

## SYSTEM OVERVIEW

SmarTire for Motorcycles consists of the following components:



Display / Receiver



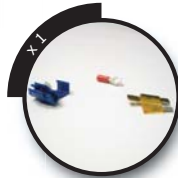
Sensor / Transmitter



Strap



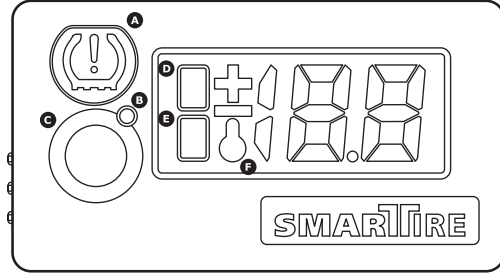
Valve Bridge



Mounting Kit

## SYSTEM OVERVIEW

To successfully install your SmarTire system, you will need:



A. Warning Icon

B. On Light

C. Button

D. Front Tire Icon

E. Rear Tire Icon

F. Temperature Indicator

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## SYSTEM OVERVIEW

## USER GUIDE & INSTALLATION MANUAL

Thank you for purchasing a SmarTire tire pressure monitoring system for your motorcycle. This manual will provide you with step-by-step instructions to help you successfully install and operate your SmarTire system.


Though SmarTire monitors pressure and temperature, it is the rider's responsibility to maintain their tires and to react promptly when they receive alerts and warnings. Abnormal tire inflation pressures should be corrected at the earliest opportunity since they can adversely affect the motorcycle's handling characteristics and the tire's structural integrity.

Please note that for the SmarTire to work on your motorcycle:




- Tires must be tubeless
- Maximum Cold Inflation Pressure must be below 63 psi
- Rims must be at least 14" in diameter and 3" wide

- The Low Pressure Alert is set to trigger if the pressure in either tire falls below 25% of the cold inflation pressure. The alert icon will activate and the tire pressure is displayed. Note: The warning icon and pressure deviation will remain illuminated until air is added to the flat tire.



You are operating your motorcycle in a dangerous condition. Stop and make repairs.

- The High Temperature Alert is set to trigger if the temperature in either tire exceeds 176°F (80°C). The alert icon will flash and the tire temperature is displayed.



You are operating your motorcycle in a dangerous condition. Stop and make repairs.

**The Pressure / Temperature Relationship**

When a motorcycle is ridden, the tires heat up and the actual pressure inside the tire increases. When displaying pressure, SmarTire displays actual pressure values without compensating for pressure changes caused by temperature variations.


SmarTire also displays Pressure Deviation, which is the difference between the calculated pressure that should be in the tire at the current tire temperature and the actual measured tire pressure. For example, a Pressure Deviation value of -3 indicates that you should increase that tire's pressure by 3 psi. The Pressure Deviation is accurate regardless of the temperature of the tire.

For a more technical description of temperature compensation, please visit our website at [www.smartire.com](http://www.smartire.com).

SmarTire actively monitors and displays tire pressure, pressure deviation and tire temperature. The system will warn you if your tire pressures are too low or tire temperatures are too high in order to reduce accident risk, maximize performance, increase tire life and improve fuel efficiency.

**Getting Started**

When your motorcycle is started, SmarTire will power up, briefly flash the tire icons and display dashes indicating that it is waiting for tire data. When the motorcycle is ridden over 6 mph (10 kph), SmarTire will begin to receive tire data. When all tire data has been successfully received and the system is operating normally, the front and rear tire icons will remain displayed.



SmarTire starts to receive tire data only when your motorcycle reaches 6 mph (10 kph). If you want to access tire data while stopped, for example when filling tires at a service station, do not turn off your motorcycle.

Press the button and SmarTire automatically displays inflation pressure, pressure deviation and temperature for both tires. To quickly toggle through the tire data, press the button repeatedly.

**Alert Modes**

The alert icon will activate whenever tire pressure drops below or tire temperature exceeds the factory preset limits. When the tire condition has been corrected, the alert icon will turn off. In all cases, a tire icon will indicate which tire is affected. SmarTire has three alert modes:

- The Pressure Deviation Alert is set to trigger if the pressure in either your front or rear tire is 15% below or above the temperature compensated cold or recommended inflation pressure (see Pressure / Temperature Relationship). The alert icon will flash and the pressure deviation is displayed.

