

Tp-100



Electronic Speedometer

by Agri-Tronix Corporation

P/N 1000-7012

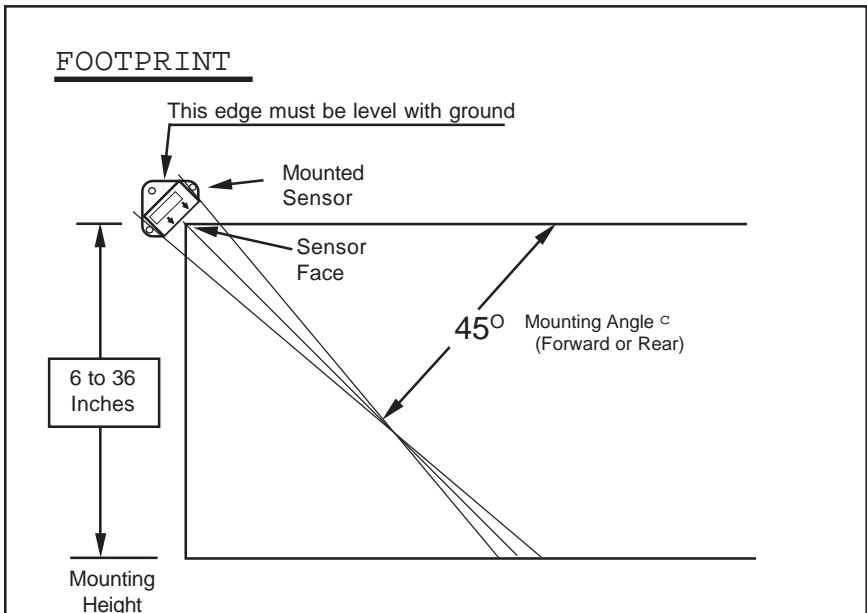
System Overview

The TP-100 is a compact data logging system used to record the distance and speed of a moving object. The data can be reviewed after the pull and up to 4 graphs can be saved to memory. The speed sensing device is a non-contact radar sensor that is pointed at the ground to gather speed and distance information. The alarm feature included in the TP-100 alerts the driver that the preset speed limit is being approached. The high intensity alarm light is designed to be easily seen in bright sunlight. The graphic display utilizes a bar graph style indicator to warn the driver he is nearing the alarm limit. The TP-100 is a durable piece of electronic equipment built to take the punishment of tractor pulling. The software has been designed to make the operation and setup of the TP-100 easy and informative.

Radar Sensor Installation

The distance sensor included with the TP-100 system is a radar device that can detect ground movement. Installation of the mounting bracket and the general installation instructions are presented below.

1. Locate an area on the frame or other solid surface of the tractor to mount the radar bracket. (In some applications it may be desirable to mount the radar sensor directly to the equipment without using the bracket). The radar sensor face should be mounted at a height from 6 to 48 inches from the ground. The front of the sensor must have an unobstructed view to the ground.
2. Using the 3 supplied bolts and hardware, mount the radar sensor to the bracket and hand tighten the bolts. Using a level, adjust the sensor so the top edge of the radar sensor is parallel to the ground (See figure below). Tighten the bolts to secure the radar sensor to the bracket.
3. This completes the radar sensor installation. *The unit will need to be calibrated before using.*



Console Installation

1. Select a rigid surface to mount the console. The display should be mounted in a location that does not obstruct the vision of the driver. If the alarm light is being used place the console so that the light can be seen in the drivers peripheral vision.

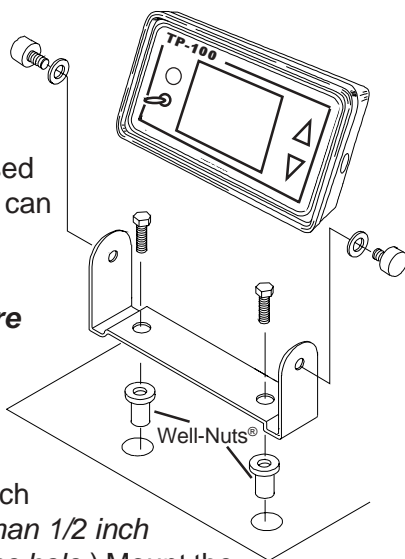
2. **(Before drilling holes, make sure there are no cables or objects behind the panel that could be damaged by the drill bit.)**

Using the mounting bracket as a template, mark and drill two 1/2 inch

holes. (Do not drill a hole larger than 1/2 inch or the well nuts will not tighten in the hole.)

