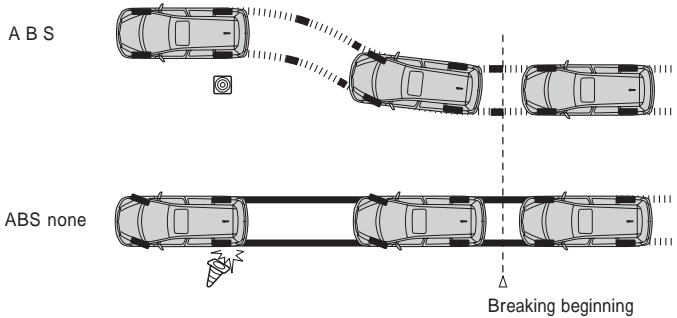


ABS、Brake assistance

What are ABS and the brake assistance?

Working of ABS

ABS controls slipping by preventing the tire that happens when time that slammed on the brakes and applying the brakes on a slippery road being locked (The rotation must stop).



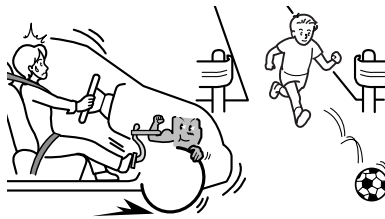
Working of brake assistance

The brake assistance-

When inexperienced those who drive urgent brake to driving when it urgent brakes

- When it falls into panicky when urgent braking

Brake pedal..strong..step..brake performance..enough..demonstrate..drive..person..pedal pressure..increase..have..braking effort..secure..equipment.



ドライバーの踏力での制動力
+
ブレーキアシストの制動力



ABSの効果



ブレーキ性能の
十分な発揮

- Abbreviation of Antilock Brake System (anti lock brake system).



About ABS and the brake assistance

Because ABS has limits in the control of slipping and how of the steering wheel to work, let's bear the safe driving in mind in no overconfidence.

Moreover, the brake assistance of ABS, 2.0L car (Z grade), and 4WD car detects the lock of the tire with the sensor installed in the wheel. The state of the tire greatly influences the system, and do close attention to the state of the tire. Read "Attention of the tire" of P.75 well in detail.

When ABS and the brake assistance operate

About driving

- It is necessary to keep stepping on the brake pedal hard as soon as possible at a rapid brake so that ABS and the brake assistance may demonstrate the effect.



- No pumping brake * at a rapid brake. If the pumping brake is done, the slip distance for brake becomes long.
 - How to apply brake on which it steps little by little dividing brake pedal into several-time.



Step to one's heart's content.



Keep stepping.



Do not loosen, and do the pumping.

About operation

It is not abnormal though the following phenomena might be generated if ABS operates. -

The brake pedal might move, feel the vibration in the body and the steering wheel little by little with the operation sound of ABS, and after the vehicle stops, it hear of the motor sound. -

The brake pedal might enter the interior a little when the operation of ABS ends.

It is not abnormal though the following phenomena might be generated if the brake assistance operates.

2.0L car (Z grade) and 4WD car

The brake comes to be applied strongly when stepping on the brake pedal by the rapidity degree, and the brake pedal might move little by little with the operation sound.

2.0L car (G grade) and 1.8L car (FF car)

The brake comes to be applied strongly when stepping on the brake pedal by the rapidity degree, and ABS might operate.

EBD ^{- 1} ..drinking.. Hataraki

Distribute an appropriate braking effort corresponding to the state of running of the vehicle to the back and forth circle by applying the control technology of ABS. As a result, appropriately do the braking power distribution of four wheels according to the load change according to loading and the deceleration, and secure a high brake performance. In addition, control the braking effort of a right and left circle when braking while turning and secure roadholding.



Be overconfident in neither ABS nor the brake assistance.

- Be overconfident in neither ABS nor the brake assistance.

There are limits in the control of slipping and how of the steering wheel to work, and an impossible driving might cause an unexpected accident and is dangerous also in the state that ABS operates. Neither ABS nor the brake assistance are overconfident, the speed is suppressed, the distance between two cars is taken enough, and ..safe driving.. bear it in mind.

蘆When the grip limit of the tire is exceeded or two happens to hydroplaning *, ABS cannot demonstrate the effect. -

Phenomenon to generate water film by high speed operation etc. of two rain between tire and road, and to lose earth power.

- ABS is not a device to shorten the slip distance for brake.

In the following cases, the slip distance for brake might become long compared with the vehicle where ABS is not attached. Do the speed with unassuming modesty and give the distance between two cars enough.

蘆When you run on the gravel walk and the new snow road.

蘆When you install the tire chain.

蘆When you get over the difference such as seams on the road.

