Technical note “Evoluzioni MP3 – Fuoco”

In response to a number of operational difficulties noted, we have introduced a set of unified procedures to resolve the main problems encountered.

Please note that these procedures are highly specific and must be implemented on the basis of your own experience.

4. Roll Lock System Casing Sealing

4.1. Premise

4.2. Plastic Components Removal

4.3. Roll Lock System Casing Removal

4.4. Roll Lock System Casing Disassembly

4.5. Drain Holes Procedure

4.6. Roll Lock System Casing Assembly

4.7. Roll Lock System Reset and Control Pump Sealing

4.8. Hydraulic Circuit Connection and Bleeding

4.9. Control Pump Connection Inspection Compartment Cap Sealing

4.10. Plastic Components Assembly

4.1. Premise

Check for errors identified by Navigator.

In the event of errors relative to the gear motor unit motor, proceed as follows:

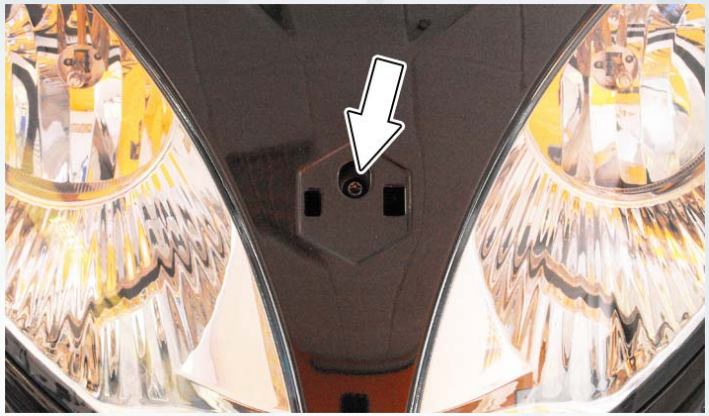
If the error is stored:
Delete errors and test the roll lock system again.
If necessary, check that the entire mechanical system functions smoothly and without impediment, rotating the system manually by turning the motor shaft clockwise to determine the lower endstop and anticlockwise to determine the upper endstop (lower endstop approx. 60° and 1 Volts, upper endstop approx. 290° and 4 Volts).
If the system functions smoothly and without impediment and the values given above are measured, zero the potentiometer again.
Test the roll lock system.

If the error is active:
1. Remove the motor from the gear motor casing (powering the motor while in the casing may damage the internal gears).
2. Power the motor directly with an external battery, and check that it turns correctly.
3. Apply a clamp ammeter, and check that the zero load current value is 2.5 A.

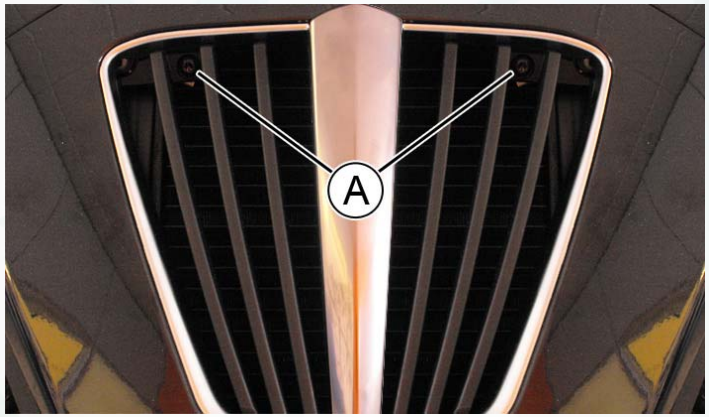
4.2. Plastic Components Removal:

- Remove the Piaggio clip-on badge with a flat-headed screwdriver

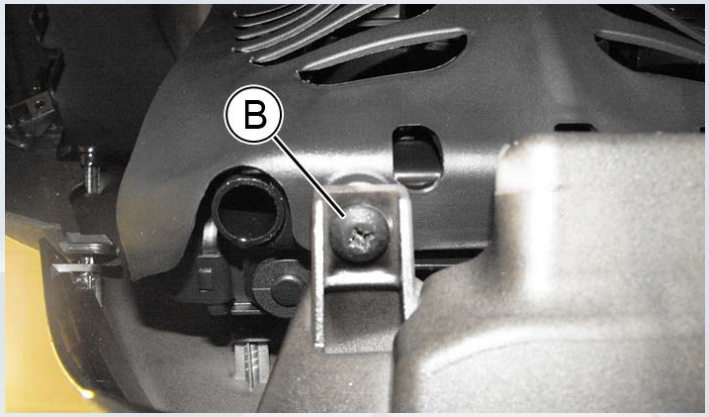
- Undo the screw under the badge and remove the centre headlight cover



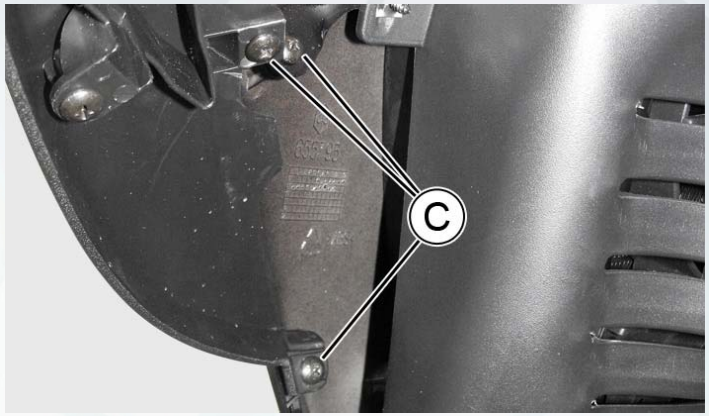
- Undo the screws “A” fastening the front grille



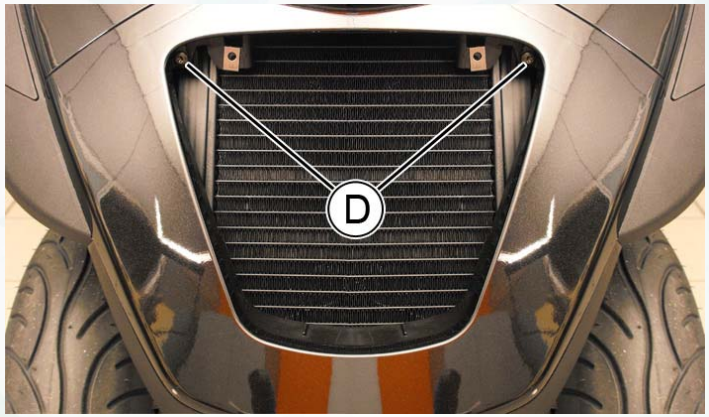
- On both sides of the vehicle, undo the screw “B” at the bottom of the front grille surround and retrieve the shim



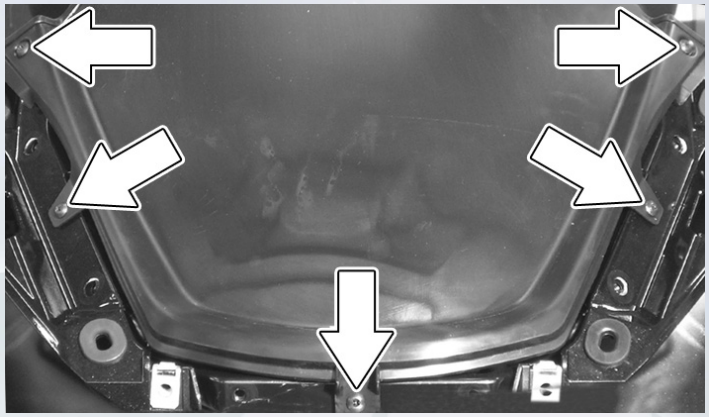
- On both sides of the vehicle, undo the screws “C” inside the front wheel housing



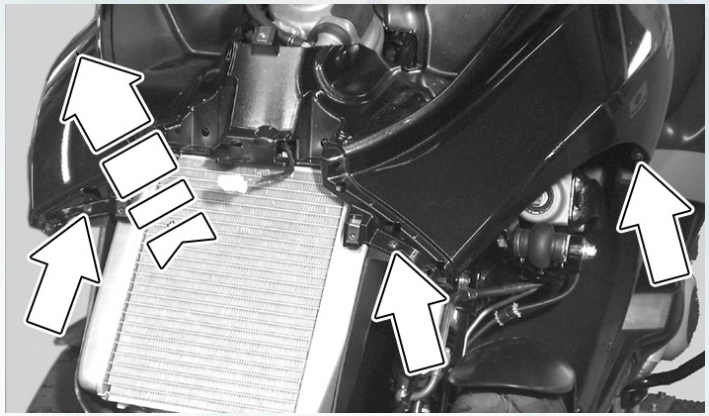
- Undo the screws “D” and remove the front grille surround



