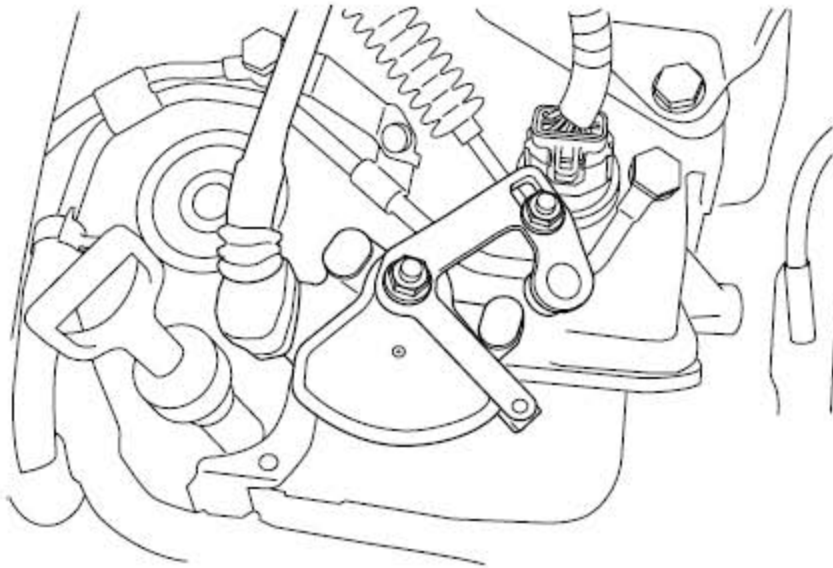


P0708 TRANSAXLE RANGE SWITCH - HIGH INPUT

COMPONENT LOCATION



GENERAL DESCRIPTION

The Transaxle Range Switch sends the shift lever position information to the TCM(PCM) using a 12V (battery voltage) signal. When the shift lever is in the D (Drive) position the output signal of Transaxle Range Switch is 12V and in all other positions the voltage is 0V. The TCM(PCM) judges the shift lever position by reading all signals, for the Transaxle Range Switch, simultaneously.

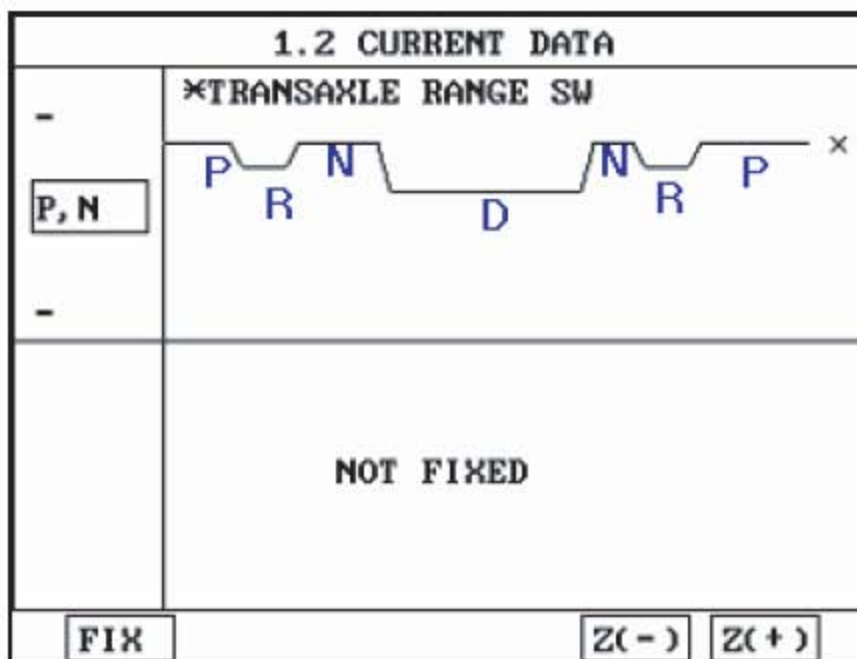
DTC DESCRIPTION

The TCM sets this code when the Transaxle Range Switch outputs multiple signals for more than 30 seconds.

DTC DETECTING CONDITION

Item	Detecting Condition	Possible Cause
DTC Strategy	Check for multiful signals	<ul style="list-style-type: none"> • Open or short in TRANSAXLE RANGE SWITCH • Faulty Shift cable adjustment • Faulty Inhibitor switch and Manual control lever position adjustment • Faulty TRANSAXLE RANGE SWITCH • Faulty PCM
Enable Conditions	Engine state = "RUN" 11V ≤ Battery Voltage ≤ 16V TPS ≥ 3%	
Threshold Value	Multiple signal	
Diagnostic Time	More than 30seconds	
Fail Safe	Recognition as previous signal - When signal is input "D" and "N" at the same time, TCM regards it as "N" RANGE - After PCM/TCM Reset, If the if the PCM/TCM detects multiple signal or no signal, then it holds the 3rd gear position	

SIGNAL WAVEFORM



MONITOR SCANTOOL DATA

- 1). Connect scantool to data link connector(DLC).
- 2). Ignition "ON" & Engine "OFF".
- 3). Monitor the "TRANSAXLE RANGE SWITCH" parameter on the scantool.
- 4). Shift selector lever from "P" range to "D" range.

