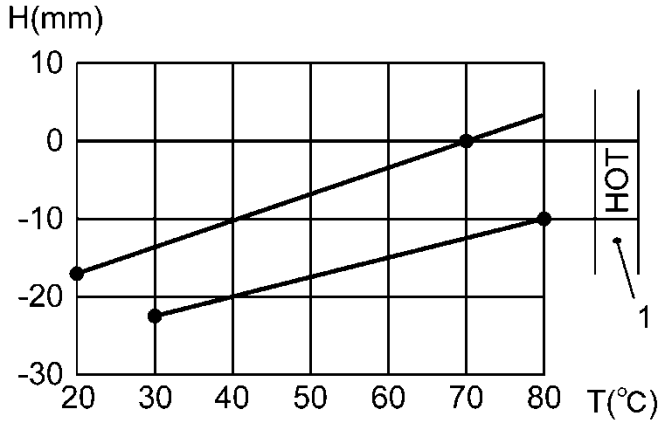
17. On-Vehicle Service

1. CVT Fluid Inspection
2. CVT Fluid Change
3. Line Pressure Test
4. Stall Test
5. Setting after Replacement

17-1. CVT Fluid Inspection



(1) Drive the vehicle until the CVT fluid temperature reaches 70 °C (158 °F).

(2) Park the vehicle on a level surface with engine idling.

(3) Move the selector lever P→R→N→D→M→D→N→R→P.

(4) After wiping dirt off around the CVT fluid level gauge, pull out the CVT fluid level gauge to check the fluid state.

(5) Check fluid level. The level should be within "HOT" range.

H : Fluid level
T : Fluid temperature
1. CVT fluid level gauge

Fluid status	Possible cause	Required process
"Varnish" state	CVT fluid is deteriorated due to extremely high temperature condition.	Change CVT fluid. Check transmission assembly, harness and cooling pipes etc.
"Milky white" state	CVT fluid contains water.	Change CVT fluid. Check if there is any point where water filters into transmission.
Metal powder mixed	Transmission internal parts are worn.	Change transmission assembly. Clean CVT fluid cooler circuit.

17-2. CVT Fluid Change

(1) Drain the fluid from oil pan drain plug. → It is recommended to measure volume of drained fluid.

(2) Install drain plug to oil pan with new gasket. Tighten plug to 34 Nm.

(3) Pour a proper amount of CVT fluid. → The volume could be the same as measured value at (1).

(4) Drive the vehicle until the CVT fluid temperature reaches 70 °C (158 °F).
(After warming up the engine, drive the vehicle on the road for approximately 10 minutes. If the outside air temperature is 20 °C (68 °F), CVT fluid temperature reaches 50 to 80 °C (122 to 176 °F).

(5) Check fluid level and status. If the fluid is dirty, repeat from step (1).

CAUTION:
- Use specified fluid : SUZUKI GREEN-2
- Do not reuse drained fluid.
- Use wiping paper to wipe the fluid level gauge. Do not use wiping cloth.
- After the fluid change, perform fluid leak check.

17-3. Line Pressure Test

(1) Check engine oil level. Refill if required.

