REPORT NUMBER 114-GTL-21-002

SAFETY COMPLIANCE TESTING FOR FMVSS NO. 114 THEFT PROTECTION

FORD MOTOR CO.
2021 FORD RANGER, TRUCK
NHTSA NO. C20210201

GENERAL TESTING LABORATORIES, INC.
1623 LEEDSTOWN ROAD
COLONIAL BEACH, VIRGINIA 22443



February 1, 2021

FINAL REPORT

PREPARED FOR

U. S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
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16. Abstract Compliance tests were conducted on the subject 2021 FORD RANGER TRUCK in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-114-04 for the determination of FMVSS 114 compliance. Test failures identified were as follows: None		
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TABLE OF CONTENTS

SECTION	PAGE
1. Purpose of Compliance Test	1
2. Test Procedure and Summary of Results	2
3. Test Data	3
4. Test Equipment List	13
5. Photographs	14
5.1 ¾ Frontal View from Left Side of Vehicle	
5.2 Vehicle Certification Label	
5.3 Vehicle Tire Information Label	
5.4 Close-up View of Key	
5.5 Key Receptacle/Switch	
5.6 Transmission Gear Selector	
5.7 Access to Emergency Gear Selector Release	
5.8 Dash Warning for Transmission Not In Park	
6. Vehicle Owner's Manual (Applicable Pages)	23

SECTION 1

PURPOSE OF COMPLIANCE TEST

1.0 PURPOSE OF TEST

A model year 2021 FORD RANGER TRUCK was subjected to Federal Motor Vehicle Safety Standard (FMVSS) No. 114 testing to determine if the vehicle was in compliance with the requirements of the standard. FMVSS 114 specifies requirements to decrease the likelihood that a vehicle is stolen, or accidentally set in motion.

1.1 The test vehicle was a 2021 FORD RANGER TRUCK. The vehicle was identified as follows:

A. Vehicle Identification Number: 1FTER1EH4MLD00127

B. NHTSA No.: C20210201

C. Manufacturer: FORD MOTOR CO.

D. Manufacture Date: 12/20

1.2 TEST DATE

The test vehicle was subjected to FMVSS No. 114 testing on January 25-26, 2021.

SECTION 2

TEST PROCEDURE AND SUMMARY OF RESULTS

2.0 TEST PROCEDURE

All tests were conducted in accordance with NHTSA, Office of Vehicle Safety Compliance (OVSC) Laboratory Procedure TP-114-04 and General Testing Laboratories, Inc. (GTL) Test Procedure, TP-114-04, “Theft Protection and Rollaway Prevention”.

2.1 SUMMARY OF RESULTS

Test data indicate the FMVSS 114 requirements appear to have been satisfied. All test data resulting from the tests were recorded on test data sheets in Section 3.

SECTION 3

TEST DATA

3.0 TEST RESULTS

The following data sheets document the results of FMVSS 114 testing on the 2021 FORD RANGER TRUCK.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 – VEHICLE IDENTIFICATION

TEST DATE: 01/25/21 LAB.: General Testing Laboratories
CONTRACT: DTNH22-16-D-00031 VEH. NHTSA NO.: C20210201
VIN: 1FTER1EH4MLD00127 BUILD DATE: 12/20
MY/MAKE/MODEL/BODY STYLE: 2021 FORD RANGER TRUCK

TRANSMISSION TYPE:
Automatic X; Manual ____; Other ____ (describe: 10 SPEED)

DRIVE TRAIN TYPE:
Front Wheel ____; Rear Wheel X; 4-Wheel ____; AWD ____

FUEL TANK LEVEL: 100 (% OF max.) MILEAGE: 24 miles

VEHICLE STARTING SYSTEM:

Location of the starting system:
Right side of the steering column.

Selectable settings:
Off, Acc, On, Start

Explain how the system is activated:
The system is activated by inserting the physical key into the ignition lock cylinder and rotating clockwise to the START position. The vehicle must be in either Park or Neutral.

KEY

Description of the key:
Traditional metal key with embedded key code.

STARTING SYSTEM ACTIVATION

Describe how the key is inserted into the starting system:
The Key is physically inserted into the ignition lock cylinder and rotated to one of the ignition positions.

Describe how the key is used to activate the starting system:
The Starting System is activated when the physical key is rotated clockwise to one of the ignition positions.

Describe how the key is removed from the starting system:
The key is removed from the starting system after the vehicle is placed in Park and the key is rotated clockwise to the OFF position and removed from the ignition cylinder.

FMVSS 114, THEFT PROTECTION
DATA SHEET 1 continued

GEAR SELECTION CONTROL

Describe the gear selection control:
The gear selection control is a gear selector lever located in the center console. It has a push button release on the front of the knob.

Describe how the gear selection control is activated:
Gear selector control is activated by depressing the brake pedal, pressing the release button on the front of the selector and moving lever to the desired position.

Describe all of the selectable settings:
Park, Reverse, Neutral, Drive, Sport

IMMOBILIZER
Is the vehicle equipped with an immobilizer YES X NO

Describe the immobilizer device and how it prevents vehicle theft (if equipped):
The vehicle is equipped with an immobilizer which prevents vehicle from starting without the correct key code.

