



PANORAMIC VIEW MONITOR (PVM)

OWNERS MANUAL

Please read this manual for proper operation and keep it for future reference.



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PANORAMIC VIEW MONITOR (PVM)

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SECTION 1.0

Statements & Declarations

1.1 Safety Instructions

Driving Precautions

The panoramic view monitor plays a subsidiary device in order to help driver checking surroundings around the vehicle. Please be sure that before driving, the visual check vehicle surroundings with mirrors before ready to go is necessary. Please pay attention to the following notices and instructions when using the panoramic view monitor.

Cautions

- Drivers shall not depend on the panoramic view monitor only. There have some different tolerance from the image and the actual object.
- Be sure to check vehicle surroundings visually before driving.
- When use panoramic view monitor, not only focus on monitor, but please also use vehicle mirrors to check actual conditions.
- The position of guide line displayed on the monitor may differ from actual condition. Please check surround actual condition.
- When the tire size changed, the guide line position displayed on the screen will also be different.

Notice

- Do not use high-pressurized water column to wash panoramic view monitor to avoid damage.
- The distances between the vehicle and objects may differ from the actual distance.
- There are blind spots around the vehicle so will not be displayed in panoramic view monitor.
- The light condition around each camera is different, so light displayed on the image may differ.
- The images from four cameras are combined. The border of the four image clarity may decline which is normal.
- The car display image may differ from actual car, purpose is to simulate car's surrounding.



SECTION 2.0

Getting Started

2.1 Product Overview

Panoramic View Monitor (PVM) System has 4 cameras installed at front / rear and left / right side mirror of the car, where its 360-degree bird' s eye view is displayed on the Display Audio for guidance of blind spot areas against the car.

Information

The screen illustrations used in this manual are examples, and may differ from the image of actual car displayed on unit.

2.2 Product Features



- Assist blind spot area visibility by seamless image with front, back or left and right view.
- PVM guide line design, seizing distance between periphery obstacles and vehicle itself.
- Front/rear guideline refers to car width which design to assist low speed reversing or driving.
- Due to safety concerns, there will be a black mask area on top of the front view.
- When speed is over 20 ± 5 km/h, the PVM will deactivate and enter in AVX mode.
- Motion object detection mode activated when speed is around 0 km/h.
- Turn signal mode activated when user turn on LH/RH signal below 20 ± 5 km/h.



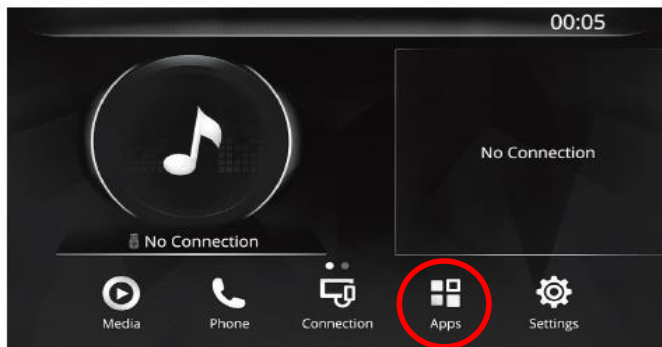
SECTION 3.0

Operating Panoramic View Monitor (PVM)

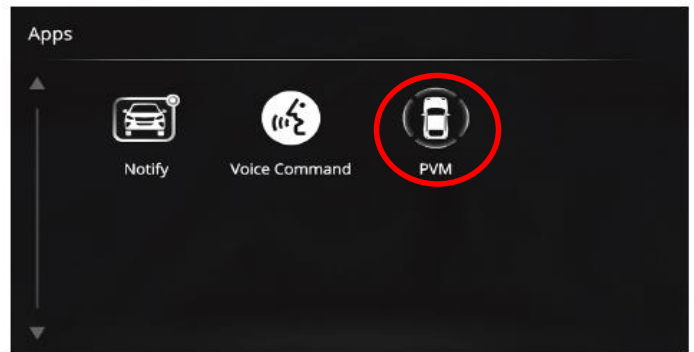
3.1 Panoramic View Monitor (PVM) Operation

