GRAPHICAL INSTRUMENT CLUSTER

OPERATION MANUAL

VDC00463

TIFFIN, LEVELING, 12.3" DISPLAY, AIR ONLY

Valid MANUFACTURING Ltd.
Advanced technology... Simple solutions.

Rev - 20-Apr-20 MW

CONTENTS

SAFETY INSTRUCTIONS

Warning

- Driving while distracted can result in loss of vehicle control.
- Do not make adjustments in the selectable display on the graphical instrument cluster under conditions that will affect your safety or the safety of others.

Caution

- Your graphical instrument cluster system should be serviced only by qualified personnel.

OVERVIEW

The Graphical Instrument Cluster (GIC) is a display device that communicates electronically with multiple pieces of equipment on the coach.

To familiarize yourself with the indicators and gauges, refer to the quick reference guide on pages 6 and 8.

The display will automatically dim for nighttime driving when the headlights are activated.

Selectable displays within the speedometer and tachometer gauges provide a menu system which is navigated by rotating and pressing a joystick knob. Refer to page 33 for the menu selections:

- Speedometer
- Display brightness
- Pre-drive item reminders
- Selectable gauges
- Tire pressure and temperature for coach & trailer
- Trip 1 and Trip 2
- Leveling (if equipped)
- Adaptable Cruise Control (if equipped)

With the coach stopped and the park brake applied, the <Settings> menu also provides the following items:

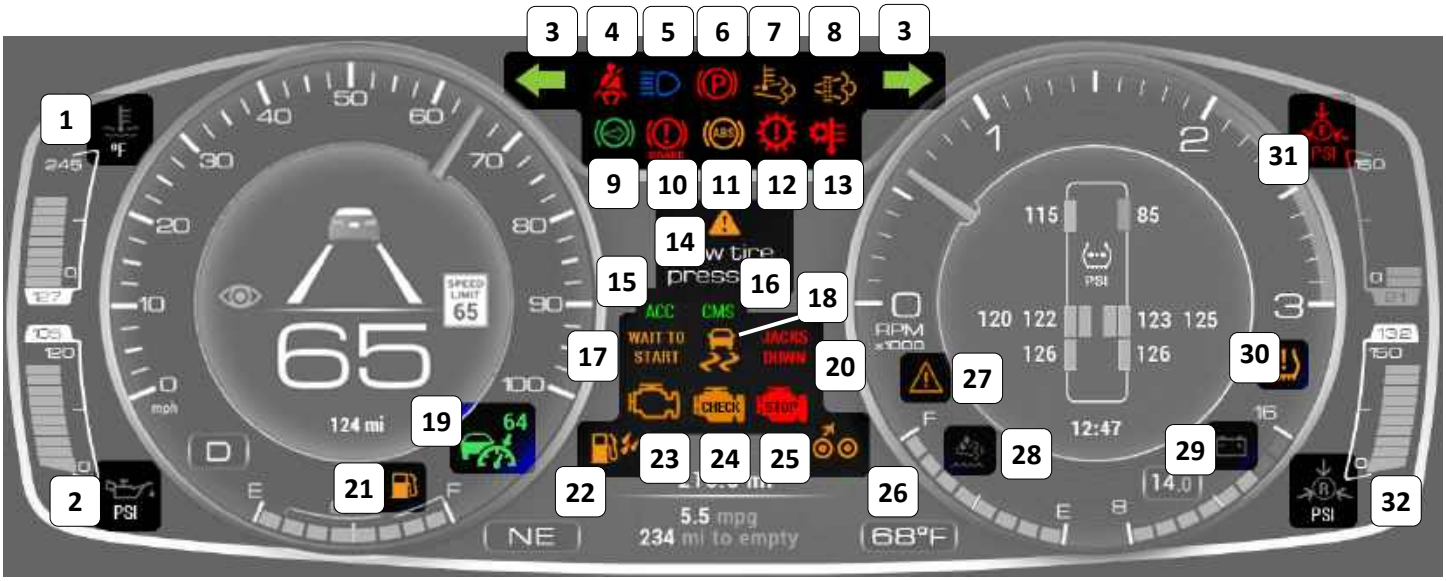
- Choice of towable trailer/vehicle for the tire pressure monitoring system (TPMS).
- Sound volume for alerts.
- Measurement units for speed/distance, temperature and pressure.
- Background image and brightness.
- Graphics scheme.
- Gauge needle color.
- Vertical position of screen display.
- Diagnostics for system, onboard diagnostics (OBD) and controller area network (CAN-Bus).

Cleaning your GIC screen

The glass on the GIC screen is treated with an optical coating to prevent glare and reflection. It should be cleaned with a product that is designed for this, such as the optical wipes included with the screen, or optical cleaner and a microfiber cloth.

WARNING: *The screen surface can be damaged if not treated with care.*

INDICATOR QUICK REFERENCE



ID	Symbol	Description	Page
1		High Engine Coolant Temp	10
2		Low Engine Oil Pressure	10
3		Left, Right Turn Signal	10
4		Seat Belt	10
5		Headlights High Beam	10
6		Park Brake On	10
7		High Exhaust Temperature	10
8		Diesel Particulate Filter	11
9		Engine Brake	11
10	BRAKE	Electronic Brake Controller	11
11		Anti-Lock Brake System	11
12		Check Transmission	11
13		High Transmission Oil Temp	12
14		Info, Caution or Critical Alarm	12
15	ACC	Adaptive Cruise Control	12

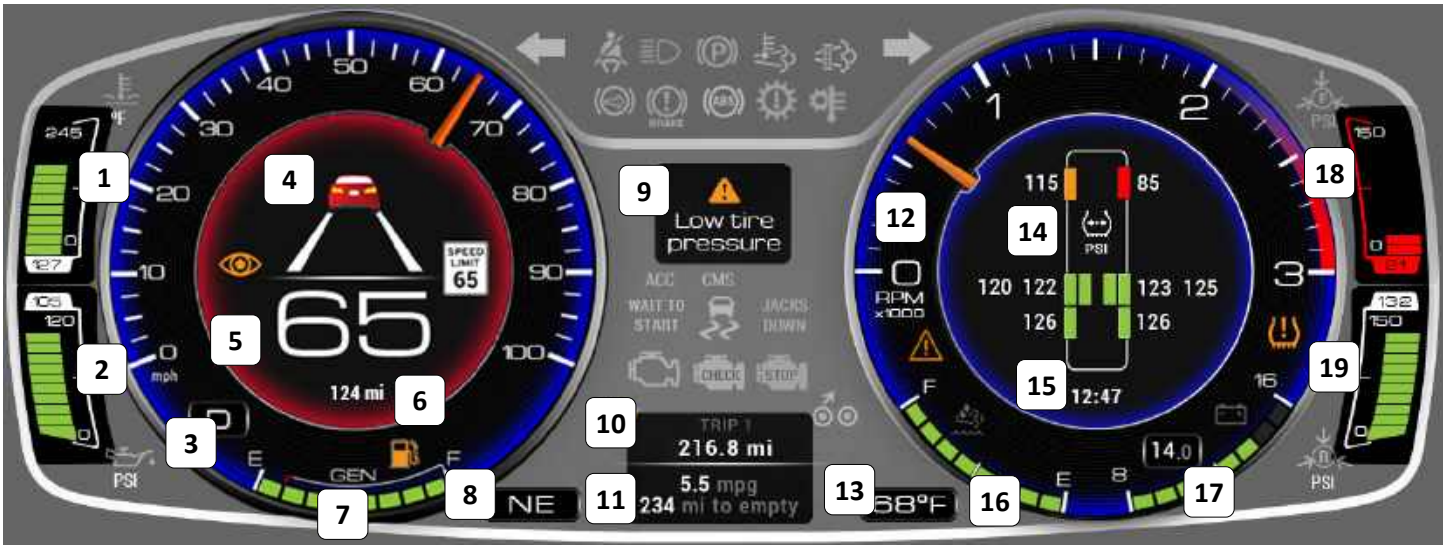
ID	Symbol	Description	Page
16	CMS	Collision Mitigation System	12
17	WAIT TO START	Wait to Start	12
18		Automatic Traction Control	12
19		Cruise Control	12
20	JACKS DOWN	Jacks Down	12
21		Low Fuel	12
22		Water in Fuel	12
23		Malfunction Indicator	12
24	CHECK	Check Engine	12
25	STOP	Stop Engine	12
26		Tag Axle Dumped	12
27		DM1 Fault	13
28		Low Diesel Exhaust Fluid	13
29		Low Battery	13
30		Low Tire Pressure	13