OPTIONAL RELEASE DEVICES

Describe if the vehicle is equipped with optional release devices:
Yes. Gear Selector had an emergency release

OPTIONAL RELEASE DEVICES:
Key Removal Gear Selection Control X None Other

VEHICLE FLUIDS
Check all vehicle fluids and adjust to the proper levels for operation: Full

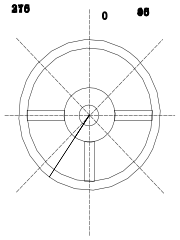
VEHICLE TIRE PLACARD INFORMATION
Vehicle Mfg. Recommended Tire Inflation Pressure
(kPa): Front 240 Rear 240

TIRE INFLATION PRESSURES:

Measured (kPa): LF 240 LR 240 RF 240 RR 240

WEIGHT
Vehicle Curb Weight(kg): 1870 Weight of Driver (kg): 91 (target = 91kg)

FMVSS 114, THEFT PROTECTION
DATA SHEET 2

REQUIREMENT S5.1.1	PASS	FAIL
Engine cannot be started without using the key _X_Yes ___No	X	
With key removed, steering wheel locks: Yes: ____ No: X Identify steering wheel locking position(s) on wheel using arrow(s) Clockwise: _____N/A_____ (degrees) Counterclockwise:__N/A_____ (degrees)  Service brake must be depressed in order to start engine Yes ____ No: X Key removal prevents forward self-mobility: Yes:__X___ No:___ If yes describe: The vehicle will not start without a key with correct key code in range.		
When key is removed from the starting system, starting of the engine or motor and either steering or self mobility is prevented. Yes:_X_ No:_____	X	

REMARKS:

FMVSS 114, THEFT PROTECTION
DATA SHEET 2 continued

REQUIREMENT S5.1.3	PASS	FAIL
An audible warning is activated whenever the key is in any starting system position with the exception of “on” and “start” and the door closest to the driver’s designated seating position is opened. Yes__X__ No _____ Identify ALL key/starting system position setting: OFF, ACC, ON, START	X	

REQUIREMENT S5.1.4	PASS	FAIL
With the vehicle engine or motor shut down and the transmission gear selection control in any position other than “park”; The steering wheel can rotate without locking? Yes__X___ No_____	X	
The vehicle is free to roll forward? Yes__X___ No_____	X	

REMARKS:

RECORDED BY: G. Farrand DATE: 01/26/21
APPROVED BY: D. Messick

FMVSS 114, ROLLAWAY PREVENTION
DATA SHEET 3
(for vehicles equipped with transmission with a “park” position)

VEH. NHTSA NO.: C20210201 TEST DATE: 01/26/21

REQUIREMENT S5.2.1	PASS	FAIL
The starting system prevents key removal in ALL gear selection control positions except “park”. Yes X No __	X	
Can the gear selection control be placed between each gear selection position and will it remain there without assistance? Yes_____ No X	X	
If yes, can the key be removed from the starting system? Yes_____ No __	N/A	
If the key can be removed from the vehicle starting system when the gear selection control is not locked in “park”, a mechanism shall exist which, upon key removal, the vehicle transmission or gear selection control shall become locked in “park” as the direct result of removing the key. If such a mechanism exists, describe the mechanism and its function:		

REQUIREMENT S5.2.2	PASS	FAIL
The gear selection control is locked in the “park” position when the key is removed from the starting system. Yes X No_____	X	

REMARKS:

DATA SHEET 3 continued

REQUIREMENT S5.2.3	PASS	FAIL
KEY REMOVAL OVERRIDE OPTION: The vehicle is equipped with an override device that allows the user to Remove the key from the "starting system without the transmission or gear selection control in the "park" position. Yes ____ No X If yes, describe the override device design and mode of activation: Fill in the section below that describes the condition for which the user is allowed to remove the key from the starting system without the transmission or gear selection control in the "park" position: ELECTRICAL FAILURE In the event of an electrical failure, including battery discharge, key removal from the starting system without the transmission or gear selection control locked in "park" is permitted". Yes____ No X OVERRIDE DEVICE WITH NO COVER: The following condition is prevented: Steering_____ Self-Mobility_____ The device requires both the use of a tool to activate and simultaneous activation of the override device and removal of the key from the starting system Yes ____ No_____ OVERRIDE DEVICE WITH AN OPAQUE COVER The following condition is prevented: Steering_____ Self-Mobility_____ The device is covered by an opaque surface which prevents sight of and use of the device. Yes_____ No_____ The opaque surface can only be removed by using a screwdriver or other tool: Yes_____ No_____	X X N/A N/A	

REMARKS:

DATA SHEET 3 continued

REQUIREMENT S5.2.4	PASS	FAIL
GEAR SELECTION CONTROL OVERRIDE DEVICE The vehicle is equipped with an override device that allows the user to move the gear selection control from "park" after the key has been removed from the starting system. Yes__X__ No ___ If yes, select the type of override device used: Key_____ Opaque Cover__X___ No Cover_____ Describe the override device design and mode of activation (if equipped): **Remove shifter boot with screwdriver to access release lever in center console.** **FILL IN THE SECTION BELOW THAT APPLIES:** OVERRIDE OPERATED WITH KEY: The key is required to operate the override device that allows the user to move the gear selection control from "park" after the key has been removed from the starting system. Yes_____ No _____ OVERRIDE DEVICE WITH NO COVER As a direct result of removing the key from the starting system, the following is prevented: Steering_____ Self-Mobility_____ The override device requires the use of a tool to operate. Yes_____ No _____ Simultaneous activation of the override device and movement of the gear selection control from "park" is required Yes_____ No_____ OVERRIDE DEVICE WITH AN OPAQUE COVER As a direct result of removing the key from the starting system, the following is prevented: Steering_____ Self-Mobility X The opaque surface cover prevents sight of and use of the device: Yes___X___ No_____ The opaque surface cover can only be removed by using a screwdriver or other tool: Yes___X__ No_____	X N/A N/A X	

REMARKS:

DATA SHEET 3 continued

REQUIREMENTS S5.2.5	PASS	FAIL
VEHICLE FACING UPHILL ON 10% GRADE With the gear selection control in park measure movement of the vehicle down the slope upon releasing the service brake. Test grade: 15 % (9% to 15%) Measured movement: 30 mm (150mm maximum) **NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%. Test grade: _____ % (9% to 10%) Measured movement: _____ mm (150 mm maximum)	X	
VEHICLE FACING DOWNHILL ON 10% GRADE With the gear selection control in park measure movement of the vehicle down the slope upon releasing the service brake. Test grade: 15 % (9% to 15%) Measured movement: 26 mm (150mm maximum) **NOTE:** Repeat procedure if vehicle fails on grade in excess of 10%. Test grade: _____ % (9% to 10%) Measured movement: _____ mm (150 mm maximum)	X	

REMARKS:

RECORDED BY: G. Farrand DATE: 01/26/21
APPROVED BY: D. Messick

DATA SHEET 3 continued

REQUIREMENTS S5.3	PASS	FAIL
With the key in the "OFF" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X	x	
With the key in the "ACC" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X	x	
With the key in the "ON" position (engine off), the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X	x	
With the key in the "START" position, the transmission will shift out of "PARK" without the service brake being applied. Yes____ No X	X	
With the key in the "OTHER" position (please specify), the transmission will shift out of "PARK" without the service brake being applied. Yes____ No __	N/A	
Does the key stay between starting system positions without being held by operator? Yes____ No X If so, please describe.	x	
With the vehicle battery disconnected, the gear selection control is locked in the "PARK" position. Yes_X_ No ___	x	
Brake force readings (force required to allow the transmission to shift out of "park"):		
The vehicle is equipped with adjustable pedals: Yes____ No X	x	
Fore Position: Aft Position (if applicable) Reading 1 71.2 N — Reading 1 _____ Reading 2 75.6 N — Reading 2 _____ Reading 3 75.6 N — Reading 3 _____ Reading 4 75.6 N — Reading 4 _____ Reading 5 71.2 N — Reading 5 _____ Avg. 73.8 N — Avg. _____		
*For vehicles equipped with adjustable pedals, record readings for both the Fore and Aft positions. For non-adjustable pedal vehicles, use the Fore position column to record values.	X	

REMARKS:

RECORDED BY: G. Farrand DATE: 01/26/21

APPROVED BY: D. Messick

SECTION 4
TEST EQUIPMENT LIST

ITEM	MFR	MODEL	S/N	CAL. PERIOD	DATE OF NEXT CALIB.	REMARKS
SLR DIGITAL CAMERA	NIKON	D50	N/A	N/A	N/A	
TIRE PRESSURE GAUGE	WESKLER	45-0/100	107	12 MO.	03/21	
INCLINOMETER	MITUTOYO	PRO 360	950-315	N/A	BEFORE USE	
STEEL TAPE	STANLEY	FAT MAX	33-890	12 MO.	03/21	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	03/21	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	03/21	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	03/21	
WHEEL SCALES	INTERCOMP	SERIES 94	199744	12 MO.	03/21	
SPRING SCALE	CHATILLON	DPP-10	8761	12 MO.	03/21	

SECTION 5

PHOTOGRAPHS



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.1
¾ FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.2
VEHICLE CERTIFICATION LABEL



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.3
VEHICLE TIRE INFORMATION LABEL



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.4
CLOSE-UP VIEW OF KEY



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.5
IGNITION SWITCH



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.6
CLOSE-UP VIEW OF GEAR SELECTOR CONTROL



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

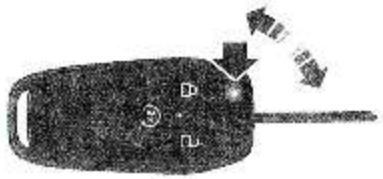
FIGURE 5.7
ACCESS TO EMERGENCY GEAR SELECTOR RELEASE



2021 FORD RANGER TRUCK
NHTSA NO. C20210201
FMVSS NO. 114

FIGURE 5.8
DASH WARNING FOR TRANSMISSION NOT IN PARK

SECTION 6
VEHICLE OWNER'S MANUAL (APPLICABLE PAGES)



E270616

Press the button to release the key blade. Press and hold the button to fold the key blade back in when not in use.



Note: *Your vehicle keys come with a security label that provides important key cut information. Keep the label in a safe place for future reference.*

Intelligent Access Key (If Equipped)

Note: *You may not be able to shift out of park (P) unless the intelligent access key is inside your vehicle.*

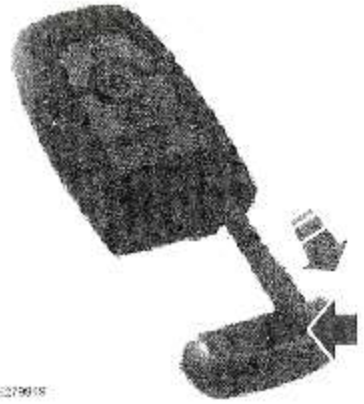


E279940

The remote control operates the power locks. The remote control must be in your vehicle to use the push button start.

Removable Key Blade

The remote control also contains a removable key blade that you can use to unlock your vehicle.



E279615

Press the release button and pull the key blade out.



Note: *Your vehicle keys came with a security label that provides important key cut information. Keep the label in a safe place for future reference.*

Replacing the Battery

Note: *Refer to local regulations when disposing of remote control batteries.*

Note: *Do not wipe off any grease on the battery terminals or on the back surface of the circuit board.*

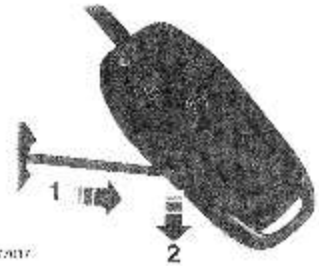
Note: *Replacing the battery does not erase the programmed key from your vehicle. The remote control should operate normally.*

A message appears in the information display when the remote control battery is low. See **General Information** (page 96).

Integrated Keyhead Transmitter

The remote control uses one coin-type three-volt lithium battery.

