



Ferrari North America

Technical Information

Date:	March 2016
Bulletin #:	2330
Campaign #:	
Supersedes:	2151
Section:	3

Model Type: 458 Italia/Spider/Speciale/Speciale A, California, FF, F12 Berlinetta
Model Year: All
Subject: Level 2 Repair procedures for DCT gearbox

The **Level 2** operations to be performed on the DCT gearbox in **Ferrari California, 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta** vehicles in relation to the mechanical issue and/or oil leak identified are described as follows.

Protocol for Managing DCT Gearbox Repairs

- Prior to any procedure, appropriate self-certification must be sent to the SAT to obtain authorization for the supply of the requested kit.
- The Dealer must duly compile the “DCT Gearbox Pre-Diagnosis Form” on pages **111 to 113** of this document.
- The order request must be sent by e-mail to both the Technical Help Desk at technicalsupport@ferrariusa.com and Spare Parts Department at dealerservices@ferrariusa.com. In this e-mail you must include the reason for the repair, the VIN, and the ROL number.

- IMPORTANT -

Only Authorized Ferrari Dealers that have completed the course on Level 2 procedures for the DCT gearbox are authorized to perform Level 2 procedures.

- IMPORTANT -

Before opening a ROL, complete the “DCT Gearbox Pre-Diagnosis Form” on page 111 to 113. Attach this completed form to the ROL.

Thank you for your co-operation.



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- IMPORTANT -

The S.T. Schedule for each model includes a specific table indicating the corresponding operation codes for the procedures performed, which are necessary to request reimbursement under warranty.

Replaced parts must be kept for at least 6 months, so that they may be returned if requested or authorized for scrapping by SAT.

Possible operations in relation to fault identified (“Level 2” procedures)

1. Replacing SAP;
2. Replacing CCP;
3. Replacing SAP and CCP
4. Replacing front connector casing;
5. Leakage.

The following tools and equipment are necessary to perform these procedures:

- Swivel-head base **Part. No. 95972621 (AV 2621)**
- Gearbox overhaul support **Part. No. 95977314 (AM 107314)**
- Rear cover extractor **Part. No. 95978603 (AV 8603)**
- Gearbox presser tool **Part. No. 95978604 (AV 8604)**
- Lift bracket for central section of gearbox **Part. No. 95978605 (AV 8605)**
- Lift bracket for rear section of gearbox **Part No. 95978606 (AV 8606)**
- Gearbox housing alignment pin **Part. No. 95978607 (AV 8607)**
- Axle shaft oil seal installation punch **Part. No. 95978608 (AV 8608)**
- Drive shaft oil seal extractor tool **Part No. 95978609 (AV 8609)**
- Clutch side oil seal installation punch **Part. No. 95978610 (AV 8610)**
- Internal gearbox plug **Part. No. 95978611 (AV 8611)**



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- External gearbox pressurizing plugs **Part. No. 95978612 (AV 8612)**
- Cap and punch for rear gearbox cover **Part. No. 95978613 (AV 8613)**
- Tool for tightening bevel gear set ring nut **Part. No. 95978619 (AV 8619)**
- Bevel gear set extractor **Part. No. 95978620 (AV 8620)**
- Adapter for rear gearbox cover extractor **Part No. 95978626 (AV 8626)**

- IMPORTANT -

If not already in your possession, these tools must be ordered by you directly from our Spare Parts Department in the quantities needed.

The parts to be installed, in relation to the type of operation necessary, are as follows:

- SAP1 KIT, F142/F149/F151 **Part. No. 70002996 Q.ty 1**
- CCP1 KIT, F142 **Part. No. 70002997 Q.ty 1**
- SC1 KIT, F142 **Part. No. 70002998 Q.ty 1**
- SC4 KIT, F151 **Part. No. 70002999 Q.ty 1**
- CCP3 KIT, F149 **Part. No. 70003000 Q.ty 1**
- SC3 KIT, F149 **Part. No. 70003001 Q.ty 1**
- CCP4 KIT, F151 **Part. No. 70003002 Q.ty 1**
- SAP3 KIT, F152 **Part. No. 70003003 Q.ty 1**
- CCP5 KIT, F152 **Part. No. 70003004 Q.ty 1**
- SC5 KIT, F152 **Part. No. 70003005 Q.ty 1**
- SL2 HOUSING, F142 **Part. No. 70003010 Q.ty 1**
- SL2 HOUSING, F149 **Part. No. 70003011 Q.ty 1**
- SL2 HOUSING, F151 **Part. No. 70003012 Q.ty 1**
- SL2 HOUSING, F152 **Part. No. 70003013 Q.ty 1**
- SERVICE LEVEL 2 SCREW **Part. No. 70003093 Q. ty 1**

The following table indicates the kit part numbers necessary for the operations described herein, subdivided by model.



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The following kits must be ordered by you directly from our Spare Parts Department in the quantities needed.

	458 Italia 458 Spider 458 Speciale 458 SpecialeA	Ferrari California	FF	F12berlinetta
1. SAP replacement	70002996	70002996	70002996	70003003
2. CCP replacement	70002997	70003000	70003002	70003004
3. Replacing SAP and CCP	70002998	70003001	70002999	70003005
4. Replacing front connector casing	70003010 70002747	70003011 70002747	70003012 70002747	70003013 70002747
5. Leakage*	70003093 70002747	70003093 70002747	70003093 70002747	70003093 70002747

* For leaks found between the differential housing and gearbox case, do not order the KIT Part. no. 70003093, as the housing and gearbox fastener screws may be used for three assemblies.

Procedure

- IMPORTANT -

The utmost cleanliness must be maintained during all the following operations; always wear clean gloves, replacing them frequently if necessary, and use absorbent lint-free cloth and heptane to clean and degrease components.

- IMPORTANT -

When carrying out the following replacement procedures, the screws fastening the components (gearbox case, SAP and CCP) and the gaskets removed during the procedure must ALWAYS BE REPLACED upon reassembly.



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- IMPORTANT -

Check the expiration date of all products used in the following procedures before use.
NEVER use EXPIRED products.

Preparations for procedures

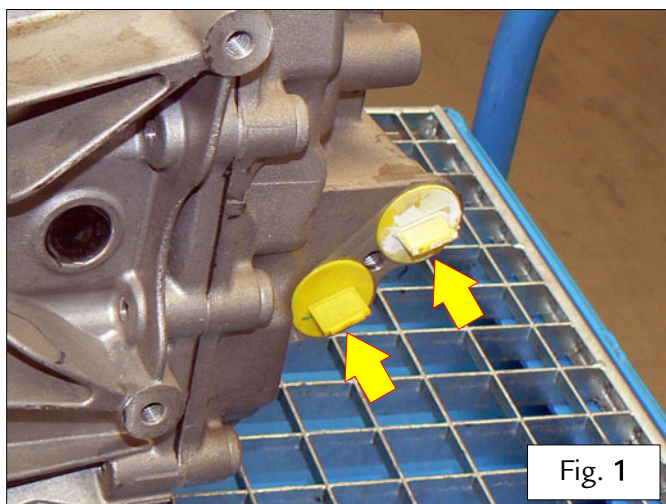
All level 2 operations may be performed with the gearbox on the work bench. It is therefore necessary to remove the DCT gearbox from the vehicle, preparing and fitting the support tool as described as follows.

- For the **Ferrari California, 458 Italia, 458 Spider, 458 Speciale** and **458 SpecialeA**, drain the F-3 ATF fluid from the DCT hydraulic clutch system to (as described in paragraph **C3.03** step 1 of the Workshop Manual).
- For the **FF and F12berlinetta**, drain the F-3 ATF fluid from the DCT hydraulic clutch system (as described in paragraph **C3.02** step 1 of the Workshop Manual).
- For the **Ferrari California**, drain the Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.06** step 1 of the Workshop Manual).
- For the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**, drain the Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.05** step 1 of the Workshop Manual).
- Remove the complete DCT gearbox from the vehicle (as described in paragraph **C2.02** step 1 of the Workshop Manual).
- For the **Ferrari California, FF and F12berlinetta** ONLY, remove the complete DCT heat shields and mounting struts (as described in paragraph **C2.02** step 2 of the Workshop Manual).
- For **Ferrari California** vehicles with SINGLE OIL HEAT EXCHANGER ONLY: remove the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.05** steps 1 and 3 of the Workshop Manual).
- For the **FF and F12berlinetta** ONLY, remove the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.04** steps 1 and 3 of the Workshop Manual).

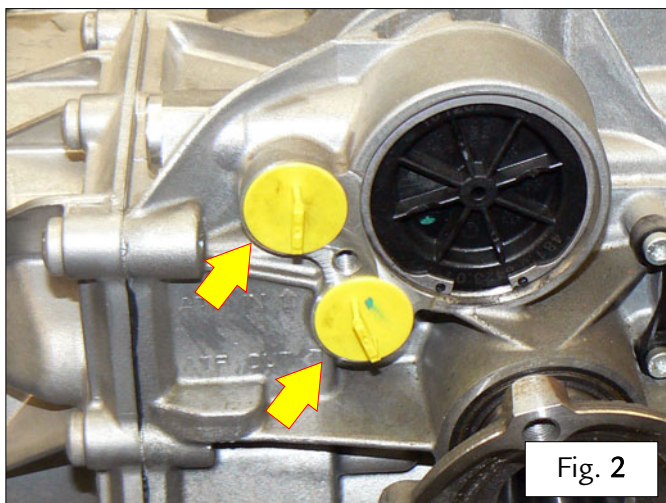


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- Clean the exterior of the complete DCT gearbox with a lint-free cloth and heptane.
- For the **458 Italia**, **458 Spider**, **458 Speciale**, **458 SpecialeA**, **FF** and **F12berlinetta**, remove the E-DIFF pipe (as described in TI 2076 of February 2013). **Note: This operation MUST ONLY be performed with a cold gearbox.**
- Using a lint-free cloth and heptane, thoroughly clean the area surrounding the **GL** oil inlet orifices and fit seal plugs in the indicated positions – Fig. 1.



- Using a lint-free cloth and heptane, thoroughly clean the area surrounding the **ATF** fluid inlet orifices and fit seal plugs in the indicated positions – Fig. 2.





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- On the left hand side of the DCT gearbox, undo and remove the indicated screw – Fig. 3.

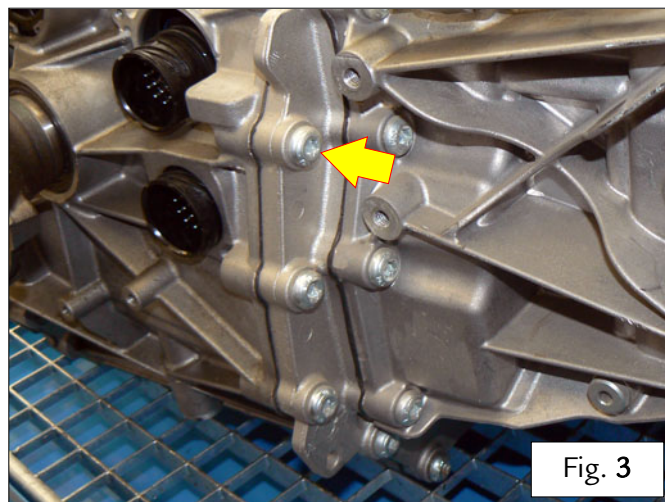


Fig. 3

For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY

- On the right hand side of the DCT gearbox, undo and remove the indicated screws – Fig. 4.

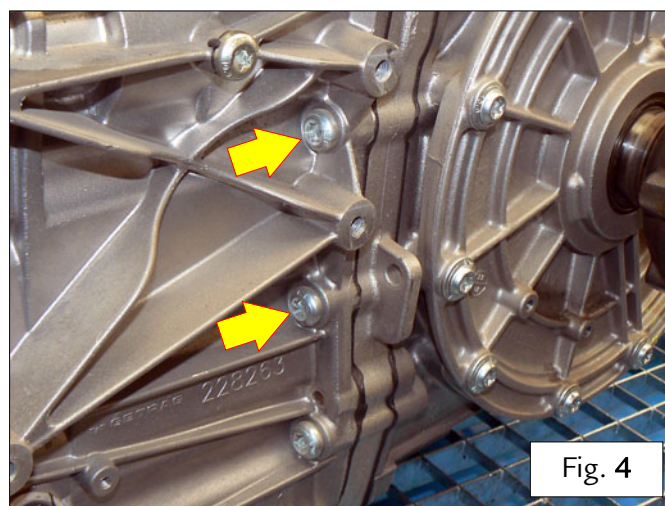


Fig. 4

For F12berlinetta ONLY

- On the right hand side of the DCT gearbox, undo and remove the indicated nuts – Fig. 5.

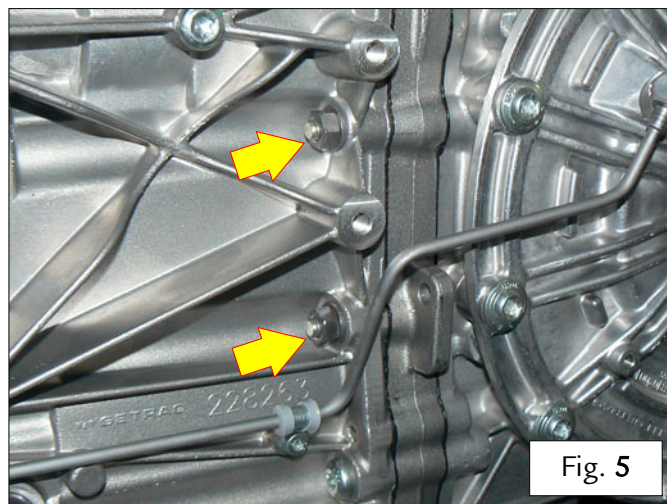
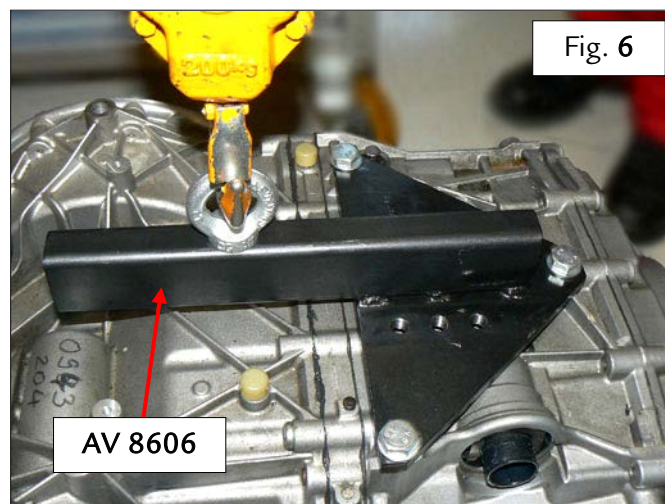


Fig. 5

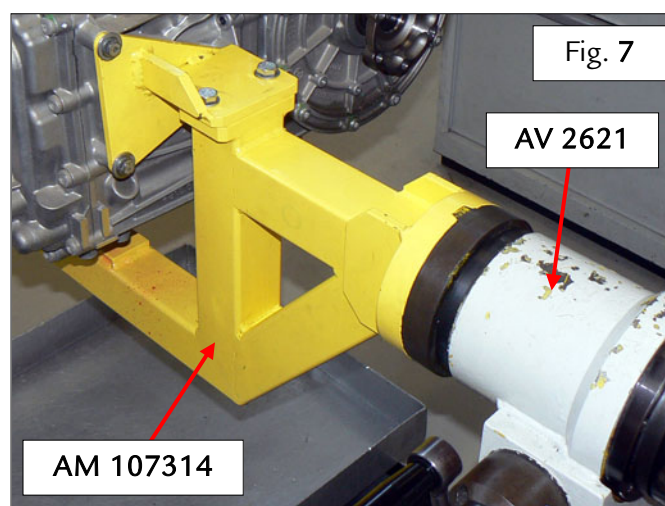


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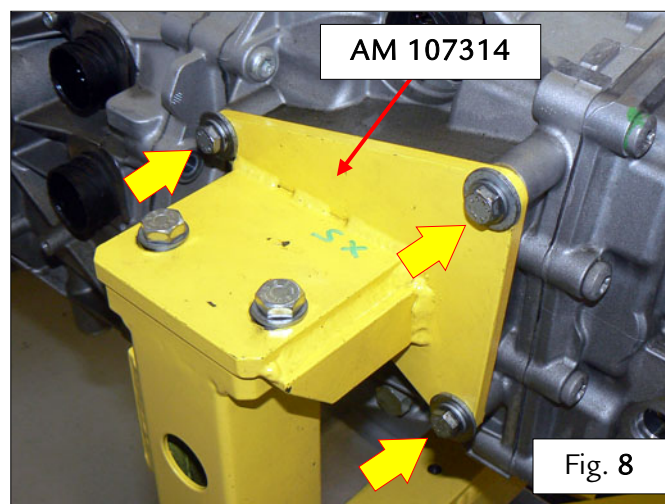
- Install the lift bracket **AV 8606** (95978606) on the gearbox – Fig. 6.
- Hitch a lift hook to the eye bolt on bracket **AV 8606**, then lift the DCT gearbox – Fig. 6.



- Assemble the gearbox overhaul support **AM 107314** (95977314) onto the swivel-head base **AV 2621** (95972621) – Fig. 7.



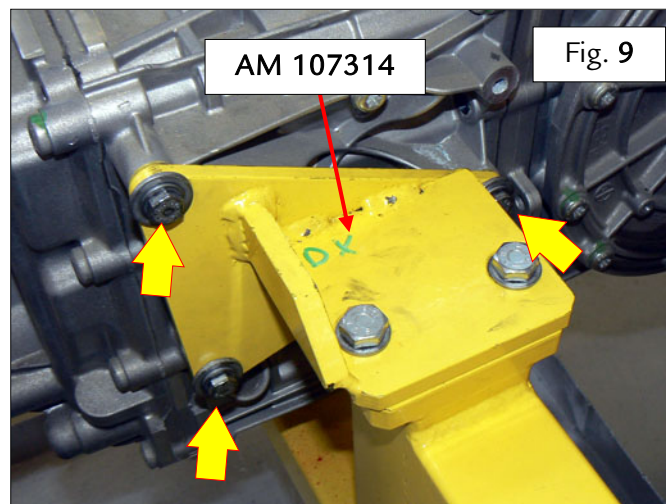
- Using the lift bracket **AV 8606** (95978606), bring the gearbox over the lift equipment prepared previously – Fig. 8.
- On the left hand side, fasten the gearbox to the support **AM 107314**, tightening the screws with the relative washers as indicated – Fig. 8.





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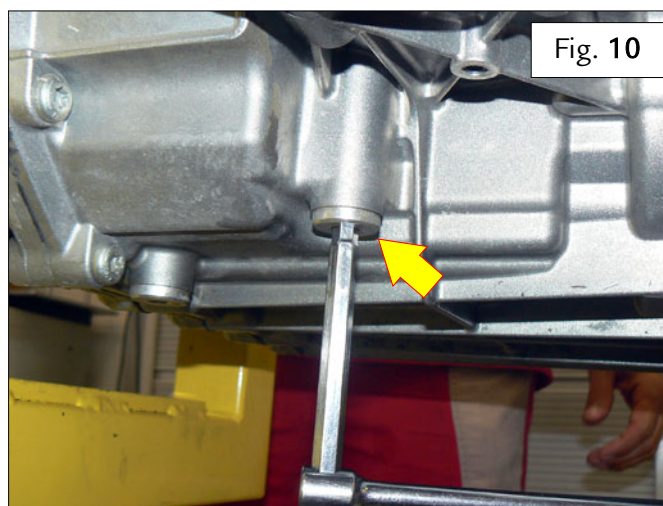
- On the right hand side, fasten the gearbox to the support **AM 107314**, tightening the screws with the relative washers as indicated – Fig. 9.



- Ensure that the gearbox is fastened securely to the relative support, then remove the lift bracket **AV 8606**.
- While the GL gear oil and the ATF clutch hydraulic fluid were already drained previously with the gearbox in the vehicle, there are still considerable quantities of oil and fluid remaining in the gearbox. This oil and fluid must be drained completely before starting any work on the gearbox.

GL GEAR OIL

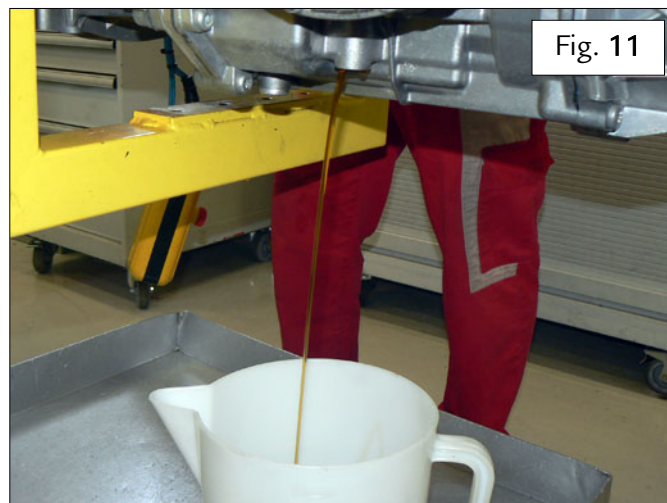
- Place a container for collecting the oil under the front GL gear oil drain plug orifice – Fig. 10.
- Remove the front GL gear oil drain plug indicated – Fig. 10.



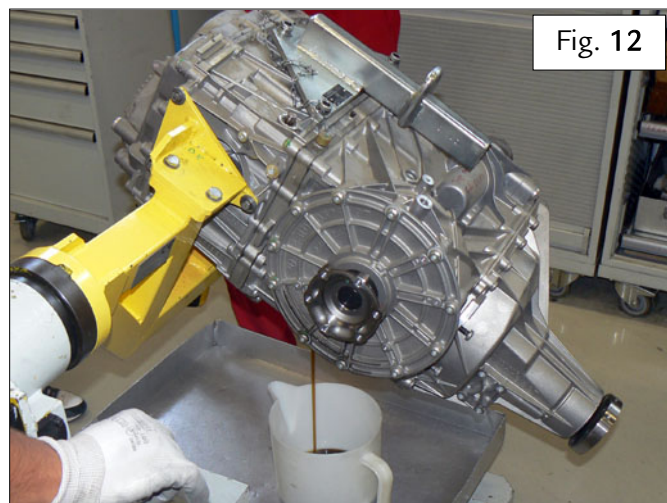


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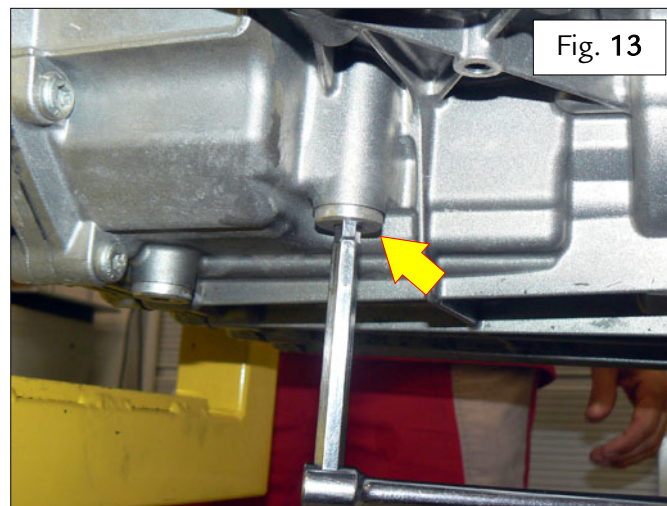
- Wait for the GL gear oil to drain completely into the container – Fig. 11.



- Rotate the gearbox clockwise to empty all the GL gear oil – Fig. 12.



- Replace the indicated plug and tighten to a torque of **25 Nm** class B – Fig. 13.

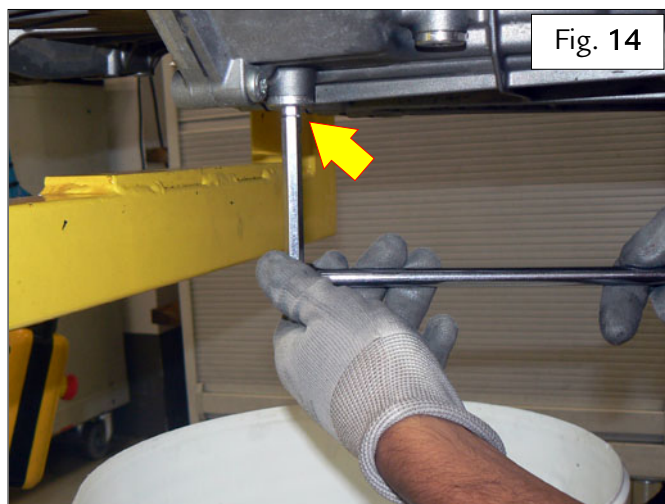




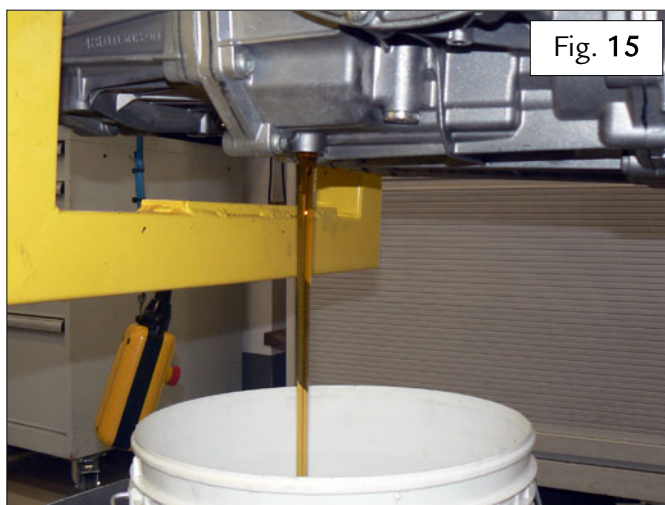
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ATF CLUTCH HYDRAULIC SYSTEM FLUID

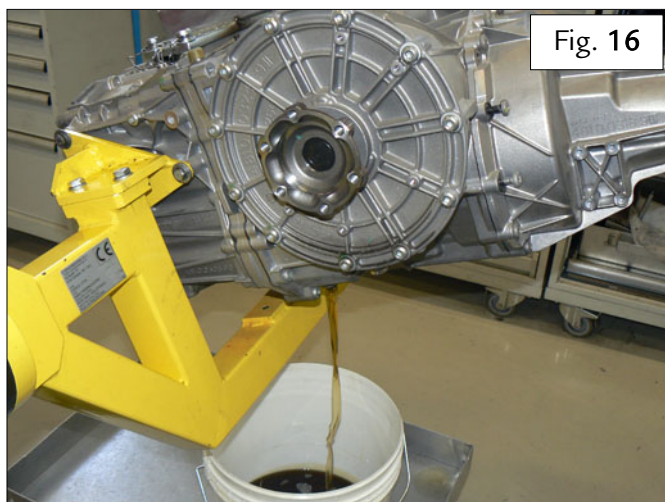
- Place a container for collecting the fluid under the ATF clutch fluid drain plug orifice – Fig. 14.
- Remove the ATF clutch fluid drain plug indicated – Fig. 14.



- Wait for the ATF clutch fluid to drain completely into the container – Fig. 15.



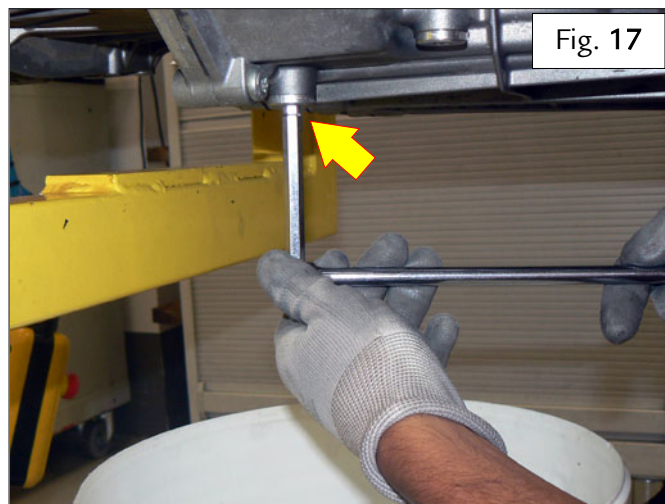
- Rotate the gearbox counterclockwise to empty all the ATF clutch fluid – Fig. 16.



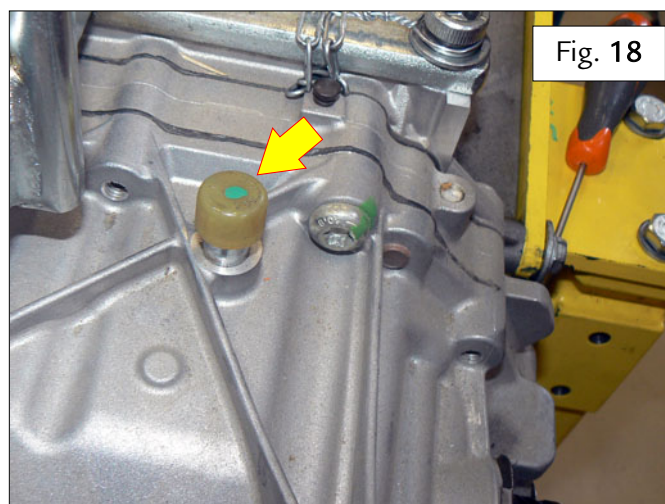


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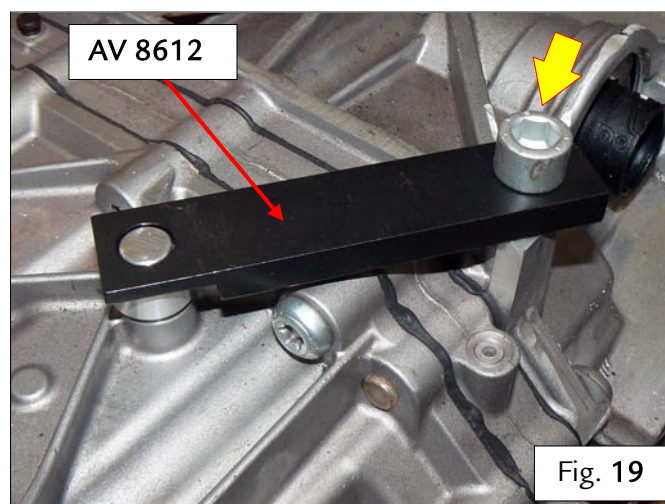
- Fit and tighten the indicated plug – Fig. 17.



- In preparation for turning the DCT gearbox upside-down, remove the plug on the ATF hydraulic clutch system breather shown in Fig. 18.



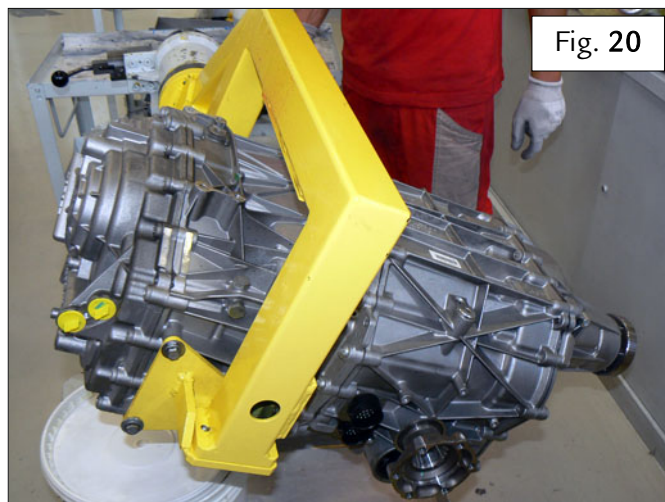
- Temporarily fit the tool **AV 8612** (95978612), consisting of a plug with relative O-ring and a bracket fastened with the relative screw indicated, in the ATF hydraulic clutch system breather to prevent the fluid from escaping – Fig. 19.



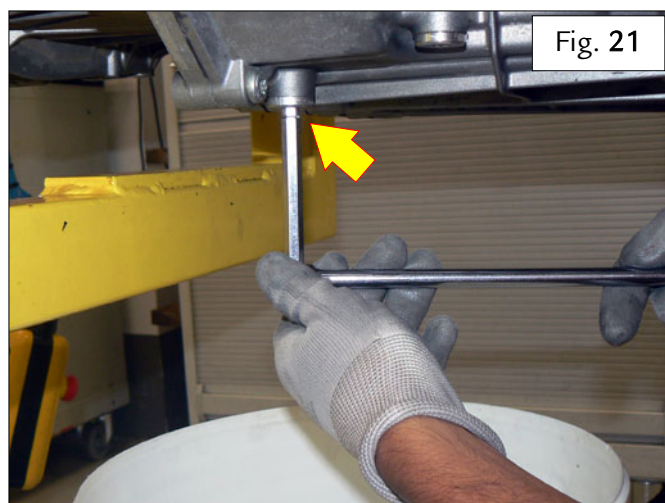


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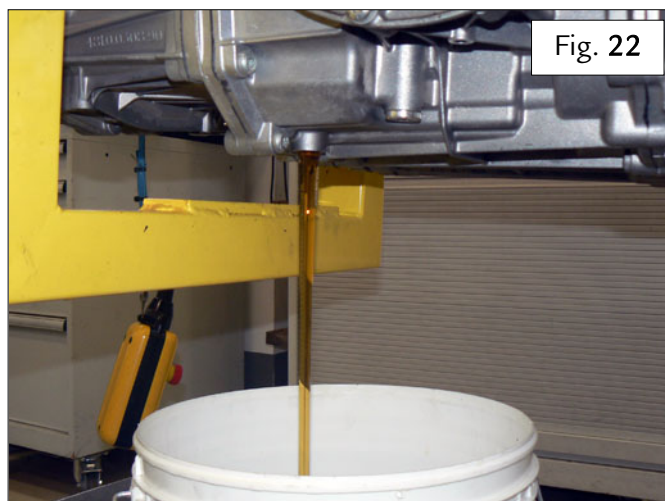
- Turn the DCT gearbox upside-down as shown in the figure by rotating counter clockwise – Fig. 20.



- Return the DCT gearbox to the upright position by turning clockwise – Fig. 21.
- Remove the tool **AV 8612 (95978612)** fitted previously.
- Remove the ATF clutch fluid drain plug indicated – Fig. 21.



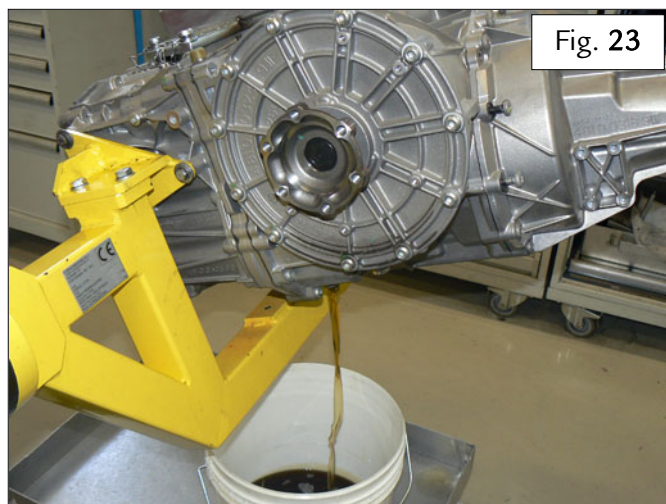
- Wait for the ATF clutch fluid to drain completely into the container – Fig. 22.



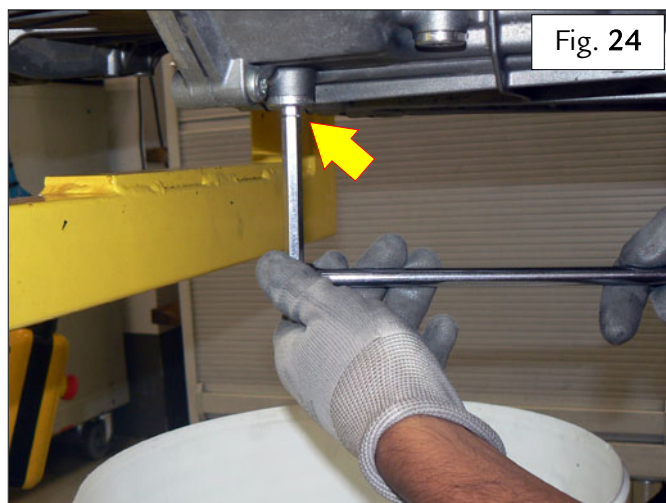


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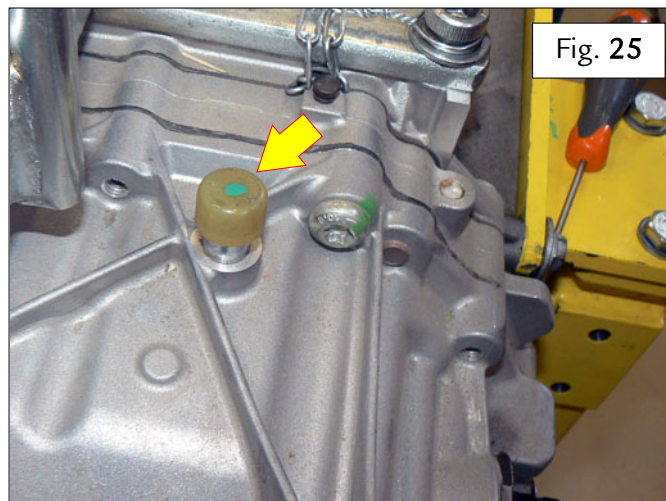
- Rotate the gearbox counter clockwise to empty all the ATF clutch fluid completely – Fig. 23.



- Replace the indicated cap and tighten to a torque of **25 Nm** class B – Fig. 24.



- Refit the original plug as indicated – Fig. 25.

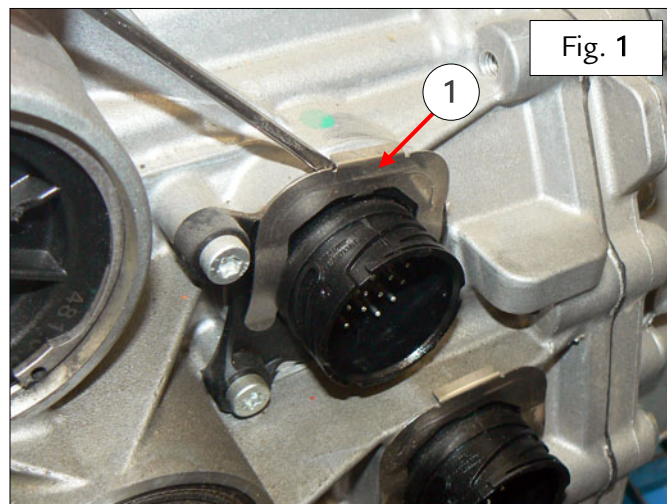




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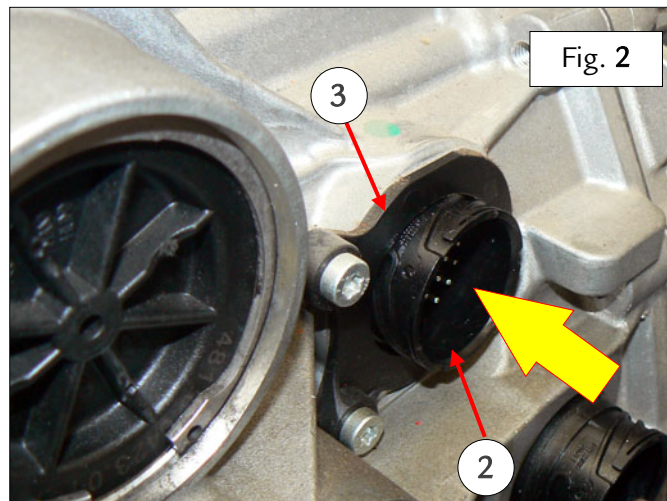
1. SAP replacement

- Remove the retainer clip (1) from its seat – Fig. 1.

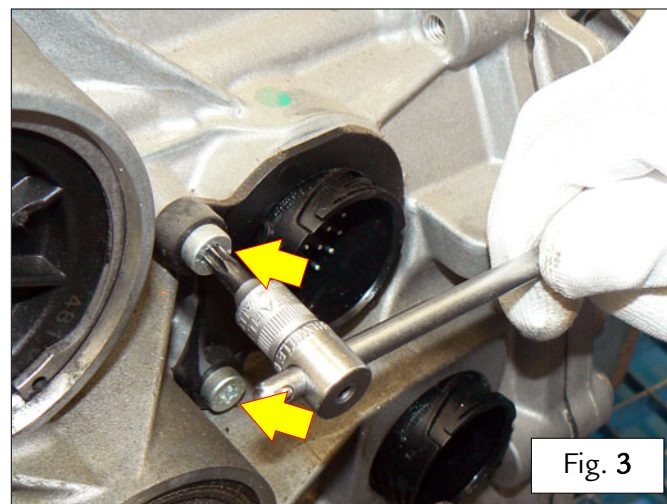


- Push the connector (2) by hand gently into the gearbox housing by just enough to release it from the adapter (3) – Fig. 2.

Note: Do not force the connector (2) too far into the gearbox housing, as this may damage the sensor on the SAP, located directly behind the connector itself.



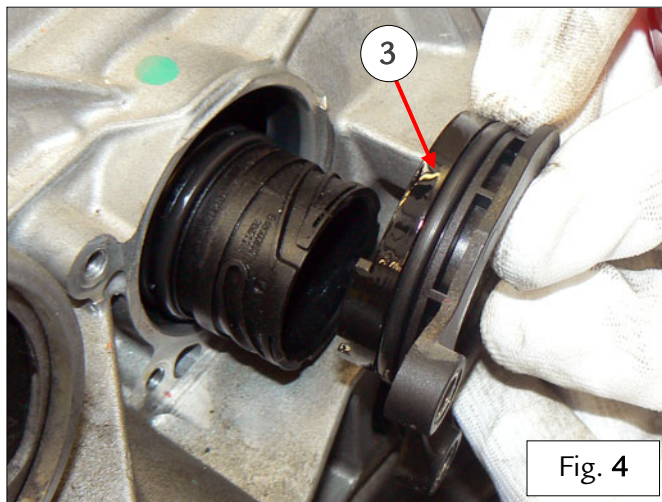
- Remove the indicated screws fastening the adapter – Fig. 3.



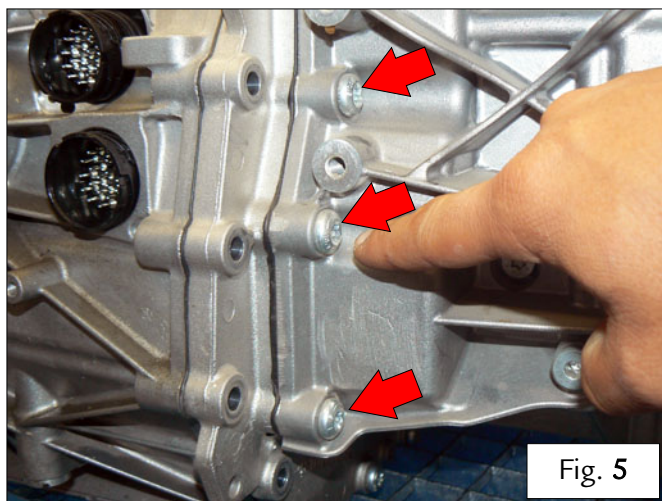


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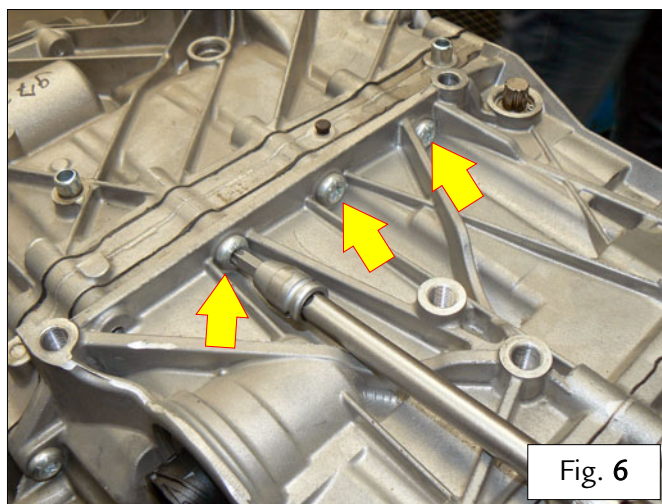
- Remove the adapter (3) – Fig. 4.



