normal operating level.









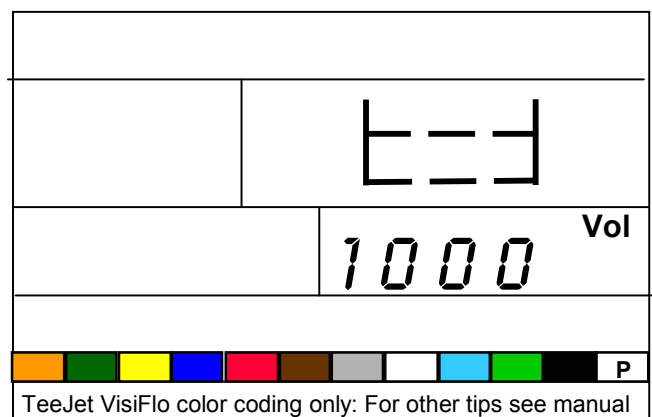
### Audible Alarm

Will activate with this feature if enabled

### Resetting the Tank Volume

To reset the tank volume:

- ✓ Press the  key.
- ✓ Use the  or  key to enter a partial tank volume.
- ✓ Press the  key to reset the tank volume counter to the maximum value of the tank volume.
- ✓ Press the  or  key to return to the normal operating view.



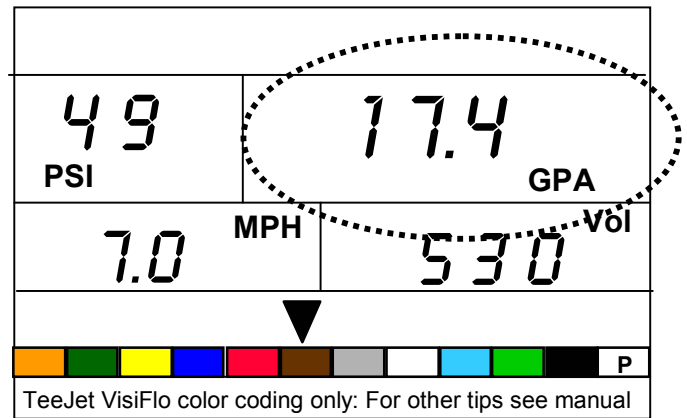
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## APPLICATION ALARM

If the 854 senses a continuous discrepancy of 10% or more between the Target Application Rate and the Actual Application Rate:

- The application rate window will flash

This alerts the operator to a problem with the sprayer plumbing, operation or programming.

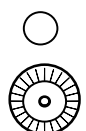
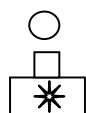
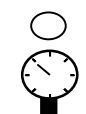
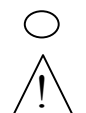


**Audible Alarm**  
Will activate with this feature if enabled

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## SENSOR LED ALARMS

The 854 has sensor LED's across the top of the display. These LED's are used to help alert the operator to problems with the sprayer, sprayer control system or application.

-  **Speed Sensor LED Alarm** – LED will display a red light if the console loses speed signals.
-  **Flow Sensor LED Alarm** – LED will display a red light if the console loses flow signals.
-  **Pressure Sensor LED Alarm** – LED will display a red light if the console loses pressure signals.
-  **General LED Alarm** – This LED alarm is used for discrepancies between the flow meter and pressure transducer if both are installed and programmed.

## No SPEED ALARM

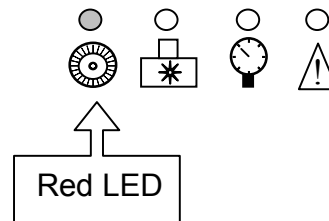
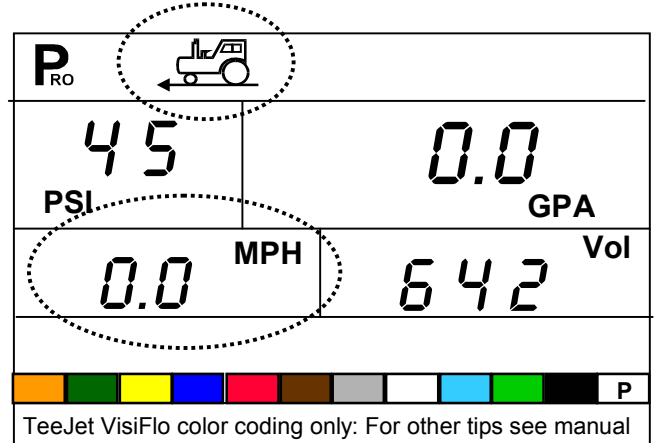
If the 854 stops receiving pulses from the speed sensor:

- The speed display window will flash
- The Speed Sensor LED Alarm will be displayed
- The Tractor Speed symbol will flash at the top of the display



**Audible Alarm**  
Will activate with this feature if enabled

This alarm will occur only when the Master boom switch is "ON".



