



TUSON PROVIDING THE MOST RELIABLE AND ADVANCED TECHNOLOGY FOR TOWABLE BRAKING SYSTEM SINCE 1950'S

Patent No.:
9,026,311
Date of Patent:
May 5, 2015

Tuson Offers a Full Line of Towable Braking Components



For more information about Tuson Sway Control and all of Tuson towable products, visit our website

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Tuson RV Brakes, LLC

The Leader in Towable Safety Technology

Tuson Sway Control



Introducing the first of its kind in
Trailer Sway Control

For Electric Brakes



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Vehicle Related Trailer Sway

When vehicle related causes are at the root of trailer sway, the swaying condition will often arise at a certain speed. When this speed is achieved, the trailer will begin to sway and will continue to sway until speed is reduced. This is a strong indication that the root cause of the trailer swaying condition is one of the items listed below. The root cause must be determined and corrected to truly resolve the trailer sway condition.

In these cases, the Tuson Trailer Sway Control Module will immediately identify and dampen the trailer sway condition. But excessive continuous cycles of trailer sway dampening will cause the trailer brake system to heat excessively and will eventually damage the brakes.

Environmental Related Trailer Sway

When trailer swaying is caused by conditions in your environment, it can occur rapidly and without any warning. Before you fully understand what is happening, you find yourself in a frightening trailer swaying situation.

This is where the Tuson Trailer Sway Control Module is very beneficial. The Trailer SCM will recognize the onset of the trailer swaying event immediately and intervene with the trailer electric brakes to rapidly dampen and control trailer sway. The Tuson Sway Control (TSC) will give you great peace of mind knowing that you won't get caught off-guard by trailer sway. TSC is always monitoring your trailer and is always ready to keep trailer sway under control.

Tuson Sway Control (TSC) Features & Benefits

The TSC continuously monitors trailer sway and rapidly identifies a trailer sway condition. When sway exceeds a safe level the TSC quickly intervenes by applying the electric brakes, on the correct side of the trailer with the proper braking level, to bring the trailer sway under control without any intervention by the driver.

- The TSC is easy to install for an RV Service Technician. The TSC is wired directly into the electric brake system of trailers and 5th wheels (per installation instructions).
- One size fits all trailers and 5th Wheels. No pre-programming is required for individual trailers or 5th wheel towables. The TSC is built to work with single axle to four axle towables.
- The TSC works with all major electric brake controllers.
- All Tuson Sway Controls are 100% tested for reliability and are fully sealed and waterproof.
- The TSC features a "Sleep Mode" to conserve the trailer battery. After 30 minutes of inactivity the TSC will shut itself off. The TSC "Wakes Up" when it receives a brake controller signal and is immediately ready to begin monitoring and controlling trailer sway.
- The TSC features an Automatic System Disable for Off Road Conditions. When the TSC detects that the towable is experiencing rough road conditions, which may cause unnecessary brake application, the sway control brake outputs are disabled for 5 second intervals. The sway control brake outputs remain disabled until the towable is back on smooth terrain. Normal towable braking is always active regardless of the rough road condition.
- Tuson Sway Controls feature Automatic Sway Control Brake Level Adjustment. The TSC uses closed loop sensory feedback allowing it to independently increase or decrease the right and left sway control braking levels to compensate for electric brake conditions and efficiency.
- Tuson Sway Controls feature specific system diagnostics using its LED status light.
- The TSC is more effective at controlling trailer sway than mechanical sway control hitches without the limitations inherent in mechanical sway controls.
- Once installed the TSC does not require any adjustment or regular maintenance for maximum operating efficiency.
- The Tuson Sway Control is the only sway control solution available for 5th Wheels.
- The TSC is a safety innovation that can protect RV Owners from accidents and damage to towables from dangerous trailer sway by actively reducing trailer sway caused by vehicle related and/or environmental trailer sway (download the "Tuson Sway Control Guide" at www.tusonrvbrakes.com & www.direclink.com).
- The Tuson Sway Control protects the RV Dealer from liability by providing a "Safety Upgrade" that can prevent damage caused by sway to trailers and 5th wheels automatically, without any intervention by the driver.

Vehicle Related Causes of Trailer Sway

The driver has control over these items and is responsible for resolving the root cause of the problem.

