



Ferrari North America

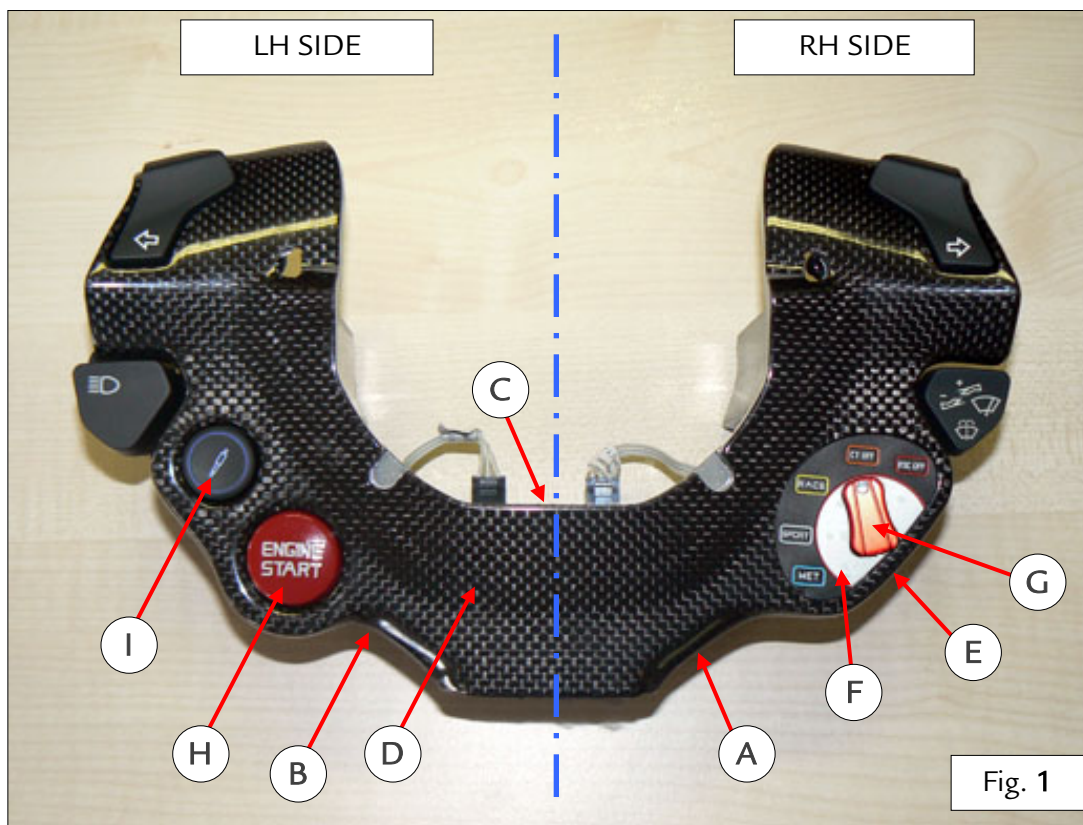
Technical Information

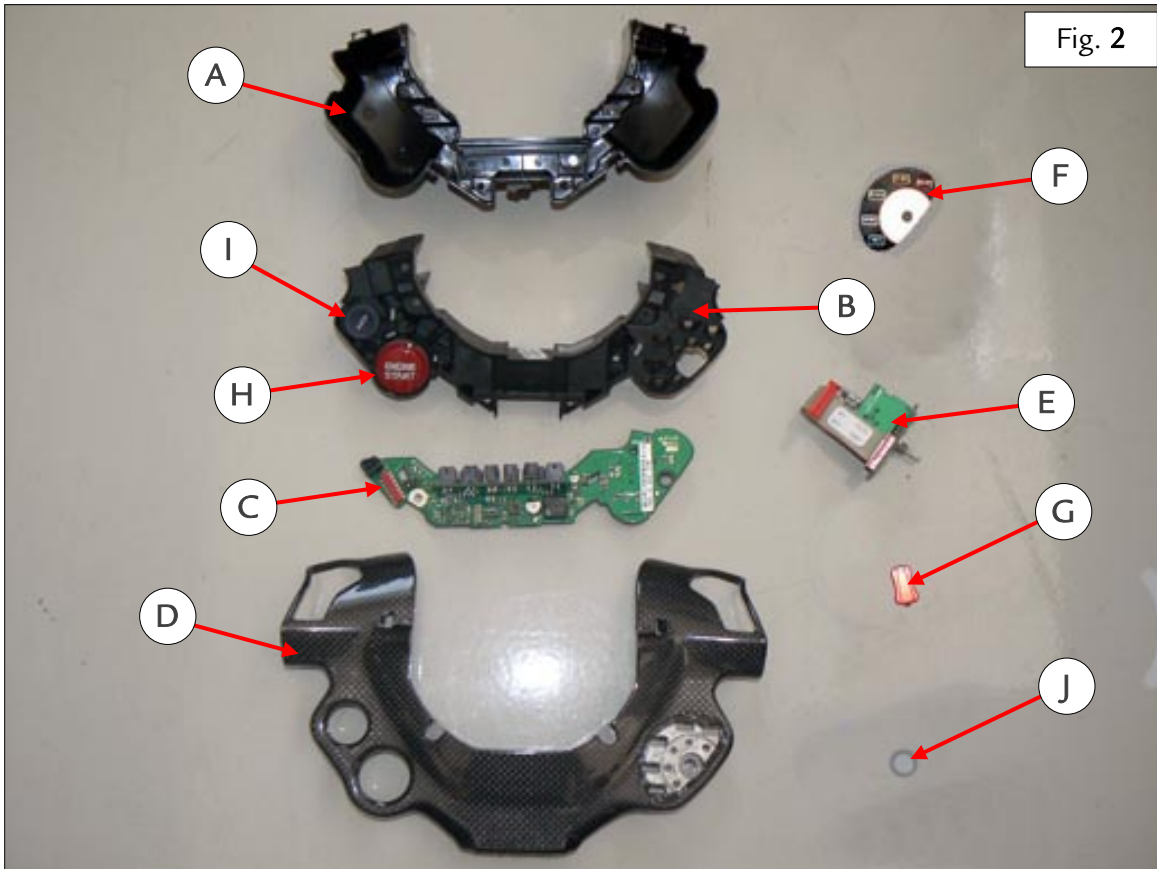
Date: April 2018
 Bulletin #: 2479
 Campaign #:
 Supersedes: 2142
 Section: 5

This Technical Information Cancels and Replaces
 the previous TI 2142 of December 2013

Model Type: 458 Italia/Spider, 488 GTB/Spider, FF, F12 Berlinetta
Model Year: All
Subject: Replacement of Steering Wheel Control Panel Components

Please note that the following components of the steering wheel control panel (Fig.1-2) listed as follows for the aforementioned vehicles are available as individual spare parts.





- A) Main shell;
- B) Main base;
- C) NVO circuit board;
- D) NVO circuit board;
- E) Face plate;
- F) Manettino rotary selector;
- G) Screen printed Manettino dial face;
- H) Manettino lever;
- I) ENGINE START button;
- J) Shock absorber height button;
- K) Washer for Manettino rotary selector.



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- IMPORTANT -

For the listed component part numbers and future updates, please refer to the respective table in the Spare Parts catalog for the relative model.

Procedure

A repair example for the 458 Italia model is given below.

- IMPORTANT -

Work only on a grounded anti-static mat, wearing anti-static gloves or an anti-static wrist band.

- IMPORTANT -

A flow chart is given at the end of this document to illustrate the sequence of operations for disassembling the components of the steering wheel control panel more clearly.

