

AUTOMATIC TRANSMISSION

CONTENTS

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WARNING REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

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 (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, side impact sensors 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

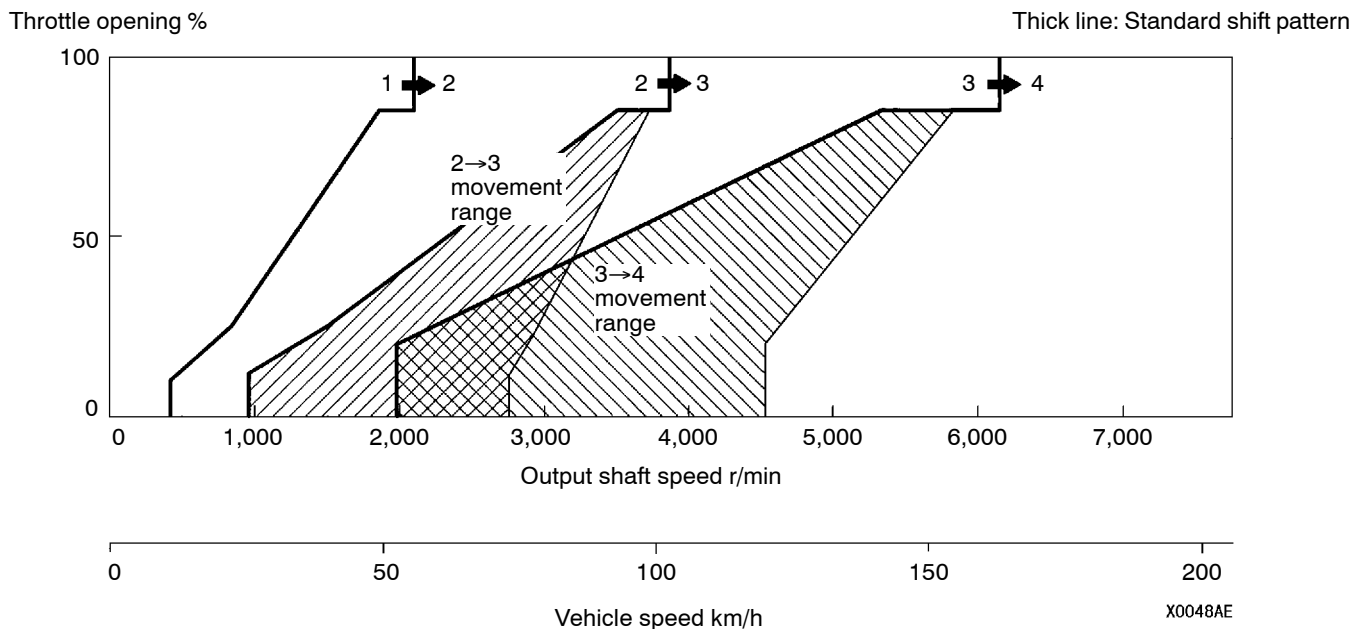
The following service procedures have been established to correspond to the addition of vehicles with 4G6-MPI and 4G6-GDI engine. Items other than those given below are the same as for the 4G6-GDI engine mounted in the '99 SPACE WAGON.

- The engine and A/T have been changed to comprehensive control (engine-A/T-ECU). <4G6-MPI>
- The shift pattern has been changed. <4G6-MPI>
- The final gear ratio has been changed to 4.407. <4G6-MPI>
- Troubleshooting procedures have been reviewed.
- The standard hydraulic pressure test has been changed. <4G6-MPI>
- The stall speed has been changed to 2500 ~ 2800 r/min. <4G6-MPI>

