



Sedan Range

DATE 6/97
Amended 1/98

05.1-27

SERVICE

TECHNICAL BULLETIN

Insufficient AIR Flow – AIR Pump (AIRP) – Diagnosis

MODEL 1995-97 MY
Sedan (4.0L) Range
VIN
720001-779500

Remove and destroy Bulletin 05.1-27, dated 6/97.
Replace with this Bulletin.
Revisions are marked with a bar and in **bold text**.

ISSUE:

A revised AIR pump has been introduced on Sedan Range vehicles in production from approximately VIN 779500. The new pump is more heat resistant.

The pump can be identified by a Julian date code of 002*/96 or later. (The * in the date code indicates the shift during which the pump was assembled which is not relevant to the design of the pump.)

This technical bulletin provides a diagnostic procedure to aid diagnosis when DTC P0411 has been flagged. Replacing the ECM will not solve the complaint of flagging DTC P0411.

ACTION:

In case of a customer complaint on a Sedan Range vehicle within the above VIN range of MIL illumination, with DTC P0411 flagged, follow the diagnostic flowchart located on the last page of this bulletin. The following text provides additional information.

The statements in boxes correspond to boxes in the flow chart.

Perform diagnosis with the engine at normal operating temperature to ensure that the HO2S feedback is operating.

Does AIR pump operate?

The pump can be heard running and a light vibration can be felt.

The AIR pump operates for a short period of time following every engine start. It typically operates for approximately 10-20 seconds at normal operating temperatures, then switches off for approximately 5-10 seconds, and then restarts to allow the system diagnostic check to occur. This check also takes approximately 5-10 seconds. See Illustration 1, sample of PDU trace. This complete cycle takes place each time the engine is started. **This is the re-test referred to in the flow chart.**

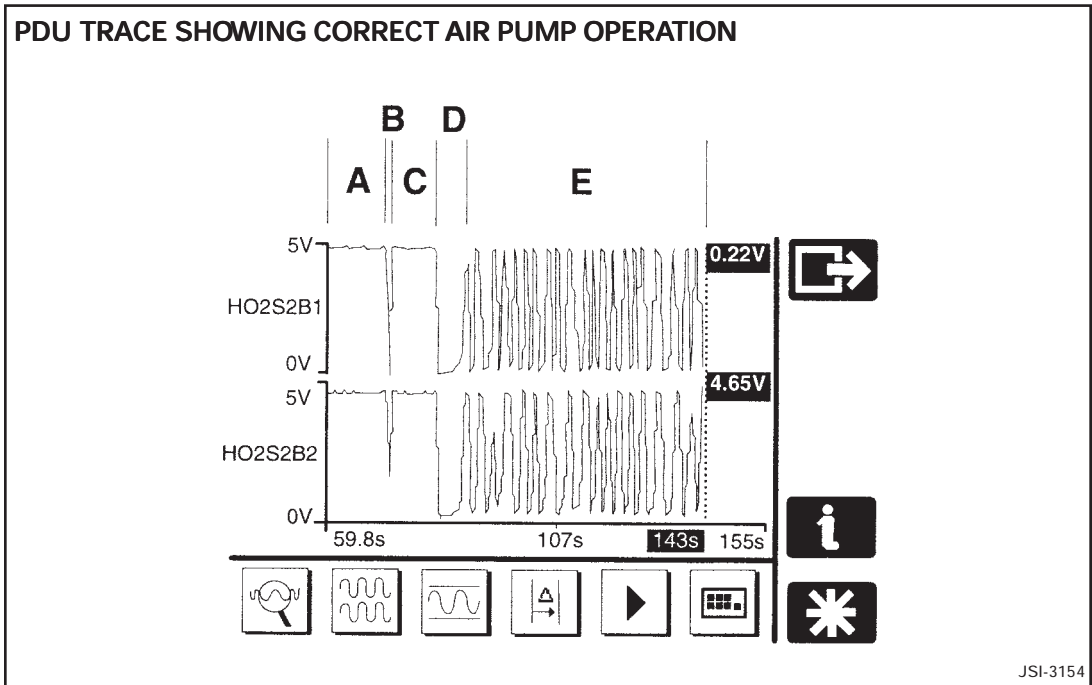


ILLUSTRATION 1

- Zone 'A' shows the initial operation of the air pump (air flow causes lean reading).
- Zone 'B' shows the pump switched off, prior to the diagnostic test (stopping air flow causes rich reading).
- Zone 'C' shows the pump operating during the diagnostic test cycle.
- Zone 'D' shows the pump switched off when the test is complete.
- Zone 'E' shows the lambda voltage switching under normal lambda operation.