Environmental Related Causes of Trailer Sway

The driver has limited or no control over these circumstances but must use common sense to reduce speed or wait for better conditions.



Improper Weight Distribution

Resolution: Redistribute cargo load.



Under-Inflated Tires

Resolution: Check the inflation level of all tires (when they are cold) and fill them to the manufacturer's recommended level.



Excessive Towing Speed

Resolution: Reduce speed and stay alert for the signs of trailer sway.



Loaded Trailer Weight Exceeds Specification

Resolution: Reduce the cargo load and stay within the manufacturer's specifications.

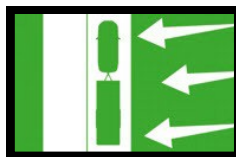


Light Tongue Load / Trailer Pitch

Resolution: Redistribute cargo load and ensure that the trailer is level with the tow vehicle. If the hitch ball height adjustment forces a choice-choose a slight downward pitch on the trailer tongue, rather than an upward pitch.

High Lateral Winds

Resolution: Find a safe location to park until winds diminish.



Gusting Winds

Resolution: Find a safe location to park until winds diminish.



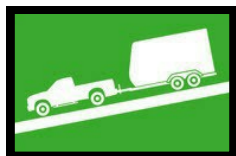
Large Trucks Passing

Resolution: Make careful steering corrections as needed and stay alert for the signs of trailer sway.



Steep Downhill Decent

Resolution: Travel at a reduced speed and stay alert for the signs of trailer sway.



Poor Roads

Resolution: Travel at a reduced speed and stay alert for the signs of trailer sway.



TUSON Tuson Product Performance Comparison

Tuson RV Brakes, LLC

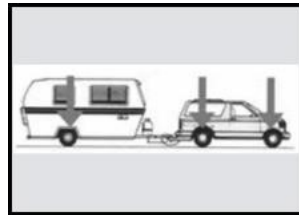
Tuson Sway Control



Weight Distributing Hitch with Sway Control

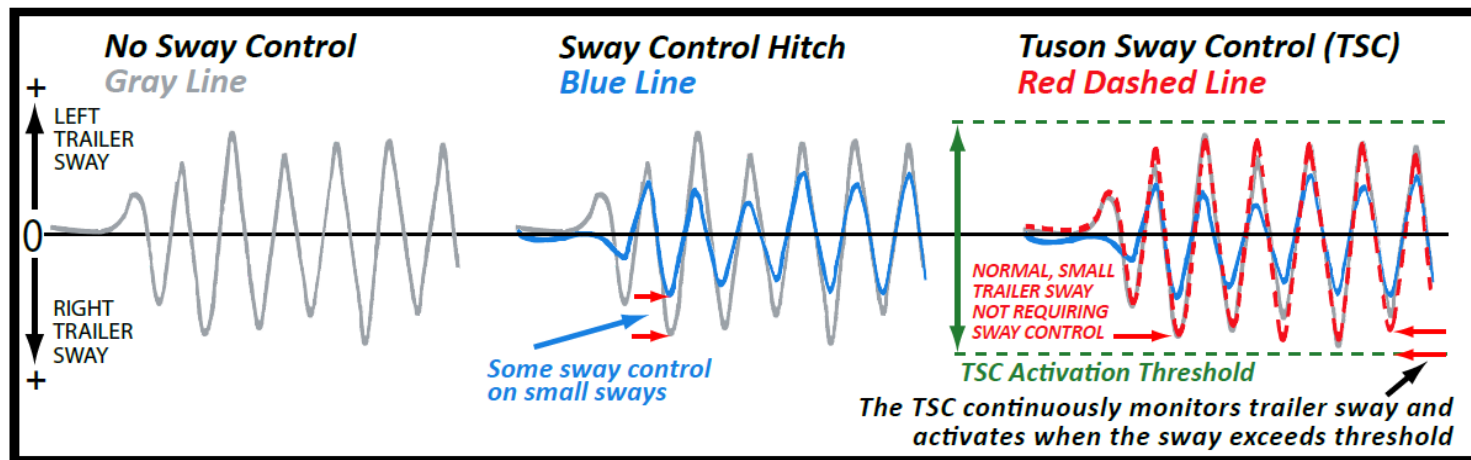


Both trailer sway control systems were professionally installed on the same trailer and adjusted in accordance with the manufacturer's instructions. The test trailer was a Doolittle utility trailer equipped with two(2) 7K axles, electric brakes and a total weight of 7,000 lbs. The tow vehicle was a Ford F250 Super Duty. Both systems were tested under the same road and environmental conditions. Trailer sway was created by turning the truck's steering wheel back and forth while driving at 55 mph. The trailer sway data was captured by a sensor mounted on the trailer.

