
SECTION 7D

AUTOMATIC CONTROL HEATING, VENTILATION AND AIR CONDITIONING SYSTEM

TABLE OF CONTENTS

| | | | |
|---|--------------|--|--------------|
| Description and Operation | 7D-2 | Compressor Magnetic Clutch Does not Engage .. | 7D-24 |
| General | 7D-2 | Inside Air Temperature Sensor Error | 7D-24 |
| FATC Control | 7D-3 | Ambient Air Temperature Sensor Error | 7D-24 |
| FATC Input/Output Routing Diagram | 7D-4 | Coolant Temperature sensor Error | 7D-25 |
| FATC System Characteristic..... | 7D-5 | Air Mix Door Error | 7D-25 |
| System Basic Function | 7D-6 | Sun Sensor Error | 7D-27 |
| System Components – Control | 7D-8 | Power Transistor Error | 7D-27 |
| Specifications | 7D-13 | Max-High Relay Error | 7D-28 |
| Diagnostic Information and Procedures | 7D-14 | Repair Instructions | 7D-29 |
| General Diagnosis | 7D-14 | On-vehicle Service | 7D-29 |
| Insufficient Cooling Diagnosis | 7D-15 | Control Switch Assembly | 7D-29 |
| Full Automatic Temperature Control (FATC) Does Not Operate When The Ignition Is On | 7D-17 | Blower Motor | 7D-30 |
| Controller Does Not Illuminate When Light Switch Is On | 7D-17 | High Blower Relay | 7D-31 |
| No Hot Air From Blower | 7D-18 | Blower Motor Resistance (Power Transistor) | 7D-31 |
| Blower Motor Does Not Run At All | 7D-19 | Air Mix Door Actuator | 7D-31 |
| No Cool Air From Blower | 7D-21 | Mode Control Door Actuator | 7D-32 |
| Mode Controls Does Not Work | 7D-22 | Sun Sensor | 7D-32 |
| Mode Controls Does Not Work | 7D-22 | Inside Air Temperature Sensor | 7D-32 |
| Abnormal Refrigerant Pressure | 7D-23 | Ambient Air Temperature Sensor | 7D-33 |
| | | Coolant Temperature Sensor | 7D-34 |

DESCRIPTION AND OPERATION

GENERAL

THE V5 FULL AUTOMATIC TEMPERATURE CONTROL (FATC) SYSTEM

The full automatic temperature control (FATC) uses the integrated control panel as the driver's interface to the system. The FATC receives driver's input signal and various input signal from sensors and controls the actuators to maintain driver's desired room temperature.

Refer to Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System for general Information details for the following:

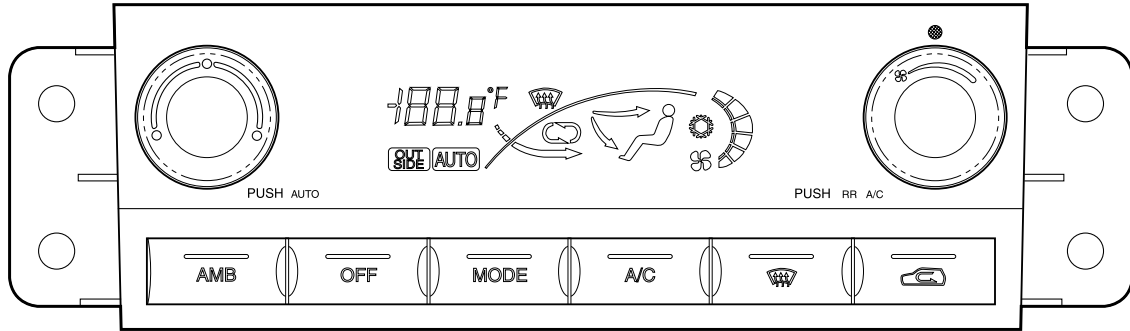
- System Components – Functional.
- The V5 A/C System.
- V5 Compressor – Operation.
- V5 Compressor – General Description.

Vacuum Fluorescent Display panel provides system operating information for the driver. With the system in OFF mode, the outside temperature is displayed continuously.

The driver may display the current temperature setting by selecting any mode except OFF or adjusting the temperature control.

Also, it provides the convenience to the driver by indicating the ambient air temperature. If it occurs the faulty in the FATC system, the MICOM informs the driver or mechanics of the results of the self-diagnostic check and controls the system by

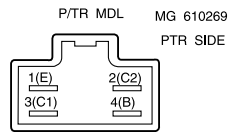
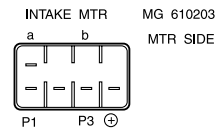
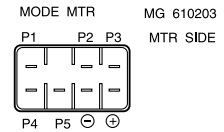
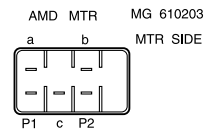
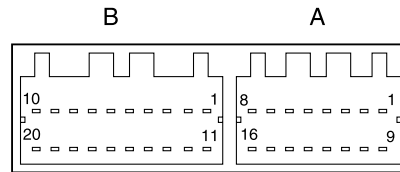
FATC CONTROL



PIN NO. ASSIGNMENT

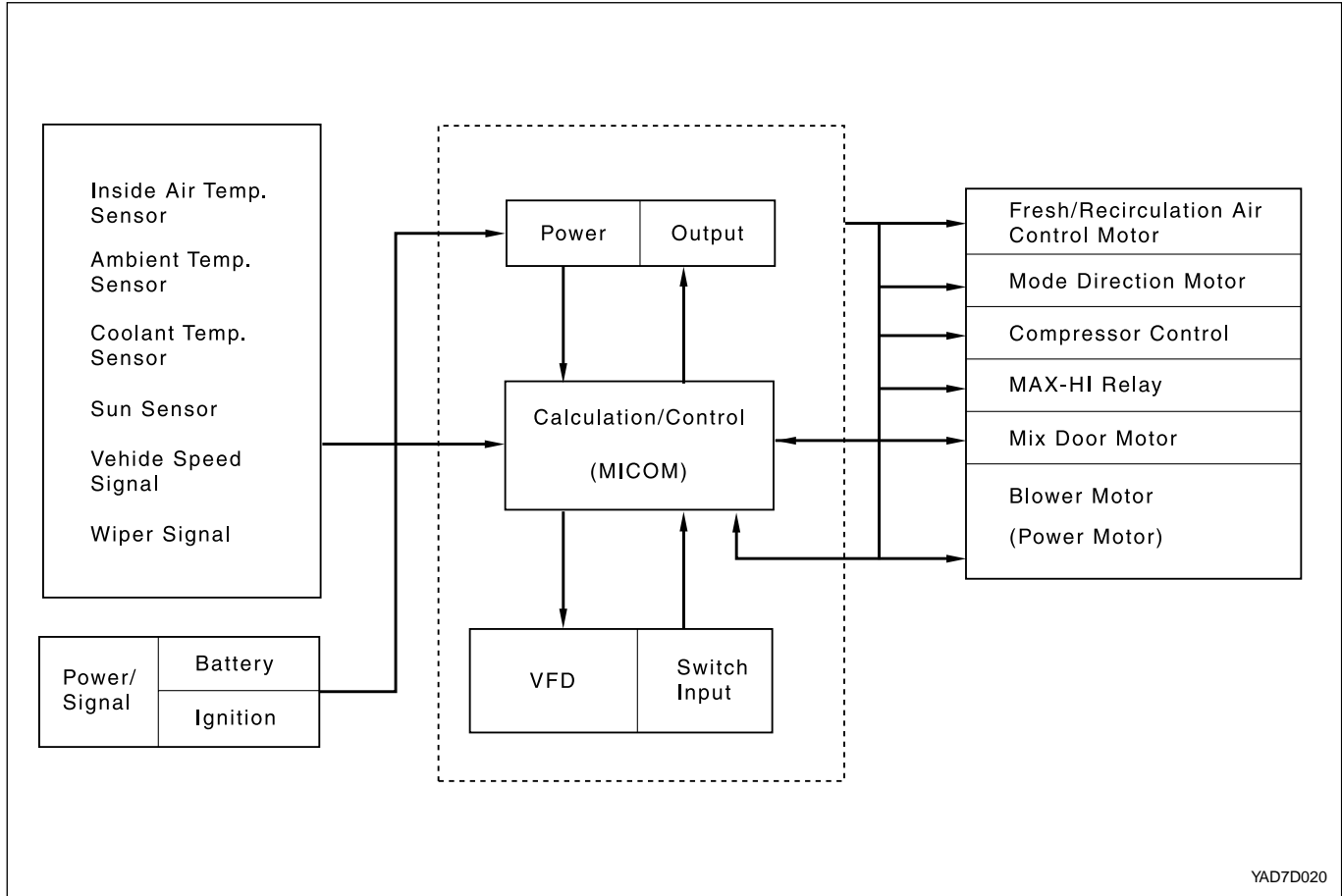
- | | |
|----------------------|-----------------------|
| A1 : POWER GND | B1 : BLR CONTROL |
| A2 : AMD(C) | B2 : Vss |
| A3 : ILL(-) | B3 : RXD |
| A4 : ILL(+) | B4 : PBR(+5V) |
| A5 : IGNITION | B5 : PBR(SENSING) |
| A6 : REAR BLOWER RLY | B6 : PBR(GND) |
| A7 : BLOWER REQ | B7 : WIPER SIGNAL Lo |
| A8 : AMD(H) | B8 : AMB SENSOR |
| A9 : TXD | B9 : WATER SENSOR |
| A10 : MAX HI RELAY | B10 : SUN SENSOR |
| A11 : A/C REQ. (GSL) | B11 : POWER GND |
| A12 : A/C REQ.(DSL) | B12 : BLR SENSING |
| A13 : SENSOR GND | B13 : FRE |
| A14 : BATTERY | B14 : REC |
| A15 : 1/3 FRE. | B15 : WIPER SIGNAL HI |
| A16 : INCAR SENSOR | B16 : MODE MOTOR(P5) |
| | B17 : MODE MOTOR(P4) |
| | B18 : MODE MOTOR(P3) |
| | B19 : MODE MOTOR(P2) |
| | B20 : MODE MOTOR(P1) |

MOLEX 53874-3615 (CONTROLLER SIDE)



YAD7D010

FATC INPUT/OUTPUT ROUTING DIAGRAM



YAD7D020

FATC SYSTEM CHARACTERISTIC

Display Performance Enhancement

It allows VFD (Vacuum Fluorescent Display) to develop the effect of the visible.

Airflow Control Enhancement

It allows MICOM to control the temperature and perform the control automatically of the heating operation, the cooling operation and the Mild operation. Also, MICOM enable to control the amount of the airflow and the direction of the vent outlet in order to keep the inside air fresh.

Self-Diagnostic Circuit Check

The full automatic temperature control (FATC) air conditioning controller contains a self-diagnosis function to aid in finding any problem with the system. If the FATC detects some errors it will blink the temperature display screen for 5 seconds when the ignition switch is ON.

To enter the diagnostic mode, perform the following procedure.

1. Turn the ignition switch ON.
2. Set the temperature control to 26 °C (79 °F).
3. Within 3 seconds, push the AUTO and the OFF switches simultaneously, more than three times.
4. Check the diagnostic trouble code (DTC) in the temperature indicator screen blinks. If there are no diagnostic trouble code (DTC) set, the screen will display 00.
5. When the FATC controller indicates a DTC, proceed to the table for the DTC.
6. Push the OFF switch to return the controller to its normal function.

