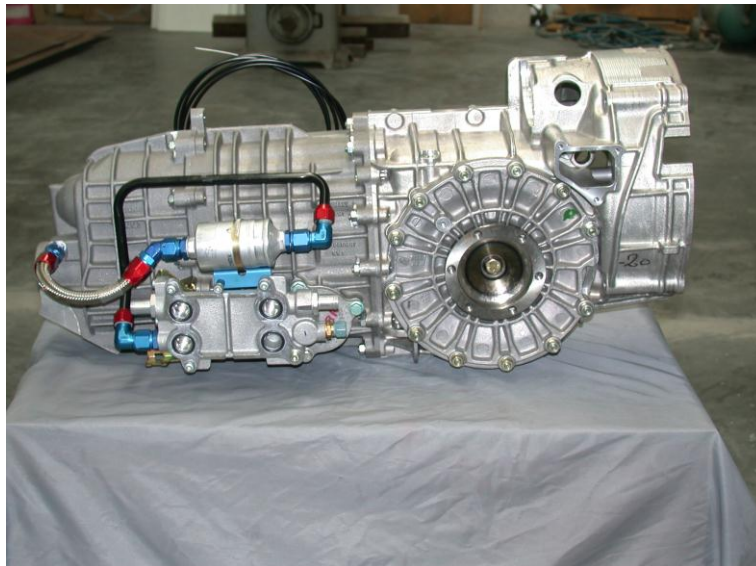


HOLINGER

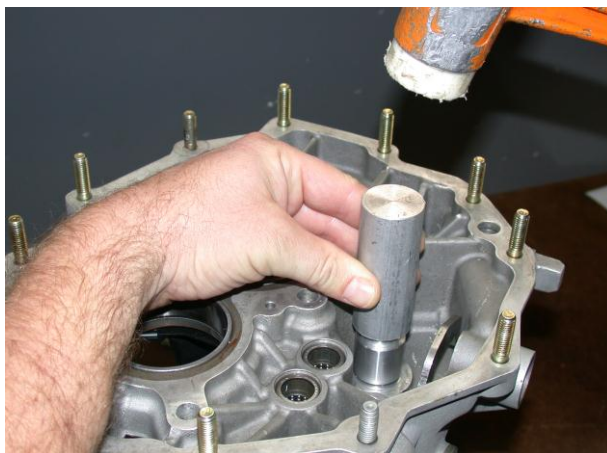
RACECAR GEARBOXES



Gearbox Assembly Instruction

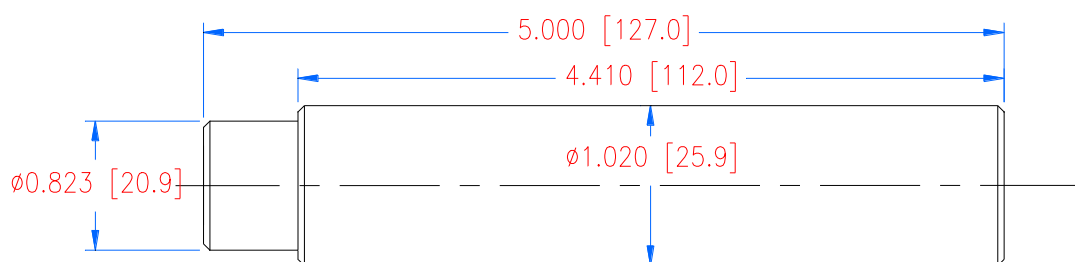
Porsche 996 GT3 sequential

Preparation of the cases to receive the sequential kit.



Step 1: Remove 7 original clamp plate studs, to be replaced by socket-head cap screws during the assembly.

Step 2: Fit the camshaft-bearing sleeve using a punch as shown in the drawing.



Punch for aluminium bearing sleeve



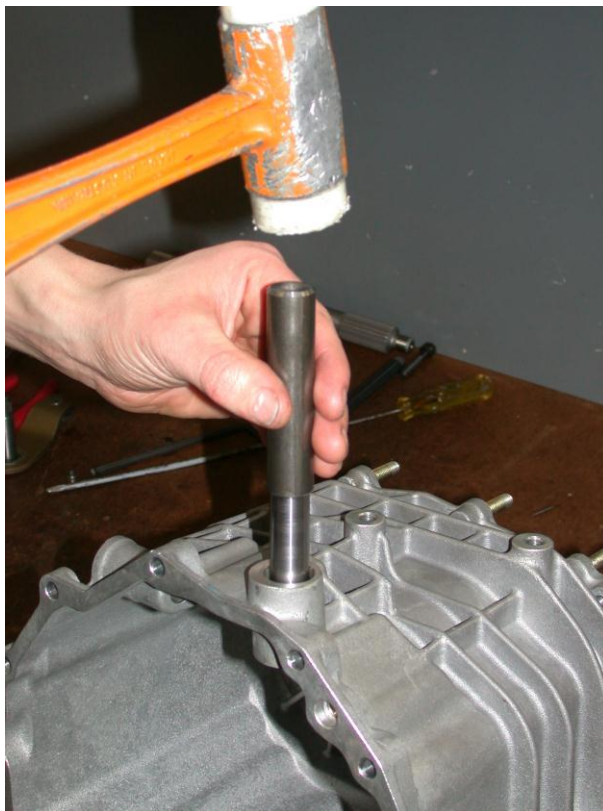
Step 3: Fit the camshaft needle bearing. Using a punch as shown in the drawing.



