



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E13-501	
		Date: 1999-11-15	<Model> (EC) PAJERO SPORT (K9)
Subject: CORRECTION OF CONNECTOR NOS.		<M/Y> 99-10	
Group: FUEL	Draft No.: 99SY521640		
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 T.NITTA - PROJECT LEADER AFTER SALES SERVICE & CS PROMOTION	

1. Description:

Typographical errors in connector numbers, found in the Group 13A – Troubleshooting, have been corrected.

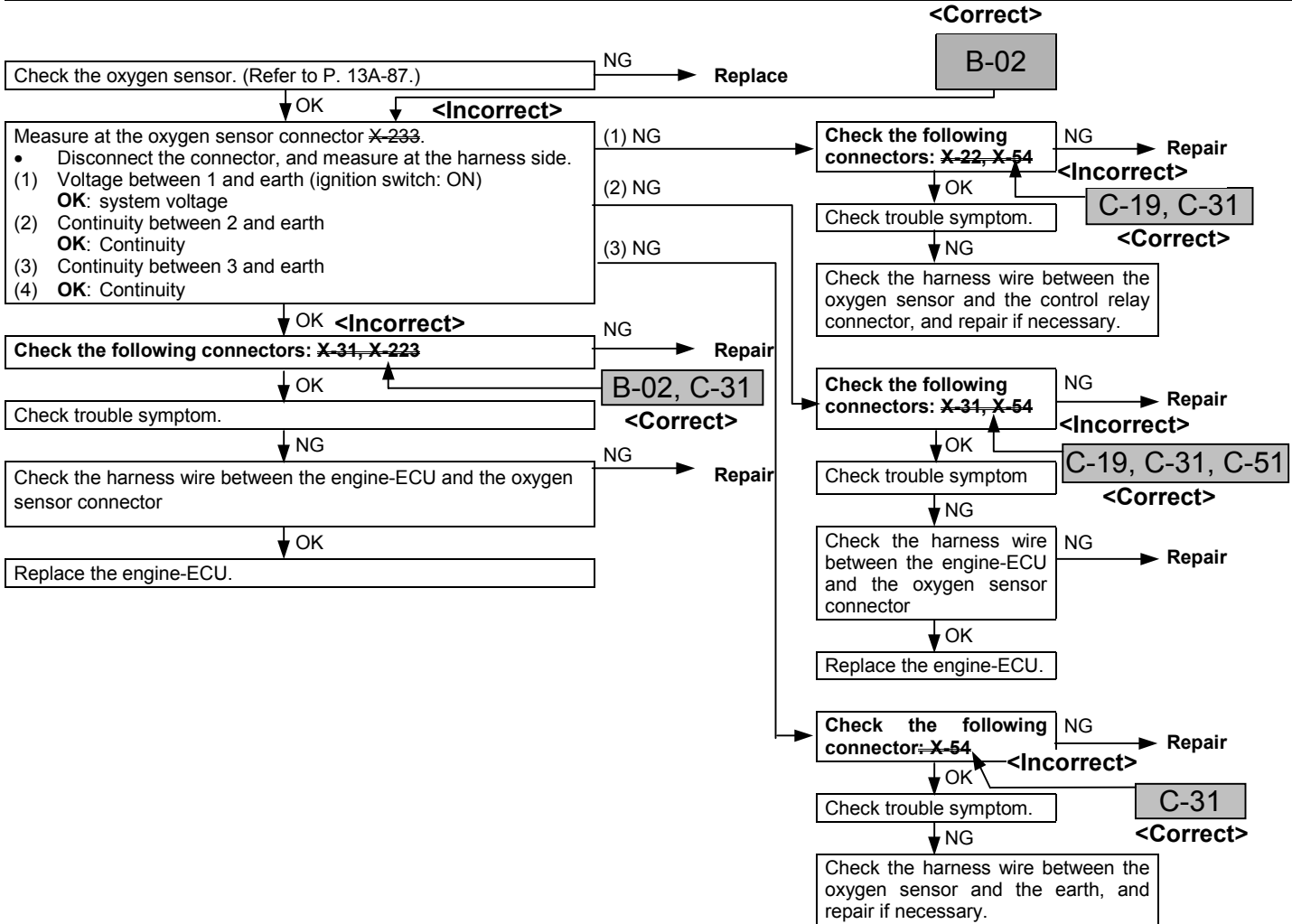
2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual chassis	PWJE9812	(English)	13A-13 to 23,
	PWJS9813	(Spanish)	26 to 28, 40 to 47,
	PWJF9814	(French)	52 to 55
	PWJG9815	(German)	

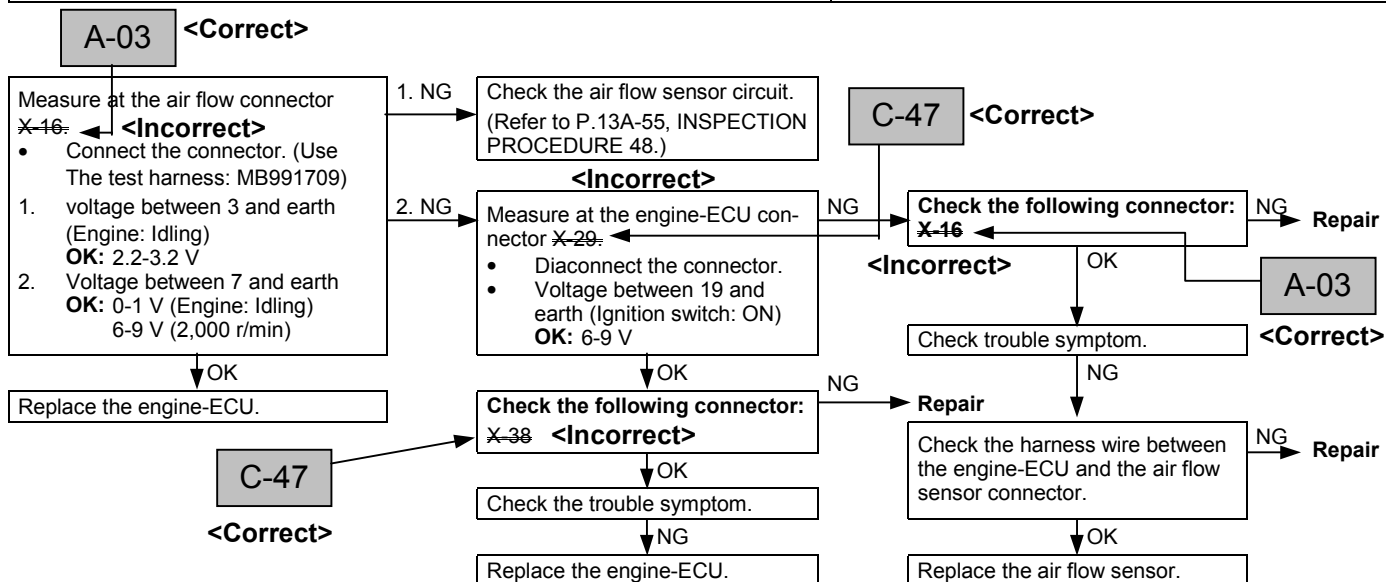
3. Details:

INSPECTION PROCEDURE FOR DIAGNOSIS CODES

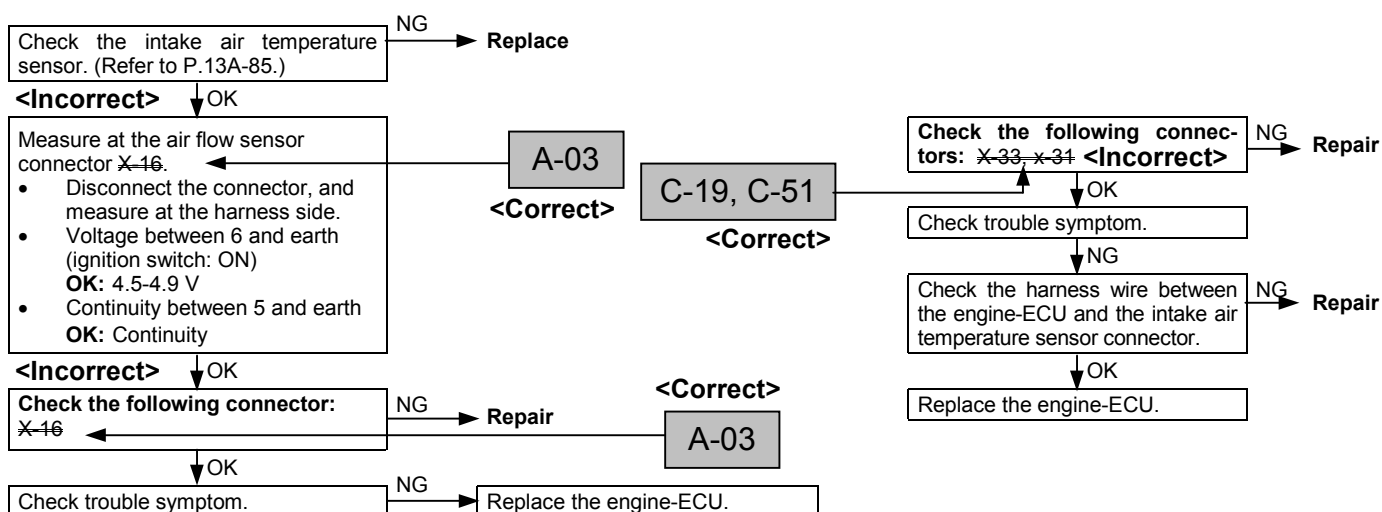
Code No. 11 Oxygen sensor system	Probable cause
Range of Check 3 minutes have passed after engine was started. - Engine coolant temperature is approx. 80°C or more - Intake air temperature is 20 – 50°C - Engine speed is approx. 2,000– 3,000 r/min - Vehicle is moving at constant speed on a flat, level road surface Set conditions - The oxygen sensor output voltage is around 0.6 V for 30 seconds (does not cross 0.6 V for 30 seconds). - When the range of check operations given above which accompany starting of the engine are carried out four time in succession, a problem is detected after each operation.	- Malfunction of the oxygen sensor - Improper connector contact, open circuit or short-circuited harness wire - Malfunction of the engine-ECU



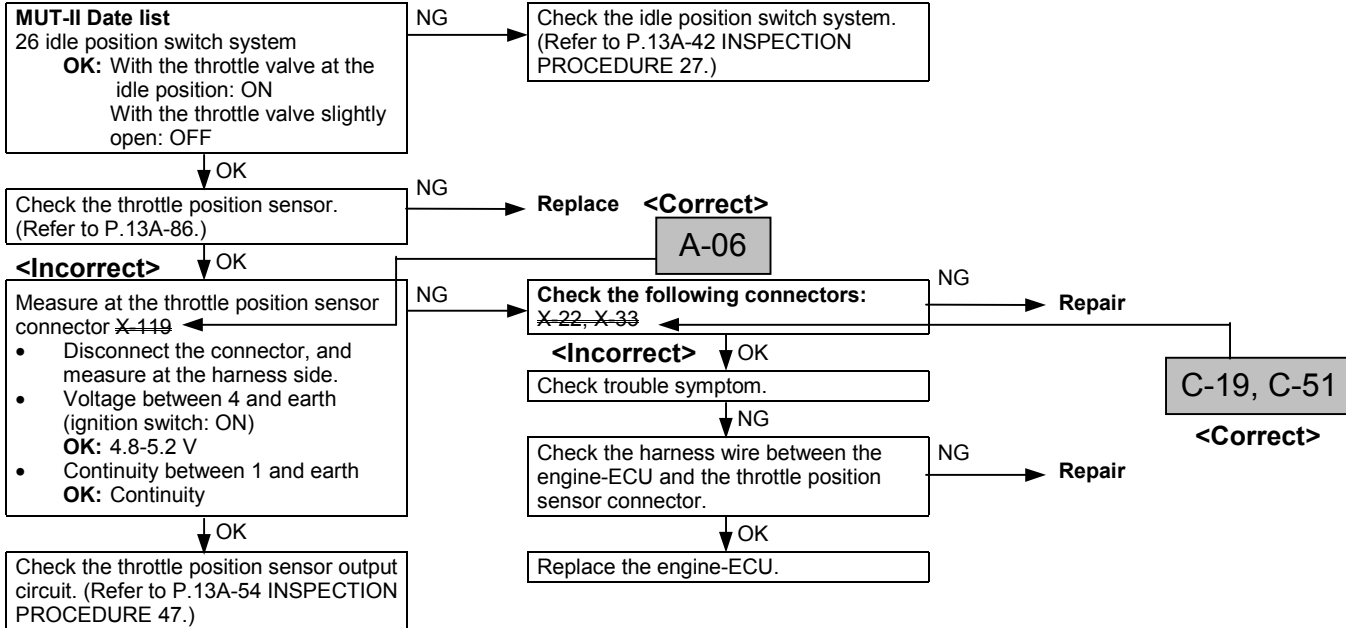
Code No. 12 Air flow sensor system	Probable cause
Range of Check - Engine speed is 500 r/min or more. Set conditions - Sensor output frequency is 3 Hz or less for 4 seconds	- Malfunction of the air flow sensor - Improper connector contact, open circuit or short-circuited harness wire of the air flow sensor - Malfunction of the engine-ECU



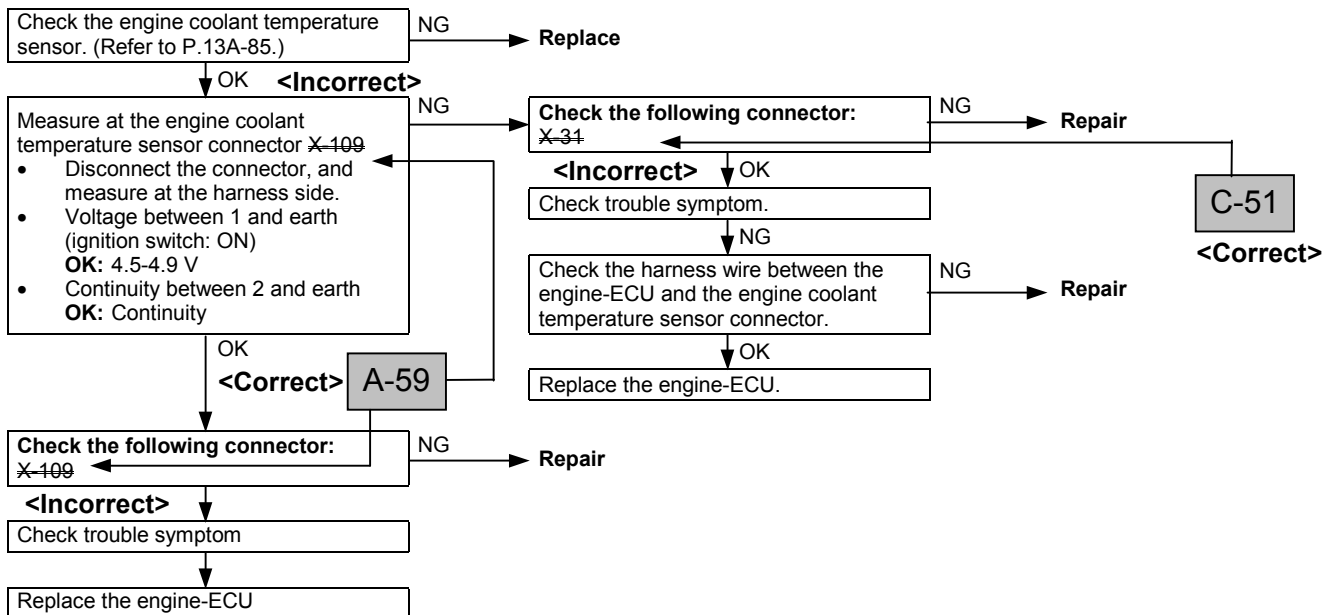
Code No. 13 Intake air temperature sensor system	Probable cause
Range of Check - Ignition switch: ON - Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts. Set conditions - Sensor output frequency is 4.6 V or more (corresponding to an intake air temperature of -45°C or less) for 4 seconds or - Sensor output voltage is 0.2 V or less (corresponding to an intake air temperature of 125°C or more) for 4 seconds	- Malfunction of the intake air temperature sensor - Improper connector contact, open circuit or short-circuited harness wire of the intake air temperature sensor - Malfunction of the engine-ECU



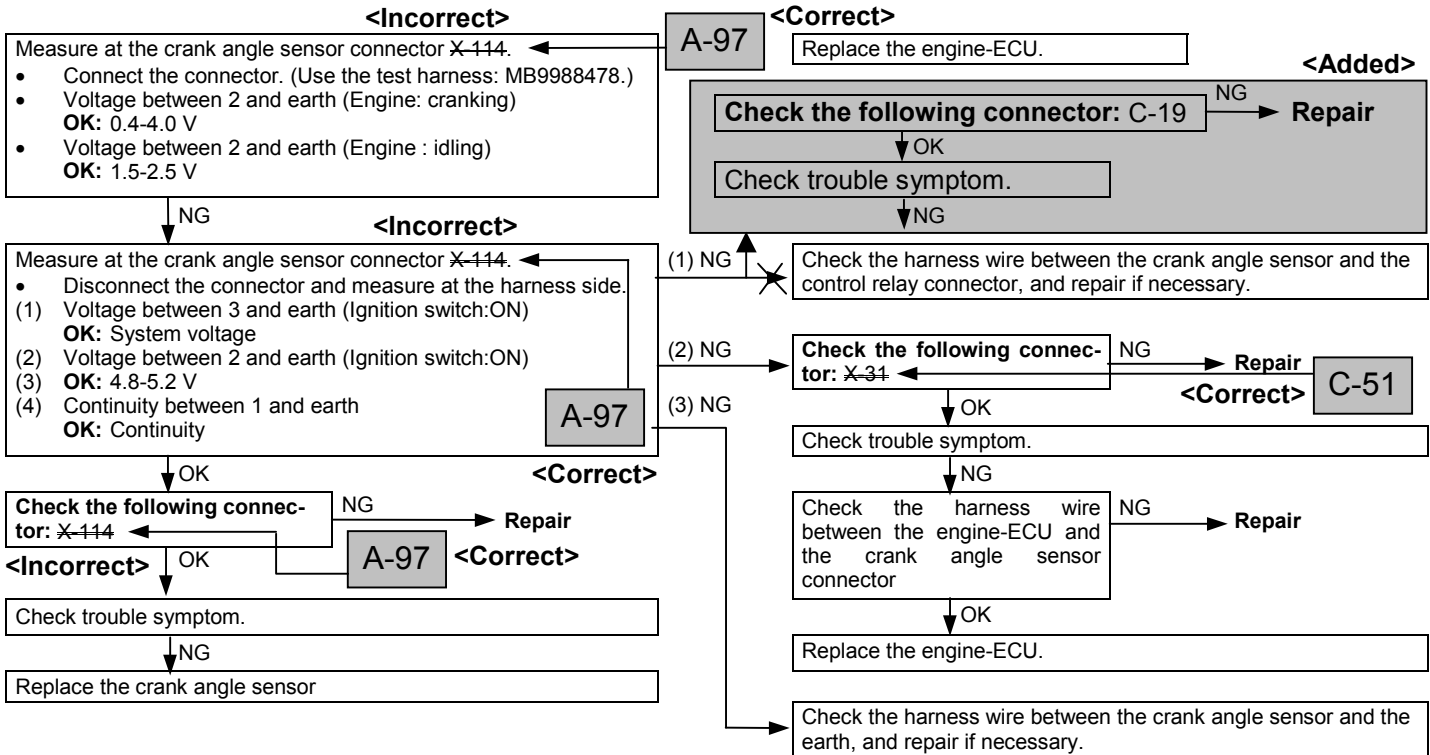
Code No. 14 Throttle position sensor system	Probable cause
Range of Check - Ignition switch: ON - Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts. Set conditions - When the Idle position switch is ON, the sensor output voltage is 2 V or more for 4 seconds. or - The sensor output voltage is 0.2 V or less for 4 seconds	- Malfunction of the throttle position sensor or maladjustment - Improper connector contact, open circuit or short-circuited harness wire of the throttle position sensor circuit - Improper "ON" state of idle position switch - Short circuit of the idle position switch signal line - Malfunction of the engine-ECU



