



Ferrari North America

Technical Information

Date:	October 2016
Bulletin #:	2371
Campaign #:	
Supersedes:	2092
Section:	9

Model Type: California / California T

Model Year: All

Subject: Procedure for checking RHT retractable hard top

This Technical Information Cancels and Replaces the previous TI 2092 of April 2013

To aid the factory in diagnosing the faults/problems described as follows quickly and accurately, it is always necessary to provide all the information requested by completing the form attached from **page 3** to **page 22** in full.

- Flap failure;
- RHT sensors;
- RHT hydraulic fluid leakage;
- Damage to headliner panel/ropes;
- Knocking noise from hooks;
- Dented RHT panels;
- Slider failure;
- Incorrect closure of luggage compartment lid;
- Jammed RHT;
- RHT with broken parts;
- Misalignment between tonneau cover kinematics.



Ferrari North America

- IMPORTANT -

Please use the “Information Request Form for RHT Retractable Hard Top Roof Faults” attached from page 3 to 22, to provide the factory with all the information requested.

After completing the procedures, ALWAYS open an ROL (Red On Line) and attach the completed “Information Request Form for RHT Retractable Hard Top Roof Faults”, together with (where requested) the printout files for the RHT ECU parameters and errors and the requested photographic documentation.

Thank you for your co-operation.



Information Request Form for RHT Retractable Hard Top Roof Faults

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Chassis number:

Vehicle production date:

Dealer:

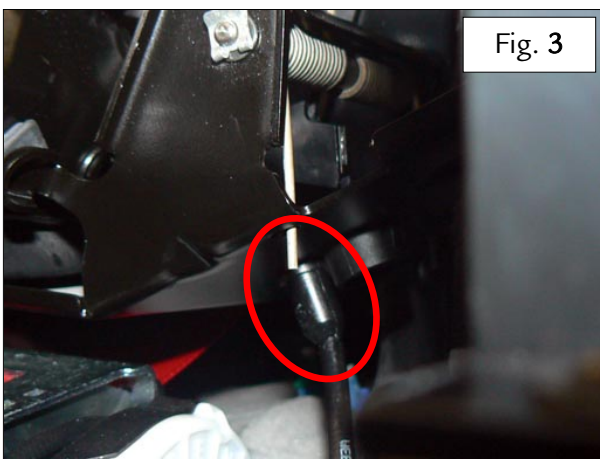
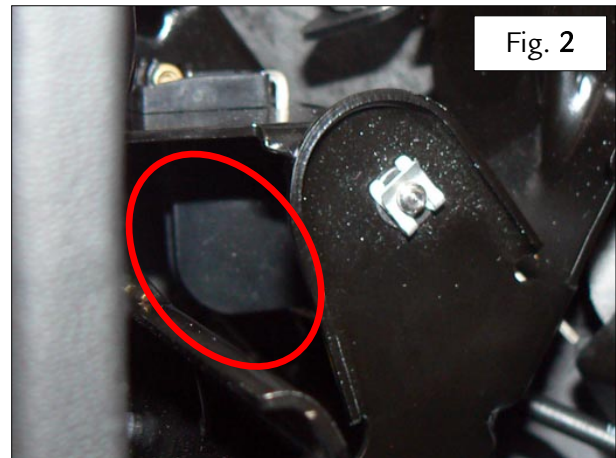
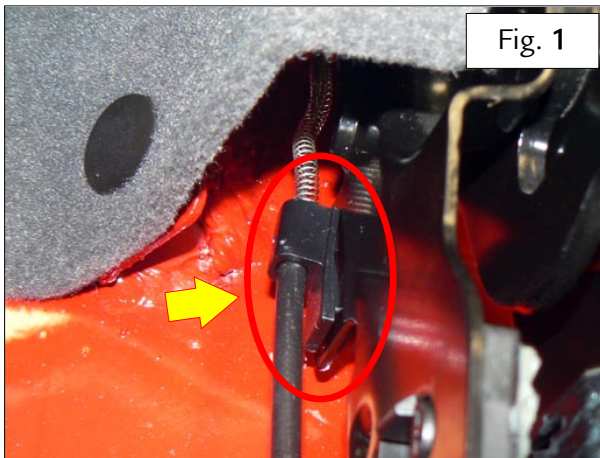
Vehicle mileage (Km):

ROL number:

**Attach all the requested documentation to the ROL
Attach this form to the ROL**

FLAP FAILURE:

1. - With the RHT roof in the intermediate position, **Notes:**
check that the RH and LH Bowden cables and the flap upholstery cover are fastened correctly and photograph the respective areas:
- Clip (Fig. 1);
 - Cable detached from pulley (Fig. 2);
 - Cable guide (Fig. 3);
 - Flap trim (Fig. 4).