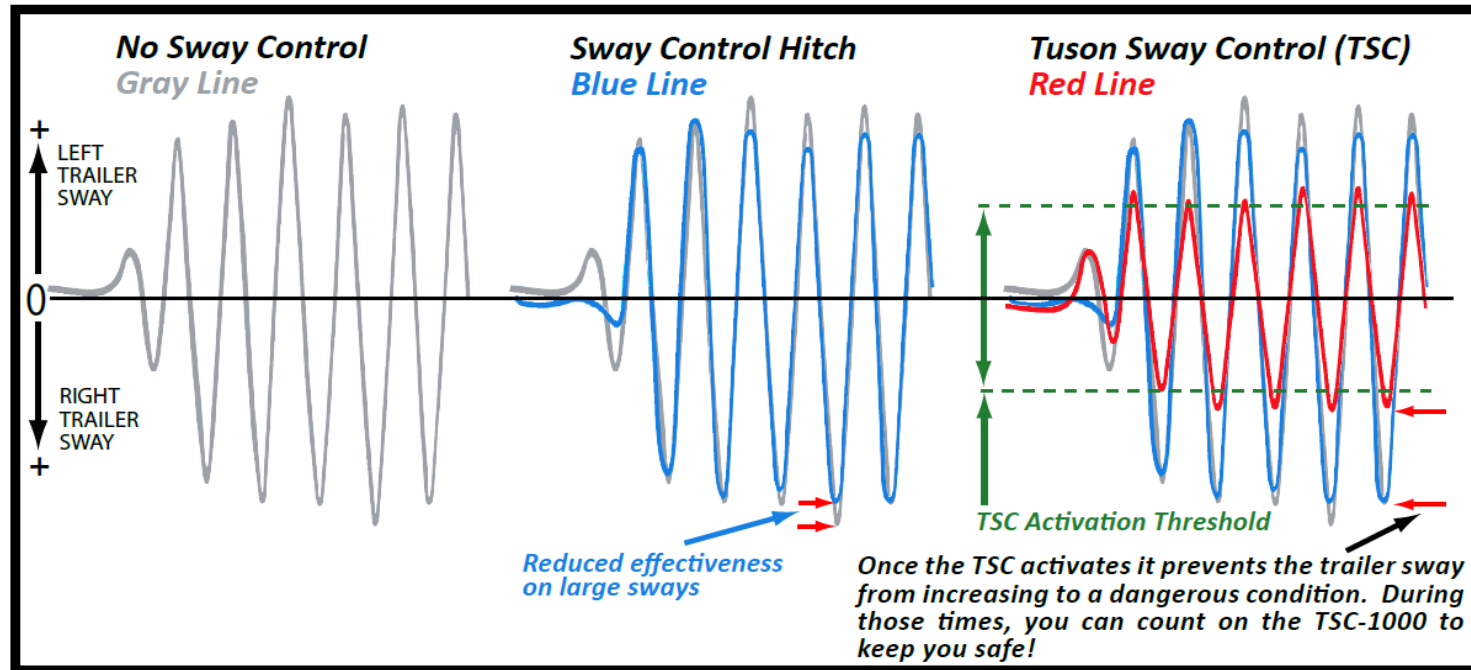


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Truck Induced Small Trailer Sway - 25 degree steering angle - back and forth



Truck Induced Large Trailer Sway - 50 degree steering angle - back and forth



"We installed your electric sway control on a used 28 ft Jayco Eagle Travel Trailer. It took about 3 hrs to install, we figure after the first one you could probably install in around two hours and would definitely be easier with a lift to put in the air. The Tech who did the testing has over 25 years' experience doing hitches, axles, etc. He has installed and seen/tested multiple devices like this in the past. In his opinion the product did exactly what it is supposed to do, in fact he said it was the best one he had tested/used. On his test drive all he used was a ball mount plus the product. He tried his best to make it sway but could not do it. In fact he said he could feel the trailer correcting itself going down the road. So, verdict is... that it works and works well. "

