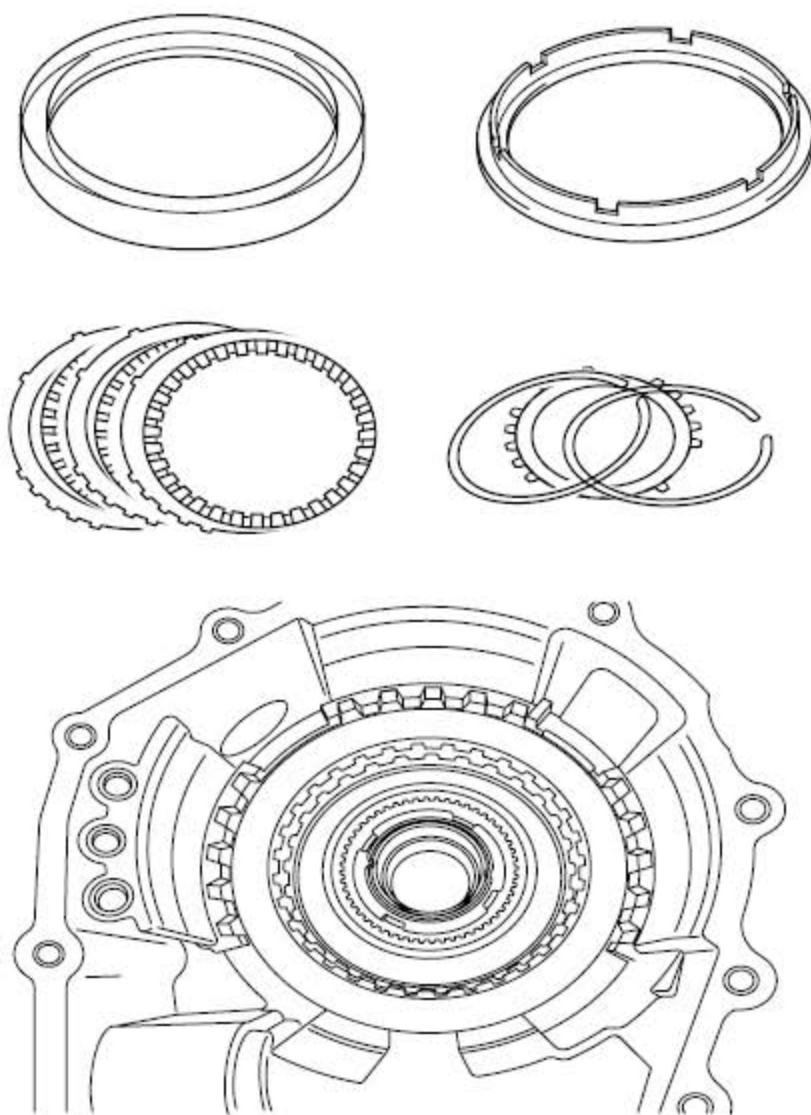# P0732 GEAR 2 INCORRECT RATIO

COMPONENT LOCATION

2ND BRAKE

GENERAL DESCRIPTION

The value of the input shaft speed should be equal to the value of the output shaft speed, when multiplied by the 2nd gear ratio, while the transaxle is engaged in the 2nd gear. For example, if the output speed is 1000 rpm and the 2nd gear ratio is 1.529, then the input speed is 1,529 rpm.

DTC DESCRIPTION

This code is set if the value of input shaft speed is not equal to the value of the output shaft, when multiplied by the 2nd gear ratio, while the transaxle is engaged in 2nd gear. This malfunction is mainly caused by mechanical troubles such as control valve sticking or solenoid valve malfunctioning rather than an electrical issue.

DTC DETECTING CONDITION

Item	Detecting Condition	Possible cause
DTC Strategy	• 2nd gear incorrect ratio	• Faulty Input speed sensor
Enable Conditions	• Engine speed ＞450rpm • Output speed ＞350rpm • Shift stage 2nd. gear • Input speed ＞0rpm • A/T oil temp sensor voltage ＜4.5V • Voltage of Battery ＞10V • TRANSAXLE RANGE SWITCH is normal	• Faulty output speed sensor • Faulty UD clutch or 2nd brake
Threshold value	• ｜Input speed/1st gear ratio - output speed ｜≥ 200rpm	
Diagnostic Time	• More than 1sec	
Fail Safe	• Locked into 3rd gear. (If diagnosis code P0732 is output four times, the transaxle is locked into 3rd gear)	