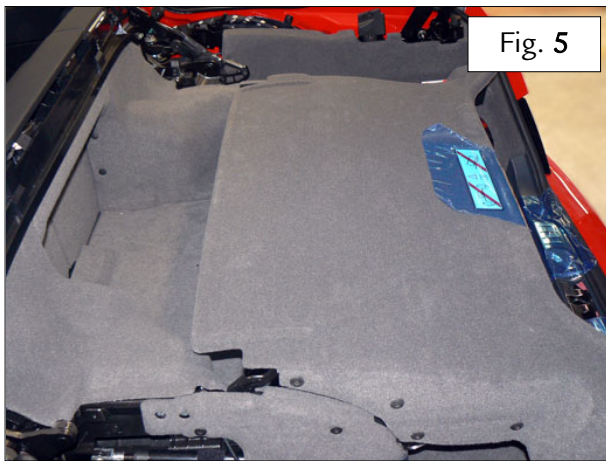




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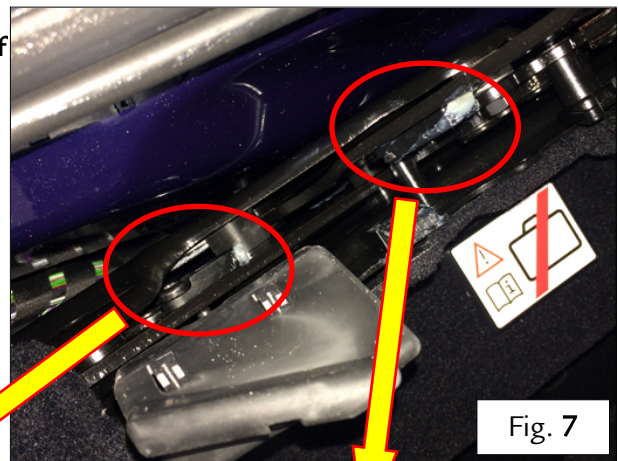
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2. - With the RHT roof in the intermediate position, check for and photograph any marks caused by contact between the luggage compartment lid and the surrounding elements (Fig. 5-6).
(take several photographs of the trim elements from different angles)
- Notes:**



3. - For the CaliforniaT ONLY_ With the RHT roof in the intermediate position, check the condition of and photograph the two flap anti-rotation blocks on the RH and LH side kinematics of the roof respectively (Fig. 7).

Notes:





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4. – Ask the customer for the following information:
- Details of the last manoeuvre performed immediately before the event (opening, closing, direction inversion);
 - Any abnormal sounds heard before event.

Notes:

5. Print the list of RHT ECU parameters and errors using the DEIS tester, and attach to the ROL.

Notes:

RHT SENSORS

1. – Take photographs of the roof in the position in which it has jammed.

Notes:

2. – Indicate the technical characteristics of the sensors measured with the DEIS tester, complete with the relative operating ranges in Volts.

Notes:

Notes:

3. Print the list of RHT ECU parameters and errors using the DEIS tester, and attach to the ROL.

Notes:

4. – Take a video of the fault if it is repetitive.

5. – Perform the SCAN IN procedure for the roof with the DEIS tester, print out the file generated and proceed in accordance with the information contained in the file. At the end of the operation, perform the SCAN OUT procedure for the roof and print out the file generated.

Notes:



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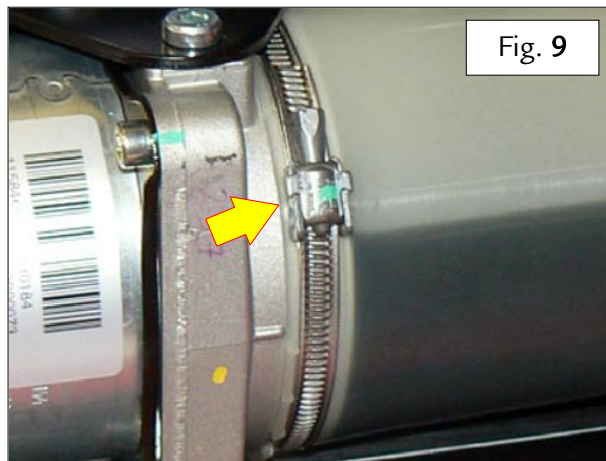
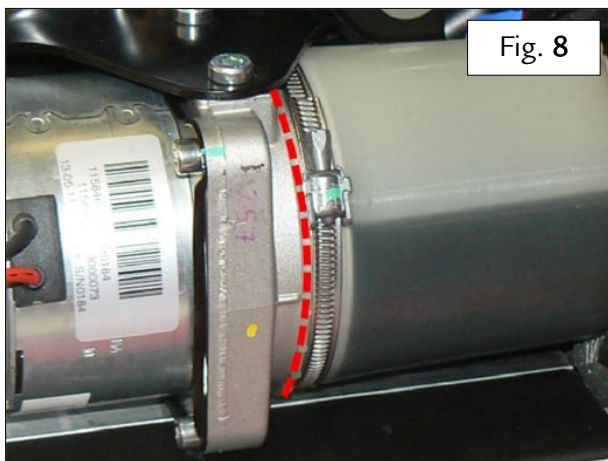
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RHT HYDRAULIC FLUID LEAKAGE

TAKE NO ACTION UNTIL THE DIAGNOSTIC PROCEDURE HAS BEEN CONCLUDED AND CLOSED

Notes:

1. - Photograph the following:
 - The exact location of the oil leak located on the connection between the oil pump and the tank (Fig. 8);
 - Position of the clamp on the oil tank (Fig. 9).



2. - In the event of leakage from pipes, check for and photograph any fretting points between the pipes themselves and the surrounding components.