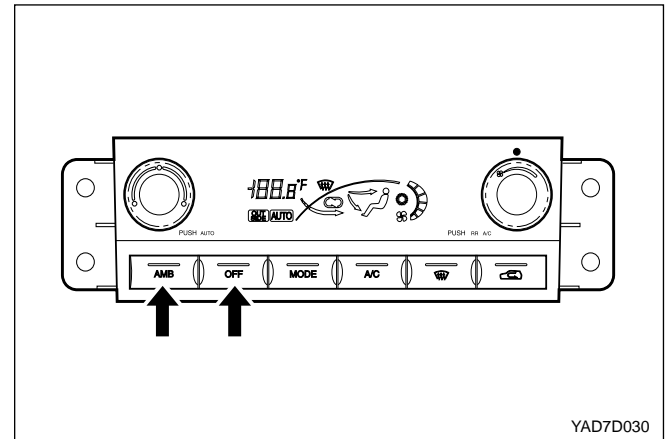
| DTC | Description |
|-----|-------------------------------------|
| 0 | Normal (No Error) |
| 1 | Inside Air Temperature Sensor Error |
| 2 | Ambient Air Temperature Sensor |
| 3 | Error |
| 4 | Coolant Temperature Sensor Error |
| 5 | Air Mix Door Error |
| 6 | Sun Sensor Error |
| 7 | Power Transistor Error |

Action Taken When the Faulty Occurred

When any faulty is occurred in the automatic temperature control system, it's sign is informed to the driver by flashing the set temperature display for 5 seconds at initial starting.

How to Verify Faulty Code

When the temperature is set to 26 °C and then within 3 second, push the AMB switch and the OFF switch simultaneously at three times, the FATC controller temperature display indicates the faulty code after performing the self-diagnosis by MICOM.



Condition For Clearing the Faulty Code

1. When the vehicle restarts
2. When push the OFF switch after indicating the faulty code
3. When pass over 32 seconds after indicating the faulty code

Fault Safety Function

FATC air conditioner not only performs self-diagnosis but also has safety function against faults. If there is open or short in the sensors or potentiometer of temperature door some specific value will be substitute.

| Error | Fault Safety Function |
|----------------------------------|--|
| Inside air Sensor Error | 25 °C will be substituted as temperature of inside of vehicle. |
| Ambient Temperature Sensor Error | 25 °C will be substituted as ambient temperature. |
| Coolant Temperature Sensor Error | Sensor ON. 50 °C will be substituted as coolant temperature. |
| Sun Sensor Error | Zero (0) will be substituted as sun load. |

SYSTEM BASIC FUNCTION

Set Temperature Control

When you set the setting temperature using the temperature control switch, the FATC receives the various input signals from sensors including the information of inside air temperature, ambient temperature, coolant temperature and sun loads etc.. The FATC uses this signals to control automatically the A/C compressor, the mode door, the I/A door, air mix door and blower motor etc.

Airflow Control

For setting at Full AUTO, it is possible to control the blower motor operation both manually and automatically in order to adjust the airflow according to the set temperature.

Manual Control

When you push the blower switch, you can control the blower motor manually and it increases or decreases each step by moving the switch to HI/LO. (with the ignition ON)

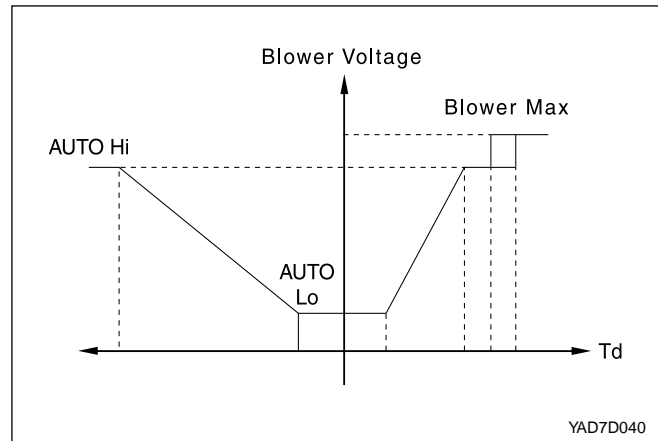
| Step | Blower Voltage |
|------|----------------|
| 1 | 4.5 V |
| 2 | 6.0 V |
| 3 | 7.5 V |
| 4 | 9.0 V |
| 5 | 11.0 V |
| 6 | Max Hi |

* The voltage of the blower motor may increase or decrease (0.5 V) according to power voltage.

Automatic Control

Td value can be determined by the set temperature value and Td value is set to the target voltage of the blower motor simultaneously. The blower motor can shift without step.

Abbreviation: Td (Thermal Demand) : Td value is the default for automatic control of the automatic temperature control and allows it to control the set temperature calculating the differences between inside air temperature and ambient temperature.



| Blower Step | Blower Motor Voltage |
|-------------|----------------------|
| 1 | 4.0 - 5.5 V |
| 2 | 5.5 - 7.5 V |
| 3 | 7.5 - 8.5 V |
| 4 | 8.5 - 9.5 V |
| 5 | 9.5 - 10.5 V |
| 6 | 10.5 - 13.5 V |

Vent Rate Control By Heating Operation

When the temperature of the engine coolant is low or it's difficult to obtain the desired hot air in winter, the system controls to prevent the cold airflow from the outlet due to the cold air give a negative effect to the heating performance.

Therefore vent step is fixed 1st on blower AUTO step until the coolant sensor detects above 20 °C and also the blower step increases gradually according to going up the coolant temperature. When the coolant temperature goes up above 40 °C, the heating operation stops.

Vent Rate Control By Cooling Operation

When the air inside the resonance duct is hot in summer, after the system keeps the low vent rate (1st) operating for 5 seconds and discharges the hot air to the windshield side (Def Mode), the system starts to control normally in order to avoid for the passengers contacting the hot air.

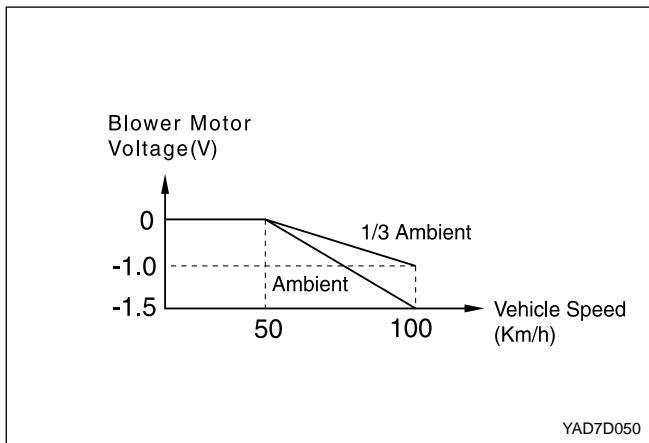
Defroster Calibration

On the blower AUTO step, when the passenger sets to Defroster (Def), the system increases the blower voltage by 2 V for some intervals comparing AUTO voltage. But it is excluded the condition when the blower voltage is above 11.0 V. Also, the voltage increasing by defroster calibration is limited up to 10.5 V.

Vehicle Speed Calibration

On the Ambient or the 1/3 Ambient and the blower AUTO, the blower decreases the voltage with the vehicle speed 100 Km/h such as 1.5 V for the Ambient, 1.0 V for the 1/3 Ambient.

But it is the exception for the blower max.



Ambient Temperature Display

It indicates the ambient temperature as 0.5 °C increment in the set temperature digit by ambient temperature sensor.

- When you push the AMB key it indicates the ambient temperature for 5 seconds and return back the set temperature.
- If you push the AMB key again during indicating in 5 seconds, it returns back.
- The ambient temperature sensor is securing in the front of radiator and may be influenced easily to the heat of the engine compartment in parking. Therefore the ambient temperature sensor indicates the ambient temperature accurately on the condition of above 40 km/h running.

Delivery Condition

For the initial installation (the initial current draw), the initial mode follows;

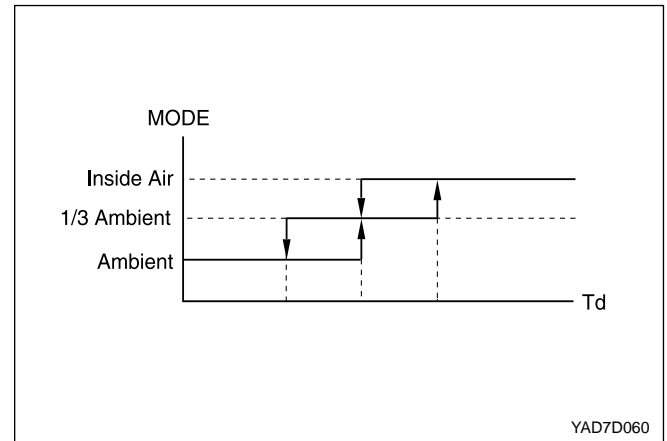
| Actuator | Mode | Suction Air | A/C | Blower | Mix |
|-----------|----------|-------------|-----|--------|------------------|
| Condition | FOOT/DEF | FRESH | OFF | OFF | Td Basic Control |

Vent inlet Control

Manual Control

When you push the I/A control switch, you can control the I/A door manually and the I/A door changes between the recirculation air and the fresh air flow alternately by the control switch. For changing the fresh air step (FRE) to the recirculation air step (REC), the blower voltage decrease 15% and for changing the recirculation air step (REC) to the fresh air step (FRE), the blower voltage return back.

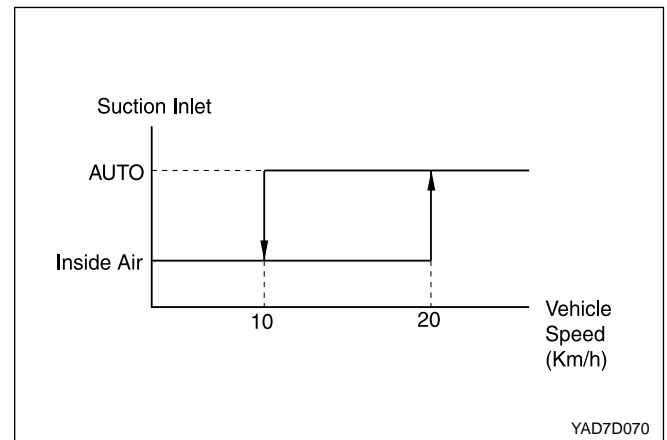
AUTO Control



Control by the Vehicle Speed

The system controls the vent inlet according to the vehicle speed in order to prevent the exhaust gas of the preceding vehicle from flowing inside with the vehicle stopping or driving at low speed. The operation and control condition is following as;

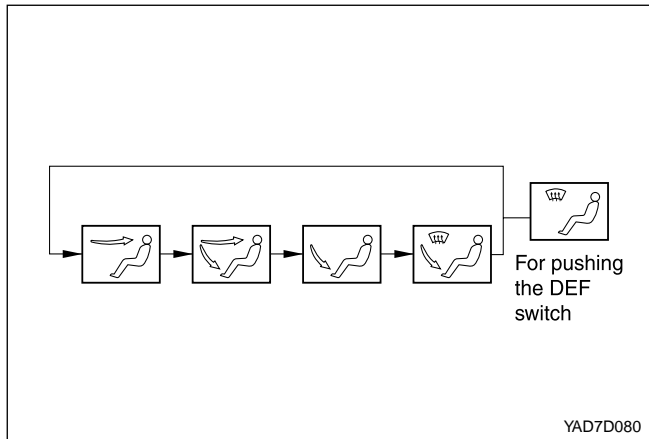
1. When the vent inlet mode is AUTO and the A/C "ON".
2. When the vehicle keeps to drive at below 10 km/h for 10 seconds and changes the REC mode at stop.
3. If 10 minutes passes after changing the REC mode, it returns back to the AUTO mode.



Vent outlet Control

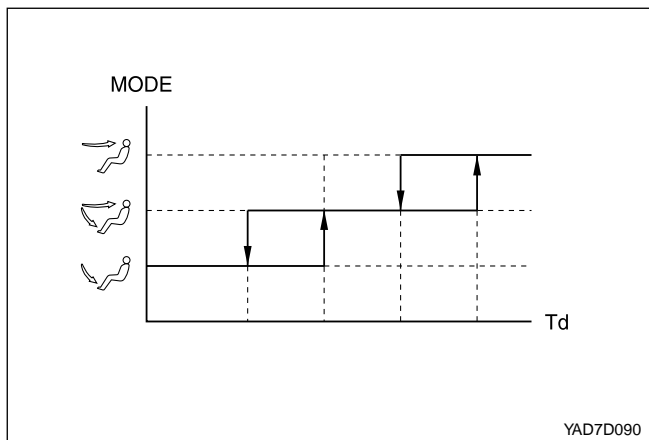
Manual Control

For pushing the mode switch of AUTO temperature control, you can select four type of the vent outlets.



