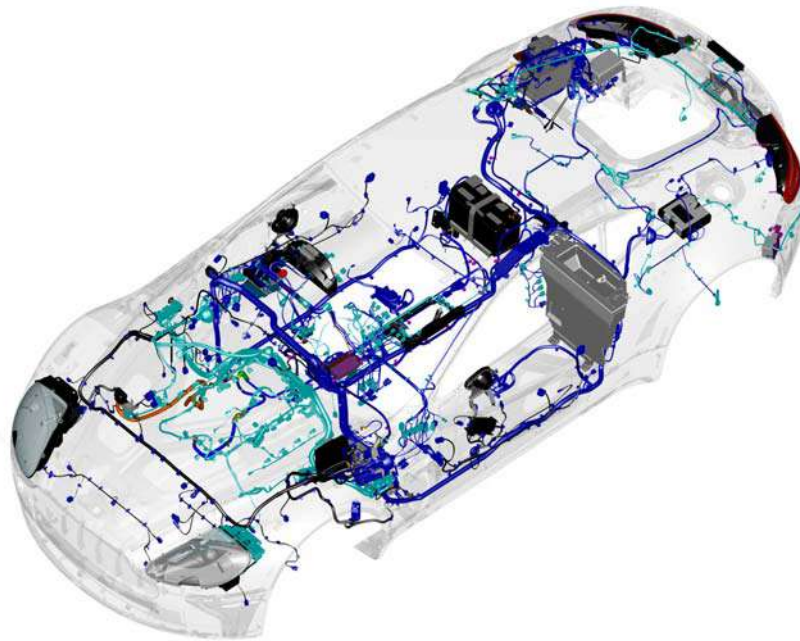




ASTON MARTIN

Technical Guide



Bluetooth





Aston Martin are constantly seeking to improve the specification, design and production of their vehicles and alterations take place accordingly. While every effort has been made to ensure the accuracy of this Manual, it should not be regarded as an infallible guide to current specifications of any particular vehicle.

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CONTENTS

INTRODUCTION	7
Description	9
SYSTEM LAYOUT	11
V8 Vantage Layout	11
DB9 Layout	13
INPUTS	15
V8 Vantage Power Supplies	15
DB9 Power Supplies	15
V8 Vantage Signal Inputs	15
DB9 Signal Inputs	15
Screens	15
OUTPUTS	17
V8 Vantage Outputs to Amplifier	17
DB9 Outputs To Amplifier	17
LED Indicator Outputs	17
SYSTEM OPERATION	19
Controls	19
Getting Help	21
Connecting A Phone	21
Selecting a Phone	22
List Paired Phones	22
Removing A Paired Phone	22
Removing All Phones	22
Making Calls	23
Answering Incoming Calls	25
Ending Calls	25
Transfer A Call	25
Rejecting A Call	25
Mute A Call	26
Un-mute A Call	26
Call Waiting	26
Touch-Tone System	26
Bluetooth Contact List	27
Switching Voice Prompts On/Off	28
Selecting A Language	28
DIAGNOSTICS	31
V8 Vantage Connector Pin Allocation	31
DB9 Connector Pin Allocation	32
Troubleshooting	33
V8 Vantage Wiring Diagrams	35
DB9 Wiring Diagrams	39

APPENDIX 1

APPENDIX 2



INTRODUCTION

The Bluetooth system offers the following features:

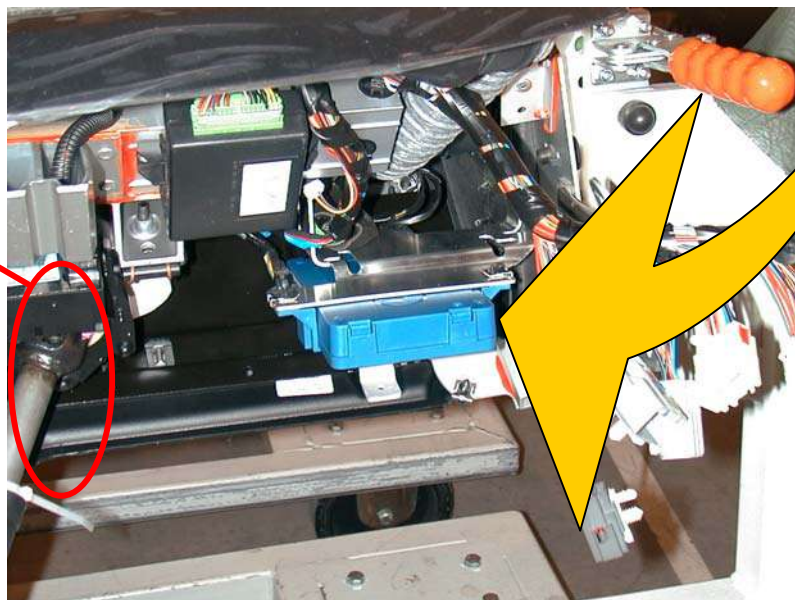
- Seamless, wireless handsfree audio through a Bluetooth connection
- Digital audio interface with high quality, full-duplex, handsfree speech
- Speaker Independent Voice Recognition (VR)
- Voice-driven menu prompts
- Automatically mutes the radio
- Automatically pauses the CD player during calls
- Noise reduction and acoustic echo cancellation
- Compliance with Bluetooth Hands Free 0.96 and 1.0 profiles
- Audio through the door speakers

The Bluetooth system is standard fitment on DB9 and is optional on the V8 Vantage. The control and operation of the Bluetooth system is identical on all models, however the electrical architecture of the cars audio does differ. To identify if Bluetooth is fitted, look for the LED Indicator located as shown below:





Steering joint



Description

The Bluetooth Module controls the Bluetooth system on all cars. This module is a stand-alone unit, which is not connected to any communication network on the car. The module is located on the drivers side of the Instrument Pack (IP) just above the pedals (see page opposite).