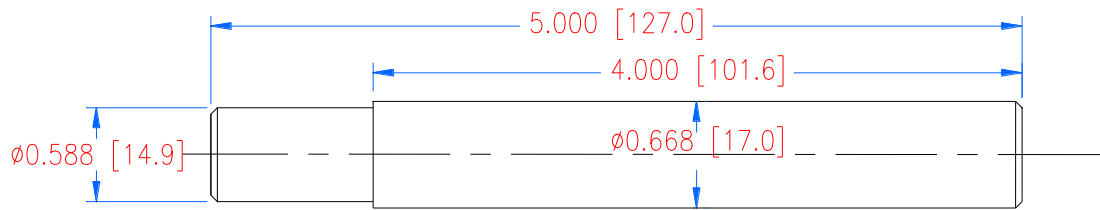
Punch for pawlcarrier needle bearing



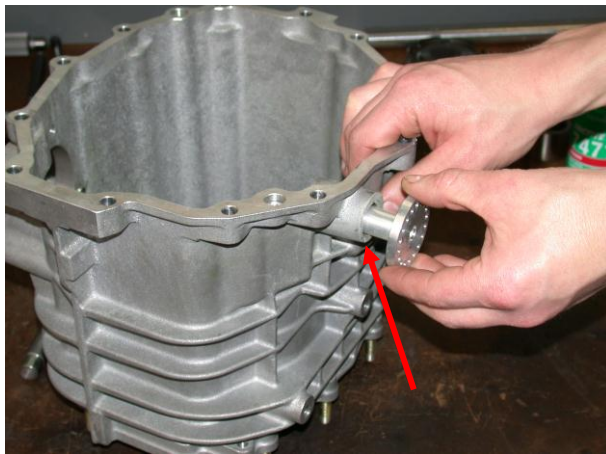
Step 4: Fit the spacer behind the centralising spring.



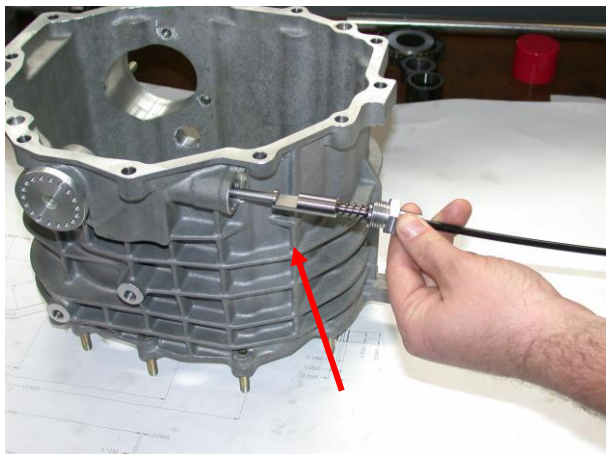
Step 5: Punch out the gear change lever bushes with a tool as shown in the drawing.



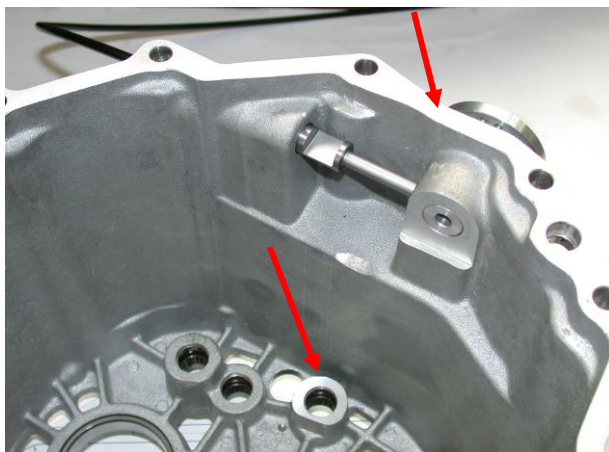
Punch for removing gear change lever bush