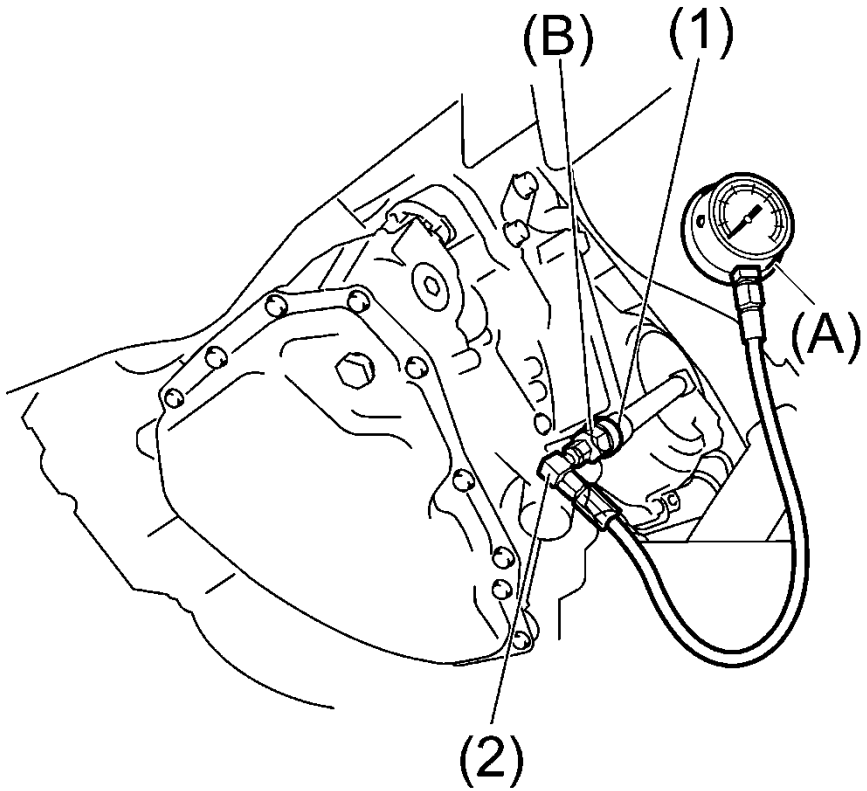
(2) Warm up the CVT fluid until the fluid temperature reaches 70 °C (158 °F).

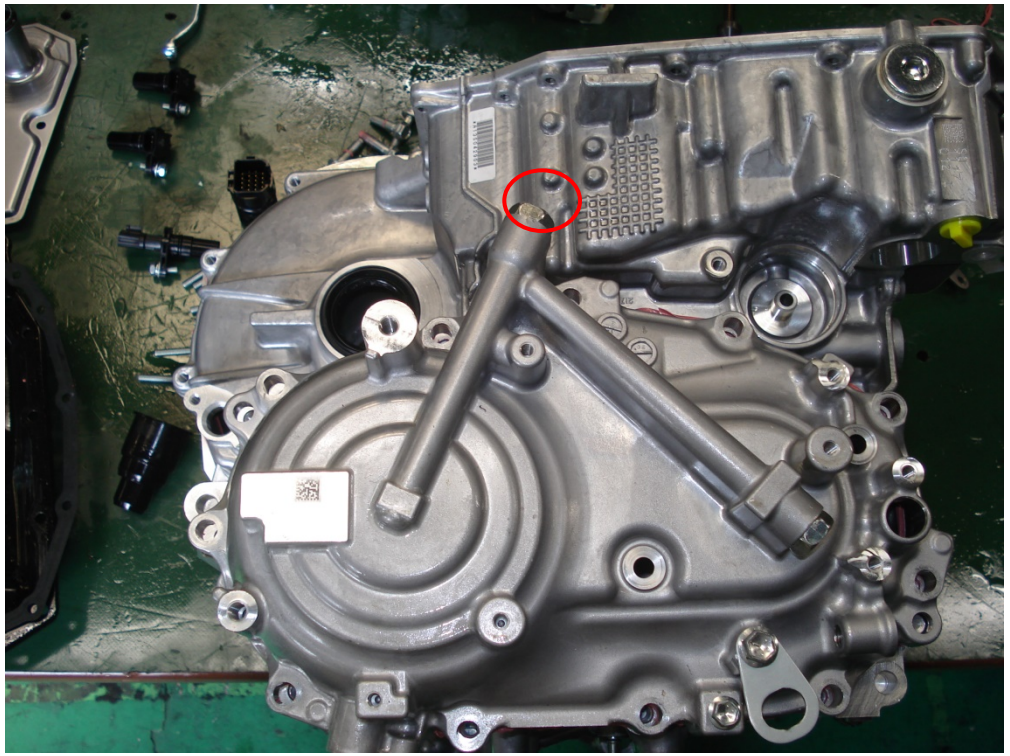
(3) Park the vehicle on a level surface. Engage the parking brake fully. Lock the wheels with blocks.

(4) Attach oil pressure gauge to the pressure test port.

(5) Measure the line pressure at engine idle speed and stall speed respectively.

(6) Detach the oil pressure gauge. Then fit the bolt to the pressure test port and tighten it to 13 Nm.