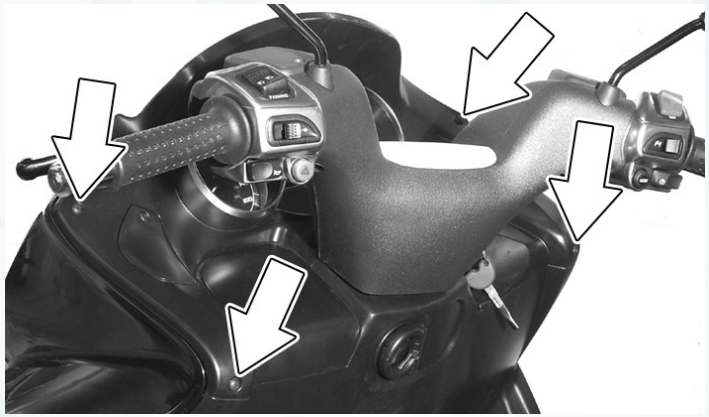
- Undo the indicated screws and remove the spoiler



- Undo the indicated screws

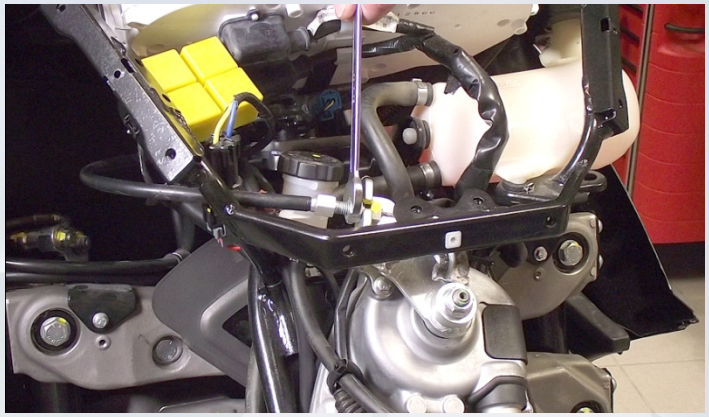


- Undo the indicated screws and remove the complete shield

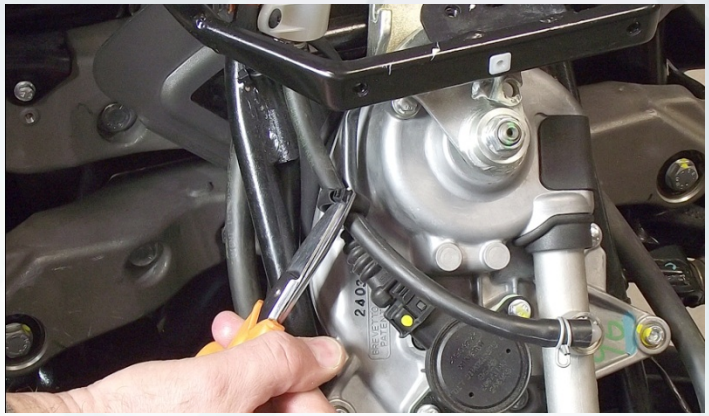


4.3. Roll Lock System Casing Removal

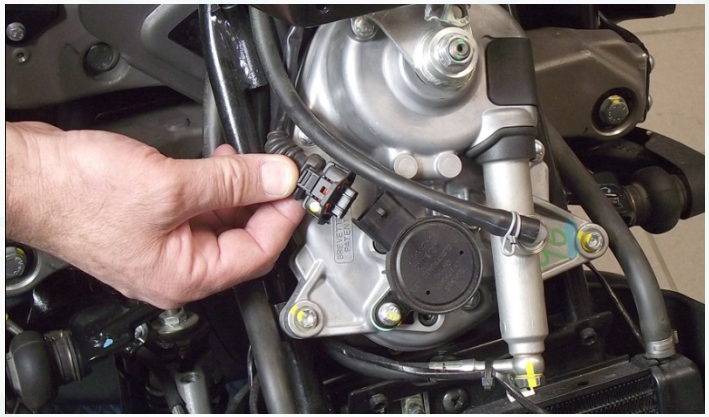
- Check that roll lock system is released, then loosen mechanical calliper adjuster screw, and remove transmission from device



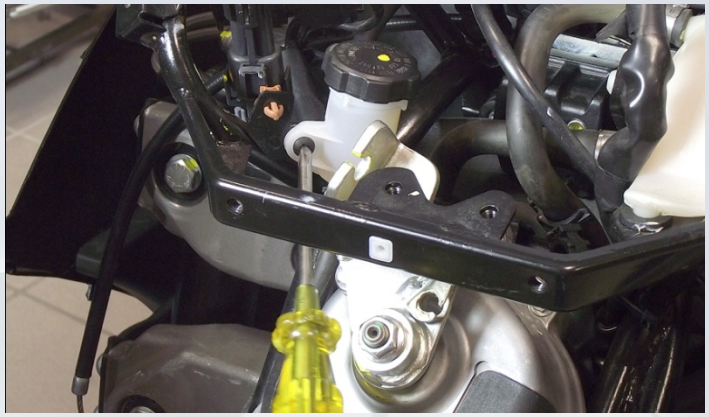
- Remove clamp



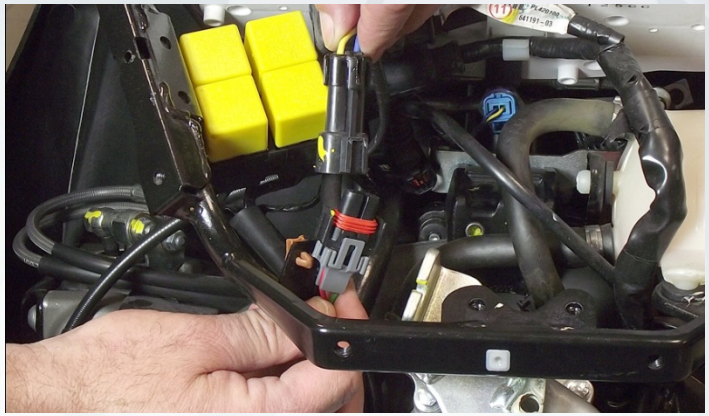
- Disconnect potentiometer electrical connector



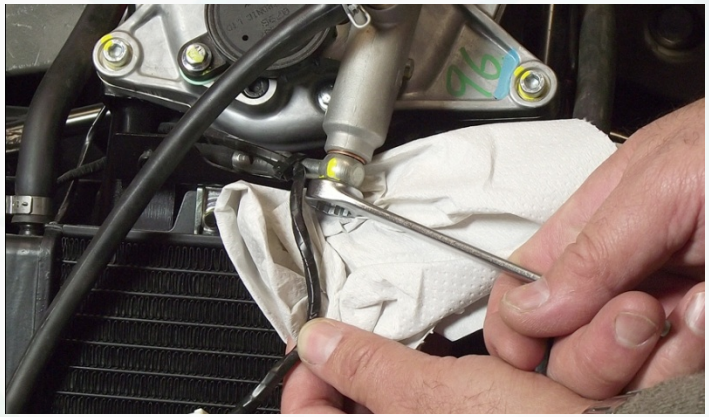
- Make sure that parking brake fluid reservoir cap is tightened to the prescribed torque, and loosen chassis fixing screw



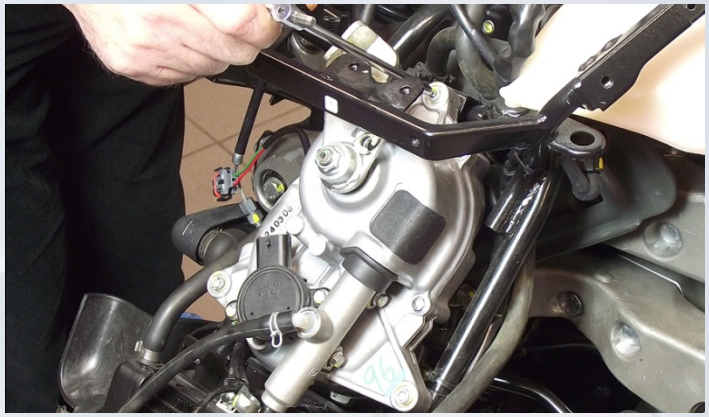
- Disconnect gear motor electrical connector



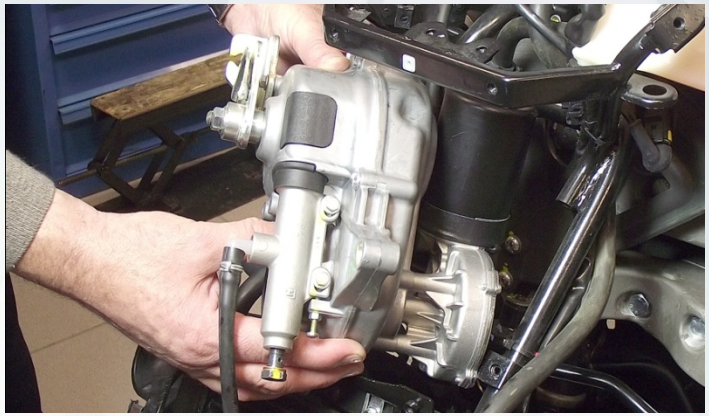
- Loosen pump lower hydraulic screw, protecting radiator against any brake fluid spillage