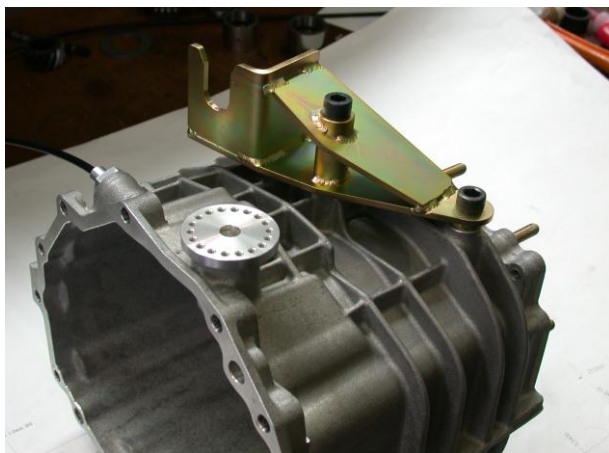
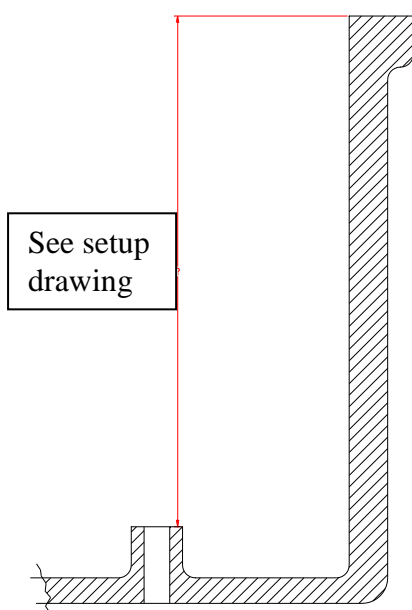
Step 6: Fit the potentiometer carrier. Retain it with Loctite 272.



Step 7: Remove the Porsche detent plunger and fit the neutral block out plunger. Rotate the plunger until it is in a position as shown in the picture below.



Step 8: Machine camshaft thrust face to dimension recorded on setup drawing.

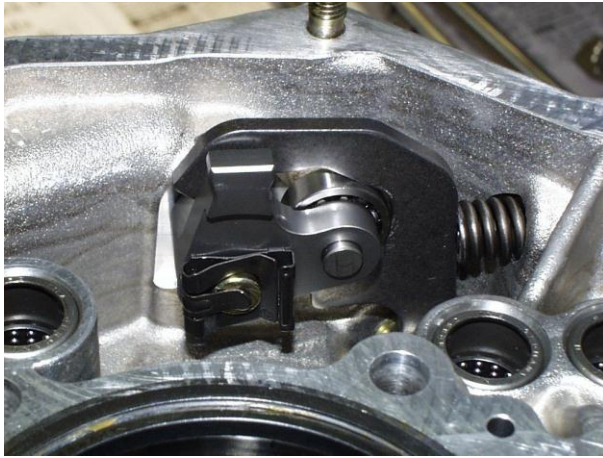


Step 9: Fit the cable anchor to the side of the housing.



Step 10: It may be necessary to remove material in this area to clear the camshaft body.

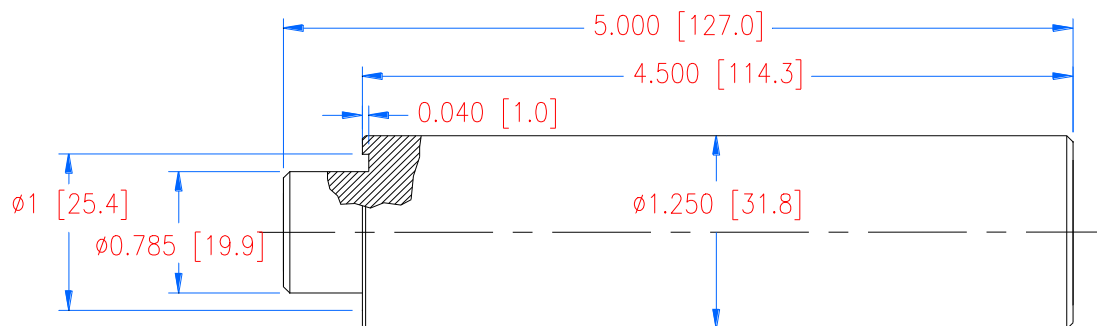
Assembly Instruction



Step 1: Fit the rack actuator.



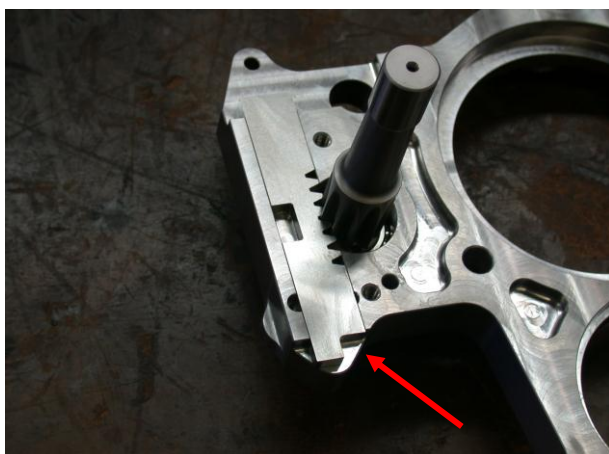
Step 2: Fit the ball bearing to the clamp plate. Assemble the stop plate onto the clamp plate. Retain the screws with Loctite 243.



Punch for pawlcarrier bearing in clampplate



Step 3: Fit the pawl carrier into the ball bearing in the clamp plate. Rotate the pawl carrier until it is in the position shown in the picture.