SIGNAL WAVEFORM
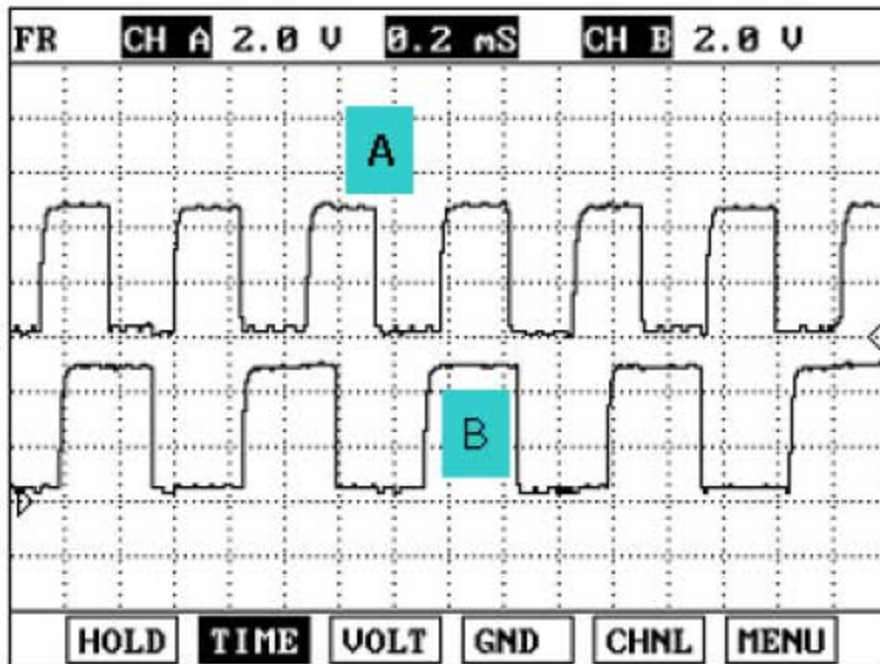
MONITOR SCANTOOL DATA

1). Connect scan tool to data link connector(DLC).

2). Engine "ON".

3). Monitor the "ENGINE SPEED, INPUT SPEED SENSOR, OUTPUT SPEED SENSOR, GEAR POSITION" parameter on the scantool.

4). Perform the "STALL TEST" with gear position "2"

Specification : 2000~2700 engine rpm

OPERATING ELEMENT OF EACH SHIFTING RANGE

	UD/C	OD/C	REV/C	2ND/B	LR/B	OWC
P					●	
R			●		●	
N					●	
D1	●				●	○
D2	●			●		
D3	●	●				
D4		●		●		

Low & Reverse Brake is released when the vehicle speed is over 7Km/h(5 MPH).

Stall test procedure in D2 and reason

Procedure

1). Warm up the engine
2). After positioning the select lever in "D" , depress the foot brake pedal fully.
   After that, depress the accelerator pedal to the maximum
   The slippage of 1st gear operating parts can be detected by stall test in D2.

Reason for stall test

1). If there is no mechanical defaults in A/T, all slippage occurs in the torque converter.
2). Therefore, engine revolution is output, but input and output speed revolution must be "zero" due to wheel's lock.
3). If 2nd brake system(2nd gear operating part) has faults, input speed revolution will be out of specification.
4). If wheel spin occurs, the applied brake force is not adequate. Retry using more brake force.

5). Is "STALL TEST " within specification?
YES
▶ Go to "Signal Circuit Inspection" procedure.
NO
▶ Go to "Component inspection" procedure.

CAUTION
- Do not let anybody stand in front of or behind the vehicle while this test is being carried out.
- Check the A/T fluid level and temperature and the engine coolant temperature.
- Fluid level : At the hot mark on the oil level gauge.
- Fluid temperature : 176 F~ 212 F (80~100 C).
- Engine coolant temperature : 176 F~ 212 F (80~100 C).
- Chock both rear wheels(left and right).
- Pull the parking brake lever on with the brake pedal fully depressed.
- The throttle should not be left fully open for more than eight seconds.
- If carrying out the stall test two or more times, move the select lever to the "N" position and run the engine at 1,000 rpm to let the A/T fluid cool down before carrying out subsequent tests.

SIGNAL CIRCUIT INSPECTION

1). Connect Scantool.
2). Engine "ON".
3). Monitor the "INPUT & OUTPUT SPEED SENSOR" parameter on the scantool.
4). Accelerate the Engine speed until about 2000 rpm in the 2NDgear.

