

DTC	C1345/66	Linear Solenoid Valve Offset Learning Undone
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DTC	C1368/67	Linear Solenoid Valve Offset Malfunction
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DESCRIPTION

The skid control ECU stores and corrects the difference in each individual part such as the stroke sensor, actuator solenoids, and stroke simulator solenoid. Perform "initialization of linear solenoid valve and calibration" if these parts are replaced.

The skid control ECU inputs the shift position P signal.

DTC No.	INF Code	DTC Detection Condition	Trouble Area
C1345/66	501	Value of initialization of linear solenoid valve and calibration for the FR wheel is not stored.	Initialization of linear solenoid valve and calibration undone
C1345/66	502	Value of initialization of linear solenoid valve and calibration for the FL wheel is not stored.	Initialization of linear solenoid valve and calibration undone
C1345/66	503	Value of initialization of linear solenoid valve and calibration for the RR wheel is not stored.	Initialization of linear solenoid valve and calibration undone
C1345/66	504	Value of initialization of linear solenoid valve and calibration for the RL	Initialization of linear solenoid valve and calibration undone
C1368/67	505	Wheel is not stored. Value of initialization of linear solenoid valve and calibration is not within the brake actuator's standard value.	<ul style="list-style-type: none"> Initialization of linear solenoid valve and calibration undone Skid control ECU

INSPECTION PROCEDURE

1	PERFORM INITIALIZATION OD LINEAR SOLENOID VALVE AND CALIBRATION
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- (a) Perform "initialization of linear solenoid valve and calibration" (see page [BC-19](#)).

NEXT

2	RECONFIRM DTC
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- (a) Clear the DTCs (see page [BC-38](#)).
 (b) Turn the power switch ON (READY).
 (c) Check the same DTCs are recorded (see page [BC-19](#)).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B	REPLACE BRAKE ACTUATOR ASSEMBLY
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A

END

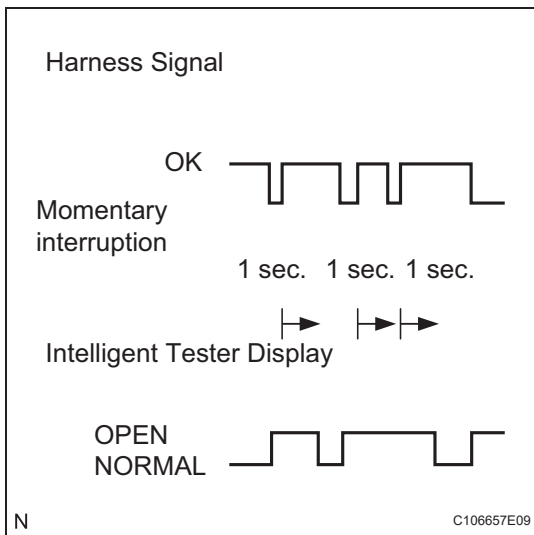
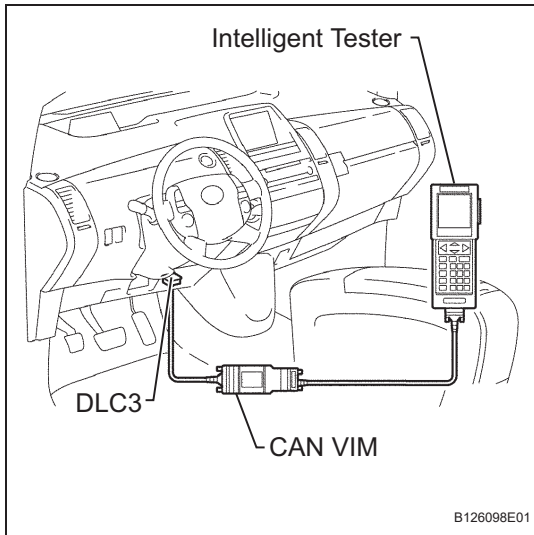
CHECK FOR INTERMITTENT PROBLEMS

1. CHECK FOR INTERMITTENT PROBLEMS

HINT:

A momentary interruption (open circuit) in the connectors and / or wire harness between the sensors and ECUs can be detected in the ECU data monitor function of the intelligent tester.

- (a) Turn the power switch OFF and connect the intelligent tester (with CAN VIM) to the DLC3.