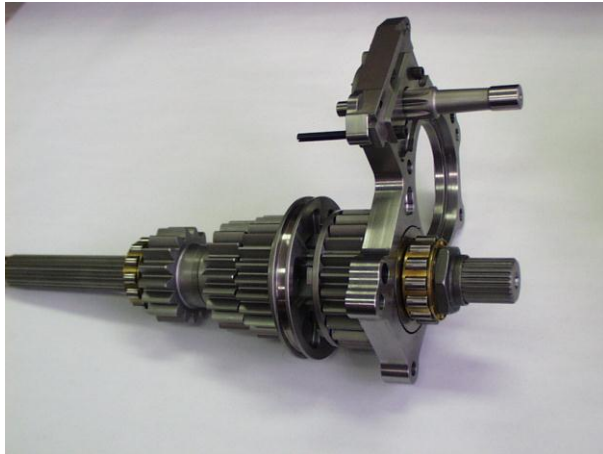


Step 4: Fit the rack to the pawl carrier when it is in the middle position.

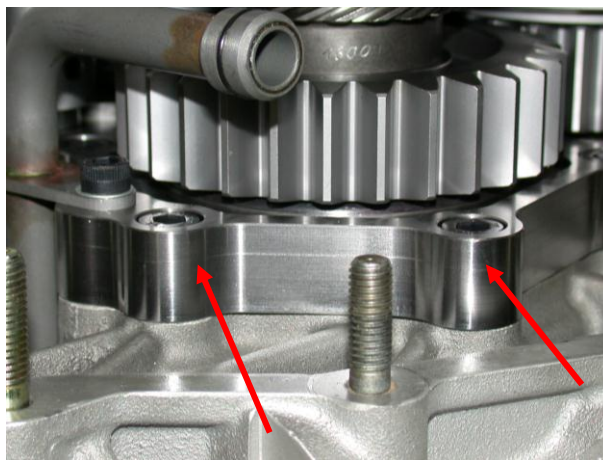
The cut-out has to be on the input shaft side!



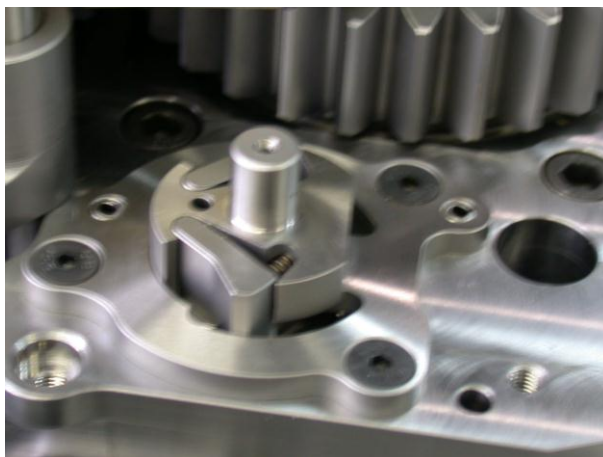
Step 5: Fit the keeper plate and retain the screws with Loctite 243.



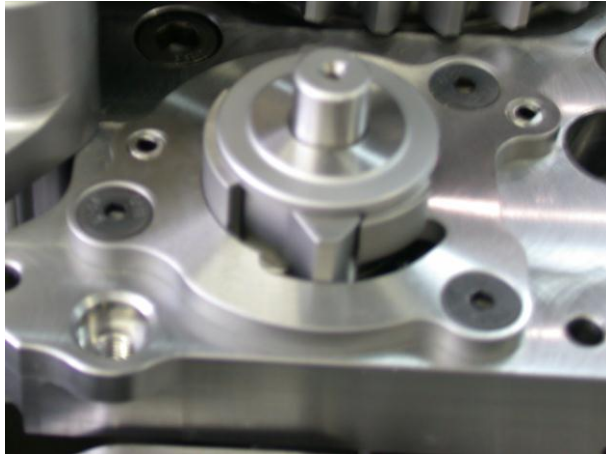
Step 6: Fit the input shaft into the clamp plate. Tighten the nut on the input shaft to 185-200 ft.lb (250 + 20 Nm). Fit the pinion shaft into the clamp plate with the pinion setting shims. Fit the splined 4th gear to the pinion shaft.



Step 7: Fit the clamp plate into the diff housing and secure with 7 socket-head cap screws.



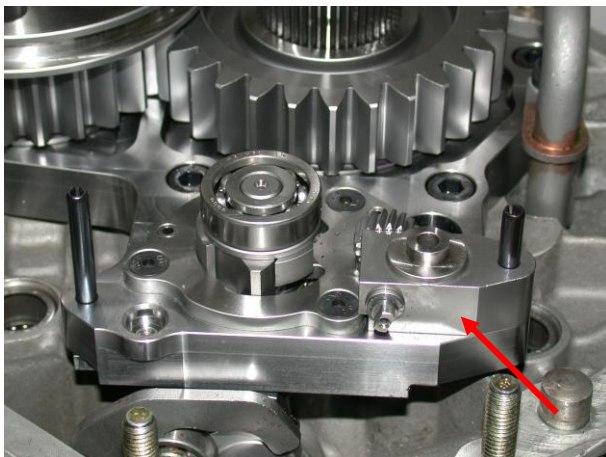
Step 8: Assemble pawls and springs into pawl carrier.