## No FLOW ALARM

If the 854 stops receiving pulses from the flow meter

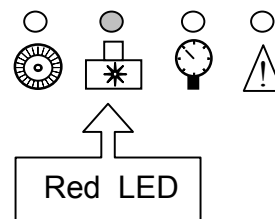
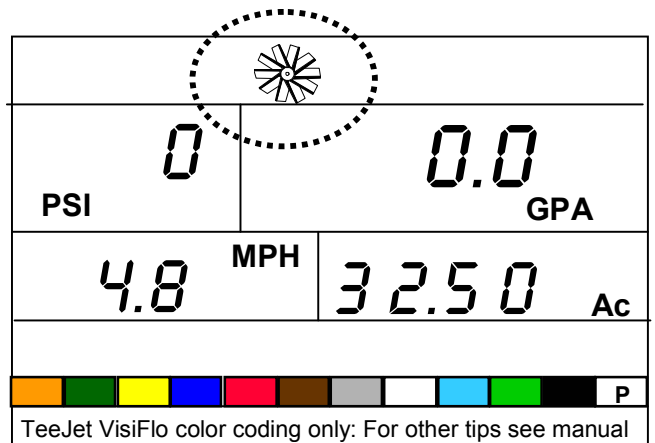
- The turbine symbol will flash at the top of the display.
- The Flow Sensor LED Alarm will be displayed

This alarm indicates that the flow meter has stalled and alerts the operator that there is a problem with the flow meter or elsewhere in the system.



**Audible Alarm**  
Will activate with this feature if enabled

This alarm will occur only when the Master boom switch is "ON".



## NO PRESSURE ALARM

If the 854 stops receiving a pressure signal

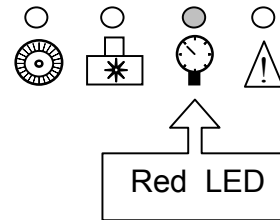
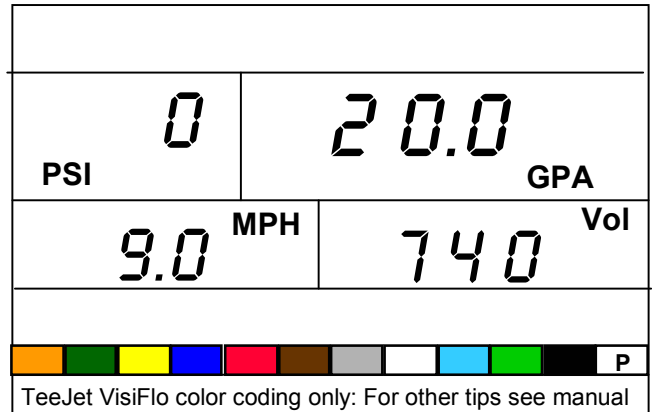
- The Pressure display window will flash
- The Pressure Sensor LED Alarm will be displayed

This alarm indicates that the pressure transducer has failed or lost its connection and alerts the operator that there is a problem with the pressure transducer meter or elsewhere in the system.



**Audible Alarm**  
Will activate with this feature if enabled

This alarm will occur only when the Master boom switch is "ON".



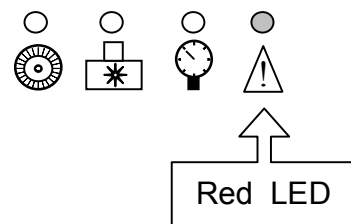
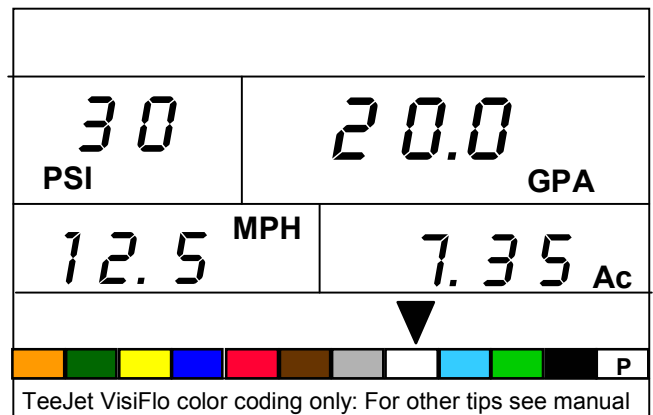
## FLOW/PRESSURE DISCREPANCY ALARM

This alarm will activate if there is a discrepancy between the flow meter and pressure transducer. The amount of discrepancy allowed is defined by the Calibrate Tip Level % step in the OEM setup mode.