DISASSEMBLY

- Disconnect the battery (as described in paragraph **F2.01** - step 4 of the Workshop Manual).
- Remove the steering wheel control panel (as described in paragraph **E5.05** of the Workshop Manual).
- Place the steering wheel control panel on a flat, soft surface to prevent damage to any components.

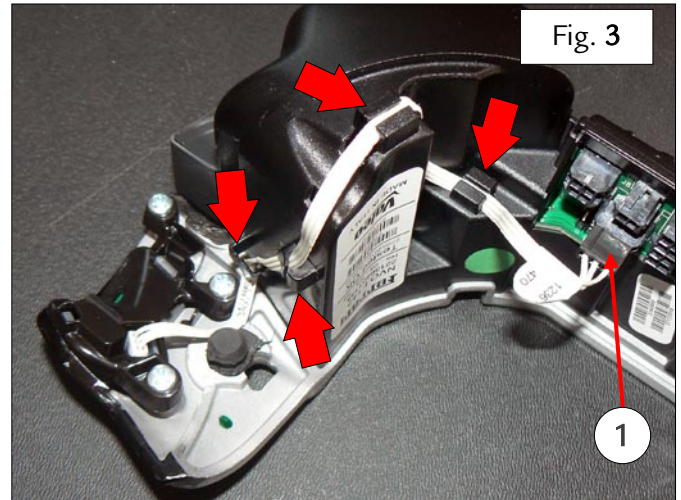


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Main shell

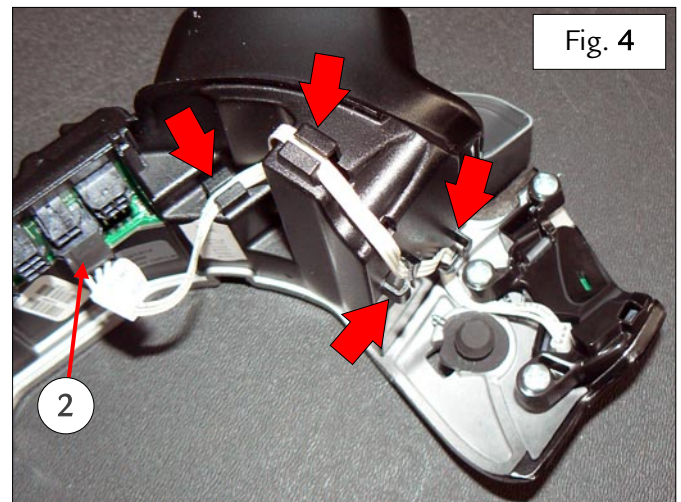
- Disconnect the connector (1) – Fig. 3.
- Release the LH turn indicator ribbon cable from the retainers indicated by the red arrows – Fig. 3.

Note: Be careful to avoid cable damage

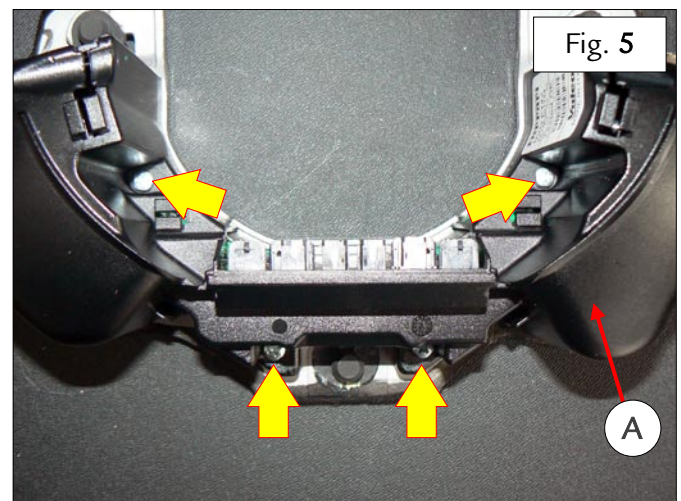


- Disconnect the connector (2) – Fig. 4.
- Release the RH turn indicator ribbon cable from the retainers indicated by the red arrows – Fig. 4.

Note: Be careful to avoid cable damage.



- Undo the indicated screws then detach the main shell (A) – Fig. 5.

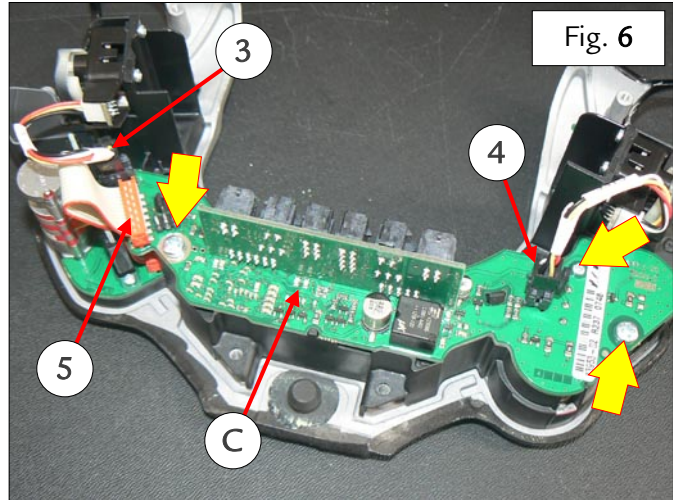




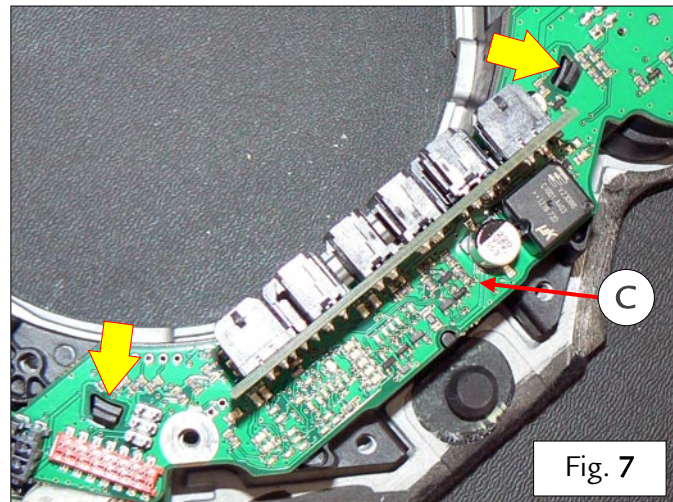
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NVO circuit board

- Carefully disconnect the windscreen wiper switch connector (3) from the NVO circuit board – Fig. 6.
- Carefully disconnect the high beam lights switch connector (4) from the NVO circuit board – Fig. 6.
- Carefully disconnect the connector (5) of the Manettino rotary selector – Fig. 6.
- Undo the three indicated screws fastening the NVO circuit board (C) – Fig. 6.



- Pushing the two indicated clips to release, remove the NVO circuit board (C) – Fig. 7.