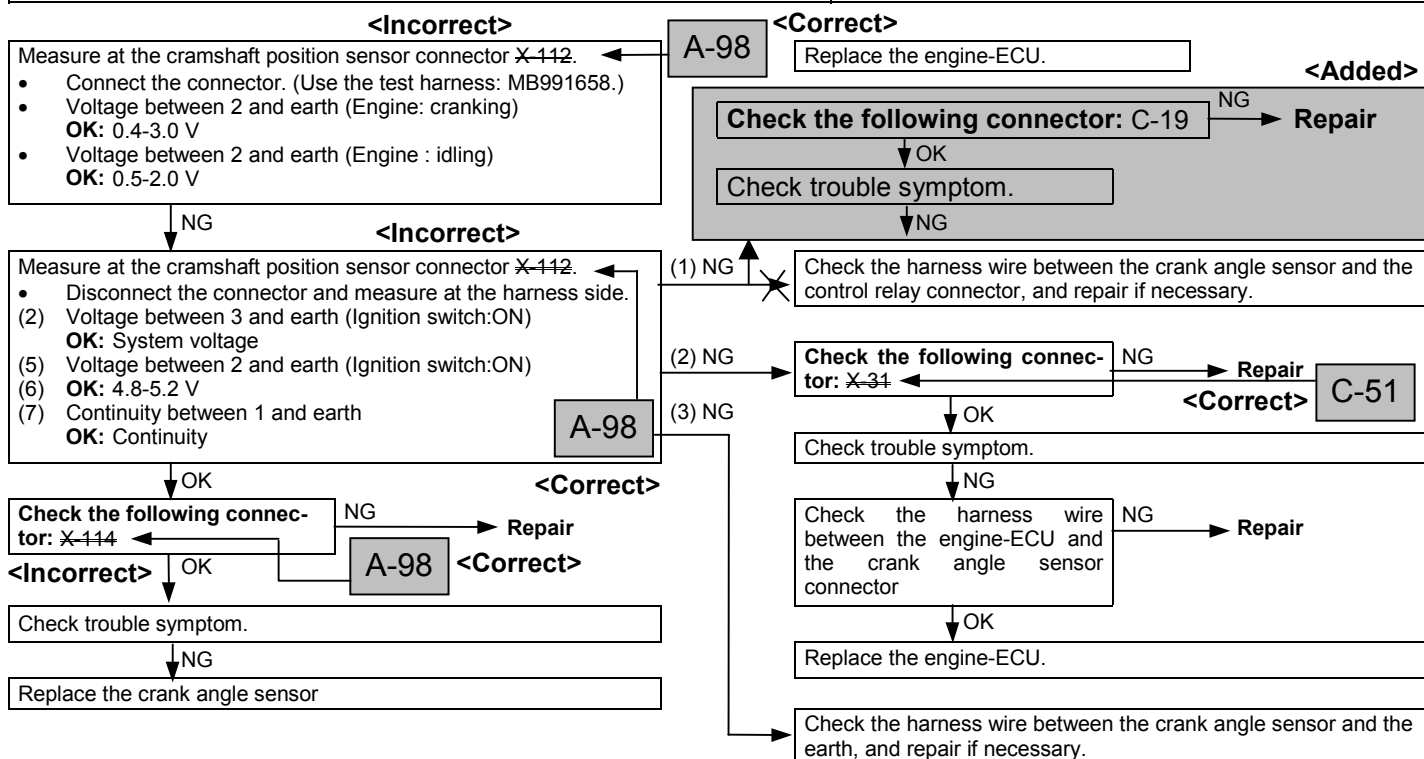
Code No. 21 Engine coolant temperature sensor system	Probable cause
Range of Check - Ignition switch: ON - Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts. Set conditions - Sensor output frequency is 4.6 V or more (corresponding to an engine coolant temperature of -45°C or less) for 4 seconds. Or - Sensor output frequency is 0.1 V or less (corresponding to an engine coolant temperature of 140°C or more) for 4 seconds	- Malfunction of the engine coolant temperature sensor - Improper connector contact, open circuit or short-circuited harness wire of the engine coolant temperature sensor circuit - Malfunction of the engine-ECU
Range of Check - Ignition switch: ON - Engine speed is approx. 50 r/min or more. Set conditions - The sensor output voltage increases from 1.6 V or less (corresponding to an engine coolant temperature of 40°C or more) to 1.6 V or more (corresponding to an engine coolant temperature of 4°C or less) - After this, the sensor output voltage is 1.6V or more for 5 minutes.	



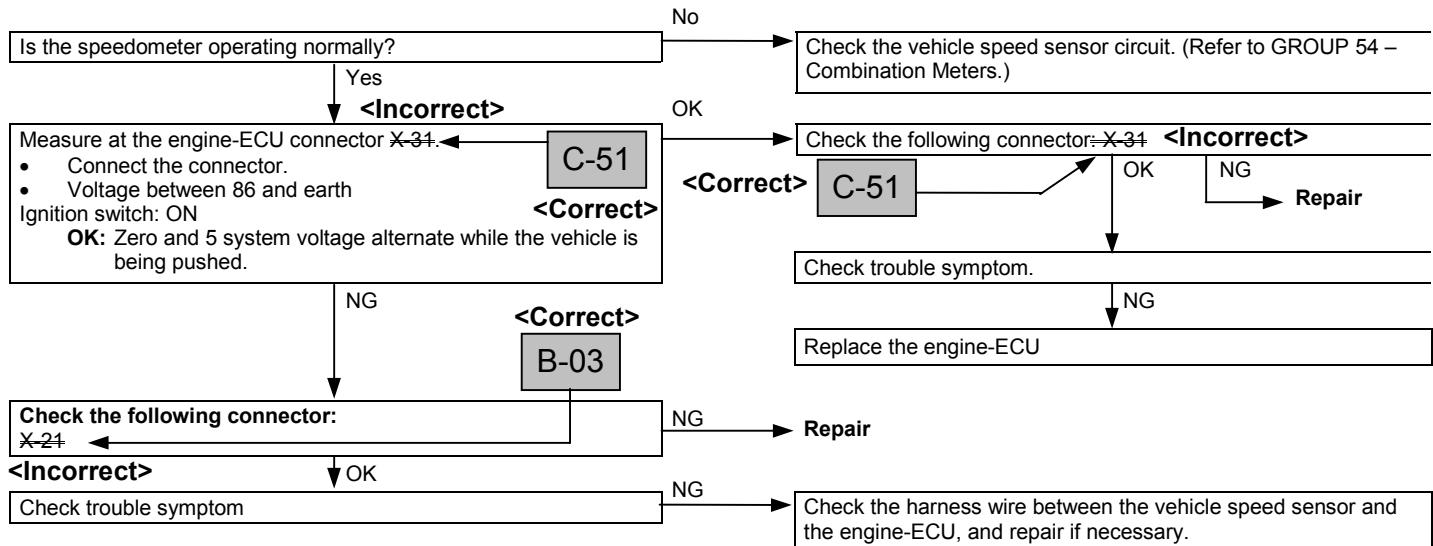
Code No. 22 Crank angle sensor system	Probable cause
Range of Check • Engine is cranking Set conditions • Sensor output voltage does not change for 4 seconds (no pulse signal input.)	• Malfunction of the crank angle sensor • Improper connector contact, open circuit or short-circuited harness wire of crank angle sensor circuit • Malfunction of the engine-ECU



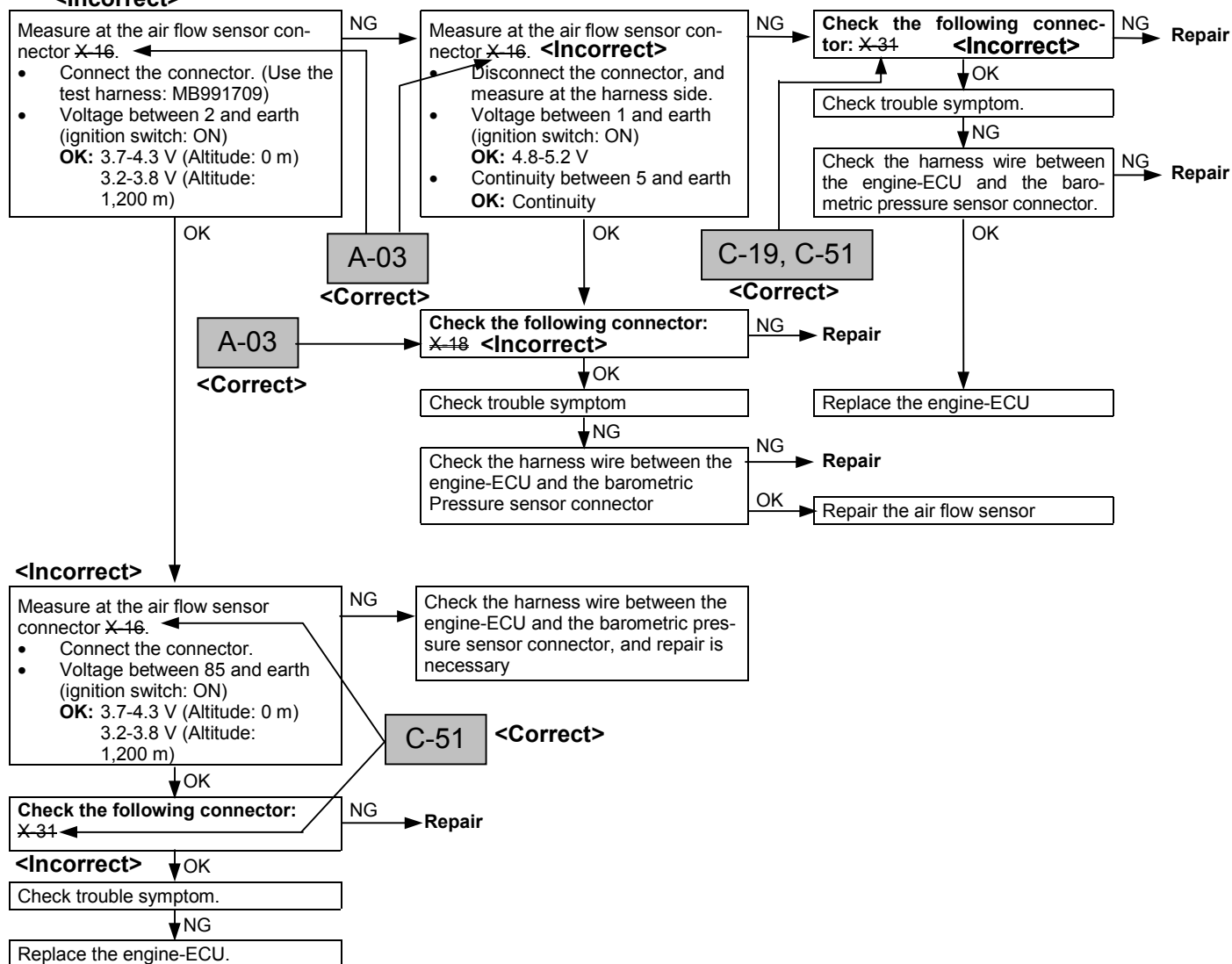
Code No. 23 Crankshaft position sensor system	Probable cause
Range of Check - Ignition switch: ON - Engine speed is approx 50 r/min or more. Set conditions - Sensor output voltage does not change for 4 seconds (no pulse signal input.)	- Malfunction of the crankshaft position sensor - Improper connector contact, open circuit or short-circuited harness wire of crankshaft position sensor circuit - Malfunction of the engine-ECU



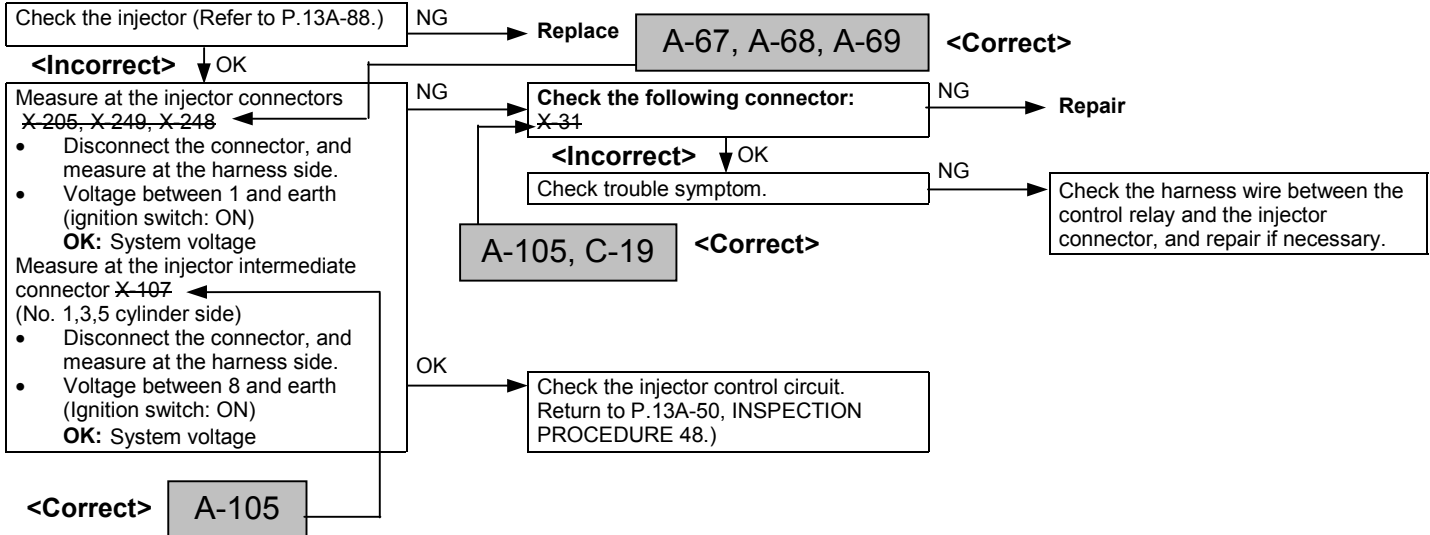
Code No. 24 Vehicle speed sensor system	Probable cause
Range of Check - Excluding 60 seconds after the engine starts - Idle position switch: Off - Engine speed is 3,000 r/min. - Driving under high engine load conditions. Set conditions - Sensor output voltage does not change for 4 seconds (no pulse signal input.)	- Malfunction of the vehicle speed sensor - Improper connector contact, open circuit or short-circuited harness wire of vehicle speed sensor - Malfunction of the engine-ECU



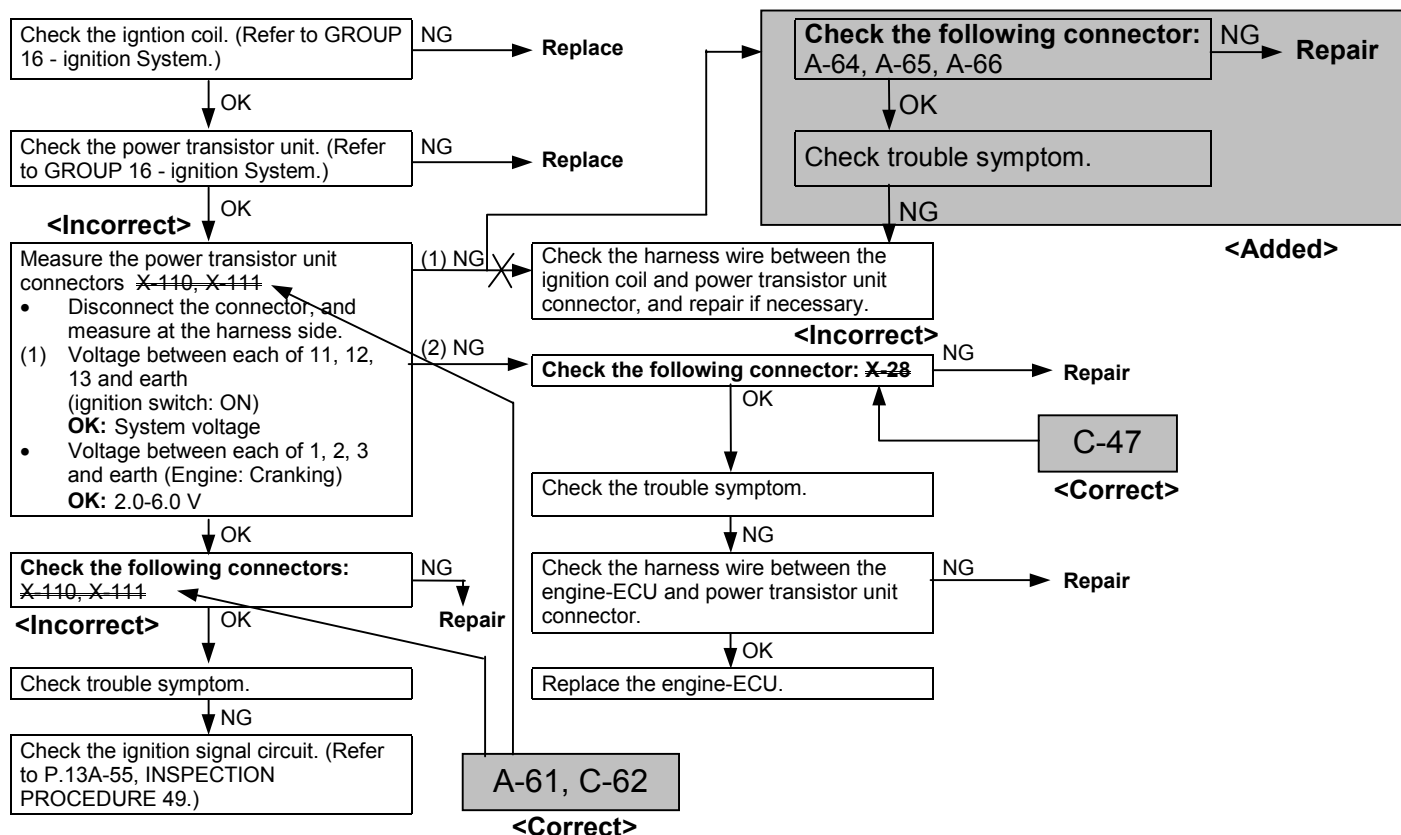
Code No. 25 Barometric pressure sensor system	Probable cause
Range of Check - Ignition switch: ON - Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts. - Battery voltage is 8 V or more. Set conditions - Sensor output voltage is 4.5 V or more (corresponding to a barometric pressure of 114 kPa or more) for 4 seconds or - Sensor output voltage is 0.2 V or less (corresponding a barometric pressure of 5.33 kPa or less) for 4 seconds	- Malfunction of the barometric pressure sensor - Improper connector contact, open circuit or short-circuited harness wire of the barometric pressure sensor - Malfunction of the engine-ECU

<Incorrect>

Code No. 21 Engine coolant temperature sensor system	Probable cause
Range of Check - Engine speed is approx. 50-1,000 r/min - The throttle position sensor output voltage is 1.15 V or less. - Actuator test by MUT-II is not carried out. Set conditions - Surge voltage of injector coil is not detected for 4 seconds.	- Malfunction of the injector - Improper connector contact, open circuit or short-circuited harness wire of the injector circuit - Malfunction of the engine-ECU