INDICATOR QUICK REFERENCE

ID	Symbol	Description	Page
31		Low Secondary (Front) Tank Air Pressure	13

ID	Symbol	Description	Page
32		Low Primary (Rear) Tank Air Pressure	13

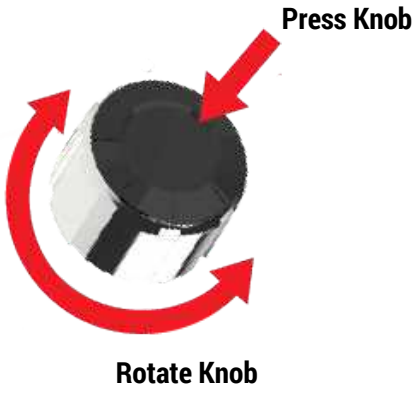
GAUGE QUICK REFERENCE



ID	Description	Page #
1	Engine coolant temperature	14
2	Engine oil pressure	14
3	Current gear	14
4	Mobileye®/Collision Mitigation System	
5	Speedometer	14
6	Odometer	14
7	Fuel level	15
8	Compass	17
9	Message center	15
10	Trip meter	16
11	Fuel economy	16
12	Tachometer	16
13	Outside temperature	17
14	Informational display - selectable	18
15	Time	17
16	Diesel exhaust fluid (DEF) level	16
17	Chassis battery voltage level	17
18	Front air tank pressure	17
19	Rear air tank pressure	17

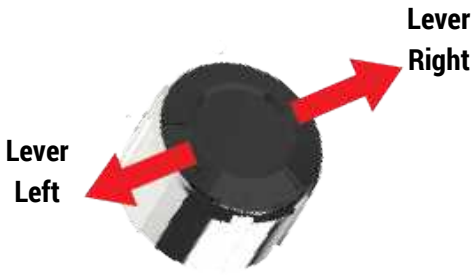
Joystick Knob

The joystick knob is connected directly to the GIC and is primarily used to navigate the selectable display by **rotating** the knob to scroll the menu or view and **pressing** to select that item (refer to page 18).



In addition to being pressed or rotated, the top can be levered sideways to the left or right.

Unless your vehicle is equipped with Mobileye® or CMS, it is possible to toggle between the selectable displays for the speedometer and tachometer using the lever action.



INDICATORS

ID	Indicator	Name	Description
1		High Engine Coolant Temp	A high engine coolant temperature may indicate that your engine is overheating or that you could be losing coolant. Seek service.
2		Low Engine Oil Pressure	Low engine oil pressure can cause engine damage. Stop driving and seek service at the first opportunity.
3		Left, Right Turn Signals	Displays when the left or right turn signal is activated. Both left and right indicators display when Hazard Flasher activated.
4		Seat Belt	After ignition, the seat belt light will flash momentarily.
5		Headlights High Beam	Headlights are in high beam mode.
6		Park Brake On	The park brake is applied.
7		High Exhaust System Temperature (HEST)	Indicates that high exhaust temperatures may exist due to active regeneration (soot burn-off) in the diesel particulate filter (DPF). This is normal and does not signify the need for any kind of vehicle or engine service. When this lamp is illuminated, ensure that the exhaust pipe outlet is not directed at any combustible surface or material.

(Continued on next page)

INDICATORS

<table>
<tr><th>ID</th><th>Indicator</th><th>Name</th><th>Description</th></tr>
<tr><td>8</td><td>  </td><td>Diesel Particulate Filter (DPF)</td><td>
The exhaust diesel particulate filter (DPF) has excessive soot levels and requires passive or active regeneration (regen) to burn off the soot to prevent a clogged filter.
Passive regeneration occurs when the vehicle is driven at a challenging duty cycle, such as highway driving for at least 20 minutes, to increase exhaust temperatures.
Active regeneration supplements soot burn-off by injecting diesel fuel to increase exhaust temperature.
<table>
<tr><th colspan="3">INDICATORS</th><th rowspan="2">Soot Level</th><th rowspan="2">Action Required</th></tr>
<tr><th>DPF  </th><th>Check Engine  </th><th>Stop Engine  </th></tr>
<tr><td>Solid</td><td>-</td><td>-</td><td>Low</td><td rowspan="2">Provide regen opportunity:
➢ Alter duty cycle.
➢ Initiate a parked manual regen.</td></tr>
<tr><td>Flashing</td><td>-</td><td>-</td><td>Medium</td></tr>
<tr><td>Flashing</td><td>Solid</td><td>-</td><td>High</td><td>Provide regen opportunity:
➢ Initiate a parked manual regen.
➢ Seek service.</td></tr>
<tr><td>-</td><td>-</td><td>Solid</td><td>Extreme</td><td>➢ Stop engine at earliest opportunity.
➢ Seek service.</td></tr>
</table>
</td></tr>
<tr><td>9</td><td>  </td><td>Engine Brake</td><td>The vehicle’s engine exhaust brake system is enabled. The exhaust brake is more effective in the lower gears and at higher engine speeds.</td></tr>
<tr><td>10</td><td>  </td><td>Electronic Brake Controller</td><td>The Electronic Brake Controller has detected a fault.</td></tr>
<tr><td>11</td><td>  </td><td>Anti-lock Brake System</td><td>The electronic brake controller has detected a fault with the anti-lock brake system (ABS) and has disabled this feature.</td></tr>
<tr><td>12</td><td>  </td><td>Check Transmission</td><td>Transmission over temp / Check transmission.</td></tr>
</table>

INDICATORS

ID	Indicator	Name	Description
13		High Transmission Oil Temp	Indicates that the engine oil temperature is higher than the warning level threshold.
14		Info Alarm	Refer to page 27 for a list of INFORMATION alarms.
		Caution Alarm	Refer to page 28 for a list of CAUTION alarms.
		Critical Alarm	Refer to page 31 for a list of CRITICAL alarms.
15		ACC Mode	Adaptive Cruise Control Mode (green=active; amber=available or disabled; red=error). See page 21 for more information.
16		CMS Mode	Collision Mitigation System Mode (green=active; amber=available or disabled; red=error). See page 23 for more information.
17		Wait to Start	The vehicle's glow plugs must heat up before the vehicle is started. This indicator will remain lit until the glow plugs are ready (approximately 15 seconds, or longer in colder weather). Once the indicator is off, the vehicle can be started.
18		Automatic Traction Control	The electronic brake controller (EBC) has detected a fault with the automatic traction control (ATC) and has disabled this feature.
19		Cruise Control	Cruise control is active – a fixed vehicle speed is set by the operator.
20		Jacks Down	If any of the hydraulic jacks are not fully stowed (no matter what gear the vehicle is in), this indicator will be displayed along with a critical alarm message.
21		Low Fuel	Fuel level is below the low fuel threshold.
22		Water in Fuel	Water has been detected in the fuel supply.
23		Malfunction Indicator	Malfunction related to the emissions control system. The after-treatment system should be diagnosed and serviced at your next available opportunity.
24		Check Engine	Scheduled maintenance due. It will flash for 30 seconds after engine ignition and remain illuminated, indicating that the engine needs service at the first available opportunity.
25		Stop Engine	The vehicle must be stopped as soon as it is safe to do so.
26		Tag Axle Dumped	Tag axle weight has been reduced.