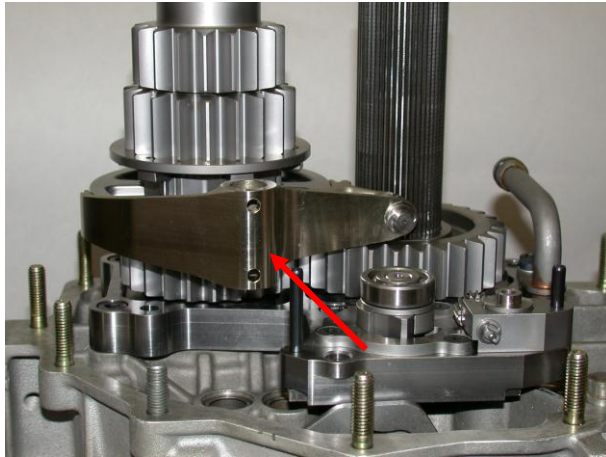
Step 9: Fit the washer with the large face downwards.



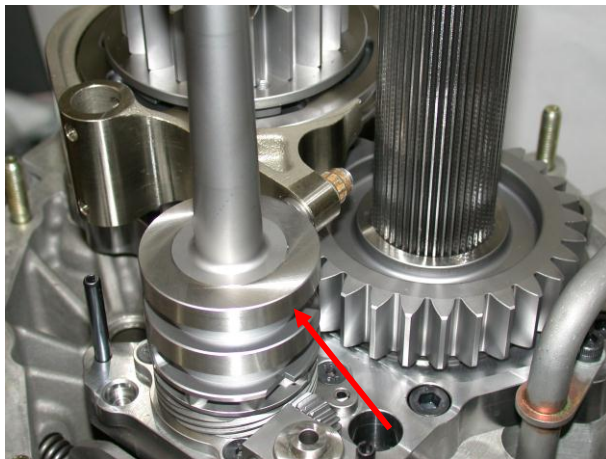
Step 10: Fit the ball race.



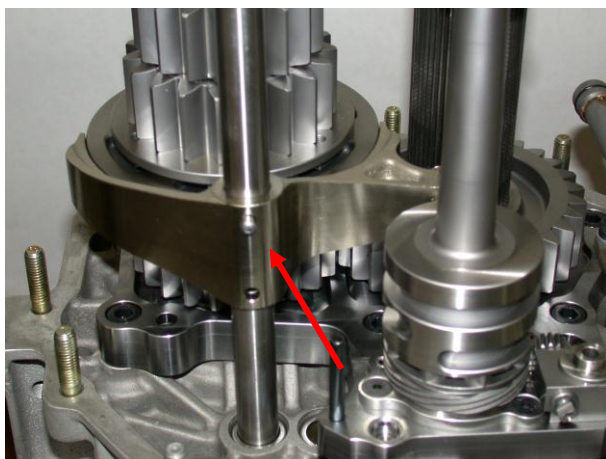
Step 11: Fit the block with the potentiometer drive gear.



Step 12: Fit the 3rd/4th selector fork.

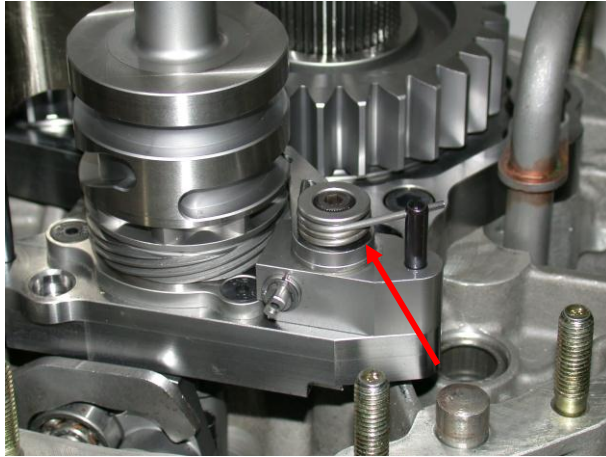
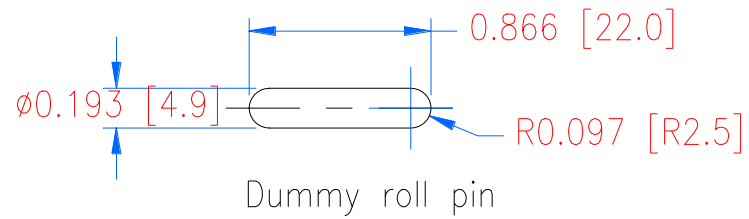


Step 13: Fit the camshaft. Lower the camshaft until it sits on top of the pawls. Depress the pawls and allow the camshaft to drop into position. Fit the 3rd/4th cam follower to the cam track.



Step 14: Slide the 3rd/4th selector rod through the selector fork. Insert a dummy roll pin to align the fork to the rod. Drive in two roll pins.