Mount the bracket as shown in the above figure . Use the 1/4-20 bolts and rubber Well Nuts® provided in the hardware kit.

3. The console may optionally be mounted using magnets to secure the monitor to the tractor.

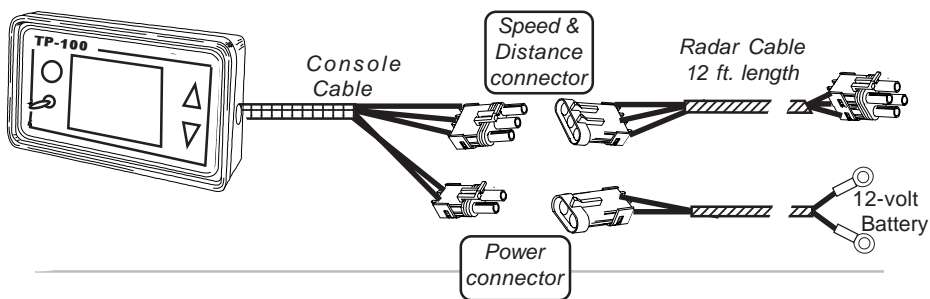


Caution: At most competition pulls, if anything falls off the tractor you will be disqualified. Be sure, if using magnets to mount the console, that there is a safety strap to restrain the monitor in case the magnets lose their hold.

4. The console can easily be removed and stored by disconnecting the cables and removing the mounting knobs located on the sides of the monitor.

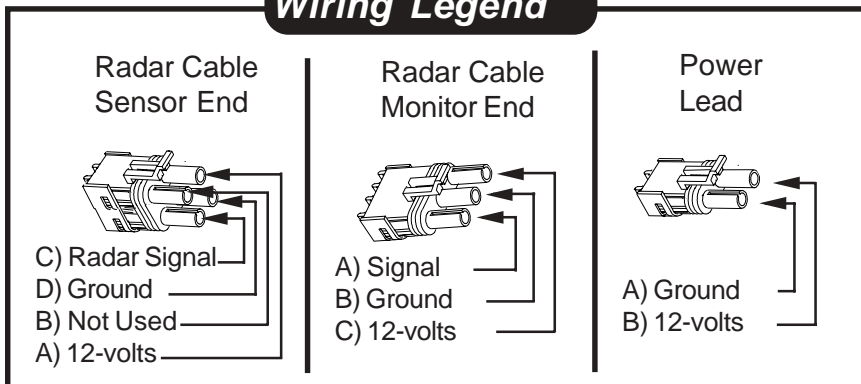
Cable Installation

1. Connect the 2-pin power lead connector to the 2-pin connector on the rear of the DM-100 console.
2. Connect the ringed sta-kons to a 12 volt power source. The red wire connects to positive 12 volts and the black wire connects to the negative side of the battery.
3. Connect the 3-pin connector of the radar cable to the rear of the console and route the 4-pin connector end to the radar sensor.



4. Route the cables to avoid all hot parts and all moving parts including clutch linkage and throttle levers.
5. This completes the installation of the console and wiring harness

Wiring Legend



Console Setup CONTROL KEYS

Setting up the TP-100 for use is a simple process of answering several questions about your application . Before beginning the setup routine, we will review the operation of the front panel controls.

1. The toggle switch on the front of the unit is used to turn power on and off to the radar sensor and the console.
2. The two arrows are keyboard switches that are used to enter data and make selections.



The **Up-Arrow** will increment numbers when pressed and released.



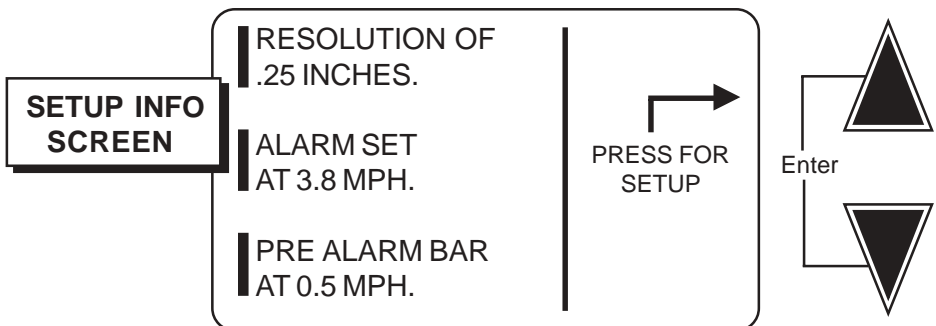
The **Down-Arrow** will de-increment numbers when pressed and released.