- (b) Turn the power switch ON (READY). Follow the on-screen directions on the intelligent tester (with CAN VIM) to display the DATA LIST and select areas where momentary interruption should be monitored.

HINT:

A momentary interruption (open circuit) cannot be detected for 3 seconds after the power switch is turned ON (READY) (initial check).

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
SPD SEN FR	FR speed sensor open detection / OPEN or NORMAL	NORMAL: Normal condition	-
SPD SEN FL	FL speed sensor open detection / OPEN or NORMAL	NORMAL: Normal condition	-
SPD SEN RR	RR speed sensor open detection / OPEN or NORMAL	NORMAL: Normal condition	-
SPD SEN RL	RL speed sensor open detection / OPEN or NORMAL	NORMAL: Normal condition	-
YAWRATE SEN	Yaw rate sensor open detection	NORMAL: Normal condition	-
DECELE SEN	G sensor open detection	NORMAL: Normal condition	-

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
STEERING SEN	Steering sensor open detection	NORMAL: Normal condition	-
M/C SEN 1	Master cylinder pressure sensor 1 open detection	NORMAL: Normal condition	-
M/C SEN 2	Master cylinder pressure sensor 1 open detection	NORMAL: Normal condition	-
STROKE SEN 1	Pedal stroke 1 open	NORMAL: Normal condition	-
FR W/C SEN	FR wheel cylinder open	NORMAL: Normal condition	-
FL W/C SEN	FL wheel cylinder open	NORMAL: Normal condition	-
RR W/C SEN	RR wheel cylinder open	NORMAL: Normal condition	-
RL W/C SEN	RL wheel cylinder open	NORMAL: Normal condition	-
HV COM	HV communication open detection	NORMAL: Normal condition	-
ACC SEN	Accumulator pressure sensor open detection	NORMAL: Normal condition	-

HINT:

- If the status remains on, check the continuity between the ECU and the sensors, or between ECUs.
- The OPEN display on the intelligent tester remains on for 1 second after the harness signal changes from momentary interruption (open circuit) to normal condition.

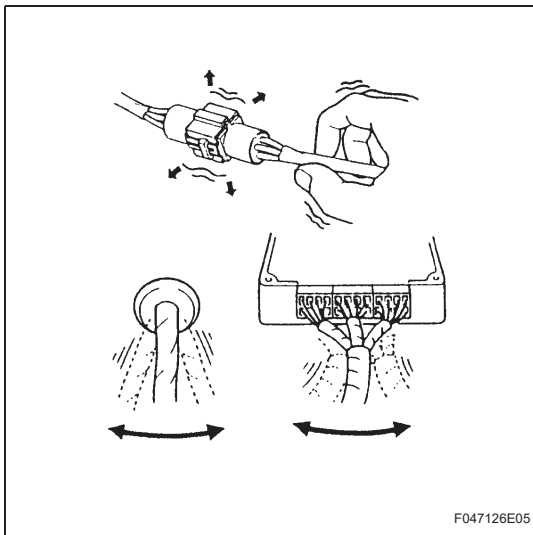
- (c) While observing the screen, gently jiggle the connector or wire harness between the ECU and sensors, or between ECUs.

Result:

Display does not change.

HINT:

The connector and / or wire harness will have momentary interruptions (open circuit) if the chart fluctuates. Repair or replace connector and / or wire harness as one of them is faulty.

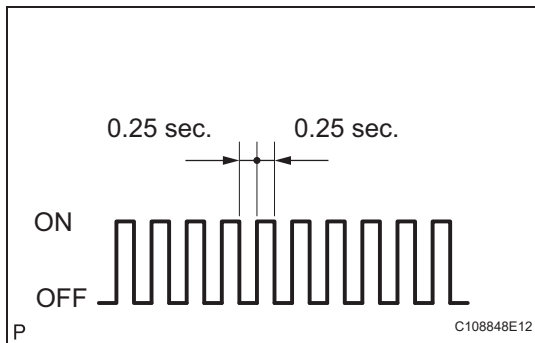
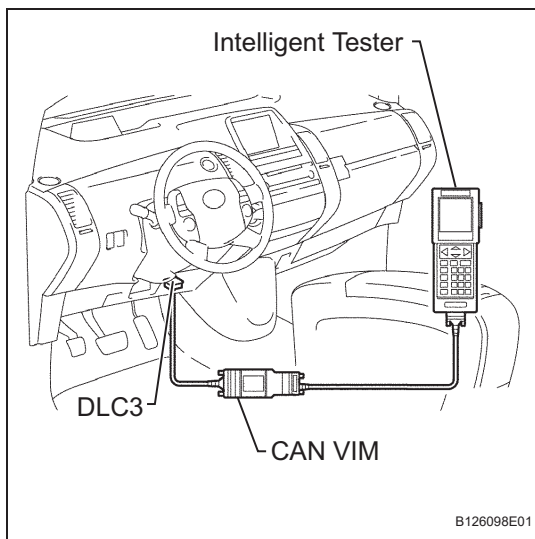