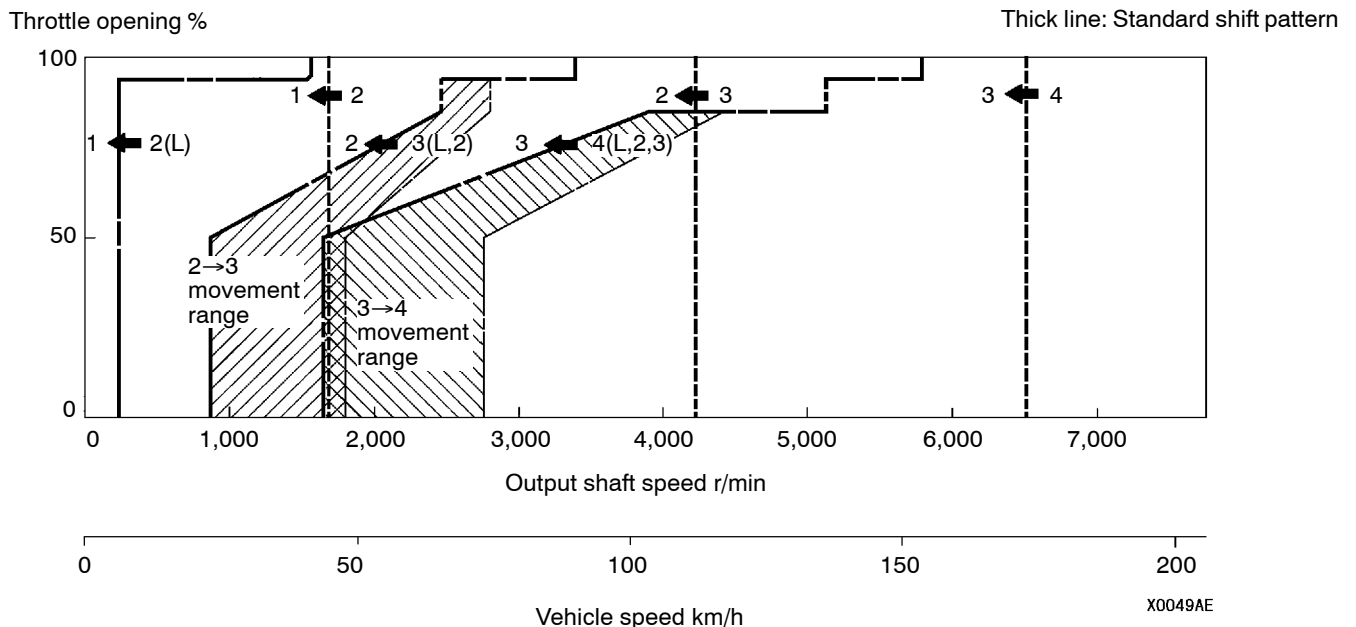
TROUBLESHOOTING

<4G6-MPI>

UPSHIFT PATTERN



DOWNSHIFT PATTERN

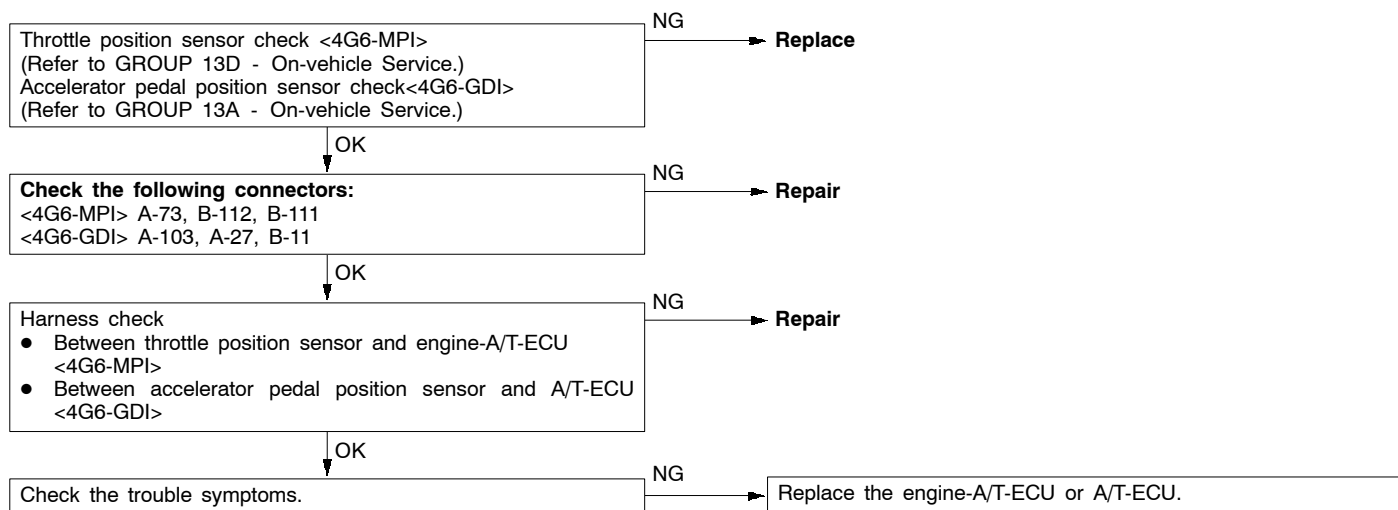


INSPECTION CHART FOR DIAGNOSIS CODE

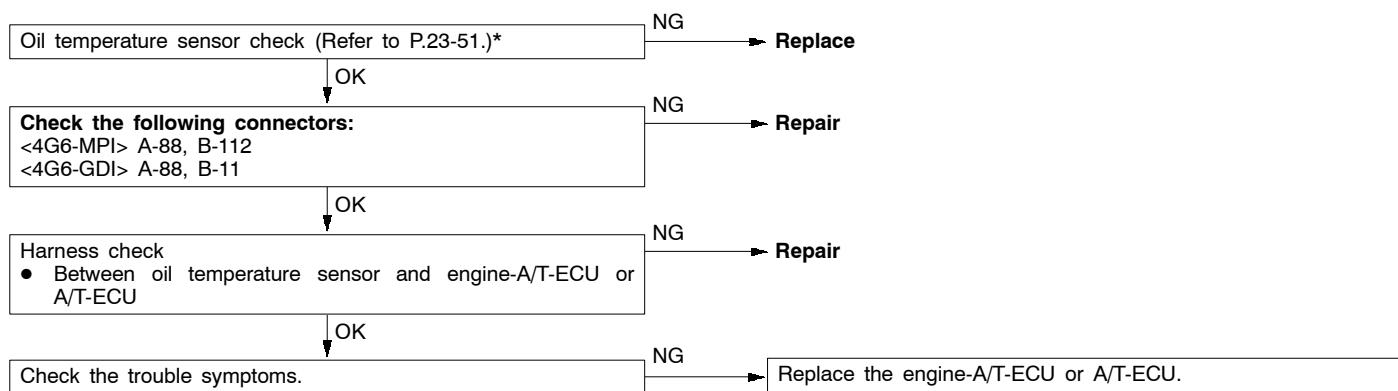
| Code | Diagnosis item | | Reference page |
|------|---|---|----------------|
| 11 | Throttle position sensor system | Short circuit | 23-4 |
| 12 | <4G6-MPI> Accelerator pedal position sensor system | Open circuit | 23-4 |
| 14 | <4G6-GDI> | Sensor maladjustment | 23-4 |
| 15 | Oil temperature sensor system | Open circuit | 23-4 |
| 21 | Crank angle sensor system | Open circuit | 23-5 |
| 22 | Input shaft speed sensor system | Short circuit/open circuit | 23-5 |
| 23 | Output shaft speed sensor system | Short circuit/open circuit | 23-6 |
| 25 | Wide open throttle switch system | Short circuit | 23-6 |
| 26 | Stop lamp switch system | Short circuit/open circuit | 23-7 |
| 31 | Low and reverse solenoid valve system | Short circuit/open circuit | 23-7 |
| 32 | Underdrive solenoid valve system | Short circuit/open circuit | 23-7 |
| 33 | Second solenoid valve system | Short circuit/open circuit | 23-7 |
| 34 | Overdrive solenoid valve system | Short circuit/open circuit | 23-7 |
| 36 | Damper control clutch solenoid valve system | Short circuit/open circuit | 23-8 |
| 41 | 1st gear ratio does not meet the specification | | 23-9 |
| 42 | 2st gear ratio does not meet the specification | | 23-9 |
| 43 | 3rd gear ratio does not meet the specification | | 23-9 |
| 44 | 4th gear ratio does not meet the specification | | 23-9 |
| 46 | Reverse gear ratio does not meet the specification | | 23-9 |
| 51 | Abnormal communication with engine-ECU | | 23-10 |
| 52 | Damper control clutch solenoid valve system | Defective system | 23-8 |
| 54 | A/T Control relay system | Short circuit to earth/ open circuit | 23-10 |
| 56 | N range lamp system | Short circuit to earth | 23-11 |

INSPECTION PROCEDURES FOR DIAGNOSIS CODES

| Code No. 11, 12, 14 Throttle position sensor system <4G6-MPI>, accelerator pedal position sensor system <4G6-GDI> | Probable cause |
|---|--|
| <p>If the TPS or APS output voltage is 4.8 V or higher when the engine is idling, the output is judged to be too high and diagnosis code No. 11 is output. If the TPS or APS output voltage is 0.2 V or lower at times other than when the engine is idling, the output is judged to be too low and diagnosis code No. 12 is output. If the TPS or APS output voltage is 0.2 V or lower or if it is 1.2 V or higher when the engine is idling, the TPS or APS adjustment is judged to be incorrect and diagnosis code No. 14 is output.</p> | <ul style="list-style-type: none"> ● Malfunction of the throttle position sensor <4G6-MPI> ● Malfunction of the accelerator pedal position sensor <4G6-GDI> ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



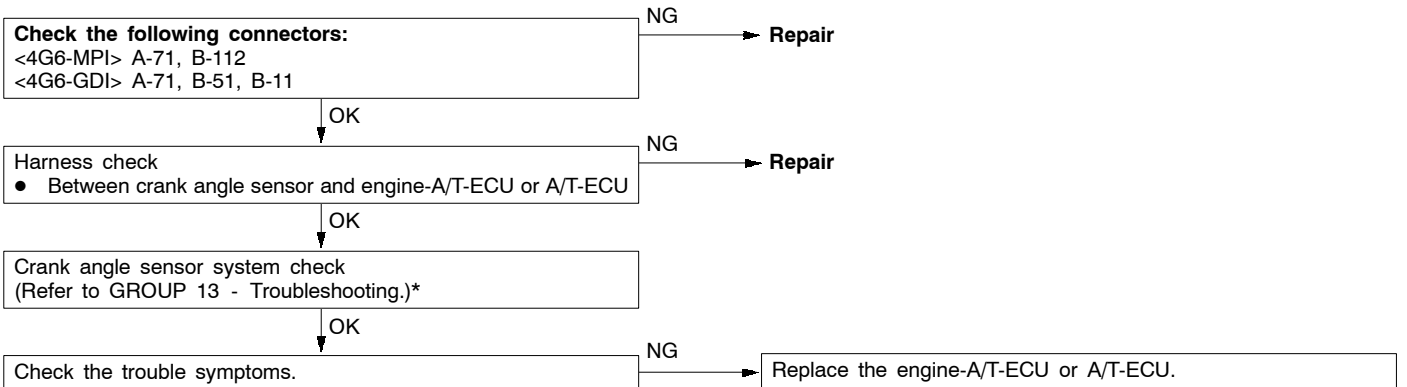
| Code No. 15 Oil temperature sensor system | Probable cause |
|--|--|
| <p>If the oil temperature sensor output voltage is 2.6 V or more even after driving for 10 minutes or more (if the oil temperature does not increase), it is judged that there is an open circuit in the oil temperature sensor and diagnosis code No. 15 is output.</p> | <ul style="list-style-type: none"> ● Malfunction of the oil temperature sensor ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



NOTE

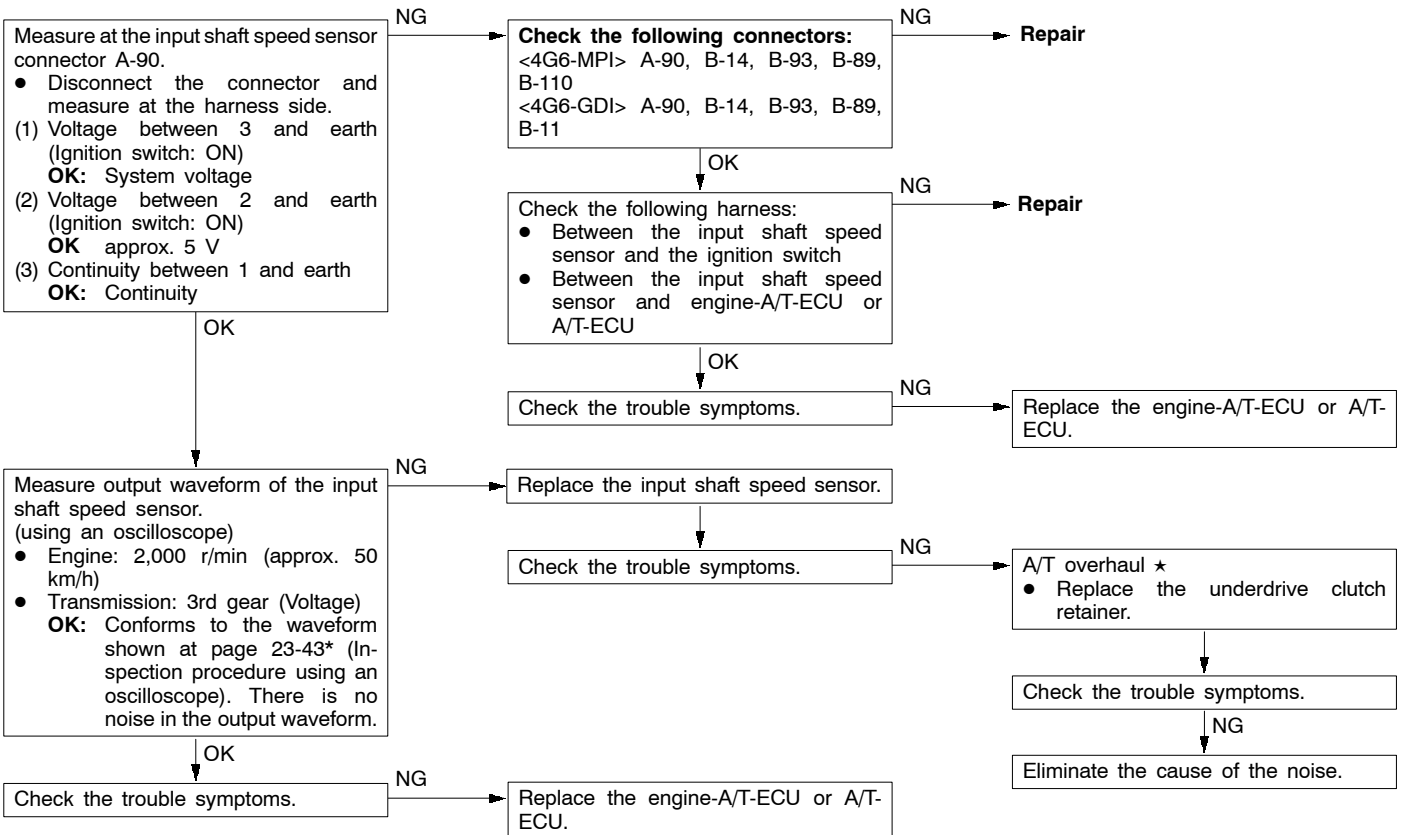
*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 21 Crank angle sensor system | Probable cause |
|--|--|
| If no output pulse is detected from the crank angle sensor for 5 seconds or more while driving at 25 km/h or more, it is judged that there is an open circuit in the crank angle sensor and diagnosis code No. 21 is output. | <ul style="list-style-type: none"> ● Malfunction of the crank angle sensor ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



