

Procedure	
In Vehicle Monitoring System Use	
Doc No.: MR-PP-002	Version: 3.0



# In Vehicle Monitoring System Use

## MR-PP-002

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## 1. PURPOSE

The purpose of this procedure is to provide drivers of Martinus vehicles, fitted with In-vehicle monitoring systems (IVMS), information and instructions on how to use the IVMS system and outlines the parameters the system monitors in relation to vehicle status and risky driving behaviors which shall be communicated in the Project / Site induction.

In Vehicle Monitoring Systems (IVMS) is a safety requirement for both heavy vehicles over 4.5T and light vehicles under 4.5T. This document provides the minimum standard for which Martinus Projects, Sub-contractors and IVMS providers must comply with when specifying requirements for IVMS.

## 2. SCOPE

This standard is intended for use by operators and sub-contractor partner companies of Martinus. It applies to both heavy and light vehicles undertaking operations associated with Martinus operators and contractor partners.

Both fixed and portable installed IVMS units fall under this standard.

Plant and assets ordinarily restricted to non-road related operations are not required to comply with this standard, although the system may be used to monitor some or all features of the system as required or where client contracts specify.

The primary purpose of IVMS is to encourage safe driving behaviours. Responsible Managers are encouraged to use data from IVMS reports to provide positive reinforcement of safe driving behaviours. IVMS reports also assist in identifying at-risk behaviours which may warrant education, coaching or disciplinary action. Deviations from pre-determined IVMS parameters should be investigated prior to applying disciplinary action as false recordings may occur (e.g. as the result of damage, incorrect geo-fencing, etc.).

## 3. RESPONSIBILITIES

The WHSE Manager is responsible for ensuring this procedure is followed and audited.

## 4. REFERENCES

### 4.1 Governing Documents

This Procedure is governed by the following reference documents –

- MR-PS-001            Motor Vehicle Policy
- MR-PP-001            Light Vehicle Procedure

### 4.2 Reference Documents

This Procedure should be read in conjunction with the following reference documents –

- MR-PF-014            IVMS – Driver Commitment Form
- MR-PF-015            IVMS – Driver Coaching Form
- MR-PF-016            IVMS – Weekly Driver Safety Form
- MR-PP-030            HVNL Mass Management Verification

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## 5. STANDARD

### 5.1 How the System Works

In-vehicle monitoring systems (IVMS) refer to electronic devices that record data about a driver's behavior and vehicle use, such as date, time, speed, acceleration, deceleration, and safety belt use. The system monitors the information electronically and information is transmitted real time via the mobile telephone network and recorded. If outside mobile range the system will record the information and download data when in phone range.

If the IVMS fails to meet any of the standards and capabilities, the deficiency must be treated as a deviation from this standard and the equipment may be declined from use on site or operating parameters reduced until compliance is met.

### 5.2 Mobilisation, Fitment and Maintenance

The IVMS unit must be permanently and securely fixed to the vehicle before use on any Martinus site or operation.

A portable IVMS (Geotab GO9 or other industry excepted) solution may be used in the short-term (up to a period of three months) with a prior written authorisation through the Fleet Manager, Health and Safety Manager or delegate.

Those vehicles which do not require IVMS must meet one of the following criteria:

- Vehicles restricted to travelling at a speed no greater than 16km/h.
- Mobile cranes, forklifts, high-rail excavators, graders, off-road haul trucks (Moxy), loaders, rollers and other equipment which does not operate in the same capacity as a motor vehicle (i.e., transportation of equipment or personnel).
- Vehicles not intended to be on a project for more than 30 days (contract duration). Such vehicles must have a thorough and robust risk management process to address motor vehicle safety.
- Dedicated special emergency response vehicles, including ambulances and fire/emergency response trucks, unless the vehicle has a dual purpose (e.g., used for quick response and general work).

All IVMS installation, repairs and recovery activities must be performed by an appropriately trained and authorised person. Records relating to the installation and certification of the IVMS unit must be maintained by the IVMS owner and provider.