The components of the system are:

1. Microphone
2. Bluetooth switches (steering wheel)
3. LED Indicator
4. Bluetooth Module
5. Amplifier (audio)
6. Switcher box (V8 Vantage only)

If a DB9 is installed with both the 'in-car' phone and the Bluetooth systems and both systems are active then the Bluetooth system will override the 'in-car' phone system. An active call on the 'in-car' phone will be ended if a call is received on the Bluetooth system or any of the Bluetooth menus are used.

The Bluetooth system is only active when the vehicle ignition is switched to position II (ignition on). If, during a call, the ignition is switched to 0 (ignition off) the call will transfer to the mobile phone after approximately six seconds.

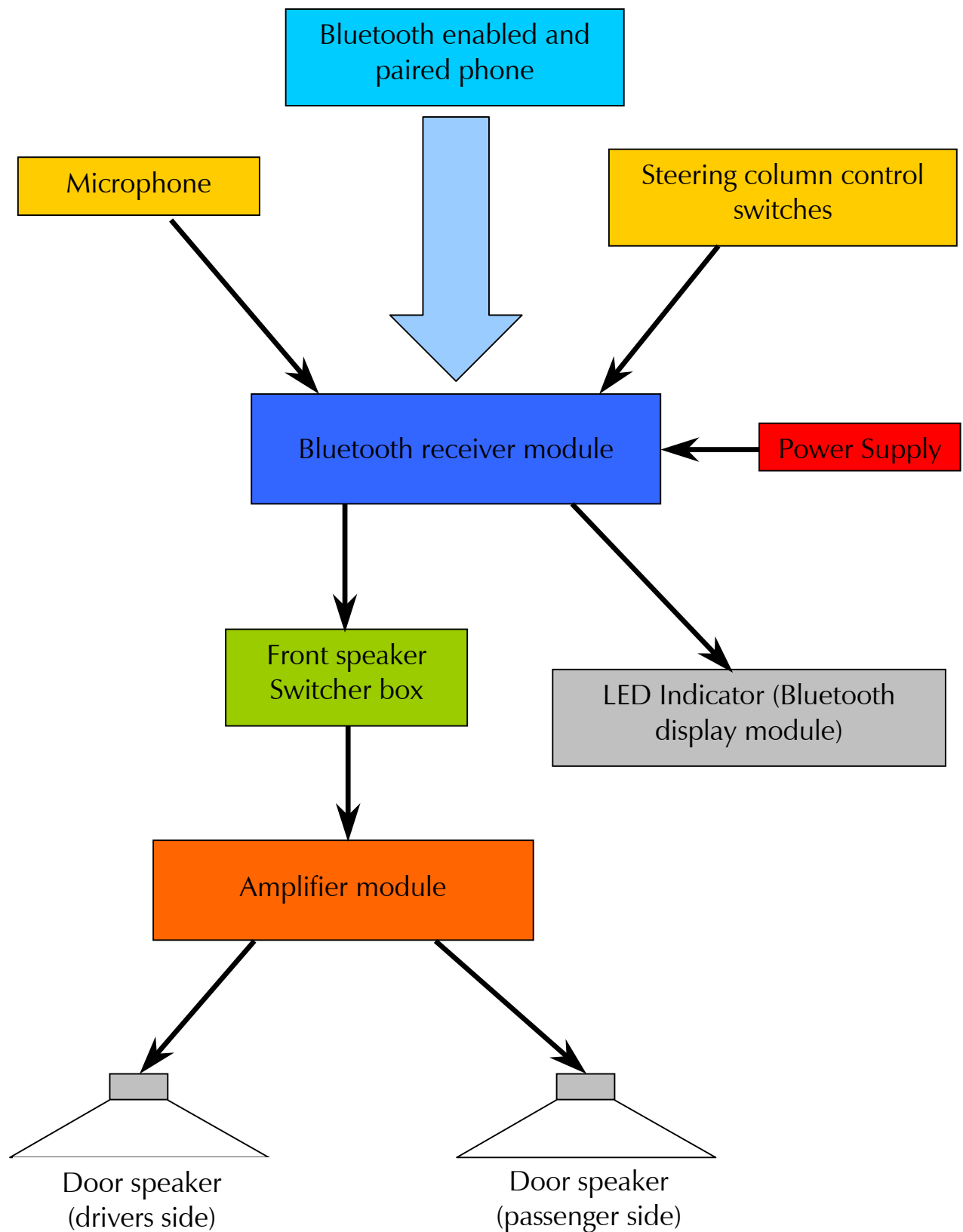
The Bluetooth module has been designed to meet the following parameters:

Parameter	Units	Nominal	Lower Limit	Upper Limit
Battery Voltage	Volts	N/A	10.5	16.0
Nominal Voltage	Volts	13.2	12.2	14.2
Over Voltage (for 1 minute)	Volts	24.0	18.0	25.0
Operating Current	mA	225-300	<300uA (sleep)	<1.5A
Room Temperature	°C	25	15	35
Operating Temperature	°C	N/A	-30	70
Storage Temperature	°C	N/A	-40	85