- The Pressure Display Window will flash.
- The Application Rate Window will flash.
- The General Alarm LED will be displayed



**Audible Alarm**  
Will activate with this feature if enabled



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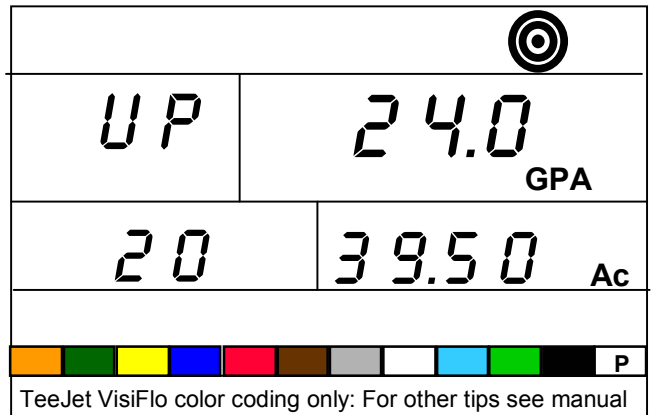
## BOOST MODE

The 854 is capable of boosting the target application rate either up or down in 10% increments.

### Boost Up

To activate the boost up mode:

- ✓ Press the **+** key.
- ✓ Each subsequent pressing of the **+** key will boost the target rate up 10%.
- The amount you have boosted up will be recorded on the display temporarily (approx. 2 seconds).
- The target symbol will flash anytime that you are in the boost mode to alert the operator of the “off target” condition.



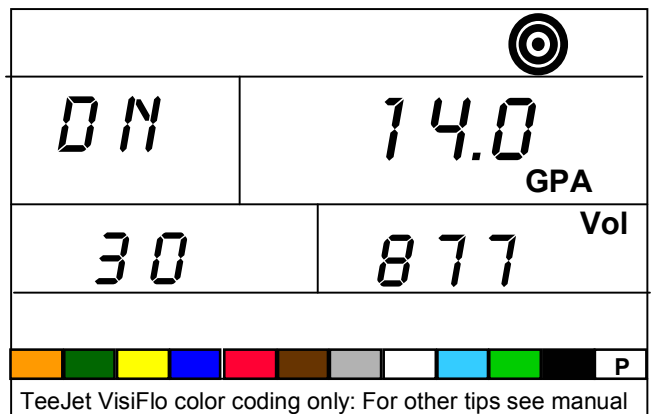
To return to the target application rate:

- ✓ The operator can use the **-** key to get back in 10% increments
- ✓ The operator can push the **+** and **-** keys simultaneously to get back to the target in one step.

### Boost Down

To activate the boost down mode:

- ✓ Press the **-** key.
- ✓ Each subsequent pressing of the **-** key will boost the target rate down 10%.
- The amount you have boosted down will be recorded on the display.
- The target symbol will flash anytime that you are in the boost mode to alert the operator of the “off target” condition



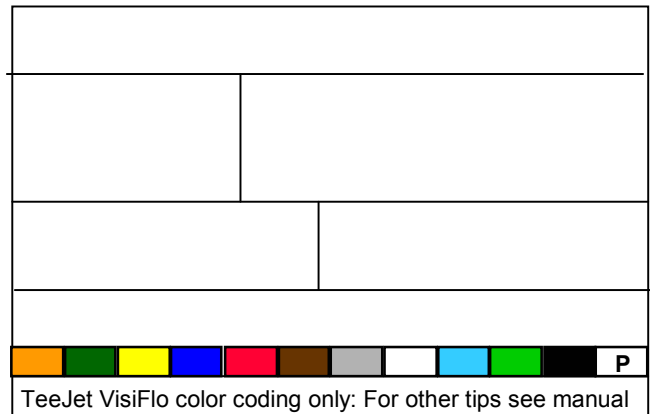
To return to the target application rate:

- ✓ The operator can either use the **+** key to get back in 10% increments
- ✓ The operator can push the **+** and **-** keys simultaneously to get back to the target in one step.

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## AUTO POWER DOWN

The 854 console is designed to power itself off after 10 minutes (or at the time specified in the Auto Power Down Time in the OEM Setup Mode) of no inputs. This feature keeps the console from draining the battery on the sprayer if the operator inadvertently leaves the console powered on for an extended period. This will only occur when the Master boom switch is turned OFF and the console is not receiving inputs from any of the sensors (the sprayer is inactive).



To manually power the console off, refer to the Powering Console On/Off section of this manual.

**Note: The Auto Power Down feature is disabled any time the console is in any program mode.**

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## SMART SENSING

With both a pressure and flow sensor installed, the 854 will determine when the flow rate has dropped below the capacity of the flow meter being used and will automatically switch to pressure based regulation. When the flow rate again reaches an acceptable level for the flow meter to regulate, the 854 will automatically switch back to flow based regulation.