Notes:



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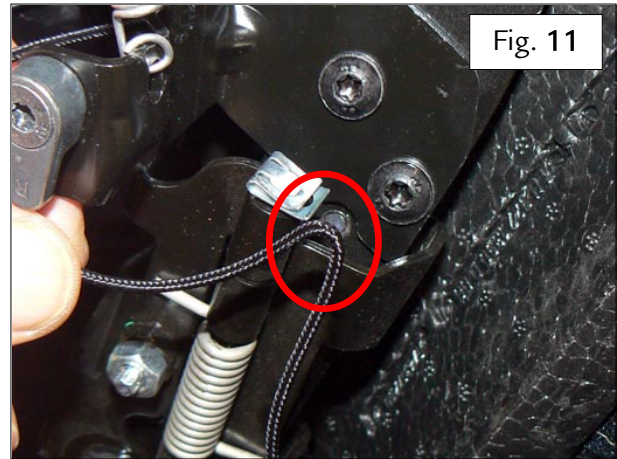
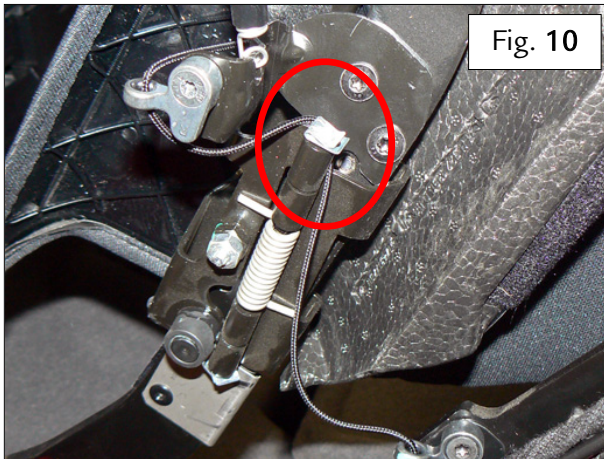
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DAMAGE TO HEADLINER PANEL/ROPES

PURPOSE: to locate the position where the ropes are fastened incorrectly or where the roof panels stack incorrectly.

- With the RHT roof in the intermediate position, photograph the following:
 - Point where ropes are incorrectly fastened (Fig. 10);
 - Areas with rope damage (Fig. 11).

Notes:



- With the RHT roof in the intermediate position, check for and photograph any signs of contact/fretting in the following zones:
 - Lateral luggage compartment trim panels (Fig. 12);
 - Rear passenger compartment trim panels (Fig. 13);
 - Underside of tonneau cover (Fig. 14);
 - Upper side of tonneau cover (Fig. 15).

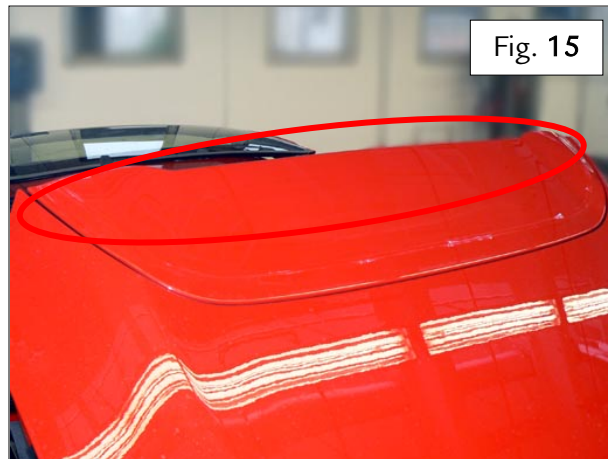
Notes:





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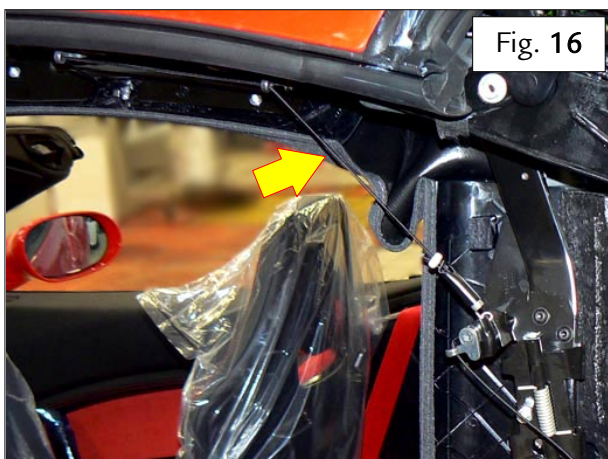


Notes:

- 3. - Ask the customer if the RHT roof was manoeuvred in windy conditions.

Notes:

- 4. - With the RHT roof in the intermediate position, check that the layout of the ropes is conformant on both sides, taking photographs of the relative areas and indicating any asymmetry noted (Fig. 16 - 18 - 17).





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KNOCKING NOISE FROM HOOKS ON BUMPY ROADS

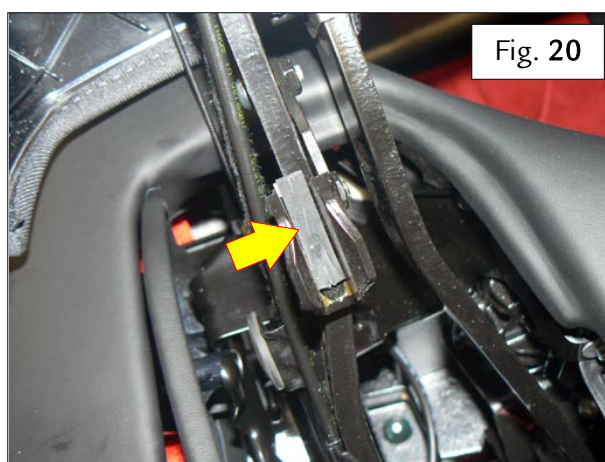
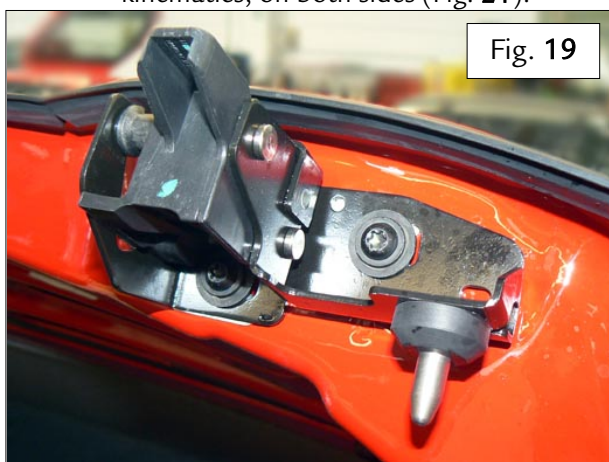
1.- Ask the customer for the following information:
how frequently the fault occurs and the situations causing the fault to occur (potholes, poor road surface, driving on curbs).