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	P, N
	SHIFT POSITION	-
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	ON
	SPORTS MODE SEL. SW.	OFF
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF

FIX SCRN FULL PART GRPH

FIG.1)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	R
	SHIFT POSITION	-
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	ON
	SPORTS MODE SEL. SW.	OFF
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF

FIX SCRN FULL PART GRPH

FIG.2)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	D
	SHIFT POSITION	1ST GEAR
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	OFF
	SPORTS MODE SEL. SW.	ON
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF

FIX SCRNM FULL PART GRPH

FIG.3)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	D
	SHIFT POSITION	2ND GEAR
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	OFF
	SPORTS MODE SEL. SW.	ON
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF

FIX SCRNM FULL PART GRPH

FIG.4)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	D
	SHIFT POSITION	3RD GEAR
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	OFF
	SPORTS MODE SEL. SW.	ON
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF

FIX SCRNM FULL PART GRPH

FIG.5)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	D
	SHIFT POSITION	4TH GEAR
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	OFF
	SPORTS MODE SEL. SW.	ON
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF
FIX		SCRN FULL PART GRPH

FIG.6)

1.2 CURRENT DATA		16/25
×	SELECT LEVER SW.	D
	SHIFT POSITION	5TH GEAR
	HOLD SWITCH	STANDARD
	A/C SWITCH	ON
	BRAKE SWITCH	OFF
	SPORTS MODE SEL. SW.	ON
	SPORTS MODE UP SW.	OFF
	SPORTS MODE DOWN SW.	OFF
FIX		SCRN FULL PART GRPH

FIG.7)

FIG. 1) "P,N" Range

FIG. 2) "R" Range

FIG. 3) "D" Range 1st gear

FIG. 4) "D" Range 2nd gear

FIG. 5) "D" Range 3rd gear

FIG. 6) "D" Range 4th gear

FIG. 7) "D" Range 5th gear

5). Does "TRANSAXLE RANGE SWITCH" follow the reference data?

YSE

- ▶ Fault is intermittent caused by poor contact in the sensor's and/or TCM(PCM)'s connector or was repaired and TCM(PCM) memory was not cleared. Thoroughly check connectors for looseness, poor connection, bending, corrosion, contamination, deterioration or damage. Repair or replace as necessary and go to "Verification of Vehicle Repair" procedure.

NO

- ▶ Go to "Terminal & connector inspection" procedure.
Most of fault that happen about inhibitor switch, result from faulty shift cable adjustment or incorrect location of manual control lever and inhibitor switch. So, when DTC which related Inhibitor switch or engine start defectiveness at "P" range happen, After check the shift cable adjustment or location of manual control lever and inhibitor switch, repair or replace as necessary.

TERMINAL & CONNECTOR INSPECTION

- 1). Many malfunctions in the electrical system are caused by poor harness and terminals. Faults can also be caused by interference from other electrical systems, and mechanical or chemical damage.
- 2). Thoroughly check connectors for looseness, poor connection, bending, corrosion, contamination, deterioration, or damage.
- 3). Has a problem been found?

YSE

- ▶ Repair as necessary and go to "Verification of vehicle repair" procedure.

