# AUTOMATIC TRANSMISSION

## CONTENTS



**WARNING REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICULES**

**WARNING!**

**(1) Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to driver and passenger (from rendering the SRS inoperative).**

**(2) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.**

**(3) MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B – Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.**

NOTE

The SRS includes the following components: SRS-ECU, SRS warning lamp, air bag module, clock spring and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

# GENERAL

## OUTLINE OF CHANGES

Vehicles with GDI-type 4G93 engines have a separate A/T-ECU and engine-ECU, in contrast to non-GDI-typ 4G93 engines. To correspond to this, maintenance service procedures have been established for item which are different from before.

# TROUBLESHOOTING

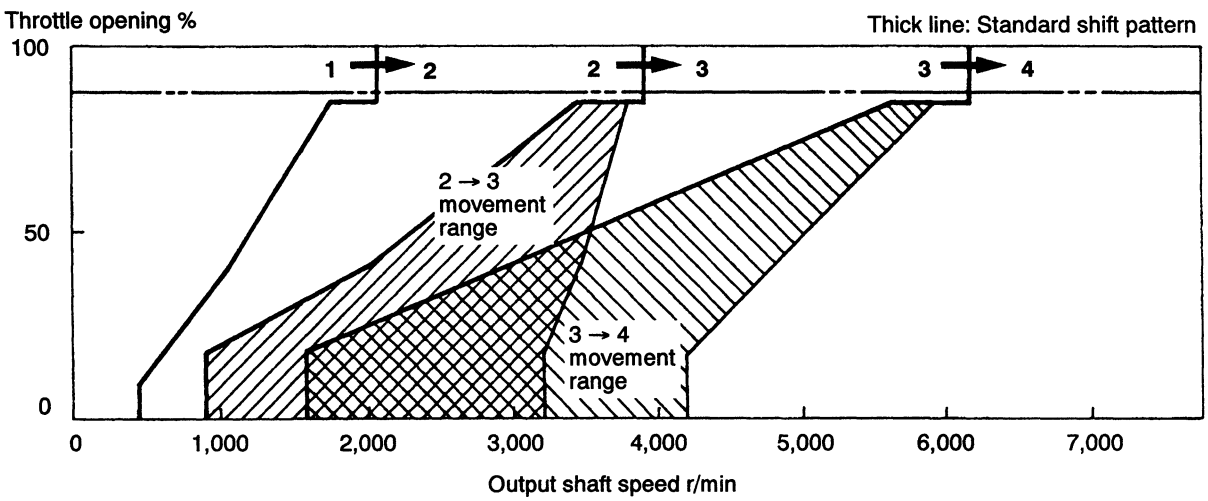
## ROAD TEST

The test procedure is basically the same as that for '97 and prior vehicle models, except that the vehicl speed sensor system inspection procedures have been changed.

- Refer to P.23-6 for details on the vehicle speed sensor system inspection procedures.

## SHIFT PATTERN

### UPSHIFT PATTERN

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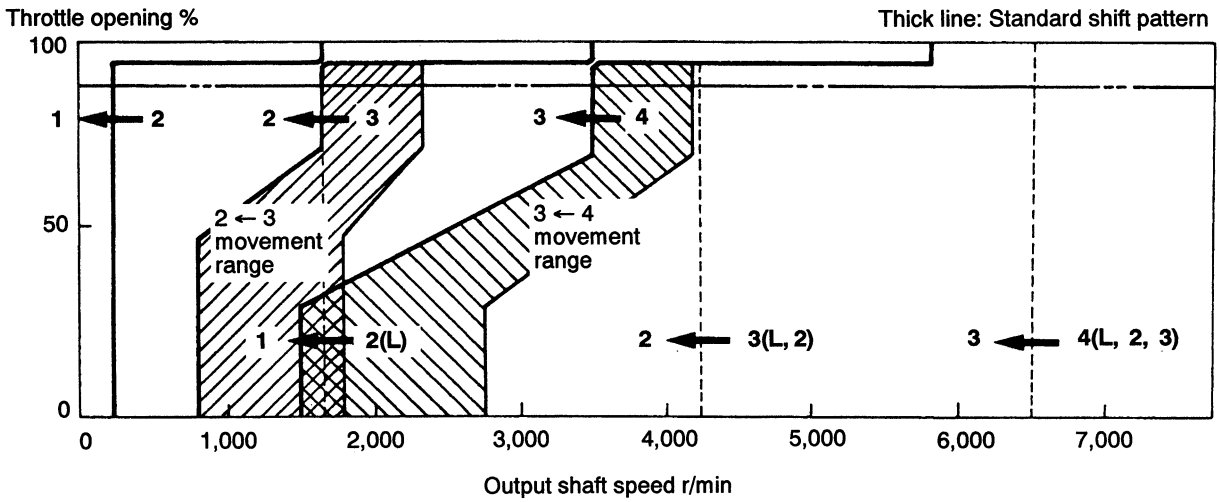
## DOWNSHIFT PATTERN