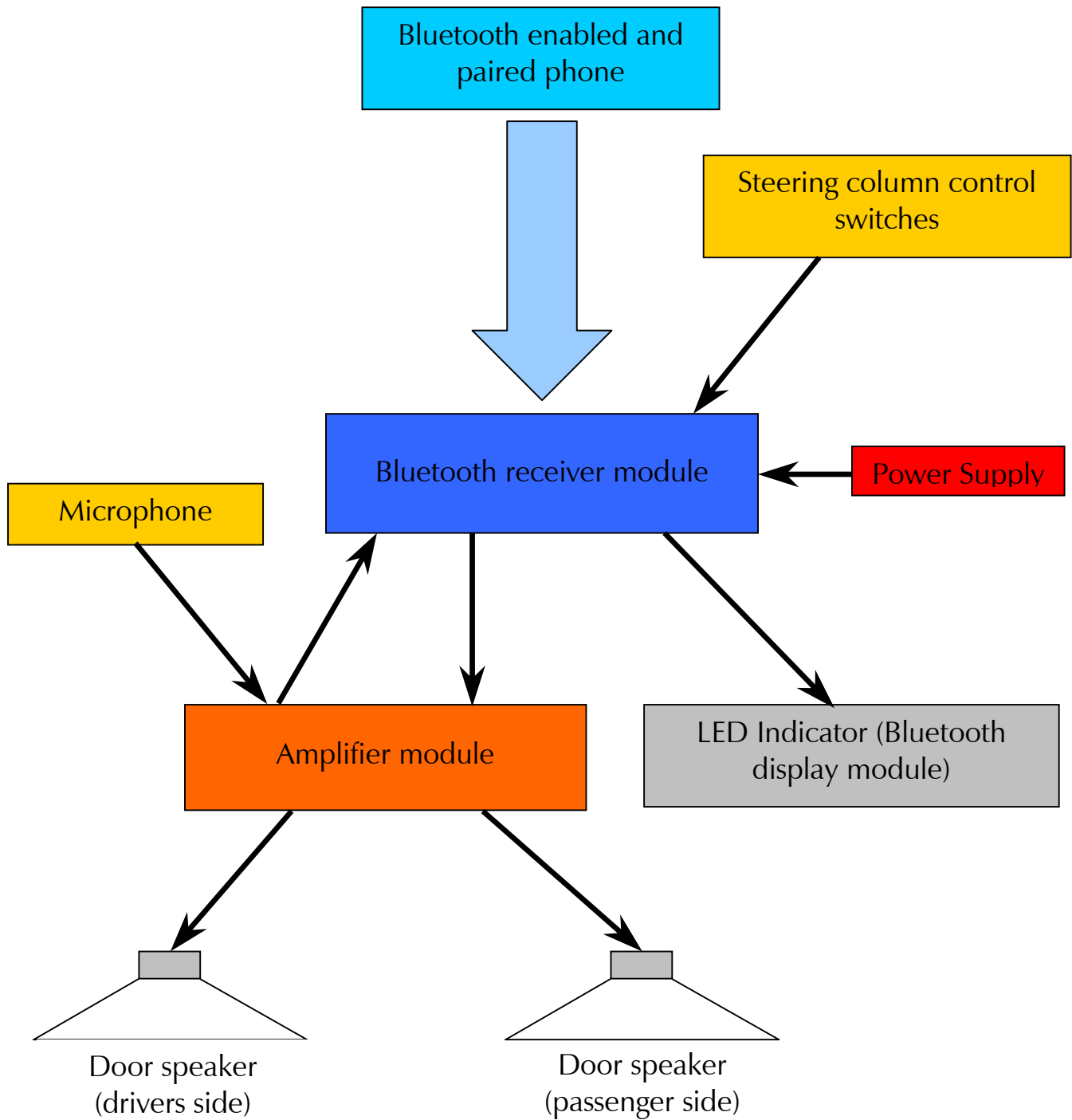
SYSTEM LAYOUT

V8 Vantage Layout





DB9 Layout





INPUTS

The Bluetooth system relies on a number of signals it receives either from the car (via hard wiring) or the users phone (via wireless Bluetooth communication network).

The Bluetooth system will only function if the users mobile phone has Bluetooth enabled and it is 'paired' to the car. For more information refer to the user's guide for your mobile phone.

V8 Vantage Power Supplies

Description	Supplied From	Source	Protection
Wakeup signal	Central Electronic Module	Comfort Relay	F68 (5 Amp)
Power supply 1	Central Electronic Module	Interior Lights Relay	F46 (5Amp)
Power supply 2	Central Electronic Module	Interior Lights Relay	F46 (5Amp)

DB9 Power Supplies

Description	Supplied From	Source	Protection
Wakeup signal	Central Electronic Module	Comfort Relay	F69 (5 Amp)
Power supply 1	Central Electronic Module	Interior Lights Relay	F46 (5Amp)
Power supply 2	Central Electronic Module	Interior Lights Relay	F46 (5Amp)

V8 Vantage Signal Inputs

Input	Description	Signal Characteristic
MIC In	Input signal from microphone	Varying current signal direct from microphone
Keypad	Steering wheel controls input	Variable resistance to earth signal

DB9 Signal Inputs

Input	Description	Signal Characteristic
MIC In +	Input signal from microphone	Varying current signal supplied via amplifier
MIC In -	Input signal from microphone	Varying current signal supplied via amplifier
Keypad	Steering wheel controls input	Variable resistance to earth

Screens

Some of the signals in and out of the Bluetooth module require screening to avoid interference being picked up. A signal screen is a single wire running along side the signal wire(s) which will absorb electro magnetic interference (EMI).

The Bluetooth module on the V8 Vantage features only one screen so as to protect the signal from the microphone. This screen wire is simply an earth but it is also used as a datum from which to reference the microphone signal.

The Bluetooth module used on DB9's features two screens. One is as on the V8 Vantage but is used only as a screen (because the microphone signal from the amplifier has two signal wires) and no datum is required. The second screen on the module is used to screen the 'Lineout' signals to the amplifier. As with the microphone screen this wire is connected to earth.





OUTPUTS

V8 Vantage Outputs To Amplifier

The Bluetooth module in the V8 Vantage has three outputs sent directly to the audio amplifier. These outputs are:

1. Radio mute.
2. Speaker +
3. Speaker –

The combination of these three signals allows the amplifier to control the audio output and phone output through all or some of the speakers.

DB9 Outputs To Amplifier

As with the Bluetooth module in the V8 Vantage, the DB9 Bluetooth module has three outputs it sends directly to the audio amplifier. It should be remembered that all DB9's feature a Linn amplifier and therefore the Bluetooth output requirements are different. These outputs are:

1. Radio mute.
2. Lineout -
3. Lineout +

The combination of these three signals allows the Linn Amplifier to control the audio output and phone output through all or some of the speakers.