### 5.3 Capability and What the System Monitors

The system monitors the following information:

- Vehicle's GPS location communicated by mobile phone network
- Date and time data
- Driver of the vehicle at any given time
- Travel data
- Vehicle idle time – for a vehicle maintaining a stationary position
- Driver and passenger seatbelt engaged
- Acceleration and deceleration events

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The In-Vehicle Monitoring System unit must be able to monitor as a minimum:

Requirement
Tracking of GPS location and routes communicated by Next G coverage or satellite.
Date and time data (from start to end journey)
Driver ID of the vehicle at any given time
Vehicle Speed in Kilometers per hour
Number of Kilometers Driven per vehicle
Travel route data
Vehicle Idle Time
Driver and passenger seat belt engaged
Harsh acceleration & Harsh braking events
Possible Rollover or Collision events
Identification Details – Vehicle ID, time, date location, event type
Geo-fenced operational limits
Posted speed limits and road works
4WD engaged (if fitted)
User access to the system platform via Laptop or Mobile Application
Display or report on current or historical data
The recordings of the IVMS equipment immediately before and after an incident took place
Disconnection/Tampering with Fitted IVMS Devices reporting capabilities

The In-Vehicle Monitoring System unit must be capable of meeting or exceeding:

Requirement
Tracking the current location of the vehicle online (on-screen) 24 hours – 7 days a week by means of Next G or satellite.
Whenever the ignition is on - storing IVMS data on the IVU every 200 seconds (maximum time), or at every vehicle 'event' – whichever is the lesser. 'Storing' does not include transmitting IVMS data.
Receiving and applying geofence information as supplied.
Retaining a minimum of one year's data from the entire fleet on a server. Data is recoverable and capable of being presented in a suitable format to support reporting and investigation purposes.
Performing weekly IVMS health checks to identify disconnections and faulty units
Processing events and exceptions based on geofence settings.
Display historical and active (real time) tracking of a vehicle's trip history.
Uploading trip data at the end of each trip including exceptions occurred during each trip.
Transmitting data via Next G or satellite communications (where installed) on critical events – including rollover, duress and impact events. Data includes the vehicle's longitude, latitude and identification details.

Information pertaining to both the driver and vehicle must be recorded in the following format:

#### Minimum Driver Information

Detail	Format	Example
Full Name	Text	Surname, First Name
Company	Text	Martinus Rail Pty Ltd
Date	Number	DD/MM/YYYY
Drivers License Number/state/expiry	Text, Number and Image	12345678, QLD, DD/MM/YYYY
Phone Number	Number	04XX XXX XXX
IVMS Fob Number	Text, Number	ABCDEF

#### Minimum Vehicle Information

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Detail	Format	Example
Vehicle Registration	Text, Number	ABC123
Vehicle Make and Model	Text	Toyota Hilux
Vehicle Company Owner	Text	Martinus Rail Pty Ltd
Vehicle Category	Text	LV, HV, Bus
Vehicle VIN number	Text, Number	AB12CDE345FG
Device Serial Number	Text, Number	AB12CD

#### 5.4 IVMS Settings, Exceptions and Reporting

Martinus has endorsed the following speed settings for all vehicles within the fleet:

- Unsealed roads – maximum 80km/h, unless a lower speed is signposted; and
- Sealed roads – as signposted

When a vehicle is driven outside the IVMS set parameters/ rules this is called an exception event. Exception events are recorded and reported in the system. There are two types of exception events that are reported:

- Category 1 – Considered a minor safety breach
- Category 2 – Considered a major safety breach

The IVMS system monitors driver's behavior and records his or her exception events. Reports will be generated every month. For Category 2 exception events the IVMS system administrator will receive immediate email notification.