## 1 INSTALLING THE DISPLAY - *continued.*

- Using the included double sided tape, adhere the display to the motorcycle.
- Wire the display/receiver to the motorcycle connecting the positive wire (red) to the power supply through an ignition keyed circuit and the negative wire (black) to ground. For some motorcycles, it is easiest to connect to an ignition keyed circuit through the fuse box.

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## 2 INSTALLING THE SENSORS

In this section, you will learn how to mount a sensor on a rim. Please read this section carefully and follow each step precisely to ensure that you do not damage a sensor.



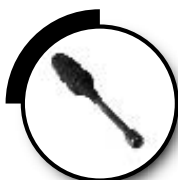
Wrap the strap around the rim and mark 1" past the worm gear for cutting.



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## TOOLS REQUIRED

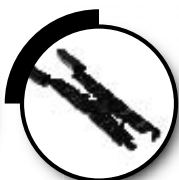
To successfully install your SmarTire system, you will need:



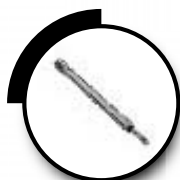
5/16 (8mm) Driver



Metal Cutter



Crimping Tool



Tire Pressure Gauge



Cleaning Product

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## 3 INSTALLING THE DISPLAY

In this section, you will learn how to mount and wire the SmarTire display/receiver.

- Find a suitable location to mount the display (use either top or bottom surface as needed).

Ideally, the location should be:

- a sheltered area within the operator's normal field of vision, and
- an area that is not normally removed during routine servicing and maintenance.

- Clean the mounting surface thoroughly.



The mounting location must be perfectly clean to ensure a rigid bond between the display and the motorcycle.

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## USING THE SMARTIRE - *continued.*

You may want to temporarily adjust tire pressures to safely carry a passenger or additional loads. This should always be done as per the motorcycle owner's manual. If the motorcycle tire pressure settings are changed, SmarTire must learn the new values. To update the cold inflation pressure:

- Adjust the pressures in both the front and rear tires to the desired values when the tires are cold.
- Turn on the motorcycle and immediately press and hold the button until the letters 'CP' are displayed.
- Ride the motorcycle above 6 mph (10 kph). The new settings will be automatically saved and the unit will exit the 'Pressure Adjust' mode.

## INSTALLING THE SMARTIRE

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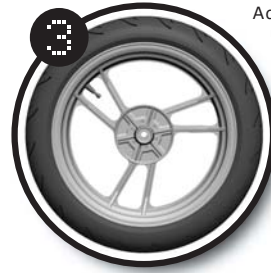
3 MOUNTING THE TIRE - continued.

2. Starting from the mount head, manually depress the lower bead of the lubricated tire over the rim flange and into the drop center well until its pinch point is approximately 3" (7.5 cm) before the sensor.



Note: The pinch point (also known as the traction point) is the position on the rim where the tire bead encounters resistance when trying to slip over the rim flange.

3 MOUNTING THE TIRE - continued.



Advance the turntable using the mount head to guide the rest of the bottom bead over the flange and onto the rim. When done properly, the bead will slip over the flange without contacting the sensor.

4. Repeat for the top bead. Do not allow the pinch point to slip as the rim rotates or the sensor may be broken.

5. Finish installation as normal. (Seat the beads, install the valve core, inflate to the recommended cold inflation pressure, balance tires and mount wheels on the motorcycle).

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2 INSTALLING THE SENSORS - continued.

6. Hand tighten the worm gear until the mounted sensor can not be moved. Do not over tighten.



**Remove Tire With Care**  
SMARTTIRE® Sensor Inside

Apply the supplied rim label on the outside of the rim flange to indicate the location of the sensor.

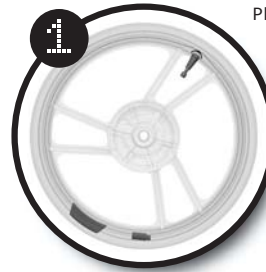
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3 MOUNTING THE TIRE

In this section, you will learn how to mount the tire without damaging the sensor.



Please read this section carefully and follow each step precisely to ensure that you do not damage a sensor.



Place the rim on the turntable of a tire-mounting machine so that the mount head is at 12 o'clock with the sensor at 7 o'clock.

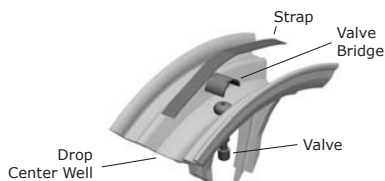
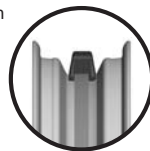
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2 INSTALLING THE SENSORS - continued.