If both buttons are pressed and released at the same time, this will be the same as pressing the **“ENTER”** key on a computer keyboard.

To place the TP-100 into Setup Mode:

1. Turn the console to the “off” position and then back on.
2. Wait for the screen below to appear.
3. Press and release the up-arrow key to enter setup mode.



Note: The TP-100 will time-out if no keys are pressed and will enter into the “RUN MODE“. This screen can be bypassed by pressing and releasing the ▼DOWN arrow key .

To begin setting up your TP-100, place the unit in
“**Setup Mode**”.
(See black box in center of page 6).

SET ALARM POINT

This is the speed at which the TP-100 will give a visual alarm. This feature is used in events where there is a maximum speed the sled is allowed to move. The indicator light will be on steady (not flashing) when the speed on the readout matches or exceeds the value entered in this setup screen.

Pressing and releasing the ▲UP arrow key or ▼DOWN arrow key will cause the display to toggle from “EDIT YES” to “EDIT NO”.

- ▲ With the words “EDIT YES” displayed on the screen press ▼ and release both arrow keys.



An arrow symbol will appear under the last digit to the right indicating that the number above it can be edited.

Pressing and releasing the ▲UP arrow key or ▼DOWN arrow key will increase or decrease the value of the digit above it.

- ▲ When the digit is set to the desired value, press and release both arrow keys, this will cause the arrow symbol to advance to the next digit to the left.
- ▲ After the last number is set, pressing and releasing both arrow keys will cause the digit selection arrow to disappear and “EDIT NO” will be displayed on the left side of the screen.
- ▲ If the number entered is correct press and release both arrow keys and the TP-100 will advance to the next setup screen.



EDIT PREALARM BAR?

This number indicates when the bar graph for the mph alarm will appear and start flashing the alarm light. Example: If this number is set to 1.0 and the mph alarm is set for 5.5 mph, the bar graph will first appear at 4.5 mph and close the gap as the speed approaches the alarm point. The alarm light will flash more rapidly as the bar graph gap closes.

Pressing and releasing the ▲UP arrow key or ▼DOWN arrow key will cause the display to toggle from “EDIT YES” to “EDIT NO”.

To edit the Pre-Alarm, press and release the ▲UP arrow key or ▼DOWN arrow key until the screen reads “EDIT YES” on the left side of the screen.

- ▲ When the words “EDIT YES” are displayed on the screen
- ▼ press and release both arrow keys.

NOTE! Setting the pre-alarm value to 0.0 will disable this feature



Under the digit furthest to the right, an arrow will appear that indicates that the number can be edited.

The number above the “digit select” symbol will increase or decrease when pressing and releasing the ▲UP arrow key or ▼DOWN arrow key.

- ▲ When the digit is set to the desired value, press and release
- ▼ both arrow keys. The digit selection arrow will advance to the next digit on the left.
- ▲ After the last digit is entered, press and release both arrow
- ▼ keys and the digit select symbol will disappear and the words “EDIT NO” will be displayed on the left side of the screen.
- ▲ If the value entered is the correct Pre-alarm value, press and
- ▼ release both arrow keys and the TP-100 will advance to the next setup screen.

Console Setup

DISTANCE CALIBRATION

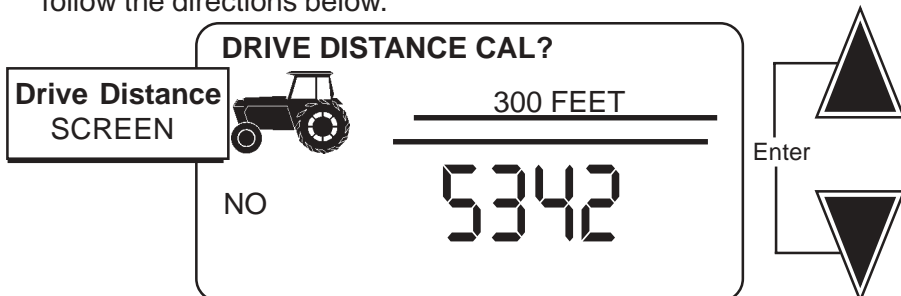
Stop

Start



DRIVE DISTANCE CAL?