Press the button to release the key blade before beginning the procedure.



E270617

1. Insert a suitable tool, for example a screwdriver, in the position shown and gently push the clip.
2. Press the clip down to release the battery cover.



3. Carefully remove the cover.

Remote Start (if Equipped)

WARNING: Do not start the engine in a closed garage or in other enclosed areas. Exhaust fumes are toxic. Always open the garage door before you start the engine. Failure to follow this instruction could result in personal injury or death.

Note: *Do not use remote start if your fuel level is low.*

The remote start button is on the remote control.

This feature allows you to start your vehicle from the outside. The remote control has an extended operating range.

If your vehicle has automatic climate control, you can configure it to operate when you remote start your vehicle. See **Climate Control** (page 117). A manual climate control system will run at the setting it was set to when you switched your vehicle off.

Many states and provinces have restrictions for the use of remote start. Check your local and state or provincial laws for specific requirements regarding remote start systems.

The remote start system does not work if:

- The ignition is on.
- The alarm system triggers.
- You disable the feature.
- The hood is open.
- The transmission is not in park (P).
- The vehicle battery voltage is too low.
- The service engine soon light is on.

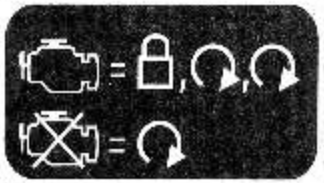
Remote Control Feedback (if Equipped)

An LED on the remote control provides status feedback of remote start or stop commands.

LED	Status
Solid green	Remote start successful
Solid red	Remote stop successful
Blinking red	Request failed or status not received
Blinking green	Status incomplete

Remote Starting Your Vehicle

Note: *You must press each button within three seconds of each other. If you do not follow this sequence, your vehicle does not start remotely, the direction indicators do not flash twice and the horn does not sound.*



E138626

To remote start your vehicle:

1. Press the lock button to lock all the doors.
2. Press the remote start button twice. The exterior lamps flash twice.

The horn sounds if the system fails to start.

Note: *You must press the push button ignition switch on the instrument panel once while applying the brake pedal before driving your vehicle.*

The power windows do not work during remote start and the radio does not turn on automatically.

The parking lamps remain on and your vehicle will run for 5, 10 or 15 minutes, depending on the setting.

Extending the Engine Running Time

To extend the engine running time duration of your vehicle during remote start, repeat steps 1 and 2 while the engine is running. If the duration is set to 15 minutes, the duration extends by another 15 minutes. For example, if your vehicle had been running from the first remote start for 10 minutes, your vehicle continues to run now for a total of 30 minutes. You can extend the engine running time duration to a maximum of 30 minutes.

Wait at least five seconds before remote starting after the engine stops running.

Turning Your Vehicle Off After Remote Starting

Press the button once. Your vehicle and the parking lamps turn off.

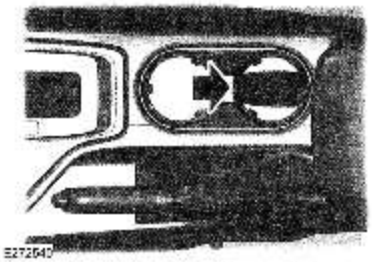
You may have to be closer to your vehicle than when starting due to ground reflection and the added noise of your running vehicle.

You can switch this feature on or off in the information display.

REPLACING A LOST KEY OR REMOTE CONTROL

Replacement keys or remote controls can be purchased from an authorized dealer. Authorized dealers can program remote controls for your vehicle.

PASSIVE KEY BACKUP POSITION (if Equipped)



E272647

Place the passive key in the position shown, with the buttons facing upward. Make sure that you place the key fob in the center of the cup holder.

The top or bottom end of the key must be pointing towards the front or rear of the vehicle.

With the key in this position, press the brake or clutch pedal, then press the start button to switch on your vehicle.

PASSIVE ANTI-THEFT SYSTEM

Note: *The system is not compatible with non-Ford aftermarket remote start systems. Use of these systems could result in vehicle starting problems and a loss of security protection.*

Note: *Metallic objects, electronic devices or a second coded key on the same key chain could cause vehicle starting problems if they are too close to the key when starting the engine. Prevent these objects from touching the coded key while starting the engine. Switch the ignition off, move all objects on the key chain away from the coded key and restart the engine if a problem occurs.*

Note: *Do not leave a duplicate coded key in the vehicle. Always take your keys and lock all doors when leaving the vehicle.*

SecuriLock®

The system is an engine immobilization system. It helps to prevent anyone from starting the engine without using a coded key programmed to your vehicle. Using the wrong key could prevent the engine from starting. A message may appear in the information display.

If you are unable to start the engine with a correctly coded key, there is a problem with the system and a message could appear in the information display.

Automatic Arming

The vehicle arms immediately after you switch the ignition off.

Automatic Disarming

Switching the ignition on with a coded key disarms the vehicle.

Replacement Keys

Note: *Your vehicle comes with two integrated keyhead transmitters or two intelligent access keys.*

The integrated keyhead transmitter functions as a programmed ignition key that operates all the locks and starts the vehicle, as well as a remote control.

The intelligent access key functions as a programmed key that operates the driver door lock and activates the intelligent access with push button start system, as well as a remote control.

If your programmed transmitters or standard SecuriLock coded keys (integrated keyhead transmitters only) are lost or stolen and you do not have an extra coded key, you will need to have your vehicle towed to an authorized dealer. You need to erase the key codes from your vehicle and program new coded keys.

Store an extra programmed key away from the vehicle in a safe place to help prevent any inconveniences. See your authorized dealer to purchase additional spare or replacement keys.

Programming a Spare Intelligent Access Key (If Equipped)

See your authorized dealer to have additional keys programmed to your vehicle.