4. Install the strap mounted sensor on the rim in the lowest point of the drop center well.

If the width of the wheel requires the strap to pass over the valve, elevate the strap using the supplied valve bridge.

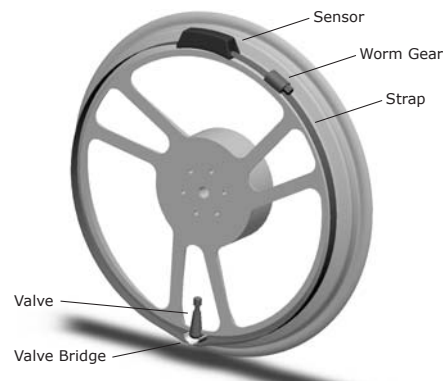
If there is no valve recession in the drop center well, the bottom of the valve bridge may block a rubber valve. In this case, replace the rubber valve with a metal valve. If a metal valve is used and its head is recessed fully below the surface of the rim, the valve bridge is not required.



2 INSTALLING THE SENSORS - continued.

5. Orient the components on the rim so that:

- the sensor is located directly opposite the valve stem, and
- the worm gear is 1" away from the sensor.



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## TESTING THE SYSTEM

In this section, you will learn the best method of testing a newly installed SmarTire to ensure that it is programmed properly and operating normally. Though highly unlikely, it is possible that your SmarTire captured data from a near-by sensor other than the one intended during programming. To test the system:

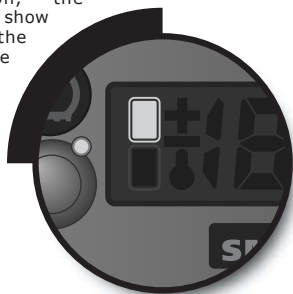
1. Starting with the motorcycle off, power up the SmarTire by turning on the motorcycle. When first powered on, SmarTire will display alternating front and rear tire icons with dashes for pressure readings as it searches for data from the two wheels.
2. Accelerate the motorcycle forward to a speed of at least 6 mph (10 kph) to activate the sensors, causing them to transmit tire pressure and temperature data. When transmissions are received from the sensors, the display will show the inflation pressure for each tire and then go blank, showing only the front and rear tire icons.

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## PROGRAMMING THE RECEIVER - continued.

2. Make sure the wheels have not been disturbed for at least 60 seconds. With the motorcycle on its center stand or a bike jack, spin the rear tire approximately 6 mph (10 kph) to provoke a data transmission from the sensor. The data along with a sensor ID number will be captured by the display/receiver and set as the rear tire value.

Once the receiver has successfully captured the data transmission, the display will briefly show the pressure of the rear tire. Then, the display will switch to showing the front tire icon; ready to receive data for the front tire.



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## PROGRAMMING THE RECEIVER

In this section, you will learn how to calibrate the Display/Receiver to the sensors installed in the tires of the motorcycle.



Make sure that both tires are set to their correct cold inflation pressures in advance of programming the display.

1. Turn the bike on to its accessory position and SmarTire will check to see if it has been programmed. On a new installation, the display/receiver will automatically enter its initial programming mode when powered on, ready to receive the sensor ID and tire pressure for the REAR tire.

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## TESTING THE SYSTEM - continued.

3. Compare the pressure values that are displayed for the front and rear tires to the pressures the tires were inflated to. When programmed correctly, the display will show the same pressure values that the tires were inflated to.



The SmarTire System is extremely accurate at measuring tire pressure. If the pressure values displayed are slightly different than the manual gauge, it is usually because the SmarTire is more accurate.

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## PROGRAMMING THE RECEIVER - continued.

3. Now, spin the front tire approximately 6 mph (10 kph) to provoke a data transmission from the sensor. The captured data will then be set as the front tire value.

If the transmission was successful, the display will toggle between the front and rear tire pressures.

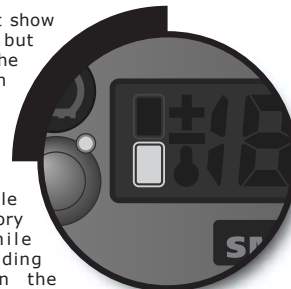
4. Finally, press the button on the display to save the settings. Your SmarTire will now be programmed and ready for use.

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## PROGRAMMING THE RECEIVER- continued.

Upon entering the initial programming mode, the display will show the rear tire icon.