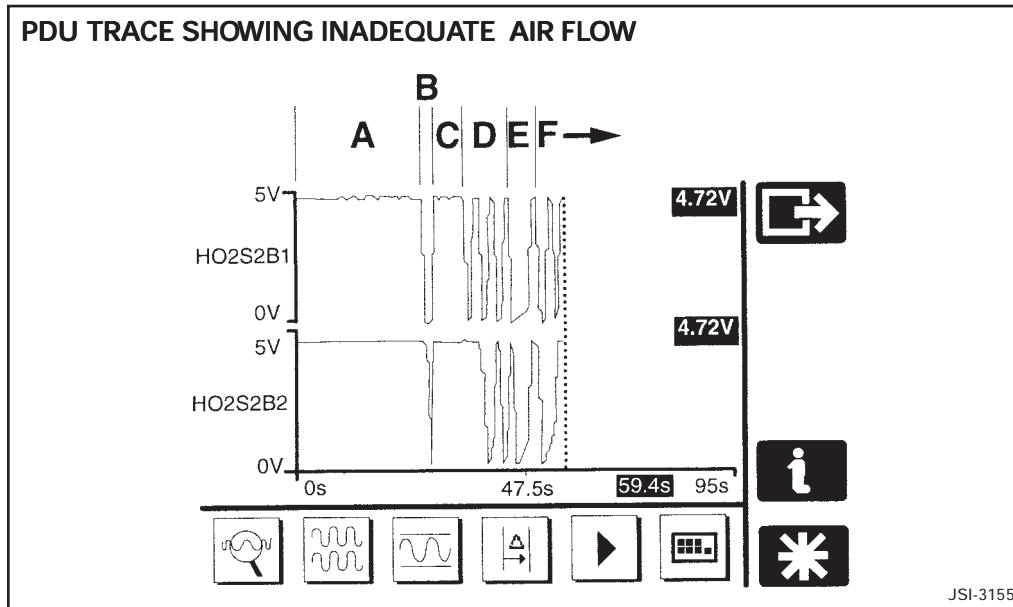


ILLUSTRATION 2

Illustration 2 shows a PDU trace where there is inadequate air flow from the air pump.

Zone 'A' shows the initial operation of the air pump (air flow causes lean reading).

Zone 'B' shows the pump switched off, prior to the diagnostic test (stopping air flow causes rich reading).

Zone 'C' shows the pump operating during the diagnostic test cycle.

Zone 'D' shows the lambda voltage switching to normal feedback, as there is insufficient air flow to sustain the voltage at 5v.

Zone 'E' shows the air pump switched off at the end of the diagnostic cycle.

Zone 'F' shows the lambda voltage switching under normal lambda operation.

Check outlet port of pump for strong air flow

The air flow from the air pump should be strong enough to almost prevent the palm of the hand from staying pressed against the outlet port of the pump. In situations where DTC P0411 is flagged, the air flow from the pump outlet will be very weak.

Check ports of pump for signs of overheating or excessive build-up of carbon.

This check should be performed when the voltage trace is correct, in case of intermittent operation of the pump. Look for excessive buildup of carbon on the outlet port, and check if the foam filter in the inlet port has melted or is out of position. In such cases, replace the outlet check valve also.

Follow electrical diagrams in Sedan Electrical Guide

If the AIR pump does not operate as described on page 1, refer to Fig. 04.1 or 04.3 of the Sedan Range 1995/6/7 Electrical Guide.

Is "bleed nipple" hose fitted?

On vehicles from VIN 720001 - 734672, check that the hose between the air pump and check valve is the type incorporating an anti-vacuum bleed nipple, as introduced in production from VIN 734673 (refer to Technical Bulletin 05.1-04.) If not, install the appropriate later-design hose.