INDICATORS

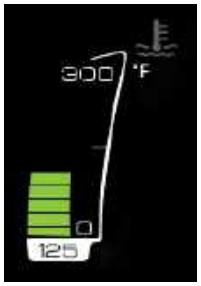
<table>
<tr><th>ID</th><th>Indicator</th><th>Name</th><th>Description</th></tr>
<tr><td>27</td><td>  </td><td>DM1 Fault</td><td colspan="3">Indicates an active diagnostic trouble code.</td></tr>
<tr><td rowspan="5">28</td><td rowspan="5">  </td><td rowspan="5">Low Diesel Exhaust Fluid</td><td colspan="3">This symbol indicates that the diesel exhaust fluid (DEF) is low. The fluid creates a catalytic reaction that removes particles from the exhaust. When low, the fluid must be topped up.</td></tr>
<tr><td colspan="3">INDICATORS</td><td colspan="2"></td></tr>
<tr><td>DEF
  </td><td>Check Engine
  </td><td>Stop Engine
  </td><td>Fluid Level</td><td>Action Required</td></tr>
<tr><td>Solid</td><td>-</td><td>-</td><td>Low</td><td rowspan="2">Refill the diesel exhaust fluid (DEF) tank.</td></tr>
<tr><td>Flashing</td><td>-</td><td>-</td><td>Critical</td></tr>
<tr><td>Flashing</td><td>Solid</td><td>-</td><td>Critically Low</td><td>Engine power loss will occur. This will be restored after refilling the DEF tank.</td></tr>
<tr><td>Flashing</td><td>Solid</td><td>Solid</td><td>Empty</td><td>The vehicle will be limited to a speed of 5 mph (8 km/h). Normal engine power and vehicle speed will be restored after refilling the DEF tank.</td></tr>
<tr><td>29</td><td>  </td><td>Low Battery</td><td colspan="3">The battery indicator turns red when the voltage goes below a set level.</td></tr>
<tr><td>30</td><td>  </td><td>Low Tire Pressure</td><td colspan="3">The tire pressure monitoring system (TPMS) has indicated there is a tire with low pressure.
Rotate the joystick knob to view coach and trailer tire pressure screens on the selectable display. Press the knob to switch between tire pressure and tire temperature.</td></tr>
<tr><td>31</td><td>  </td><td>Low Secondary (Front) Tank Air Pressure</td><td colspan="3">Pressure in the front (secondary) air tank is low.</td></tr>
<tr><td>32</td><td>  </td><td>Low Primary (Rear) Tank Air Pressure</td><td colspan="3">Pressure in the rear (primary) air tank is low.</td></tr>
</table>

MAIN GAUGES

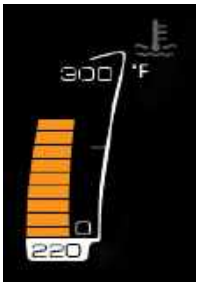
Engine Coolant Temperature

This gauge measures the temperature of the engine coolant fluid.

The message center will display a warning and sound an alert when the temperature is higher than the red warning level.



Green - Normal



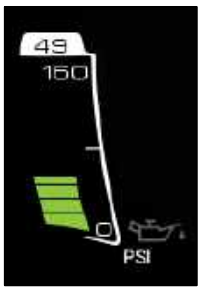
Orange - High

Red - Warning

Engine Oil Pressure

This gauge measures the pressure of the engine oil, which is required to ensure efficient lubrication of the internal engine parts. The oil pressure will increase as the engine RPM is increased from idle to normal driving speed. An oil pressure warning is an indication to seek service at the earliest opportunity.

The message center will display a warning and sound an alert when the pressure is less than the red warning level.



Green - Normal

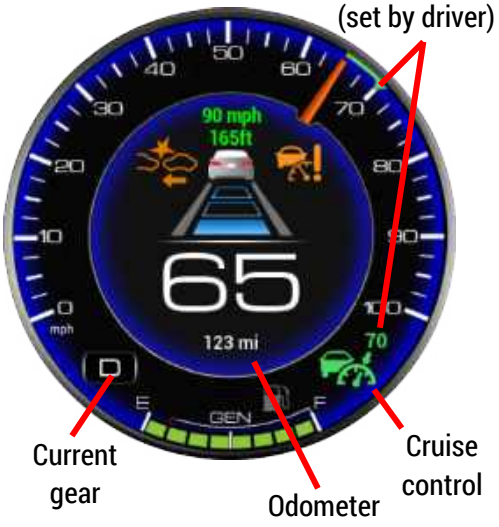
Speedometer

The speedometer displays the speed of the vehicle in miles or kilometers per hour, both with a needle and as a digital readout.

Also found on the speedometer is the fuel gauge, generator gauge, cruise control indicator, current gear, and odometer.

With the coach stopped and the park brake applied, you can change the display units between miles and kilometers with the Selectable Display selection *Settings > Units > Speed / Dist*.

The color of the gauge needle can be configured in *Settings > Needle Color*.



Note: The center display may not appear as shown, depending on how your vehicle is equipped.

Cruise Control

The Cruise Control indicator is gray when the feature is enabled. It is green when the feature is active and a fixed vehicle speed has been set by the operator.

Odometer

The odometer displays the lifetime mileage of the vehicle from when it was manufactured.

Fuel Level – Engine & Generator

The fuel level is displayed at the bottom of the speedometer. When fuel falls below the factory programmed low level, the fuel indicator will turn red and an alert will sound. The generator gauge is a static gauge that indicates the point at which the generator will run out of fuel.

The GIC is connected directly to the fuel tank level sender. Provided the chassis battery level is greater than the factory-configured 'Power Off' level, it continues to send fuel level messages over the RV-C network with the ignition off. This allows the fuel level to be viewed on the Coach Management System for operation of the coach generator.

Note that the generator will run out of fuel before the engine does. As indicated on the gauge, the generator will stop running while there is still an eighth of a tank of fuel left. This provides the operator with the opportunity to drive to a fuelling station.

Fuel level normal

Fuel level low – generator will run out of fuel

Message Center

The message center is between the speedometer and the tachometer. During normal operation, this area displays the vehicle logo. When necessary, the message area shows three categories of alarms:

INFORMATION: These relate to normal operation of the coach. Refer to page 27.

CAUTION: These indicate items which require your attention. Refer to page 28. A chime may also sound when an alarm occurs.

CRITICAL: These indicate items which require your immediate attention. Refer to page 31. A chime may also sound when an alarm occurs.

When an alarm occurs, it is immediately displayed. After a short delay, the display will then continue to cycle through each active alarm.

Trip Meter/Fuel Economy

Trip 1 or Trip 2 are items in the Selectable Display. Rotate the knob to display the item. Press the knob to switch between Trip 1 and Trip 2. Hold the knob to reset. Refer to the menu map on page 33.

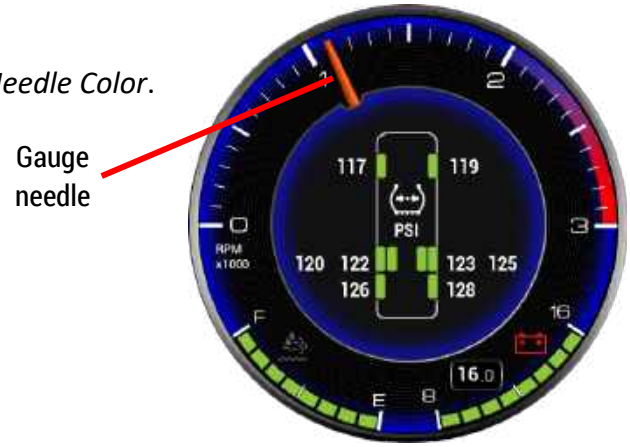
The average fuel economy and distance to empty can be configured in miles or kilometers. This changes the display between miles per gallon / miles and liters per 100 kilometers / kilometers. Refer to the menu map: *Settings > Units > Speed / Dist*.

Average fuel economy
Distance to empty

Tachometer

The gauge displays engine revolutions per minute (RPM).

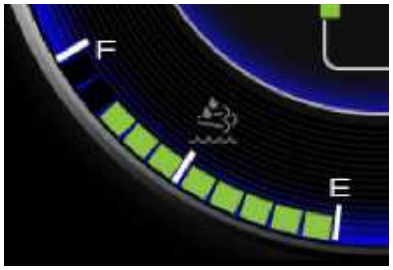
The color of the gauge needle can be configured in *Settings > Needle Color*.