When you push the Def switch, it keeps to change to the defroster mode regardless of the sequence.

AUTO Control



A/C Control

Manual Control

When you pushed the A/C switch "ON" or the Def switch "ON", A/C starts to operate.

AUTO Control

Basic Control: A/C "ON" has the priority for the initial operation.

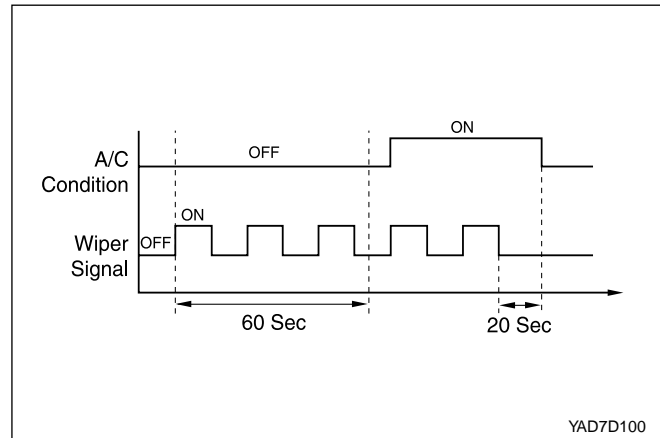
Full Cold/Hot Control

When you sets the set temperature to full cold (LO) or full hot (HI), the system controls the temperature to full cold or full hot regardless of sensor's detection. For LO, it becomes A/C "ON", front vent mode, recirculation air, max blower speed, air mix door close and for HI, A/C "OFF", floor vent mode, ambient mode, air mix door open.

Wiper Calibration Control

It is possible to generate the frost on the windshield in the rainy days. At this time, FATC controller allows the mode to change the AUTO defroster mode.

- Operation Condition: When the passenger operates the wiper on AUTO mode, the system controls the wiper on the A/C AUTO mode after sending the wiper signal and controlling the delay for 1 minutes.



FATC Controller Illumination Control

When the tail lamp is ON, ATC Controller illumination lamp turns on.

SYSTEM COMPONENTS - CONTROL

Controller Assembly

The operation of the A/C system is controlled by the switched on the control head. This console-mounted controller consist of control knobs and a vacuum fluorescent display (VFD) indicating the status of the control settings selected.

Sensors and Motors

- Inside air sensor, ambient sensor, coolant temperature and sun sensor
- Door mode motor, intake air control door motor, air mix door motor

Inside Air Sensor

Inside air sensor located in left side of full automatic temperature control (FATC) controller, is a sensor that detects the interior air temperature and a thermistor that decreases its resistance when temperature up and increases when temperature down. If there is open or short in the sensors, 25 °C (77 °F) will be substitute.

Inspection

When the inside air temperature sensor error displays, check the followings;

1. Remove the inside air temperature sensor and measure the resistance between the sensor connectors.
(approximately 2.2 K Ω at 25 °C) Replace the inside air temperature sensor when the resistance value is excessive low or high.
2. Replace the inside air temperature sensor for outside the specified value and check the followings for within the specified value;
3. Turn the ignition ON.
4. Measure the voltage between A13 and A16 terminal of the AUTO temperature control connector.
(approximately 2.2 V at 25 °C)
5. Verify the open circuit of the wiring harness when you can not measure the voltage value and replace the AUTO temperature control when it's normal.

Ambient Sensor

Ambient sensor is a thermistor (NTC resistance) that decreases its resistance when temperature up and increases when temperature down and it detects ambient air temperature. If there is open or short in the sensors, 25 °C (77 °F) will be substitute. The sensor is located in the left back side of front bumper.

Inspection

When the ambient temperature sensor error displays, check the followings;

1. Remove the ambient temperature sensor and then measure the resistance between the sensor connectors.
(approximately 2.2 K Ω at 25 °C) Replace the ambient temperature sensor when the resistance value is excessive low or high.
2. Replace the ambient temperature sensor for outside the specified value and check the followings for within the specified value;
3. Turn the ignition ON.
4. Measure the voltage between A13 and B8 terminal of the AUTO temperature control connector.
(approximately 2.2 V at 25 °C)
5. Verify the open circuit of the wiring harness when you can not measure the voltage value and replace the AUTO temperature control when it's normal.

Coolant Temperature Sensor

Coolant temperature sensor is a thermistor that decreases its resistance when temperature up and increases when temperature down. It detects coolant temperature to operate the blower speed at low when the coolant temperature is less than 50 °C (122 °F). If the coolant temperature sensor is open or short, 100 °C (212 °F) will be substitute.

Inspection

When the coolant temperature sensor error displays, check the followings;

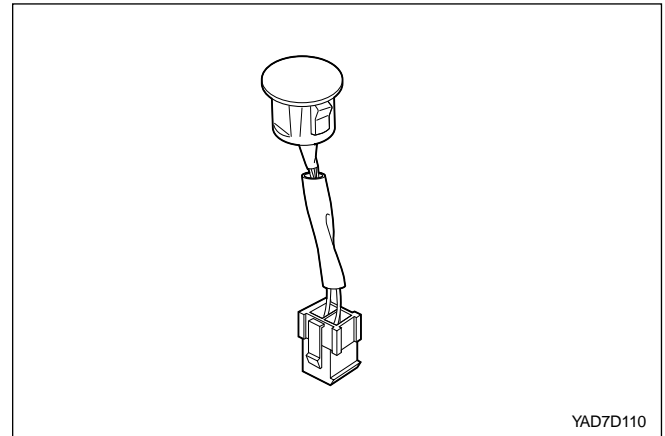
1. Measure the resistance between the sensor connectors. (approximately 2.2 K Ω at 25 °C)
2. Replace the coolant temperature sensor for outside the specified value and check the followings for within the specified value;
3. Turn the ignition ON.
4. Measure the voltage between A13 and B9 terminal of the AUTO temperature control connector.
(approximately 2.2 V at 25 °C)
5. Verify the open circuit of the wiring harness when you can not measure the voltage value and replace the AUTO temperature control when it's normal.

Sun Sensor

Sun sensor is a photo diode that detects lights. Resistance of the diode can be measured as current by using voltmeter according to increasing sun loads. If the sun sensor is error, no sun load will be substitute.

Photo Diode

It is used to the circuit converting the sun light loads to the electric signals.



Inspection

When the sun sensor error displays, check the followings;

1. Remove the sensor to place it under the sun light and measure the current between the connector terminals.
2. Place the sun sensor under the shadow place and measure the current between the connector terminals. If the value is lower than the value under the sun light, it's normal.
3. Turn the ignition ON.
4. Measure the voltage between A13 and B10 terminal of the AUTO temperature control connector. (Sun light; 2.5 V, Shadow; 4.8 V)
5. Verify the open circuit of the wiring harness when you can not measure the voltage value and replace the AUTO temperature control when it's normal.

Intake Control Door Motor

The mode motor set the I/A mode by the control signal of the AUTO temperature control.

When the mode displayed in the AUTO temperature control is different from the actual mode, check the followings;

- Turn the ignition ON.
- Measure the voltage between the (+) terminals at each mode and verify that changes from 0V before the mode selection to 12V after the mode selection.
- If the value is the specified value, check the open or short circuit.
- If the wiring is normal, replace the AUTO temperature control.
- If the voltage value is outside the specified value, replace the I/A mode motor.
- Check the motor operation connecting the (+) terminal to No.4 of the motor connector and connecting No.5 and No.7 to (-) terminal sequentially using 12 V power.

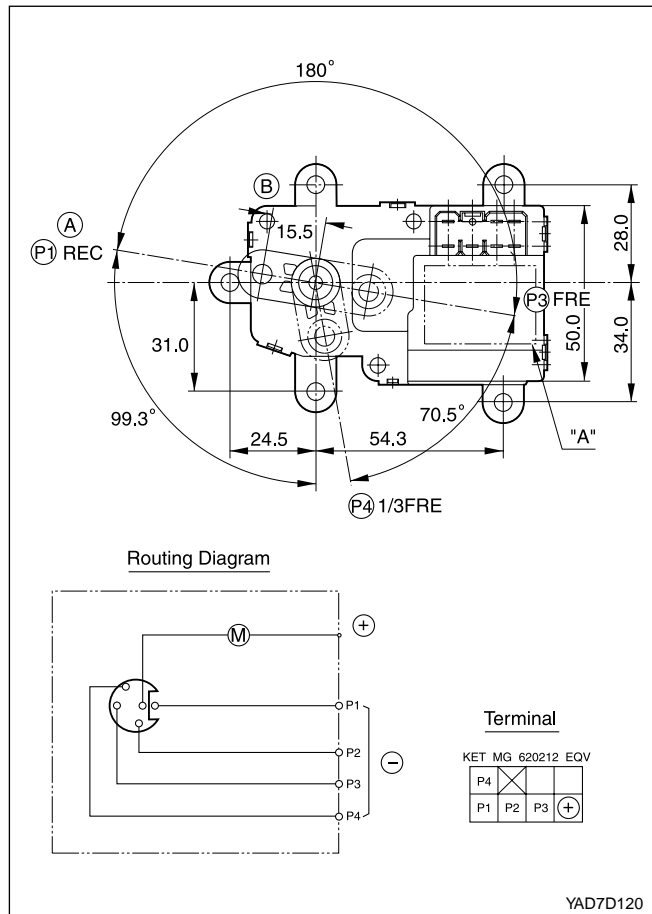
Inspection

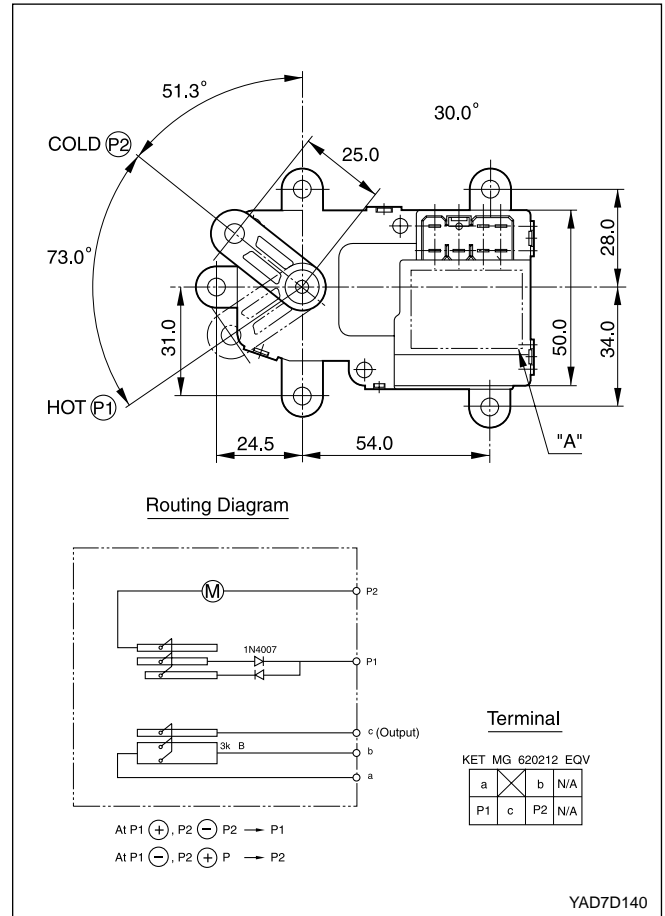
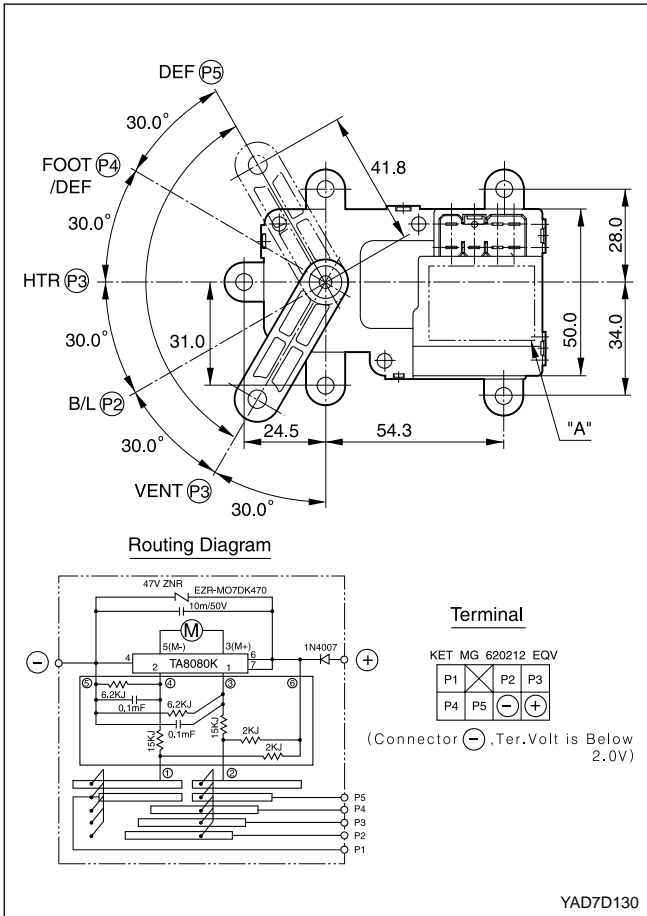
When the vent inlet mode displayed in the AUTO temperature control is different from the actual mode, check the followings;