- The next step consists in detaching the differential housing from the gear housing by undoing the 16 fasteners (3 have already been removed previously).
- **DO NOT undo the indicated screws for any reason** – Fig. 5.



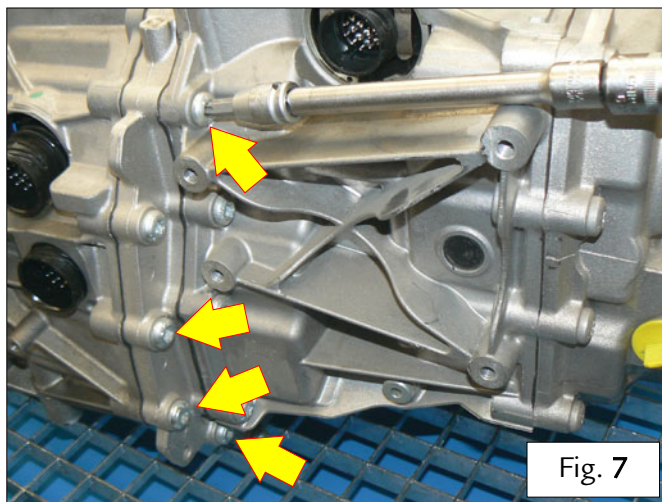
- Remove the screws fastening the gearbox to the interface plate as indicated in Fig. 6.





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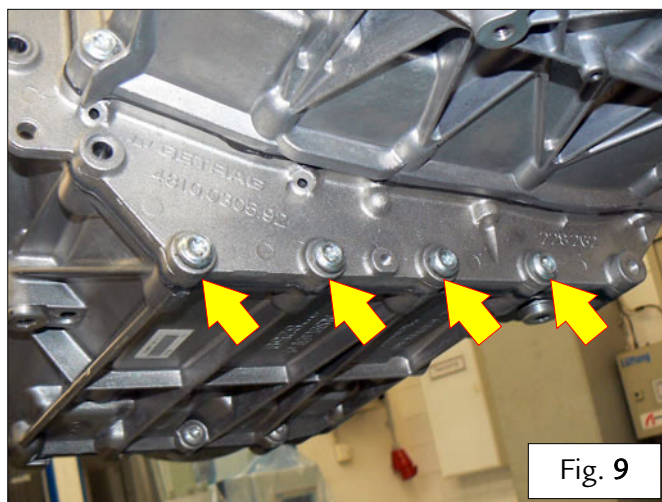
- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 7.



- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 8.



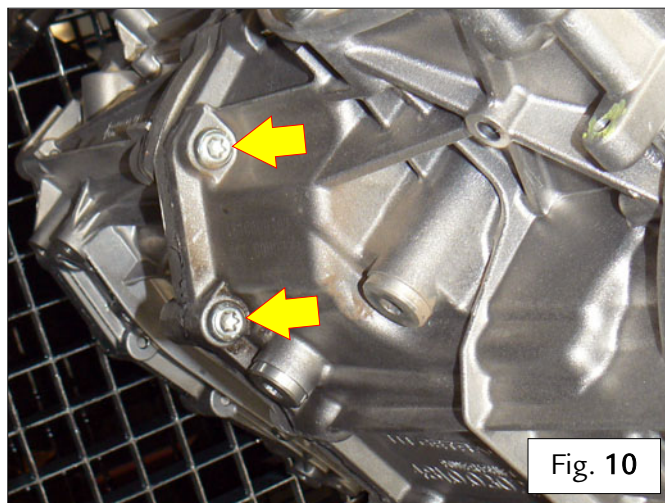
- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 9.



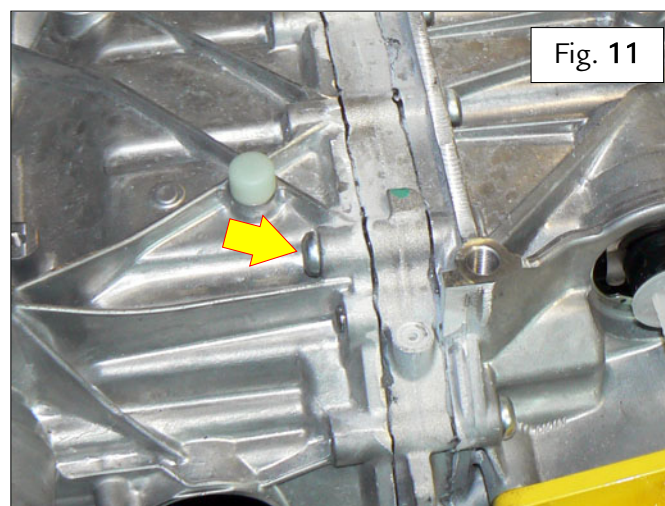


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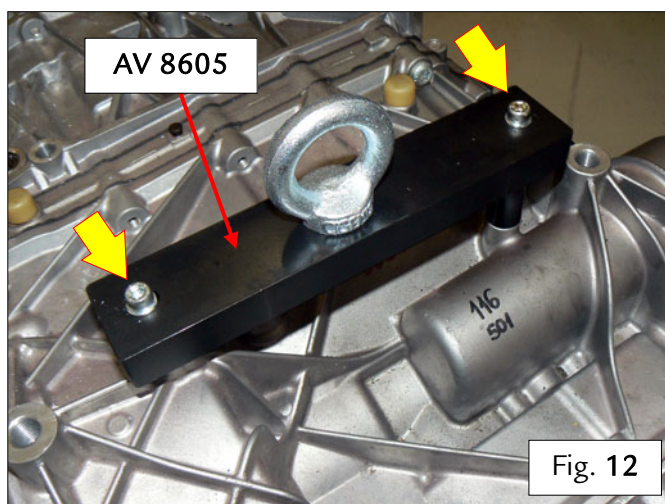
- Remove the remaining screws indicated fastening the gearbox to the interface plate – Fig. 10.



- Remove the remaining screws indicated fastening the gearbox to the interface plate – Fig. 11.



- Fit the support bracket 95978605 (AV 8605) in the relative seat on the differential housing, tightening the indicated screws – Fig. 12.
- Hitch a lift hook to the eye bolt on bracket AV 8605, and tauten the lift straps – Fig. 12.



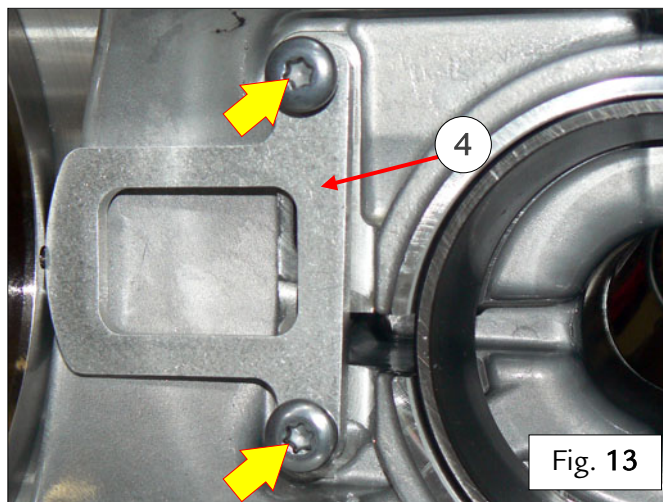


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- For the F12berlinetta ONLY, remove the differential cover (as described in IT 2076 of February 2013).

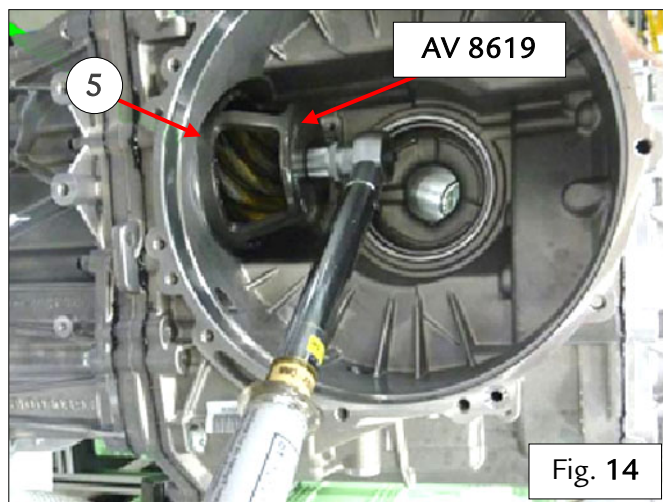
For F12berlinetta ONLY

- Remove the bracket (4), undoing the indicated screws – Fig. 13.



For F12berlinetta ONLY

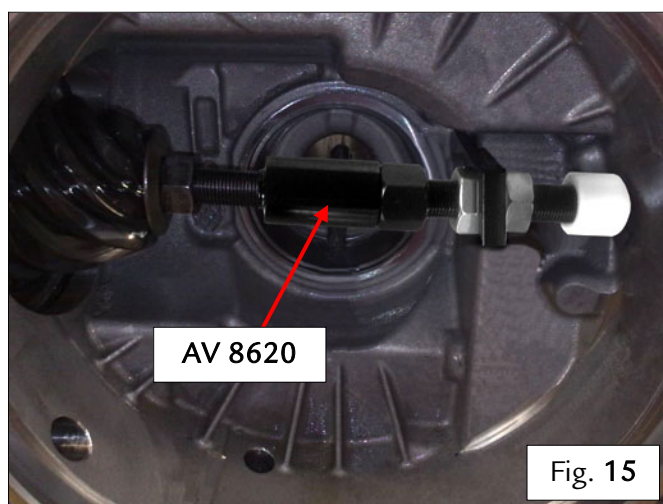
- Using the tool 95978619 (AV 8619), remove the ring nut (5) fastening the plate to the differential housing – Fig. 14.



For F12berlinetta ONLY

- Using the extractor tool 95978620 (AV 8620), separate the differential housing from the plate – Fig. 15.

Note: There may be some spillage of residual oil when detaching the differential housing; take all necessary precautions to limit and collect the spillage.





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For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY

- Using a crowbar placed on the indicated leverage lug on the gearbox, detach the differential housing – Fig. 16.

Note: There may be some spillage of residual oil while detaching the differential housing; take all necessary precautions to limit and collect the spillage.

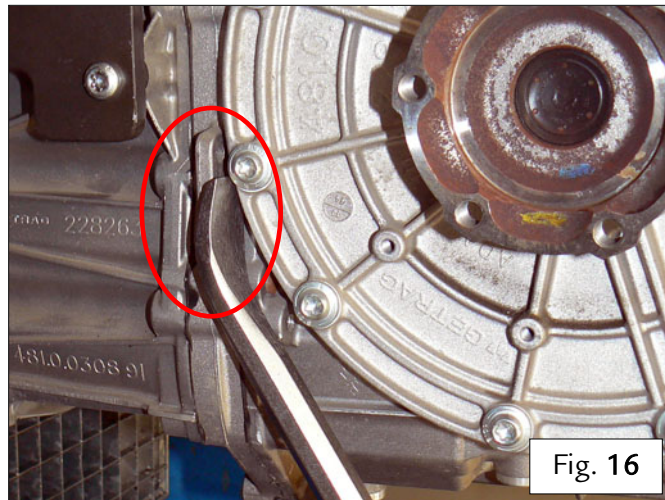


Fig. 16

- Separate the differential housing by a few centimeters and push the connector (2) inside through the hole – Fig. 17.

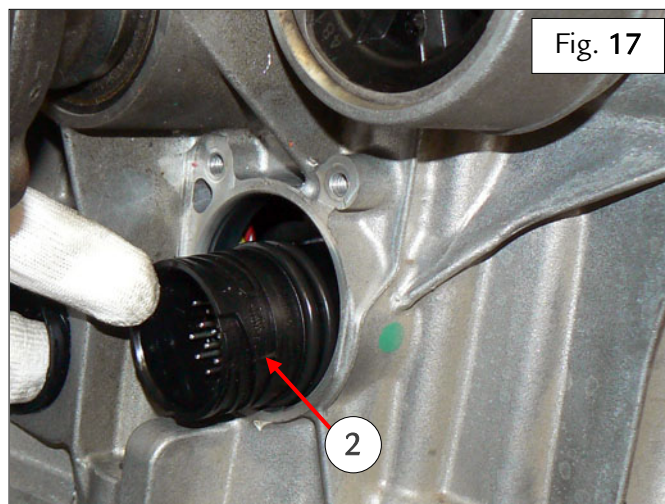


Fig. 17

- Remove the differential housing completely and set it down in a safe, appropriate place.
- Remove the indicated O-ring and close the orifice on the interface plate with the plug 95978611 (AV 8611) – Fig. 18.

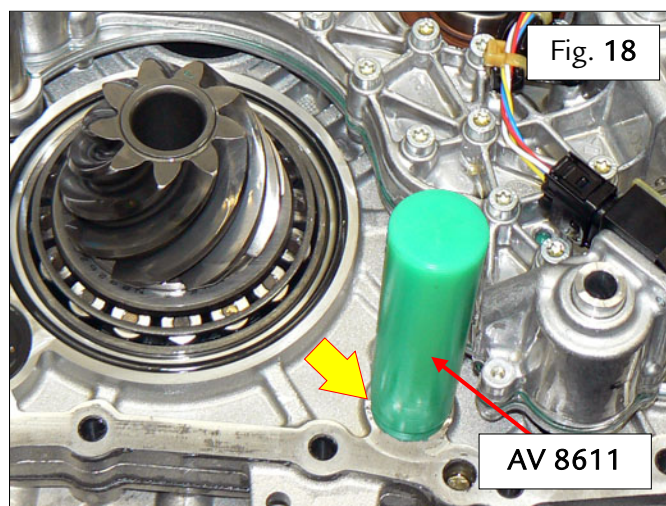


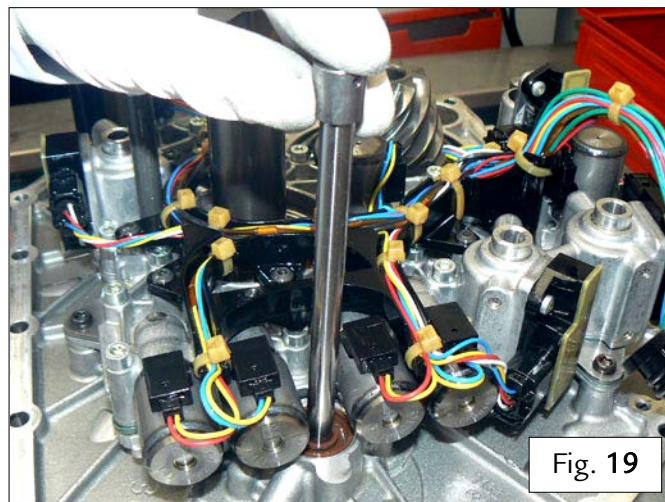
Fig. 18

AV 8611



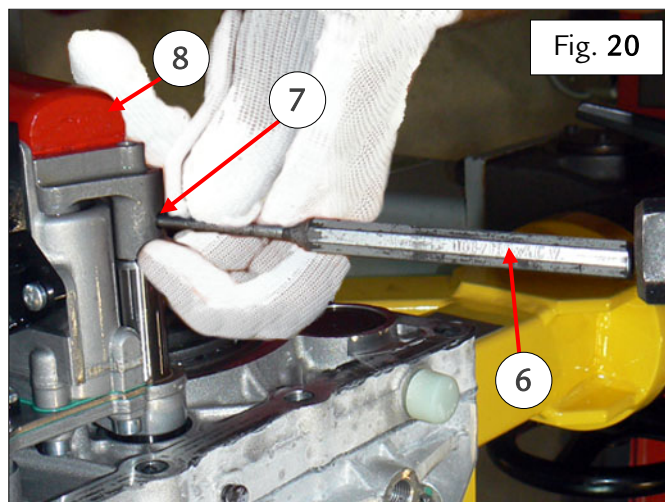
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- Lift the oil pump spindle out vertically – Fig. 19.

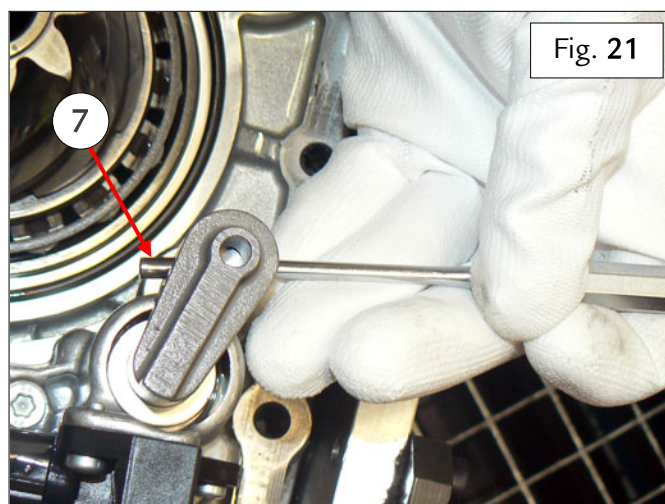


- Place the punch (6) on the park lock alignment pin (7), then push the pin inwards using a mallet – Fig. 20.

Note: To prevent possible damage to the components, place a tool (8) as shown in the photo aside to oppose the action of the punch.



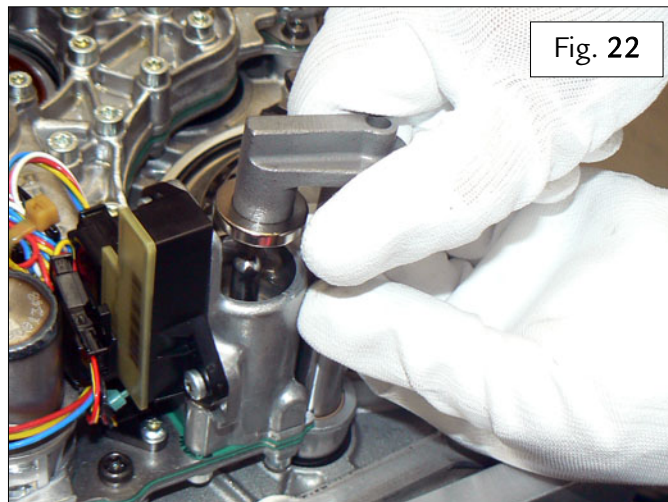
- Retrieve the park lock alignment pin (7) – Fig. 21.





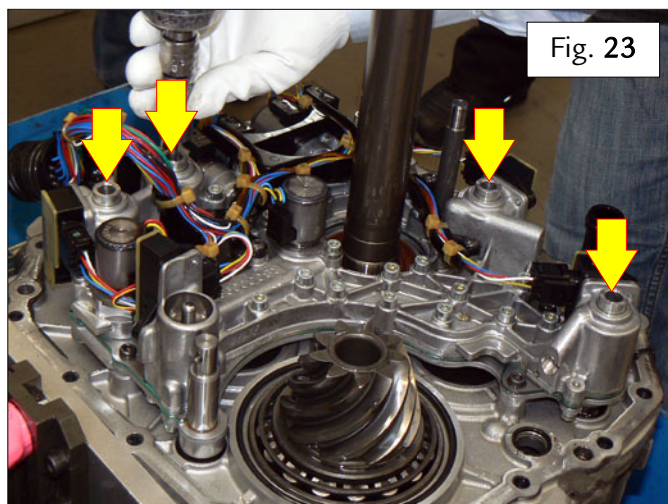
Ferrari North America

- Lift the actuator bracket out vertically – Fig. 22.

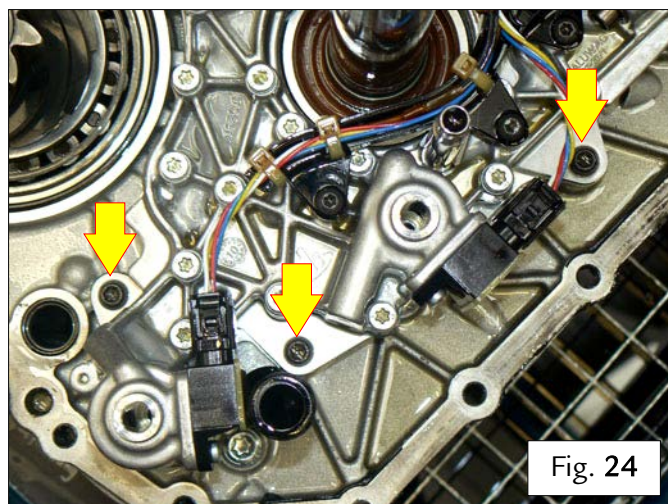


- Remove the four screws indicated, retrieving the screw itself and the relative washers with the magnet – Fig. 23.

Note: Be careful to not drop the washers into the holes on the SAP.



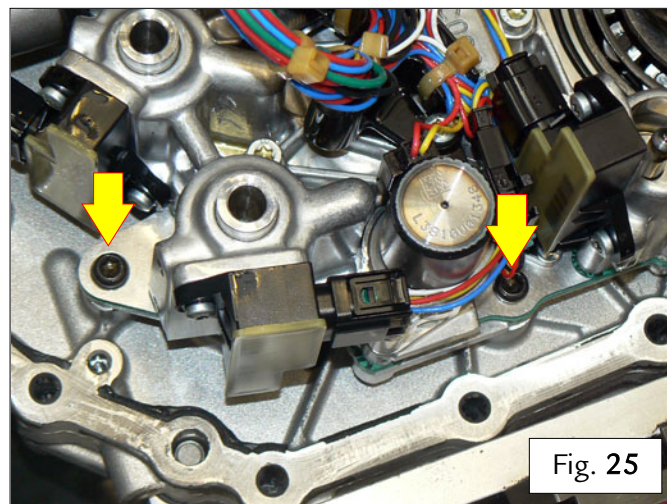
- Remove the three screws indicated fastening the SAP – Fig. 24.



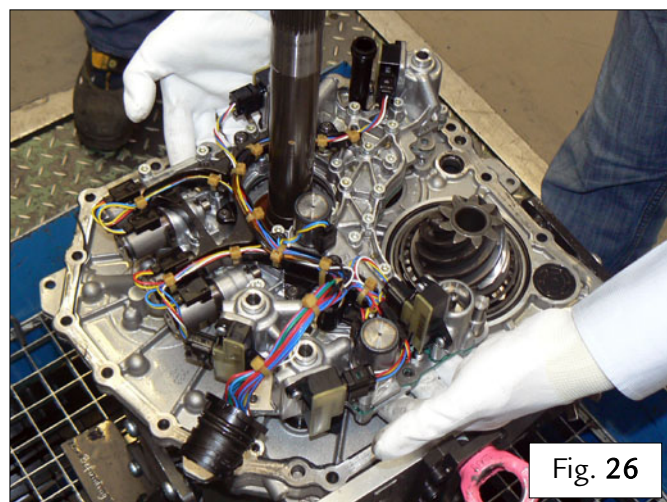


Ferrari North America

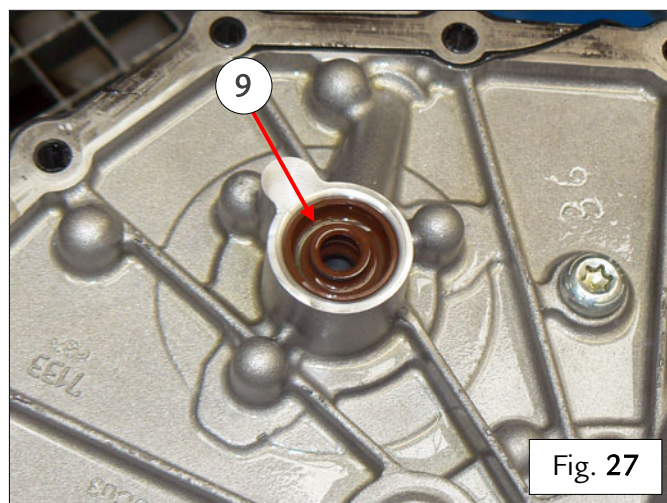
- Remove the two screws indicated fastening the SAP – Fig. 25.



- Remove the SAP from the gearbox, lifting upwards, and replace – Fig. 26.



- Remove the two oil pump spindle seals from the interface plate (9) – Fig. 27.





Ferrari North America

- Remove the oil return pipe (10), complete with seals, from the plate – Fig. 28.

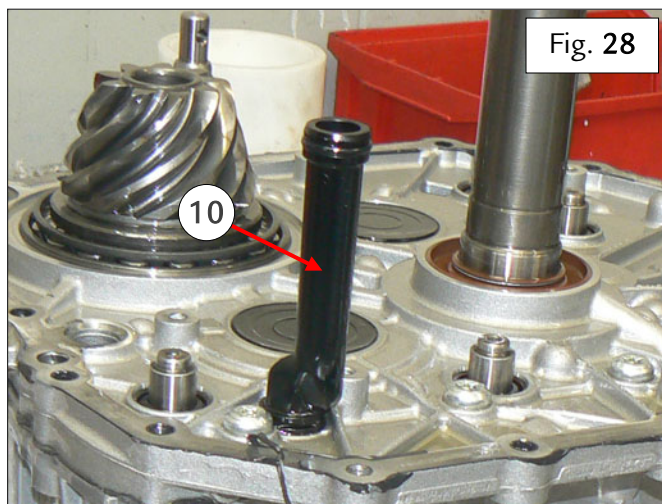


Fig. 28

For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, Ferrari California and FF ONLY

- Remove the O-ring from the (11) interface plate – Fig. 29.

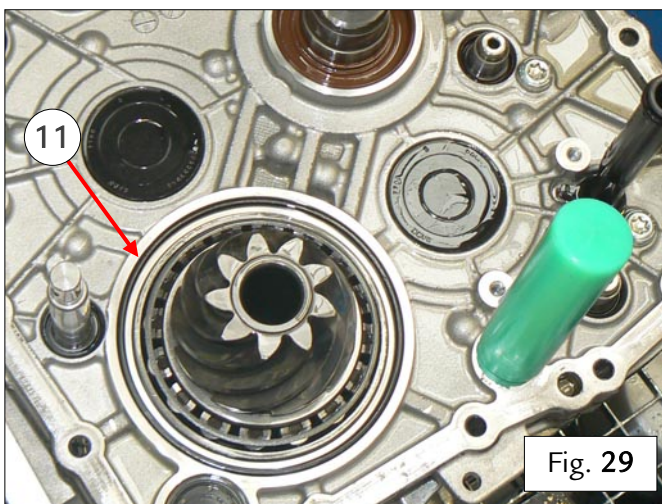


Fig. 29

For F12berlinetta ONLY

- Remove the seal (12) from the differential housing on the side in contact with the interface plate – Fig. 30.

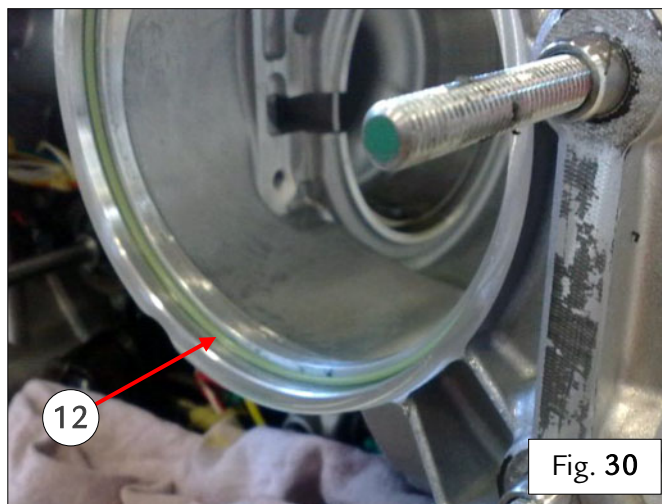


Fig. 30



Ferrari North America

For F12berlinetta ONLY

- Remove the stud bolts (13) and the alignment bushes (14) from the differential housing, on the side in contact with the interface plate – Fig. 31.

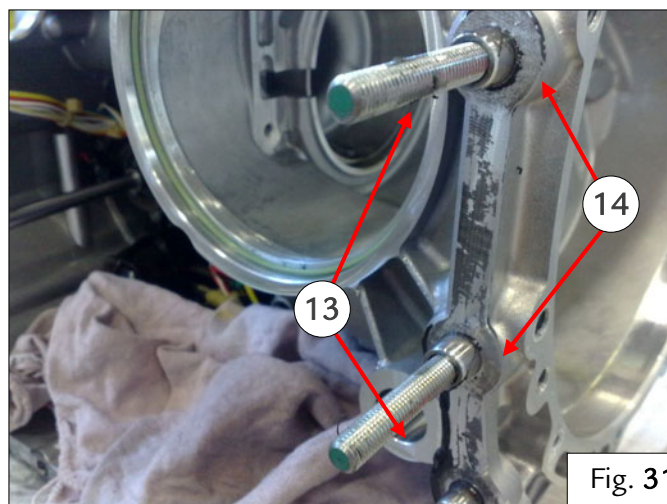


Fig. 31

- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 32.

Note: Take care not to damage the surfaces of the two housings.

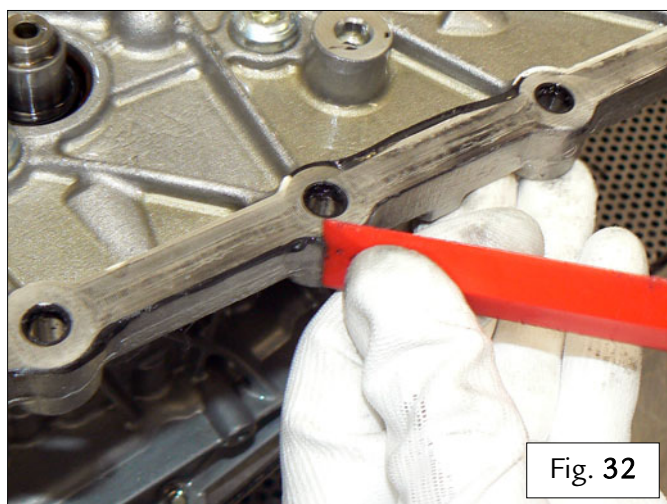


Fig. 32

- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 33.

Note: Take care not to damage the surfaces of the two housings.

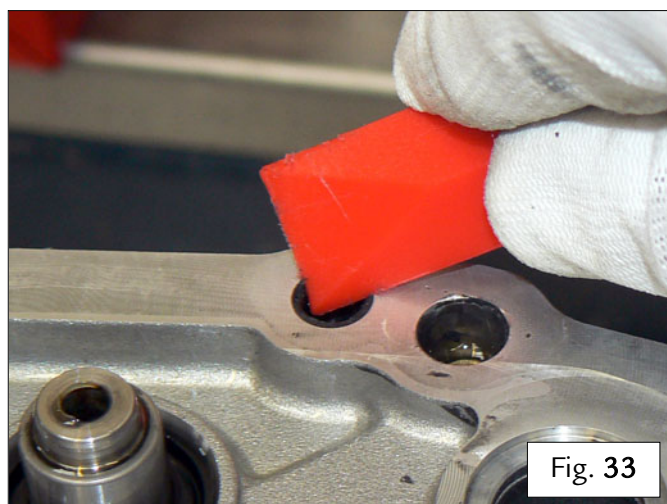
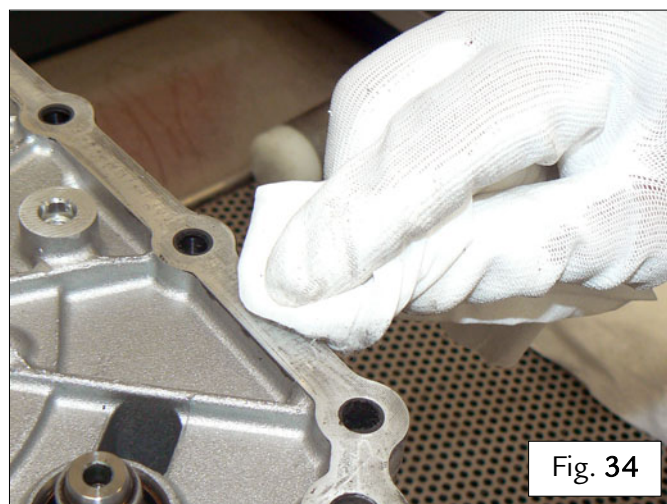


Fig. 33



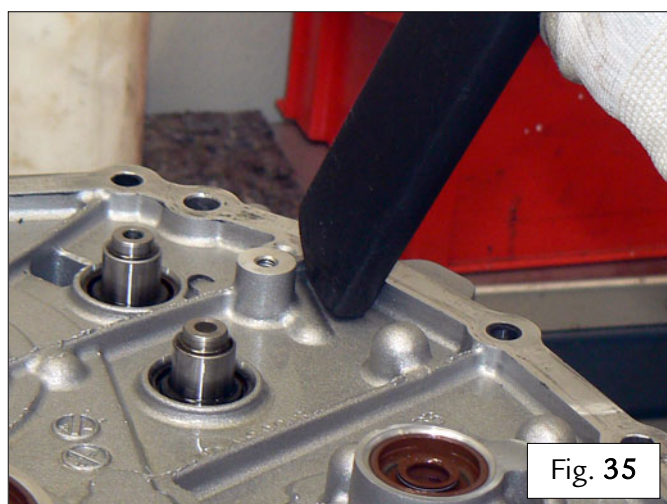
Ferrari North America

- Using a lint-free cloth and heptane, remove all traces of adhesive and/or dirt from the surfaces and holes of the interface plate and from the differential housing – Fig. 34.



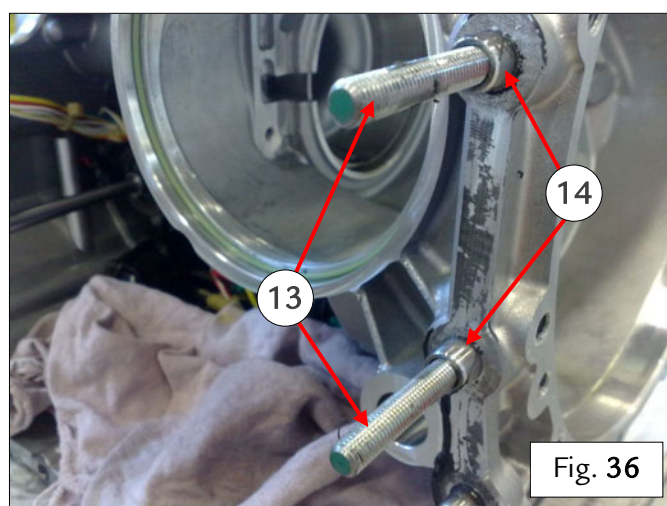
- Clean all residue of adhesive and/or dirt from the surfaces of the interface plate and from the differential housing – Fig. 35.

Note: DO NOT blow or use cloths to remove dirt and/or dust.



For F12berlinetta ONLY

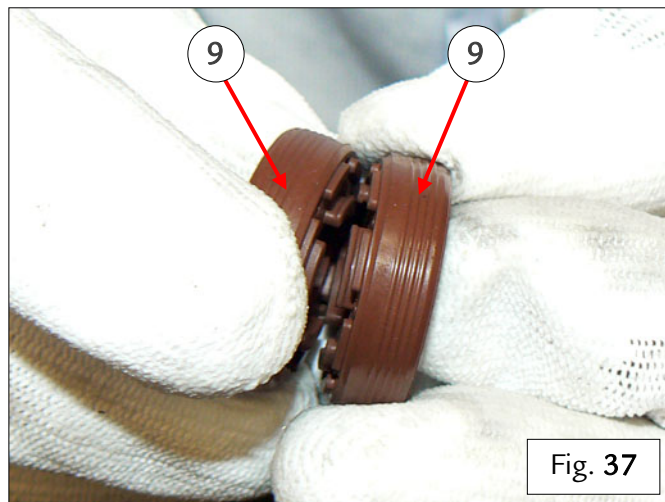
- Install the new alignment bushes (14) on the differential housing – Fig. 36.
- Install the new stud bolts (13) on the differential housing, tightening to a torque of $15 \text{ Nm} \pm 1 \text{ Nm}$ – Fig. 36.



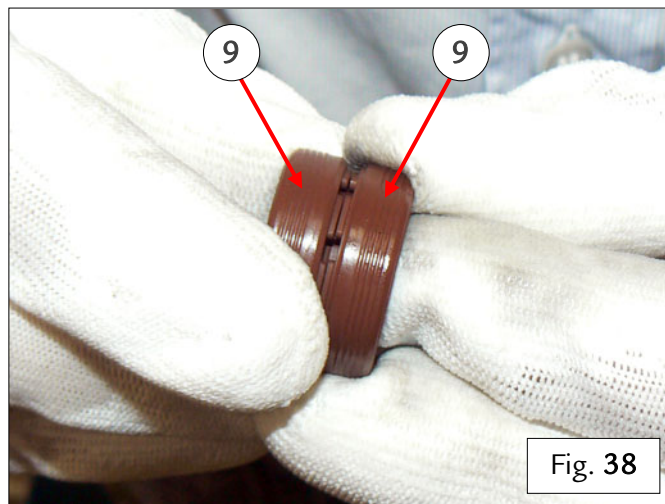


Ferrari North America

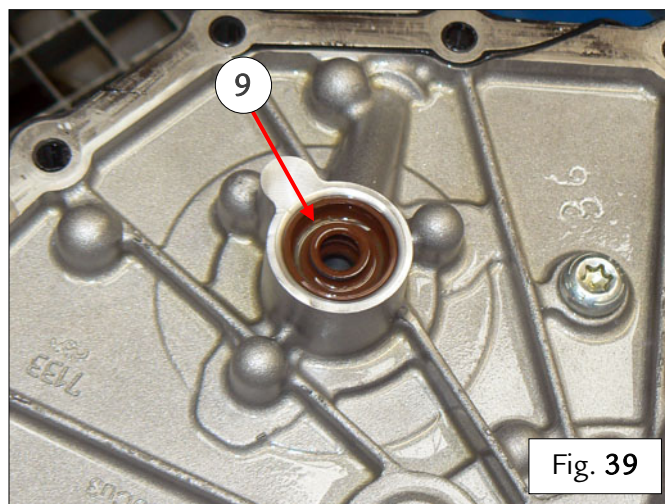
- Assemble the new seals (9) together – Fig. 37.



- The image aside shows the two oil pump spindle seals (9) assembled together – Fig. 38.



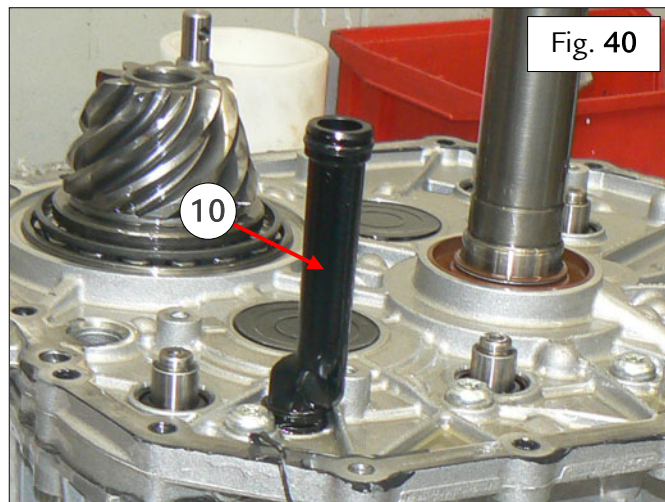
- Insert the two assembled oil pump spindle seals (6) in the relative seat on the interface plate – Fig. 39.



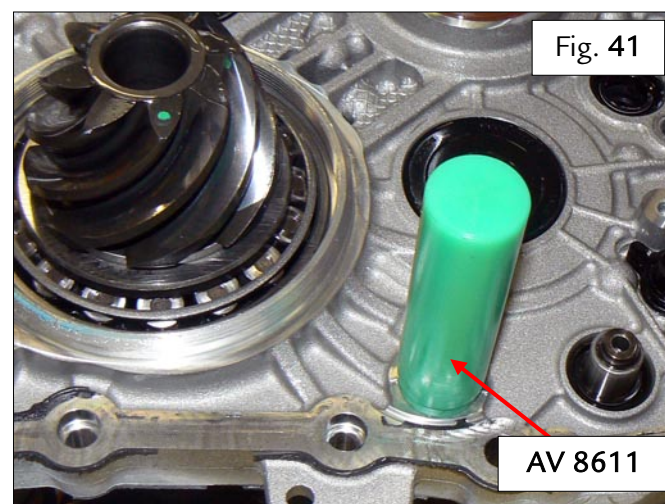


Ferrari North America

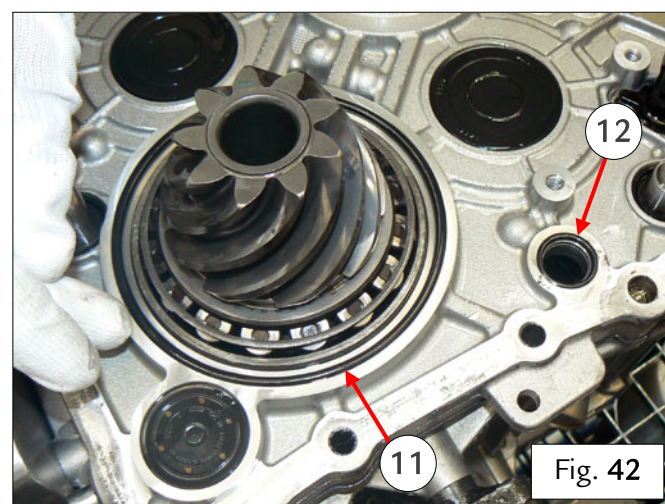
- Fit the new oil return pipe (10), complete with seals, in the relative seat on the interface plate – Fig. 40.



- Remove the plug 95978611 (AV 8611) from the interface plate – Fig. 41.



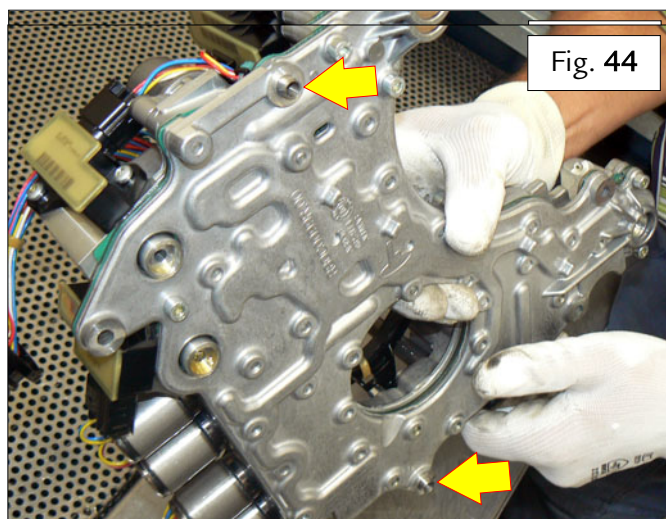
- Fit the new O-ring (12) in the relative seat on the interface plate – Fig. 42.
- For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY, fit the new O-ring (11) in the relative seat on the interface plate – Fig. 42.



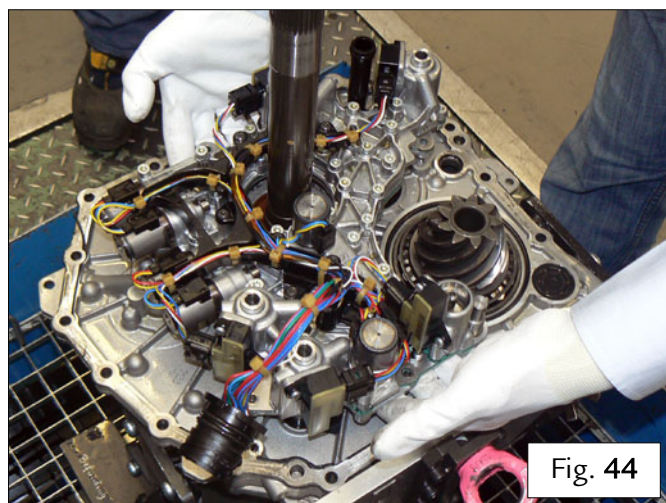


Ferrari North America

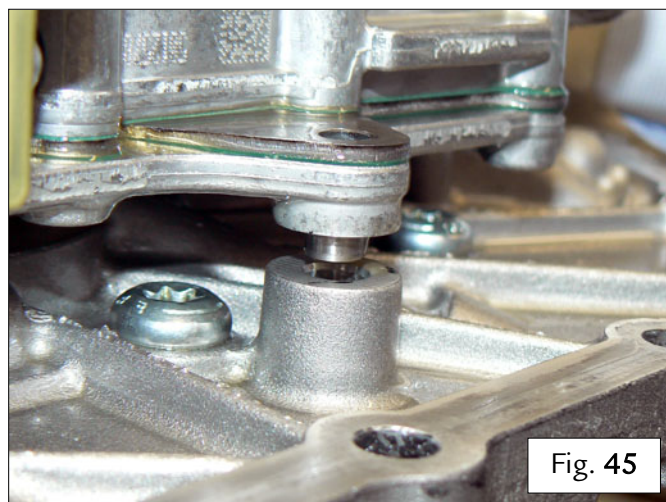
- Fit the new pins as indicated in the respective seats on the new SAP – Fig. 43.



