Consat Telematics Solution

Troubleshooting Guide, Vehicle System [BETA]

Version 23.6.(X)

Innehåll

1 First, Second Tier Support

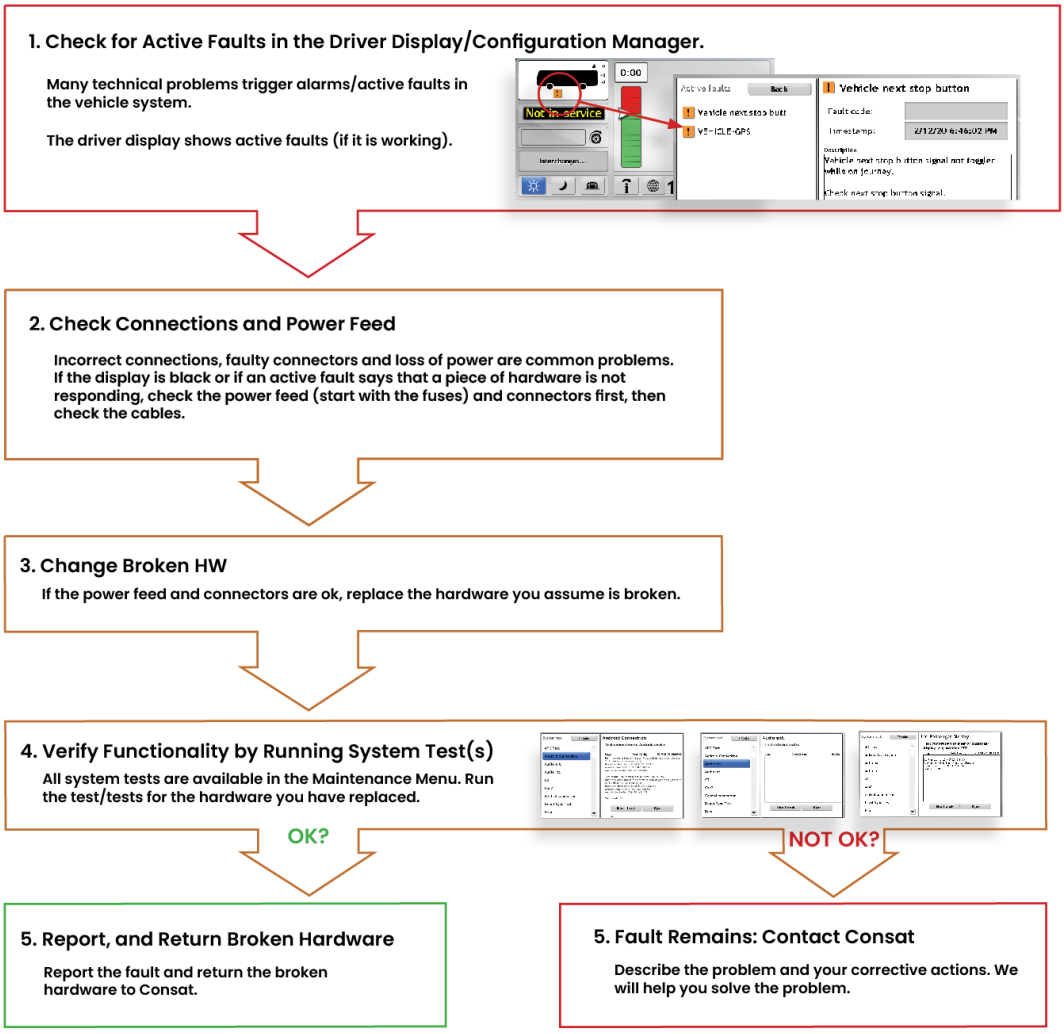
The purpose of this manual is twofold: First, it is designed to help you to correct the most common ”first tier support” problems you may encounter in a Consat vehicle TM system (Traffic Management). It also describes some more complex problems and includes descriptions of how to download diagnostics files etc. for the following tier support involving Consat Telematics support personnel.

Many simple system problems and faults can be located and often quite easily be corrected using basic electrical skills and common sense. Bad connections, and faulty auxiliary equipment like antennas and switches, can be found with the vehicle system fault codes and using the system checks.

More complex problems may have to be forwarded to Consat for troubleshooting. You can speed up that process by uploading diagnostics files to the Configuration Manager system (either initiated in the vehicle Maintenance menu or remotely requested through the CM web interface), alternatively, if the vehicle system cannot communicate with the CM system, you can manually trigger copying of diagnostics files to a prepared memory card (a diagnostics card) and then mail these files to Consat.

Then, of course, some hardware problems can only be corrected by physically exchanging the faulty hardware. Knowing when to do this can save a lot of time and effort.

2 Basic Workflow



3 Starting Point 1: FS/CM and driver interface showing active fault(s)

Most of the technical problems in the vehicle system and, depending on available data - in the vehicle, will result in faults/alarms.

When one or more faults/alarms go active this is displayed in several interfaces in the system: In the driver interface, in our web application Fleet Studio and in the Configuration Manager (itf4deport).

Our Traffic Controller application, Traffic Studio, will soon also be useful to monitor faults and display detailed fault information.

Even if you can check active faults in the vehicle, our various application interfaces are a much more practical way of finding vehicles with problems, including more in-depth descriptions of the specific active faults.

3.1 Active Faults in Fleet Studio

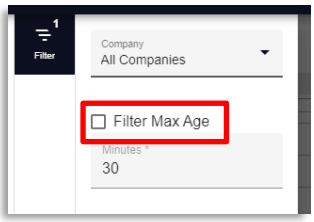
Our web application is a good starting point when you need to overview and quickly find active faults in the systems of your vehicles.

The Active vehicles view includes a color-coded fault status presentation for each displayed vehicle (no faults [ok]/warning category faults/critical faults).

Note: Usually, the Active Faults view is used for monitoring working/active vehicles that have communicated with the central system within a set time limit, usually 30 minutes. You can disable this time limit though, to include all vehicles that have communicated with the central system at least once (i.e. all vehicles with an installed Consat system).

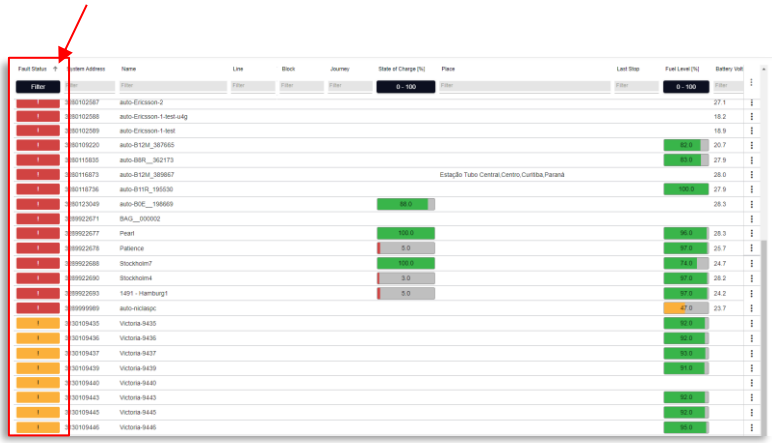
FS: Find [vehicles with] active faults, step by step

1. Select the Active Vehicles view in the main menu.
2. If you want to include all vehicles in the presentation, an not just the ones that have reported lately: Open the Filters menu and de-select "Filter max Age". Now, all vehicles with Consat .



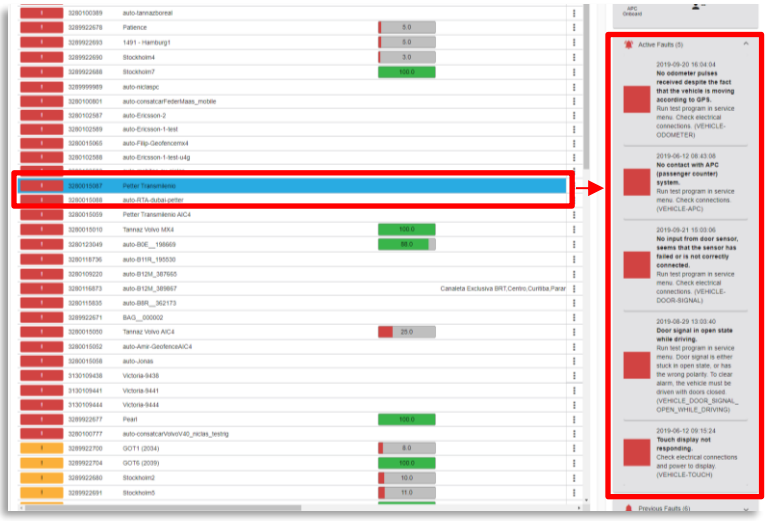
3. De-select "OK" in the Fault Status filter menu, but keep the Warning and Critical fault levels. (If you know that you are only interested in critical faults you can of course de-select "Warning" too.