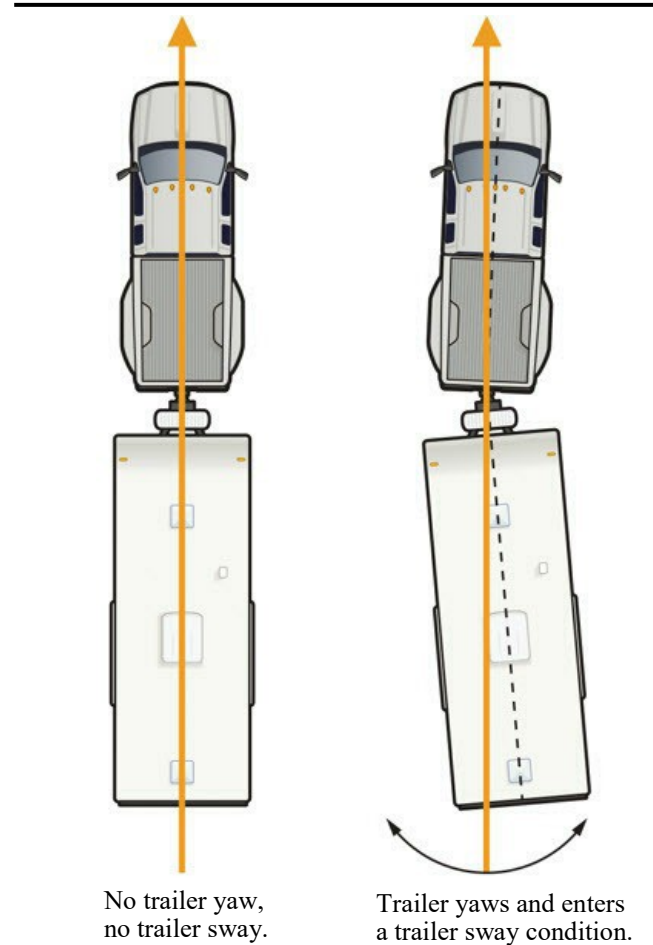
Ray Miller - Director of Operations - Colerain RV

INTRODUCING:

TUSON SWAY CONTROL (TSC-1000)



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TSC-1000

Tuson introduces the first of its kind Trailer Sway Control Module (TSC-1000). This system continuously monitors trailer yaw and rapidly identifies a trailer sway condition. The TSC is wired directly into the trailer braking system and automatically calculates a trailer braking solution to reduce and control a trailer swaying condition.

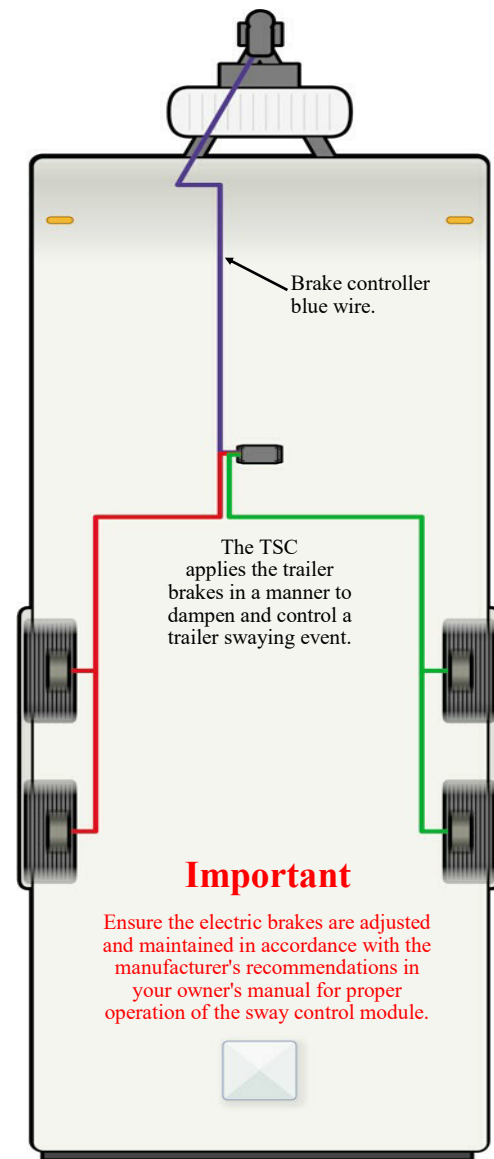
Trailer sway occurs rapidly and often the solutions that seem to make sense to a driver such as attempting to correct with steering or by braking the tow vehicle aggressively only amplifies the intensity of a trailer sway. It can be a very scary situation. The Tuson Trailer Sway Control Module's yaw sensor calculates the angle of sway within milliseconds, instantly determines the appropriate trailer braking solution and implements it to resolve the problem.