- Fit the new SAP in the relative seat – Fig. 44.



- While installing the SAP, align the pins with the respective holes in the interface plate – Fig. 45.
- Bring the SAP into contact with the respective mounts – Fig. 45.





Ferrari North America

- If not already applied to the new screws, apply **Loctite 243** on the threads of the screws fastening the SAP – Fig. 46.

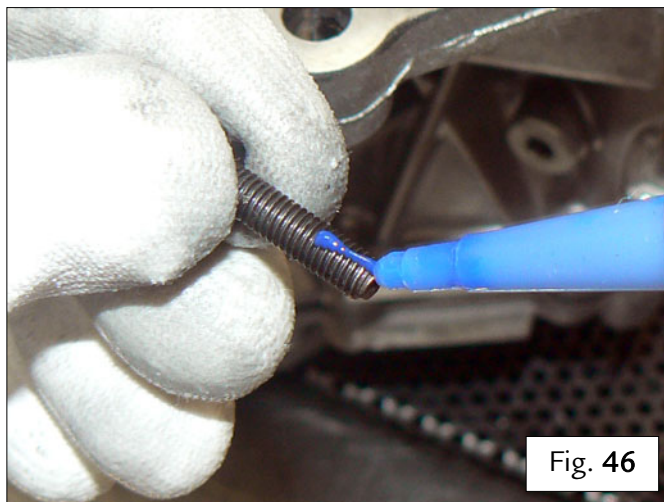


Fig. 46

- Hand-tighten the three new screws indicated fastening the SAP – Fig. 47.

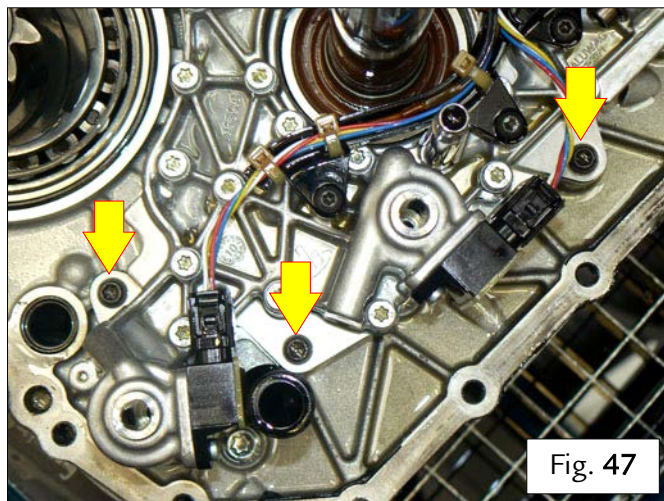


Fig. 47

- Hand-tighten the two new screws indicated fastening the SAP – Fig. 48.

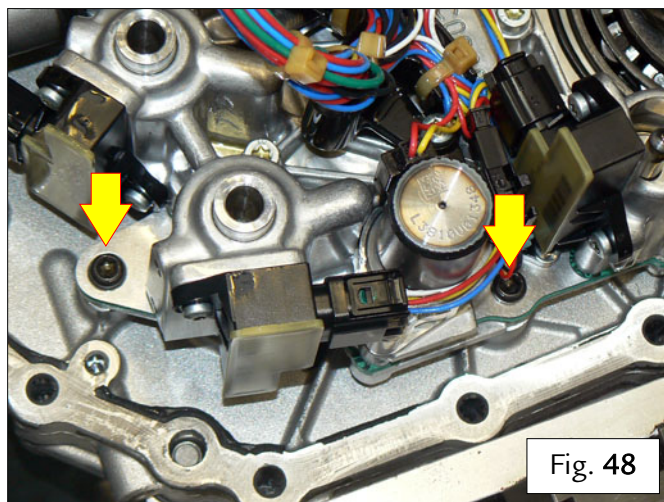


Fig. 48

- Definitely tighten the screws fitted previously to a torque of **11 - 13 Nm** in a cross pattern.



Ferrari North America

- Select the new fastener screws for the SAP with the respective washers (15), and apply Loctite 243 to the threads – Fig. 49.

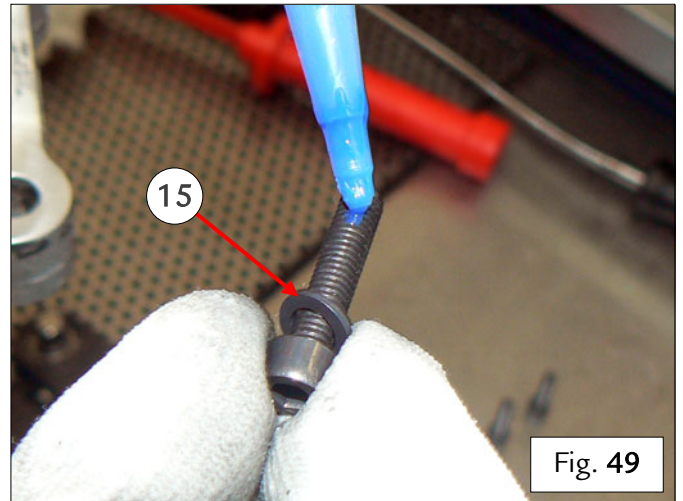


Fig. 49

- Hand-tighten the four new screws in the respective seats on the SAP – Fig. 50.
- Definitively tighten the screws to a torque of 6 - 7 Nm in a cross pattern – Fig. 50.

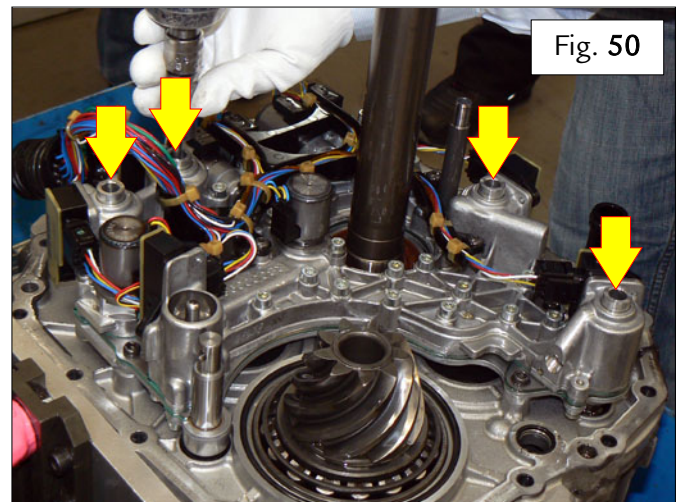


Fig. 50

- Lubricate the oil pump spindle and install vertically in the relative seat – Fig. 51.
- Turn the oil pump spindle to engage correctly in its seat: ensure that the spindle is inserted fully – Fig. 51.

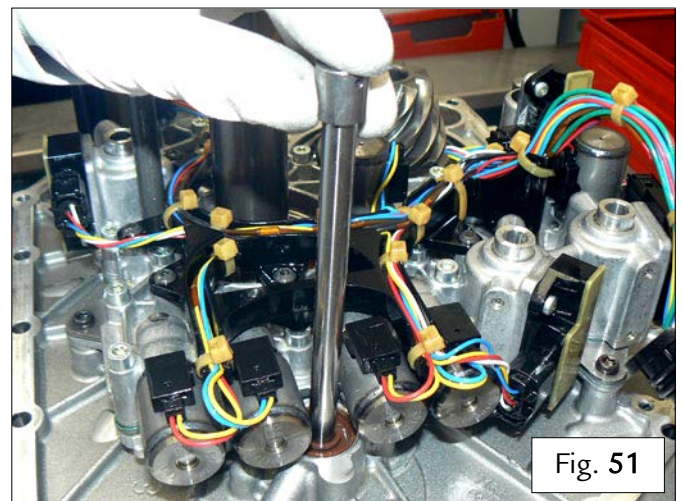


Fig. 51



Ferrari North America

- Install the new actuator bracket vertically – Fig. 52.

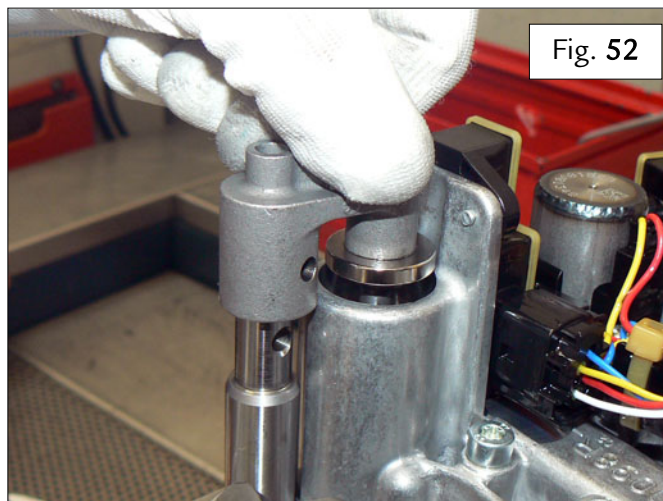


Fig. 52

- Fit the new park lock alignment pin (7) in the relative seat, aligning the actuator bracket correctly with its actuator rod – Fig. 53.

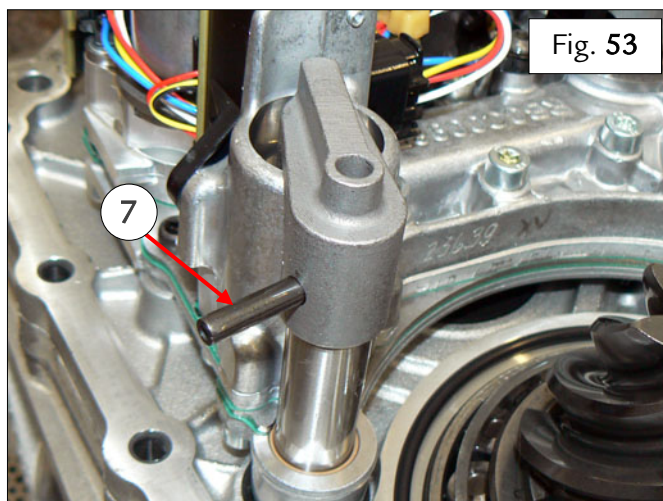


Fig. 53

- Using a mallet and a punch (16) with a diameter larger than the park lock alignment pin (7), install the pin in its seat – Fig. 54.

Note: The pin (4) must not protrude from the actuator bracket.

Note: To prevent possible damage to the actuator bracket when tapping it with the mallet, place a tool in the position indicated to oppose the impact of the mallet.

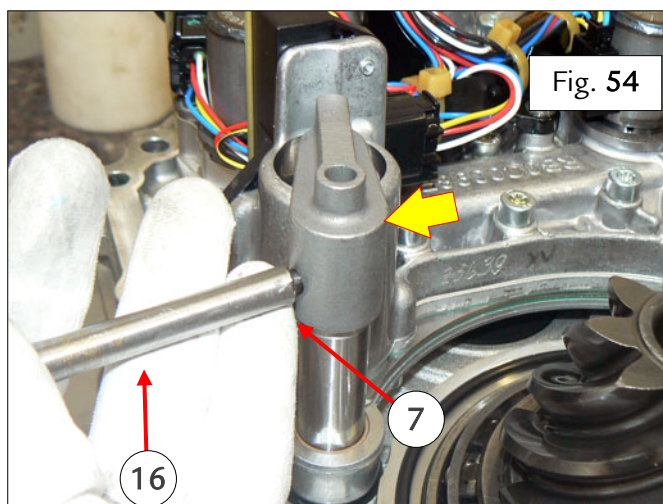
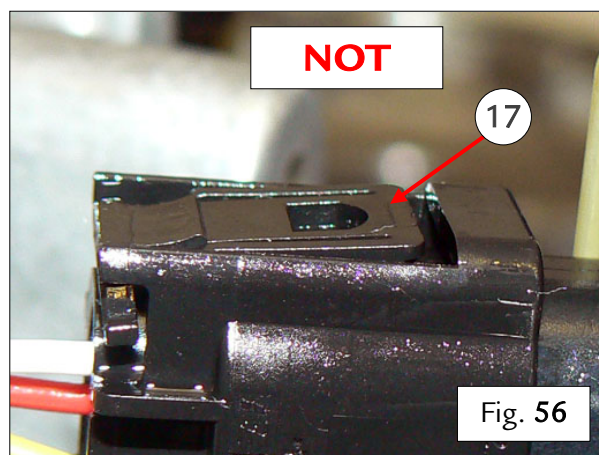
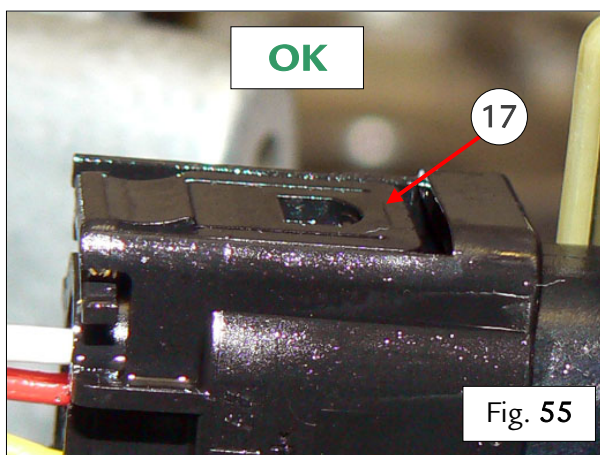


Fig. 54

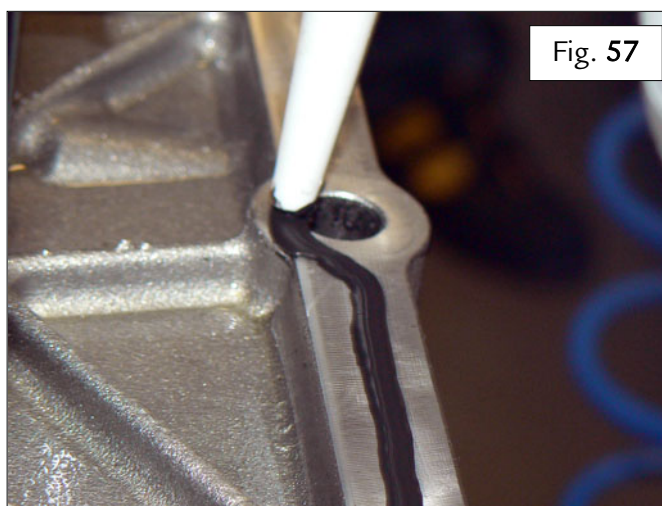


Ferrari North America

- **DO NOT TOUCH** the retainer clips (17) fastening the connections on the SAP.
Check that the connectors are connected correctly on the SAP; there is very little difference in appearance between a connector that is connected correctly to the sensor and an incorrectly connected connector. As it is possible that the connector retainer clip (17) may have been touched inadvertently during the previous operations, check the connectors before installing the differential housing. A correct connection (Fig. 55) and an incorrect connection (Fig. 56) are shown in the two photos below.



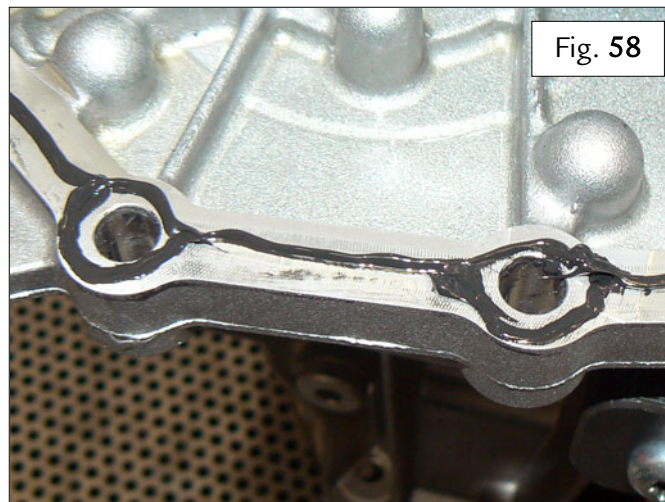
- Apply a continuous bead of **Loctite 5970** to the outer mating surface of the interface plate – Fig. 57.



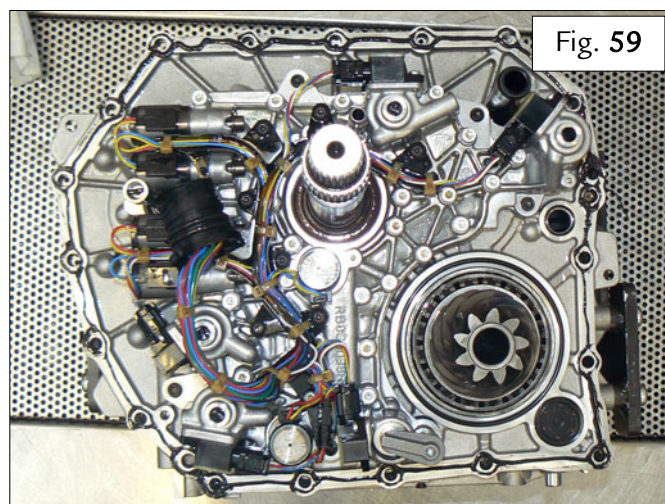


Ferrari North America

- Apply a continuous bead of **Loctite 5970** around the holes in the outer mating surface of the interface plate as shown in the photo aside – Fig. 58.

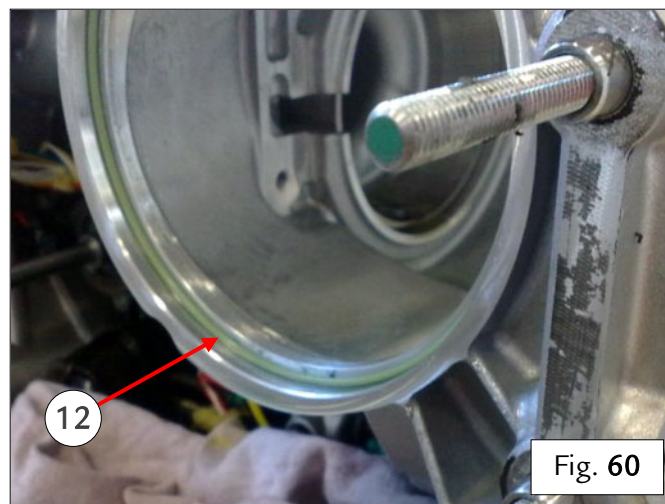


- The continuous bead of **Loctite 5970** must look like the example shown in the photo aside – Fig. 59.



For F12berlinetta ONLY

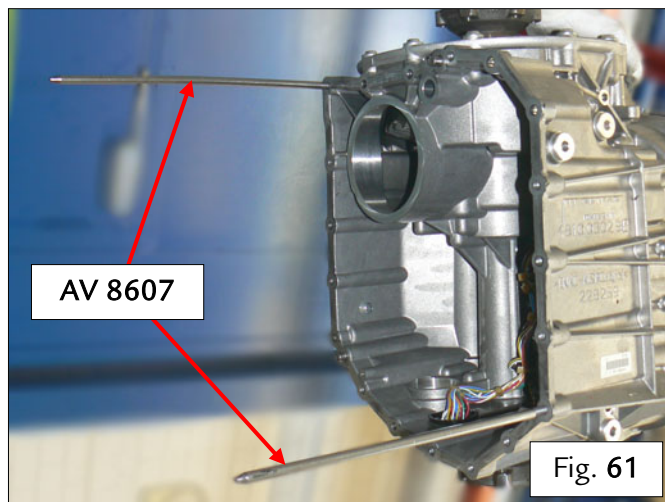
- Lubricate then install the new seal (12) in the differential housing, on the side in contact with the interface plate – Fig. 60.



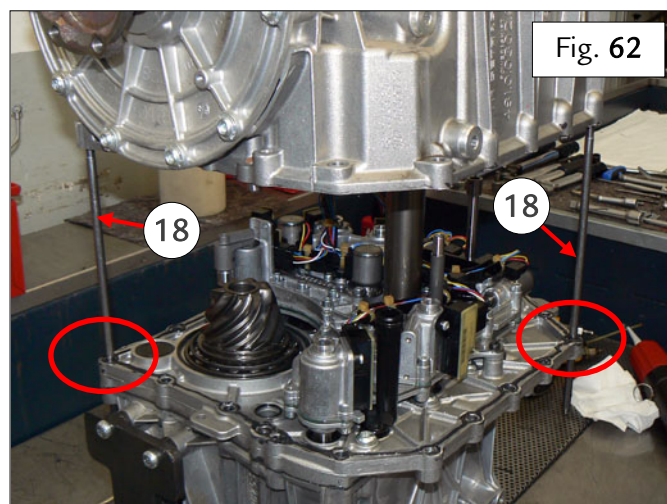


Ferrari North America

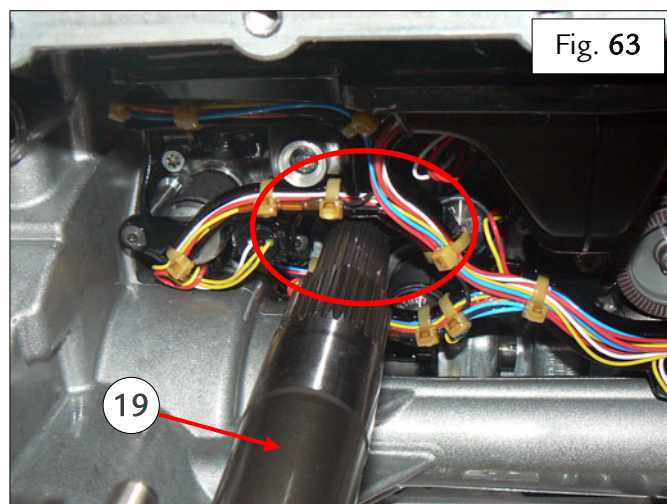
- Fit the two alignment pins **95978607 (8607)** in the positions on the differential housing indicated in the photo aside – Fig. 61.



- Using the hoist, align the differential housing with the interface plate, aligning the pins **(18)** of tool **AV 8607** in the positions indicated in the photo aside – Fig. 62.



- Ensure that as the differential housing is moved forward, the primary shaft **(19)** does not interfere with the wiring of the CCP in the area indicated in the photo aside – Fig. 63.

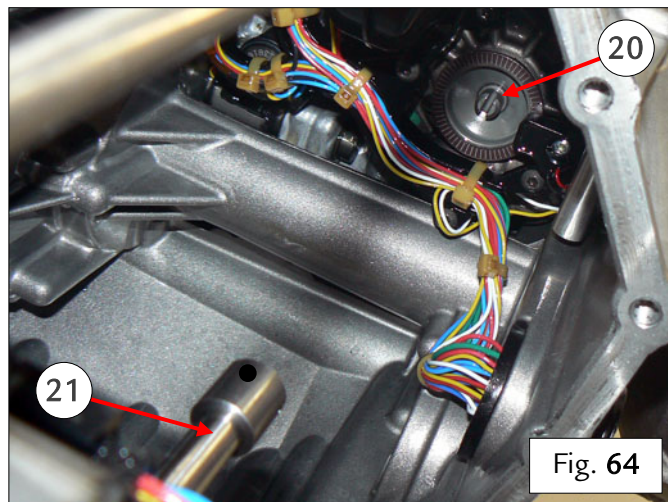




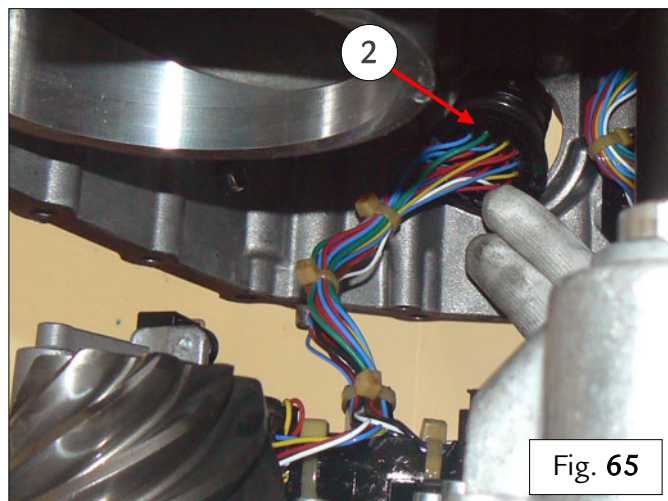
Ferrari North America

- Rotate the clutch to align the respective seats of the shaft (21) and the oil pump (20) – Fig. 64.

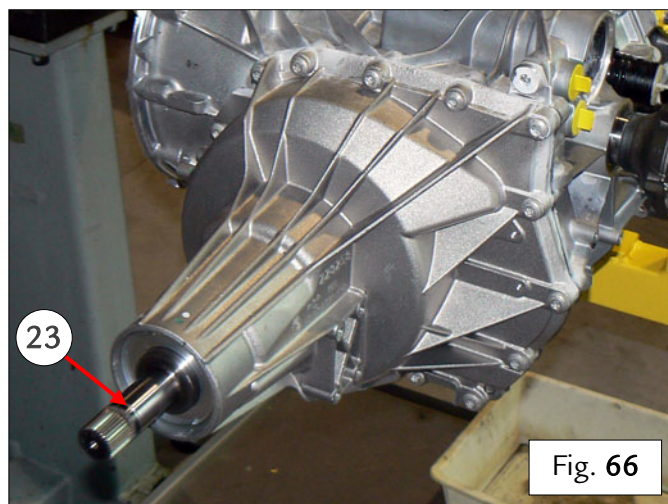
Note: the pin on the oil pump spindle (21) must be aligned in the respective seat on the pump (20). **DO NOT TRY TO FORCE THE PARTS TOGETHER IF RESISTANCE IS ENCOUNTERED.**



- From inside the differential housing, push the SAP connection (2) through the relative hole, fastening in the correct position – Fig. 65.



- Continue to move the differential housing forward slowly, proceeding carefully; a few centimeters before the parts are mated, if necessary, turn the front flange (23) (for **Ferrari California**) or the clutch shaft (for the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**) to definitively align the components – Fig. 66.





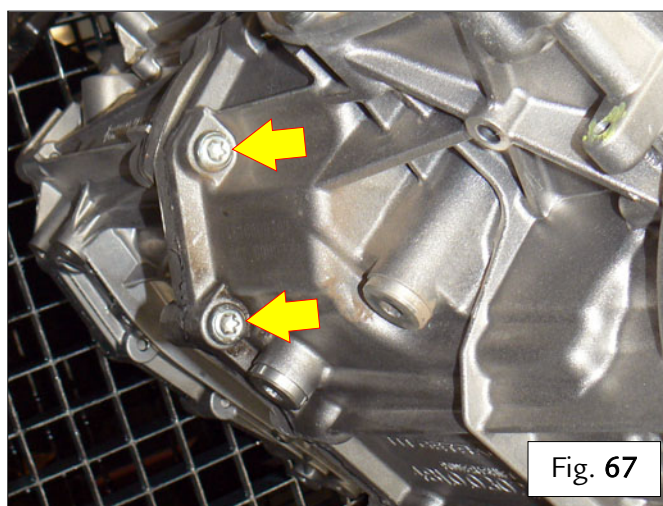
Ferrari North America

- IMPORTANT -

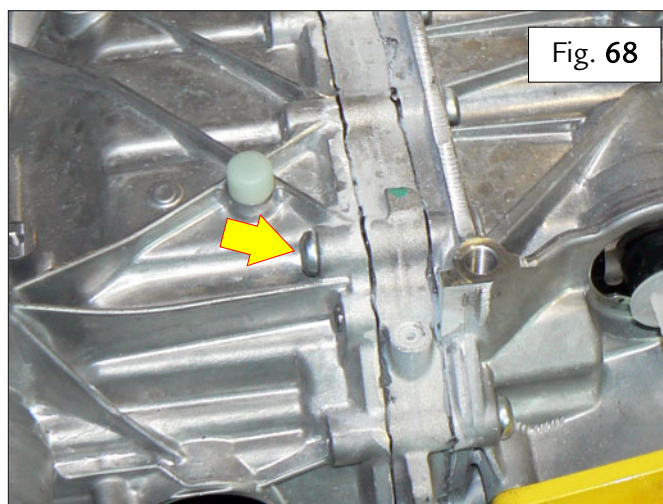
DO NOT definitively tighten the screws fastening the two housings until the mating surfaces of the two housings are perfectly in contact.

DO NOT attempt to force the two housings together with a rubber mallet.

- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 67.



- Hand-tighten the new screw indicated fastening the gearbox to the interface plate – Fig. 68.

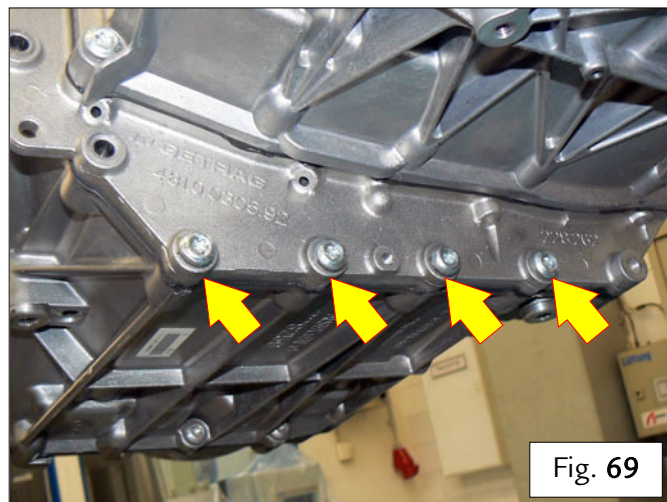




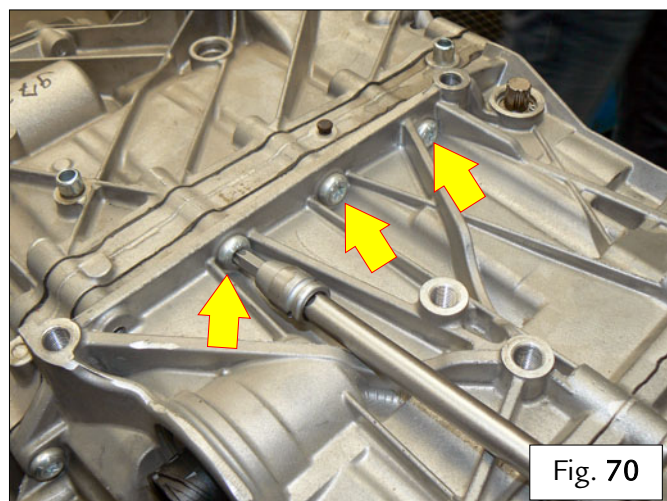
Ferrari North America

- Remove the alignment pins **95978607 (AV 8607)** from the differential housing.

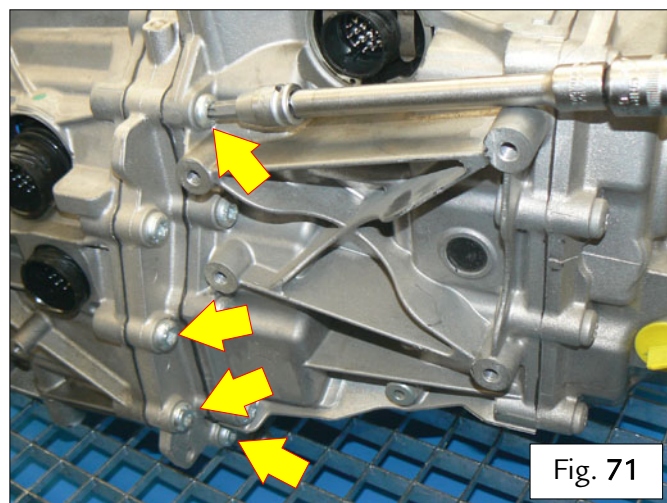
- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 69.



- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 70.



- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 71.





Ferrari North America

- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 72.
- Tighten the nineteen screws fitted previously to a torque of 34 ± 1.2 Nm in a cross pattern.



Fig. 72

For F12berlinetta ONLY

- Hand-tighten the new ring nut (5) in the relative seat – Fig. 73.
- Using the tool 95978619 (AV 8619) tighten the new ring nut (5) fastening the plate to the differential housing to a torque of 30 Nm – Fig. 73.

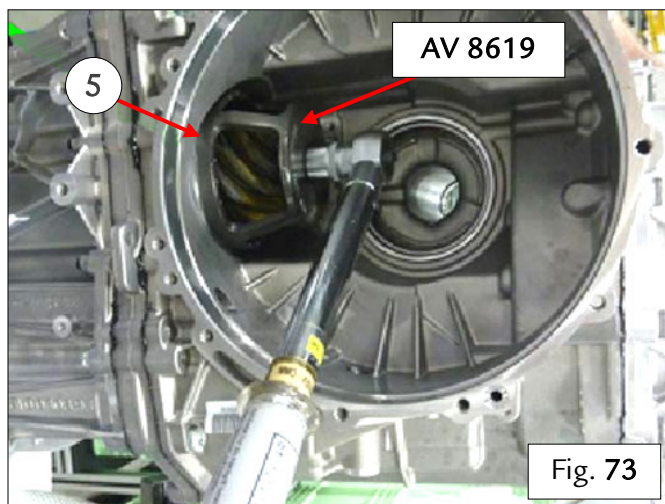


Fig. 73

For F12berlinetta ONLY

- Fit the new bracket (4) in the relative seat against the ring nut (5), then tighten the new screws indicated to a torque of $9 \text{ Nm} \pm 1 \text{ Nm}$ – Fig. 74.

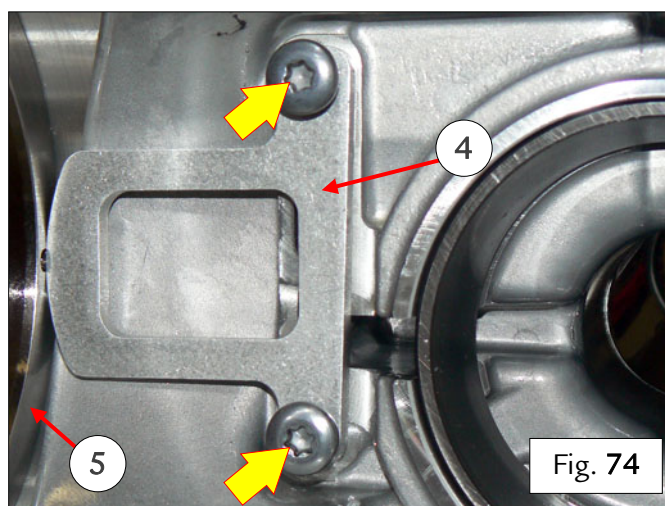


Fig. 74



Ferrari North America

- For the F12berlinetta ONLY, refit the differential cover (as described in IT 2076 of February 2013).
- Visually inspect the seal surface of the adapter (3) in the differential housing – Fig. 75
- Lubricate the two O-rings (24), then fit the adapter (3) onto the respective connector, aligning correctly as indicated in the photo aside – Fig. 75.
- Insert the adaptor (3) (assembled onto the connector) in the respective hole in the differential housing, then fasten by tightening the new screws as indicated to a torque of 10 - 11 Nm – Fig. 76.
- Fit the new retainer clip (1) onto the connector to fasten – Fig. 77.

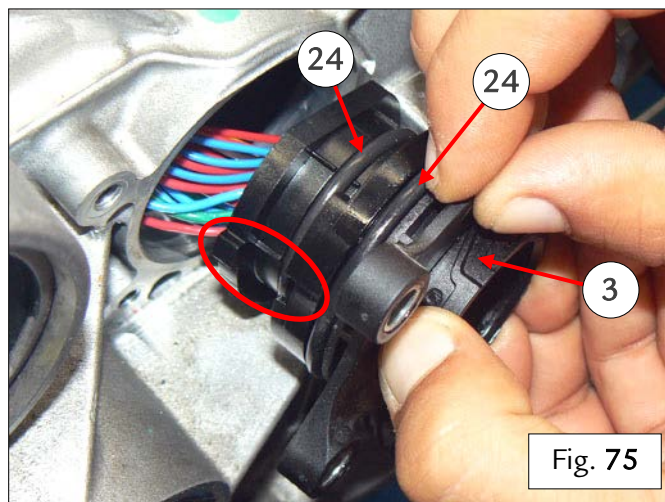


Fig. 75

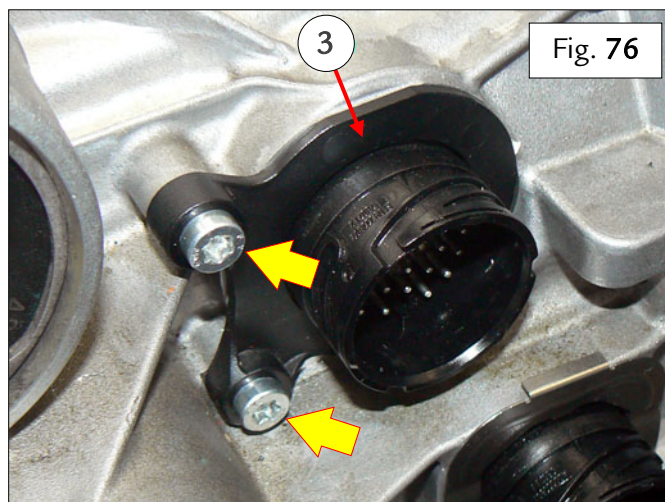


Fig. 76

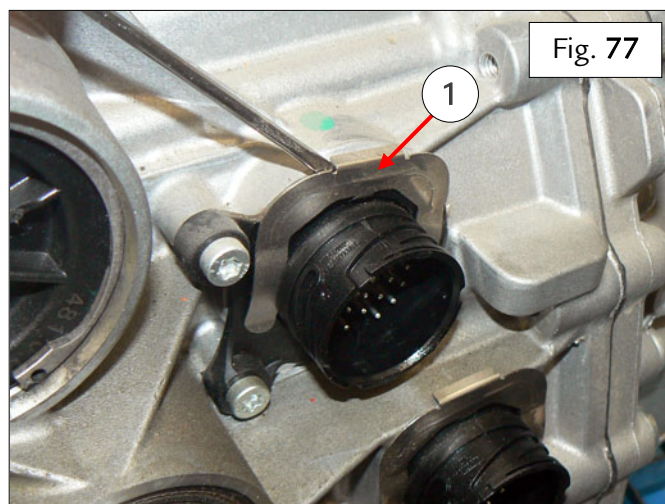


Fig. 77

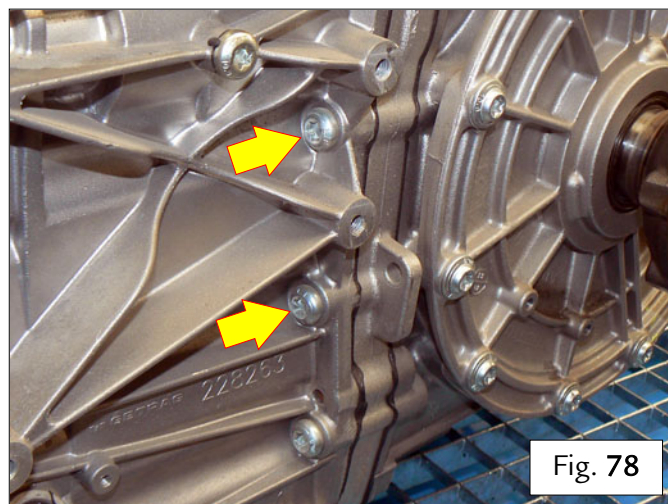


Ferrari North America

- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox from the support tool **AM 107314**.

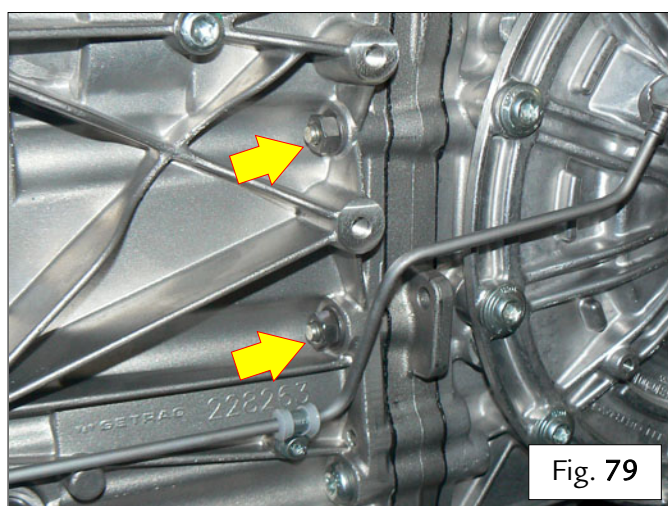
For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY

- On the right hand side of the DCT gearbox, tighten the indicated screws to a torque of 34 ± 1.2 Nm – Fig. 78.

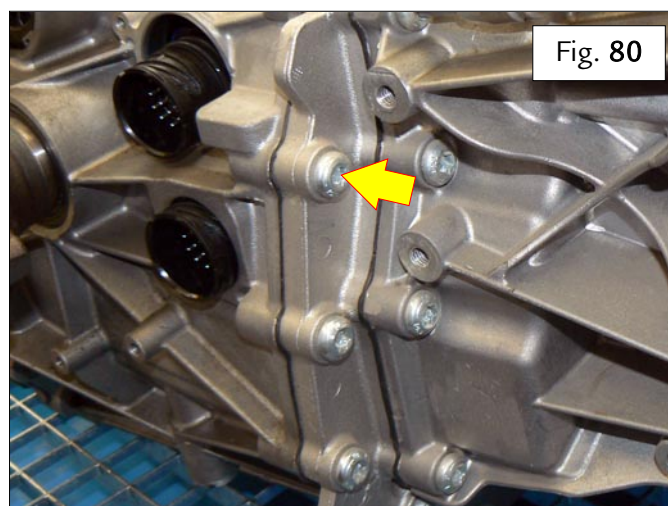


For F12berlinetta ONLY

- On the right hand side of the DCT gearbox, tighten the indicated nuts to a torque of 34 ± 1.2 Nm – Fig. 79.



- On the left hand side of the DCT gearbox, tighten the indicated screw to a torque of 34 ± 1.2 Nm – Fig. 80.





Ferrari North America

- For the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**, refit the E-DIFF pipe (as described in **TI 2076** of February 2013).
- Using the bracket **AV 8606** and the lift hook, mount the DCT gearbox again on the support tool **AM 107314**, and perform the **procedure for pressurizing the system** as described at the end of this document.
- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox again from the support tool **AM 107314**.
- For the **Ferrari California, FF and F12berlinetta ONLY**, refit the complete DCT heat shields and mounting struts (as described in paragraph **C2.03** step 1 of the Workshop Manual).
- For **Ferrari California** vehicles with SINGLE OIL HEAT EXCHANGER ONLY: refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.05** steps 2 and 4 of the Workshop Manual).
- For the **FF and F12berlinetta ONLY**, refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.04** steps 2 and 4 of the Workshop Manual).
- Refit the complete DCT gearbox in the vehicle (as described in paragraph **C2.03** step 2 of the Workshop Manual). **Note:** When refilling the GL oil and ATF fluid and inspecting the relative levels, replace all the oil/fluid plugs and the relative seals removed during the procedures described herein.
- For the **Ferrari California, 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.03** step 2 of the Workshop Manual).
- For the **FF and F12berlinetta**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.02** step 2 of the Workshop Manual).
- For the **Ferrari California**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.06** step 2 of the Workshop Manual).
- For the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.05** step 2 of the Workshop Manual).
- **Mark the repaired gearbox for identification** as described at the end of this document.
- Perform the cycle **Self acquisition procedure** described at the end of this document.