4. Click on the sorting arrow to sort critical faults on top.



5. Open the details menu for a vehicle in the list with the "…" menu to the right on the row. The Faults section shows and describes all active faults

   Note: Click on another row to switch the details section to show that vehicle.



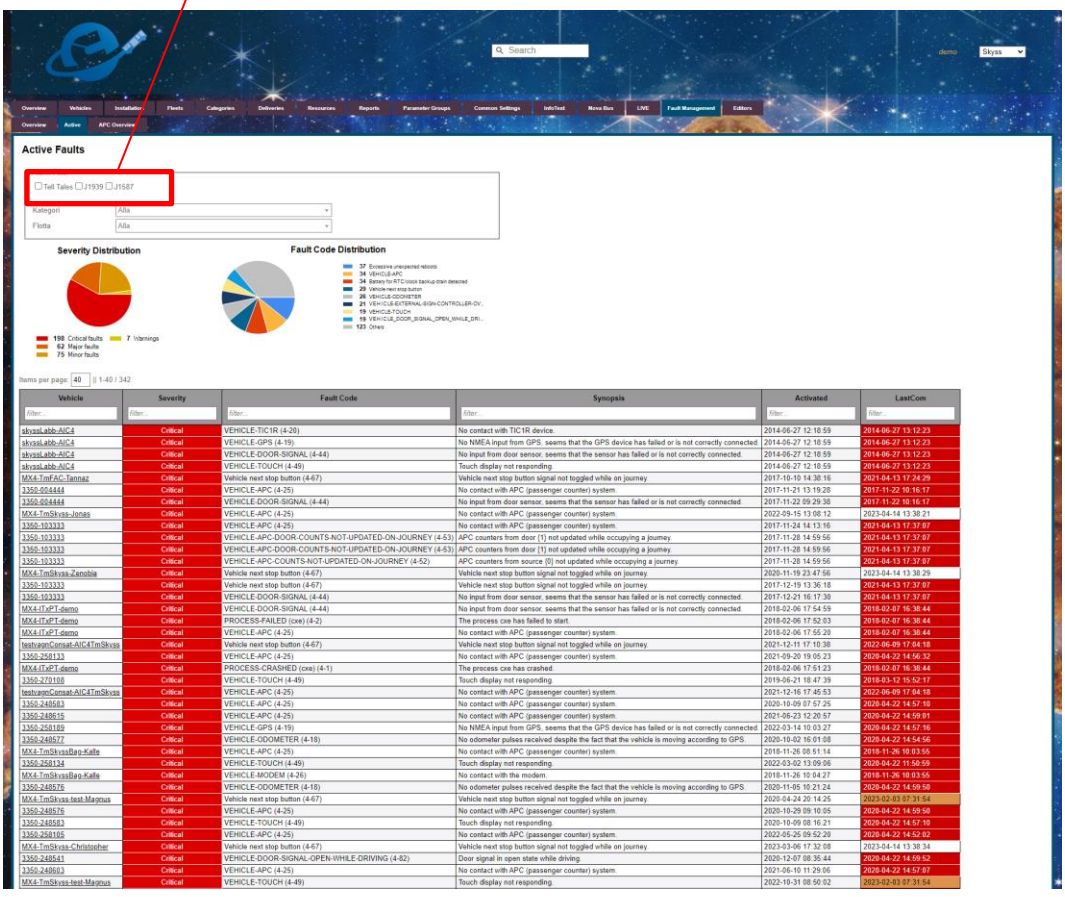
The faults are presented and described, including suggested repair actions. Use them as a starting point for troubleshooting the vehicle on location.

3.2 Active Faults in CM

The Configuration Manager (its4depot) also has a Fault management view showing all active vehicle faults in your system. This view also includes fault descriptions, although repair actions are not included.

- Active faults in the vehicles of your fleet are displayed on the Fault Management/Active [Faults] tab.
- To view vehicle faults, check the category/interface-related boxes in the top Alarm Filter section. (Available data varies.)
- **The list shows individual faults, one fault, one row.** One vehicle may have several active faults, displayed on several rows.
- Find specific fault types with the Fault Code free text filter.
- You will find a short fault description in the Synopsis column.

Check the boxes to include available (Non-Consat) faults reported by the vehicles. J1939 and J1587 are vehicle system interfaces, Telltales are faults displayed in the dash.

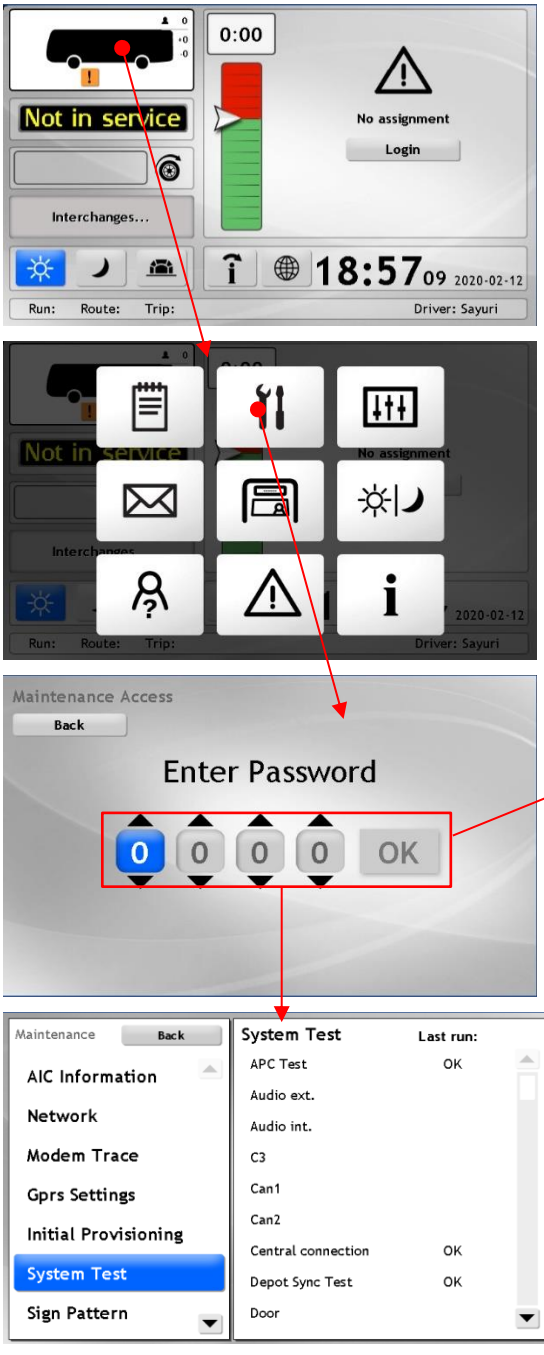


3.3 Active Faults in the Driver Interface

See below how you access the active faults view through the function menu. Here, all active faults are listed in the left section. Select a fault to view its description and suggested repair action in the section to the right.

Timestamp and description of the fault selected in the left section. (Or, if no fault selected, the first fault in the list.)

3.4 System/Maintenence Tests in the Driver (Vehicle) Interface



You need the company-specific pin code to access the maintenance menu.

4 Starting Point 2: Reported Faults

xxx.

5 Driver Compartment: Display

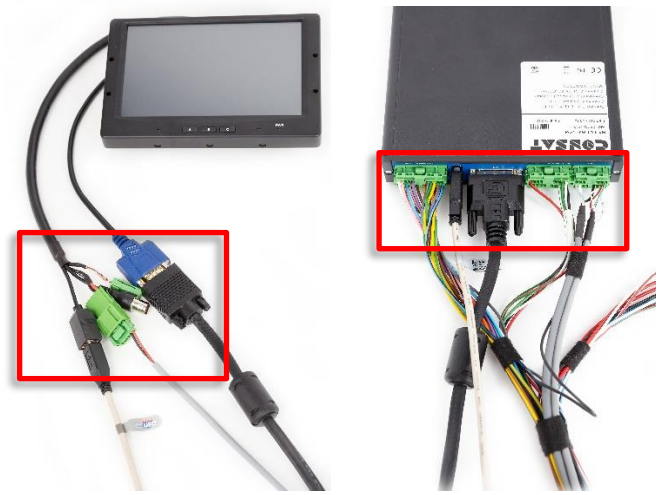
5.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

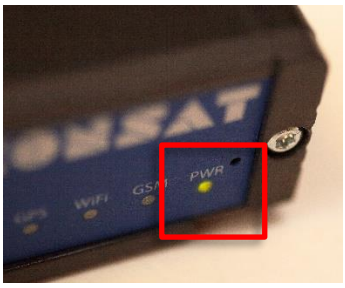
5.2 Display Shows no Image

1. Check Connectors: Both Display and MX4 Side

- Tighten locks/screws



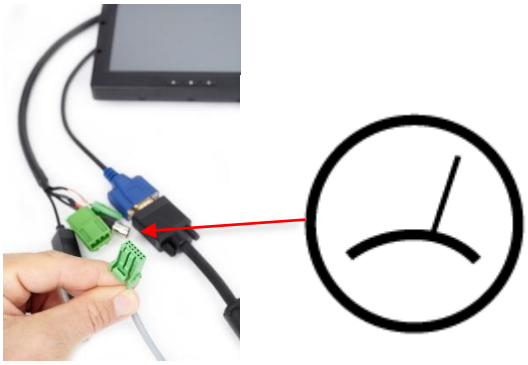
2. Check MX4 Power Feed: PWR Indicator Light.



- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

3. Check Voltage, Display Power Cable

- **Check all relevant fuses, change if needed.**



4. If the above does not solve the problem, try connecting another display that you know works.

- **If OK, replace the display.**

5. If Display Change does not solve the problem, Change MX4 vehice computer.

- **If the display works after the MX4 change, install the correct software. (See installation guide.)**

.

- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

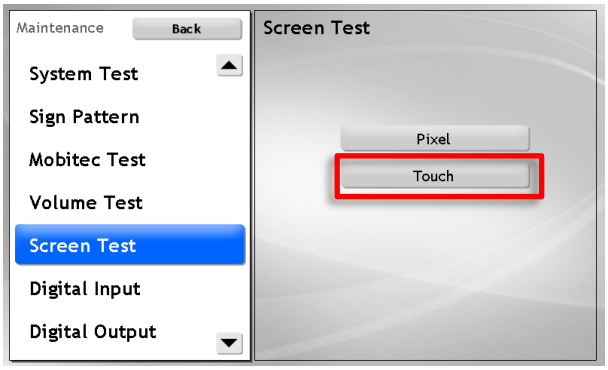
5.3 Touch Navigation Works but is Offset

1. Calibrate Touch Screen

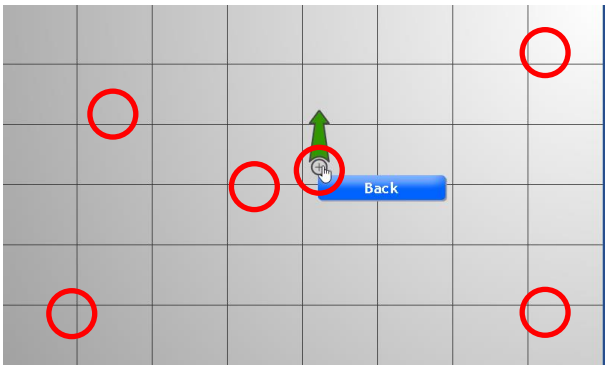
- Touch and hold for at least three seconds, three times, anywhere on the screen to enter calibration mode.

- Touch the displayed crosses on the screen until the calibration sequence is completed.

2. Run Screen Test in the Maintenance Menu



Run the Touch test



Touch all over the screen and view the response: OK?

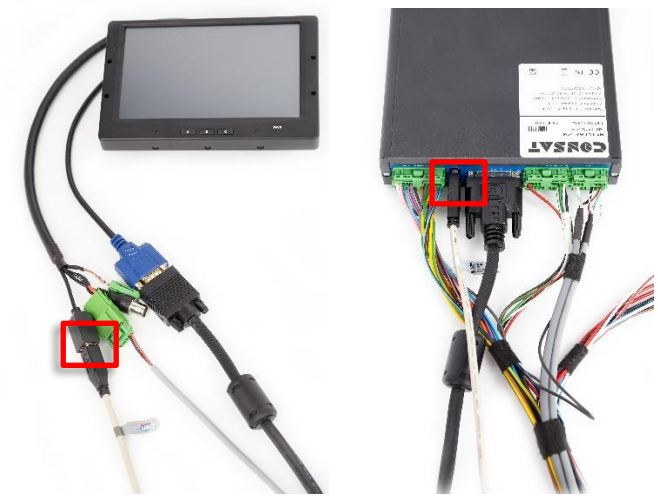
Quit the test by touching the "Back" button.

3. If calibration does not fix the problem: Replace the display

- Remaining faults/problems: Contact Consat.
- Report all faults and corrective measures to Consat.

5.4 The Touch Navigation Does not Work at All

1. Check USB-cable connections at both ends.



2. Try using another USB cable
   - **If OK, replace the cable**

3. If the problem remains: Replace the display
   - **Calibrate the new display and run the Screen touch system test (see description above).**

- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

6 MADT (Android Tablet)

6.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

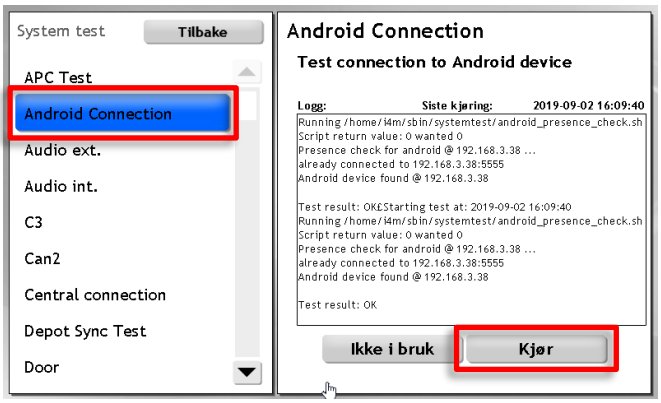
6.2 The Unit will Not Start (Display Black)

1. Check cables and power feed.
2. If the above seems ok, try connecting another unit. If ok, replace the MADT unit.

6.3 Active Fault: No Contact w. MADT

1. Verify the fault in the Driver/Vehicle Display Active faults view (see the previous chapter)
2. Check the network cables and connectors.
3. Also, check the switch the MADT unit is connected to and its connection to the MX4. Is the switch powered? Does its com-lights flash?

   If you find and correct problems: Run the Android Connection System test to verify the connection:



- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

7 Printer (MADT)

7.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

7.2 The Printer does not print

- After each change/check below: Check the function again by printing a "sales report" in the Android app. (The menu to the left). Note: This refers to a Customer-specific app, your Android app may have different test printing functionality.

1. Check Power Feed

- Press and hold the on(off button on the printer. Will it start? (Does the LED:s light up?)
- If not, are the connectors and the voltage converter connected correctly?

2. Check the USB-cable to the MADT (Android) unit

3. Replace the Printer

8 NFC-Reader (MADT)

8.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

8.2 The NFC-Reader does not detect/read cards

- Use the Android app and a card you know work to verify the functionality before and after any corrective action.

1. Check the USB cable to the MADT (Android) unit
2. If the cable seems OK, replace the NFC reader.

- Remaining faults/problems: Contact Consat.
- Report all faults and corrective measures to Consat.

9 HUD

9.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

9.2 **XXX**

10 Consat Vehicle Computer and Vehicle Signals

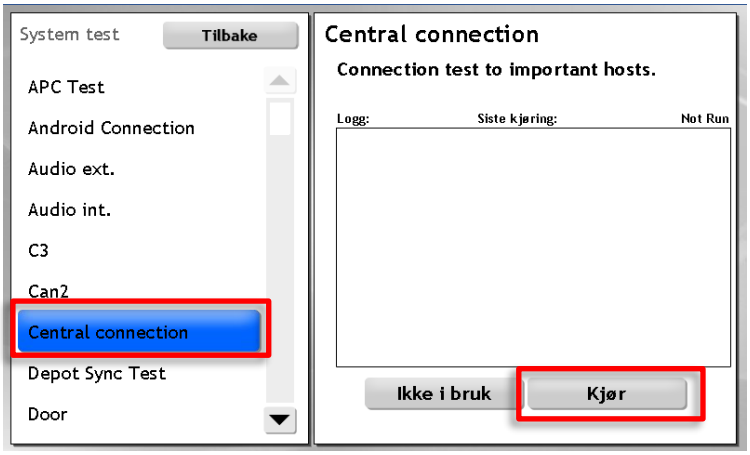
10.1 Related Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_GPS_NO_FIX	The GPS got no fix for {0} seconds of uptime	Run the test program in the service menu. Check connections and antenna
VEHICLE_GPS_NO_FIX_ON_JOURNEY	The GPS got no fix for {0} seconds spent on the journey	Run the test program in the service menu. Check connections and antenna.
VEHICLE_GPS	No NMEA input from GPS seems that the GPS device has failed or is not correctly connected	Run the test program in the service menu. Check electrical connections
VEHICLE_NEXT_STOP_BUTTON	Vehicle next stop button signal not toggled while on the journey.	Check the next stop button signal.
VEHICLE_DOOR_SIGNAL	VEHICLE-DOOR-SIGNAL No input from the door sensor. It seems that the sensor has failed or is not correctly connected	Run the test program in the service menu. Check electrical connections
VEHICLE_DOOR_SIGNAL_OPEN_WHILE_DRIVING	Door signal in an open state while driving.	Run the test program in the service menu. The door signal is either stuck in the open state or has the wrong polarity. To clear the alarm, the vehicle must be driven with doors closed.
VEHICLE_ODOMETER	No odometer pulses were received even though the vehicle is moving according to GPS	Run the test program in the service menu. Check electrical connections
VEHICLE_GPS_CRAZY_JUMP	The GPS made a crazy jump of {0} meters. Positions being filtered: {1}.	Reset GPS unit.