Tuson Sway Control Reduces and Controls Trailer Sway

EASY INSTALLATION

ASSEMBLED IN THE USA

WORK WITH ALL ELECTRIC BRAKE SYSTEMS AND MOST BRAKE CONTROLLERS

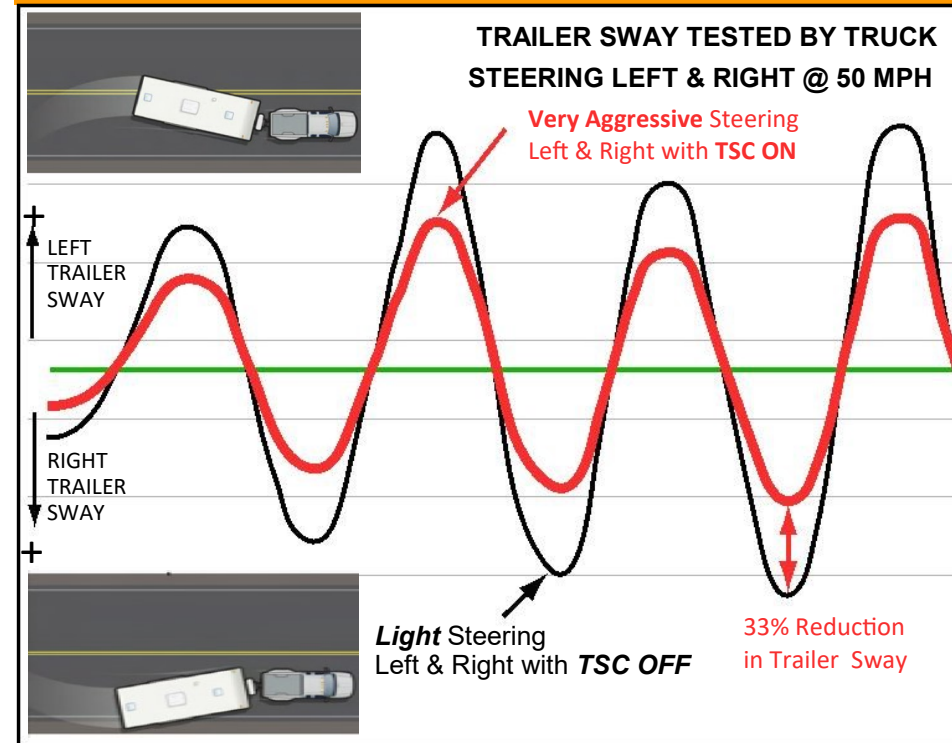


How It Works

- The TSC continuously monitors trailer yaw.
- It has a proprietary algorithm which is used to determine the difference between quick steering to avoid a road obstacle (or other such circumstances) and the rapid onset of a trailer swaying event.
- It measures the angle, travel distance and speed of the lateral motion of the trailer (and other parameters) and uses this information to quickly intervene with the application of trailer brakes.
- The processing capability of the TSC is powerful and rapid. It captures all the critical elements of the swaying condition and uses this information to predict how the event will proceed without any driver intervention.
- It uses this data to get ahead of the event by applying the brakes on the correct side of the trailer, in a timely manner, with the proper braking level for the required duration.
- This quickly dampens and brings the trailer sway under control.

Tuson Sway Control Independent Testing by Mr. Truck

Truck tested: 2012, Ford F250 with Ford Trailer Sway Control on the truck
 Trailer tested: 2014, 2 horse, bumper pull stock trailer, GVWR 12,000 lbs.