| Code No. 22 Input shaft speed sensor system | Probable cause |
|--|---|
| If no output pulse is detected from the input shaft speed sensor for 1 second or more while driving in 3rd or 4th gear at a speed of 30 km/h or more, there is judged to be an open circuit or short-circuit in the input shaft speed sensor and diagnosis code No. 22 is output. If diagnosis code No. 22 is output four times, the transmission is locked into 3rd gear (D range) or 2nd gear as a fail-safe measure, and the N range lamp flashes at a frequency of 1 Hz. | <ul style="list-style-type: none"> ● Malfunction of the input shaft speed sensor ● Malfunction of the underdrive clutch retainer ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of A/T-ECU <4G6-GDI> |

★: Refer to the Transmission Workshop Manual.

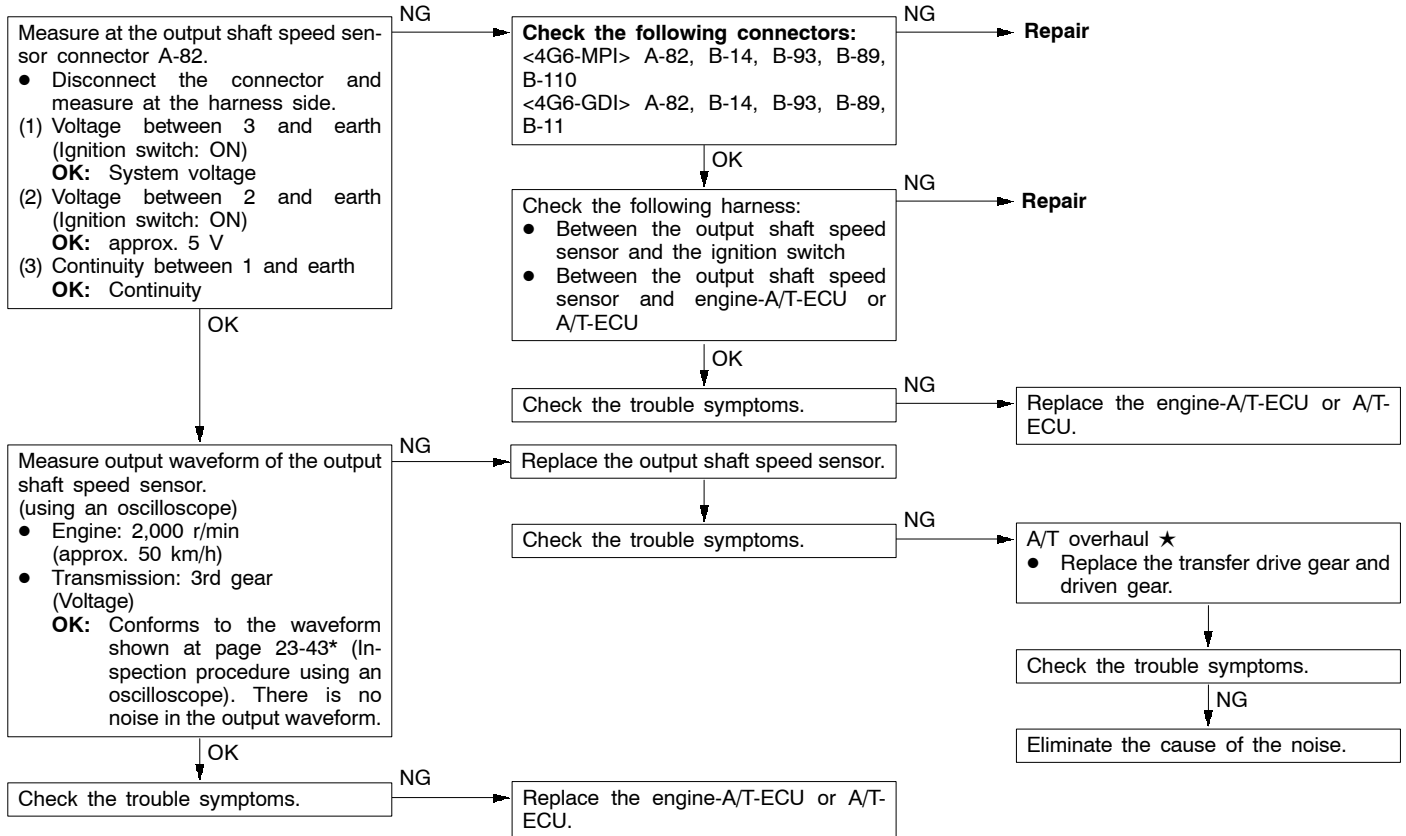


NOTE

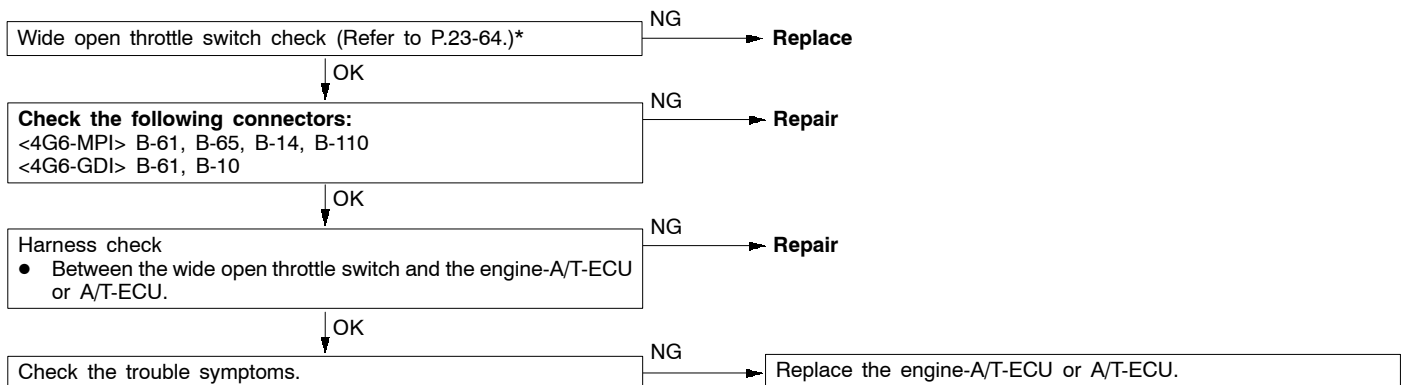
*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 23 Output shaft speed sensor system | Probable cause |
|--|--|
| <p>If the output from the output shaft speed sensor is continuously 50% lower than the vehicle speed for 1 second or more while driving in 3rd or 4th gear at a speed of 30 km/h or more, there is judged to be an open circuit or short-circuit in the output shaft speed sensor and diagnosis code No. 23 is output.</p> <p>If diagnosis code No. 23 is output four times, the transmission is locked into 3rd gear (D range) or 2nd gear as a fail-safe measure, and the N range lamp flashes at a frequency of 1 Hz.</p> | <ul style="list-style-type: none"> ● Malfunction of the output shaft speed sensor ● Malfunction of the transfer drive gear or driven gear ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |

★: Refer to the Transmission Workshop Manual.



