
TripTek

Motor Coach Trip Computer

with

Tire Pressure



Operator's Manual

For

Monitoring Tire Pressure & Temperature



www.triptek.net

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Operator's Manual TripTek® Tire System

10/20/08

System Scope of Use and Warnings

The TripTek® Tire System and Tire Maintenance

This system is a sensing device designed to identify and display tire operating data and activate an alert or warning when pressure or temperature irregularities are detected. It constantly monitors the tires of your primary vehicle and towed vehicle or trailer and can warn you of a tire pressure or temperature irregularity before it becomes dangerous. The level of danger will be a function of where the pressure and/or temperature alerts are set and the speed of the vehicle. It is the responsibility of the driver to react promptly and with discretion to alerts. Abnormal tire inflation pressure should be corrected at the earliest opportunity. **This tire monitoring system does not in any way replace the need for regular maintenance and inspection of the tire pressures and tire conditions.**

- Reduces risk of a tire failure or fire
- Early detection of pressure irregularities can reduce the inconvenience of being stranded with a flat tire
- Maximizes fuel economy by ensuring tires are properly inflated
- Extends tire life of your primary vehicle and towed vehicle/trailer

CAUTION: SCALE VEHICLE

Prior to highway operation it is the operator's responsibility to weigh this vehicle, adjust tire pressure and Tire Alert settings i.e. cold inflation pressure etc. accordingly. That process should be according to appropriate tire manufacturer loading charts, this manual and the Motorhome owners manual.

- 1. Scale Coach by tire location.*
- 2. Refer to tire load/inflation chart (motorhome owners manual or tire manufacture) to determine recommended tire pressures by axle.*
- 3. Reprogram cold inflation pressure and low pressure alert for each axle (reference page 7 – 9 in this manual)*

What is Deviation

To understand deviation, you must first understand that tire pressures go up as the tires heat up from normal use, and go down as tire conditions cool. The pressures referenced in the load/inflation charts are pressures at 65°F (cold inflation pressure). TripTek Tire will automatically compensate for temperature and display as deviation pressures required to remove or add to the air pressure within the tire.

Example: The computer is programmed for a cold inflation pressure (CIP) of 100 psi. You are traveling on a hot day and your tire is at 148°F and its pressure is at 115 psi. Having the programmed CIP the computer looks at the current temperature and pressure and calculates what psi the tire should be. In this case, the tire should be at 118 psi, so the Deviation would display -3. That means you are 3 psi below what it should be under the current circumstances. This gives you the opportunity to check your tire pressure at any time, hot or cold, and know how far off it is from where it should be.

System Installation and Usage

Warranty of the TripTek® Tire system requires that it has been properly installed and programmed according to this Operator's Manual and any supplementary installation instructions included with systems components.

Use of Chemicals

Temporary resealing or re-inflation products containing internal sealers or propellants in any tire/wheel assembly may adversely affect the operation of the Sensor/Transmitters and void the warranty.

Reacting To Alerts

1. When an alert condition is detected, reduce vehicle speed to an appropriate safe level and proceed to a safe stopping location or facility where the tire can be inspected and serviced.
2. The pressure deviation alert indicates that the pressure has dropped a selected amount below the required pressure at the current tire temperature.
3. The low pressure alert indicates that the air pressure has dropped to a selected minimum, regardless of temperature.
4. The high temperature alert indicates that the contained air temperature has exceeded the selected maximum. A tire temperature buildup can be caused by a number of factors including severe under inflation, hard sustained braking, vehicle overload and sustained high speeds.

Function

Tire data is sent wirelessly to the receiver by in-wheel sensor/transmitters that constantly monitor tire pressure and temperature. Sensors are uniquely labeled to identify specific wheel positions for system installation.

Description

The TripTek®/SmarTire® system consists of the following items:

SmarTire® Wheel Sensors:

The sensors mount within the tire to the drop center well of the wheel with a mounting band. They measure the pressure and temperature of each tire and transmit this information to the receiver.

SmarTire® offers two kinds of tire pressure / temperature sensors. The Low Pressure Sensor (black) is configured to measure tires with a cold inflation pressure up to 65 PSI. The High Pressure Sensor (orange) is configured for cold inflation tire pressures up to 160 PSI.

Receiver:

An internally coded receiver picks up transmissions from the different wheel sensors and forwards the information to the TripTek® computer.

Antenna:

One or more strategically located antennas will be required to assure consistent reception of wheel sensor transmissions.

TripTek® Computer:

TripTek® receives data from the receiver, sets, stores, manages and displays all data on the rear vision monitor.

Buzzer/Light Assembly:

When there is a tire alert the alarm light turns on and the audible alarm sounds.

SmarTire® Car Display:

A towed-car receiver/display system will display tire information while driving the car.

Features

- In-wheel sensors constantly monitor tire pressure and temperature
- Graphic display on rear vision monitor shows real-time information while you drive
- Audible and visual alerts provide instant warning when a tire problem occurs
- 3 types of alerts: Pressure Deviation Alert, Critical Low Pressure Alert, High Temperature Alert
- Monitor the tires of your primary vehicle and a towed vehicle or trailer, up to 28 active wheel positions
- Stores in memory your primary vehicle and up to three towed vehicles, up to 56 total wheel positions.

Operating the TripTek® Computer with TripTek's® Tire Pressure & Temperature Option

10/20/08



Turn the ignition switch ON

Turn the rear vision monitor ON. Display rear vision picture.

Press the **SCREEN** key on the keypad to change contrast of displayed data to the picture.

Note: If vehicle is put into reverse, the rear vision system will override the computer and clear TripTek® data from the screen until transmission is taken out of reverse.



Press the **VIEW** key on the keypad to scroll through TripTek's® primary screens to the "TIRE STATUS" screen. They include Today, Leg, Trip, Coach and the optional Tire Status screen. If the "TIRE STATUS" screen is not accessible and the "TIRE SYSTEM DETECTED" message is displayed, your tire monitoring system has not yet been configured. Press **RESET** and follow the instructions in the "Programming for Tire Sensors" section.