It is necessary to calibrate the radar sensor when the TP-100 is first installed. To calibrate the distance sensor, the first step will be to measure off a 300 foot distance in a straight line on a surface that is similar to the surface the system will be used on. (Blacktop and smooth concrete is not recommended.) Place the TP-100 console in the Setup Mode, advance to the distance calibration screen and follow the directions below.



To perform the distance calibration, press and release the ▲UP arrow key or ▼DOWN arrow key until the words “EDIT YES” appear on the left side of the display.

- ▲ Press and release both arrow keys and the words “PRESS ANY KEY THEN START DRIVING 300 FEET” will appear at the top of the display.

While rolling slowly (at least .5 mph) past the 300 ft. start point, press and release the ▲UP arrow key or ▼DOWN arrow key. The text at the top of the screen will change to display: “PRESS ANY KEY TO STOP” and the numbers on the screen will increment as the vehicle is moved. Drive to the end of the 300 ft. run.

At the end of the 300 ft. run, press the ▲UP arrow key or ▼DOWN arrow key and the large numbers will stop incrementing. The number shown is the distance calibration number.

- ▲ Press both arrow keys to advance to the next setup screen.

Console Setup EDIT DISTANCE CALIBRATION

7942

(Old Number)



2487

(New Number)

EDIT DISTANCE CAL?

This screen normally is not needed if a distance calibration was performed. The purpose of this screen is to manually change the calibration number. In instances where a 300 foot run is not possible, a 100 foot run can be performed. The number derived in the 100 ft. run can then be multiplied by 3 and manually entered in this setup screen.

To edit the Distance Calibration Number, press and release the ▲UP arrow key or ▼DOWN arrow key until the screen reads “EDIT YES” on the left side of the screen.

- ▲ When the words “EDIT YES” are displayed on the screen,
- ▼ press and release both arrow keys.



Under the digit furthest to the right, an arrow will appear that indicates that the number can be edited.

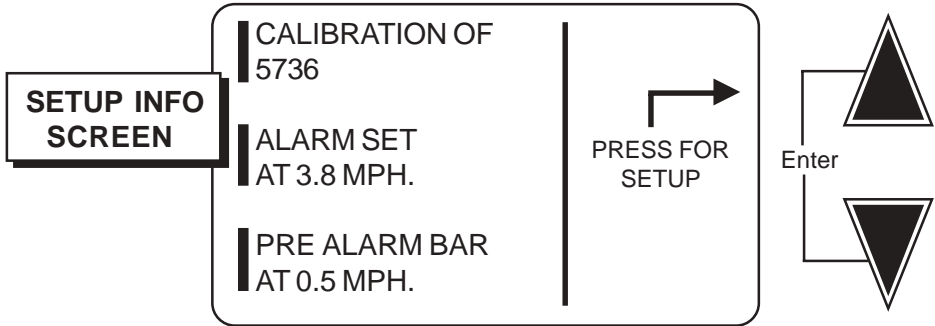
The number above the “digit select” symbol will increase or decrease when pressing and releasing the ▲UP arrow key or ▼DOWN arrow key.

- ▲ When the digit is set to the desired value, press and release
- ▼ both arrow keys. The digit selection arrow will advance to the next digit on the left.
- ▲ After the last digit is entered, press and release both arrow
- ▼ keys and the digit select symbol will disappear and the words “EDIT NO” will be displayed on the left side of the screen.
- ▲ If the value entered is correct, press and release both arrow
- ▼ keys and the TP-100 will advance to the next setup screen.

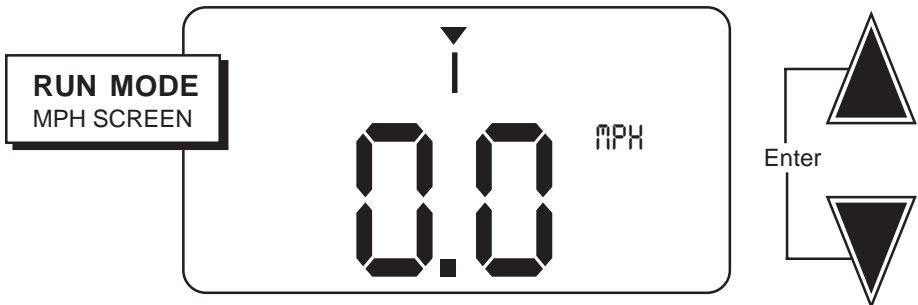
Console Operation

Once the TP-100 system has been installed and calibrated it is ready to be used.