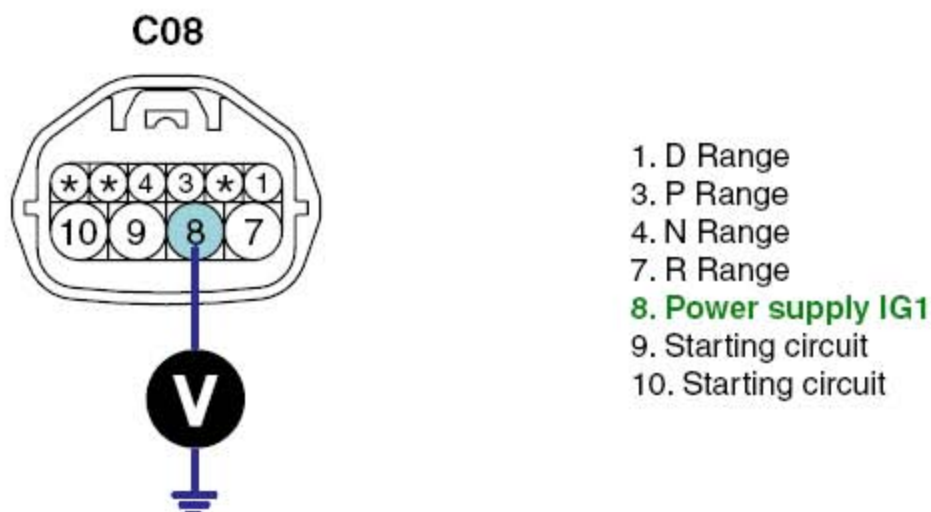
NO

- ▶ Go to "Power circuit inspection" procedure.

POWER SUPPLY CIRCUIT INSPECTION

- 1) Disconnect "TRANSAXLE RANGE SWITCH" connector.
- 2) Ignition "ON" & Engine "OFF".
- 3) Measure voltage between each terminal of the sensor harness connector and chassis ground.

TERMINAL(C08)	No.1	No.3	No.4	No.7	No.8	No.9	No.10
SPECIFICATION	0V	0V	0V	0V	0V	0V	0V



4) Is voltage within specifications?

YSE

▶ Go to "Signal circuit inspection" procedure.

NO

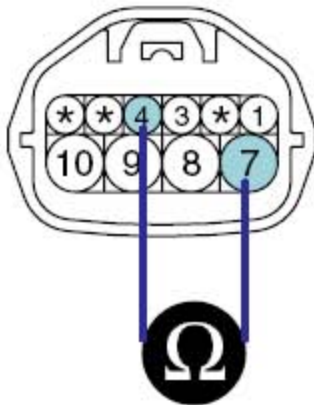
▶ Check for Short in harness. Repair as necessary and Go to "Verification of Vehicle Repair" procedure.

SIGNAL CIRCUIT INSPECTION

- 1). Ignition "OFF".
- 2). Disconnect "TRANSAXLE RANGE SWITCH" and "TCM(PCM)" connector.
- 3). Measure resistance between each terminal of the sensor harness to check for Short.

Specification : Infinite

C08



- 1. D Range
- 3. P Range
- 4. N Range
- 7. R Range
- 8. Power supply IG1
- 9. Starting circuit
- 10. Starting circuit

4). Is resistance within specifications?

YSE

- ▶ Go to "Component inspection" procedure.

NO

- ▶ Check for Short in harness. Repair as necessary and Go to "Verification of Vehicle Repair" procedure.

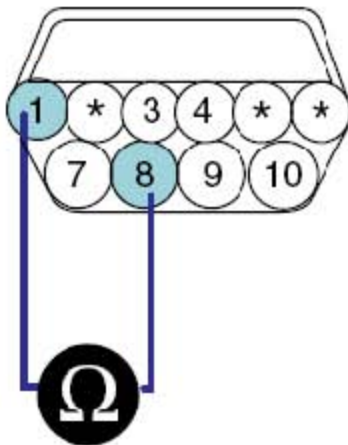
COMPONENT INSPECTION

- 1). Ignition "OFF".
- 2). Remove "TRANSAXLE RANGE SWITCH".
- 3). Measure the resistance between each terminal of the sensor.

Specification : Approx. 0 Ω

C08

Component side



- 1. D Range
- 3. P Range
- 4. N Range
- 7. R Range
- 8. Power supply IG1
- 9. Starting circuit
- 10. Starting circuit

Terminal Range	P	R	N	D	3	2	L
1				●			
2				●		●	
3	●			●		●	
4	●		●	●		●	
5					●		
6				●			●
7		●		●		●	●
8	●	●	●	●	●	●	●
9	●		●				
10	●		●				

[RANGE SWITCH continuity check table (Case of SPORTS MODE vehicle has no 3,2,L range)]

4). Is resistance within specifications?

YSE

- ▶ Substitute with a known-good PCM/TCM and check for proper operation. If the problem is corrected, replace PCM/TCM as necessary and then go to "Verification of Vehicle Repair" procedure.

NO

- ▶ Replace "TRANSAXLE RANGE SWITCH" as necessary and Go to "Verification of Vehicle Repair" procedure.

VERIFICATION OF VEHICLE REPAIR

After a repair, it is essential to verify that the fault has been corrected.

- 1). Connect scantool and select "Diagnostic Trouble Codes(DTCs)" mode.
- 2). Using a scantool, Clear DTC.
- 3). Operate the vehicle within DTC Enable conditions in General information.
- 4). Are any DTCs present?

YSE

- ▶ Go to the applicable troubleshooting procedure.

NO

- ▶ System performing to specification at this time.