BODY CLOSURES

DIAGNOSIS AND TESTING

PRINCIPLES OF OPERATION

For a detailed description of the body closures, refer to the relevant Description and Operation section of the workshop manual. REFER to: Body Closures (501-03 Body Closures, Description and Operation).

INSPECTION AND VERIFICATION

CAUTION:

Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault and may also cause additional faults in the vehicle being checked and/or the donor vehicle

NOTES:

- If the control module or a component is suspect and the vehicle remains under manufacturer warranty, refer to the warranty policy and procedures manual, or determine if any prior approval programme is in operation, prior to the installation of a new module/component
- When performing voltage or resistance tests, always use a digital multimeter accurate to three decimal places, and with an up-to-date calibration certificate. When testing resistance always take the resistance of the digital multimeter leads into account.
- Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests

1. Verify the customer concern

2. Visually inspect for obvious signs of mechanical or electrical damage

Visual Inspection

MECHANICAL	ELECTRICAL
▪ Incorrectly aligned power tailgate ▪ Damaged power tailgate or body aperture ▪ Obstruction within power tailgate aperture or power tailgate latch ▪ Power tailgate hinges ▪ Power tailgate actuator(s) (upper) ▪ Power tailgate latch assembly ▪ Remote transmitter (key-fob or smart key) ▪ Power tailgate soft close actuator(s) ▪ Power tailgate soft close actuator cable(s) ▪ Power tailgate open/close switch assembly ▪ Transmission control switch ▪ Power tailgate actuator (upper) ball joints	▪ Battery ▪ Fuses ▪ Wiring harness ▪ Wiring connector(s) ▪ Power tailgate actuator(s) (upper) ▪ Power tailgate soft close actuator(s) ▪ Micro switch(s) ▪ Remote transmitter (key-fob or smart key) ▪ Power tailgate open/close switch assembly ▪ CAN circuits

	▪ Radio frequency receiver ▪ Body control module ▪ Loose or corroded connections ▪ Keyless vehicle module ▪ Transmission control switch ▪ Anti-trap sensor(s)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step

4. If the cause is not visually evident, verify the symptom and refer to the symptom chart, alternatively check for diagnostic trouble codes (DTCs) and refer to the DTC Index

5. Check DDW for open campaigns. Refer to the corresponding bulletins and SSMs which may be valid for the specific customer complaint and carry out the recommendations as required

SYMPTOM CHART

SYMPTOM	POSSIBLE CAUSES	ACTION
Power tailgate does not open	▪ Low battery voltage ▪ Mechanical obstruction ▪ Switch failure ▪ Power tailgate latch does not release ▪ Soft close actuator malfunction ▪ Power tailgate actuator(s) (upper) fail to drive	▪ Check the battery and charging system ▪ Clear any mechanical obstruction ▪ Check the power tailgate switch for damage/internal failure ▪ Check power tailgate latch assembly for adjustment/damage ▪ Using the manufacturer approved diagnostic system, check the body control module and tailgate control module for relevant DTCs and refer to the relevant DTC index ▪ Check the condition and installation of the power tailgate ▪ GO to Pinpoint Test **B.**

	▪ Software issue ▪ No electrical connection / CAN bus communication	
Power tailgate does not close	▪ Low battery voltage ▪ Mechanical obstruction ▪ Switch failure ▪ No electrical connection / CAN bus communication ▪ Anti-trap sensor failure ▪ Power tailgate actuator(s) (upper) fail to drive ▪ Software issue ▪ Power tailgate "unknown position" in tailgate control module ▪ Power tailgate soft close malfunction	▪ Check battery and charging system ▪ Clear any mechanical obstruction ▪ Check the power tailgate switch for damage/internal failure ▪ Check the condition and installation of the power tailgate ▪ Check the anti-trap sensor for any evidence of abrasion or damage ▪ Using the manufacturer approved diagnostic system, check the body control module and tailgate control module for relevant DTCs and refer to the relevant DTC index ▪ GO to Pinpoint Test **G.**
Power tailgate does not close fully	▪ Mechanical obstruction ▪ Anti-trap sensor activation ▪ Pre-programmed garage height reached ▪ Latch to Striker alignment ▪ Power tailgate set	▪ Clear any mechanical obstruction ▪ Check the anti-trap sensor for any evidence of abrasion or damage ▪ Check/adjust the pre-programmed garage height setting ▪ Refer to the workshop manual and adjust the power tailgate striker adjustment ▪ Using the manufacturer approved diagnostic system, check the body control module and tailgate control module for relevant DTCs and refer to the relevant DTC index ▪ GO to Pinpoint Test **K.**

Power tailgate does not open fully	▪ Mechanical obstruction ▪ Pre-programmed garage height reached ▪ Anti-trap sensor activation ▪ Latch to Striker alignment ▪ Power tailgate set	▪ Clear any mechanical obstruction ▪ Check/adjust the pre-programmed garage height setting ▪ Check the anti-trap sensor for any evidence of abrasion or damage ▪ Refer to the workshop manual and adjust the power tailgate striker adjustment ▪ Using the manufacturer approved diagnostic system, check the body control module and tailgate control module for relevant DTCs and refer to the relevant DTC index ▪ GO to Pinpoint Test **P.**