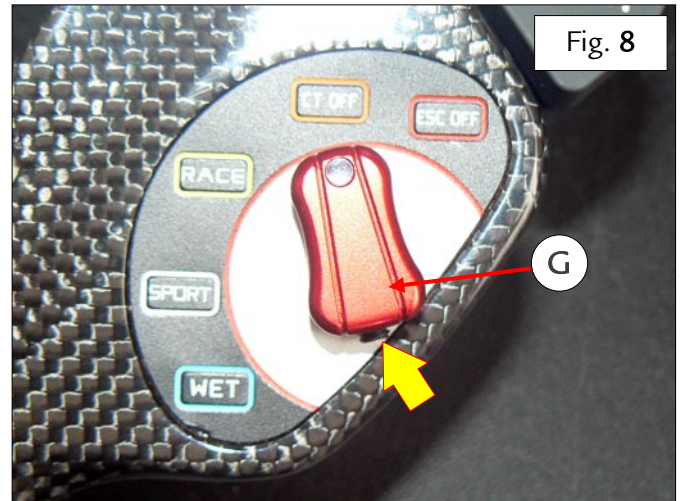




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Manettino lever

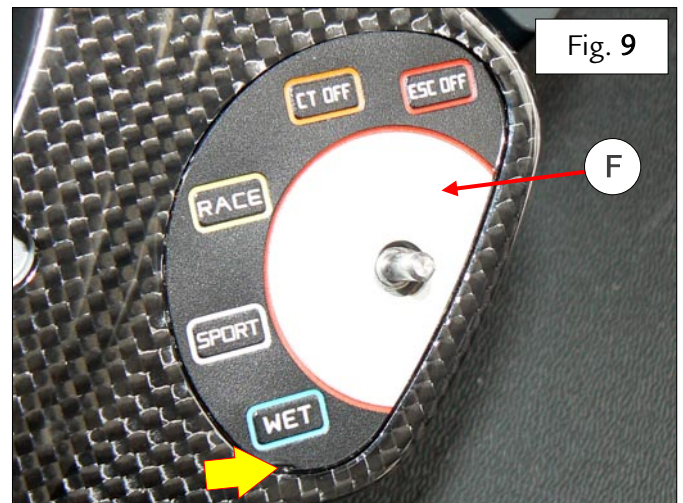
- Undo the indicated grub screw then remove the Manettino lever (G) – Fig. 8.



Screen printed Manettino dial face

- Using a small tool, carefully detach the dial face (F) from the control panel – Fig. 9.

Note: After removing the screen printed dial face, always replace with a new component.

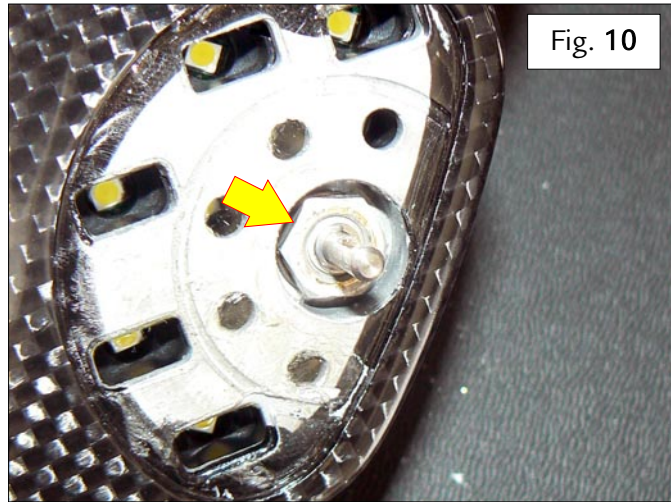




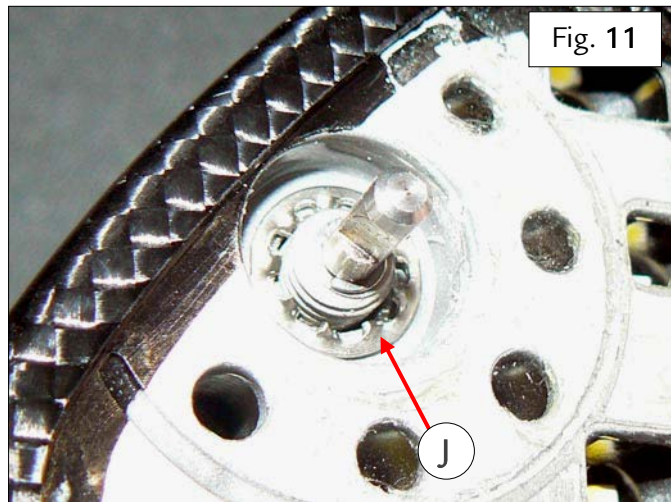
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Manettino rotary selector

- Using a ratchet fitted with a deep socket, undo the indicated ring nut fastening the Manettino rotary selector – Fig. 10.



- Remove the washer (J) (discard and use a new washer for reassembly) – Fig. 11.





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- Undo the indicated screws fastening the Manettino rotary selector (E) – Fig. 12.
- Disconnect the ribbon cable (6), releasing the respective connector on the Manettino rotary selector – Fig. 12.

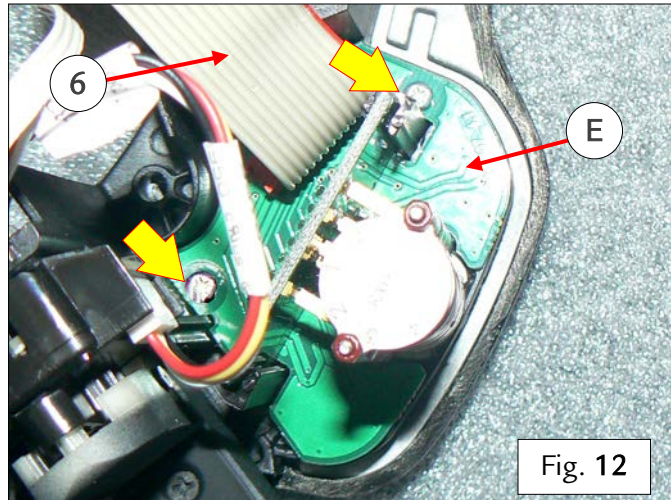


Fig. 12

- Remove the Manettino rotary selector (E) – Fig. 13.

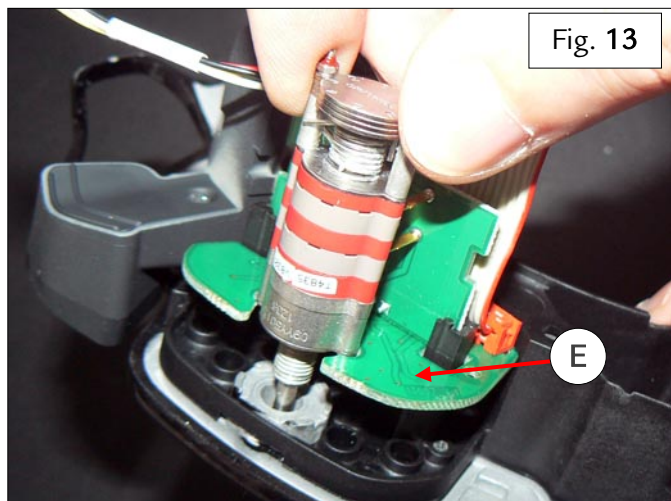


Fig. 13

Main base

Note: To replace the 'ENGINE START' and 'Shock Absorber Height' buttons, the main base must be removed, but it is not necessary to remove the windscreen wiper and light switches.



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- Undo the indicated screws and remove the windscreen wiper switch (L) – Fig. 14.

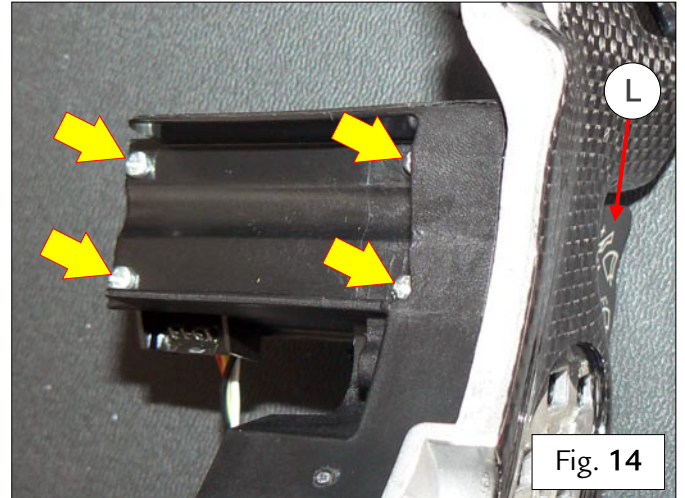


Fig. 14

For face plates in Carbon and Alutex only

- Retrieve the spacer (9) beneath the windscreen wiper switch – Fig. 15.