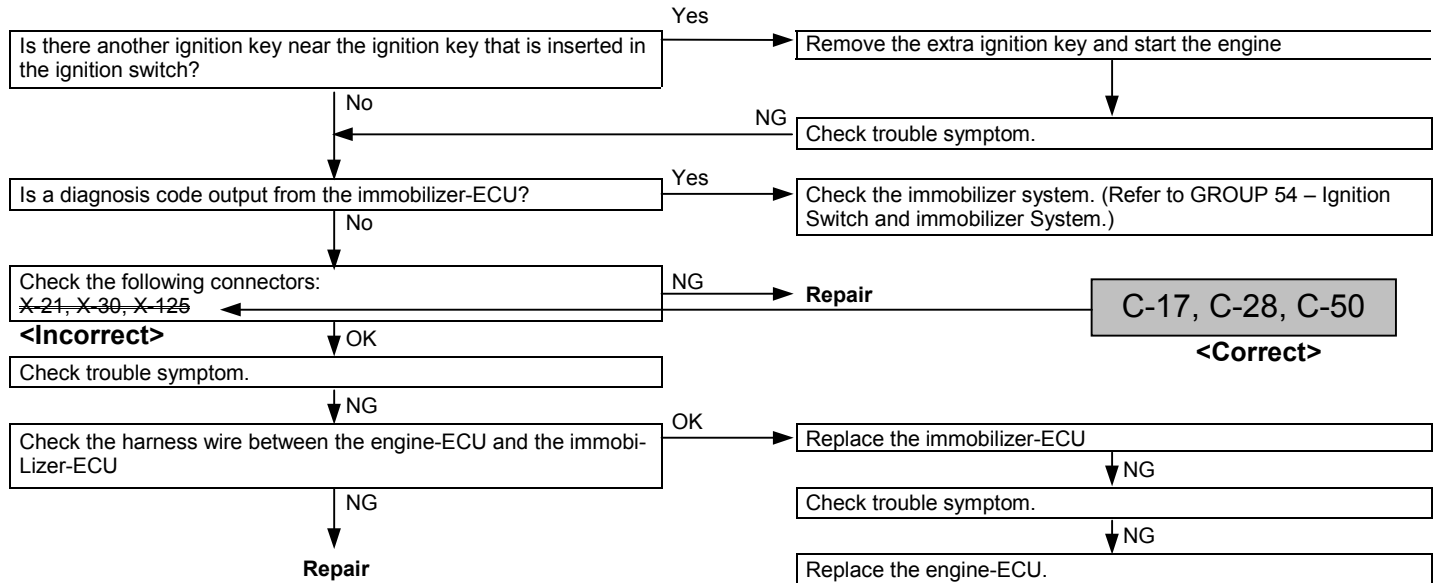
Code No. 44, 52, 53 Ignition coil and power transistor unit system	Probable cause
Range of Check - Engine speed is approx. 50-4,000 r/min - Engine is not cranking Set conditions - The ignition signal from the same coil is not input for 4 seconds. However, this excludes cases where no ignition is input from any coils.	- Malfunction of the ignition coil - Improper connector contact, open circuit or short-circuited harness wire of the ignition primary circuit - Malfunction of the power transistor unit - Malfunction of the engine-ECU



Code No. 54 Immobilizer system	Probable cause
Range of Check • Ignition switch: ON Set conditions • Improper communication between the engine-ECU and immobilizer-ECU	• Radio interference of ID codes • Incorrect ID code • Malfunction of harness or connector • Malfunction of immobilizer-ECU • Malfunction of the engine-ECU

NOTE

- (1) If the ignition switches are close each other when starting the engine, radio interference may cause this code to be displayed.
- (2) This code may be displayed when registering the key ID code.

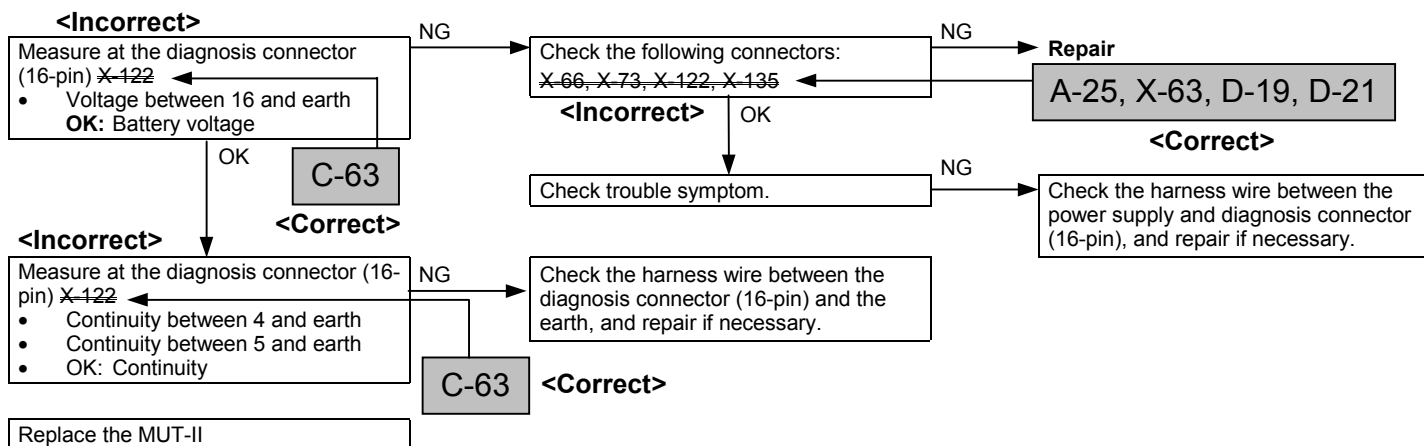


Items		Symptom
Driving	Shock	The feeling of a comparatively large impact or vibration when the engine is accelerated or decelerated.
	Surge	This is repeated surging ahead during constant speed travel or during variable speed travel.
	Knocking	A sharp sound like a hammer striking the cylinder walls during driving and which adversely affects driving.
Stopping	Run on ("Dieseling")	The condition in which the engine continues to run after the ignition switch is turned to OFF. Also called "Dieseling".

INSPECTION PROCEDURE FOR TOUBLE SYMPTOMS

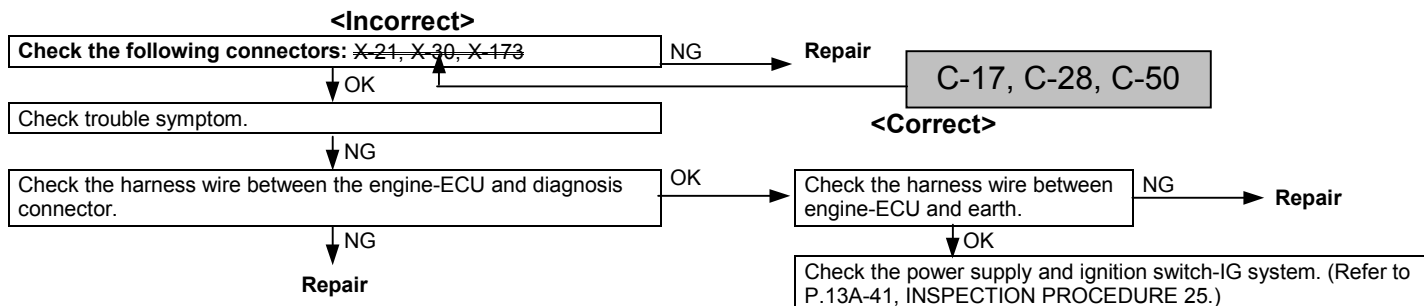
INSPECTION PROCEDURE 1

Communication with MUT-II is not possible. (Communication with all systems is not possible)	Probable cause
The cause is probably a defect in the power supply system (including earth) for the diagnosis line.	- Malfunction of the connector - Malfunction of the harness wire



INSPECTION PROCEDURE 2

MUT-II communication with engine-ECU is not possible	Probable cause
One of the following causes may be suspected	- Malfunction of engine-ECU power supply circuit - Malfunction of the engine-ECU - Open circuit between engine-ECU and diagnosis connector
- No power to engine-ECU. - Defective earth circuit of engine-ECU. - Defective engine-ECU. - Improper communication line between engine-ECU and MUT-II	

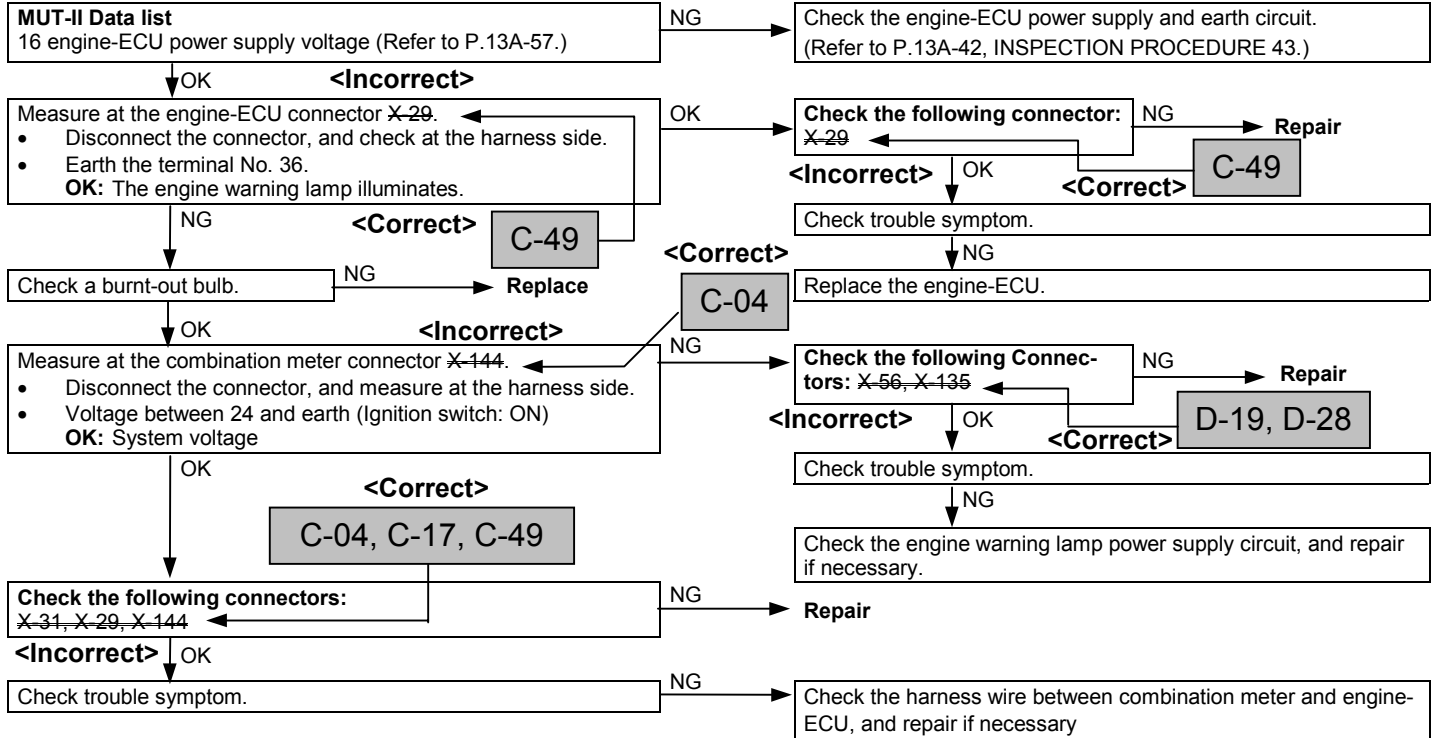


INSPECTION PROCEDURE 3

The engine warning lamp does not illuminate right after the Ignition switch is turned to the ON position**Probable cause**

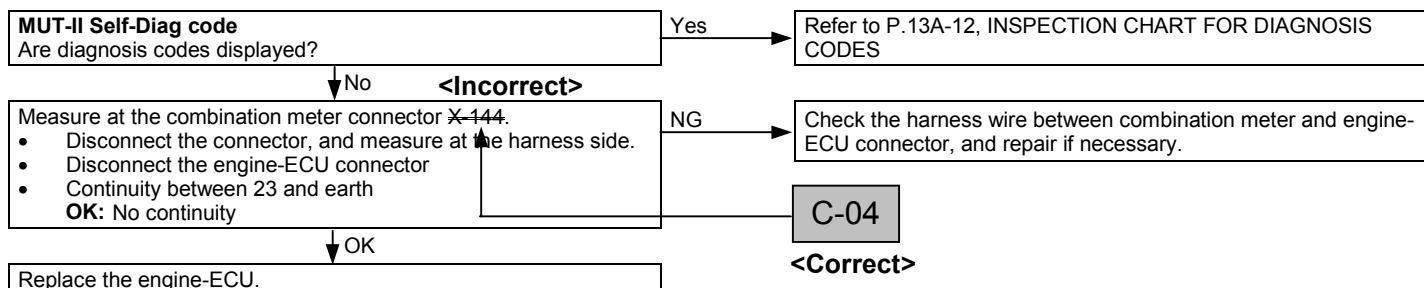
Because there is a burnt-out bulb, the engine-ECU causes the engine warning lamp to illuminate for five seconds immediately after the ignition switch is turned to ON. If the engine warning lamp does not illuminate immediately after the ignition switch is turned to ON, one of the malfunctions listed at right has probably occurred.

- Burnt-out bulb
- Defective warning lamp circuit
- Malfunction of the engine-ECU



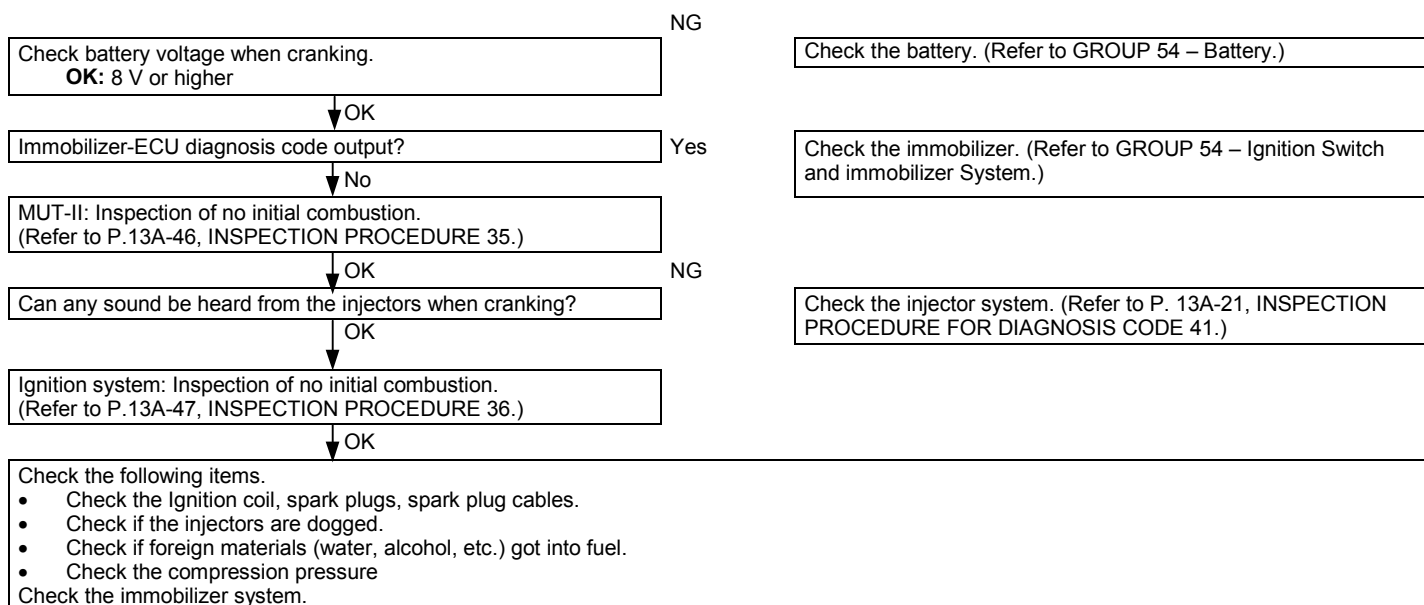
INSPECTION PROCEDURE 4

The engine warning lamp remains illuminating and never goes out	Probable cause
In cases such as the above, the cause is probably that the engine-ECU is detecting a problem in a sensor or actuator, or that one of the malfunctions listed at right has occurred.	- Short-circuit between the engine warning lamp and engine-ECU - Malfunction of the engine-ECU



INSPECTION PROCEDURE 5

No initial combustion (starting impossible)	Probable cause
In cases such as the above, the cause is probably that a spark plug is defective, or that the supply of fuel to the combustion chamber is defective. In addition, foreign materials (water, kerosene, etc.) may be mixed with the fuel.	- Malfunction of the ignition system - Malfunction of the fuel pump system - Malfunction of the injectors - Malfunction of the engine-ECU - Malfunction of the immobilizer system - Foreign materials in fuel



INSPECTION PROCEDURE 23

Idling speed is improper when A/C is operating (A/C switch 2 signal)

In cases such as the above, the cause is probably that a spark plug is defective, or that the supply of fuel to the combustion chamber is defective.
In addition, foreign materials (water, kerosene, etc.) may be mixed with the fuel.

Probable cause

- Malfunction of the ignition system
- Malfunction of the fuel pump system
- Malfunction of the injectors
- Malfunction of the engine-ECU
- Malfunction of the immobilizer system
- Foreign materials in fuel

C-09, C-50, D-14 **<Correct>**

The following connectors:

X-30, X-57, X-154

<Incorrect>

Check the trouble symptom

Check the harness wire between the engine-ECU and the A/C-ECU

Repair

Repair

Check the A/C system. (Refer to GROUP 55 – Troubleshooting.)

Replace the engine-ECU.

INSPECTION PROCEDURE 24

A/C condenser fan is inoperative

The fan motor relay is controlled by turning on and off the power transistor in the engine-ECU.

Probable cause

- Malfunction of the A/C condenser fan relay
- Malfunction of the condenser fan motor
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU

<Correct> C-47

Measure at the engine-ECU connector X-29 **<Incorrect>**

- Disconnect the connector, and measure at the harness side.
(Ignition switch: ON)
OK: Fan stops
- Voltage between 21 and earth
(Ignition switch: ON)
OK: Battery voltage
- Connect a jumper cable between 21 and earth
(Ignition switch: ON)
OK: A/C condenser fan rotates

The following connector:

X-28

<Incorrect>

Check the trouble symptom

Replace the engine-ECU

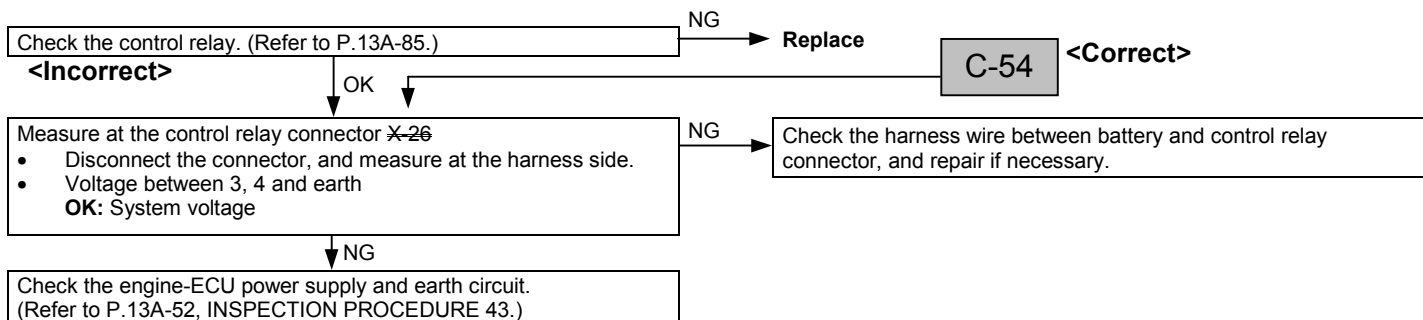
Check the condenser fan circuit. (Refer to ELECTRICAL WIRING.)