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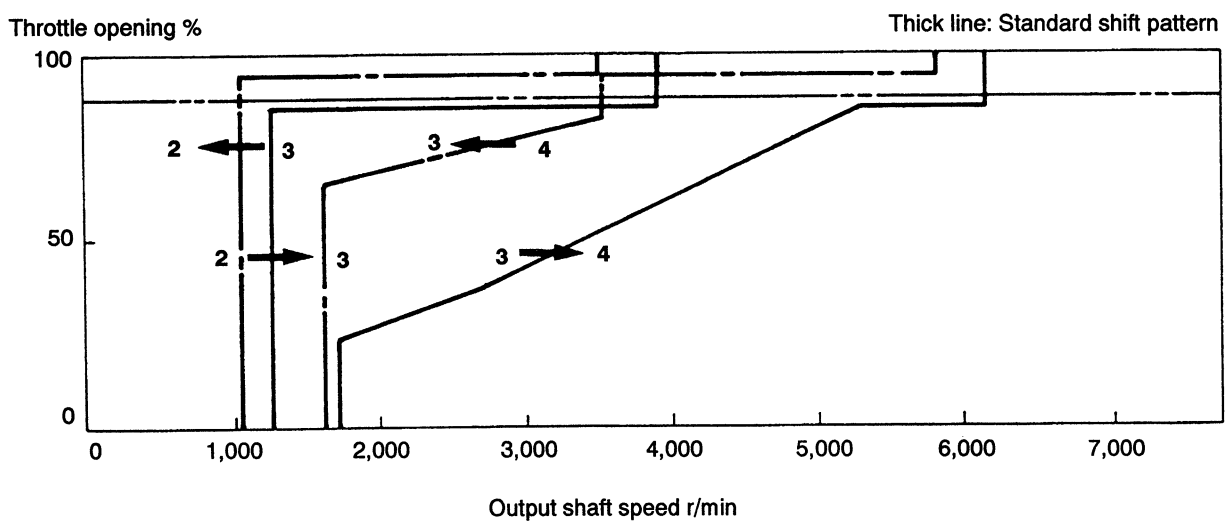
## HOLD MODE PATTERN

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## INSPECTION CHART FOR DIAGNOSIS CODE

Inspection procedures are basically the same as those for '97 and prior vehicle models.