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_EXCESSIVE_UNEXPECTED_REBOOTS	System detected {0} unexpected reboots in {1} seconds	Check power source to MX4.
VEHICLE_RTC_BATTERY_DRAINED	If the battery for the internal clock is drained, the clock may be inaccurate	Check power source to MX4.

10.2 The Vehicle is not Reporting to the Central System.

1. Check all cables and connectors to/on the MX4 Vehicle Computer. Check the antenna.
2. Run the System test Central Connection (make sure you have good mobile/cellular coverage).



3. If the vehicle cannot communicate with the central system, replace the MX4 computer.

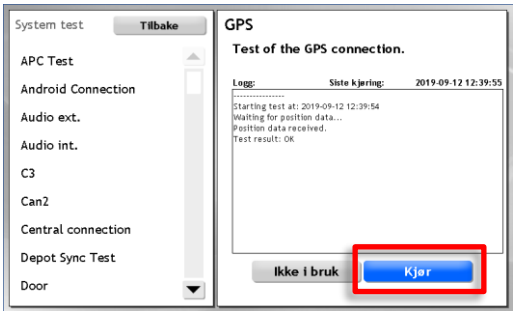
- **Remember to move the SIM card to the replacement unit and install the software according to the installation guide.**

- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

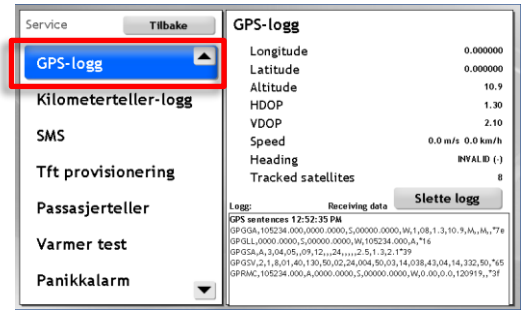
10.3 Active Fault: GPS

1. Verify the fault in the Active Faults view.
2. Check the antenna connectors on the MX4.

3. Run the GPS System test. If OK (GPS connection), Proceed with the test in step 4. Not OK: Change antenna.



4. Run the "GPS Trace" test in the Maintenance Menu. Drive the vehicle outdoors. Does the test indicate a working GPS (Longitude and Latitude changing as you drive)?

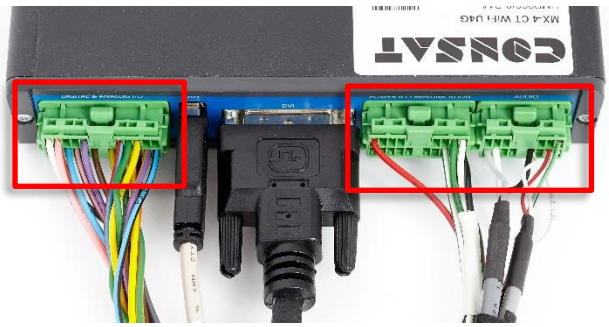


- **Remaining faults/problems: Contact Consat.**
- **Report all faults and corrective measures to Consat.**

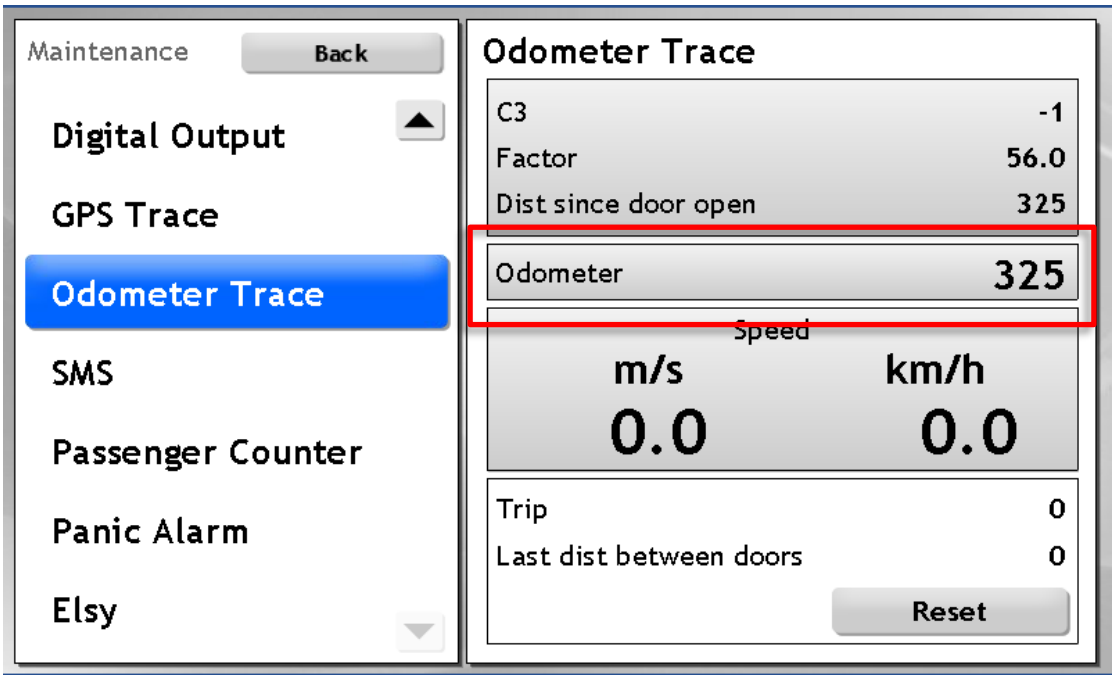
- **Active Fault: Odometer**

10.4 Verifiera felet i Aktiva fel-vyn.

1. Verify the fault in the Active Faults view.
2. Check the MX4 harness connectors (green connectors) and harness connectors to the vehicle (the colored ITxPT-contacts or connection terminal in non-ITxPT vehicles).



1. Run the Odometer Trace test in the Maintenance Menu. Drive the vehicle. Does the test indicate a working odometer (C3) signal?



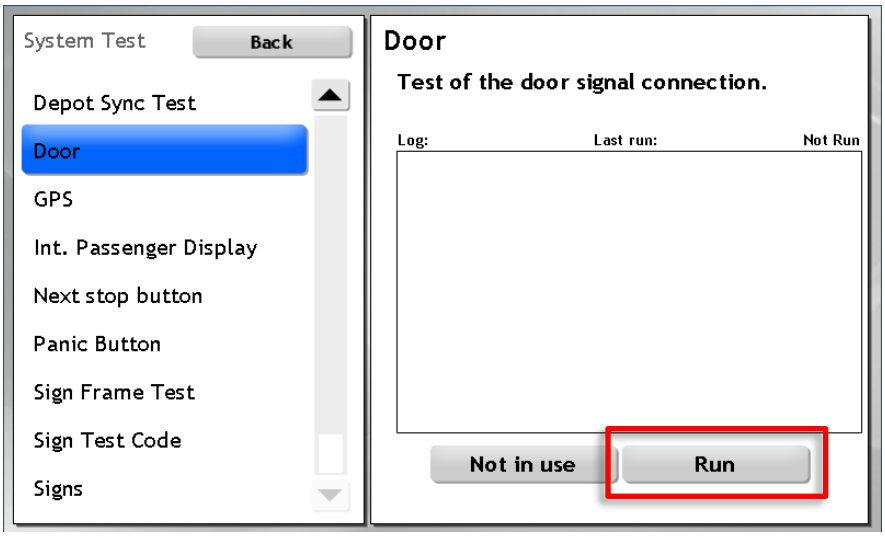
2. No C3 signal? Contact Consat.

10.5 Active Fault: Door

1. Verify the fault in the Active Faults view.
2. Check cables and connectors between vehicle signals and MX4.

- Is the MX4 connected to the vehicle through a connection terminal? Verify that the door signal cable is connected to the right terminal point.