When the TP-100 is turned on, the "START SCREEN" will appear that displays the TP-100 logo and the version number of software installed in the console. After approximately 10 seconds (or pressing a key) the "START SCREEN" will close and the setup information screen will appear shown below.:



During the display of this screen, pressing the **▲ UP arrow** will place the TP-100 in **SETUP MODE**, pressing the **▼ DOWN arrow** key will place the TP-100 in the **RUN MODE**. (If no keys are pressed the TP-100 will automatically go into the MPH SCREEN after an 8 second delay)



Once the "MPH SCREEN" appears, ground speed movement will cause the TP-100 to display a speed. (The TP-100 is not recording at this time) Waving your hand or foot in front of the radar sensor will cause the TP-100 to display a speed reading. (It is possible for the TP-100 to not give a speed reading if the calibration number is out of range)

To set the TP-100 up for recording mode see the next page.....

MPH Recording Mode

Overview:

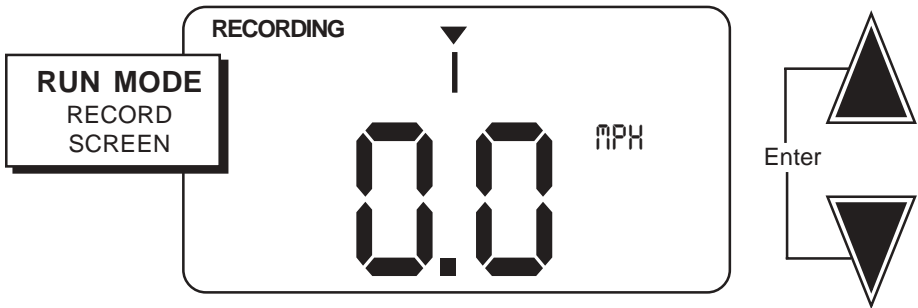
Once staged, the TP-100 will record a speed reading for every one foot of movement. Up to 300 readings (300 ft.) will be recorded and can be saved and reviewed after the pull.

To Enter Recording Mode:

With the TP-100 in run mode (MPH digits displayed) press the ▲ UP arrow key when you are ready to start recording. The alarm light will flash and the word staged will flash on the screen.

STAGED

When the radar device senses ground movement the TP-100 will begin recording the speed every 1 foot of travel. The word "RECORDING" in the upper left side of the screen is an indicator that the TP-100 is in recording mode. The TP-100 will continue to read and save MPH readings until 300 readings have been saved or the ▼ DOWN arrow key is pressed. If 300 readings are collected, the words MEMORY FULL will be displayed in the upper left corner of the display.



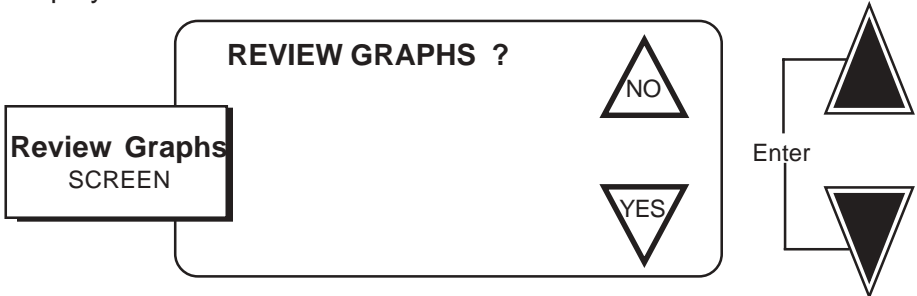
The TP-100 will continue to record up to 300 readings even if you are unhooked and driving off the track. To end the recording mode you must press the DOWN arrow key to stop recording. Pressing the ▼ DOWN arrow key will cause the TP-100 to stop recording and the graph screen to appear. Exit the graph screen by pressing the ▲ UP arrow key and a screen will appear giving the user the option to save the graph to memory for later recall.

NOTE!! Answering NO (UP arrow key) in the SAVE GRAPH? screen will discard the recorded reading and it cannot be recalled.