| Code | Diagnosis item | | Reference page |
|---|---|---|---|
| 11 | Throttle position sensor system | Short circuit | 23-14* |
| 12 | | Open circuit | 23-14* |
| 14 | | Sensor maladjustment | 23-14* |
| 15 | Oil temperature sensor system | Open circuit | 23-14* |
| 21 | Crank angle sensor system | Open circuit | 23-15* |
| 22 | Input shaft speed sensor system | Short circuit/open circuit | 23-15* |
| 23 | Output shaft speed sensor system | Short circuit/open circuit | 23-16* |
| 25 | Wide open throttle switch system | Short circuit | 23-17* |
| 26 | Stop lamp switch system | Short circuit/open circuit | 23-17* |
| 31 | Low and reverse solenoid valve system | Short circuit/open circuit | 23-18* |
| 32 | Underdrive solenoid valve system | Short circuit/open circuit | 23-18* |
| 33 | Second solenoid valve | Short circuit/open circuit | 23-18* |
| 34 | Overdrive solenoid valve | Short circuit/open circuit | 23-18* |
| 36 | Damper control clutch solenoid valve | Short circuit/open circuit | 23-18* |
| 41 | 1st gear ratio is not specified | | 23-19* |
| 42 | 2nd gear ratio is not specified | | 23-20* |
| 43 | 3rd gear ratio is not specified | | 23-21* |
| 44 | 4th gear ratio is not specified | | 23-22* |
| 46 | Reverse gear ratio is not specified | | 23-23* |
| 51 | Abnormal communication with the engine-ECU | | 23-24* |
| 52 | Damper control clutch solenoid valve system | Defective system | 23-18* |
| 54 | A/T Control relay system | Short circuit to earth/ open circuit | 23-24* |
| 56 | N range lamp system | Short circuit to earth | 23-25* |
| 71 | Malfunction of A/T-ECU | | 23-25* |

NOTE
*: Refer to '96 CARISMA Workshop Manual (Pub. No. PWDE9502).

## INSPECTION CHART FOR TROUBLE SYMPTOMS

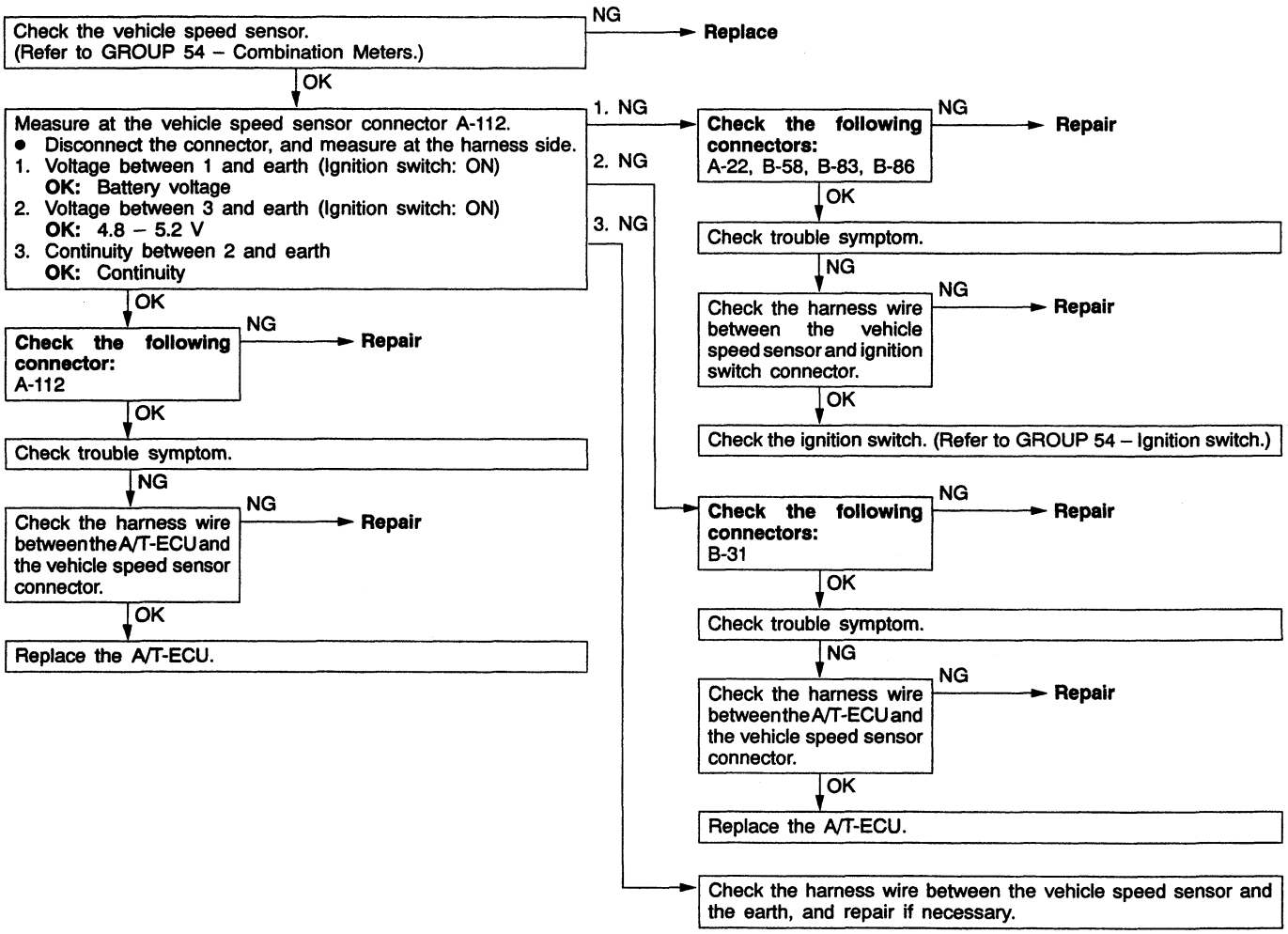
Inspection procedures are basically the same as those for '97 and prior vehicle models, except that the vehicle speed sensor system inspection procedures have been changed to correspond to the adoption of an electronic speedometer.

