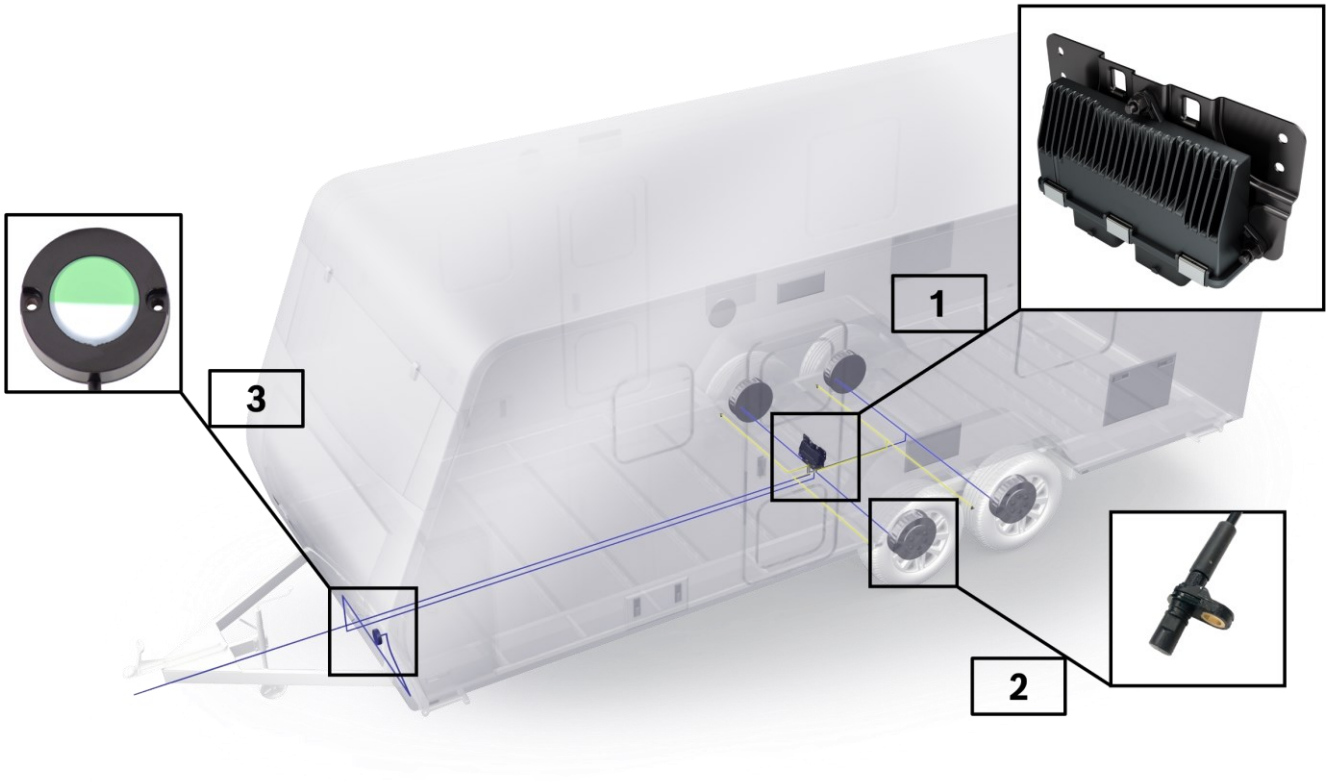
TRAILER SAFETY CONTROL (TSC)
USER MANUAL

CONTENTS

SYSTEM OVERVIEW



1 ELECTRONIC CONTROL UNIT (ECU)

The “brain” of the system is the control unit which receives all the data from wheel speed and trailer motion sensors. Automotive grade microprocessors use advanced mathematical algorithms and cutting-edge vehicle logic decides upon the best way to keep the trailer safe. When the ECU detects the trailer in a critical safety situation, it individually controls each brake to intelligently bring the trailer back under control.

2 WHEEL SPEED SENSORS (WSS)

Wheel-speed sensors detect the speed of rotation of the wheels and pass the electrical signals to the ECU. The speed signals are used to accurately calculate the degree of slip between the wheels and the road surface.
The position of the sensor may vary depending on the brake and axle manufacturer.