1. Turn the ignition ON.
2. Measure the voltage between positive terminal and negative terminal of the Mtr-Act, AI connector. (Specified value; 12 V)
3. Measure the voltage between P1, P2, P3 and (+) terminal. (If it changes from 0V before the mode selection to 12 V after the mode selection, it's normal)
4. If the value is outside the specified value, check the open or short circuit.
5. If the wiring is normal, replace the AUTO temperature control.
6. If the value is the specified value, replace the Mtr-Act, AI.
7. Check the motor operation connecting the (+) terminal to No.4 of the motor connector and connecting No.5 and No.7 to (-) terminal sequentially using 12 V power.

Mode Control Motor

The control motor sets the mode of Vent, Bi-level, Foot, Foot/Def or Def by opening/closing the outlet damper at the outlet of Vent, Foot or Def according to control signal of the AUTO temperature control.





Inspection

When the vent inlet mode displayed in the AUTO temperature control is different from the actual mode, check the followings;

1. Turn the ignition ON.
2. Measure the voltage between P1 - P5 and (+) terminal. (If it changes from 0V before the mode selection to 12 V after the mode selection, it's normal)
3. If the value is outside the specified value, check the open or short circuit.
4. If the wiring is normal, replace the AUTO temperature control.
5. If the value is the specified value, replace the Mtr-Act, AI.
6. Check the motor operation connecting the (+) (-) terminal to the Mtr-Act mode and each terminal P1 - P5 to (-) terminal sequentially using 12 V power.

Air Mix Door Motor

The air mix door motor is located on left side of heater module. The air mix door motor controls the exhaust air temperature by the signal of the FATC.

Inspection

When the air mix door motor error displays, check the followings;

1. Turn the ignition ON.
2. Measure the voltage within P1, P2 terminals (specified value; 12 V) and a,b (specified value; 5).
3. If the value is outside the specified value, check the open or short circuit.
4. If the wiring is normal, replace the Mtr-Act, Temp.
5. If the (+) (-) terminal connects to P1 and P2 of the Mtr-Act, Temp alternately, the output by the each mode is following;

| AMD | Mode | Bc Resistance |
|------|----------------|---------------|
| Cool | P1 (-), P2 (+) | Below 300 Ω |
| Hot | P1 (+), P2 (-) | Above 2.4 KΩ |

Power Transistor

Power transistor controls the blower airflow and it receives the airflow control signal from the AUTO temperature control in order to for blower motor to shift the speed without step by adding the current to the power transistor basic current.

Inspection

When the power transistor error displays, check the followings.

1. Turn the ignition ON.
2. Measure the voltage between blower connectors by changing the step from 1st to 6th.
3. The voltage value by each step is the followings; (specified value; 0.5)
4. If the value is outside the specified value, check the open or short circuit.

| 1st | 2nd | 3rd | 4th | 5th | 6th |
|-------|-------|-------|-------|--------|---------|
| 4.5 V | 6.0 V | 7.5 V | 9.0 V | 11.0 V | RelayHi |

5. When there is no problem in the wiring harness, replace the power transistor.

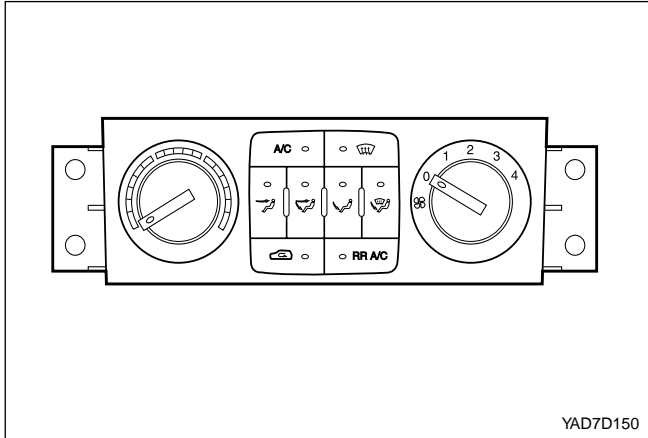
SPECIFICATIONS

| Component | | Description | |
|---------------------|-----------------------|-------------------------|---------|
| Compressor | Type | Variable Displacement | |
| | Model | V-5 Compressor | |
| | Displacement | 9.8 - 151 cc/rev | |
| | Max. RPM | 6,000 - 6,500 rpm | |
| Receiver-Drier | Material | AL R/DRIER | |
| | Capacity | 210 cc | |
| Refrigerant | Type | R-134a | |
| | Capacity | 750 ± 20 g | |
| Oil | Type | Synthetic PAG Oil | |
| | Capacity | 220 cc | |
| Condenser | Max. Capacity | 11,400 Kcal/h | |
| A/C Pressure Sensor | High (Gauge Pressure) | A/C ON | 305 psi |
| | | A/C OFF | 425 psi |
| | Low (Gauge Pressure) | A/C ON | 39 psi |
| | | A/C OFF | 30 psi |
| Blower Motor | Max. Capacity | 7,475 - 9,075 Kcal/h | |
| Heater Core | Fin Pitch | 1.52 mm | |
| | Size | 200.5 x 168.2 x 25.0 mm | |
| | Capacity | 8,250 Kcal/h | |

DIAGNOSTIC INFORMATION AND PROCEDURES

GENERAL DIAGNOSIS

The full automatic temperature control (FATC) air conditioning controller contains a self-diagnosis function to aid in finding any problem with the system.



If the FATC detects some errors it will blink the temperature display screen for 5 seconds when the ignition switch is ON.

When there are some errors in the automatic temperature control system without displaying the faulty code, perform the diagnostic test using the applicable table.

General A/C Diagnosis

Refer to Section 7B, Manual Control Heating, Ventilation, and Air Conditioning System for details of the following procedures:

- A/C Performance Test.
- Insufficient Cooling “Quick Check” Procedure.
- Insufficient Cooling Diagnosis.
- Leaking Testing the Refrigerant System.
- Low-and High-Side Pressure Relationship Chart.
- Pressure-Temperature Relationship of R-134a.
- Testing the refrigerant system.
- Pressure Test Chart (R-134a System).

INSUFFICIENT COOLING DIAGNOSIS

| Step | Action | Yes | No |
|------|---|---------------|---------------|
| 1 | <ol style="list-style-type: none"> 1. Check the A/C fuse. 2. Check the operation of the blower motor and cooling fan. 3. Check the accessory belt. 4. Check the A/C condenser for restricted air flow. 5. Check the engagement of the compressor clutch. 6. Check the discharge air temperature with the A/C turned ON. Are all above the operations normal? | System OK | Go to Step 2 |
| 2 | <ol style="list-style-type: none"> 1. Turn the ignition to LOCK. 2. Connect the high/low pressure gauges. Are both pressures within the specified value? | Go to Step 4 | Go to Step 3 |
| 3 | <ol style="list-style-type: none"> 1. If it's above the specified value, discharge the refrigerant. 2. If it's below the specified value, add 0.45 kg (1 pound) of the refrigerant and repair any leaks as needed. 3. Recover, evacuate and recharge the A/C system. Is the repair complete? | System OK | - |
| 4 | <ol style="list-style-type: none"> 1. Start the engine and allow it to run at idle. 2. Turn the A/C switch to ON. 3. Set the blower motor switch to 4th. 4. Set the temperature control lever to full cold. Does the A/C compressor clutch engage? | Go to Step 8 | Go to Step 5 |
| 5 | <ol style="list-style-type: none"> 1. Turn the ignition to LOCK. 2. Check the open or short in the compressor wiring. Is there any open or short in the wiring? | Go to Step 6 | Go to Step 7 |
| 6 | Repair the faulty wiring as needed. Is the repair complete? | System OK | - |
| 7 | Replace the compressor clutch coil. Is the replacement complete? | System OK | - |
| 8 | Check for a knocking noise from the A/C compressor. Cycle the A/C compressor ON and OFF in order to verify the source of the noise. Do you hear a loud knocking noise? | Go to Step 9 | Go to Step 10 |
| 9 | <ol style="list-style-type: none"> 1. Recover the A/C system refrigerant. 2. Replace the A/C compressor. 3. Evacuate and recharge the A/C system. 4. Check the A/C system for leaks. Is the compressor running normally? | System OK | - |
| 10 | <ol style="list-style-type: none"> 1. Close all of the windows and doors. 2. Set the A/C switch to ON position. 3. Set the intake air control switch to "Fresh Air". 4. Set the blower motor switch to 4th. 5. Set the temperature control switch to full cold. 6. Keep it to run at idle for 5 minutes. 7. Check the temperature at the inlet/outlet of the evaporator. Is there a noticeable difference in the temperature of the evaporator inlet/outlet pipes? | Go to Step 11 | Go to Step 13 |

Insufficient Cooling Diagnosis (Cont'd)

| Step | Action | Yes | No |
|------|---|---------------|---------------|
| 11 | 1. Recover the A/C system refrigerant. 2. Replace the expansion valve as needed. 3. Evacuate and recharge the A/C system. 4. Check the A/C system for leaks. 5. Operate the A/C system. Is the discharge temperature normal? | Go to Step 13 | Go to Step 12 |
| 12 | 1. Recover the refrigerant of the A/C system. 2. Evacuate and recharge the A/C system. 3. Check the A/C system for leaks. Does the A/C system operate normally? | System OK | - |
| 13 | Feel the liquid pipe between the condenser and the expansion valve. Is the pipe cold? | Go to Step 15 | Go to Step 14 |
| 14 | 1. Repair any restriction in high pressure side. 2. Check the A/C system for leaks. Does the A/C system operate normally? | System OK | - |
| 15 | 1. Run the engine at 3,000 rpm. 2. Close all of the windows and doors. 3. Set the A/C switch to ON. 4. Set the blower motor switch to 4th. 5. Set the temperature control switch to full cold. 6. Turn the A/C switch ON and OFF every 20 seconds for 3 minutes. 7. Measure the compressor high and low pressure. Are both pressures within the specified value? | Go to Step 17 | Go to Step 16 |
| 16 | Add the specified amount of the refrigerant to the A/C system. Is the amount within the specified value? | System OK | - |
| 17 | 1. Turn the ignition to LOCK. 2. Set the A/C switch to OFF position. Can you turn the compressor clutch freely by hand? | Go to Step 18 | Go to Step 19 |
| 18 | 1. Check the A/C system for leaks. 2. Repair any leaks as needed. 3. Evacuate and recharge the A/C system. Does the A/C system operate normally? | System OK | - |
| 19 | 1. Recover the refrigerant of the A/C system. 2. Evacuate and recharge the A/C system. 3. Check the A/C system for leaks. 4. Replace the compressor as needed. Is the repair complete? | System OK | - |