MODULE DTC VERIFICATION AND TESTING

PINPOINT TEST A : DTC TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	A1: DTC TEST
	1 Using the manufacturer approved diagnostic system, check for any DTCs present in the tailgate control module (upper) (module ID 0x775). Take a session file to share with Land Rover Engineering. Check the software level of the tailgate control module (upper) and ensure it is the latest released version - if it is not, update the module
	Are there DTCs present in the tailgate control module (upper)? **Yes** GO to A2. **No** Go to the relevant Pinpoint Test according to the reported failure mode on the vehicle
	A2: DTC TEST
	1 Clear down all DTC's from tailgate control module (upper) (module ID 0x775). Perform the following sequence of operations;
	2 Try to cycle (open then close) the tailgate 6 times. Listen for soft close actuator initialising. In all cases wait for 5 seconds before attempting to re-open the tailgate

	3 If a powered operation is not possible, open the tailgate and then close the latch to secondary latched position (safety catch, not fully closed, but latched) and listen for soft close actuator initialisation
	4 Close all doors and tailgate on the vehicle, then press the smart lock button twice
	5 Wait for 30 seconds
	6 Unlock the vehicle, then using the manufacturer approved diagnostic tool read out all DTCs present in the tailgate control module (upper). If DTCs are present take another session file to share with Land Rover Engineering
	Were any DTCs present in the module following this sequence? **Yes** GO to A3. **No** Go to the relevant Pinpoint Test according to the reported failure mode on the vehicle

A3: DTC TEST	
	1 Evaluate the DTCs present
	Is B11C4-23 present? **Yes** GO to Pinpoint Test **B.** SWITCH TEST part 2 **No** GO to A4.

A4: DTC TEST	
	1 Evaluate the DTCs present
	Is B1161-15 or B1162-15 present? **Yes** GO to Pinpoint Test **F.** : POWER TAILGATE ANTI TRAP SENSOR TESTING part 1 **No** GO to A5.

A5: DTC TEST	
	1 Evaluate the DTCs present
	Is B1463-02, B1463-11 or B1464-02 present? **Yes** GO to Pinpoint Test **D.** SOFT CLOSE ACTUATOR TEST part 2 **No** GO to A6.

A6: DTC TEST	
	1 Evaluate the DTCs present

	Is B1316-93 present? **Yes** GO to Pinpoint Test **D.** SOFT CLOSE ACTUATOR TEST part 3 **No** **GO to A7**.
A7: DTC TEST	
	1 Evaluate the DTCs present
	Is B1316-02 present? **Yes** GO to Pinpoint Test **D.** SOFT CLOSE ACTUATOR TEST part 5 **No** **GO to A8**.
A8: DTC TEST	
	1 Evaluate the DTCs present
	Is C2005-19 or C2006-19 present? **Yes** GO to Pinpoint Test **K.** MECHANICAL OBSTRUCTION INSPECTION part 1 **No** **GO to A9**.
A9: DTC TEST	
	1 Evaluate the DTCs present
	Is C2005-11 / 12 / 13, C2006-11 / 12 / 13 present? **Yes** GO to Pinpoint Test **E.** POWER TAILGATE ACTUATOR TEST part 4 **No** **GO to A10**.
A10: DTC TEST	
	1 Evaluate DTCs present. Compare them against the following; C2005-15 C2006-15
	Were any of the above DTCs present in the tailgate control module (upper)? **Yes** GO to Pinpoint Test **I.** POWER TAILGATE POSITIONAL DATA TEST part 3 **No** **GO to A11**.
A11: DTC TEST	
	1 Evaluate DTCs present. Compare them against the following; C2005-31 C2006-31
	Were any of the above DTCs present in the tailgate control module

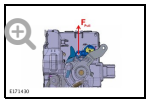
	(upper)? **Yes** GO to Pinpoint Test **I.** POWER TAILGATE POSITIONAL DATA TEST part 2 **No** **GO to A12**.
A12: DTC TEST	
	1 Evaluate the DTCs present
	Is C2005-31 or C2006-31 present? **Yes** GO to Pinpoint Test **I.** POWER TAILGATE POSITIONAL DATA TEST part 1 **No** **GO to A13**.
A13: DTC TEST	
	1 Evaluate the DTCs present
	Is U0140-00, U0401-68 or U0415-68 present? **Yes** GO to Pinpoint Test **E.** POWER TAILGATE ACTUATOR TEST part 6 **No** **GO to A14**.
A14: DTC TEST	
	1 Evaluate the DTCs present. Compare them against the following; U201A-51 U201A-52 U0300-00 U2100-00 U2101-00 U3000-44 U3000-45 U3000-46 U3000-49
	Were any of these DTCs present? **Yes** Refer to the workshop manual and replace the tailgate control module (upper) as necessary - on the warranty claim please quote feedback "FID 1.1" **No** **GO to A15**.
A15: DTC TEST	
	1 Evaluate the DTCs present. Compare them against the following; C2005-11 / 12 / 13 C2006-11 / 12 / 13 U0140-00 U0401-68 U0415-68 U201A-51 U201A-52 U0300-00 U2100-00 U2101-00 U3000-44 U3000-45 U3000-46 U3000-49
	Were any of the above DTCs present in the tailgate control module (upper)? **Yes** GO to Pinpoint Test **B.** POWER TAILGATE DOES NOT OPEN **No** **GO to A16**.