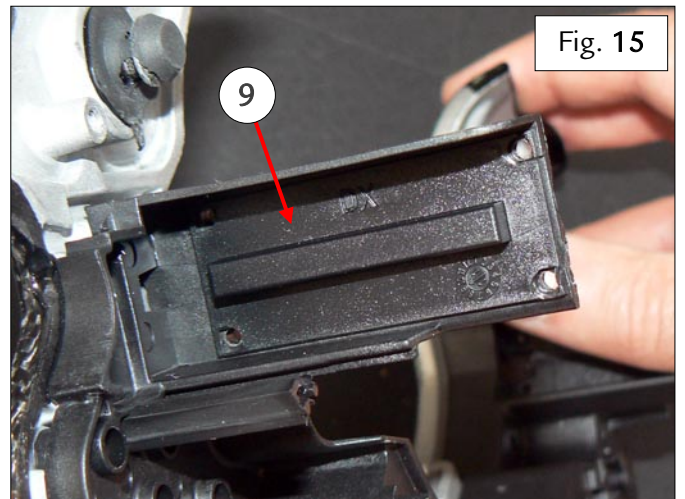


Fig. 15

- Undo the indicated screws and remove the high beam lights switch (M) – Fig. 16.

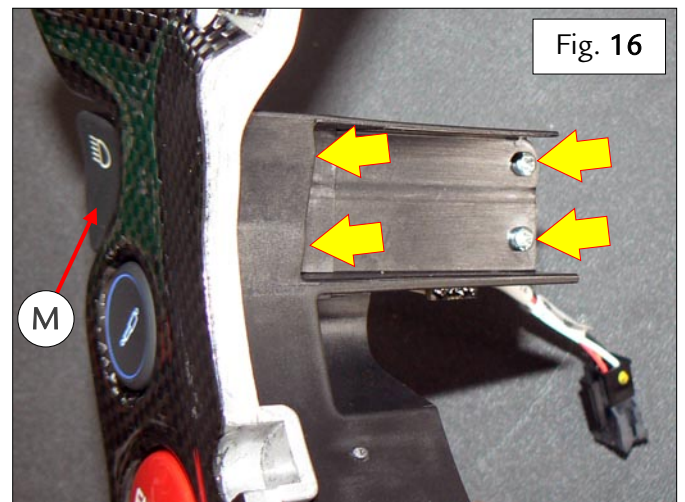


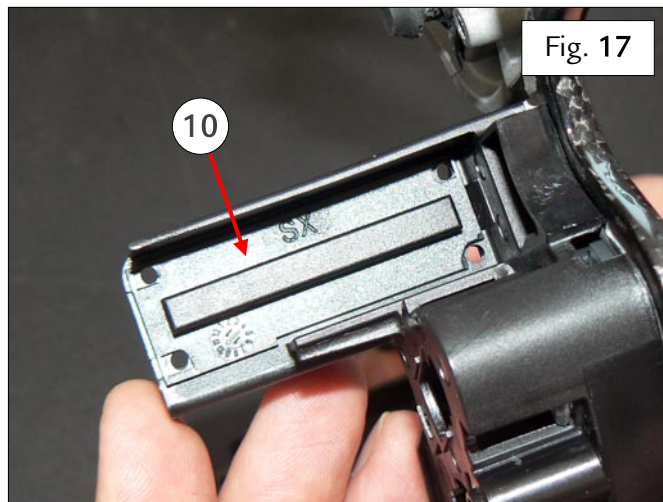
Fig. 16



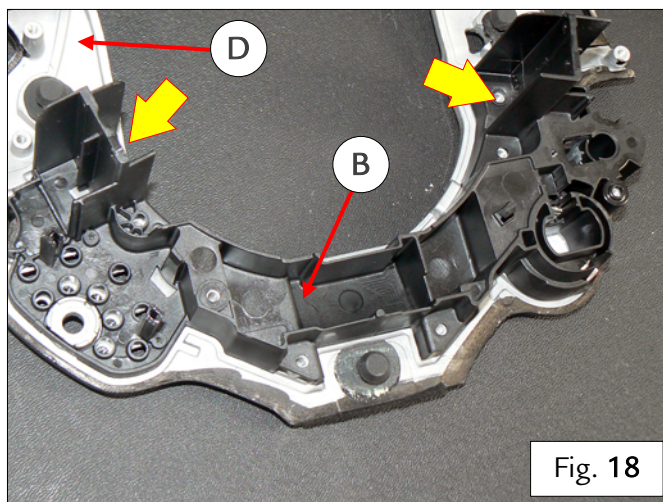
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For face plates in Carbon and Alutex only

- Retrieve the spacer (10) beneath the high beam lights switch – Fig. 17.

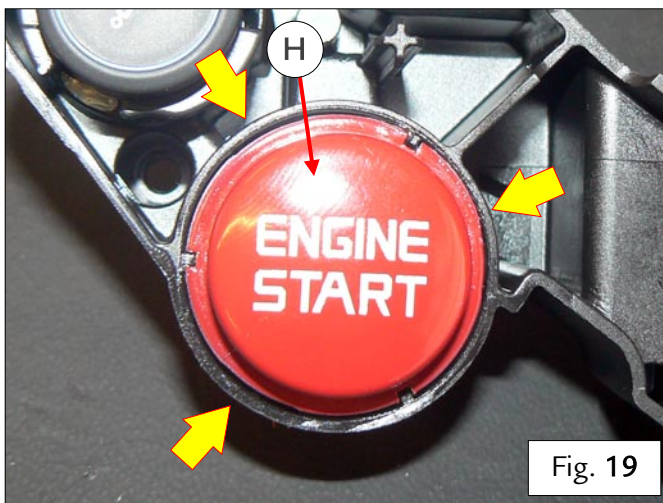


- Undo the two screws indicated and separate the main base (B) from the face plate (D) – Fig. 18.



ENGINE START button

- Press the three indicated tabs inwards and remove the 'ENGINE START' button (H) – Fig. 19.

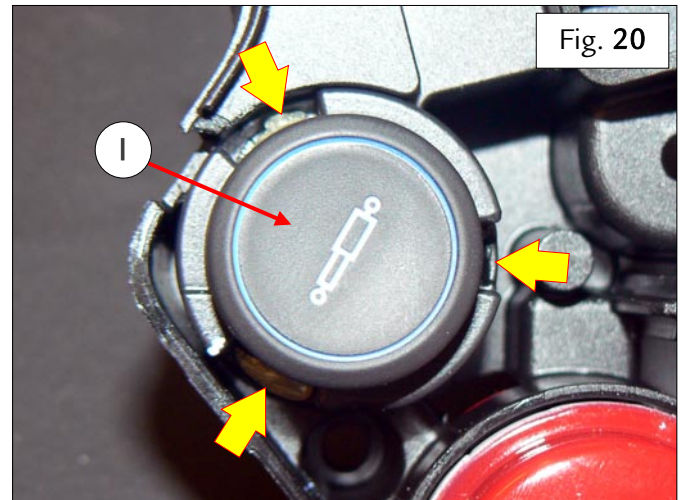




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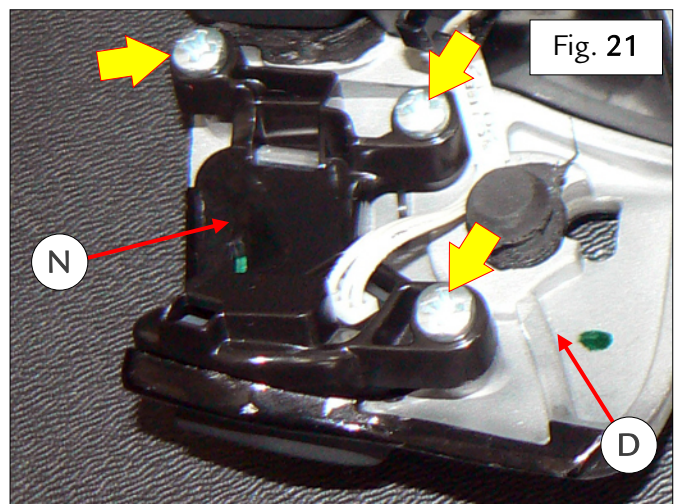
Shock Absorber Height button

- Press the three indicated tabs inwards and remove the 'Shock Absorber Height' button (I) – Fig. 20.