FULL AUTOMATIC TEMPERATURE CONTROL (FATC) DOES NOT OPERATE WHEN THE IGNITION IS ON

| Step | Action | Yes | No |
|------|---|----------------------------|--------------|
| 1 | Check the fuse F18. Are the fuses blown? | Go to Step 3 | Go to Step 2 |
| 2 | Replace the fuse. Is the repair complete? | System OK | - |
| 3 | 1. Remove the controller with connecting ATC wiring connector. 2. Turn the ignition switch to ON. 3. Measure the voltage between terminal A1 and A5 of the connectors Is the voltage within specified value? | Go to Step 15 11 - 14 V | Go to Step 4 |
| 4 | Replace the controller. Is the repair complete? | System OK | - |
| 5 | Measure the voltage between terminal A5 of the connector and ground. Is the voltage within specified value? | Go to Step 6 | Go to Step 7 |
| 6 | Repair the faulty circuit between fuse F18 and terminal A5 of the ATC wiring connector. Is the repair complete? | System OK | - |
| 7 | Repair the faulty circuit between the ground G203 and terminal A1 of the ATC wiring connector. Is the repair complete? | System OK | - |

CONTROLLER DOES NOT ILLUMINATE WHEN LIGHT SWITCH IS ON

| Step | Action | Yes | No |
|------|--|-----------------------------|--------------|
| 1 | 1. Remove the controller with connecting ATC wiring connector. 2. Turn the ignition switch to ON. 3. Measure the voltage between terminal A4 and A3 of the controller. Is the voltage within the specified value? | Go to Step 3 11 V - 14 V | Go to Step 2 |
| 2 | Repair the wiring harness between splice S206 and terminal A3 of the controller connector or between splice S206 and terminal A4 of the controller connector. Is the repair complete? | System OK | - |
| 3 | Check the illumination bulb. Is the bulb burned out? | Go to Step 4 | Go to Step 5 |
| 4 | Check the illumination bulb. Is the repair complete? | System OK | - |
| 5 | Replace the controller. Is the repair complete? | System OK | - |

NO HOT AIR FROM BLOWER

| Step | Action | Yes | No |
|------|---|---------------|--|
| 1 | Check the coolant level. Is the coolant level within the specified value? | Go to Step 3 | Go to Step 2 |
| 2 | Add coolant as needed. Is the repair complete? | System OK | - |
| 3 | 1. Turn the ignition to ON. 2. Observe the temperature indication screen of the controller. Does the digit flash? | Go to Step 6 | Go to Step 4 |
| 4 | Observe the blower motor operation. Is the blower motor functioning at all? | Go to Step 5 | Go to "Blower Motor Does Not Run At All" |
| 5 | Use the blower push switch to cycle the blower through its different speeds. Does the motor function at different speeds? | Go to Step 7 | Go to "the Applicable Diagnostic Table" |
| 6 | Run a self diagnosis circuit check. Does the display indicate a defect code? | Go to Step 7 | Go to "the Applicable Diagnostic Table" |
| 7 | Check the airflow of the ducts at each mode. Is the airflow normal? | Go to Step 9 | Go to Step 8 |
| 8 | Check inside the heater duct for obstructions and repair as needed. Is the repair complete? | System OK | - |
| 9 | Observe the air mix door motor while changing the temperature setting from LO to HI and then from HI to LO. Is the air mix door actuator functioning properly? | Go to Step 10 | Go to "the Applicable Diagnostic Table" |
| 10 | Check the coolant hoses for leaks or kinks. Are the coolant hoses in good condition? | Go to Step 12 | Go to Step 11 |
| 11 | Replace the coolant hoses. Is the repair complete? | System OK | - |
| 12 | Check the coolant reservoir cap. Is the coolant tank cap in hood condition? | Go to Step 14 | Go to Step 13 |
| 13 | Replace the coolant reservoir cap. Is the repair complete? | System OK | - |
| 14 | 1. Turn the A/C switch to ON. 2. Set the temperature control to full hot (HI). 3. Set the blower motor speed to full high. 4. Remove the coolant reservoir cap (all segments illuminated on the display). 5. Start the vehicle and run the engine at idles. 6. Watch for the flow of the coolant when the thermostat opens. Does the coolant flow normally? | Go to Step 16 | Go to Step 15 |
| 15 | 1. Check for <ul style="list-style-type: none"> • faulty thermostat. • failed coolant pump impeller. • restriction in the cooling system. 2. Make repairs, as needed. Is the repair complete? | System OK | - |

No Hot Air From Blower (Cont'd)

| Step | Action | Yes | No |
|------|---|---------------|---------------|
| 16 | Check the temperature of the heater inlet and outlet hoses by feel. Is the heater inlet hose hot and the outlet hose warm? | Go to Step 18 | Go to Step 17 |
| 17 | Back flush or replace the heater core. Is the repair complete? | System OK | - |
| 18 | Check the vehicle for cold air leaks the <ul style="list-style-type: none"> • Dash. • Heater cases. • Vents. Are any leaks found? | Go to Step 20 | Go to Step 19 |
| 19 | Repair any cold air leaks. Is the repair complete? | System OK | - |
| 20 | Check the coolant temperature sensor using the tests in "DTC Coolant Temperature Sensor Error." Is there a problem indicated in the sensor, the sensor wiring or the controller? | Go to Step 21 | Go to Step 22 |
| 21 | Repair, or replace the sensor, the wiring, or the controller as required. Is the repair complete? | System OK | - |
| 22 | Replace the controller. Is the repair complete? | System OK | - |

BLOWER MOTOR DOES NOT RUN AT ALL

| Step | Action | Yes | No |
|------|---|---|---------------|
| 1 | 1. Turn the ignition switch to ON. 2. Observe the temperature indication screen of the controller. Dose the digit on and off? | Go to "the Applicable Diagnostic Table" | Go to Step 2 |
| 2 | Check the fuses. Are the fuses blown? | Go to Step 3 | Go to Step 4 |
| 3 | Replace the fuse. Is the repair complete? | System OK | - |
| 4 | 1. Turn the ignition switch to ON. 2. Measure the voltage between ground and terminal 87 of blower relay. Is the voltage within the specified value? | Go to Step 7 11 - 14 V | Go to Step 5 |
| 5 | 1. Measure the voltage between ground and terminal 86 of blower relay. Is the voltage within the specified value? | Go to Step 9 11 - 14 V | Go to Step 6 |
| 6 | 1. Check the circuit between terminal 86 of the blower relay and fuse SB7 in the I/P fuse block. 2. Repair any problem found in the wiring or terminals at the relay socket or connectors. Is the repair complete? | System OK | - |
| 7 | 1. Turn the ignition to OFF. 2. Disconnect the wiring connector of the blower motor. 3. Turn the ignition to ON. 4. Measure voltage between the wiring connector of the blower motor and ground. Is the voltage within the specified value? | Go to Step 11 11 - 14 V | Go to Step 10 |

Blower Motor Does Not Run At All (Cont'd)

| Step | Action | Yes | No |
|------|--|---------------------------|---------------|
| 8 | Repair the faulty circuit between the wiring connector of the blower relay, wiring, blower motor, connector C203, C107. Is the repair complete? | System OK | - |
| 9 | Measure voltage between terminal 30 of the blower relay and ground. Is the voltage within the specified value? | Go to Step 9 11 - 14 V | Go to Step 10 |
| 10 | 1. Repair the circuit between terminal 86 of the blower relay and fuse SB7 in the I/P fuse block. 2. Repair the wiring connector of the blower relay, wiring, blower motor, connector C203, C107. Is the repair complete? | System OK | - |
| 11 | 1. Turn the ignition switch to OFF. 2. Using an ohmmeter, measure the resistance between terminal 85 of the blower relay and ground. Does the measured resistance indicate 0 Ω ? | Go to Step 13 | Go to Step 12 |
| 12 | Repair the faulty circuit between terminal 85 of the blower relay, C104 and ground G101. Is the repair complete? | System OK | - |
| 13 | Replace the blower motor relay. Is the repair complete? | System OK | - |
| 14 | Measure the resistance of the blower motor. Does the measured resistance indicate 0.5 Ω ? | Go to Step 15 | Go to Step 16 |
| 15 | Replace the blower motor. Is the repair complete? | System OK | - |
| 16 | Measure the open or short of the circuit between terminal 1 of the blower connector and terminal 30 of the blower high relay and terminal 6 of the power transistor. Is there any open or short circuit? | Go to Step 17 | Go to Step 18 |
| 17 | Repair the problem in the circuit. Is the repair complete? | System OK | - |
| 18 | Measure the resistance of the circuit from terminal 3 of the power transistor connector and ground. Does the measured resistance indicate 0 Ω ? | Go to Step 19 | Go to Step 20 |
| 19 | Replace the controller. Is the repair complete? | System OK | - |
| 20 | 1. Repair the faulty circuit from terminal 3 of the power transistor connector and terminal 87 of the high blower relay to ground. 2. Repair the faulty in the wiring, connector, C109, C209, C104 or ground G104. Is the repair complete? | System OK | - |

NO COOL AIR FROM BLOWER

| Step | Action | Yes | No |
|-------------|---|---|--|
| 1 | 1. Turn the ignition switch to ON. 2. Observe the temperature indication screen of the controller. Does the digit flash? | Go to Step 2 | Go to Step 3 |
| 2 | Run a self-diagnosis circuit check. Does the display indicate a defect code? | Go to "the Applicable Diagnostic Table" | Go to Step 4 |
| 3 | Observe the blower motor operation. Is the blower motor functioning at all? | Go to Step 4 | Go to "Blower Motor Does Not Run At All" |
| 4 | Use the blower push switch to cycle the blower through its different speeds. Does the motor function at different speeds? | Go to Step 5 | Go to "the Applicable Diagnostic Table" |
| 5 | Check the airflow of the ducts at each mode. Is the airflow normal? | Go to Step 8 | Go to Step 6 |
| 6 | Check inside the heater duct for obstructions and repair as needed. Is the repair complete? | System OK | - |
| 7 | Observe the air mix door motor while changing the temperature setting from LO to HI and then from HI to LO. Is the air mix door actuator functioning properly? | Go to Step 8 | Go to "the Applicable Diagnostic Table" |
| 8 | Perform the checks found in "Insufficient Cooling Diagnosis." Is the system operating normally now? | System OK | Go to Step 9 |
| 9 | Place the controller in the AUTO mode. Is smoke taken into the intake port of the inside air sensor? | Go to Step 11 | Go to Step 10 |
| 10 | Replace the intake hose. Is the repair complete? | System OK | - |
| 11 | Check the each sensor and sensor wiring using the Diagnostic Table. Is there a problem indicated in the sensor, the sensor wiring or the controller? | Go to Step 12 | Go to Step 13 |
| 12 | Repair, or replace the sensor, the wiring, or the controller as required. Is the repair complete? | System OK | - |
| 13 | Replace the controller. Is the repair complete? | System OK | - |

MODE CONTROLS DOES NOT WORK

| Step | Action | Yes | No |
|------|--|---------------------------|---------------|
| 1 | Measure the voltage between terminal 4 of the blower motor and mode door motor ground. Is the voltage within the specified value? | Go to Step 3 11 - 14 V | Go to Step 17 |
| 2 | Repair the connector and the circuit for any wiring or terminal problems. Is the repair complete? | System OK | - |
| 3 | 1. Using the Motor Control Table, measure the voltages at the specified terminals of the specified motor connectors. 2. Change the mode settings and observe the voltage changes. Is the voltage within the specified value? | Go to Step 5 | Go to Step 4 |
| 4 | Repair or replace the wiring harness or the defective terminal. Is the repair complete? | System OK | - |
| 5 | 1. Measure the voltages of the connector terminal. 2. Change the mode settings and observe the voltage changes. Is the voltage within the specified value? | Go to Step 7 | Go to Step 6 |
| 6 | Replace the fuel filter or the fuel line. | System OK | - |
| 7 | Check the connector at the controller. Is there a defective terminal? | Go to Step 8 | Go to Step 9 |
| 8 | Repair the terminal and replace as needed. Is the repair complete? | System OK | - |
| 9 | Replace the controller. Is the repair complete? | System OK | - |