A16: DTC TEST	
	1 Evaluate DTCs present. Compare them against the following; B1463-02 B1463-11 B1464-02
	Were any of the above DTCs present in the tailgate control module (upper)? **Yes** GO to Pinpoint Test **D.** SOFT CLOSE ACTUATOR TEST **No** Go to the relevant Pinpoint Test according to the reported failure mode on the vehicle

PINPOINT TEST B : POWER TAILGATE DOES NOT OPEN	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
B1: SWITCH TEST	
	1 Using the manufacturer approved diagnostic system, check all associated DTCs with body control module & tailgate control module (upper)
	2 DO NOT REPAIR DTCS - NO PARTS TO BE CHANGED WITHOUT FIRST ISOLATING THE FAILURE MODE
	Are there any DTCs present in the tailgate control module (upper)? **Yes** GO to Pinpoint Test **A.** **No** **GO to B2**.
B2: SWITCH TEST	
	1 Press the exterior tailgate close switch
	Can you hear the latch actuate? **Yes** follow steps 3 and 4 then Go to 5 **No** **GO to B3**.
B3: SWITCH TEST	
	1 Press the smart key tailgate close switch
	Can you hear the latch actuate? **Yes** follow steps 2 and 4 if not already performed, then Go to 5 **No** **GO to B4**.
B4: SWITCH TEST	

	1 Press the interior tailgate close switch
	Can you hear the latch actuate? **Yes** follow steps 2 and 3 if not already performed, then Go to 5 **No** GO to B5.
B5: SWITCH TEST	
	1 After testing all three tailgate close switch operations
	Did the latch actuate from all three switch inputs? **Yes** GO to B6. **No** Refer to the electrical circuit diagrams and check the tailgate close switch for open circuit, high resistance. Refer to the workshop manual and change the part as required. If this fails to remedy the failure Go to 7 Check the release switch concerned for any obvious damage or corrosion On the warranty claim please quote feedback ID "FID 2.1"
B6: STRIKER RELEASE	
	1 After testing all three tailgate close switch operations
	During actuation did the latch release from the striker? **Yes** GO to Pinpoint Test E. **No** GO to Pinpoint Test C.
B7: CAN BUS	
	1 using the manufacturer approved diagnostic system, check if the body control module is live on the medium speed CAN bus
	Is the body control module live on the CAN bus? **Yes** GO to Pinpoint Test C. **No** Refer to the electrical circuit diagrams and check the body control module power and ground circuits for open circuit, high resistance Using the manufacturer approved diagnostic system, perform a CAN network integrity test. Refer to the electrical circuit diagrams and check the high speed CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance Using the manufacturer approved diagnostic system, check the body control module for related DTCs and refer to the relevant DTC index

PINPOINT TEST C : TAILGATE LATCH TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS

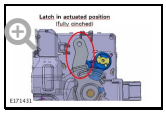
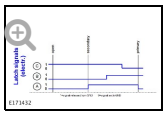
C1: LATCH TEST	
	1 Refer to the workshop manual and remove the upper power tailgate trim for access to the tailgate latch
	2 Try to release the upper power tailgate latch with the emergency release lever
	Does the upper power tailgate latch release? **Yes** GO to C2. **No** Refer to the workshop manual and replace the upper power tailgate latch assembly as necessary On the warranty claim please quote feedback ID "FID 2.2"

C2: LATCH TEST	
	1 Measure the resistance of the upper power tailgate soft close actuator across pins C4PR61-1 and C4PR61-3
	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to C3. **No** Refer to the workshop manual and replace the upper power tailgate latch assembly as necessary On the warranty claim please quote feedback ID "FID 2.3"

C3: LATCH TEST	
	1 Refer to the electrical circuit diagrams and check the upper power tailgate soft close actuator circuit for open circuit, high resistance
	Is the upper power tailgate soft close actuator circuit open circuit, high resistance? **Yes** Refer to the workshop manual and wiring diagrams and repair or replace the upper power tailgate soft close actuator wiring harness as necessary On the warranty claim please quote feedback ID "FID 2.4" **No** GO to C4.

C4: LATCH TEST	
	1 Measure the voltage at the tailgate latch during actuation at C4PR61-1
	Is the actuation signal greater than 9V? **Yes** GO to Pinpoint Test D. **No**

	Refer to the electrical circuit diagrams and check the body control module power and ground circuits for open circuit, high resistance Using the manufacturer approved diagnostic system, perform a CAN network integrity test. Refer to the electrical circuit diagrams and check the high speed CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance Using the manufacturer approved diagnostic system, check the body control module for related DTCs and refer to the relevant DTC index

PINPOINT TEST D : SOFT CLOSE ACTUATOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	D1: SOFT CLOSE ACTUATOR TEST
	1 Refer to the workshop manual and remove the trim for access to the soft close actuator
	2 Check the position of the actuator lever on the latch
	Is the latch lever actuated? **Yes** GO to D2. **No** GO to Pinpoint Test E.
	D2: SOFT CLOSE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and measure the voltage at pin C4PR61-6 on the latch
	Does the latch A-signal go from 0V to greater than 6V when the latch claw is moved from open to secondary latched position (first click on closure)? **Yes** GO to D3. **No** Refer to the workshop manual and replace the upper power tailgate latch assembly as necessary. DTC B1463-02/11 or B1464-02 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 2.5"
	D3: SOFT CLOSE ACTUATOR TEST
	1 Refer to the circuit diagrams and check the soft close actuator by measuring resistance across pins C4PR71-3 and C4PR71-4