- Loosen fixing screws securing roll lock system casing to vehicle

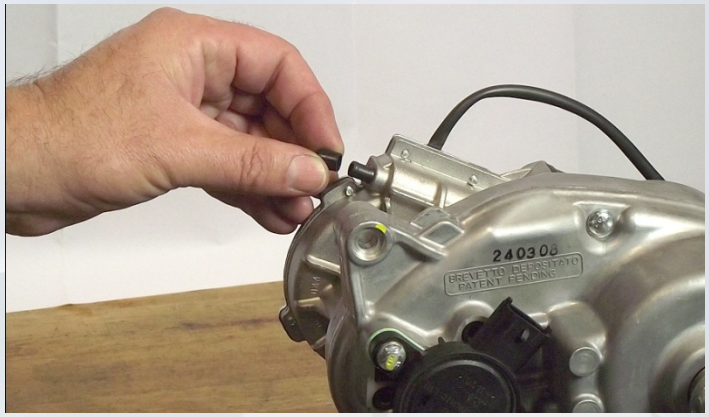


- Remove roll lock system casing in the direction indicated in the figure

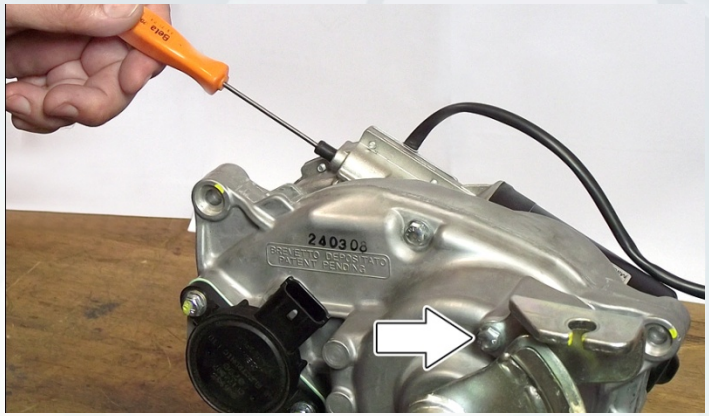


4.4. Roll Lock System Casing Disassembly

- With roll lock system casing on a test bench, remove gear motor protection cover

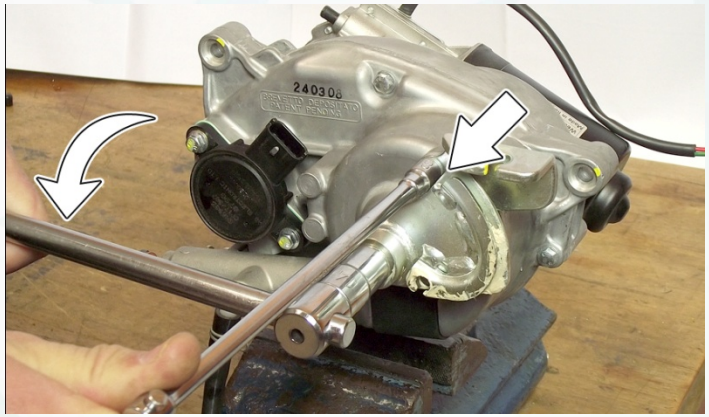


- Turn gear motor counter clockwise, until wrench can be inserted in the shown screw



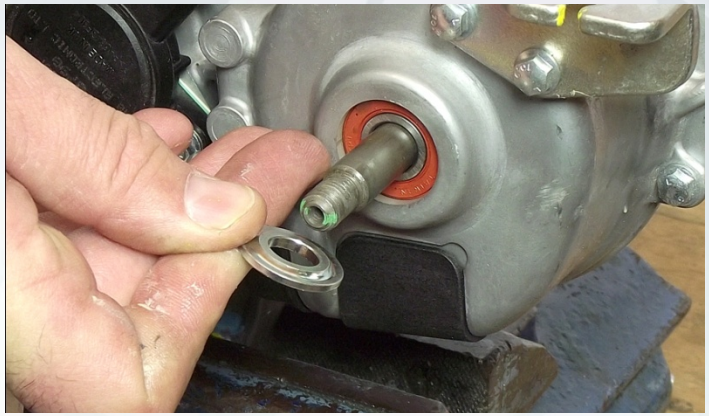
- Holding brake Bowden cable anchor bracket with wrench, loosen retaining nut.

N.B.: failure to comply with this procedure leads to possible severe breakage inside roll lock system casing

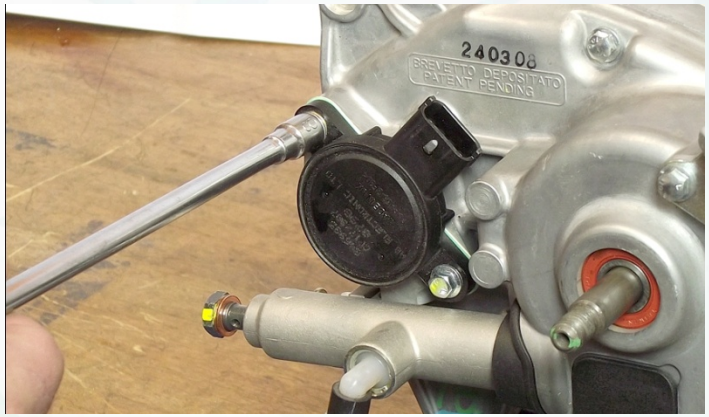


- Remove anchor bracket from brake Bowden cable, and retrieve key

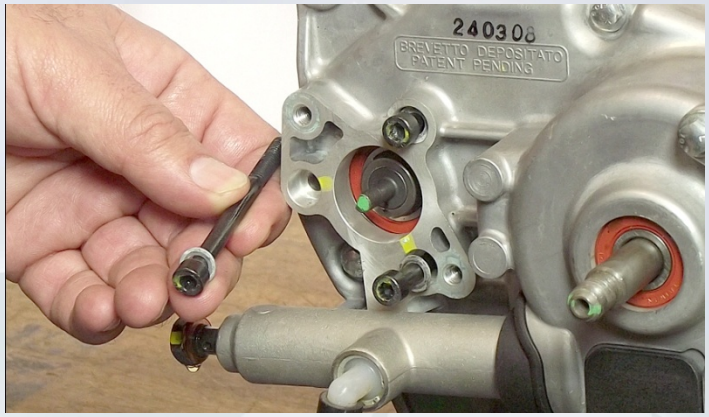
- Retrieve washer with edge on bearing side



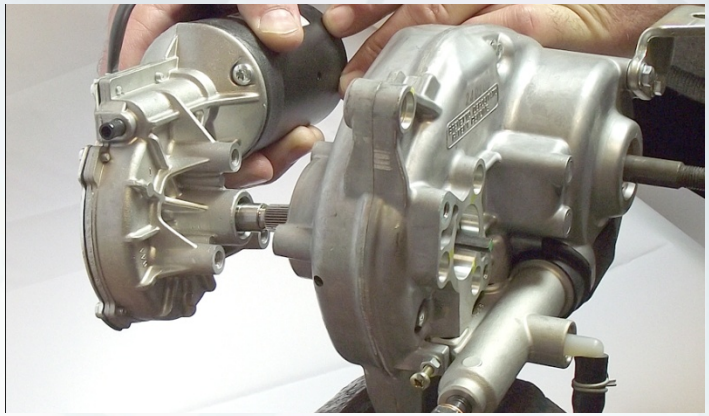
- Loosen potentiometer fixing screws, and retrieve the relevant seal



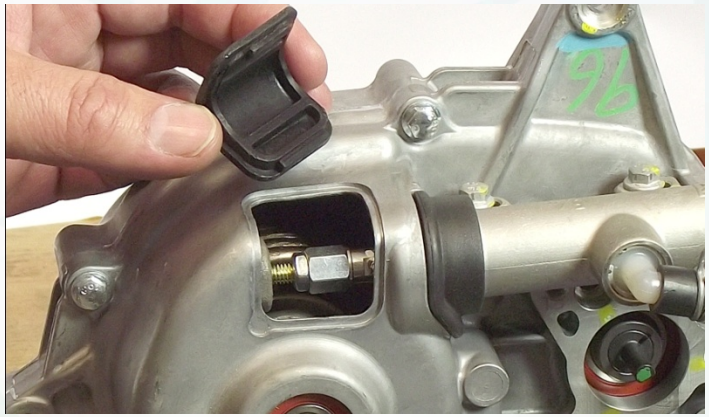
- Loosen gear motor fixing screws, retrieving washers



