

1998 XJ RANGE - Climate Control System Control Components - 412-04

System Self-test

Control Panel Interrogation Procedure

The control panel has a self-diagnosis feature, and is capable of displaying and clearing stored fault codes.

Climate control is an integrated system, therefore it is recommended that the PDU is used for fault diagnosis. The fault codes displayed with the control panel self-diagnosis feature are not as comprehensive as those of the PDU. The PDU will display the relevant fault code, fault code description and information of the system peripherals at the time the fault occurred.

Fault Code Extraction and Deletion Procedure

Error information is stored in the A/CCM up to a maximum of 5 faults. Should a sensor fault occur there will be an audible beep and the message **Er** will be displayed on the control panel display for 5 seconds after ignition on. Please note that this will happen only once in any ignition switch cycle. The error source may be accessed by the following procedure

This procedure must be completed through one complete cycle, 1 through 6

Step	Result
#1 Simultaneously hold AUTO & RECIRC - Switch ignition to ON	Display element check
#2 Press AUTO	Display of stored fault (NUMERIC) code. If ZERO appears, there are no stored codes
#3 Press FACE	Scroll through stored faults (maximum of 5)
#4 Simultaneously press FACE & R	Clear stored fault codes (may need to be repeated for each fault)
#5 Press RECIRC (Press FAN to skip actuator check)	Initiate actuator check (Actuator codes 20 through 27*)
#6 Press FAN	Exit error check mode

NOTE:

* Actuator codes do NOT equate to system fault codes.

NOTE:

Only codes 11, 15 & 21 (see Fault Code Listing) will cause audible beep and 'Er' display.

NOTE:

If '0' is displayed, there are no stored fault codes, wait 30 seconds to allow system self-test.

- The control panel display will flash repeatedly indicating a list of two digit numbers (see table for code analysis).
- Should a code be displayed accompanied by an audible beep, the fault is current and therefore still present within the system. A code displayed without an accompanying 'beep' indicates a fault had previously occurred but is not present within the system.

NOTE:

It is advisable to check all areas indicated with cleared fault codes. Such faults may re-occur if intermittent problems are present in the system.

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- To delete stored and cleared fault codes press 'R' and 'FACE' buttons simultaneously.
- After investigating and correcting all stored faults, press the 'Push Off' button to restore normal operation with default panel settings, ie AUTO at 24°C.

Control Panel Fault Code Listing

Condition(s):NOTE:

Reference fault code #23*: In ambient temperatures below 0° C, this code may be logged because the low ambient causes a temporary low gas pressure.

NOTE:

Where the ambient temperature rises above 40° C, with the engine close to overheating, electrical feed to the compressor clutch may be cut and code #23 registered.

0 Normal operation no fault codes present

Possible Source(s):

- None

Action(s) to take:

- Wait 30 seconds for system self-check.

11 Motorized in-car aspirator malfunction

Possible Source(s):

- Harness / connector fault
- Sensor open / short circuit

Action(s) to take:

- Panel fault codes are not stored for motorized in-car aspirator motor failure.

12 Ambient temperature sensor malfunction

Possible Source(s):

- Harness / connector fault
- Sensor open / short circuit

Action(s) to take:

- After rectification, disconnect the vehicle battery for 10 seconds to reset the system.

13 Evaporator temperature sensor malfunction

Possible Source(s):

- Harness / connector fault
- Sensor open / short circuit

Action(s) to take:

- Refer to PDU

14 Water temperature input malfunction

Possible Source(s):

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- Instrument cluster output

Action(s) to take:

- Refer to PDU

15 Heater matrix temperature sensor malfunction

Possible Source(s):

- Harness / connector fault
- Sensor open / short circuit

Action(s) to take:

- Refer to PDU

21 Solar sensor

Possible Source(s):

- Sensor open /short circuit

Action(s) to take:

- Refer to PDU

22 Compressor lock signal fault

Possible Source(s):

- Low refrigerant charge, low compressor oil level, loose drive belt
- Harness / connector fault

Action(s) to take:

- Adjust items as required

23 Refrigerant pressure switch malfunction

Possible Source(s):

- Harness / connector fault
- Switch open / short circuit

Action(s) to take:

- Refer to PDU

23 Refrigerant pressure low refrigerant charge*

Possible Source(s):

- Leak from damaged pipe or joint

Action(s) to take:

- Rectify as required & recharge system

24 Face vent demand potentiometer fault

Possible Source(s):