LED Indicator Outputs

The DB9 and V8 Vantage use the same LED Indicator (Bluetooth display) controlled in the same way by the Bluetooth module. The outputs from the Bluetooth module are:

- UIM LED - For Active Call LED (amber)
- UIM LED - For Active Call LED (blue)

These two outputs individually control the status LED's (amber and blue) earth signal therefore switching the LED's on and off independently.



SYSTEM OPERATION

Controls



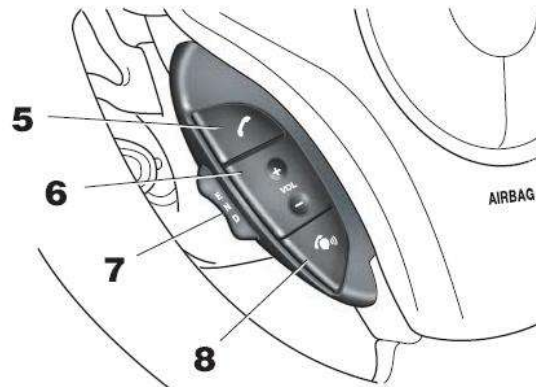
1. LED Indicator Outputs – System status
2. Steering column control switches



3. Integrated microphone (behind the rear view mirror).
4. Audio amplifier (not shown).

The Bluetooth system is voice activated on all models. When in voice recognition (VR) mode:

- Always speak normally. The system reacts to a normal voice pattern.
- Do not shout or speak erratically.
- When prompted to speak, speak after the 'beep'.



5. Answer.		- When receiving a call – Press once to answer that call. - When the system is not on a call- Press once to make a call using the last number dialled - While a call is in progress – Press once to toggle between hold and resume. While on a call and after a call waiting notification is received- Press once to answer the waiting call. - With two active calls – Press once to toggle between calls. - During an active call – Press and hold to switch audio between handsfree and privacy modes.
6. Volume		- During a call – Press once to increase or decrease the Bluetooth speaker volume. - If the microphone is muted – Press once to un-mute. - During a call – Press and hold to mute the microphone
7. End		- During an active call – Press once to end that call. - When the system is in voice recognition (VR) mode – Press once to cancel VR mode. - When receiving an in coming call – Press once to reject that call. - When in a pairing session – Press once to cancel that pairing session. - During an active call(including multi-party calls) – Press and hold to end all calls. - When the system is not on a call – Press and hold to terminate the Bluetooth connection.
8. Talk		- During normal operation – Press once to initiate a voice recognition (VR) session. When a VR session starts, you will hear a prompt and then a short 'beep'. The 'beep' indicates that the system is waiting for a verbal command. - A prompt is being played – Press once to skip the prompt and go to the 'beep'. - Pressing and holding initiates the paring process.



Getting Help

If you require help while learning to use the system, or whenever a reminder is required when prompted for a yes/no answer. Say 'Help' into the microphone. The system includes help prompts in every menu. Alternatively if you say 'repeat' the system will repeat the question.

Connecting A Phone

A connection between the vehicle Bluetooth system and a phone is called a 'Paired Link'.

When a paired link is set up the Bluetooth system remembers the phone's ID. Once the Bluetooth system and the phone are paired, the Bluetooth system automatically connects to your phone every time you start your vehicle or power up the vehicle's Bluetooth system.

This system supports paired links with up to four phones.

Note: *The process of initiating a Bluetooth connection with a phone varies per phone manufacturer. For more information refer to the user's guide for your mobile phone.*

Use the following procedure only if there are no handsets paired to the system:

1. Press the  button. When prompted say 'Pair phone'. The system responds with 'Set your phone in scan mode and enter 1234 when prompted for the 'passcode'.
2. When the phone displays 'Aston Martin' select the device. The phone displays the passcode entry screen.
3. Enter the passkey (1234). The phone displays 'PIN verified' and the system will say 'Pairing complete. Connection in progress'.

Note: *Some phones will ask you to accept the BT link. Enter Yes.*

Upon successful completion the system say's 'Connection is complete. Phone <n> ready for use'.

To pair additional phones to the system:

1. Press the  button. When prompted say 'Set-up menu'. The system responds with 'Set-up menu. Please say a command'.
2. Say 'Pair phone'. The system responds with 'Set your phone in scan mode and enter 1234 when prompted for the passcode'.
3. When the phone displays 'Aston Martin', select the device. The phone will display the passcode entry screen.
4. Enter the passkey value provided by the system. The phone confirms that the PIN is verified and the system will say 'Pairing complete. Connection in progress'.

Note: *Some phones will ask you to accept the BT link. Enter Yes.*

Upon successful completion the system will say 'Connection is complete. Phone <n> ready for use'.

The Bluetooth system will not recognise a mobile phone even if it is 'paired', if the mobile phone does not have Bluetooth enabled. For more information refer to the user's guide for your mobile phone.

Selecting a Phone

To select a paired phone to use simply complete the following:

1. Press the  button. When prompted say 'Set-up menu'. The system responds with 'Set-up menu. Please say a command'.
2. Say 'Connect phone <n>'. The system responds with 'Connecting phone <n>'. Upon successful completion the system says 'Connection complete'.

List Paired Phones

1. Press the  button. When prompted say 'Set-up menu'. The system responds with 'Set-up menu. Please say a command'.
2. Say 'List phones'. The system responds with 'The following phones have been paired: phone 1, etc.'.

Removing a Paired Phone

1. Press the  button. When prompted say 'Set-up menu'. The system responds with 'Set-up menu. Please say a command'.
2. Say 'Remove phone <n>'. The system responds with 'Removing phone <n>. Are you sure?'.
3. Say 'Yes'. The system responds with 'Phone <n> removed'.

Removing All Phones

1. Press the button. When prompted say 'Set-up menu'. The system responds with 'Set-up menu. Please say a command'.
2. Say 'Remove all phones'. The system responds with 'Are you sure you want to remove all phones?'.
3. Say 'Yes'. The system responds with 'All phones have been removed'.