INITIALIZATION

1. INITIALIZATION OF LINEAR SOLENOID VALVE AND CALIBRATION

HINT:

- Perform "initialization of linear solenoid valve and calibration" when the skid control ECU, brake actuator or brake pedal stroke sensor is replaced.
- First perform the pedal stroke sensor zero point calibration and then "initialization of linear solenoid valve and calibration" when the brake stroke sensor is removed / installed or the brake pedal height is adjusted (see page [BR-22](#)).
- First bleed air and then perform initialization of linear solenoid valve and calibration when the brake actuator is replaced.
- "Initialization of linear solenoid valve and calibration" cannot be performed again once it is stored unless the data is cleared or damaged. Perform "initialization of linear solenoid valve and calibration" after the stored value is initialized, except when replacing the skid control ECU.
- DTC C1259/59 is stored and ECB control is partly prohibited when the power switch is turned ON (READY) while the service plug grip of the HV battery is removed, preventing "initialization of linear solenoid valve and calibration" from being normally performed. In this case, connect the service plug grip with the power switch OFF and turn the power switch ON (READY) again to cancel the warning (ECB control prohibition).
- If there is a problem with auxiliary battery (12 V) voltage, "initialization of linear solenoid valve and calibration" cannot be completed normally. Make sure to check battery voltage before performing "initialization of linear solenoid valve and calibration".
- If the actuator's temperature is high, "initialization of linear solenoid valve and calibration" may not be completed normally. In that case, wait until the temperature decreases and then perform "initialization of linear solenoid valve and calibration".
- Do not depress the brake pedal during the "initialization of linear solenoid valve and calibration" procedure.



- (a) Clear stored value of "initialization of linear solenoid valve and calibration".
 - (1) Connect the intelligent tester (with CAN VIM) to the DLC3 with the power switch OFF.
 - (2) Turn the power switch ON (READY) with the brake pedal released.
 - (3) Check that the P position switch indicator (P) is on.
 - (4) Turn the intelligent tester ON and clear the stored value of "initialization of linear solenoid valve and calibration" following the screen.
- (b) Perform "initialization of linear solenoid valve and calibration".
 - (1) Connect the intelligent tester to the DLC3 with the power switch OFF.
 - (2) Turn the power switch ON (READY) with the brake pedal released.
 - (3) Check that the main switch (parking switch) indicator (P) is on.
 - (4) Turn the power switch ON (READY) with the brake pedal depressed to display the READY indicator on the meter.
 - (5) Select the SIGNAL CHECK following the intelligent tester screen.
 - (6) Leave the vehicle stationary without depressing the brake pedal for 1 to 2 minutes. Check that the interval between blinks of the Brake Control warning light (BRAKE warning (Yellow)) changes from 1 second to 0.25 seconds.

NOTICE:

- Leave the meter's "READY" indicator on during the "initialization of linear solenoid valve and calibration". Do not drive the vehicle or depress the brake pedal.
- A DTC that indicates trouble with "initialization of linear solenoid valve and calibration" is stored if entering the TEST MODE with the shift lever in any position other than P.

