



Technical Service Information

SATURN ERRATIC SHIFT PATTERN, AFTER REBUILD OR AFTER REPROGRAMING PCM

COMPLAINT: *After rebuild*, the vehicle exhibits one of the following "Erratic Upshift" patterns:

- A. Shifts 1st to 3rd, with no 2nd or 4th.
- B. Starts in 2nd, with no 1st, and upshifts to 3rd and 4th.
- C. Shifts from 1st to 4th, with no 2nd or 3rd.

This condition usually occurs after one complete upshift pattern from 1st to 2nd to 3rd to 4th, and will normally store one or more of the following Diagnostic Trouble Codes (DTC), depending on the particular "Gear Ratio Error":

1991-1995 Model Years

DTC 16 = No 1st Gear
DTC 18 = No Gears Available
DTC 22 = No 2nd Gear
DTC 23 = No 3rd Gear
DTC 24 = No 4th Gear

1996-2000 Model Years

DTC P0730 = No Gears Available
DTC P0731 = No 1st Gear
DTC P0732 = No 2nd Gear
DTC P0733 = No 3rd Gear
DTC P0734 = No 4th Gear

These Diagnostic Trouble Codes may be set after replacing the complete transaxle assembly, after replacing individual gear components, or after reprograming the PCM.

CAUSE: The cause may be, a mis-match of gear train parts (Drive and Driven Gears), between the 1st design "MP6" Base Transaxle, and the 2nd design "MP6" Base Transaxle, or the "MP7" Performance Transaxle.

Another cause may be, incorrect calibration installed due to a wrong VIN in the PCM. If the wrong calibration has been installed, a gear ratio table may be used by the PCM which will not match the actual gear ratios and result in DTCs setting.

CORRECTION: When rebuilding a Saturn transaxle, and gear train replacement is necessary, ***ensure*** that the replacement gears have the ***exact*** same tooth counts as the originals. Refer to the charts in Figures 1 and 2 for the proper gear tooth counts for the model that you are rebuilding.

Important Note: Refer to Figure 3 to identify the transaxle design level and type of transaxle. They are as follows: ***"MP6" Base = 1st Design***

"MP6" Base (With "SV") = 2nd Design

"MP7" = Performance Version

If the incorrect calibration or VIN information has been written to the PCM, reprogram the PCM with the proper VIN and calibration information. Compare the VIN plate on the dash to VIN identified in the PCM. Obviously they must match.