Diesel Exhaust Fluid (DEF) Level

The diesel exhaust fluid (DEF) level is displayed on the lower left of the tachometer. When the DEF level falls below the factory-programmed low level, the DEF indicator will turn amber and an alert will sound.

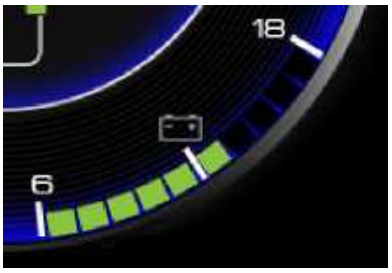
The low Diesel Exhaust Fluid (DEF) indicator is illuminated by a message from the engine controller. It has four low level thresholds which determine if the DEF indicator is solid or flashing. Refer to the description on page 13.



Chassis Battery Voltage

This gauge measures the chassis batteries, which are used when driving the coach; for example, starting the engine.

When the voltage falls below 11.5V, the battery indicator will turn red and an alert will sound.

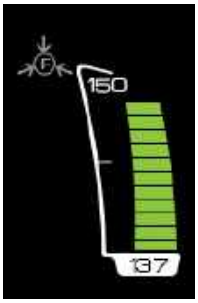


Front and Rear Air Tank Pressure

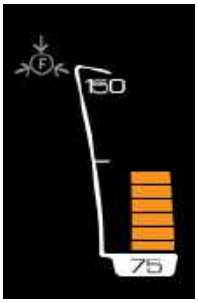
The bar gauge color on the front and rear air pressure gauges indicates the following levels:

- Green is normal.
- Orange is slightly low.
- Red is critically low. A warning sound will also occur.

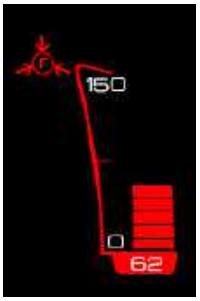
The front air pressure gauge is shown; however, the levels are the same for the rear air pressure gauge.



Green - High



Orange - Low



Red - Warning

Compass

The compass displays the direction in which the vehicle is heading.

Outside Temperature

The outside temperature is displayed according to data collected by either RVC (Spyder) or the engine ECU. Units can be changed from Fahrenheit to Celsius in the Settings menu (see page 34).

Time

The time is displayed in the selectable display area of the tachometer.

SELECTABLE DISPLAY

The center of the tachometer can display a variety of information as desired by the user. This information can be selected with the use of the joystick knob. Rotate the knob clockwise and counter-clockwise to scroll up and down the menu items. Press the top button to select that menu item.

Press knob to make selection

Rotate knob to scroll up and down

The following information is available:

- Trip information (Trip 1, Trip 2, fuel economy)
- TPMS (Tire Pressure Monitoring System)
- TPMS Trailer (if enabled)
- Information Gauges
- Leveling
- Pre-Drive List
- Adaptive Cruise Control (if equipped)
- Brightness
- Settings

Refer to the menu maps on pages 33 & 35 for all available menu options.

Trip 1, Trip 2 and Fuel Economy

The fuel economy is calculated by the engine controller. 'Inst. Economy' is the instantaneous fuel economy of the vehicle. For example, when driving uphill, a higher value will be displayed than when driving downhill.

Press knob to toggle between Trip 1 & Trip 2

Note: Refer to page 16 for information on the the average fuel economy display.

With the coach stopped and the park brake applied, you can also change the display units between miles and kilometers with the Selectable Display selection *Settings > Units > Speed / Dist*.

Note: With miles selected, fuel information displayed in US gallons and miles per gallon. With kilometers selected, fuel information is displayed in liters and in liters per 100 kilometers.

TPMS (Tire Pressure Monitoring System)

Tire Pressure is an item in the Selectable Display. Rotate the knob to display the item. Press the button to toggle between tire pressure and tire temperature.

If the GIC has been configured for towing a trailer (see page 37), the trailer tire pressure is also available in the Selectable Display. Rotate the knob to display the item.

To view TPMS information, hold the rotary knob for 5 seconds to display the TPMS information screen. Refer to page 36 for more information.

SELECTABLE DISPLAY

The status of each tire is represented by a color.

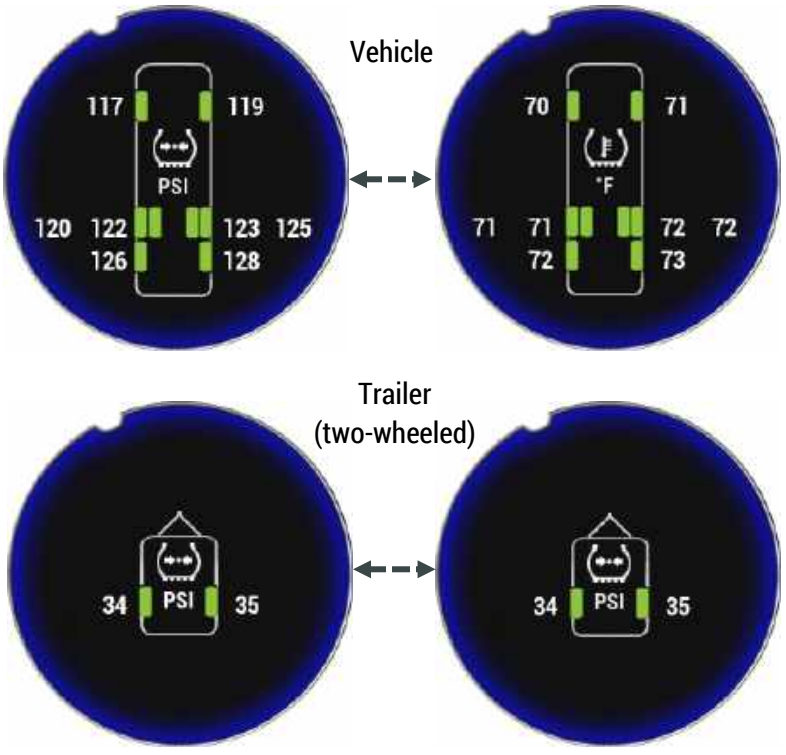
Pressure

- Critical High: (Red)
- Normal : (Green)
- Warning Low: (Orange)
- Critical Low: (Red)

Temperature

- High : (Red)
- Normal: (Green)

The thresholds for pressure and temperature are set at the factory. However, the pressure thresholds are around the 'normal' pressure which is established when the pressure sensor is screwed onto the tire valve.



Press knob to toggle between pressure and temperature

Information Gauges

Information gauges do **not** have any warning threshold levels**.**

You may choose to display a single gauge, or select the <Scan> item to continuously scan through each gauge every five seconds. Scan mode is indicated by the symbol:

Gauge	Description
Accelerator Position	Displays the position of the accelerator foot pedal. 100% is fully depressed.
Engine Load	At any given speed the engine has a maximum torque rating. Engine load is the current output torque as a ratio of this maximum torque.
Transmission Shaft Speed	Displays the revolutions-per-minute (rpm) of the transmission shaft (drive shaft) which is the output of the transmission (gearbox). Note: The tachometer (refer to page 16) displays engine drive shaft RPM, which is the input to the transmission (gearbox). The difference relates to the current gear selection.

SELECTABLE DISPLAY

Gauge	Description
DEF Temperature	Displays the temperature of the fluid in the Diesel Exhaust Fluid (DEF) tank. During vehicle operation, Selective Catalytic Reduction (SCR) systems are designed to provide heating for the Diesel Exhaust Fluid (DEF) tank and supply lines. If DEF freezes when the vehicle is shut down, startup and normal operation of the vehicle will not be inhibited. The SCR heating system is designed to quickly return the DEF to liquid form and the operation of the vehicle will not be impacted. The freezing and unthawing of DEF will not cause degradation of the product.
Transmission Temperature	Displays the transmission oil temperature.
House Batteries	The house batteries provide power to interior lights and appliances, thermostats, water pump, etc. They are charged by the engine alternator, generator or shore power. Refer to page 17 for information on the chassis battery gauge.
Generator	Indicates whether the generator is running, and/or other status information.
Inverter Status	Provides the status of the inverter.
Engine Coolant Temperature	Displays the temperature of the engine coolant fluid.
Engine Oil Pressure	Displays the pressure of the engine oil, which is required to lubricate the internal engine parts.