HINT:

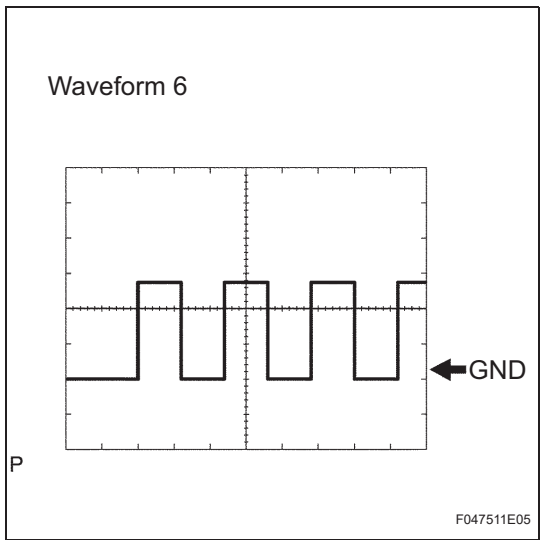
- The time needed to complete "initialization of linear solenoid valve and calibration" varies depending on battery voltage.
- The Brake Control warning light (BRAKE warning (Yellow)) blinks at 1 second intervals during the "initialization of linear solenoid valve and calibration" and changes to the TEST MODE display when it is completed.
- The Brake Control warning light (BRAKE warning (Yellow)) blinks at 0.25 second intervals if the TEST MODE is normal.

- (7) Check that DTC C1346/66 that indicates trouble with stroke sensor zero point learning is not output when the Brake Control warning light changes to the TEST MODE display upon "initialization of linear solenoid valve and calibration" completion.
- (8) Enter the NORMAL MODE from the SIGNAL CHECK following the intelligent tester screen.

2. YAW RATE SENSOR / DECELERATION SENSOR INITIALIZATION

HINT:

The zero point data of the yaw rate/deceleration sensor stored in the skid control ECU must be cleared when the yaw rate/deceleration sensor is replaced (see page [BC-21](#)).



(i) Using an oscilloscope, check the waveform 6.
Waveform 6 (Reference)

Item	Content
Symbols (Terminal No.)	ENA (S8-30) - GND (S8-1, 2)
Tool Setting	5 V/DIV., 100 msec./DIV.
Condition	Power switch ON (READY)

ABS Warning Light	BRAKE Warning Light
USA	USA
ABS	BRAKE
CANADA	CANADA
(ABS)	(!) (Red)
VSC Warning Light	SLIP Indicator Light
VSC	
Brake Control Warning Light	
(!) (Yellow)	

N C126240E01

DIAGNOSIS SYSTEM

1. DIAGNOSIS FUNCTION

On the combination meter, the BRAKE warning light (Red), BRAKE warning light ((Yellow) Brake Control warning light), ABS warning light or VSC warning light come on to inform the driver if trouble occurs in the skid control ECU input signal or actuator system. If there is trouble in the oil pressure source (pump motor, accumulator) or the vehicle power supply is insufficient, the skid control buzzer sounds to warn the driver.

Item	Condition
ABS Warning Light	Comes on when a failure in ABS, EBD or Enhanced VSC occurs
VSC Warning Light	Comes on when a failure in Enhanced VSC occurs
SLIP Indicator Light	Comes on while operating ABS or Enhanced VSC
BRAKE Warning Light ((Yellow) Brake Control Warning Light)	Comes on when a minor failure that does not affect normal driving occurs in the brake control system
BRAKE Warning Light (Red)	Comes on when a failure in the brake control system Comes on when the parking brake is applied or the brake fluid level is low.

2. DIAGNOSIS DISPLAY FUNCTION

DTCs detected by the ECU can be read by connecting the intelligent tester and performing the read command. The DTC has a detailed code that can be checked on the freeze frame data screen.

3. BRAKE SYSTEM DISPLAY INITIAL CHECK

Turn the power switch ON (READY) and check that the ABS warning light, VSC warning light, Brake Control warning light, BRAKE warning light and SLIP indicator light come on, and then go off after approximately 3 seconds.

If any of the lights do not come on, check the bulb and the multiplex communication diagnosis.