C-47 **<Correct>**

Repair

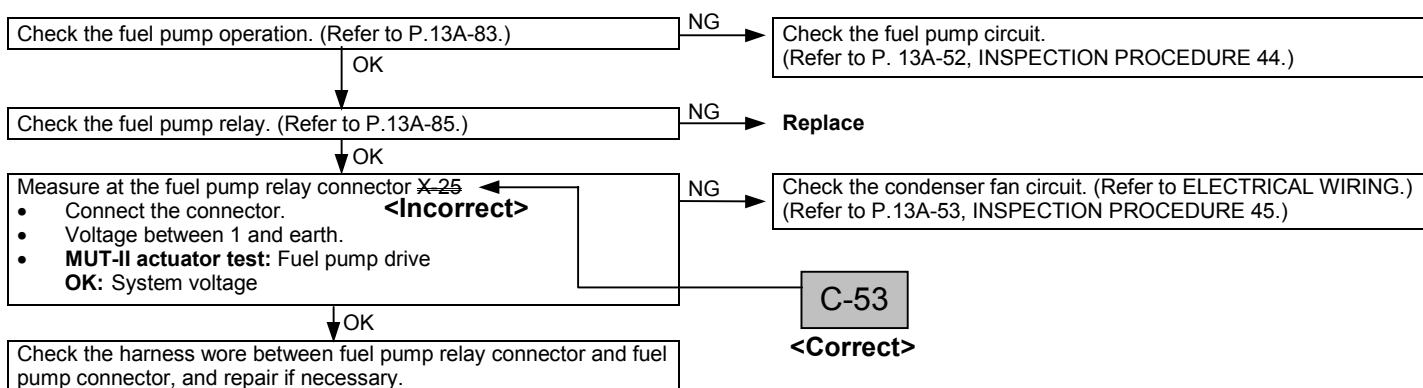
INSPECTION PROCEDURE 25

Power supply system and ignition switch-IG system	Probable cause
When an ignition switch ON signal is input to the engine-ECU, the engine-ECU turns the control relay ON. This causes battery voltage to be supplied to the engine-ECU, injectors and air flow sensor.	• Malfunction of the ignition switch • Malfunction of the control relay • Improper connector contact, open circuit or short-circuited harness wire • Disconnect engine-ECU earth wire • Malfunction of the engine-ECU



INSPECTION PROCEDURE 26

Fuel pump system	Probable cause
The engine-ECU turns the control relay ON when the engine is cranking or running, and this supplies power to drive the fuel pump.	• Malfunction of the fuel pump relay • Malfunction of the fuel pump • Improper connector contact, open circuit or short-circuited harness wire • Malfunction of the engine-ECU

<Correct>

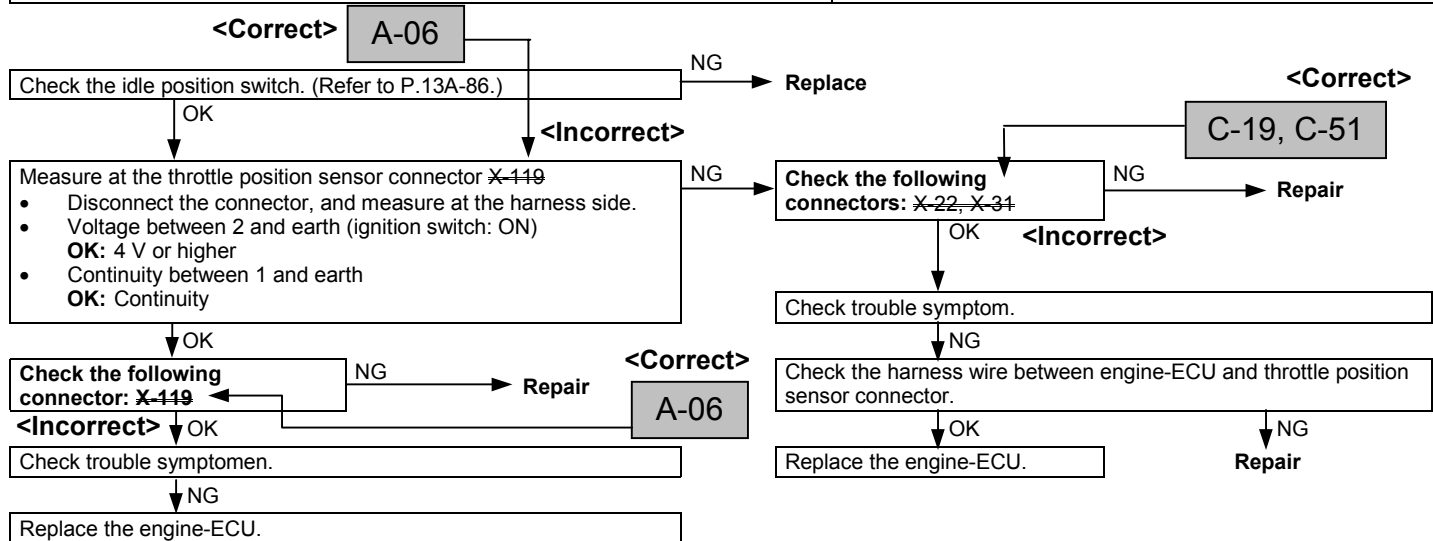
INSPECTION PROCEDURE 27

Idle position switch system

The idle position switch inputs the condition of the accelerator pedal, i.e. whether it is depressed or released (HIGH/LOW), to the engine-ECU.
The engine-ECU controls the idle speed control servo based on this input.

Probable cause

- Malfunction of the accelerator pedal
- Malfunction of the fixed SAS
- Maladjustment of the idle position switch and throttle position sensor
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU



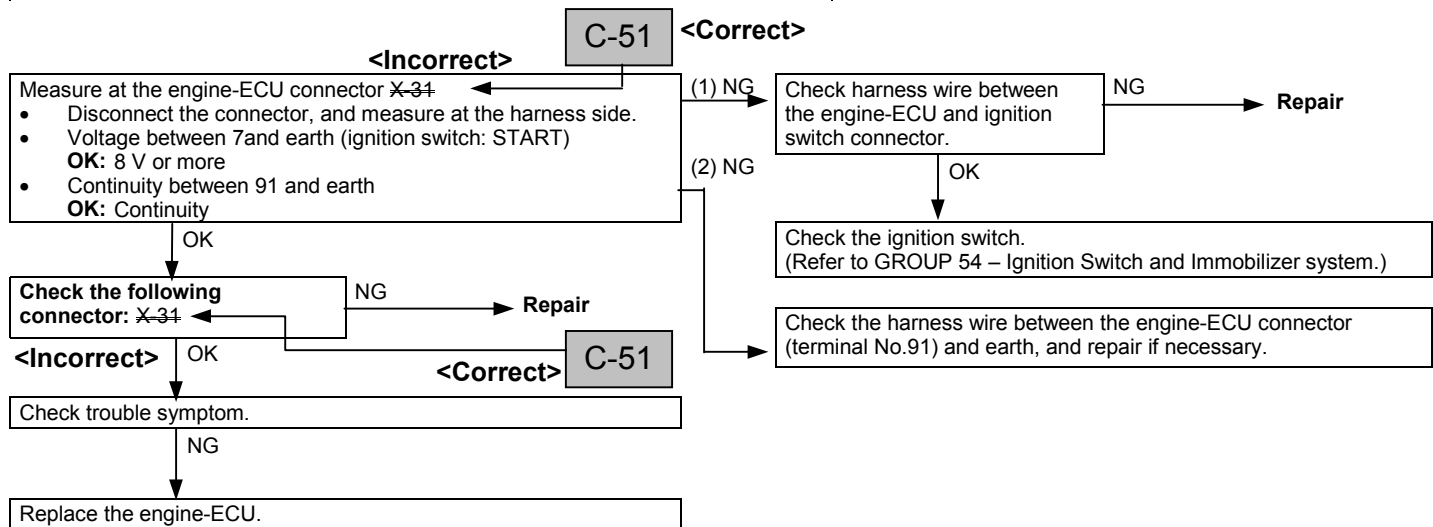
INSPECTION PROCEDURE 28

Ignition switch-ST system

The ignition switch-ST inputs a HIGH signal to the engine-ECU while the engine is cranking.
The engine-ECU controls fuel injection, etc. during starting based on this input.

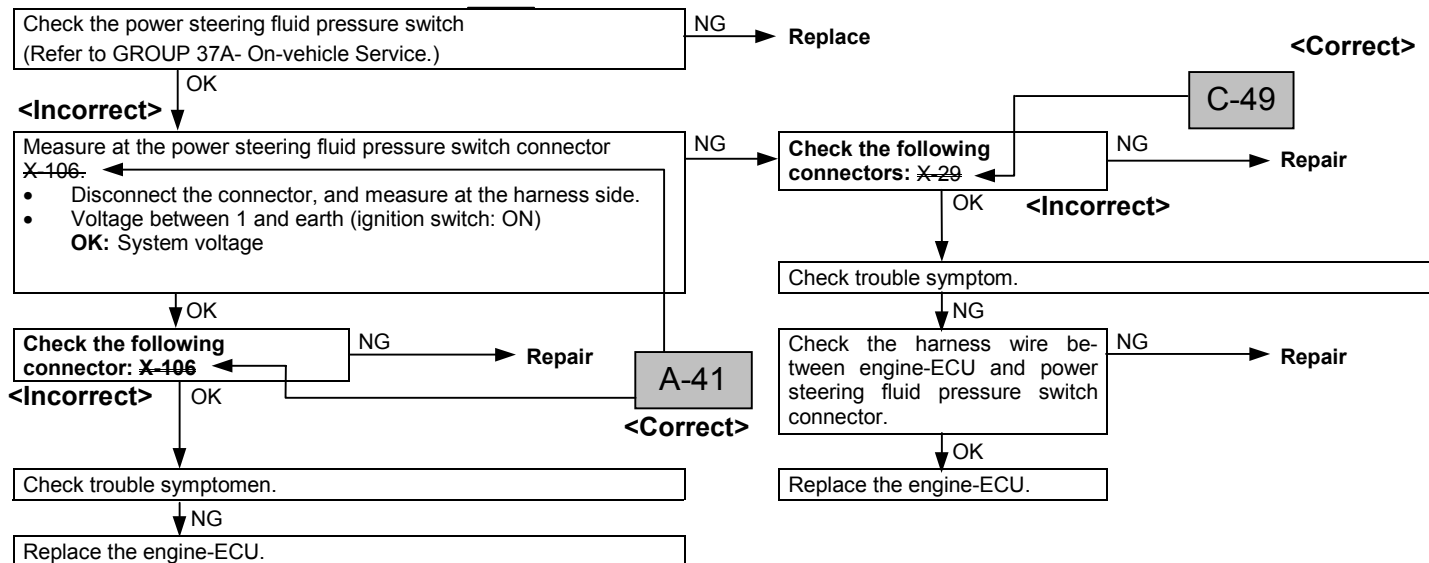
Probable cause

- Malfunction of the ignition switch
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU



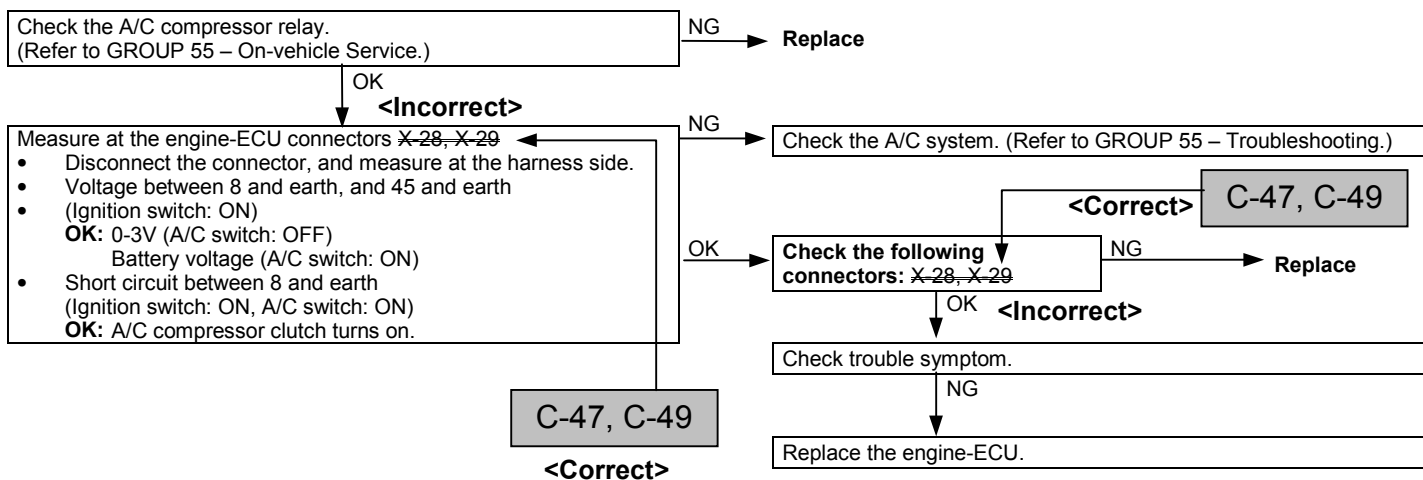
INSPECTION PROCEDURE 29

Power steering fluid pressure switch system	Probable cause
The presence or absence of power steering load is input to the engine-ECU. The engine-ECU control the idle speed control (ESC) servo based on this input.	- Malfunction of the power steering fluid pressure switch - Improper connector contact, open circuit or short-circuited harness wire - Malfunction of the engine-ECU



INSPECTION PROCEDURE 30

A/C switch and A/C relay system	Probable cause
When an A/C ON signal is input to the engine-ECU, the engine-ECU carries out control of the idle speed control (ESC) servo, and also operates the A/C compressor magnetic clutch.	- Malfunction of A/C control system - Malfunction of A/C switch - Improper connector contact, open circuit or short-circuited harness wire - Malfunction of the engine-ECU



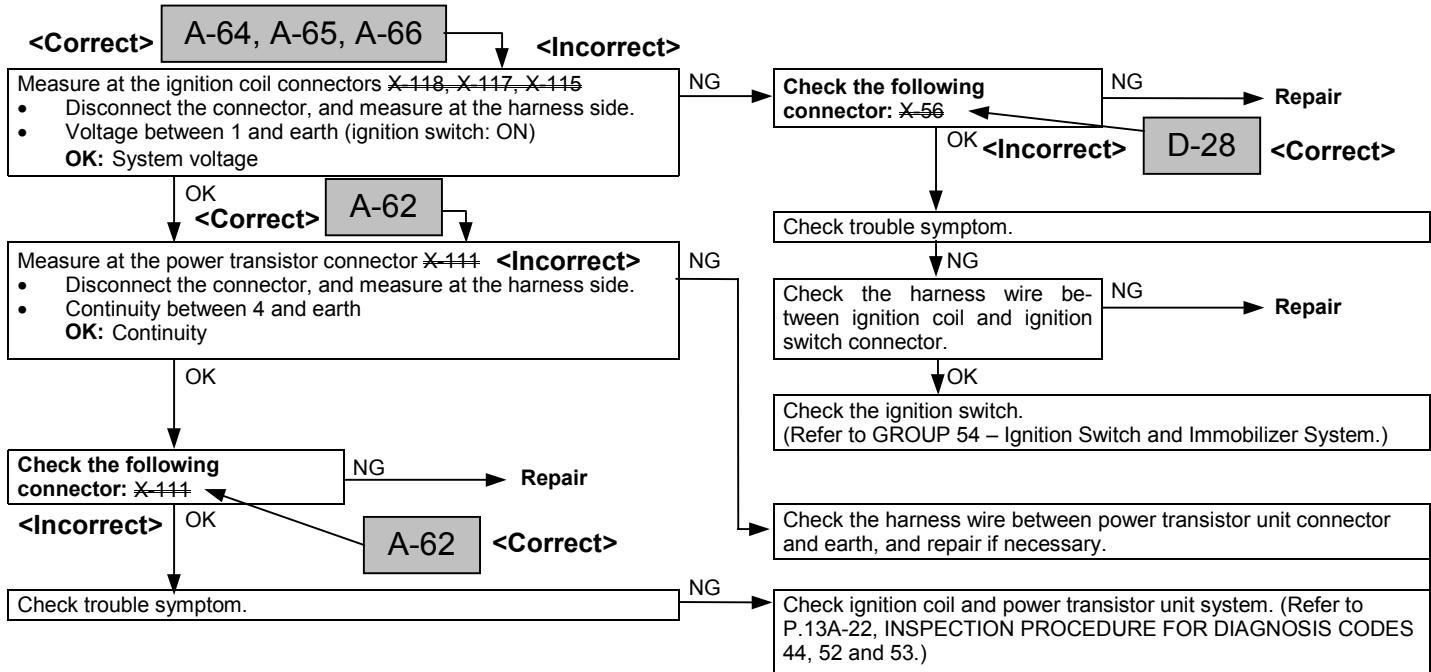
INSPECTION PROCEDURE 31

Ignition circuit system

The engine-ECU interrupts the ignition coil primary current by turning the power transistor inside the engine-ECU ON and OFF.

Probable cause

- Malfunction of ignition switch
- Malfunction of power transistor unit
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU



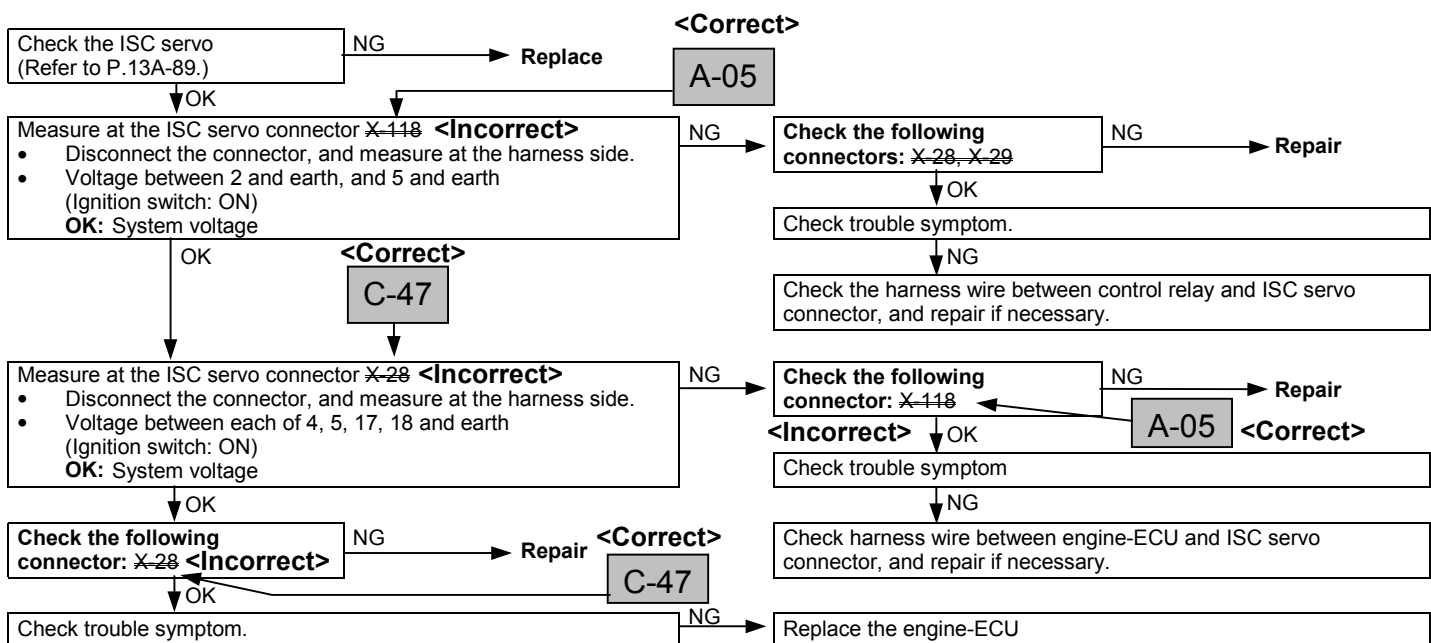
INSPECTION PROCEDURE 32

Idle speed control (ESC) servo (Stepper motor) system

The engine-ECU controls the intake air volume during idling by opening and closing the servo valve located in the bypass air passage.