Press  Apps icon to enter Apps mode, and press  PVM icon to enter PVM mode

Step 1:

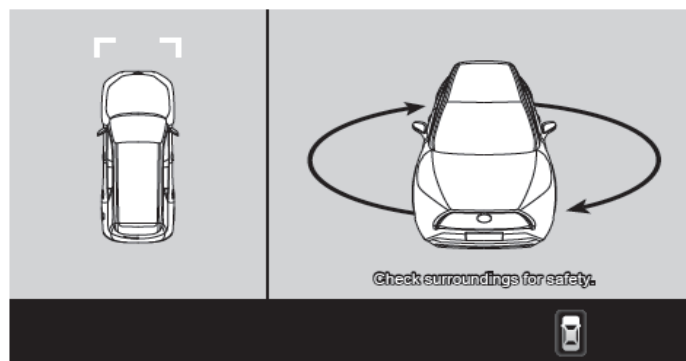


Step 2:



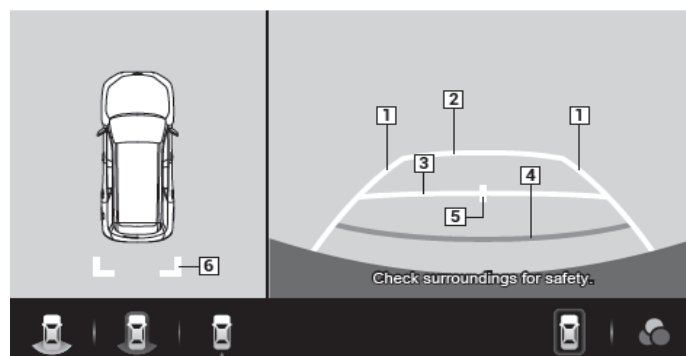
360° Rotation Shortly

When press PVM icon to enter PVM mode, car model will display 360° rotation shortly and it is able to skip 360° preview by oneclick.



Gear: Reverse Mode (R)

When Reverse Gear is engaged, the Display Audio will display panoramic image specified for reversing mode in 2-3 seconds automatically (please refer to the image below).








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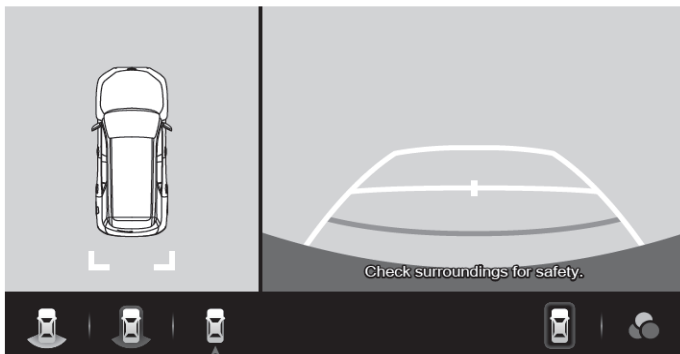
Operating Panoramic View Monitor (PVM)

No	Display	Function
1	Vehicle width guide line	The width of guide line is wider than the vehicle width.
2	Distance guide line	The distance around 6.5 ft (2m) from the edge of the bumper.
3	Distance guide line	The distance around 3 ft (1m) from the edge of the bumper.
4	Distance guide line	The distance around 1.5 ft (0.5m) from the edge of the bumper.
5	Vehicle center guide line	The center of the vehicle.
6	Distance guide line	The distance around 3 ft (1m) from the edge of the bumper.

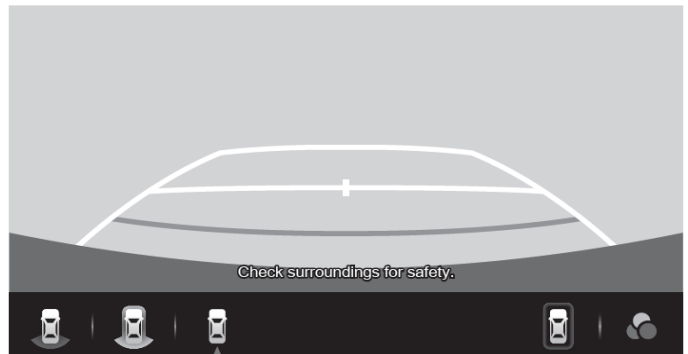
- The image show surrounding bird view and rear view to assist driver.
- Please be aware the distance with periphery obstacle.
- The panoramic image is a simulated aerial view. When the obstacle is close to the car, please stop the car and confirm actual secure distance before