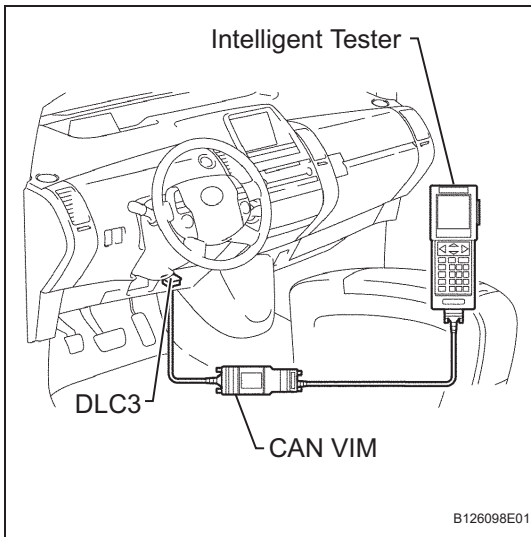
DTC CHECK / CLEAR

1. CHECK DTC (When Using Intelligent Tester)

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the power switch ON (READY).
- (c) Read the DTCs following the prompts on the tester screen.

HINT:

Refer to the intelligent tester operator's manual for further details.

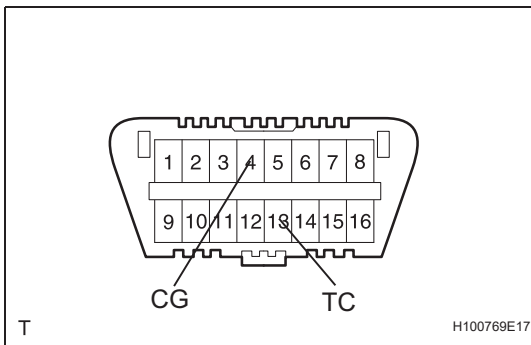


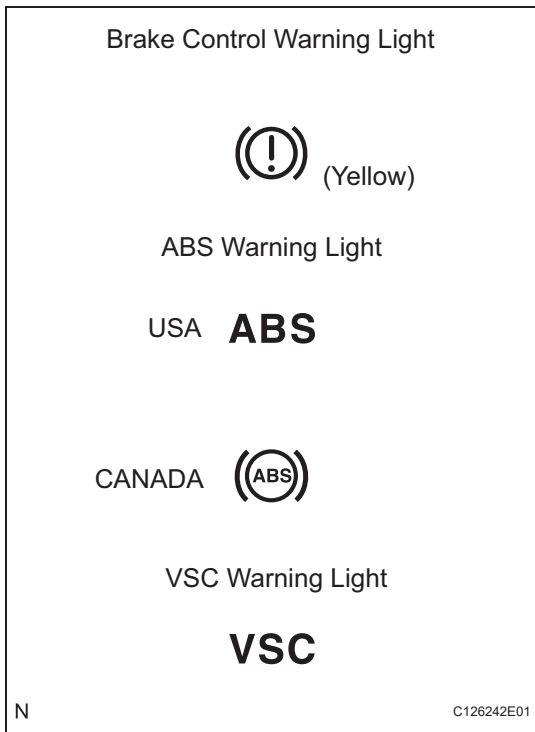
2. CHECK DTC (When not Using Intelligent Tester)

- (a) Using SST, connect terminals TC and CG of the DLC3.

SST 09843-18040

- (b) Turn the power switch ON (READY).





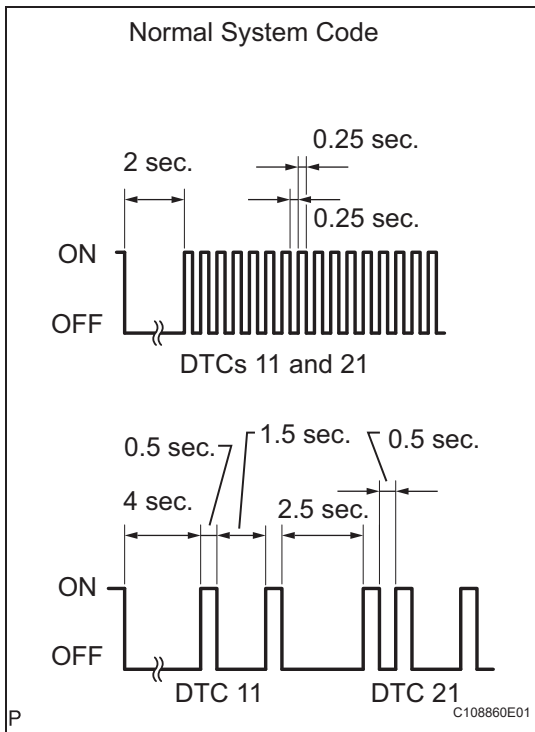
(c) Read the DTC from the Brake Control warning light, ABS warning light and VSC warning light on the combination meter.