MODE CONTROLS DOES NOT WORK

| Step | Action | Yes | No |
|------|--|---------------------------|--------------|
| 1 | Measure the voltage between terminal 4 of the intake control door motor and ground. Is the voltage within the specified value? | Go to Step 3 11 - 14 V | Go to Step 2 |
| 2 | Repair the connector and the circuit for any wiring or terminal problems. Is the repair complete? | System OK | - |
| 3 | 1. Measure the voltages at the specified terminals of the specified motor connectors. 2. Change the mode settings and observe the voltage changes Is the voltage within the specified value? | Go to Step 5 | Go to Step 4 |
| 4 | 1. Repair the wiring harness or the defective terminal. 2. Replace the fuel filter or the fuel line as needed. Is the repair complete? | System OK | - |
| 5 | Check the connector at the controller. Is there a defective terminal? | Go to Step 6 | Go to Step 7 |
| 6 | Repair the terminal and replace as needed. Is the repair complete? | System OK | - |
| 7 | Replace the controller. Is the repair complete? | System OK | - |

ABNORMAL REFRIGERANT PRESSURE

| Step | Action | Yes | No |
|------|--|---------------|--------------|
| 1 | <ol style="list-style-type: none"> 1. Verify whether airflow and excessive refrigerant. 2. Check any restriction at the condenser or radiator. 3. Check the condenser or cooling fan for proper operation. 4. Check any restriction of the refrigerant lines. Is the high-side refrigerant pressure high abnormally? | Go to Step 2 | Go to Step 3 |
| 2 | <ol style="list-style-type: none"> 1. Recover, evacuate and recharge the A/C system according to the specified value. 2. Clean the condenser or radiator core. 3. Check the voltage, rpm, direction of the cooling fan. 4. Repair or replace the applicable parts as needed. Is the high-side pressure within the specified value? | System OK | - |
| 3 | <ol style="list-style-type: none"> 1. Check the amount of the refrigerant. 2. Check the internal faulty of the compressor. 3. Check the faulty of the expansion valve. 4. Check the moisture mix into the system. Is the high-side refrigerant pressure low abnormally? | Go to Step 4 | Go to Step 5 |
| 4 | <ol style="list-style-type: none"> 1. Replace the compressor and the expansion valve as needed. 2. Recover, evacuate and recharge the A/C system according to the specified value. 3. Repair any leaks as needed. Is the repair complete? | System OK | - |
| 5 | <ol style="list-style-type: none"> 1. Check the freezing/clogging of the expansion valve 2. Check the clogging of the receiver-drier. 3. Check the amount of the refrigerant. Is the low-side refrigerant pressure low abnormally? | Go to Step 6 | Go to Step 7 |
| 6 | <ol style="list-style-type: none"> 1. Clean the expansion valve and replace it as needed. 2. Replace the receiver-drier as needed. Is the repair complete? | System OK | - |
| 7 | <ol style="list-style-type: none"> 1. Check the expansion valve and the compressor for any faulty. 2. Check the excessive amount of the refrigerant. Is the low-side refrigerant pressure high abnormally? | Go to Step 8 | Go to Step 9 |
| 8 | <ol style="list-style-type: none"> 1. Replace the expansion valve and the compressor as needed. 2. Add the specified amount of the refrigerant. Is the repair complete? | System OK | - |
| 9 | <ol style="list-style-type: none"> 1. Check the tightening condition of the refrigerant line coupling and bolts. 2. Check the faulty O-ring. 3. Check the faulty gasket or seal of the compressor. Is there any refrigerant leak? | Go to Step 10 | System OK |
| 10 | <ol style="list-style-type: none"> 1. Tighten the bolts. 2. Replace the faulty O-ring. 3. Replace the faulty compressor. Is the repair complete? | System OK | - |

COMPRESSOR MAGNETIC CLUTCH DOES NOT ENGAGE

| Step | Action | Yes | No |
|------|---|--|--------------|
| 1 | 1. Remove the controller with connecting the connector. 2. Turn the ignition switch to ON. 3. Set the A/C switch to ON. 4. Measure the voltage between the controller connector A12 (or all for GSL) and the ground. Is the voltage within the specified value? | Go to "Insufficient Cooling Diagnosis" 11 - 14 V | Go to Step 2 |
| 2 | Replace the defective motor. Is the repair complete? | System OK | - |

INSIDE AIR TEMPERATURE SENSOR ERROR

| Step | Action | Yes | No |
|------|---|--------------|--------------|
| 1 | 1. Put the smoke of the cigarette near the air inlet and verify that the smoke come into the air inlet properly. 2. Remove the controller with connecting the connector. 3. Turn the ignition switch to ON. 4. Measure the voltage between the connector terminals of the inside air sensor. Does the measured voltage indicate 2 - 3 V at 25 °C? | Go to Step 3 | Go to Step 2 |
| 2 | Repair the open or short of the wiring harness. Is the repair complete? | System OK | - |
| 3 | 1. Remove the inside air temperature sensor. 2. Measure the resistance between the inside air sensor connector terminals. Does the measured resistance indicate 2.2 kΩ at 25 °C? | Go to Step 5 | Go to Step 4 |
| 4 | Replace the inside air sensor. Is the repair complete? | System OK | - |
| 5 | Replace the controller. Is the repair complete? | System OK | - |

AMBIENT AIR TEMPERATURE SENSOR ERROR

| Step | Action | Yes | No |
|------|--|--------------|--------------|
| 1 | 1. Remove the ambient air temperature sensor. 2. Measure the resistance between the ambient air temperature sensor connector terminals. Does the measured resistance indicate 2.2 kΩ at 25 °C? | Go to Step 3 | Go to Step 2 |
| 2 | Replace the ambient air temperature sensor. Is the repair complete? | System OK | - |
| 3 | 1. Remove the controller with connecting the connector. 2. Turn the ignition switch to ON. 3. Measure the voltage between terminal B8 and connector A13. Does the measured voltage indicate 2.2 V at 25 °C? | Go to Step 5 | Go to Step 4 |
| 4 | Repair the open or short of the wiring harness. Is the repair complete? | System OK | - |
| 5 | Replace the controller. Is the repair complete? | System OK | - |

COOLANT TEMPERATURE SENSOR ERROR

| Step | Action | Yes | No |
|------|---|--------------|--------------|
| 1 | 1. Disconnect the coolant temperature sensor connector from the FATC harness. 2. Measure the resistance between the coolant temperature sensor connector terminals.. Does the measured resistance indicate 2.2 kΩ at 25 °C? | Go to Step 3 | Go to Step 2 |
| 2 | Replace the coolant temperature sensor. Is the repair complete? | System OK | - |
| 3 | 1. Remove the controller with connecting the connector. 2. Turn the ignition switch to ON. 3. Measure the voltage between terminal B9 and connector A13. Does the measured voltage indicate 2.2 V at 25 °C? | Go to Step 5 | Go to Step 4 |
| 4 | Repair the open or short of the wiring harness. Is the repair complete? | System OK | - |
| 5 | Replace the controller. Is the repair complete? | System OK | - |

AIR MIX DOOR ERROR

| Step | Action | Yes | No |
|------|---|---|---------------|
| 1 | 1. Disconnect the I/P wiring harness connector form the air mix door motor. 2. Use an ohmmeter to measure the resistance between terminals 5 and 7 on the air mix door motor. Is the resistance within the specified value? | Go to step 3 open : ∞ short : 0 Ω | Go to Step 2 |
| 2 | Replace the air mix door motor. Is the repair complete? | System OK | - |
| 3 | Use an ohmmeter to measure the resistance between terminals 2 and 3 on the air mix door motor. Does the measured resistance indicate approximately 3 kΩ? | Go to Step 5 | Go to Step 4 |
| 4 | Replace the air mix door motor. Is the repair complete? | System OK | - |
| 5 | Use an ohmmeter to measure the resistance between terminals 6 and 3, 6 and 2 on the air mix door motor. Does the measured resistance indicate approximately 3 kΩ? | Go to Step 7 | Go to Step 6 |
| 6 | Replace the air mix door motor. Is the repair complete? | System OK | - |
| 7 | Check the connector terminals at the air mix door motor and the wiring in the FATC harness. Is there a problem with any terminal on either the harness connector or the motor connector or the wiring? | Go to Step 9 | Go to Step 8 |
| 8 | 1. Remove the FATC controller from the instrument panel. 2. Disconnect the harness connectors of the controller. 3. Examine the connector terminals on the harness connectors and the controller connectors and the harness wiring. Is there a problem with any of these connectors or the wiring? | Go to Step 9 | Go to Step 10 |
| 9 | Repair the problem found with a connector terminal or wiring. Is the repair complete? | System OK | - |

Air Mix Door Error (Cont'd)

| Step | Action | Yes | No |
|------|--|--------------------------|---------------|
| 10 | Check continuity in the harness between the controller connectors and the air mix door motor connector. Is there a problem with the wiring? | Go to Step 11 | Go to Step 12 |
| 11 | Repair the problem found with the wiring and replace as needed. Is the repair complete? | System OK | - |
| 12 | 1. Reconnect the FATC harness connectors to the controller. 2. Reconnect the air mix door motor to the FATC harness. 3. Turn the ignition to ON. 4. Measure the voltage between ground and terminal B5 at the controller by backprobing the connector. Is the voltage within the specified value? | Go to Step 14 0 - 5 V | Go to Step 13 |
| 13 | Repair the problem found between the controller connector wiring and air mix door connector wiring. Is the repair complete? | System OK | - |
| 14 | 1. Set the temperature controller to LO. 2. Measure the voltage between ground and terminal A15 at the controller by backprobing the connector. (Specified voltage : 12 V) 3. Raise the temperature setting on the controller to HI and measure the voltage. (Turn to 0V) 4. Measure the voltage between ground and terminal A9 at the controller. (Specified voltage : 12 V) 5. Change the temperature setting on the controller to LO and measure the voltage. (0 V) Is the voltage within the specified value? | Go to Step 15 | Go to Step 17 |
| 15 | Recheck all wiring circuits between the controller and the air mix door motor with changing the temperature setting. Does the air mix door operate normally? | System OK | Go to Step 6 |
| 16 | Replace the air mix door motor. Is the repair complete? | System OK | - |
| 17 | Recheck all wiring circuits between the controller and the air mix door motor. Is there a problem in the wiring or the connectors? | Go to Step 18 | Go to Step 19 |
| 18 | Repair the problem in the wiring between the FATC controller and the air mix door motor. Is the repair complete? | System OK | - |
| 19 | Recheck the air mix door motor. Is there a problem in the air mix door motor? | Go to Step 16 | Go to Step 21 |
| 20 | Replace the air mix door motor. Is the repair complete? | System OK | - |
| 21 | 1. Install the components. 2. Perform the diagnostic test of the controller. Does the DTC reset? | Go to Step 16 | System OK |

SUN SENSOR ERROR

| Step | Action | Yes | No |
|------|--|--------------|--------------|
| 1 | 1. Disconnect the Sun sensor connector. 2. Place the sun sensor under the sun light and measure the current between the connector terminals. 3. Place the sun sensor under the shadow place and measure the current between the connector terminals. Is the measured current lower at the shadow place? | Go to Step 3 | Go to Step 2 |
| 2 | replace the sun sensor. Is the repair complete? | System OK | - |
| 3 | 1. Remove the controller with connecting the connectors. 2. Turn the ignition switch to ON. 3. Measure the voltage terminal A13 and B10 by backprobing the connectors. (Sun light: 2.5 V, Shadow: 4.8 V) Is the voltage equal to the specified value? | Go to Step 5 | Go to Step 4 |
| 4 | Repair open or short circuit. Is the repair complete? | System OK | - |
| 5 | Replace the FATC controller. Is the repair complete? | System OK | - |