The system will remain on and retain the present data for 90 minutes after the ignition is turned off. After the 90 minute shutdown the display will remain blank as shown until new data is received.













Until the vehicle is in motion no data will be received from any installed transmitter. The data field will remain blank as shown.

Vehicle Inactive: Programmed tire with no data.

Unconfigured Sender: Tire not programmed.

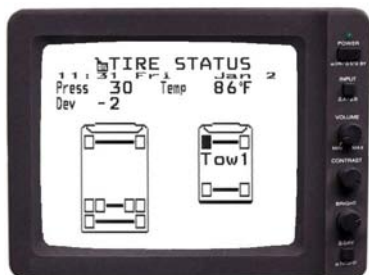


The respective tire icon lines become solid as soon as data from its transmitter is received. When your vehicle is driven over 6 mph, the TripTek® tire system will begin to receive tire data. After data from all transmitters is received the display will be in a state similar to that shown at left until an alert condition is detected.

-  **Filled Tire:** Cursor on tire with data and no error.
-  **Filled Tire Blinking:** Cursor on tire with data and acknowledged error.
-  **Solid Line Tire:** Tire with data and no error or cursor.
-  **Solid Line Tire Blinking:** Tire with data and acknowledged error, no cursor.
-  **Shaded Tire:** Cursor on tire with no data or error.
-  **Shaded Tire Blinking:** Cursor on tire and acknowledged error, no data.
-  **Dashed Line Tire:** No data, cursor or error.
-  **Dashed Line Tire Blinking:** No data or cursor with acknowledged error.
-  **Flashing Alternate Tire (plus/filled):** Cursor on tire with data and unacknowledged error.
-  **Flashing Alternate Tire (plus/solid):** Tire with data and unacknowledged error, no cursor.
-  **Flashing Alternate Tire (plus/shaded):** Cursor on tire and unacknowledged error, no data.
-  **Flashing Alternate Tire (plus/dashed):** No data or cursor and unacknowledged error.

Tire Status Screen

The TIRE STATUS screen is designed to give you tire pressure, temperature and deviation of all tires while traveling.



Using the up Δ and down ∇ keys will let you scroll through the tires to display pressure, temperature, and pressure deviation readings for each tire.

Dashes are displayed if no data is received from a selected tire.

Towed Vehicles or Trailers

If you are using the TripTek® tire system in conjunction with a towed vehicle or trailer, the following information is important to note.

When you unhitch the towed vehicle or trailer and begin driving the towing vehicle, the TripTek® tire system may pick up a stray transmission from the towed vehicle or trailer. If this occurs, the TripTek® system may display the towed vehicle or trailer with a signal loss alert. If this happens, you can simply stop the primary vehicle and then resume your travel and this will clear the alert of the towed vehicle or trailer.

The next time you hook up the towed vehicle or trailer, the TripTek® system will receive the towed vehicle or trailer data transmissions and reset itself to monitor all tires.

Alerts and Errors

During an Alert or Error the “TIRE STATUS” screen will pop up overriding any other travel screen displayed. With Alerts or Errors the affected tire will be blinking and a description of the problem displayed. A tire icon on all travel screens will remain until Alert or Error has been fixed.

LISTED ALERTS

PRESS TOO LOW ALERT
HIGH TEMPERATURE
PRESSURE DEVIATION
SIGNAL LOST
UNCONFIGURED SENDER
VEHICLE INACTIVE

Note: Signal Lost may be caused by either antenna placement or its connection.

Clearing Alerts or Errors

If the problem that generated an Alert or Error has been fixed there are two ways to clear it from the system.

Clearing system while parked



Turn on ignition to display TripTek's "CHECK LIST" screen.

Press down ∇ key to move arrow to Tire Pressure.

If there has been an alert or error that has not been cleared, Tire Pressure will be blinking.

Press VIEW \blacktriangleright key to move to the Clear Alert/Error screen.



Using the up \triangle or down ∇ keys will scroll through tires if desired

Press VIEW \blacktriangleright key to clear Alert or Error from system.

Clearing system while in motion

Drive the vehicle until the system receives new data indicating the problem has been corrected. The system will then clear that specific Alert or Error.

Pressure Deviation Alert

The Pressure Deviation Alert is initiated when the measured tire pressure deviates from the required pressure by more than the preset level.

The alarm light turns on and the audible alarm sounds.

The digital readout displays the amount of deviation e.g. -7 PSI from required pressure and it will be blinking. "DEVIATION PRESSURE" is displayed and the affected tire or tires will be blinking.

Press RESET to acknowledge the alert and stop the audible alarm for each alert. The warning light and tire icon (upper left corner of all screens) will stop blinking.

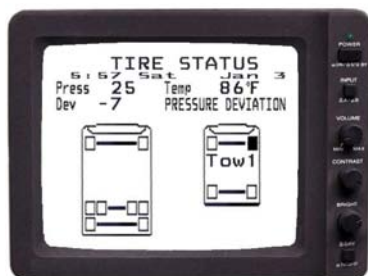
Example:

Pressure Deviation Alert Level = \pm 5 PSI

Required Pressure = 35 PSI Ref. Temp. Compensated Pres. Readings

Actual Pressure in a wheel drops to 28 PSI

Pressure Deviation reading (as shown) will be - 7 PSI



When the alert occurs, reduce speed and proceed to a safe location to check tires.

The Pressure Deviation Alert is cancelled when the tires are properly inflated to correct levels.

Low Pressure Alert

A Low Pressure Alert is initiated when the pressure drops below the programmed level.

The alarm light turns on and the audible alarm sounds.



The digital readout displays the actual pressure and it will be blinking. “PRESS TOO LOW ALERT” is displayed and the affected tire or tires will be blinking.