If the display does not show the rear tire icon but powers on normally, the unit has already been programmed. To re-enter the initial programming mode, first, turn off the motorcycle. Then, turn the motorcycle back on to its accessory position while simultaneously holding down the button on the display until it shows the rear tire icon (approx.. 2 seconds). The unit will then be in programming mode ready for reprogramming.



To toggle between programming the front and rear tire first, press the button on the display.

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**ACTION:**  
Re-program the display/receiver (see Installation Step 4: Programming the Receiver on page 24).

3. Display initiates a Pressure Deviation Alert shortly after beginning a ride.

**CAUSE:**  
Tire pressure is 15% higher or lower than the programmed cold inflation pressure setting.

**ACTION:**  
Inflate/deflate the affected tire to the motorcycle's correct cold inflation pressure.

4. When powered on, the Warning Icon flashes and the display shows an E2, E3, E4, or E5 System Alert.

**CAUSE:**  
Electronic components are not powering up properly due to component malfunction or insufficient voltage.

**ACTION:**  
Turn the motorcycle off and then back on to its accessory position to reset the SmarTire. If the problem clears itself, check for an excessive voltage drop during engine startup. If the problem reoccurs, the display will need to be replaced.

5. After about 20 minutes of riding, the display shows an 'E1' System Alert and hasn't received a transmission from one of the sensors.

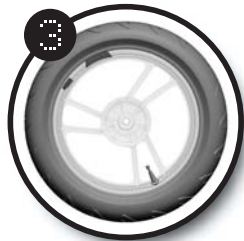
**CAUSE:**  
A sensor has stopped transmitting.

**ACTION:**  
If tire replacement or repair has preceded the appearance of the error, check to confirm that the sensor was reinstalled and not damaged. If no tire related work was recently done, the sensor may need to be replaced. If the sensor was recently replaced, the display will need to be programmed to the new sensor (see Installation Step 4: Programming the Receiver on page 24).

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**REMOVING A TIRE WHEN A SENSOR HAS BEEN INSTALLED ON A RIM**

3. Orient the wheel so that the mount head / bead lifting bar is at 12 o'clock with the sensor at 11 o'clock.



4. Advance the turntable clockwise to remove the top bead. When done properly, the bottom bead will slide into the drop center well without contacting the sensor.
5. Repeat for the bottom bead. Prior to tire installation, check the sensor for correct positioning and strap tightness.

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TROUBLE SHOOTING

1. Display does not power up when the motorcycle is turned on.

**CAUSE:**  
The display is not receiving power, or proper polarity from the power source.

**ACTION:**  
Confirm that power cable is connected to the correct polarity sources and electrical power is actually present at the connector when the key is turned to the 'on' / 'accessory' position.

Inspect the power supply cable for any cuts that may effect continuity.


2. Display powers up but no transmissions are received from the sensors.

**CAUSE:**  
The display/receiver captured data from sensors other than those installed on the motorcycle.

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**REMOVING A TIRE WHEN A SENSOR HAS BEEN INSTALLED ON A RIM**

In this section, you will learn how to remove a tire from a motorcycle rim that has a SmarTire sensor installed on it.



Follow these instructions carefully to ensure you do not damage the sensors.

**CAUTION:**

Make sure you know the location of the sensor before unseating the beads of the tire. The rim mounted decal should indicate the approximate location of sensor.

If there is no rim mounted decal, the sensor should be mounted directly opposite the valve stem.

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**REMOVING A TIRE WHEN A SENSOR HAS BEEN INSTALLED ON A RIM**



After removing the wheel from the motorcycle and deflating the tire completely, unseat the beads with the bead breaker shoe 90° from the valve stem (away from the sensor which is located opposite the valve stem).

Place the wheel on the turntable of a tire mounting machine and depress the sidewall of the tire to verify the exact location of the sensor.



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**WARRANTY: EUROPE**

SmarTire Europe Limited ("SmarTire") hereby warrants that this SmarTire wireless tyre pressure monitoring system shall be free from material defects in workmanship and/or materials until the expiry of twelve months from its purchase by the end user and unlimited mileage, EXCEPT WHERE any such defect has been caused by:

- 1. Improper installation;
2. Improper or non-normal use;
3. Contact with any corrosive or otherwise harmful substance; or
4. Any other act or omission not sanctioned by the Owner's manual or any failure to follow any other reasonable instructions given by SmarTire in relation to the system.

The above warranty will be honoured by the retailer from which it was purchased, provided that the owner can provide dated proof of purchase.

The retailer shall at SmarTire's cost send any unit which is defective as described in the above warranty to SmarTire at Park 34, Didcot, Oxfordshire OX11 7WB, England.