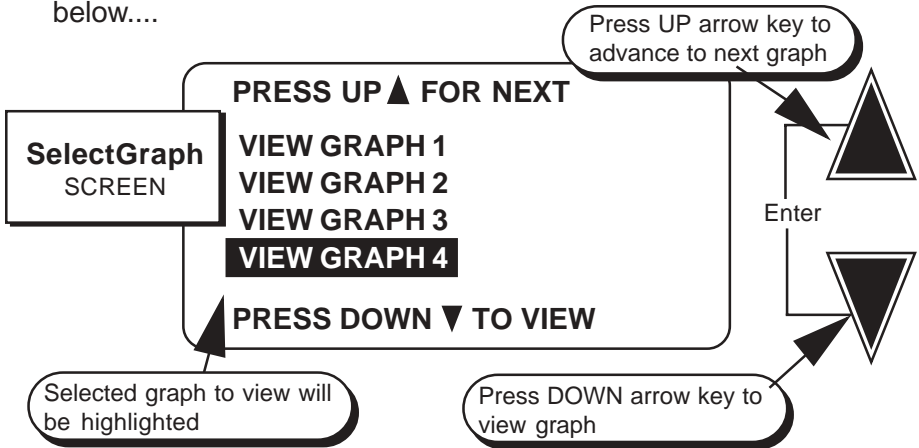
Recalling Saved Graphs

The TP-100 will save up to four graphs in memory that can be recalled. Graph 1 is the oldest graph and graph 4 will be the most recent graph saved to memory. As new graphs are saved to memory, the oldest graph will be discarded and the other saved graphs will shift down one number while placing the most recent graph in location number 4.

Pressing the DOWN arrow key when in the MPH screen will display the screen below that asks “**REVIEW GRAPHS ?**”.



Pressing the ▼ DOWN arrow key again will display the screen below....



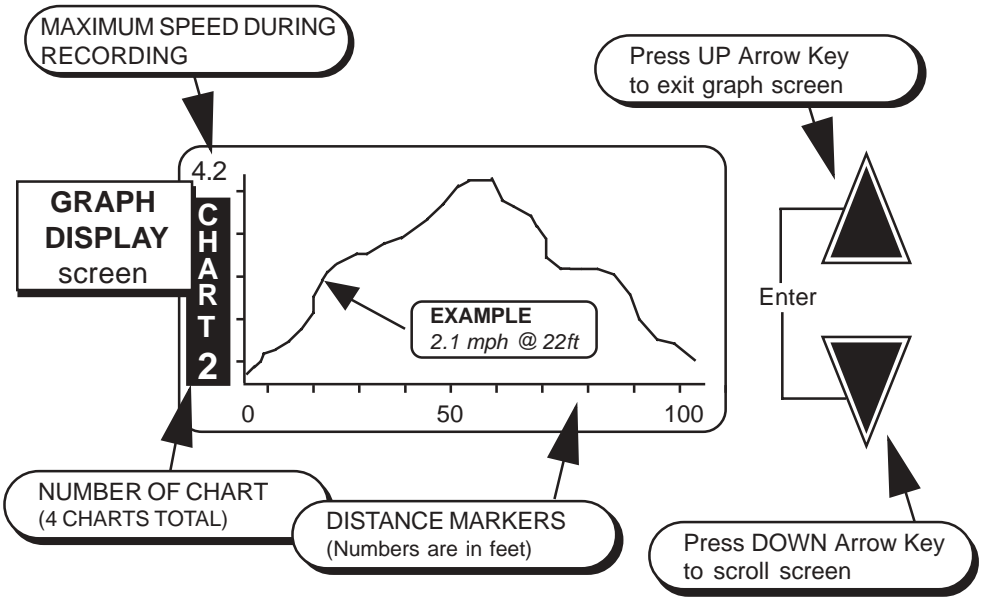
To select a saved graph: Press the ▲UP arrow key and highlight the desired graph to view. The reverse text box is the graph that will be displayed. The selection process will repeatedly loop through the selections as the ▲UP arrow key is pressed and released.

To view the graph that is highlighted press and release the ▼ DOWN arrow key.

The saved graph will appear and repeatedly pressing the DOWN arrow key will scroll the graph to the right. Press and release the ▲ UP arrow key to exit the graph view screen.