POWER TRANSISTOR ERROR

| Step | Action | Yes | No |
|------|--|--------------|--------------|
| 1 | 1. Remove the controller and disconnect the controller connector. 2. Disconnect power transistor connector. 3. Examine the open or short circuit between controller connector and power transistor connector. Is there a problem in the wiring or the connectors? | Go to Step 2 | Go to Step 3 |
| 2 | Repair the faulty wiring and replace as needed. Is the repair complete? | System OK | - |
| 3 | 1. Reconnect power transistor connector and FATC connectors. 2. Turn the ignition switch to ON. 3. Measure the voltage between ground and terminal B12 of the FATC controller while changing the blower speed from 1 to 6 manually. 1st : 4.5 V 4th : 9.0 V 2rd : 6.0 V 5th : 11.0 V 3th : 7.5 V 6th : 12.5 V Is the resistance equal to the specified value? | Go to Step 5 | Go to Step 4 |
| 4 | Replace the power transistor. Is the repair complete? | System OK | - |
| 5 | Replace the FATC controller. Is the repair complete? | System OK | - |

MAX-HIGH RELAY ERROR

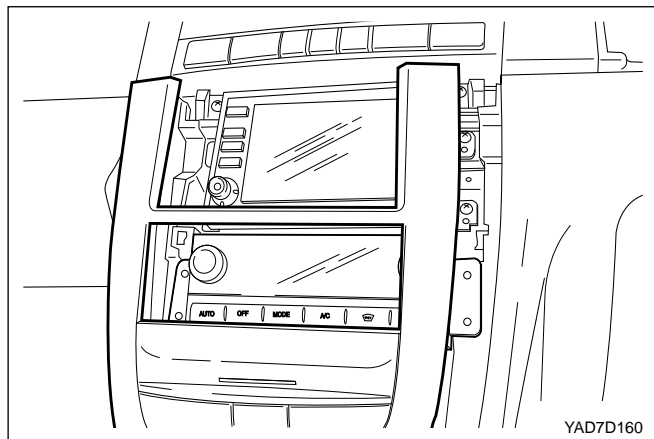
| Step | Action | Yes | No |
|-------------|---|--------------|--------------|
| 1 | 1. Remove the controller with connecting the connectors. 2. Turn the ignition switch to ON. 3. Set the blower speed for 5th speed manually. 4. Measure the voltage at terminal A10 and ground. Does the measured voltage indicate 0V? | Go to Step 3 | Go to Step 2 |
| 2 | Replace the FATC controller. Is the repair complete? | System OK | - |
| 3 | 1. Check the wiring harness associated with blower high relay and terminals. 2. Repair any defects found. 3. Install the component. Is DTC retrieved as a current DTC? | Go to Step 4 | System OK |
| 4 | Replace blower high relay. Is the repair complete? | System OK | - |

REPAIR INSTRUCTIONS

ON-VEHICLE SERVICE

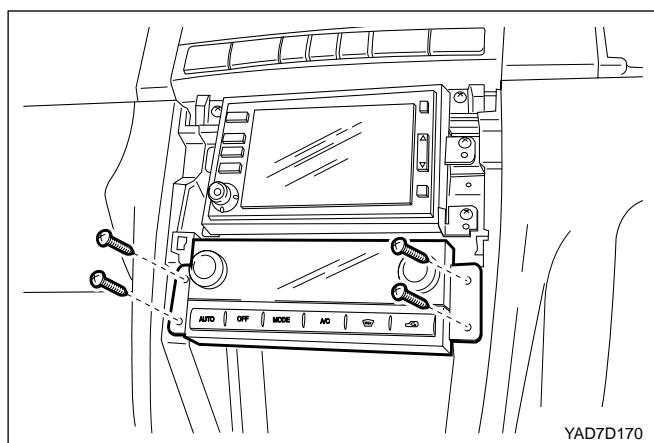
CONTROL SWITCH ASSEMBLY

1. Remove the center instrument panel.



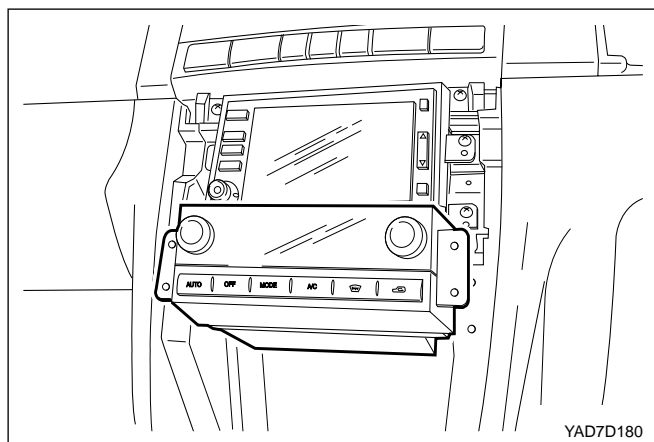
YAD7D160

2. Remove the four screws securing the control switch assembly.

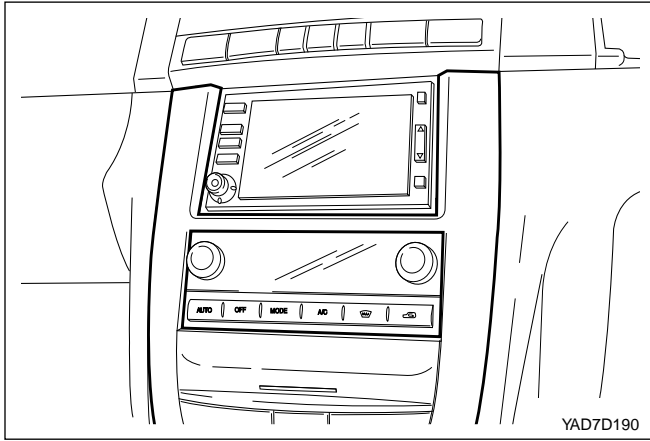


YAD7D170

3. Remove the control switch assembly from the instrument panel.

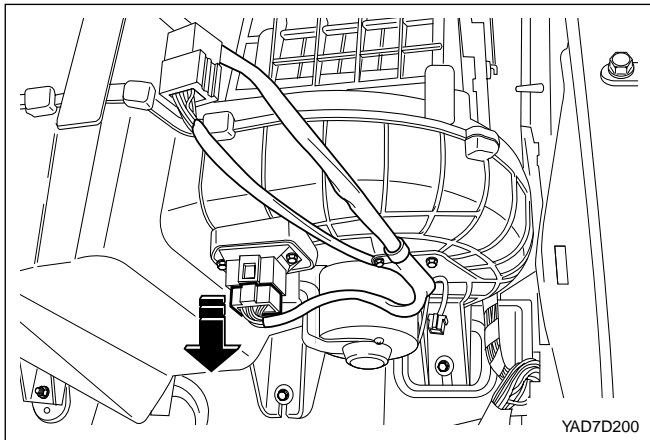


YAD7D180



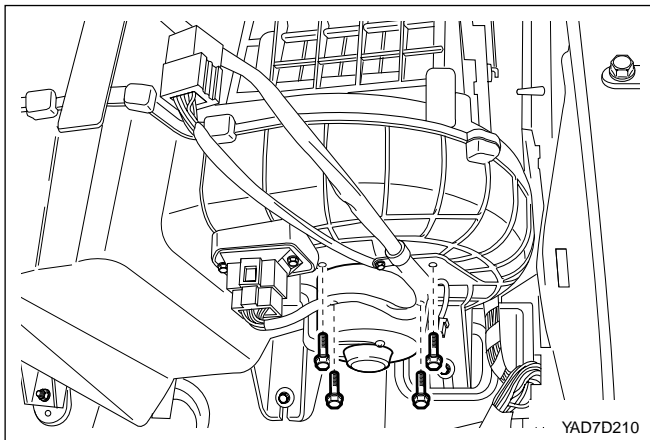
4. Installation should follow the removal procedure in the reverse order.

Notice: Insert the connectors to the switch and then assemble the control switch completely.

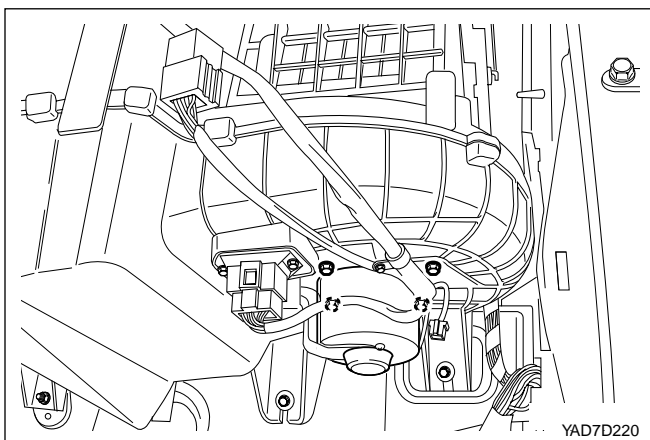


BLOWER MOTOR

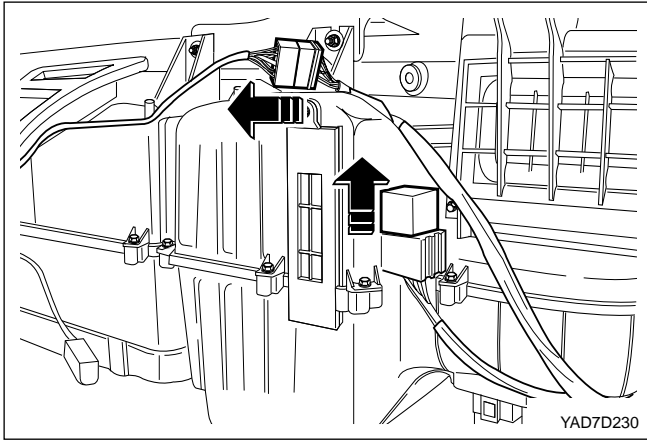
1. Remove the glove box and put the floor mat aside.
2. Disconnect the connectors connecting the blower motor.



3. Remove four bolts securing the blower motor and remove the motor assembly.

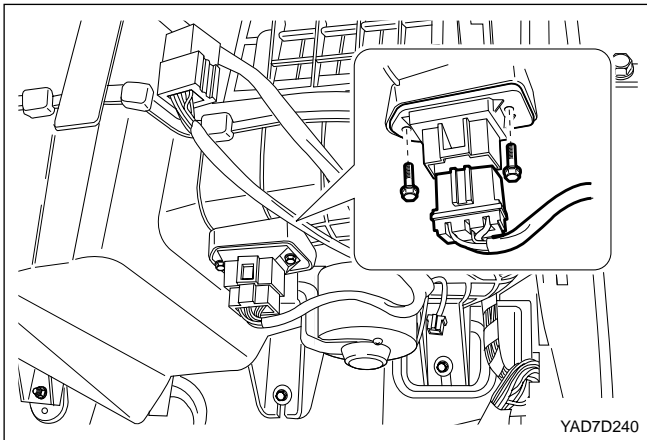


4. Installation should follow the removal procedure in the reverse order.



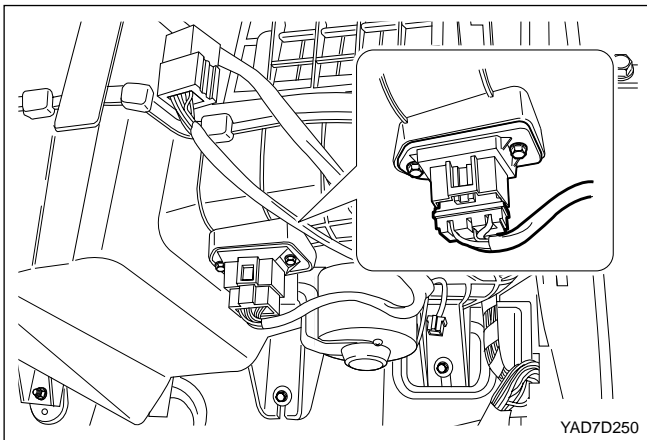
HIGH BLOWER RELAY

1. Remove the high relay connector of the blower motor.
2. Remove the bolt securing the high relay.
3. Installation should follow the removal procedure in the reverse order.