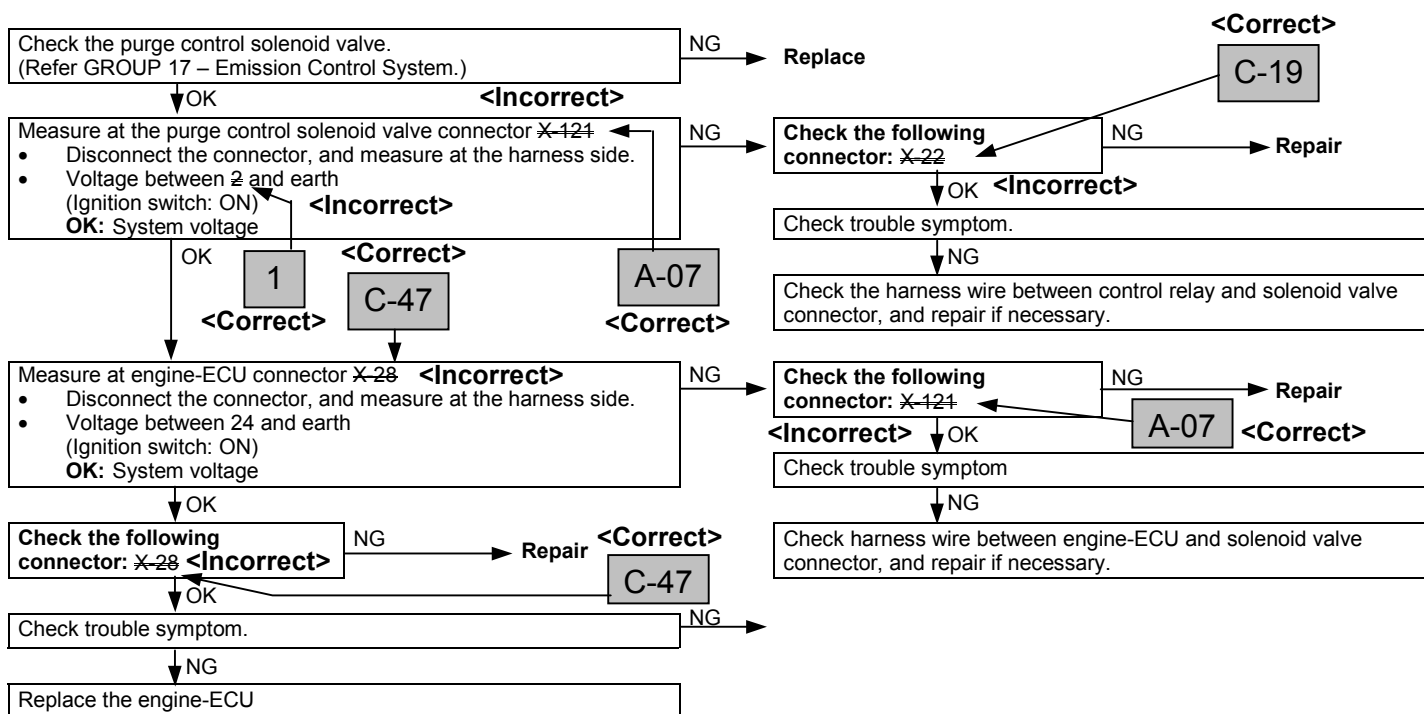
Probable cause

- Malfunction of ISC servo
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU



INSPECTION PROCEDURE 33

Purge control solenoid valve system	Probable cause
The purge control solenoid valve controls the purging of air from the canister located inside the intake manifold.	- Malfunction of solenoid valve - Improper connector contact, open circuit or short-circuited harness wire - Malfunction of the engine-ECU



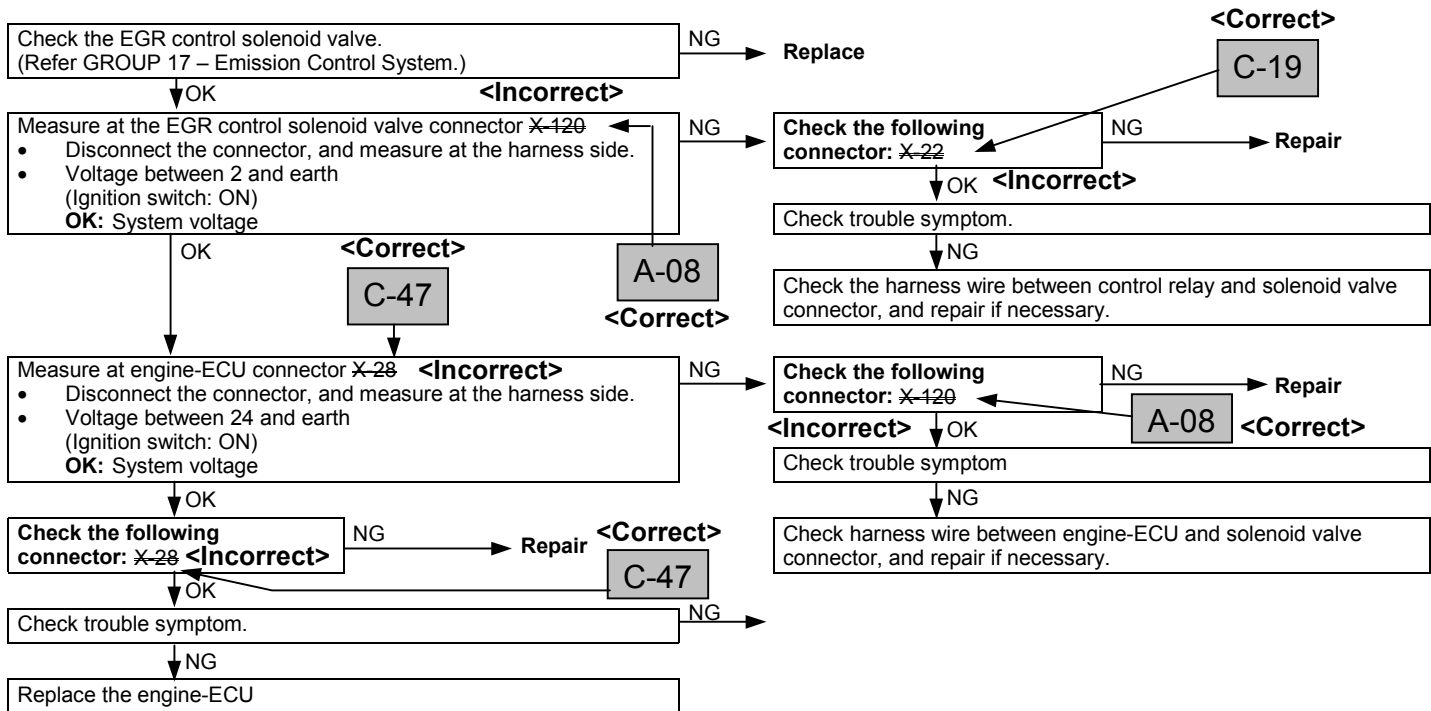
INSPECTION PROCEDURE 34

EGR control solenoid valve system

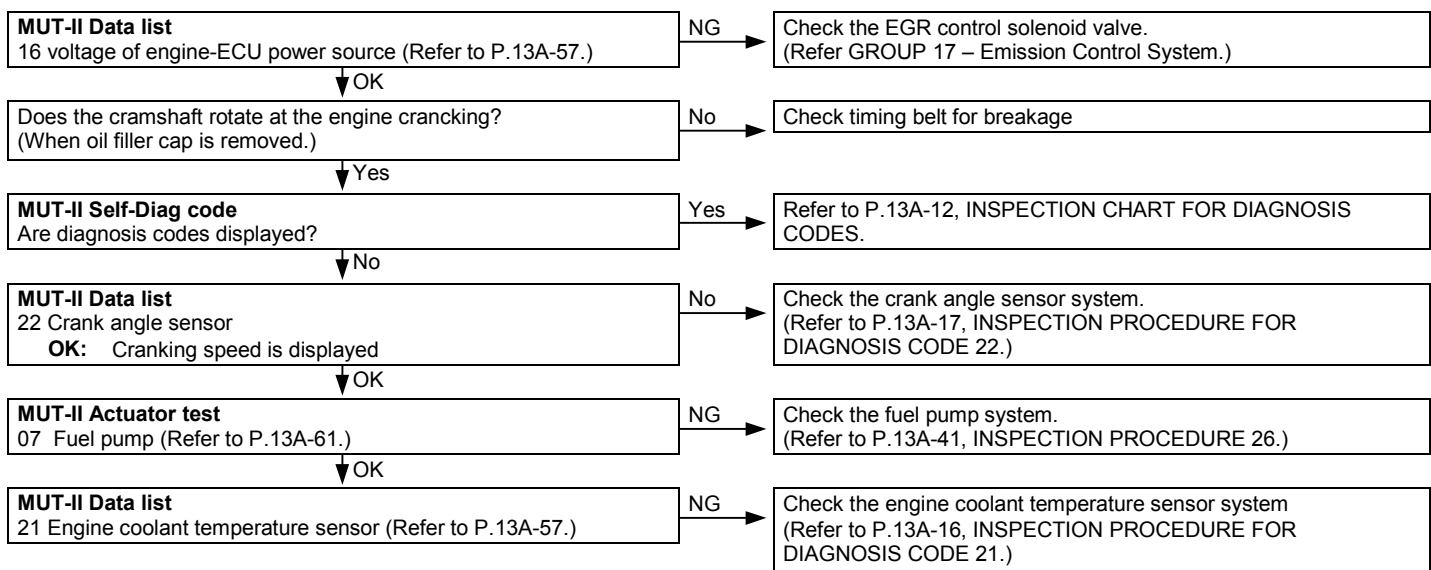
The EGR control solenoid valve is controlled by the negative pressure resulting from EGR operation leaking to port "A" of the throttle body.

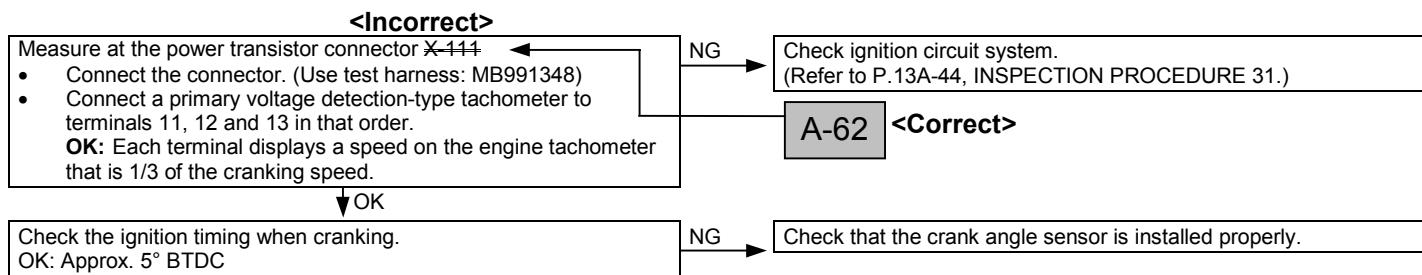
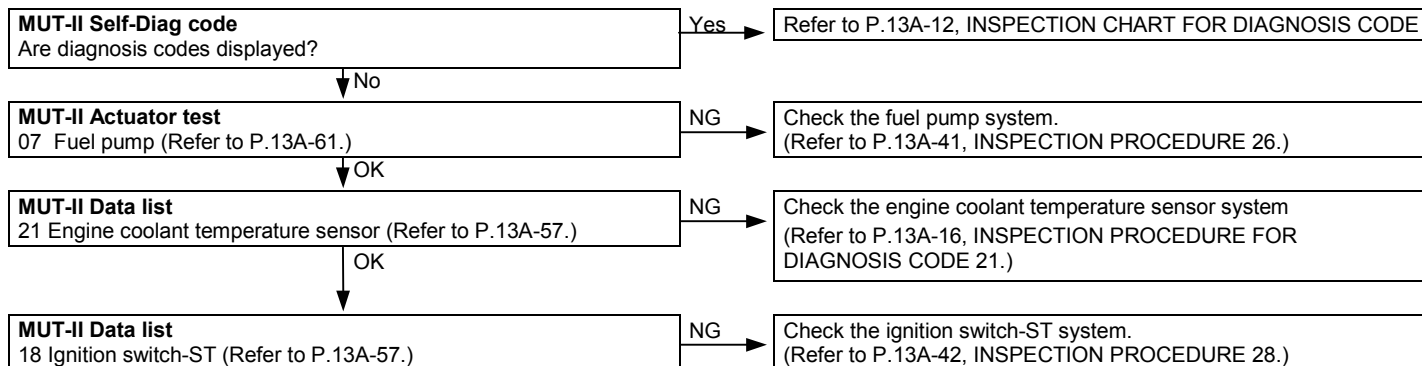
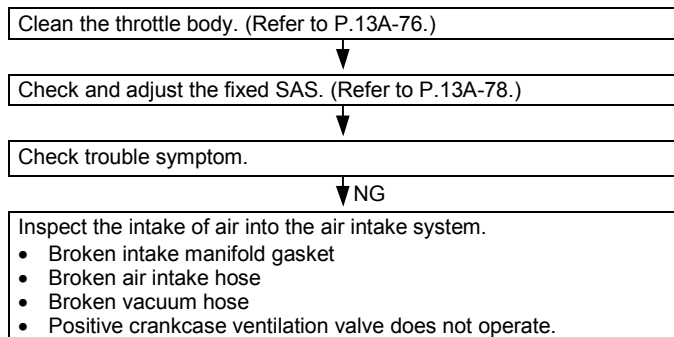
Probable cause

- Malfunction of solenoid valve
- Improper connector contact, open circuit or short-circuited harness wire
- Malfunction of the engine-ECU



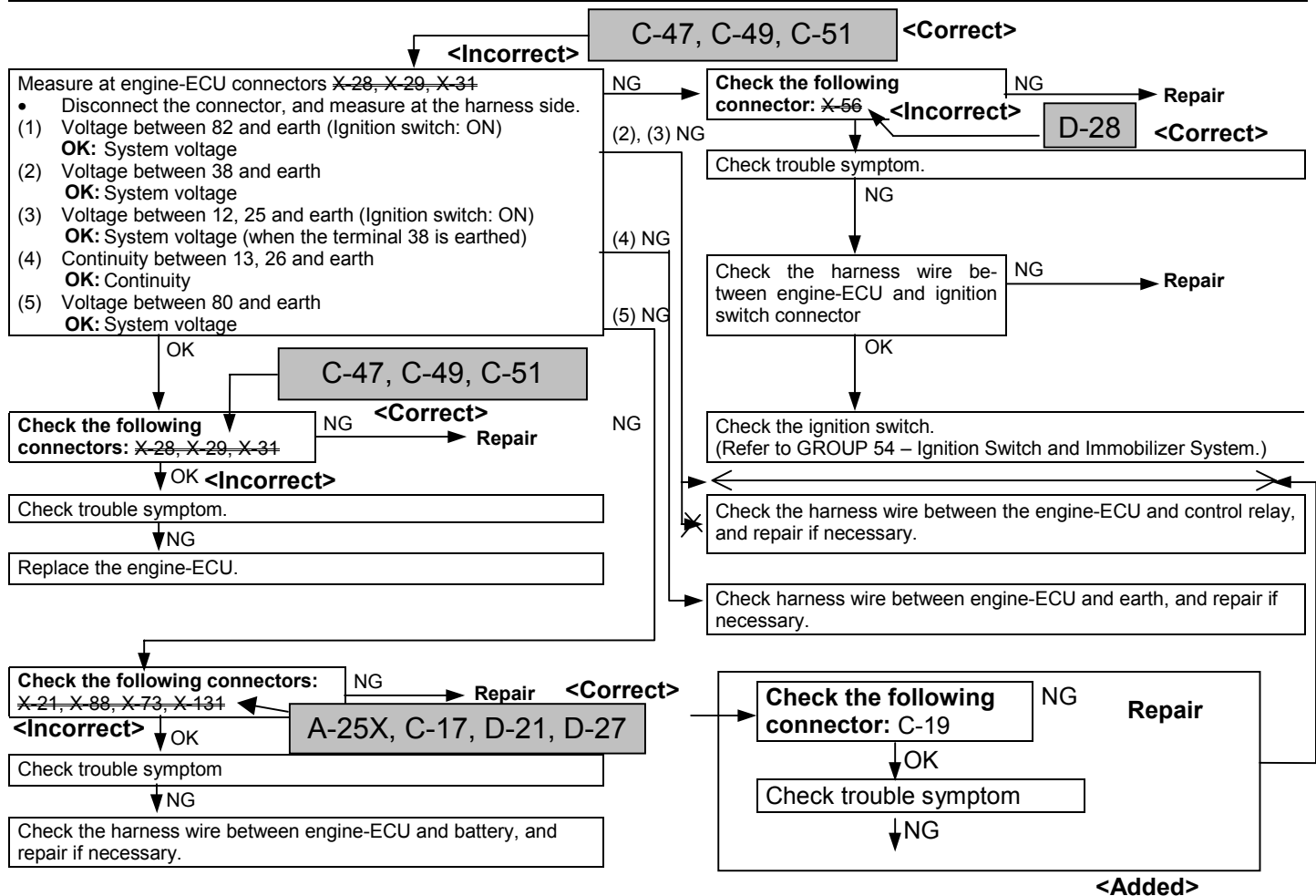
INSPECTION PROCEDURE 35

MUT-II: Inspection of no initial combustion

INSPECTION PROCEDURE 36**Ignition system: Inspection of no initial combustion.****INSPECTION PROCEDURE 37****MUT-II: Check if incomplete combustion occurs.****INSPECTION PROCEDURE 38****Check if hunting occurs.**