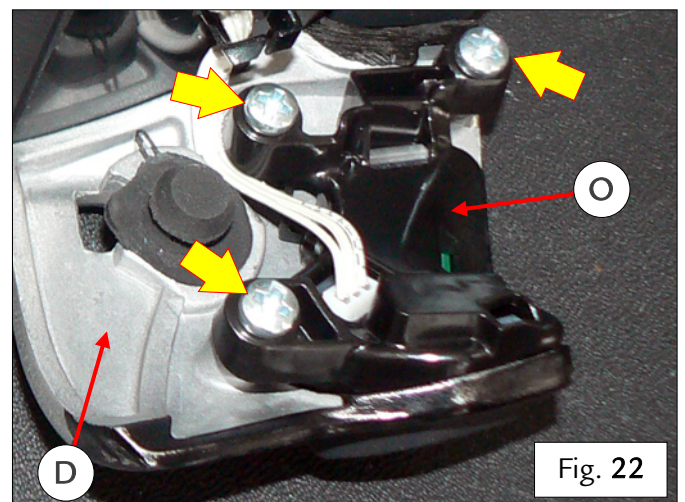


Face plate

- Remove the left hand turn indicator switch (N) from the face plate (D), undoing the indicated screws – Fig. 21.



- Remove the right hand turn indicator switch (O) from the face plate (D), undoing the indicated screws – Fig. 22.



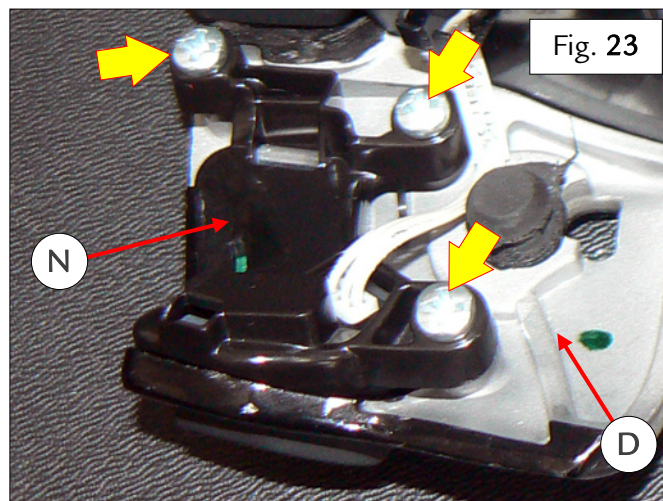


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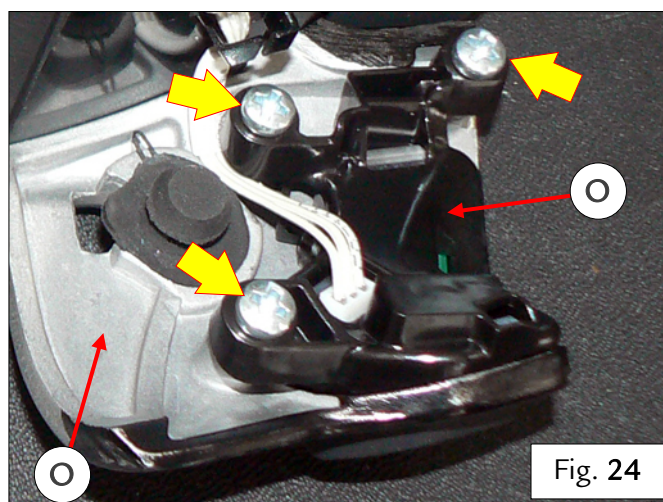
REFITTING

Face plate

- Fit and fasten the left hand turn indicator switch (N) to the face plate (D), tightening the screws indicated by yellow arrows to a torque of **0.75 Nm** – Fig. 23.

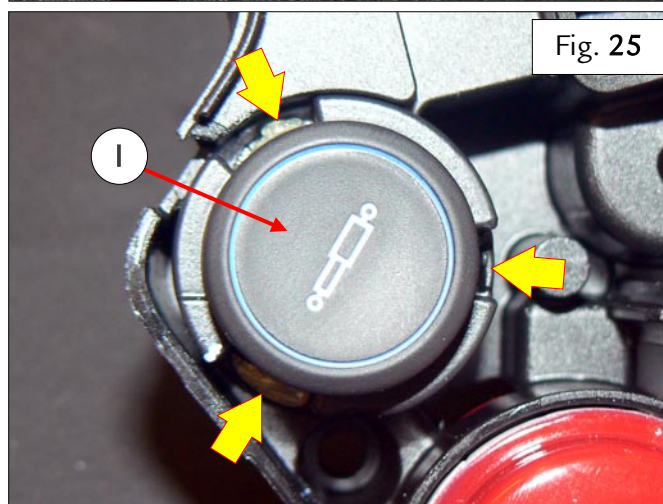


- Fit and fasten the right hand turn indicator switch (O) to the face plate (D), tightening the screws indicated by yellow arrows to a torque of **0.75 Nm** – Fig. 24.



Shock Absorber Height button

- If necessary, apply a thin film of Vaseline around the outer circumference of the button (I) in contact with the relative seat, to facilitate insertion – Fig. 25.
- Fit the new 'Shock Absorber Height' button (H) in the relative seat, rotated into the correct position shown in the photo aside, and ensure that the three tabs indicated fasten correctly – Fig. 25.





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ENGINE START button

- If necessary, apply a thin film of Vaseline around the outer circumference of the button (H) in contact with the relative seat, to facilitate insertion – Fig. 26.
- Fit the new 'ENGINE START' button (H) into the guides in the relative seat, rotated into the correct position shown in the photo aside, and ensure that the three tabs indicated fasten correctly – Fig. 26.

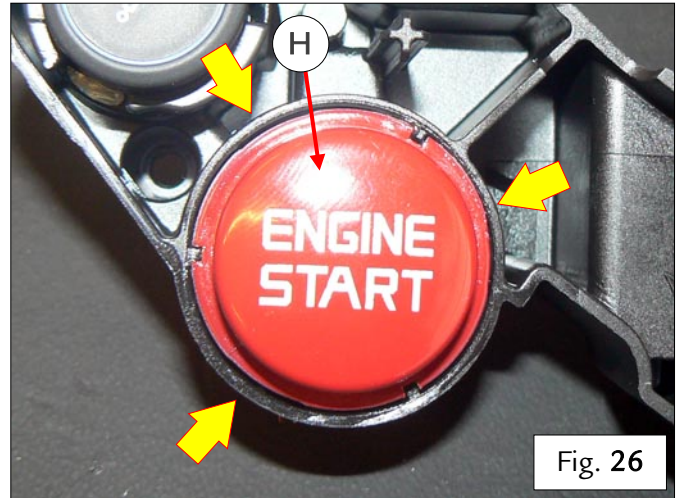


Fig. 26

Main base

- Fit the main base (B) on the face plate (D) – Fig. 27.
- Tighten the two screws indicated to a torque of 0.27 Nm – Fig. 27.