- Remove gear motor from casing

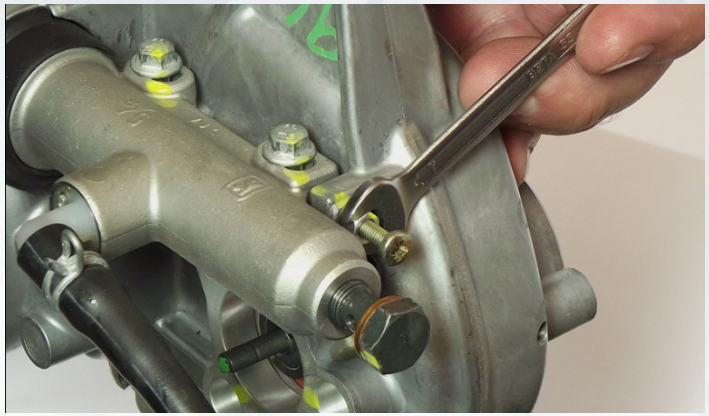


- Remove inspection cap from control pump

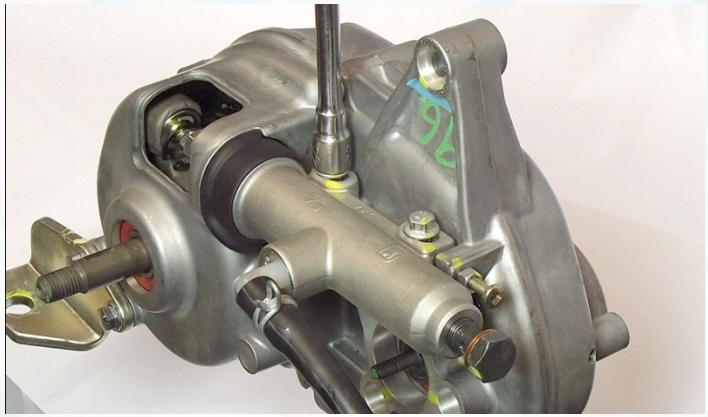


- Remove strut seeger ring from control pump

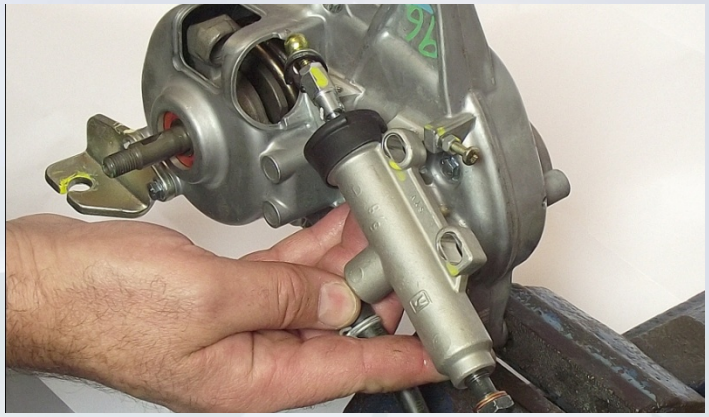
- Loosen control pump lock nut and endstop screw



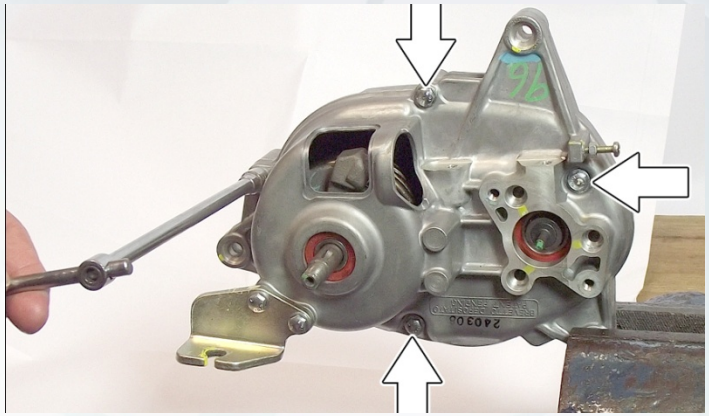
- Loosen control pump fixing screws



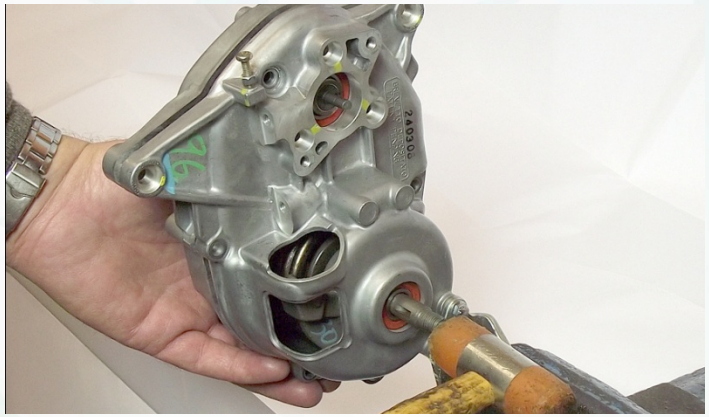
- Turn and slide out control pump with gasket



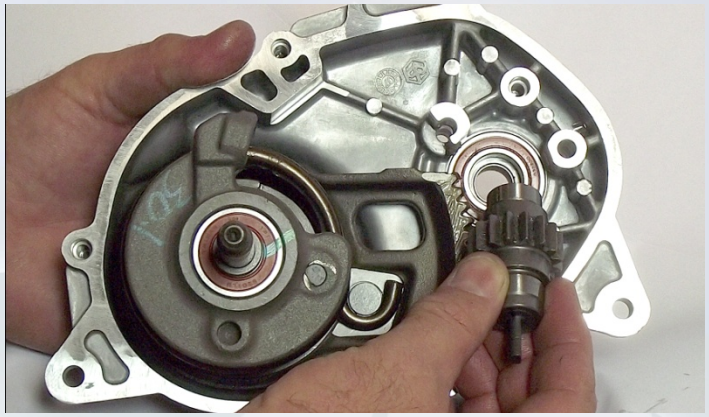
- Loosen fixing screws of roll lock system casing upper cover



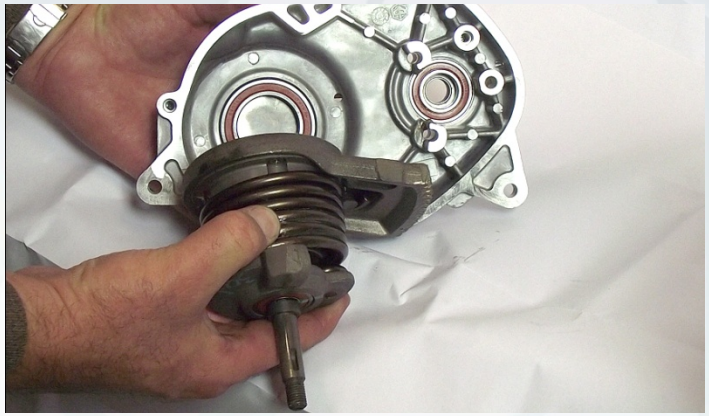
- Vice casing and, using a rubber mallet, separate the two half-shells



- Remove pinion from its seat

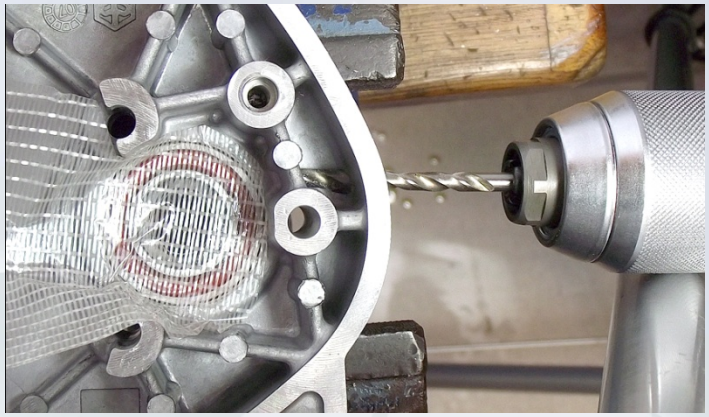


- Remove selector from its seat

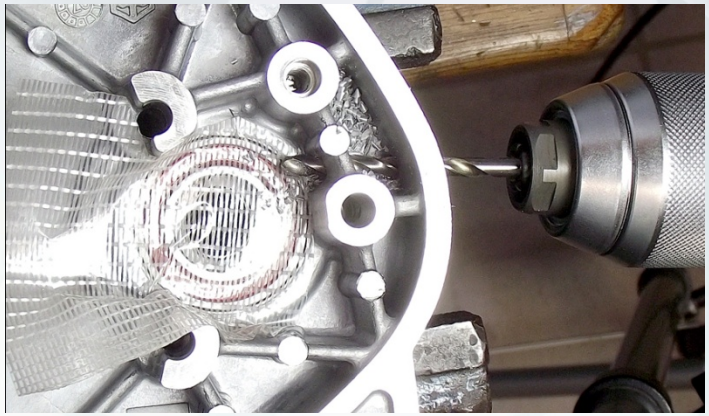


4.5. Drain Holes Procedure

- Protect bearing using some adhesive tape, vice lower half-shell, and bore a Ø4.5 mm hole as shown in the figure.