蘆When you run in the irregularity road and the bad road of stone.

- The brake assistance is not a device that draws out the performance that exceeds an ability the brake original. The vehicle and the distance between two cars, etc. are very noted and ..safe driving.. bear it in mind.



- 1 As for EBD, "Electronic braking power distribution control" is meant by abbreviating Electronic Brake force Distribution (electronic brake force distribution).



Knowledge

About the operation condition

- It comes to be able to operate ABS, brake assistance *, and 1 by the velocity of the car exceeding about 10 km/h. Moreover, stop operating when the velocity of the car falls up to about 5 km/h. -

It becomes easy to operate ABS because it is slippery if stepping on the brake on a seam and an under construction iron plate of manhole Fta and the bridge etc. on the day of rain.

About the operation sound

- It is likely to hear of the sound motor sound and "Catitsu" from the engine room immediately after the start the engine start and after it starts. This is not abnormal because of the sound when the operation of ABS is checked.
- When stepping on the brake pedal, a small slapping sound might be heard. This is not abnormal because of the sound when the mechanism of the brake assistance operates. -2*1

Z grade of 2.0L car and 2 4WD car

* G grade of 2.0L car and FF car of 1.8L

What is TRC *?

Working of TRC

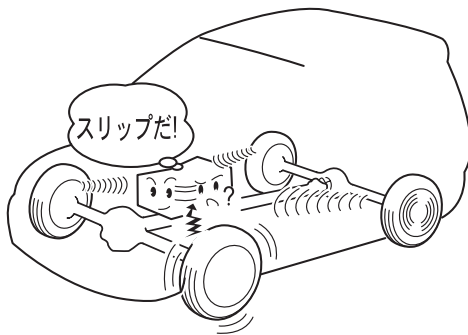
The device that tries to suppress the wheel spin of the drive wheel caused by excessive driving power when starting and accelerating in a slippery road, and to secure direction stability and driving power of the vehicle. -

The computer must perceive slipping by information from the sensor of the velocity of the wheel when the wheel begins to slip, lower the output to the engine momentarily, and apply the brakes if necessary. As a result, suppress excessive driving power, and control slipping.

蘆Slipping display light (P.258) blinks when TRC operates. At this time, this is due to the brake control, and it is not abnormal though the vibration of the vehicle might be felt.

蘆When the engine power like the escape from mud and a new snow etc. is necessary, the TRC system can be stopped by operating the TRC OFF switch. (Refer to P.294.)

Mechanism of TRC



The computer judges that slipping of the tire slips when signals from the sensor installed in four wheels are compared, and only either of signal is more than other wheels. As a result, control slipping by applying the brakes, and suppressing the output of the engine to temporary when suppress driving power of the slipping tire.

- Abbreviation of Traction Control (traction control).

- As for the sign, the presence of the installation is different depending on the grade etc.

About the relation between TRC and the tire

The attitude of the signal changes when the tyre type is different because it operates based on the signal from the sensor that is attached to the wheel even by one wheel in four wheels, and the computer judges slipping TRC. -

The state of the tire greatly influences the system, and do close attention to the state of the tire. Read "Attention of the tire" of P.75 well in detail.



Be not overconfident in TRC. There is a limit in securing the direction stability of the vehicle, and an impossible driving might cause an unexpected accident and is dangerous also in the state that TRC operates. Drive especially carefully when it always bears in mind, and the slipping display light (Refer to P.258) blinks to the safe driving.



Knowledge

About the operation condition

It enters the state that TRC can be operated usually (When you turn on the engine switch). - TRC doesn't operate when the VSC warning light (Refer to P.268) lights.

About the operation check

It is likely to hear of the sound "..ticking.. ton" from the engine room immediately after the start the engine start and after it starts. This is a sound in which the operation of the system is checked, and it is not abnormal.

What is VSC *?

Working of VSC

VSC is a system that tries to control the output of the brake and the engine automatically to control the ABS brake assistance and TRC, EFI, etc. cooperatively, and to control the sideslip on a rapid steering wheel control and a slippery road etc. when turning, and to secure the stability of the vehicle. -

The state of the tire greatly influences the system, and do close attention to the state of the tire. Read "Attention of the tire" of P.75 well in detail.



Be not overconfident in VSC. There is a limit in securing the direction stability of the vehicle, and an impossible driving might cause an unexpected accident and is dangerous also in the state that VSC operates. Drive especially carefully when always it bears in mind, the VSC operation warning buzzer (discontinuous sounds) rings or the slipping display light (Refer to P.258) blinks to the safe driving.

Knowledge

About the operation condition

- It comes to be able to operate VSC by the velocity of the car exceeding about 15 km/h. -
VSC doesn't operate when the VSC warning light (Refer to P.268) lights.