3. Run the Door System Test. Open and close the doors and view the test log.
4. Run the Door System Test. Open and close the doors and view the test log.



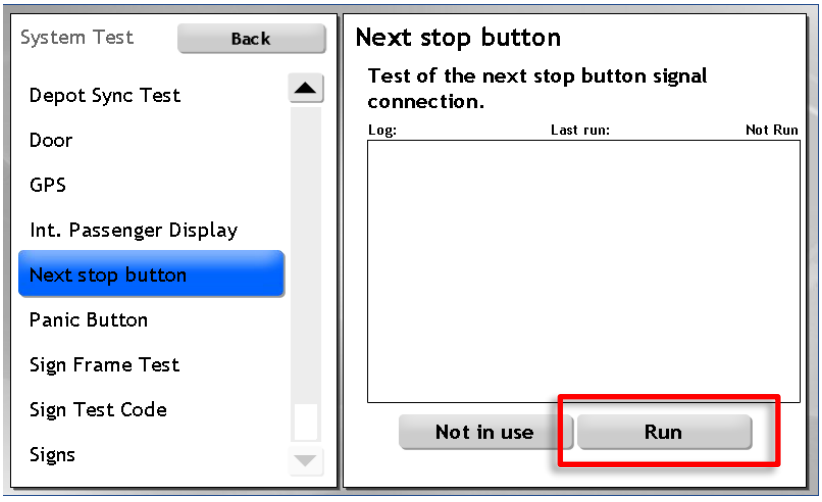
10.6 Active Fault: Next Stop Button

1. Verify the fault in the Active Faults view.

2. Check cables and connectors between the vehicle and MX4.

- **Is the MX4 connected to the vehicle through a connection terminal? Verify that the next stop button signal cable is connected to the right terminal point.**

3. Run the Next Stop Button System Test. Try pressing different next-stop buttons in the vehicle and view the test log.



11 Exterior Signs

11.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_EXTERNAL_SIGN_CONTROLLER_OVERRIDE	External sign controller overrides internal sign control	Check external sign controller switch and/or electrical connections

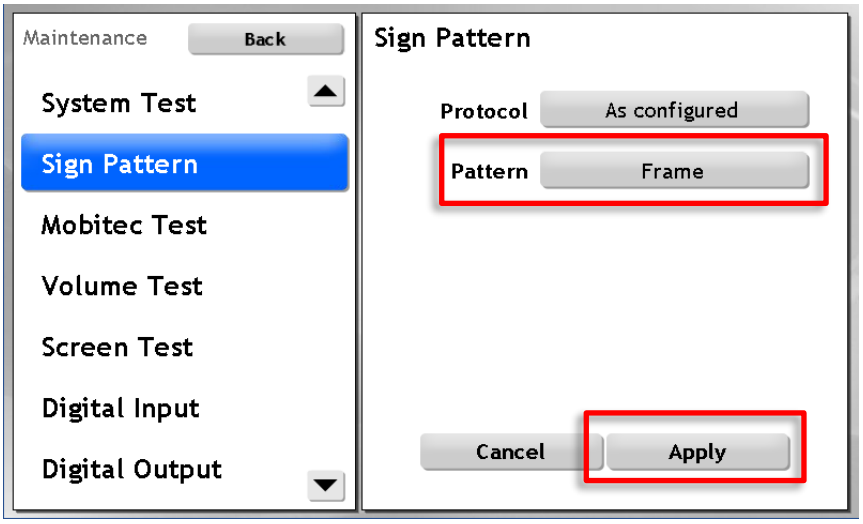
11.2 Problems with exterior signs reported

1. Check for Active faults in the driver display: Multiple faults can be active. Manual sign control override is also displayed here (a common “fault”).

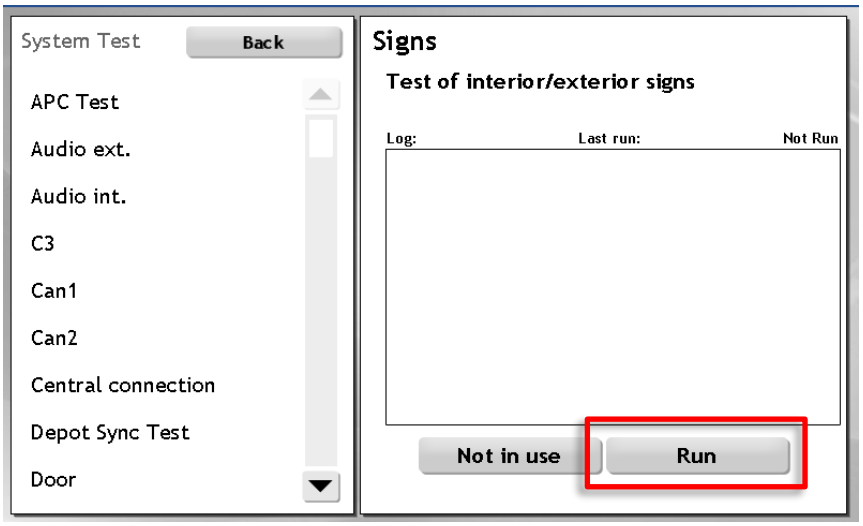
2. If manual sign control override is indicated in the Active faults view: Find the sign control switch, labelled and placed close by the MX4. Switch to automatic/MX4 sign control.

3. If an active fault indicates loss of contact with one or more signs: Check related connectors and cables, both on the sign side and the MX4 side.

4. In the Maintenance menu: Run “Sign Pattern”. Test settings: “As configured” and “Frame”. Run the test and verify that all signs display a frame.



5. In the Maintenence menu/System Tests: Run the “Signs” test and verify that each sign shows a unique address.


System Test
Back
APC Test
Audio ext.
Audio int.
C3
Can1
Can2
Central connection
Depot Sync Test
Door
Signs
Test of interior/exterior signs
Log:
Last run:
Not Run
Not in use
Run


System Test
Back
Depot Sync Test
Door
GPS
Int. Passenger D
Next stop buttor
Panic Button
Sign Frame Test
Sign Test Code
Signs
Signs
Not Run
Run
Please verify: Are sign addresses visible on all signs?
No
Yes

12 On-board Displays and LED-signs

Xxx

12.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_INTERIOR_PASSENGER_DISPLAY_UNREACHABLE	The interior passenger display at IP: {0} is unreachable.	Run the test program in the service menu. Is the display powered on? Check network cables. Are the correct network ports used?

12.2 Reinstall Consat Display Software

If the display does not show the regular journey view or a Consat test image, you may need to reinstall the Consat display software. **See the document "Vehicle System Basic Operations" for how to do this.**

12.3 On-Board Display Shows Test Image: Provision

If the display show a Consat test image, you will need to provision the display to set it up for use in your particular vehicle etc. **See the document "Vehicle System Basic Operations" for how to do this.**

12.4 Active Fault: On-Board Display

1. Verify the fault in the Active Faults view.
2. Check power feed: Fuses/cables/connectors. Also check any on-board switches between MX4 and the displays.

   Note: The network cable should be connected to port 1 on each display. (When the network connection is live, the data traffic indicator on the display connector will flash.)

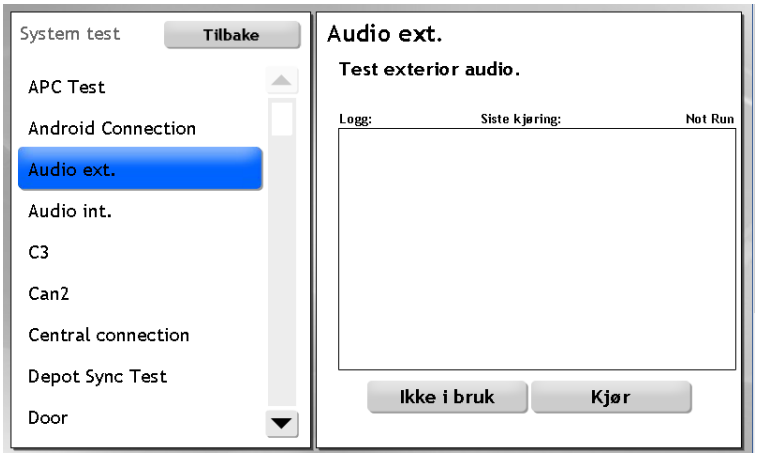
   Note: The cable between the MX4 and the switch must be connected to ETH 0 on the MX4.