Making Calls

When connected, all calls are handsfree. Terminate a VR session at any time by pressing the  button.

A phone number can be entered as a whole number or by two or more segments. A segment can include up to 15 digits. An entire number can include no more than 32 digits. If required a number can also begin by saying either 'Star' (*), 'Hash' (#) or 'Plus' (+).

Note: Speak numbers as continuous digits. For example, dictate 555-2211 as '5-5-5-2-2-1-1', not '5-5-5-twenty-two-eleven'.

To make a call using a whole number:

1. Press the  button. When prompted, say 'Dial Number'. The system responds with 'Number please?'.
2. Dictate the phone number as a single set of digits (without pauses between digits). The system recites the digits heard.
3. If the number recited by the system is correct, say 'Dial'. The system responds with 'Dialling'.

To make a call using a number segment:

1. Press the  button. When prompted, say 'Dial Number'. The system responds with 'Number please?'.
2. Dictate the first segment of the whole number (For example, say the 1st three numbers.) The system recites the numbers heard.
3. Dictate the next segment of the whole number. The system recites the numbers heard. Repeat until you have entered the complete phone number.
4. When the complete number is recited by the system, say 'Dial'. The system responds: 'Dialling'.

Note: To delete a phone number segment, say 'Clear' when prompted for the next segment. The system responds with 'Last String Entry Cleared', echoes any remaining segments, and waits for you to dictate a new segment.

Note: To clear all phone number segments dictated so far, say 'Clear All' when prompted for the next segment. The system clears all segments and returns to the 'Number please?' prompt.

To call a number from the Bluetooth Contact List:

1. Press the  button. When prompted, say 'Call <contact>'. The system responds with 'Do you want to call < contact>?'.
2. If the number recited by the system is correct, say 'Yes'. The system responds with 'Calling'.

Note: *The contact must be a valid contact stored in the Contact List*

To call a Number Using Phone Voice Name:

1. Ensure the voice name is stored in the mobile phone.
2. Press the  button. When prompted, say 'Phone voice name'. The system responds with 'Phone voice name, please'.
3. Say '<voice name>'. The system calls the number associated with the phone voice name.

To make a call using speed dial:

1. Press the  button. When prompted, say 'Speed Dial'. The system responds with 'Speed dial number, please'.
2. Recite the speed dial number. The system repeats the number it heard and asks: 'Is this correct?'.
3. If the number recited is correct, say 'Yes'. The system responds with 'Dialling', and places the call.

Note: *Speak speed dial numbers as continuous digits. For example, dictate speed dial location 22 as '2-2', not 'twenty-two'.*

To use the redial function:

- Press the  button. When prompted, say 'Redial'. The system responds with 'Redialling'.

Or:

- Press the  button.

Answering Incoming Calls

When receiving an incoming call, the system responds with 'Call from < Caller ID>', if available. If Caller ID is not available:

- The system plays the 'in-band' ring tone, if the phone supports it.
- If no 'in-band' ring tone is supported, the system generates a local ring tone.

There are two methods of answering an incoming call:

1. Press the  button.
2. Press the 'answer call' key on the phone's handset.

Ending Calls

Use one of the following three methods to end a call:

1. Press the  button. When prompted say 'Hang Up'. The responds with 'Call ended'.
2. Press the  button.
3. Press the 'end call' key on the phone's handset.

Transfer A Call

If you wish to transfer a call from the car to your phone either:

- Press the  button. When prompted say 'privacy mode'.

Or

- Press and hold the  button.
- Turn the vehicle ignition to 0 (off) (If your phone asks to switch to handset mode press yes.).

To transfer a call from your phone to the car either:

- Press the  button. When prompted say 'handsfree mode'.

Or

- Press the  button.
- Turn the car ignition to position II (on).

Note: Some mobile phones will end the Bluetooth connection. If this happens the only way of transferring to the vehicle is by the mobile phone menu (if supported).

Rejecting A Call

To reject an incoming call either:

- Press the  button. The system will respond 'call rejected'.

Or

- Press the ignore, end or hang-up key on the phone handset.. The system responds with 'call ended'.

**Mute A Call**

There are two ways to mute a call:

1. Press and hold either of the  Up/Down buttons.
- Or
2. Press the  button. When prompted say 'mute'.

Un-mute A Call

Again there are two ways to un-mute a call:

1. Press and release either of the  Up/Down buttons.
- Or
2. Press the  button. When prompted say 'un-mute'.

Call Waiting

To answer an incoming call while already on a call:

1. Press and release the  button to place the active call on hold and answer the incoming call.
2. Press and release the  button to toggle between active calls.

Touch-Tone System

If when using the Bluetooth system you are requested to select options using a touch-tone system (e.g. To speak to customer services press 1, to speak to sales press 2, etc.) please use one of the following options:

1. Press the  button. When prompted, say 'enter <digits>' to send the relevant touch-tone signal.
- Or
2. Use the phones keypad.

Bluetooth Contact List

A list of names and phone numbers can be stored within the Bluetooth systems contact list. The list can include up to 20 entries.

Note: A phone must be connected to the system before the contacts list can be accessed.

To add a new contact to the Bluetooth contact list:

Warning: When adding, deleting or listing contacts ensure that the vehicle is stationary with the handbrake applied, and the gear selector in 'P' or 'N' (Automatic) or Neutral (Manual).

1. Press the  button. When prompted, say 'Contact List'.
 - a) If the system responds with 'Contact list is empty. Do you wish to add a contact?', say 'Yes'.
 - b) If the system responds with 'Contact list. Please say a command', say 'Add contact'.

If the name sounds like one that is already stored, or if an error is detected, the system asks you to try again.

2. The system responds with 'Please say the name', recite the contact to be stored.
If the name is accepted, the system responds with 'Please say the number for <contact>'.
3. Dictate the phone number either as:
 - An entire number (without pauses between digits)
 - A series of segments (for example, say the 1st 3 digits, then the next 3, etc.), until you have dictated the entire number

The system repeats the number it heard.