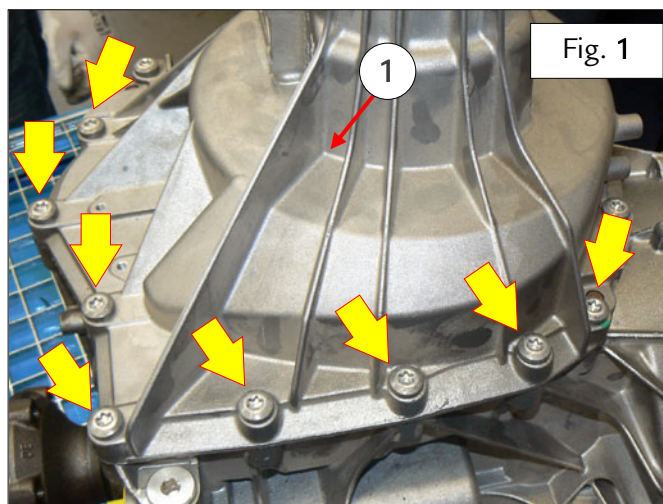


Ferrari North America

2. CCP replacement

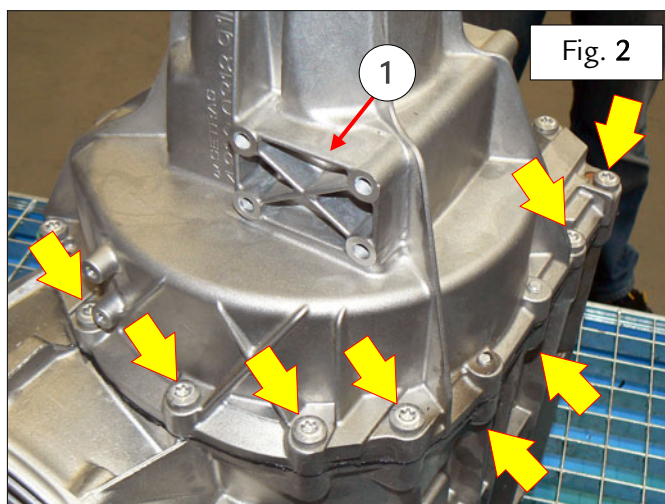
For Ferrari California, FF and F12berlinetta ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 1.



For Ferrari California, FF and F12berlinetta ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 2.

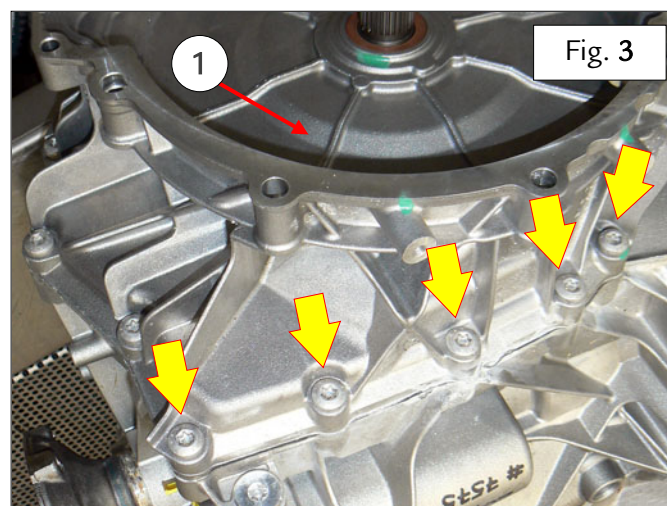




Ferrari North America

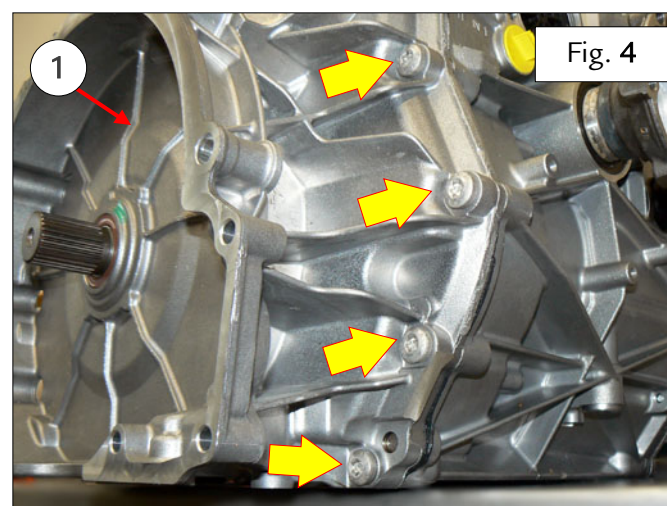
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 3.



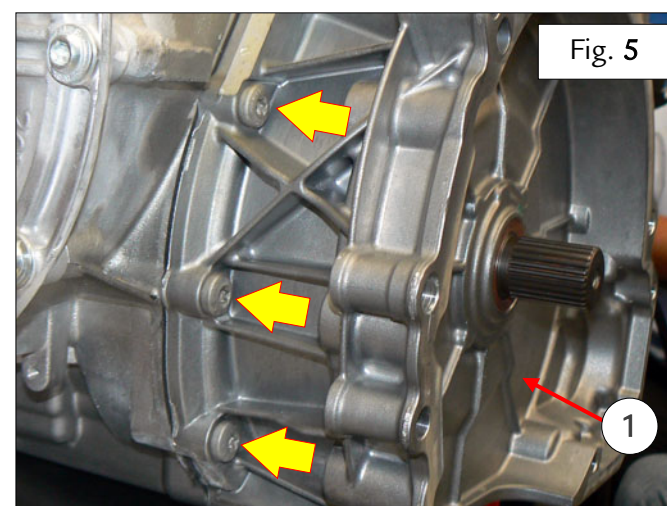
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 4.



For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 5.

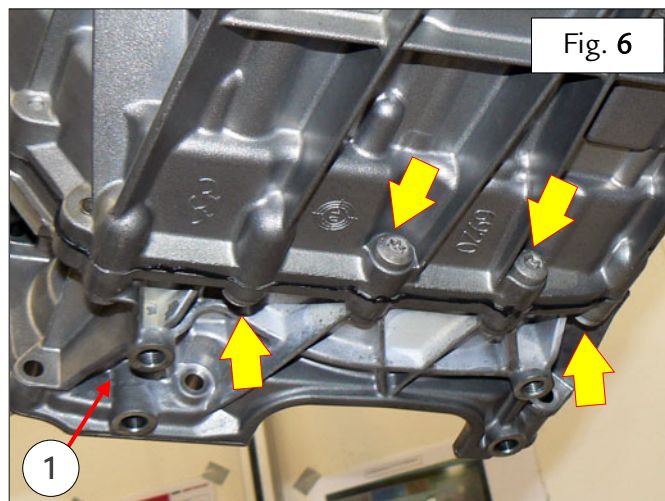




Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

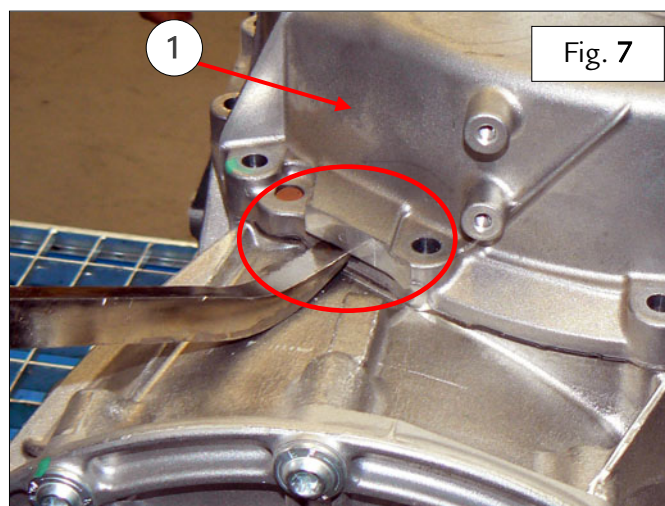
- Remove the indicated screws fastening the connector casing (1) – Fig. 6.



- Using a crowbar placed in the indicated leverage recess on the gearbox, detach the connector housing (1) – Fig. 7.

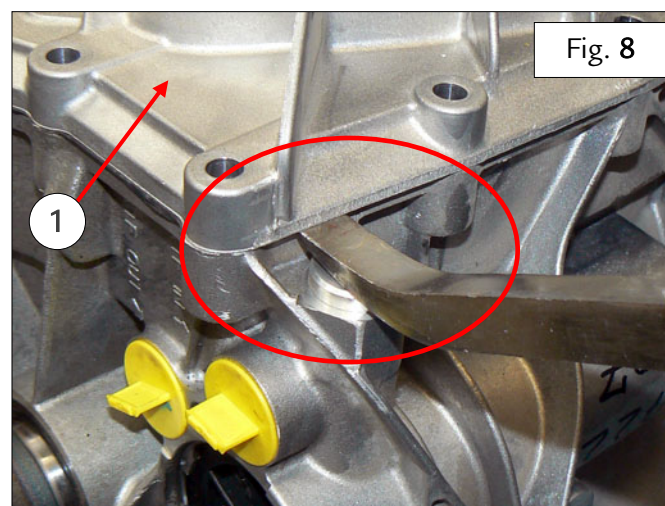
Note: Insert a Teflon spatula between the lever and the differential housing to prevent damage.

Note: There may be some spillage of residual oil when detaching the connector housing; take all necessary precautions to limit and collect the spillage.



- Using a crowbar placed in the indicated leverage recess on the gearbox, detach the connector housing (1) – Fig. 8.

Note: There may be some spillage of residual oil when detaching the connector housing; take all necessary precautions to limit and collect the spillage.

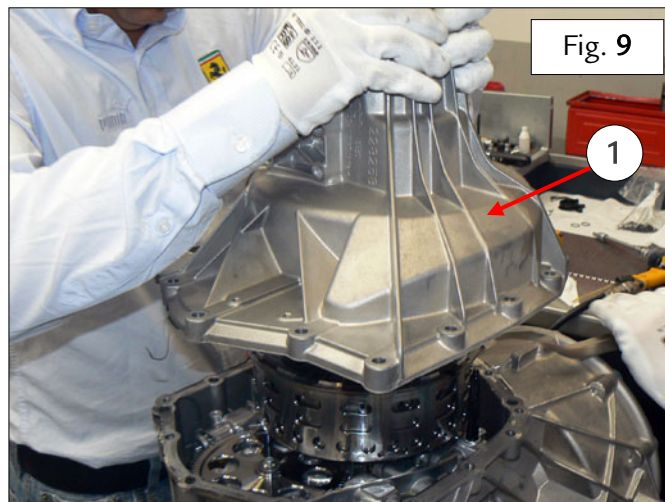




Ferrari North America

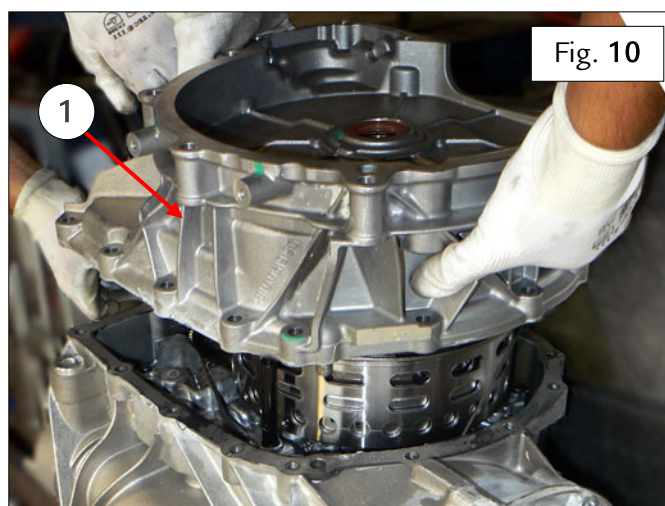
For Ferrari California, FF and F12berlinetta
ONLY

- Separate the connector casing (1) from the differential housing and place it in a suitable safe place – Fig. 9.

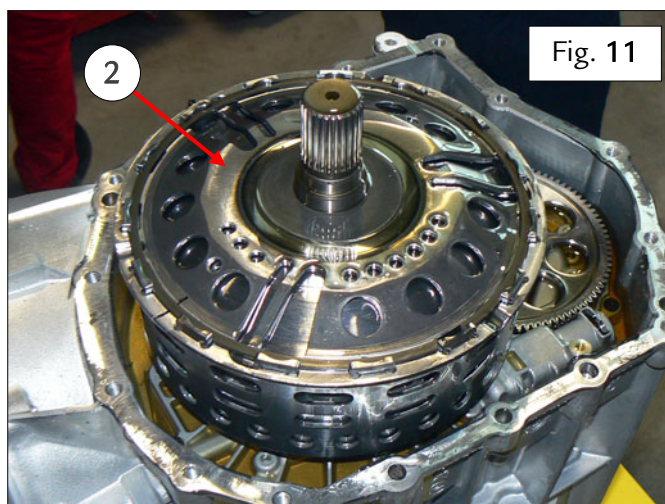


For the 458 Italia, 458 Spider, 458
Speciale and 458 SpecialeA ONLY

- Separate the connector casing (1) from the differential housing and place it in a suitable safe place – Fig. 10.



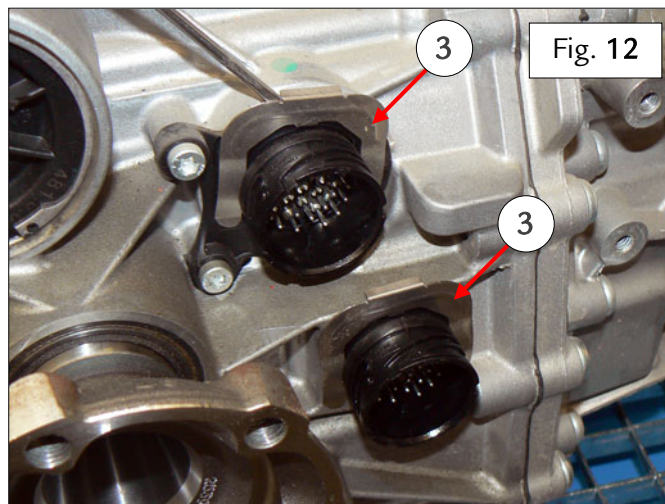
- Remove the clutch basket (2) from the CCP vertically – Fig. 11.





Ferrari North America

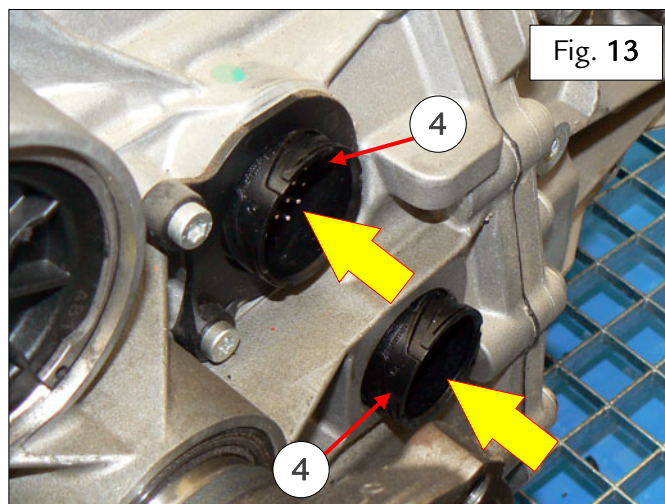
- Remove the retainer clips (3) from their seats – Fig. 12.



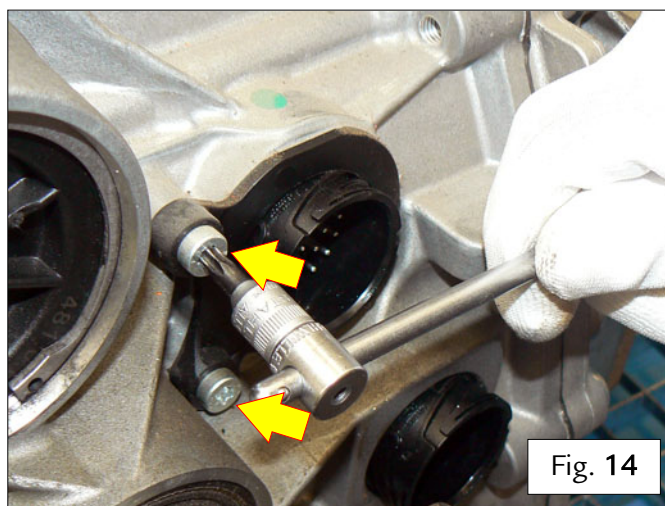
- Gently fit the connections (4) in the gearbox housing by hand – Fig. 13.

Note: Do not force the connectors (4) into the gearbox housing, as this may damage the sensors in the SAP and CCP, which are located immediately behind the connectors.

Note: The lower connection (4) is for the CCP. Only push this connection into the gearbox housing after separating the gearbox housing from the SAP plate.



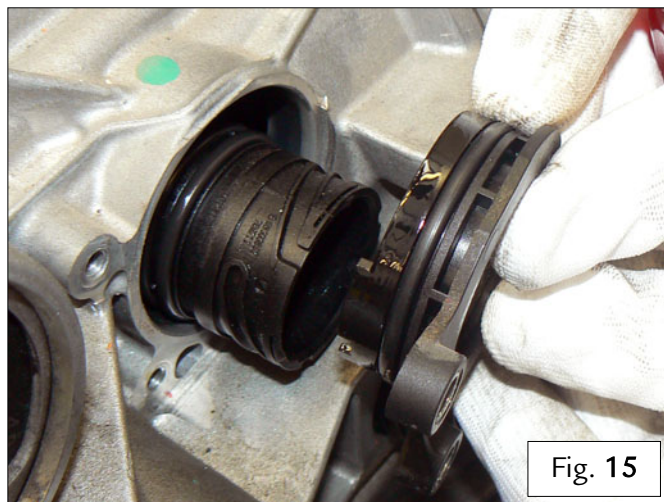
- Remove the indicated screws fastening the adapter – Fig. 14.



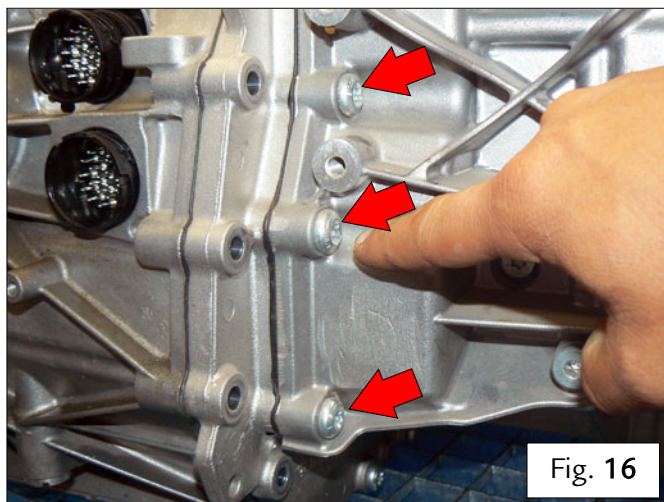


Ferrari North America

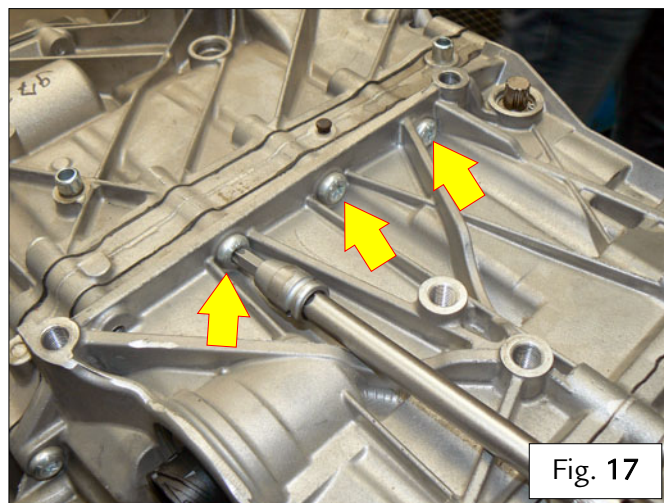
- Remove the adapter – Fig. 15.



- The next step consists in detaching the differential housing from the gear housing by undoing the 16 fasteners (3 have already been removed previously).
- **DO NOT undo the indicated screws for any reason** – Fig. 16.



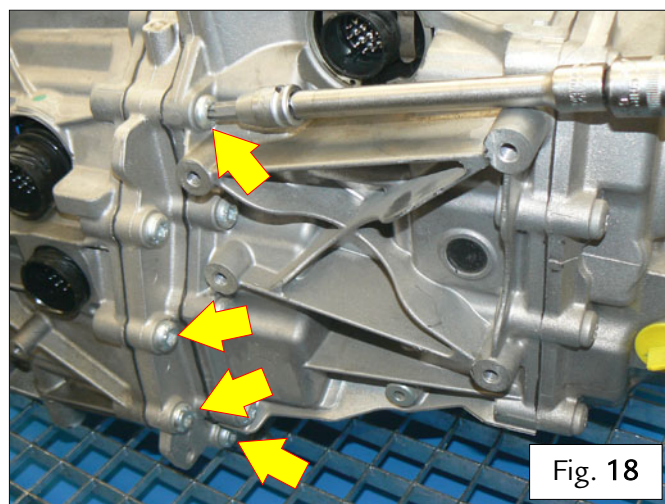
- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 17.





Ferrari North America

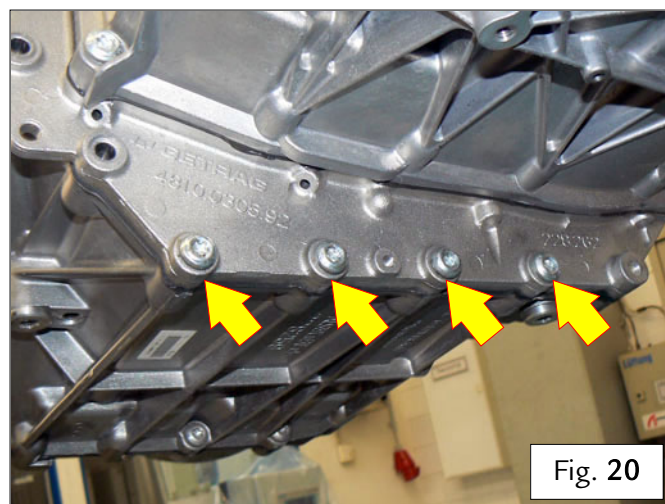
- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 18.



- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 19.



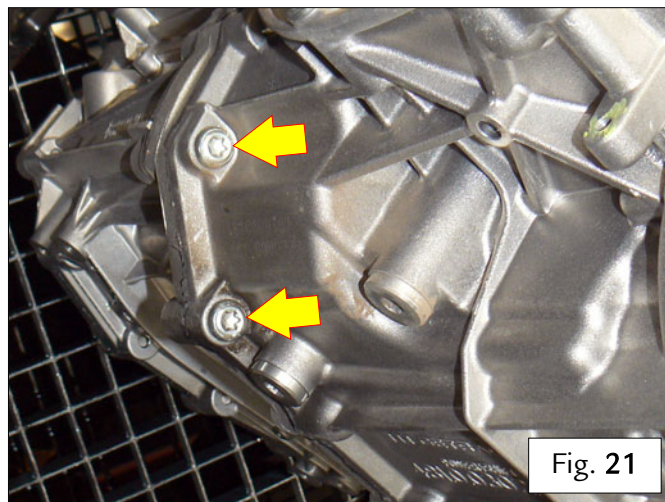
- Remove the indicated screws fastening the gearbox to the interface plate – Fig. 20.



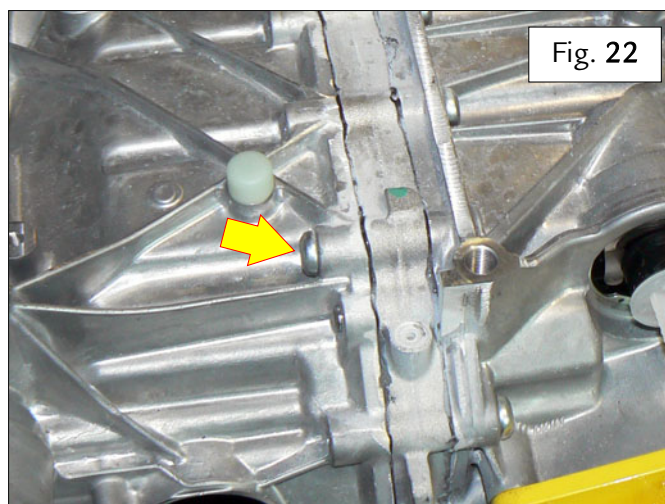


Ferrari North America

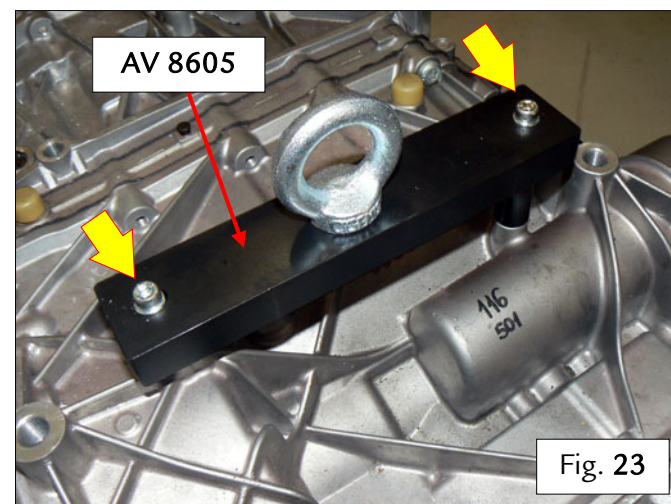
- Remove the remaining screws indicated fastening the gearbox to the interface plate – Fig. 21.



- Remove the remaining screws indicated fastening the gearbox to the interface plate – Fig. 22.



- Fit the support bracket **95978605 (AV 8605)** in the relative seat on the differential housing, tightening the indicated screws – Fig. 23.
- Hitch a lift hook to the eye bolt on bracket **AV 8605**, and tighten the lift straps – Fig. 23.



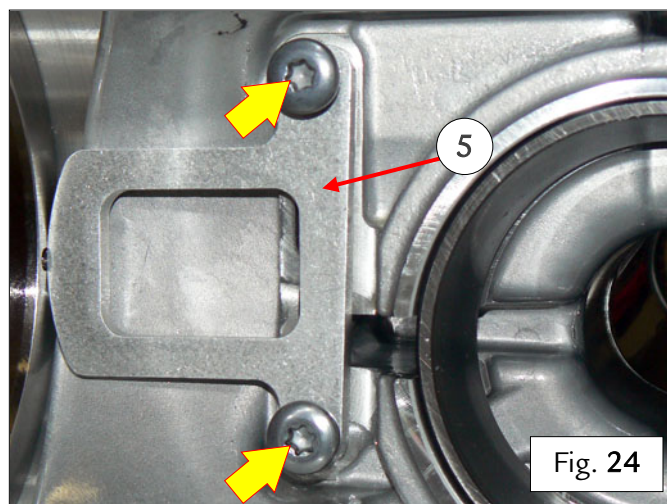


Ferrari North America

- For the F12berlinetta ONLY, remove the differential cover (as described in IT 2076 of February 2013).

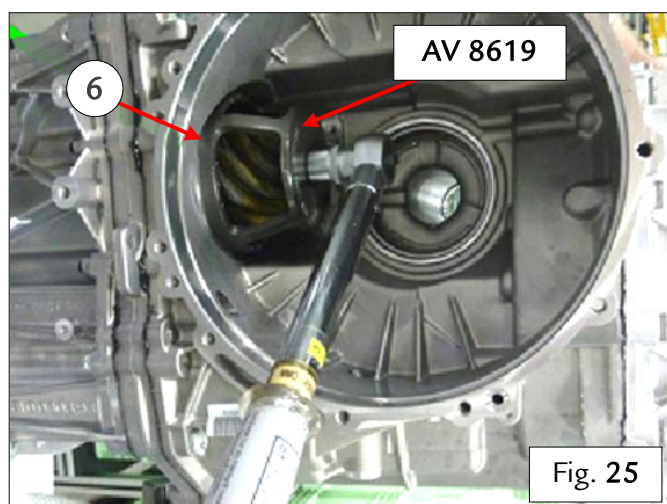
For F12berlinetta ONLY

- Remove the bracket (5), undoing the indicated screws – Fig. 24.



For F12berlinetta ONLY

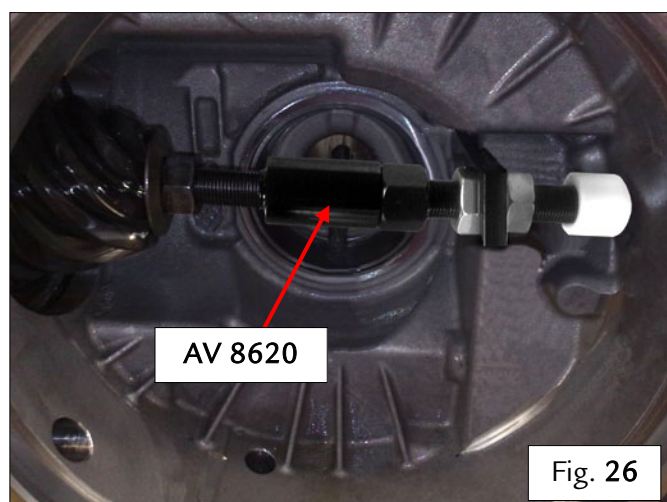
- Using the tool 95978619 (AV 8619), remove the ring nut (6) fastening the plate to the differential housing – Fig. 25.



For F12berlinetta ONLY

- Using the extractor tool 95978620 (AV 8620), separate the differential housing from the plate – Fig. 26.

Note: There may be some spillage of residual oil when detaching the differential housing; take all necessary precautions to limit and collect the spillage.





Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY

- Using a crowbar placed on the indicated leverage lug on the gearbox, detach the differential housing – Fig. 27.

Note: There may be some spillage of residual oil when detaching the differential housing; take all necessary precautions to limit and collect the spillage.

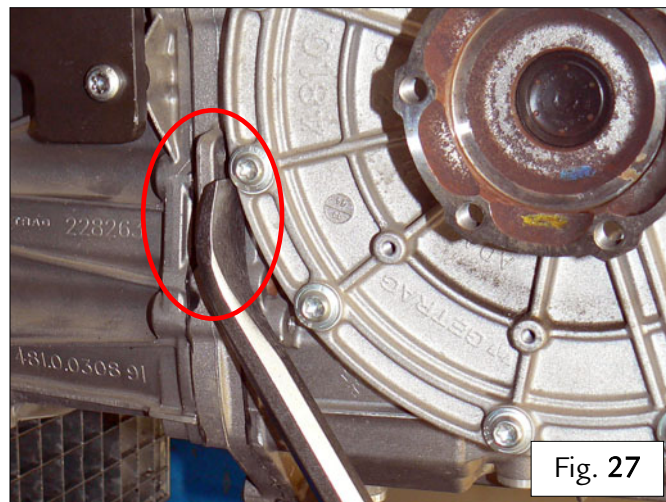


Fig. 27

- Pull out the differential housing by a few centimeters and push the connections (4) inside through the hole – Fig. 28.

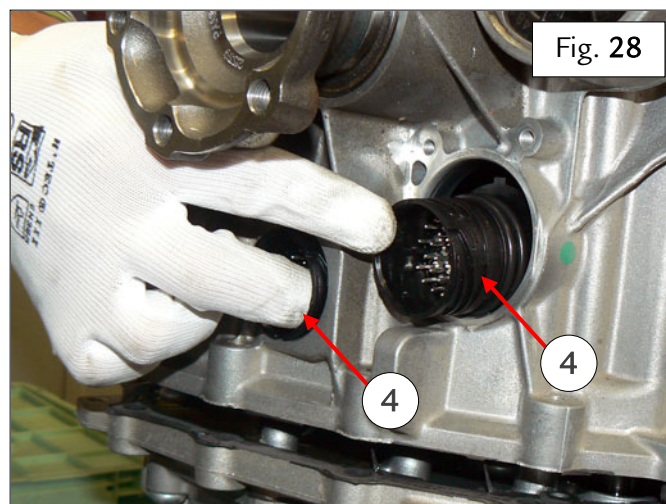


Fig. 28

- Remove the differential housing completely and set down vertically on a plastic surface to prevent damage to seal surfaces.
- Remove the indicated O-ring and close the orifice on the interface plate with the plug 95978611 (AV 8611) – Fig. 29.

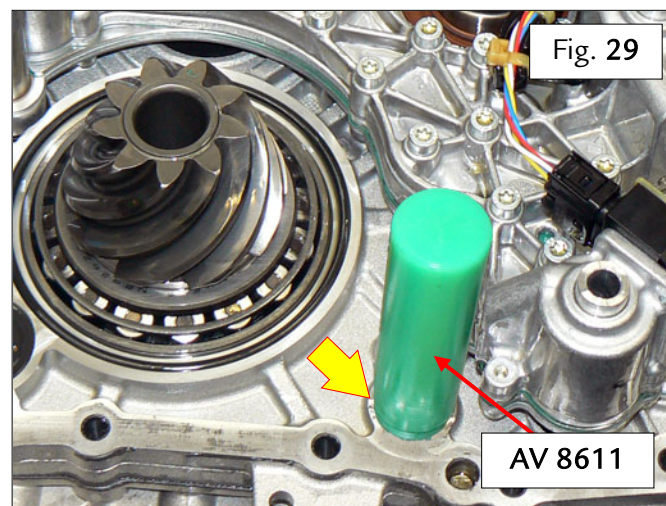


Fig. 29



Ferrari North America

- Inside the clutch housing, remove the indicated screws fastening the CCP (7) – Fig. 30.
- Lift the CCP (7) off the differential housing – Fig. 30.

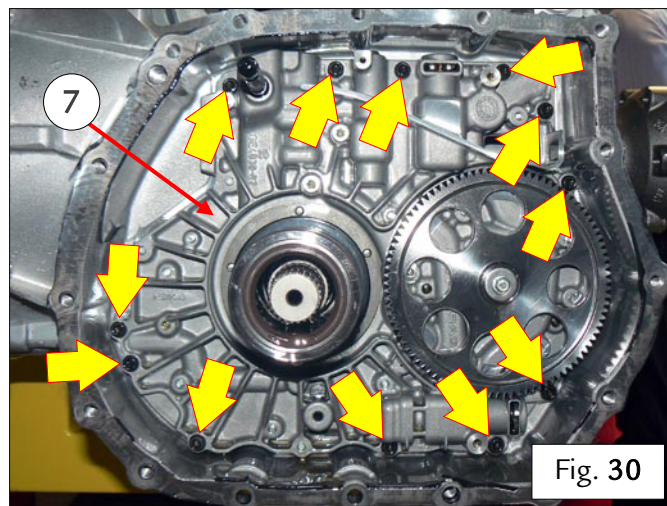


Fig. 30

- Retrieve the indicated CCP alignment pins on the differential housing – Fig. 31.

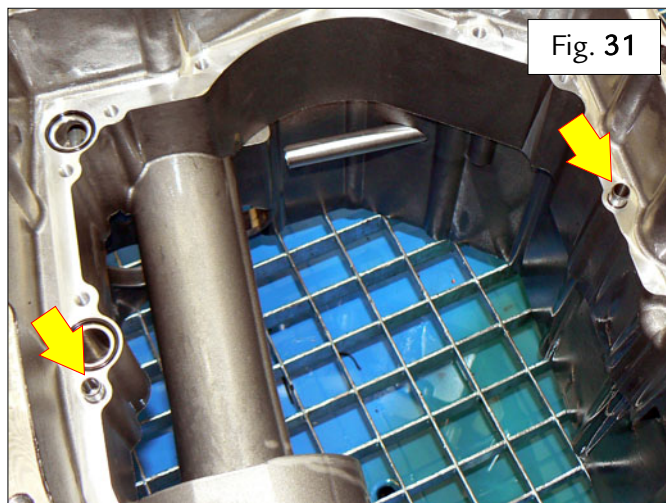


Fig. 31

- Remove the two O-rings from the differential housing and obstruct the holes with suitable plugs – Fig. 32.

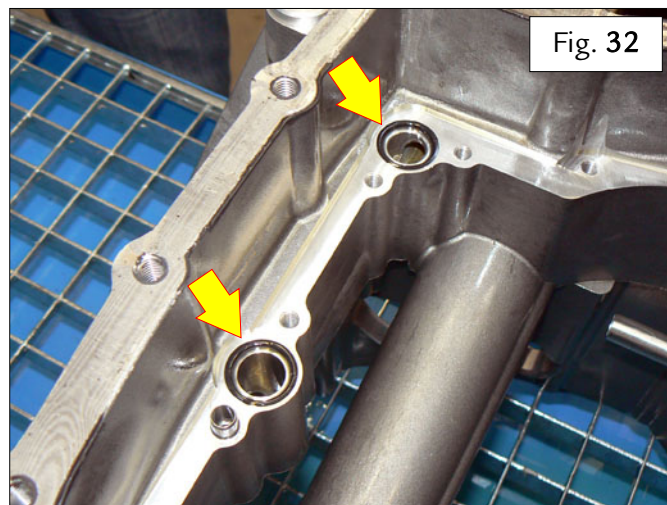


Fig. 32



Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta only

- Remove the O-ring from the differential housing and close the orifice with a suitable plug – Fig. 33.

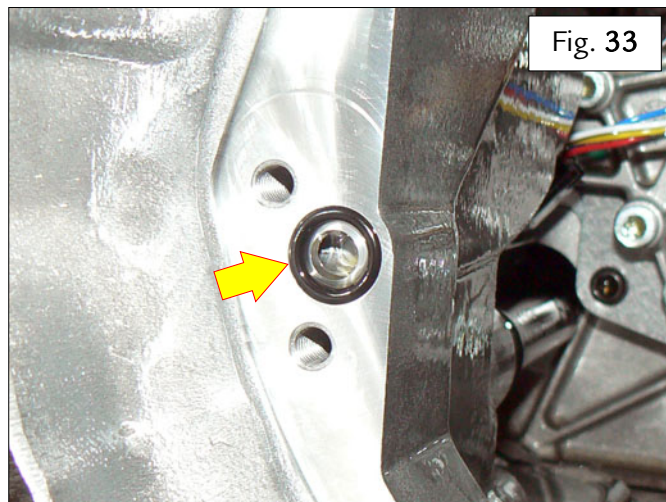


Fig. 33

- Using a Teflon spatula, remove all traces of sealant from the surfaces of the differential housing and the surfaces of the connector casing – Fig. 34.

Note: Take care not to damage the surfaces of the two housings.

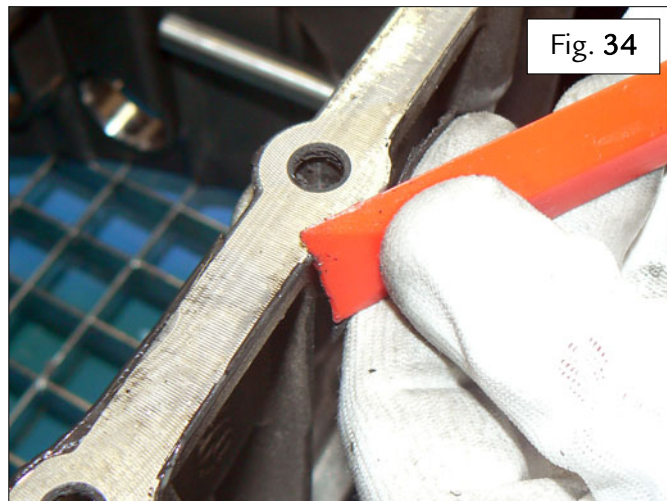


Fig. 34

- Using a Teflon spatula, remove all traces of sealant from the surfaces of the differential housing and the surfaces of the connector casing – Fig. 35.

Note: Take care not to damage the surfaces of the two housings.

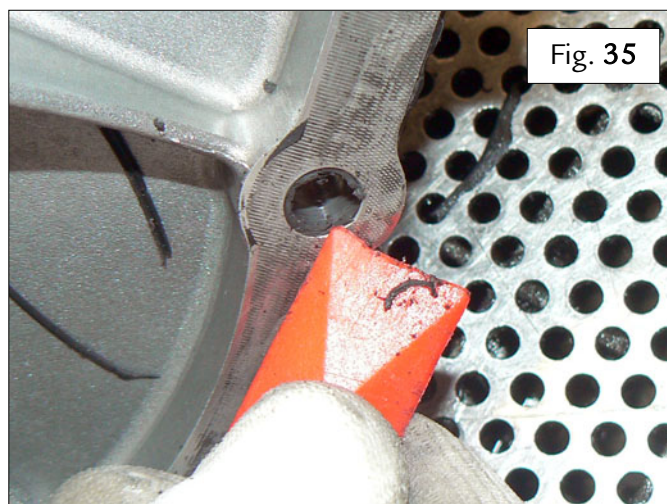
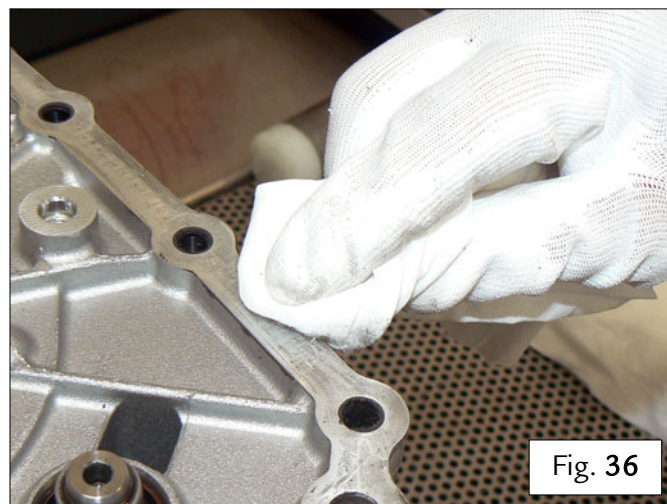


Fig. 35



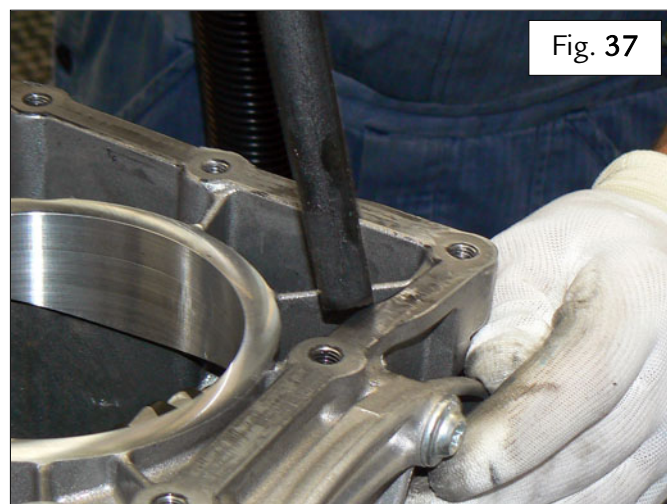
Ferrari North America

- Using a lint-free cloth and heptane, remove all traces of adhesive and/or dirt from the surfaces and holes of the differential housing and from the connector casing – Fig. 36.

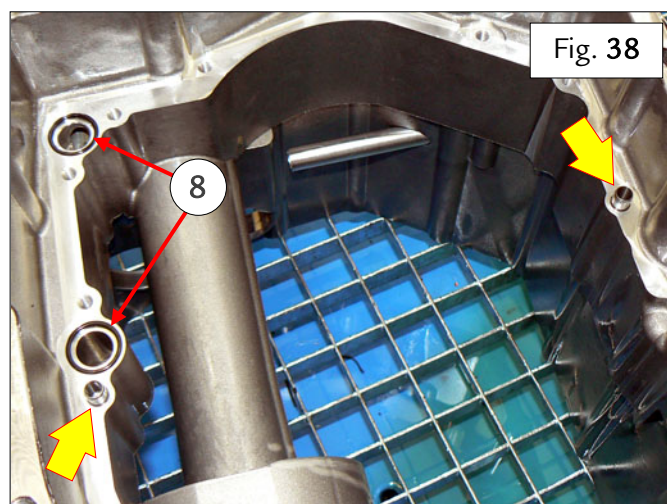


- Clean all residue of adhesive and/or dirt from the surfaces of the differential housing and from the connector casing – Fig. 37.

Note: DO NOT blow or use cloths to remove dirt and/or dust.



- Remove the plugs fitted previously in the oil orifices – Fig. 38.
- Fit new O-rings (8) in the relative seats on the differential housing – Fig. 38.
- If not already fitted on the new CCP, install the new CCP alignment pins on differential housing in the indicated positions – Fig. 38.





Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta only

- Fit a new O-ring in the relative seat on the differential housing – Fig. 39.

