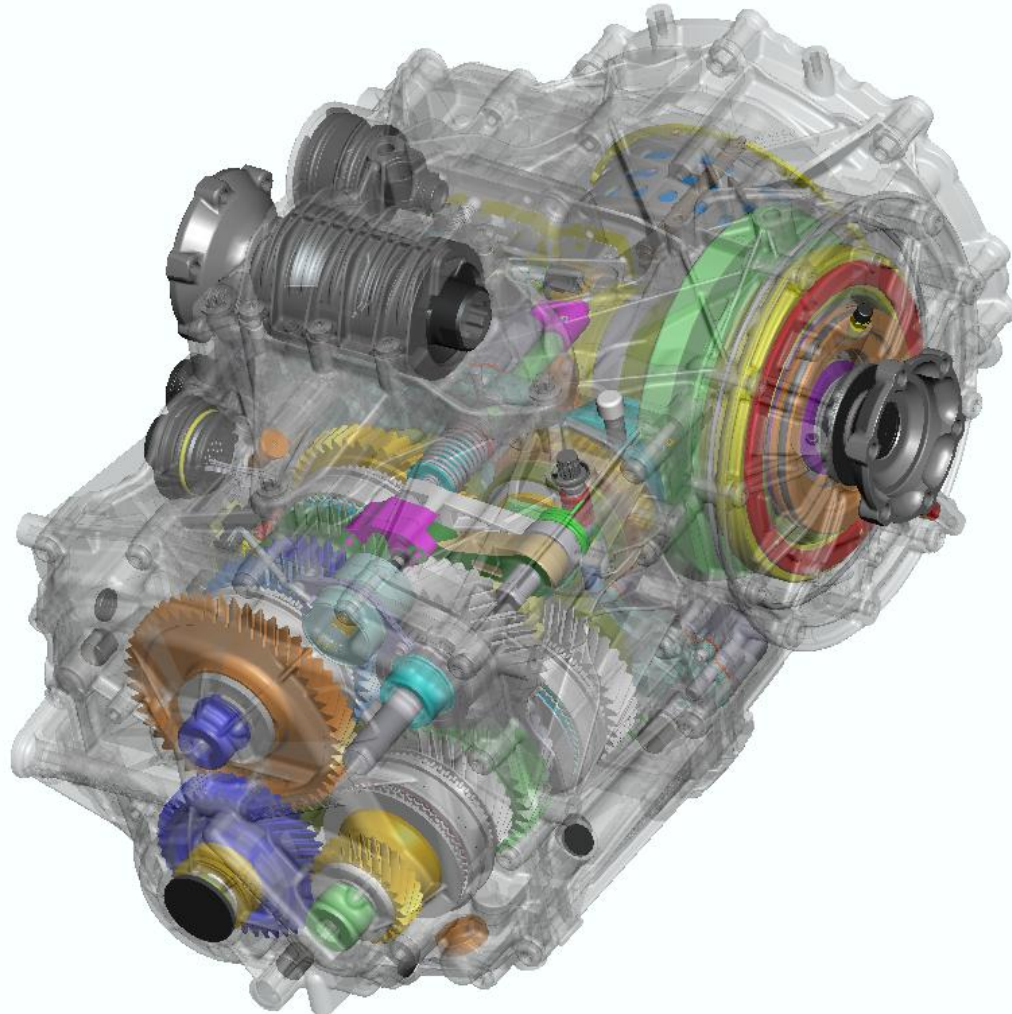