	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to D4. **No** Replace the tailgate soft close actuator as necessary. DTC B1316-93 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 2.6"
	D4: SOFT CLOSE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and check the soft close actuator circuit for open circuit, high resistance
	Is the power tailgate actuator (upper) circuit open circuit, high resistance? **Yes** Refer to the workshop manual and circuit diagrams and repair or replace the soft close actuator harness as necessary On the warranty claim please quote feedback ID "FID 2.7" **No** GO to D5.
	D5: SOFT CLOSE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and measure pin C4PR71-2 on the soft close actuator during actuation of the unit
	Does the signal state change during the actuation process? **Yes** GO to D6. **No** Replace the upper power tailgate soft close actuator as necessary. DTC B1316-02 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 2.8"
	D6: SOFT CLOSE ACTUATOR TEST
	1 Examine the upper power tailgate set with respect to mechanical function
	Is there a significant preload on the latch? **Yes** Refer to the workshop manual and adjust the upper power tailgate through either hinges or latch and striker alignment. On the warranty claim please quote feedback ID "FID 2.9" REFER to: **Tailgate Alignment** (501-26 Body Repairs - Vehicle Specific Information and Tolerance Checks, General Procedures) / **Liftgate Striker Adjustment** (501-14 Handles, Locks, Latches and Entry Systems, General Procedures). **No** Using the manufacturer approved diagnostic system, clear the DTCs and retest. If the fault persists, install a new tailgate control module (upper) On the warranty claim please quote feedback ID "FID 2.9"

PINPOINT TEST E : POWER TAILGATE ACTUATOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	E1: POWER TAILGATE ACTUATOR TEST
	1 Operate a power tailgate release switch and check the tailgate opens fully
	Did the upper power tailgate begin to power open from the actuator(s) without opening fully? **Yes** GO to Pinpoint Test **G.** **No** **GO to E2**.
	E2: POWER TAILGATE ACTUATOR TEST
	1 Open the upper power tailgate through its throw of operation manually
	Does the system resist movement significantly more than other vehicles? **Yes** Ensure that there is no mechanical obstruction preventing movement of the upper power tailgate. If none present, refer to the workshop manual and replace the power tailgate actuator (upper) as necessary On the warranty claim please quote feedback ID "FID 2.10" **No** **GO to E3**.
	E3: POWER TAILGATE ACTUATOR TEST
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary. Also check the drain trough finishers in the affected area for correct fitment. Ensure clearance is achieved after refitting the anti-trap sensor On the warranty claim please quote feedback ID "FID 2.11" **No** **GO to E4**.
	E4: POWER TAILGATE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and check the power tailgate actuator (upper) by measuring resistance across pins C4PR57-2 and C4PR57-9 for the right hand actuator and pins C4PR58-2 and C4PR58-9 for the left hand actuator

	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to E5. **No** Refer to the workshop manual and replace the power tailgate actuator (upper) as necessary. DTC C2005-11/13/31 or C2006-11/13/31 should be present in the tailgate control module (upper) as a hard fault On the warranty claim please quote feedback ID "FID 2.12"
	E5: POWER TAILGATE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and check the power tailgate actuator (upper) circuit for open circuit, high resistance
	Is the power tailgate actuator (upper) circuit open circuit, high resistance? **Yes** Refer to the workshop manual and circuit diagrams and repair or replace the power tailgate actuator (upper) wiring harness as necessary On the warranty claim please quote feedback ID "FID 2.13" **No** GO to E6.
	E6: POWER TAILGATE ACTUATOR TEST
	1 Using the manufacturer approved diagnostic system, check if the body control module is live on the medium speed CAN bus
	Is the body control module live on the CAN bus? **Yes** GO to E7. **No** Refer to the electrical circuit diagrams and check the body control module power and ground circuits for open circuit, high resistance. DTCs U0140-00, U0401-68 and U0415-68 may also be present on the tailgate control module (upper) as hard faults Using the manufacturer approved diagnostic system, perform a CAN network integrity test. Refer to the electrical circuit diagrams and check the high speed CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance Using the manufacturer approved diagnostic system, check the body control module for related DTCs and refer to the relevant DTC index On the warranty claim please quote feedback ID "FID 2.14"
	E7: POWER TAILGATE ACTUATOR TEST
	1 using the manufacturer approved diagnostic system, check if the tailgate control module (upper) is live on the medium speed CAN bus
	Is tailgate control module (upper) live on the CAN bus? **Yes** GO to Pinpoint Test H. **No** Using the manufacturer approved diagnostic system, clear the DTCs and retest. If the fault persists, install a new tailgate control module (upper)

	as necessary On the warranty claim please quote feedback ID "FID 2.15"

PINPOINT TEST F : POWER TAILGATE ANTI-TRAP SENSOR TESTING	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	F1: POWER TAILGATE ANTI-TRAP SENSOR TESTING
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary. Also check the drain trough finishers in the affected area for correct fitment. Ensure clearance is achieved after refitting the anti-trap sensor On the warranty claim please quote feedback ID "FID 2.16" **No** GO to F2.
	F2: POWER TAILGATE ANTI-TRAP SENSOR TESTING
	1 Inspect the end of the anti-trap sensors on either side of the upper power tailgate, where the wire exits the sensor
	Is there evidence of wear and tear or insulation break through? **Yes** Refer to the workshop manual and replace the upper power tailgate anti-trap sensor as necessary On the warranty claim please quote feedback ID "FID 2.17" **No** GO to F3.
	F3: POWER TAILGATE ANTI-TRAP SENSOR TESTING
	1 Inspect the fitment of the anti-trap sensor to the upper power tailgate
	Are all clips fully engaged and the sensor securely located? **Yes** GO to Pinpoint Test **B.** If failure is still present raise an electronic product quality report (EPQR) for Land Rover Engineering to assist in resolution of the issue **No** If possible re-seat the anti-trap sensor correctly and check for correct operation. If not possible refer to the workshop manual and replace the anti-trap sensor as necessary On the warranty claim please quote feedback ID "FID 2.18"