Leveling

Leveling allows you to control the air suspension for ride control when traveling, and for leveling when stationary.

In Auto mode, the vehicle can be automatically leveled while stationary. This mode is the easiest leveling method to use and is suitable for most leveling situations.

Travel mode is operational when the vehicle is in motion. By default, this mode will initiate when the park brake is released, or when the vehicle begins moving. However, it is best for the operator to enter this mode before the vehicle begins moving.

Refer to page 24, Leveling, for more information on using these features.

SELECTABLE DISPLAY

Pre-Drive

Pre-Drive is an item in the Selectable Display. Use the knob rotation and button press to choose this. Refer to the menu map on page 33.

This is an auto-scrolling list which displays **active** items requiring attention prior to vehicle travel.

After viewing, rotate the knob to select another menu item.

ACC (if equipped)

Adaptive Cruise Control (ACC) is a cruise control system that adjusts the vehicle speed automatically to maintain a safe distance from vehicles ahead.

This setting allows you to enable or disable ACC. You can also set the (relative) following distance.

Rotate the knob to set following distance, or disable. Press to keep this setting.

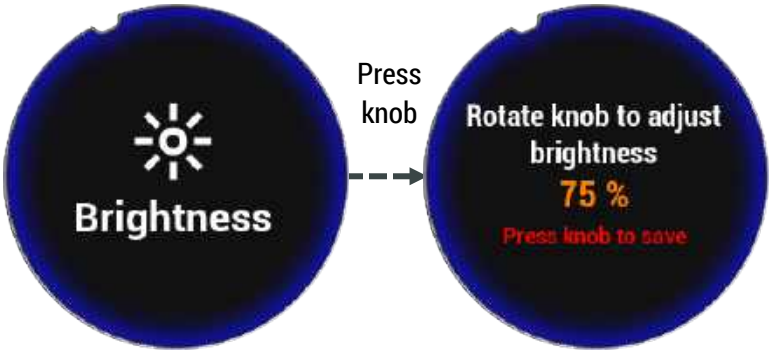
The selected distance setting is shown in the speedometer as 1, 2, or 3 filled bars.

Short following distance shown as 1 filled blue bar.

Medium following distance shown as 2 filled blue bars.

Long following distance shown as 3 filled blue bars.

Brightness

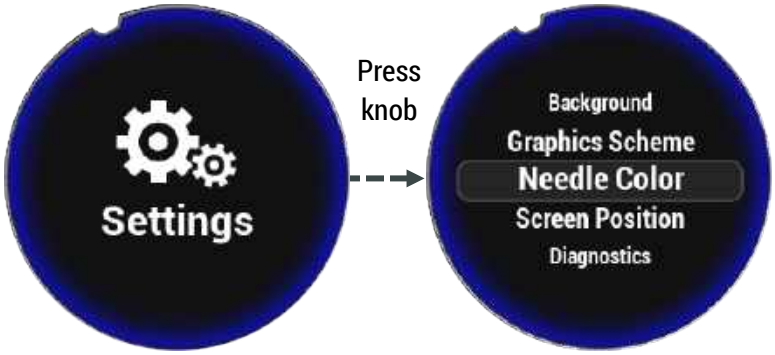


The display **Brightness** is an item in the Selectable Display. Use the knob rotation and button press to choose this. Refer to the menu map on page 33.

Different brightness levels can be set for daytime or nighttime driving. If the headlights are off when the brightness is adjusted, the brightness level will be saved for driving with the headlights off (daytime). If the headlights are on when the brightness is adjusted, that level will be saved for driving with the headlights on (nighttime).

Rotate the knob to adjust the brightness and then press the knob to save for that mode and return to the previous menu.

Settings



The coach must be stopped with the park brake set for this menu item to be available.

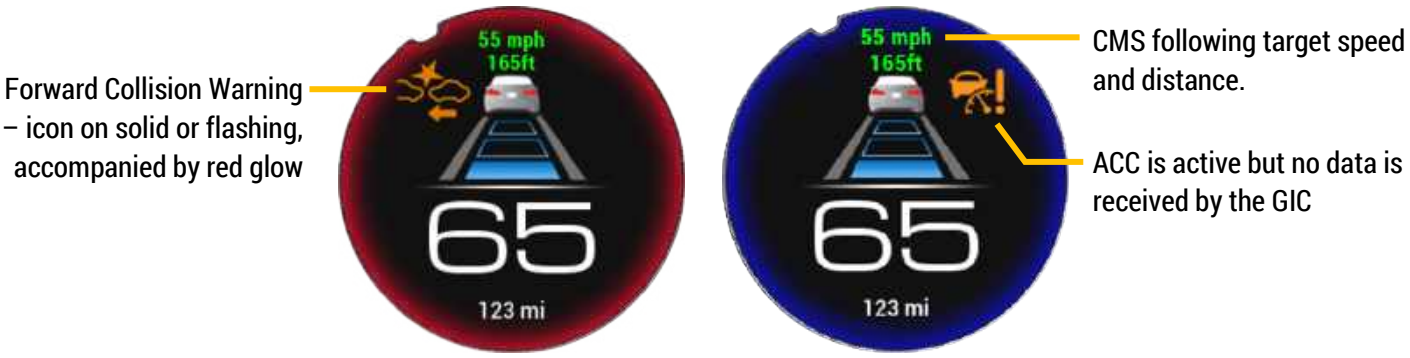
Settings is an item in the Selectable Display. Use the knob rotation and button press to choose this. Refer to the menu map on page 33.

Rotate the knob to scroll through the available menu items and press the knob to select. To return to the previous menu choose Back.

ADDITIONAL DISPLAYS

CMS (if equipped)

The Collision Mitigation System (CMS) is a forward-looking, remote-sensing system comprised of collision warning and adaptive cruise control (ACC) with active braking. CMS is displayed in the top half of the speedometer center.

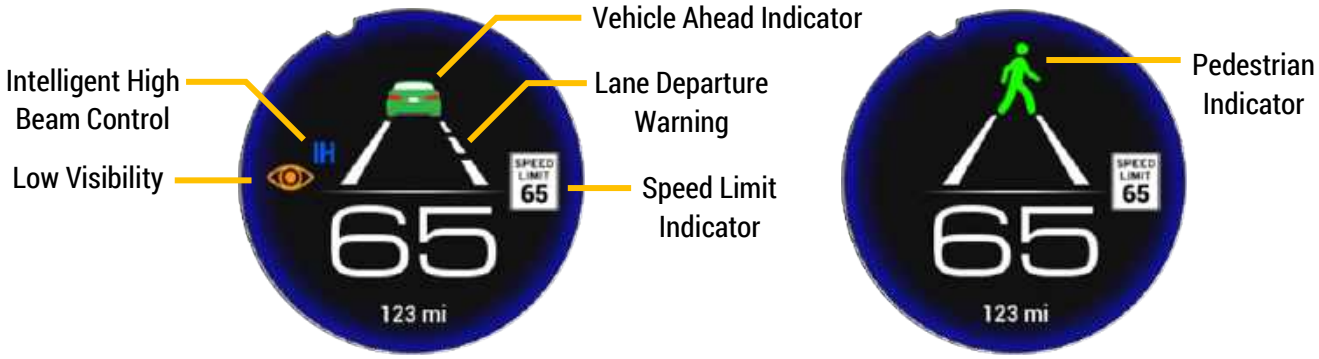


Mobileye® (if equipped)

Mobileye® is a driver assistance and accident reduction system using an artificial vision sensor to provide information about the road ahead. It is displayed in the top half of the speedometer center.

For full operating instructions, please refer to your Mobileye® support documentation.

Mobileye® Dash Display Elements



Note: *If your vehicle is equipped with either CMS or Mobileye®, the speedometer is no longer a selectable center and selections are performed only in the tachometer center display.*

LEVELING

This section describes the leveling operations that can be carried out quickly and easily with the available commands in the Leveling view, if equipped.