| Trouble symptom | | Inspection procedure No. | Reference page |
|---|---|---|---|
| Communication with MUT-II is not possible | | 1 | 23-26* |
| Driving impossible | Starting impossible | 2 | 23-27* |
| | Does not move forward | 3 | 23-27* |
| | Does not reverse | 4 | 23-28* |
| | Does not move (forward or reverse) | 5 | 23-28* |
| Malfunction when starting | Engine stalling when shifting | 6 | 23-29* |
| | Shocks when changing from N to D and large time lag | 7 | 23-29* |
| | Shocks when changing from N to R and large time lag | 8 | 23-30* |
| | Shocks when changing from N to D, N to R and large time lag | 9 | 23-31* |
| Malfunction when shifting | shocks and running up | 10 | 23-31* |
| Displaced shifting points | All points | 11 | 23-32* |
| | Some points | 12 | 23-33* |
| Does not shift | No diagnosis codes | 13 | 23-33* |
| Malfunction while driving | Poor acceleration | 14 | 23-34* |
| | Vibration | 15 | 23-34* |
| Inhibitor switch system | | 16 | 23-35* |
| Mode control switch system | | 17 | 23-35* |
| Idle position switch system | | 18 | 23-36* |
| Dual pressure switch system | | 19 | 23-36* |
| Vehicle speed sensor system | | 20 | 23-6 |

NOTE
*: Refer to '96 CARISMA Workshop Manual (Pub. No. PWDE9502).

## INSPECTION PROCEDURE 20

| Vehicle speed sensor system | Probable cause |
|---|---|
| The cause is probably a defective vehicle speed sensor circuit or a defective A/T-ECU. | • Malfunction of the vehicle speed sensor<br>• Malfunction of connector<br>• Malfunction of the A/T-ECU |



## SERVICE DATA REFERENCE TABLE

The following items have been added to correspond to the addition of vehicles with 4G93-GDI engine. Moreover, item No.57 (engine volumetric efficiency) is not included for vehicles with 4G93-GDI engine.

| Item No. | Check item | Check requirement | Normal value |
|---|---|---|---|
| 73 | Target engine effective pressure | N range with accelerator pedal fully closed → depressed | Data changes |

## CHECK AT THE A/T-ECU TERMINALS

Inspection procedures are basically the same as those for '97 and prior vehicle models, except that the input terminal No. for the vehicle speed sensor has been changed from terminal No.46 to terminal No.69.

| Terminal No. | Check item | Check requirement | Standard value |
|---|---|---|---|
| 69 | Vehicle speed sensor | When stopped | 0 V |
| | | Move forward slowly | 0 → 5 V alternating |