4. When the entire number has been correctly entered say 'Store'. The system responds with 'Contact added. Would you like to add another contact?'.
Say 'No' to return to the system's ready state.
Say 'Yes' to add another entry.

To delete an entry:

1. Press the  button. When prompted, say 'Contact List'.
 - a) If the system responds with 'Contact list. Please say a command', say 'Delete <contact>'.
 - b) If the system responds with 'Contact list is empty. Do you wish to add a contact?', say 'No'. The system then exits to ready state.
2. When the system responds with 'Are you sure you want to delete the contact <contact>?', say 'Yes'. The system responds with 'Contact deleted'.

To retrieve a list of stored contacts:

- Press the  button. When prompted, say 'Contact List'.
 - a) If the system responds with 'Contact list'. Please say a command', say 'List contacts'.
The system begins to list the stored entries.
 - b) If the system responds with 'Contact list is empty. Do you wish to add a contact?', say 'No'. The system exits to ready state.

Switching Voice Prompts On/Off

Use the following procedure to switch voice prompts on/off:

1. Press the  button. When prompted, say 'Set-up menu'.
2. Say 'Prompts On' or 'Prompts Off'. The system responds with 'Prompts On' or 'Prompts Off'.

To switch the 'Caller Announce' function on/off:

1. Press the  button. When prompted, say 'Set-up menu'.
2. Say 'Caller Announce On' or 'Caller Announce Off'. The system responds with 'Caller Announce On' or 'Caller Announce Off'.

Selecting a language

It is possible to change the language of the voice prompts within the Bluetooth system. Before attempting to change the language please ensure that the module supports your new language choice. The module part numbers and language split is as follows:

Module Part No.	Model	Languages Supported	Default Fitment In
4G43-19C112-AA	DB9	English UK US English Spanish French German	UK USA Canada Eire Spain
4G43-19C112-BA	DB9	English UK French German Italian US English	France Germany Italy Switzerland Austria Belgium
6G33-19C112-AA	V8 Vantage	English UK US English Spanish French German Italian	All countries



The procedure to change the selected language is:

Warning: When changing the system's language, all contacts in the Bluetooth contacts list are deleted.

1. Press and hold the  button while turning on the vehicle ignition. Continue holding the  button for at least 10 seconds.

The system enters language selection mode and responds with 'Language Menu. Press volume up or down to change language'.

2. Use the volume Up / Down button to scroll through the language choices. As a language appears, the system plays the prompt for that language (For example: 'English. To choose this language, restart the vehicle'.).

When the desired language has been selected, turn the vehicle ignition to 0 (off). Wait for 6 seconds, then switch the ignition to II (on), the new language is then loaded.



DIAGNOSTICS

V8 Vantage Connector Pin Allocation

Pin Number	Signal Name	Input or Output	Description
3	WAKEUP	I	Module ignition input from Comfort Relay via F68
4	MIC (SCRN)	I	Microphone GND
5	MIC IN+	I	Signal input for single-ended microphone direct from microphone
8	KEYPAD	I	Input signal from keypad on steering wheel
12	UIM LED	O	For Active Call LED (amber) – Earth side switch
13	RADIO MUTE	O	Mute line to radio (active Low)
14	UIM LED	O	For Bluetooth Status LED(Blue) – Earth side switch
15	GND	I	Main Battery Ground
16	GND	I	Main Battery Ground
23	HF_SPKR +	O	Audio Output +
24	HF_SPKR +	O	Audio Output -
31	VPWR	I	Power supply from Interior Light Relay via F46
32	VPWR	I	Power supply from Interior Light Relay via F46