Specification : INPUT SPEED - (OUTPUT SPEED × GEAR RATIO) ≤ 200 RPM

```
              1.2  CURRENT  DATA                 ▲
  ✳ ENGINE RPM               2108  rpm
  ✳ INPUT  SPEED             2056  rpm
  ✳ OUTPUT  SPEED            1352  rpm
  ✳ SHIFT  POSITION          2 GEAR
  ✳ SELECT  LEVER  SW.       2                   ■
    HIVEC  MODE              MODE  D
    VEHICLE  SPEED           47    MPH
    THROTTLE  P.SENSOR       13.7 %
                                                 ▼
  FIX   SCRN   FULL   PART   GRPH   HELP
```

5). Are "INPUT & OUTPUT SPEED SENSOR" within specifications?
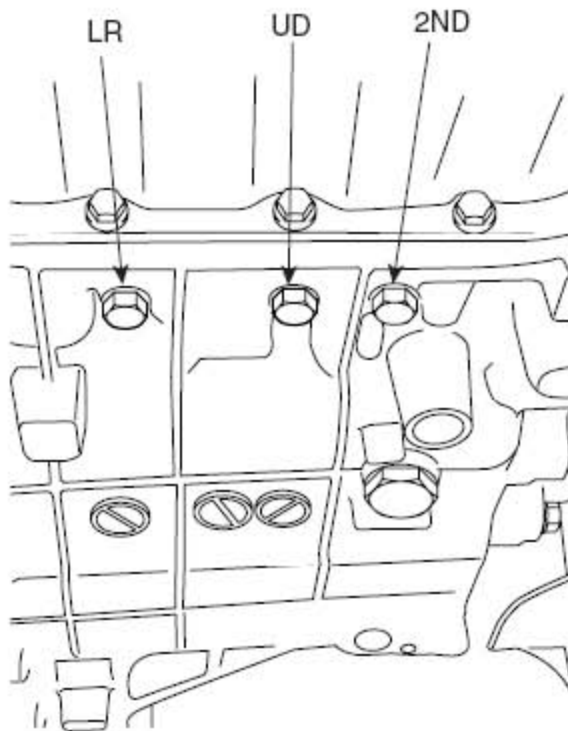
YES

▶ Go to "Component Inspection" procedure.

NO

▶ Check for electrical noise of circuit in INPUT & OUTPUT SPEED
   SENSOR or replace INPUT & OUTPUT SPEED SENSOR. Repair as
   necessary and go to "Verification of Vehicle Repair" procedure.

COMPONENT INSPECTION

1). Connect oil pressure gauge to "UD" and "2ND" port.
2). Engine "ON".
3). Drive the car with gear position 2 in "SPORTS MODE".
4). Compare it with reference data as below.

Specification : shown below

Measurement condition			Standard hydraulic pressure kPa (psi)						
Selector lever position	Shift position	Engine speed (rpm)	Under drive clutch pressure	Reverse clutch pressure	Over-drive clutch pressure	Low & reverse brake pressure	Second brake pressure	Damper clutch Apply pressure (DA)	Damper clutch Release pressure (DR)
P	-	2,500	-	-	-	260-340 (38-50)	-	-	-
R	Reverse	2,500	-	1,270-1,770 (185-256)	-	1,270-1,770 (185-256)	-	-	-
N	-	2,500	-	-	-	260-340 (38-50)	-	-	-
D	1st gear	2,500	430-510 (62-74)	-	-	1,010-1,050 (146-152)	-	-	-
	2nd gear	2,500	430-510 (62-74)	-	-	-	430-510 (62-74)	-	-
	3rd gear	2,500	430-510 (62-74)	-	430-510 (62-74)	-	-	More than 730 (100)	0-10 (0-1)
	4th gear	2,500	-	-	430-510 (62-74)	-	780-880 (110-130)	More than 730 (100)	0-10 (0-1)

The values are subject to change according to vehicle model or condition

5). Is oil pressure value within specification?

YES

▶ Repair AUTO TRANSAXLE(Clutch or Brake) as necessary and Go to "Verification of Vehicle Repair" procedure.

NO

▶ Replace AUTO TRANSAXLE (BODY CONTROL VALVE faulty) 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 scan tool 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 ?

YES

▶ Go to the applicable troubleshooting procedure.

NO

▶ System performing to specification at this time.