PINPOINT TEST G : POWER TAILGATE DOES NOT CLOSE	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	G1: SWITCH TEST
	1 Using the manufacturer approved diagnostic system, check all associated DTCs with body control module & tailgate control module (upper)
	2 DO NOT REPAIR DTCS - NO PARTS TO BE CHANGED WITHOUT FIRST ISOLATING THE FAILURE MODE
	Are there any DTCs present in the tailgate control module (upper)? **Yes** GO to Pinpoint Test **A.** **No** GO to G2.
	G2: SWITCH TEST
	1 Press the tailgate close switch
	Does the upper power tailgate begin to power close? **Yes** Follow steps 3 and 4 then Go to 5 Ensure the upper power tailgate is returned to the fully open position **No** GO to G3.
	G3: SWITCH TEST
	1 Press the smart key close switch
	Does the upper power tailgate begin to power close? **Yes** Follow steps 2 and 4 if not already performed, then Go to 5 Ensure the upper power tailgate is returned to the fully open position **No** GO to G4.
	G4: SWITCH TEST
	1 Press the tailgate interior close switch
	Does the upper power tailgate begin to power close? **Yes** Follow steps 2 and 3 if not already performed, then Go to 5 **No** GO to G6.
	G5: SWITCH TEST
	1 After testing all three release switch operations

	Did the upper power tailgate begin powered operation from all three switch inputs? **Yes** GO to Pinpoint Test **K.** **No** Refer to the electrical circuit diagrams and check the tailgate release switch for open circuit, high resistance. Refer to the workshop manual and change the part as required Check switch concerned for any obvious damage or corrosion On the warranty claim please quote feedback ID "FID 3.1"
	G6: CAN BUS CHECK
	1 using the manufacturer approved diagnostic system, check if the tailgate control module (upper) is live on the medium speed CAN bus
	Is the tailgate control module (upper) live on the CAN bus? **Yes** GO to Pinpoint Test **H.** **No** Using the manufacturer approved diagnostic system, clear the DTCs and retest. If the fault persists, install a new tailgate control module (upper) as necessary On the warranty claim please quote feedback ID "FID 3.2"

PINPOINT TEST H : ANTI-TRAP SENSOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	H1: ANTI-TRAP SENSOR TEST
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary. Also check the drain trough finishers in the affected area for correct fitment. Ensure clearance is achieved after refitting the anti-trap sensor On the warranty claim please quote feedback ID "FID 3.3" **No** GO to H2.
	H2: ANTI-TRAP SENSOR TEST
	1 Inspect the end of the anti trap sensors on either side of the upper power tailgate, where the wire exits the sensor
	Is there evidence of wear and tear or insulation break through?

	Yes Refer to the workshop manual and replace the anti trap sensor as necessary On the warranty claim please quote feedback ID "FID 3.4" **No** GO to H3.
H3: ANTI-TRAP SENSOR TEST	
	1 Inspect the fitment of the anti trap sensor to the tailgate
	Are all clips fully engaged and the sensor securely located? **Yes** Go to C3: TAILGATE POSITIONAL DATA TEST **No** If possible re-seat the anti trap sensor correctly and check for correct operation. If not possible refer to the workshop manual and replace the anti trap sensor as necessary On the warranty claim please quote feedback ID "FID 3.5"

PINPOINT TEST I : POWER TAILGATE POSITIONAL DATA TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
I1: POWER TAILGATE POSITIONAL DATA TEST	
	1 Using the manufacturer approved diagnostic system check if the upper power tailgate position is known by the system or not. Check if DTC C2005-31 or C2006-31 is currently active, if yes, the tailgate position is unknown
	Is the upper power tailgate position unknown? **Yes** GO to I2. **No** GO to I3.
I2: POWER TAILGATE BODY FITMENT CHECK	
	1 Check the position of the upper power tailgate relative to the aperture. Check for flushness across the back of the vehicle, both vertically and horizontally
	Is the upper power tailgate centralised both horizontally and vertically in the aperture? **Yes** GO to I3. **No** Refer to the workshop manual and re-set the upper power tailgate to achieve a good gap and flush condition across the rear of the vehicle. After re-setting the upper power tailgate according to the workshop manual instructions, using the manufacturer approved diagnostic tool, recalibrate the tailgate and test operation

	On the warranty claim please quote feedback ID "FID 3.7"
	I3: POWER TAILGATE POSITION SENSOR CHECK
	1 Refer to the electrical circuit diagrams and manually moving the upper power tailgate slowly, measure the position sensor voltage between C4PR59B-8 and C4PR59B-21 and then between C4PR59B-9 and C4PR59B-21. Repeat for second spindle, if fitted: Measure voltage between C4PR59B-6 and C4PR59B-18 and then between C4PR59B-7 and C4PR59B-18. Important: Move spindles slowly to be able to capture the transitions
	Does the voltage on the position sensor alternate between ~0V and ~9V? **Yes** GO to Pinpoint Test **J.** **No** **GO to I4**. On the warranty claim please quote feedback ID "FID 3.8"
	I4: POWER TAILGATE POSITION SENSOR CHECK
	1 Refer to the electrical circuit diagrams
	Is there continuity between the hall sensor output on the power tailgate actuator (upper) and the tailgate control module (upper) end of the harness? **Yes** **GO to I5**. **No** Refer to the workshop manual and replace / repair the electrical harness as required On the warranty claim please quote feedback ID "FID 3.9"
	I5: POWER TAILGATE POSITION SENSOR CHECK
	1 Using powered operation, ensure that the upper power tailgate has moved in the three seconds prior to this test. Using a multimeter, check the voltage on pin 1 of the actuator connector (Right hand actuator C4PR57-1, Left hand actuator C4PR58-1)
	Is there ~9V present? **Yes** Refer to the workshop manual and replace the spindle drive as necessary On the warranty claim please quote feedback ID "FID 3.10" **No** Using the manufacturer approved diagnostic tool, check the software level on tailgate control module (upper). Reflash the software if required. Recalibrate the upper power tailgate as per the workshop manual. If this does not remedy the failure mode, refer to the workshop manual and replace the tailgate control module (upper) as necessary On the warranty claim please quote feedback ID "FID 3.10"