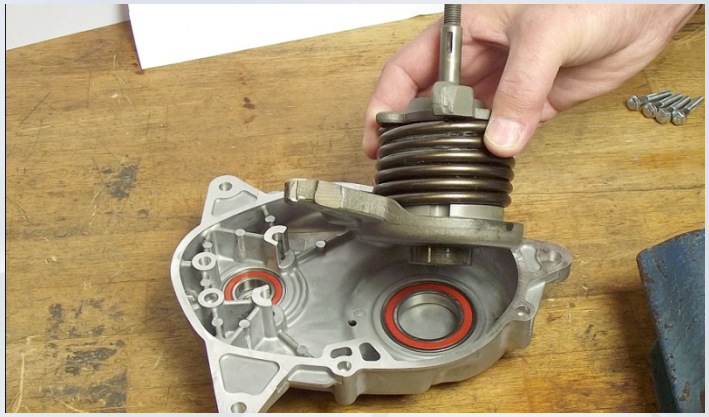
- Continue this operation until going through half-shell inner bulkhead, as shown in the figure



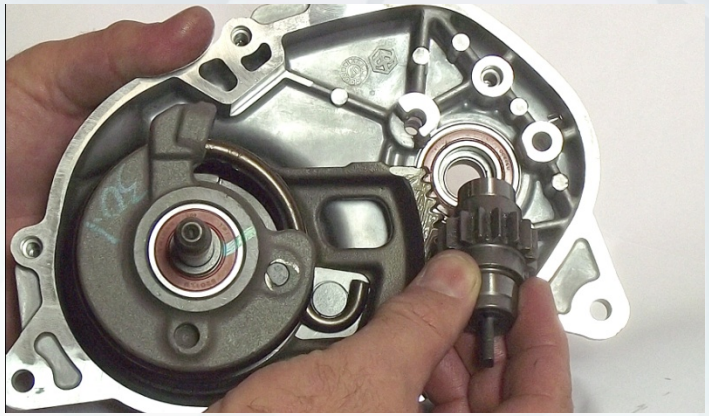
- Drill a 4.5 mm diameter hole as shown in the figure. Clean the half casing thoroughly with compressed air and remove the protective tape

4.6. Casing Assembly and Pump Sealing

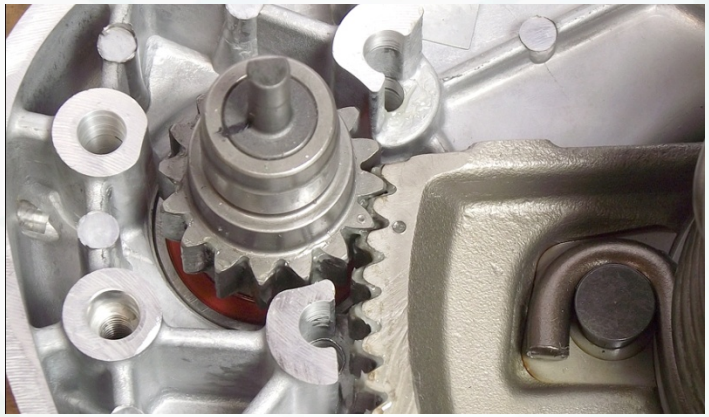
- Install selector into its seat



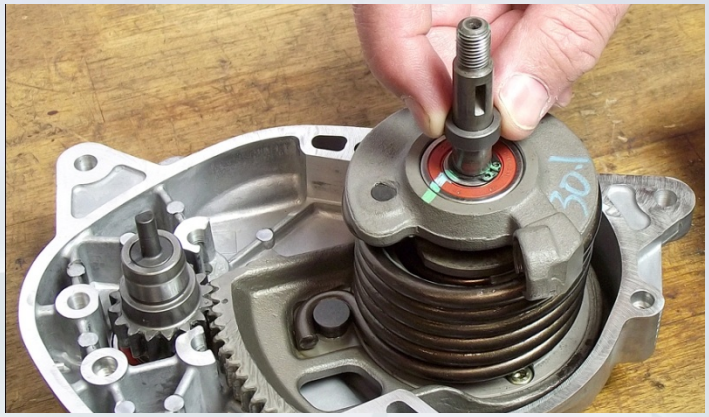
- Install pinion into its seat



- Ensure correct timing by checking that part references are duly aligned

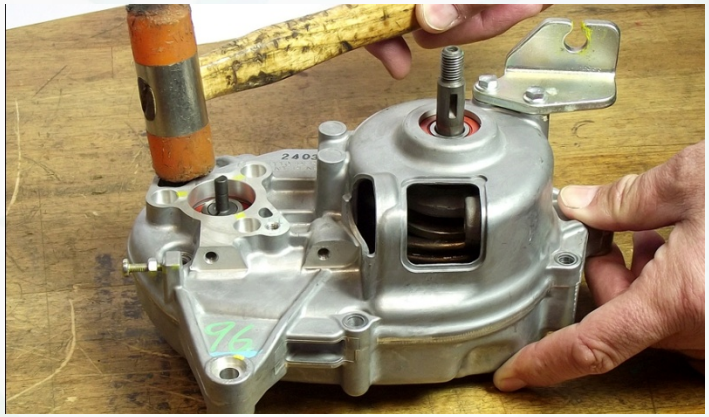


- Check that the spacer ring is installed correctly on the selector shaft. Clean all parts and grease mating surfaces with the recommended product

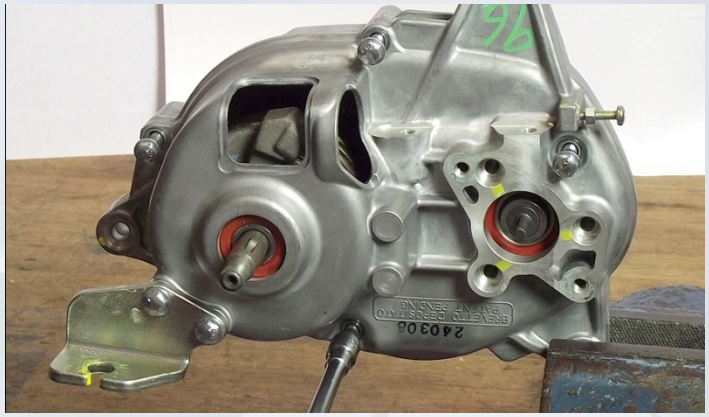


- Check that centring pins are correctly positioned onto casing upper half-shell

- Couple casing half-shells using a rubber mallet

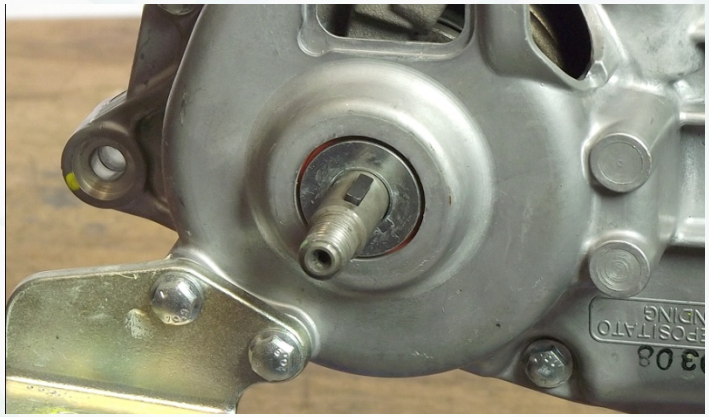


- Tighten upper and lower half-shell fixing screws to the prescribed torque

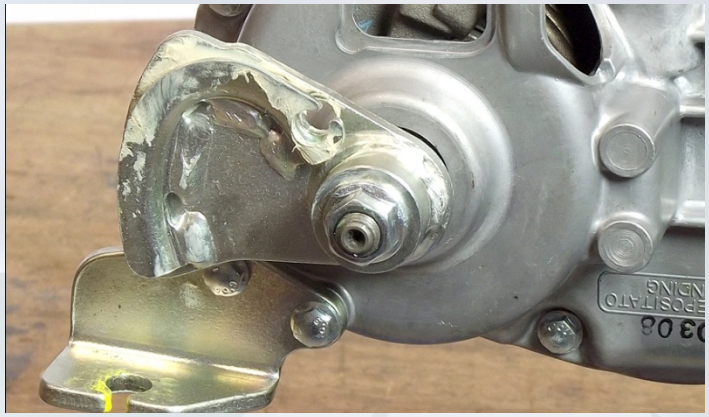


- Install washer with the edge facing bearing

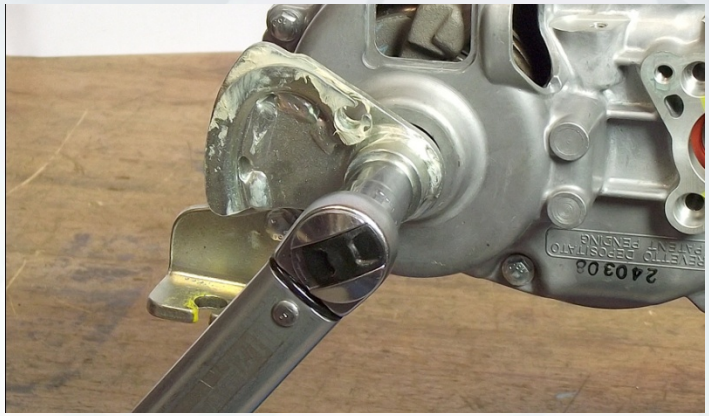
- Insert key into its seat



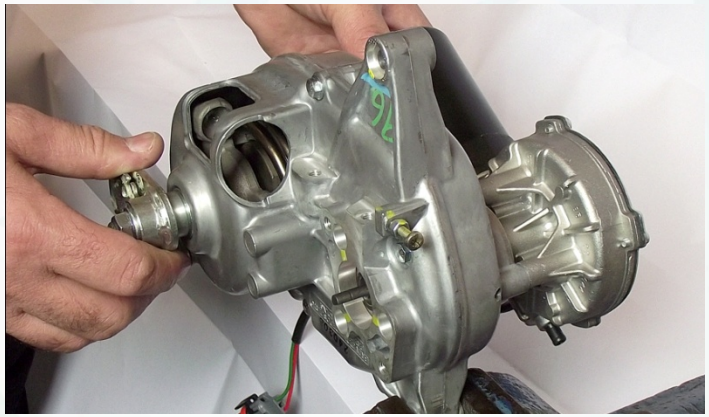
- Fit brake calliper control transmission bracket, and secure in place with fixing nut