3 STATUS LAMP DISPLAY MODULE

The Status Lamp Display Module informs the driver of the status of the TSC system. The lamp will use a combination of colours and flashes to indicate operational status and fault warnings to the driver.

Trailer Safety Control TSC

No matter how experienced a driver may be, unexpected safety events can occur while on the road. These events could range from sudden braking by the vehicle in front, strong winds, or even unexpected obstacles like animals crossing the road.

Trailer Safety Control (TSC) is an advanced braking modulation system specifically designed for trailers and caravans. TSC incorporates essential features such as Anti-lock Braking (ABS), Sway Mitigation, and Lane Change Control, ensuring the highest level of safety.

TSC constantly monitors crucial factors like speed, traction, and movement of the trailer, ready to activate instantly when it detects a critical safety situation. With precise control over each wheel, TSC swiftly and intelligently brings the trailer back under control, providing an enhanced level of safety and peace of mind for drivers like never before.

Brake Controller Compatibility

⚠ WARNING

BOSCH Trailer Safety Control does NOT replace the Electric Brake Controller in the tow vehicle or on the trailer/caravan. The primary trailer braking control remains the responsibility of the Electric Brake Controller and the vehicle driver.

It is the responsibility of the end user to ensure that their Electric Brake Controller is compatible with the Bosch Trailer Safety Control. BOSCH attempts to provide compatibility with most controllers available but is unable to anticipate design changes that might be introduced by the various controller manufacturers.

The TSC Compatibility Guideline is attached to this manual in Appendix A. Up-to-date information is in instruction sheet F005EP0086 available at:

www.bosch.com.au/products-and-services/mobility/trailer-safety-control/

Scan to view

How it works

TSC uses an advanced network of sensors to monitor your trailer's speed, direction, lateral motion, grip – up to 1,000 times a second. This information is then sent to the Electronic Control Unit (ECU) – the "brain" of the system – where intelligent algorithms accurately determine what kind of critical safety event (emergency braking, sharp swerving, trailer sway) you are experiencing. The ECU responds by sending detailed instructions to each individual wheel to apply the exact amount of brake force needed for optimum stability and stopping distance. All of this happens in the blink of an eye.

Antilock Braking System (ABS)

The Anti-lock Braking System (ABS) works by continuously monitoring the rotational speed of the trailer wheels during braking. When a wheel is about to lock up, the ABS system intervenes by rapidly modulating the brake force to that specific wheel. This modulation prevents wheel lock-up and maintains optimal braking effectiveness, allowing the wheels to maintain traction with the road surface. By preventing wheel lock-up, trailer ABS enhances stability, control, and steering responsiveness, ensuring safer and more controlled braking manoeuvres.

Trailer Sway Mitigation (TSM)

Trailers and caravans can be susceptible to sway which can be easily triggered by side forces from high winds, rough roads or even a passing truck. When this occurs, the trailer begins to sway from side to side, building sway momentum with each oscillation and can end in the trailer jack-knifing or even rolling. Trailer Sway Mitigation intervenes at the earliest stages of trailer sway, gradually increasing the trailer braking level to match the severity of the trailer oscillation with the aim to settle the trailer sway as quickly as possible and bring the trailer back to a steady condition. Trailer Sway Mitigation will only activate above 65km/h when critical events occur.

Lane Change Control (LCC)

Lane Change Control activates when it detects a sharp, sudden change in direction. This works differently from TSM as there is no gradual build-up of instability and there is usually a sudden, corrective steering input from the driver. The Lane Change Control algorithm identifies this situation and uses intelligent braking patterns to keep the vehicle combination as steady as possible during the manoeuvre. Lane Change Control will only activate above 65km/h when critical events occur.

Trailer Odometer

TSC uses wheel speed sensors to track exact mileage. This means you can keep track of when your vehicle needs maintenance.

Diagnostics

TSC offers advanced diagnostics to inform the driver the moment the TSC system detects an issue or is not working optimally.
TSC even detects issues with the trailer brakes, that would have gone undetected previously.

