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SPEED CONTROL - INGENIUM I6 3.0L PETROL (G2342518)

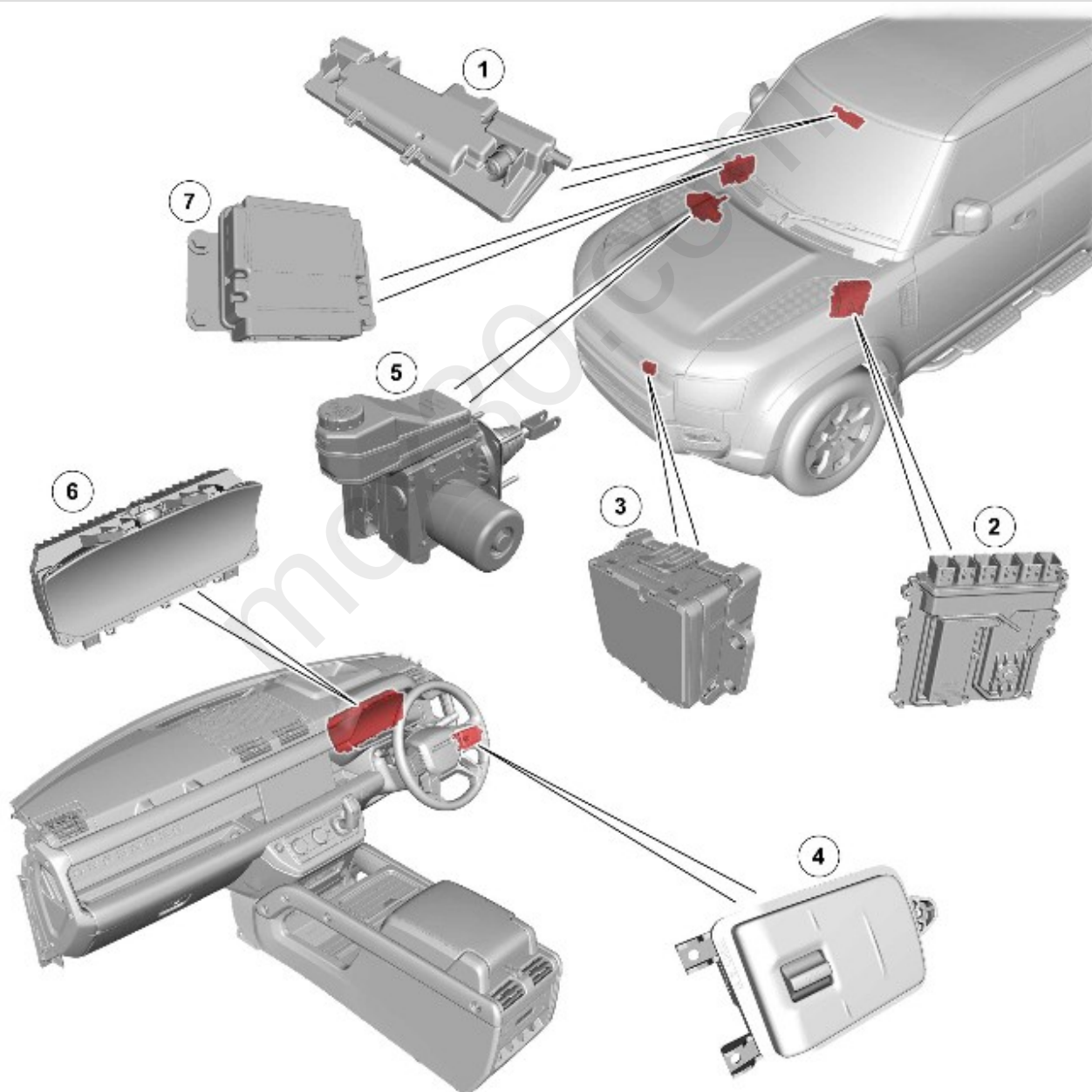
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COMPONENT LOCATION

COMPONENT LOCATION - 1 OF 1

NOTE:

Right Hand Drive (RHD) vehicle is shown, Left Hand Drive (LHD) vehicle is similar.



ITEM	DESCRIPTION
1	Image Processing Module (IPMA)
2	Powertrain Control Module (PCM)
3	Cruise Control Module (CCM) - Vehicle with adaptive cruise control only
4	Right steering wheel switch
5	Anti-Lock Brake System Control Module (ABS) - Integrated with the Integrated Power Brake
6	Instrument Panel Cluster (IPC)
7	Driver Assistance Domain Controller (DADC)

OVERVIEW

There are 4 variants of speed control available:

- A cruise control system
- An adaptive cruise control system
- A speed limiter system
- An adaptive speed limiter system.

The cruise control system maintains a set speed when the driver activates the cruise control. The cruise control can be suspended or canceled by a further input from the driver. The cruise control system is controlled by the DADC.

The adaptive cruise control system includes the same functionality as the cruise control system, but also has the ability to:

- Automatically reduce vehicle speed, to less than the set speed, in order to maintain the selected time gap behind a slower moving vehicle.
- Automatically increase the speed of the vehicle back to the set speed when it is safe to do so.
- Alert the driver when a potential forward collision is detected within the detection area in front of the vehicle.

The speed limiter system restricts the vehicle speed to an adjustable preset maximum and prevents the vehicle exceeding that speed.

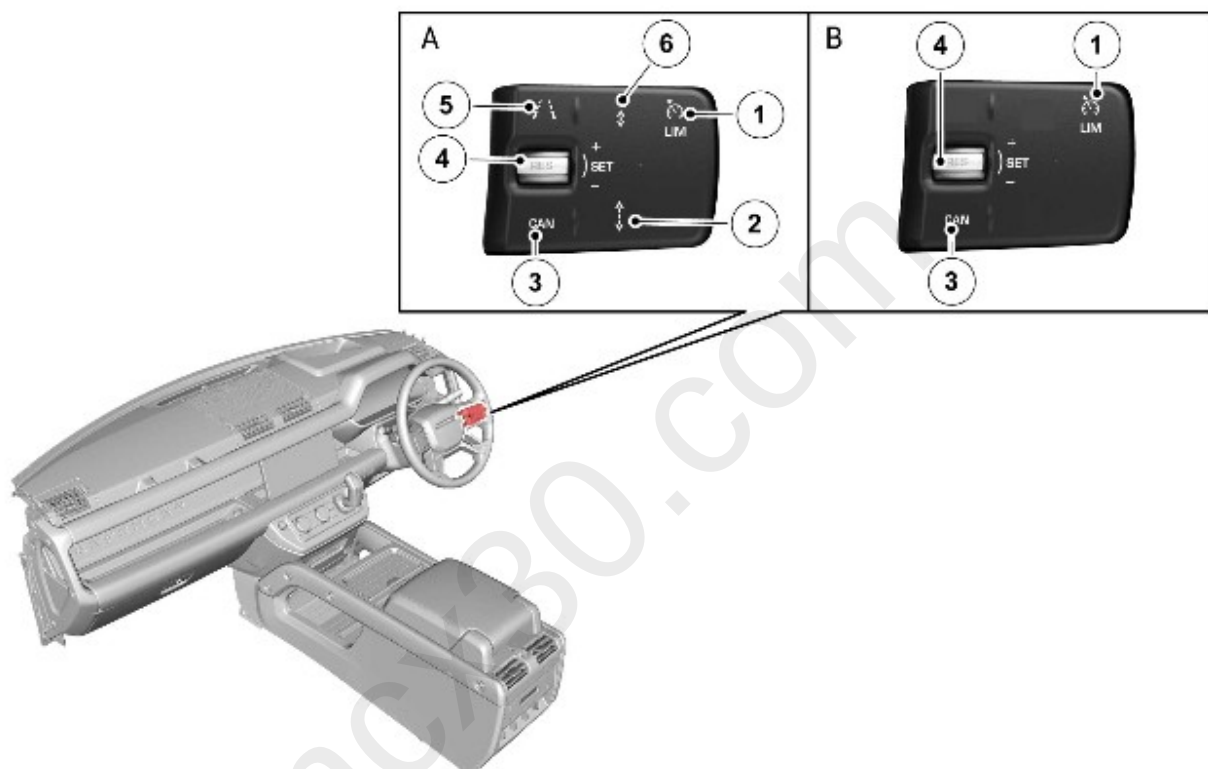
The adaptive speed limiter system reduces the vehicle speed to the maximum recommended for that particular road. The adaptive speed limiter system determines the speed limit by accessing data from the navigation system and the IPMA.