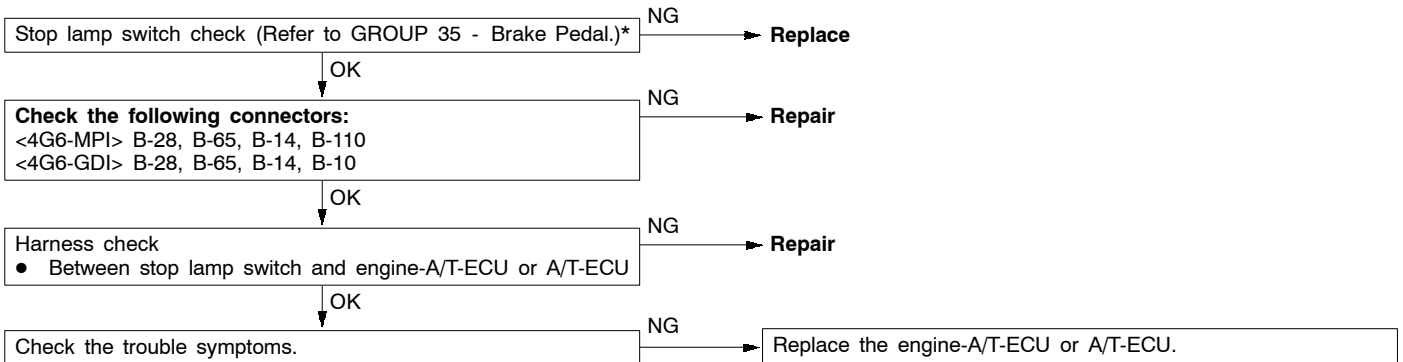
| Code No. 25 Wide open throttle switch system | Probable cause |
|---|---|
| <p>If the wide open throttle switch is on for 1 second or more with the throttle valve opening angle at 70% or less, it is judged that there is a short circuit in the wide open throttle switch and diagnosis code No. 25 is output.</p> | <ul style="list-style-type: none"> ● Malfunction of the wide open throttle switch ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



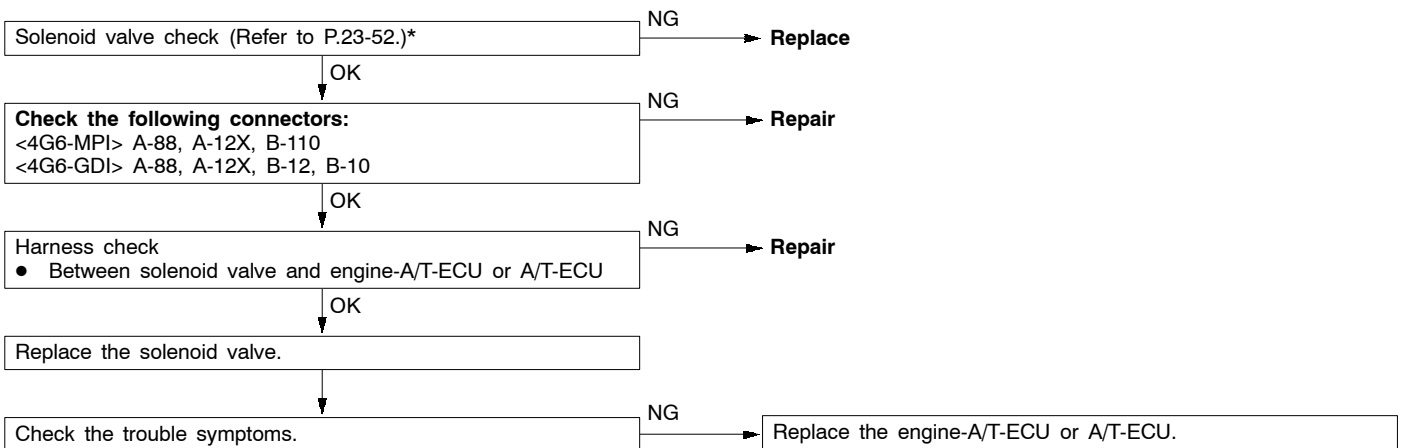
NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 26 Stop lamp switch system | Probable cause |
|--|--|
| If the stop lamp switch is on for 5 minutes or more while driving, it is judged that there is a short circuit in the stop lamp switch and diagnosis code No. 26 is output. | <ul style="list-style-type: none"> ● Malfunction of the stop lamp switch ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



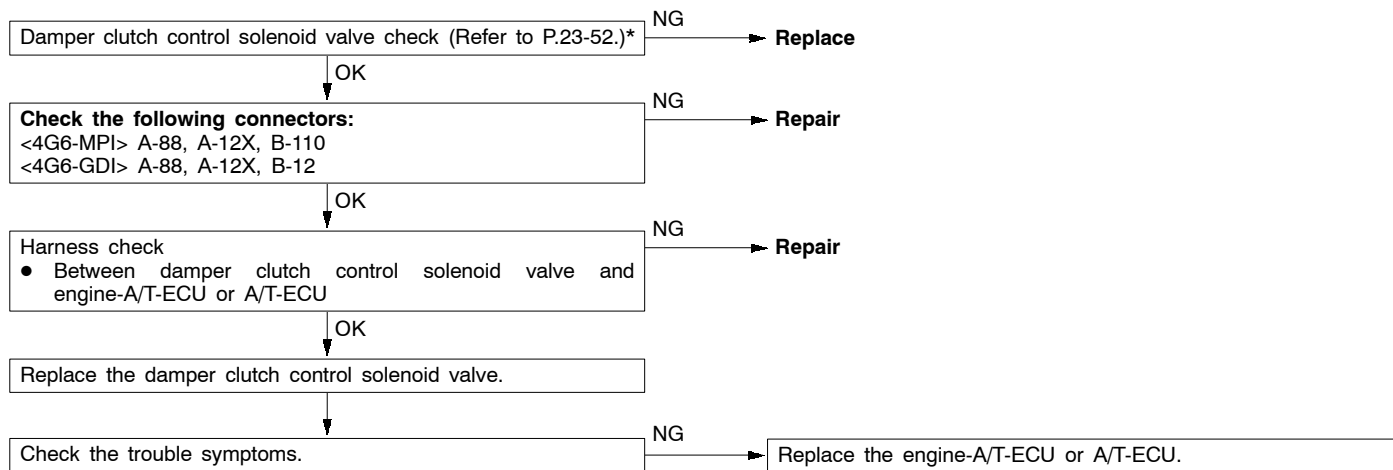
| Code No. 31 Low and reverse solenoid valve system | Probable cause |
|---|--|
| Code No. 32 Underdrive solenoid valve system | |
| Code No. 33 Second solenoid valve system | |
| Code No. 34 Overdrive solenoid valve system | |
| If the resistance value for a solenoid valve is too large or too small, it is judged that there is a short-circuit or an open circuit in the solenoid valve and the respective diagnosis code is output. The transmission is locked into 3rd gear as a fail-safe measure, and the N gear lamp flashes at a frequency of 1 Hz. | <ul style="list-style-type: none"> ● Malfunction of solenoid valve ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 36, 52 Damper clutch control solenoid valve system | Probable cause |
|---|--|
| <p>If the resistance value for the damper clutch control solenoid valve is too large or too small, it is judged that there is a short-circuit or an open circuit in the damper clutch control solenoid valve and diagnosis code No. 36 is output. If the drive duty rate for the damper clutch control solenoid valve is 100 % for a continuous period of 4 seconds or more, it is judged that there is an abnormality in the damper clutch control system and diagnosis code No. 52 is output. When diagnosis code No. 36 is output, the transmission is locked into 3rd gear as a fail-safe measure, and the N range lamp flashes at a frequency of 1 Hz.</p> | <ul style="list-style-type: none"> ● Malfunction of the damper clutch control solenoid valve ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |

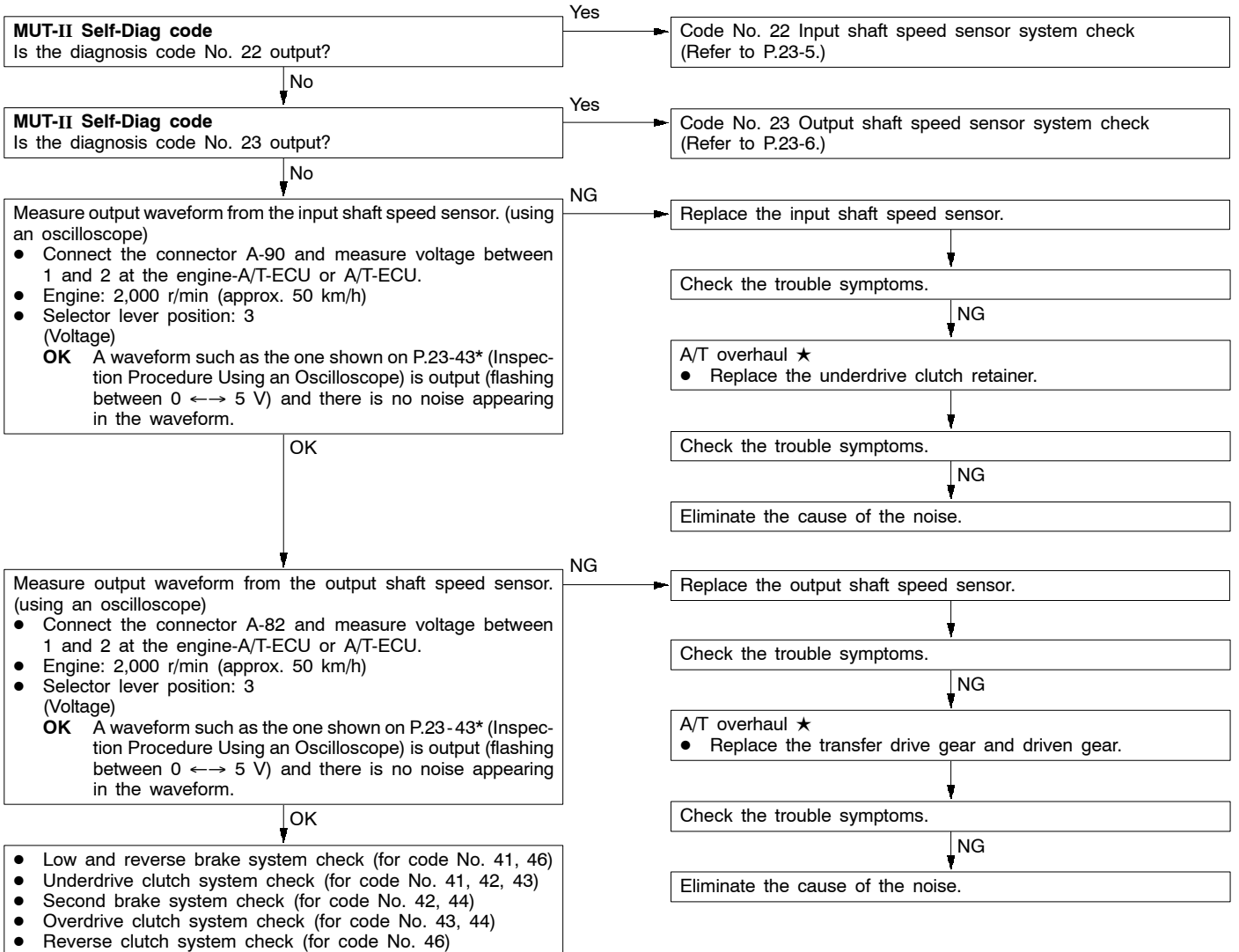


NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| | |
|---|--|
| Code No. 41 1st gear ratio does not meet the specification | Probable cause |
| Code No. 42 2nd gear ratio does not meet the specification | |
| Code No. 43 3rd gear ratio does not meet the specification | |
| Code No. 44 4th gear ratio does not meet the specification | |
| Code No. 46 Reverse gear ratio does not meet the specification | |
| <p>If the output from the output shaft speed sensor multiplied by each gear ratio is not the same as the output from the input shaft speed sensor after shifting to each gear has been completed, each diagnosis code is output. If each diagnosis code is output four times, the transmission is locked into 3rd gear as a fail-safe measure, and the N range lamp flashes at a frequency of 1 Hz.</p> | <ul style="list-style-type: none"> ● Malfunction of the input shaft speed sensor ● Malfunction of the output shaft speed sensor ● Malfunction of the underdrive clutch retainer ● Malfunction of the transfer drive gear or driven gear ● Malfunction of the low and reverse brake system (for code No. 41, 46) ● Malfunction of the underdrive clutch system (for code No. 41, 42, 43) ● Malfunction of the second brake system (for code No. 42, 44) ● Malfunction of the overdrive clutch system (for code No. 43, 44) ● Malfunction of the reverse clutch system (for code No. 46) ● Noise generated |

★: Refer to the Transmission Workshop Manual.



NOTE

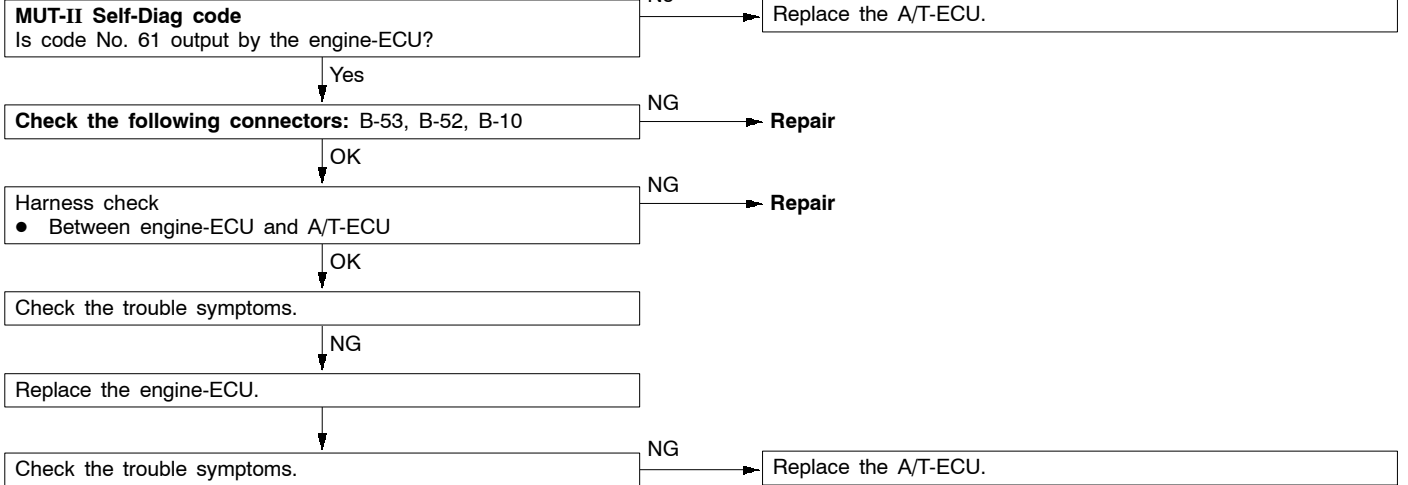
*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 51 Abnormal communication with engine-ECU | Probable cause |
|--|--|
| <p>If normal communication is not possible for a continuous period of 1 second or more when the ignition switch is at the ON position, the battery voltage is 10 V or more and the engine speed is 450 r/min or more, diagnosis code No. 51 is output. Diagnosis code No. 51 is also output if the data being received is abnormal for a continuous period of 4 seconds under the same conditions.</p> | <ul style="list-style-type: none"> ● Malfunction of connector ● Malfunction of the engine-ECU ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |

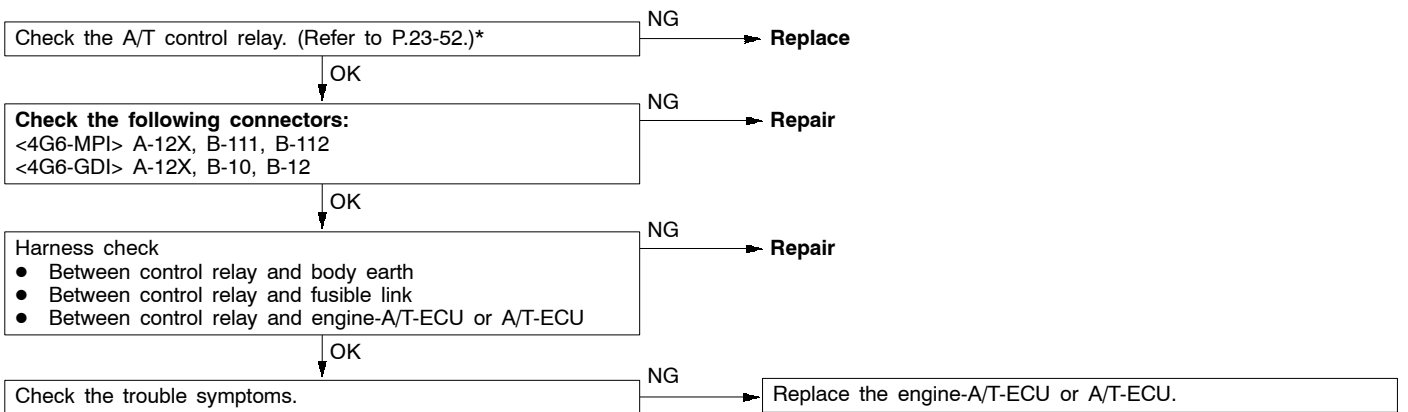
<4G6-MPI>

Replace the engine-A/T-ECU.

<4G6-GDI>



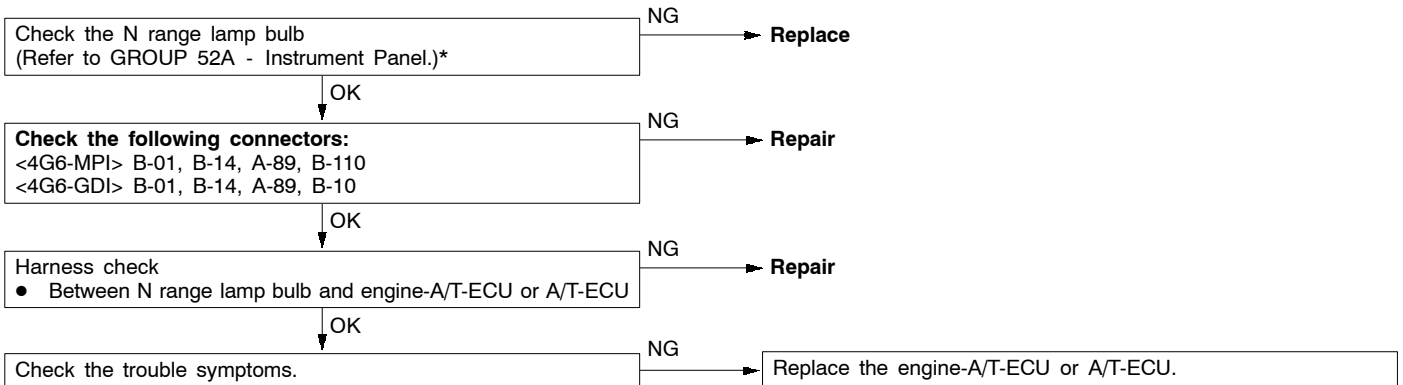
| Code No. 54 A/T control relay system | Probable cause |
|---|---|
| <p>If the A/T control relay voltage is less than 7 V after the ignition switch has been turned ON, it is judged that there is an open circuit or a short-circuit in the A/T control relay circuit and diagnosis code No. 54 is output. Then the transmission is locked into 3rd gear as a fail-safe measure, and the N range lamp flashes at a frequency of 1 Hz.</p> | <ul style="list-style-type: none"> ● Malfunction of the A/T control relay ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Code No. 56 N range lamp system | Probable cause |
|--|---|
| If the N range signal is off after an N range lamp illumination instruction (ON instruction) has been given, it is judged that there is a short-circuit in the N range lamp earth and diagnosis code No. 56 is output. | <ul style="list-style-type: none"> ● Malfunction of the N range lamp bulb ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