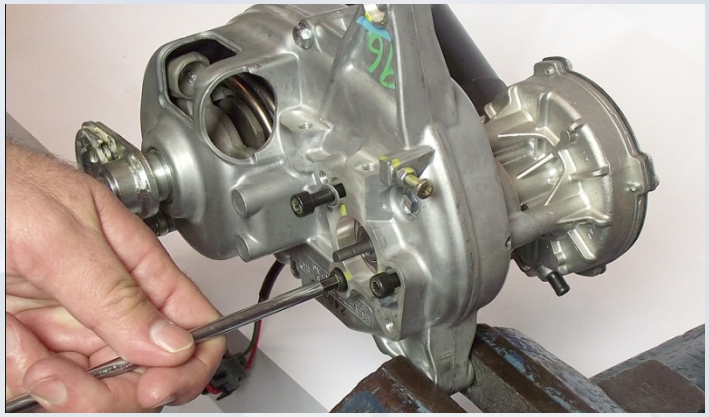
- Tighten fixing nut to the prescribed torque



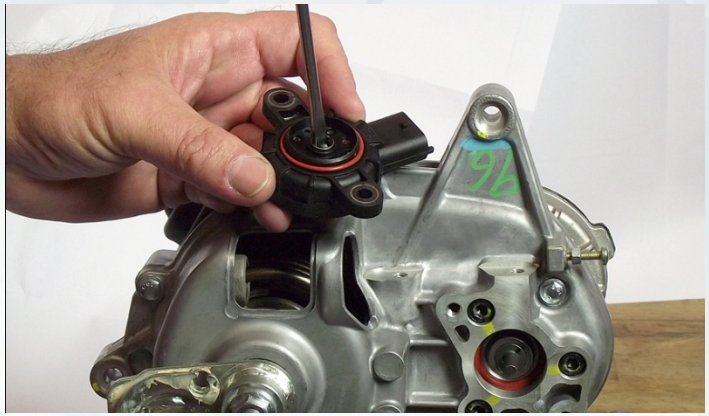
- Slightly turn mounting bracket to position selector close to lower endstop, then fit gear motor from the opposite side taking care to align fixing holes



- Tighten fixing screws with washers to the prescribed torque



- Using a screwdriver, prepare potentiometer by moving drive gear close to the assembling position

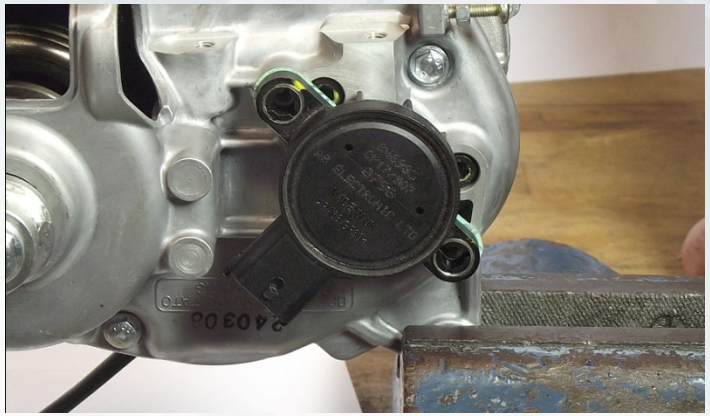


- Check for O-ring correct positioning

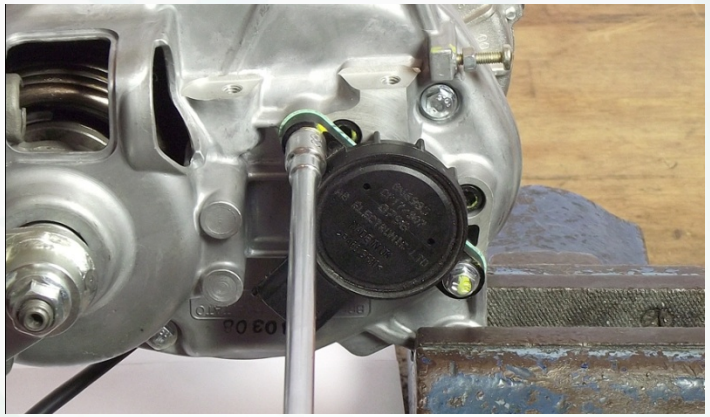
- Place a new paper gasket in-between

- Position potentiometer inside its seat, taking care not to damage drive gear

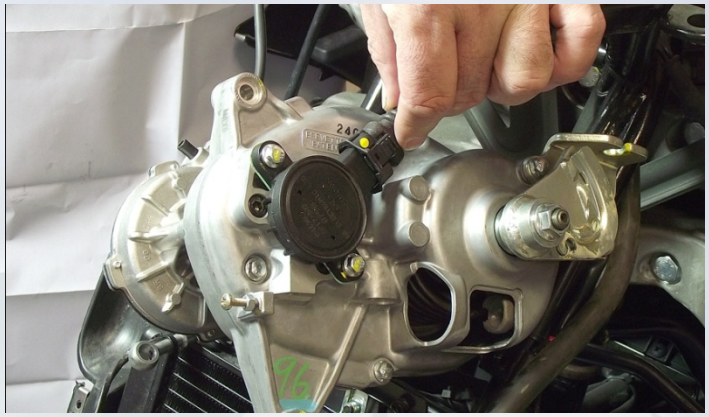
N.B.: too high a thrust can result in the breakage of drive gear axial retainer



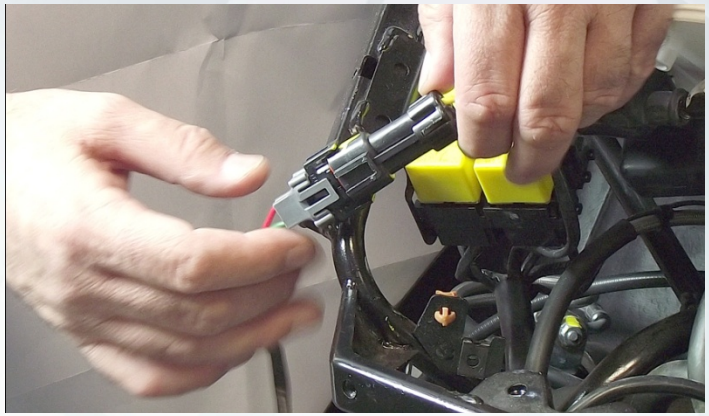
- Tighten potentiometer fixing screws to the prescribed torque



- Connect navigator to vehicle diagnostic connector, and prepare the PC. Temporarily connect potentiometer



- Temporarily connect gear motor

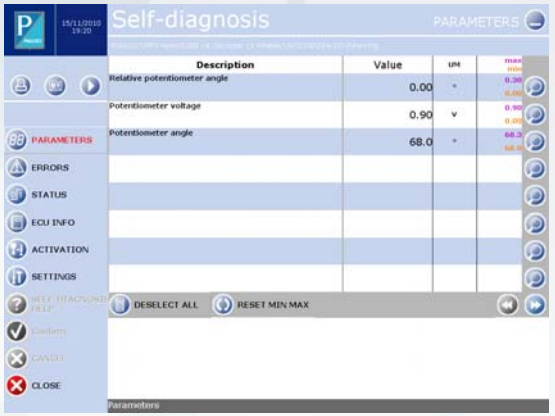


- Reset roll lock system

4.7. System Reset and Pump Sealing

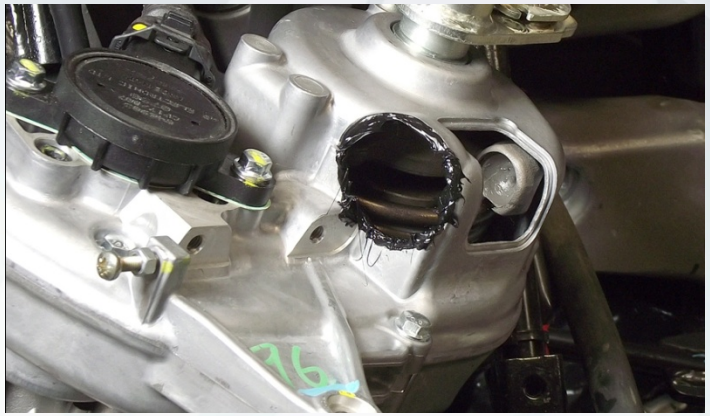
- Switch to “ON”
- Exit and reenter the diagnostic function