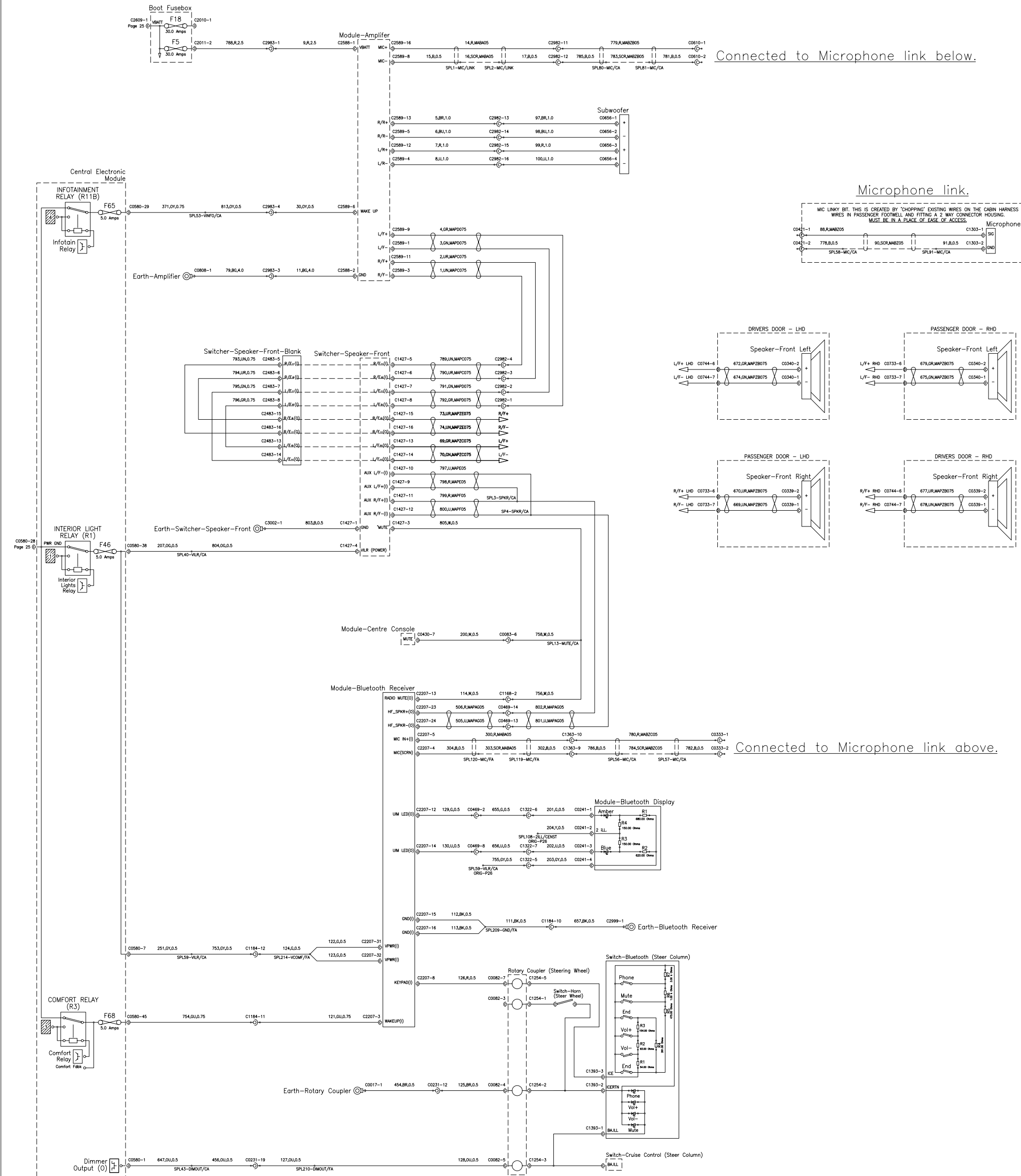
DB9 Connector Pin Allocation

Pin Number	Signal Name	Input or Output	Description
3	IGN	I	Module ignition input from Comfort Relay via F69
4	MIC (SCRN)	I	Microphone GND or Shield
5	MIC IN+	I	Signal input for single-ended or differential mic.
6	MIC IN-	I	Signal input for differential microphone
8	KEYPAD	I	Input signal from keypad on steering wheel
12	UIM LED	O	For Active Call LED (amber) – Earth side switch
13	RADIO MUTE	O	Mute line to radio (active Low)
14	UIM LED	O	For Bluetooth Status LED(Blue) – Earth side switch
15	GND	I	Main Battery Ground
16	GND	I	Main Battery Ground
22	LINEOUT (SCRN)	I	Audio output screen
25	LINEOUT+	O	Audio Output +
26	LINEOUT-	O	Audio Output -
31	VPWR	I	Power supply from Interior Light Relay via F46
32	VPWR	I	Power supply from Interior Light Relay via F46

Troubleshooting

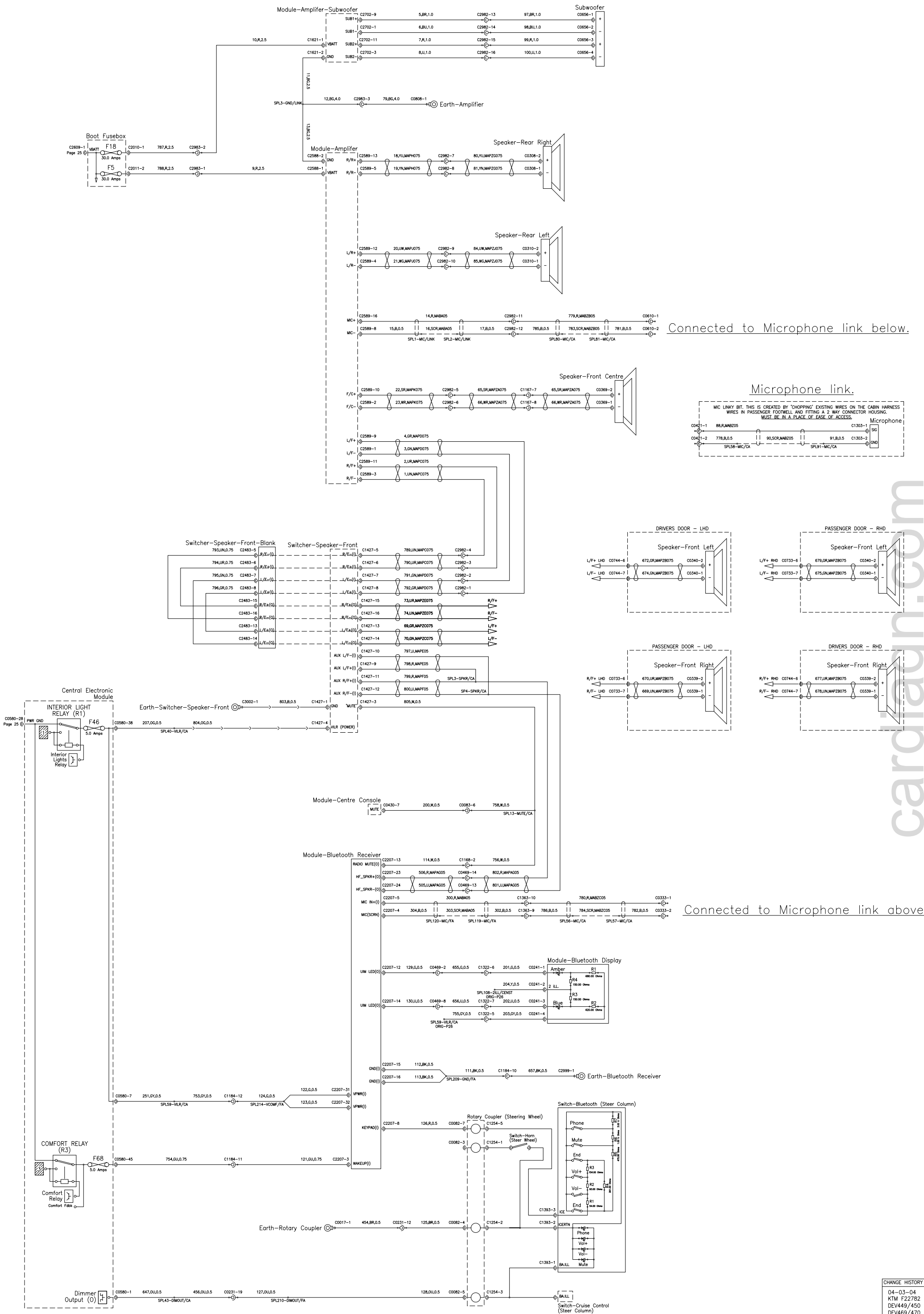
Symptom	Action
New phones will not pair with the vehicle system	• The phone must support Bluetooth Handsfree Profile 0.96 or 1.0. • The system supports a maximum of 4 phones at once. Make sure this limit is not exceeded. • Remove all previous pairings using the 'Remove All' command. The system should then be restarted. • Delete the pairing information on the phone and ensure that the phone is removed from any other systems with which it is paired.
Poor VR Performance	• Enter the digits in segments • Speak with no pauses • Talk louder • Speak towards the direction of the microphone • Check that the centre air vents are not facing directly up to the microphone
System does not respond	• Check LED Indicator connection • Check the connection to the Bluetooth module.