ANTI-THEFT ALARM (IF EQUIPPED)

Alarm System

Perimeter Alarm

The perimeter alarm is a deterrent against unauthorized access to your vehicle through the doors, luggage compartment and the hood.

Panic Alarm (If Equipped)

The alarm can be activated using the remote control.

Triggering the Alarm

- If someone opens a door or the hood without a valid key or remote control.
- If you switch the ignition on without a valid key.

If the alarm sounds, the alarm horn sounds for 30 seconds and the hazard warning lamps flash for five minutes.

Any further attempts to carry out one of the above will sound the alarm again.

Arming the Alarm

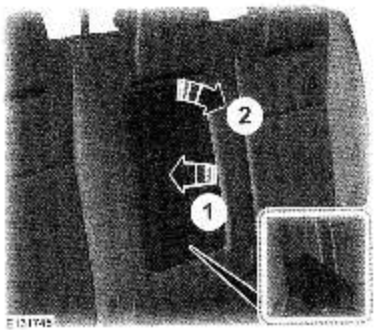
Press the lock button once to lock your vehicle and arm the alarm.

Disarming the Alarm

Disarm the alarm by any of the following actions:

- Unlock the doors with the key and switch the ignition on with a correctly coded key within 12 seconds.
- Unlock the doors or luggage compartment using the remote control.

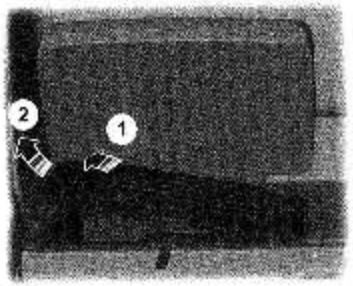
REAR SEAT ARMREST (IF EQUIPPED)



1. Push the armrest into the seatback to store it.
2. Pull the strap to open the armrest.

UNDER SEAT STORAGE

SuperCab



1. Lift the seat cushion. See **Rear Seats** (page 128).
2. Lift the handle in the direction shown.
3. Slide it in the direction shown to remove the under seat storage cover.

GENERAL INFORMATION

WARNING: Extended idling at high engine speeds can produce very high temperatures in the engine and exhaust system, creating the risk of fire or other damage.

WARNING: Do not park, idle or drive your vehicle on dry grass or other dry ground cover. The emission system heats up the engine compartment and exhaust system, creating the risk of fire.

WARNING: Do not start the engine in a closed garage or in other enclosed areas. Exhaust fumes can be toxic. Always open the garage door before you start the engine.

WARNING: Exhaust leaks may result in entry of harmful and potentially lethal fumes into the passenger compartment. If you smell exhaust fumes inside your vehicle, have your vehicle inspected immediately. Do not drive if you smell exhaust fumes.

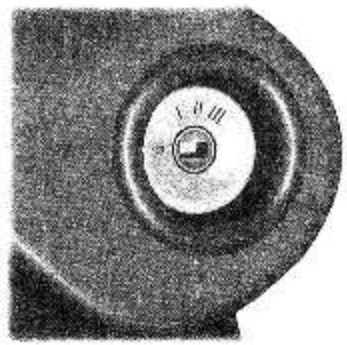
WARNING: Switching off the engine when your vehicle is still moving results in a significant decrease in braking assistance. Higher effort is required to apply the brakes and to stop your vehicle. A significant decrease in steering assistance could also occur. The steering does not lock, but higher effort could be required to steer your vehicle. When you switch the ignition off, some electrical circuits, for example airbags, also turn off. If you unintentionally switch the ignition off, shift into neutral (N) and restart the engine.

If you disconnect the battery, your vehicle may exhibit some unusual driving characteristics for approximately 5 mi (8 km) after you reconnect it. This is because the engine management system must realign itself with the engine. You can disregard any unusual driving characteristics during this period.

The powertrain control system meets all Canadian interference-causing equipment standard requirements regulating the impulse electrical field or radio noise.

When you start the engine, avoid pressing the accelerator pedal before and during operation. Only use the accelerator pedal when you have difficulty starting the engine.

IGNITION SWITCH



E247585

Note: *Make sure the key is clean before inserting it into any lock cylinder.*

Note: *Do not leave the key in the ignition for an extended period of time when the engine is not running. This is to prevent the vehicle battery from losing charge.*

Switching the Ignition Off

Turn the key to position *0*.

Switching the Ignition to Accessory Mode

Turn the key to position *I*. Electrical accessories, for example the radio operate without the engine running.

Switching the Ignition On

Turn the key to position *II*. All electrical circuits and accessories are operational and the warning lamps and indicators illuminate.

Starting the Engine

Turn the key to position *III*. Release the key when the engine starts.

KEYLESS STARTING (IF EQUIPPED)

Note: *The system may not function if the intelligent access key is close to metal objects or electronic devices, for example keys or a cell phone.*

Note: *A valid intelligent access key must be located inside your vehicle to switch the ignition on and start your vehicle.*

Ignition Modes



E144447

The keyless starting system has three modes:

Off: Turns the ignition off.

- Without applying the brake pedal, press and release the button once when the ignition is in the on mode, or when your vehicle is running but is not moving.

On: All electrical circuits are operational and the warning lamps and indicators illuminate.

- Without applying the brake pedal, press and release the button once.

Start: Starts your vehicle. The engine may not start when your vehicle starts.

- Press the brake pedal, and then press the button for any length of time. An indicator light on the button illuminates when the ignition is on and when your vehicle starts.

STARTING A GASOLINE ENGINE

When you start the engine, the idle speed increases. This helps to warm up the engine. If the engine idle speed does not slow down automatically, have your vehicle checked by an authorized dealer.

