

Long-Term Vehicle Storage Guidelines

Service Category General

Section Pre-Delivery Service

Market USA and Mexico

Toyota Supports
ASE Certification 

Applicability

YEAR(S)	MODEL(S)	ADDITIONAL INFORMATION
2027	ES350E, ES350H, ES500E, GX550, IS350, LX600, LX700H, NX350H, NX450H+, RX350, RX350H, RX450H+, RX500H, RZ350E, RZ450E, RZ550E, TX350, TX500H, TZ450E	

Introduction

Long-term or off-site storage requires special care to maintain vehicle condition. The following guidelines should be implemented to minimize vehicle component/part degradation due to extended vehicle storage conditions. Long-term storage can affect a vehicle's systems and components. Any problems that are found should be corrected immediately.

Refer to the table below for a definition of terms used in this bulletin.

Table 1.

TERM	ACRONYM	DEFINITION
Conventional Vehicle	CV	A vehicle with only a gasoline engine for propulsion
Electrified Vehicle	EV	A vehicle that utilizes a hybrid, plug-in hybrid, or battery electric system for propulsion
Hybrid Electric Vehicle	HEV	A vehicle with both a gasoline engine and an HV battery
Plug-in Hybrid Electric Vehicle	PHEV	A vehicle with both a gasoline engine and an HV battery that can be charged externally
Battery Electric Vehicle	BEV	A vehicle with only an HV battery that can be charged externally
State of Charge	SOC	The remaining capacity available in a battery
12-Volt	12V	Standard 12V battery used to power electrical systems separate from high voltage components
High Voltage	HV	HV battery used to power the electrified vehicle

Electrified vehicles are equipped with two types of batteries, an HV battery and a 12V battery. Conventional vehicles are equipped with only a 12V battery.

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Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Required Tools & Equipment

SPECIAL SERVICE TOOLS (SST)	PART NUMBER	QTY
DSS-5000 Battery Diagnostic Tool*	DSS-5000P-T	1
DCA-8000 Battery Diagnostic Tool*	DCA-8000P-T	1
CPX-900 Battery & System Analyzer	CPX-900P-BAR-T-KT	1

*Essential SST.

NOTE

Additional SSTs may be ordered by calling 1-800-368-6787 (USA) or +(525) 5550 10 3000 (Mexico) or by visiting *Home – Service Resources – Lexus Tools and Equipment Program*.

Summary Chart for Long-Term Storage

Below are items that should be checked periodically and their frequency.

ACTION	FREQUENCY
12V Battery Maintenance	After 60 days, Then Every 30 days
HV Battery Charging (HEV / PHEV Models)	Monthly
HV Battery Charging (BEV Models)	Monthly
Tire Inflation Pressure	Monthly
Parts Rust Inspection	Monthly
Engine/Hybrid System Starting and Vehicle Movement	Every 6 Weeks
Vehicle Movement (BEV models)	Monthly
A/C Compressor Lubrication (Conventional Vehicles)	Monthly
A/C Compressor Lubrication (Electrified Vehicles)	Monthly
Disc Brake Rotor Surface Rust Removal	Every 8 Weeks

Attention to the procedures listed in this bulletin will work to ensure each vehicle is in the best possible condition prior to customer delivery.

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Parking and Paint Protection Procedure

- Storage areas should be paved, well lit, and secure. If your off-site storage lot is NOT paved, spread gravel to minimize mud and dust. Make sure vehicles are driven carefully when moving them to or from a long-term lot. This will help minimize damage to the paint finish from road grit or gravel.
- Park vehicles from right to left AT LEAST three feet apart. Leave enough space front and rear to easily walk between rows.
- Turn OFF ALL electrical accessories, make sure windows and sunroof are closed, and check that the transmission is in Park (First or Reverse for manual transmission vehicles). Do NOT apply the parking brake. Ensure vehicles with electronic parking brakes do NOT engage, and the Auto function has been DISABLED (refer to the Owner's Manual for details).
- Make sure the plastic door edge protectors are in place and fold in the side view mirror (if applicable).
- Anti-rust covers or anti-rust film should remain on vehicle during storage.
 1. Anti-rust covers (behind wheel) should be removed at PDS.
 2. Anti-rust film (applied to wheel) should be removed just prior to customer delivery.
- Wash vehicles frequently.