More

Go to Leveling > More to access manual leveling commands, as well as additional related operations. This screen is detailed in the following document: VDC00462 – Trueline Leveling System Operation Guide, GIC Interface, Air Only.

Auto Level Mode

Auto mode can be used to automatically level a stationary vehicle using the air suspension. This mode is the easiest leveling method to use and is suitable for most leveling situations.

When Auto is activated, the leveling system detects the lowest corner of the vehicle, and then levels (lowers) the remaining corners to it. If the system determines that it is unable to lower the vehicle to level, any corners that are low will then be raised to the level of the highest corner.

Using Auto Level Mode

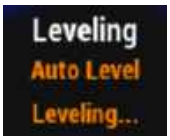
Ensure that:

- The ignition is on and the air system is at full pressure.
- The parking brake is engaged.
- The front wheels are straightened.

1. Use the knob to go to the Leveling screen. Press to select.
2. Select **Auto Level** in the menu, and press.

LEVELING

This initiates a leveling cycle. The leveling status is displayed in the center of the leveling screen.



It is possible to stop the leveling process at any time.

1. Activate the leveling menu.
2. Select **Exit Auto** to stop leveling.

Auto Mode – Notes

Once leveling has been completed, additional leveling cycles can be performed if the system is in auto mode or auto low power mode.

To perform another auto level cycle:

- Select **Exit Auto** to stop leveling. Then choose **Auto Level** again.

If the park brake is released while in auto mode, the Trueline Leveling System switches to travel mode.

Note: *The sensitive leveling sensors require that vehicle movement is kept to a minimum during the leveling process. Therefore, if you are inside the vehicle while it is leveling, please sit still or walk lightly.*

Changing the Height of a Leveled Vehicle

A leveled vehicle can be raised or lowered to adjust the entry doorstep height.

1. To ensure there's an adequate amount of air, the ignition should be on and the air system should be at full pressure.

2. Choose **Raise All** or **Lower All** on the main menu. This causes the vehicle to move up or down while staying level.

Travel Mode

Travel mode is the operational mode used when the vehicle is in motion.

This mode controls the vehicle's air suspension system. There are three factory-defined levels:

- High Ride
- Normal Ride
- Low Ride

The leveling system can only be switched to travel mode if the ignition is turned on.

Using Travel Mode

1. Use the knob to go to the Leveling screen. Press to select.
2. Select **Travel** in the menu, and press. The suspension status will be displayed on the bottom of the screen.
3. The default setting is normal ride height.
   - Select **High Ride** to negotiate uneven terrain.
   - Select **Low Ride** to allow additional clearance to the top of the vehicle.

These heights may be used only under predefined speeds. At higher speeds, the vehicle will go to the normal ride height state, and High Ride and Low Ride will not be available. The maximum speeds at which low and high ride can be maintained are set by the manufacturer.

ALARM MESSAGES – INFORMATION

INFORMATION messages relate to normal activities of the coach.

MESSAGE	DESCRIPTION
Tag Dumped	Tag axle weight has been reduced.

ALARM MESSAGES – CAUTION

CAUTION messages relate to items that require your attention.

MESSAGE	DESCRIPTION
No Cluster Data	The Graphical Instrument Cluster has an internal error – the graphics application has reported it has not received data from the cluster task within the last 15 seconds.
No J1939-I Data	No messages have been received on the J1939 network within the last 15 seconds. Check to confirm the J1939 connector is plugged into the Graphical Instrument Cluster or if there is a problem with the J1939 network.
No Serial-I Data	The Graphical Instrument Cluster has an internal error – the I/O board has not received a valid serial message from the cluster task within the last 15 seconds.
No J1939-C Data	Not receiving any J1939 messages from the Engine Controller.
No Serial-C Data	The Graphical Instrument Cluster has an internal error – the cluster task has not received a valid serial message from the I/O board within the last 15 seconds.
Low Tire Pressure	The Tire Pressure Monitoring System (TPMS) has indicated there is a tire with low pressure. This same message is displayed for both **Warning** and **Critical** low pressures. Rotate the joystick knob to view coach and trailer tire pressure screens on the Selectable Display. Press the knob to switch between tire pressure and tire temperature.
High Tire Pressure	The Tire Pressure Monitoring System (TPMS) has indicated there is a tire with a **Critical** high pressure. Unlike low pressure, a 'Warning' alarm does not exist for high pressure. Rotate the joystick knob to view coach and trailer tire pressure screens on the Selectable Display. Press the knob to switch between tire pressure and tire temperature. Refer to pages 18 and 36.
High Tire Temp.	The Tire Pressure Monitoring System (TPMS) has indicated there is a tire with high temperature. Rotate the joystick knob to view coach and trailer tire pressure screens on the Selectable Display. Press the knob to switch between tire pressure and tire temperature.
Low Fuel	The vehicle fuel tank is low – refer to the 'Distance to empty" display.
Regen in Process	Indicates that Active Regeneration is in progress (see below).
High Exhaust Temp.	Indicates that high exhaust temperatures may exist due to Active Regeneration (soot burn-off) in the diesel particulate filter (DPF). This is normal and does not signify the need for vehicle or engine service. Ensure the exhaust pipe outlet is not directed at any combustible surface or material.

ALARM MESSAGES – CAUTION

MESSAGE	DESCRIPTION
ABS Warning	The Anti-Lock Brake System (ABS) has detected a fault and has disabled this feature.
Check Engine	J1939 message received. The engine needs service at the first available opportunity.
MIL Check Engine	J1939 message received. There is a general fault (not necessarily with the engine) that must be diagnosed.
DPF Filter Warning	The exhaust Diesel Particulate Filter (DPF) has excessive soot levels and requires passive or active regeneration (regen) to burn off the soot to prevent a clogged filter. Initiate a parked manual regen or seek service at the first available opportunity.
Low DEF	The diesel exhaust fluid (DEF) is low. The fluid creates a catalytic reaction that removes particles from the exhaust. When low, the fluid must be topped up.
Front Press. Fault	The pressure reading for the front air tank is out of range. This may be caused by a bad pressure transducer or faulty wiring.
Rear Press. Fault	The pressure reading for the rear air tank is out of range. This may be caused by a bad pressure transducer or faulty wiring.
Pre-Drive Items	Refer to the Pre-Drive list shown in the Selectable Display for active pre-drive item(s) which require attention prior to vehicle travel. Refer to the menu map on page 33. The Pre-Drive list on the Selectable Display will automatically scroll up and down as necessary to display all currently active items: Antenna Up Shore Power Connected Entry Step Out Fridge Unlocked Baggage Door Open Slide Overridden Not at Ride Height • FD Slide Not Secure • RD Slide Not Secure • RP Slide Not Secure • FP Slide Not Secure • Engine Preheat On • Generator On • Emergency Start On
No RVC Data	The GIC communicates with both RV-C and J1939 communication networks on the coach. The GIC I/O board has not received any RV-C message within the last 15 seconds.
Trans. Over Temp.	Signal from transmission indicating that its fluid temperature is above normal acceptable limits, and as a result, transmission operation may be altered or restricted.
High Coolant Temp.	The coolant fluid temperature is high.
Low Eng. Oil Press.	The engine oil pressure is low.

ALARM MESSAGES – CAUTION

MESSAGE	DESCRIPTION
ATC Warning	The electronic brake controller (EBC) has detected a fault with the automatic traction control (ATC) and has disabled this feature.
Water in Fuel	Signal which indicates the presence of water in the fuel.
Battery Over Volt	The engine control module (ECM) battery measurement is above the factory-configured high battery threshold.
Battery Under Volt	The engine control module (ECM) battery measurement is below the factory-configured low battery threshold.
Check Trans.	Signal from transmission indicating that some aspect of its operation is not functioning correctly, and as a result, transmission operation may be altered or restricted.
No CCVS Data	The GIC application has not received any cruise control vehicle speed (CCVS) data over the J1939 network within the last 15 seconds.
Comm. Error - Engine	There has been a loss of communication between the GIC and the engine.
Comm. Error - ABS	There has been a loss of communication between the GIC and the anti-lock brake system.
Comm. Error - Trans	There has been a loss of communication between the GIC and the transmission.
ESC Warning	This parameter is controlled by the Vehicle Dynamic Stability Control System. The warning is accompanied by an illuminated ATC indicator.