BLOWER MOTOR RESISTANCE (POWER TRANSISTOR)

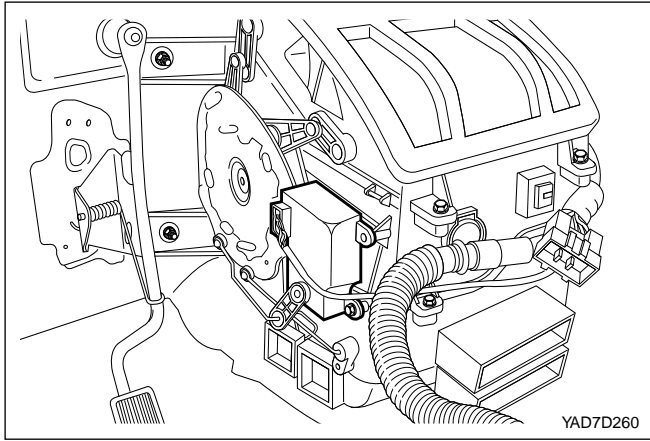
1. Remove the connector of the power transistor.
2. Remove two bolts securing the power transistor.
3. Remove the power transistor assembly.



4. Installation should follow the removal procedure in the reverse order.

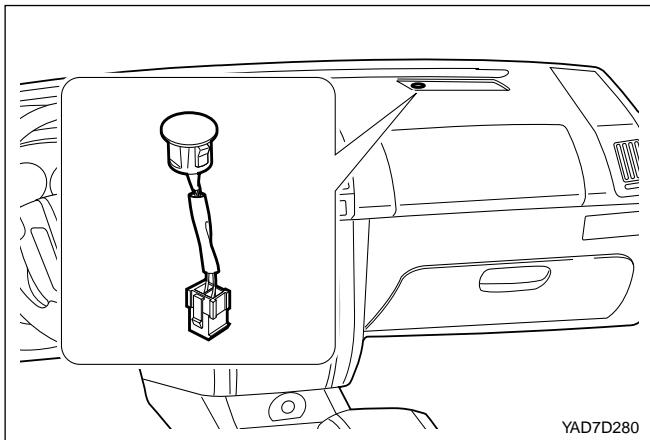
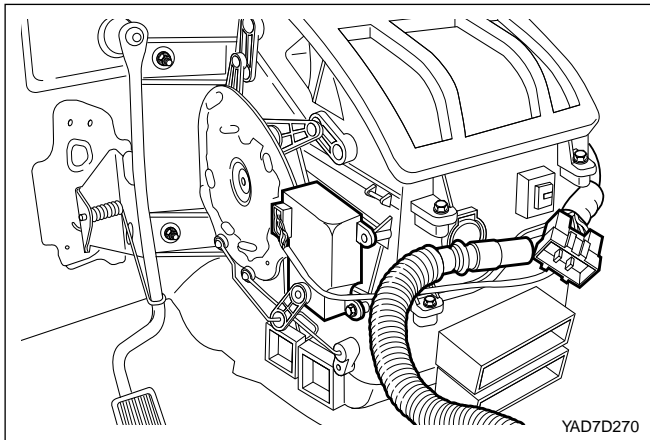
AIR MIX DOOR ACTUATOR

1. Disconnect the negative battery cable.
2. Remove the glove box.
3. Disconnect the connectors of the air mix door actuator.
4. Remove three screws securing the mode control door actuator and heater/air distributor case.
5. Remove the mode control actuator slowly and then remove the air mix door actuator.
6. Installation should follow the removal procedure in the reverse order.



MODE CONTROL DOOR ACTUATOR

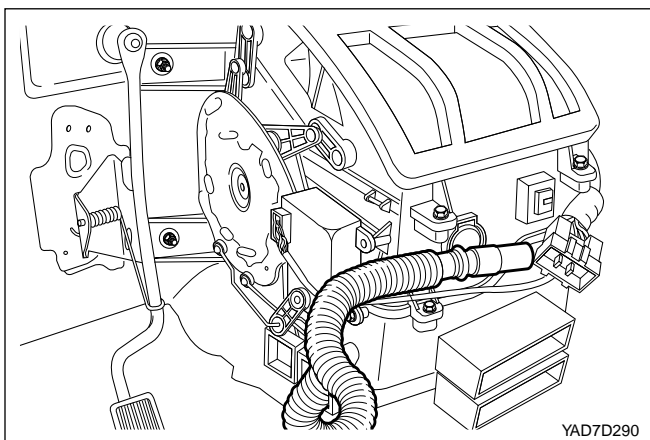
1. Disconnect the negative battery cable.
2. Remove the driver's knee bolster or lower cover.
3. Disconnect the connector to mode control door actuator.
4. Remove three screws securing the mode control door actuator and heater/air distributor case.
5. Remove the mode control actuator slowly and then remove the mode control door actuator.
6. Installation should follow the removal procedure in the reverse order.



SUN SENSOR

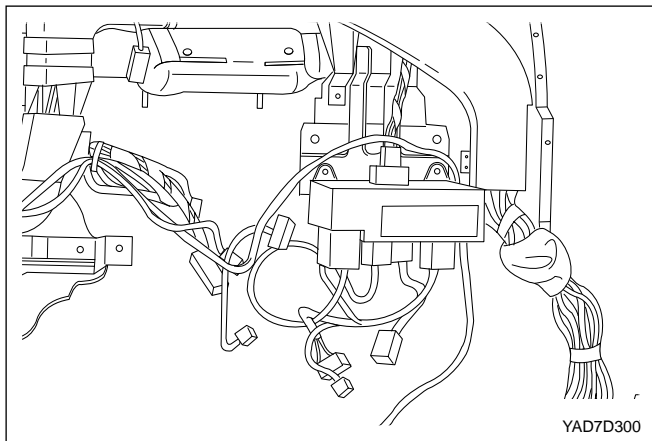
1. Remove the sun sensor from the instrument panel.
2. Disconnect the sensor connector and remove the sun sensor.
3. Installation should follow the removal procedure in the reverse order.

Notice: For disconnecting the connector from the sun sensor, be careful that the wiring must not come into the instrument panel.

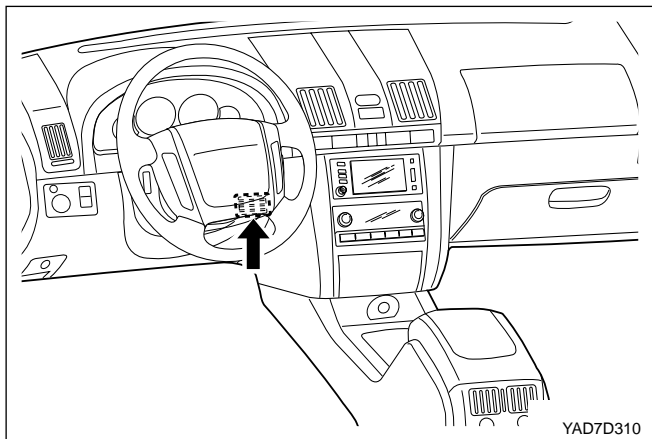


INSIDE AIR TEMPERATURE SENSOR

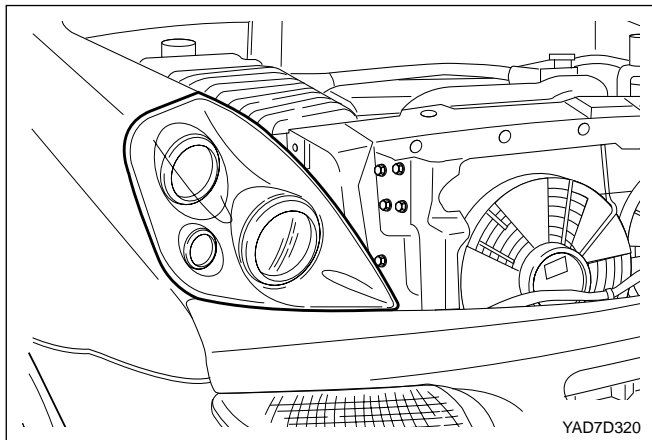
1. Remove the instrument panel.
2. Disconnect the sensor connector, remove the inside air temperature sensor with the tube.



3. Remove the inside air temperature sensor sub from the instrument panel.

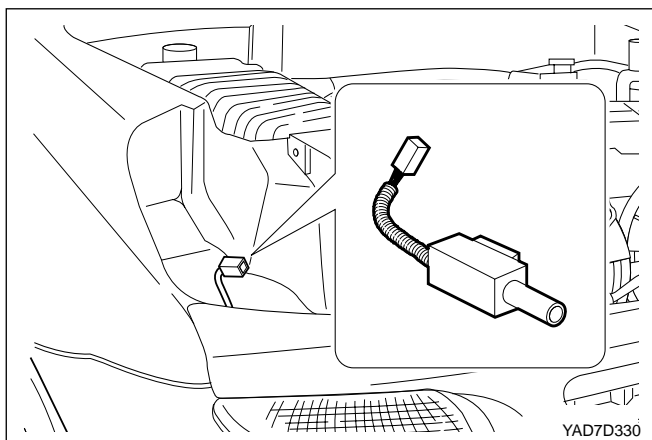


4. Installation should follow the removal procedure in the reverse order.

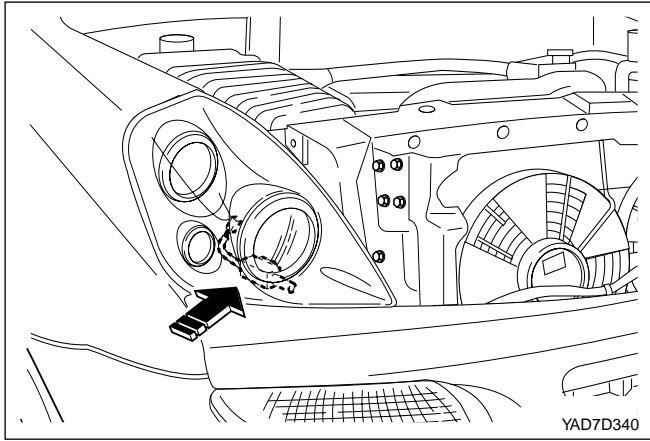


AMBIENT AIR TEMPERATURE SENSOR

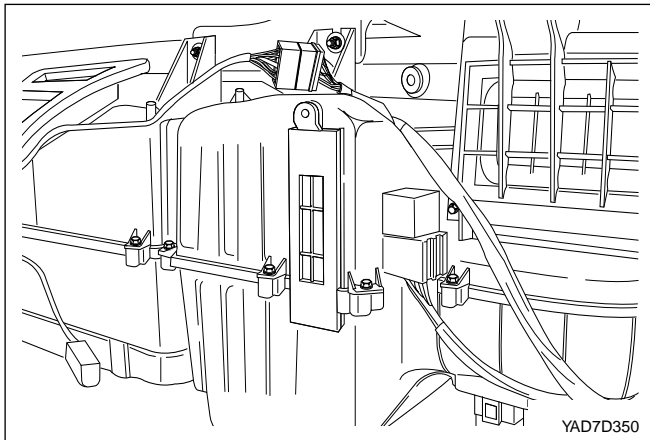
1. Remove the left headlamp assembly.



2. Disconnect the ambient air temperature sensor at the clip hole of the headlamp support outer panel and then disconnect the connector.



3. Installation should follow the removal procedure in the reverse order.



COOLANT TEMPERATURE SENSOR

1. Disconnect the coolant temperature sensor at the side of the heater core (at left bottom of the glove box).
2. Installation should follow the removal procedure in the reverse order.