Note: *You can crank the engine for a total of 60 seconds without the engine starting before the starting system temporarily disables. The 60 seconds does not have to be all at once. For example, if you crank the engine three times for 20 seconds each time, without the engine starting, you reached the 60 second time limit. A message appears in the information display alerting you that you exceeded the cranking time. You cannot attempt to start the engine for at least 15 minutes. After 15 minutes, you are limited to a 15-second engine cranking time. You need to wait 60 minutes before you can crank the engine for 60 seconds again.*

Before starting your vehicle, check the following:

- Make sure all occupants have fastened their seatbelt.
- Make sure the headlamps and electrical accessories are off.
- Make sure the parking brake is on.
- Make sure the transmission is in park (P).
- Switch the ignition on.

Vehicles with an Ignition Key

Note: *Do not touch the accelerator pedal.*

1. Fully depress the brake pedal.
2. Turn the key to the start position to start the engine.

Note: *The engine may continue cranking for up to 15 seconds or until it starts.*

Note: *If you cannot start the engine on the first try, wait for a short period and try again.*

Vehicles with Keyless Start

Note: *Do not touch the accelerator pedal.*

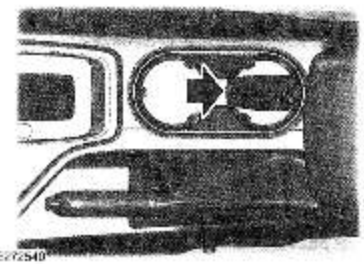
Note: *You must have your intelligent access key in your vehicle in order to shift the transmission out of park (P).*

1. Fully depress the brake pedal.
2. Press the push button ignition switch.

The system does not function if:

- The passive key frequencies are jammed.
- The key battery has no charge.

If you are unable to start your vehicle, do the following:



E272540

1. Open the floor console storage compartment lid.
2. Insert the passive key into the backup slot.
3. With the key in this position, press the brake pedal then press the push button ignition switch to switch the ignition on and start your vehicle.

Fast Restart

The fast restart feature allows you to restart your vehicle within 20 seconds of switching it off, even if it does not detect a valid passive key. After 20 seconds, you can no longer start your vehicle if it does not detect a valid passive key. Within 20 seconds of switching the engine off, press the brake pedal and press the push button ignition switch.

Once your vehicle starts, it remains running until you press the push button ignition switch, even if your vehicle does not detect a valid passive key. If you open and close a door while your vehicle is running, the system searches for a valid passive key. You cannot start your vehicle if the system does not detect a valid passive key within 20 seconds.

Failure to Start

If you cannot start the engine after three attempts, wait 10 seconds and follow this procedure:

1. Fully depress the brake pedal.
2. Shift into park (P).
3. Fully depress the accelerator pedal and hold it there.
4. Start the engine.

Automatic Engine Shutdown

For vehicles with a keyless ignition, this feature automatically shuts down the engine if it has been idling for an extended period. The ignition also turns off in order to save battery power. Before your vehicle shuts down, a message appears in the information display showing a timer counting down from 30 seconds. If you do not intervene within 30 seconds, your vehicle shuts down. Another message appears in the information display to inform you that your vehicle has shut down to save fuel. Start your vehicle as you normally do.

Automatic Engine Shutdown Override

Note: *You cannot permanently switch off the automatic shutdown feature. When you switch it off temporarily, it turns on at the next ignition cycle.*

You can stop the shutdown, or reset the timer, at any point before the 30-second countdown has expired by doing any of the following:

- You can reset the timer by interacting with your vehicle, for example pressing the brake or accelerator pedal.
- You can temporarily switch off the shutdown feature any time the ignition is on using the information display. See **Information Displays** (page 96). The feature only remains off for the current ignition cycle.
- During the 30-second countdown, the system prompts you to press OK or RESET to temporarily switch the feature off for the current ignition cycle only.

Stopping the Engine When Your Vehicle is Stationary

Vehicles with an Ignition Key

1. Shift into park (P).
2. Switch the ignition off.
3. Apply the parking brake.

Vehicles with Keyless Start

1. Shift into park (P).
2. Press the push button ignition switch.
3. Apply the parking brake.

Note: *The ignition, all electrical circuits and all warning lamps and indicators will be turned off.*

Note: *If the engine is idling for 30 minutes the ignition and engine automatically shut down.*

Stopping the Engine When Your Vehicle is Moving

WARNING: Switching off the engine when your vehicle is still moving results in a significant decrease in braking assistance. Higher effort is required to apply the brakes and to stop your vehicle. A significant decrease in steering assistance could also occur. The steering does not lock, but higher effort could be required to steer your vehicle. When you switch the ignition off, some electrical circuits, for example airbags, also turn off. If you unintentionally switch the ignition off, shift into neutral (N) and restart the engine.

Vehicles with an Ignition Key

1. Shift into neutral and use the brakes to bring your vehicle to a safe stop.
2. When your vehicle has stopped, shift into park (P) and switch the ignition off.
3. Apply the parking brake.

Vehicles with Keyless Start

1. Shift into neutral and use the brakes to bring your vehicle to a safe stop.
2. When your vehicle has stopped, shift into park (P).
3. Press and hold the push button ignition switch, or press it three times within two seconds.
4. Apply the parking brake.

Guarding Against Exhaust Fumes

WARNING: Exhaust leaks may result in entry of harmful and potentially lethal fumes into the passenger compartment. If you smell exhaust fumes inside your vehicle, have your vehicle inspected immediately. Do not drive if you smell exhaust fumes.

Important Ventilating Information

If you stop your vehicle and then leave the engine idling for long periods, we recommend that you do one of the following:

- Open the windows at least 1 in (3 cm).
- Set your climate control to outside air.

ENGINE BLOCK HEATER (IF EQUIPPED)

WARNING: Failure to follow engine block heater instructions could result in property damage or serious personal injury.

WARNING: Do not use your heater with ungrounded electrical systems or two-pronged adapters. There is a risk of electrical shock.