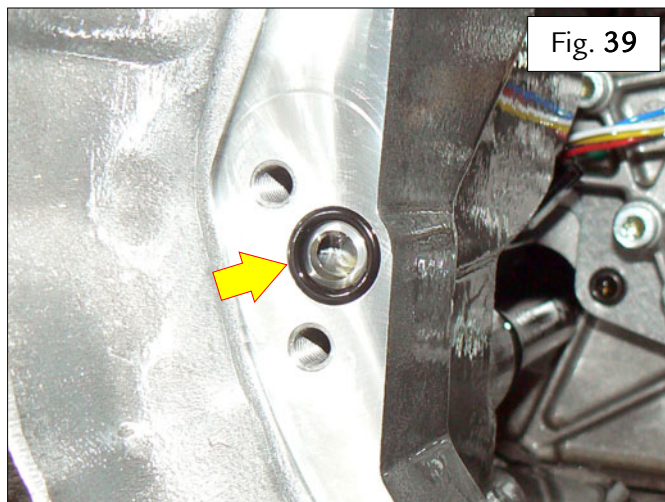


Fig. 39

- IMPORTANT -

Do not separate the clutch basket from the relative CCP for any reason.

- Before fitting the CCP on the differential housing, check that the CCP connectors are securely connected to the respective sensors – Fig. 40

Note: The fastener tab clicks audibly when the connector is connected correctly.

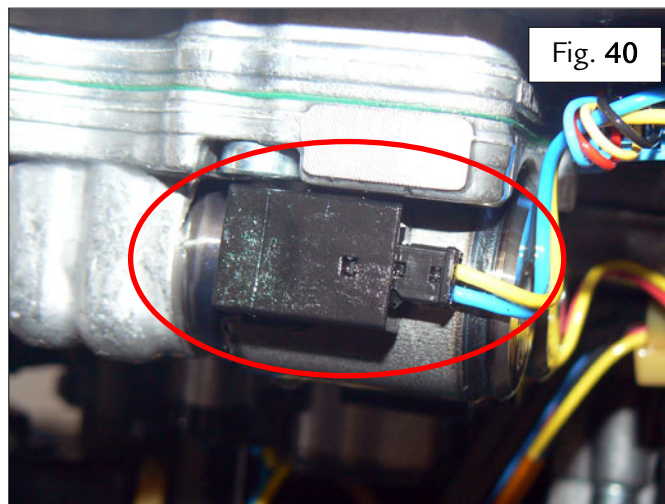
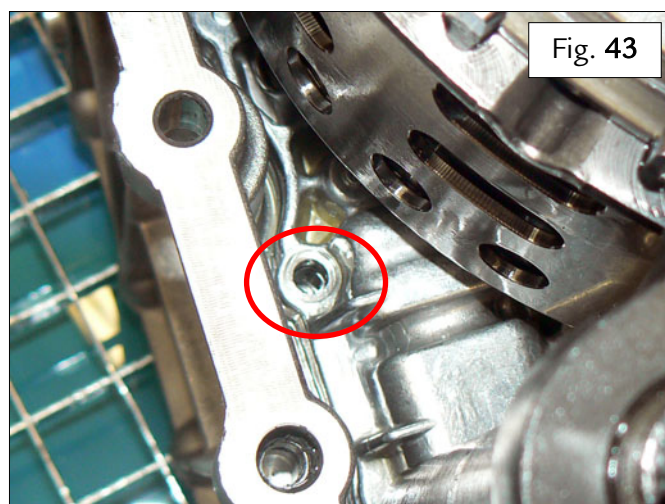
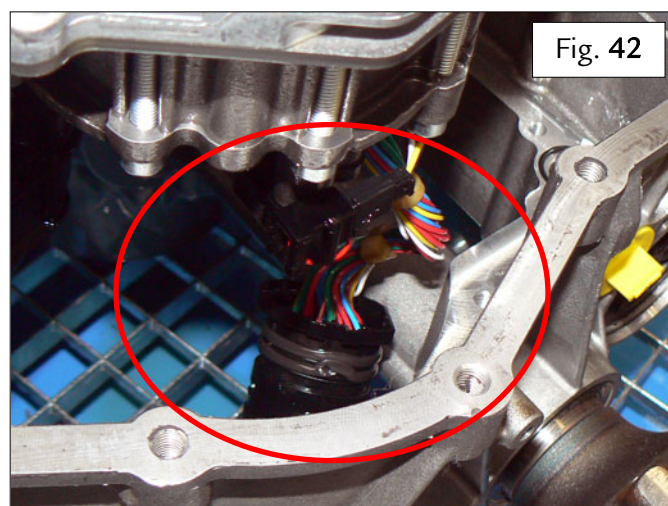
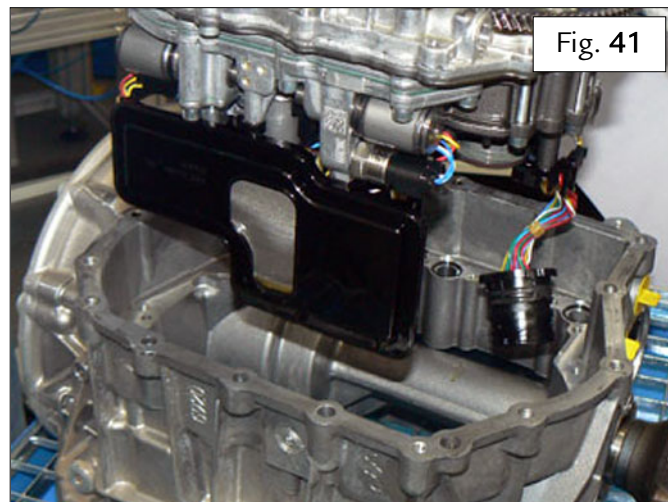


Fig. 40



Ferrari North America

- Fit the new CCP in the relative seat on the differential housing – Fig. 41.
- Lower the CCP, taking care not to damage the relative connector – Fig. 42.
- Accompany the connector into the connector casing as shown in the photo aside – Fig. 42.
- Lower the CCP completely, ensuring that the highlighted pin is correctly aligned – Fig. 43.





Ferrari North America

- Lower the CCP completely, ensuring that the highlighted pin is correctly aligned – Fig. 44.

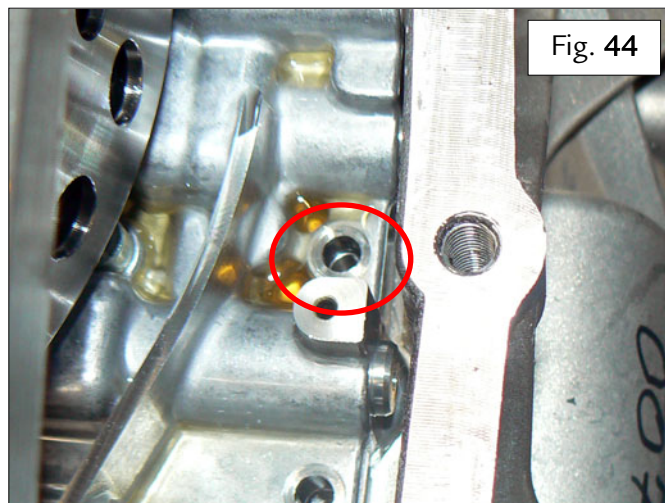


Fig. 44

- Select new fastener screws for the CCP and apply **Loctite 243** to the threads – Fig. 45.

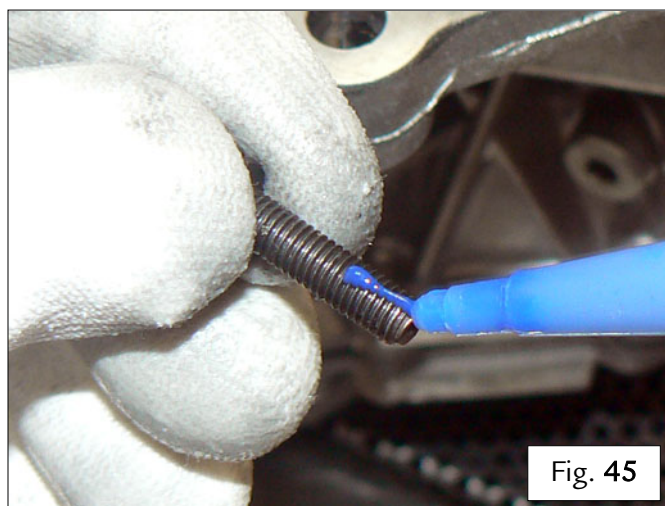


Fig. 45

- Hand-tighten the new screws indicated fastening the CCP (7) – Fig. 46.

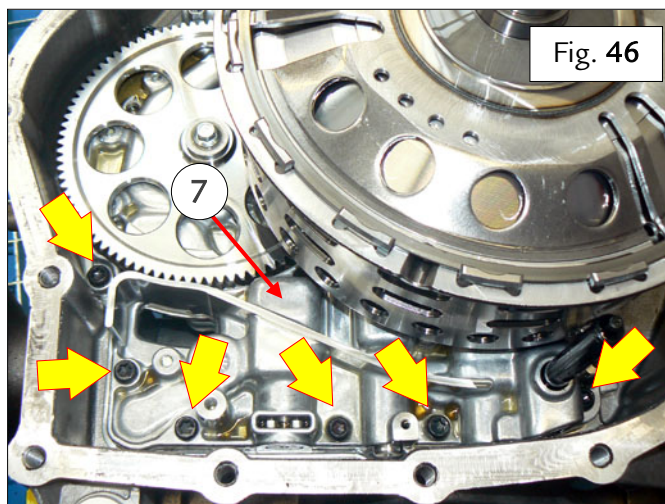
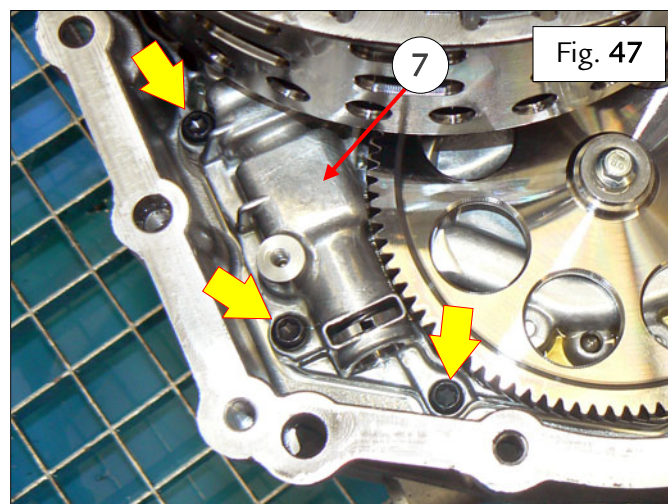


Fig. 46

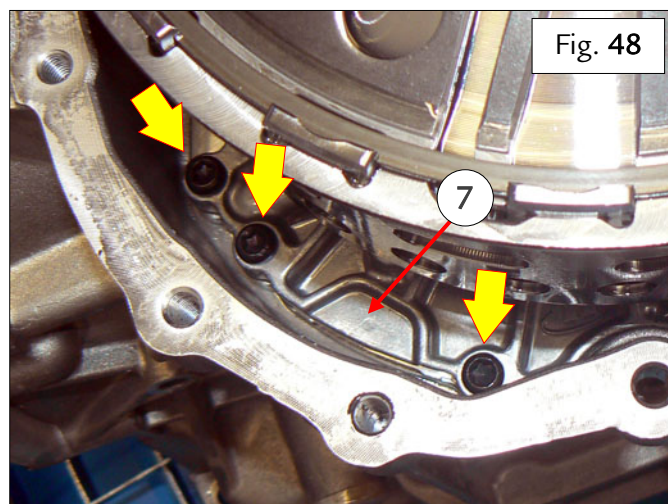


Ferrari North America

- Hand-tighten the new screws indicated fastening the CCP (7) – Fig. 47.



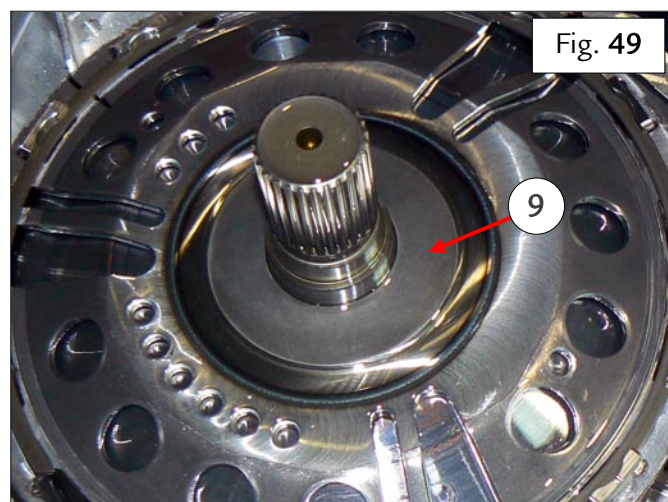
- Hand-tighten the new screws indicated fastening the CCP (7) – Fig. 48.



- Tighten the twelve screws fitted previously to a torque of 10 - 12 Nm in a cross pattern.

- Install the new clutch Belleville washer (9) on the clutch basket of the new CCP – Fig. 49.

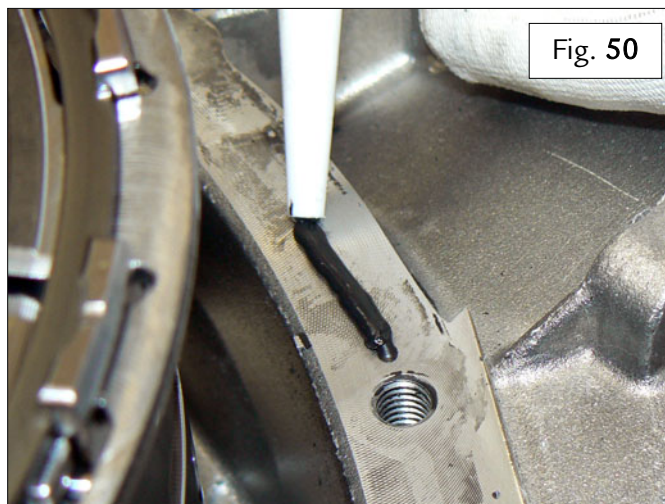
Note: fit the Belleville washer (9) with the convex side facing the engine.



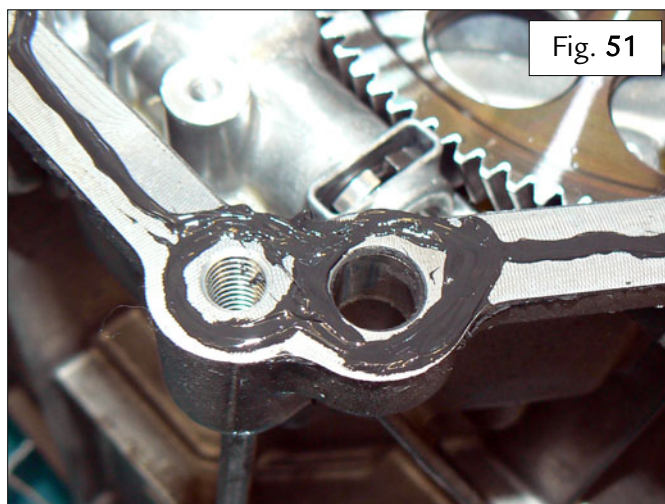


Ferrari North America

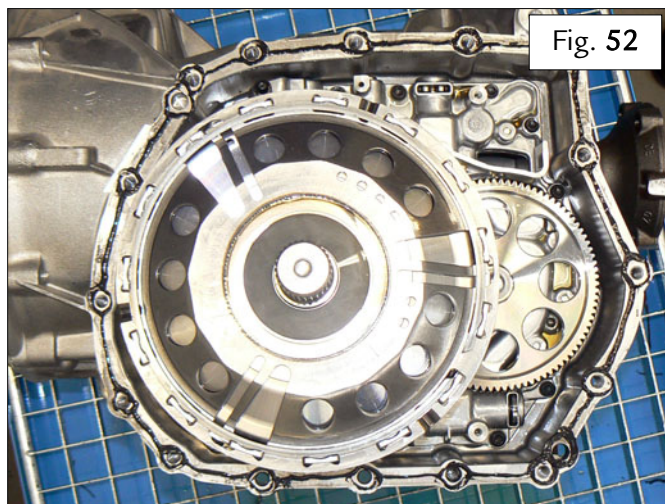
- Apply a continuous bead of **Loctite 5970** to the outer mating surface of the differential housing on the connector casing side – Fig. 50.



- Apply a continuous bead of **Loctite 5970** around the holes in the outer mating surface of the differential housing, on the connector casing side, as shown in the photo aside – Fig. 51.



- The continuous bead of **Loctite 5970** must look like the example shown in the photo aside – Fig. 52.

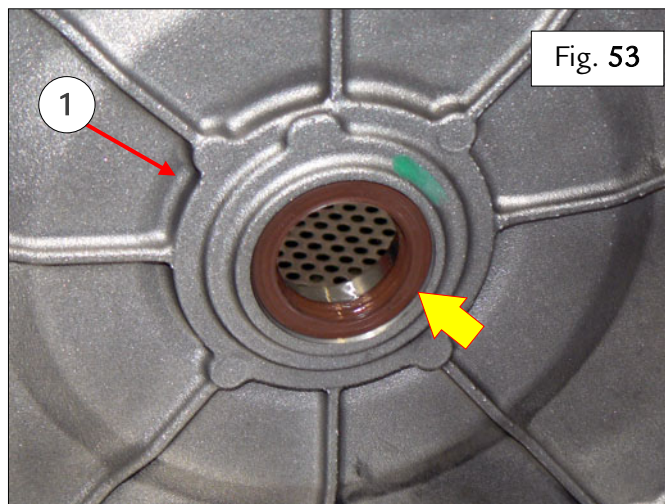




Ferrari North America

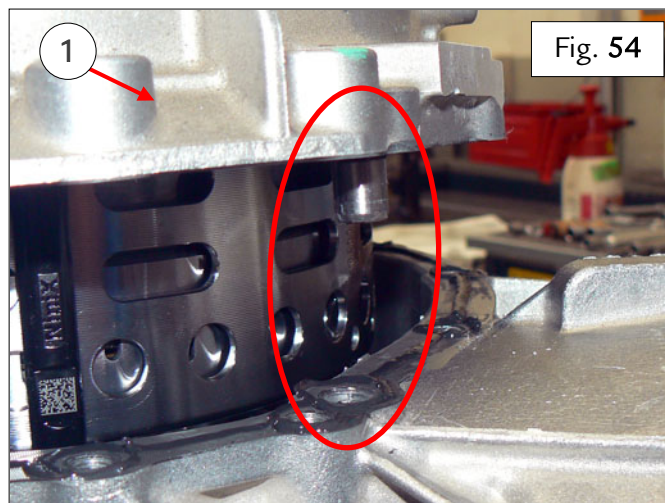
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Before refitting the connector casing (1), replace the indicated gasket (as described in IT 2076 of February 2013) – Fig. 53.



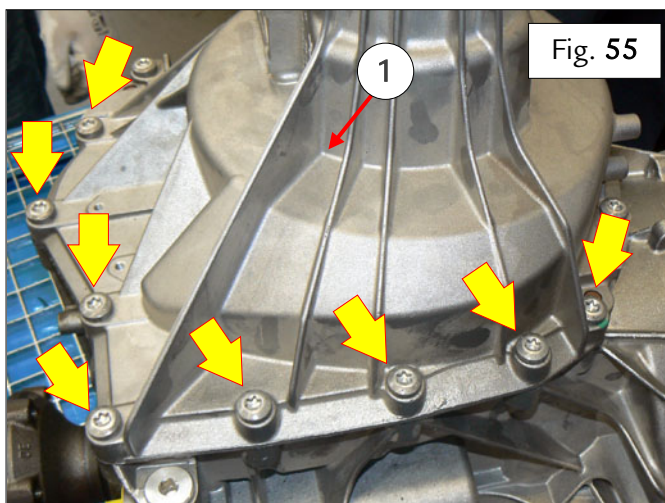
- Lift the connector casing (1) and manually fit it in the relative seat on the differential housing, aligning the indicated pins – Fig. 54.

Note: DO NOT use the rubber mallet to complete the installation of the housing.



For Ferrari California, FF and F12berlinetta ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 55.

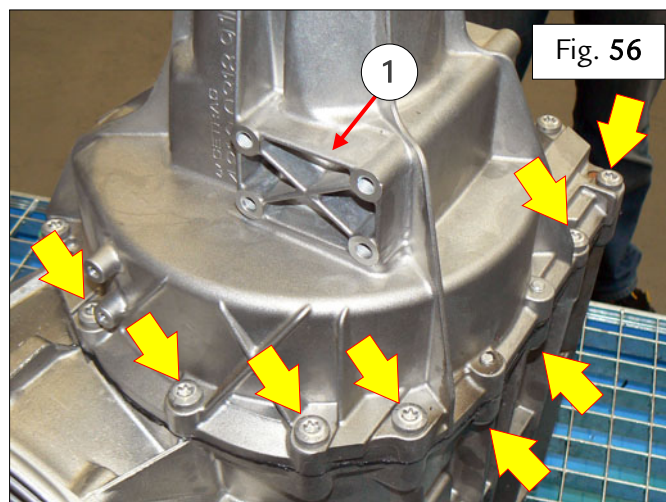




Ferrari North America

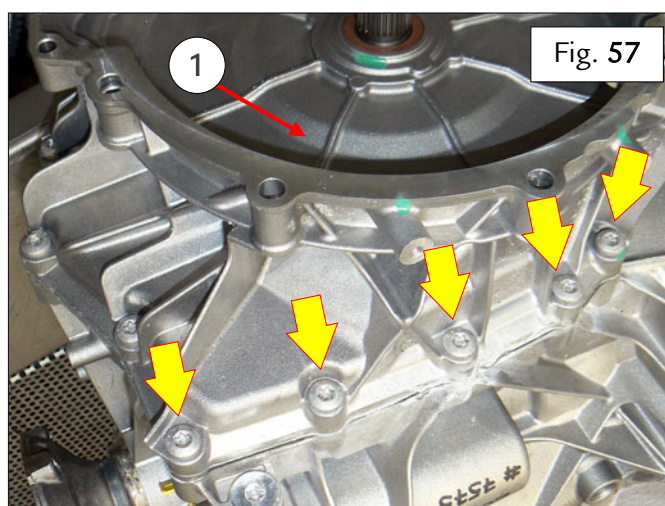
For Ferrari California, FF and F12berlinetta ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 56.



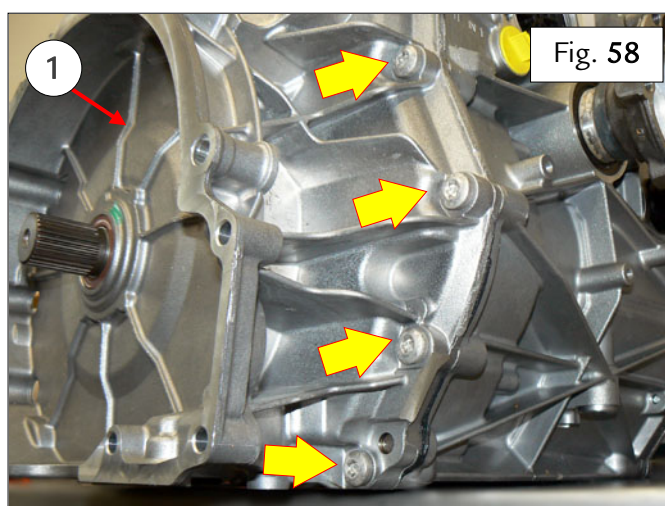
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Fit the connector casing (1) onto the differential housing, taking all the precautions necessary to prevent the clutch shaft from damaging the seal installed previously – Fig. 57.
- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 57.



For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 58.

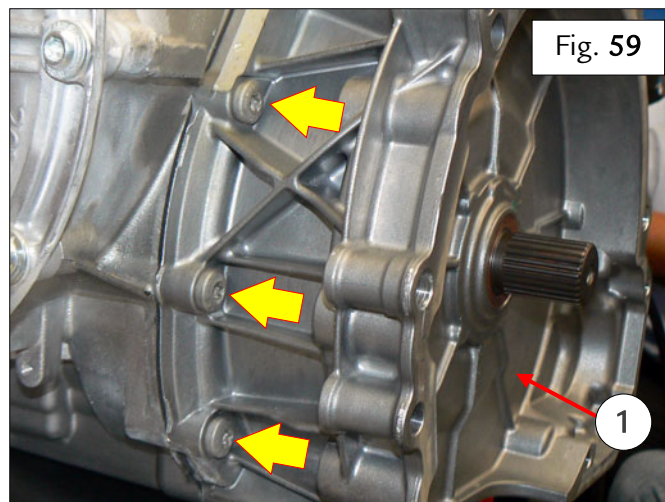




Ferrari North America

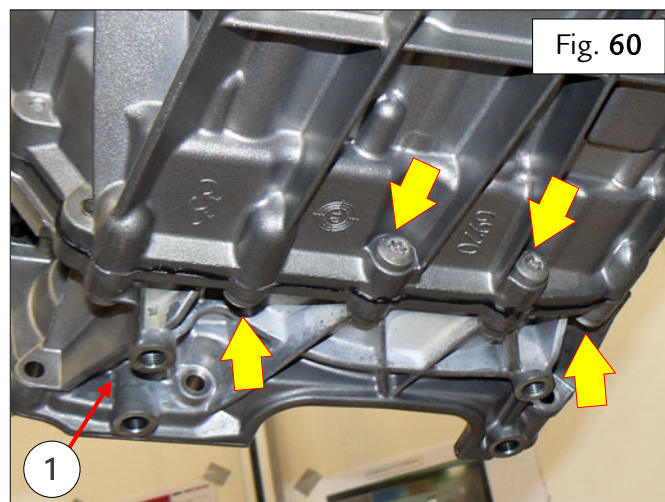
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 59.

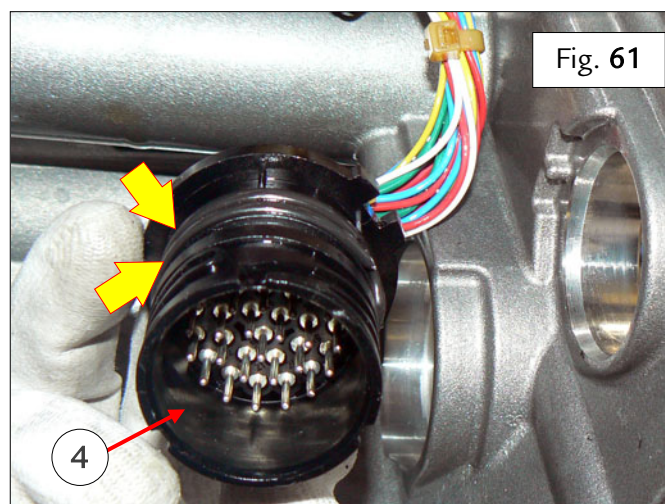


For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 60.



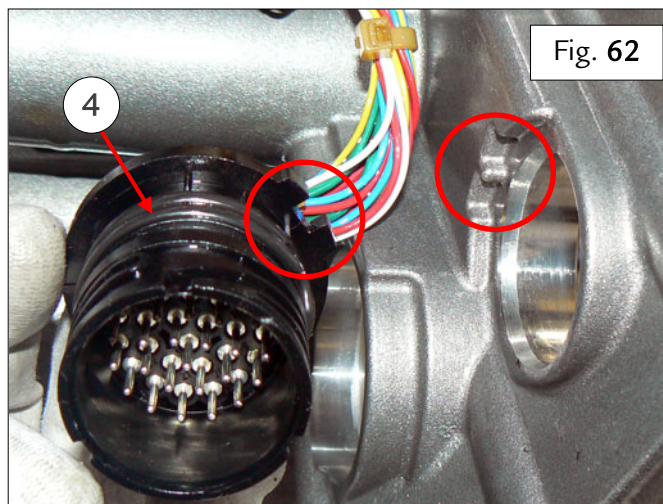
- Tighten the sixteen screws fitted previously to a torque of **10 Nm** in a cross pattern. Then tighten definitively by turning by an additional **90°** in the a cross pattern.
- Check the state of the O-rings indicated on the connector (4) – Fig. 61
- Lubricate the indicated O-rings – Fig. 61.



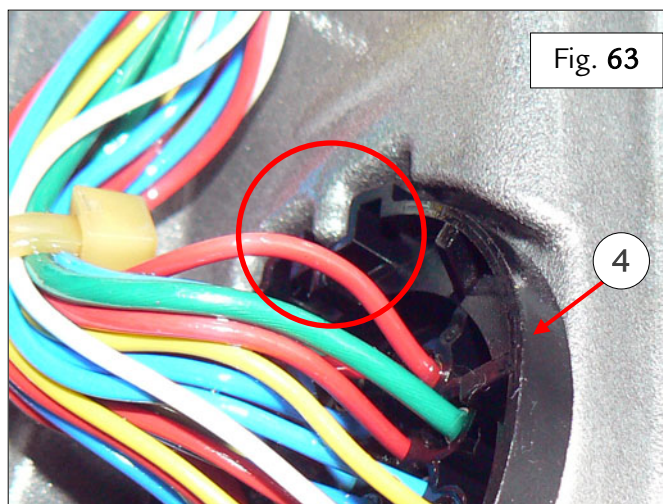


Ferrari North America

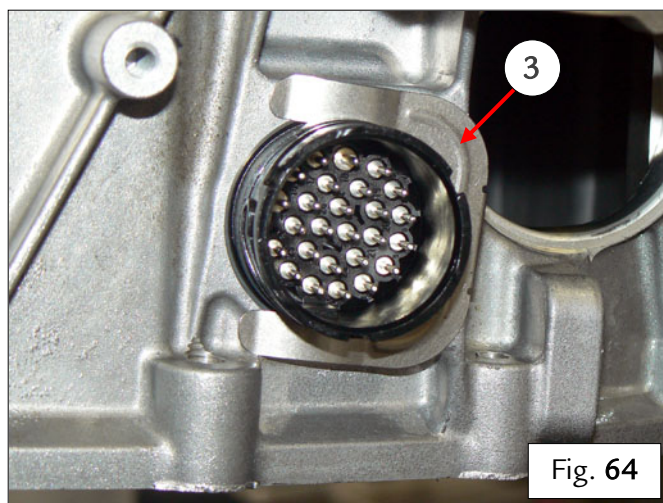
- Lift the differential housing.
- From underneath, insert the CCP connector (4) in the relative seat in the differential housing, aligning the references shown in the photo aside correctly – Fig. 62.



- The correct position of the connector (2) on the differential housing is shown in the photo aside – Fig. 63.



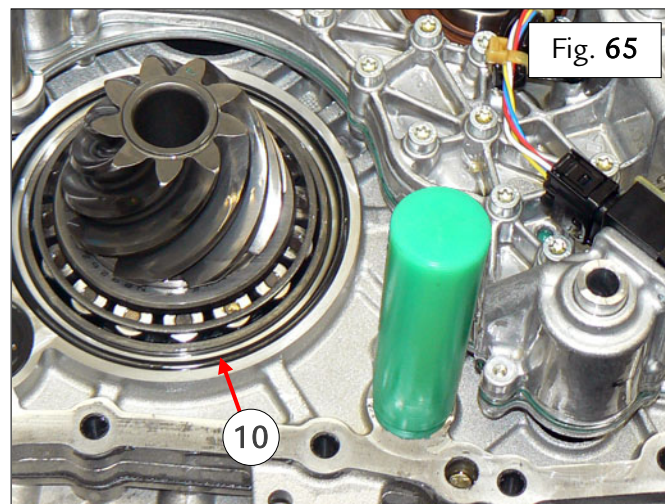
- Fit the new retainer clip (3) onto the connector to fasten – Fig. 64.



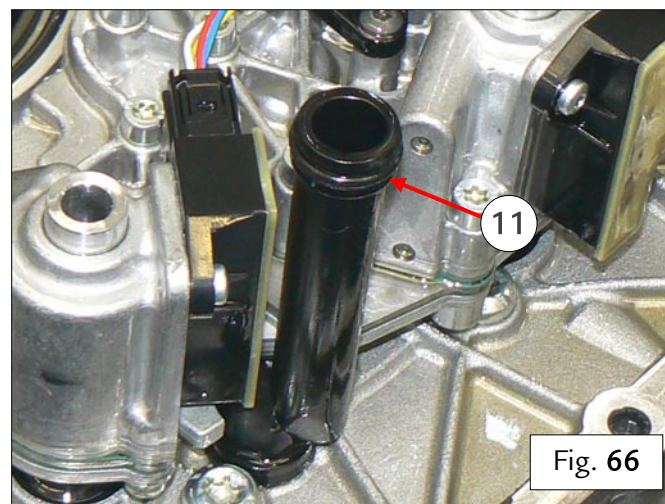


Ferrari North America

- Remove the O-ring from the (10) interface plate – Fig. 65.

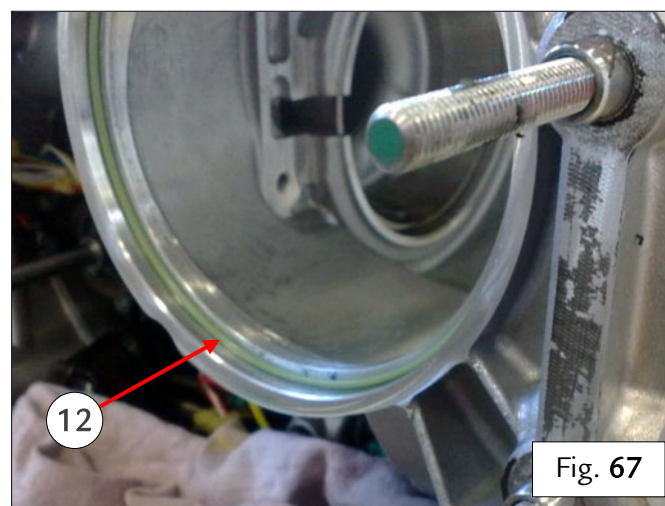


- Replace the O-ring (11) on the oil return pipe – Fig. 66.



For F12berlinetta ONLY

- Remove the seal (12) from the differential housing on the side in contact with the interface plate – Fig. 67.

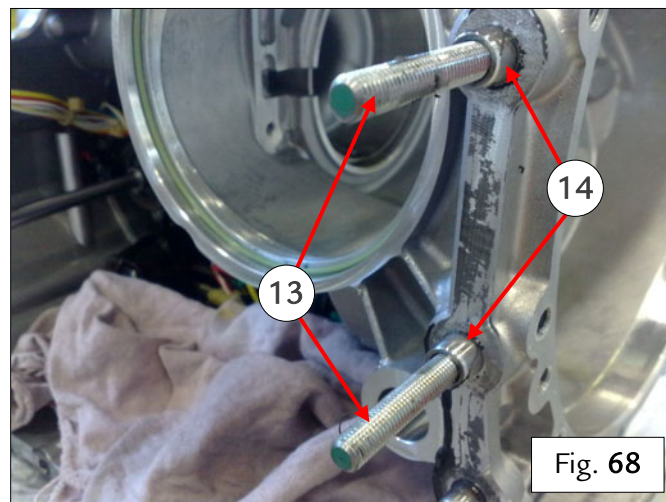




Ferrari North America

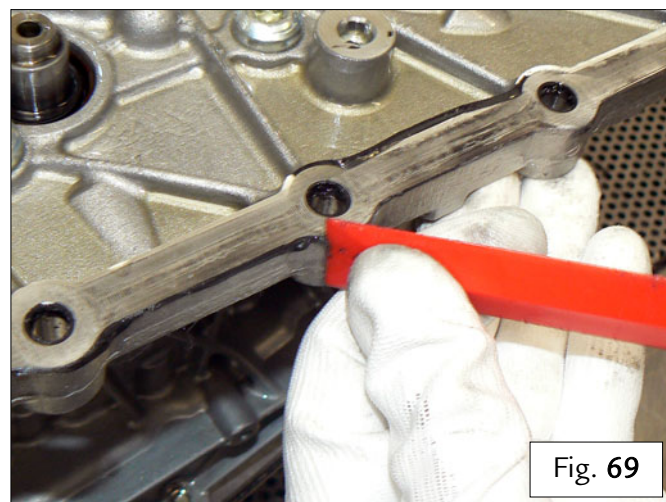
For F12berlinetta ONLY

- Remove the stud bolts (13) and the alignment bushes (14) from the differential housing, on the side in contact with the interface plate – Fig. 68.



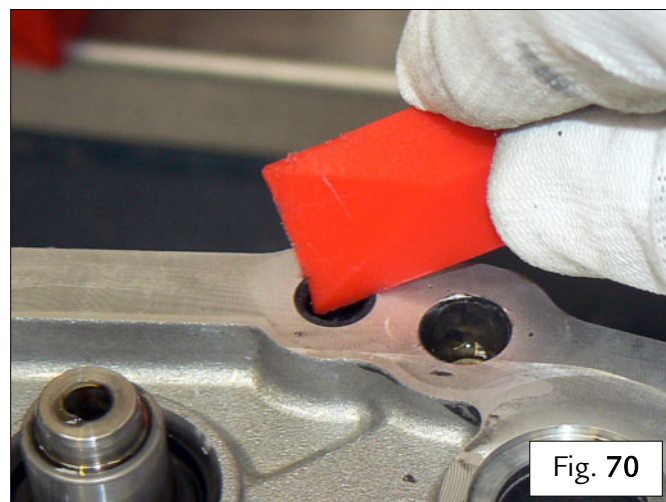
- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 69.

Note: Take care not to damage the surfaces of the two housings.



- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 70.

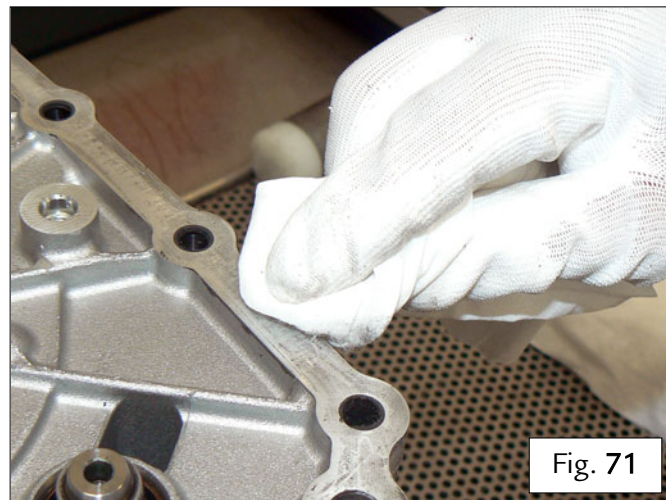
Note: Take care not to damage the surfaces of the two housings.





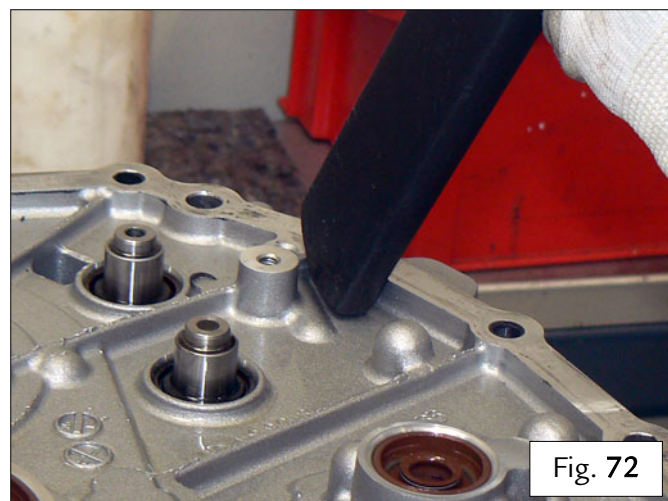
Ferrari North America

- Using a lint-free cloth and heptane, remove all traces of adhesive and/or dirt from the surfaces and holes of the interface plate and from the differential housing – Fig. 71.



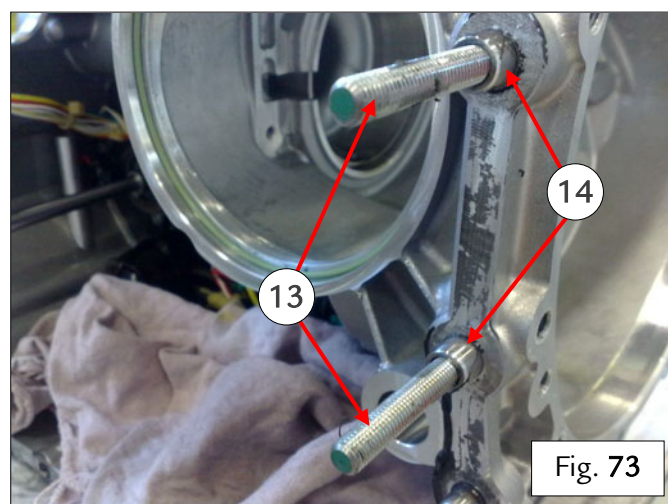
- Clean all residue of adhesive and/or dirt from the surfaces of the interface plate and from the differential housing – Fig. 72.

Note: DO NOT blow or use cloths to remove dirt and/or dust.



For F12berlinetta ONLY

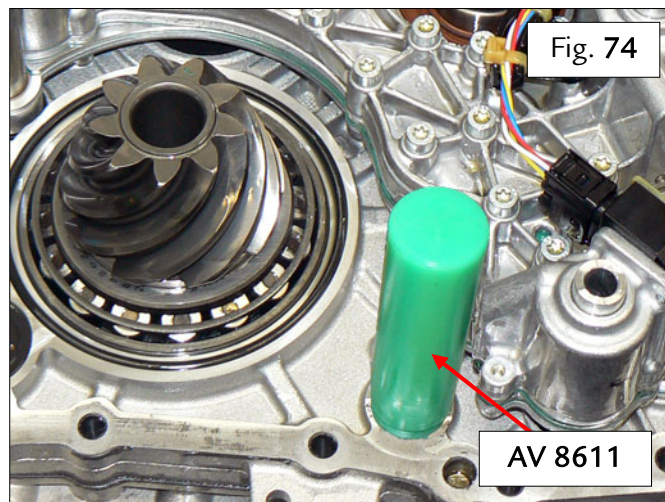
- Install the new alignment bushes (14) on the differential housing – Fig. 73.
- Install the new stud bolts (13) on the differential housing, tightening to a torque of $15 \text{ Nm} \pm 1 \text{ Nm}$ – Fig. 73.



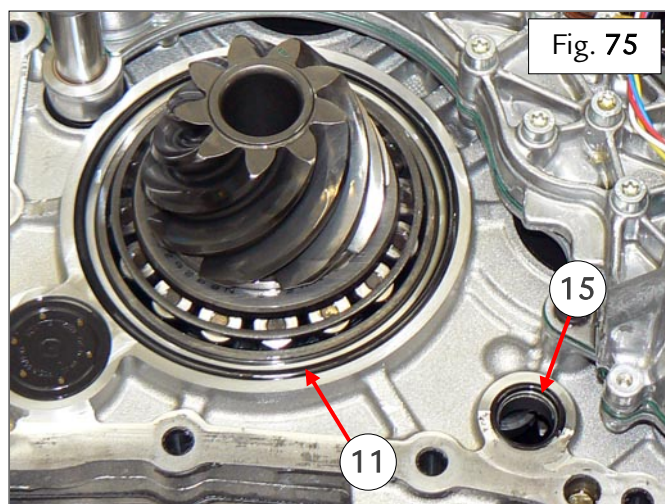


Ferrari North America

- Remove the plug **95978611** (AV 8611) from the interface plate – Fig. 74.