- Potentiometer open / short circuit
- Harness / connector fault

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Action(s) to take:

- Refer to PDU

31 LH fresh / recirc. potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

32 RH fresh / recirc. potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

33 Cool air by-pass potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

34 Defrost vent potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

35 Centre vent potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

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36 Foot vent potentiometer fault

Possible Source(s):

- Harness / connector fault
- In certain circumstances the servo motor may over-travel & cause further logged faults. This may be cured, following fault rectification, by cycling the ignition ON-OFF-ON 3 times

Action(s) to take:

- Refer to PDU

41 LH fresh / recirc. motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

42 RH fresh / recirc. motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

43 Cool air by-pass motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

43 Cool Air by-pass motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

44 Defrost vent motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

45 Centre vent motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

46 Foot vent motor fault

Possible Source(s):

- Harness / connector fault
- Servo motor seized or sticking
- Flap seized or sticking

Action(s) to take:

- Refer to PDU

Associated Faults

Other conditions which may exist but will NOT log fault codes:

Condition(s):

No heat

Possible Source(s):

- Airlock in system.

Action(s) to take:

- Refer section <<303-03>> for fill / bleed procedure

Possible Source(s):

- Heater water pump inoperative
- Coolant flow valve stuck closed

Action(s) to take:

- Check operation & circuit

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Possible Source(s):

- Faulty engine coolant thermostat

Action(s) to take:

- Renew as required

One vent failing to open / close

Possible Source(s):

- Broken linkage.

Action(s) to take:

- Renew as required

Poor airflow

Possible Source(s):

- Blower motors - incorrect operation

Action(s) to take:

- Check operation & circuit

Panel Communication Check

The panel communication check verifies the inputs and outputs from the control panel to the A/CCM.

Step	Result
#1 Simultaneously hold FACE & FAN - Switch ignition to ON	Panel communication with FACE, Bi-LEVEL, FOOT, DEMIST, DEFROST & RECIRC lines checked - State lamps will illuminate if all is OK. Unlit state lamp indicates a continuity fault for that specific link
#2 Press ON	Exit check mode

Item	Check LED	Condition
Ignition	Defrost	IGN input at 12V, check LED is illuminated
Auxiliary	Face	AUX input at 12V, check LED is illuminated
Clock	Feet / face	Clock input normal, check LED is illuminated
Start input	Foot	Start input normal, check LED is illuminated
Data out	Screen / foot	Data out input normal, check LED is illuminated
Dimmer override	Recirc.	Dimmer override input ON, check LED is illuminated

Actuator Check Procedure

The system self test procedure drives all the actuator motors, to check their operation. If an actuator is operating incorrectly or operating outside of its limits then a fault code will be present.

Before commencing with the actuator check procedure, ensure the car is operating under normal conditions.

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1. Switch ignition OFF.
2. Press and hold the RECIRC & AUTO buttons simultaneously, switch ignition ON & run the engine.
3. All the control panel LEDs and all LCD segments will flash on and off. Any function LED indicator which does not flash on / off suggests a fault condition within that area of the panel or, with the LED.
 - Any LCD element which fails to flash on / off indicates a fault within the display element or panel.
4. Press AUTO
5. Press RECIRC button to instigate actuator check mode.
6. Press FACE to cycle through the actuator mode conditions 20 to 27.
7. Press the FAN button to restore normal operation with default panel settings, ie AUTO @ 24°C.

Actuator Fault Codes

NOTE:

* The water valve operates on a 6 second pulse, ie 3 seconds ON, 3 seconds OFF.

Code	Outlet
	Blower Level
	Centre vent
	Foot
	Defrost
	Cool air by-pass
	Fresh / Recirc.
	Compressor
	Water valve
	Water pump
20	0
	open
	closed
	closed
	closed
	fresh
	OFF
	closed
	OFF
21	1
	open
	closed

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	closed
	closed
	fresh
	OFF
	closed
	ON
22	
	10
	open
	closed
	closed
	open
	half open
	A/C ON
	closed
	ON
23	
	17
	bleed
	half open
	closed
	half open
	half open
	A/C ON
	6s pulse*
	ON
24	
	17
	bleed
	half open
	closed
	closed
	recirc.
	A/C ON
	6s pulse*
	ON
25	
	23
	closed
	open

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26 bleed
closed
recirc.
A/C ON
open
ON

23 closed
half open
half open
closed
recirc.
A/C ON
open
ON

27 31
closed
closed
open
closed
open
A/C ON
open
ON