In the event that any defect in the unit is covered by the above warranty, SmarTire will replace the affected components free of charge, shipping prepaid. The owner shall be responsible for any labour and installation costs incurred in removing the defective parts and/or installing the replacements.

SAVE AS SET OUT HEREIN SMARTIRE SHALL HAVE NO FURTHER LIABILITY OR OBLIGATION UNDER THE ABOVE WARRANTY. THIS WARRANTY SHALL BE GOVERNED AND CONSTRUED IN ACCORDANCE WITH ENGLISH LAW.

YOUR STATUTORY RIGHTS ARE NOT AFFECTED.

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**WARRANTY: USA**

This Warranty covers substantial manufacturer's defects in workmanship and materials only. 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 installation.

The SmarTire® warranty will be honoured 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.

A completed Warranty Claim Form must be sent, postage prepaid, with the defective unit to SmarTire USA Inc., PMB 309, 566 White Pond Dr. C., Akron, OH 44320-1116 USA. Phone: 330-497-0236 or 888-982-3001.

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

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. is not liable for any direct, consequential, indirect, or punitive damages of any kind.

SOME STATES DO NOT ALLOW LIMITATIONS ON THE VALIDITY OR LENGTH OF IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

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**TECHNICAL SPECIFICATIONS**

Table with 2 columns: Component Name and Specification. Includes sections for DISPLAY / RECEIVER (Power Consumption, Operating Temperature, Operating Humidity, Size, Weight) and SENSOR TRANSMITTER (Battery Life, Operating Temperature, Size, Weight, Operating Humidity, Frequency, Maximum Operating Pressure, Pressure Accuracy, Activation).

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**SYSTEM SCOPE OF USE & WARNINGS**

**The SmarTire® 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 is the responsibility of the driver to react promptly and with discretion to alerts and warnings. Abnormal tire inflation pressures should be corrected at the earliest opportunity.

**System Installation and Usage**

Use of the SmarTire® system requires that it has been properly installed and programmed by qualified personnel according to SmarTire Systems Inc. documentation. This includes the Owner's Manual and any supplementary installation instructions included with system components.

**Warnings**

- 1. When an alert or warning 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 for that level of tire temperature.
3. The low pressure warning indicates that the air pressure has dropped to a selected minimum level.
4. The high temperature warning 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.

**Use of Chemicals**

Temporary resealing or reinflation products containing internal sealers or propellants in any tire/wheel assembly may adversely affect the operation of the sensor/transmitters.

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**WARRANTY: CANADA**

This Warranty covers substantial manufacturer's defects 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.

The SmarTire® Warranty will be honoured 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, if within the applicable warranty period. The owner is responsible for any labour and installation charges.

This notice must be sent, postage prepaid, with the defective unit to SmarTire Systems Inc., 13151 Vanier Place, Suite 150, Richmond, British Columbia, Canada, V6V 2J1. Phone: 604-276-9884.

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

ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AND CONDITIONS FOR MERCHANTABILITY, DURABILITY OR FITNESS FOR PURPOSE, ARE DISCLAIMED. ALL COLLATERAL AGREEMENTS, WHICH MODIFY THIS SOLE WARRANTY ARE OF NO EFFECT. SMARTIRE SYSTEMS INC. IS NOT LIABLE FOR ANY DIRECT, CONSEQUENTIAL, INDIRECT OR PUNITIVE DAMAGES. THE ABSOLUTE LIMIT TO LIABILITY IS THE PURCHASE PRICE OF THE UNIT.

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**REPLACEMENT PART NUMBERS**

Need to replace a part of your SmarTire System? Check the list below to identify the part number of the component you need.

Table listing replacement part numbers for various components: Display / Receiver (USA, Europe, UK, Canada), Sensor / Transmitter, Strap, Valve Bridge, and Mounting Kit (motorcycle).

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## FCC NOTICE

This 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 into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modification to this device without the express approval of SmarTire Systems Inc, may void the user's authority to use this device.

## EUROPEAN REGULATIONS

This device complies with all European Electromagnetic compatibility regulations (95/54/EC and EN 300 220-1). The equipment has been tested and found to comply with the above regulations, and in addition it meets the requirements for low powered transmitters/receivers as defined by the relevant radio approval authority. The regulations are designed to provide reasonable protection against harmful interference or susceptibility. Changes made to this device without the express approval of SmarTire Europe Ltd. may void the user's authority to use this device.