WARNING: Do not fully close the hood, or allow it to drop under its own weight when using the engine block heater. This could damage the power cable and may cause an electrical short resulting in fire, injury and property damage.

Note: *The heater is most effective when outdoor temperatures are below 0°F (-18°C).*

The heater acts as a starting aid by warming the engine coolant. This allows the climate control system to respond quickly. The equipment includes a heater element, installed in the engine block and a wire harness. You can connect the system to a grounded 120-volt AC electrical source.

We recommend that you do the following for a safe and correct operation:

- Use a 16-gauge outdoor extension cord that is product certified by Underwriter's Laboratory (UL) or Canadian Standards Association (CSA). This extension cord must be suitable for use outdoors, in cold temperatures, and be clearly marked Suitable for Use with Outdoor Appliances. Do not use an indoor extension cord outdoors. This could result in an electric shock or become a fire hazard.
- Use as short an extension cord as possible.
- Do not use multiple extension cords.
- Make sure that when in operation, the extension cord plug and heater cord plug connections are free and clear of water. This could cause an electric shock or fire.
- If the block heater cord is under the hood, Do Not remove the wiring from its original location. Do Not close the hood on the extension wiring.
- Make sure your vehicle is parked in a clean area, clear of combustibles.
- Make sure the heater, heater cord and extension cord are firmly connected.
- Check for heat anywhere in the electrical hookup once the system has been operating for approximately 30 minutes.
- Make sure the system is unplugged and properly stowed before starting and driving your vehicle. Make sure the protective cover seals the prongs of the block heater cord plug when not in use.
- Make sure the heater system is checked for proper operation before winter.

Using the Engine Block Heater

Make sure the receptacle terminals are clean and dry prior to use. Clean them with a dry cloth if necessary.

The heater uses 0.4 to 1.0 kilowatt-hours of energy per hour of use. The system does not have a thermostat. It achieves maximum temperature after approximately three hours of operation. Using the heater longer than three hours does not improve system performance and unnecessarily uses electricity.

AUTO-START-STOP

The system helps reduce fuel consumption by automatically shutting off and restarting the engine while your vehicle is stopped. The engine will restart automatically when you release the brake pedal. In some situations, your vehicle may restart automatically, for example:

- To maintain interior comfort.
- To recharge the battery.

Note: *Power assist steering is turned off when the engine is off.*

> **WARNING:** Apply the parking brake, shift into park (P), switch the ignition off and remove the key before you leave your vehicle. Failure to follow this instruction could result in personal injury or death.
>
> **WARNING:** Apply the parking brake, shift into park (P), switch the ignition off and remove the key before you open the hood or have any service or repair work completed. If you do not switch the ignition off, the engine could restart at any time. Failure to follow this instruction could result in personal injury or death.
>
> **WARNING:** The system may require the engine to automatically restart when the auto-start-stop indicator illuminates green or flashes amber. Failure to follow this instruction could result in personal injury.

The Auto-Start-Stop system status is available at a glance within the information display. See **Information Displays** (page 96).

Enabling Auto-Start-Stop

The system is automatically enabled every time you start your vehicle if the following conditions are met:

- The Auto-Start-Stop button is not pressed (not illuminated).
- Your vehicle exceeds an initial speed of 3 mph (5 km/h) after you have initially started the vehicle.
- Your vehicle is stopped.
- Your foot is on the brake pedal.
- The transmission is in drive (D).
- The driver's door is closed.
- There is adequate brake vacuum.
- The interior compartment has been cooled or warmed to an acceptable level.
- The front windshield defroster is off.
- The steering wheel is not turned rapidly or is not at a sharp angle.
- The vehicle is not on a steep road grade.
- The battery is within optimal operating conditions (battery state of charge and temperature in range).
- The engine coolant is at operating temperature.
- Elevation is below approximately 12,000 ft (3,650 m).
- Ambient temperature is moderate.



The green Auto-Start-Stop indicator light on the instrument cluster will illuminate to indicate when the automatic engine stop occurs.



If the instrument cluster is equipped with a grey Auto-Start-Stop indicator light, it is illuminated when automatic engine stop is not available due to one of the above noted conditions not being met.

AUTOMATIC TRANSMISSION

WARNING: Always fully apply the parking brake and make sure you shift into park (P). Failure to follow this instruction could result in personal injury or death.

WARNING: Do not apply the brake pedal and accelerator pedal simultaneously. Applying both pedals simultaneously for more than a few seconds will limit engine performance, which may result in difficulty maintaining speed in traffic and could lead to serious injury.

Note: *A cold engine has a higher idle speed. This increases the tendency for your vehicle to creep when you have selected a drive gear.*

Transmission Selector Lever Positions



- P Park.
- R Reverse.
- N Neutral.
- D Drive.
- S Sport mode and manual shifting.

To select a position, depress the button (1) then pull back on the selector lever (2) to engage reverse (R), neutral (N) or drive (D). To select sport mode, first engage drive (D), depress button (1) and then pull back on the selector lever (2). The current gear displays in the instrument panel.

Park (P)

Note: *To move the transmission selector lever from park (P), apply the brake with the ignition key in position II.*

Note: *An audible warning sounds if you open the driver door and you have not moved the selector lever to park (P). The battery saver deactivates the audible warning after a period of time.*

In this position, there is no power transmitted to the driven wheels, and the transmission locks. You can start the engine with the transmission selector lever in this position.

Reverse (R)

Shift the selector lever to reverse (R) to allow your vehicle to move backward.

Neutral (N)

In this position, there is no power transmitted to the driven wheels, but the transmission does not lock. You can start the engine with the transmission selector lever in this position.

Drive (D)

Drive (D) is the normal driving position for the best fuel economy and smoothness. Shift the transmission selector lever to drive (D) to allow your vehicle to move forward and shift through the forward gears.