DESCRIPTION

CRUISE CONTROL SWITCHES

NOTE:

RHD vehicle is shown, LHD vehicle is similar.



E250784

ITEM	DESCRIPTION
A	Vehicles with adaptive cruise control
B	Vehicles with cruise control
1	Speed limiter switch
2	Time gap increase switch - Vehicle with adaptive cruise control only
3	'Cancel' switch - Disengage the cruise control
4	Rocker switch - Engage the cruise control, increase the set speed, decrease the set speed and resume the canceled set speed
5	Steering assist switch - Vehicle with adaptive cruise control only
6	Time gap decrease switch - Vehicle with adaptive cruise control only

The cruise control switches are located on the right steering wheel switch. There is a sub harness on the steering wheel which connects the switches to the clockspring. The cruise control switches consist of the capacitive touch switches and the rocker switch. The following functions are selected by pressing the cruise control switches:

- Cruise control system
- Adaptive cruise control system
- Speed limiter system.

Cruise control system

The cruise control function is hosted by the DADC. The DADC calculates the amount of acceleration or deceleration required to control the vehicle speed and sends a request to the ABS. The ABS sends a request for engine torque control to the PCM. The ABS also sends a request for braking, which is handled internally within the ABS.

The following cruise control switches on the right steering wheel switch are used to operate the cruise control system:

- Rocker switch
 - 'SET +'
 - 'SET -'
 - 'RES'.
- 'Cancel' switch
- Speed limiter switch.

The cruise control warning indicator in the IPC illuminates when cruise control is engaged.

Cruise Control Warning Indicator



E147363

During cruise control operation, the cruise control system can be used to accelerate the vehicle without using the accelerator pedal.

The driver can also intervene by using the brake or accelerator pedals at any time.

Adaptive cruise control system



NOTE:

The adaptive cruise control system is intended for use in specific driving situations. The adaptive cruise control system does not remove control and responsibility from the driver.

The adaptive cruise control system allows the driver to set a cruising speed for the vehicle. The vehicle speed is automatically reduced when a slower moving vehicle is detected in the lane ahead. The system then maintains a constant gap to the vehicle ahead. When the system detects that the slower moving vehicle is no longer present, it automatically raises the vehicle speed back to the set speed.

The adaptive cruise control system comprises the following features to operate effectively:

- Follow mode
- Queue assist
- Stop and go
- Steering assist.

The adaptive cruise control switches are the same as used for the cruise control system, with the following:

- The addition of 2 time gap switches
- A steering assist switch.

The time gap switches allow the driver to adjust the follow mode function to 1 of 4 pre-set time gaps. The 4 pre-set time gaps are the following:

- Gap 1 = 0.8 second
- Gap 2 = 1.3 seconds
- Gap 3 = 1.8 seconds
- Gap 4 = 2.3 seconds.

The selected time gap is displayed in the IPC message center when the time gap switches are operated.

When the adaptive cruise control is engaged, the switches adjust the follow mode time gap. The default setting for the follow mode time gap is 1.8 seconds when in Power Mode 7 (engine running).

Speed limiter system

The speed limiter is a driving aid only.

The speed limiter does not operate when cruise control or adaptive cruise control is engaged. The speed limiter switch enables the driver to select cruise control mode or speed limiter mode.

There are 2 types of speed limiter:

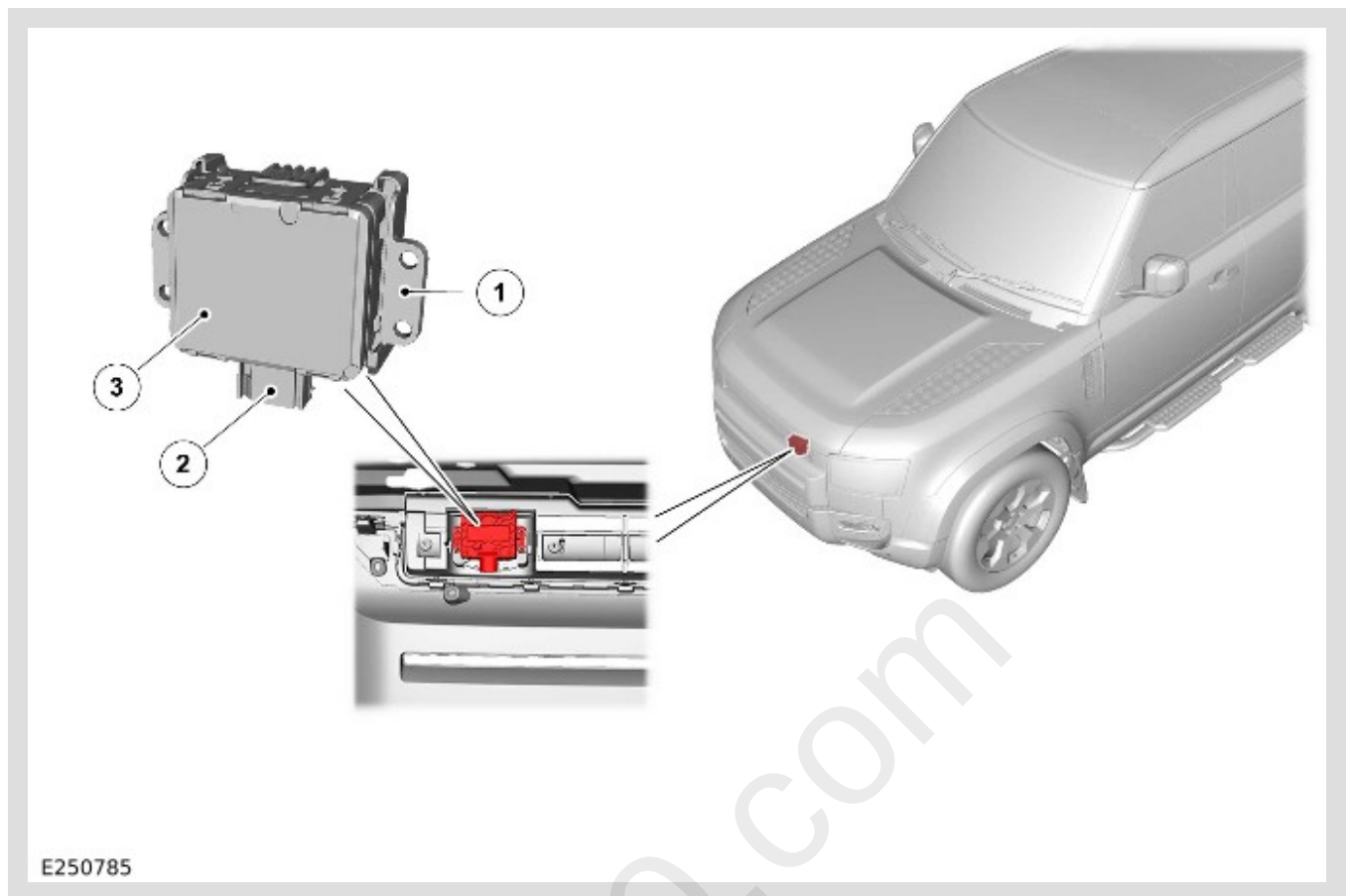
- Speed limiter - Allows the driver to manually restrict the maximum vehicle speed.
- Adaptive speed limiter - Works in conjunction with the Traffic Sign Recognition (TSR) system and the navigation system to restrict the maximum vehicle speed.

The speed limiter system is activated through the 'LIM' switch on the right steering wheel switch.

When the speed limiter mode has been activated, selection of the speed limiter or adaptive speed limiter can be made by:

- Pressing and holding the 'Cancel' switch for 4 seconds.
- The Touchscreen (TS).

CRUISE CONTROL MODULE



ITEM	DESCRIPTION
1	CCM bracket
2	Electrical connector
3	CCM

The CCM is located behind the left of the radiator grille. The CCM bracket is secured to the radiator grille with 4 bolts.

The CCM contains a forward looking radar transceiver together with related controlling hardware and software. A High Speed (HS) Controller Area Network (CAN) Underbody (UN) systems bus connection allows the CCM to communicate with other system control modules. Power supply to the CCM is from the relay in the Rear Junction Box (BCMB).

The CCM is active whenever in Power Mode 6 (ignition ON), even when cruise control is not engaged. The forward alert and Autonomous Emergency Braking (AEB) functions also use the CCM. With Power Mode 6 (ignition ON), the CCM is electrically powered, but no radar transmissions are emitted until in Power Mode 7 (engine running).

The CCM transmits a radar beam forward of the vehicle and detects the returning signals reflected off other vehicles and objects ahead. The radar operates at millimetric wavelengths (76 - 77 GHz) and transmits a frequency modulated continuous wave signal at a relatively low power level. The CCM detects the range, relative velocity and angle of

objects within the scanned arc for up to a maximum distance of 140 m (500 feet). The horizontal scanned arc is 20° wide and centered on the longitudinal axis of the vehicle. The vertical scanned arc is 10° high and centered on a nominal position.

The CCM compares vehicle speed data from the ABS with the relative speed of an external object. The speed of the objects is detected by the radar to determine that the object is stationary or not. When tires are equipped which are different in diameter from those specified for the vehicle it may cause an incorrect road speed to be calculated. The ABS calculates the vehicle speed. The incorrect information may cause stationary objects to be falsely identified as moving vehicles. The detection of falsely moving vehicles may result in the speed of the sensing vehicle decreasing.

The CCM continuously monitors both moving vehicles and stationary objects to determine if it can 'see' normally. There are situations when the CCM may determine that it is blocked:

- When the CCM can detect only a few objects.
- When physically covered or obstructed, for example, by an accumulation of snow or mud on the radiator grille.
- When traveling through a tunnel or in complex traffic situations.

The CCM then inhibits adaptive cruise control and records a Diagnostic Trouble Code(s) (DTC). The adaptive cruise control system resets within the same ignition cycle. In this case the CCM does not have a fault and should not be replaced.

The CCM does not require mechanical alignment when it is replaced in service. Horizontal and vertical alignment is achieved by putting the CCM into service alignment mode using the Jaguar Land Rover (JLR) approved diagnostic equipment. The vehicle then needs to be driven for a short period while the CCM does a calibration routine. Calibration is complete when the follow mode warning indicator in the IPC stops flashing.

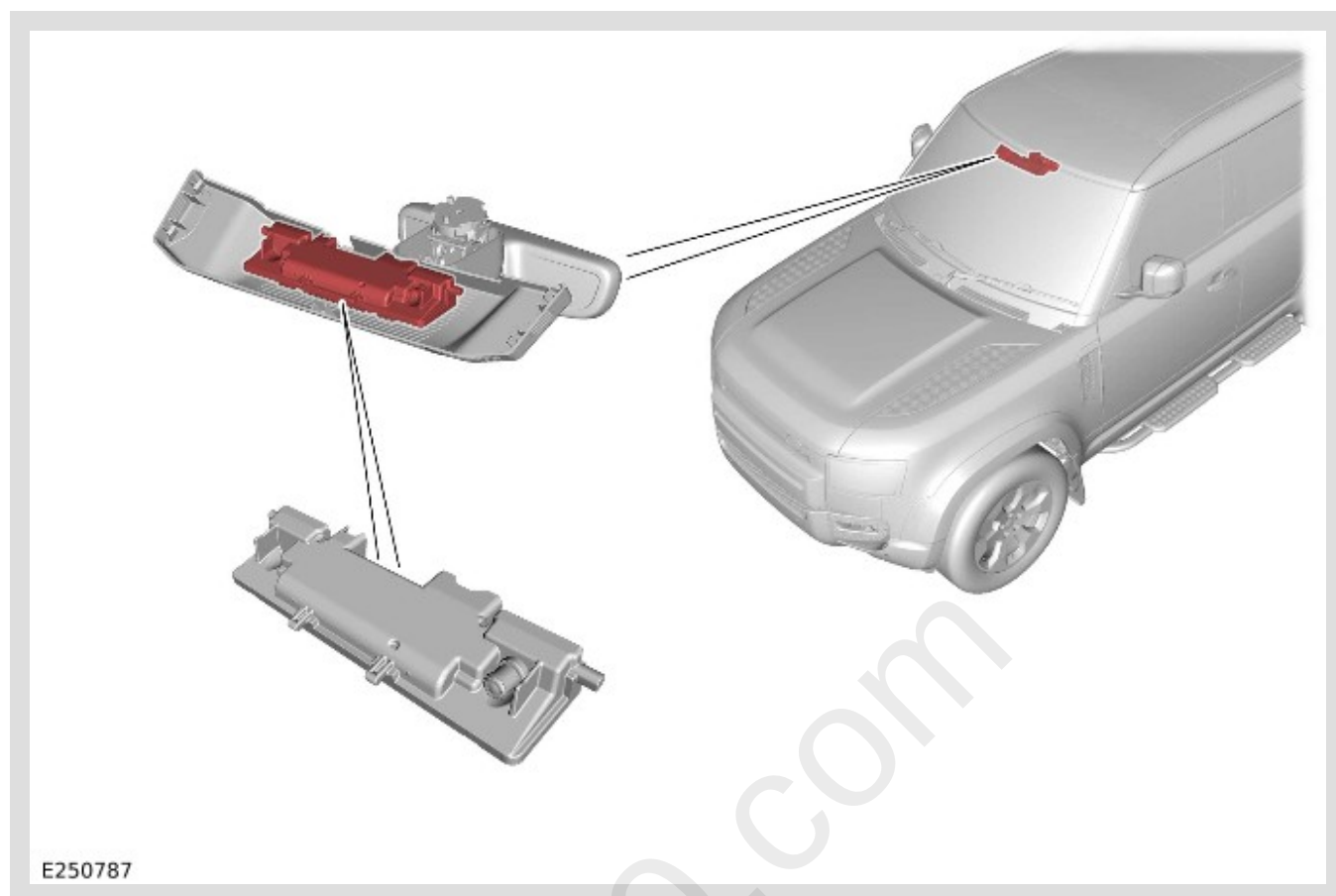
The service alignment process measures the path of stationary targets. For example, streetlights, railings, road signs and parked vehicles. The service alignment process uses this data to correct for mechanical misalignment.

Alignment completes more quickly when more suitable targets are available.

The following recommendations help:

- The speed must be above 48 km/h (30 mph).
- Try to keep the speed constant. The process takes longer to complete when the speed is not constant.
- Choose a road with plenty of stationary objects. For example, lamp posts, railings, street signs or parked vehicles. Use an inside or outside lane.
- Following vehicles too closely obscures the stationary targets from the radar, a time gap of at least 2 seconds is recommended.

IMAGE PROCESSING MODULE 'A'

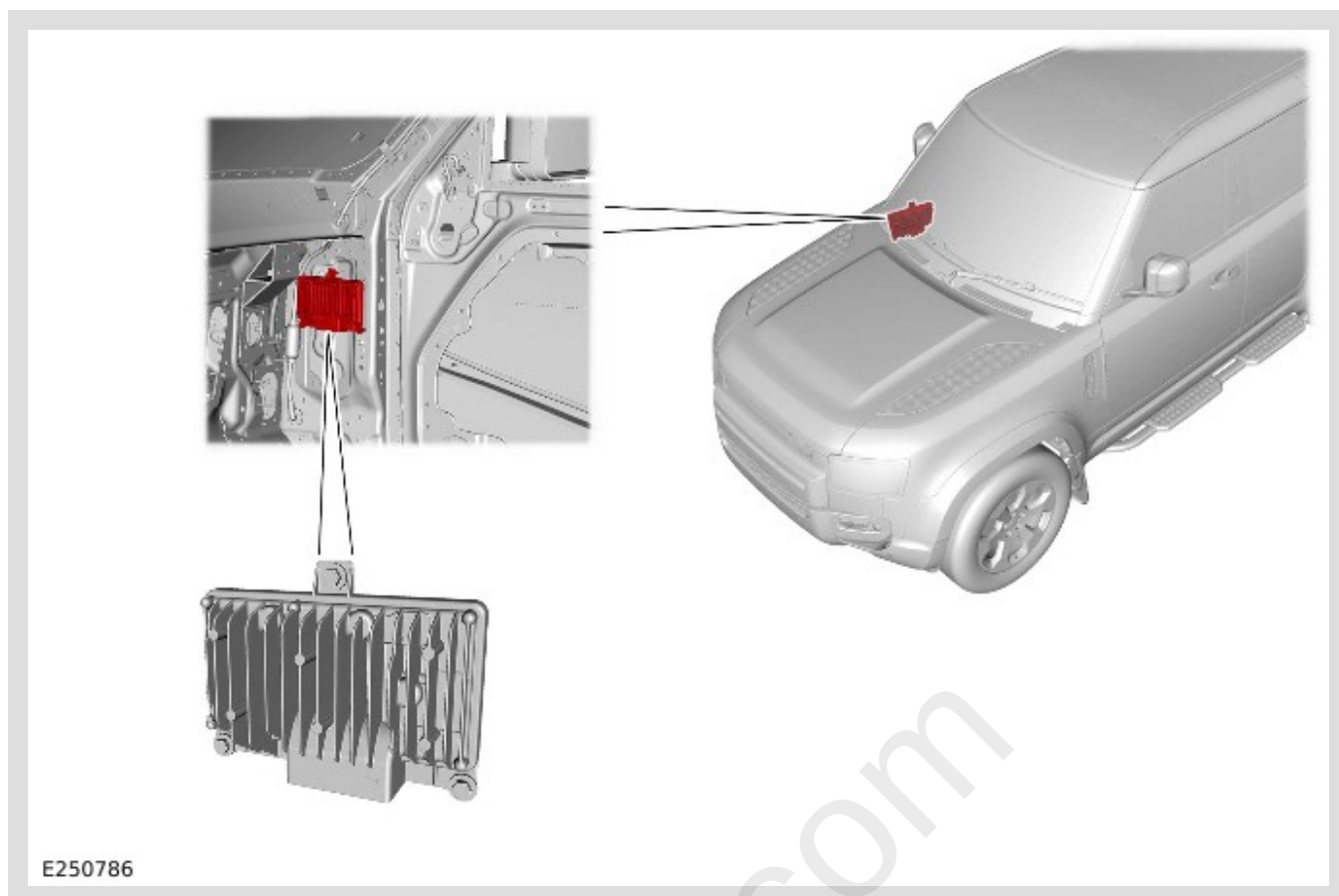


The IPMA is located below the rear view mirror. The IPMA uses the forward facing cameras to scan the road ahead. The information is shared with the DADC to operate the function of the adaptive cruise control. The IPMA sends the information on the HS CAN UN systems bus.

DRIVER ASSISTANCE DOMAIN CONTROLLER

NOTE:

RHD vehicle is shown, LHD vehicle is similar.



The DADC is located behind the right of the instrument panel.

The DADC has connections for the following:

- Power
- Ground
- FlexRay
- Private CAN bus
- HS CAN UN systems bus.

The DADC receives the information from the CCM and the IPMA to operate the cruise control.

POWERTRAIN CONTROL MODULE

The PCM is located on the left of the engine compartment behind the front left wheel arch.

The PCM receives inputs from various sensors and outputs reference voltages and signal information to other sensors and actuators for power control.