CHANGE HISTORY	
04-03-04	KTM F22782
DEV449/450	DEV469/470
DEV465/466	DEV467/468

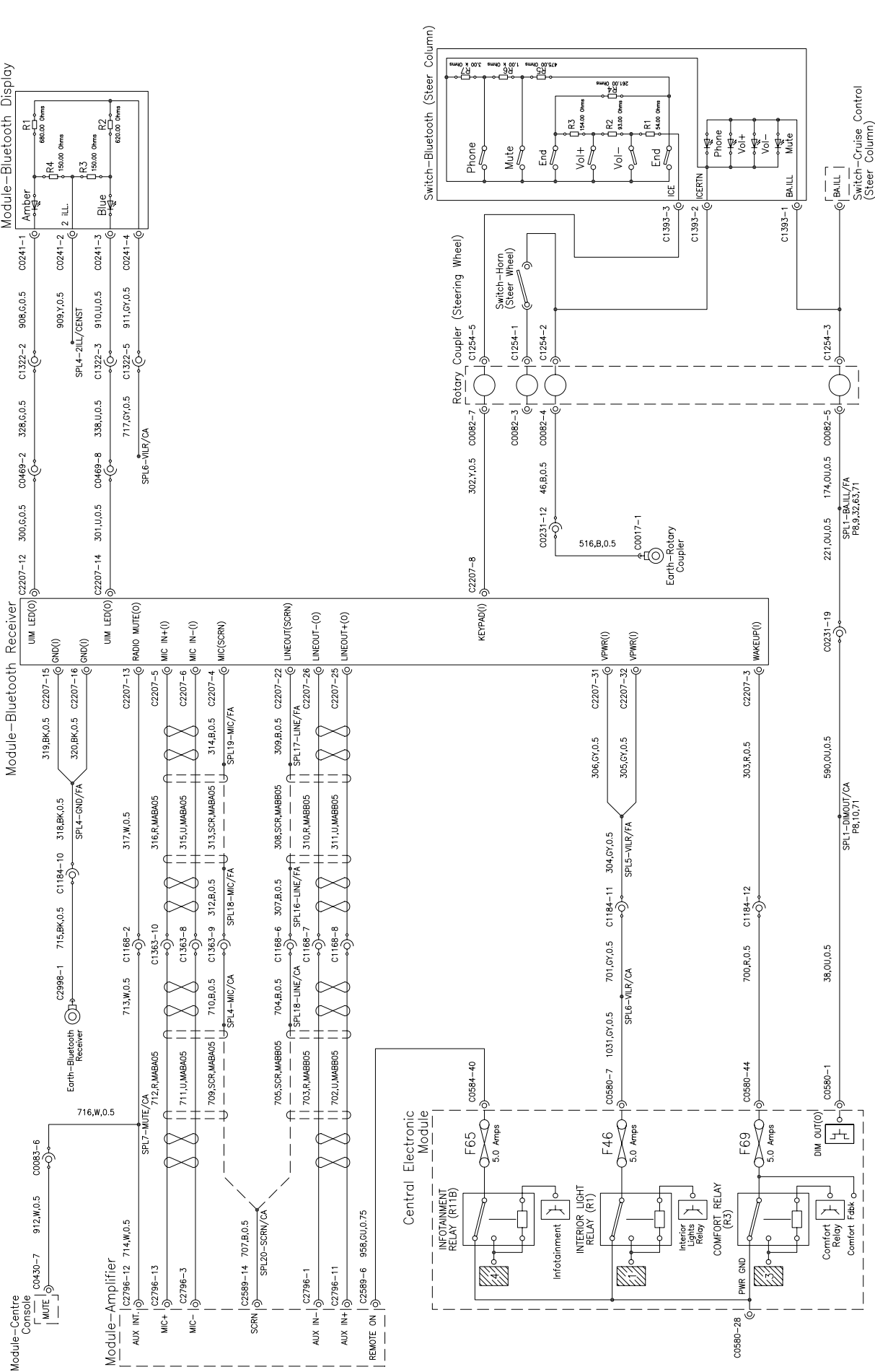






CHANGE HISTORY

20-09-04
KTM G24187
DEV624/625
DEV626/627
DEV649/650
DEV651/652
DEV653/654



DRAWN BY	A.PEARSON	SIGNATURE	A.PEARSON	DATE	27-11-03	SYSTEM	BLUETOOTH	PROJECT	AM803	BUILD	JOB1	CPSC CODE	XX.XX.XX	PAGE	76
CHECKED BY		SIGNATURE		DATE		SUB SYSTEM	(FINAL PRODUCTION INTENT 13-07-04)	DRAWING No.	AM803	ISSUE LEVEL	JOB1 A				
APPROVED BY		SIGNATURE		DATE		VARIANT	RHD/LHD	SYSTEM OWNER	SUE BAILEY	SHEET No.	76	No OF SHEETS	77	DATE	25-Jun-04