OPERATION

POWER ON / INITIALISATION

- TSC will start-up when power is first applied to the ECU.
- After start-up, the TSC lamp will remain off until a valid Trailer Service Brake Signal is detected. A brake signal is generated by the driver pressing the brake pedal or pressing the brake override button of the electric trailer brake controller. By waiting for this signal, TSC ensures it has detected a valid trailer braking signal and the driver has correctly connected the tow vehicle to the trailer
- **Note:** During TSC start-up / wake-up, audible clicking maybe heard from the TSC performing a self-check. The lamps will flash briefly as part of the self-check.

LAMP MODES ON START-UP

- Display of only a green operational lamp indicates the system is good and fully operational.
- Display of only an amber warning lamp indicates the system has a fault and is shutdown. It will not operate in this state.
- Display of an operational and warning lamp on together (green & amber) indicates the system is operating in a reduced state due to a detected fault.
- **Anytime the lamp module is not illuminated, the driver must assume the TSC system is off and not operational.**

SHUT DOWN / SLEEP

- TSC will turn off the lamp module illumination after 20 minutes of trailer standstill without a braking signal detected.
- TSC will go into a low power sleep mode after 120 minutes of trailer standstill without a braking signal detected.
- TSC will shut down if power is removed from Positive Supply of the ECU.

WAKE-UP FROM LOW POWER SLEEP

When the TSC is in low power sleep mode, it will only awake when it detects an electric brake controller signal from a connected tow vehicle. Drivers should connect the trailer and press the brake pedal or manual override (of the trailer brake controller) to ensure the TSC wakes, and lamps are visible.

SYSTEM TROUBLESHOOTING

A correctly working TSC displays a green lamp ON and amber warning lamp OFF. If the amber warning lamp is on, follow steps below to determine the failure.

1. Wait for 5 minutes after power on at standstill for the system to re-check the failures.
2. Power-cycle the TSC system, via disconnecting & reconnecting power supply, followed by waking up the TSC.
3. If the warning light persists, perform fault diagnosis using one of the following methods.

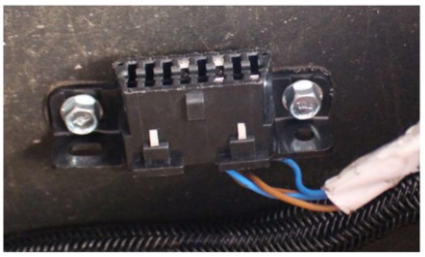
NOTE: The TSC system will continue to perform fault checks at standstill. Periodic checks are sequential at 5 minutes after standstill, then at 15 minutes after standstill and then every 30 minutes until such time the fault is corrected and no longer detected.

FAILURE DIAGNOSIS

METHOD 1 - PHONE APPLICATION METHOD

The preferred method is to use the TSC phone App which contains a diagnostic feature that identifies and provides the cause and repair for each fault. To extract the diagnostic fault codes from the TSC, the user must use a supplied Bluetooth® OBD2 adapter and a linked TSC phone App on an Android or iPhone device. For more information about the App see chapter 'Trailer Safety Phone App'.

Contact your trailer manufacturer if the OBD2 connector is not easily visible. See the images below for reference. Remove the diagnostics adapter when not in use to protect from environmental extremes and to not drain the trailer/caravan battery.



METHOD 2 – LAMP FLASH METHOD

A back-up method to check failures if the Phone App is not available is to determine the active faults from a count sequence of green/amber lamp flashes. These flash counts can then be compared against the description of the possible diagnostic codes, which is listed in the chapter Diagnostic Reference of this manual.

Activating Lamp Flash Diagnostics:

Ensure the trailer is stationary, the electric brake controller is connected and the TSC is powered on (i.e. lamps illuminated). Set the electric brake controller level to greater than 50% of its scale. Ensure the brake pedal is not pressed. Apply 10 short presses (approx. 2 per second) of the manual override switch on the trailer electric brake controller within a 15 second period to commence the Lamp Flash diagnostic mode.