ALARM MESSAGES – CRITICAL

CRITICAL messages relate to items that require your immediate attention.

MESSAGE	DESCRIPTION
EBS Error	The Electronic Braking System (EBS) has reported a critical error. The EBS controls normal braking in addition to the Anti-Lock Braking System (ABS) and Automatic Traction Control (ATC).
Stop Engine	J1939 message received. The vehicle needs to be stopped as soon as it is safe to do so. An alert tone will sound continuously.
DPF Filter Error	The exhaust diesel particulate filter (DPF) has a critical soot level. Stop engine as soon as possible. Seek service at the first available opportunity.
Extreme Low DEF	The diesel exhaust fluid (DEF) is low. Engine power loss will occur. This will be restored after refilling the DEF tank.
Low Air	The front tank pressure is below the 'red' threshold level. The warning buzzer does not sound when the tranmission gear is in neutral.
Low Air	The rear tank pressure is below the 'red' threshold level. The warning buzzer does not sound when the tranmission gear is in neutral.
Tire Overspeed	Tires are rated for maximum speeds. If the vehicle goes faster than this speed, this alarm will display.
Trans. Over Temp!	Signal from transmission indicating that its fluid temperature is above normal acceptable limits, and as a result, transmission operation may be altered or restricted.
Check Trans!	Signal from transmission indicating that some aspect of its operation is not functioning correctly, and as a result, transmission operation may be altered or restricted.
Rolling Alarm	If the vehicle is in neutral gear and the brake pedal is not depressed, nor the park brake engaged, this alarm will display.
*Shore Power Connected	This indicates that the vehicle is still connected to shore power with the park brake released.
Shore Power Unknown	This message displays when the generator is running.

*These messages are accompanied by a red blinking bezel border if the park brake is not set and the vehicle speed is less than 5mph.

Selectable Display Menu

This menu configuration applies to vehicles that are equipped with either CMS or Mobileye®

Indicates knob rotation

Indicates knob press

Pre-Drive
Displays currently active Pre-Drive items (auto scroll)

ACC (if equipped)

Brightness

Settings*

*Refer to **Settings Menu** on page 34.

Park brake must be set or speed must be 0mph for the Settings menu to display.

Trip 1 — **Trip 2**

Tire Pressure (Trailer)

Temp — **Press**

Press knob for 5 seconds for TPMS info

Tire Pressure (Coach)

Temp — **Press**

Selected information gauge or continuous scan of all gauges

Leveling (if equipped)

Scan

Accelerator Position

Engine Load

Intake Manifold Temp

Trans Shaft Speed

DEF Temperature

Trans Temperature

House Batteries

Generator

Inverter Status

Refer to page 21 for details on these information gauges.

Selectable Display Menu

This menu configuration applies to vehicles that are not equipped with either CMS or Mobileye®

To toggle between the speedometer and tachometer menus, push the knob to the right or left.

Indicates knob rotation

Indicates knob press

Speedometer

- MPH
- Trip 1
- Trip 2

Tachometer

- Pre-Drive
  Displays currently active Pre-Drive items (auto scroll)
- ACC (if equipped)
- Brightness
- Settings*
- Tire Pressure (Trailer)
- Tire Pressure (Coach)
- Selected information gauge or continuous scan of all gauges
- Leveling (if equipped)

*Refer to **Settings Menu** on page 34.

Park brake must be set or speed must be 0mph for the Settings menu to display.

Temp – Press

Press knob for 5 seconds for TPMS info

Temp – Press

- Scan
- Accelerator Position
- Engine Load
- Intake Manifold Temp
- Trans Shaft Speed
- DEF Temperature
- Trans Temperature
- House Batteries
- Generator
- Inverter Status

Refer to page 19 for details on these information gauges.

Settings Menu

Indicates knob rotation

Indicates knob press

Calibrate

Declination

Back

*Refer to TPMS **Setup Menu** on following page.

Compass Setup

TPMS Setup*

Rotate knob to set volume

Sound Volume

Scheme 5

Scheme 4

Scheme 3

Scheme 2

Scheme 1

Units

Background

Graphics Scheme

Back

Pressure

Temperature

Speed/Distance

kPa

Psi

Celsius

Fahrenheit

Miles

Kilometers

Background Image

Image Brightness

Back

White

Red

Orange

Yellow

Blue

Green

Magenta

Aqua

Needle Color

Rotate knob to adjust vertical screen position

Screen Position

Default menu start

Diagnostics

Enter Password

Configuration

Back

System Info

OBD Info

J1939 CAN Info

RVC CAN Info

Back

Info Screen

Info Screen

Info Screen

Info Screen

MENU MAP – TIRE PRESSURE (TPMS) SETUP MENU

TPMS Setup Menu

Indicates knob rotation

Indicates knob press

Refer to next page for details on the sensor display screen…

Location	ID	Pressure	Temperature	Battery	Ref. Press.	RF Strength	Status
Front Left	0x2EE9	117 psi	70 °F	Ok	116 psi	90	Ok
Front Right	0x5DD2	119 psi	71 °F	Ok	116 psi	90	Ok
RL Outside	0x8CBB	120 psi	71 °F	Ok	116 psi	90	Ok
RL Inside	0XBBA4	122 psi	71 °F	Ok	116 psi	90	Ok
RR Inside	0XEA8D	123 psi	72 °F	Ok	116 psi	90	Ok
RR Outside	0x11976	125 psi	72 °F	Ok	116 psi	90	Ok
Tag Left	0x1485F	126 psi	72 °F	Ok	116 psi	90	Ok
Tag Right	0x17748	128 psi	73 °F	Ok	116 psi	90	Ok
Tow FL	0XD9A	34 psi	77 °F	Ok	34 psi	90	Ok
Tow FR	0xDCC	35 psi	77 °F	Ok	34 psi	90	Ok
Tow RL	0xDFE	35 psi	77 °F	Ok	34 psi	90	Ok
Tow RR	0xE30	36 psi	77 °F	Ok	34 psi	90	Ok

No · Yes · Towable Connected

2 wheels · 4 wheels · 6 wheels · Vehicle · Tow Type

Select Tire · TPMS Configuration

Front Left · Front Right · RL Outside · RL Inside · RR Inside · RR Outside · Tag Left · Tag Right

Exit

Add Sensor · Cancel Add Sensor

Delete Sensor

Update Reference Pressure

Back

Tow Type

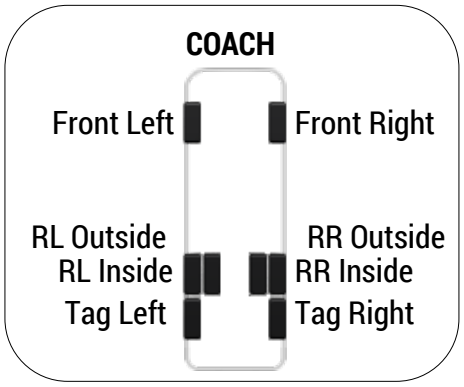
Vehicle	2 wheels	4 wheels	6 wheels
Tow FL	Tow L	Tow FL	Tow FL
Tow FR	Tow R	Tow FR	Tow FR
Tow RL		Tow RL	Tow ML
Tow RR		Tow RR	Tow MR
			Tow RL
			Tow RR

Back

1. Inflate the tire to the manufacturer's recommended pressure.
2. Select '**Add Sensor**' and then physically screw the pressure sensor onto the tire valve stem. The GIC will automatically detect the new sensor and update its '**ID**' to the selected tire.
3. Select '**Update Reference Pressure**' and wait for up to 1 minute for the '**Ref. Press.**' value to display; wait for up to 5 minutes for the pressure sensor to transmit its next reading for the '**Pressure**' to display an accurate value.