- Access “Settings > Search for lower limit” then click “Adjust” and “Confirm”
- Access “Parameters”, and prepare the screen page with:
  - Relative potentiometer angle
  - Potentiometer angle
  - Potentiometer voltage

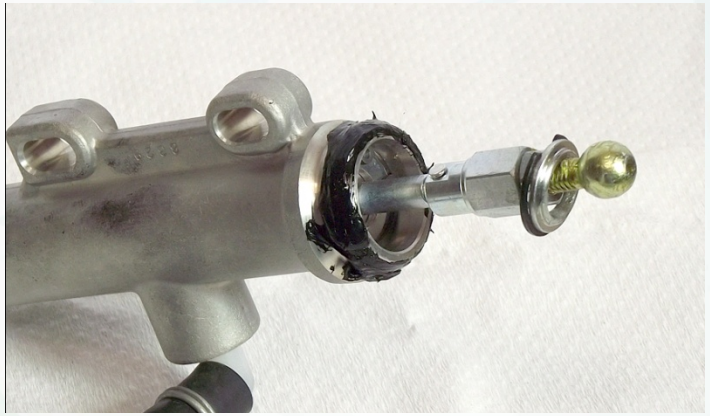


- Operate on the gear motor until reaching the adjustment positioning at 12° relative on the potentiometer

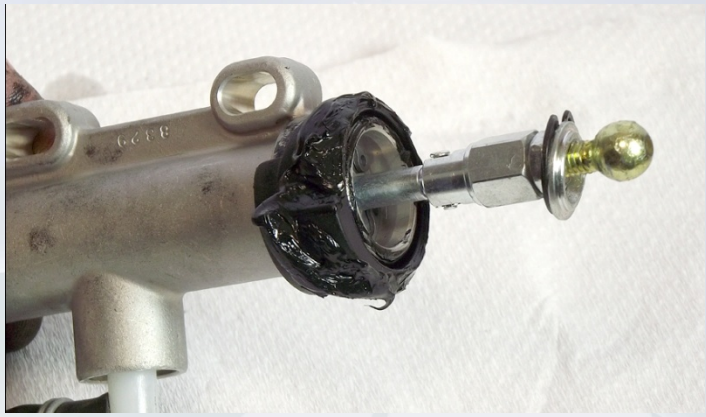
- Apply the recommended sealant onto pump gasket seat



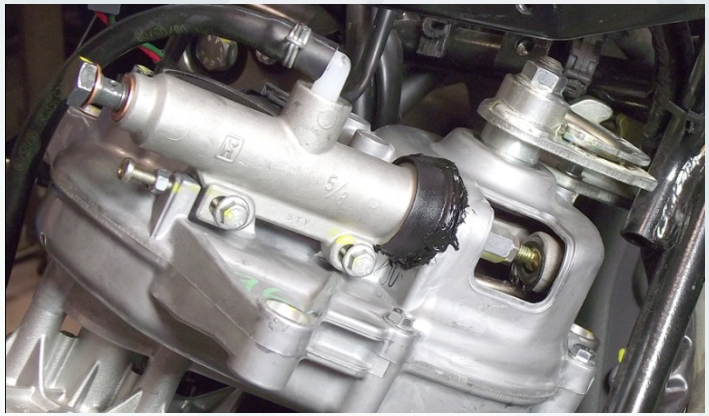
- Apply the recommended sealant onto pump body



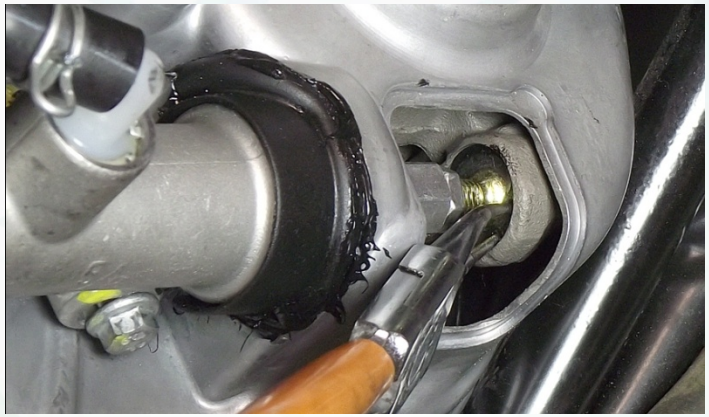
- Apply the recommended sealant onto rubber seal, and grease pump ball



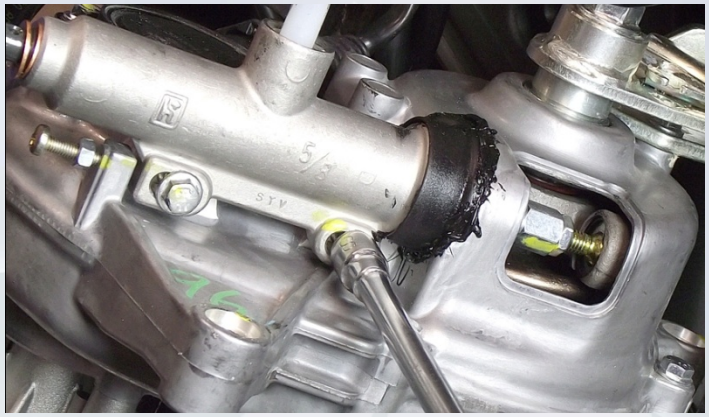
- Position pump into its seat, by temporarily tightening fixing screws



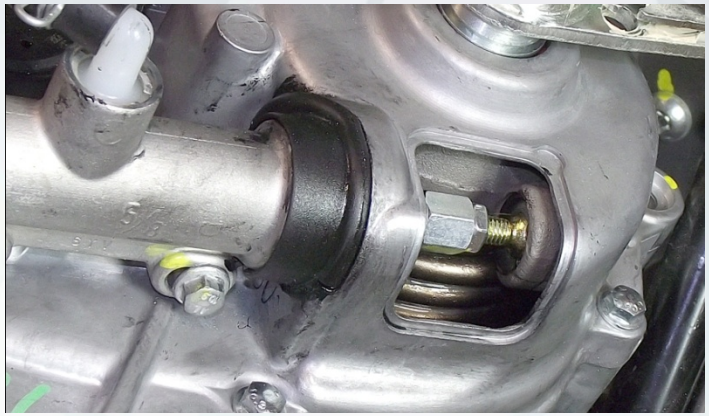
- Insert seeger ring into its seat



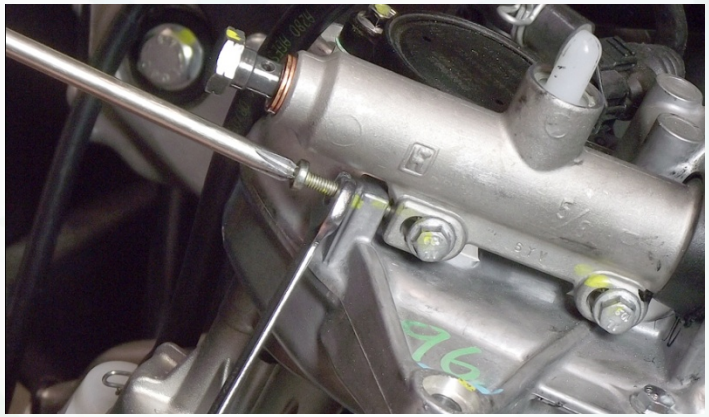
- As the system is in 12° adjustment position, push pump forward, release it and, when in the no-clearance position, tighten fixing screws to the prescribed torque



- Clean off any exceeding sealant



- Screw the endstop screw until it strongly contacts pump, then tighten lock nut

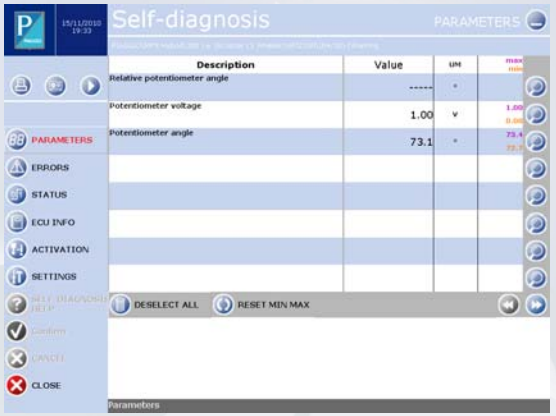


- Reset potentiometer with function “Adjustment > Potentiometer reset” and follow the procedure with the two confirmation requests.