Light	Read DTC
Brake Control warning light	DTC of ECB system
ABS warning light	DTC of ABS system
VSC warning light	DTC of Enhanced VSC system

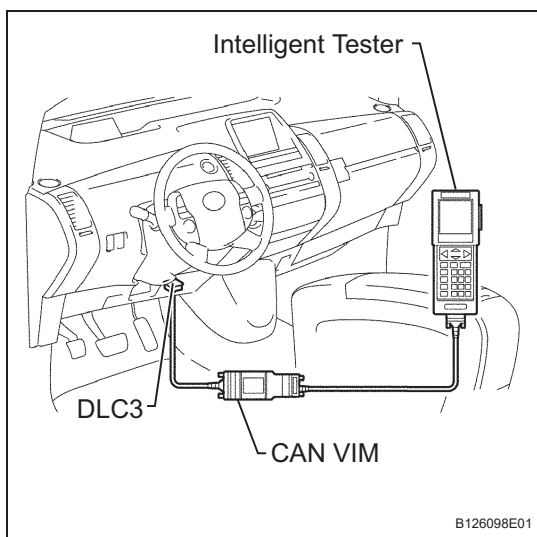
HINT:

- If no code appears, inspect the diagnostic circuit or ABS warning light circuit.

Trouble Area	See procedure
TC and CG terminal circuit	BC-194
Brake Control warning light circuit	BC-182
ABS warning light circuit	BC-166
VSC warning light circuit	BC-171



- As an example, the illustration below shows the blinking patterns of the normal system code and trouble codes 11 and 21.
- (d) Codes are explained in the Diagnostic Trouble Code (see page [BC-47](#)).
- (e) After completing the check, disconnect terminals TC and CG of the DLC3, and turn off the display. If 2 or more DTCs are detected at the same time, the DTCs will be displayed in ascending order.

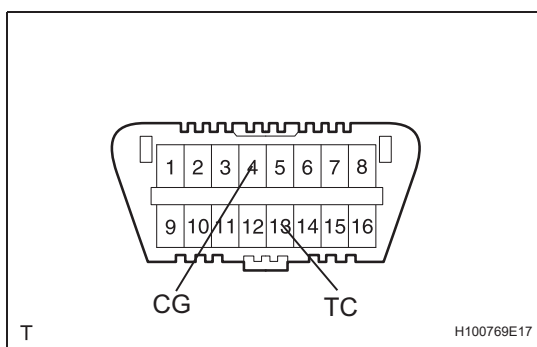


3. CLEAR DTC (When Using Intelligent Tester)

- (a) Connect the intelligent tester (with CAN VIM) to the DLC3.
- (b) Turn the power switch ON (READY).
- (c) Operate the intelligent (with CAN VIM) tester to clear the codes.

HINT:

Refer to the intelligent tester operator's manual for further details.

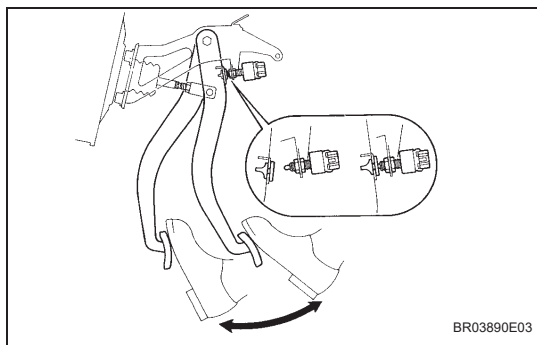


4. CLEAR DTC (When not Using Intelligent Tester)

- (a) Using SST, connect terminals TC and CG of the DLC3.

SST 09843-18040

- (b) Turn the power switch ON (READY).



- (c) Clear the DTCs stored in the ECU by depressing the brake pedal 8 times or more within 5 seconds.
- (d) Check that the warning light indicates a normal system code.
- (e) Remove SST.

HINT:

Clearing the DTCs cannot be performed by removing the cable from the negative (-) battery terminal or the ECU-IG fuse.

5. END OF CHECK/CLEAR

- (a) Turn the power switch ON (READY).
- (b) Check that the Brake Control warning light, ABS warning light and VSC warning light go off within approximately 3 seconds.