Notes:

2.- With the RHT roof in the intermediate position, check that the following conditions are met correctly, taking photographs of the respective areas:

Notes:

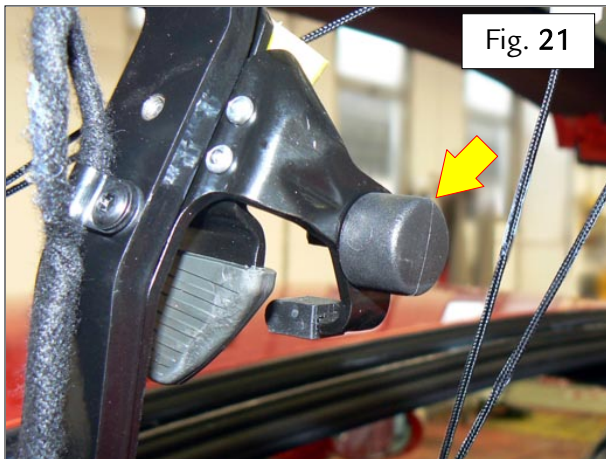
- Tonneau cover hook fastener screws tightened correctly (no signs of movement of the hooks) (Fig. 19);
- Rubber pads fitted correctly on lever alignment 'omega', on both sides (Fig. 20);
- Rubber pad fitted correctly on rear roof panel kinematics, on both sides (Fig. 21).





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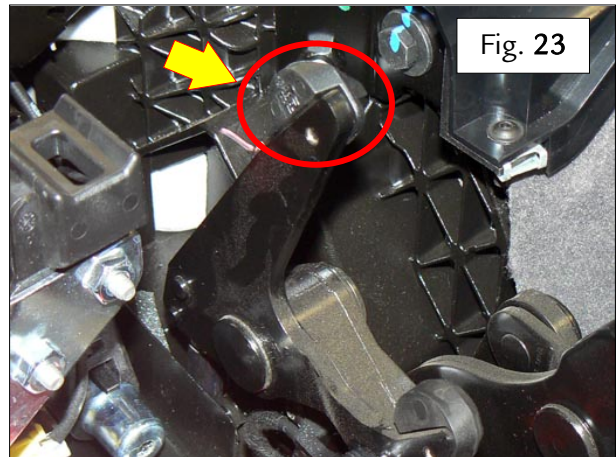
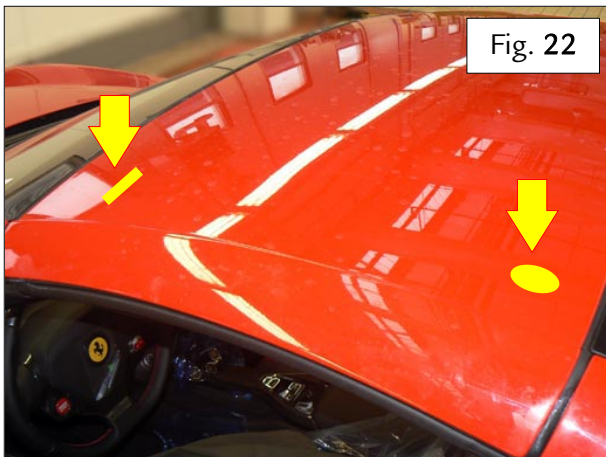
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DENTED RHT PANELS

1. - Check and photograph the following:
 - Dent/s in front roof panel (Fig. 22);
 - With the RHT roof in the intermediate position, check that the rubber pad is fitted correctly on both levers (Storage Lock) (Fig. 23).

Notes:



2. - With the RHT roof in the intermediate position, check for and photograph any signs of contact/fretting on the separator trim and on the luggage compartment lid trim (Fig. 24).

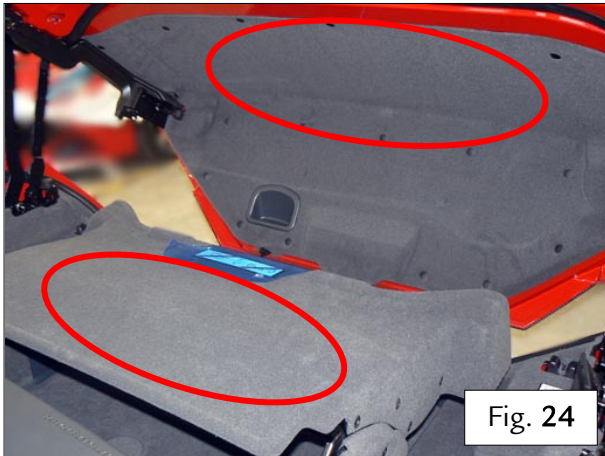
Notes:



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Notes:

3. – Ask the customer for the following information:

- if the customer noticed the fault when it originally occurred;
- description of the consequence of the fault (e.g. tonneau cover jamming while closing).