In Reverse mode, you may press the view switch to choose rear view  or 360° view + rear view  or 360° view + rear top view 

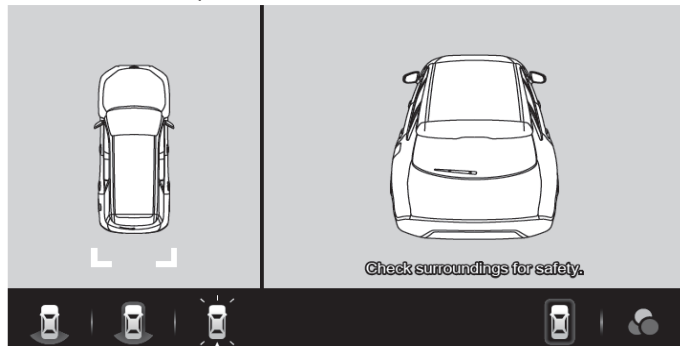
360° view + rear view



Rear view



360° view + rear top view



Note

Please carefully check the surrounding as some blind spot zone will not be captured by the camera.

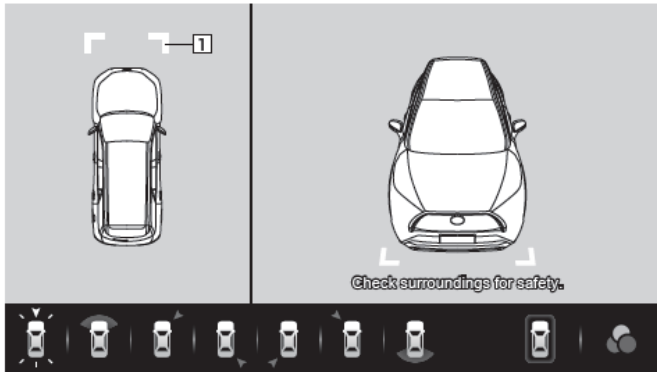


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Operating Panoramic View Monitor (PVM)

Gear: Parking / Neutral / Drive Mode (P/N/D)

The car will keep displaying the PVM-ahead image mode if the shift lever at P/N/D and the speed under 20 ± 5 km/h.

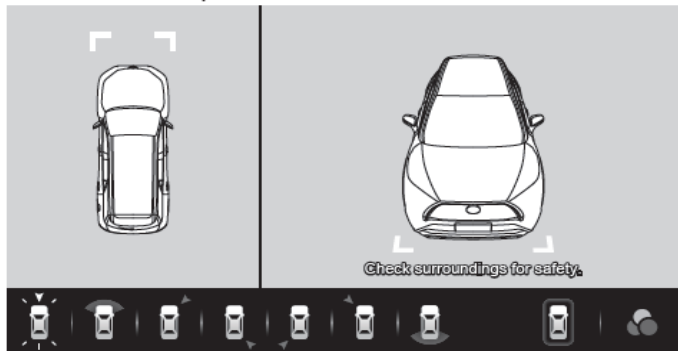


- Due to safety concerns, the front view will not show the whole image. There will be a black mask area on top of the front view.
- The front guide line has blue lines. Please pay more attention to the distance with periphery obstacles when you drive. The front guide line 1 is about 3 ft. (1m) from the edge of the bumper.
- When you reverse, please use left/right side mirror to check surrounding area. Press icons to switch to different view.