About the operation check

It is likely to hear of the sound "...ticking.. ton" from the engine room immediately after the start the engine start and after it starts. This is a sound in which the operation of the system is checked, and it is not abnormal.



Super ECT

What is Super ECT?

1.8L car

Super ECT is controlling and automatic a transmission to unite the fuel cost performance to a comfortable running by the Flex Lock-Up system and the Nobofsaca changing the speed control system, etc.

Working of Flex Lock-Up system

The system that raises the transmission efficiency of the transmission, and improves the fuel cost performance. -

In the FF car, the gear-shift : 綺・絲 It is the operation stripes automatically if drinking and existing in 4 velocities.

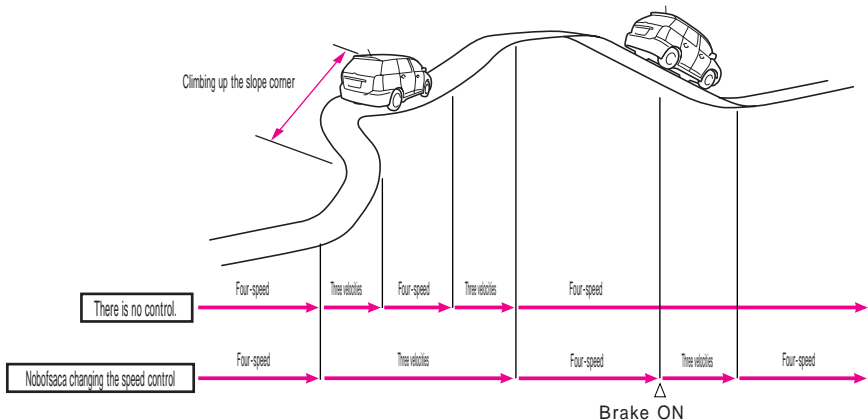
Do. -

In 4WD car, the gear-shift : 綺・筋 It operates automatically.

Working of Nobofsaca changing the speed control system

Limit the shift up to four-speed when judging climbing up the slope when it runs on the winding road etc. with ups and downs, and achieve a smooth running by three velocities.

Moreover, the down of the shift doing and the engine brake hang automatically at three velocities when stepping on the brake when judged that Fsaca is done when running by four-speed at Fsaca.



Abnormality of the automatic transmission electronically controlled system is thought, and receive the check in the Toyota shop while running when the engine warning light (Refer to P.272) lights.

Electronically controlled throttle (ETCS i)

What is an electronically controlled throttle?

Exclude 4WD car.

An electronically controlled throttle is a device that controls the engine power to open times of the accelerator best in each operating condition, and secures operativeness with an excellent vehicle. It extends to various operating ranges by an integrated control named engine electronically controlled system and Super CVT i(Only 2.0L car :), and an excellent accelerator control and excellent vehicle stability have been achieved.



Abnormality of an electronically controlled system is thought while running when the rise of the engine rotational speed is slow even if the engine warning light (Refer to P.272) lights, and it steps on the gas pedal.

At this time, it is possible to run in low speed though the body vibration might increase. Receive the check at once in the Toyota shop.

It never returns normally until the engine is stopped even when abnormality of an electronically controlled system cancels it while low-speed running by any chance of this and the engine switch is made ACC or LOCK.

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Super CVT. i

What is Super CVT i?

2.0L car

Super CVT i is an electronically controlled gearless transmission to make a smooth, comfortable running united to the fuel cost performance by an integrated control etc. of the no steps changing the speed system, the Lock-Up system, the Nobofsaca changing the speed control system, and four D engines.

Working of no steps changing the speed system

The no steps changing the speed system changes the speed to no steps by a metallic belt with a couple of Pooley. Therefore, a smooth running that the changing the speed shock is a little is possible. Moreover, because the output of the engine can be efficiently drawn out, excellent low fuel cost has been achieved.