Notes:

4. Print the list of RHT ECU parameters and errors using the DEIS tester, and attach to the ROL.

Notes:

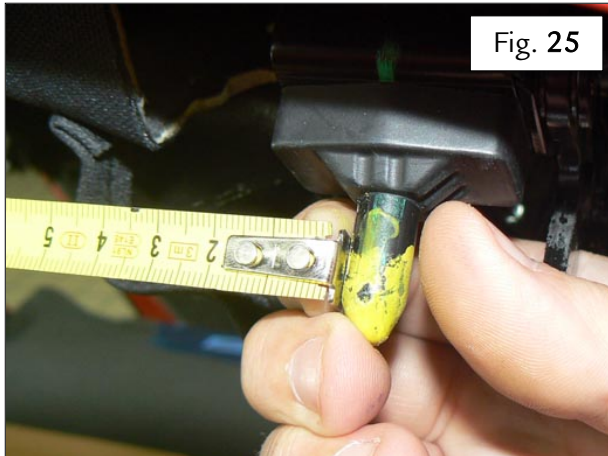
5. – With the RHT roof in the intermediate position, measure the distance between the front hooks as follows:

- Hold the end of a tape measure against the inner side of the front left hook (Fig. 25);
- Extend the tape measure to the inner side of the front right hook (Fig. 26);
- Note the measurement in the space aside.



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Notes:

6. - With the RHT roof in the intermediate position, measure the distance between the roof kinematics as follows:
- Hold the end of a tape measure against the inner side of the front left roof kinematics (Fig. 27);
 - Extend the tape measure to the inner side of the right hand roof kinematics (Fig. 28);
 - Note the measurement in the space aside.





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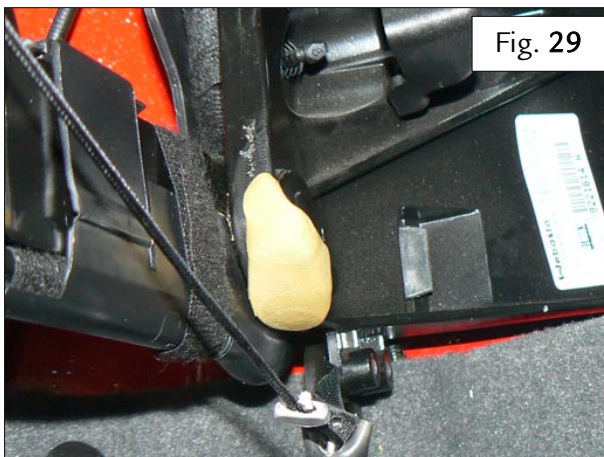
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7. – In the event of dents in the front roof panel, measure the distance between the kinematics levers as follows:

- With the RHT roof in the intermediate position, apply modelling clay to the right and left hand kinematics in the position indicated, with a bulge along the “Y” (longitudinal) axis of the kinematics (Fig. 29);
- Electrically manoeuvre the RHT roof to stack the roof panels in the luggage compartment with the tonneau cover still open, so that the kinematics levers make impressions in the modelling clay;
- Manoeuvre the RHT roof electrically to return it to the intermediate position;
- On both sides, measure the distance between the kinematics and the bottom of the impression made by the lever, then note the values in the space aside (Fig. 30);
- Remove the modelling clay from the kinematics and levers.

Notes:



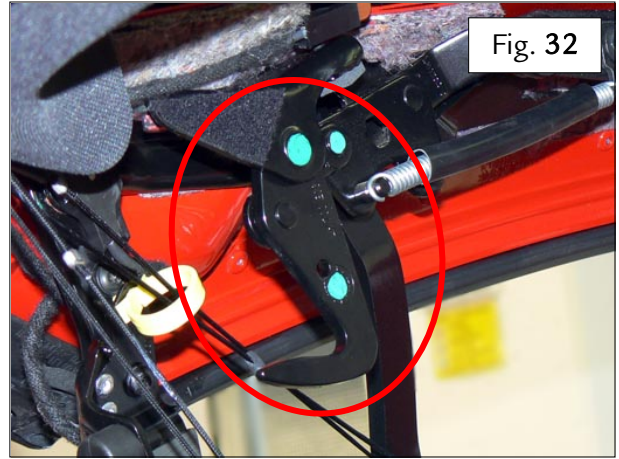
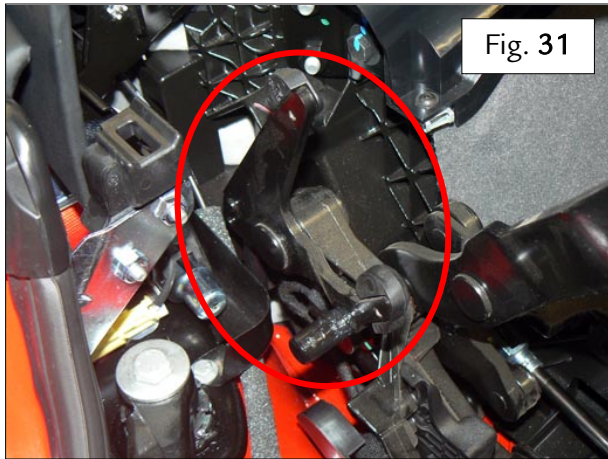
Notes:

8. – Check if any stiffness or sticking is noted when manually manoeuvring the storage lock levers (Fig. 31) and/or the rear hooks (Fig. 32).