	PINPOINT TEST J : LATCH TEST

TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	J1: LATCH TEST
	1 Using a multimeter, measuring on the tailgate control module (upper) input while the tailgate control module (upper) is powered and the latch is connected and in an open state (ie; not latched at all), check if the signal outputs from the latch for signals A (C4PR59B-5) and B (C4PR59B-16) are ~0V
	Are the signal outputs ~0V? **Yes** Using the manufacturer approved diagnostic tool, check the software level on tailgate control module (upper). Reflash the software if required. Recalibrate the upper power tailgate as per the workshop manual. If this does not remedy the failure mode, refer to the workshop manual and replace the tailgate control module (upper) as necessary On the warranty claim please quote feedback ID "FID 3.11" **No** GO to J2.
	J2: LATCH TEST
	1 Refer to the electrical circuit diagrams and check the upper power tailgate latch 1st & 2nd signal circuit for open circuit, high resistance
	Is the upper power tailgate latch 1st & 2nd signal circuit open circuit, high resistance? **Yes** Refer to the workshop manual and replace / repair the harness as necessary **No** Refer to the workshop manual and replace the latch as necessary

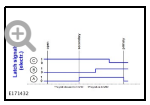
PINPOINT TEST K : POWER TAILGATE DOES NOT CLOSE FULLY	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	K1: MECHANICAL OBSTRUCTION INSPECTION
	1 Inspect the upper power tailgate closure aperture for any mechanical obstruction
	Is there any mechanical obstruction? **Yes** Clear the mechanical obstruction and retest for upper power tailgate operation On the warranty claim please quote feedback ID "FID 4.1" **No** GO to K2.
	K2: TAILGATE ACTUATOR DRIVE TEST

	1 Close the upper power tailgate by powered operation
	Did the upper power tailgate stop halfway through powered operation? **Yes** GO to K3. **No** GO to K5.
	K3: TAILGATE ACTUATOR DRIVE TEST
	1 Open the upper power tailgate through its throw of operation manually
	Does the system resist movement significantly more than other vehicles? **Yes** Ensure that there is no mechanical obstruction preventing movement of the upper power tailgate. If none present, refer to the workshop manual and replace the power tailgate actuator (upper) as necessary On the warranty claim please quote feedback ID "FID 4.2" **No** GO to K4.
	K4: TAILGATE ACTUATOR DRIVE TEST
	1 Check the power tailgate actuator (upper) by measuring resistance across pins C4PR57-2 and C4PR57-9 for the right hand spindle and then C4PR58-2 C4PR58-9 for the left hand spindle
	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to K5. **No** Refer to the workshop manual and replace the power tailgate actuator (upper) as necessary. DTC C2005-11/13/31 or C2006-11-13-31 should be present in the tailgate control module (upper) as a hard fault On the warranty claim please quote feedback ID "FID 4.3"
	K5: TAILGATE ACTUATOR DRIVE TEST
	1 Refer to the electrical circuit diagrams, and check the upper power tailgate left and right actuator power and ground circuits for open circuit, high resistance
	Is the upper power tailgate left or right actuator power or ground circuit open circuit, high resistance? **Yes** Refer to the workshop manual and repair or replace the wiring harness as necessary **No** GO to K6. On the warranty claim please quote feedback ID "FID 4.4"
	K6: CAN BUS CHECK
	1 using the manufacturer approved diagnostic system, check if the body

	control module is live on the medium speed CAN bus
	Is the body control module live on the medium speed CAN bus? **Yes** GO to K7. **No** Refer to the electrical circuit diagrams and check the body control module power and ground circuits for open circuit, high resistance. DTCs U0140-00, U0401-68 and U0415-68 may also be present on the tailgate control module (upper) as hard faults Using the manufacturer approved diagnostic system, perform a CAN network integrity test. Refer to the electrical circuit diagrams and check the high speed CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance Using the manufacturer approved diagnostic system, check the body control module for related DTCs and refer to the relevant DTC index On the warranty claim please quote feedback ID "FID 4.5"
K7: CAN BUS CHECK	
	1 using the manufacturer approved diagnostic system, check if the tailgate control module (upper) is live on the medium speed CAN bus
	Is tailgate control module (upper) live on the medium speed CAN bus? **Yes** GO to Pinpoint Test L. **No** Using the manufacturer approved diagnostic system, clear the DTCs and retest. If the fault persists, install a new tailgate control module (upper) as necessary On the warranty claim please quote feedback ID "FID 4.6"

PINPOINT TEST L : ANTI TRAP SENSOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
L1: ANTI TRAP SENSOR TEST	
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary On the warranty claim please quote feedback ID "FID 4.7" **No** GO to L2.
L2: ANTI TRAP SENSOR TEST	

	1 Inspect the end of the anti trap sensors on either side of the upper power tailgate, where the wire exits the sensor
	Is there evidence of wear and tear or insulation break through? **Yes** Refer to the workshop manual and replace the anti trap sensor as necessary On the warranty claim please quote feedback ID "FID 4.8" **No** GO to L3.
L3: ANTI TRAP SENSOR TEST	
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary On the warranty claim please quote feedback ID "FID 4.9" **No** GO to Pinpoint Test M.