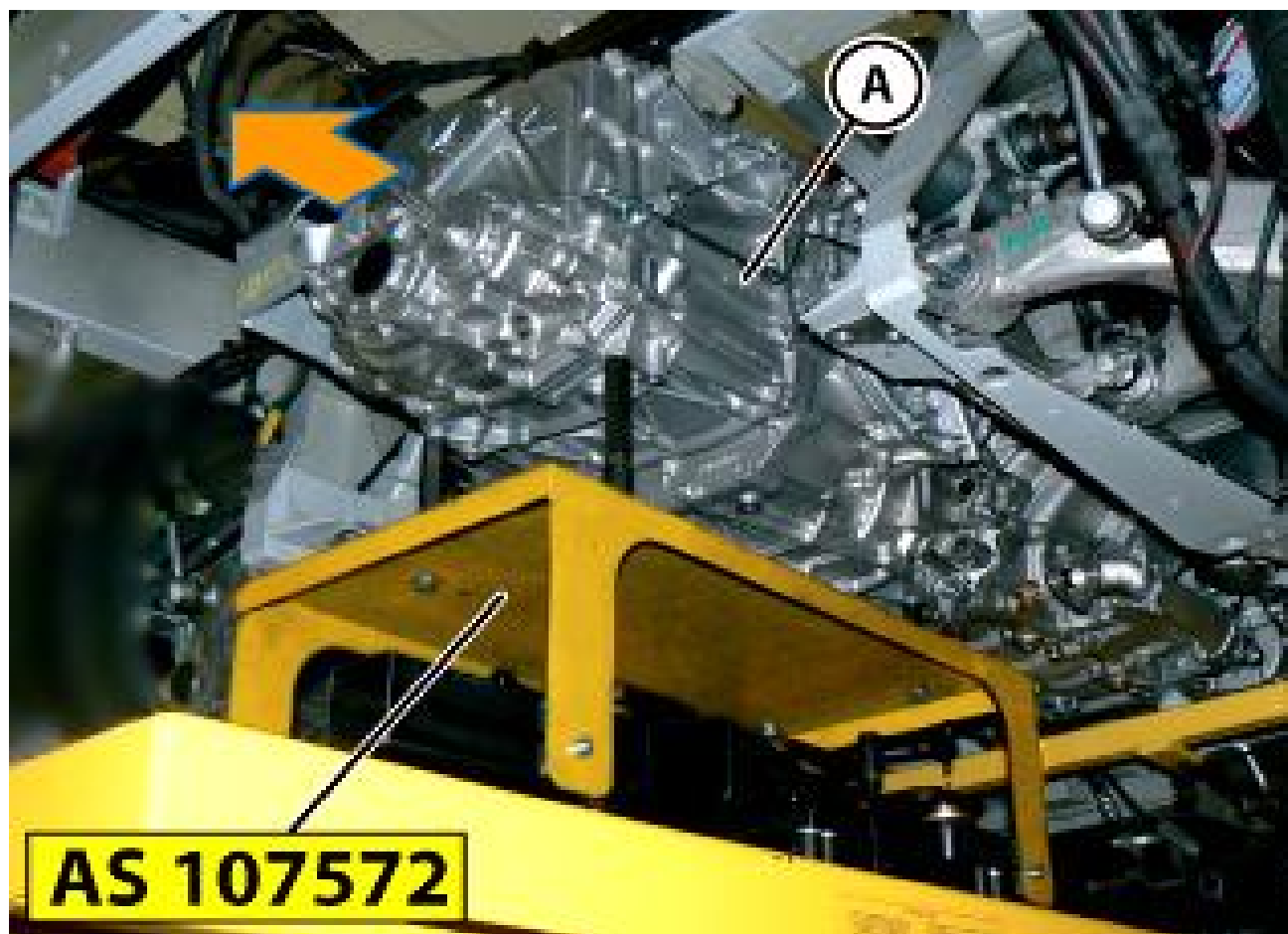