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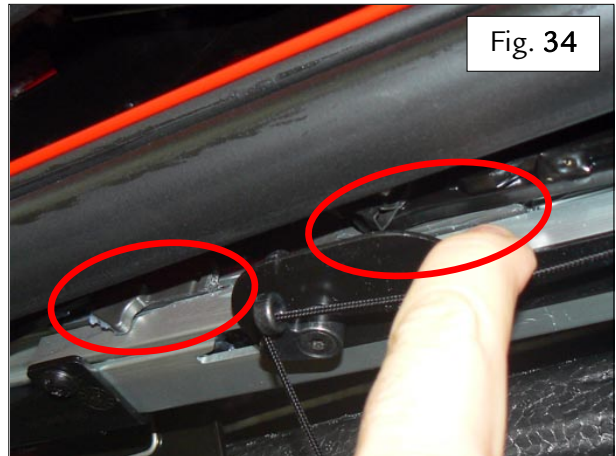
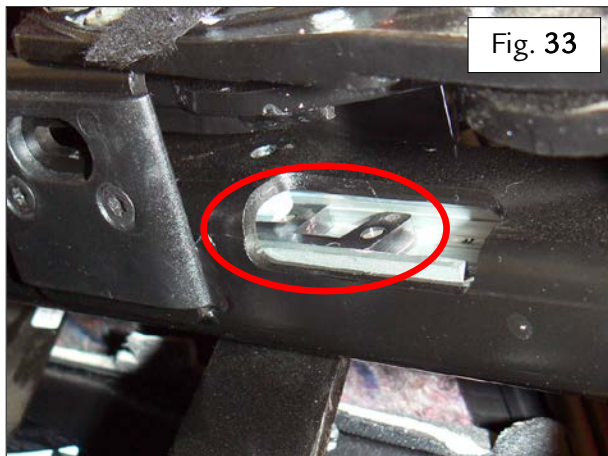
Notes:

9. - If the storage lock levers (Fig. 31) and/or the rear hooks (Fig. 32) are repeatedly stiff or stuck, take a video of the fault.

SLIDER FAILURE

1. - Check and photograph the following:
- Check for bent or damaged sliders (Fig. 33 - 34);
 - Front connection area (Fig. 35);
 - Front strikers (Fig. 36).

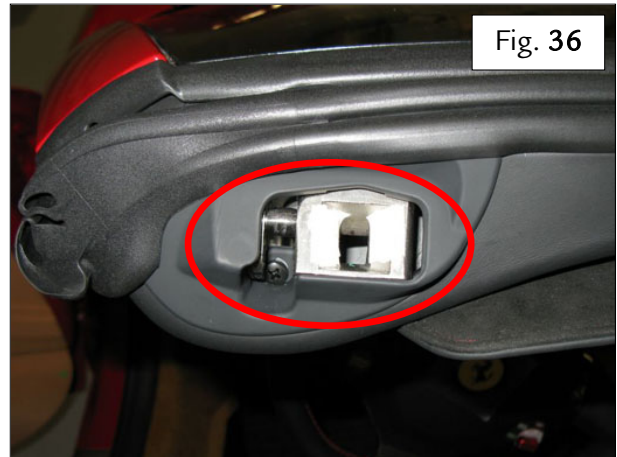
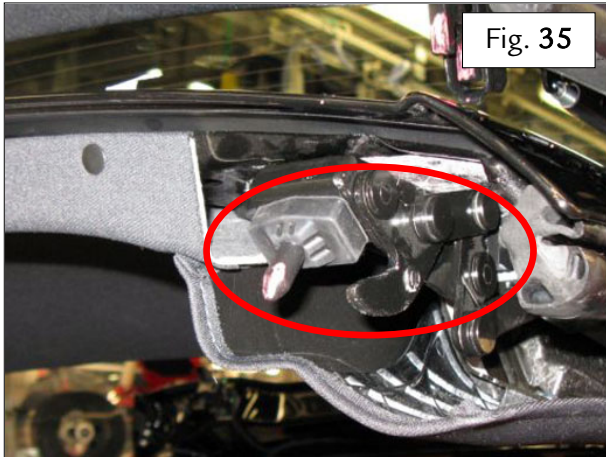
Notes:





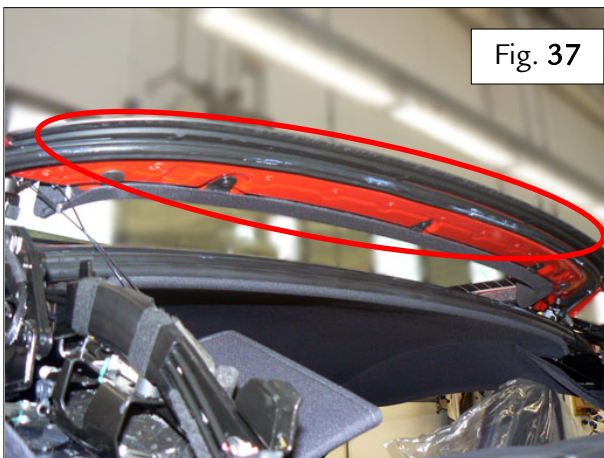
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2. - With the RHT roof in the intermediate position, check for and photograph any signs of contact/fretting in the following zones:
- Rear underside of rear roof panel (Fig. 37);
 - Rear passenger compartment trim panels (Fig. 38);
 - Underside of tonneau cover (Fig. 39);
 - Upper side of tonneau cover (Fig. 40).