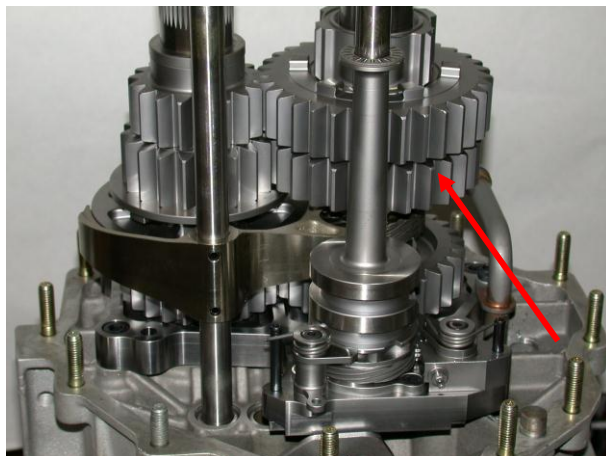
The short end of the rod must point towards the diff housing!



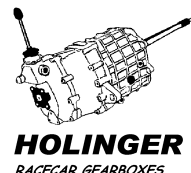
Step 15: Fit the camshaft latch and spring. Secure the screw with Loctite 262.

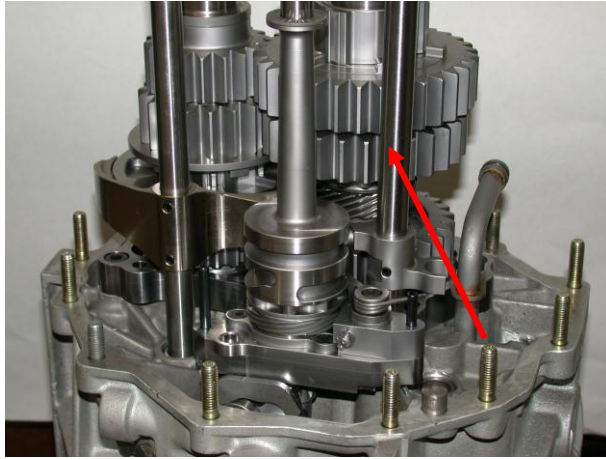


Step 16: Fit the needle thrust bearing to the camshaft.



Step 17: Fit the oil pump drive gear, a spacer (PCH-012), the 3rd gear, a sleeve (PCH-014), a needle roller bearing, the 2nd gear and a hub (PCH-019) to the input shaft.

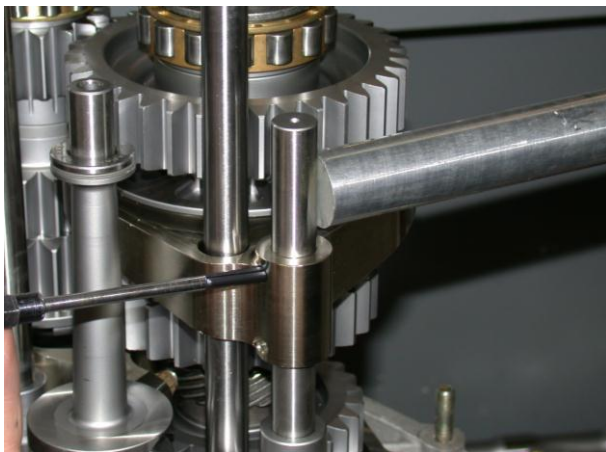




Step 18: Fit the reverse gear selector rod in position.

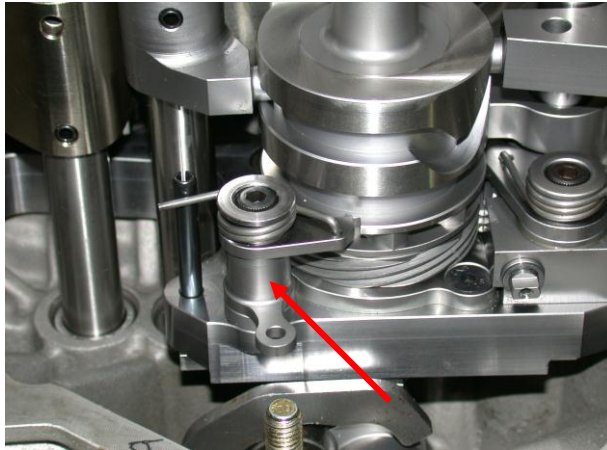


Step 19: Assemble the 1st/2nd selector fork, selector rod and cam follower as shown in the picture.