Reading/Decoding Lamp Flash Diagnostics:

Each active fault will flash a code in sequential order. The process for recording each fault is as follows:

1. First the amber lamp flashes multiple times (record this count), then the green lamp flashes multiple times (record this count). These recorded numbers represent the code (Amber/Green count) for the active fault.
2. If there are multiple faults active there will be further flash codes after a short pause (both lamps off) and the above flash recording process should be performed for all faults.
   NOTE: Don't worry if you miss the count sequence or need to re-check your count, the fault flash sequence is repeated 10 times with a long pause (lamps off) between each loop before stopping.
3. Once you have recorded and confirmed the fault count codes, refer to the diagnostic tables below in this document to determine the fault cause and possible solutions to the problem.

TRAILER SAFETY PHONE APP

APP INSTALLATION

The Bosch Trailer Safety Control App is available for iOS iPhone and Android compatible smart phones. Installation of the Trailer Safety Control App can be performed via the Google Play store for Android devices and Apple App Store for iPhone devices.

CONNECTING / DISCONNECTING TO TSC

After opening TSC Phone App, it indicates that it is not connected with status **"Not Connected"**. Tapping on this status will start the communication with the Bluetooth/TSC and change the status to **"Connecting"**. During the connecting process the app will display a in progress graphic and a progress bar along the bottom of the app. Once connection has been made and all data has been read the status will update to **"Connected"**. If the connection process fails, the app will indicate with a warning and return to **"Not Connected"**.

USER PERSONALISATION

A newly installed phone app will display a default Bosch trailer image and trailer name "Trailer Safety Control". If preferred the user can replace this image and text with an image from the phone camera/gallery and text which identifies their trailer. This can be performed by clicking on the current image or text.

TRAILER ODOMETER

Whilst active (i.e. status lamp on) the TSC records all distance travelled and stores it in a trailer odometer. This odometer value is accessible within the TSC Phone App.

SERVICE DIAGNOSTICS

TSC provides service diagnostic features for the trailer braking system. The TSC Phone App displays a summary and in-depth details about any active faults. This feature allows service representatives to easily detect and repair trailer issues.

IMPORTANT: Servicing and repairs must only be carried out by professionals. Defective parts must always be replaced with original parts.

Have your trailer/caravan system checked by an expert at least once a year.
Please have your trailer/caravan serviced and repaired by an authorised dealer or service centre.

SYSTEM / TRAILER DETAILS

TSC Phone App provides information about the trailer and the TSC product installed. Information provided includes TSC system identification data and Vehicle Identification Number VIN (if programmed by trailer/caravan manufacturer).

PHONE APP / BLUETOOTH TROUBLESHOOTING

Phone App won't connect to Bluetooth

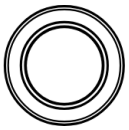
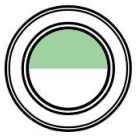
- Ensure that the diagnostic adapter is plugged in and powered up (small light on diagnostics adapter is on).
- Ensure that the Bluetooth communications is enabled on your phone.
- On Android devices:
  - Open the Bluetooth options in your phone and check for device "Veepeak", if not available, check again that the diagnostics adapter is correctly plugged in, and it is powered.
  - When "Veepeak" found in the Bluetooth device list, attempt to pair you phone directly with the device.
  - Once pairing with the Veepeak is confirmed, open TSC Phone App and tap on **"Not Connected"** to start connection.
- If connection issues persist, refer to Veepeak OBDCheck BLE user manual.

Phone App won't connect to Trailer TSC

If the phone is paired with the Veepeak device but fails to complete connection and download data, the TSC is not communicating. The TSC will enter sleep mode after 2 hours at standstill and no longer communicate via the Bluetooth link. If the ECU is asleep, connect to an electric brake controller to trigger it to awake (status lamp on).

Diagnostics Reference

Lamp Status Reference

Light	Light Status	System Status	Possible Causes	Driver Action
	All lamps **OFF**	ECU powered off / sleep / no brake signal	ECU has no power or in sleep mode.	Connect power to TSC, press brake pedal, press brake controller manual override.
	Operational lamp (green) **ON** (Low Intensity) Warning lamp (amber) **OFF**	Full system available (pass-through braking)	TSC is in full operation and brake signal has been detected.	No action necessary by driver.
	Operational lamp (green) **ON** (High Intensity) Warning lamp (amber) **OFF**	Full system available (ABS / TSM / LCC active)	System is in full operation and ABS, TSM or LCC is operating.	No action necessary by driver. The high intensity light will return to low intensity 3 seconds after an ABS or sway / swerving event concludes.
	Operational lamp (green) **ON** (Low Intensity) Warning lamp (amber) **ON**	Reduced system available (Pass-through braking)	System fault has occurred, and the system can only offer reduced ABS, TSM, LCC control.	Expect reduced operation from the TSC and adjust driving / braking accordingly. After 5 minutes at standstill the ECU will perform a self-check. If the fault lamp remains illuminated see troubleshooting.
	Operational lamp (green) **ON** (High Intensity) Warning lamp (amber) **ON**	Reduced system available (ABS / TSM / LCC active)	System is in reduced operation and ABS, TSM or LCC control is operating.	Expect reduced operation from the TSC and adjust driving / braking accordingly. After 5 minutes at standstill the ECU will perform a self-check. If the fault lamp remains illuminated see troubleshooting.
	Operational lamp (green) **OFF** Warning lamp (amber) **ON**	System NOT available (pass-through braking)	System fault has occurred, and the system cannot offer any control (ABS, TSM, LCC).	Expect no operation from the TSC and adjust driving / braking accordingly. After 5 minutes at standstill the ECU will perform a self-check. If the fault lamp remains illuminated see troubleshooting.

LAMP STATUS REFERENCE (CONTINUED)

LIGHT	LIGHT STATUS	SYSTEM STATUS	POSSIBLE CAUSES	DRIVER ACTION
	Operation lamp (green) intermittent Warning lamp (amber) **ON**	Operation light failed (System available)	System is in full operation; however, the green lamp has been detected as faulty.	System status can't be reliably reported to driver. Drivers should expect no operation from the system and adjust driving / braking accordingly. After 5 minutes at standstill the ECU will perform a self-check. If the fault lamp remains illuminated see troubleshooting.
	Operational lamp (green) **OFF** Warning lamp (amber) intermittent	Warning light failed (system available)	System is in full operation however the amber light has been detected faulty.	System status can't be reliably reported to driver. Drivers should expect no operation from the system and adjust driving / braking accordingly. After 5 minutes at standstill the ECU will perform a self-check. If the fault lamp remains illuminated see troubleshooting.

DIAGNOSTIC SERVICE ACTION

DT Code	# Amber Flashes	# Green Flashes	Fault Service Description	Fault Service Detail
-	-	1	No fault	No fault. No action required.
5091	1	1	General Wheel Speed Fault	TSC detects more than one wheel speed sensor has a problem. The system will operate in a reduced state until corrected. **Suggested service actions:** • Check wheel bearings and brakes for high friction components causing wheel rotation drag. Ensure all wheel bearings are running with minimal rolling resistance. Ensure all brake components are not causing rolling resistance when not actively applied.
4031 4033	1	2	Front Axle, Left Wheel Speed Sensor Fault	Locate the wheel speed sensor on the indicated front axle wheel/brake (left or right). Refer to "Wheel Speed Sensor Service Guide".
4034 4036	1	3	Front Axle, Right Wheel Speed Sensor Fault	
4037 4039	1	4	Rear Axle, Left Wheel Speed Sensor Fault	Locate the wheel speed sensor on the indicated rear axle wheel/brake (left or right). Refer to "Wheel Speed Sensor Service Guide".
403A 403C	1	5	Rear Axle, Right Wheel Speed Sensor Fault	
4091 4093	1	6	Centre Axle, Left Wheel Speed Sensor Fault	Locate the wheel speed sensor on the indicated centre axle wheel/brake (left or right). Refer to "Wheel Speed Sensor Service Guide".
4094 4096	1	7	Centre Axle, Right Wheel Speed Sensor Fault	
406B	1	8	Implausible continuous ABS, TSM or LCC control	ABS, TSM or LCC activation for an implausible amount of time. **Suggested service actions:** • Check parking handbrake is not engaged on trailer. • Check all wheels rotate freely. Wheel bearings / brakes are not jammed. • Check loading on trailer and tow-ball for incorrect loading causing unstable conditions. • Perform a test drive to evaluate if problem has been resolved. If fault persists, return to service dealer for investigation.

DIAGNOSTIC SERVICE ACTION (CONTINUED)

DT Code	# Amber Flashes	# Green Flashes	Fault Service Description	Fault Service Detail
0561	2	1	Battery condition warning	Refer to “Power Supply Service Guide”.
0562	2	1	Battery under voltage fault	
0563	2	1	Battery over voltage fault	
40B0	2	2	Front Axle, Left Wheel Brake Magnet Fault	Locate the brake magnet within the indicated front axle wheel/brake (left or right). Refer to “Brake Magnet Service Guide”.
40B1	2	3	Front Axle, Right Wheel Brake Magnet Fault	
40B2	2	4	Rear Axle, Left Wheel Brake Magnet Fault	Locate the brake magnet within the indicated rear axle wheel/brake (left or right). Refer to “Brake Magnet Service Guide”.
40B3	2	5	Rear Axle, Right Wheel Brake Magnet Fault	
40B4	2	6	Centre Axle, Left Wheel Brake Magnet Fault	Locate the brake magnet within the indicated centre axle wheel/brake (left or right). Refer to “Brake Magnet Service Guide”.
40B5	2	7	Centre Axle, Right Wheel Brake Magnet Fault	
0564	2	8	ECU voltage reference plausibility fault	Brake voltage reference plausibility fault. Refer to “Power Supply Service Guide”. Refer to “Brake Magnet Service Guide”.
40F1	2	9	External Stimulated Load Fault	External simulated load function is enabled (at dealer), but physical load not detected, possibly open circuit. **Suggested service actions:** • Check external simulation load is fitted to ECU. • Check connections and wiring between the simulated load and ECU. Correct any connection or wiring between ECU and simulation load.

DIAGNOSTIC SERVICE ACTION (CONTINUED)

DT Code	# Amber Flashes	# Green Flashes	Fault Service Description	Fault Service Detail
5000	3	1	Trailer Factory Settings Not Programmed	Manufacturer programmable trailer settings are not entered correctly. If fault persists, return to service dealer for investigation.
5200	3	8	Wiring Harness Feedback Fault	Fault detected with the wiring harness connection on the ECU. **Suggested service actions:** • Check any new wiring connections made on the trailer to the brake assemblies. • Review trailer electrical circuit for correctness and remove any incorrect wiring to brake magnets. • Ensure all ground connections are secure and of good quality.
5300	3	9	Service Brake Signal Plausibility Fault	ECU internal brake service monitoring failure. **Suggested service actions:** • Check tow vehicle electric brake controller power supply and wiring is of good quality and operating correctly. • Check wiring and all plug/socket connections between tow vehicle electric brake controller (EBC) and TSC ECU. If fault persists, return to service dealer for investigation.

DIAGNOSTIC SERVICE ACTION (CONTINUED)

<table>
<tr><th>DT Code</th><th># Amber Flashes</th><th># Green Flashes</th><th>Fault Service Description</th><th>Fault Service Detail</th></tr>
<tr><td>4062
406A</td><td>5</td><td>1</td><td>ECU Inertia Sensor Fault</td><td rowspan="2">Suggested service actions:
Check ECU mounting surface is rigid and does not vibrate.
Check ECU fasteners are properly secured. Ensure mounting is secure and ECU orientation is correct.
Check ECU is protected from oncoming projectiles by the trailer frame or fitted shield.
Correct any ECU mounting issues and reset the ECU.
Perform a test drive to evaluate if problem has resolved.
If fault persists, return to dealer for investigation.</td></tr>
<tr><td>4063</td><td>5</td><td>1</td><td>Yaw Rate
Measurement Fault</td></tr>
<tr><td>4032</td><td>5</td><td>2</td><td>Front Axle, Left Wheel
Tone Wheel or WSS* Mount</td><td rowspan="2">Locate the wheel speed sensor on the indicated front axle wheel/brake (left or right).