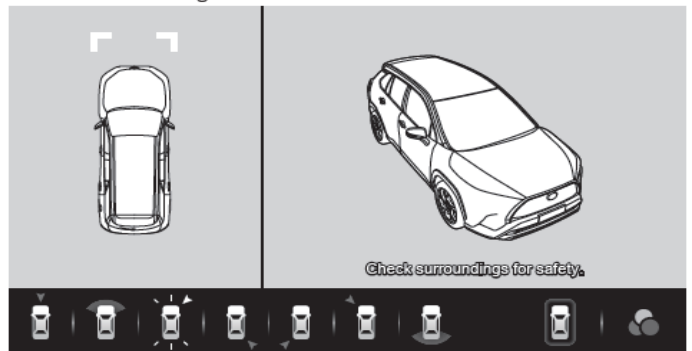
Note

Image show is to aid in identifying periphery obstacle during low-speed driving.

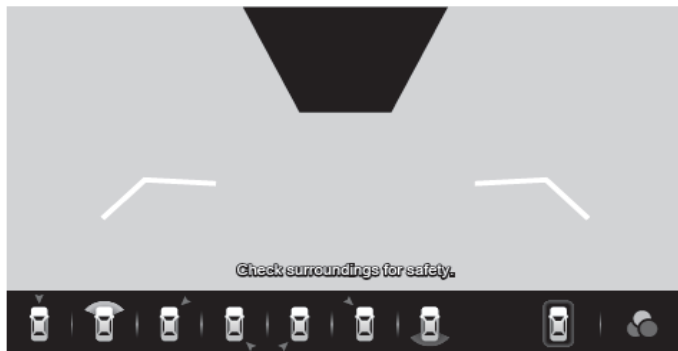
360° view + front top view



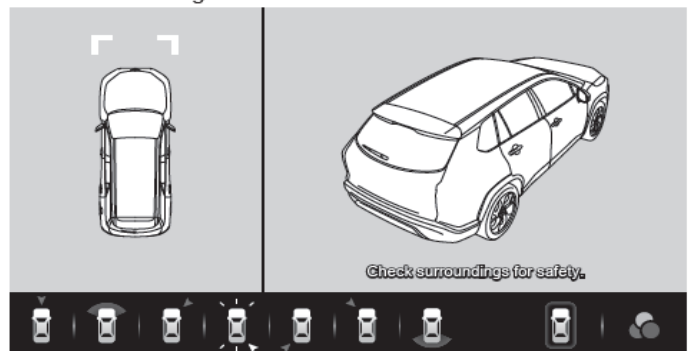
360° view + front right view



Front view



360° view + rear right view

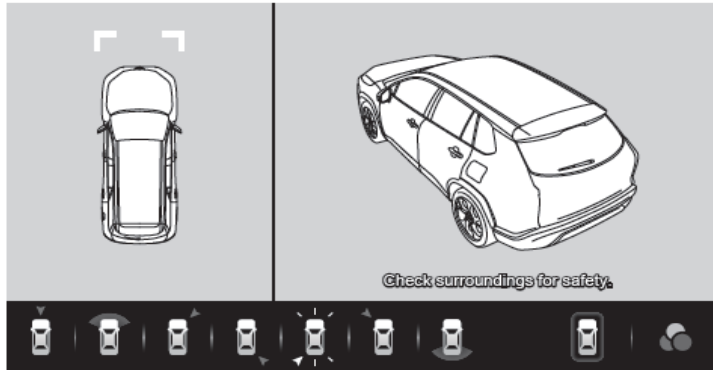




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Operating Panoramic View Monitor (PVM)