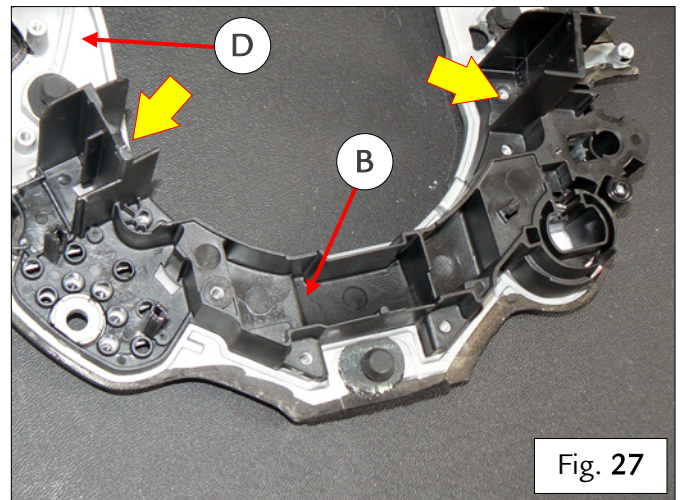


Fig. 27

For face plates in Carbon and Alutex only

- Fit the spacer (10) in the seat of the high beam lights switch on the main base, with the marking SX (left side) at the top – Fig. 28.

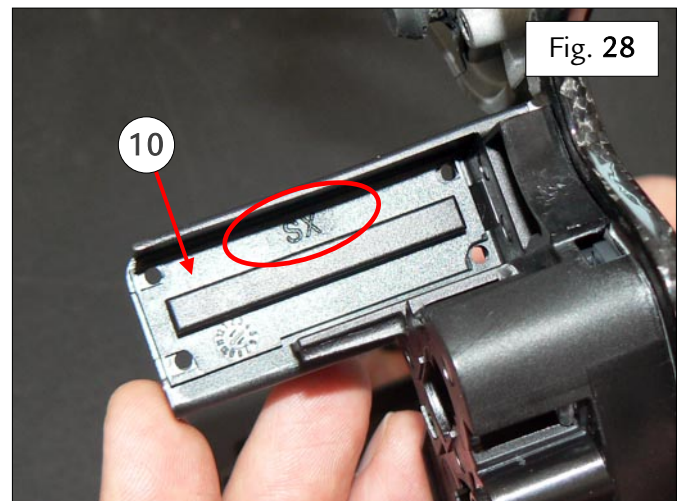
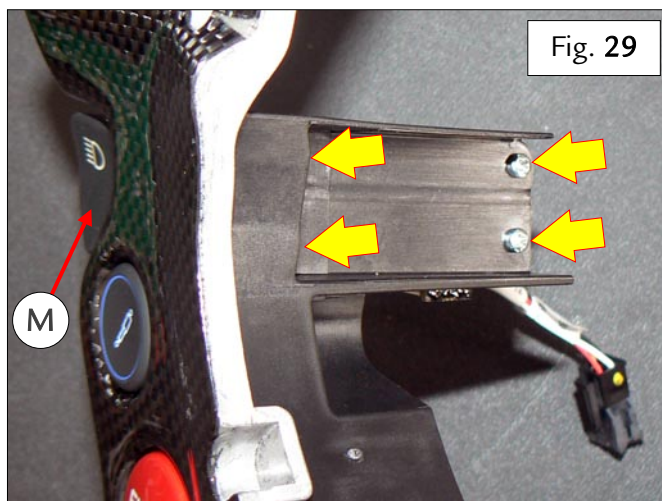


Fig. 28



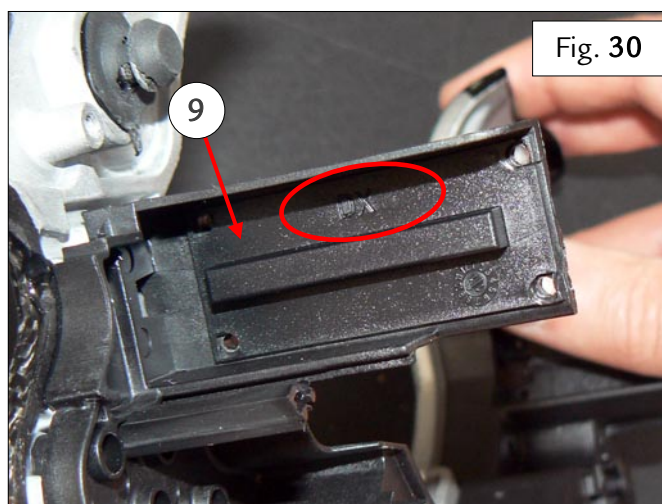
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- Fit the high beam lights switch (M) in the relative seat, then fasten by tightening the indicated screws to a torque of **0.27 Nm** – Fig. 29.

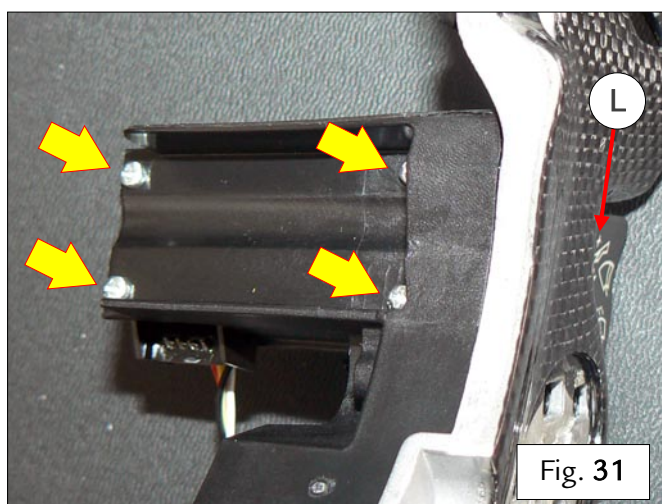


For face plates in Carbon and Alutex only

- Fit the spacer (9) in the seat of the windscreen wiper switch on the main base, with the marking **DX (right side)** at the top – Fig. 30.



- Fit the windscreen wiper switch (L) in the relative seat, then fasten by tightening the indicated screws to a torque of **0.27 Nm** – Fig. 31.





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Manettino rotary selector

- Fit the Manettino rotary selector (G) on the main base, aligning the fitment in the board as shown aside- Fig. 32.

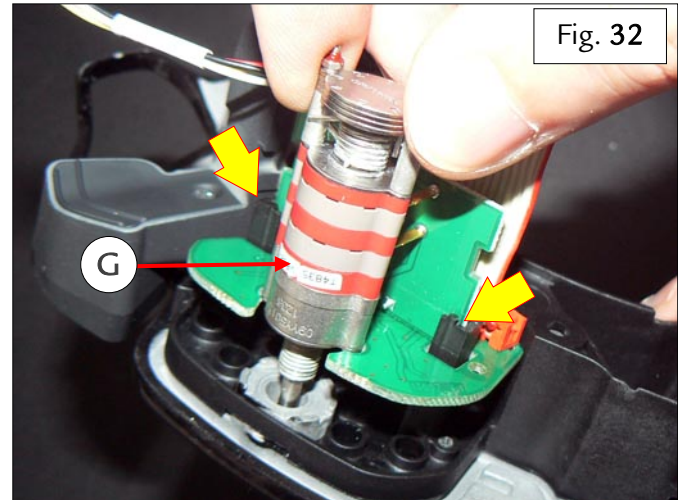


Fig. 32

- Fasten the Manettino rotary selector (G), tightening the indicated screws to a torque of 0.32 Nm - Fig. 33.
- Connect the connector (6) to the Manettino rotary selector - Fig. 33.