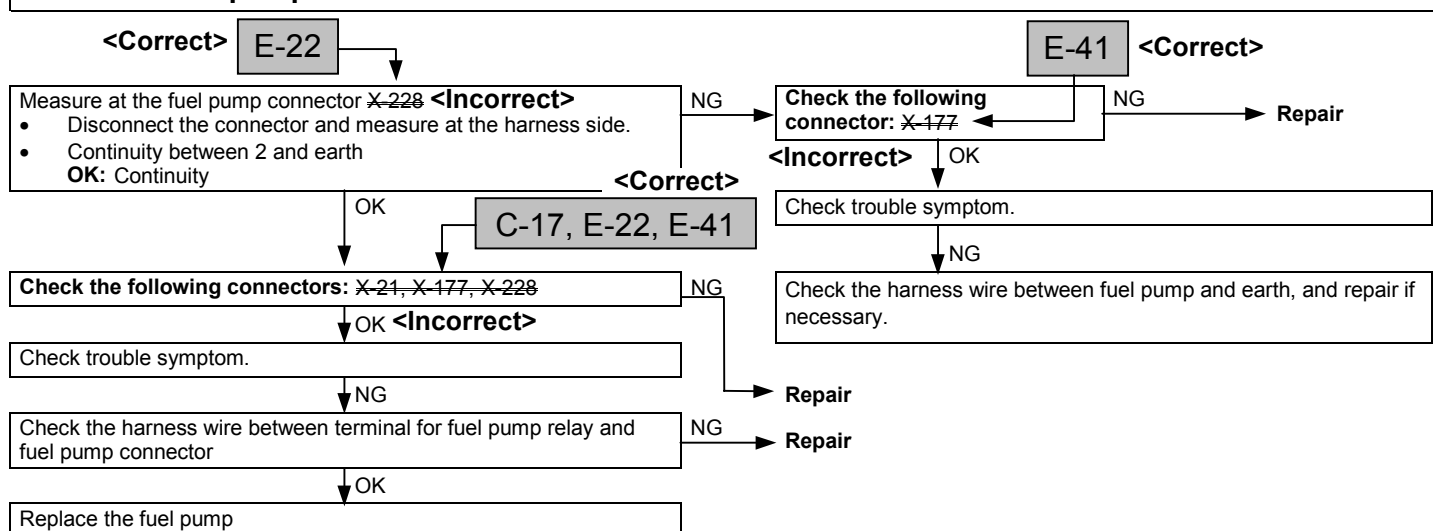
INSPECTION PROCEDURE 43

Check the engine-ECU power supply and earth circuit



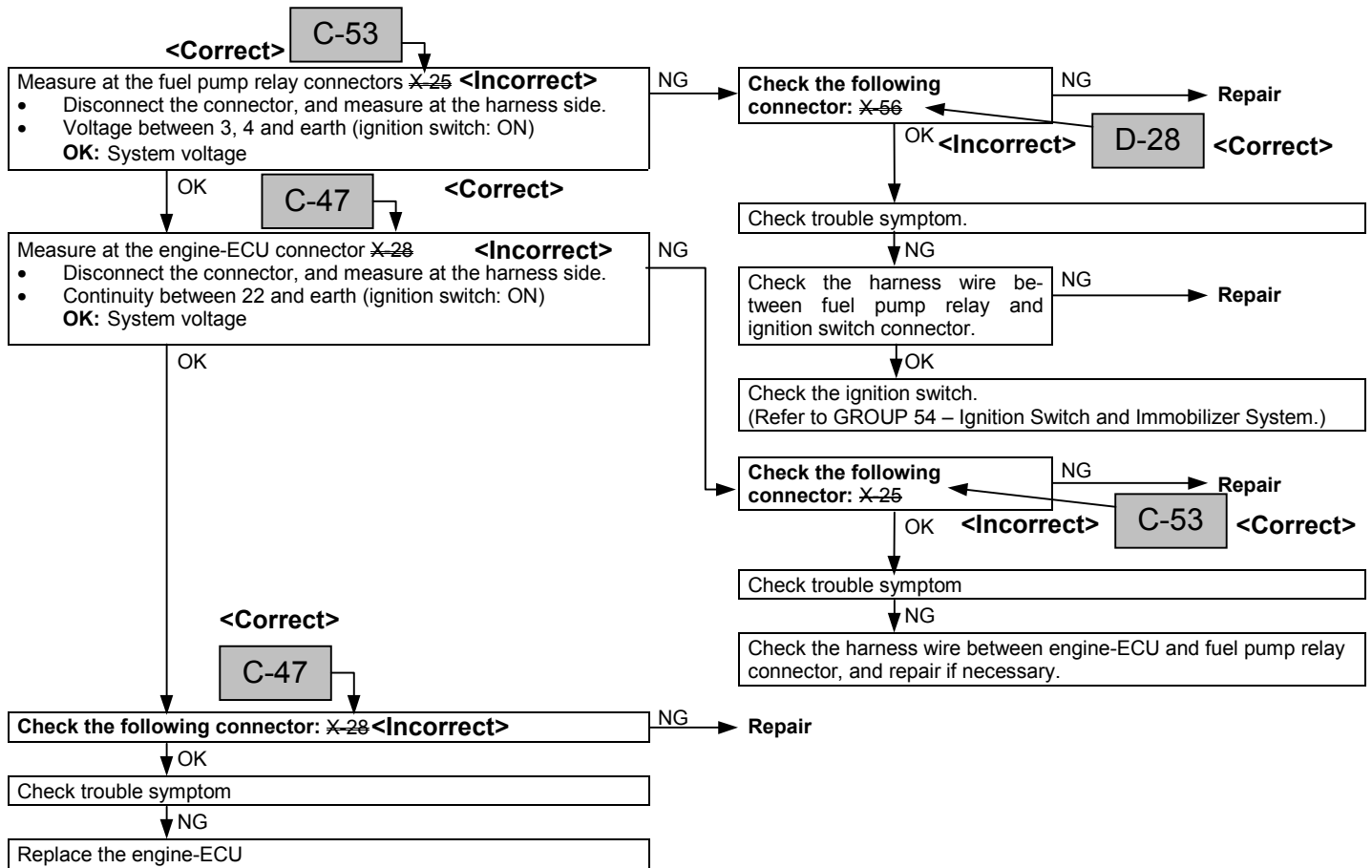
INSPECTION PROCEDURE 44

Check the fuel pump circuit.



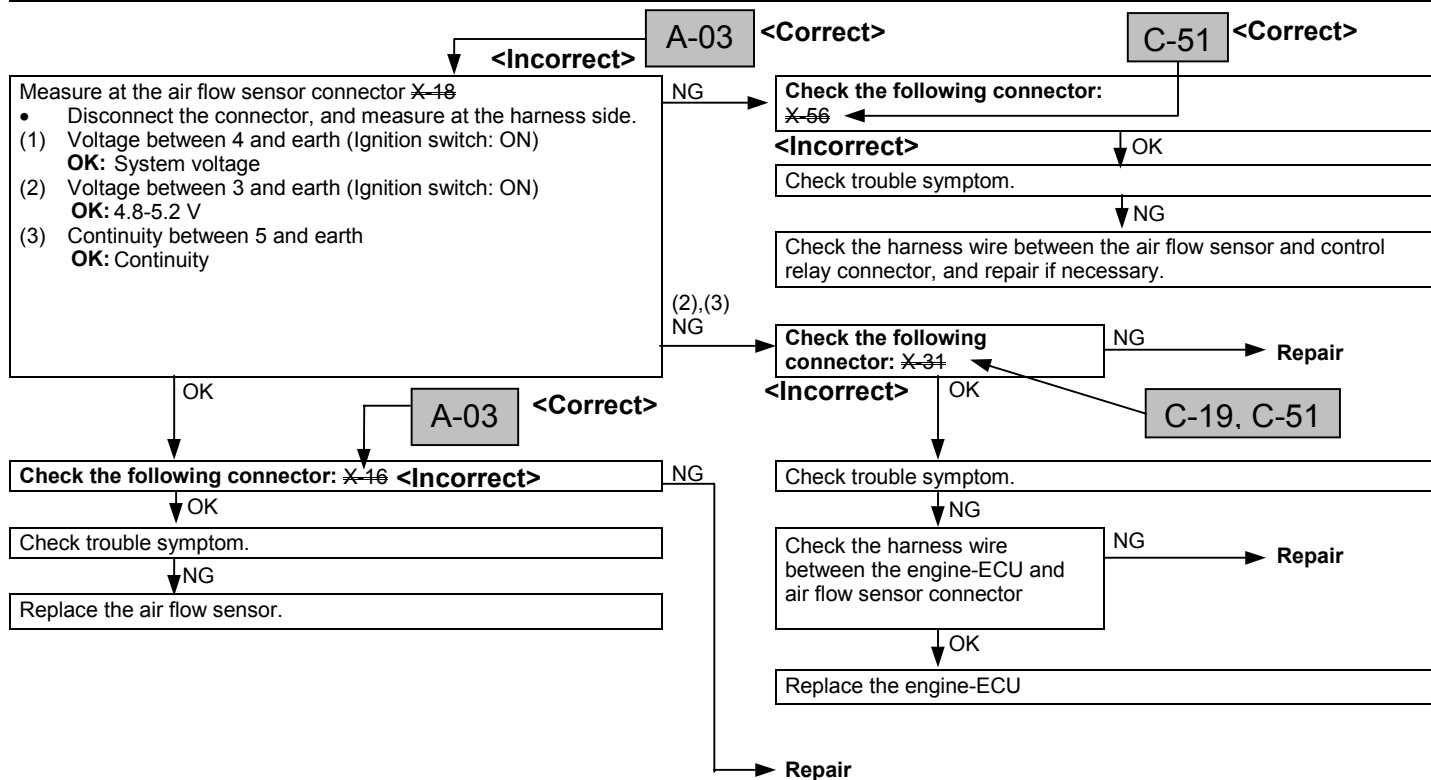
INSPECTION PROCEDURE 45

Check the fuel pump drive control circuit.



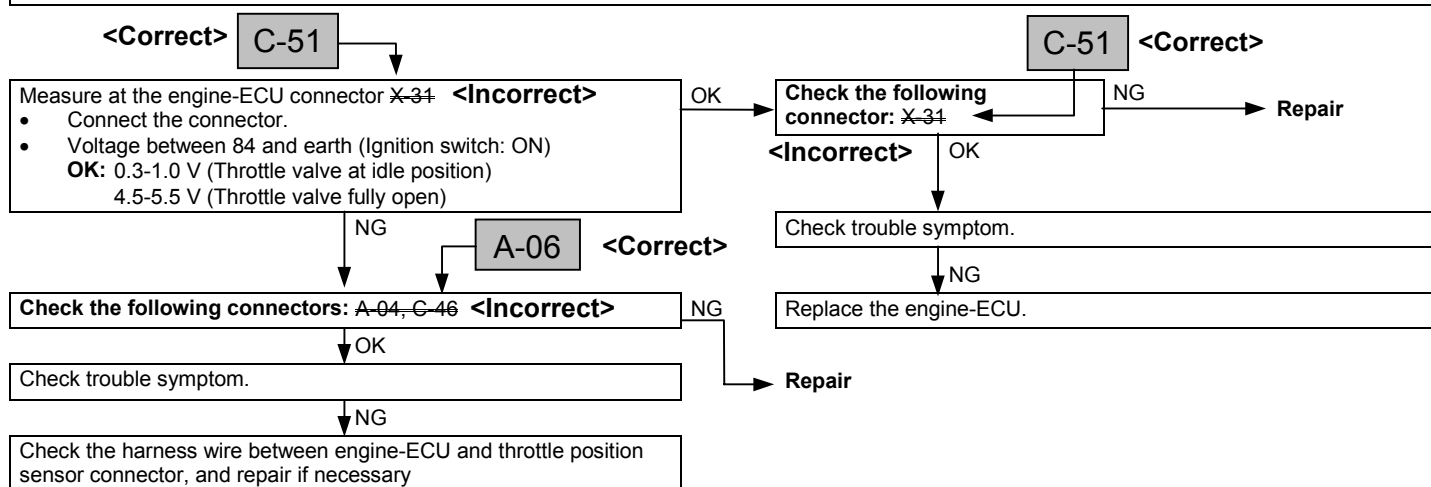
INSPECTION PROCEDURE 46

Check the air flow sensor (AFS) control circuit



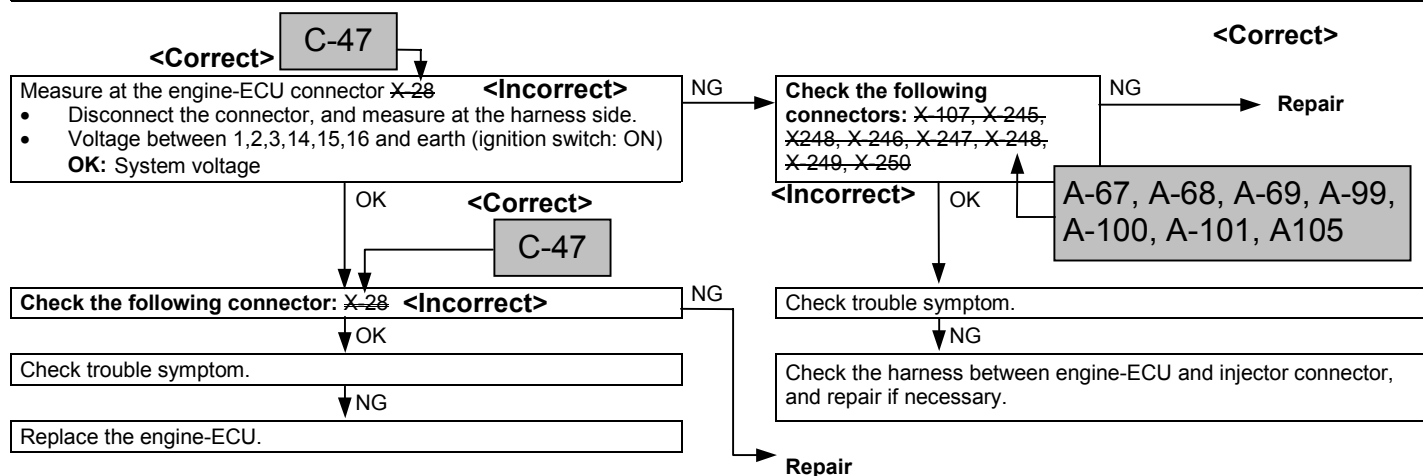
INSPECTION PROCEDURE 47

Check the throttle position sensor (TPS) output circuit.



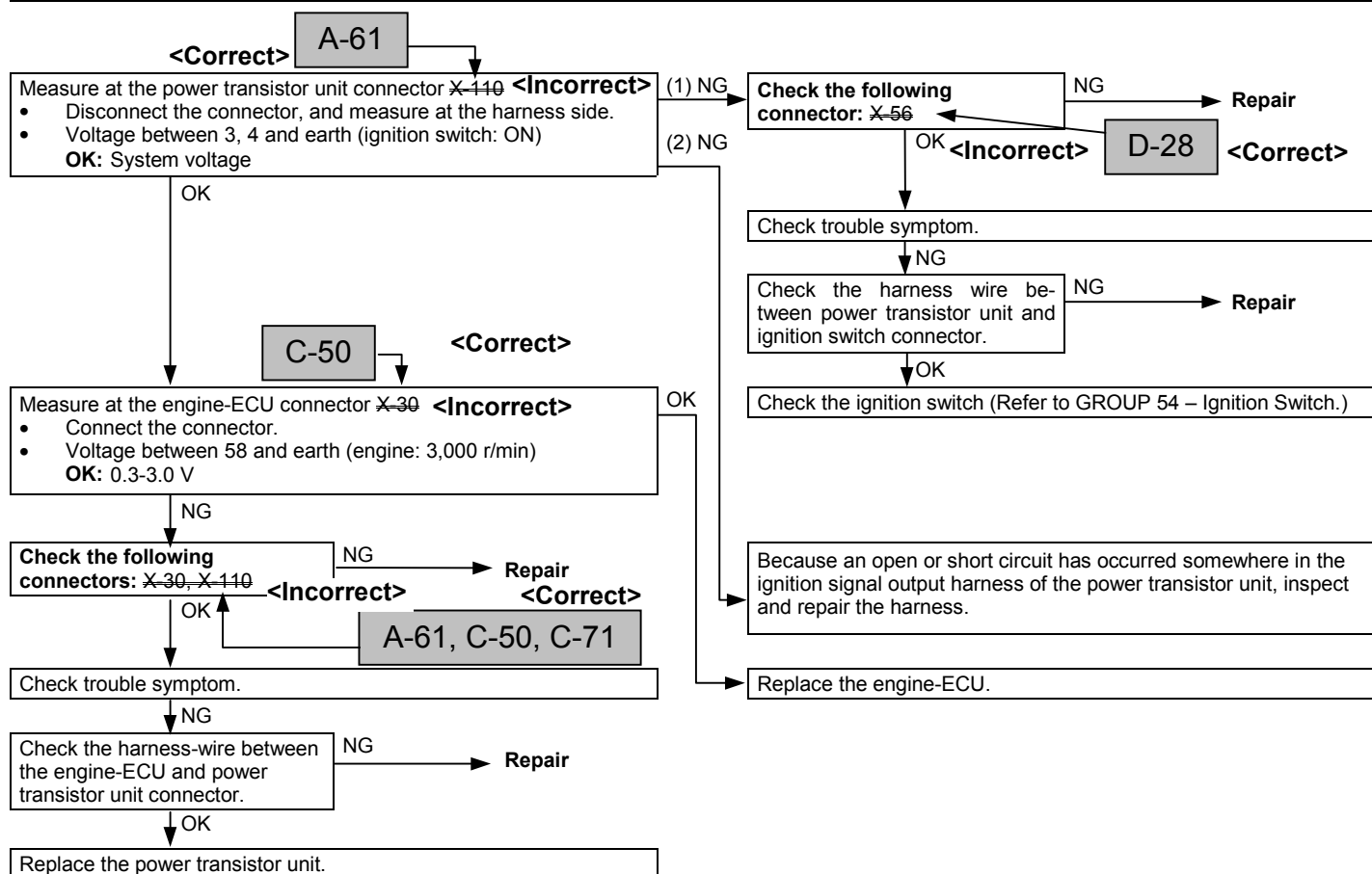
INSPECTION PROCEDURE 48

Check the injector control circuit.



INSPECTION PROCEDURE 49

Check the ignition signal circuit.





SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

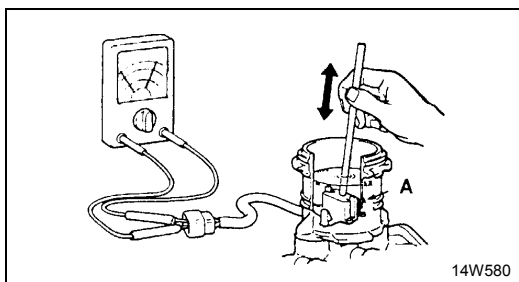
SERVICE BULLETIN		No.: MSB-99E35-502	
		Date: 1999-09-30	<Model> (EC) PAJERO SPORT (K9)
Subject: CORRECTION TO SHAPE OF LSPV AND TO SPRING SUPPORT INSTALLATION		<M/Y> 99-10	
Group: SERVICE BRAKE	Draft No.: 99SY040216 (EC) MONTERO SPORT		
CORRECTION	OVERSEAS SERVICE DEPT	 T. NITTA - VICE GENERAL MANAGER QUALITY INFORMATION ANALYSIS	

1. Description:

Correction has been made to the shape of the load sensing proportioning valve (LSPV) and to the spring support installation procedure.

2. Applicable Manuals:

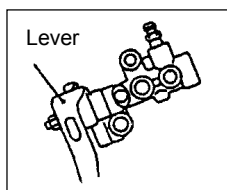
Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual Chassis	PWJE9812	(English)	35A-14, 26
	PWJF9814	(French)	
	PWJG9815	(German)	
'99 PAJERO SPORT Workshop Manual Chassis	PWJS9813	(Spanish)	

**BRAKE FLUID LEVEL SENSOR CHECK**

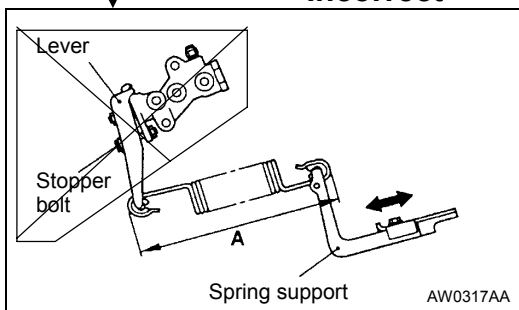
35100910086

The brake fluid level sensor is in good condition if there is no continuity when the float surface is above "A" and if there is continuity when the float surface is below "A".

<Correct>



<Incorrect>

**LOAD SENSING SPRING LENGHT CHECK AND ADJUSTMENT**

35100120045

1. Park the vehicle on a level ground. The vehicle should be unloaded and supported only by wheels.

Caution

Never support the vehicle with jacks or other similar means.