Press **RESET** to acknowledge the alert and stop the audible alarm. The warning light and tire icon (upper left corner of all screens) will stop blinking.

When the alert occurs, reduce speed and proceed to a safe location to check tires.

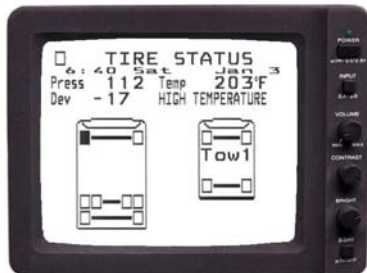
The Low Pressure Alert is cancelled when the tires are properly re-inflated to correct levels.

Note: Low Pressure Alert may occur at very low operating temperature due to its impact on lowering air pressure.

High Temperature Alert

The High Temperature Alert is initiated when the air temperature within a tire exceeds the programmed level.

The alarm light turns on and the audible alarm sounds.



The digital readout displays the actual temperature and it will be blinking. “HIGH TEMPERATURE” is displayed and the affected tire or tires will be blinking.

Press **RESET** to acknowledge the alert and stop the audible alarm. The warning light and tire icon (upper left corner of all screens) will stop blinking.

When the alert occurs, reduce speed and proceed to a safe location to check tires.

The High Temperature Alert is cancelled when the tire temperature returns to an acceptable level.

Checking Cold Inflation Pressure while parked

With tires at outside air temperature.

High pressure tire sensors transmit data approximately every hour while vehicle is parked. To receive this data for viewing the TripTek® computer will need to be powered on. Turn ignition on then off to start system's 90 minute timeout program. At approximately one hour turn ignition back on to view status. It may take more time to receive all possible transmissions.

Note: Some transmitted data may not be received due to the relative locations of tire sensor to the receiving antenna.

Programming Tire Warning Setup Screens

The TIRE WARNING SETUP screens are used to set parameters for the operation of the tire system. Set all parameters for each vehicle in system. Note: Program tire sensors (ref. Programming for Tire Sensors) before starting this process.



Press the up Δ and down ∇ keys simultaneously to get the second level screens (“SCREEN SELECTION”).



Using the up Δ or down ∇ keys move arrow to Configure Tire.

Press VIEW \blacktriangleright key to display “CONFIG TIRE” screen.



Using the up Δ or down ∇ keys move arrow to Setup Pressure/Temp Warnings.

Press VIEW \blacktriangleright key to display the next screen.

Note: The “VEHICLE SELECTION” screen will only be displayed if there is more than one vehicle programmed.

Press \blacktriangleleft VIEW to go back to “SCREEN SELECTION” screen.



Press VIEW \blacktriangleright key to select vehicle for programming.

Press RESET key to accept.



Press SCREEN key to select parameter:

- Cold Inflation PSI
- High Temperature Alert
- Low Pressure Alert
- Pressure Deviation Alert
- Slope

Cold Inflation Pressure

This function changes the cold inflation pressure for each axle. Cold inflation pressure is the recommended tire pressure at 65°F.

Factory default 100 PSI (Primary vehicle), 30 PSI (Towed vehicles).

Vehicles should be weighed by axle to determine recommended tire pressure by the tire manufacturer.



Programming Steps:

Press SCREEN key to select “COLD INFLATION PRESSURE” screen.

Press VIEW key to scroll to the desired axle. The tires of the selected axle are filled in.

Press the up Δ or down ∇ key to change the value.

Repeat the last two program steps until Cold Inflation Pressure levels are set for all axles as desired.

Press SCREEN key to select next parameter

or

Press RESET to accept and exit.

Cold Inflation Pressure Readings

Tire manufacturers never recommend inflating a tire less than the specified cold inflation pressure. The beads of a commercial tire can unseat if its pressure gets too low resulting in a catastrophic tire failure. The general rule of thumb is to inflate a tire to a pressure proportionately higher than the cold inflation pressure (CIP) value when the ambient tire temperature is hotter than 65°F (18°C) and to the recommended CIP value at temperatures below 65°F.

High Temperature Alert

This function changes the high-temperature alert threshold.

Factory default 194°F (Primary vehicle), 176°F (Towed vehicles)

Note: These values have been selected based on tire manufacturers recommendations and user should only change them to match more up to date manufacturers recommendations.

Programming Steps:

Press SCREEN key to select “HIGH TEMPERATURE ALERT” screen.

Press VIEW key to scroll to the desired axle. The tires of the selected axle are filled in.

Press the up Δ or down ∇ key to change the value.

Repeat the last two program steps until High Temperature Alert levels are set for all axles as desired.

Press SCREEN key to select next parameter

or

Press RESET to accept and exit.



Low Pressure Alert

This function changes the low-pressure alert threshold for each axle.

Factory default 90 PSI (Primary vehicle), 25 PSI (Tow vehicle).

Recommend 10 PSI below Cold Inflation Pressure for primary vehicle (high pressure) and 5 PSI below Cold Inflation Pressure for towed vehicles (low pressure).



Programming Steps:

Press SCREEN key to select “LOW PRESSURE ALERT” screen.

Press VIEW key to scroll to the desired axle. The tires of the selected axle are filled in.

Press the up Δ or down ∇ key to change the value.

Repeat the last two program steps until Low Pressure Alert levels are set for all axles as desired.

Press SCREEN key to select next parameter
or
Press RESET to accept and exit.

Pressure Deviation Alert

This function sets the pressure deviation alert threshold for each axle.

Factory default ± 10 PSI (Primary vehicle), ± 7 PSI (Towed vehicles).

Programming Steps:

Press SCREEN key to select “PRESSURE DEVIATION ALERT” screen.

Press VIEW key to scroll to the desired axle. The tires of the selected axle are filled in.

Press the up Δ or down ∇ key to change the value.

Repeat the last two program steps until Pressure Deviation Alert levels are set for all axles as desired.

Press SCREEN key to select next parameter.
or
Press RESET to accept and exit.