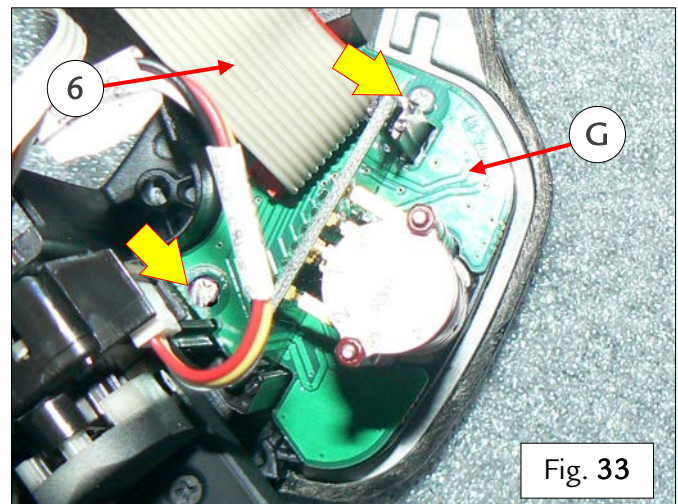


Fig. 33

- Fit the new washer (J) - Fig. 34.
Note: Always fit a new washer after removal.

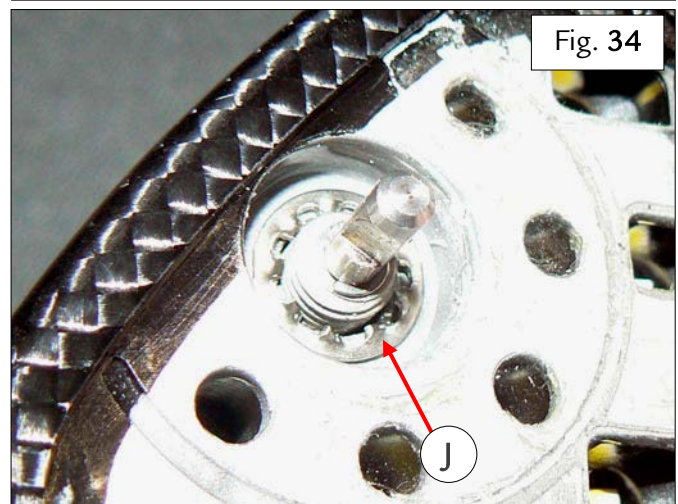


Fig. 34



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- Using a suitable 3/8" socket, tighten the indicated ring nut fastening the Manettino rotary selector to a torque of 1.48 Nm – Fig. 35.
- Thoroughly clean the application surface for the new screen printed Manettino dial face – Fig. 35.

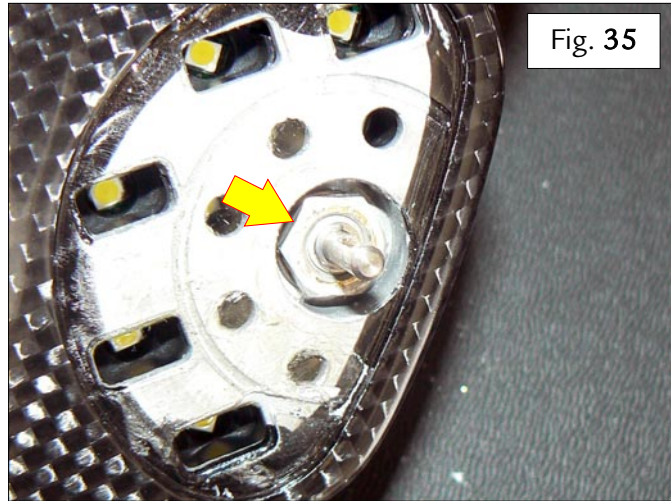


Fig. 35

- If the Manettino rotary selector has been replaced, a proxy alignment procedure must be performed after completing reassembly.

Screen printed Manettino dial face

Affix the new screen printed dial face (J) in the relative recess, aligning the edges correctly – Fig. 36.

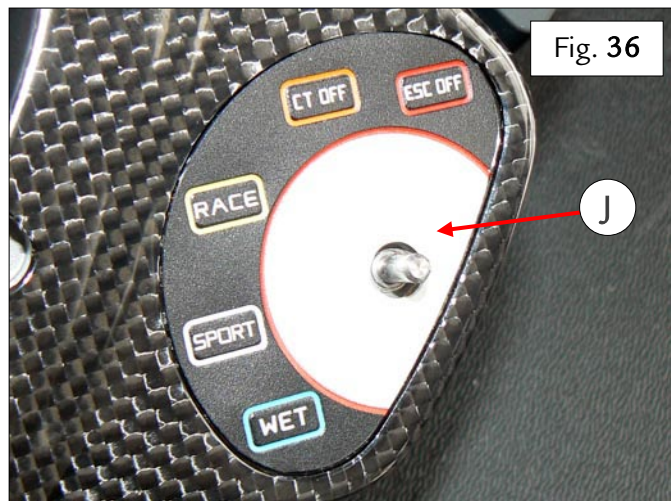


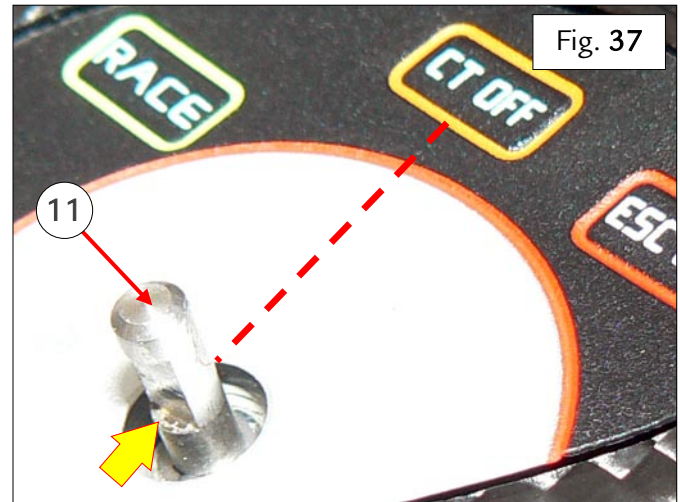
Fig. 36



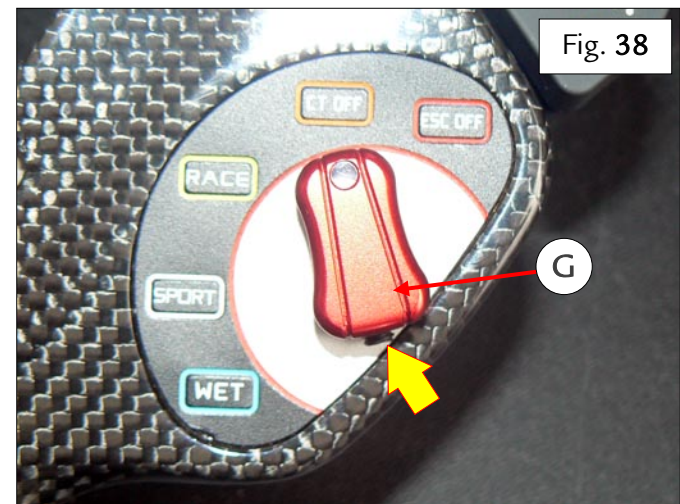
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Manettino lever

- Turn the spindle (11) of the Manettino rotary selector so that the flat surface indicated is pointing to the **CT OFF/CT disabled** Manettino setting position, as shown in the photo aside – Fig. 37.