Refer to “Wheel Speed Sensor Service Guide”.</td></tr>
<tr><td>4035</td><td>5</td><td>3</td><td>Front Axle, Right Wheel
Tone Wheel or WSS* Mount</td></tr>
<tr><td>4038</td><td>5</td><td>4</td><td>Rear Axle, Left Wheel
Tone Wheel or WSS* Mount</td><td rowspan="2">Locate the wheel speed sensor on the indicated rear axle wheel/brake (left or right).

Refer to “Wheel Speed Sensor Service Guide”.</td></tr>
<tr><td>403B</td><td>5</td><td>5</td><td>Rear Axle, Right Wheel
Tone Wheel or WSS* Mount</td></tr>
<tr><td>4092</td><td>5</td><td>6</td><td>Centre Axle, Left Wheel
Tone Wheel or WSS* Mount</td><td rowspan="2">Locate the wheel speed sensor on the indicated centre axle wheel/brake (left or right).

Refer to “Wheel Speed Sensor Service Guide”.</td></tr>
<tr><td>4095</td><td>5</td><td>7</td><td>Centre Axle, Right Wheel
Tone Wheel or WSS* Mount</td></tr>
<tr><td>5137
5138
5139
513A
513B</td><td>5</td><td>8</td><td>TSC ECU Internal Fault</td><td>Internal TSC ECU fault detected.
Suggested service actions:
Check condition of TSC ECU, its mounting and wiring.
If fault persists, return to service dealer for investigation.</td></tr>
</table>

* WSS = Wheel Speed Sensor

DIAGNOSTIC SERVICE ACTION (CONTINUED)

DT Code	# Amber Flashes	# Green Flashes	Fault Service Description	Fault Service Detail
4218	No Lamp	No Lamp	Operational Light Fault	Lamp module failure, system has detected a fault within the operational light. **Suggested service actions:** • Check all connections of the TSC ECU lamp module. • Check wiring between lamp module and TSC ECU. • Repair any connections or wiring between lamp module and TSC ECU. If fault persists, replace lamp module.
4226	No Lamp	No Lamp	Warning Light Fault	Lamp module failure, system has detected a fault within the warning light. **Suggested service actions:** • Check all connections of the TSC ECU lamp module. • Check connection and wiring between lamp module and ECU. • Repair any connections or wiring between lamp module and ECU. If fault persists, replace light module.
5050	No Lamp	No Lamp	Factory Mode Enabled	Non-Serviceable Fault. Contact manufacturer for investigation.

Note: All flash codes above represent active faults in the ECU. If a fault has been set previously and has since healed, a history flash code will be available the same fault code as listed below with an additional 5 flash counts added to the Amber Flashes (e.g. Front Left Brake Magnet active fault flash code = 2 & 2, Front Left Brake Magnet history fault code = 7 & 2).

DIAGNOSTIC SERVICE ACTION (CONTINUED)

TSC SERVICE GUIDE	
Power Supply Service Instruction	**CHECK / INSPECT** • Check voltage of TSC power supply whilst charging. • Check voltage of TSC power supply when not being charged. • Check wiring and connections between the power supply and the TSC ECU. **REPAIR / RESOLVE ACTIONS** • Charge power supply to a good service level. • Ensure power supply is charged from tow vehicle and all power connections to TSC are of sufficient power capacity. • Ensure power supply is rated sufficiently to support all power load on trailer. • Replace power supply with new batteries if unable to maintain suitable power supply level.
Wheel Speed Sensor Service Instruction	**CHECK / INSPECT** • Inspect condition of wheel speed sensor for damage or incorrect installation. • Check the wheel speed sensor is mounted securely. • Inspect condition of tone wheel for damage or missing teeth. • Check tolerance between tone wheel and wheel speed sensor. • Check wheel speed sensor is correctly plugged into wiring harness. • Inspect condition of wiring from wheel speed sensor to TSC ECU for damage. **REPAIR / RESOLVE ACTIONS** • Damaged wiring harness should be replaced or repaired correctly. • Wheel speed sensor should be replaced, or installation corrected. • Tone wheel be replaced or repaired if damage is found. If fault persists once wheel speed sensor has been replaced and harness is confirmed ok, return to service dealer for investigation.
Brake Magnet Service Instruction	**CHECK / INSPECT** • Inspect condition of brake magnet for damage or incorrect installation. • Inspect condition of brake magnet cable shielding and wire (i.e. broken wires, short to chassis ground or power lines). • Check the brake magnet is correctly connected / plugged into wiring harness. • Inspect condition of wiring from magnet connection to TSC ECU for damage. • Check ground connection of brake magnet return wire. (Must have a common ground with TSC ECU). **REPAIR / RESOLVE ACTIONS** • Damaged wiring harness should be replaced or repaired correctly. • Brake magnet should be replaced, or installation corrected if fault persists. If fault persists once brake magnet has been replaced and harness is confirmed ok, return to service dealer for investigation.