17-3. Line Pressure Test (cont'd)

	Line pressure	At idle	At stall
P or N range	(MPa)	0.5 to 1.0	-
	(kg/cm^2)	5.1 to 10.1	-
	(psi)	72.5 to 145	-
	(bar)	5 to 10	-
R or D range	(MPa)	0.5 to 1.0	4.18 to 4.68
	(kg/cm^2)	5.1 to 10.1	42.7 to 47.7
	(psi)	72.5 to 145	607 to 678
	(bar)	5 to 10	42 to 46

17-4. Stall Test

(1) Check engine oil level. Refill if required.

(2) Attach oil pressure gauge to the pressure test port.

(3) Warm up the CVT fluid until the fluid temperature reaches 70 to °C (158 °F). (After warming up the engine, drive the vehicle on the road for approximately 10 minutes. If the outside air temperature is 20 °C (68 °F), CVT fluid temperature reaches 50 to 80 °C (122 to 176 °F).

(4) Park the vehicle on a level surface. Engage the parking brake fully. Lock the wheels with blocks.

(5) Depress the accelerator pedal fully in D range with brake pedal firmly depressed.

(6) Rapidly read the stall speed. Then immediately release the accelerator pedal.

(7) In the same way, check the stall speed in R range.

(8) Move the selector lever to N range. Leave the engine running at idle for 1 minute or longer.

Engine	Stall speed (rpm)
M16A	2350-2950

17-5. Setting after Replacement

0. Summary
1. Case 1
2. Case 2
3. Case 3
4. Learning Value Initialization
5. Slope Sensor Calibration

17-5-0. Summary

TCM	Valve body or transmission assembly	Setting Procedure
Replaced with a new one	Not replaced	Case 1
	Replaced with new or used assembly	Case 1 or 3(*)
Not replaced	Replaced with new or used assembly	Case 2
Replaced with a used one	Not replaced	Case 3
	Replaced with new or used assembly	

(*) : When replacing TCM first, perform initialization procedure [Ca

17-5-1. Case 1

TCM	Valve body or transmission assembly	Setting Procedure
Replaced with a new one	Not replaced	Case 1
	Replaced with new or used assembly	Case 1 or 3(*)

Setting Procedure:

1) Set the selector lever at P range.

2) Turn ignition key to ON position and leave ignition in ON for 10 sec.

3) Check that transmission warning light does not come ON and DTC is not detected in TCM.

4) Perform slope sensor calibration.

IMPORTANT:

New TCM : Valve body ROM data is written in the new TCM at first ignition cycle.
After that, the data stored in the TCM cannot be cleared or overwritten until the TCM data is cleared by Scan Tool.

17-5-2. Case 2

TCM	Valve body or transmission assembly	Setting Procedure
Not replaced	Replaced with new or used assembly	Case 2

Setting Procedure:

1) Set the selector lever at P range.

2) Turn ignition key to ON position and leave ignition in ON for 10 sec.

3) Perform “Learning Value Initialization” by Suzuki Scan Tool.
(Learned parameter is cleared at this step)

See “16-5-4. Learning Value Initialization”.

4) Perform “CVT pressure control learning described in next page.

17-5-2. Case 2 (cont'd)

[CVT pressure control learning]

Step	Item		Procedure
1	CVT fluid cooling		Park the vehicle at a relatively cool place and stop the engine. Wait until CVT fluid temperature drops down to the room temperature.
2	Learning at cold temperature	1) CVT fluid temperature measurement	Using Scan Tool, confirm that the CVT fluid temperature is almost the same as outside air temperature.
		2) Garage shift learning	- Start the engine. Move the shift lever between N and D and between N and R twice or three times. If the shock has become small, go to "3) Line pressure and shift control learning".
			- If the shift shock is still big, repeat garage shifting (up to 10 times, respectively).
			CAUTION: In garage shifting, keep each position (N, D or R) for 2 or more seconds. Especially in N range, wait until the engine speed is sufficiently stabilized.
		3) Line pressure and shift control learning	Leave the vehicle with engine idling in D range for 20 seconds.
		4) Hydraulic pressure adjustment	Warm the CVT fluid up to 40°C (104°F).
		5) Lock up control learning	Drive the vehicle at 40-50km/h (64-80mph) in D range for 5 seconds.
3	Learning at warm temperature	1) CVT fluid temperature measurement	Warm the CVT fluid up to 80°C (176°F).
			CAUTION: If it is hard to warm the CVT fluid up to 80°C (176°F) at cold region, warm it up to as high temperature as possible.
		2) Garage shift learning	Same procedure as "2 Learning at cold temperature".
		3) Line pressure and shift control learning	Same procedure as "2 Learning at cold temperature".
		4) Lock up control learning	Same procedure as "2 Learning at cold temperature".