<Correct>

vehicle is on the ground in an unladen condition,

<Incorrect>

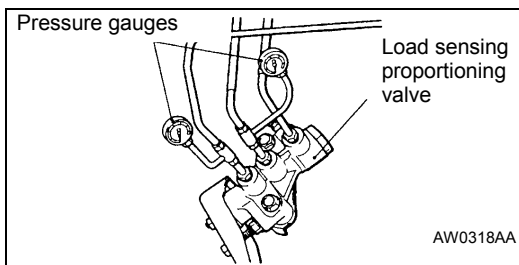
2. While the lever of the load sensing proportioning valve is touching the stopper bolt, install the spring support so that the distance (A) is at the standard value.

Standard value (A): 164 - 168 mm

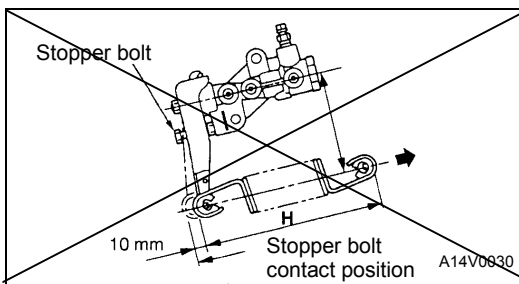
3. If the spring length is not within the standard value, loosen the bolt attaching the spring support and adjust the distance by moving the spring support.

LOAD SENSING PROPORTIONING VALVE FUNCTION TEST

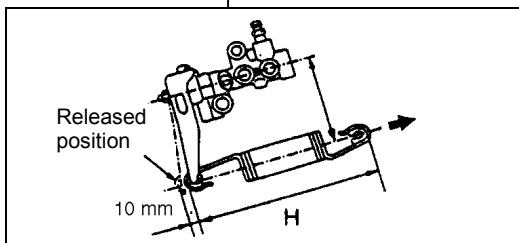
35100130055



1. Connect pressure gauges to the input and output ports of the load sensing proportioning valve.
2. Bleed the system. (Refer to P.35-13)



<Incorrect>



<Correct>

3. Disconnect the spring at the support side.
4. Place the spring so that it is in parallel with the load sensing proportioning valve, and pull in the direction indicated by the arrow so that its length H shown in the figure (the length between its ends) is as noted below.

NOTE

At this time the lever is pressed all the way to the load sensing proportioning valve.

LOAD SENSING PROPORTIONING VALVE

REMOVAL AND INSTALLATION

Caution

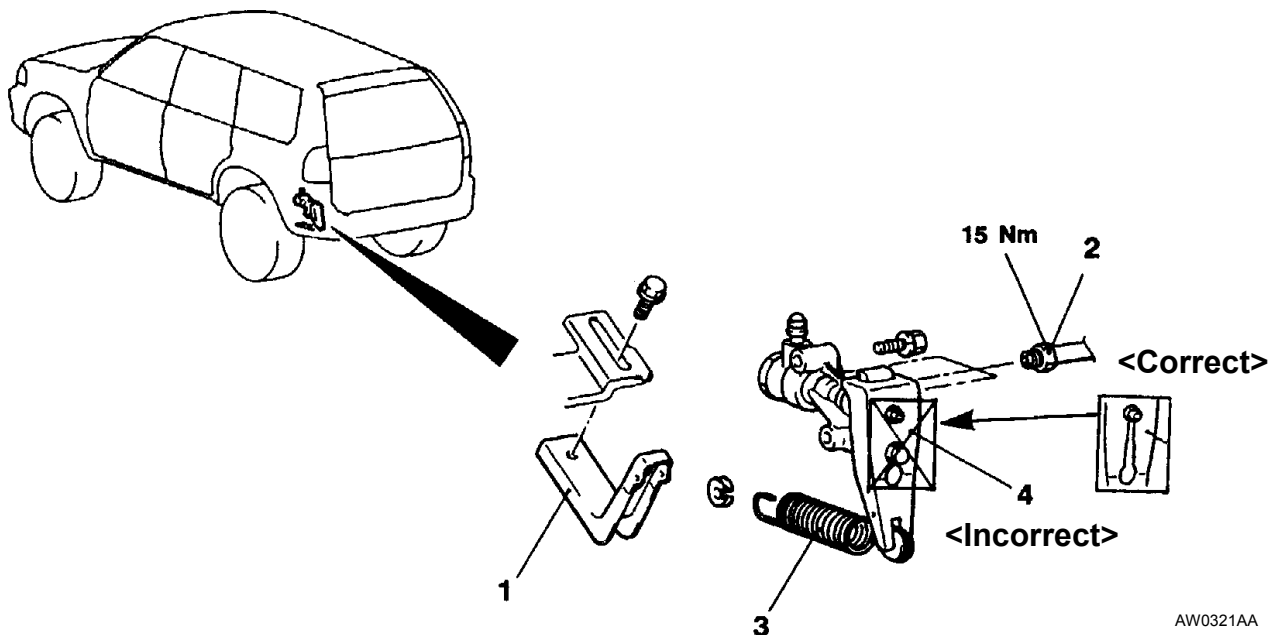
Do not disassemble the load sensing proportioning valve.

Pre-removal Operation

- Brake Fluid Draining

Post-Installation Operation

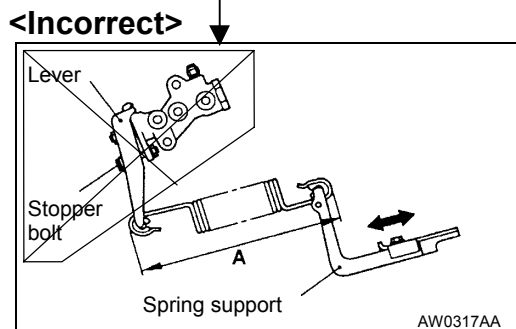
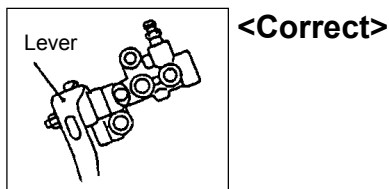
- Brake Fluid Supplying
- Brake Line Bleeding (Refer to P.35A-12.)



Removal steps

- A◄ 1. Spring support
2. Brake tube connection

3. Load sensing spring
4. Load sensing proportioning valve



<Correct>

Vehicle is on the ground in an unladen condition,

INSTALLATION SERVICE POINT

►A◄ SPRING SUPPORT INSTALLATION

While the lever of the load sensing proportioning valve is touching the stopper bolt, install the spring support so that the distance (A) is at the standard value.

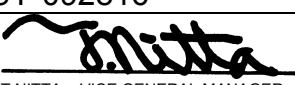
Standard value (A): 164 - 168 mm

<Incorrect>



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E36-501	
		Date: 1999-09-30	<Model> <M/Y>
Subject: CORRECTION OF PARKING BRAKE LEVER MAINTENANCE PROCEDURE		(EC)	
Group: PARKING BRAKE		PAJERO SPORT	99-99
Draft No.: 98-SY-092816		MONTERO SPORT	99-99
INFORMATION	OVERSEAS SERVICE DEPT	 T. NITTA - VICE GENERAL MANAGER QUALITY INFORMATION ANALYSIS	

1. Description:

This service bulletin informs you of the correction of Parking Brake Lever for '99 PAJERO SPORT and '99 MONTERO SPORT.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual Chassis	PWJE9812	(English)	36-2, 3, 4, 5, 6
	PWJF9814	(French)	
	CMXG99E1	(German)	
'99 MONTERO SPORT Workshop Manual Chassis	PWJG9813	(Spanish)	36-2, 3, 4, 5, 6

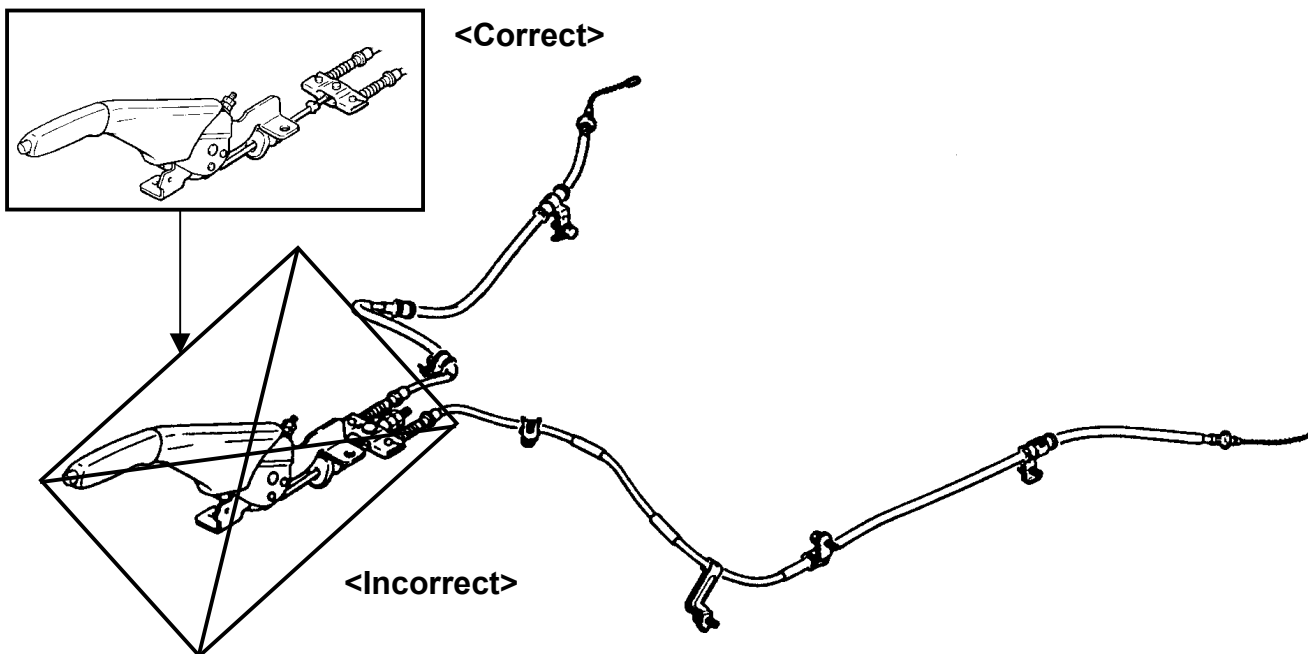
3. Details:

GENERAL INFORMATION

36100010233

The parking brake is lever type of a mechanical Rear-wheel brake construction in all vehicles.

CONSTRUCTION DIAGRAM



W0250AA

SERVICE SPECIFICATIONS

36100030215

Item	Standard value	Limit
Parking brake stroke	6 – 7 notches	-
Lining thickness mm	-	4.5
Brake drum inside diameter mm	197	198

LUBRICANTS

36100040133

Item	Specifications
Backing plate	Brake grease SAE J310, NLGI No.1
Adjuster assembly	
Shoe and lining assembly	

SEALANT

36100050044

Item	Specifications	Remarks
Shoe hold-down pin	3M ATD Part No.8513 or equivalent	Drying sealant

ON VEHICLE SERVICE

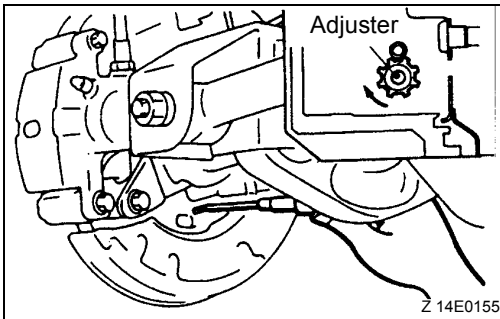
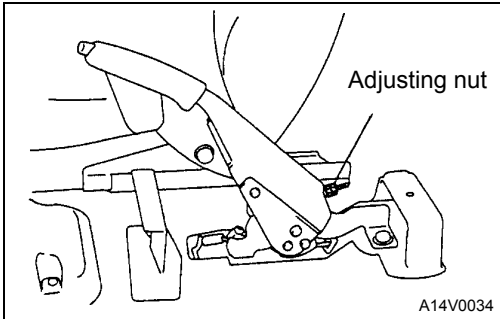
PARKING BRAKE LEVER STROKE CHECK

- (1) Pull the parking lever with a force of approximately 196 N and count the number of notches

Caution

The 196 N force of the parking brake lever must be strictly observed.

Standard value: 6 – 7 notches



- (2) Lever Stroke Adjustment **<Deleted>**
~~<Adjustment procedure (from passenger compartment)>~~

If the parking brake lever stroke is not the standard value, adjust as described below.

- (1) Jack up the rear of the vehicle and support on jack stands and remove the rear wheels.
- (2) Loosen the parking brake cable adjusting nut to the end of the cable rod, to allow slack in the cables.

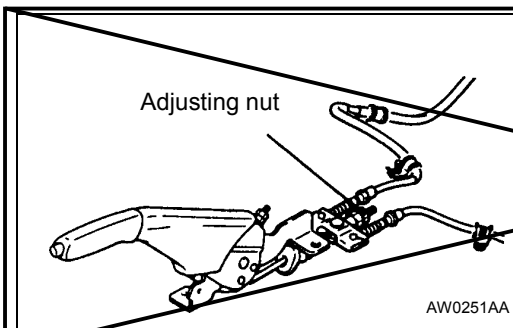
- (3) Remove the adjustment hole plug and then use a flat-tipped screwdriver to turn the adjuster as shown in the illustration until the disc will not rotate. Return the adjuster 3 or 4 notches in the opposite direction to the direction of the arrow.

- (4) Turn the adjusting nut to adjust the parking brake lever stroke to within the standard value range.

Caution

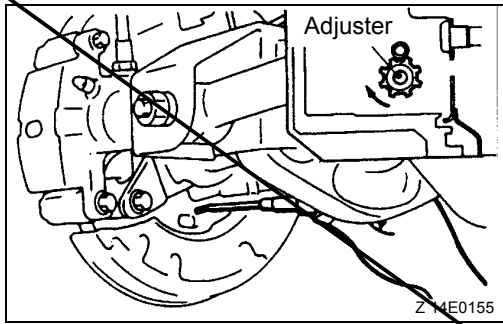
If the number of the brake lever notches engaged is less than the standard value, the cable has been pulled excessively. Be sure to adjust it to the standard value.

- (5) Check that there is no play between the adjusting nut and the parking brake lever.
- (6) Turn the rear wheel to confirm that the rear brakes are not dragging.
- (7) Remove the jack stands and lower the vehicle to the floor. Retorque the wheel nuts to the specified torque.

<Deleted>**<Adjustment procedure (from under the vehicle)>**

If the parking brake lever stroke is not the standard value, adjust as described below.

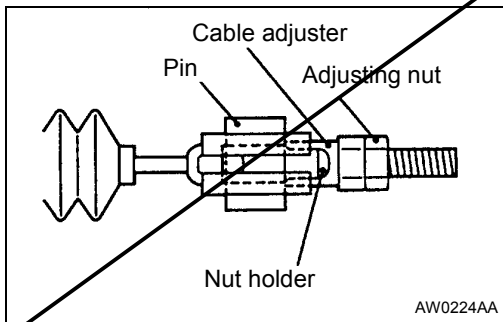
- (1) Jack up the rear of the vehicle and support on jack stands and remove the rear wheels.
- (2) Loosen the parking brake cable adjusting nut to the end of the cable rod, to allow slack in the cables.



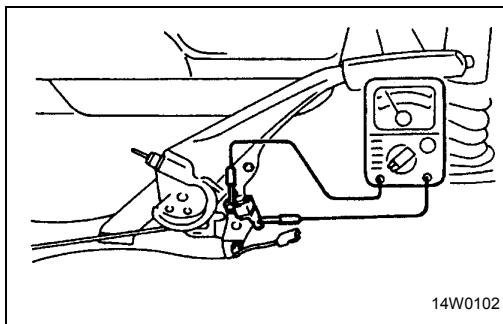
- (3) Remove the adjustment hole plug and then use a flat-tipped screwdriver to turn the adjuster as shown in the illustration until the disc will not rotate. Return the adjuster 3 or 4 notches in the opposite direction to the direction of the arrow.
- (4) Turn the adjusting nut to adjust the parking brake lever stroke to within the standard value range.

Caution

If the number of the brake lever notches engaged is less than the standard value, the cable has been pulled excessively. Be sure to adjust it to the standard value.



- (5) After completing the adjustment, check to be sure that there is no play between the adjusting nut and the pin. Also check that the adjusting nut is securely held by the nut holder.
- (6) With the parking brake lever in the released position, turn the rear wheels to confirm that the rear brakes are not dragging.
- (7) Remove the jack stands and lower the vehicle to the floor. Retorque the wheel nuts to the specified torque.



PARKING BRAKE SWITCH CHECK

36100330131

1. Disconnect the connector of the parking brake switch, and connect an ohmmeter between the parking brake switch and the switch installation bolt.
2. The parking brake switch is good if there is continuity when the parking brake lever or parking brake pull rod is pulled, and there is no continuity when it is released.

<Deleted>

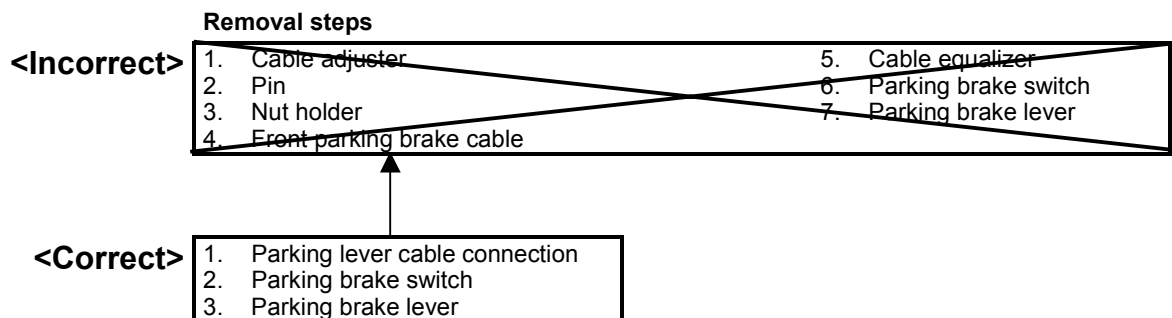
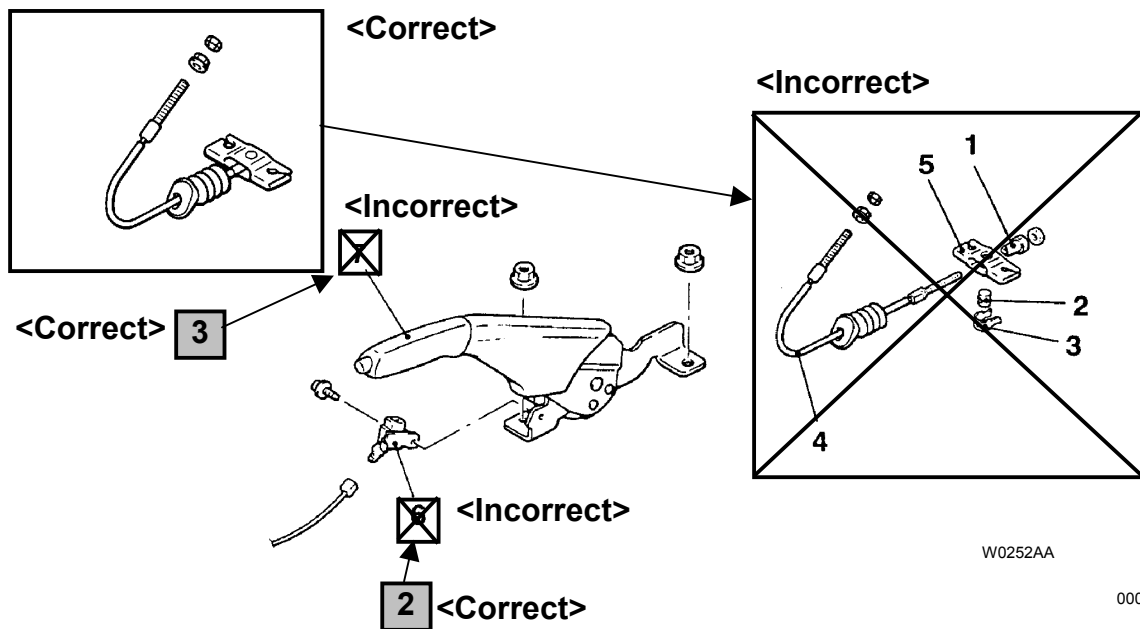
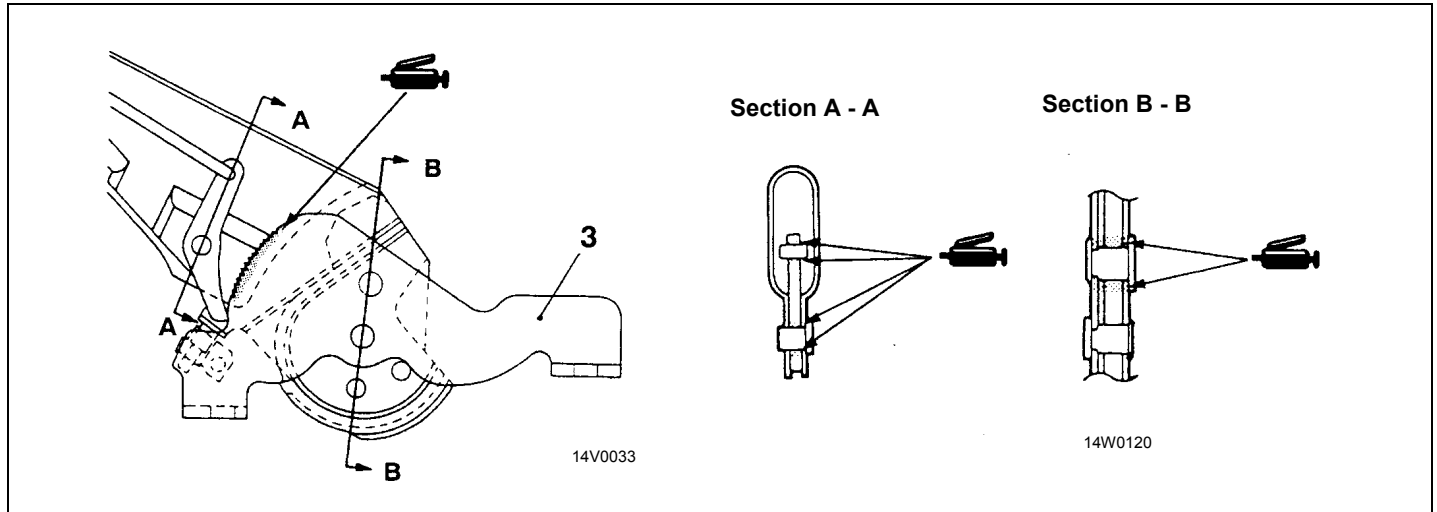
PARKING BRAKE LEVER REMOVAL AND INSTALLATION