APPENDIX A:
TRAILER BRAKE CONTROLLER COMPATIBILITY GUIDELINE

AFTER MARKET TRAILER BRAKE CONTROLLERS

TIME BASED CONTROLLERS

Time Based Brake Controllers are typically brake controller options with limited braking control and diagnostics. Although they will still brake the trailer, they are not as effective as inertia based controllers. The Trailer Safety Control TSC system can work with a time based controller, however this brake control is not optimised and will likely result in increased activation of the ABS system.

Bosch recommends that an inertia based controller is used with Bosch Trailer Safety Control, NOT time-based brake controllers.

INERTIA BASED CONTROLLERS

The majority of controllers on the market offer an inertia sensor as control. This allows the sensor to base its braking control level on the tow vehicles stopping inertia. Therefore, lighter braking on the vehicle will not result in heavy braking on the trailer. Matching of braking levels on the trailer and tow vehicle are achieved more easily resulting in a more effective and comfortable braking.

Bosch has sought to test with as many of the available aftermarket inertia based brake controllers as possible, to ensure compatibility of the trailer brake controller operation with the TSC system. This guideline outlines the controllers which have been tested and the resulting compatibility.

AFTER MARKET TRAILER BRAKE CONTROLLERS COMPATIBILITY

Manufacturer	Model	Compatible
REDARC	Tow-Pro (EBRH-ACC)	Yes
	Tow-Pro Elite (EBRH-ACC V2)	Yes
Tekonsha	Primus IQ	Yes
	Prodigy P2	Yes
	Prodigy P3	Yes
	Sentinel	No
	Voyager	No*
Dexter	Predator DX2	Yes
Hayes	Energize III	Yes
	Endeavour	Yes
	G2 Brake Boss	Yes
	Genesis	No*
Hopkins	Agility	Yes
	Insight	Yes
GSL	RBC-12	Yes
	XLE-12	Yes
Hayman Reese	Compact IQ	Yes
Curt	TriFlex	Yes

* Compatible with external simulated load

VEHICLE INTEGRATED TRAILER BRAKE CONTROLLERS

Typically, vehicle integrated controllers have more advanced brake control and diagnostics. Inertia is often the main brake control parameter. Additional signals such as driver braking level, vehicle ABS active and vehicle brake modelling can be used to further adjust the brake signal level.

Vehicle Integrated Trailer Brake Controller Compatibility

Manufacturer	Compatible
General Motors	High Confidence
Ford	High Confidence
RAM	High Confidence
Toyota	High Confidence
Nissan	Untested

If the electric brake controller is not satisfied with the TSC internal load simulator, an external simulated load can be switched on to the brake circuit by the TSC (to be configured and installed by workshop or dealer).

BRAKE CONTROLLER AND VEHICLE MANUFACTURERS TYPICALLY UPDATE SOFTWARE AND HARDWARE AS ISSUES ARE FOUND, OR AS NEW FUNCTIONALITY IS ADDED. THESE UPDATES ARE NOT OPENLY PUBLISHED. AS NEW BRAKE CONTROLLERS ENTER THE MARKET OR CHANGES ARE DISCOVERED, BOSCH WILL TEST THEM FOR COMPATIBILITY AND UPDATE THESE GUIDELINES. FOR AN UP-TO-DATE GUIDELINE VISIT WWW.BOSCH.COM.AU. END USERS THAT UTILIZE A CONTROLLER NOT VERIFIED IN THIS GUIDELINE ARE RESPONSIBLE FOR VERIFYING COMPATIBILITY.

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