INSPECTION CHART FOR TROUBLE SYMPTOMS

| Trouble symptom | | Inspection procedure No. | Reference page |
|--|---|--------------------------|----------------|
| MUT-II can not communicate with any systems. | | 1 | 23-12 |
| MUT-II can not communicate with the engine-A/T-ECU or A/T-ECU. | | 2 | 23-13 |
| Driving impossible | Starting impossible | 3 | 23-27* |
| | Does not move forward | 4 | 23-27* |
| | Does not reverse | 5 | 23-28* |
| | Does not move (forward or reverse) | 6 | 23-28* |
| Malfunction when starting | Engine stalling when shifting | 7 | 23-29* |
| | Shocks when changing from N to D and large time lag | 8 | 23-29* |
| | Shocks when changing from N to R and large time lag | 9 | 23-30* |
| | Shocks when changing from N to D, N to R and large time lag | 10 | 23-31* |
| Malfunction when shifting | Shocks and running up | 11 | 23-31* |

NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Trouble symptom | | Inspection procedure No. | Reference page |
|-----------------------------|--------------------|--------------------------|----------------|
| Displaced shifting points | All points | 12 | 23-32* |
| | Some points | 13 | 23-33* |
| Does not shift | No diagnosis codes | 14 | 23-33* |
| Malfunction while driving | Poor acceleration | 15 | 23-34* |
| | Vibration | 16 | 23-34* |
| Inhibitor switch system | | 17 | 23-14 |
| Dual pressure switch system | | 18 | 23-14 |
| Vehicle speed sensor system | | 19 | 23-15 |

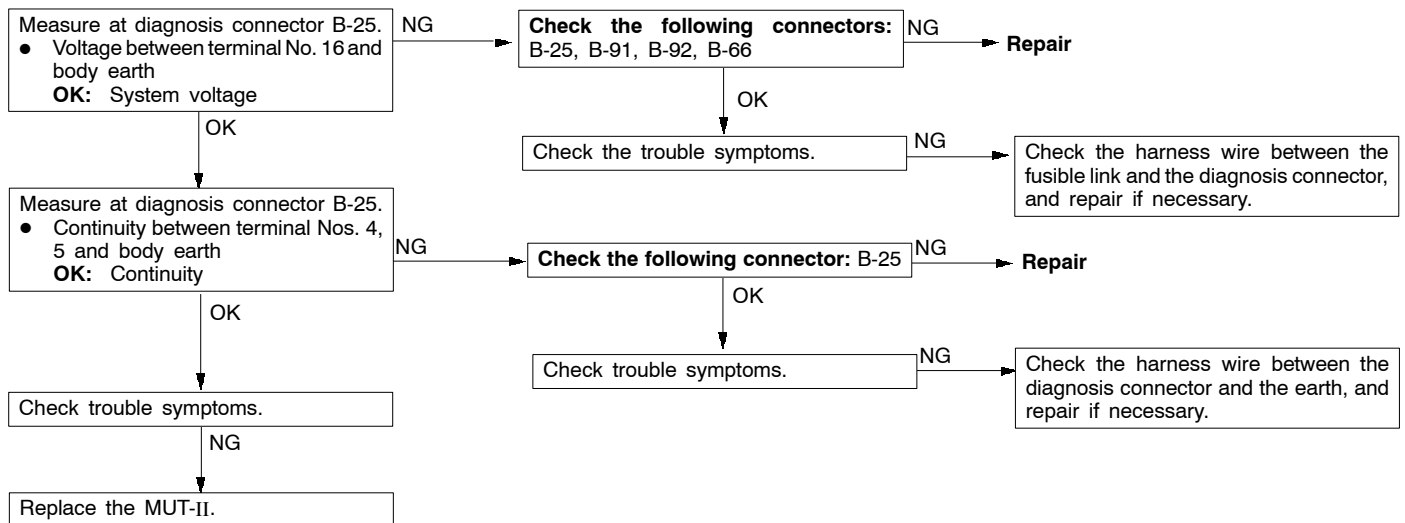
NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

INSPECTION PROCEDURE FOR TROUBLE SYMPTOMS

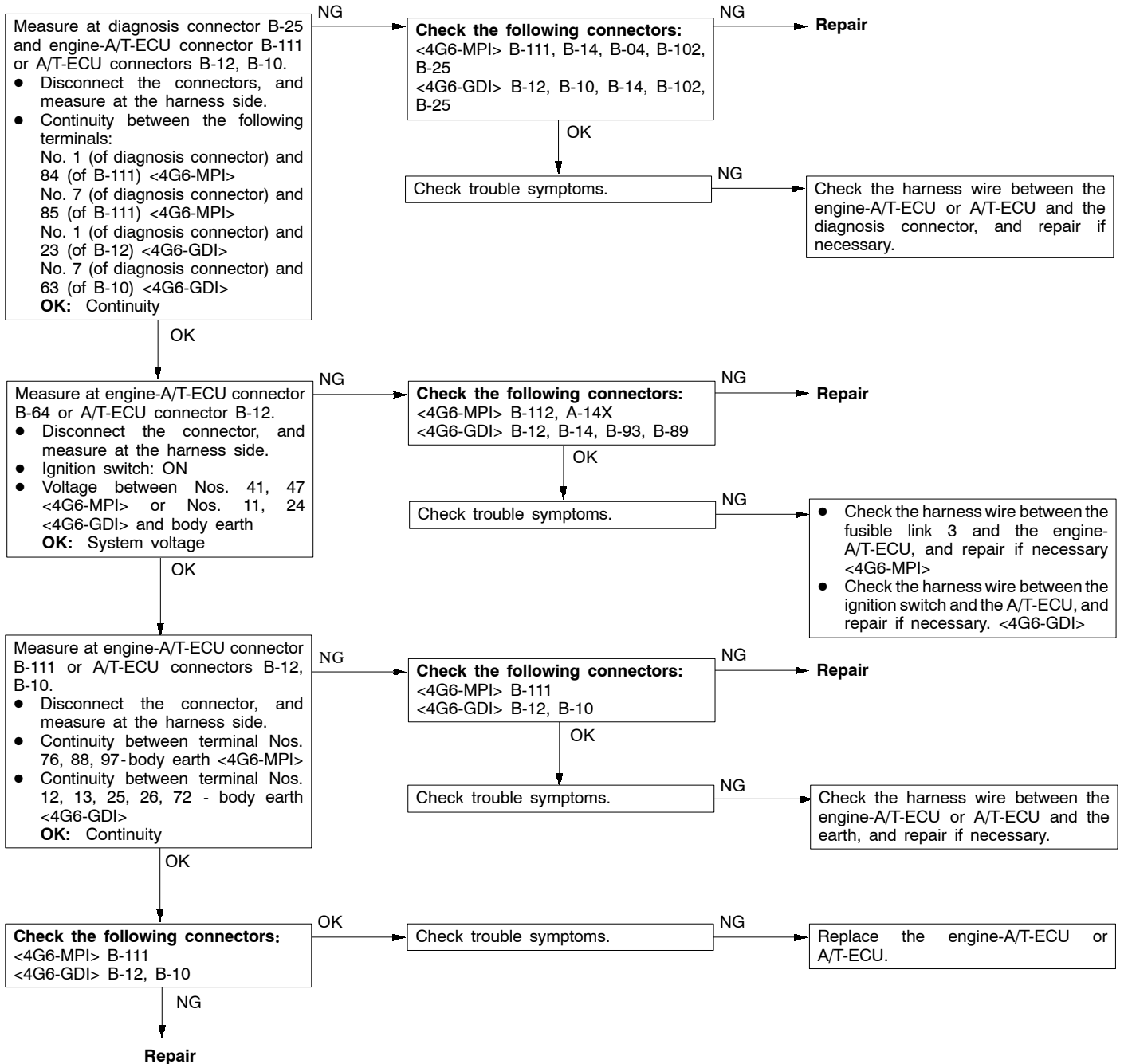
INSPECTION PROCEDURE 1

| MUT-II can not communicate with any systems. | Probable cause |
|--|---|
| It is suspected that this malfunction is caused by a defective power supply and earth circuits of the diagnosis connector. | <ul style="list-style-type: none"> • Malfunction of diagnosis connector • Malfunction of harness or connector |



