



Subject:	Ford BA / BF / Territory HIM (HVAC Integrated Module) Part 2—Diagnostics.					TSB #:	40 9-10
						Date:	2/9/10
Initial Once Read:							

This TSB is the follow on from the HVAC/HIM system description outlined in TSB 38. The HVAC/ HIM system can be easily misdiagnosed in the fact that most technicians tend to go for the HIM as being the main cause of most issues related to the A/C system as it is the HIM that inputs and outputs information to operate heating and cooling. In a lot of cases an issue of “**different temperatures from the dash vents left to right**” could be simply a low refrigerant charge or a blocked orifice tube.

Further to the low refrigerant issue. As I explained the **customer complaint would be that the passenger dash vent is always warmer than the drivers dash vent**, even if the vehicle is a “single zone” (same temperature left to right) system. You may think straight away that it could be the HIM issue, broken air mix shaft, HVAC internal door issue, incorrectly configured HIM, HVAC min/max door positions not set, internal issue with evaporator core (pre 2005) and a blocked orifice tube .The key to the customers issue being related to low refrigerant charge the temperature on the left will be warmer than the right.

If we look inside the evaporator core you will see that the refrigerant flow (low temperature liquid/vapour) has to flow from one side of the core to the other, if the refrigerant flow is low the evaporator core will not fill completely.



Ford BA, BF and Territory evaporator core.



## HIM not functioning:

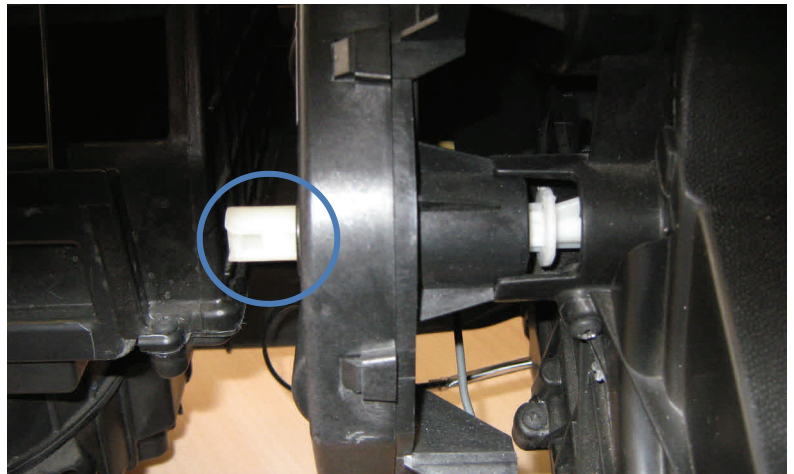
Indicated by the LCD display screen not displaying HVAC functions except for the recirculation symbol "flashing" this indicates that the HIM is not receiving data from the other modules on the Can bus or the power has been interrupted to the HIM main electrical connector.

Diagnostic Trouble Codes (DTC) related to communications issues. Main DTC's U1900 Can communication receive error and P1796 Cab bus wiring fault. Other DTC's that will effect communications with the HIM are B2005, B2006, B2007, B2890, B2923, B1250. Low battery charge may also be the issue, less than 12 volts.

## No temperature control:

Normally a DTC of B1266 will be set. This issue is associated with the broken air mixing shaft, HIM coupler disconnected from the air mix shaft, faulty HIM and dual zone only HVAC only, drivers air mix motor faulty.