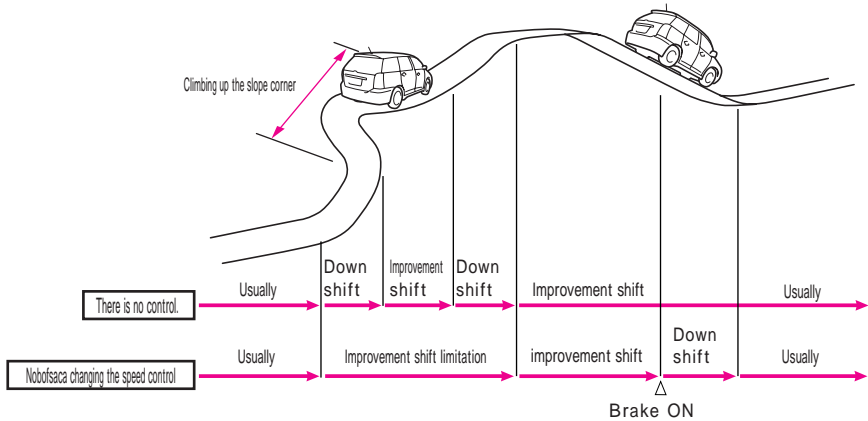
Working of Lock-Up system

The system that raises the transmission efficiency of the transmission, and improves the fuel cost performance. -
The gear-shift : in G grade. 綺Or, 絲・ Skipage、In Z grade 綺Moreover,
は綺It operates automatically.

Working of Nobofsaca changing the speed control system

The winding road etc. with ups and downs : the gear-shift. 綺・絲(G G Limit the improvement shift when it is judged that it climbs up the slope when it makes to Rad) and it runs, and achieve a smooth running.

Moreover, the down shift is automatically done when stepping on the brake when judged that Fsaca is done at Fsaca and the engine brake hangs.



注意

Abnormality of the automatic transmission electronically controlled system is thought, and receive the check in the Toyota shop while running when the engine warning light (Refer to P.272) lights.

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Active torque control 4WD

What is active torque control 4WD?

4WD car

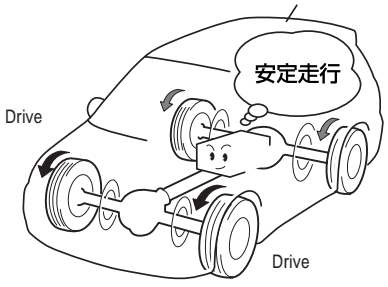
4WD that automatically usually controls, demonstrates steady manoeuvrability and roadholding from running from the state of the FF running to the state of directly connected 4WD running according to various states of running such as roads slippery because of acceleration, the snow, and rain, etc. when cornering, climbing up the slope, and starting, and achieved an excellent fuel cost performance by the computer. - When 4WD auto mode switch is turned on, it controls. Refer to "How to use of 4WD auto mode switch" of P.293 for the switch.

The attention when active torque control 4WD is handled has been described to "Attention of 4W D car" of P.70. ..safe driving.. bear it in mind because it often reads, and correct handling is understood.

4WD running

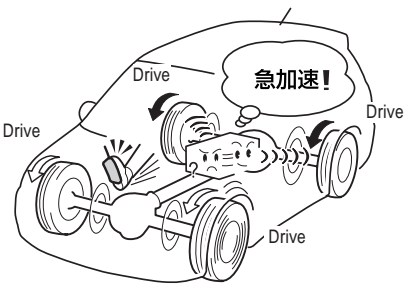
Operate when you turn on 4WD auto mode switch.

- Stability running(almost FF running)



The stability running (Run a constant speed on the road in smooth suburbs) runs almost in the state of FF.

- Acceleration and running such as snow roads(4WD running)



The best driving power (torque) is distributed to the rear wheel according to various states of running such as roads slippery because of the snow and rain, etc. when cornering, climbing up the slope, starting, and accelerating, and all processes from the F F running to 4WD running are controlled automatically.



FF running

4WD auto mode switch is in the state of turning off. A good running of fuel cost or more is possible.

About the tire

Active torque control 4WD greatly influences the performance of the car the state of the tire, and do close attention to the state of the tire. In detailRead "Attention of the tire" of P.75 well.

**警告****Do not race a pending tire excessively.**

- It must not run idle excessively by the escape circle etc. when either of wheel is pending. Impossible power in driving parts when a rotation difference of the rear wheel and a violent state continue joins and receives the damage such as burning, and it might cause an unexpected accident and is dangerous dashing out of the vehicle suddenly by burning. -

Install all tires of the same size, the same manufacturer, the same brand, and the same tread pattern (ditch pattern) in the tire by a specified size. Moreover, do not install the tire with a remarkable wear-out difference mixing it. It might connect with a vehicle fire in the worst case by leaking oil and burning by the temperature of oil generating an always abnormal rotation difference by the tire in the front, back, left and right if the tire is existing together used, applying impossible power to the drive and the system parts, and rising and is dangerous. -

The drive and the system parts are negatively affected in the following cases as well as the coexistence use for the tire, and execute the check of the air pressure in the tires.

蘆When the difference of the air pressure of four wheels is remarkable.

蘆When the air pressure shifts from a specified value.

- Rotate the tire around the wear-out of the tire to keep even, and to extend longevity to four wheels. (Refer to P.409.)-

Do not install the disc wheels other than specification when you exchange the disc wheels. (Refer to P.453.)