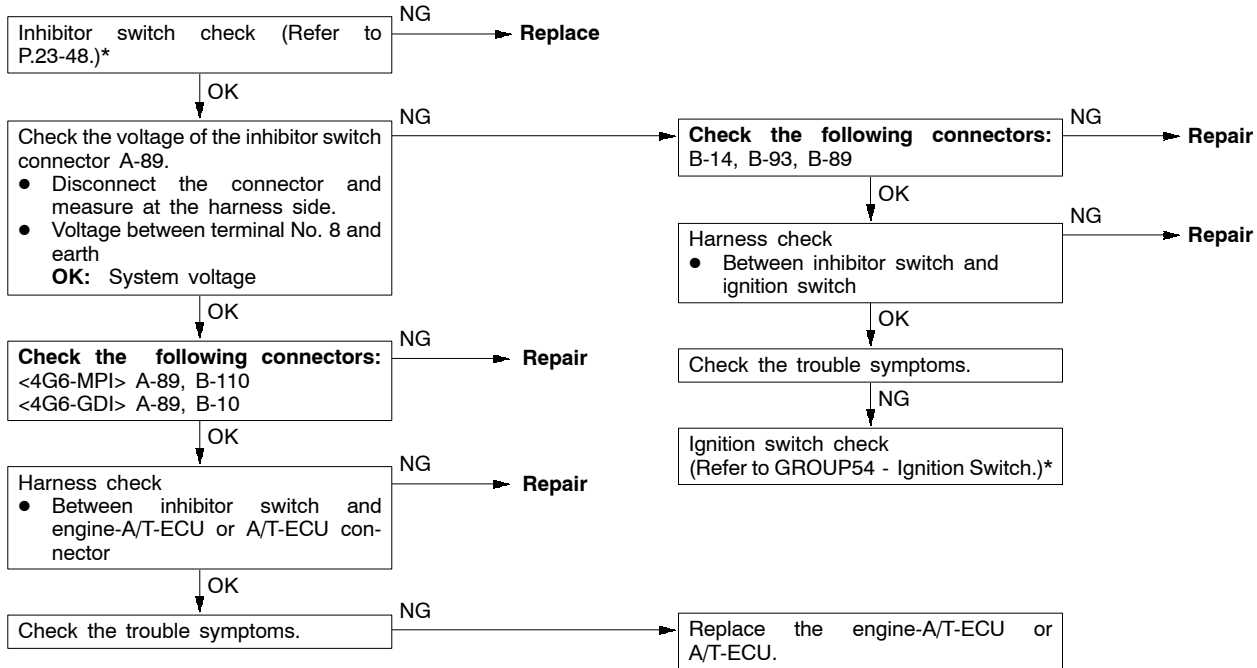
INSPECTION PROCEDURE 2

| MUT-II can not communicate with the engine-A/T-ECU or A/T-ECU. | Probable cause |
|---|--|
| It is suspected that this malfunction is caused by an open circuit in engine-A/T-ECU or A/T-ECU power supply circuit or diagnosis output circuit. | <ul style="list-style-type: none"> ● Malfunction of harness or connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



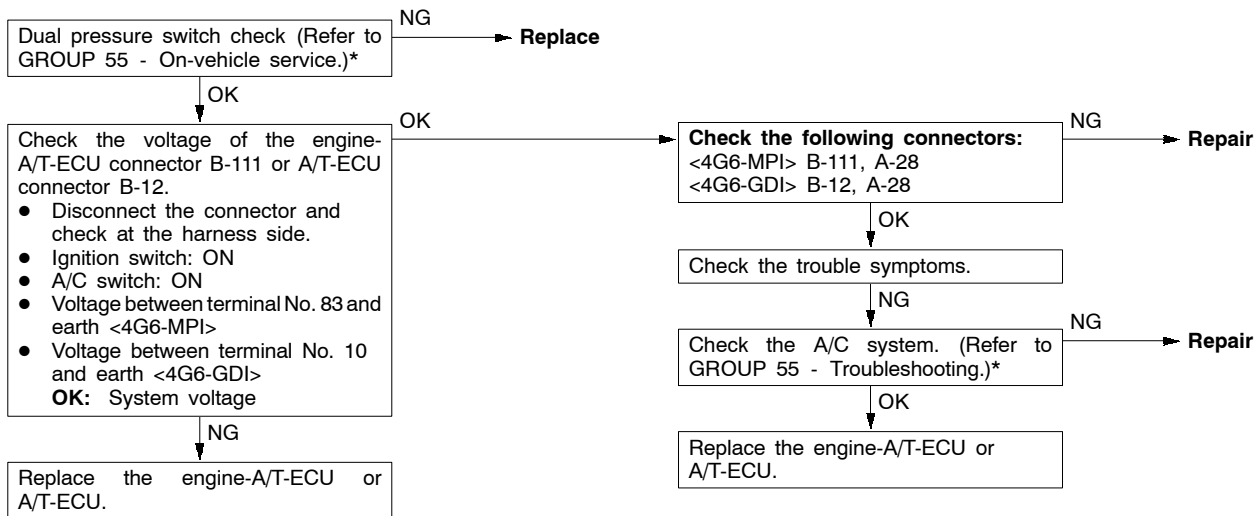
INSPECTION PROCEDURE 17

| Inhibitor switch system | Probable cause |
|--|--|
| The cause is probably a malfunction of the inhibitor switch circuit, ignition switch circuit or a defective engine-A/T-ECU or A/T-ECU. | <ul style="list-style-type: none"> • Malfunction of the inhibitor switch • Malfunction of the ignition switch • Malfunction of connector • Malfunction of the engine-A/T-ECU <4G6-MPI> • Malfunction of the A/T-ECU <4G6-GDI> |



INSPECTION PROCEDURE 18

| Dual pressure switch system | Probable cause |
|--|---|
| The cause is probably a defective dual pressure switch circuit or a defective engine-A/T-ECU or A/T-ECU. | <ul style="list-style-type: none"> • Malfunction of the dual pressure switch • Malfunction of connector • Malfunction of A/C system • Malfunction of the engine-A/T-ECU <4G6-MPI> • Malfunction of the A/T-ECU <4G6-GDI> |

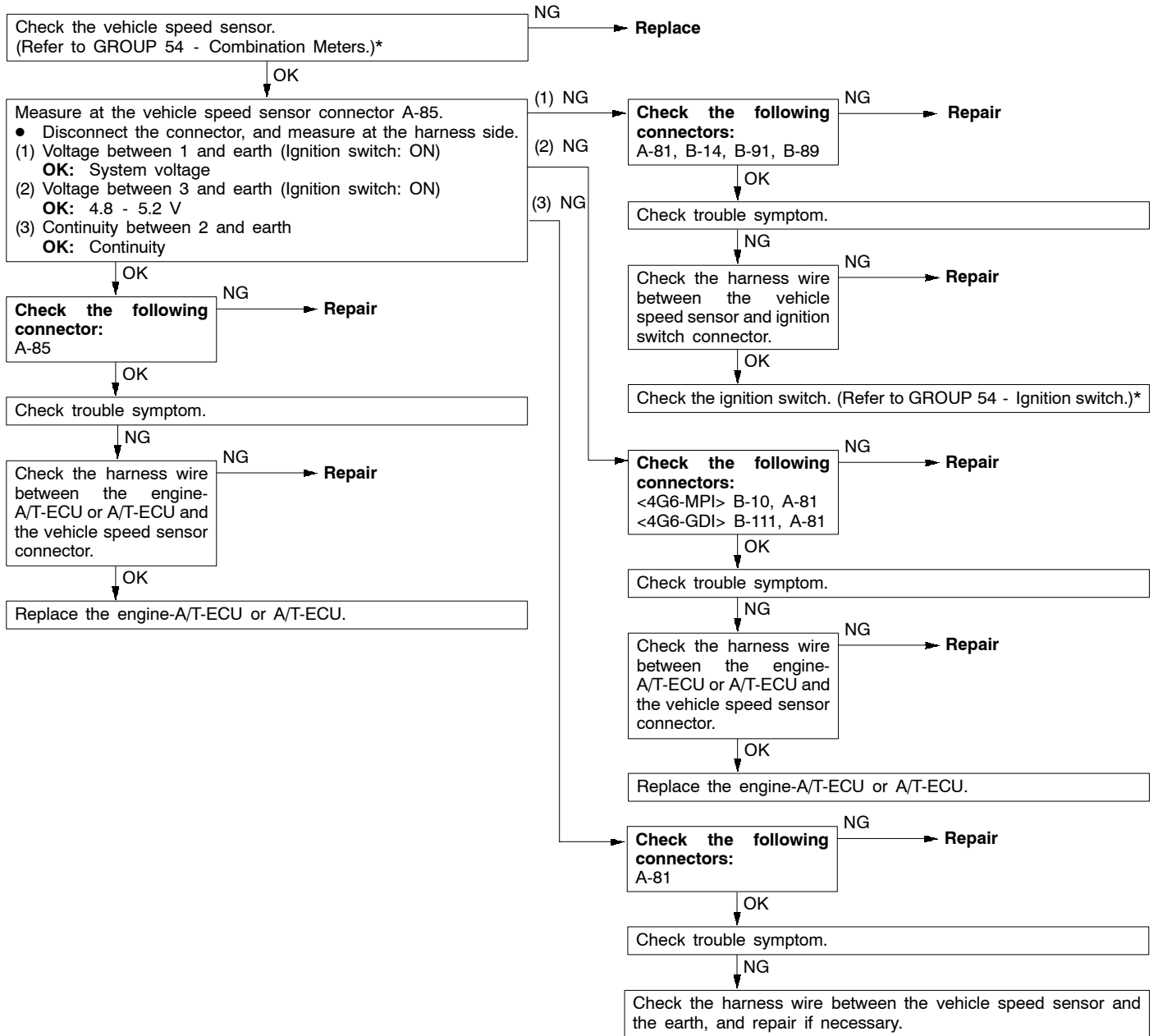


NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

INSPECTION PROCEDURE 19

| Vehicle speed sensor system | Probable cause |
|--|--|
| The cause is probably a defective vehicle speed sensor circuit or a defective engine-A/T-ECU or A/T-ECU. | <ul style="list-style-type: none"> ● Malfunction of the vehicle speed sensor ● Malfunction of connector ● Malfunction of the engine-A/T-ECU <4G6-MPI> ● Malfunction of the A/T-ECU <4G6-GDI> |



NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

CHECK AT ENGINE-A/T-ECU TERMINALS <4G6-MPI>

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 41 | 42 | 43 | | 44 | 45 | 46 | 71 | 72 | 73 | 74 | | 75 | 76 | 77 | 101 | 102 | 103 | 104 | | 105 | 106 | 107 | | | | | | | | | | | | | | | | | | | |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | | | | | | | | | | | |

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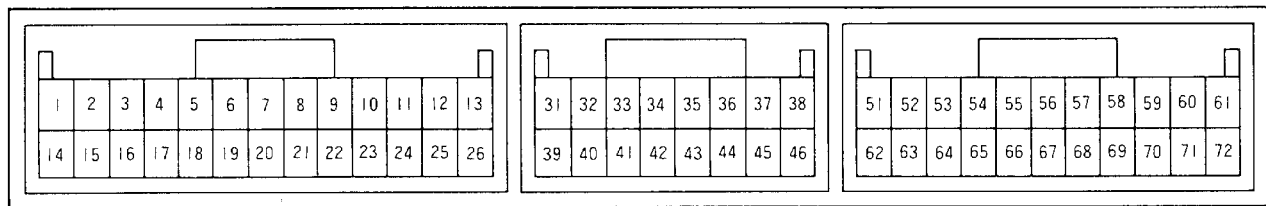
| Terminal No. | Check item | Check requirement | Standard value |
|--------------|--------------------------------------|---|---|
| 50 | A/T control relay | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 57 | Sensor earth | Always | 0 V |
| 76 | Earth | Always | 0 V |
| 77 | Solenoid valve power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 88 | Earth | Always | 0 V |
| 89 | Solenoid valve power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 97 | Earth | Always | 0 V |
| 101 | Inhibitor switch P | Selector lever position: P | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 102 | Inhibitor switch D | Selector lever position: D | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 103 | Input shaft speed sensor | Measure between terminal No. 57 and No. 103 by an oscilloscope. Engine: 2,000 r/min Selector lever position: 3 (3rd gear) | Refer to P.23-43*, Oscilloscope inspection procedure. |
| 104 | Output shaft speed sensor | Measure between terminal No. 57 and No. 104 by an oscilloscope. Engine: 2,000 r/min Selector lever position: 3 (3rd gear) | Refer to P.23-43*, Oscilloscope inspection procedure. |
| 106 | Second solenoid valve | Selector lever position: 2 (2nd gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |
| 107 | Damper clutch control solenoid valve | Selector lever position: L (1st gear) | System voltage |
| | | Selector lever position: 3 (50 km/h in 3rd gear) | Other than System voltage |

NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

| Terminal No. | Check item | Check requirement | Standard value |
|--------------|--------------------------------|---|-----------------|
| 108 | Inhibitor switch R | Selector lever position: R | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 109 | Inhibitor switch 3 | Selector lever position: 3 | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 110 | Inhibitor switch L | Selector lever position: L | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 115 | Wide open throttle valve | Accelerator pedal: Released | 4 V or more |
| | | Accelerator pedal: Depressed | Less than 0.4 V |
| 120 | Underdrive solenoid valve | Selector lever position: L (1st gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |
| 121 | Inhibitor switch N | Selector lever position: N | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 122 | Inhibitor switch 2 | Selector lever position: 2 | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 123 | Stop lamp switch | Brake pedal: Depressed | System voltage |
| | | Brake pedal: Released | 0 V |
| 124 | Oil temperature sensor | ATF temperature: 25 °C | 3.8 - 4.0 V |
| | | ATF temperature: 80 °C | 2.3 - 2.5 V |
| 129 | Low and reverse solenoid valve | Selector lever position: P | System voltage |
| | | Selector lever position: 2 (2nd gear) | Approx. 7 - 9 V |
| 130 | Overdrive solenoid valve | Selector lever position: 3 (3rd gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |

CHECK AT A/T-ECU TERMINALS <4G6-GDI>



A9FA0133

| Terminal No. | Check item | Check requirement | Standard value |
|--------------|--------------------------------------|--|---------------------------|
| 1 | Underdrive solenoid valve | Selector lever position: D (1st gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |
| 2 | Solenoid valve power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 3 | Solenoid valve power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 10 | A/C compressor load signal | A/C switch: OFF | 0 V |
| | | A/C switch: ON | System voltage |
| 11 | Power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 12 | Earth | Always | 0 V |
| 13 | Earth | Always | 0 V |
| 14 | Overdrive solenoid valve | Selector lever position: D (3rd gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |
| 15 | Damper clutch control solenoid valve | Selector lever position: L (1st gear) | System voltage |
| | | Selector lever position: 3 (50 km/h in 3rd gear) | Other than system voltage |
| 16 | Second solenoid valve | Selector lever position: 2 (2nd gear) | System voltage |
| | | Selector lever position: P | Approx. 7 - 9 V |
| 23 | Diagnosis control | - | - |
| 24 | Power supply | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 25 | Earth | Always | 0 V |
| 26 | Earth | Always | 0 V |

| Terminal No. | Check item | Check requirement | Standard value |
|--------------|---|---|--|
| 31 | Input shaft speed sensor | Measure between terminal No. 31 and No. 43 by an oscilloscope. Engine: 2,000 r/min Selector lever position: 3 | Refer to P.23-43*, Oscilloscope inspection procedure |
| 32 | Output shaft speed sensor | Measure between terminal No. 32 and No. 43 by an oscilloscope. Engine: 2,000 r/min Selector lever position: 3 | Refer to P.23-43*, Oscilloscope inspection procedure |
| 33 | Crank angle sensor | Engine: Idling | 2.0 - 2.4 V |
| 38 | Back up power supply | Ignition switch: OFF | System voltage |
| 43 | Sensor earth | Always | 0 V |
| 44 | Oil temperature sensor | ATF temperature: 25 °C | 3.8 - 4.0 V |
| | | ATF temperature: 80 °C | 2.3 - 2.5 V |
| 45 | Accelerator pedal position sensor (APS) | Accelerator pedal: Released (Engine stopped) | 0.5 - 1.0 V |
| | | Accelerator pedal: Depressed (Engine stopped) | 4.5 - 5.0 V |
| 53 | Communication with engine-ECU | Engine: Idling Selector lever position: D | Other than 0 V |
| 54 | Communication with engine-ECU | Engine: Idling Selector lever position: D | Other than 0 V |
| 55 | Inhibitor switch P | Selector lever position: P | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 56 | Inhibitor switch N | Selector lever position: N | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 57 | Inhibitor switch 3 | Selector lever position: 3 | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 58 | Inhibitor switch L | Selector lever position: L | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 59 | Stop lamp switch | Brake pedal: Depressed | System voltage |
| | | Brake pedal: Released | 0 V |
| 62 | Low and reverse solenoid valve | Selector lever position: D (1st gear) | System voltage |
| | | Selector lever position: D (2nd gear) | Approx. 7 - 9 V |
| 63 | Diagnosis output | Normal (No diagnosis code output) | 0 → 5 V flashing |
| 65 | Wide open throttle switch | Accelerator pedal: Released | 4.5 - 5.5 V |
| | | Accelerator pedal: Depressed | Less than 0.4 V |

NOTE

*: Refer to '99 SPACE RUNNER/SPACE WAGON Workshop Manual (Pub. No. PWDE9803).

23-20 AUTOMATIC TRANSMISSION - Troubleshooting/On-Vehicle Service

| Terminal No. | Check item | Check requirement | Standard value |
|--------------|----------------------|---|------------------|
| 66 | Inhibitor switch R | Selector lever position: R | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 67 | Inhibitor switch D | Selector lever position: D | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 68 | Inhibitor switch 2 | Selector lever position: 2 | System voltage |
| | | Selector lever position: Other than above | 0 V |
| 69 | Vehicle speed sensor | When stopped | 0 V |
| | | Move forward slowly | 0 → 5 V flashing |
| 71 | A/T control relay | Ignition switch: OFF | 0 V |
| | | Ignition switch: ON | System voltage |
| 72 | Earth | ignition switch: ON | 0 V |

ON-VEHICLE SERVICE

STANDARD HYDRAULIC PRESSURE TEST

<4G6-MPI>

| Measurement condition | | | Standard hydraulic pressure kPa | | | | | |
|-------------------------|----------------|----------------------|---------------------------------|-------------------------|---------------------------|--------------------------------|-----------------------|---------------------------|
| Selector lever position | Shift position | Engine speed (r/min) | Under-drive clutch pressure | Reverse clutch pressure | Overdrive clutch pressure | Low and reverse brake pressure | Second brake pressure | Torque converter pressure |
| P | - | 2,500 | - | - | - | 260 - 340 | - | 500 - 700 |
| R | Reverse | 2,500 | - | 1,320 - 1,720 | - | 1,320 - 1,720 | - | 500 - 700 |
| N | - | 2,500 | - | - | - | 260 - 340 | - | 500 - 700 |
| D | 1st gear | 2,500 | 1,010 - 1,050 | - | - | 1,010 - 1,050 | - | 500 - 700 |
| | 2nd gear | 2,500 | 1,010 - 1,050 | - | - | - | 1,010 - 1,050 | 500 - 700 |
| | 3rd gear | 2,500 | 590 - 690 | - | 590 - 690 | - | - | 450 - 650 |
| | 4th gear | 2,500 | - | - | 590 - 690 | - | 590 - 690 | 450 - 650 |