17-5-3. Case 3

TCM	Valve body or transmission assembly	Setting Procedure
Replaced with a new one	Replaced with new or used assembly	Case 1 or 3(*)
Replaced with a used one	Not replaced	Case 3
	Replaced with new or used assembly	

Setting Procedure:

1) First replace valve body assembly or transmission assembly.

2) Then replace TCM.

3) Perform the same working procedure as “Case 1”.

IMPORTANT:

It is highly recommended to replace valve body or transmission assembly first.

If the TCM is replaced with a new one before replacing the valve body or transmission assembly and the ignition key is turned to ON position, the valve body ROM data is written in the new TCM.

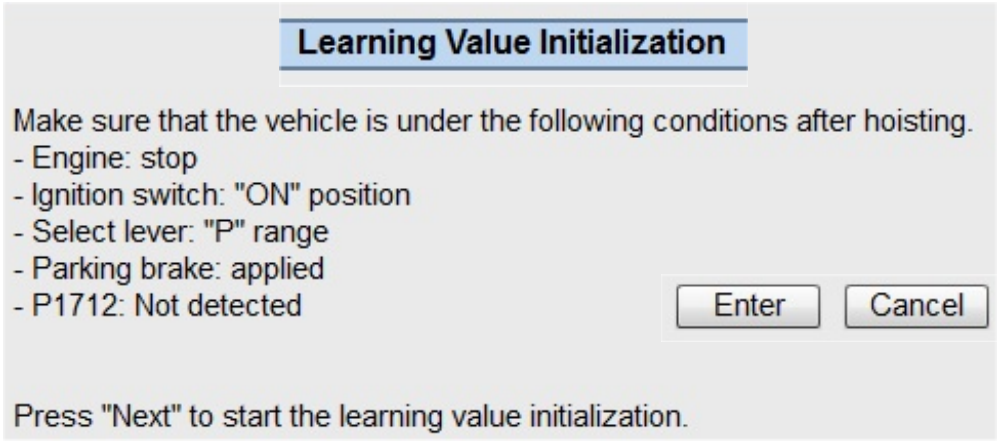
In this case, “Case 2” must be performed after replacing the valve body or transmission assembly with another one because another one contains a different valve body ROM.

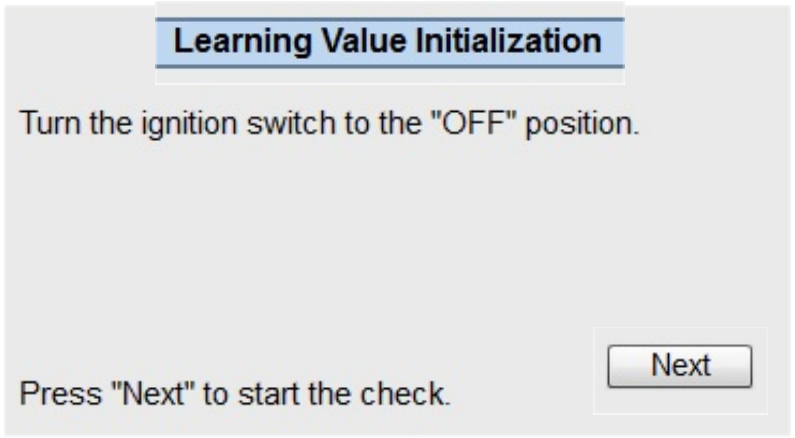
Used TCM : Valve body ROM data has been already written in the TCM.
If the valve body or transmission assembly is replaced with another (new or used) one, TCM data does not match another one’s ROM data.
TCM data cannot be cleared simply by disconnecting negative cable at battery.
TCM data must be once cleared by Scan Tool as shown above.