Getrag Dual Clutch Gearbox



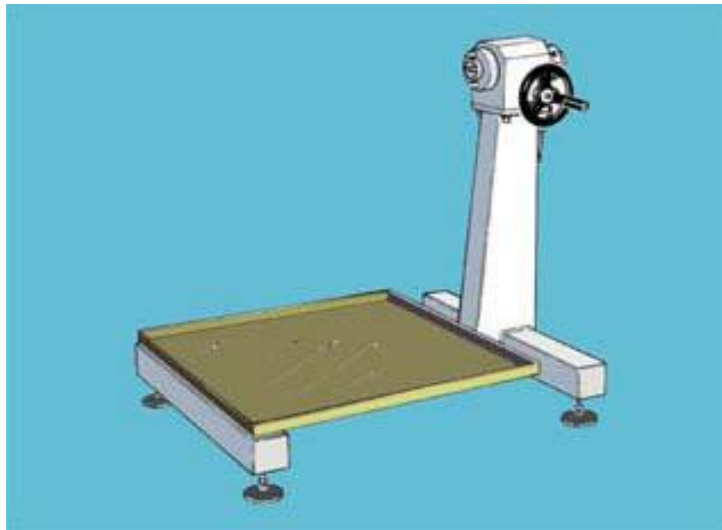
Remove gearbox from vehicle.



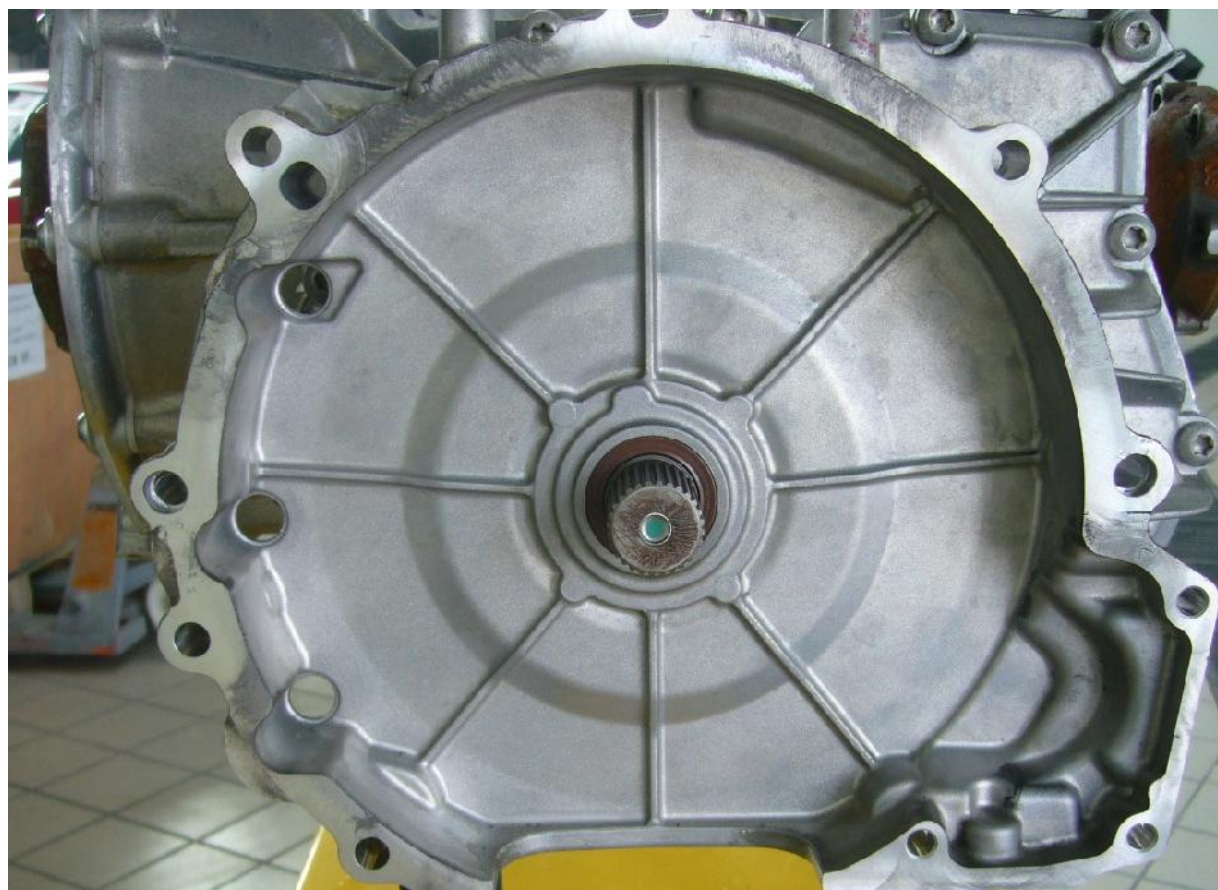
Once removed from vehicle, fit the 3 lifting hooks and adjust the chains so that the gearbox lifts in the correct position.