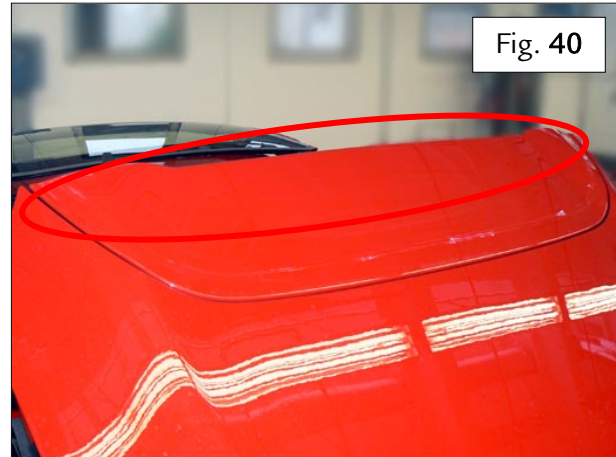
Notes:





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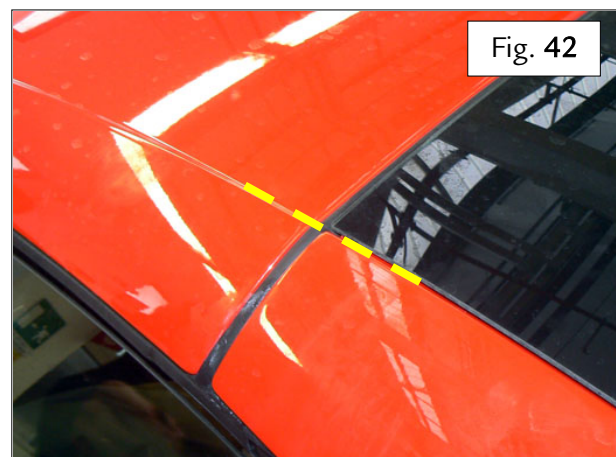
3. Print the list of RHT ECU parameters and errors using the DEIS tester, and attach to the ROL.

Notes:

4. - Check alignment between rear and front roof panels while roof is locking in coupé position:

- manoeuvre the roof electrically into the coupé configuration until it is almost completely closed (Fig. 41);
- Wait for the system pressure to subside;
- Measure the alignment (Fig. 43) at the edge indicated in Fig. 42, and note the value measured in the space aside.

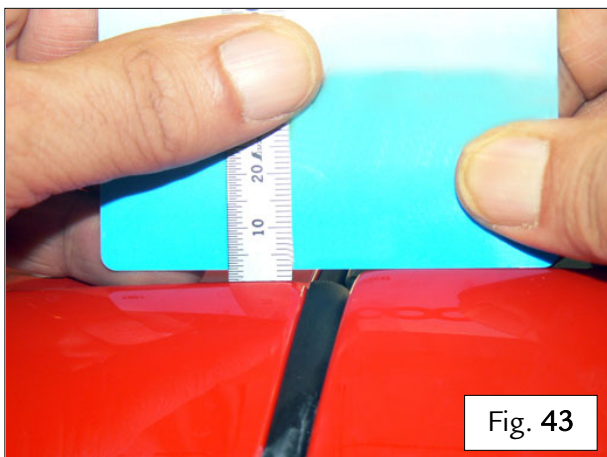
Notes:





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INCORRECT CLOSURE OF LUGGAGE COMPARTMENT LID

1. – Perform the procedure to check that the luggage compartment lid closes correctly as indicated in TI 1989 of March 2012. Does the luggage compartment lid fail to close correctly when the roof is changing from Coupé to Spider configuration, from Spider to Coupé configuration, or in both cases?

Notes:

2. – Ask the customer how frequently the luggage compartment lid fails to close correctly, and if the fault occurs in specific situations.

Notes:

3. – Has the lid already been adjusted (during PDI, services, other work)?
Give details of any work done (what was adjusted/replaced to rectify the fault and how).

Notes:

4. – Measure the preload of the tonneau cover by measuring the distance between the surfaces of the tonneau cover kinematics and the surface of the front roof shell (Fig. 44); enter the values measured in the space aside.

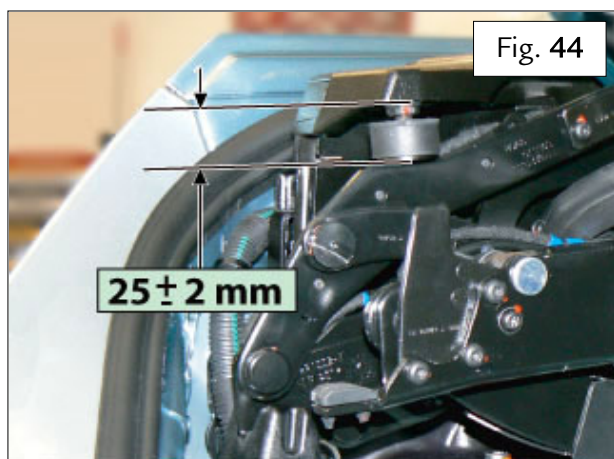
Notes:



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5. – Measure the alignment between the luggage compartment lid and the fender on both sides, measuring the value at 20 mm from the rear edge of the lid itself (Fig. 45); enter the values measured in the space aside.