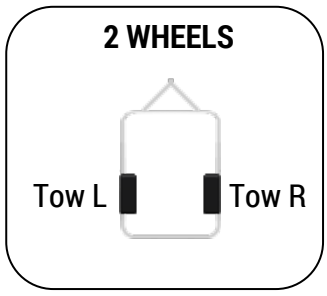
TIRE PRESSURE (TPMS) SENSOR DISPLAY

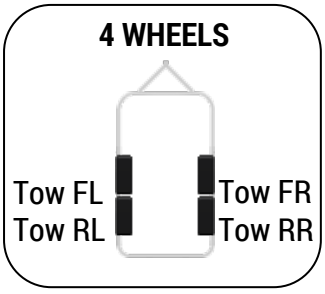
Location	ID	Pressure	Temperature	Battery	Ref. Press.	RF Strength	Status
Front Left	0x2EE9	117 psi	70 °F	Ok	116 psi	90	Ok
Front Right	0x5DD2	119 psi	71 °F	Ok	116 psi	90	Ok
RL Outside	0x8CBB	120 psi	71 °F	Ok	116 psi	90	Ok
RL Inside	0XBBA4	122 psi	71 °F	Ok	116 psi	90	Ok
RR Inside	0XEA8D	123 psi	72 °F	Ok	116 psi	90	Ok
RR Outside	0x11976	125 psi	72 °F	Ok	116 psi	90	Ok
Tag Left	0x1485F	126 psi	72 °F	Ok	116 psi	90	Ok
Tag Right	0x17748	128 psi	73 °F	Ok	116 psi	90	Ok
Tow FL	0XD9A	34 psi	77 °F	Ok	34 psi	90	Ok
Tow FR	0xDCC	35 psi	77 °F	Ok	34 psi	90	Ok
Tow RL	0xDFE	35 psi	77 °F	Ok	34 psi	90	Ok
Tow RR	0xE30	36 psi	77 °F	Ok	34 psi	90	Ok
	---	---	---	---	---	---	---
	---	---	---	---	---	---	---

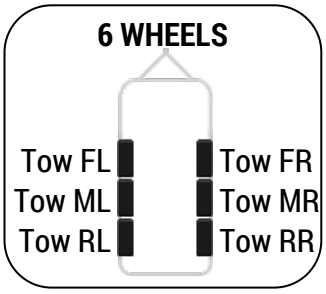


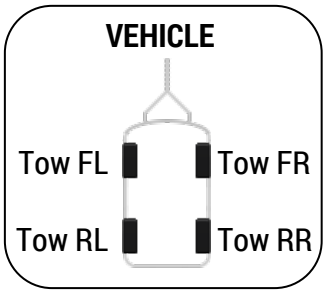
The 'reference pressure' (**Ref. Press.**) is established from the current tire pressure.

In early versions of the Pressure-Pro system, the 'reference pressure' was set as soon as the tire sensor was screwed onto the valve stem. However, in later versions, it is necessary to the use the '**Update Reference Pressure'** menu selection; refer to page 39.









If tire pressure sensors are moved between towable vehicles with a different number of wheels, it is suggested that only the **common front wheel sensors** are moved. This allows them to be moved without having to delete and add sensors. However, it may still be necessary to **'Update Reference Pressure,'** depending on the manufacturers recommend pressures.

TIRE PRESSSURE (TPMS) CONFIGURATION

The Tire Pressure Monitoring System (TPMS) consists of multiple sensors which screw onto tire valve stems and communicate to a central module. This module puts the data onto the J1939 network, where it is read by the GIC. The low tire pressure threshold is factory programmed within the TPMS central module.

There is an ID printed on each tire pressure sensor, for example OB5A53. Each ID is displayed once it has been added in the TPMS configuration screen.

The TPMS configuration displays 14 tire locations. The last six (6) are for the towable vehicle, where any unused tire locations are shown in a light gray color. This allows all configured tire sensors to be displayed, regardless of the tow vehicle type. This is particularly useful if a tire needs to be moved from a currently unused location to another tire location, because it cannot be added until it is first removed from the original location.

Towable Connected

Refer to the TPMS setup menus on page 35.

Press the button knob to toggle between 'Yes' and 'No'

Parameter	Default	Configuration choices
Towable Connected	No	Yes or No

Tow Type

Refer to the TPMS setup menus on page 35.

Press the button knob repeatedly to select the number of wheels.

Parameter	Default	Configuration choices
Tow Type	2 wheels	2 wheels, 4 wheels, 6 wheels or vehicle

Add Sensor

Select 'Add Sensor' just prior to screwing a sensor onto a tire valve stem.

Note 1: If an existing sensor is to be moved to another tire, it must first be removed from the original tire using 'Delete Sensor'. Refer to page 38.

Note 2: It is not necessary to use 'Add Sensor' if a sensor is removed to manually inflate the tire, provided the same sensor is replaced.

Refer to the TPMS setup menus on page 35 *(password may be required)*. Rotate the knob to highlight a menu item and then press the knob to make a selection.

To add a tire pressure sensor:

1. The 'Towable Connected' parameter must be set to **Yes.**
2. The 'Tow Type' parameter must be chosen for the relevant number of wheels.
3. If required, enter the password.

Note: This is an independent password entry screen compared to that used for the other configurations.

4. Rotate the knob to select a tire.
5. Choose 'Add Sensor.'
6. Screw the tire pressure monitor onto the valve stem and wait until its ID is detected.

(If required, press the knob to 'Cancel Add Sensor')

7. Select 'Back' and repeat from step 4 to add additional tire sensors.
8. Refer to page 39 for instructions on updating the reference pressure for each sensor added.

Tire Sensor

Delete Sensor

'Delete Sensor' will remove a sensor from the selected tire location. This is required if a sensor is to be relocated to a different tire.

Refer to the TPMS setup menus on page 35 *(OEM or service password may be required)*.

Rotate the knob to highlight a menu item and then press the knob to make a selection.

To delete a tire pressure sensor:

1. The 'Towable Connected' parameter must be set to **Yes**.
2. The 'Tow Type' parameter must be chosen for the relevant number of wheels.
3. If required, enter the password.

Note: This is an independent password entry screen compared to that used for the other configurations.

4. Rotate the knob to select a tire.
5. Choose 'Delete Sensor'.
6. Repeat from step 4 to delete additional tire sensors.

TIRE PRESSSURE (TPMS) CONFIGURATION

Update Reference Pressure

Prerequisites: This procedure requires the tire to be inflated to the manufacturer's recommended pressure because the reference pressure is established from the current tire pressure. It may also be necessary to wait for up to 5 minutes for a pressure sensor to transmit its current tire pressure.

Refer to the TPMS setup menus on page 35 (password may be required).

Rotate the knob to highlight a menu item and then press the knob to make a selection.

To update the reference pressure for a tire pressure sensor:

1. The 'Towable Connected' parameter must be set to **Yes**.
2. The 'Tow Type' parameter must be chosen for the relevant number of wheels.
3. If required, enter the password.

   Note: This is an independent password entry screen compared to that used for the other configurations.
4. Rotate the knob to select a tire.
5. Choose 'Update Reference Pressure'.

   Note: Wait for up to 1 minute for the '**Ref. Press.**' value to display and then wait for up to 5 minutes for the pressure sensor to transmit its next reading for the '**Pressure**' to display an accurate value.
6. Repeat from Step 4 to update the reference pressure for additional tire sensors.

DIAGNOSTICS

The diagnostic screens are found in the System menu. They provide information that is helpful for service staff when troubleshooting any issues, and are discussed in greater detail in the Service Manual.

Screen	Description
I/O Info	Shows the status of the discrete inputs and outputs connected directly to the rear connectors on the GIC.
System Info	Displays the status of any alert message received since the ignition was turned on. The part numbers, firmware revisions and serial number are also shown.
OBD Info	Displays the status of any diagnostic message (DM1) received since the ignition was turned on.
J1939 CAN Info	Displays all devices communicating on the vehicle's J1939 Controller Area Network (CAN).
RVC CAN Info	Displays all devices communicating on the vehicle's RVC Controller Area Network (CAN).

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