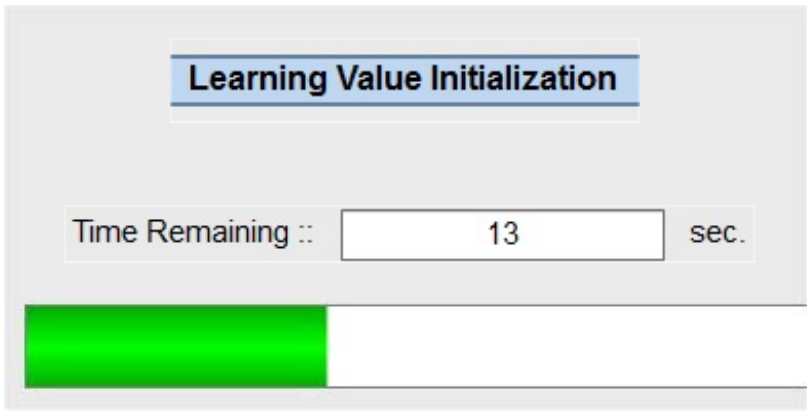
17-5-4. Learning Value Initialization

Utility

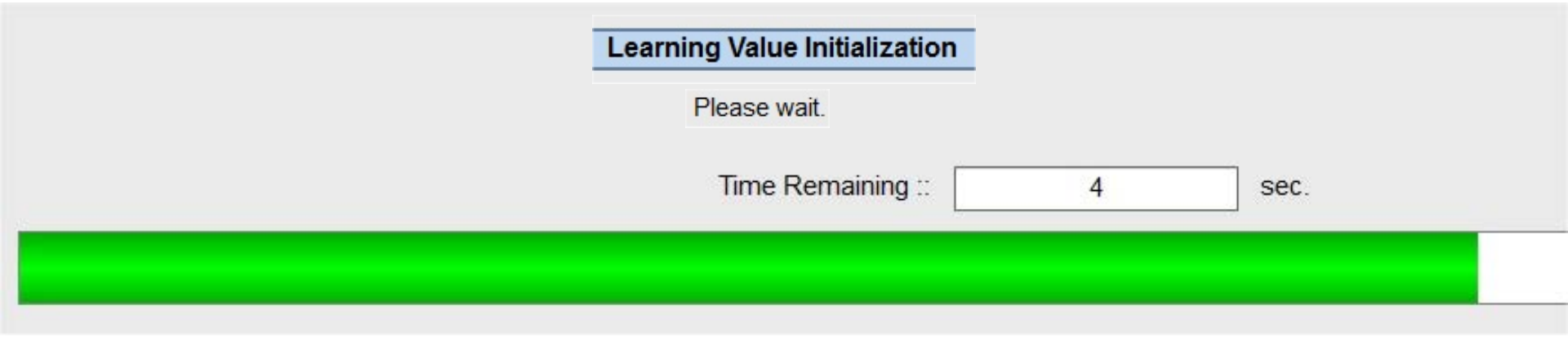
System	Utility Name
Engine/ Powertrain	ECU Information
Engine/ Powertrain	VIN Registration
AT / CVT	ECU Information
AT / CVT	Learning Value Initialization
AT / CVT	Slope Sensor Calibration
ABS/ESP®	Hydraulic control test
ABS/ESP®	Sensor Calibration
ABS/ESP®	ESP® Function Setting
ABS/ESP®	ECU Information
Power Steering	ECU Information
Airbag	ECU Information
AC	ECU Information
BCM	Dead Lock CONTROL TEST
BCM	Configuration
BCM	ECU Information
4WD	ECU Information
Keyless Start	ECU Information
TPMS	ECU Information
TPMS	TPS ID registration
Combination Meter / Meter/M&A	ECU Information
Headlight Auto Leveling	Height Sensor Initial Setting
Headlight Auto Leveling	ECU Information