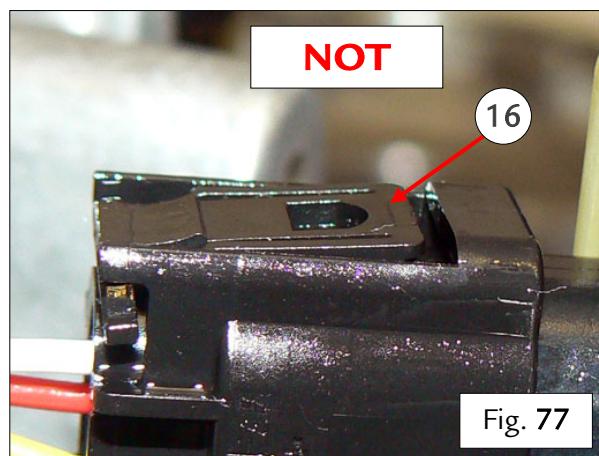
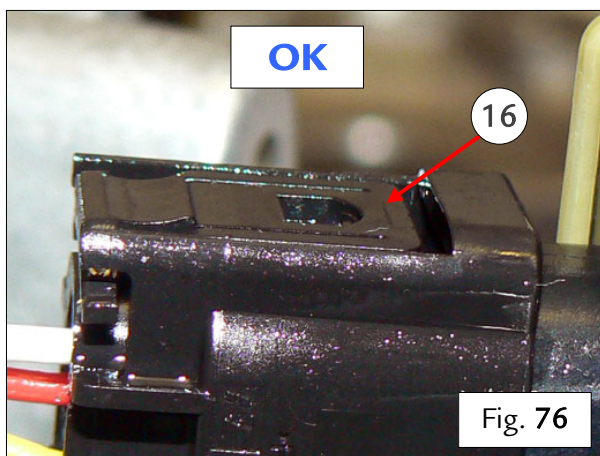
- Fit the new O-ring (**15**) in the relative seat on the interface plate – Fig. 75.
- For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California **ONLY**, fit the new O-ring (**11**) in the relative seat on the interface plate – Fig. 75.



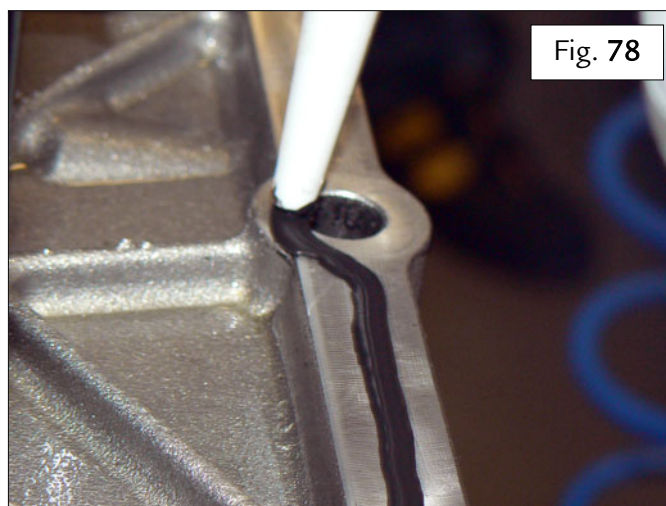


Ferrari North America

- **DO NOT TOUCH** the retainer clips (16) fastening the connections on the SAP. Check that the connectors are connected correctly on the SAP; there is very little difference in appearance between a connector that is connected correctly to the sensor and an incorrectly connected connector. As it is possible that the connector retainer clip (16) may have been touched inadvertently during the previous operations, check the connectors before installing the differential housing. A correct connection (Fig. 76) and an incorrect connection (Fig. 77) are shown in the two photos below.



- Apply a continuous bead of **Loctite 5970** to the outer mating surface of the interface plate – Fig. 78.





Ferrari North America

- Apply a continuous bead of **Loctite 5970** around the holes in the outer mating surface of the interface plate as shown in the photo aside – Fig. 79.

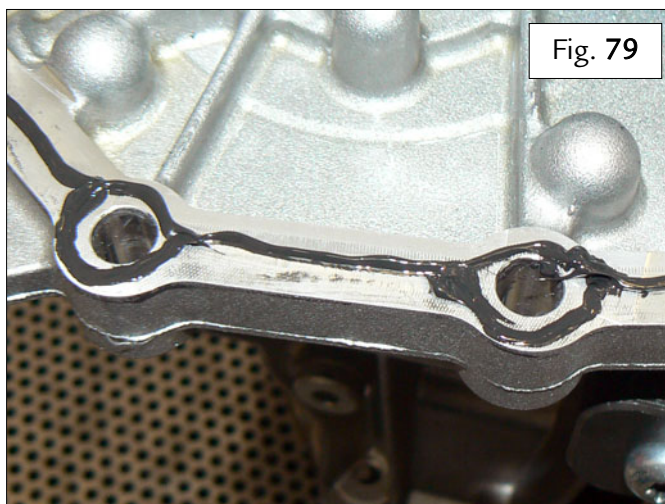


Fig. 79

- The continuous bead of **Loctite 5970** must look like the example shown in the photo aside – Fig. 80.

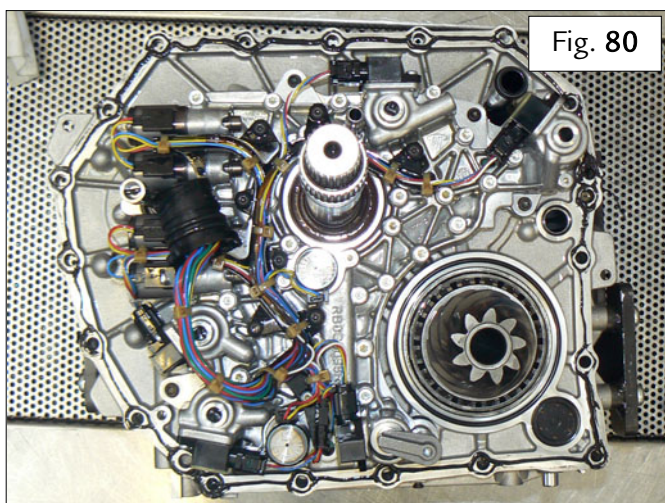


Fig. 80

For F12berlinetta ONLY

- Lubricate then install the new seal (12) in the differential housing, on the side in contact with the interface plate – Fig. 81.

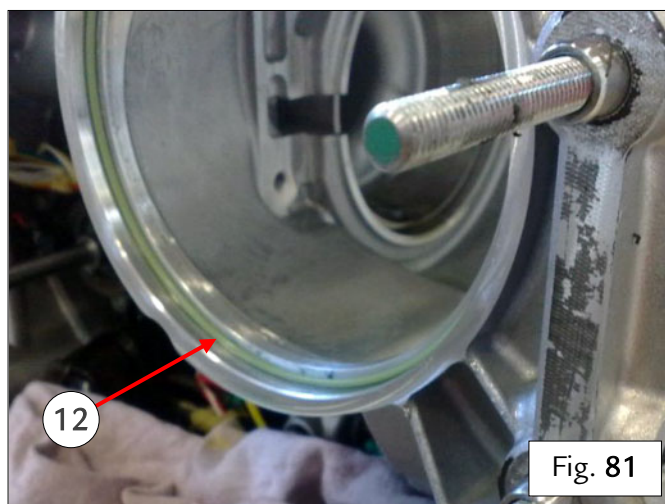
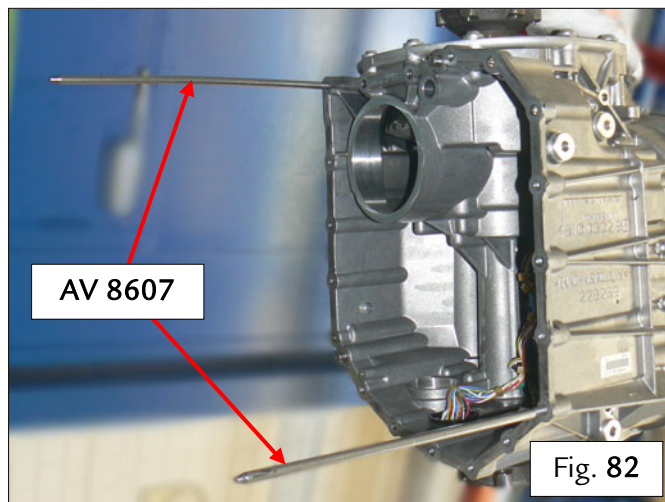


Fig. 81

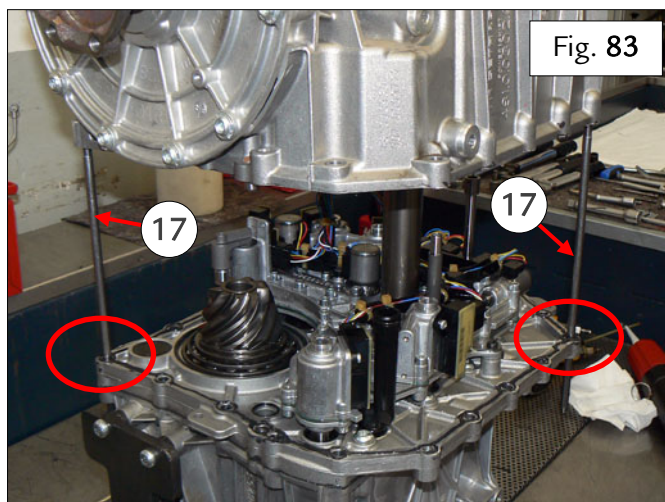


Ferrari North America

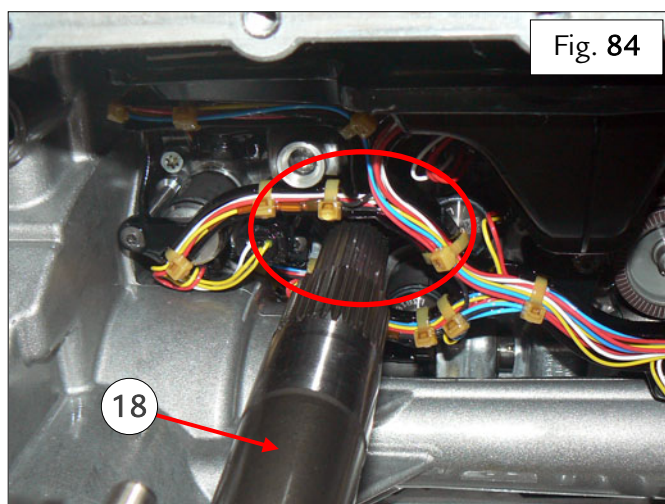
- Fit the two alignment pins **95978607 (8607)** in the positions on the differential housing indicated in the photo aside – Fig. 82.



- Using the hoist, align the differential housing with the interface plate, aligning the pins (17) of tool **AV 8607** in the positions indicated in the photo aside – Fig. 83.



- Ensure that as the differential housing is lowered, the primary shaft (18) does not interfere with the wiring of the CCP in the area indicated in the photo aside – Fig. 84.

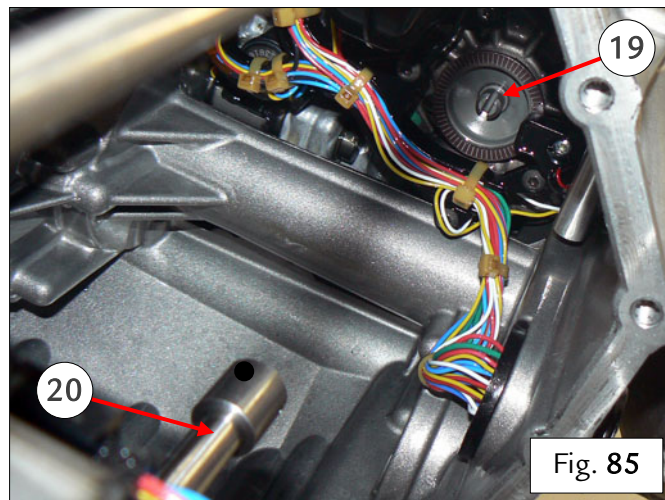




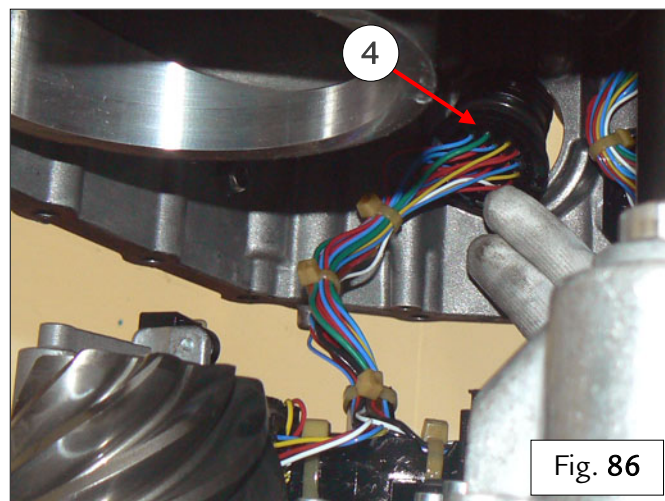
Ferrari North America

- Rotate the clutch to align the respective seats of the shaft (20) and the oil pump (19) – Fig. 85.

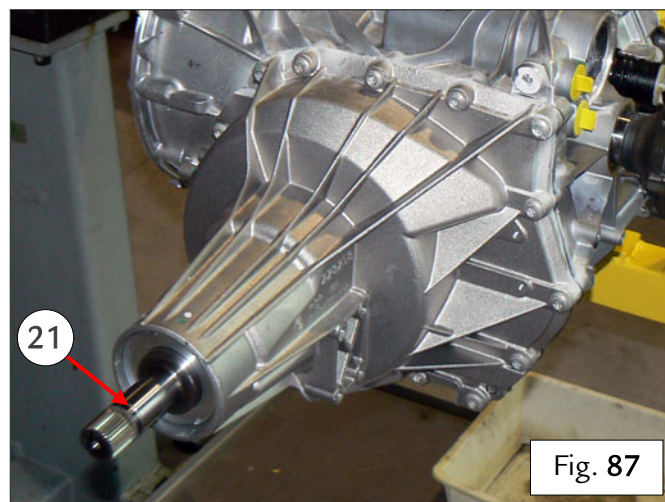
Note: the pin on the oil pump spindle (21) must be aligned in the respective seat on the pump (20). **DO NOT TRY TO FORCE THE PARTS TOGETHER IF RESISTANCE IS ENCOUNTERED.**



- From inside the differential housing, push the SAP connection (4) through the relative hole, fastening in the correct position – Fig. 86.



- Continue to move the differential housing forward slowly, proceeding carefully; a few centimeters before the parts are mated, if necessary, turn the front flange (21) (for **Ferrari California**), or the clutch shaft (for the **458 Italia**, **458 Spider**, **458 Speciale**, **458 SpecialeA**, **FF** and **F12berlinetta**) to definitively align the components – Fig. 87.





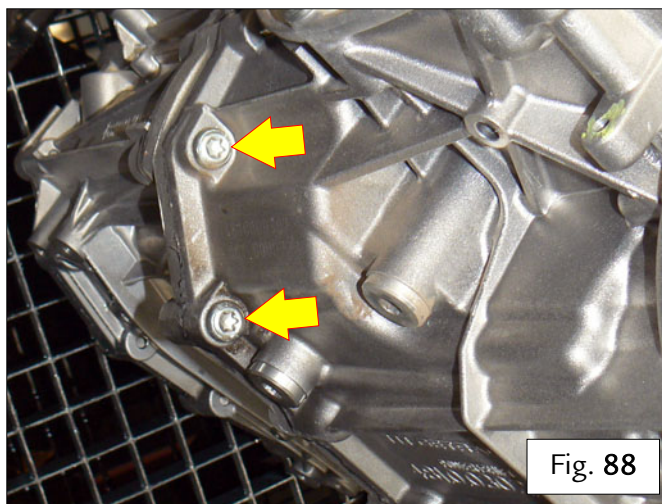
Ferrari North America

- IMPORTANT -

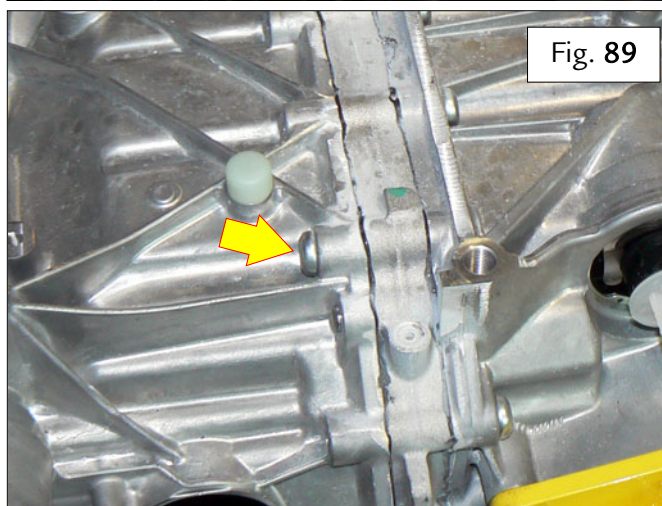
DO NOT tighten the screws fastening the two housings until the mating surfaces of the two housings are perfectly in contact.

DO NOT attempt to force the two housings together with a rubber mallet.

- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 88.



- Hand-tighten the new screw indicated fastening the gearbox to the interface plate – Fig. 89.

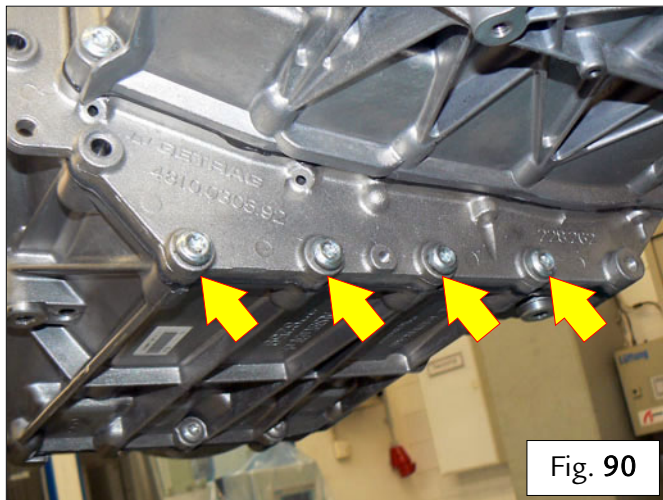


- Remove the alignment pins **95978607 (AV 8607)** from the differential housing.

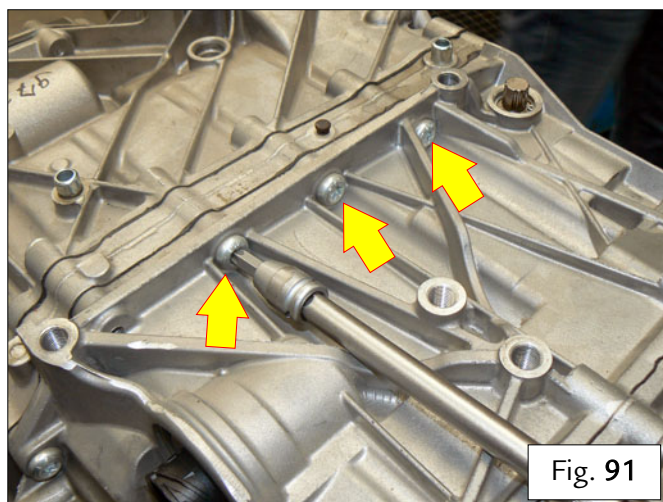


Ferrari North America

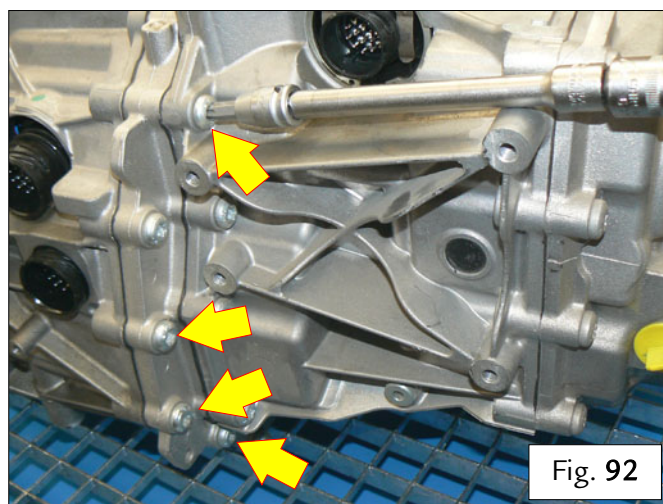
- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 90.



- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 91.



- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 92.





Ferrari North America

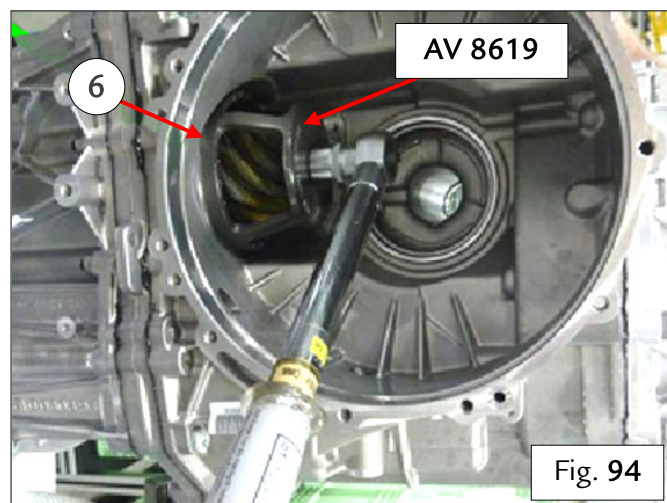
- Hand-tighten the new screws indicated fastening the gearbox to the interface plate – Fig. 93.



- Tighten the nineteen screws fitted previously to a torque of 34 ± 1.2 Nm in a cross pattern.

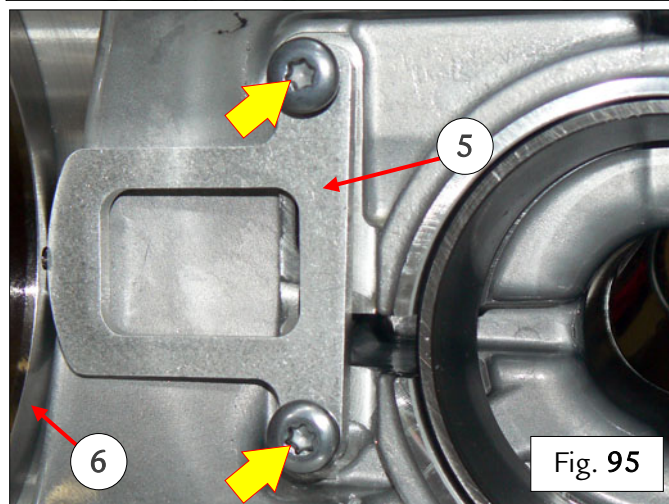
For F12berlinetta ONLY

- Hand-tighten the new ring nut (6) in the relative seat – Fig. 94.
- Using the tool 95978619 (AV 8619) tighten the new ring nut (6) fastening the plate to the differential housing to a torque of 30 Nm – Fig. 94.



For F12berlinetta ONLY

- Fit the new bracket (5) in the relative seat against the ring nut (6), then tighten the new screws indicated to a torque of 9 Nm Class B – Fig. 95.

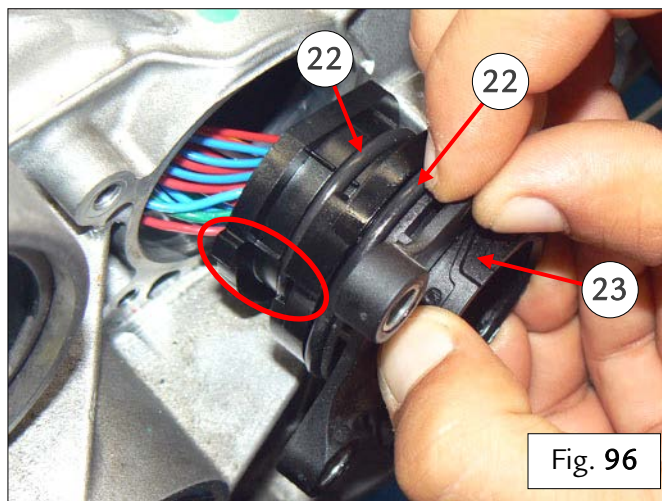




Ferrari North America

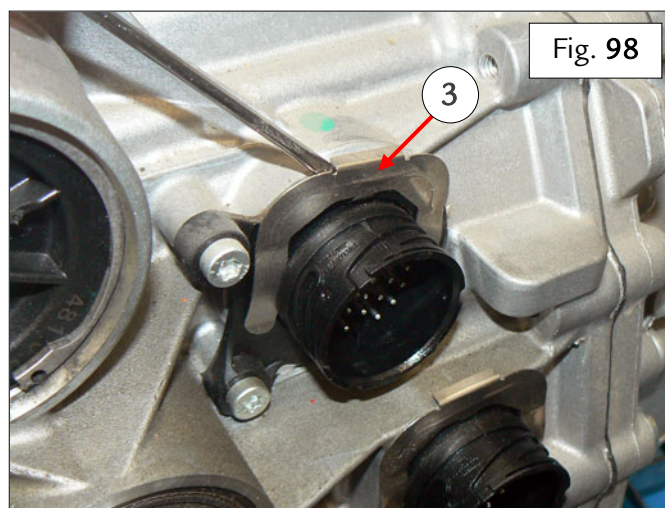
- For the **F12berlinetta ONLY**, refit the differential cover (as described in IT 2076 of February 2013).

- Visually inspect the seal surface of the adapter (23) in the differential housing – Fig. 96.
- Lubricate the two O-rings (22), then fit the adapter (23) onto the respective connector, aligning correctly as indicated in the photo aside – Fig. 96.



- Insert the adaptor (23) (assembled onto the connector) in the respective hole in the differential housing, then fasten by tightening the new screws as indicated to a torque of 10 to 11 Nm – Fig. 97.

- Fit the new retainer clip (3) onto the connector to fasten – Fig. 98.



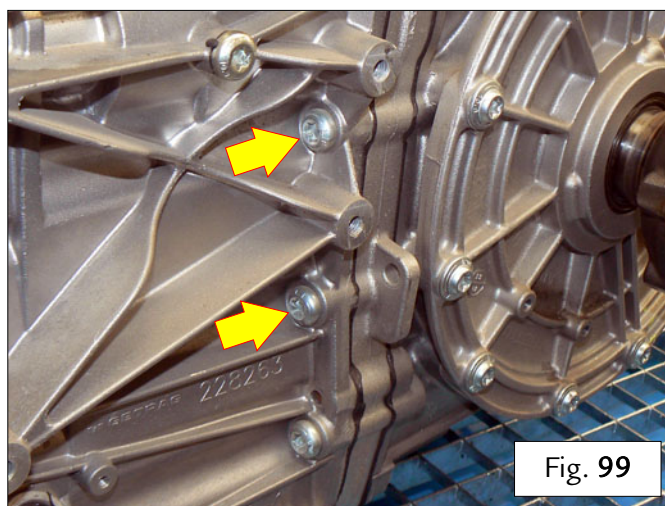
- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox from the support tool **AM 107314**.



Ferrari North America

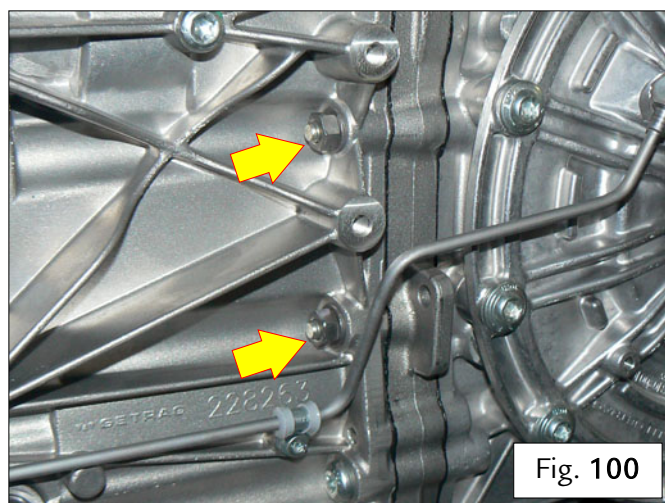
For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and Ferrari California ONLY

- On the right hand side of the DCT gearbox, tighten the indicated screws to a torque of 34 ± 1.2 Nm – Fig. 99.



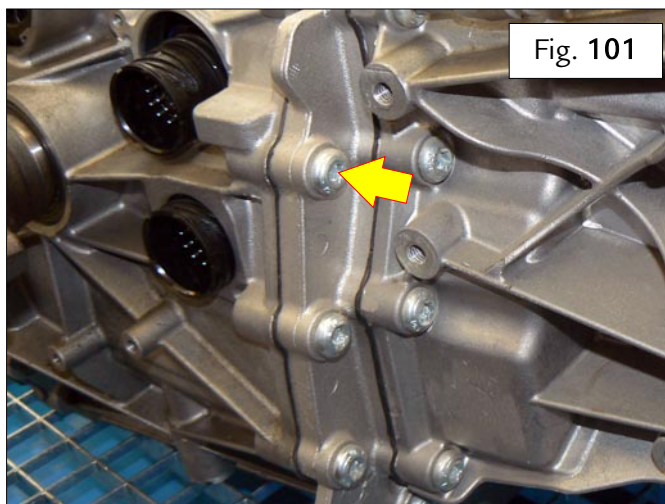
For F12berlinetta ONLY

- On the right hand side of the DCT gearbox, tighten the indicated nuts to a torque of 34 ± 1.2 Nm – Fig. 100.



- On the left hand side of the DCT gearbox, tighten the indicated screw to a torque of 34 ± 1.2 Nm – Fig. 101.

- For the 458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta, refit the E-DIFF pipe (as described in TI 2076 of February 2013).
Note: This operation MUST ONLY be performed with a cold gearbox.





Ferrari North America

- Using the bracket **AV 8606** and the lift hook, mount the DCT gearbox again on the support tool **AM 107314**, and perform the **procedure for pressurizing the repaired system** as described at the end of this document.
- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox again from the support tool **AM 107314**.
- For the **Ferrari California, FF and F12berlinetta** ONLY, refit the complete DCT heat shields and mounting struts (as described in paragraph **C2.03** step 1 of the Workshop Manual).
- For **Ferrari California** vehicles with SINGLE OIL HEAT EXCHANGER ONLY: refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.05** steps 2 and 4 of the Workshop Manual).
- For the **FF and F12berlinetta** ONLY, refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.04** steps 2 and 4 of the Workshop Manual).
- Refit the complete DCT gearbox in the vehicle (as described in paragraph **C2.03** step 2 of the Workshop Manual). **Note:** When refilling the GL oil and ATF fluid and inspecting the relative levels, replace all the oil/fluid plugs and the relative seals removed during the procedures described herein.
- For the **Ferrari California, 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.03** step 2 of the Workshop Manual).
- For the **FF and F12berlinetta**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.02** step 2 of the Workshop Manual).
- For the **Ferrari California**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.06** step 2 of the Workshop Manual).
- For the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.05** step 2 of the Workshop Manual).
- **Mark the repaired gearbox for identification** as described at the end of this document.
- Perform the **Self Acquisition procedure** as described at the end of this document.



Ferrari North America

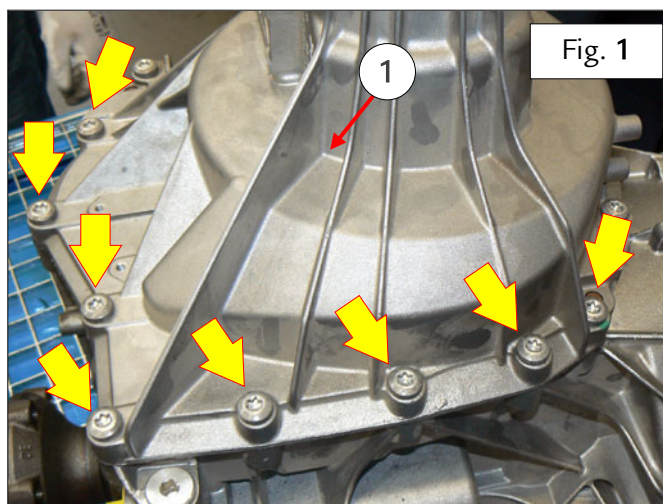
3. Replacing SAP and CCP

- Replace the CCP as described in operation [2. Replacing CCP](#).
- Perform the procedure for replacing the SAP as described in operation [1. Replacing SAP](#).

4. Front connector casing

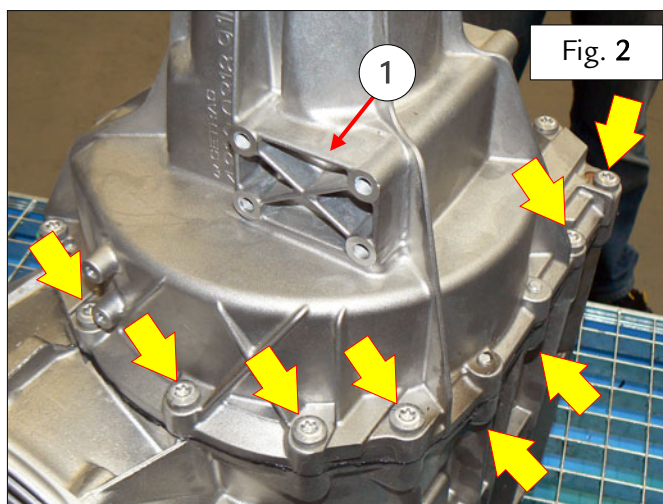
For Ferrari California, FF and F12berlinetta ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 1.



For Ferrari California, FF and F12berlinetta ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 2.

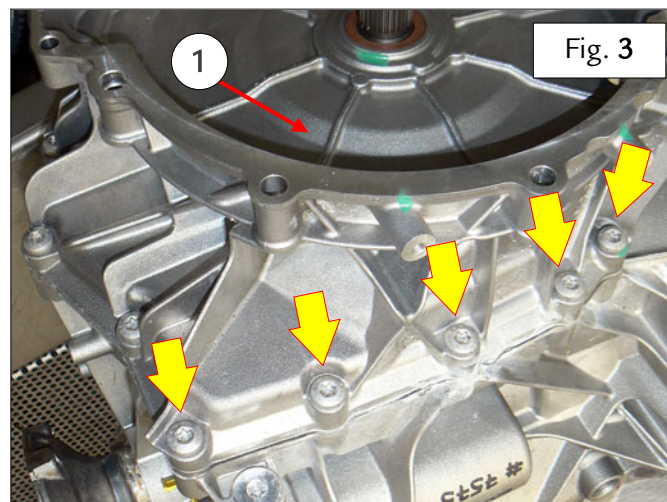




Ferrari North America

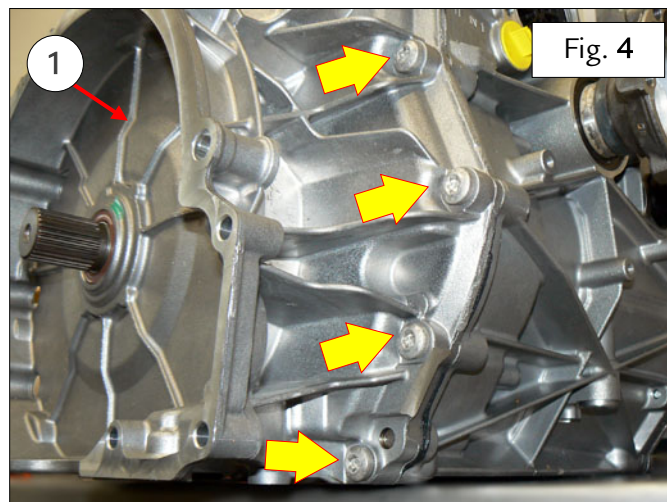
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 3.



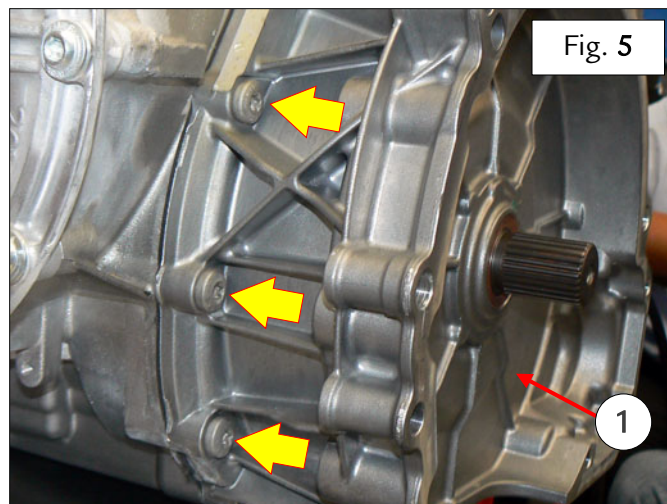
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 4.



For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Remove the indicated screws fastening the connector casing (1) – Fig. 5.

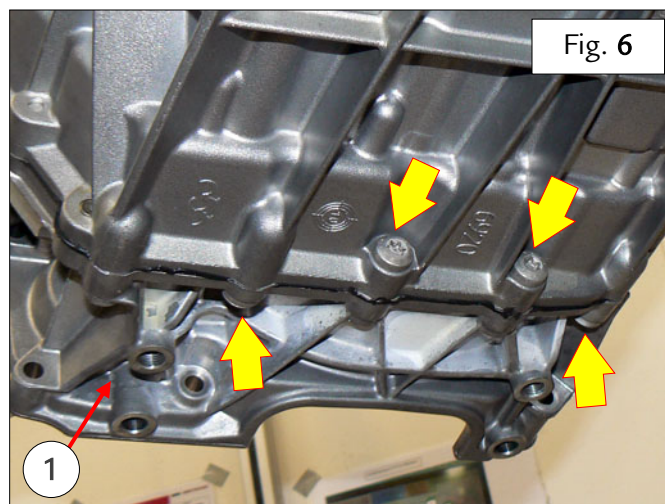




Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

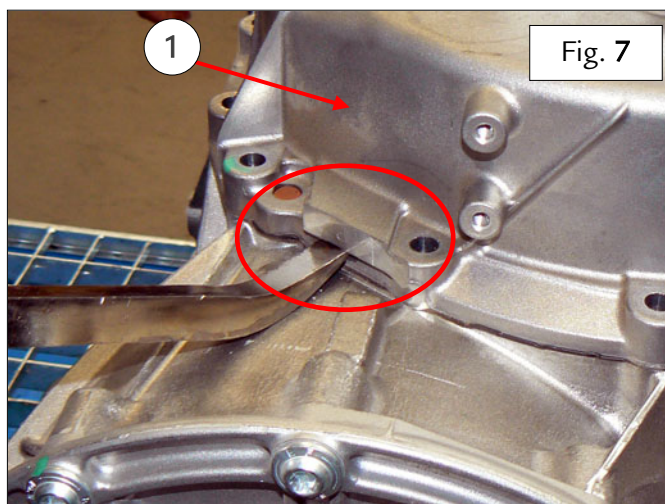
- Remove the indicated screws fastening the connector casing (1) – Fig. 6.



- Using a crowbar placed in the indicated leverage recess on the gearbox, detach the connector housing (1) – Fig. 7.

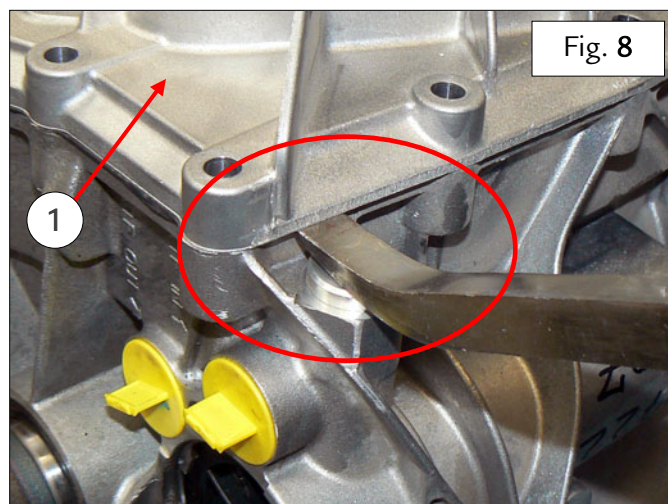
Note: Insert a Teflon spatula between the lever and the differential housing to prevent damage.

Note: There may be some spillage of residual oil when detaching the connector housing; take all necessary precautions to limit and collect the spillage.



- Using a crowbar placed in the indicated leverage recess on the gearbox, detach the connector housing (1) – Fig. 8.

Note: There may be some spillage of residual oil when detaching the connector housing; take all necessary precautions to limit and collect the spillage.

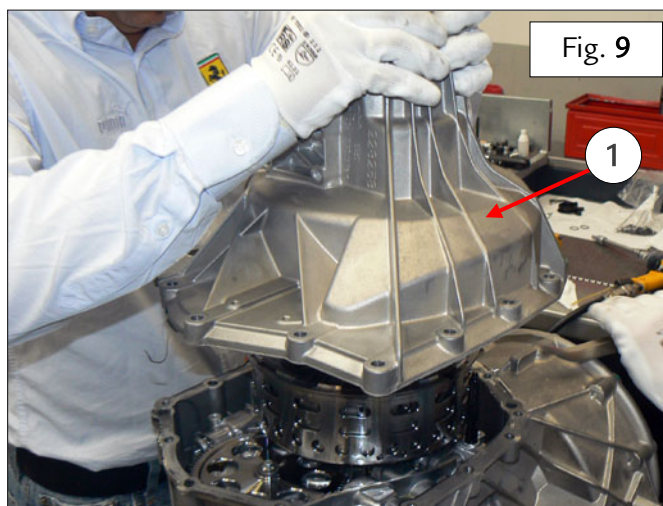




Ferrari North America

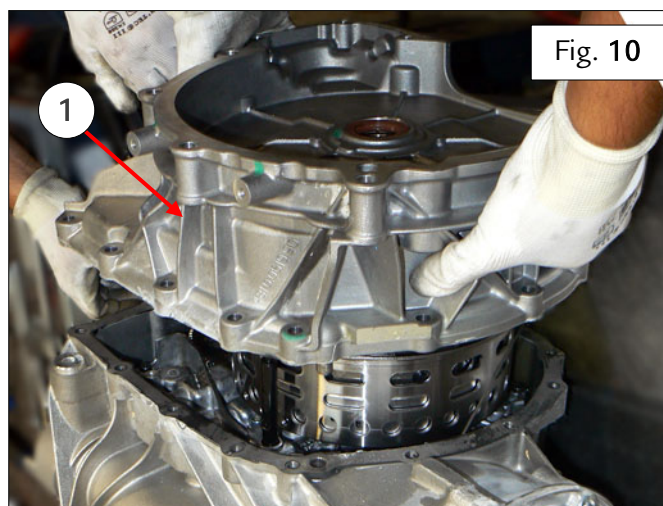
For Ferrari California, FF and F12berlinetta
ONLY

- Separate the connector casing (1) from the differential housing and replace – Fig. 9.



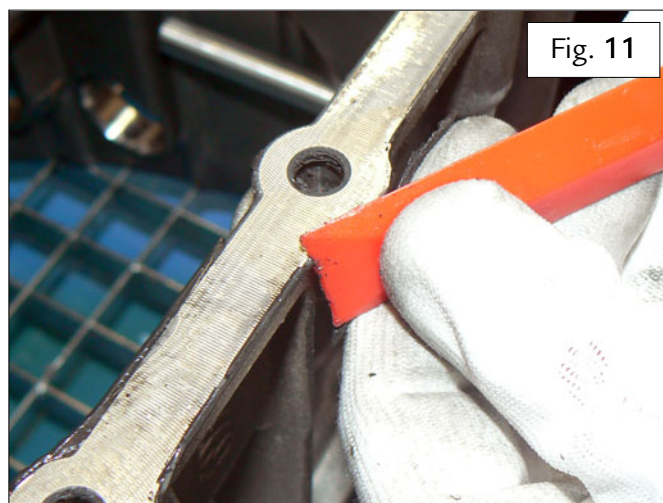
For the 458 Italia, 458 Spider, 458 Speciale
and 458 SpecialeA ONLY

- Separate the connector casing (1) from the differential housing and replace – Fig. 10.



- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 11.

Note: Take care not to damage the surfaces of the housing.