13 Interior and Exterior Audio

13.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

Xxx



14 Driver Audio

14.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

15 PTC-functions

15.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

16 CCTV-system

16.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_CCTV_CONNECTION	No contact with CCTV (camera) system.	Run the test program in the service menu. Check wires and connectors.
VEHICLE_CCTV_SYSTEM	Error CCTV (camera) system, status:	Run the test program in the service menu. Check the CCTV control box. Check wires and connectors.
VEHICLE_CCTV_CAMERA	Error status for CCTV cameras: {0}. Connected cameras: {1}	Run the test program in the service menu. Check cameras, wires and connectors.
VEHICLE_CCTV_DISK	CCTV disk storage is not active. Status: {0}	Run the test program in the service menu. Check the CCTV control box.

16.2 Xxx

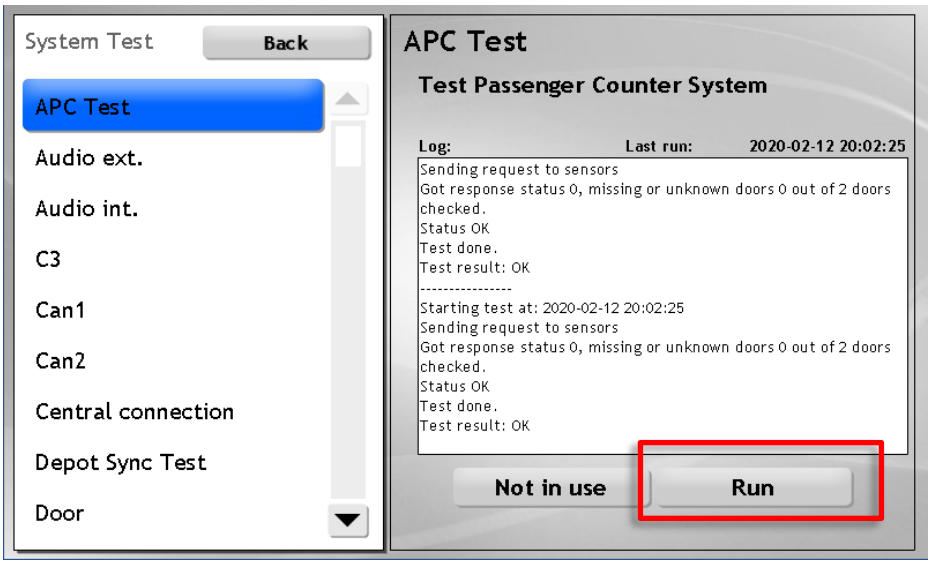
17 APC-system

17.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_APC_COUNTS_NOT_UPDATED_ON_JOURNEY	APC counters from source {0} and door {1} are not updated while occupying a journey	Run the test program in the service menu. Check connections
VEHICLE-APC	No contact with APC (passenger counter) system	Run the test program in the service menu. Check connections
APC_NO_DATA_AVAILABLE	APC data not received from vehicle Last successful upload: {0}	APC_NO_DATA_AVAILABLE
APC_EXTERNAL_SYSTEM_PUSH_FAILURE	Not able to push APC data to an external system Uri: {0}	APC_EXTERNAL_SYSTEM_PUSH_FAILURE

17.2 Active Fault: APC System Connection

1. Verify the fault in the Active Faults view. There are several APC alarms related to lost connection.
2. Verify APC network cables and power cables.
3. Verify the connection by running the APC Test in the System test menu.



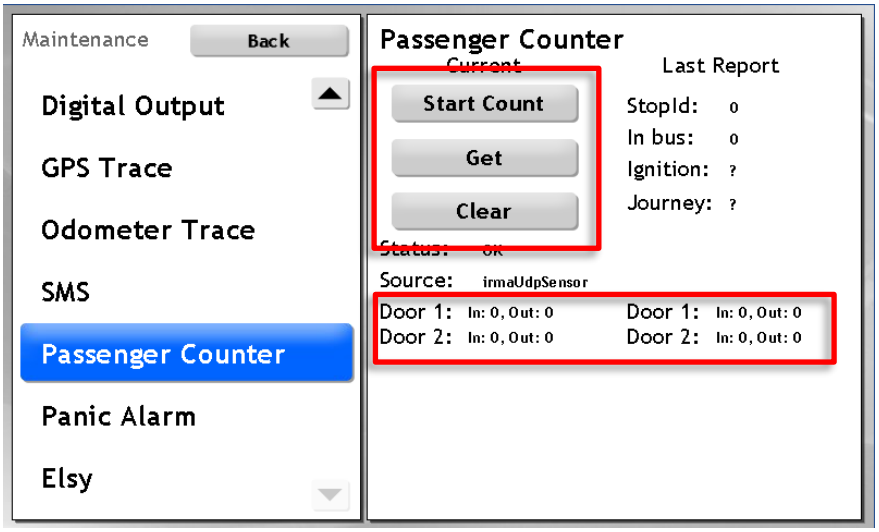
4. Change Sensor if cables and power seem correct and the APC Test Fails.

17.3 Report: APC Passenger Counts are Obviously Wrong

1. Verify Sensor orientation for each door. Mount correctly if turned the wong way.

   If a sensor is mounted the wrong way, it may count boarding passengers as alighting passengers, resulting in negative on-board values etc.

2. Run the Passenger Counter test, then board and alight through each door to verify functionality.



17.4 Report: APC Passenger Counts are Suspicious

1. Calibrate the APC System.

   See Separate Consat Documentation for connecting a computer to the APC-system over the vehicle network. (Remote access may also be available.)

2. See the Manufacturers Documentation for how to calibrate and adjust the sensors.

18 Heater Control

18.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_HEATER_NOT_HEATING	The indoor temperature is not rising even though the heater is activated. Temperature has gone from {0} to {1} degrees during {2} minutes of heating.	Report the error to the heater system
VEHICLE_HEATER_FAULT_CODE_ACTIVE	The heater is generating an active fault code.	Report the error to the heater system supplier
VEHICLE_HEATER_NOT_STARTED	The heater is blocked for some reason.	Check fault codes of the heater and the heater.
VEHICLE_TSP_MODEM	There is no data received from the TSP modem	Check fault codes and wiring

18.2 Active Fault: Internal Temp Sensor

Xxx

19 Driver Panic Alarm Button

Xxx

19.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

20 Alcolock Unit

Xxx

20.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

21 Driver Fatigue System

Xxx

21.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

22 Pedestrian Warning System

Xxx

22.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

23 VHF-modem (Traffic Signal Priority)

23.1 Related Active Faults

Fault	(Synopsis), Description	Proposed Repair Action

23.2 Active fault: No contact with the VHF-modem

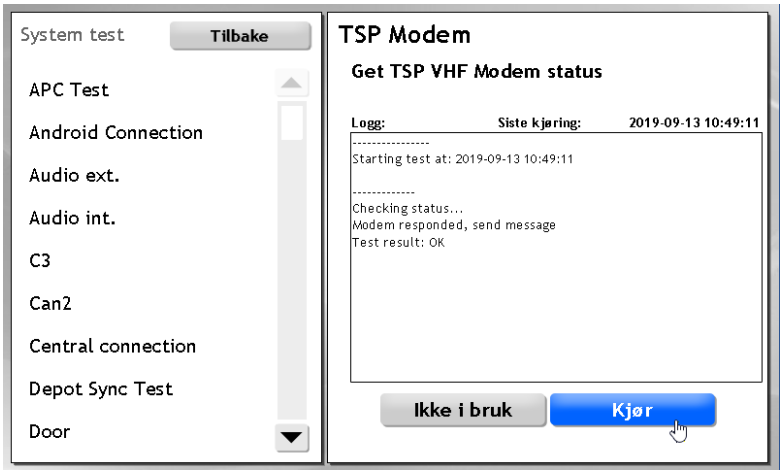
3. Verify the fault in the active faults view.

4. Check connectors and cables.

- Also, check the modem antenna and antenna cable.
- If you find loose cables/connectors and connect them: Run the TSP modem system test (below). OK?

5. Check Modem Power

- Connect a replacement unit you know works to verify the modem power. Run the TSP modem system test.



- **If the test does not turn out OK: Re-check connectors, fuses and cables.**

6. Replace the Modem

7. Re-run the system test TSP Modem to verify the connection to the replacement modem. OK?

24 Appendix A: Retrieve Diagnostic Files using “Diagnostics Card”

When the communication with the Configuration Manager is down you can still retrieve needed diagnostics files from the vehicle computer using a physical ”diagnostics card”, with or without a working driver display.

A diagnostics card is a memory card (of the correct type and certified model/make) pre-loaded with files that initiate the copying of diagnostics files from the computer to the card as soon as you insert it into the vehicle computer card reader. You can prepare a diagnostics card (create the needed files) in the Configuration Manager web interface – see the CM user manual for how to do this.

When the diagnostics files have been retrieved, mail them to the appropriate personnel at Consat Telematics for troubleshooting.