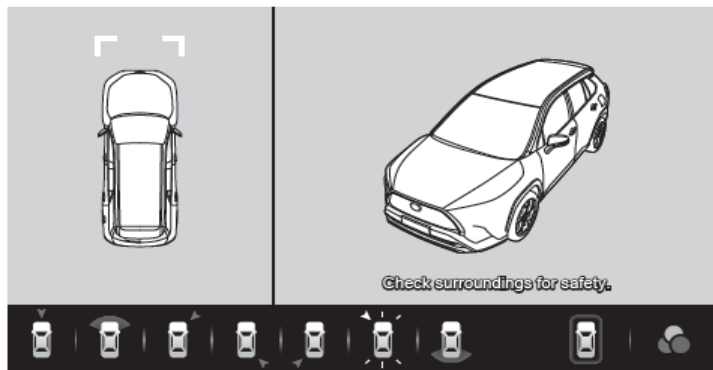
360° view + rear left view



Rear view



360° view + front left view



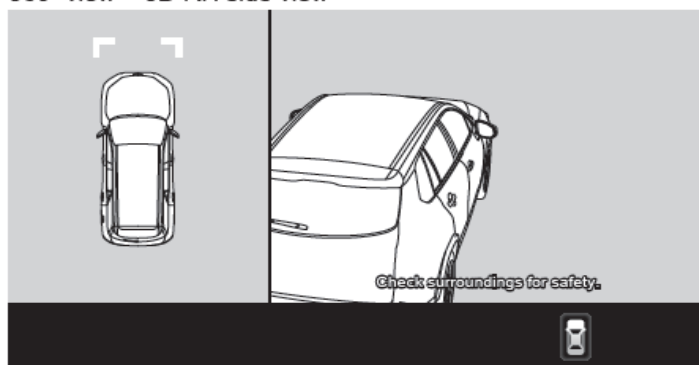
Note

PVM only available for car speed is under 20 ± 5 km/h (P/N/D mode).
PVM view will go to audio system when the car speed is higher than 20 ± 5 km/h.

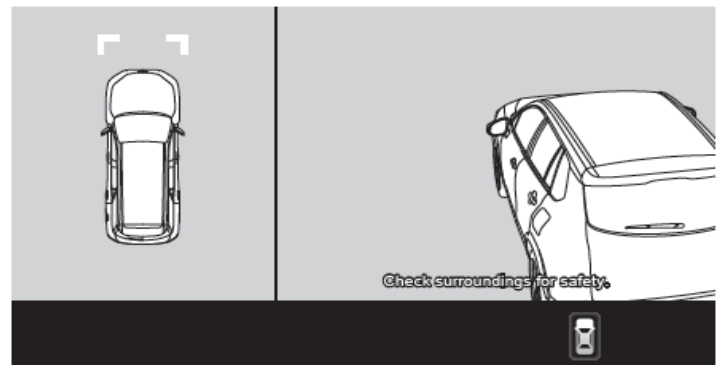
Turn Signal Mode

When the driver turn the left or right signal on and the speed is under 20 ± 5 km/h,
The side view will be triggered.

360° view + 3D RH side view



360° view + 3D LH side view



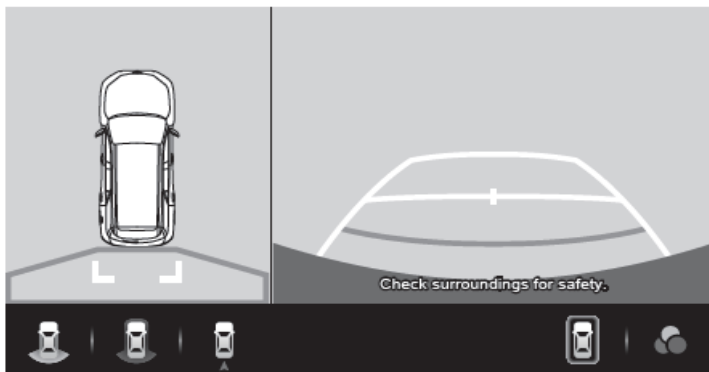



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Operating Panoramic View Monitor (PVM)

MOD Mode

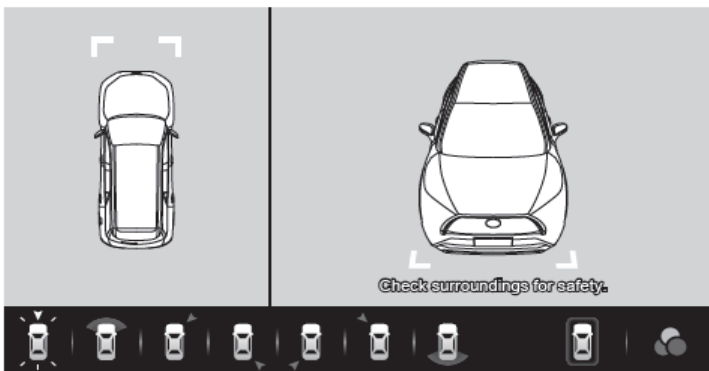
- The PVM detects moving object and shows the direction of object coming from with yellow alarm.
- Please be noted that the MOD is available only when the speed is around 0 km/h.