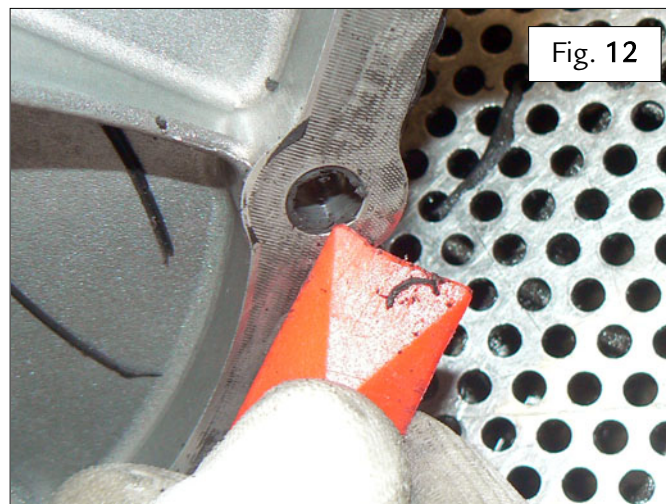




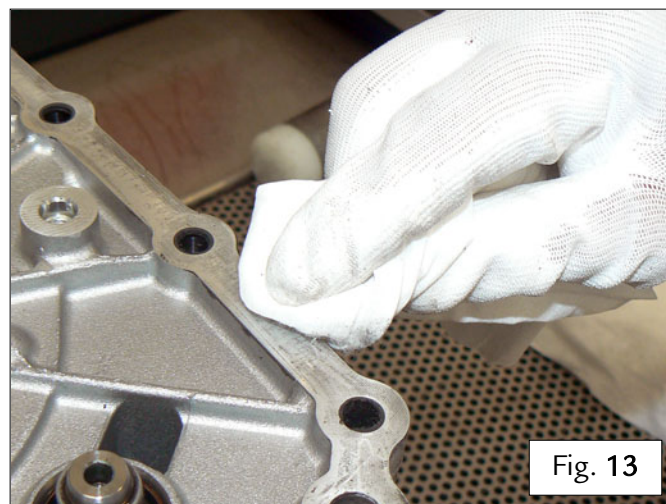
Ferrari North America

- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 12.

Note: Take care not to damage the surfaces of the housing.

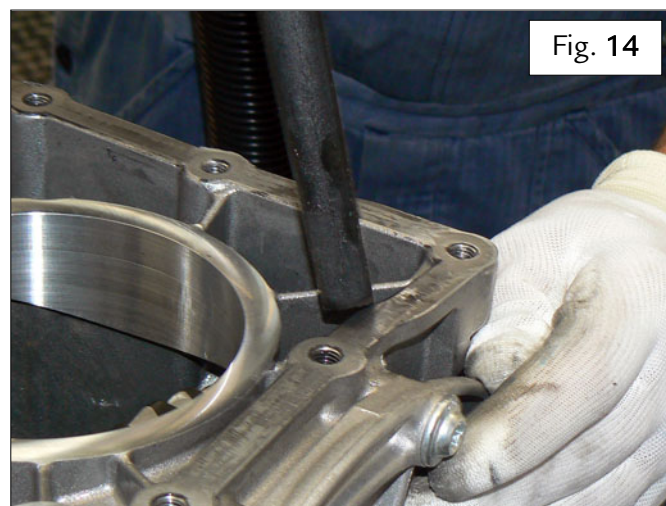


- Using a lint-free cloth and heptane, remove all traces of adhesive and/or dirt from the surface and holes of the differential housing – Fig. 13.



- Clean any residue of adhesive and/or dirt from the surface of the differential housing – Fig. 14.

Note: DO NOT blow or use cloths to remove dirt and/or dust.

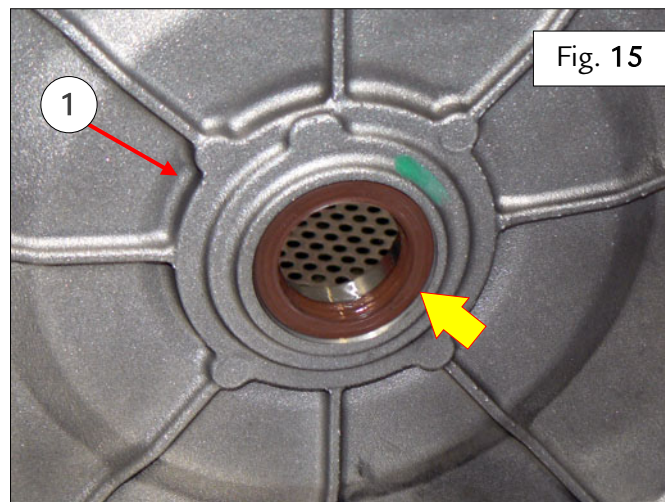




Ferrari North America

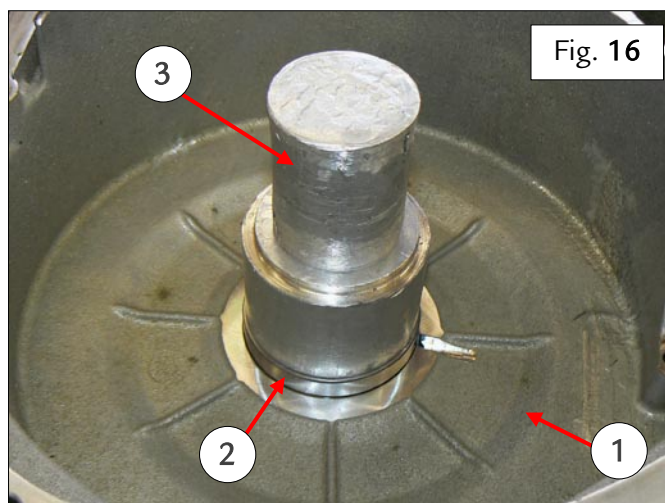
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Fit the new gasket as indicated on the new connector casing (1) (as described in IT 2076 of February 2013) – Fig. 15.



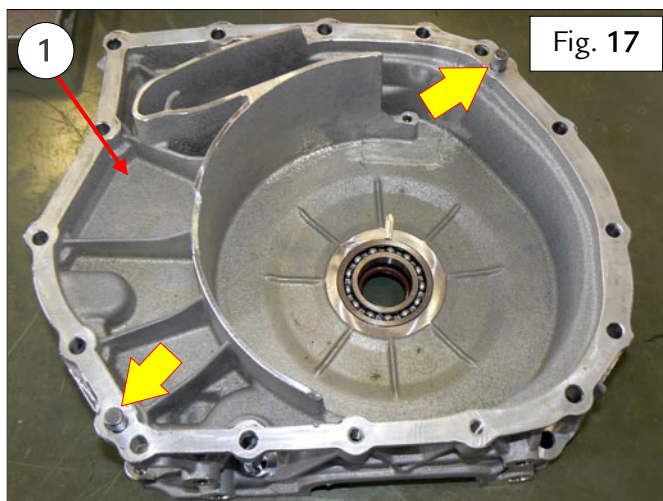
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Install the new bearing (2) in the relative seat on the inner side of the new connector casing (1), with the markings facing upwards – Fig. 16.
- Install the new bearing (2) fully in its seat with a suitable punch (3) – Fig. 16.



For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Fit the two new alignment pins in the relative holes indicated on the new connector casing (1) – Fig. 17.





Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Using a suitable punch (4), install the indicated alignment pin in its seat so that protrudes by **12 mm** from the connector casing – Fig. 18.
- Perform the same procedure for the other alignment pin – Fig. 18.

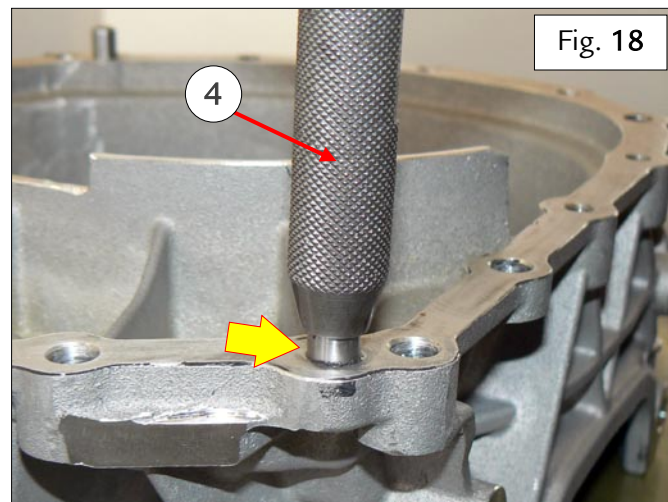


Fig. 18

For Ferrari California, FF and F12berlinetta ONLY

- Install the new bearing (5) in the relative seat on the outer side of the new connector casing (1), with the markings facing upwards – Fig. 19.
- Install the new bearing (5) fully in its seat with a suitable punch (6) – Fig. 19.

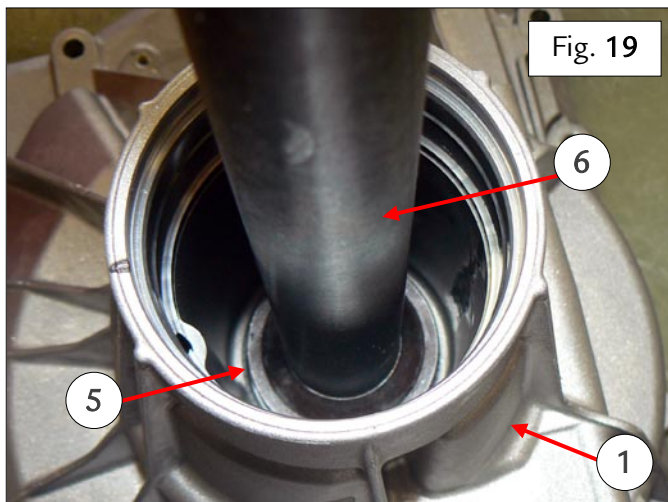


Fig. 19

For Ferrari California, FF and F12berlinetta ONLY

- Install the new bearing (7) in the relative seat on the inner side of the new connector casing (1), with the markings facing upwards – Fig. 20.
- Install the new bearing (7) fully in its seat with a suitable punch (8) – Fig. 20.

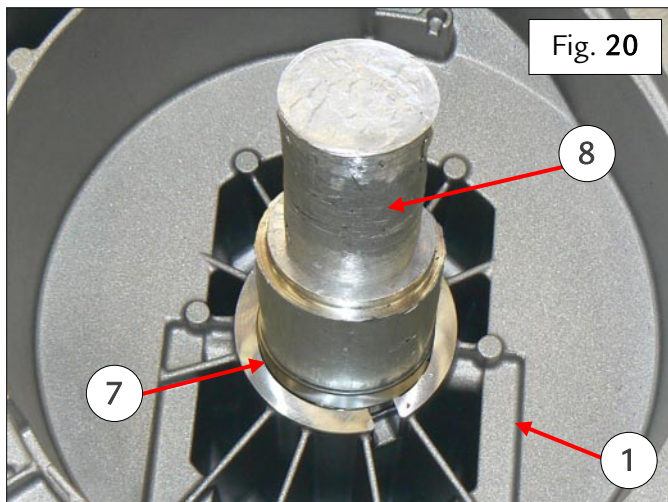


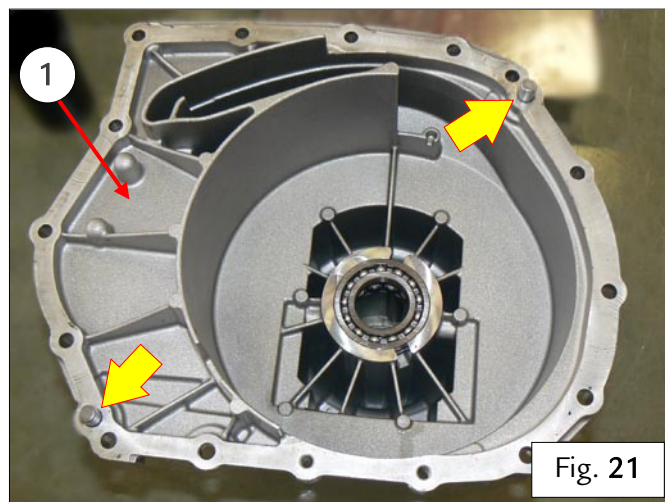
Fig. 20



Ferrari North America

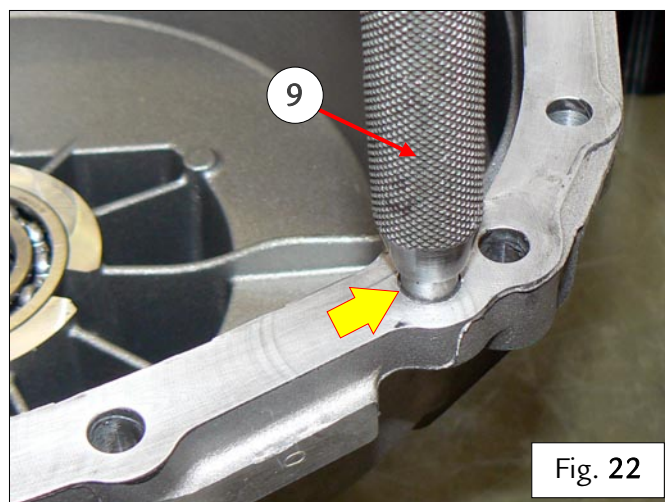
For Ferrari California, FF and F12berlinetta ONLY

- Fit the two new alignment pins in the relative holes indicated on the new connector casing (1) – Fig. 21.



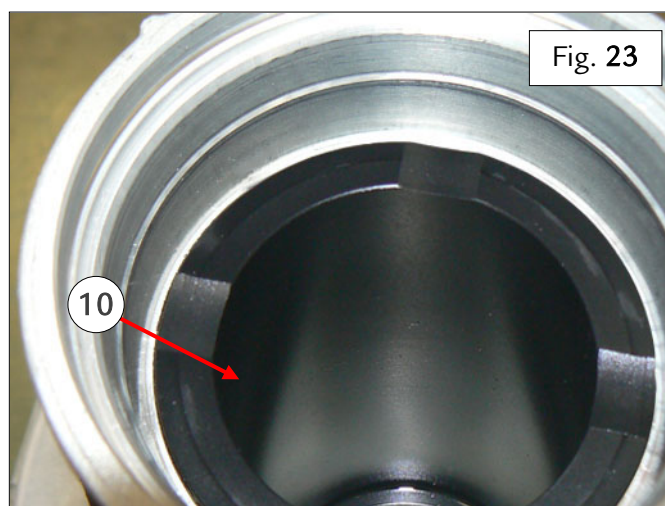
For Ferrari California, FF and F12berlinetta ONLY

- Using a suitable punch (9), install the indicated alignment pin in its seat so that protrudes by 12 mm from the connector casing – Fig. 22.
- Perform the same procedure for the other alignment pin – Fig. 22.



For Ferrari California, FF and F12berlinetta ONLY

- Fit the spacer (10) in the relative seat on the connector casing – Fig. 23.
- **For Ferrari California, FF and F12berlinetta ONLY**, install the new front flange/front shaft on the new connector casing (4) (as described in IT 2076 of February 2013) – Fig. 64.





Ferrari North America

- Apply a continuous bead of **Loctite 5970** to the outer mating surface of the differential housing on the connector casing side – Fig. 24.

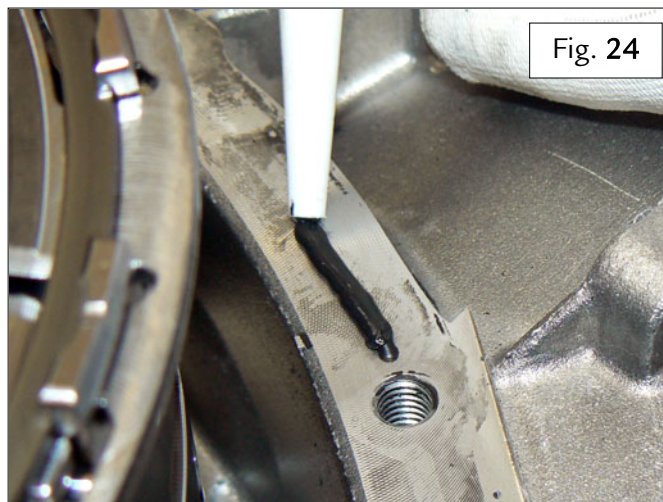


Fig. 24

- Apply a continuous bead of **Loctite 5970** around the holes in the outer mating surface of the differential housing, on the connector casing side, as shown in the photo aside – Fig. 25.

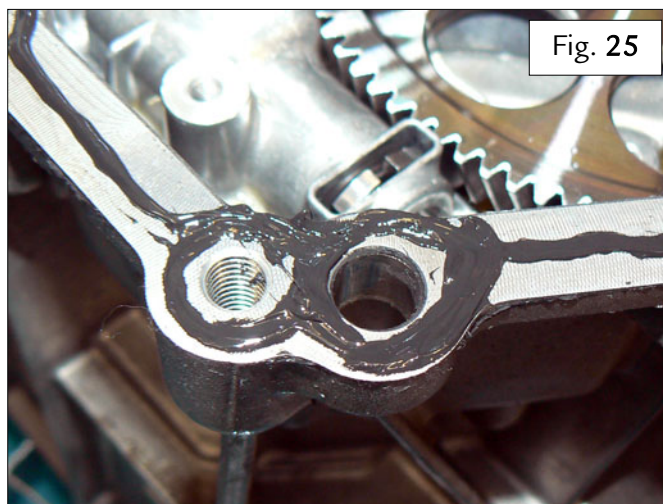


Fig. 25

- The continuous bead of **Loctite 5970** must look like the example shown in the photo aside – Fig. 26.

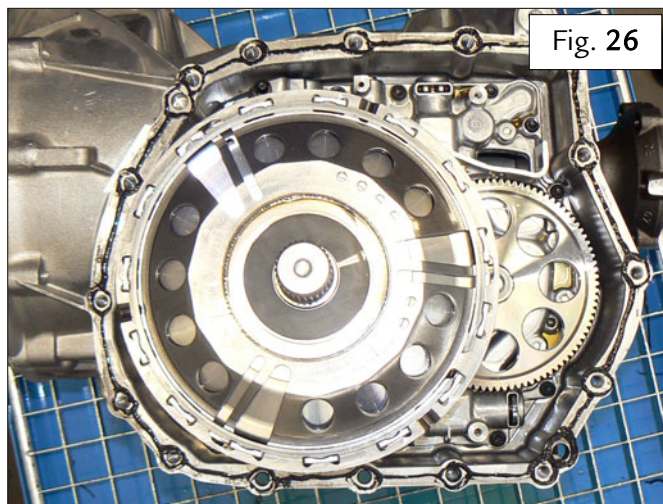


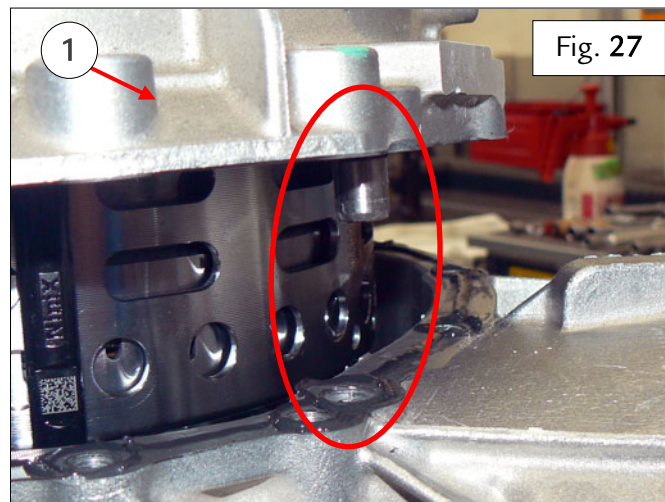
Fig. 26



Ferrari North America

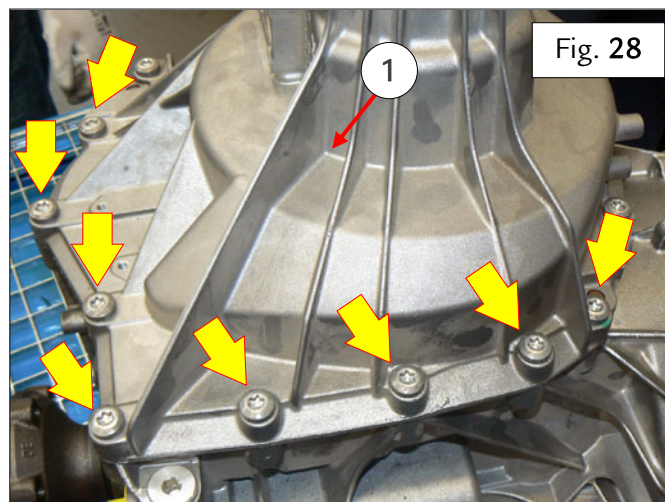
- Lift the connector casing (1) manually and fit it in the relative seat on the differential housing, aligning the indicated pins – Fig. 27.

Note: DO NOT use the rubber mallet to complete the installation of the housing.



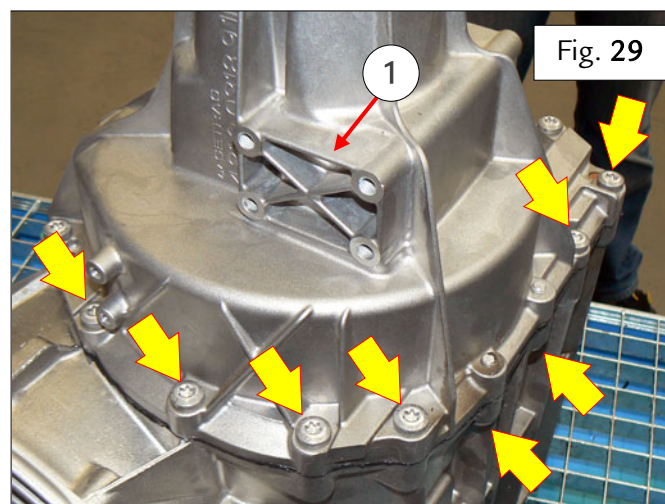
For Ferrari California, FF and F12berlinetta ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 28.



For Ferrari California, FF and F12berlinetta ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 29.

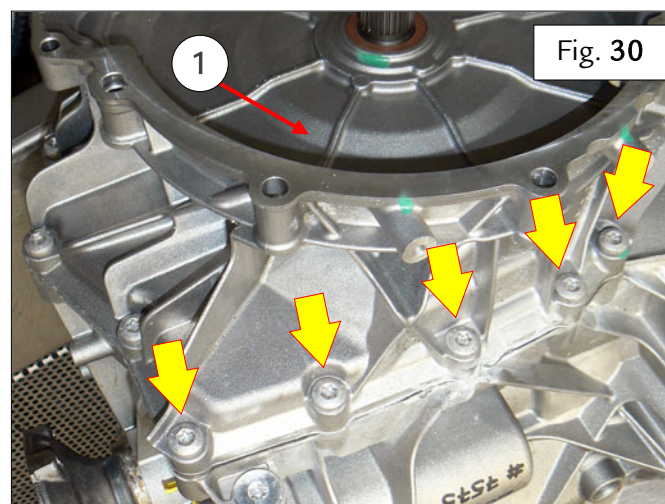




Ferrari North America

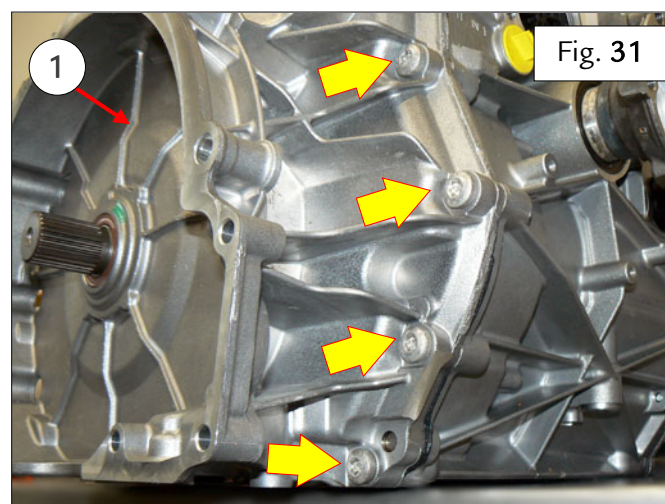
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Fit the connector casing (1) onto the differential housing, taking all the precautions necessary to prevent the clutch shaft from damaging the seal installed previously – Fig. 30.
- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 30.



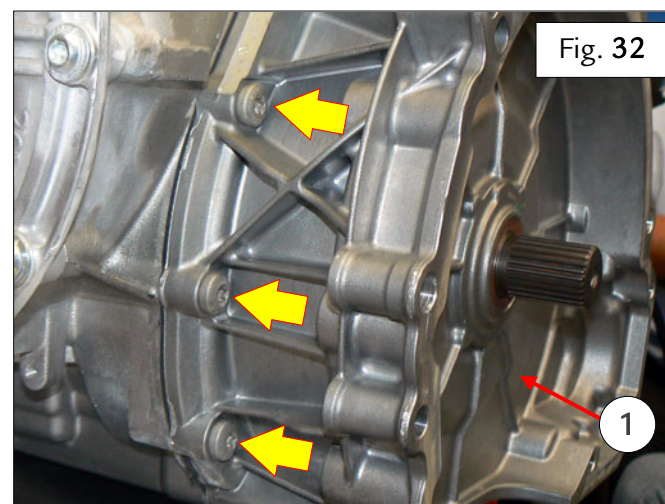
For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 31.



For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 32.





Ferrari North America

For the 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA ONLY

- Hand-tighten the indicated new screws fastening the connector casing (1) – Fig. 33.

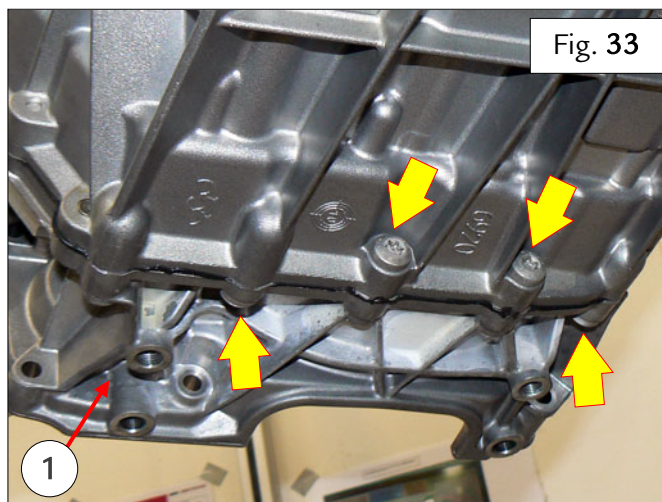


Fig. 33

- Tighten the sixteen screws fitted previously to a torque of **10 Nm** in a cross pattern. Then tighten definitively by turning by an additional **90°** in a cross pattern.
- Perform the **procedure for pressurizing the repaired system** as described at the end of this document.
- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox from the support tool **AM 107314**.
- For the **Ferrari California**, **FF** and **F12berlinetta** ONLY, refit the complete DCT heat shields and mounting struts (as described in paragraph **C2.03** step 1 of the Workshop Manual).
- For **Ferrari California** vehicles with **SINGLE OIL HEAT EXCHANGER ONLY**: refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.05** steps 2 and 4 of the Workshop Manual).
- For the **FF** and **F12berlinetta** ONLY, refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.04** steps 2 and 4 of the Workshop Manual).
- Refit the complete DCT gearbox in the vehicle (as described in paragraph **C2.03** step 2 of the Workshop Manual). **Note:** When refilling the GL oil and ATF fluid and inspecting the relative levels, replace all the oil/fluid plugs and the relative seals removed during the procedures described in this document.
- For the **Ferrari California**, **458 Italia**, **458 Spider**, **458 Speciale** and **458 SpecialeA**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.03** step 2 of the Workshop Manual).



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- For the **FF** and **F12berlinetta**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.02** step 2 of the Workshop Manual).
- For the **Ferrari California**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.06** step 2 of the Workshop Manual).
- For the **458 Italia**, **458 Spider**, **458 Speciale**, **458 SpecialeA**, **FF** and **F12berlinetta**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.05** step 2 of the Workshop Manual).
- **Mark the repaired gearbox for identification** as described at the end of this document.
- Once the procedure is complete, preferably **test drive** the vehicle for 10 Km, and check for leaks from the replaced components after returning to the workshop.

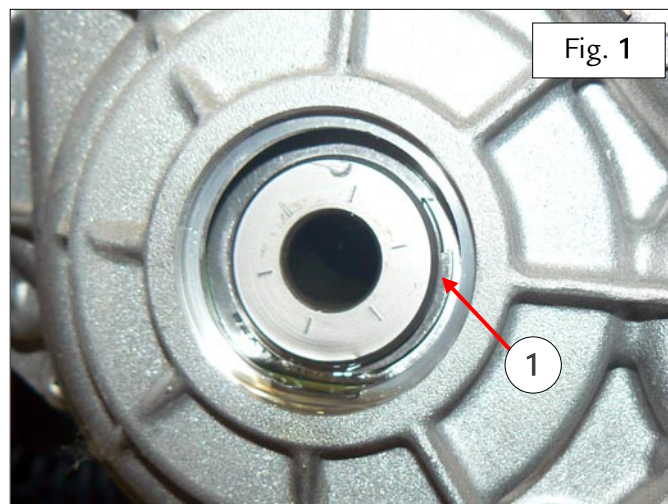
5. Leakage

The following cases are classified as level 2 leaks:

- Leakage between rear cover and gearbox case;
- Leakage between gearbox case and differential housing;
- Leakage between differential housing and front connector casing;

Leakage between rear cover and gearbox case

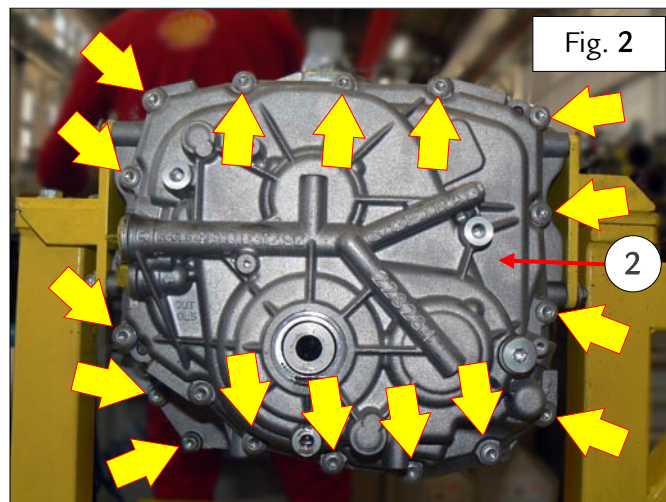
- For the **458 Italia**, **458 Spider**, **458 Speciale**, **458 SpecialeA**, **FF** and **F12 Berlinetta**, remove the E-DIFF pipe as described in step 8. **Replacing the E-DIFF pipe** of the most recent Technical Information relative to Level 1 procedures.
- Remove the rear rubber plug as described in step 4. **Replacing the rear rubber plug** of the most recent Technical Information relative to Level 1 procedures.
- Remove the circlip ring (1) – Fig. 1.



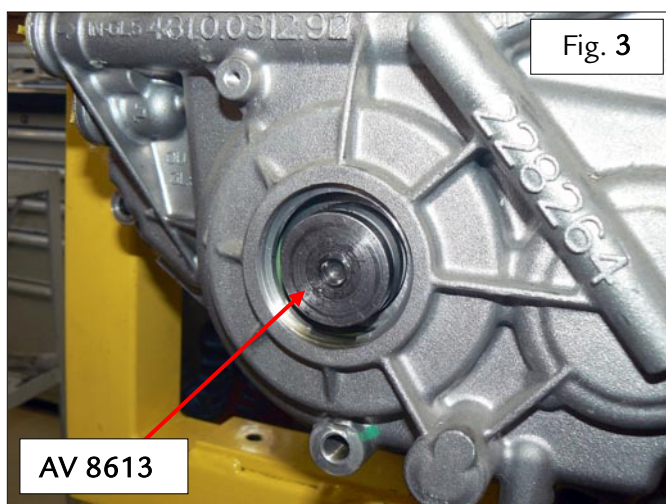


Ferrari North America

- Remove the sixteen screws indicate fastening the rear cover (2) – Fig. 2.

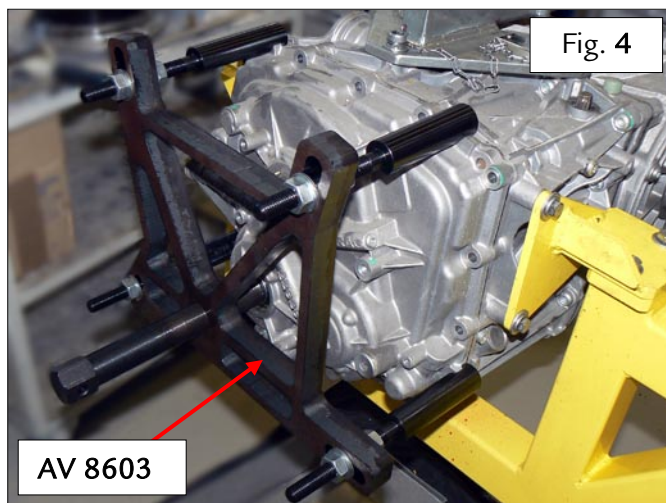


- Fit the cap **AV 8613** on the shaft end visible through the hole in the rear cover – Fig. 3.



FOR REAR COVERS WITHOUT SPECIFIC BUSHINGS FOR FASTENING SINGLE OIL HEAT EXCHANGER

- Fit the extractor tool **AV 8603** onto the relative clamping points on the rear cover – Fig. 4.





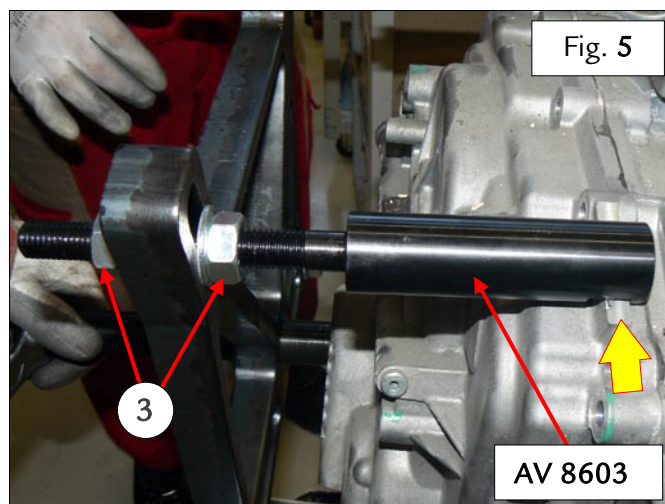
Ferrari North America

- IMPORTANT -

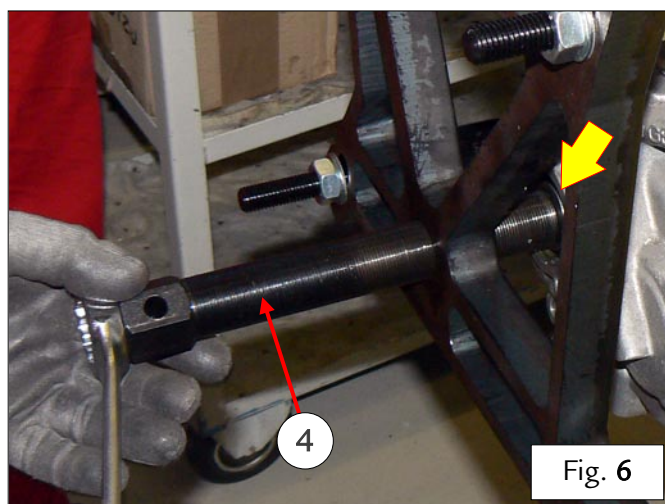
When removing the cover, take care not to damage the fastening points on the cover itself. The 4 tie-rods must all be adjusted to the same length to ensure that the extractor tool remains aligned with the centerline of the gearbox and does not exert force at an angle.

- Place the fastener clamps of extractor tool **AV 8603** correctly on the relative clamping points indicated and tighten the nuts **(3)** – Fig. 5.

Note: When positioning the fastener clamps, take care not to damage the rear cover.



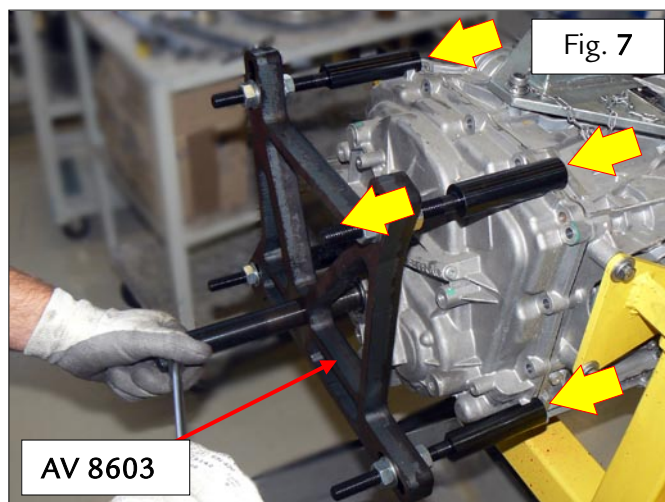
- Turn the threaded rod **(4)** to bring it into contact with the cap fitted previously, in the position indicated – Fig. 6.





Ferrari North America

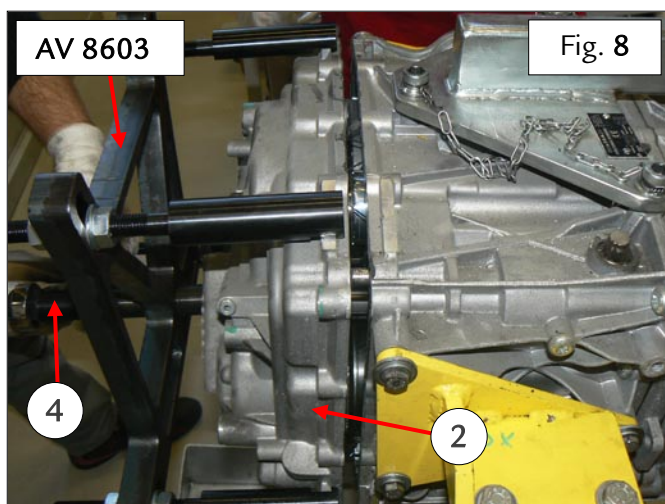
- Using a plastic mallet and a punch, tap the ends of the fastener clamps of the extractor tool **AV 8603** as indicated to initially detach the rear cover from the differential housing – Fig. 7.



- Continue turning the threaded rod (4) of the extractor tool **AV 8603** until the rear cover (2) is completely detached from the differential housing – Fig. 8.

Note: When the rear cover (2) is almost completely separated, support its weight and the weight of the extractor tool **AV 8603** adequately.

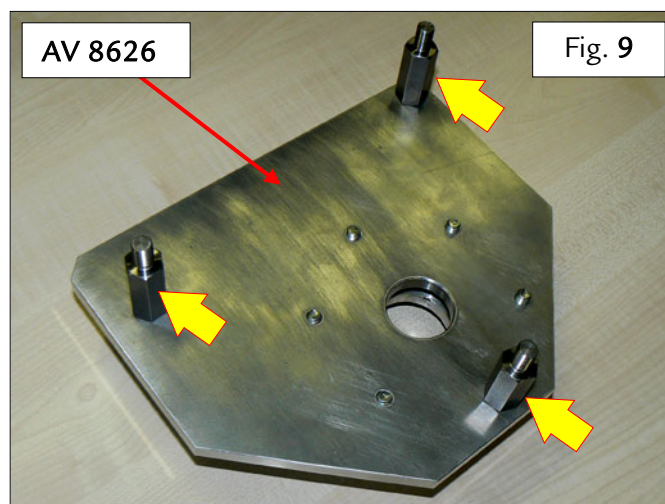
- Once the cover is completely separated, remove the extractor tool **AV 8603** from the cover (2) – Fig. 8.



FOR REAR COVERS WITH SPECIFIC BUSHINGS FOR FASTENING SINGLE OIL HEAT EXCHANGER

- Remove the three stud bolts indicated from tool **AV 8626** – Fig. 9.

Note: the stud bolts differ in length. The two upper bolts are long while the lower stud bolt is short.

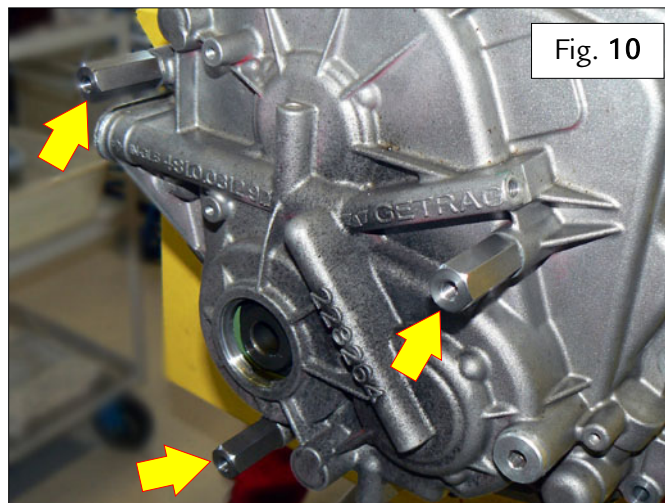




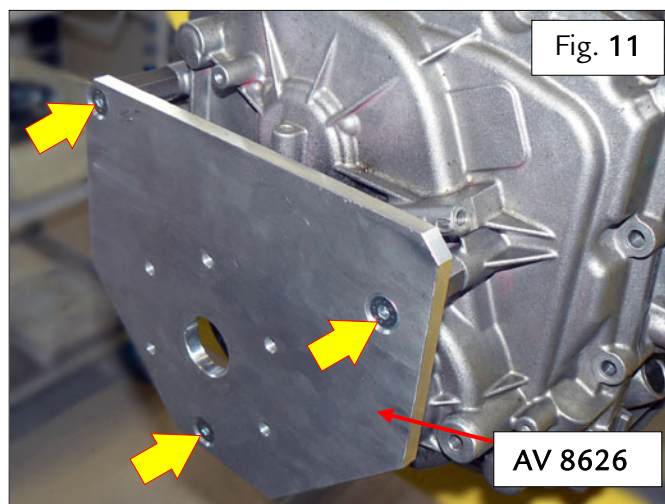
Ferrari North America

- Tighten the three stud bolts into the relative seats indicated on the rear cover – Fig. 10.

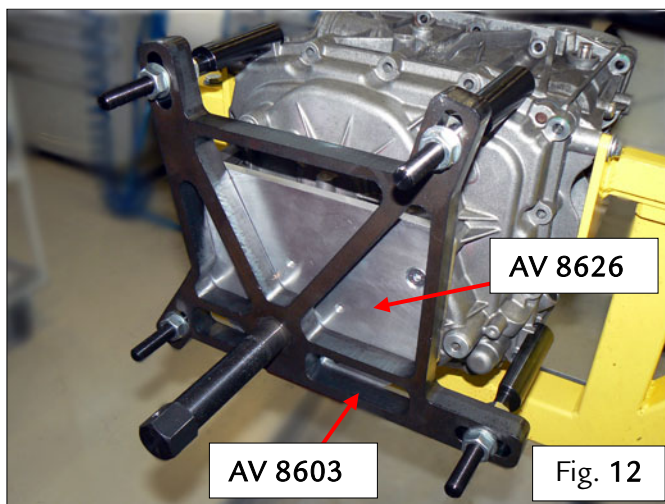
Note: Fit the two longer stud bolts in the upper holes and the short stud bolt in the lower hole.



- Fit the plate of tool **AV 8626** onto the three stud bolts, then tighten the indicated screws – Fig. 11.



- Fit the extractor tool **AV 8603** against the plate **AV 8626** and onto the relative clamping points on the rear cover – Fig. 12.





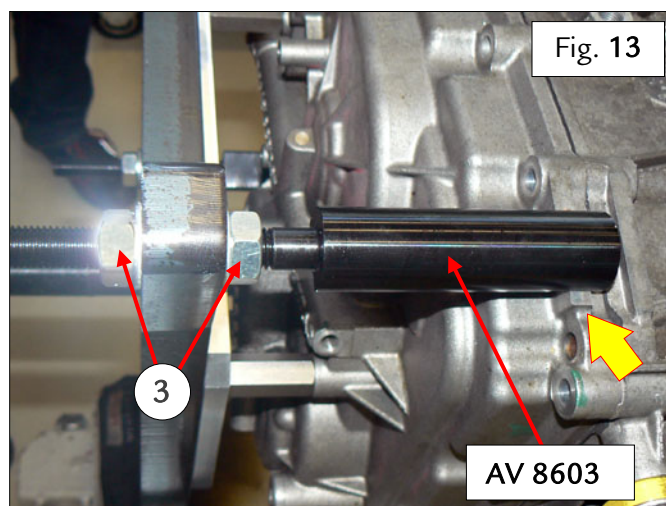
- IMPORTANT -

When removing the cover, take care not to damage the fastening points on the cover itself. The 4 tie-rods must all be adjusted to the same length to ensure that the extractor tool remains aligned with the centerline of the gearbox and does not exert force at an angle.