- Switch to “STOP”, and click on “Confirm”

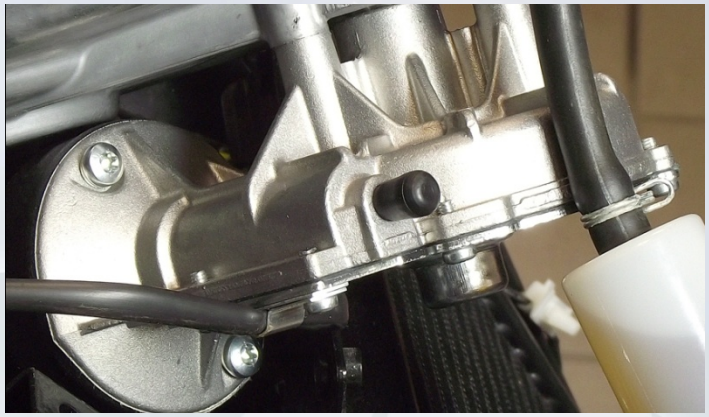
- Switch to “RUN”, and click on “Confirm”

- Carry out the checks at the end of the adjustment procedure:
  - Relative potentiometer angle
  - Potentiometer angle
  - Potentiometer voltage



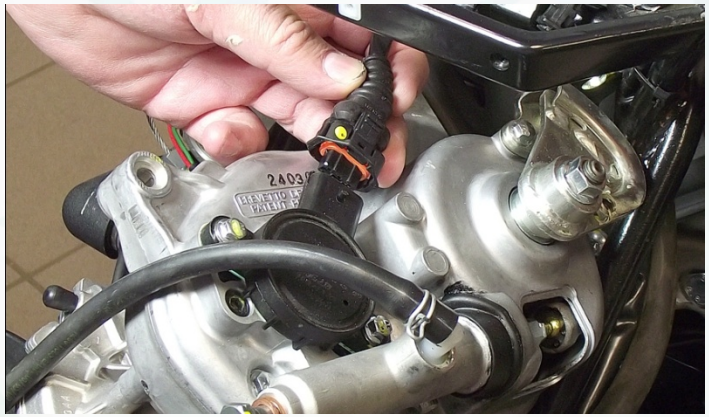
4.8. Hydraulic Circuit Connection and Bleeding

- Position cap onto gear motor rotor

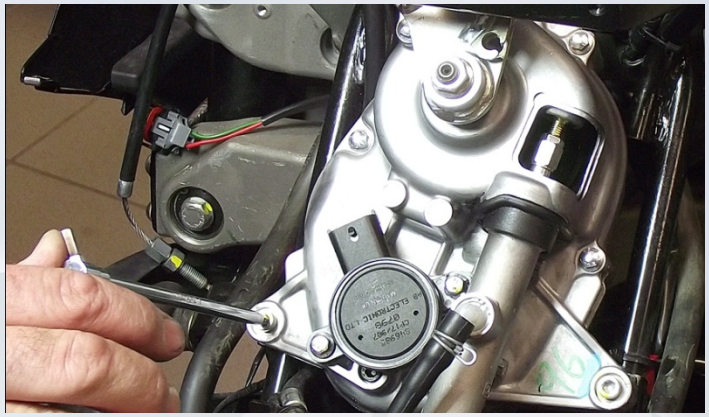


- Switch to “OFF”, and disconnect gear motor connector

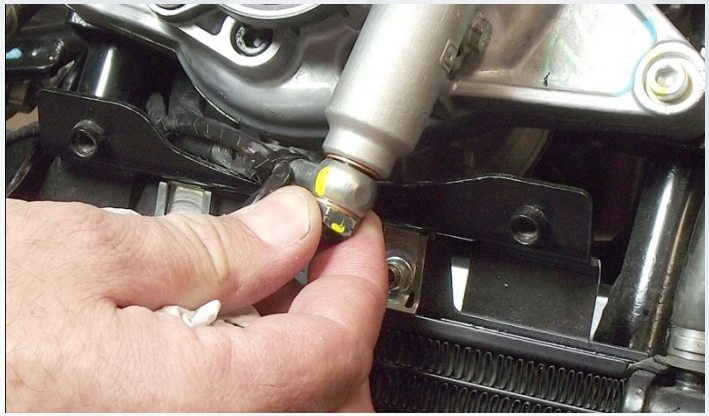
- Disconnect potentiometer connector



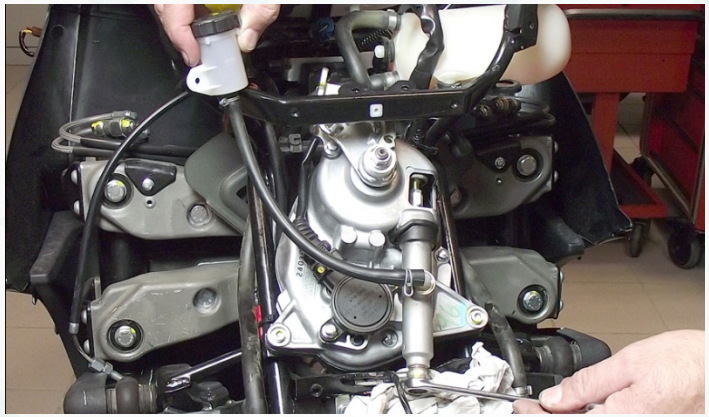
- Position casing onto vehicle, and tighten fixing screws to the prescribed torque, then connect gear motor and potentiometer connectors



- Tighten union loosely by screwing hydraulic screw by hand, and placing in-between two new copper gaskets

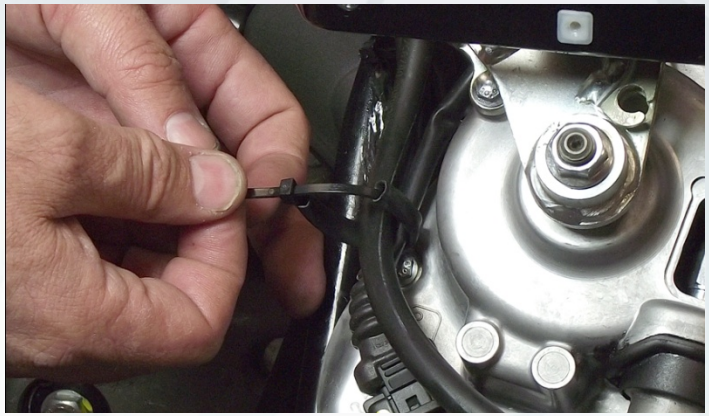


- Lift brake fluid reservoir, check that some fluid comes out of union. Keep reservoir lifted, and tighten hydraulic screw to the prescribed torque

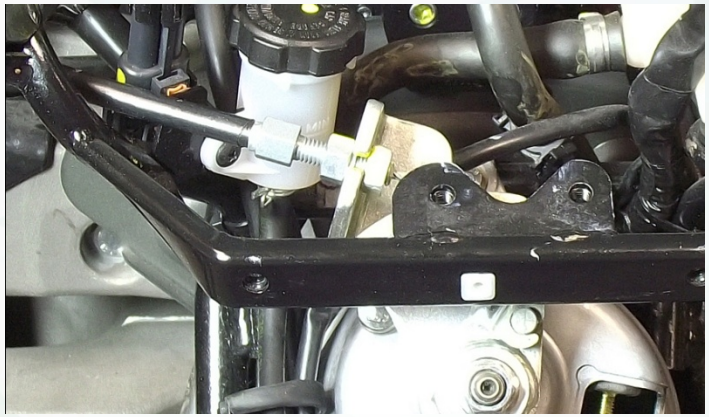


- Secure brake fluid reservoir in place

- Lock brake lines in place with a cable tie



- Connect the bowden cable terminal and adjust the nut and lock nut to obtain a free play of approx. 1 to 2 mm with the system unlocked. Tighten the lock nut to the specified torque



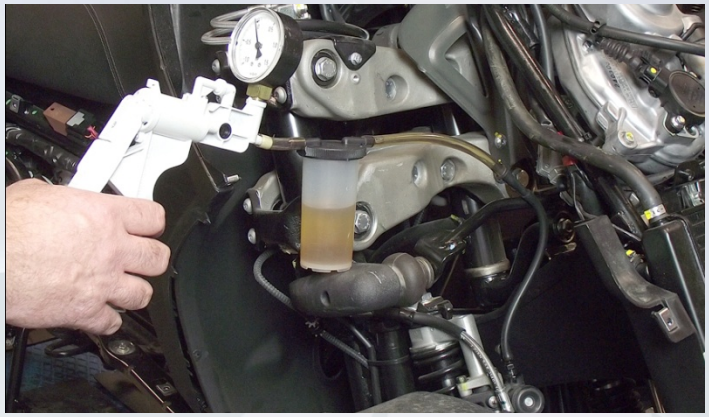
- Fill mity-vac pump reservoir with brake fluid, bleed all air out of pipe, and connect pump to shock absorber calliper

- Enable suspension block, and open bleed screw

N.B.: when enabling block, a pressure below 25 bar will result in 5 horn sounds, switch to “OFF”

- Repeat the sequence several times, until almost emptying brake fluid reservoir, and until no more air is present inside mity-vac pump pipe

- With released suspension, select the "PRESSURE" mode on the mity-vac pump, open calliper bleed screw and, keeping it in raised position, pump air inside mity-vac pump reservoir



- At the beginning, some air bubbles will be visible in the flow to the roll lock system brake fluid reservoir. When only brake fluid flows out, close the bleed screw and dry off any excess brake fluid from the calliper

- Activate the roll lock system and check that the horn does not sound to ensure that the correct pressure has been restored in the circuit. Check that the pump travel is short

4.9. Pump Connection Inspection Compartment Cap Sealing

- Close brake fluid reservoir cap, then smear sealant onto control pump connection inspection compartment cap seat

- Position inspection compartment cap, and allow sealant to cure

- Fit plastic components