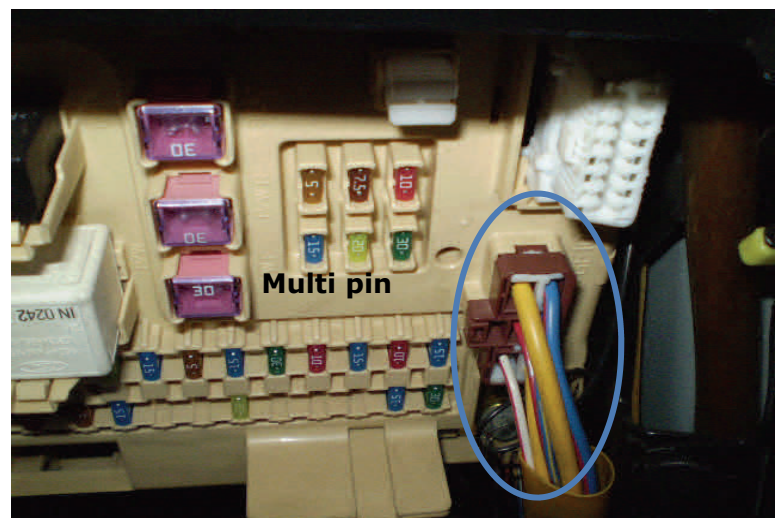
HIM Coupler "backed out" - Push back into position with long handled flat blade screwdriver.



## Cannot engage compressor to recharge an empty A/C system:

Because the A/C system has been empty the A/C pressure transducer sets DTC 1463 and will not allow the compressor to engage. The A/C pressure transducer reports directly to the PCM. With ignition off disconnect the multi pin connector in fuse box for 2 minutes then reconnect, this should erase DTC.

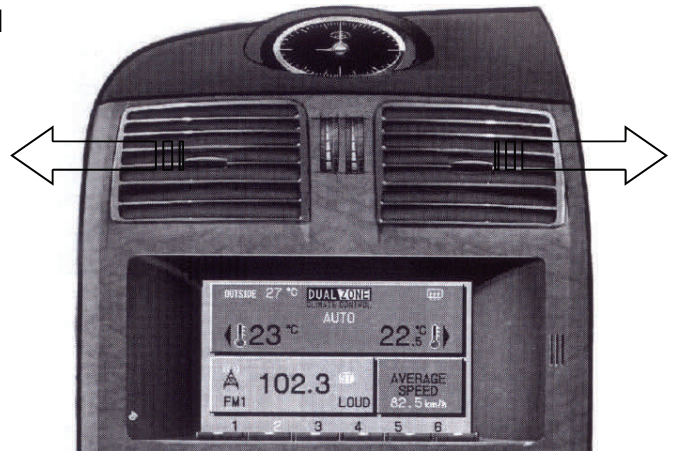
Fuse box right side of steering wheel.





Below are listed the most common faults for temperature differences between the passenger and drivers side.

Temperature differences between the passenger and drivers side, actually refers to the face vent located above the radio / control panel. The temperature at either louvre may feel different if an issue exists.



SZ = Single zone (same temp L to R).

DZ = Dual zone (independent temperatures L to R).

Passenger side vents **COLDER** than the drivers side vents. Cannot alter temperature with

Drivers side vents **COLDER** than passenger side vents. Cannot alter temperature with

Passenger side vents **NOT** as **COLD** as the drivers side vents.

- ◇ SZ / DZ - HIM coupler disconnected.
- ◇ SZ / DZ - Air mix shaft broken.
- ◇ SZ / DZ - Evaporator coil internal issue.
- ◇ SZ / DZ - DZ shaft fitted to a SZ HVAC.

- ◇ DZ - Drivers side air mix shaft broken or missing.
- ◇ DZ - Faulty wiring between HIM and drivers air mix motor.
- ◇ DZ - Faulty a drivers side air mix motor or

- ◇ SZ / DZ - Refrigerant pressure too low. Recover refrigerant, rectify leak. Recharge A/C system with R134a to 650 +/- 50 grams.
- ◇ SZ / DZ - Blocked orifice tube or

The last page of this bulletin is a full matrix of all known and possible issues that could occur to the Ford HVAC system.

Remember that when diagnosing for faults, the HIM is part of the Can Bus wiring and that it must communicate with other modules such as the PCM (engine / transmission) and the BEM (body) that contain information required by the HIM to activate HVAC components.