- Place the fastener clamps of extractor tool **AV 8603** correctly on the relative clamping points indicated and tighten the nuts **(3)** – Fig. 13.

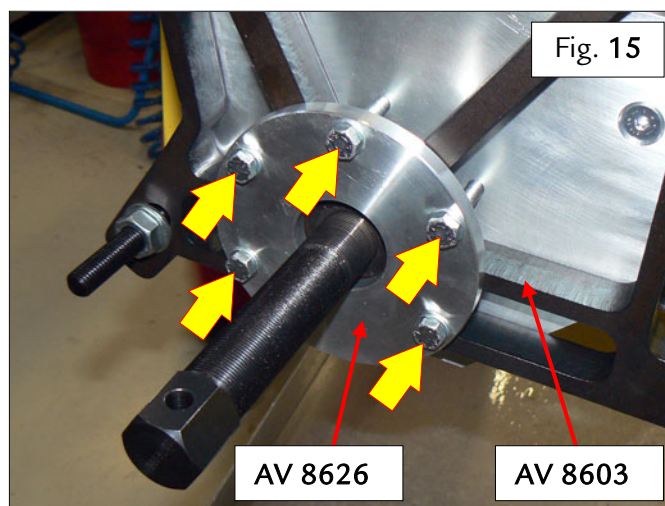
Note: The entire surface of extractor tool **AV 8603** must be in contact with the plate **AV 8626**.

Note: When positioning the fastener clamps, take care not to damage the rear cover.



- Turn the threaded rod **(4)** to bring it into contact with the cap **AV 8613** fitted previously, in the position indicated – Fig. 14.

- Fasten the extractor tool element **AV 8626** onto the plate and tighten the indicated screws to bring the plate uniformly into contact with the extractor tool **AV 8603** – Fig. 15.





- IMPORTANT -

During the subsequent extraction of the cover, ensure that the extractor tool remains aligned with the centerline of the gearbox and does not exert force at an angle.

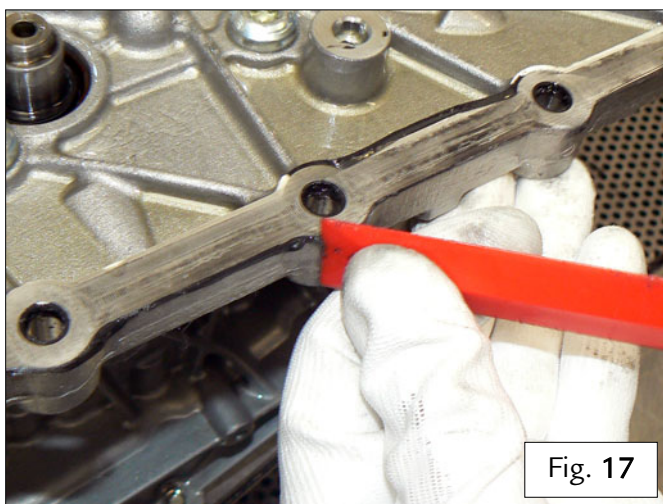
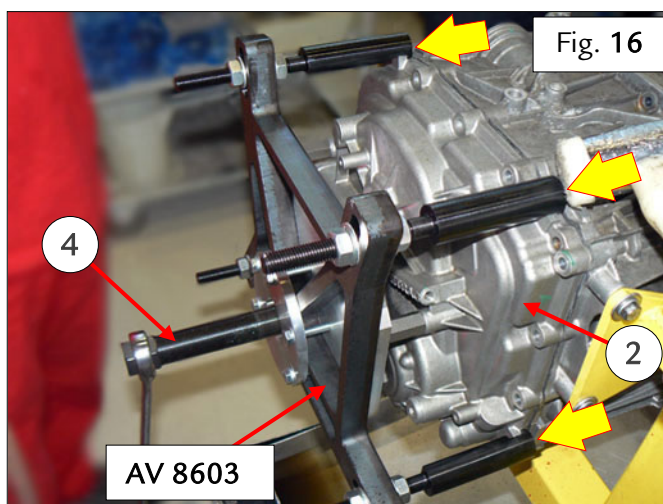
- Using a plastic mallet, tap the ends of the fastener clamps of the extractor tool **AV 8603** in the four positions indicated to initially detach the rear cover from the differential housing – Fig. 16.

- Turn the threaded rod (4) of the extractor tool **AV 8603** until the rear cover (2) is completely detached from the differential housing – Fig. 16.

Note: When the rear cover (2) is almost completely separated, support its weight and the weight of the extractor tool assembly **AV 8603/ AV 8626** adequately.

- Once the cover is completely separated, remove the extractor tool assembly **AV 8603/ AV 8626** from the cover (2) – Fig. 8.
- Retrieve the magnet and clean to remove any debris.
- Using a Teflon spatula, remove all traces of sealant from the surfaces of the interface plate and the differential housing – Fig. 17.

Note: Take care not to damage the surfaces of the housing.

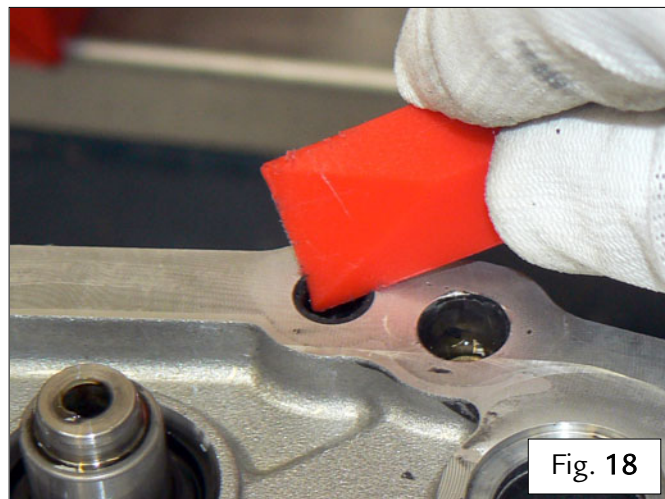




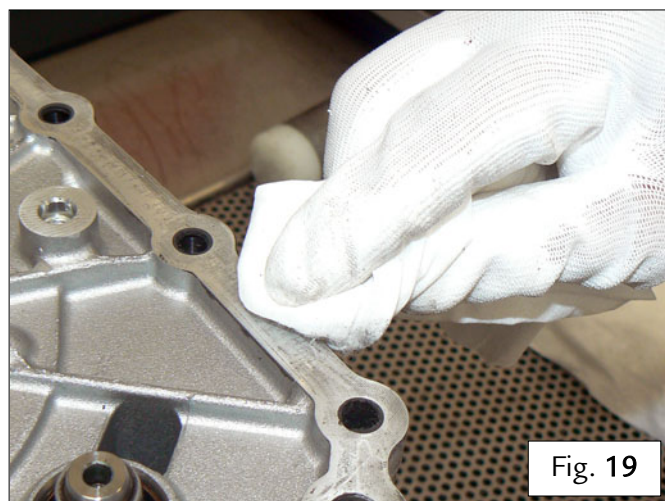
Ferrari North America

- Using a Teflon spatula, remove all traces of sealant from the holes in the differential housing – Fig. 18.

Note: Take care not to damage the surfaces of the housing.

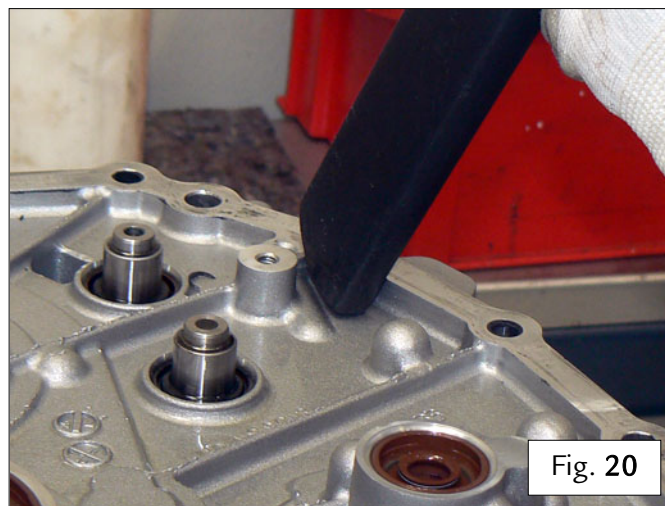


- Using a lint-free cloth and heptane, remove all traces of adhesive and/or dirt from the surface and holes of the differential housing – Fig. 19.



- Aspirate any residue of adhesive and/or dirt from the surface of the differential housing – Fig. 20.

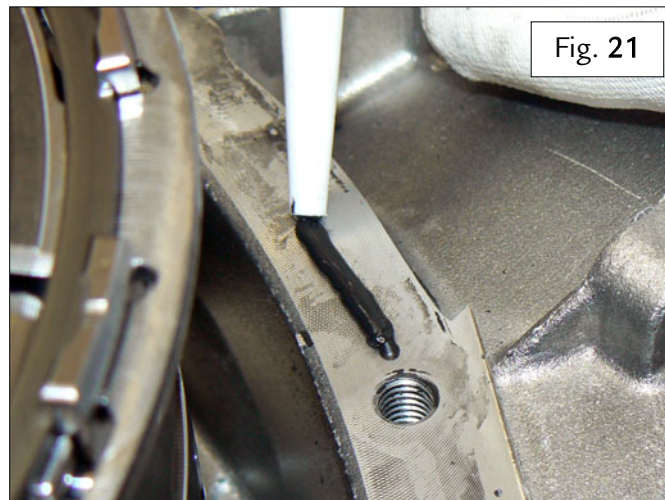
Note: DO NOT blow or use cloths to remove dirt and/or dust.



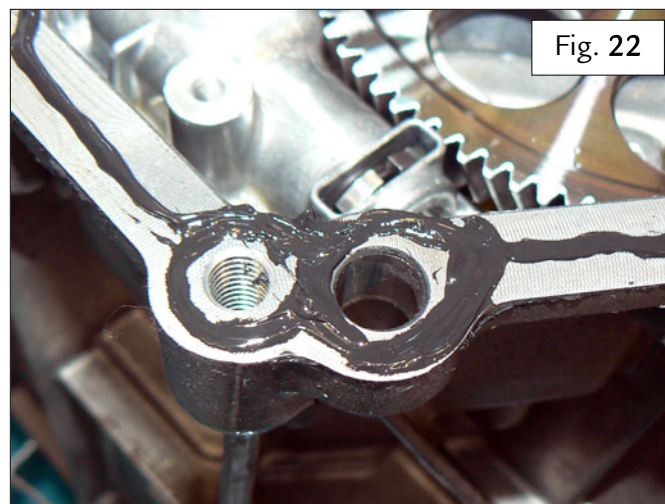


Ferrari North America

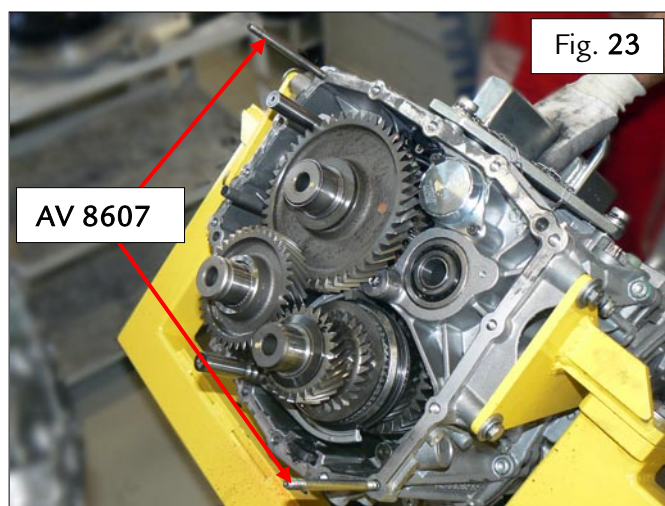
- Apply a continuous bead of **Loctite 5970** to the outer mating surface of the differential housing – Fig. 21.



- Apply a continuous bead of **Loctite 5970** around the holes in the outer mating surface of the differential housing as shown in the photo aside – Fig. 22.



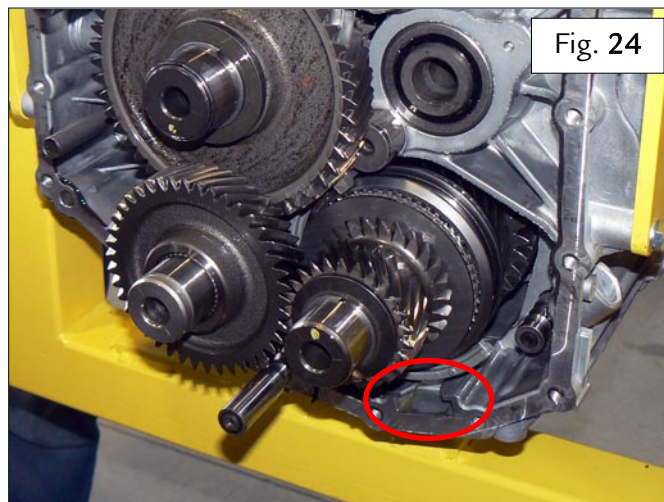
- Fit the alignment pins **AV 8607** in the opposite holes on the differential housing – Fig. 23.



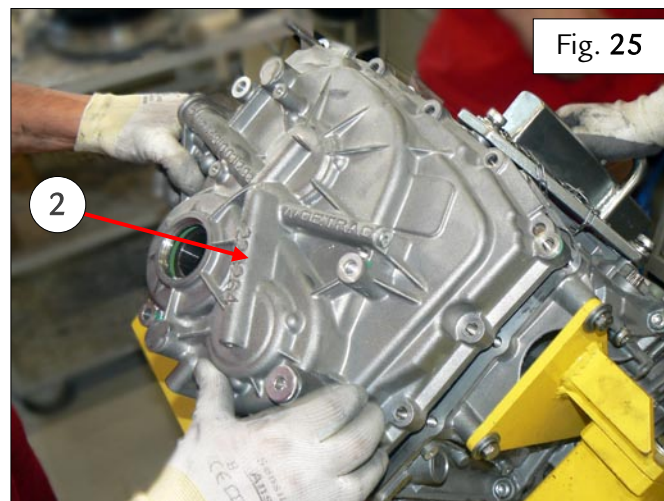


Ferrari North America

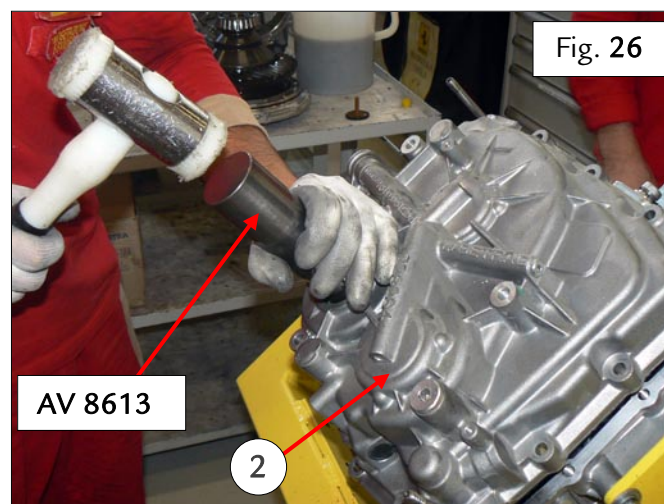
- Clean the magnet thoroughly and fit in its relative seat on the gearbox case – Fig. 24.



- Fit the rear cover (2), aligning the alignment pins – Fig. 25.



- Using the punch AV 8613 and a plastic mallet, tap the rear cover (2) to bring it into contact with the differential housing – Fig. 26.
- Remove the alignment pins AV 8607.

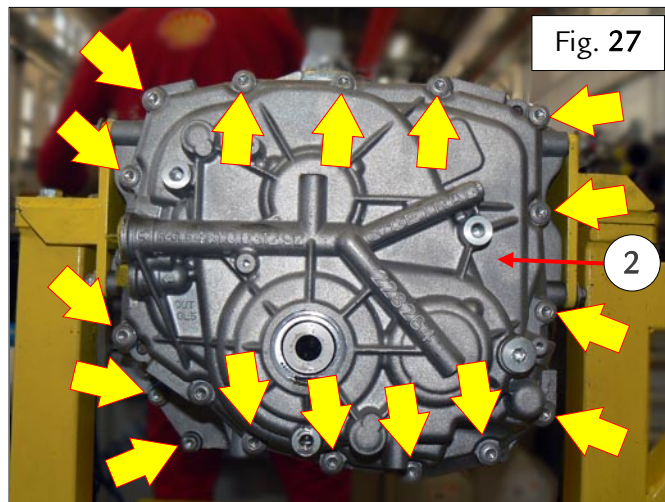


- Apply a film of **Loctite 5970** inside the screw holes on the gearbox, near the area where the leak occurred

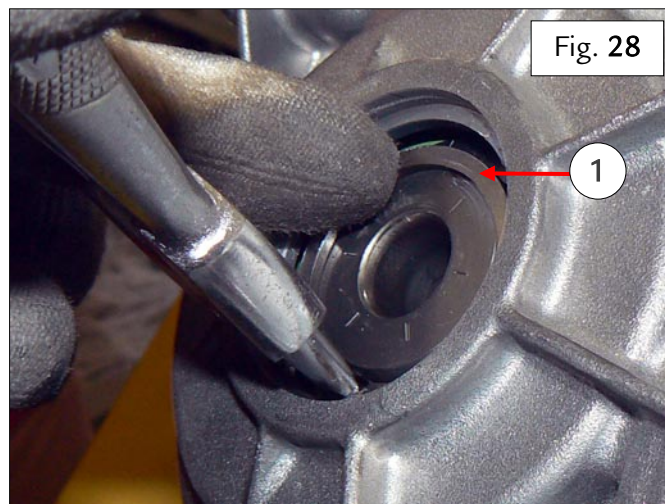


Ferrari North America

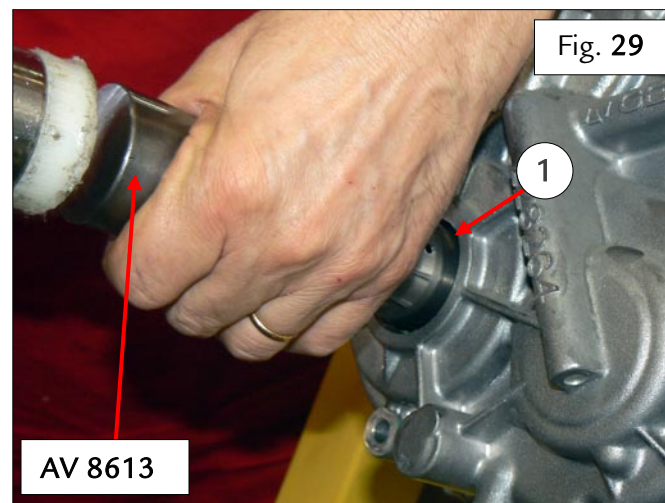
- Pre-tighten the sixteen new screws indicated fastening the rear cover (1) to a torque of 10 Nm class B, in a cross pattern – Fig. 27.



- Fit the circlip (1) on the shaft – Fig. 28.



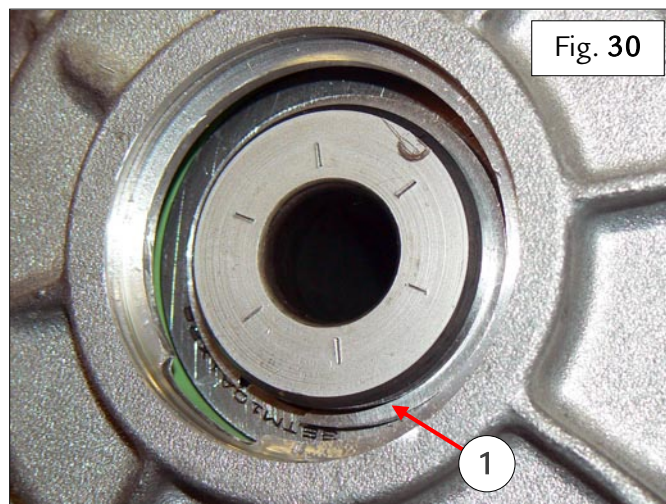
- Using the punch AV 8613 and a plastic mallet, install the circlip (1) in the relative seat – Fig. 29.



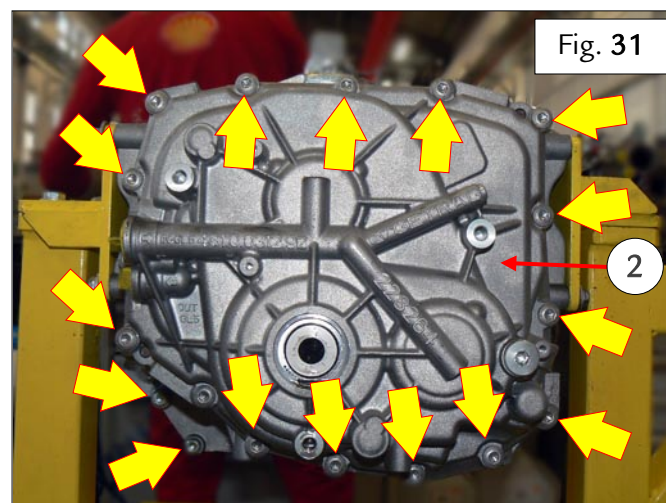


Ferrari North America

- Check that the circlip (1) is installed correctly in the relative seat on the shaft – Fig. 30.



- Tighten the sixteen screws indicated fastening the rear cover (2), setting an angle of 90°, in a cross pattern – Fig. 31.



- For the **458 Italia**, **458 Spider**, **458 Speciale**, **458 SpecialeA**, **FF** and **F12 Berlinetta**, refit the E-DIFF pipe as described in step 8. **Replacing the E-DIFF pipe** of the most recent Technical Information relative to Level 1 procedures.
- Fit the new rear rubber plug as described in step 4. **Replacing the rear rubber plug** of the most recent Technical Information relative to Level 1 procedures.



Ferrari North America

Leakage between gearbox case and differential housing

- Separate the gearbox case from the differential housing as illustrated in the previously described procedure “[Replacing the SAP](#)”.
- Clean the mating surfaces then apply a new bead of **Loctite 5970** as illustrated in the previously described procedure “[Replacing the SAP](#)”.
- Refit the gearbox case on the differential housing as illustrated in the previously described procedure “[Replacing the SAP](#)” and apply a film of **Loctite 5970** in the holes for the screws on the gearbox, near the area where the leak occurred.
Note: In the case of leakage between the gearbox case and the differential housing, the screws fastening the case and housing may be used for three assemblies.
- Tighten the screws fastening the case and housing as illustrated in the previously described procedure “[Replacing the SAP](#)”. **Note:** The screws may be reused for up to three assemblies.

Leakage between differential housing and front connector casing

- Remove the front connector casing as illustrated in the previously described procedure “[Replacing the front connector casing](#)”.
- Clean the mating surfaces then apply a new bead of **Loctite 5970** as illustrated in the previously described procedure “[Replacing the front connector casing](#)”.
- Refit the front connector casing on the differential housing as illustrated in the previously described procedure “[Replacing the front connector casing](#)” and apply a film of **Loctite 5970** in the holes for the screws on the gearbox, near the area where the leak occurred.
- Tighten the new screws fastening the case and housing as illustrated in the previously described procedure “[Replacing the front connector casing](#)”.
- Perform the **procedure for pressurizing the repaired system** as described at the end of this document.
- Using the bracket **AV 8606** and the lift hook, lift and remove the DCT gearbox from the support tool **AM 107314**.
- For the **Ferrari California, FF and F12berlinetta ONLY**, refit the complete DCT heat shields and mounting struts (as described in paragraph **C2.03** step 1 of the Workshop Manual).



Ferrari North America

- For **Ferrari California** vehicles with SINGLE OIL HEAT EXCHANGER ONLY: refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.05** steps 2 and 4 of the Workshop Manual).
- For the **FF** and **F12berlinetta** ONLY, refit the single oil heat exchanger with the relative mounting bracket (as described in paragraph **C2.04** steps 2 and 4 of the Workshop Manual).
- Refit the complete DCT gearbox in the vehicle (as described in paragraph **C2.03** step 2 of the Workshop Manual). **Note:** When refilling the GL oil and ATF fluid and inspecting the relative levels, replace all the oil/fluid plugs and the relative seals removed during the procedures described herein.
- For the **Ferrari California, 458 Italia, 458 Spider, 458 Speciale and 458 SpecialeA**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.03** step 2 of the Workshop Manual).
- For the **FF** and **F12berlinetta**, refill the hydraulic DCT clutch system with F-3 ATF fluid (as described in paragraph **C3.02** step 2 of the Workshop Manual).
- For the **Ferrari California**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.06** step 2 of the Workshop Manual).
- For the **458 Italia, 458 Spider, 458 Speciale, 458 SpecialeA, FF and F12berlinetta**, fill with Shell Transaxle 75W-90 GL5 gear oil (as described in paragraph **C2.05** step 2 of the Workshop Manual).
- **Mark the repaired gearbox for identification** as described at the end of this document.
- Once the procedure is complete, preferably **test drive** the vehicle for at least 6 miles, and check for leaks after returning to the workshop.

System pressurization procedure

- IMPORTANT -

The utmost cleanliness must be maintained during all the following operations; always wear clean gloves, replacing them frequently if necessary, and use absorbent lint-free cloth and heptane to clean and degrease components.



Ferrari North America

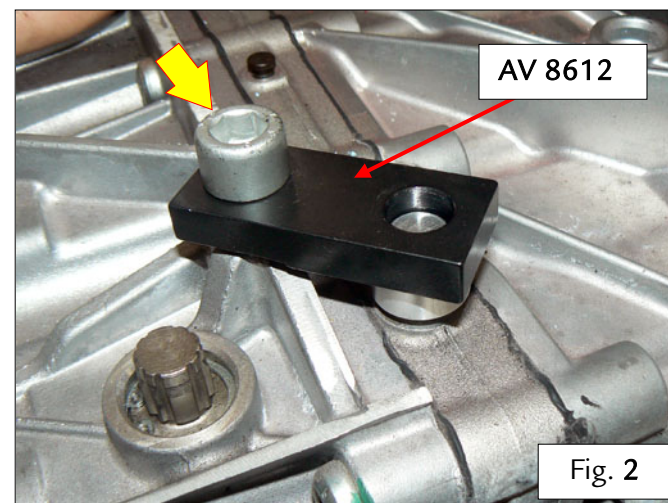
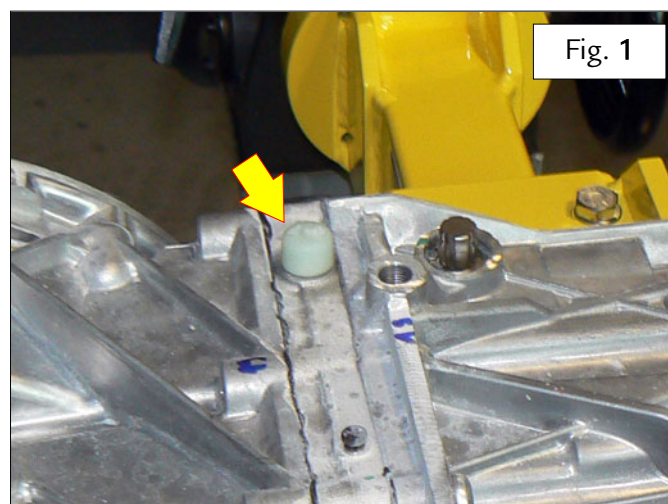
When performing any of the above procedures with the gearbox on the workbench, before reinstalling the gearbox in the vehicle and filling the gearbox with oil and fluid, the gearbox systems must be pressurized.

- IMPORTANT -

This procedure must only be performed with the gearbox completely empty (containing no oil or fluid).

GEAR OIL SYSTEM

- Remove the gear oil breather plug indicated – Fig. 1.
- Install the tool **AV 8612 (95978612)**, consisting of a plug with relative O-ring and a bracket fastened with the indicated screw, in the GL oil system breather – Fig. 2.



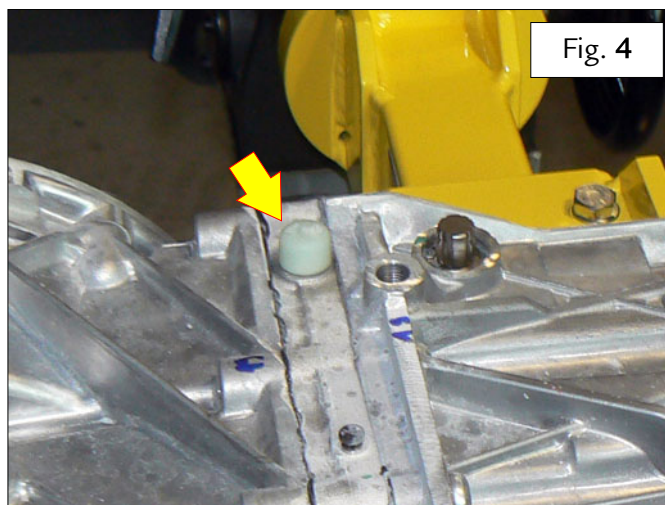
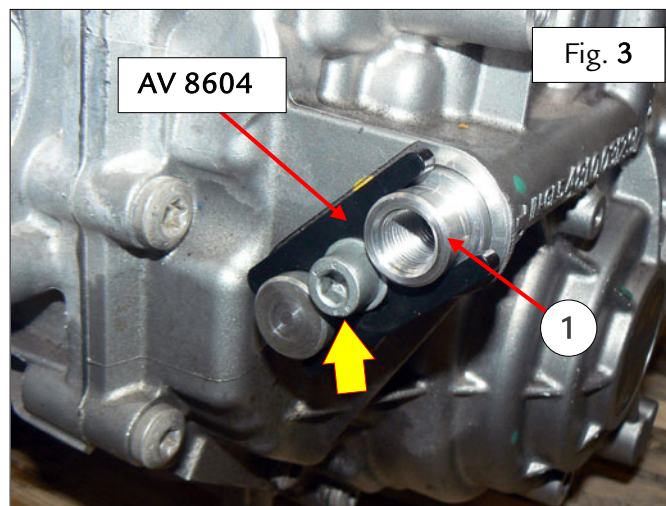


Ferrari North America

- Seal the indicated GL oil inlet and outlet orifices on the gearbox with the gearbox pressurizing tool **AV 8604 (95978604)**, then fasten by tightening the indicated screw – Fig. 3.

Note: The open plug (1) must be fitted in the orifice on the gearbox marked “IN”.

- Connect the pressurizing system to the plug (1) – Fig. 3.
- Pressurize the system to a maximum of **0.5 Bar**.
- Keeping the system pressurised, test the seal tightness of the replaced parts around joints/seams/gaskets/seals using bubble testing liquid.
- After testing, remove all residue of bubble testing liquid from the gearbox with a clean, lint-free cloth.
- Once the procedure is complete, remove the gearbox pressurizing tools **AV 8604** and **AV 8612**.
- Refit the indicated breather plug – Fig. 4.

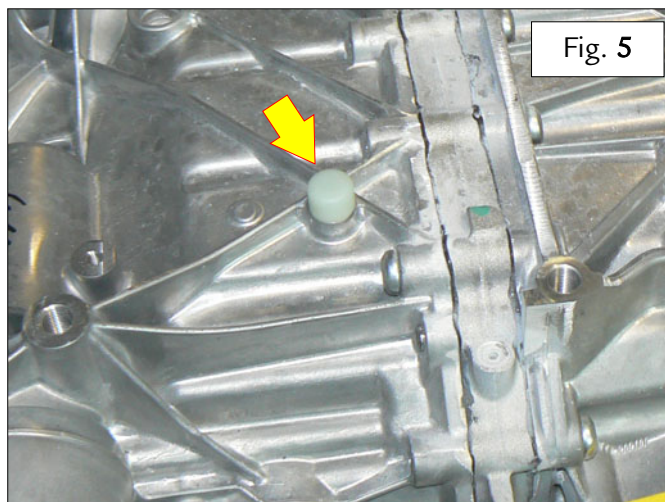




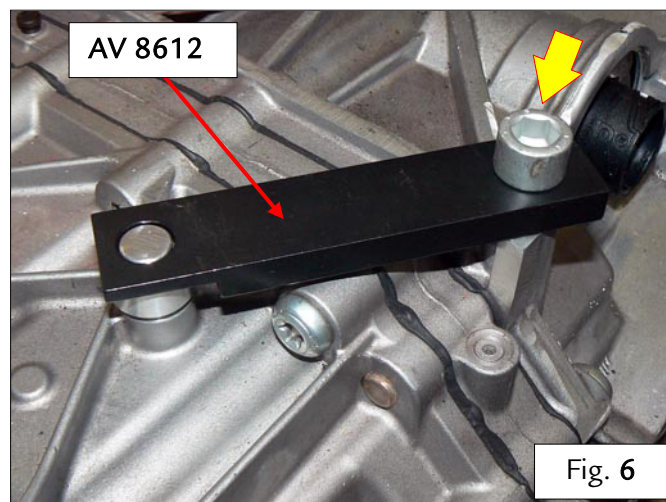
Ferrari North America

ATF HYDRAULIC CLUTCH SYSTEM

- Remove the hydraulic clutch system oil breather plug indicated – Fig. 5.



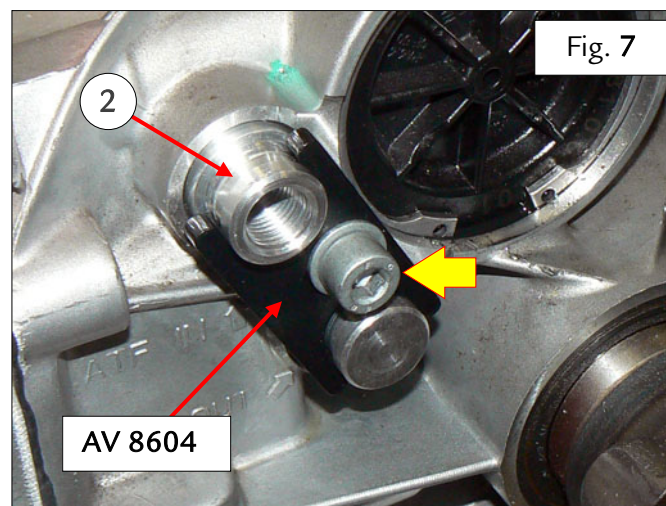
- Install the tool **AV 8612 (95978612)**, consisting of a plug with relative O-ring and a bracket fastened with the indicated screw, in the ATF oil system breather – Fig. 6.



- Seal the indicated ATF oil inlet and outlet orifices on the gearbox with the gearbox pressurizing tool **AV 8604 (95978604)**, then fasten by tightening the indicated screw – Fig. 7.

Note: the open plug (2) must be fitted in the orifice on the gearbox marked “IN”.

- Connect the pressurizing system to the plug (2) – Fig. 7.

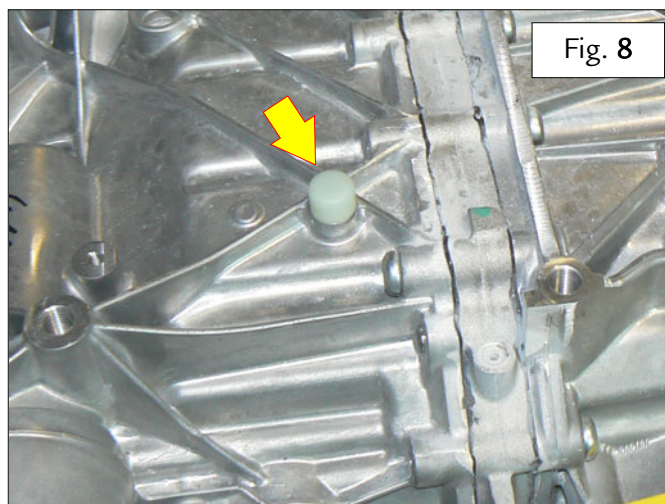




Ferrari North America

- Pressurize the system to a maximum of **0.5 Bar**.
- Keeping the system pressurized, test the seal tightness of the replaced parts around joints/seams/gaskets/seals using bubble testing liquid.
- After testing, remove all residue of bubble testing liquid from the gearbox with a clean, lint-free cloth.
- Once the procedure is complete, remove the gearbox pressurizing tools **AV 8604** and **AV 8612**.

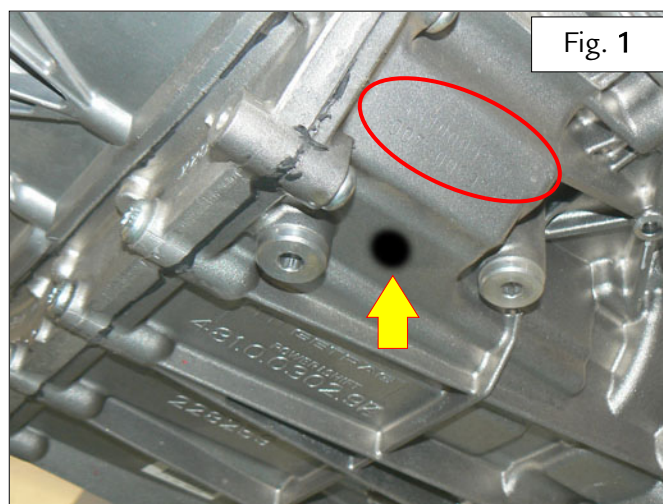
- Refit the indicated breather plug – Fig. 8.



Procedure for marking repaired gearbox

After performing one of the procedures described previously, the gearbox housing must be marked with an identification marking as described as follows, to permit immediate identification of repaired gearboxes without opening the gearbox.

- Using a **BLACK** permanent marker, make a circular identification marking in the position indicated between the two oil system drain plugs, next to the gearbox identification number, as shown in the photo aside – Fig. 1.





Ferrari North America

Self-acquisition procedure

After completing the procedure to replace the SAP and/or CCP (once the gearbox has been installed in the vehicle and filled with all fluids necessary), perform the following sequence of operations to allow the system to self-acquire the necessary parameters.

1. Connect the DEIS diagnostic tester to the vehicle;
2. Start the engine and run at idle speed until the gearbox gear oil reaches operating temperature (as described in paragraph **A3.03** of the Workshop Manual for F-3 ATF DCT gearbox hydraulic clutch system oil; as described in paragraph **A3.02** of the Workshop Manual for Shell Transaxle 75W-90 GL5 gear oil);
3. Check the level of the gearbox gear oil and the level of the hydraulic clutch system oil (as described in paragraph **A3.03** of the Workshop Manual for F-3 ATF DCT gearbox hydraulic clutch system oil; as described in paragraph **A3.02** of the Workshop Manual for Shell Transaxle 75W-90 GL5 gear oil);

- IMPORTANT -

If the fault warning lamp illuminates or any errors are indicated during the aforementioned procedure, stop the procedure immediately and diagnose the fault.

4. Perform the cycle “**40 NCR Valve cleaning test**” with the DEIS tester.
5. Test drive the vehicle normally for **30 minutes**, and check if any fault warning indicator lamps illuminate or if any gearbox malfunctions occur during the test drive.
6. Upon returning to the workshop after the test drive, check:
 - that no fault warning lamps are lit;
 - that there are no malfunctions, that the clutch does not judder or slip, that gears are not engaged too harshly and that there is no abnormal gearbox noise;
 - that there are no errors identified by the DEIS diagnostic tester;
 - that there are no leaks.



Ferrari North America

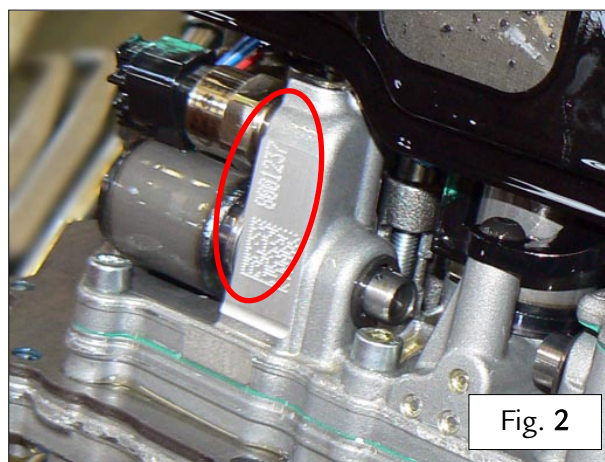
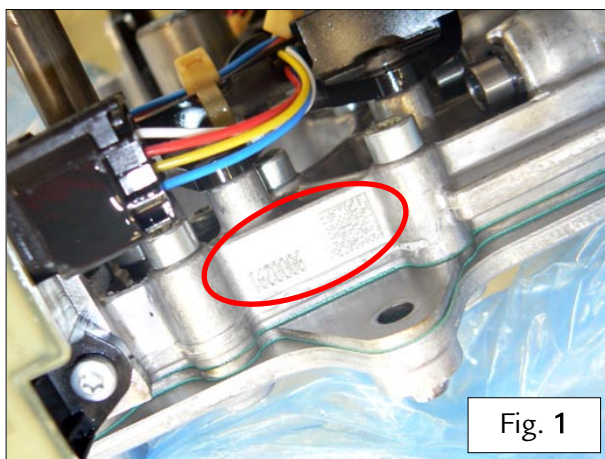
- IMPORTANT -

- In the event of error codes regarding internal gearbox components, diagnose the relative fault.
- If error “P193F” is generated following replacement of the CCP, perform the DEIS cycle “30 NCR Calibration”;
- If error “P193F” is generated following replacement of the SAP, perform the DEIS cycle “50 Gearbox position self-acquisition”;

Note: Note that the DEIS calibration cycles must be performed with the vehicle on a level surface and with the longitudinal accelerometer calibrated correctly (with DEIS cycle “20 NCR Accelerometer self-acquisition”); always wait at least 30 seconds between each step in the calibration procedure.

SAP - CCP identification codes

The relative identification codes are stamped on the SAP (Fig. 1) and on the CCP (Fig. 2).





DCT Gearbox Pre-Diagnosis Form

Page 01 of 03

Model	Updated on
	February 2016

VEHICLE FILE	
Date:	Chassis number:
Model:	Dealer:
Market:	Vehicle Km/mi:
Gearbox No.:	ROL No. (if available):
Warranty start date:	Warranty end date:
Prior procedures on DCT gearbox (date and type of procedure):	
DIAGNOSTIC FILE	
Provide description of oil leakage found (attach photos), specifying number of leaks, in reference to the drawings from page 2 to 4 of Technical Information 2149:	
List any DTC errors in NCR (in reference to the list from page 7 to 15 of Technical Information 2149):	
<u>In the event of NOISE from gearbox/differential, specify:</u> Conditions in which noise occurs: Vehicle speed: Gear selected: N 1st 2nd 3rd 4th 5th 6th 7th R ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ During gear shift? YES NO ☐ ☐ If noise occurs during gear shifting, specify: Upshifts ☐ Downshifts ☐ Automatic mode ☐ Manual mode ☐ Performance mode ☐	



DCT Gearbox Pre-Diagnosis Form

Page 02 of 03

Model	Updated on
	February 2016

If noise occurs with gear engaged, specify when:	Under acceleration ☐	When lifting off throttle ☐	Constant throttle (cruise) ☐
	Driving straight ☐	Turning right ☐	Turning left ☐
Noise is heard when:	Negotiating traffic circle ☐	Negotiating tight bend ☐	Negotiating wide bend ☐
	Whistle ☐	Rumble ☐	Gear noise ☐
Describe the type of noise heard:	Differential bevel gear ☐	Vibration ☐	Clunking ☐
	Check the levels of the clutch hydraulic oil system (ATF) and the gearbox gear oil system (GL)		
Oil level (ATF)	Too high ☐	Too low ☐	OK ☐
Oil level (GL)	Too high ☐	Too low ☐	OK ☐
Is metal debris found on plug?			
JOB FILE			
Procedure performed (from operation list on page 2):			
Kit Part Nos. ordered:			



DCT Gearbox Pre-Diagnosis Form

Page 03 of 03

Model	Updated on
<i>458 ITALIA</i> <i>458 SPECIALE</i> FERRARI <i>California</i> <i>FF</i> <i>458 SPIDER</i> <i>458 SPECIALE A</i> <i>F12 berlinetta</i>	February 2016

Job performed on:	
<u>CCP</u>	<u>SAP</u>
Identification No. of old CCP:	Identification No. of old SAP:
Identification No. of new CCP:	Identification No. of new SAP:
(see page 106)	(see page 106)
Any faults noted during repair procedure:	

Task performed by (Dealer):

Technical Manager:

First name _____ Surname _____
(Print) (Print)

Company stamp

Full signature