PINPOINT TEST M : SOFT CLOSE ACTUATOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
M1: SOFT CLOSE ACTUATOR TEST	
	1 With the upper power tailgate open, using a blunt object move the latch claw from open to secondary latched (first click) position. (Circuit ref: C4PR61-6)
	Does the latch A-signal go from 0V to greater than 6V when the latch claw is moved from open to secondary latched (first click) position? **Yes** GO to M2. **No** Refer to the workshop manual and replace the upper power tailgate latch assembly as necessary. DTC B1463-02/11 or B1464-02 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 4.10"
M2: SOFT CLOSE ACTUATOR TEST	
	1 Using the manufacturer approved diagnostic system check for the most current software for tailgate control module (upper). If there is

	software update available for the tailgate control module (upper) flash the latest level software onto it. Using the manufacturer approved diagnostic system recalibrate the upper power tailgate. Repeat the closure cycle on the upper power tailgate 10 times more
	Did the software update remedy the failure mode? **Yes** No further action required On the warranty claim please quote feedback ID "FID 4.11" **No** GO to M3.
	M3: SOFT CLOSE ACTUATOR TEST
	1 Refer to the electrical circuit diagrams and check the soft close actuator motor by measuring resistance across pins C4PR71-3 and C4PR71-4
	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to M4. **No** Replace the upper power tailgate soft close actuator as necessary. DTC B1316-93 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 4.12"
	M4: SOFT CLOSE ACTUATOR TEST
	1 Refer to the electrical wiring diagrams and check the connection between the soft close actuator and the tailgate control module (upper)
	2 Refer to the electrical circuit diagrams, and check the upper power tailgate soft close actuator power and ground circuits for open circuit, high resistance
	Is the upper power tailgate soft close actuator power or ground circuit open circuit, high resistance? **Yes** Refer to the wiring diagrams and repair or replace the harness as necessary **No** GO to M5. On the warranty claim please quote feedback ID "FID 4.13"
	M5: SOFT CLOSE ACTUATOR TEST
	1 Operate the upper power tailgate soft close actuator and measure the voltage on pin C4PR71-1
	Does the voltage change during the actuation process? **Yes** GO to M6. **No** Check and install a new upper power tailgate soft close actuator as

	required. DTC B1316-02 should also be logged in the tailgate control module (upper) On the warranty claim please quote feedback ID "FID 4.14"
M6: SOFT CLOSE ACTUATOR TEST	
	1 Examine the upper power tailgate set with respect to mechanical function
	Is there a significant preload on the latch - ie; does the upper power tailgate "pop" loudly on release? **Yes** Refer to the workshop manual and adjust the upper power tailgate through either hinges or latch and striker alignment On the warranty claim please quote feedback ID "FID 4.15" **No** GO to M7.
M7: SOFT CLOSE ACTUATOR TEST	
	1 With the latch in an open state, rotate the claw to secondary latched position (first click). The soft close actuator will now initialise and pull the claw to a primary latched (second click) position
	Watch the cable connected to the latch. Does the cable move? **Yes** GO to Pinpoint Test N. **No** Refer to the workshop manual and replace the soft close actuator as necessary On the warranty claim please quote feedback ID "FID 4.16"

PINPOINT TEST N : LATCH TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
N1: LATCH TEST	
	1 Open the upper power tailgate to a fully open position. Press the complete close switch (CCS) to close the upper power tailgate under powered operation. When the latch engages onto secondary latched (first click) position listen carefully for the soft close actuator. The soft close actuator should initiate and pull the upper power tailgate to a primary latched (fully closed) state
	Is the upper power tailgate in primary latched (fully closed) state? **Yes** No further action required On the warranty claim please quote feedback ID "FID 4.17" **No** GO to N2.
N2: LATCH TEST	

	1 Open the upper power tailgate
	2 Refer to the workshop manual and remove the latch cover
	3 Using a rubber mallet, gently tap the latch and listen for any mechanical resetting noise
	4 Press the tailgate global open/close switch to power close the upper power tailgate
	Does the upper power tailgate close to primary latch position after soft close actuation? **Yes** GO to Pinpoint Test **K.** And repeat once more - if failure mode persists raise an electronic product quality report (EPQR) to seek technical support from DTS or JLR Engineering **No** Refer to the workshop manual and replace the latch as necessary On the warranty claim please quote feedback ID "FID 4.18"

PINPOINT TEST O : POWER TAILGATE DOES NOT OPEN FULLY	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	O1: PROGRAMMED GARAGE HEIGHT TEST
	1 Open the upper power tailgate manually to a fully open position. Press and hold the global open/close switch until beep is heard. Fully close the system manually and press the exterior release switch
	Does the upper power tailgate open to its full extent? **Yes** Close the upper power tailgate and repeat the opening operation 10 more times to ensure failure mode is eliminated On the warranty claim please quote feedback ID "FID 5.1" **No** GO to Pinpoint Test **P.**