24.1 Retrieve Diagnostics files with Diagnostics Card, step-by-step

6. Make an appropriate diagnostics card software in the Configuration Manager on a USB stick (MX4) or a CF card (AIC 4).

7. Locate the vehicle computer in the vehicle and insert the card in the card reader slot. The diagnostic file transfer/copying should start immediately.

   On the MX4 the FUNC status light will flash as the files are trensfered. When the light stops flashing the transfer is completed. Now you can remove the stick/card.

8. If you see no flashing light, the status LED:s may be broken, then wait **at least one minute** for the copying to be completed before you remove the card.

9. Insert the diagnostics card into a card reader connected to a computer and **verify that a new folder with the vehicle hardware ID has been created.** This folder contains the diagnostics files.

10. **Note:** If no new folder has been created, try inserting the card into the vehicle computer again and re-booting it (switch the power off and on again after a couple of minutes). If this does not result in a folder being created on the diagnostics card, the vehicle computer needs replacing. Send the faulty vehicle computer to Consat telematics for troubleshooting.

11. If the diagnostic files folder was created correctly, zip and mail the content of the folder to Consat for troubleshooting, along with a description of the problem.

25 Appendix B: Vehicle Faults in CM, Vehicle System

The faults below are presented both in the CM (The Fault management Section) and in the Driver (vehicle) display interface.

Note: FMS telltale faults from the vehicle are not included in this description.

Fault	(Synopsis), Description	Proposed Repair Action
PROCESS-CRASHED ({0})	The process {0} has crashed	Check the log file for additional information. Check the configuration file for errors. Verify that {1} is the correct binary.
PROCESS-FAILED ({0})	The process {0} has failed to start	Check that {1} is the correct executable. Check the permissions on the executable. Check the existence and permissions of the configuration file. Check the log file for any additional information on the problem.
IP_HOST_UNREACHABLE	The host {0} is unreachable	
SERVICE_UNREACHABLE	The service {0} is unreachable	
TCP_CONNECT_FAILURE	Could not connect to the service "{2}" at "{0}:{1}".	Verify that the service "{2}" is running. Check the hostname ("{0}")and port number ("{1}") of the service
SERVICE_UPDATE_MISSING	The service {0} {1} at {2} (version {5} system address {3}:{4}) is no longer sending updates	Verify that the host {2} is reachable. Verify that the service {0} {1} is running. Restart the service if necessary
RESOURCE_LIMIT_ERROR	RESOURCE-LIMIT-ERROR ({0})</	Resource {0} has been outside interval {1} and {2} for {3} seconds.
DATABASE-ERROR ({0})	Database {0} has malfunctioned	

Fault	(Synopsis), Description	Proposed Repair Action
DATABASE_UNREACHABLE	The {2} database, of the type {3}, on {0} is unreachable.	
CORBA_SERVER_UNREACHABLE	The {2} corbaserver, on {0} is unreachable.	
WEB_SERVICE_UNREACHABLE	Webservice "{0}" ({1}) is unreachable	
SYSTEM_TIME_ERROR	The time on {0} is wrong with {1} seconds	
PROTOCOL_ERROR	The protocol limit {3} was exceded {2} on channel {0} with the interval length {1},	
INFORMATION_DISPLAY_UNREACHABLE	The information display is unreachable	
URL_UNREACHABLE	The URL is unreachable	
DETECTOR_FAILURE	The detector fails	
VEHICLE_ODOMETER	No odometer pulses were received even though the vehicle is moving according to GPS	Run the test program in the service menu. Check electrical connections
VEHICLE_GPS	No NMEA input from GPS seems that the GPS device has failed or is not correctly connected	Run the test program in the service menu. Check electrical connections
VEHICLE_TIC1R	No contact with the TIC1R device	Run the test program in the service menu. Check electrical connections
VEHICLE_SIGN	No contact with sign {0}, on address {1}, using protocol {2}.	Run the test program in the service menu. Check electrical connections.
VEHICLE_GATEWAY_UNREACHABLE	No contact with a gateway on the local network.	Run the test program in the service menu. Check gateway and network settings
VEHICLE_DEPOT_UNREACHABLE	No contact with remote depot system	Run the test program in the service menu. Check wireless communication device
VEHICLE-FARE-BOX	No contact with Farebox unit	Run test program in the service menu

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE-APC	No contact with APC (passenger counter) system	Run the test program in the service menu. Check connections
VEHICLE_MODEM	No contact with the modem	Run the test program in the service menu. Check connections
VEHICLE_CAN	No contact with CAN bus	Run the test program in the service menu. Check connections
VEHICLE_J1708	No contact with the J1708 bus	Run the test program in the service menu. Check connections
VEHICLE_DST	Invalid checksum detected in DST(Data parameter set).</	Please reprogram the DST
VEHICLE_LAMP_AND_FAULT_STATUS	Driver cluster fault indicator status Fault level: {0} ["alarm"->red lamp, "warning"->yellow lamp, "info"->info lamp, "clear"->no lamp] Sending MID: {1} Fault PID/PPID/SID/PSID: {2} Fault type: {3} FMI: {4}	See the Volvo service manual for detailed information.
VEHICLE_J1587_FAULT	Fault level: {0} ["alarm"->red lamp, "warning"->yellow lamp, "info"->info lamp, "clear"->no lamp] Sending MID: {1} Fault PID/PPID/SID/PSID: {2} Fault type: {3} FMI: {4}	See Volvo service manual for detailed information
VEHICLE_BEA_FAULT	Fault Number: {0} ECU Address: {1} FMI: {2} Occurrences: {3} Group Mask: {4}	See Volvo service manual for detailed information
VEHICLE_J1939_FAULT	Spn: {0} Source Address: {1} FMI: {2} Occurrences: {3}	See Volvo service manual for detailed information
VEHICLE_FMS_TELL_TALE	Id: {0}	See Volvo service manual for detailed information
VEHICLE_VERSION_REQUEST_MISSING	Missing version request for node {0}	Verify that the node is in service and if so diagnose the computer/network.

Fault	(Synopsis), Description	Proposed Repair Action
	Node: {0} Last request: {1} Threshold: {2} System address: {3} Hwid: {4} Software: {5} Resources: {6}	
VEHICLE_CUSTOM_FAULT	Generic FMS condition Condition: {0} Current Value: {1}	
APC_NO_DATA_AVAILABLE	APC data not received from vehicle Last successful upload: {0}	
APC_EXTERNAL_SYSTEM_PUSH_FAILURE	Not able to push APC data to an external system Uri: {0}	
UPLOAD_SERVICE_NO_DATA_UPLOADED	No data uploaded from the vehicle since the threshold Node id: {0} Last successful upload: {1} Upload pattern: {2}	
TRAFFIC_MEASUREMENT_LOW_FLOW	Få fordon har passerat slingan (VT) Det har passerat {4} över slinga {0} med system-adress {1} namn {2} {3} mellan {5} och {6}.	
LOOP_ERROR	Det har detekterats fel på slingan. Slinga {0} med system-adress {1} namn {2} {3} har .	
MR_SYNC	Msgrouters are not in sync. Msgrouter {0}:{1} and {2}:{3} not in sync	
VEHICLE_DATA_ERROR	DATA-ERROR ({0}) Process "{0}" has detected data error on data source "{2}" with value "{3}" for vehicle "{1}"	
VEHICLE_DOOR_SIGNAL	VEHICLE-DOOR-SIGNAL No input from the door sensor. It seems that the sensor has failed or is not correctly connected	Run the test program in the service menu. Check electrical connections

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_DOOR_SIGNAL_OPEN_WHILE_DRIVING	Door signal in an open state while driving.	Run the test program in the service menu. The door signal is either stuck in the open state or has the wrong polarity. To clear the alarm, the vehicle must be driven with doors closed.
VEHICLE_EXTERNAL_SIGN_CONTROLLER_OVERRIDE	External sign controller overrides internal sign control	Check external sign controller switch and/or electrical connections
VEHICLE_TOUCH	Touch display not responding	Check electrical connections and power to display.
UDP_NODE_SPAM	Abnormal communication for UDP node with system address {0}. Limit of {1} messages reached in less than {2} seconds	Check cudpgw logs for more details. There might be a lot more nodes spamming, the first node that spams triggers this alarm. But the alarm is not cleared until all spamming nodes are back to normal.</
TASK_SCHEDULER_TASK_ERROR	The task {0} has failed to run by Tmix.Cap.Platform.Process.TaskScheduler	Check the logfile for process Tmix.Cap.Platform.Process.TaskScheduler
VEHICLE_APC_COUNTS_NOT_UPDATED_ON_JOURNEY	APC counters from source {0} and door {1} are not updated while occupying a journey	Run the test program in the service menu. Check connections
VEHICLE_APC_DOOR_COUNTS_NOT_UPDATED_ON_JOURNEY	APC counters from door {1} not updated while occupying a journey.	Run the test program in the service menu. Check connections.
VEHICLE_GPS_NO_FIX	The GPS got no fix for {0} seconds of uptime	Run the test program in the service menu. Check connections and antenna
VEHICLE_GPS_NO_FIX_ON_JOURNEY	The GPS got no fix for {0} seconds spent on the journey	Run the test program in the service menu. Check connections and antenna.
EXCESSIVE_NODE_DOWNLOADS	Abnormal download communication. Limit {0}.	Check depot logs for more details.
EXCESSIVE_NODE_UPLOADS	Abnormal upload communication. Limit {0}.	Check depot logs for more details.
MQTT_CONNECTION_LOST	MQTT connection lost	MQTT broker connection lost.