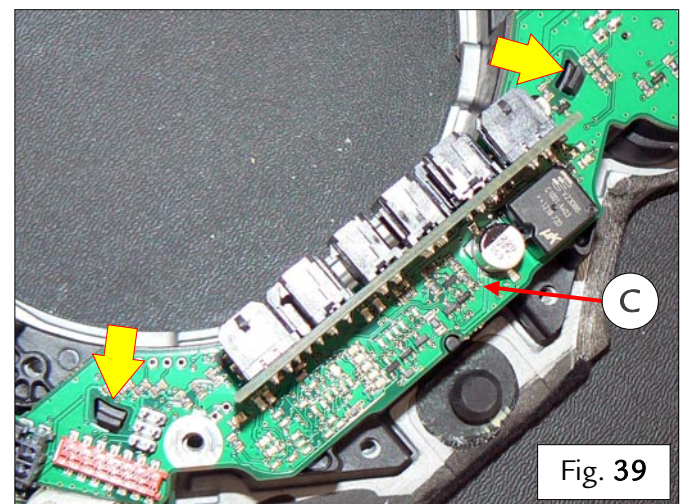


- Fit the Manettino lever (G) and fasten by tightening the indicated grub screw to a torque of **0.74 Nm** – Fig. 38.



NVO circuit board

- Fit the NVO circuit board (C) in its seat and fasten with the two retainers indicated – Fig. 39.



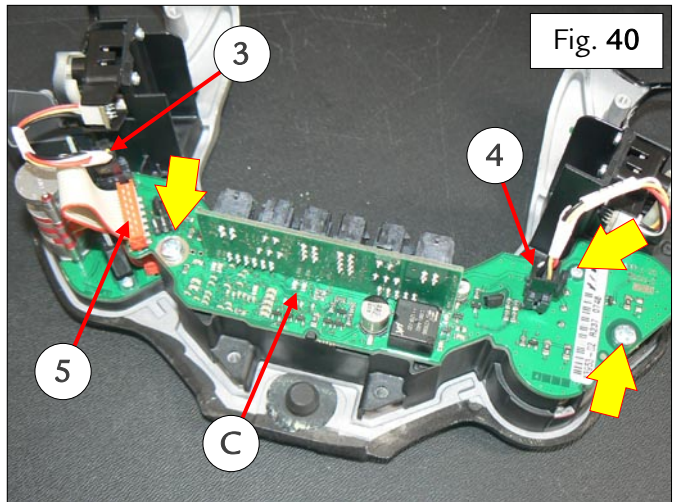


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- Tighten the three screws indicated fastening the NVO circuit board (C) to a torque of **0.32 Nm** – Fig. 40.
- Carefully connect the connector (5) of the Manettino rotary selector – Fig. 40.
- Carefully connect the windscreen wiper switch connector (3) to the NVO circuit board – Fig. 40.
- Carefully connect the high beam lights switch connector (4) to the NVO circuit board – Fig. 40.

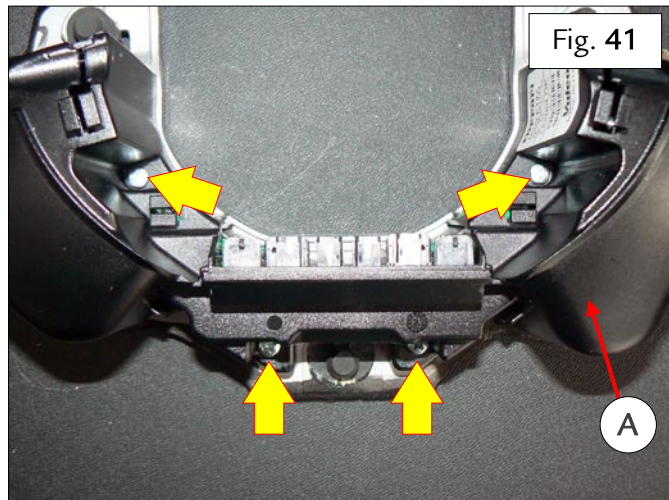
Note: Ensure that the connectors are properly fastened and connected.

- If the NVO circuit board has been replaced, a proxy alignment procedure must be performed after completing reassembly.



Main shell

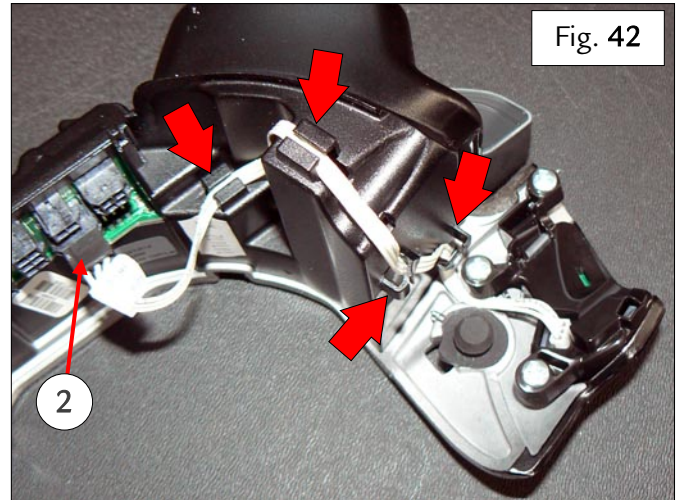
- Fit the main shell (A) and fasten by tightening the indicated screws to a torque of **1.08 Nm** – Fig. 41.



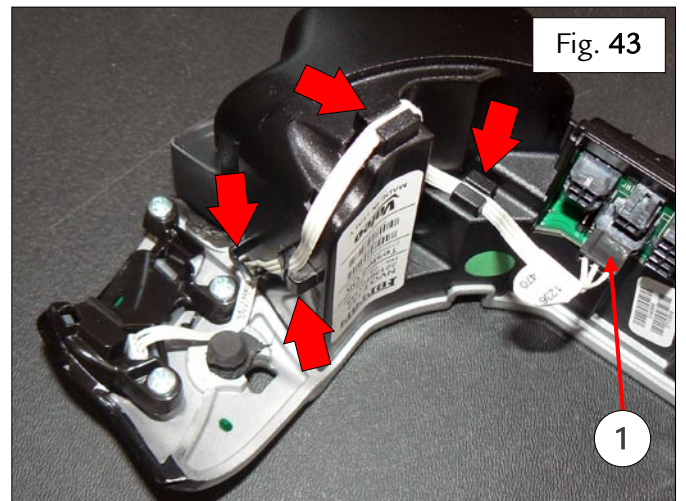


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- Secure the RH turn indicator ribbon cable in the retainers indicated by the red arrows – Fig. 42.
Note: Be careful to avoid cable damage.
- Connect the connector (2) – Fig. 42.



- Secure the LH turn indicator ribbon cable in the retainers indicated by the red arrows – Fig. 43.
Note: Be careful to avoid cable damage.
- Connect the connector (1) – Fig. 43.



- Refit the steering wheel control panel (as described in paragraph E5.05 of the Workshop Manual).
- Reconnect the battery (as described in paragraph F2.01 step 5 of the Workshop Manual).
- A proxy alignment procedure must be performed if the NVO circuit board and/or Manettino rotary selector has been replaced.

- IMPORTANT -

If the steering wheel has a LED display, contact the FNA Help Desk if the LEDs are not functioning after reinstallation and a NBC proxy align.

Thank you for your co-operation.

COMPONENT REMOVAL SEQUENCE