PINPOINT TEST P : MECHANICAL OBSTRUCTION INSPECTION	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	P1: MECHANICAL OBSTRUCTION INSPECTION
	1 Inspect all areas of the upper power tailgate for mechanical obstruction. Pay particular attention to the latch cover to striker plate interface. If any mechanical obstructions are identified remedy them before retesting. If this requires a move of the upper power tailgate on the hinges or a striker adjustment then using the manufacturer approved diagnostic tool recalibrate the upper power tailgate . Retest

	by pressing the exterior release switch
	Does the upper power tailgate open fully? **Yes** Close the upper power tailgate and repeat the opening operation 10 more times to ensure failure mode is eliminated On the warranty claim please quote feedback ID "FID 5.2" **No** GO to Pinpoint Test **Q.**

PINPOINT TEST Q : ANTI TRAP SENSOR TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	Q1: ANTI TRAP SENSOR TEST
	1 Inspect the anti trap sensors on either side of the upper power tailgate . Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary On the warranty claim please quote feedback ID "FID 5.3" **No** GO to Q2.
	Q2: ANTI TRAP SENSOR TEST
	1 Inspect the end of the anti trap sensors on either side of the upper power tailgate , where the wire exits the sensor
	Is there evidence of wear and tear or insulation break through? **Yes** Refer to the workshop manual and replace the anti trap sensor as necessary On the warranty claim please quote feedback ID "FID 5.4" **No** GO to Q3.
	Q3: ANTI TRAP SENSOR TEST
	1 Inspect the anti trap sensors on either side of the upper power tailgate. Pay particular attention to the radius at the top of the upper power tailgate
	Is there evidence of abrasion / wear and tear? **Yes** Using the manufacturer approved diagnostic system, check datalogger signal - Anti Pinch Seals Voltage (0xD902) when the upper power tailgate

	is closed. If the signal indicates that the sensor is activated, refer to the workshop manual and replace the sensor as necessary On the warranty claim please quote feedback ID "FID 5.5" **No** GO to Pinpoint Test **R.**

PINPOINT TEST R : TAILGATE ACTUATOR DRIVE TEST	
TEST CONDITIONS	DETAILS/RESULTS/ACTIONS
	R1: TAILGATE ACTUATOR DRIVE TEST
	1 Open the upper power tailgate through its throw of operation manually
	Does the system resist movement significantly more than other vehicles? **Yes** Ensure that there is no mechanical obstruction preventing movement of the upper power tailgate. If none present, refer to the workshop manual and replace the power tailgate actuator (upper) as necessary On the warranty claim please quote feedback ID "FID 5.6" **No** GO to R2.
	R2: TAILGATE ACTUATOR DRIVE TEST
	1 Check the tailgate actuator (upper) by measuring resistance across pins C4PR57-2 and C4PR57-9 for the right hand spindle and then C4PR58-2 C4PR58-9 for the left hand spindle
	Is the resistance between 2 ohms and 20 ohms? **Yes** GO to R4. **No** Refer to the workshop manual and replace the tailgate actuator (upper) as necessary. DTC C2005-11/13/31 or C2006-11-13-31 should be present in the tailgate control module (upper) as a hard fault. On the warranty claim please quote feedback ID "FID 5.7"
	R3: TAILGATE ACTUATOR DRIVE TEST
	1 Refer to the electrical circuit diagrams, and check the upper power tailgate left and right actuator power and ground circuits for open circuit, high resistance
	Is the upper power tailgate left or right actuator power or ground circuit open circuit, high resistance? **Yes** Refer to the wiring diagrams and repair or replace the wiring harness as necessary. On the warranty claim please quote feedback ID "FID 5.8" **No** GO to R4.

R4: TAILGATE ACTUATOR DRIVE TEST	
	1 using the manufacturer approved diagnostic system, check if the body control module is live on the medium speed CAN bus
	Is the body control module live on the medium speed CAN bus? **Yes** GO to R5. **No** Refer to the electrical circuit diagrams and check the body control module power and ground circuits for open circuit, high resistance. DTCs U0140-00, U0401-68 and U0415-68 may also be present on the tailgate control module (upper) as hard faults Using the manufacturer approved diagnostic system, perform a CAN network integrity test. Refer to the electrical circuit diagrams and check the high speed CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance Using the manufacturer approved diagnostic system, check the body control module for related DTCs and refer to the relevant DTC index On the warranty claim please quote feedback ID "FID 5.9"

R5: TAILGATE ACTUATOR DRIVE TEST	
	1 Using the manufacturer approved diagnostic system, check if the tailgate control module (upper) is live on the medium speed CAN bus
	Is the tailgate control module (upper) live on the medium speed CAN bus? **Yes** GO to Pinpoint Test **A.** Go to A1: DTCs and repeat once more. If failure is still present raise an electronic product quality report (EPQR) for Land Rover Engineering to assist in resolution of the issue **No** Refer to the workshop manual and replace the tailgate control module (upper) as necessary On the warranty claim please quote feedback ID "FID 5.10"

DTC INDEX

For a list of Diagnostic Trouble Codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00. REFER to: (100-00 General Information)

Diagnostic Trouble Code Index - DTC: Body Control Module (BCM) (Description and Operation),
Diagnostic Trouble Code Index - DTC: Keyless Vehicle Module (KVM) (Description and Operation),

Diagnostic Trouble Code Index - DTC: Tailgate Control Module (TGCM) - Upper/Lower (Description and Operation).