Temperature Compensated Pressure Readings

An important feature of the TripTek® system is that pressure deviation alerts are initiated from a comparison of the temperature compensated cold inflation pressure to the tire pressure measured by the sensor.

The “cold inflation pressure” is the air pressure inside the tire inflated at room temperature (64°F) according to the vehicle manufacturer’s recommendation. When a tire heats up, the air pressure inside the tire can also be expected to increase. For example, a pressure of 105 PSI at 65°F may increase to 125 PSI. at 152°F. Both “required” pressure readings are correct at their respective temperatures.

Deviation from the required pressure (at any temperature) can be read on the “TIRE STATUS” screen.

Set Pressure Slope

The computer establishes a slope for each axle that is derived from the COLD INFLATION PRESSURE values set by the user. If you want to improve the accuracy of pressure deviation at temperature, continue on with this process. Once started, any attempt to bypass this process could greatly affect the accuracy of pressure deviation.

The slope is a value corresponding to the rate of pressure change due to temperature change for a particular tire. This value affects the calculation to determine pressure deviation. The tire type, size and pressure range also affects the slope value. The computer calculates the slope required for a typical tire by utilizing the programmed “Cold Inflation Pressure” (reference above). To improve the deviation accuracy, a slope value will need to be established. With the appropriate “Cold Inflation Pressure” programmed for each axle and the tires filled to that exact desired pressure, the operator will be able to set the slope for each axle.

Programming Steps:

Program COLD INFLATION PRESSURE for all axles.

If tire temperature is within $\pm 10^{\circ}\text{F}$ of 65°F inflate all tires to match preprogrammed cold inflation pressure. If tire temperature is greater then the $\pm 10^{\circ}\text{F}$, then utilize the deviation pressure to set tire pressure.



Press SCREEN key to select “SET PRESS SLOPE” screen.

Set slope to zero (0) for all axles.

With tires at ambient (outside) temperature, start driving or towing the vehicle to be programmed until all tires get up to normal running temperature.

With tires at normal running temperature (aprox. 2 plus hours at speed), pull over and park vehicle. If an adjusted value is not displayed at right of axle continue driving until adjusted slope is displayed.

Press VIEW  key to scroll to the desired axle. The tires of the selected axle will be filled in.

Press the up  or down  key to change slope value to match adjusted value displayed at right of axle. The adjusted value is calculated by the computer as the slope which is expected to give the best accuracy.

Repeat the last two program steps until the slope is set for all axles as displayed.

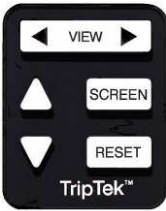
Press RESET to accept and exit.

Note: To verify the accuracy of this process, tires should be checked for proper inflation pressure at ambient (outside) temperature both at the beginning and after cool down. The outside (ambient) temperature for both initial check and then cool down should be within a few degrees. This will verify that tires have retained their initial set pressure.



Replacing Wheel Sensor or Rotating Tires

This procedure is used after tires are rotated and the new positions need to be updated or if a wheel sensor has been replaced.



Press the up Δ and down ∇ keys simultaneously to get the second level screens (“SCREEN SELECTION”).



Using the up Δ or down ∇ key move arrow to Configure Tire.

Press VIEW \blacktriangleright key to display “CONFIGURE TIRE” screen.



Using the up Δ or down ∇ key move arrow to Add/Edit Vehicle Configuration.

Press VIEW \blacktriangleright key to display “VEHICLE SELECTION” screen.



Press VIEW \blacktriangleright key to select vehicle to be configured.

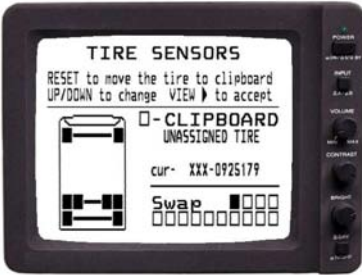
Press RESET key to accept and move to “SELECT LAYOUT” screen.



Press VIEW \blacktriangleright to accept.

Proceed to either the “Replacing a Wheel Sensor” or “Tire Rotation” section.

Replacing a Wheel Sensor



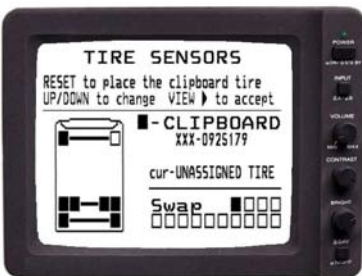
After replacing the wheel sensor you need to drive the vehicle for approximately ten minutes or until the sensor has been stored in the SWAP region of this screen. Verify sensor numbers documented during sensor installation by matching numbers in SWAP region.

Use the up Δ or down ∇ keys to move cursor through screen to verify the sensor number has been received and is within the SWAP region.

CLIPBOARD should show a blank tire. If it is filled move the cursor to a blank tire within the swap area and press RESET.

With up Δ or down ∇ keys move cursor to the tire location to be changed.

Press RESET to move old sensor from tire location on vehicle to the CLIPBOARD.



With up Δ or down ∇ keys move cursor to a blank space (tire) in SWAP region.

Press RESET to move old sensor from CLIPBOARD to SWAP region.

With up Δ or down ∇ keys move cursor to the new wheel sensor in SWAP region.

Press RESET to move new sensor from SWAP region to CLIPBOARD.

With up Δ or down ∇ keys move cursor to the blank tire on vehicle to be changed.

Press RESET to move new sensor from CLIPBOARD to vehicle location.

Press VIEW \blacktriangleright to accept.

Tire Rotation

All tires can be transferred from the vehicle to SWAP region via the CLIPBOARD and then be sent back one at a time.

CLIPBOARD should show a blank tire. If it is filled move the cursor to a blank tire within the SWAP region and press RESET.

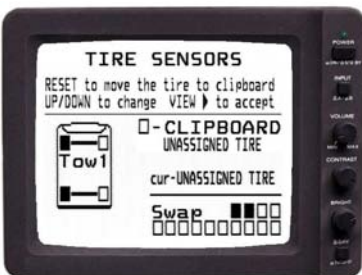
With up Δ or down ∇ keys move cursor to the tire to be changed.

Press RESET to move tire on vehicle to CLIPBOARD.

With up Δ or down ∇ keys move cursor to a blank space (tire) in the SWAP region.

Press RESET to move tire from CLIPBOARD to SWAP region.

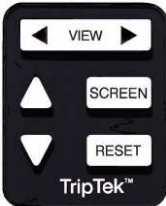
Repeat or reverse this process to move all tires required to satisfy tire rotation.



Programming Tire without Recorded Sensor Number

This procedure is for the programming of the TripTek® tire pressure system with tire sensors that have been installed without documenting each sensor number to its wheel location. This can be accomplished by systematically activating each wheel sensor by inflating or deflating the tire by more than 3 PSI (0.2 Bar) or until the system has received information from that tire. The tire sensor number is then documented on page 15 and referenced to the appropriate wheel.

This method must be carried out while the sensors are in “gauge fill” mode. This mode is entered for 15 minutes after the vehicle has been driven above 6 mph (10 kph). If it is not possible to complete the programming of required sensors within 15 minutes, the vehicle must again be driven above 6 mph (10 kph) and then the process can be continued.



Press the up Δ and down ∇ keys simultaneously to get the second level screens (“SCREEN SELECTION”).



Using the up Δ or down ∇ keys move arrow to Configure Tire.

Press VIEW \blacktriangleright key to display “CONFIG TIRE” screen.



Using the up Δ or down ∇ keys move arrow to Reset Swap Region.

Press VIEW \blacktriangleright key to display “RESET SWAP REGION” screen.



Press VIEW \blacktriangleright key to clear tire data not assigned to a vehicle.

Press \blacktriangleleft VIEW key to return to “CONFIG TIRE” screen.



Using the up Δ or down ∇ keys move arrow to Add/Edit Vehicle Configuration.

Press VIEW \blacktriangleright to display “VEHICLE SELECTION” screen.



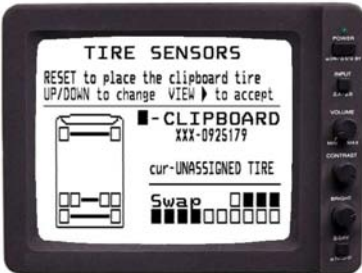
Press VIEW key to choose a vehicle to be configured.

Press RESET key to accept and move to “SELECT LAYOUT” screen.



Press the up Δ or down ∇ keys to select vehicle type.

Press VIEW \blacktriangleright to accept.



The following procedure will require two people, one to drop the air pressure of a specific tire and the other to track data. Have one person drop the air pressure of a specific tire by approximately 4 PSI to activate the tire sensor. When activated, the sensor will transmit a signal to the TripTek computer. While the pressure is being dropped the transmitted signal will display a filled tire in the SWAP section of the “TIRE SENSORS” screen.

The second person will note the newly filled tire in the SWAP region by using the up Δ and down ∇ keys to move the cursor through the screen to the filled tire and write down its number. The flashing tire is the cursors location. For your convenience, a table to record this information has been provided on page 3 of this procedure or page 13 of the Operator’s Manual. Continue with this process until all tire sensor numbers have been received and documented.

Due to tire sensors transmitting periodically on their own you may receive two transmissions at the same time. If so, drop pressure again. Even though tire is now in the SWAP region it will blink when it receives a new signal.

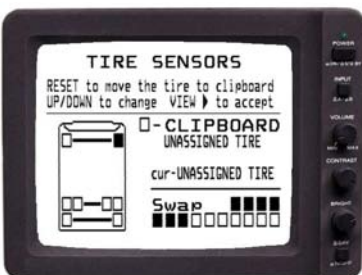
After verifying that all wheel sensors have been received, start transferring tires within SWAP region to appropriate wheel locations.

With up Δ and down ∇ keys move cursor to choose appropriate tire sensor within SWAP area. The selected tire will be blinking.

Press RESET to move chosen sensor from SWAP region to the CLIPBOARD

With up Δ and down ∇ keys move cursor to chosen tire on vehicle.

Press RESET to move wheel sensor from CLIPBOARD to chosen tire on vehicle.



Continue on with this process until all wheel sensors that are mounted on this vehicle have been transferred from the SWAP region to the appropriate on-screen tire locations.

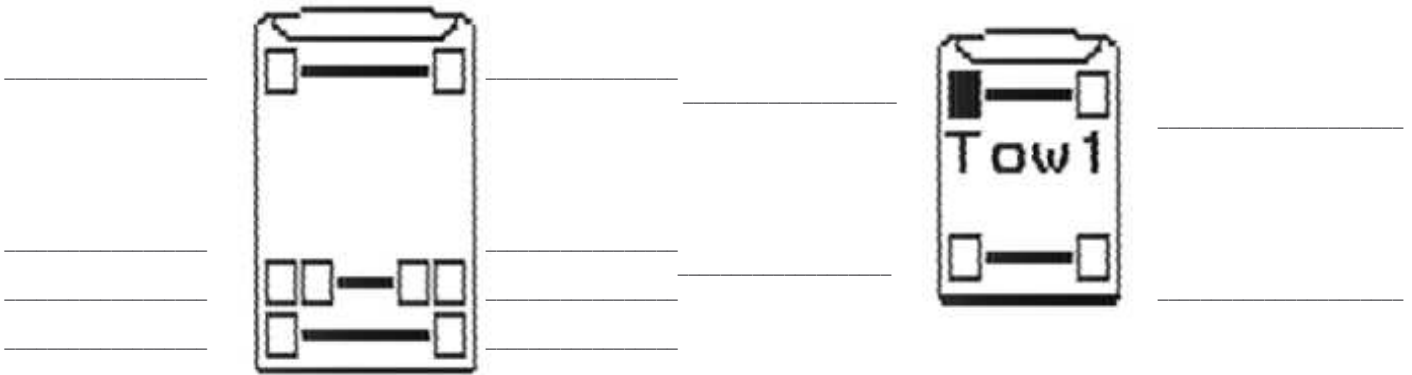
After all wheel sensors have been successfully transferred to the appropriate tires on the displayed vehicle (all tires are filled in solid), press the VIEW \blacktriangleright key to accept.

Re-inflate all tires to the cold inflation pressure.

To program additional vehicles, trailers etc., follow Programming for Tire Sensors for each additional vehicle.

Tire Sensor Location

Document the number that is on the sensor to its wheel location.

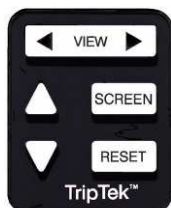


Towed Vehicle # 2

Towed Vehicle # 3

Programming for Tire Sensors

After installing tire sensors on the primary vehicle or adding a towed vehicle, (NOTE: *document the number that is on the sensor to its wheel location*) the system must be setup to recognize the tire sensors transmissions. This can be accomplished in two ways - in motion or static setup. In motion is where you drive the vehicle for approximately 10 minutes or until the system has received information from all tires. Then while parked, link appropriate wheel sensor to displayed wheel. With static setup you systematically jog each wheel sensor (by dropping the air pressure or utilizing a special tool) and link to the appropriate wheel location on the display.



Press the up Δ and down ∇ keys simultaneously to get the second level screens ("SCREEN SELECTION").



Using the up Δ or down ∇ keys move arrow to Configure Tire.

Press VIEW \blacktriangleright key to display "CONFIG TIRE" screen.



Using the up Δ or down ∇ keys move arrow to Add/Edit Vehicle Configuration.

Press VIEW \blacktriangleright key to display "VEHICLE SELECTION" screen.



Press VIEW key to choose a vehicle to be configured.

Press RESET key to accept and move to "SELECT LAYOUT" screen.

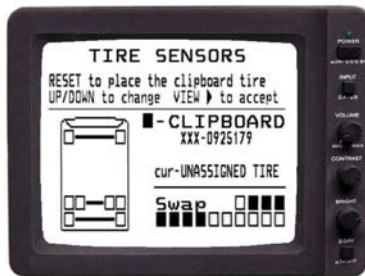


Press the up Δ or down ∇ keys to select vehicle type.

Press VIEW \blacktriangleright to accept.

If you plan to use the in-motion setup approach, drive the vehicle for approximately ten minutes or until all sensors have been stored in the SWAP region of this screen. Verify sensor numbers documented during sensor installation by matching numbers in SWAP region. Dropping tire pressure by approximately 4 PSI will also transmit sensor data to the SWAP region.

Note: If you do not know the sensor numbers or their location, dropping the air pressure of a specific tire and noting its location and number in the SWAP region will give you that information.



Use the up Δ and down ∇ keys to move cursor through screen to verify sensor numbers are within the SWAP region. Flashing tire is the cursor location. Transmitted information from tire sensors will fill tires within the SWAP region. There can be more tires filled in SWAP area than actual sensors due to external noise or from other vehicle sensors.

After verifying that all wheel sensors have been received, start transferring tires within SWAP region to appropriate wheel location.

With up Δ and down ∇ keys move cursor to choose appropriate tire sensor within SWAP area. The selected tire will be blinking.

Press RESET to move chosen sensor from SWAP region to the CLIPBOARD



With up Δ and down ∇ keys move cursor to chosen tire on vehicle.

Press RESET to move wheel sensor from CLIPBOARD to chosen tire on vehicle.

Continue on with this process until all wheel sensors that are mounted on this vehicle have been transferred from the SWAP region to the appropriate on-screen tire location.

After all wheel sensors have been successfully transferred to the appropriate tire on the displayed vehicle, all tires filled, press the VIEW \blacktriangleright key to accept.

To program additional vehicles, trailers etc., follow Programming for Tire Sensors for each additional vehicle.

Reset Swap Region

This function clears all tire data within the SWAP region of the “TIRE SENSORS” screen.



From the “CONFIG TIRE MENU” screen:

Using the up Δ or down ∇ keys move arrow to Reset Swap Region.

Press VIEW \blacktriangleright key to display “RESET SWAP REGION” screen.

Press VIEW \blacktriangleright key to clear tire data not assigned to a vehicle.

Tire Log

The TIRE LOG screen tracks all alerts, errors and program changes.
From the "CONFIG TIRE MENU" screen:

Using the up Δ or down ∇ keys move arrow to Check Alert Log.

Press VIEW \blacktriangleright key to display "TIRE LOG" screen.

Press \blacktriangleleft VIEW key to return to "CONFIG TIRE" screen.

Date/Time: MM/DD/YY/HH:MM time zone, e.g.
12/10/04 12:34 pst

Data:

Use this chart to decipher data in "TIRE LOG".

Vehicle/Tire XYZ (X = Vehicle, YZ = Tire position)

X = P for primary vehicle

T for tow 1

2 for tow 2

3 for tow 3

Y = L for left side

R for right side

1 for front drive

2 for second drive

3 for third drive

Z = F for front

O for outside drive

I for inside drive

T for tag axle

A for left outside drive

B for left inside drive

C for right inside drive

D for right outside drive

M for middle axle

R for rear axle



Vehicle/Axle XA (X = Vehicle, A = Axle)

A = 1 for front axle

2 for 2nd axle

3 for 3rd axle

4 for 4th axle

Alerts: Low psi XXX = Low Pressure Alert @ XXX

Temp. XXX°F = High Temperature Alert

Dev. ± XXX = Pressure Deviation Alert

Programmed: Set CIP XXX = Programmed Cold Inflation Pressure

Set PRES XXX = Programmed Low Pressure

Set TEMP XXX = Programmed High Temperature

Set DEV±XXX = Programmed Pressure Deviation

Set SLP XXX = Programmed Slope Setting

Errors: Signal lost = Not Receiving Signal from Tire

Error Noted = Operator has acknowledged error

RECV DISCONNECT = Receiver Disconnected

SYSTEM DVcCLKS = Check w/ Coretronics, Inc.

VEHICLE LcCTF " "

RUNTIME BadBit " "

CLOCK cCZX " "

LOGVcCI " "

CONFIG cCB " "

ERR QUEUE cCDF " "

TIRE LOG DATA EXAMPLES:

TRR Signal Lost = Towed #1, Right Side, Rear Axle – Not Receiving Signal from Tire.

PLF Low PSI 97 = Primary Vehicle, Left Side, Front Tire – Low Pressure Alert, 97 PSI

P2 Set Temp 200 = Primary Vehicle, Second Axle – Programmed High Temperature for 200°F

T1 Set Pres 35 = Towed #1, Front Axle – Programmed Low Pressure for 35 PSI

SmarTire® Specifications

	Receiver	High Pressure Transmitter w/cradle	Low Pressure Transmitter
Input Supply	11-30 v DC		
Power Consumption	Normal = 480 mW, Max = 1.90 W		
Weight	16.0 oz (454 g)	1.89 oz (58.7 g)	1.5 oz (43 g)
Dimensions	4.0 x 4.6 x 1.5 in. (102 x 117 x 38mm)	3.58 x 1.65 x 1.34 in. (91 x 42 x 34 mm)	2.68 x 1.08 x 0.91 in. (84 x 25 x 22 mm)
Operating Temperature	(-)40 °F to 185 °F [(-)40 °C to 85 °C]	(-)40 °F to 257 °F [(-)40 °C to 125 °C]	(-)40 °F to 257 °F [(-)40 °C to 125 °C]
Pressure Accuracy		±4.35 PSI (0.3 Bar)	±1.5 PSI (0.1 BAR)
Maximum Cold Inflation Pressure		160 PSI (11.03 BAR)	65 PSI (4.5 BAR)
Maximum Operating Pressure		188 PSI (13.0 BAR)	78 PSI (5.4 BAR)
Battery Life		7 years at 50,000 mi/yr (80,500 km/yr) approx.	5 years at 30,000 mi/yr (48,000 km/yr) approx.

FCC NOTICE

This SmarTire® device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications to this device without the express approval of SmarTire Systems Inc. in writing, will void the user's authority to use this device.

Tire Pressure Installation Troubleshooting

Problem: No signals are received from the sensors directly after the installation is complete.

Solution – Confirm that the antenna cables are connected to the receiver. If the cables are connected, check to see if the system has been programmed with the ID numbers of the sensors installed on the vehicle. Refer to the operator’s manual “Programming for Tire Sensors”.

Problem: Transmissions are not being received at a tire location after a sensor was replaced or a spare tire was installed.

Solution – The ID number for the sensor at the location is not programmed into the system. Program the ID number of the new sensor into its respective location in the system. Reference operator’s manual “Replace Wheel Sensor or Rotating Tires”. If the sensor in a tire does not respond during programming, dismount the tire from the wheel to confirm that the sensor was installed. If the sensor is present, but not functioning, replace it.

Problem: Pressure deviation alert activates on one or more tires at start up when the initial transmissions are received.

Solution – One or more tires are not properly inflated to the cold inflation pressure (CIP) setting in the system. It is possible that the affected tire has a puncture and is losing pressure. Confirm that the affected tires are inflated to the recommended amount as indicated on the vehicle’s Placard. If not, inflate or deflate the affected tires as required and investigate the cause of the pressure condition (was the tire improperly inflated after installation?). If the affected tires are properly inflated, confirm that the CIP setting in the system matches the recommended CIP values for the vehicle. See operator’s manual “Programming Tire Warning Setup Screens”.

Please note that the system software assumes that tires are inflated to the programmed CIP value at an ambient temperature of 65°F (18°C). If the actual tire temperatures are higher than 65°F, initial inflation pressures should be correspondingly higher.

Problem: Pressure deviation alert activated on one or more tire locations after a period of driving.

Solution – Confirm that the affected tires are properly inflated. If not, inflate or deflate the affected tires by the amount indicated in the alert and investigate the cause of the pressure condition. Keep in mind that the inflation pressure of a tire hotter than 65°F (18°C) should be higher than the recommended cold inflation pressure (CIP). If the affected tires are properly inflated, confirm that the CIP setting in the system matches the recommended CIP values for the vehicle. See operator’s manual “Programming Tire Warning Setup Screens”. If the programmed CIP setting matches the vehicle’s recommended CIP values, the systems ‘Slope’ setting may not be optimal. See operator’s manual “Programming Tire Warning Setup Screens”.

Problem: Tire pressure reading on the display does not match the pressure value obtained from a hand-held gauge for one or more tire locations.

Solution – This condition can be the result of an inaccurate hand-held pressure gauge, altitude, or because the wheel positions in the display do not correspond to the tires the sensors are installed in. To diagnose the problem:

1. Adjust the inflation pressures of all tires to their recommended cold inflation pressure (CIP) value using the hand-held gauge.
2. Drive the vehicle over 15 mph (24kph) to activate the sensors. If the system indicates that all tires are inaccurately inflated by approximately the same amount, the problem is being caused by an inaccurate gauge or the pressure differential caused by altitude. See “Solution: Inaccurate Gauge” below.
3. If the display shows approximately the same values as the hand-held gauge for all other tire locations, stop the vehicle at your installation facility and, without powering down the system, deflate one tire by approximately 5 – 10 PSI. Note: Once the vehicle has stopped moving, the sensors will stay active for 15 minutes before going into a sleep mode. **You now have 15 minutes to diagnose the problem or the vehicle will need to be driven over 15 mph (24 kph) again.**

Confirm that the display shows the reduced pressure at the corresponding wheel position. If it does not, the sensor installed in the deflated tire is not programmed to the correct wheel position in the receiver. If it does, that wheel position has been correctly programmed.