Notes:



6. – Measure the alignment along the “X” axis between the luggage compartment lid lock and striker:

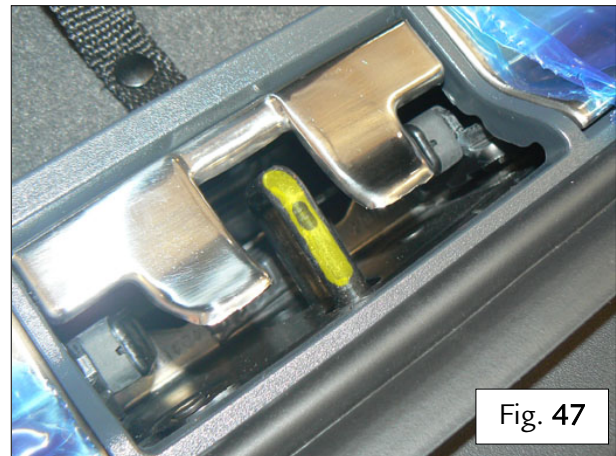
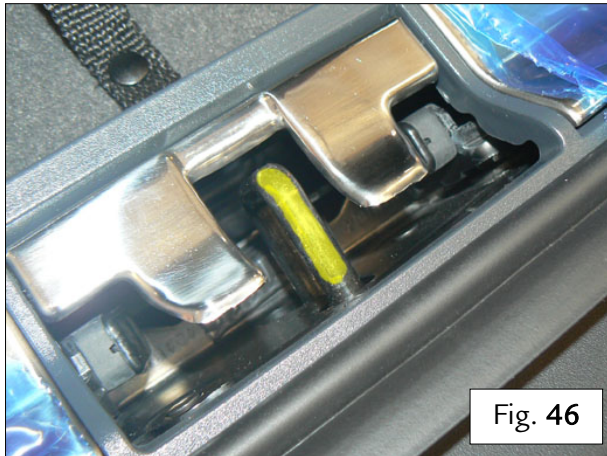
Notes:

- Mark the top edge of the hook with ink using a marker pen (Fig. 46);
- Close the luggage compartment lid, then reopen and photograph the position of the mark left on the hook by the luggage compartment lid lock (Fig. 47).



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Notes:

- 7. - Check alignment along the “Y” axis between the luggage compartment lid lock and striker:
 - Open and close the luggage compartment lid and check that the lid closes correctly and latches longitudinally (not diagonally).

JAMMED RHT

Notes:

- 1. - Check if a fault message is displayed on the instrument panel. Specify any message displayed.

Notes:

- 2. - Indicate the position in which the RHT jammed and take a photograph.

Notes:

- 3. - Did the roof jam while opening or closing?

Notes:

- 4. - Were any noises heard while the roof was opening?



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RHT WITH BROKEN PARTS

Notes:

1. – Did the failure occur while the RHT was being manoeuvred manually?

Notes:

2. – Indicate the position in which the RHT jammed and take a photograph of the broken part.

Notes:

3. – Did the roof jam while opening or closing?

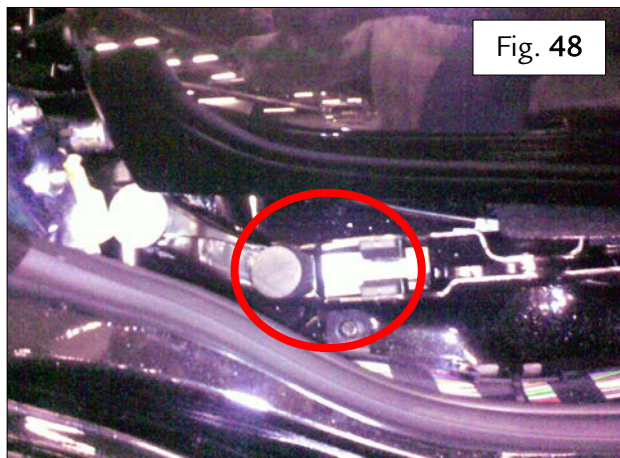
Notes:

4. – Were any noises heard while the roof was opening?

MISALIGNMENT BETWEEN TONNEAU COVER KINEMATICS

Notes:

1. – Check that each of the kinematics is centred correctly relative to the indicated point and aligned correctly with the corresponding component on the opposite side (Fig. 48).





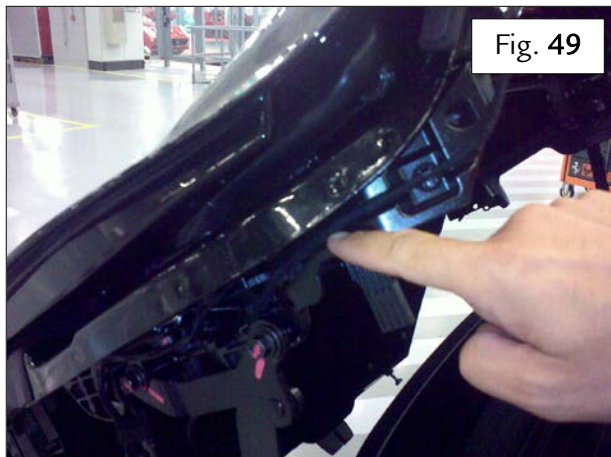
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Notes:

- 2.- Check that the cables are routed correctly and take photographs: there must be no interference when the roof is closed (Fig. 49).



Notes:

- 3.- Check that the cables are routed correctly and take photographs: there must be no interference when the roof is closed (Fig. 50).





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- 4.- Check that the indicated section of seal is fitted correctly on both sides, and take photographs. The luggage compartment must not encounter excessive resistance when opened (Fig. 51).

Notes:

