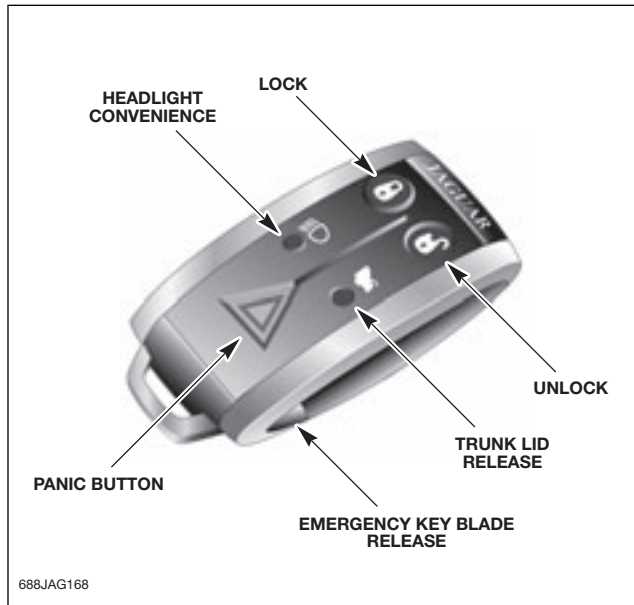


## X150 / X250 REMOTE HANDSET

X150 and X250 vehicles use the Jaguar SmartKey, which provides remote locking/unlocking and security features, in addition to Passive Entry (when equipped) and Keyless Starting (standard, all models).



### Lock Button

A single press of the LOCK button will lock all doors and the trunk, and arm the security system. The direction indicators will flash once for confirmation and a single chirp will be emitted.

If door mirror power fold is enabled (when equipped), mirrors will fold when the LOCK button is pressed.

### Unlock Button

The vehicle can be programmed for single-stage or two-stage unlocking. To change from single-stage to two-stage unlocking, or vice versa, press the LOCK and UNLOCK buttons simultaneously and hold for 4 seconds. The direction indicators will flash twice to confirm that the change has been programmed.

### Single-Stage Unlocking

A single press of the UNLOCK button will unlock all doors and the trunk. The direction indicators will flash twice as confirmation.

### Two-Stage Unlocking

A single press of the UNLOCK button will unlock the driver's door and the trunk. A second press is required to unlock the remaining passenger doors.

**NOTE:** Single or Two-Stage unlocking can also be programmed via the touch-screen.

If door mirror power fold is enabled (when equipped), mirrors will unfold when UNLOCK is pressed.

**NOTE:** Mirrors will not unfold if they have been manually folded.

## Global Open / Global Close

### Global Open

Press and hold the UNLOCK button for more than 3 seconds. The security system is disarmed, all doors and the trunk are unlocked, and all windows and the sunroof (when equipped) are opened.

### Global Close

Press and hold the LOCK button for more than 3 seconds. The security system is armed, all doors and the trunk are locked, and all windows and the sunroof (when equipped) are closed.

Global open/close can be enabled /disabled from the touch-screen display under Vehicle Settings: Security.

**NOTE:** X150 Convertible top does not have global open / close feature.

## Headlight Convenience

A single press of the headlight convenience button will switch on the headlights. The headlights will remain on for 25 seconds or until the button is pressed again, or until the engine Start/Stop switch is pressed.

## Trunk Release

A single press of the trunk release button will unlock the trunk only. The doors will remain locked and the security system will remain armed.

## Panic Alarm

To activate the panic alarm, press and hold the panic button for longer than 3 seconds, or press the button 3 times in succession within 3 seconds.

To cancel the panic alarm, press and hold the button again, or press 3 times in quick succession. The panic alarm can also be cancelled from inside the vehicle by pressing the engine Start/Stop switch (when in convenience mode) or by inserting the Jaguar SmartKey in the start control unit.

**NOTE:** The panic alarm cannot be cancelled within the first 5 seconds after activation.

## Maintenance

The Jaguar SmartKey remote handset should be handled with care and should not be exposed to extremes of heat, dust, or humidity or come in contact with fluids. The handset should not be left exposed to direct sunlight.

## Erratic Handset Behavior

High levels of electrical or RF interference may cause the handset functions to operate erratically. Once the interference is removed, the handset should operate normally.

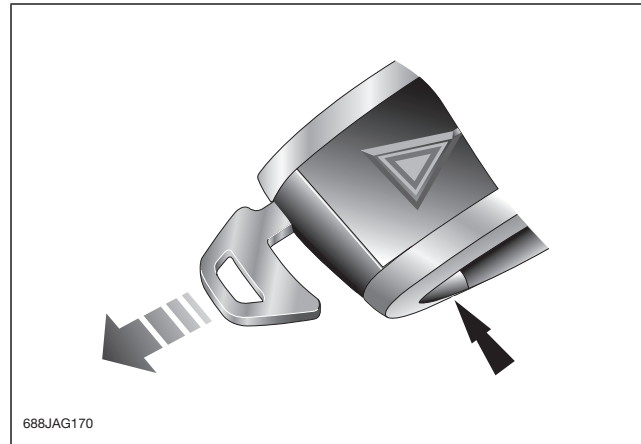
If there is a significant decrease in the effective range of the transmitter, the internal battery voltage may be low and the battery should be replaced. The message SMART KEY BATTERY LOW will be displayed in the message center.

**NOTE:** All components of handset are serviceable except the printed circuit board.

## Emergency Key Blade

An emergency key blade is stored in the handset. To extract the key blade, press and hold the release button while withdrawing the blade.

To return the key blade to storage, press and hold the button while pushing the blade into the handset housing. The emergency key blade operates the lock barrels on the driver's door and the trunk lid. On X150 vehicles, the emergency key blade also opens the glove compartment.

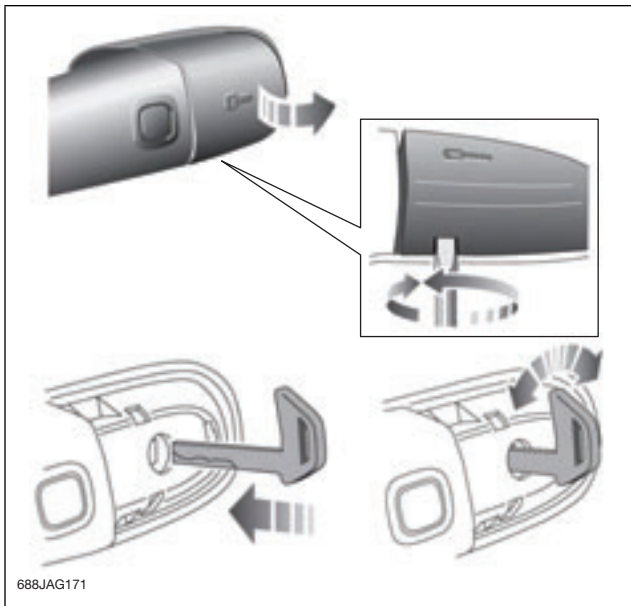


## Emergency Key Operation

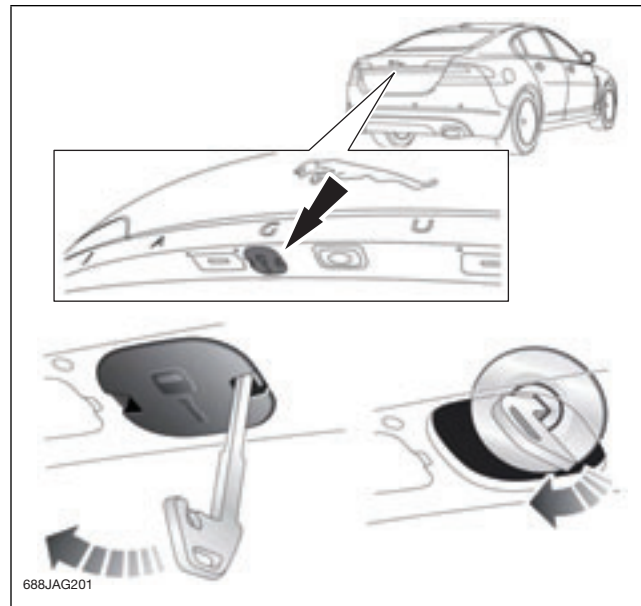
Emergency access to the vehicle using the emergency key blade is provided by two concealed key barrels: one located in the driver's door handle and one located on the underside of the trunk lid finisher. The key barrels are protected by a plastic cover, which can be removed by inserting the blade of the emergency key into a slot in the cover.

**NOTE:** X150 trunk key barrel is not concealed.

Door Handle Emergency Key Barrel (X250 shown; X150 similar)



Trunk Emergency Key Barrel (X250 shown; X150 similar)



Operation of either key barrel unlocks the vehicle but does not disarm the alarm system. The following locking and unlocking conditions apply when using the emergency key in the door key barrel:

- Alarm is not armed, the vehicle can be centrally unlocked
- Alarm is armed, the door only can be opened and the alarm will be triggered
- The alarm system cannot be armed using the emergency key
- Opening the trunk with the emergency key blade cancels valet mode and will not disarm the alarm

## Programmable Features

The Jaguar SmartKey remote handset and various features of the vehicle security system can be programmed using the touch-screen display.

- Programmable features are as follows:
- Single- or two-stage unlocking
- Drive-away locking
- Global open or global close
- Valet mode
- Passive arming (X250)
- Automatic relock and arm (X250)

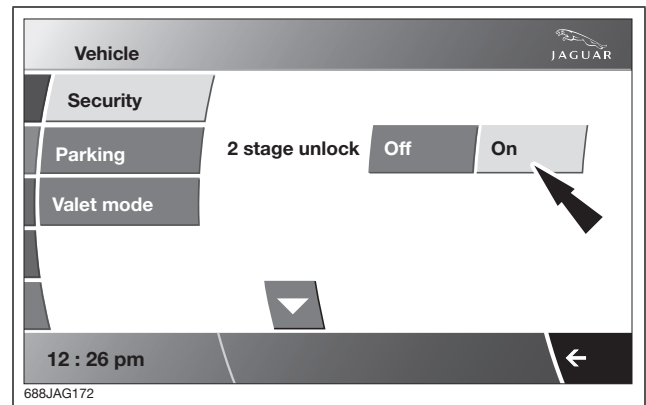
All of these features are programmed from the 'Security' menu on the touch-screen.

To access the 'Security' menu:

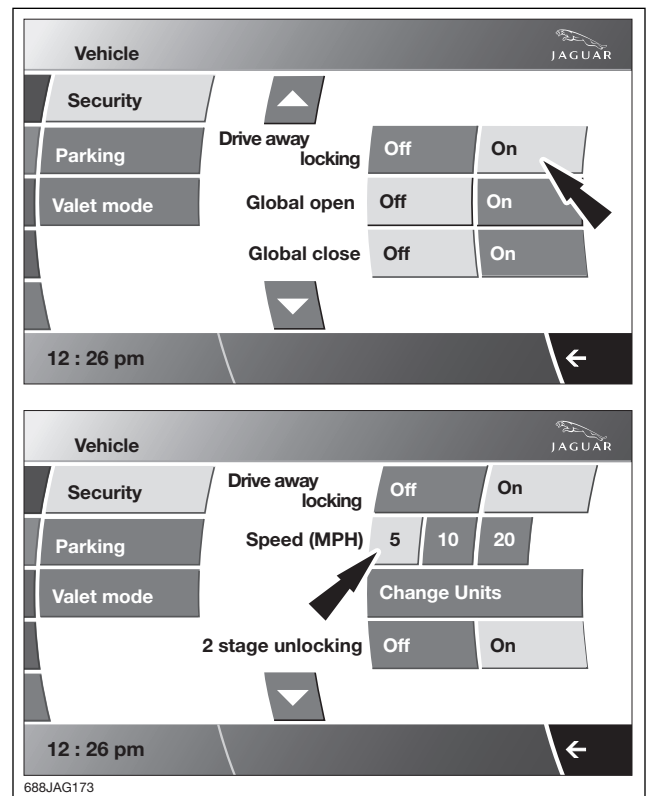
- From the main 'Home' touch-screen menu, select 'Vehicle'
- Select 'Veh. settings'
- 'Security' is the default selection under 'Veh. settings'.

The features described are accessed by scrolling down in the 'Security' menu.

## Single or Two-Stage Locking



## Drive-Away Locking; Global Open / Close



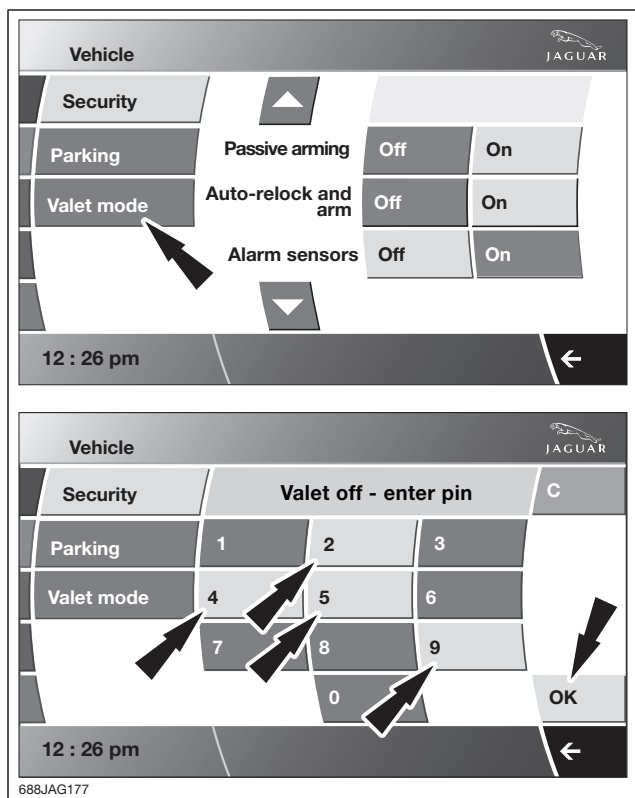
## Drive-Away Door Locking

This feature automatically locks all doors and the trunk when the selector is moved out of the 'Park' position and vehicle speed exceeds the speed selected. If a door is subsequently unlocked, re-locking will occur when a further gear selection is made and the set speed exceeded.

**Valet Mode**

**NOTE:** On X150 vehicles, first lock the glove compartment using the key blade.

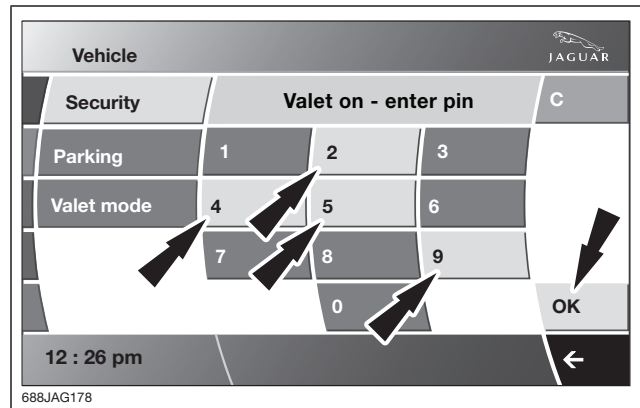
- From the main ‘Home’ touch-screen menu, select ‘Vehicle’
- Select ‘Veh. settings’
- Select ‘Valet mode’
- Enter the 4-digit PIN (4259 is used as an example) using the digit screen pad, and then touch the ‘OK’ button. (Touch the ‘C’ button at any time while entering the PIN if an error is made or to cancel.)



The screen shows confirmation by displaying ‘Valet on’.

To cancel Valet Mode:

- Enter the 4-digit PIN (when ‘Valet on’ is displayed) and touch the ‘OK’ button. The screen shows confirmation by displaying ‘Valet off’.



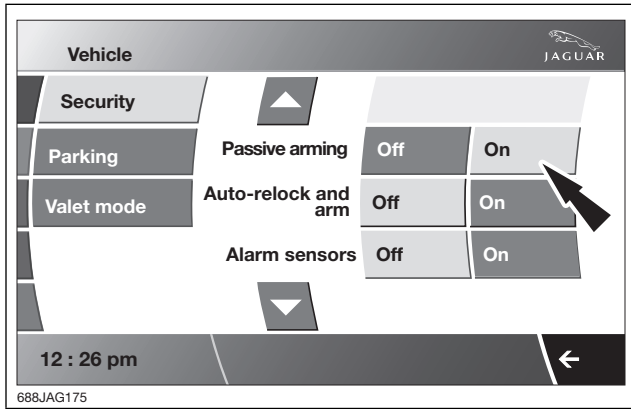
When Valet Mode is enabled, the Jaguar SmartKey can only be used to lock and unlock the vehicle doors and to start and drive the vehicle. Access to the glove compartment (X250), trunk and touch-screen functions is inhibited. Also, all functions of the audio system are locked except audio volume via volume knob.

When in Valet Mode, if any of the trunk release buttons or the glove box button (X250 only) are pressed, an audible warning is emitted and the message ‘Valet Mode’ is displayed in the message center (the trunk and glove box will remain locked).

**NOTE:** Using the emergency key blade to open the trunk disables ‘Valet Mode’. The emergency key blade should be removed from the Jaguar SmartKey before the handset is presented to a valet attendant.

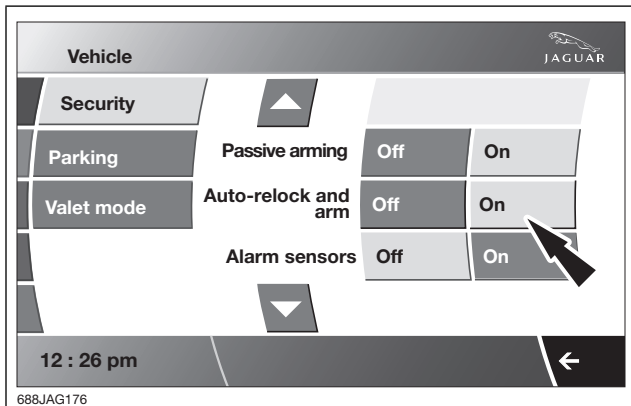
**Passive Arming (X250)**

With passive arming enabled, the vehicle will automatically arm the security system without locking the vehicle.



**Automatic Relocking (X250)**

If a door or the trunk is not opened within 1 minute of unlocking the vehicle, the doors will lock again and re-arm the alarm automatically.



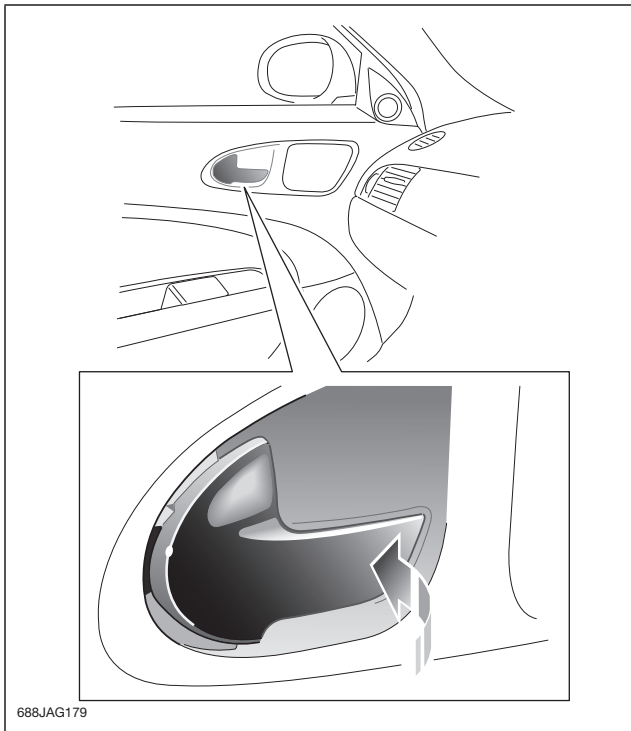
## X150 / X250 CENTRAL LOCKING

### Locking and Unlocking from Inside the Vehicle

#### X150

The X150 interior door release levers incorporate a locking/unlocking mechanism known as a paddle switch.

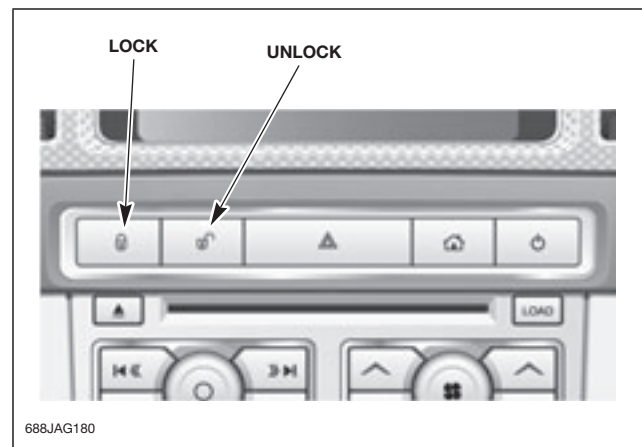
Press the lever inwards toward the door panel to lock both doors and the trunk and arm the security system. Pull the lever to unlock and disarm the vehicle.



When the lock handle is pressed or pulled, a ground is connected from a microswitch in the latch assembly to the Driver Door Module (DDM). The DDM sends a signal to the CJB to lock or unlock motors in the door and trunk latches. The doors and trunk will only respond to the paddle switch lock/unlock command when they are fully closed. If a door is ajar the central locking feature is inhibited. The operator will be notified of a 'mislock' by two audible chirps and a light flash.

#### X250

The X250 central locking switches are located above the center console. The buttons lock and unlock all doors and the trunk. The switches are non-latching and allow all the vehicle entry points to be centrally locked or unlocked from inside the vehicle. Pressing and holding the buttons will operate the global open/close function. The windows and sunroof will stop opening if the button is released.

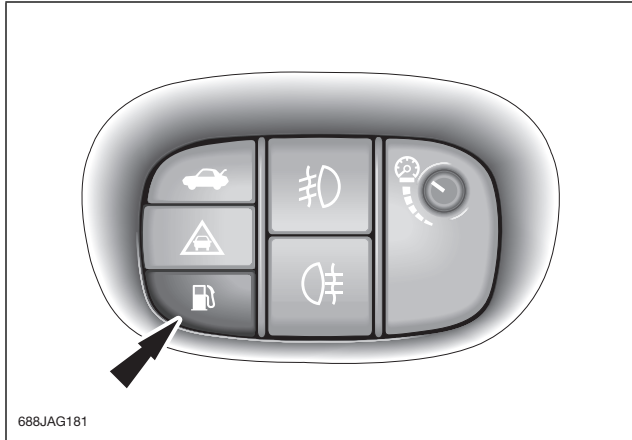


When the central lock or unlock switch is pressed, a ground is connected to the CJB sending a signal to the lock or unlock motors in the door and trunk latches. The doors and trunk will only respond to the central lock/unlock command when they are fully closed. If a door is ajar the central locking feature is inhibited. The operator will be notified of a 'mislock' by two audible chirps and a light flash.

## Fuel Filler Door

### X150

The fuel filler flap release is located in the auxiliary switch pack located in the LH knee bolster below the fascia.

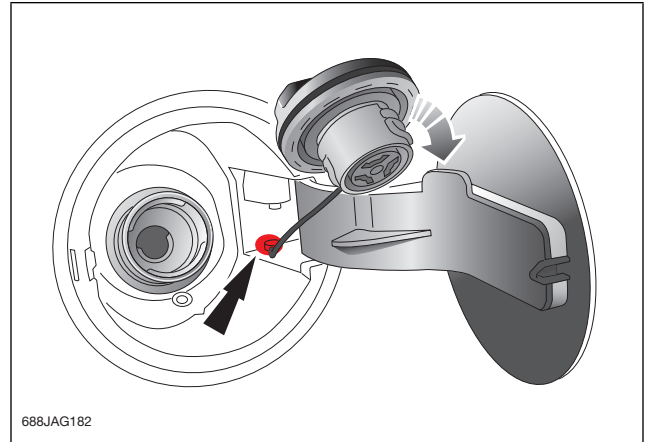


The switch pack is hardwired to the instrument cluster (IC). When the fuel release is pressed, an MS CAN signal is sent from the IC to the AJB to release the fuel door.

Fuel door operation is inhibited if the vehicle locked and armed.

A fuel flap emergency release can be accessed by removing the rear wheelarch liner. Once the liner is removed, insert a small screwdriver into the access hole (see illustration) to raise the solenoid plunger and release the flap.

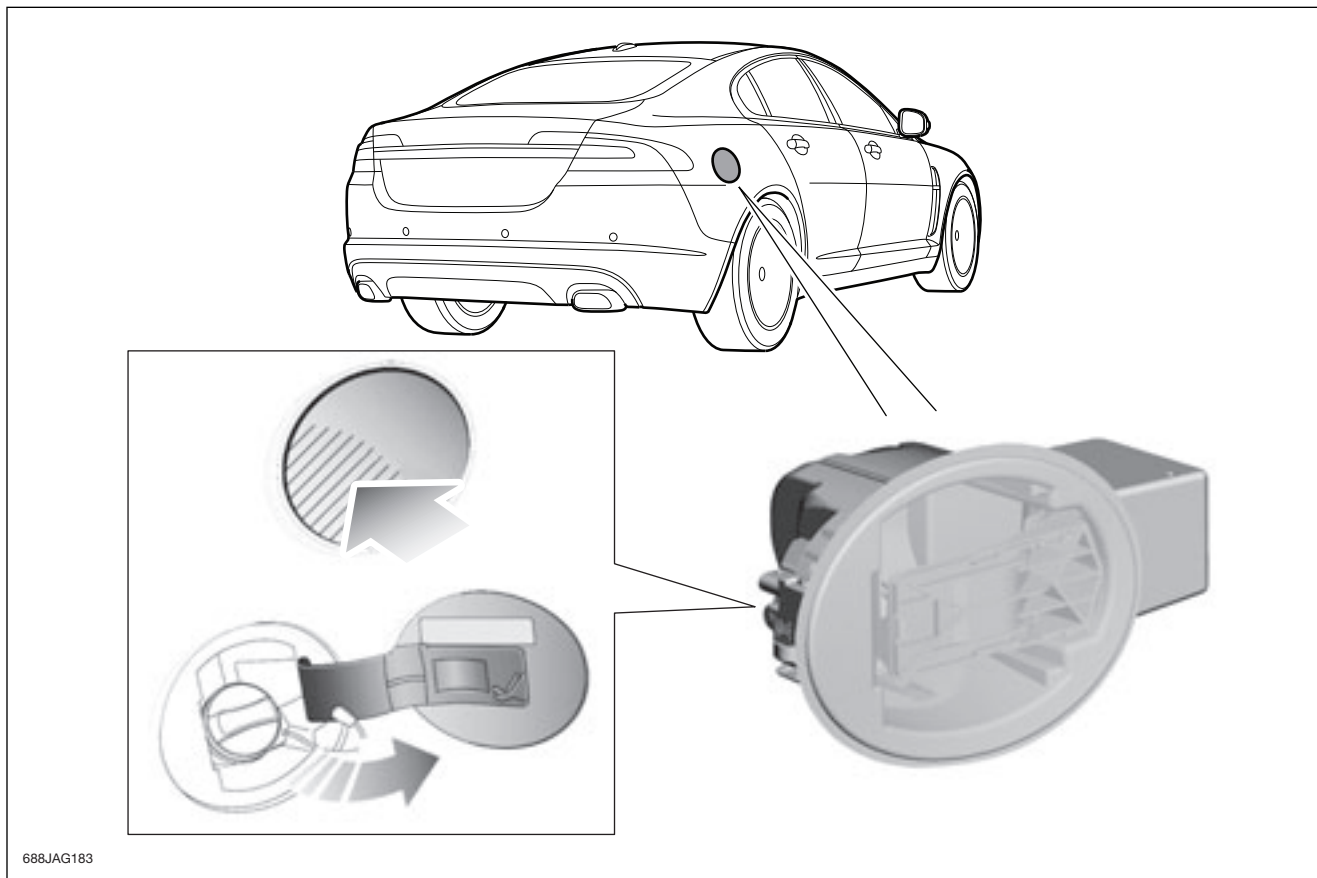
### Emergency Release





**X250**

The fuel filler door is electrically locked / unlocked by a motor and latch assembly located on the fuel door housing. The fuel filler door motor is hardwired to the RJB.

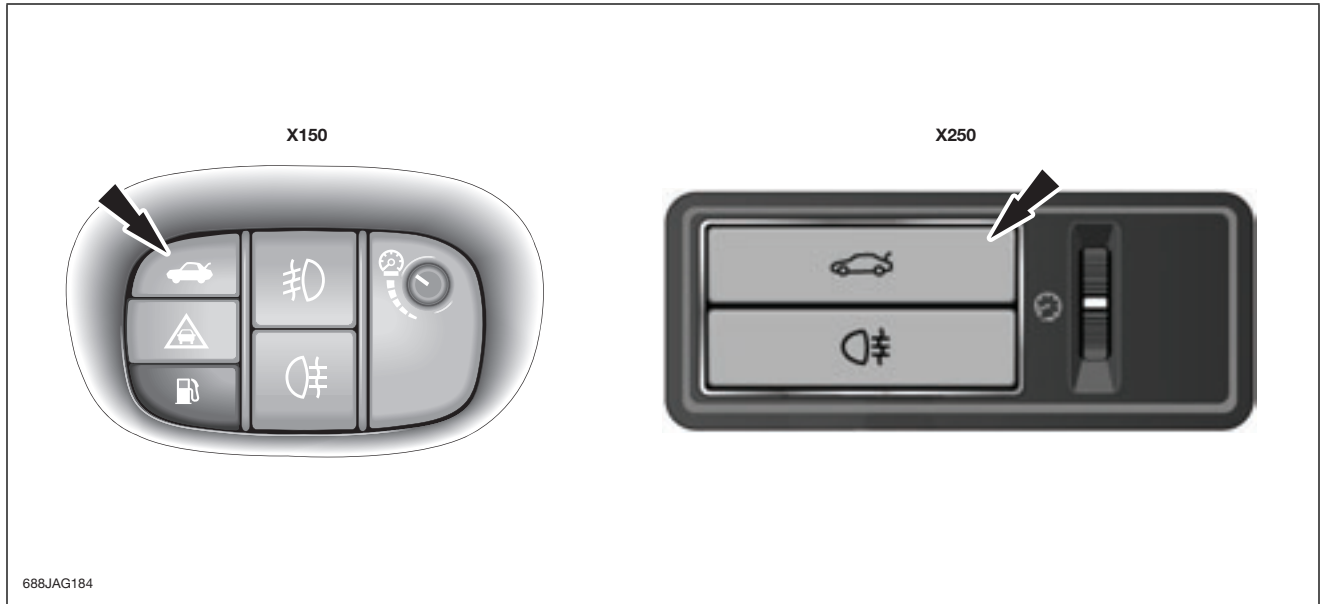


When the vehicle is unlocked, the fuel filler door is opened by gently pushing the filler door in towards the tank filler neck. This action activates a hardwired 'soft touch' signal to the RJB which activates the door motor releasing latch mechanism. When the vehicle is locked and armed this function is inhibited, preventing the opening of the filler flap.

**NOTE:** There is no interior function or emergency release built into the fuel filler door locking mechanism.

### Trunk Release

Pressing the fascia trunk release button (located in the auxiliary lighting switch pack) opens the trunk. The release signal is hardwired to the instrument cluster. The signal is transmitted via a MS CAN bus signal to the AJB/RJB to operate the trunk release motor. This function is inhibited when the vehicle speed exceeds 3 mph (5 km/h).

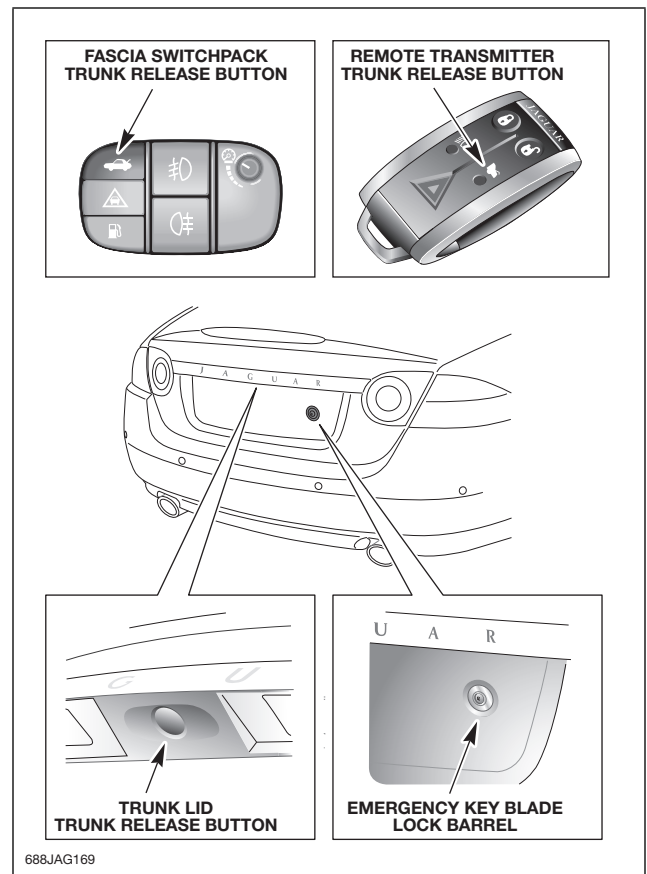


The trunk can also be opened by:

- A single press of the trunk release button on the remote handset
- A single press of the trunk release button on the trunk lid
- Using the emergency keyblade

**NOTE:** Each of these options unlocks the trunk only; the alarm system will remain armed and the doors will remain locked.

#### Trunk Release (X150 shown; X250 similar)



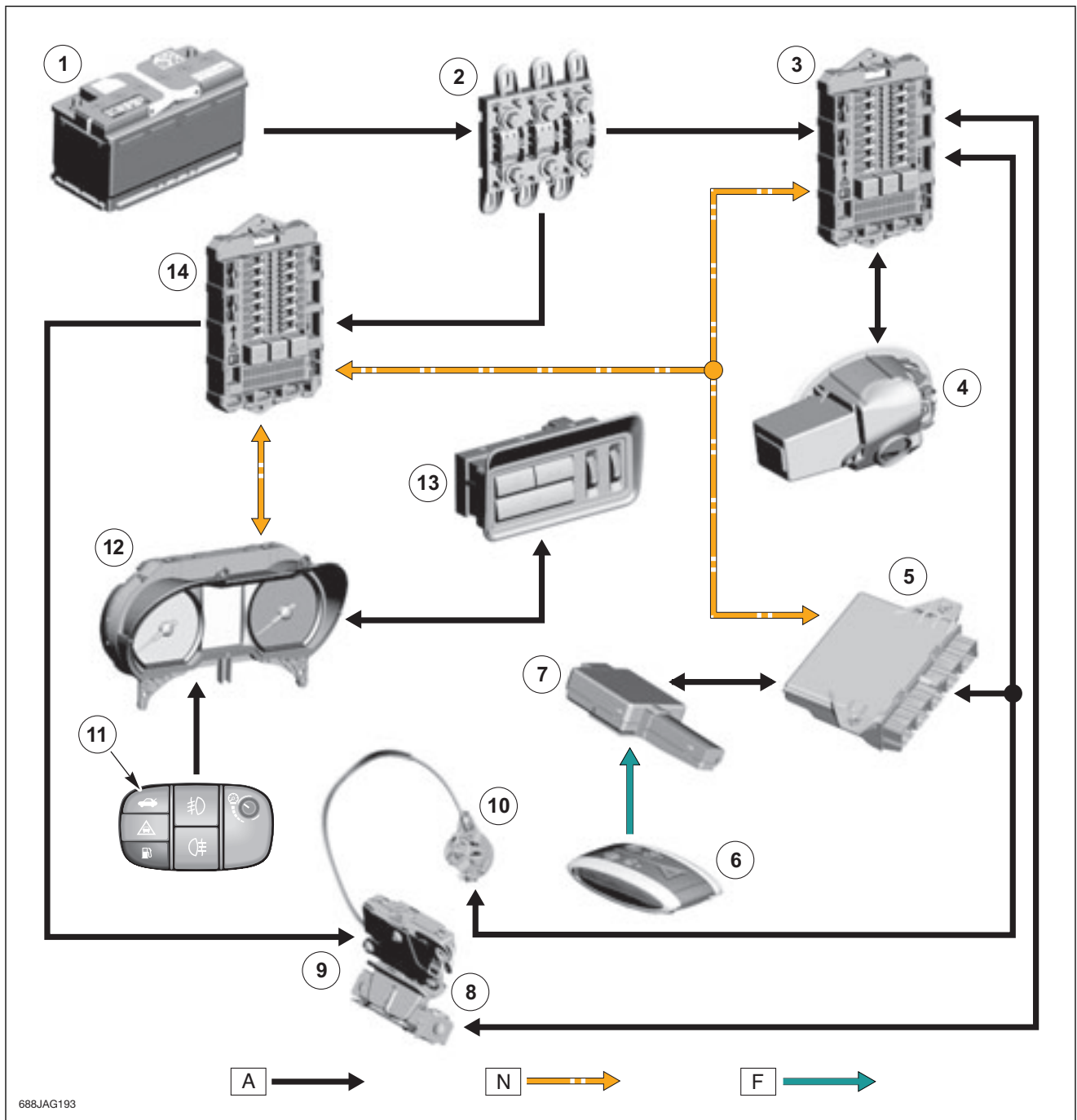
**Trunk Release Operation****Trunk release from the Jaguar SmartKey:**

- The Jaguar SmartKey transmits a 315 MHz RF signal containing its authorization code to the RF receiver
- The RF receiver relays the code via serial data line to the KVM, which checks and approves the code as valid. The KVM will only respond if the RF signal produced is from a valid Jaguar SmartKey for the vehicle.
- The KVM transmits the release signal request to the CJB via the medium speed CAN bus.
- The signal is passed from the CJB to the AJB/RJB via the medium speed CAN.
- On receipt of the signal, the AJB/RJB drives the latch motor, releasing the latch, and opening the trunk lid.

**Trunk release from the lid switch, vehicle unlocked:**

- The switch is hardwired directly to the AJB/RJB.
- On receipt of the release signal request the AJB/RJB drives the latch motor, releasing the latch, and opening the trunk lid.

Trunk and Fuel Filler Door Locking Control Diagram



688JAG193

- |                    |                           |   |
|--------------------|---------------------------|---|
| A Hardwired        | 4 Fuel door locking motor | 10 Trunk lid release switch               |
| N MS CAN bus       | 5 Keyless vehicle module  | 11 Fascia trunk lid release switch – X150 |
| F RF transmission  | 6 Jaguar SmartKey         | 12 Instrument cluster                     |
| 1 Battery          | 7 RF receiver             | 13 Fascia trunk lid release switch – X250 |
| 2 Megafuse (250 A) | 8 Trunk lid release latch | 14 CJB                                    |
| 3 RJB              | 9 Trunk lid ajar switch   |   |

## Remote Central Locking



Each Jaguar SmartKey features a unique identification code that is programmed within the remote handset. The RF signal produced by the remote handset contains the unique security identification code and also a rolling code.

During vehicle production, the unique security identification codes of the valid Jaguar SmartKeys are programmed into the Keyless Vehicle Module (KVM) and the Instrument Cluster (IC), and the rolling codes are also synchronized with the KVM.

Vehicle unlocking operates as follows:

- When the Jaguar SmartKey UNLOCK button is pressed, an RF signal containing its authorization code is transmitted to the RF receiver.
- The RF receiver relays the code via a serial data line to the KVM, which checks and approves the code as valid. The KVM will only respond if the RF signal produced is from a valid Jaguar SmartKey for the vehicle.
- The KVM transmits the unlock request to the CJB via the medium speed CAN bus.
- The CJB confirms and sends the request, via the medium speed CAN bus, to the front door modules.
- The front door modules respond with the following simultaneous actions:
  - The front door modules drive the motors to unlock the **front** doors
  - The front door modules transmit the door unlock request via the LIN to the rear door modules
- The rear door modules drive the motors to unlock the **rear** doors.

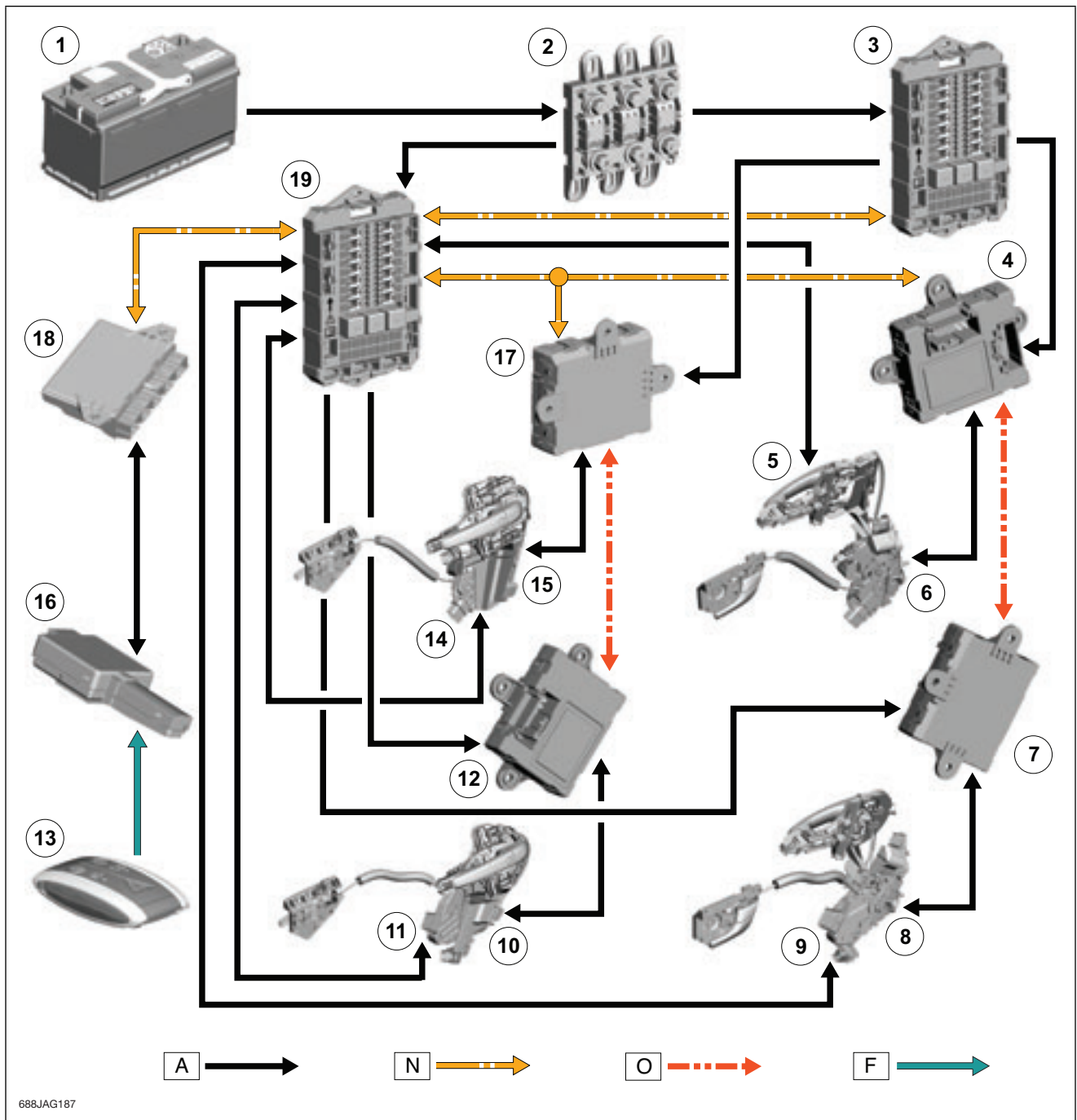
Locking of the vehicle is performed by pressing the LOCK button on the Jaguar SmartKey. Thereafter the system procedure is identical for locking as for unlocking the vehicle.

If a door, hood or the trunk lid is ajar when an attempt to lock the vehicle is made, an error tone is emitted and no locking action will occur.

A total of 8 'slots' are available in the KVM software to allow for replacement or addition of Jaguar SmartKey handsets. In service, IDS is used to communicate with the KVM for the following:

- Identification of Jaguar SmartKey allocations within the KVM
- Enabling of new Jaguar SmartKey handsets
- Disabling of existing Jaguar SmartKey handsets

Remote Central Locking Control Diagram



688JAG187

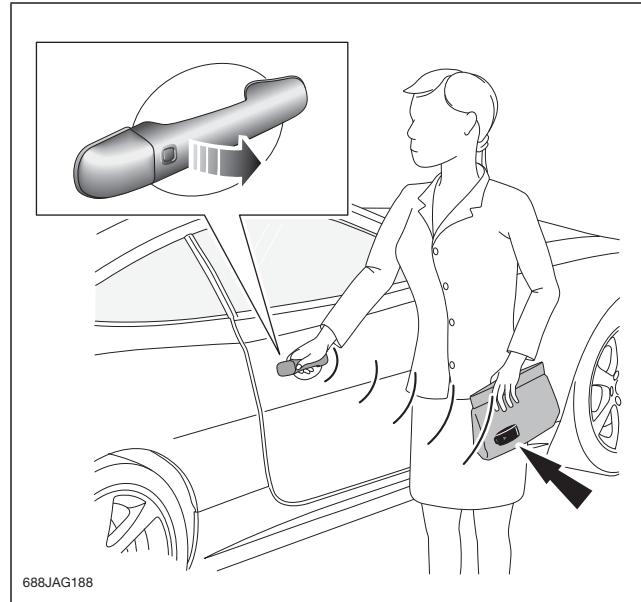
- |   |                       |    |                            |    |                          |
|---|-----------------------|----|----------------------------|----|--------------------------|
| A | Hardwired             | 5  | Passenger door ajar switch | 13 | Driver door ajar switch  |
| N | MS CAN bus            | 6  | Passenger door latch       | 14 | Driver door latch        |
| O | LIN bus               | 7  | RH rear door module        | 15 | LH rear door ajar switch |
| F | RF transmission       | 8  | RH rear door latch         | 16 | RF receiver              |
| 1 | Battery               | 9  | RH rear door ajar switch   | 17 | Driver door module       |
| 2 | Megafuse (250A)       | 10 | LH rear door latch         | 18 | Keyless vehicle module   |
| 3 | RJB                   | 11 | LH rear door module        | 19 | CJB                      |
| 4 | Passenger door module | 12 | Jaguar SmartKey            |    |                          |

**X150 / X250 PASSIVE ENTRY SYSTEM**

The passive (keyless) entry system is based around the Jaguar SmartKey. Each Jaguar SmartKey for a given vehicle is programmed uniquely to that vehicle. Passive entry and the associated passive start system allow the driver to unlock and start the vehicle without using a vehicle key in a door lock or ignition switch. The passive entry system is a standard feature on X150 and optional on X250 (the passive start system is a standard feature on all vehicles).

The passive entry system has an active transmission zone of 1.0m (3.3 ft.). Provided the Jaguar SmartKey is within range of the desired point of entry (vehicle door, trunk), it need only be on the driver's person (in a pocket, handbag, or briefcase, for example) to provide access to the vehicle. The driver simply pulls any door handle (or presses the trunk release button); no further driver intervention is required. The vehicle unlocks according to the current security setting (either single-point or multi-point entry).

Placing the Jaguar SmartKey in a metallic container or metal briefcase may hinder its operation.



## Passive Entry Components

The passive entry system consists of:

- Keyless vehicle module (KVM)
- Low-frequency (LF) transmitting antennas
  - 3 antennas for X150
  - 5 antennas for X250
- Radio frequency (RF) receiver antenna
- Jaguar SmartKey

## Keyless Vehicle Module

The KVM interfaces with the central locking RF receiver and collects RF signal information which is transmitted from the Jaguar SmartKey.

This information is translated into commands which are passed on the medium speed CAN bus to the:

- CJB
- AJB/RJB
- Front door modules and onto the rear door modules via a LIN bus connection
- Instrument cluster

The KVM also monitors:

- 2 interior antennas (passive start)
- 1 trunk antenna (passive start)
- Rear bumper antenna (passive entry, if equipped)
- Door handle antennas (passive entry, if equipped)

On vehicles with passive entry, additional fast latch motors (auto latch release motors) are located within each latch assembly to provide smooth door release operation. These fast latch motors are also controlled via the KVM. The fast latch status is passed to the CJB on the medium speed CAN bus.

## RF Receiver

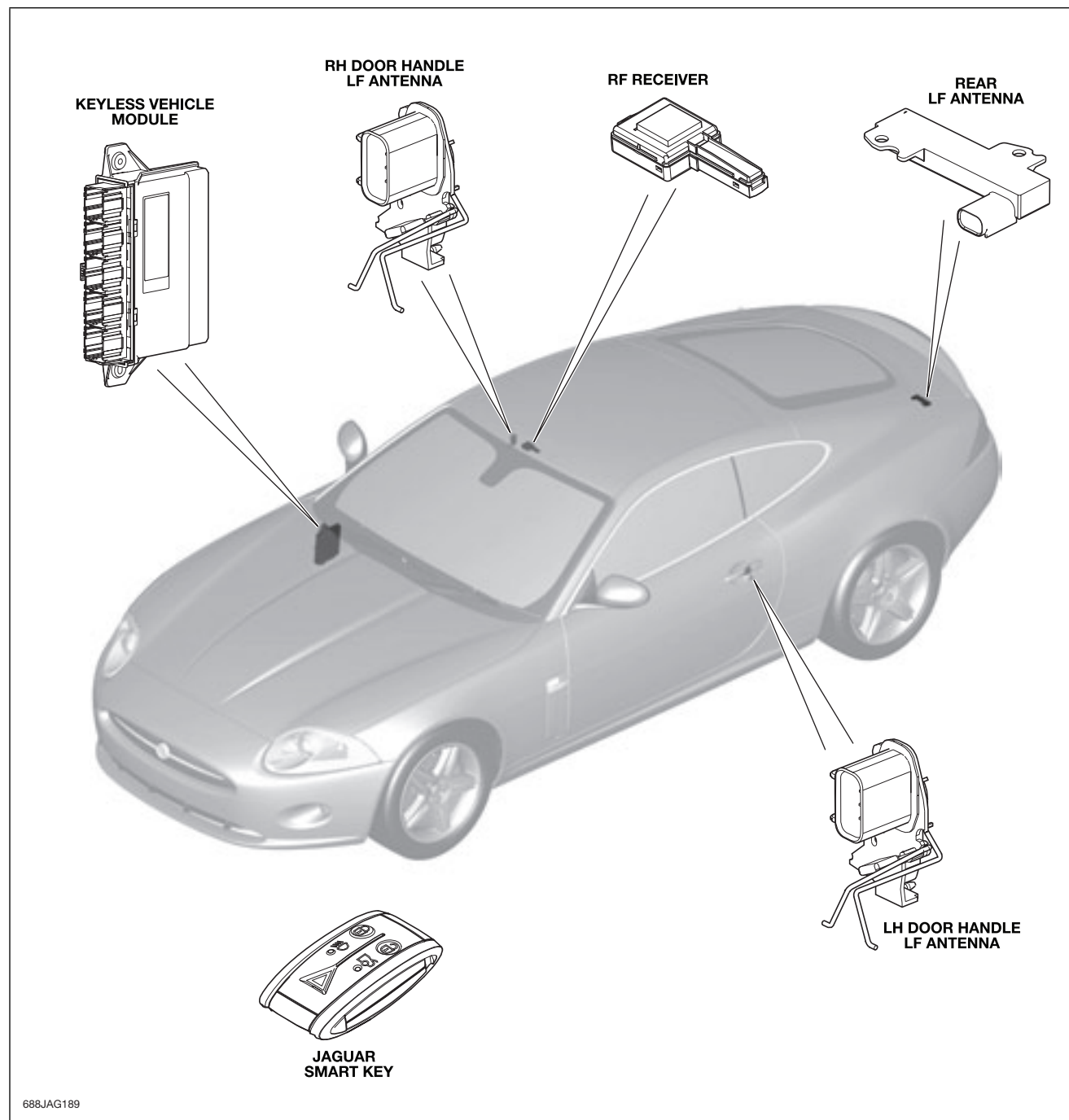
The RF receiver is installed above the headlining – to the rear of the vehicle on X250 and above the center console on X150. The receiver provides functionality for the remote central locking and passive entry systems.

The operating frequency of the RF receiver is 315 MHz.

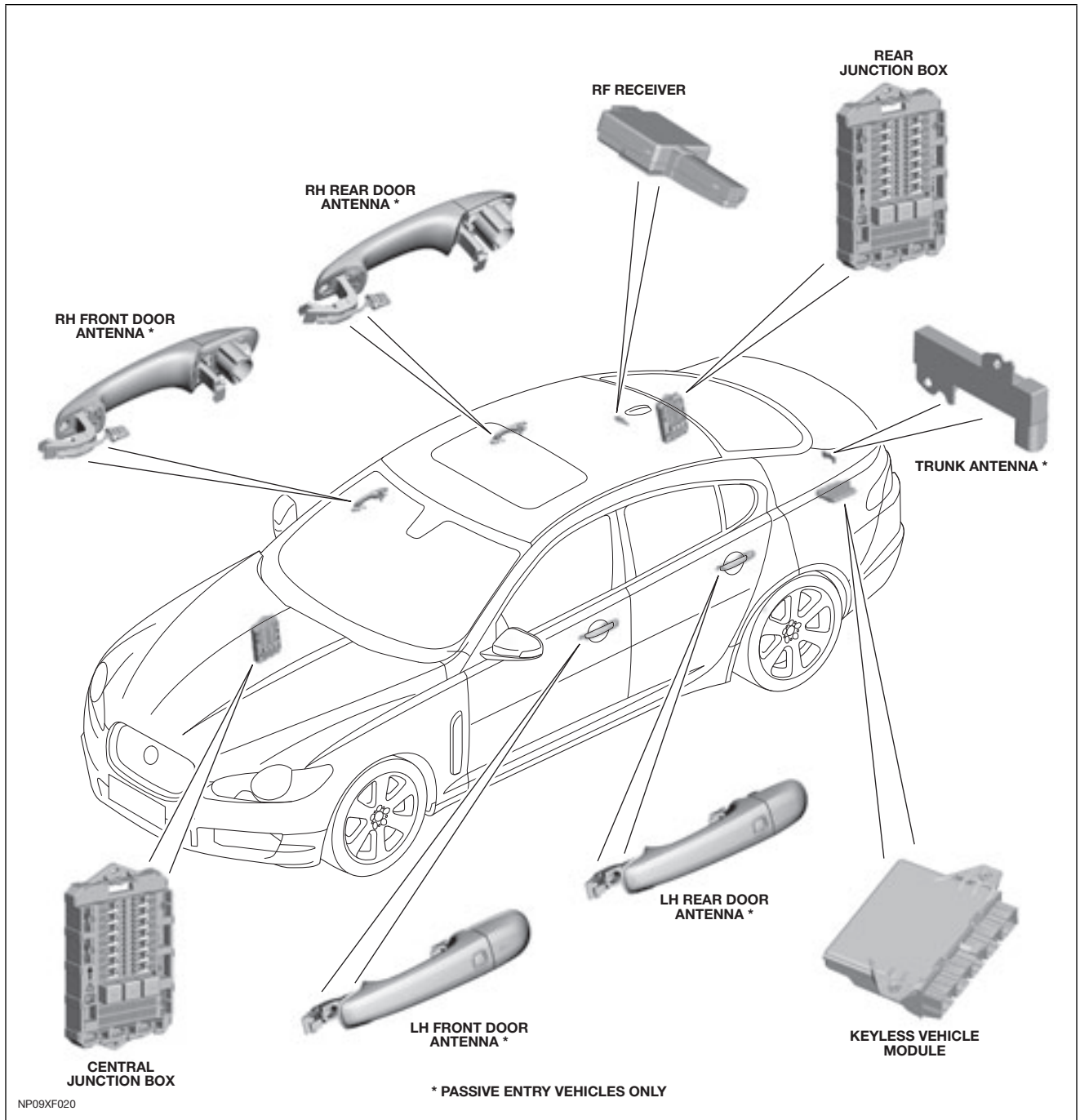
The RF receiver converts the signals transmitted by the Jaguar SmartKey into digital messages, and then transmits the message on a serial data line to the KVM for Jaguar SmartKey authorization. The CJB provides a permanent power feed to the RF receiver.



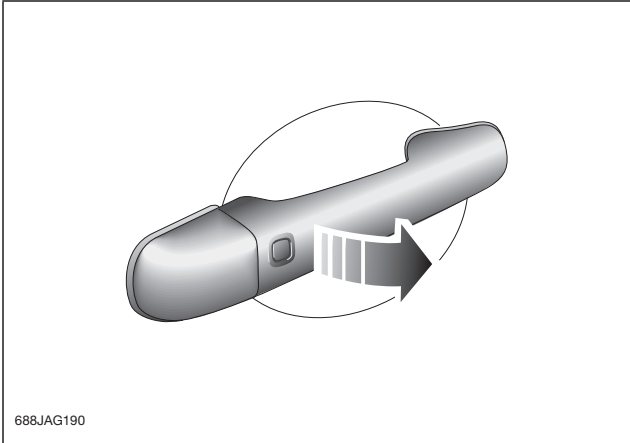
X150 Passive Entry System Components



X250 Passive Entry System Components



## Passive Entry System Operation



688JAG190

On vehicles equipped with the passive entry system, the vehicle can be unlocked / locked without the use of a key or pressing buttons on the Jaguar SmartKey. The Jaguar SmartKey is a functional component of the passive entry system in addition to the passive start system.

The passive entry system is controlled by the KVM and several LF antennas (3 for X150; 5 for X250). There is one antenna located in each door handle and one antenna located behind the rear bumper cover.

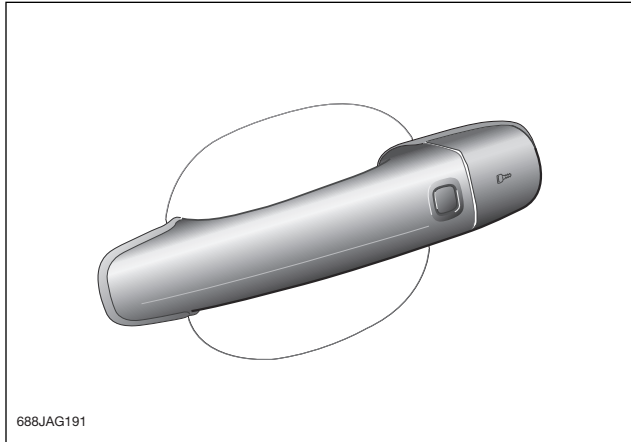
### Vehicle Unlocking Sequence:

- With the Jaguar SmartKey within 1.0m (3.3 ft.) of the approached door, the handle is pulled to the first 10 percent of its travel. This action closes and grounds the unlock pull switch (within the operated handle) sending a hardwired switched signal to the KVM which responds with the following simultaneous actions:
  - The KVM energizes the low frequency antenna in the door handle, which transmits a 125KHz signal to the Jaguar SmartKey.
- On receipt of the LF signal the Jaguar SmartKey transmits a 315 MHz RF signal containing its authorization code to the RF receiver.
- The RF receiver relays the code, via a serial data line, to the KVM which checks and approves the code as valid. The KVM will only respond if the RF signal produced is from a valid Jaguar SmartKey for the vehicle.
- The KVM transmits the unlock request to the CJB via the medium speed CAN bus.
- The CJB confirms and sends the request, via the medium speed CAN bus, to the front door modules.
- The front door modules respond with the following simultaneous actions:
  - The front door modules drive the motors to unlock the **front** doors.
  - The front door modules transmit the door unlock request via a LIN to the rear door modules.
- The rear door modules drive the motors to unlock the **rear** doors.
- When the door handle reaches 80 percent of its travel the handle clutch switch is closed and grounded, sending a hardwired switched signal to the KVM.
- The KVM drives the fast latch (auto) release motors in the door latch assemblies releasing the door latches.

As the approached door handle is pulled through its full travel, the applicable door can be opened.

## Passive Locking and Arming

There is no automatic passive locking of the vehicle. To 'passively' lock the vehicle, press the button on the exterior door handle once with the SmartKey within a 1.0 meter (3.3 ft.) of the handle being operated.



When the exterior door handle button is pressed:

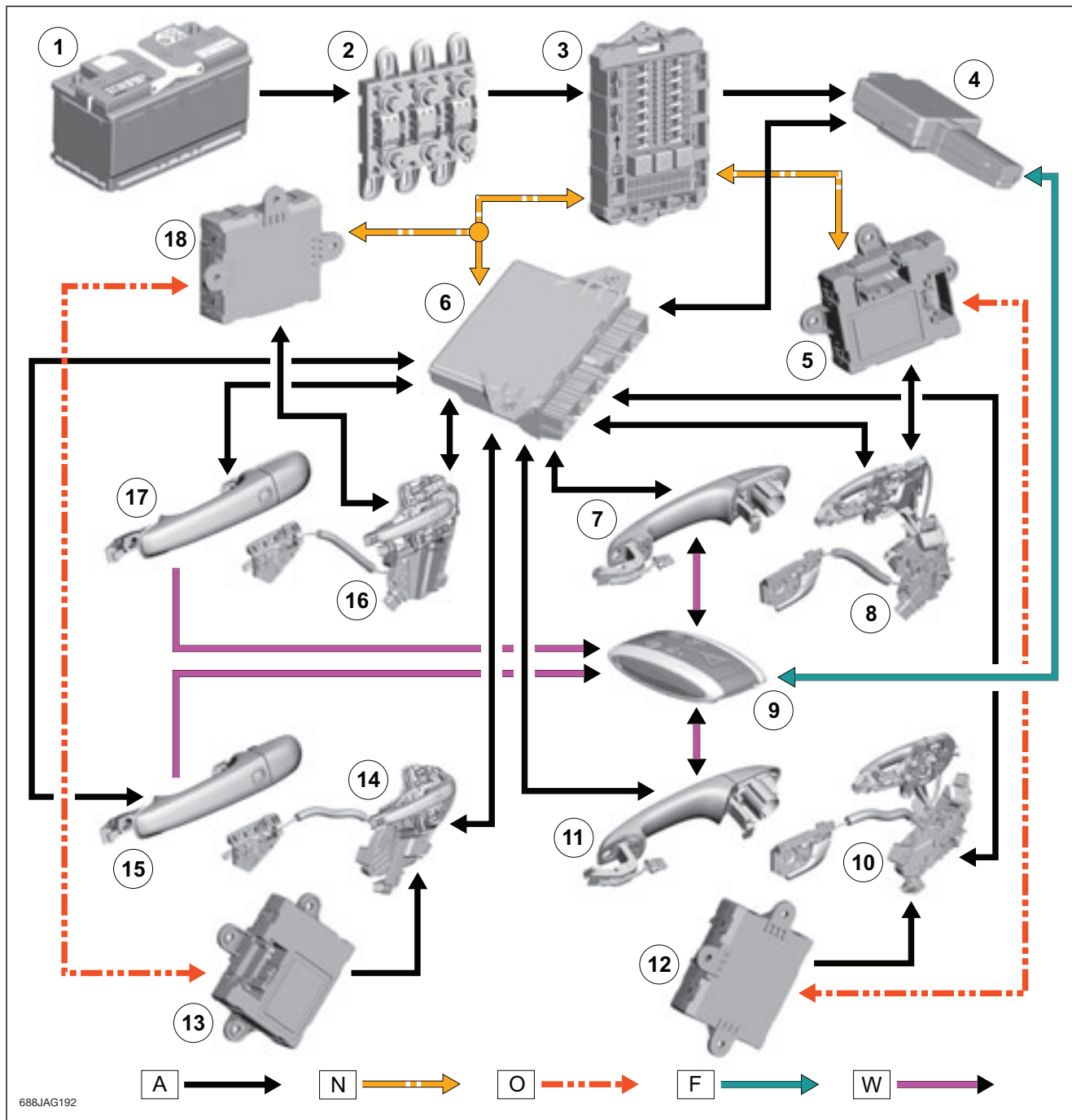
- A hardwired 'lock request' input signal is sent to the keyless vehicle module (KVM).
- Once the KVM receives the hardwired 'lock request' input signal, the KVM transmits an LF signal to the driver door handle antenna, which activates any SmartKey transmitter within one meter of the handle antenna.
- The activated SmartKey transmits an RF 'security code' signal to the RF Receiver.
- The RF Receiver transmits the 'security code' signal via a dedicated serial data line to the KVM, which checks and validates the security code.
- Once the security code has been validated by the KVM, the KVM sends the 'lock request' signal to the CJB via the MS CAN bus.
- Upon receiving the 'lock request' signal, the CJB confirms that none of the latches are 'ajar' by monitoring the aperture 'ajar' switch signals, which are a direct hardwired input to the CJB.
- Once it has confirmed that none of the latches are 'ajar', the CJB sends a 'lock request' followed by a 'security request' over the MS CAN bus.

## Locking and Security Request Results:

- The front door modules receive the 'lock request' signal via MS CAN. The front doors lock.
- The front door modules transmit the 'lock request' signal to the rear door modules via LIN bus to lock the rear doors.
- The AJB/RJB receives the 'lock request' signal and inhibits the trunk and fuel door release.
- Once the vehicle is locked, the CJB automatically enters security mode and sends a 'security request' signal over the MS CAN bus, and flashes the front side lights.
- The front door modules receive the 'security request' signal via MS CAN and flash the side view mirror turn signal and approach lights.
- The AJB/RJB receives the 'security request' signal and inhibits fuel pump driver module operation and flashes the tail lights.
- The instrument cluster receives the 'security request' signal and activates the security LED in the sunload/light sensor on the dashboard.

If a door, hood or the trunk lid is ajar when an attempt to lock the vehicle is made, an error tone is emitted and no locking action will occur.

Passive Entry System Control Diagram



688JAG192

- |   |                 |    |   |    |   |
|---|-----------------|----|---|----|---|
| A | Hardwired       | 4  | RF receiver   | 12 | RH rear door module                                 |
| N | MS CAN bus      | 5  | Passenger door module                                 | 13 | LH rear door module                                 |
| O | LIN bus         | 6  | Keyless vehicle module                                | 14 | LH rear door latch – fast latch                     |
| F | RF transmission | 7  | Passenger door handle, lock/unlock switch and antenna | 15 | LH rear door handle, lock/unlock switch and antenna |
| W | LF transmission | 8  | Passenger door latch — fast latch                     | 16 | Driver door latch – fast latch                      |
| 1 | Battery         | 9  | Jaguar Smart Key                                      | 17 | Driver door handle, lock/unlock switch and antenna  |
| 2 | Megafuse (250A) | 10 | RH rear door latch — fast latch                       | 18 | Driver door module                                  |
| 3 | CJB             | 11 | RH rear door handle, lock/unlock switch and antenna   |    |   |

## Passive Trunk Opening

Trunk release switch from lid switch, vehicle locked with Jaguar SmartKey within range (passive entry vehicles only):

- The switch is hardwired directly to the KVM (as well as the AJB/RJB).
- On receipt of the release signal request from the switch the KVM energizes the LF antenna in the trunk, which transmits a 125KHz signal to the Jaguar SmartKey.
- On receipt of the LF signal the Jaguar SmartKey transmits a 315 MHz RF signal containing its authorization code to the RF receiver.
- The RF receiver relays the code, via a serial data line, to the KVM which checks and approves the code as valid. The KVM will only respond if the RF signal produced is from a valid Jaguar SmartKey for the vehicle.
- The KVM transmits the release request to the CJB via the medium speed CAN bus.
- The signal is passed from the CJB to the RJB via medium speed CAN.
- On receipt of the signal the RJB drives the latch motor, releasing the latch and opening the trunk lid.

When opening the trunk lid while the vehicle is locked and armed, all doors remain locked and the security system remains armed.

When the trunk is closed, the hazard warning lights will flash after a few seconds to confirm that the vehicle has rearmed the full alarm system.

**NOTE:** The SmartKey is monitored for position external to the vehicle. If the trunk lid is closed with the SmartKey inside it, the system will not re-arm: the trunk lid will re-open automatically and a warning tone will sound.