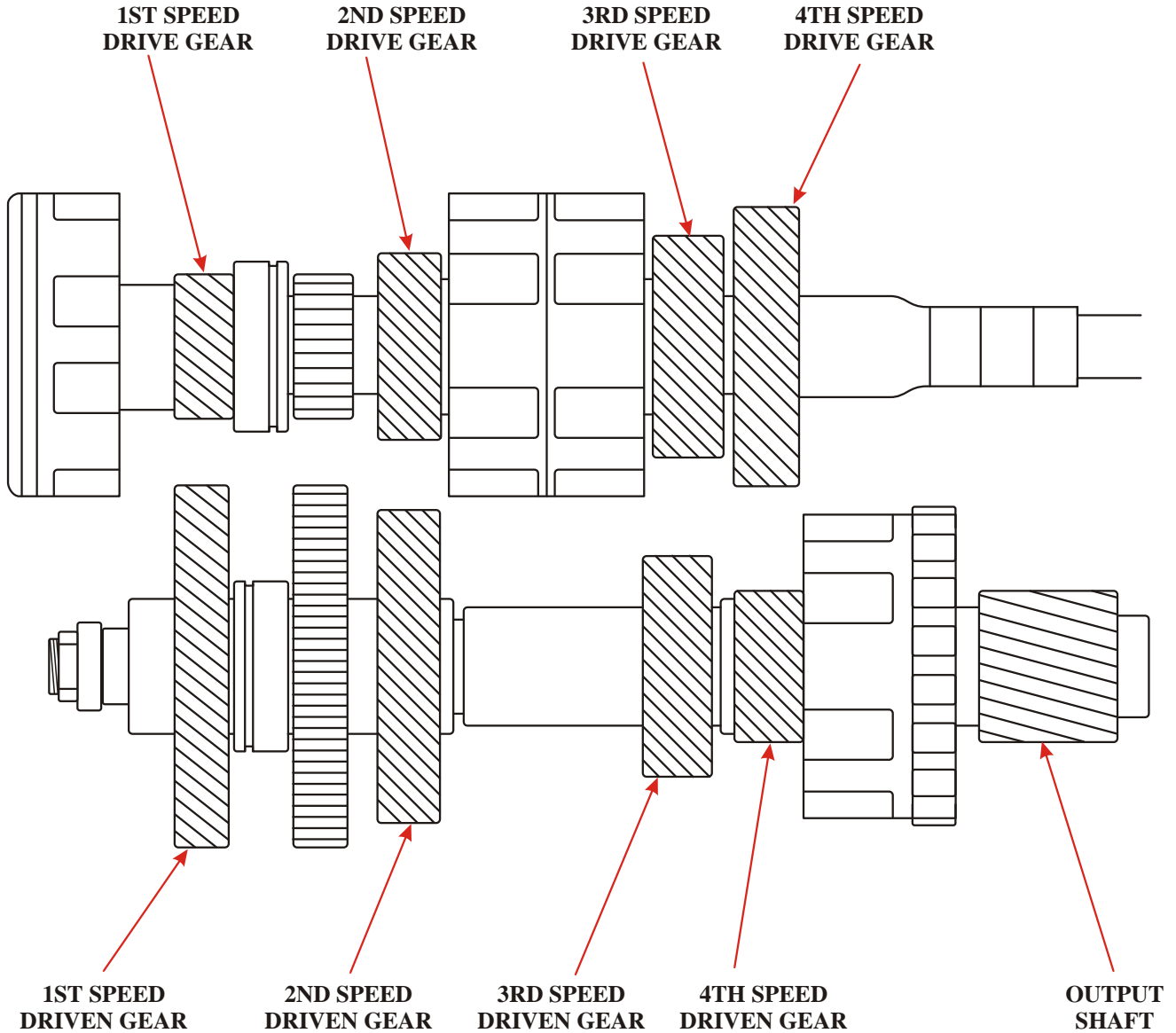


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GEAR TOOTH COUNTS AND GEAR RATIOS					
<i>All SOHC Engines Use MP6 Transaxle</i>			<i>All SOHC Engines Use MP6 Transaxle</i>		
GEAR	<i>1991-1993 1st Design* MP6 Base</i>	<i>1993-1994 2nd Design** MP6 Base</i>	<i>1991-1994 Performance MP7 Base</i>	<i>1995-1999 2nd Design MP6 Base</i>	<i>1995-1999 Performance MP7 Base</i>
<i>1st Drive</i>	21	19	19	19	19
<i>1st Driven</i>	47	48	48	48	48
<i>2nd Drive</i>	30	30	27	30	27
<i>2nd Driven</i>	38	38	42	38	42
<i>3rd Drive</i>	37	37	33	37	33
<i>3rd Driven</i>	30	30	34	30	34
<i>4th Drive</i>	42	42	40	42	40
<i>4th Driven</i>	25	25	28	25	28
<i>Reverse Drive</i>	21	21	21	21	21
<i>Reverse Driven</i>	40	40	40	40	40
<i>Output Shaft</i>	15	15	15	16	16
<i>Ring Gear</i>	62	62	62	65	65
<i>1st Gear</i>	2.24	2.53	2.53	2.53	2.53
<i>2nd Gear</i>	1.27	1.27	1.56	1.27	1.56
<i>3rd Gear</i>	0.81	0.81	1.03	0.81	1.03
<i>4th Gear</i>	0.60	0.60	0.70	0.60	0.70
<i>Reverse Gear</i>	2.35	2.35	2.35	2.35	2.35
<i>Final Drive</i>	4.13	4.13	4.13	4.06	4.06
* Vehicles built prior to, and including VIN PZ156139					
** Vehicles built after, and including VIN PZ156140					
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Figure 1

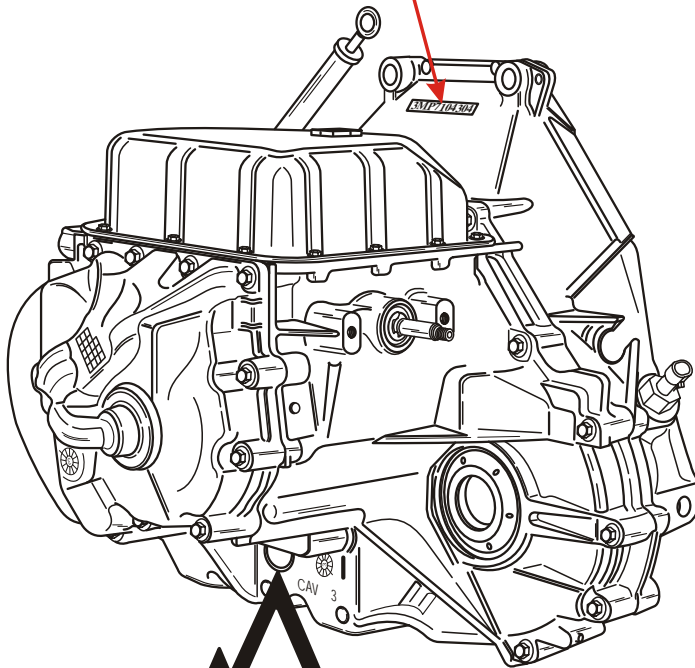
INDIVIDUAL DRIVE AND DRIVEN GEAR IDENTIFICATION



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Figure 2

**STAMPED IDENTIFICATION CODE
CAN BE FOUND IN THIS AREA**



IDENTIFICATION CODE DESCRIPTION

3	MP7	1	043	0	4
1	2	3	4	5	6

1 = Model Year (3 = 93)

2 = Model Code:

MP2 = Base Manual

MP3 = Performance Manual

MP6 = Base Automatic

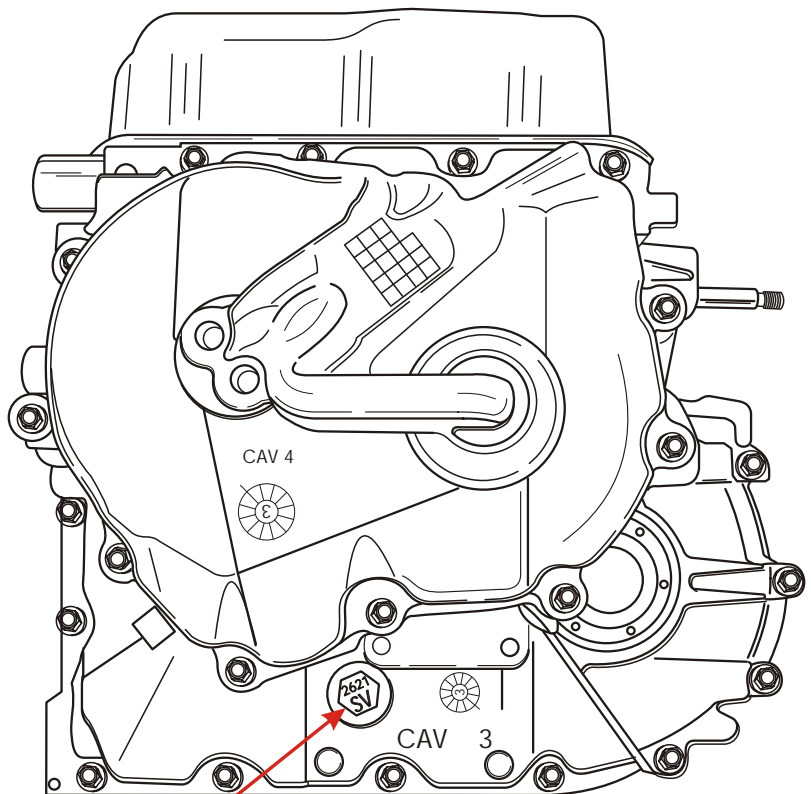
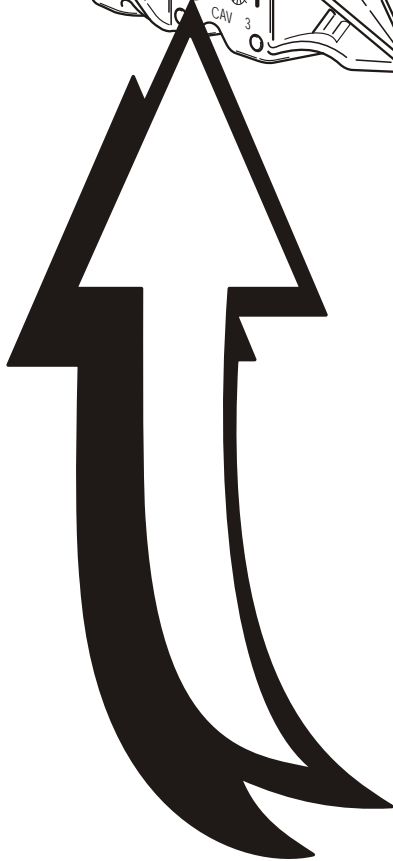
MP7 = Performance Automatic

3 = Plant Code (1 = Spring Hill, TN)

4 = Julian Date (043 = Feb. 12)

5 = Hour of Day (0 = Midnight)

6 = Update Code (Increments 0 - 9)



Identification "SV" here is 2nd design level

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Figure 3