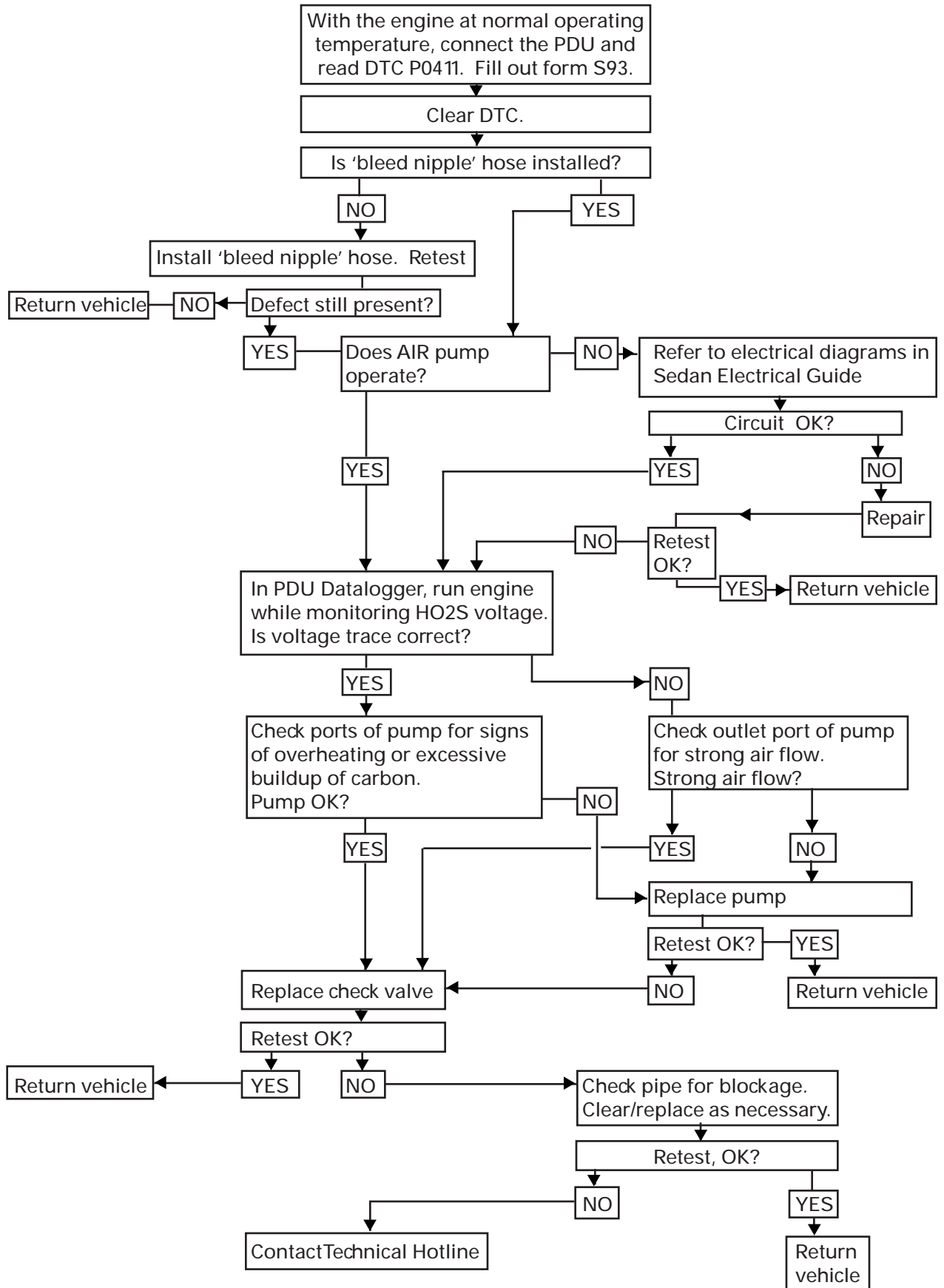
PARTS INFORMATION:

Refer to Technical bulletin 05.1-30 for additional information. The later style air pump requires a fuse upgrade from 25 to 30 Amp.

| <u>DESCRIPTION</u> | <u>PART NUMBER</u> | <u>QTY</u> |
|---|--------------------|------------|
| Air Injection Pump | LHE 1545AC | 1 |
| Air Injection Pump | LHE 1545AD | 1 |
| 30 Amp fuse (F7) for pump LHE 1545AD | LST 8731AA | 1 |
| Check Valve | EBC 11499 | 1 |
| Hose, pump to check valve, Normally aspirated | NBC 4798AA | 1 |
| Hose, pump to check valve, Supercharged | NBD 4798AA | 1 |

WARRANTY INFORMATION:

| <u>FAULT CODE</u> | <u>R.O. NUMBER</u> | <u>DESCRIPTION</u> | <u>TIME ALLOWANCE</u> |
|-------------------|--------------------|---|-----------------------|
| BG BB ** | 17-25-07 | Air pump - renew (including diagnostic time) | 0.50 hours |
| | 17-25-21 | Check valve - renew | 0.20 hours |
| | 86-99-01 | Read and clear DTCs. Fill out Form S93. | 0.50 hours |



DIAGNOSTIC FLOWCHART