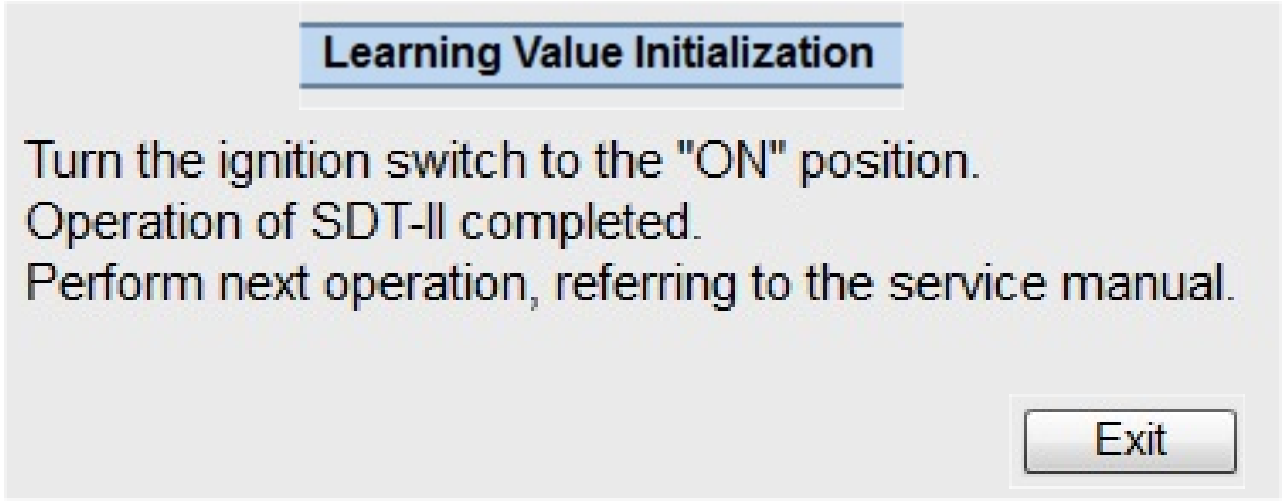






17-5-4. Learning Value Initialization (Cont'd)





17-5-5. Slope Sensor Calibration

Setting Procedure:

1) Adjust air pressure of all tires to specified value.

2) When ignition is OFF, connect SUZUKI scan tool to DLC.

3) Perform “DTC Check” and confirm that DTC other than P1708 is not detected. If DTC other than P1708 is detected, perform troubleshooting for applicable DTC.

4) Park vehicle on level surface, apply parking brake and stop engine with ignition ON.

5) Select menu “Slope Sensor Calibration” under “Utility” mode of SUZUKI scan tool and calibrate sensor with ignition ON. Refer to scan tool operator’s manual for further details.

6) Confirm that ignition is OFF and then disconnect SUZUKI scan tool from DLC.

Utility

System	Utility Name
Engine/ Powertrain	ECU Information
Engine/ Powertrain	VIN Registration
AT / CVT	ECU Information
AT / CVT	Learning Value Initialization
AT / CVT	Slope Sensor Calibration
ABS/ESP®	Hydraulic control test
ABS/ESP®	Sensor Calibration
ABS/ESP®	ESP® Function Setting
ABS/ESP®	ECU Information
Power Steering	ECU Information
Airbag	ECU Information
AC	ECU Information
BCM	Dead Lock CONTROL TEST
BCM	Configuration
BCM	ECU Information
4WD	ECU Information
Keyless Start	ECU Information
TPMS	ECU Information
TPMS	TPS ID registration
Combination Meter / Meter/M&A	ECU Information
Headlight Auto Leveling	Height Sensor Initial Setting
Headlight Auto Leveling	

Slope Sensor Calibration

Make sure that the vehicle is under the following conditions.

- Ignition switch: "ON" position
- Engine: stop
- Parking brake: operating
- Vehicle: on level surface
- P1712: undetected DTC

Press "Enter" to start the calibration.

Enter Cancel

Turn off the ignition switch.

Next

Press "Next" to go to next screen.

Please wait.

Time Remaining :: 13 sec.

Please wait.

Time Remaining :: 8 sec.

17-5-5. Slope Sensor Calibration (cont'd)