Repeat for all other tires on the vehicle that do not match pressures to determine which sensor ID numbers need to be reprogrammed. See “Solution: Sensor ID Programming” below. Re-inflate tires to the recommended cold inflation pressure (CIP).

Solution: Inaccurate Gauge

Most hand-held gauges have an accuracy rating of plus or minus 5 PSI. The tire system is far more accurate, measuring pressure to an accuracy of plus or minus 1 PSI. As a result, the temperature compensated pressure deviation values provided by the system should be used over the non temperature compensated values provided by the hand-held gauge. Inflate or deflate the tires until the pressure deviation value for all tires is 0 PSI (plus or minus 1 PSI). The tires will now be properly inflated.

Please note that since the sensors measure tire pressure from the inside of the tire, they are not influenced by changes in atmospheric pressure due to elevation. If tire pressure levels are set with a hand-held gauge in a high altitude region, the system will display somewhat lower pressure values than the reading provided by the hand-held gauge. For example, a tire inflated to its correct CIP in Denver CO (approx 5280 ft above sea level) as measured using an accurate hand-held gauge will show a -2.5 PSI difference on the system display as a result of the elevation.

Solution: Sensor ID Programming

Reprogram the system by performing a tire rotation function using the operator’s manual “Replace Wheel Sensor or Rotating Tires” or by using the operator’s manual “Programming for Tire Sensors” to reprogram the sensor ID numbers into the correct wheel positions.

Note: Do not forget to re-inflate the tires to their proper CIP values.

Problem: The System initiates a Signal Lost error at one or more wheel positions after a period of driving at interstate highway speeds.

Solution – Higher vehicle speeds can reduce the systems ability to capture data from the sensors. Check antenna rods and clean away any excessive dirt buildup. Straighten antennas if they are bent. Also, relocation of an antenna may improve the signal strength of the system. If the condition persists and the system has been in use for over 5 years under normal driving conditions, the battery in the sensor installed at the affected wheel position may be discharged. Replace the sensor.

Problem: One or more wheel positions on the display are slow in being received after starting a trip.

Solution – Transmissions are not being consistently received from one or more wheel positions. Sensors are designed to transmit within 15 seconds of the vehicle moving 15 MPH. To improve signal reception, check the antennas to confirm absence of dirt or damage and adjust their position so that they have a clear line of sight to the tires. Sensor signal strength may also be adversely affected by tire additive liquids. If the condition persists, replace the affected sensor.

Problem: High Temperature alert is activated at one or more sensor locations without a low pressure alert or warning

Solution – Tire is irregularly hot. Radial ply tires normally operate well below the activation threshold of the high temperature alert. Therefore, if the high temperature alert is activated without an earlier under inflation alert, the cause of the problem is most likely radiated heat generated by a dragging or over worked brake drum. Investigate possible causes and correct the condition.

Problem: Low Pressure alert is activated at one or more sensor locations due to very low ambient temperatures

Solution – Tire manufactures never recommend inflating a tire less than the specified cold inflation pressure. The beads of a commercial tire can unseat if its pressure gets too low resulting in a catastrophic tire failure. The general rule of thumb is to inflate a tire to the recommended cold inflation pressure at temperatures below 65°F.

TripTek® Product Warranty

Coretronics, Inc. (the Company) warrants the Triptek® computer to be free of defects in material and workmanship under normal use and service maintenance for a period of 12 months. In the event the Computer shall prove to be defective in material or workmanship during said 12-month warranty period, Coretronics, Inc. will, at its option, repair or replace the Computer, at no charge to Customer except as set forth below. All replaced parts and equipment shall become the property of Coretronics.

This limited warranty does not apply to any damage to the Computer resulting from accident, physical or electrical misuse or abuse, improper installation, alteration, any use contrary to its intended function, unauthorized service (i.e. service by anyone other than the Company or its authorized service personnel), fire, flood, lighting, or other acts of God.

This warranty limits the Company's liability to the repair or replacement of the product. The Company shall not be responsible for removal and/or reinstallation charges, loss or damage in transit and shipping and mailing costs to the warranty service location.

Telephone 208-938-6331 to obtain a Return Material Authorization (RMA) number. Send the defective unit and RMA number to: Coretronics, Inc., 1251 E. Iron Eagle Drive, Suite 150, Eagle, ID 83616.

The Company reserves the right to make changes or improvements in its products without incurring any obligation to similarly alter products previously purchased.

SmarTire® Product Component Warranty

This Warranty covers substantial manufacturer's defect in workmanship and materials. It does not cover any unit that is damaged beyond normal usage, was not properly installed, was subjected to chemical contact, or other acts or omissions not sanctioned by the Owner's Manual.

All components are covered for one (1) year and unlimited mileage following the date of purchase.

The SmarTire® Warranty will be honored by any authorized SmarTire® dealer. The owner is required to provide dated proof of purchase. The authorized dealer will determine if there is a warrantable condition associated with materials and/or manufacturing workmanship. If a warrantable condition exists, the component will be replaced free of charge, shipping prepaid. The owner is responsible for any labor and installation charges.

Telephone 604-276-9884 to obtain a Return Material Authorization (RMA) number. Send the postage prepaid package with the defective unit and RMA number to: SmarTire USA Inc., PMB 309, 1700 W. Market Street, Akron, Ohio, USA, 44313.

The Warranty does not include any further obligation whatsoever, including but not limited to actual installation of the replacement unit on the customer's vehicle.

All other Warranties, express or implied, are disclaimed. All collateral agreements, which purport to modify this Limited Warranty are of no effect. The absolute limit of liability is the purchase price of the unit. SmarTire Systems Inc. and Coretronics, Inc. are not liable for any direct, consequential, indirect or punitive damages of any kind.



(208) 938-6331

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EAGLE, IDAHO