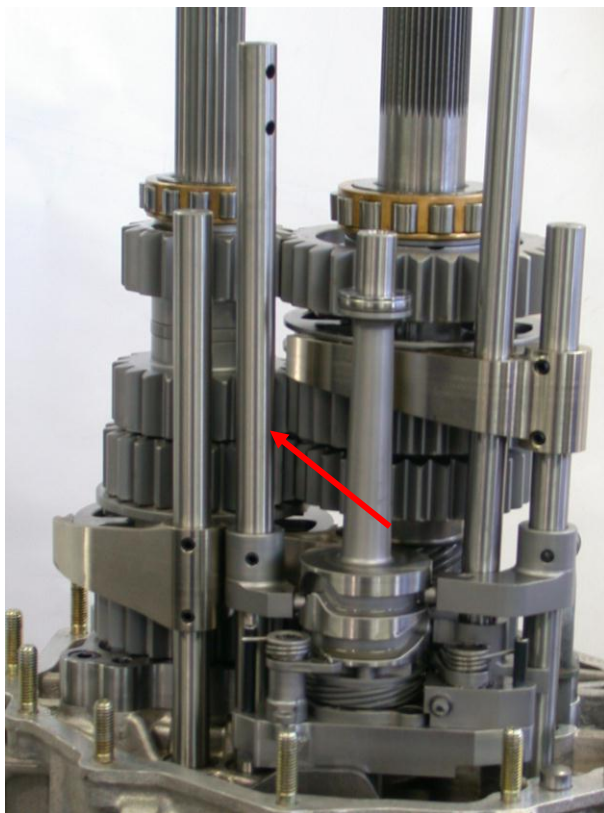


Step 20: Fit the 1st/2nd selector rod, selector fork and cam follower. Use a dummy roll pin to align the fork and drive the roll pins in. Do the same for the cam follower.

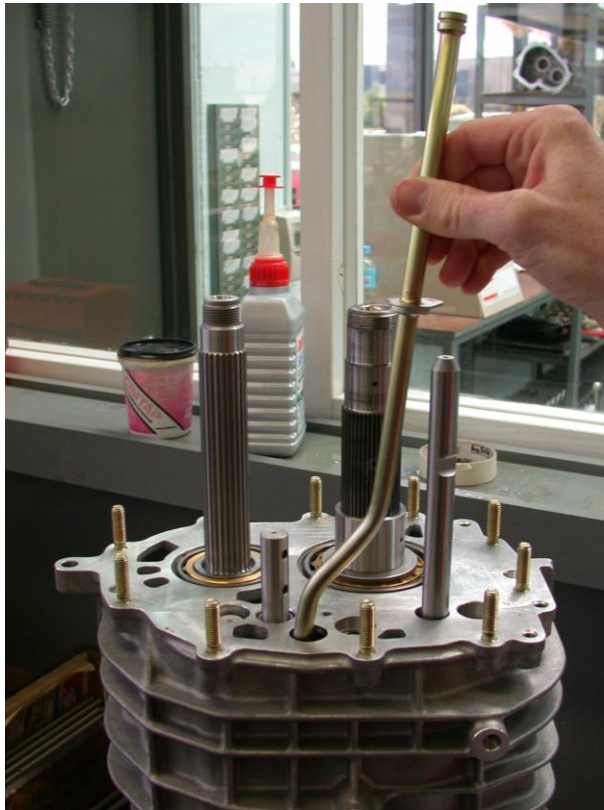
Support the rod while driving in the roll pins with a suitable dolly!



Step 21: Fit the neutral lock out mechanism. Secure screw with Loctite 262.



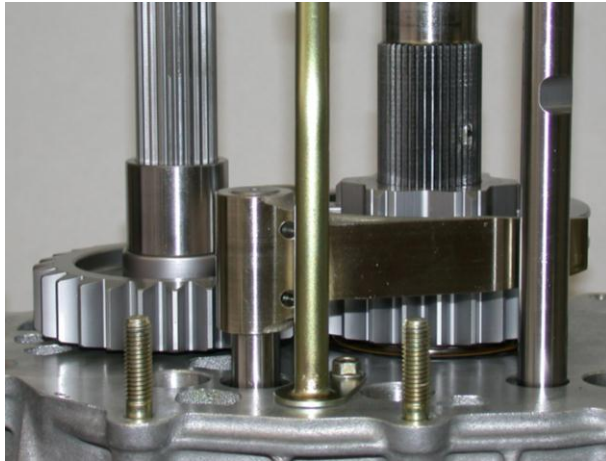
Step 22: Fit the 5th/6th selector rod and the cam follower. Apply sealant to the housing and fit the gear case. Secure with M8 washers and nuts.



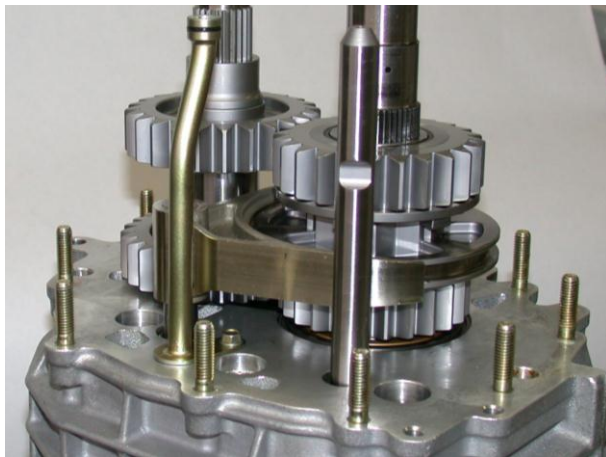
Step 23: Fit the Oilpipe to the case. Secure the oilpipe with its screw.