Reading the Graphs

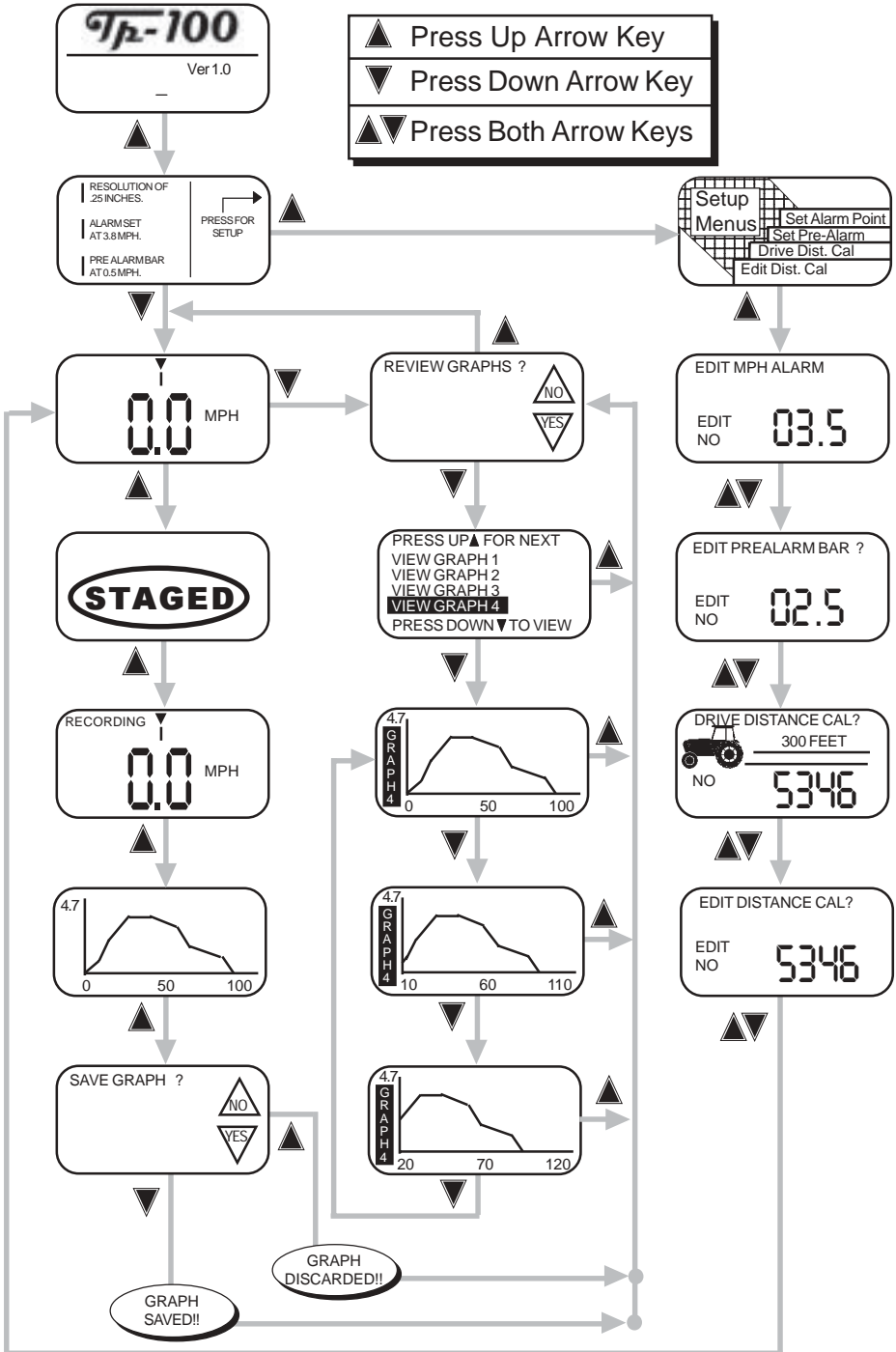
When the TP-100 displays the graph, the MPH readings are scaled between zero and the maximum recorded speed. The number in the upper left corner of the display is the maximum speed recorded during the recording session. Half way up the chart (y-axis) will be 50% of the maximum speed, 25% will be one fourth, etc. An example graph is shown in the drawing below. Pressing the ▼ DOWN arrow key will cause the graph to scroll to the right 20 feet at a time. Ten key presses will scroll the graph through 300 feet of readings. The graph will return to the start (0-100 feet) of the graph on the eleventh key press.



To exit the "Graph Display screen" press the ▲UP arrow key, that will return the monitor to the "REVIEW GRAPH ?" screen.

When in the "REVIEW GRAPH SCREEN" Pressing NO (▲UP arrow key) will return the display to the MPH screen.

Screen Legend Map





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