The In-Vehicle Monitoring System must be capable of monitoring and reporting on the following exception events/rules:

Exception	Exception Parameter
Exceeding speed limit – Geo-Fenced Area	>5 <=10kph for > 15 sec (Reportable Event – Category 1) >10 <=15kph - instantaneous (Reportable Event – Category 2) >15Kph - instantaneous (Reportable Event – Category 3)
Exceeding speed limit - outside geo-fenced area	>10 kph posted speed limit for 15 sec >110 kph (Audible Alert in vehicle) >115 <=120 kph for > 15 sec (Reportable Event – Category 1) >120 kph instantaneous (Reportable Event – Category 2)
Drive without seatbelt	Any motion >5kph for > 5 sec
Harsh braking	>12kph/sec (Event) – LIGHT VEHICLE > 0.40g (Event) – HEAVY VEHICLE
Harsh acceleration	12kph/sec (Event) – LIGHT VEHICLE > 0.40g (Event) – HEAVY VEHICLE
Excessive idle	Vehicle stationary and idle for >3 minutes
Fatigue/Journey management	1hr 45min continuous driving (Audible Alert in vehicle) >2hrs without a15 mins (continuous) break by individual (Event)
Unauthorised Device Removal	Alert any time power connection to the device occurs.

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Capability to provide in-vehicle audible alarms is optional but is considered as a preferred tool to assist with managing driver behaviours.

IVMS must be able to generate as a minimum, the following reports for a specified date range:

1. Exceptions report by driver, driver group, type of exception with the relevant details and location,
2. Kilometres driven by:
3. Driver ID
4. Business or Business Unit
5. Vehicle ID
6. A driver scoring report which provides data on the driver's performance.
7. Vehicle utilisation report
8. Out-of-hours driving report (for set timeframes)
9. Unit health check report/download status
10. Battery disconnection/tampering by driver
11. Spare or Temporary IVMS keys usage by vehicle and project business unit

The system must be able to generate daily, weekly, and monthly reports and ad-hoc reports as required (for incident investigation). The system must also provide instant notifications of particular IVMS events as specified by Martinus from time to time.

Upon request, Contractors must allow the relevant Martinus Representative access to all IVMS data relating to driving activities undertaken for or on behalf of Martinus. Requests may require the provision of data in raw form or post-analysis.

#### 5.4.1 Driver coaching

If drivers are identified as exhibiting risky driving behaviors they will be required to undertake a coaching session delivered by their supervisor/ manager. Form MR-WF-080 shall be used to record this session. The following parameters will determine the need for a driver to undertake a coaching session.

- Four Category 1 exception events per calendar month
- One Category 2 exception event

Table 1 over page details the Exception Rule Parameters.

Exception Event Category	Exception Rule Parameter
Exceeding speed limit (geo fenced area eg. Work sites)	<ul style="list-style-type: none"> <li>• &gt;10kph <b>(Reportable Event – Category 1)</b></li> </ul>
Exceeding speed limit (outside geo-fenced area)	<ul style="list-style-type: none"> <li>• &gt;10 kph &gt; 20 sec over posted speed 2limit <b>(Reportable Event – Category 1)</b></li> <li>• &gt;125 kph &gt; 5 sec <b>(Reportable Event – Category 2)</b></li> </ul>
Drive without seatbelt	<ul style="list-style-type: none"> <li>• Any motion &gt;10kph and belt not fastened <b>(Reportable Event – Category 2)</b></li> </ul>
Harsh braking	<ul style="list-style-type: none"> <li>• &gt; -0.47g – LIGHT VEHICLE <b>(Reportable Event – Category 1)</b></li> </ul>
Harsh acceleration	<ul style="list-style-type: none"> <li>• &gt; 0.43g – LIGHT VEHICLE <b>(Reportable Event – Category 1)</b></li> <li>• &gt; 0.29g – HEAVY VEHICLE <b>(Reportable Event – Category 1)</b></li> </ul>

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Journey Fatigue Management	<ul style="list-style-type: none"> <li>&gt; 2hrs continuous driving by an individual <b>(Reportable Event – Category 1)</b></li> </ul>
Excessive engine idling	<ul style="list-style-type: none"> <li>&gt; 8 minutes <b>(Reportable Event – Category 1)</b></li> </ul>

*Table 1: Exception events and parameters*

#### 5.4.2 Before Driving a Martinus Vehicle Fitted with IVMS

Before driving a vehicle fitted with IVMS drivers must undertake the following tasks:

- Read policy MR-PS-001 Motor Vehicle Policy and undertake pre-driving check as stipulated therein
- Read this IVMS Procedure
- Read and sign IVMS driver commitment form (MR-PF-014) with their supervisor
- Receive and sign for your driver fob for the IVMS system
- Swipe your fob prior to starting the vehicle every trip

#### 5.4.3 In-Vehicle Driver Feedback

The IVMS system has been enabled to give drivers instant feedback that certain types of exception events have been recorded. The in-vehicle unit will beep providing a reference to assist drivers in modifying their driving behavior. Refer to Table 2 over page. Note that not all exception events will have in-vehicle driver notifications.

IVMS DRIVER NOTIFICATION		
Exception Event	Parameter	Notification
Harsh Braking	Least sensitive (-0.61 G)	Beep three times rapidly
Harsh Acceleration	Least sensitive (0.43 G)	Beep three times rapidly
Harsh Cornering	Least sensitive (0.47 G)	Beep three times rapidly
Fatigue – Driving > 2hrs 15 mins	Duration 2 .15 hrs Driving + Ignition	Beep ten times rapidly

*Table 2 – IVMS Driver Notifications*

### 5.5 Driver Responsibilities

The primary goal of the IVMS system is to reduce motor vehicle accidents and improve safety for all road users. Drivers must drive vehicles within the parameters set within the IVMS system (refer Table 1) and in accordance with both the MR-PS-001 Motor Vehicle Policy and MR-PP-001 Light Vehicle Procedure.

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Vehicle usage will be monitored and reported monthly. Drivers consistently exhibiting risky driving behaviors will receive notification of the exception event types times and dates. They will then be required to complete an IVMS Driver Coaching Form (MR-PF-015) under the guidance of their immediate supervisor. Driver exception events will be treated on a case-by-case basis by supervisors. However, a driver's failure to address and improve risky driving behavior may result in disciplinary action being taken.

Drivers must only use the fob that has been issued to them. Fob owners loaning fobs to unauthorised drivers will be liable for risky driving behaviors recorded against that fob.

A daily use pre-start inspection should be conducted before use of the vehicle and the driver must use their own issued PID to sign into the IVMS for identification and monitoring purposes.

## 6. PERSONNEL IDENTIFICATION DEVICE (PID)

All drivers are responsible for the security of their IVMS PID. If a PID is lost, the driver shall immediately report the matter to the Plant Department or Health and Safety Department.

Drivers shall not give their IVMS PID to any other person for the purpose of starting a vehicle. Failure to comply may result in disciplinary action, including possible loss of driving privileges.

Driver shall not provide their PID to service personnel for the purpose of repairs and maintenance. Nominated service personnel shall have an IVMS PID for this purpose.

Drivers shall not leave the IVMS PID in an unattended vehicle.

PID is issued to an individual and is not to be used by others for any reason.

Drivers shall not start more than one (1) vehicle at a time using their IVMS PID.

The Plant Department or Safety Team will manage PID (FOB) issue for all employees and sub-contractors.

## 7. DEMOBILISATION OF VEHICLES & IVMS/PID

Prior to the demobilisation of a vehicle installed with IVMS from a project or the Martinus vehicle pool fleet, the vehicle owner (either sub-contractor or Martinus) shall consult with the Plant Department or Safety Team and make the necessary arrangements to remove IVMS unit from the reporting/monitoring systems. The unit will be either held in stores or re-installed to another vehicle and the IVMS unit reference/serial number will need to be updated in the IVMS system to reflect any changes.

Where Martinus issued IVMS PID keys to an employee or sub-contractor are no longer required, must be returned to Martinus Plant Department or Health and Safety Department prior to leaving site.

## 8. REVIEW

This Procedure shall be reviewed as per review dates shown on the Document Register (MR-IR-001). Other events that can initiate a review either within or outside this time frame include Legislative changes, outcomes from Safety or Quality incidents and general direction changes in Policy.

## 9. APPENDIX

Nil