Likewise don't over complicate your diagnosis when the cause of the issue you may have is "low refrigerant charge quantity" remembering you still have to find the root cause of why the refrigerant quantity is low. In other words, find the root cause - the refrigerant leakage point.

T = Test - Using a scan tool

C = Physical check

V = Visual check for operation

E = Recover refrigerant and re-charge

I = Remove crash pad and investigate

S = OHMS v temperature test

### FORD BA, BF, FG, TERRITORY HIM HVAC RELATED ISSUES

PROBLEM DESCRIPTIONS	A/C ON or OFF	SZ/DZ (single zone) or SZ/DZ (dual zone)	Can Bus Circuit Interruption or Failure	Air Mix Shaft Broken	HVAC Assembly / Mode Door Issue	HVAC Control Display	HVAC / HIM Levers Misalignment	Vehicle Wiring / Connectors	Ambient Temp Sensor Fault	Drivers Side AMix Motor Fault	Refrigerant Charge Low, blocked/bypass orifice tube	Evaporator Blockage or Manufacturing Issue (B/D - 10/2004)	Heater Core Fault	A/C System Fault	HIM Connectors or Terminals	HIM Coupler Disconnected (refit)	Blower Motor Fault	Evaporator Temp Sensor Open Circuit	HIM Assembly fault	
Engine Stalls	On or Off	SZ/DZ	T												V/T					T
Engine Cuts Out	On or Off	SZ/DZ	T					T							V/T					T
Engine Will Not Start	On or Off	SZ/DZ	T					T							V/T					T
Blower Fan Remains On With Ignition Off	On or Off	SZ/DZ	T												V/T					T
Blower Fan Turns Off Intermittently	On or Off	SZ/DZ	T												V/T					T
Blower Fan Will Not Operate	On or Off	SZ/DZ	T												V/T					T
Control Display Blank	On or Off	SZ/DZ	T												V/T					T
Incorrect Control Display	On or Off	SZ/DZ				T														T
Vent Modes Not Changing	On or Off	SZ/DZ			I		V													T
Erratic Vent Modes	On or Off	SZ/DZ			I		V													T
A/C Not Cold	On	SZ/DZ		V				T	S	S	E			T		V		S		T
A/C Not Operating	On	SZ/DZ		V				T	S	S	E			T		V		S		T
Heater Not Working	On or Off	SZ/DZ		V									V							T
Heater Not Hot Enough	On or Off	SZ/DZ		V									V							T
Heater On All The Time	On	SZ/DZ		V					S	S	E			T						T
Passenger Side Temperature Not Cold Enough	On	SZ/DZ		V										T						T
Passenger Side Temperature Not Hot Enough	On or Off	SZ/DZ		V																T
Passenger Side Temperature Too Hot	On or Off	SZ/DZ										A		T		V				T
Drivers Side Temperature Not Cold Enough	On	SZ/DZ										A	V	T						T
Drivers Side Temperature Not Hot Enough	On or Off	SZ/DZ											V							T
HVAC Only Operates On Demist Mode	On or Off	SZ/DZ			I		V													T
No Demist Mode	On or Off	SZ/DZ			I		V													T
Lights / Gauges Don't Operate	On or Off	SZ/DZ	T				V								V/T					T
Lights / Gauges Erratic Operation	On or Off	SZ/DZ	T				V								V/T					T
Face Vent Mode Can Only Be Selected	On or Off	SZ/DZ			I		V													T
Speedo / Tachometer Needles Drop To Zero	On or Off	SZ/DZ	T				V								V/T					T
Air to Feet Hot All The Time	On	SZ/DZ		V					S						V/T					T
No Airflow through Vents	On or Off	SZ/DZ			I		V								V/T					T
No Temperature Adjustment	On or Off	SZ/DZ		V					S						V/T					T
Recirc Mode Stays On All The Time	On or Off	SZ/DZ			I				S						V/T					T
Whirring Noise from HVAC (AMix Motor Hunting)	On or Off	D.Z								T					V/T					T