TOWBAR

DIAGNOSIS AND TESTING

PRINCIPLES OF OPERATION

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 (DMM) accurate to three decimal places, and with an up-to-date calibration certificate. When testing resistance, always take the resistance of the DMM leads into account

For a detailed description of the deployable towbar control module system

and operation, refer to the relevant section of the workshop manual

INSPECTION AND VERIFICATION

1. Verify the customer concern

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

Visual Inspection

MECHANICAL	ELECTRICAL
▪ Deployable towbar mechanism and motor ▪ Deployable towbar initialisation	▪ Fuses ▪ Battery junction box ▪ Rear fuse box ▪ Wiring harness ▪ Loose or corroded connector(s) ▪ Deployable towbar motor and control module ▪ Deployable towbar switch ▪ Deployable towbar status indicators

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 table below

DEPLOYABLE TOWBAR – DIAGNOSIS AND TESTING

In the event of a customer reporting the loss of deployable towbar function, follow the pinpoint tests below:

PINPOINT TEST A : DEPLOYABLE TOWBAR OPERATION CHECKS	
TEST	DETAILS/RESULTS/ACTIONS

A1: TOW-BALL CAP CHECK

	1 Check if there is a cap fitted to the tow-ball

	Is there a cap fitted to the tow-ball?
	    Yes
	Remove the cap and advise customer that a tow-ball cap should not be used
	    No
	GO to A2.

A2: BATTERY CHECKS

	1 Connect the battery conditioner (>14v is required for operation) and operate towbar

	Does the towbar move?
	    Yes
	GO to A3.
	    No
	GO to A4.

A3: TOWBAR MOVEMENT TEST

	1 Visually inspect the towbar movement during operation

	Does the towing socket deploy smoothly?
	    Yes
	GO to A7.
	    No
	GO to A8.

A4: FURTHER OPERATION CHECKS

	1 Start engine
	2 Stop engine
	3 Press the 'Activate' button (the left side switch on the deployable towbar switchpack) once until the green LED illuminates on the 'Deploy/Stow' button
	4 Press 'deploy/stow' button (the right side switch on the deployable towbar switchpack) and hold down for a maximum of 2 seconds

	Does the towbar move?
	    Yes
	GO to A5.
	    No
	Repeat steps 1-4 (above) a further four times (5 attempts in total). Does the towbar move after a further four attempts? If "Yes" GO to A5. ; if "No", GO to A9.

A5: DETERMINE DEPLOYABLE TOWBAR MODULE PART NUMBER (1A)

	1 Inspect the deployable towbar module and determine part number (see the last two letters of the part number, as illustrated)
	Is the deployable towbar module part number CPLA-19H397-AE (or earlier)?
	Yes
	Fit deployable towbar module part number CPLA-19H397-AG using campaign code Q602 and initialise the module. Does the towbar now deploy and stow correctly? Cycle twice to ensure correct function of towbar
	No
	GO to A6.

<table>
<tr><td colspan="2" align="center">A6: DETERMINE DEPLOYABLE TOWBAR MODULE PART NUMBER (1B)</td></tr>
<tr><td></td><td>1 Inspect the deployable towbar module and determine part number (see the last two letters of the part number, as illustrated in the previous pinpoint test)</td></tr>
<tr><td></td><td>Is the deployable towbar module part number CPLA-19H397-AF?
Yes
Remove the deployable towbar module and check serial (ID) number, as illustrated. If the deployable towbar module serial number is inside the range #26747 to #48666 inclusive, fit deployable towbar module part number CPLA-19H397-AG using campaign code Q602 and initialise the module. If the deployable towbar module serial number is outside the range #26747 to #48666 inclusive, re-fit the deployable towbar module and re-initialise the module. Does the towbar now deploy and stow correctly? Cycle twice to ensure correct function of towbar
No
If the deployable towbar module part number is CPLA-19H397-AG, no further action is required</td></tr>
<tr><td colspan="2" align="center">A7: TOWBAR MOVEMENT CHECKS</td></tr>
<tr><td></td><td>1 Operate towbar</td></tr>
<tr><td></td><td>Does the towbar move completely between the stowed and deployed positions?
Yes
GO to A5.
No
GO to A4.</td></tr>
<tr><td colspan="2" align="center">A8: MECHANICAL CHECKS</td></tr>
<tr><td></td><td>1 Inspect/check the following and correct as indicated</td></tr>
</table>

	2 Check 1: Check if the socket adaptor is fitted - if "Yes", remove adaptor and reset the deployable towbar system. Explain to the customer that the system was blocked by the adaptor on return of the vehicle to the customer, if "No", go to Check 2
	3 Check 2: Check if there is excess weld evident on the socket pivot (there should be no excess weld above the surface of the pivot plate) - if "Yes", perform low-level repair with service kit SSM71359, if "No", go to Check 3
	4 Check 3: Check if there is corrosion on the pivot - if "Yes", perform low-level repair with service kit SSM71359, if "No", go to Check 4
	5 Check 4: Check if the socket bracket is bent - if "Yes", **either**, straighten socket if practicable, **or**, replace with part number VPLGT0138 (L405) or VPLGT0139 (L494) and advise customer on correct usage
	Does the towbar now move completely between the stowed and deployed positions? 　**Yes** No further action required 　**No** GO to A7.