The transmission shifts to the appropriate gear for optimum performance based on ambient temperature, road slope, vehicle load and your input.

Sport Mode (S)

Switch on sport mode by shifting the transmission selector lever to sport (S). In sport (S), the transmission selects the optimum gear for best performance. This gear selection is typically lower than that of drive (D), and the shifts are faster.

Tow Mode

To switch on tow mode, press the button on the center console until tow mode is active. The indicator light illuminates in the instrument cluster when the system becomes active.

The tow mode feature:

- Moves upshifts to higher engine speeds to reduce the frequency of transmission shifting.
- Provides engine braking in all forward gears, which slows your vehicle and assists you in controlling your vehicle when descending a slope.
- Depending on driving conditions and load conditions, may downshift the transmission, slow your vehicle and control your vehicle speed when descending a hill, without pressing the accelerator pedal. The amount of downshift braking provided varies based upon the amount you press the brake pedal.

The tow mode feature improves transmission operation when towing a trailer or a heavy load. All transmission gear ranges are available when using tow mode.

To switch off the tow mode feature and return to normal driving mode, press the button on the center console twice. The indicator light turns off when the system turns off. Tow mode also turns off when you power down your vehicle.

SelectShift™ Automatic Transmission

This feature gives you the ability to change gears up or down as desired.

If the engine speed does not exceed the maximum allowable limit, the vehicle allows the downshifts. SelectShift automatically downshifts at low engine speeds to prevent engine stalls.

Note: *Engine damage could occur if you maintain excessive engine revving without shifting.*

SelectShift does not automatically upshift, even if the engine is approaching the RPM limit.

For 10 speed transmissions - with the transmission selector lever in sport (S) position:

- Press the (+) button on the transmission selector lever to upshift.
- Press the (-) button on the transmission selector lever to downshift.



To exit this mode, return the transmission selector lever to drive (D).

When your vehicle is stationary, you can only select the 1st and 2nd gears. Manual shifting is sequential. Therefore, you cannot skip gears.

Progressive Range Selection

This system gives you the ability to lockout gears from the automatic shifting range. This could provide you with an improved driving experience for example, in slippery conditions or when experiencing a steep slope.

With the transmission in drive (D), press the – button to active progressive range selection. The instrument cluster indicates the available and selected gears.

All available gears display with the current gear indicated. Press the – button again to lock out gears beginning with the highest gear. For example, press the – button or twice to lock out 10th and 9th gears. Only the available gears display, and the transmission shifts between the available gears. Press the + button to unlock gears to allow the transmission to shift to higher gears. The transmission shifts within the gear range you select.

Brake-Shift Interlock

WARNING: When doing this procedure, you need to take the transmission out of park (P) which means your vehicle can roll freely. To avoid unwanted vehicle movement, always fully apply the parking brake prior to doing this procedure. Use wheels chocks if appropriate.

WARNING: If the parking brake is fully released, but the brake warning lamp remains illuminated, the brakes may not be working properly. Have your vehicle checked as soon as possible.

Note: *Some markets disable this feature.*

Your vehicle has a feature that prevents moving the gearshift lever from park (P) when the ignition is on and you do not press the brake pedal.

The system requires service if you cannot move the gearshift lever out of park (P) with the ignition on and the brake pedal pressed. It is possible that a fuse has blown, or your vehicle's brake lamps are not operating properly. See **Fuses** (page 247).

If the fuse has not blown and the brake lamps are properly working, the following procedure allows you to move the selector lever from park (P).

Note: *See an authorized dealer as soon as possible if you use this procedure.*

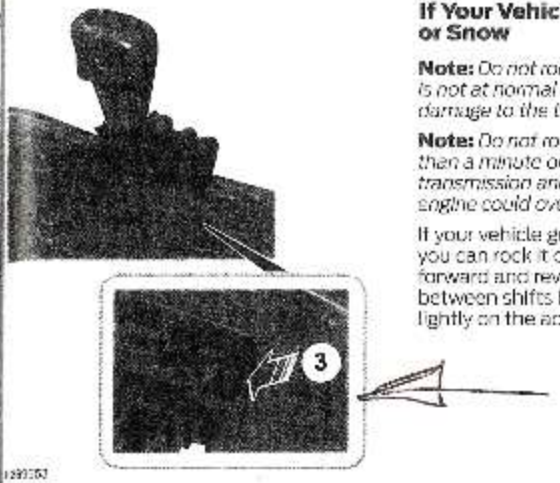
10 Speed Transmission

Apply the parking brake and switch the ignition off before performing this procedure.



1. Insert a screwdriver between the shifter boot material and the trim ring (1) to release the retainer tabs from the top panel trim ring.
2. Lift the shifter boot (2) upwards.





3. Locate the lower white lever (3) on the side of the transmission selector lever.
4. Using the screwdriver, move the lower white lever (3) toward the front of the transmission selector lever.
5. When holding the lower white lever (3) in the forward position, move the transmission selector lever out of the park (P) position and into another gear.

Automatic Transmission Adaptive Learning

This feature may increase durability and provide consistent shift feel over the life of your vehicle. A new vehicle or transmission may have firm shifts, soft shifts or both. This operation is normal and does not affect function or durability of the transmission. Over time, the adaptive learning process fully updates transmission operation.

If Your Vehicle Gets Stuck in Mud or Snow

Note: *Do not rock your vehicle if the engine is not at normal operating temperature or damage to the transmission could occur.*

Note: *Do not rock your vehicle for more than a minute or damage to the transmission and tires could occur, or the engine could overheat.*

If your vehicle gets stuck in mud or snow, you can rock it out by shifting between forward and reverse gears, stopping between shifts in a steady pattern. Press lightly on the accelerator in each gear.