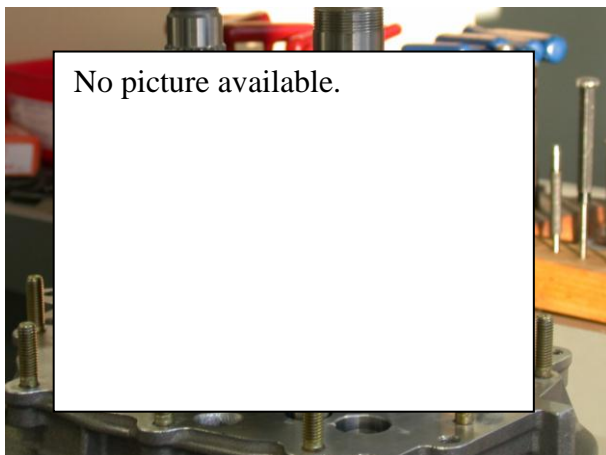
Step 24: Fit the 6th gear and the standard spacer to the input shaft. Fit sleeve (PCH-017), needle bearing and spacer to the pinion shaft. Slide 6th dog gear into position. Fit hub (PCH-020). Slide on selector ring (PCH-018) and fork.



Fit bearings sleeve (PCH-017), needle bearing and spacer onto the pinion shaft. Slide 5th dog gear into position. Fit the 5th spline gear, counterbored side out. Fit spacer (PCH-023), splined reverse gear and standard inner race to input shaft.



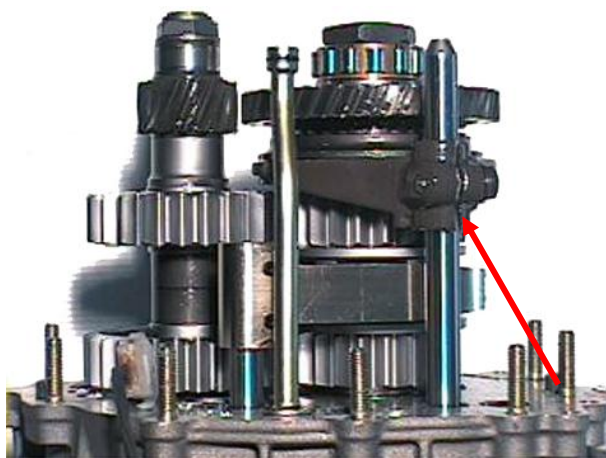
Fit the standard reverse gear hub to the pinion shaft, leaving out the synchromesh mechanism. Slide on standard reverse selector ring and fork. Fit the standard reverse gear, bearing and sleeve. Fit standard thrust washer, followed by the roller bearing.



Step 25: Tightening the nuts on the input shaft and pinion shaft. Engage the 4th gear. Slide selector fork and selector ring into engagement with 6th gear. Thus locking up the shafts. Tighten the pinion shaft nut to 300-330 Nm [220-244 lb.ft]. Tighten the input shaft nut to 200-220 Nm [148-163 lb.ft].



Step 26: Slide the 5th/6th selector ring and fork back to their neutral position. Insert a dummy roll pin. Drive in the two roll pins.



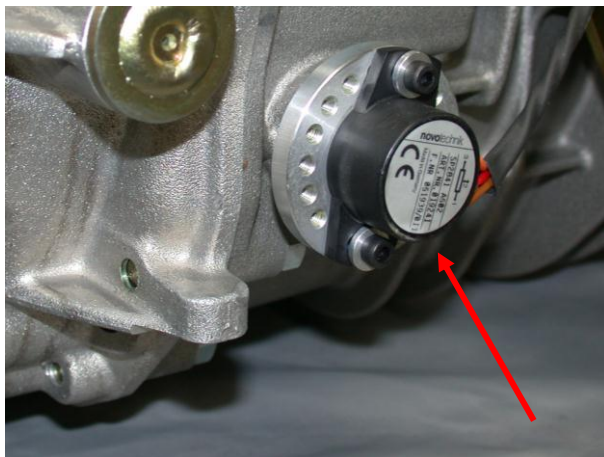
Step 27: Select the reverse gear by rotating the camshaft. Slide the reverse fork and selector ring into full engagement and tighten the fork pinch bolt. Make sure there is clearance on both sides of the selector fork in this position.



Step 28: Apply sealant to the case and fit the end cover. Secure with M8 wave washers and nuts.



Step 29: Fit the little drive shaft and the potentiometer to the gearbox. Connect the gear display unit to the potentiometer and to a 12 V power supply. Shift into 1st gear. Turn the potentiometer slowly around till it switches to 1.



Turn the potentiometer anticlockwise until the display disappears and mark this position. Now turn the potentiometer clockwise until 1 appears on the display, continue moving the potentiometer clockwise until the display disappears and mark this position. Then rotate the potentiometer anticlockwise to the midpoint between the two marks where 1 will be displayed. Fix it with 2 screws and washers.



Step 30: Fit the oil pump to the gearbox.