Pre-removal Operation

- Floor Console Removal
(Refer to GROUP 52A – Floor Console.)

Post-installation Operation

- Floor Console Installation
(Refer to GROUP 52A – Floor Console.)
- Parking Brake Lever Stroke Adjustment
(Refer to P.36-3.)



PARKING BRAKE LEVER

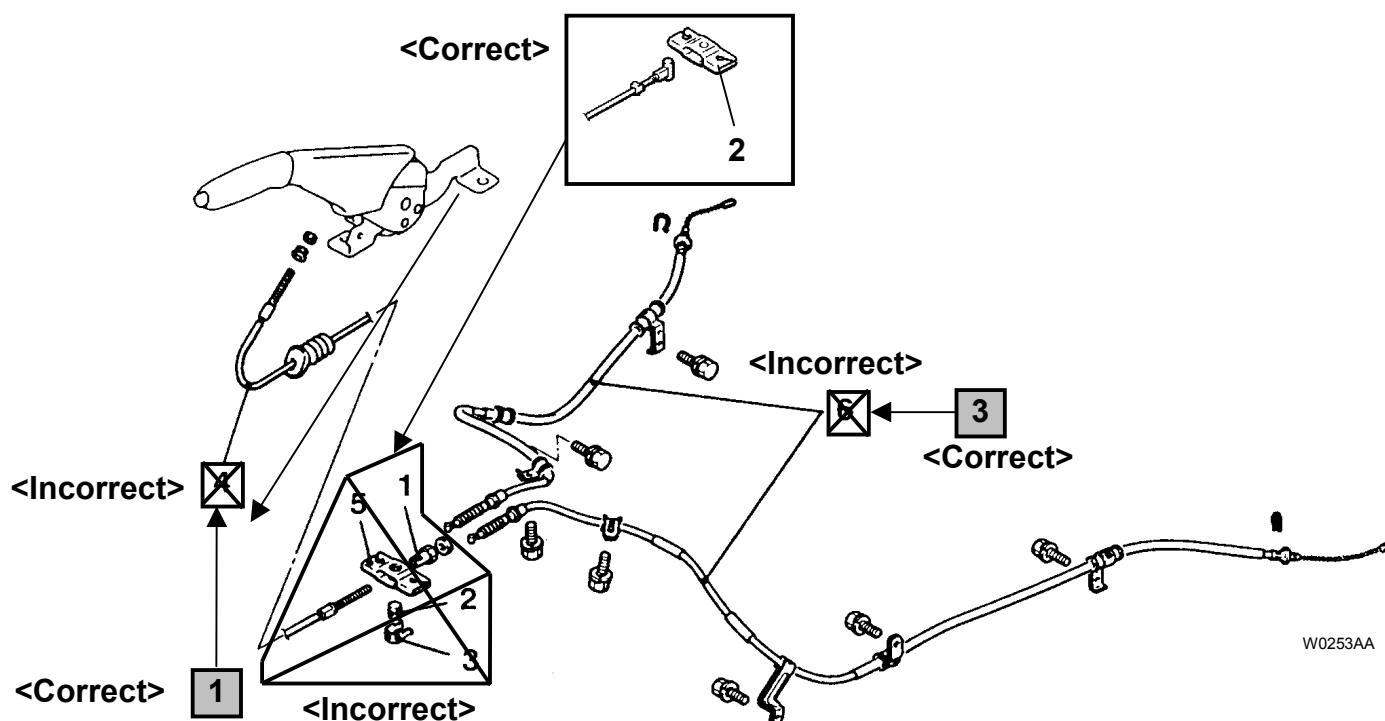
REMOVAL AND INSTALLATION

Pre-removal Operation

- Floor Console Removal
(Refer to GROUP 52A – Floor Console.)

Post-installation Operation

- Floor Console Installation
(Refer to GROUP 52A – Floor Console.)
- Parking Brake Lever Stroke Adjustment
(Refer to P.36-3.)



Removal steps

- Shoe and lining assembly (Refer to P.36-7.)

<Incorrect>

- Cable adjuster
- Pin

- Nut holder
- Front parking brake cable
- Cable equalizer
- Parking brake cable

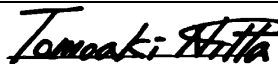
<Correct>

- Front parking brake cable
- Cable equalizer
- Parking brake cable



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E54-501	
		Date: 1999-12-15	<Model> (EC) PAJERO SPORT (K9)
Subject: ADDED DESCRIPTION OF IMMOBILIZER SYSTEM			
Group: CHASSIS ELECTRICAL	Draft No.: 99SY051413		
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 T. NITTA - PROJECT LEADER AFTER SALES SERVICE & CS PROMOTION	

1. Description:

Omission of a fuller description of the immobilizer system under OPERATION SYSTEM (Technical Information Manual) and ENCRYPTED CODE REGISTRATION METHOD AND RESETTNG THE CODE TO THE FACTORY SETTING (Workshop Manual), has been rectified.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Technical Information Manual	PYJE9804	(English)	7-4
'99 PAJERO SPORT Workshop Manual chassis	PWJE9812	(English)	54-22
	PWJG9815	(German)	
	PWJF9814	(French)	
'99 MONTERO SPORT Workshop Manual chassis	PWJS9813	(Spanish)	

3. Details:

'99 PAJERO SPORT Technical Information Manual, page 2
'99 PAJERO SPORT Workshop Manual chassis, page 3

ENCRYPTED CODE REGISTRATION METHOD AND RESETTING THE CODE TO THE FACTORY SETTING

54300810086

Register the encrypted code in the immobilizer-ECU and then reset the factory setting after parts have been replaced.

Replacement part	6G7	4D5	
	Encrypted code registration	Encrypted code registration	Resetting the code to the factory setting
Ignition key	Necessary	Necessary	Not Necessary
Ignition key ring antenna	Not Necessary	Not Necessary	Not Necessary
Immobilizer-ECU *2 ← <Added>	Necessary	Necessary	Necessary
Engine-ECU <6G7> *	Necessary	–	–
Fuel cut valve controller (fuel injection pump) <4D5>	–	Not Necessary	Not Necessary (New part) Necessary (Used part)

NOTE

*: If the engine-ECU is replaced, the immobilizer-ECU and ignition key should be replaced together with it. Each immobilizer-ECU has encrypted code for ignition key, and the encrypted code is registered in the immobilizer-ECU.

*2: For vehicles with 4D5, if the immobilizer-ECU is replaced, the ignition key must be replaced together with it. Each immobilizer-ECU has encrypted code for ignition key, and the encrypted code is registered in the ignition key.

↑
<Added>

Encrypted Code Registration Method

If using an ignition key that has just been newly purchased, or if the immobilizer-ECU has been replaced, you will need to register the encrypted codes for each ignition key being used into the immobilizer-ECU. (A maximum of eight different encrypted codes can be registered.)

Moreover, when the immobilizer-ECU has been replaced, you will need to use the MUT-II to input the vehicle secret code and to register the password (secret code) that the user specifies into the immobilizer-ECU. (Refer to the “MUT-II REFERENCE MANUAL” or “MUT-II OPERATING INSTRUCTIONS”)

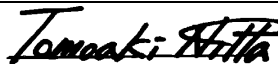
Caution

Because registering of the encrypted codes is carried out after all previously-registered codes have been erased, you should have ready all of the ignition keys that have already been registered.



SERVICE BULLETIN

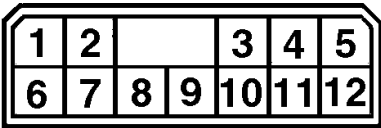
QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E54-503	
		Date: 1999-12-15	<Model> (EC) PAJERO SPORT (K9)
Subject: CORRECTION TO IMMOBILIZER-ECU TERMINAL VOLTAGE CHECK		<M/Y> 99-10	
Group: CHASSIS ELECTRICAL	Draft No.: 9SUY061618 (EC) MONTERO SPORT (K9)		
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 T. NITTA - PROJECT LEADER AFTER SALES SERVICE & CS PROMOTION	
1. Description: The incorrectness of a description of the immobilizer-ECU terminal voltage check has been rectified.			
2. Applicable Manuals:			
Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual Chassis	PWJE9812	(English)	54-18
	PWJF9814	(French)	
	PWJG9815	(German)	
'99 MONTERO SPORT Workshop Manual Chassis	PWJS9813	(Spanish)	
3. Details:			

CHECK AT IMMOBILIZER-ECU

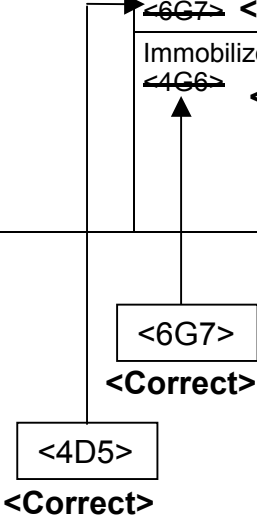
54300760053

Terminal Voltage Check Chart



20F0191

Terminal No.	Signal	Checking requirements	Terminal voltage
3	Immobilizer-ECU earth	Always	0 V
6	Ignition switch-IG <4D5>	Ignition switch: OFF	0 V
		Ignition switch: ON	System voltage
7	Immobilizer-ECU power supply	Always	System voltage
	<6G7> <Incorrect>		
	Immobilizer-ECU power supply	Ignition switch: OFF or approx. 5 or more seconds after switch has been turned from ON to OFF	0 V
	<4G6> <Incorrect>		
		Ignition switch: ON or within approx. 5 seconds after switch has been turned from ON to OFF	System voltage





SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E55-001	
		Date: 1999-07-30	<Model> (EC) PAJERO SPORT <M/Y> 99-10 (EC) MONTERO SPORT
Subject:	CHANGE IN RESISTANCE VALUE OF RESISTOR		
Group:	HEATER, A/C & VENTILATION	Draft No.: 99SY121514	
INFORMATION	OVERSEAS SERVICE DEPT	 T.NITTA - VICE GENERAL MANAGER QUALITY INFORMATION ANALYSIS	

1. Description:

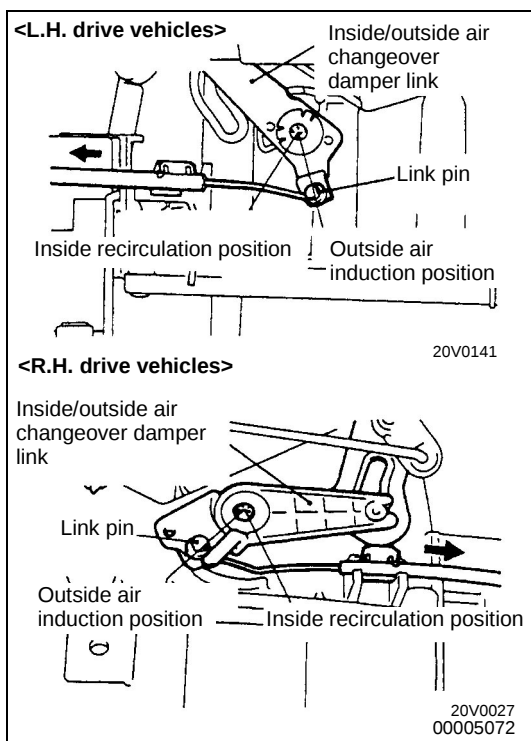
In order to modify the air flow characteristics of the blower fan, the standard resistance value of the resistor has been changed from 0.68 • to 0.37 • between terminals 3 and 1.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual chassis	PWJE9812	(English)	55-29
	PWJF9814	(French)	
	PWJG9815	(German)	
'99 MONTERO SPORT Workshop Manual chassis	PWJS9813	(Spanish)	

3. Effective Date:

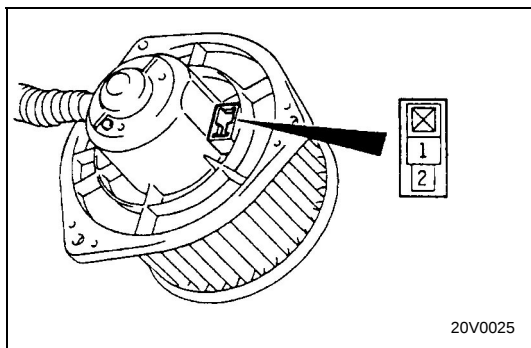
From the middle of February 1999.
Effective model: WM5436 and up



INSTALLATION SERVICE POINT

▶◀INSIDE/OUTSIDE AIR CHANGEOVER DAMPER CABLE INSTALLATION

1. Set the inside/outside air changeover control knob on the heater control assembly to the inside recirculation position.
2. Set the inside/outside air changeover damper link of the blower assembly to the inside recirculation position as shown in the illustration, and then connect the cable to the link pin.
3. Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.



INSPECTION

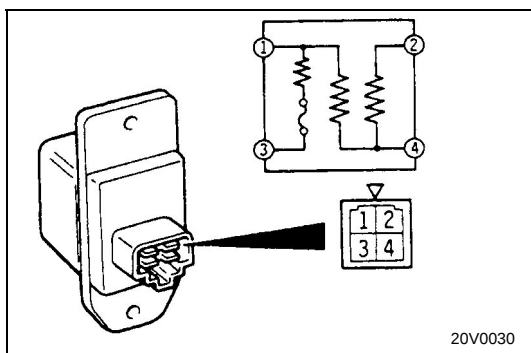
55100290119

BLOWER FAN AND MOTOR CHECK

When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.

<New>

**0.68 <Up to the beginning of February 1999>
0.37 <From the middle of February 1999>**



RESISTOR CHECK

Use a circuit tester to measure the resistance between the terminals as indicated below. Check that the measured value is at the standard value.

Standard value:

<L.H. drive vehicles>

Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.00
Between terminals 3 and 4 (ML)	1.10
Between terminals 3 and 1 (MH)	0.68

<R.H. drive vehicles>

<Old>

Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.48
Between terminals 3 and 4 (ML)	1.17
Between terminals 3 and 1 (MH)	0.28

Service Bulletin List

No.	Subject	Date
MSB-99E13-501	CORRECTION OF CONNECTOR NOS.	1999-11-15
MSB-99E35-502	CORRECTION OF SHAPE OF LSPV AND TO SPRING SUPPORT INSTALLATION	1999-09-30
MSB-99E36-501	CORRECTION OF PARKING BRAKE LEVER MAINTENANCE PROCEDURE	1999-09-30
MSB-99E54-501	ADDED DESCRIPTION OF IMMOBILIZER SYSTEM	1999-12-15
MSB-99E54-503	CORRECTION TO IMMOBILIZER-ECU TERMINAL VOLTAGE CHECK	1999-12-15
MSB-99E55-001	CHANGE IN RESISTANCE VALUE OF RESISTOR	1999-07-30

Lista de Boletines de Servicio

N°.	ASUNTO	Fecha
MSB-99E22-503	CORRECCIÓN DE MARCAS PINTADA EN TRANSMISIÓN MANUAL Y CONJUNTO DEL CABLE DE CAMBIOS	1999-07-15
MSB-99E23-502	ADICIÓN DE "VELOCIDAD DEL VEHÍCULO" AL CUADRO DE PATRÓN DE CAMBIO TA	1999-07-30

Service Bulletin List

Nr.	ÄRENDE	Datum
MSB-99E22-503	KORRIGERING AV MÅLADE MÄRKEN PÅ VÄXLINGSKABEL OCH VÄLJARKABEL FÖR MANUELL VÄXELLÅDA	1999-07-15
MSB-99E23-502	TILLÄGG AV "FORDONSHASTIGHET" I VÄXLINGSMÖNSTREN	1999-07-30

Service Bulletin List

No.	Betreft	Datum
MSB-99E22-503	CORRECTIE VERFMERKTEKENS OP SCHAKEL-KABEL EN KEUZEKABEL VAN DE HANDBEDIENDE VERSNELLINGSBAK	1999-07-15
MSB-99E23-502	TOEVOEGING "VOERTUIGSNELHEID " AAN SCHAKELPATROON AUTOMATISCHE TANSMISSIE	1999-07-30

Service Bulletin List

No.	Reference	Date
MSB-99E22-503	CORRECTION DES MARQUES À LA PEINTURE SUR L'ENSEMBLE DE CÂBLE DE CHANGEMENT DE VITESSE ET DE CÂBLE DE SÉLECTION M/T	1999-07-15
MSB-99E23-502	ADDITION DE LA "VITESSE DU VÉHICULE" A LA COURBE DE CHANGEMENT DE VITESSE	1999-07-30

Service Bulletin List

No.	Betreff	Datum
MSB-99E22-503	KORREKTUR DER FARBMARKIERUNGEN AM MECHANISCHEN GETRIEBE UND AN DER WÄHLZUG-EINHEIT	1999-07-15
MSB-99E23-502	“FAHRZEUGGESCHWINDIGKEIT” DER SCHALTMUSTER-TABELLE DER AUTOMATIKGETRIEBE HINZUFÜGEN	1999-07-30