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12V Battery Maintenance

- If a vehicle is put into storage, the state of charge (SOC) of its 12V battery will gradually decrease. To prevent the 12V battery from becoming discharged during storage, proper maintenance is necessary.
- To reduce 12V battery drain during long-term storage, remove the battery ground (–) cable of each vehicle and reinstall it just before delivery to the customer.
- After 60 days, and every 30 days thereafter, inspect the 12V battery with the DSS-5000 or DCA-8000 battery diagnostic tool, or the CPX-900 battery & system analyzer. If charging is required, use the DCA-8000. Refer to the [DSS-5000 Instruction Manual](#), the [DCA-8000 Instruction Manual](#), and/or the [CPX-900 Instruction Manual](#) for complete battery maintenance procedures.
- When removing the vehicle from storage, connect the negative (–) terminal. When the battery ground (–) cable is reconnected, check and reset electrical components, such as the clock, radio, etc., and reinitialize ALL applicable systems / functions. Please refer to the applicable Repair Manual for torque specifications and initialization:
 - For Electrified Vehicle:
Repair Manual – General – Maintenance – Auxiliary Battery – Installation
 - For Conventional Vehicle:
Repair Manual – General – Maintenance – Battery – Installation

NOTE

- BEFORE disconnecting the 12V battery, confirm the shift position is in the P position. The vehicle CANNOT be shifted from the P position with the 12V battery disconnected.
- If the negative (–) terminal of the 12V battery is reconnected on electrified models, even if the vehicle is powered ON (Ready ON), the hybrid system may NOT start. In this case, depress the brake pedal, open and close any of the doors, and press the Power button to start the hybrid system (the Ready light is ON). If the hybrid system still does NOT start (the Ready light is OFF), refer to the applicable model and model year Repair Manual.

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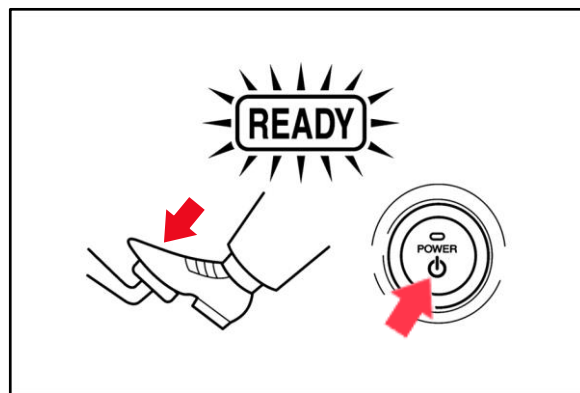
HV Battery Charging (HEV / PHEV Models)

HEV / PHEVs store electricity in the HV battery. When the vehicle is not used for a period of 30 days or more, the HV battery may discharge, thus reducing vehicle travel range. To prevent the HV battery from fully discharging it is necessary to maintain the charge level of the HV battery.

Charging the HV Battery

1. Park the vehicle in open air or connect the exhaust extraction hose to the exhaust pipe.
2. Apply the parking brake.
3. With the brake pedal depressed, select the power switch to the START mode, and check that the READY light in the combination meter illuminates when the hybrid system starts (the READY light is ON).
4. Turn OFF all lights and accessories.
5. Check that the shift lever is in the P position.
6. Keep the READY light on and charge the HV battery for 30 minutes.

Figure 1.



NOTE

- If the amount of charging energy is small, the display may NOT indicate the energy flow.
- Ensure there is a sufficient amount of fuel for the vehicle to run for 30 minutes.

HINT

The HV battery can also be charged by driving the vehicle for 30 minutes.

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HV Battery Charging (BEV Models)

BEVs store electricity in an on-board HV battery, that is charged via an external power source. When the BEV is not used for a period of 30 days or more, the HV battery may discharge, thus reducing vehicle travel range. To prevent the HV battery from fully discharging it is necessary to maintain the charge level of the HV battery.

1. If the warning light is displayed ON within the instrument cluster, charge the HV battery via the AC charging method.

Table 2.

CONNECTED POWER SOURCE	CHARGER			AC CHARGING CABLE
	DC CHARGING	AC CHARGING		
Charging Voltage	Avoid using DC charger for supplementary charging during long-term storage, prefer AC charging	AC 220 – 230 V		
Charging Current		32 A	16 A	8 – 10 A
Charging Time		Approximately 30 Minutes	Approximately 60 Minutes	Approximately 90 Minutes

2. After charging has been completed, verify the HV battery warning light is OFF before storing the vehicle long-term. If the HV battery warning light is still ON after charging, repeat the charging process.