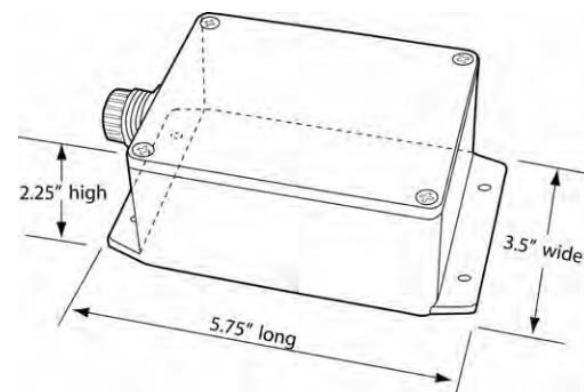


Trailer Sway Control Testing at Bandimere Speedway, Morrison, Colorado

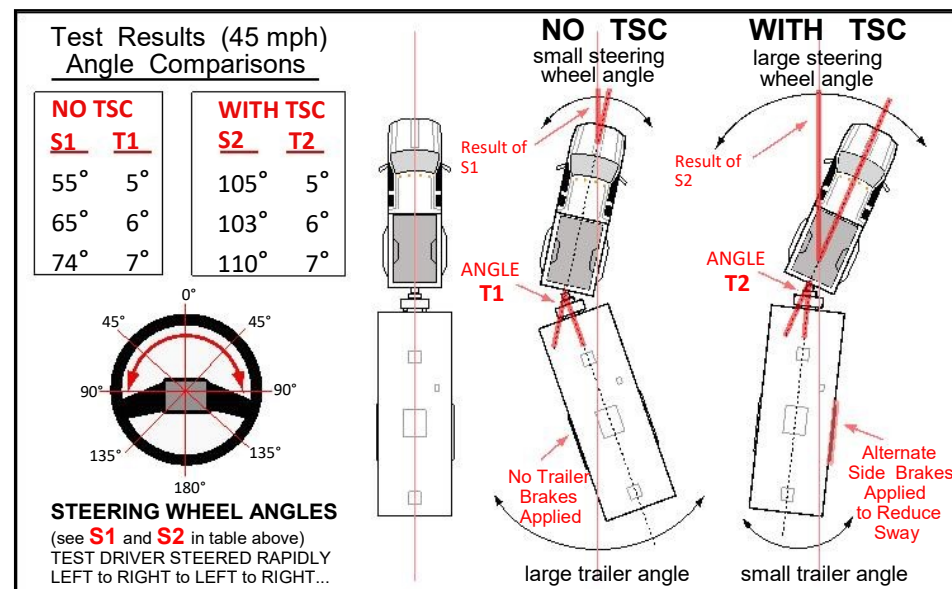
See video of the testing and test results at: WWW.MRTRUCK.COM

Testing verified that the Tuson Sway Control dampened trailer sway well enough that the Ford Trailer Sway Control on the truck did not activate.

| Key Features | Details |
|---|---|
| LED Status Light | RED/GREEN LED light on a 10 foot cord for mounting in an easily seen location to show the functional status of the unit with different flashing modes for diagnostic troubleshooting. |
| Automatic system disable in off-road conditions | The module continually monitors the sway sensor to detect and activate during trailer sway. It also is able to determine rough terrain during which it disables sway control braking until exiting the rough terrain at which time the system re-enables. |
| Trailer sway brake level auto adjustment | Closed-loop sensory feedback allowing the system to independently increase or decrease the right and left side sway control braking levels to compensate for variances in trailer brake condition/efficiency. |
| Fully sealed, water proof | The system is fully sealed and water proof. It is designed to withstand water from road spray and can even be submerged for short periods of time. |



TSC Dimensions



The test trailer (right) had weight loaded behind the axles in order to create a tongue weight of 500 lbs. or 5% of the total trailer weight. At 45mph, the truck steering wheel was rapidly turned back & forth to the angles in the table above.



Trailer Sway Control Testing at Bosch Proving Grounds New Carlisle, Indiana

Tuson Sway Control was tested to a modified* version of

SAE International -J2664

Trailer Sway Response Test Procedure where truck steering angle and trailer sway angle are compared to measure the effectiveness of trailer sway control

(* details of the test are available from Tuson