For additional information, refer to: [Electronic Engine Controls](#) (303-14B Electronic Engine Controls - INGENIUM I6 3.0 L Petrol, Description and Operation).

CRUISE CONTROL

Cruise control is engaged by pushing upward the rocker switch ('SET +'). Cruise control can be engaged from any speed (even stationary) with a minimum set speed of 15 km/h (10 mph). When cruise control is engaged, the IPC illuminates the cruise control warning indicator and the set speed is displayed in the message center.

Increase cruise control speed

The speed can be increased by 1 of 3 methods:

- Push upward and hold the rocker switch ('SET +') which causes the vehicle to accelerate. When the switch is released the attained speed is set as the control speed.
- Repeatedly pushing upward the rocker switch ('SET +'). Each operation increases the vehicle speed by 2 km/h (1 mph).
- Use the accelerator pedal to increase the vehicle speed. When the required speed is reached, a single press of the rocker switch ('SET +') sets the cruise control speed.

Cruise control adjustment may be changed at the current vehicle speed. The speed adjustment does not occur when the rocker switch ('RES') is pressed or when the vehicle speed is noticeably different to the set speed. This is noticeable when resuming cruise control and a large difference exists between the set speed and the current speed. The driver can set a new speed, but cannot adjust the old speed.

Decrease cruise control speed

The set speed can be decreased by the operation of pushing downward and holding the rocker switch ('SET -') until the required speed is reached. When the switch is released the speed is reset at that value. The set speed can be decreased incrementally by the operation of pushing downward and releasing the rocker switch ('SET -'). Each operation decreases the speed by 2 km/h (1 mph).

Suspend cruise control

Cruise control is automatically suspended when the following conditions apply:

- A door is opened (any door except tailgate).
- The brake pedal is pressed.
- The 'Cancel' switch is operated.
- PARK (P), NEUTRAL (N) or REVERSE (R) is selected.
- The Electric Park Brake (EPB) is applied.

- When the driver presses the accelerator pedal to override the cruise control, and the set speed is exceeded for more than 1 minute.
- The ABS requests a cruise control cancellation.
- The Hill Descent Control (HDC) is activated.
- The speed limiter is in operation.
- All Terrain Progress Control (ATPC) is activated.

In all suspend events, except when the driver door is opened, the memory speed is retained. A single operation of the rocker switch ('RES') resumes cruise control at the previously set speed.

The right steering wheel switch transmits the data to the Body Control Module (BCM)/ Gateway Control Module (GWM) through the Steering Wheel Module (SWM). The BCM/ GWM communicates with the SWM on the Local Interconnect Network (LIN). The BCM/ GWM then passes the data onto the FlexRay and to the HS CAN UN systems bus.

The cruise control system uses inputs from the following:

- Accelerator Pedal Position (APP) sensor
- PCM
- ABS.

ADAPTIVE CRUISE CONTROL



WARNING:

The adaptive cruise control system is not an impact warning or avoidance system. At all times the driver must be prepared to intervene to control the vehicle speed.

Adaptive cruise control operation is similar to the cruise control system for engaging, suspending and resuming cruise control.

The main differences between the 2 systems:

- The adaptive cruise control remains engaged at a vehicle speed of less than 15 km/h (10 mph).
- The adaptive cruise control uses the brakes to slow the vehicle, to a stop if necessary.

The adaptive cruise control system utilizes the following main components:

- CCM
- IPMA
- Parking Aid sensors (quantity 8)
- Park Assist sensors (quantity 4)
- Side Obstacle Detection Control Module - Left (SODL)

- Side Obstacle Detection Control Module - Right (SODR)
- Right steering wheel switch
- PCM
- Electric throttle
- ABS
- Adaptive cruise control warning indicator - Displayed in the IPC.

The adaptive cruise control system uses a forward looking radar sensor, integrated into the CCM. The radar sensor scans the road ahead and looks for objects that are moving at a different speed to the sensing vehicle speed. When a target is identified, the adaptive cruise control system monitors the time gap between the sensing vehicle and the target vehicle.

When the gap is less than the set driver selected level, the adaptive cruise control system intervenes until the correct time gap is attained. The adaptive cruise control slows the vehicle by closing the throttle, and it can also apply the brakes if it is necessary. The driver can choose between 4 time gap settings. The chosen setting is displayed in the IPC.

The adaptive cruise control system detects but does not react to the following:

- Vehicles in the oncoming lane
- Stationary vehicles
- Pedestrians.

The adaptive cruise control system also uses the IPMA camera to scan the road ahead. The IPMA sends object detection data to the DADC. The purpose is to improve the tracking and classification of vehicles and other targets, for instance detection of vehicles changing lanes and stopped vehicles. The adaptive cruise control system therefore brings the vehicle to a halt behind stopped vehicles in low speed queuing, for instance at multi-lane traffic lights. The cruise control system does not brake for stationary vehicles when the vehicle speed is greater than 30 km/h (20 mph). When the camera is not available the system continues to operate on radar data only.

The adaptive cruise control system allows the following additional features:

- Auto resume (no pedal press required) when the lead vehicle moves off within 3 seconds of stopping.
- An audible warning when a pedestrian is detected within 1 meter in front of the vehicle during the restart.
- Automatic engine restart during queue assist when the vehicle ahead moves off.
- Update of the adaptive cruise control warning indicator with lead vehicle position display.

The adaptive cruise control is active at a minimum set speed of 15 km/h (10 mph) and a maximum of up to 200 km/h (124 mph). The adaptive cruise control is also active all the way up to the maximum vehicle speed with a maximum

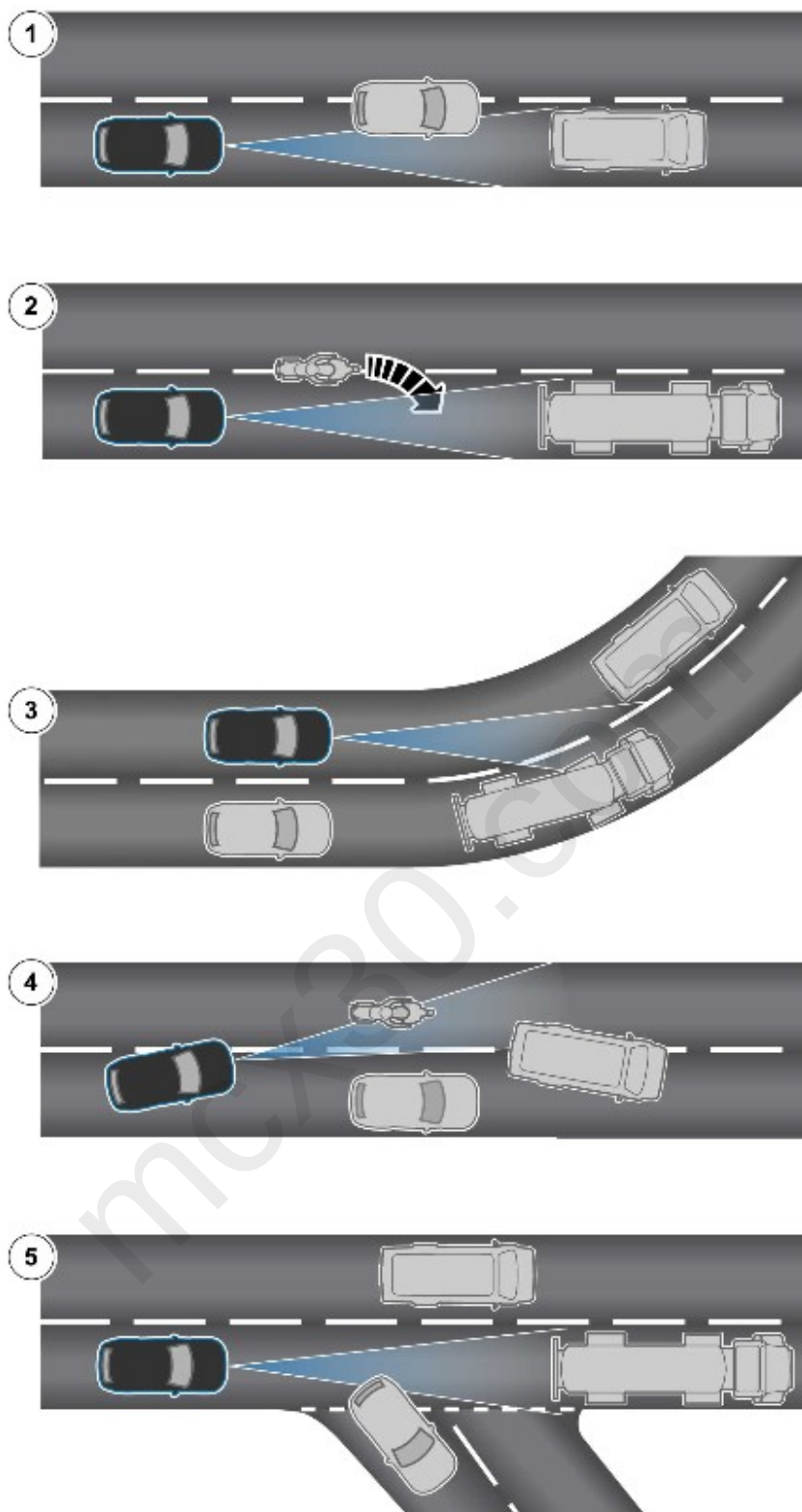
set speed of 200 km/h (124 mph). The adaptive cruise control system only functions when a set speed is entered through the operation of the rocker switch ('SET +'). The adaptive cruise control system only intervenes with the set speed when it detects a target vehicle. The adaptive cruise control system reduces the sensing vehicle speed when the time gap is less than the selected time gap.

The PCM and fuel injection control are unchanged from those used for the cruise control system.

ADAPTIVE CRUISE CONTROL SYSTEM RESTRICTIONS

The adaptive cruise control system is only intended to provide enhanced cruise control in certain specific conditions. The following illustration shows circumstances where the adaptive cruise control system may brake late or unexpectedly. The driver is required to intervene in these situations.

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ITEM	DESCRIPTION
1	Driving on a different line to the vehicle in front
2	Vehicles that merge into the same lane are only detected when they have moved fully into the lane
3	On bends in the road there can be issues with detection of the vehicle in front when going into and coming out of a bend

ITEM	DESCRIPTION
4	Moving around a stationary vehicle may cause uncertainty regarding which vehicle is being followed
5	A vehicle in front moving out of your lane may cause uncertainty regarding which vehicle is being followed

On the approach to a bend or exit from a bend, a target vehicle may be lost or a new target may be sensed. The change is due to the vehicles ahead changing their angular position with respect to the CCM. The sensing vehicle losing the target vehicle causes the sensing vehicle to increase speed to the set speed. The acceleration is undesirable either on a bend in the road, or entering a bend in the road when the target is suddenly lost.

SPEED LIMITER

The speed limiter icon illuminates when the speed limiter is activated by pressing the 'LIM' switch. The selected speed is displayed in the IPC.

The system speed is set using the rocker switches ('SET +' and 'SET -') as the following:

- Push upward and hold the rocker switches ('SET +') to increase the speed limiter set speed in 10 km/h (5 mph) steps.
- Push upward and release the rocker switches ('SET +') to increase the speed limiter set speed by 2 km/h (1 mph).
- Push downward and hold the rocker switches ('SET -') to decrease the speed limiter set speed in 10 km/h (5 mph) steps.
- Push downward and release the rocker switches ('SET -') to decrease the speed limiter set speed by 2 km/h (1 mph).

The speed limiter can be suspended by operating the 'Cancel' switch. The speed limiter can be resumed at the previously used set speed by operating the rocker switch ('RES'). The speed limiter can also be resumed when the vehicle speed is up to a maximum of 30 km/h (20 mph) above the previous set speed.

When the vehicle speed is too high to resume the speed limiter operation, 'TOO FAST TO RESUME' is displayed in the IPC message center.

The speed limiter system allows full driver control of the vehicle speed up to the set speed. The speed limiter restricts the vehicle speed and does not allow the speed to go over the set limit. When the driver fully depresses the accelerator pedal the speed limiter is temporarily overridden.

ADAPTIVE SPEED LIMITER

The adaptive speed limiter icon illuminates when the adaptive speed limiter has been selected. The adaptive speed limiter restricts the vehicle maximum speed to the current legal applicable road speed limit. The speed limit information is provided by the navigation system and TSR. When a valid speed limit is not available, the adaptive speed limiter is deactivated and the limiter defaults to the speed limiter.

The adaptive speed limiter system only responds to speed settings from 15 km/h (10 mph) to the maximum speed limit 150 km/h (93 mph). Below the speed range a message, 'SET POINT OUT OF RANGE' is displayed in the

message center. If TSR above the maximum speed limit range, the adaptive speed limiter sets the speed limiter to unlimited.

Adjustment maximum of 10 km/h (5 mph) above and below the legal speed limit, can be set by operating the rocker switches. When a legal speed limit is detected higher or lower than the current vehicle speed, the adaptive speed limiter adjusts the speed at safe level.

When the vehicle speed exceeds the speed limit by more than 3.5 km/h (2.2 mph), a warning is displayed in the message center. When the speed exceeds the speed limit by 7 km/h (4.4 mph) for more than 4 seconds, a chime sounds.

Operating the 'Cancel' switch puts the adaptive speed limiter into standby mode. The adaptive speed limiter can be reactivated by operating the rocker switch ('RES').

When the driver fully depresses the accelerator pedal, the adaptive speed limiter is overridden.

When the vehicle is equipped with speed limiter and adaptive speed limiter systems:

- When the speed limiter system was in use when the ignition was turned OFF, the selected speed limiter mode is saved. The speed limiter is activated again when the ignition is switched back ON. However the speed settings are not remembered and have to be set again.
- When the adaptive speed limiter system was in use when the ignition was turned OFF, the speed limiter setting is remembered across drive cycles. When the ignition is turned back ON, the adaptive speed limiter remains enabled.

FOLLOW MODE

A set speed is selected and this speed is maintained until a slower vehicle is encountered in the lane ahead. When the vehicle ahead comes within the effective range of the CCM radar, the system identifies it as a target vehicle. When the distance between the 2 vehicles closes to the set time gap, the CCM reduces engine speed. The CCM applies the brakes to maintain the set time gap when it is necessary.

To indicate that the system is in follow mode:

- The follow mode warning indicator illuminates in the IPC.
- The current time gap setting is displayed in the message center.

Follow Mode Warning Indicator



E251026

Automatic braking is limited to approximately 30% of full pressure (0.3g deceleration) and is intended to provide a smooth, gradual deceleration in follow mode conditions.

Follow mode is effectively a closed loop system. When several vehicles are ahead, the closest vehicle is chosen as the target to follow.

The system exits follow mode and extinguishes the follow mode warning indicator:

- When the target vehicle moves out of the CCM radar range.
- When either vehicle changes lane.

The adaptive cruise control system then increases vehicle speed back to the original set speed.

QUEUE ASSIST MODE

When the target vehicle comes to a halt, the CCM reduces engine speed and applies the brakes. The CCM halts the sensing vehicle and suspends cruise control operation when adaptive cruise control is engaged.

The CCM also applies the EPB when 1 of the following occurs:

- Adaptive cruise control is disengaged with the 'Cancel' switch.
- The driver seatbelt is unbuckled.
- The driver door is opened.

When the target vehicle moves away, the cruise control operation can be resumed by:

- Pressing the accelerator pedal for a minimum of 0.5 second.
- Operating the rocker switch ('RES').

The sensing vehicle then follows the target vehicle in follow mode or until it stops again. When the sensing vehicle can no longer detect a target, the vehicle increases speed to the set speed.

FOLLOW MODE OFF

The driver may select follow mode OFF when it is desired. The mode engages speed without reacting to vehicles ahead, or when a blockage is detected which inhibits normal operation. When the follow mode is selected OFF, the CCM does not react to vehicles ahead.

The follow mode can be disabled by pressing and holding the gap decrease switch on the right steering wheel switch. Press the switch until the 'Follow Mode Off' message is displayed. The follow mode OFF warning indicator is then displayed in the message center.



NOTE:

Follow mode ON is the default setting for adaptive cruise control. Follow mode OFF is automatically canceled when the ignition is switched OFF.

By pressing and holding the follow mode gap increase switch to switch the follow mode ON. The previous gap settings resume and the follow mode warning indicator illuminates.

FORWARD ALERT



NOTE:

The system is intended as a driver aid and should be used as such. The system is NOT an impact warning or avoidance device.

When a potential forward collision is detected within the detection area in front of the vehicle:

- An audible warning tone is emitted from the speakers.
- A warning message is displayed in the message center.

There are 4 forward alert sensitivity settings available:

- OFF
- Very early
- Early
- Normal.

Forward alert does not initiate any direct action, the driver must take the appropriate action when the message is displayed in the message center. The system monitors driver intervention and may not issue the warning when the driver has taken the appropriate action (braking, steering or indicating) early enough.

The sensitivity of the forward alert system can be changed through the TS when the adaptive cruise control is not engaged. Confirmation of the gap change is given in the message center. The forward alert function recalls the last selected sensitivity setting when in Power Mode 7 (engine running).

AUTONOMOUS EMERGENCY BRAKING

The AEB system detects targets within the detection area in front of the vehicle. The AEB system is hosted within the DADC. The AEB system uses the IPMA and the CCM for object detection and classification. The AEB system is only activated when the vehicle is moving forward.

The AEB system constantly monitors and calculates the potential collision threat. The AEB system operates up to a maximum vehicle speed of 130 km/h (80 mph). When there is a potential collision, the driver is alerted by:

- An audible warning tone is emitted from the speakers.
- A warning message is displayed in the message center.

When the driver does not intervene, the AEB system applies full or partial braking power to stop or slow the vehicle. The purpose is to avoid or mitigate the severity of the collision.

The Advanced Emergency Brake Assist (AEBA) is an additional feature of the AEB system. The AEBA provides additional brake support when:

- There is a collision threat present.
- The driver applies less than 0.3g braking force.

The AEBA does not operate when the driver does not apply the brake. The AEBA is available at vehicle speeds above 8 km/h (5 mph). The AEBA still operates when the forward alert is switched OFF.

The AEB system is 1 of the brake functions provided by the Integrated Power Brake system.

For additional information, refer to: [Anti-Lock Control](#) (206-08 Brake Controls and Actuation, Description and Operation).

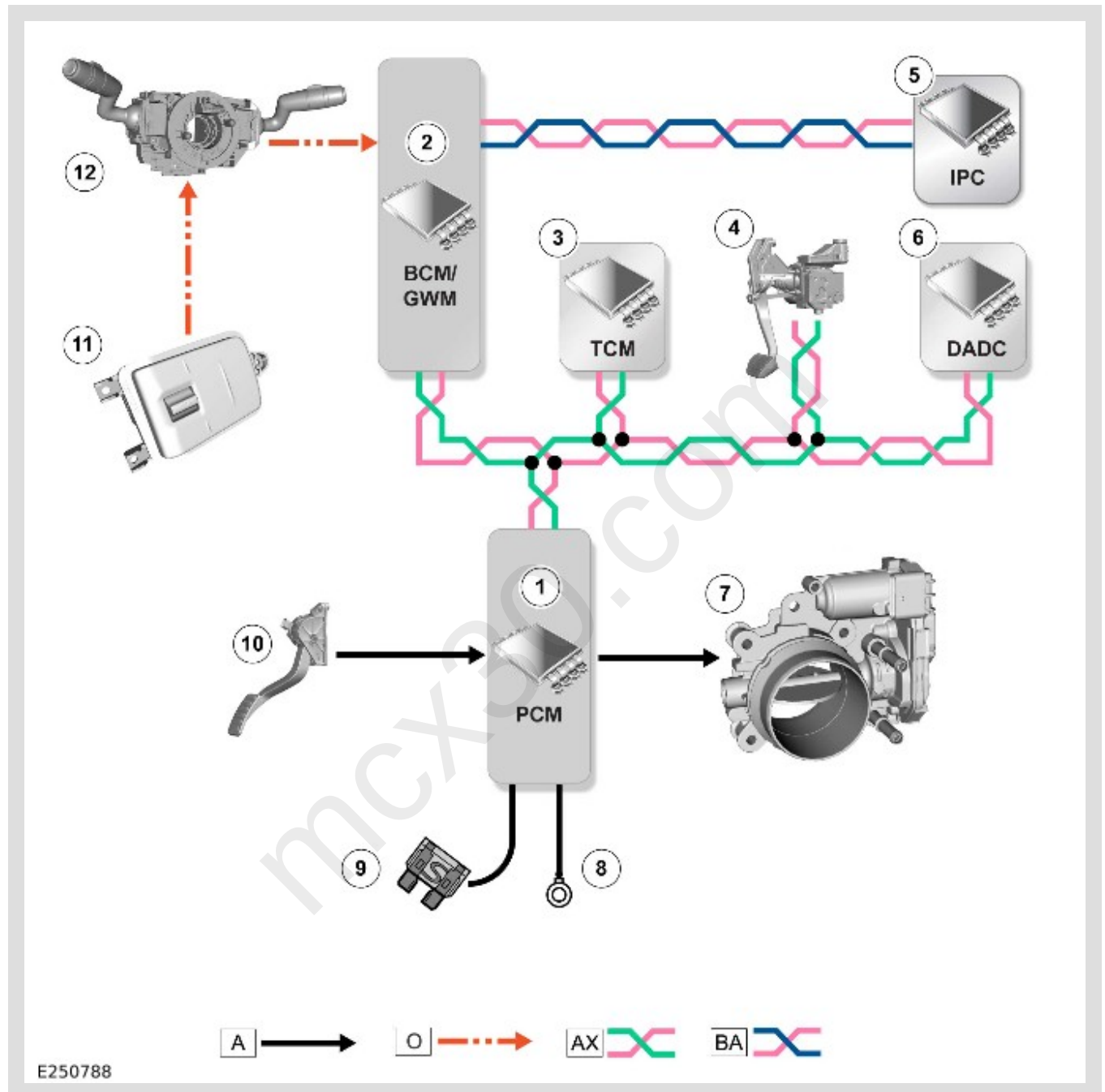
DIAGNOSTICS

The DADC, IPMA and CCM record any DTCs and related data. Read the DTCs and related data with the Jaguar Land Rover (JLR) approved diagnostic equipment.

The JLR approved diagnostic equipment can read live data and activate certain components.

CONTROL DIAGRAM

CONTROL DIAGRAM - 1 OF 2 - CRUISE CONTROL



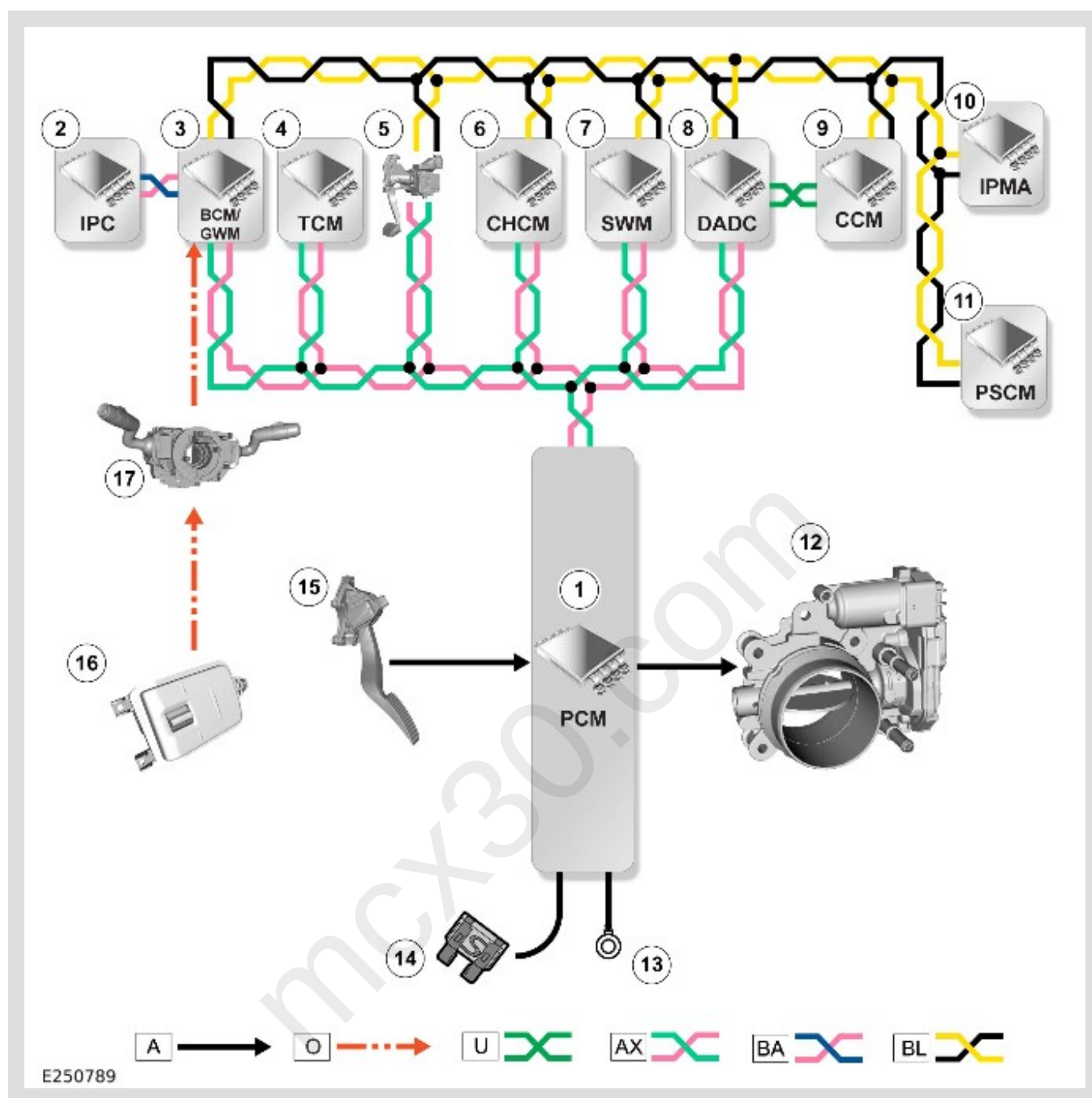
A = HARDWIRED: O = LIN: AX = FLEXRAY: BA = HS CAN HUMAN MACHINE INTERFACE (HMI) SYSTEMS BUS.

ITEM	DESCRIPTION
1	PCM
2	BCM/ GWM
3	Transmission Control Module (TCM)

ITEM	DESCRIPTION
4	Integrated Power Brake
5	IPC
6	DADC
7	Electric throttle
8	Ground
9	Power supply
10	APP sensor
11	Right steering wheel switch
12	SWM

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CONTROL DIAGRAM – 2 OF 2 – ADAPTIVE CRUISE CONTROL



A = HARDWIRED: O = LIN: U = PRIVATE CAN BUS: AX = FLEXRAY: BA = HS CAN HMI SYSTEMS BUS: BL = HS CAN UN SYSTEM BUS.

ITEM	DESCRIPTION
1	PCM
2	IPC
3	BCM/ GWM
4	TCM
5	Integrated Power Brake

ITEM	DESCRIPTION
6	Chassis Control Module (CHCM)
7	SWM
8	DADC
9	CCM
10	IPMA
11	Power Steering Control Module (PSCM)
12	Electric throttle
13	Ground
14	Power supply
15	APP sensor
16	Right steering wheel switch
17	SWM