Fault	(Synopsis), Description	Proposed Repair Action
MQTT_TETRA_CONNECTION_DOWN	Lost Tetra MQTT connection	Check ethernet switch/cable or MQTT broker
MQTT_TETRA_SEND_ERROR	Multiple MQTT send error	Check ethernet switch/cable or MQTT broker
DISPLAY_BACKLIGHT_SENSOR_FAILURE	Display backlight error	Check display, the backlight sensor cannot detect any light being emitted.
VEHICLE_IGNITION_SIGNAL	No input from the ignition pin, seems that the input has failed or is not correctly connected.	Run the test program in the service menu. Check electrical connections.
VEHICLE_GPS_CRAZY_JUMP	The GPS made a crazy jump of {0} meters. Positions being filtered: {1}.	Reset GPS unit.
DATAIMPORT_IMPORT_FAILED	Dataimport import failed.	Check import
DATAIMPORT_VERIFY_FAILED	Dataimport verify failed.	Check import
DATAIMPORT_DEPLOY_FAILED	Dataimport deploy failed.	Check import
VEHICLE_NEXT_STOP_BUTTON	Vehicle next stop button signal not toggled while on the journey.	Check the next stop button signal.
VEHICLE_PANIC_BUTTON	The vehicle panic button signal shorted at startup.	Check the panic button signal.
VEHICLE_ODK_CONNECTION	The ODK is not responding to PId 501 since {0} seconds	Check the ODK power and its connection.
DISCO_SLAVE_MISSING	No response from a disco slave unit, slave ID: {0}	Check connections of connected slave units in the Disco sign group setup. Also, check master/slave configurations.
DISCO_SLAVE_UNKNOWN	A disco slave unit that is unknown is discovered by the master, slave ID: {0}	Check the configuration of the master unit in the Disco display group.
CAMERA_CONTROL_CONNECTION	Connection to camera control for {0} lost	Check wiring

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_CCTV_CONNECTION	No contact with CCTV (camera) system.	Run the test program in the service menu. Check wires and connectors.
VEHICLE_CCTV_SYSTEM	Error CCTV (camera) system, status:	Run the test program in the service menu. Check the CCTV control box. Check wires and connectors.
VEHICLE_CCTV_CAMERA	Error status for CCTV cameras: {0}. Connected cameras: {1}	Run the test program in the service menu. Check cameras, wires and connectors.
VEHICLE_CCTV_DISK	CCTV disk storage is not active. Status: {0}	Run the test program in the service menu. Check the CCTV control box.
VEHICLE_SENSOR_ALCOLOCK	No contact with the alcohol lock unit.	Run the test program in the service menu. Check wires and connectors.
INFORMATION_DISPLAY_FLAPPING	Communication with the information display is 'flapping, meaning it goes up and down several times a day.	
VEHICLE_INTERIOR_PASSENGER_DISPLAY_UNREACHABLE	The interior passenger display at IP: {0} is unreachable.	Run the test program in the service menu. Is the display powered on? Check network cables. Are the correct network ports used?
VEHICLE_TRAFFIC_DATABASE_VERSION_MISMATCH	The traffic database is not in sync with the backend.	Make sure the unit has a mobile connection to the backend and trigger a sync
DEPOT_EXCESSIVE_SYNC	A node {0} is downloading excessively.	Make sure the unit is healthy
DISCO_CONNECTION_LOST	Disco client lost connection to the server, timetable backup {0}	Make sure the unit is healthy
VEHICLE_SIGNAL_IO_ERROR	A signal source in failstate, details {0}	Check connections and wires
VEHICLE_INTERIOR_TEMP_SENSOR	Vehicle interior temp sensor not producing valid values.	Check wiring or sensor.

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_HEATER_NOT_STARTED	The heater is blocked for some reason.	Check fault codes of the heater and the heater.
VEHICLE_TSP_MODEM	There is no data received from the TSP modem	Check fault codes and wiring
VEHICLE_PROCESS_HUNG_RESTART	Found hung process that was restarted	
VEHICLE_PROCESS_HUNG_REBOOT	Found hung process, restart failed, rebooted	
VEHICLE_DRIVING_MONITOR_CONNECTION	There is no data received from the {0} driving monitor	Check fault codes and wiring
VEHICLE_DRIVING_MONITOR_CAMERA_ERROR	There is no data from the {0} driving monitor camera, video channel: {1}	Check fault codes and wiring
VEHICLE_DRIVING_MONITOR_INDICATOR_ERROR	{0} Driving monitor driver indicator (small display) not responding	Check fault codes and wiring
VEHICLE_EXTERNAL_POWER_NOT_CONNECTED	The external power cable should be connected when the vehicle is parked in the depot area.	Connect the external power. If already connected, troubleshoot the connectors and the corresponding in signal to the MX4 unit.
SOFTWARE_BUG	A software bug has been detected	Contact supplier/developer
VEHICLE_HEATER_NOT_HEATING	The indoor temperature is not rising even though the heater is activated. Temperature has gone from {0} to {1} degrees during {2} minutes of heating.	Report the error to the heater system
VEHICLE_HEATER_FAULT_CODE_ACTIVE	The heater is generating an active fault code.	Report the error to the heater system supplier
VEHICLE_DISPLAY_CONTROLLER	Display controller not responding.	Check the controller board
VEHICLE_INTERIOR_PASSENGER_DISPLAY_MISMATCH	DPI Screen route not matching journey route {0}	Contact supplier/developer
VEHICLE_ASSIGNMENT_MISMATCH	{0} has another assignment: {2}. Our: {1}	Check the assignment and make sure it's correct.

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_REMAINING_RANGE_INSUFFICIENT	Seems like the remaining battery range is not sufficient to fulfil the current trip. SOC is {0}, estimated remaining range is {1} meters, while distance left on current trip is {2} meters.	Cancel the trip and recharge batteries at the nearest charging station.
VEHICLE_EXCESSIVE_UNEXPECTED_REBOOTS	System detected {0} unexpected reboots in {1} seconds	Check power source to MX4.
VEHICLE_RTC_BATTERY_DRAINED	If the battery for the internal clock is drained, the clock may be inaccurate	Check power source to MX4.
VEHICLE_HIGH_POWER_CHARGER_NOT_CONNECTED	The high power charger is not connected. {0} Details: {1}	Connect the charger. If already connected, check signal that should reflect that the charger is connected or not.
VEHICLE_HIGH_POWER_CHARGING_PROBLEM	The high power charger gives insufficient charging, despite being connected. Details: {0}	Check charger and charger cable. The alarm will clear at next functional charging session for the vehicle.
VEHICLE_TARGET_SOC_NOT_REACHED	Target SOC is not reached. Scenario: {0} SOC at time of alarm: {1}%, target SOC: {2}%, charger connected: {3}	
VEHICLE_MODEM_NETWORK_CONNECTION	Problem connecting to mobile data network. Details: {0}	Check SIM for debris or misplacement. Dismount, clean and remount. Check SIM card validity.
VEHICLE_GPS_UNAVAILABLE	GPS is currently unavailble due to modem reset. Which in turn is caused by problem connecting to mobile data network. Modem has been requested to reset at {0}.	Check SIM for debris or misplacement. Dismount, clean and remount. Check SIM card validity.
VEHICLE_STARTER_BATTERY_LOW_VOLTAGE	Critially low battery voltage on the starter battery. Details: {0}.	Connect charger.
VEHICLE_SMOKE_DETECTOR_ALARM	Smoke detector disconnected or active	
VEHICLE_FIRE_DETECTOR_ALARM	Fire detector disconnected or active	

Fault	(Synopsis), Description	Proposed Repair Action
VEHICLE_EXTERNAL_POWER_DEACTIVATED_DUE_TO_LOW_VOLTAGE_THRESHOLD	External power deactivated due to lower voltag threshold hit	