NOTE

Refer to the Owner's Manual for model-specific information regarding charging the HV battery, charging equipment, and charging method. See section 1-3 – *Charging with the EV System*. Avoid using the DC charger for supplementary charging during long-term storage.

Tire Inflation Pressure

If the vehicle is parked for long periods without being moved, a flat spot may develop on each tire surface in contact with the ground, even if the tires are inflated to specification. Tire inflation pressure should be checked once a month.

Tire inflation pressure for storage ONLY: **43 psi**.

NOTE

Tire pressure may vary due to changes in ambient temperatures and may require adjustment.

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Parts Rust Inspection

If the vehicles in your storage area are exposed to a sea breeze and/or significant precipitation, corrosion with rust in some parts may occur. If rust is found, remove it, and treat it by applying rust inhibitor to prevent recurrence.

Engine/Hybrid System Starting and Vehicle Movement

If the vehicle is stored over an extended period of time, starting and running the engine/hybrid system periodically will ensure smooth running operation.

1. If the vehicle is equipped with a gasoline engine, start and operate the engine at an engine speed of less than 1,500 rpm for 15 minutes or longer.
2. Raise engine speed above 3,000 rpm 10 times to eliminate moisture from the exhaust.

NOTE

Make sure to allow sufficient clearance at the rear of the vehicle to prevent other vehicles stored behind from getting damaged by exhaust gas.

3. Drive the vehicle AT LEAST 30 feet to lubricate the transmission/transaxle and differential(s), and to prevent tire flat-spot damage.

Vehicle Movement (BEV Models)

If the vehicle is stored over an extended period of time drive the vehicle AT LEAST 30 feet to lubricate the transmission/transaxle and differential(s), and to prevent tire flat-spot damage.

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A/C Compressor Lubrication

To minimize the possibility of damage to the A/C compressor while storing a vehicle, perform the following recommended maintenance procedures AT LEAST once a month to lubricate the compressor.

Conventional Vehicles

1. Turn OFF the A/C and blower switches before starting the vehicle.
2. Start/Ready-On the vehicle.
If the vehicle is equipped with a gasoline engine, allow the engine to warm up until engine idle drops below 1,000 rpm.
3. Turn ON the A/C system (including the rear A/C) using the following settings:
 - A. A/C Switch: ON
 - B. Blower Speed: High
 - C. Engine Speed: Below 1,000 rpm
4. Keep the A/C ON with engine idling for AT LEAST one minute (in dual A/C vehicles, leave ON for two minutes).
5. Turn OFF the A/C system and cycle the ignition to the OFF position.

Electrified Vehicles

1. Turn OFF the A/C and blower switches before starting the HEV / PHEV / BEV system.
2. Start the HEV / PHEV / BEV system.
3. Turn ON the A/C system (including the rear A/C) using the following settings:
 - A. A/C Switch: ON
 - B. Blower Speed: High
4. Keep A/C ON with above conditions for at least one minute (in PHEV, BEV, Dual A/C vehicles, leave ON for two minutes).
5. Turn OFF A/C system and cycle power switch to OFF position.

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Disc Brake Rotor Surface Rust Removal

The brake rotors are made of cast iron and may show gradual buildup of surface rust during long-term storage. AT LEAST once every eight weeks, drive the vehicle and use the brakes normally. This regular usage will help prevent severe rust buildup and the possibility of unwanted brake vibration concerns due to rust.

**Figure 2. Slight Rust on Rotor
(Easy to Remove by Braking)**



**Figure 3. Severe Rust on Rotor
(Hard to Remove by Braking)**



Drive the vehicle on a level road in a safe area and apply the brakes normally. Repeat the brake application several times. Refer to the table below to determine how many brake applications are required based on speed limits and traffic conditions in your area.

Table 3.

SPEED	COMPLETED STOPS
60 – 0 mph (95 – 0 km/h)	5
40 – 0 mph (65 – 0 km/h)	10
30 – 0 mph (50 – 0 km/h)	20
20 – 0 mph (30 – 0 km/h)	30

NOTE

- Electrified vehicles may require additional braking applications.
- If brake vibration still occurs AFTER the braking cycle, determine the root cause of the brake vibration and repair.
- Brake rotor resurfacing may be required if the rust is severe and resulted in excessive rotor thickness variation.