A9: DETERMINE DEPLOYABLE TOWBAR MODULE PART NUMBER (2A)

	1 Inspect the deployable towbar module and determine part number (see the last two letters of the part number, as illustrated)
	Is the deployable towbar module part number CPLA-19H397-AE (or earlier)? 　**Yes** Fit deployable towbar module part number CPLA-19H397-AG using campaign code Q602 and initialise the module. Does the towbar now deploy and stow correctly? If "Yes", the repair is complete and no further action is required. If "No", replace the towbar unit under vehicle warranty and initialise, then GO to A11. 　**No** GO to A10.

A10: DETERMINE DEPLOYABLE TOWBAR MODULE PART NUMBER (2B)

	1 Inspect the deployable towbar module and determine part number (see the last two letters of the part number, as illustrated in the previous pinpoint test)
	Is the deployable towbar module part number CPLA-19H397-AF? 　**Yes**

Remove the deployable towbar module and check serial (ID) number, as illustrated. If the deployable towbar module serial number is **inside** the range #26747 to #48666 inclusive, fit deployable towbar module part number CPLA-19H397-AG using campaign code Q602 and initialise the module. Does the towbar now deploy and stow correctly? If "Yes", the repair is complete and no further action is required. If "No", replace the towbar unit under vehicle warranty and initialise, then GO to A11. . If the deployable towbar module serial number is **outside** the range #26747 to #48666 inclusive, re-fit the deployable towbar module and re-initialise the module. Does the towbar now deploy and stow correctly? If "Yes", the repair is complete and no further action is required. If "No", replace the towbar unit under vehicle warranty and initialise, then GO to A11.

    No

If the deployable towbar module part number is CPLA-19H397-AG, replace the towbar unit under vehicle warranty and initialise. Does the towbar now deploy and stow correctly? If "Yes", the repair is complete and no further action is required. If "No", replace the towbar module under vehicle warranty and initialise. Return both removed module and towbar and using the correct warranty procedure, then GO to A11.

A11: REPLACEMENT TOWBAR UNIT/TOWBAR MODULE CHECKS

	1 Once the towbar unit and/or towbar module has been replaced and initialised, check the towbar operation

	Does the towbar stow and deploy completely?
	    Yes
	The repair is complete and no further action is required
	    No
	GO to A4.

Deployable Towbar Initialisation

For details of the deployable towbar initialisation procedure REFER to: Deployable Towbar Control Module (502-03 Towbar, Removal and Installation).

Deployable Towbar - Warning Indicators/Buzzer

The deployable towbar control module is a standalone unit and does not log any DTCs. However, the unit is able to communicate various status and fault indicators via a buzzer and the LEDs on the towbar deploy switch. Details of these status indicator codes are included in the table below

Deployable Towbar Status Indicators - Buzzer and LED codes

GREEN LED	RED LED	BUZZER NOISE	USER ACTION
OFF	OFF	OFF	▪ No further user action is required
Blinking	Blinking	OFF	▪ Start engine and run for longer than 2 seconds. Stop engine. Switch ignition to ON. Switch ignition to OFF ▪ Press the 'Activate' button (the left side switch on the deployable towbar switchpack) for 2 seconds until the green LED illuminates on the 'Deploy/Stow' button ▪ Press 'deploy/stow' button (the right side switch on the deployable towbar switchpack) and hold until towbar reaches its fully deployed position. During deployment the buzzer will pulse as a warning. During deployment the green indicator will flash as a warning. At the end of deployment the towbar will give a beep/beep sound ▪ Release the 'Deploy/Stow' button ▪ In the case of any difficulties or interruptions with the initialization process, re-start the sequence from the beginning
Blinking	Blinking	Beeeeeep	▪ Start engine and run for longer than 2 seconds. Stop engine. Switch ignition to ON. Switch ignition to OFF ▪ Press the 'Activate' button (the left side switch on the deployable towbar switchpack) for 2 seconds until the green LED illuminates on the 'Deploy/Stow' button ▪ Press 'deploy/stow' button and hold until towbar reaches its fully deployed position. During deployment the buzzer will pulse as a warning. During deployment the green indicator will flash as a warning. At the end of deployment the towbar will give a beep/beep sound ▪ Release the 'Deploy/Stow' button ▪ In the case of any difficulties or interruptions with the initialization process, re-start the sequence from the beginning
On for 5 seconds	OFF	OFF	▪ Towbar ready for start movement ▪ Press the 'Deploy/Stow' button for longer

			than 1 second
Blinking	OFF	Beep..Beep..Beep	■ No further user action is required ■ The towbar movement may be halted by pressing the 'Deploy/Stow' button for longer than 1 second
OFF	OFF	Beep..Beep	■ No further user action is required
Blinking	ON	Beeeeeep	■ Press the 'Deploy/Stow' button (the right side switch on the deployable towbar switchpack). This will cause the towbar to re-start its movement again
OFF	ON	Beeeeeep	■ Switch off engine and ignition ■ Note the status of the red/green LEDs on the deployable towbar switchpack and refer to this table
OFF	OFF	Beep..Beep	■ No remedial action is required
OFF	Blinking	Beeeeeep	■ Acknowledge error by pressing 'activate' button for longer than 1 second ■ If error is eliminated tow bar changes to intermediate state ■ Press the 'Deploy/Stow' button (the right side button on the deployable towbar switchpack) for longer than 1 second. this will cause the towbar to re-start its movement ■ If error is NOT eliminated please contact support
OFF	ON (during button press)	Beep (during button press)	■ Deployable towbar switchpack buttons are locked while engine is running ■ Switch off engine and ignition to activate deployable towbar switchpack