User can press MOD icon  to activate and close MOD function

Car model color change

In P/N/D/R mode, press “color change icon”  can switch color of car model.



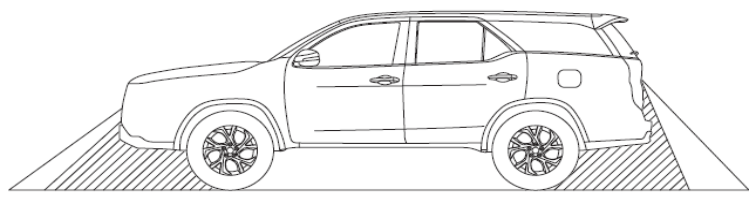
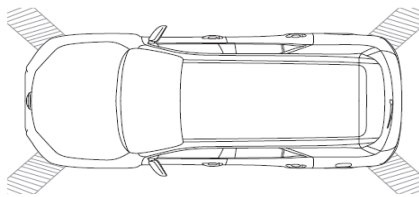


SECTION 4.0

Blind Spot

4.1 Cautions

The aerial panoramic image comes from the use of optical principle, where intersection parts of four cameras are for image clipping process to build panoramic effect, hence, four connection parts of images listed below would cause image to temporarily disappear and drivers are requested to pay special attention.



Objects may not be detected from some angles. The objects underneath the bumper or on the ground may not be detected when they are displayed at front or rear viewing angle (Grey parts in oblique lines).

- The images from four cameras are in color difference under versified light source due to light incoming angle discrepancies, which is normal.
- The guide lines in the front left/right side of car mode are aligned due to shooting position/angle difference from left/right rear mirrors; however, mild staggered position of doors is normal.
- PVM display area is constricted, where the further part from the car body will present image deformation, which is normal.
- PVM camera are precision device. Do not hit camera, which might cause abnormal situations like failure or damage.
- PVM is to aid and reinforce display of periphery blind areas against the car body. When you drive, you still must make use of the left/right side mirrors and rear view mirrors.
- When you reverse, some conditions (Ex.: weather, light) might constrict image. Do not drive your car only by the display.
- PVM image might be affected or incorrect with the change of tire size; hence, we do not suggest you to change tire size.
- Heavy impact or displacement from collision might cause PVM image to diverge right or left, worsening image connection. To resume normal operations, image calibration and part replacement may be required.



SECTION 5.0

Troubleshooting

5.1 Simple Troubleshooting

- Troubleshooting will help you to simply identify the most likely cause and restore the process to working status. Whenever you have a problem with the PVM, here are some basic troubleshooting techniques that can help you to fix issues.
- Please identify the following symptoms and most likely cause to find the solutions. If the symptom is not resolved by the following solutions, please have the car to be checked by your nearest TOYOTA dealer.

Symptom	Likely cause	Solution
Difficult to see the image	<ul style="list-style-type: none"> • The vehicle is in a dark area. • The temperature around the lens is either high or low. • The outside temperature is low. 	Please move car away from the uneven light or direct sunlight.
	<ul style="list-style-type: none"> • There are water droplets on the camera. • The surroundings is raining or humid. 	Please move the car to the room temperature.
	<ul style="list-style-type: none"> • External factor (mud etc.) is adhering to the camera. • Sunlight or headlights is shining directly into the camera. • The vehicle is under fluorescent lights, sodium lights, and mercury lights etc. 	Please clean the camera with water and soft cloth.
The image is blurry	Dirt or external factors (like water droplets, snow, and mud etc.) attached to the camera.	Clean the camera with water and soft cloth.
The image is out of alignment	The camera or surrounding area got a strong impact.	Please have your dealer to check the vehicle.
The guide lines are out of alignment	The camera position is out of alignment.	Please have your dealer to check the vehicle.
	<ul style="list-style-type: none"> • The vehicle is tilted. (Heavy load, tire puncture, etc.) • The vehicle is in a slope status. 	This is not malfunction. Please check surroundings visually when reversing the car.