Mount the gearbox SST AM107314 (95977314), onto
Trolley 95972621 (AV 2621)



Once Gearbox and clutch oils are completely drained. Place the gearbox upright, and remove the all the Aluminum screws securing the Clutch Housing.



All removed items must be cleaned, checked for damages, and stored in preparation for rebuild.



Remove the dual clutch assembly

Nominal transmissible torque
900 Nm

“Internal” clutch

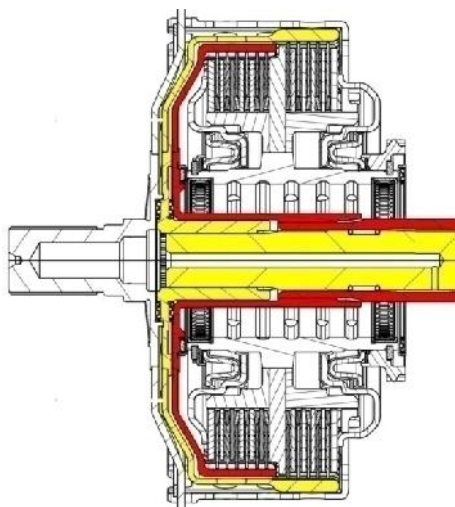
Number of discs: 6

Mean radius = 77.7 mm

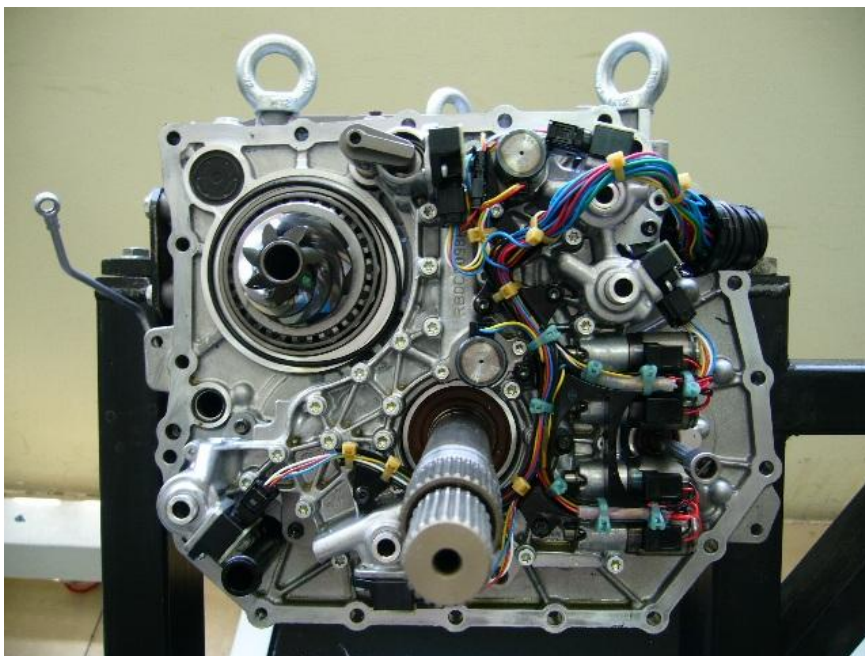
“External” clutch

Number of discs: 5

Mean radius = 77.7 mm



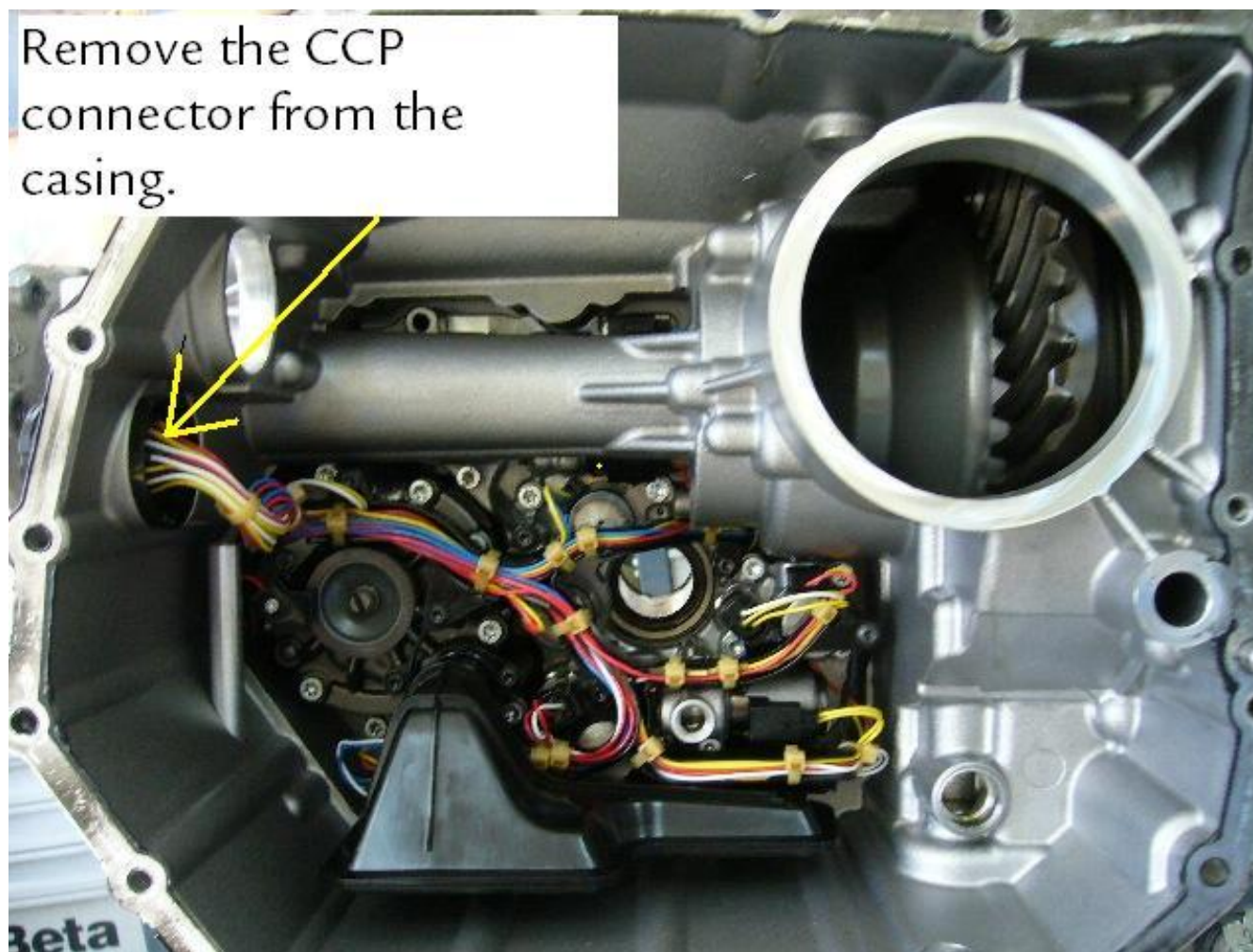
Remove all screws to allow removal of the gearbox central housing . Use lifting crane to carefully remove the casing.



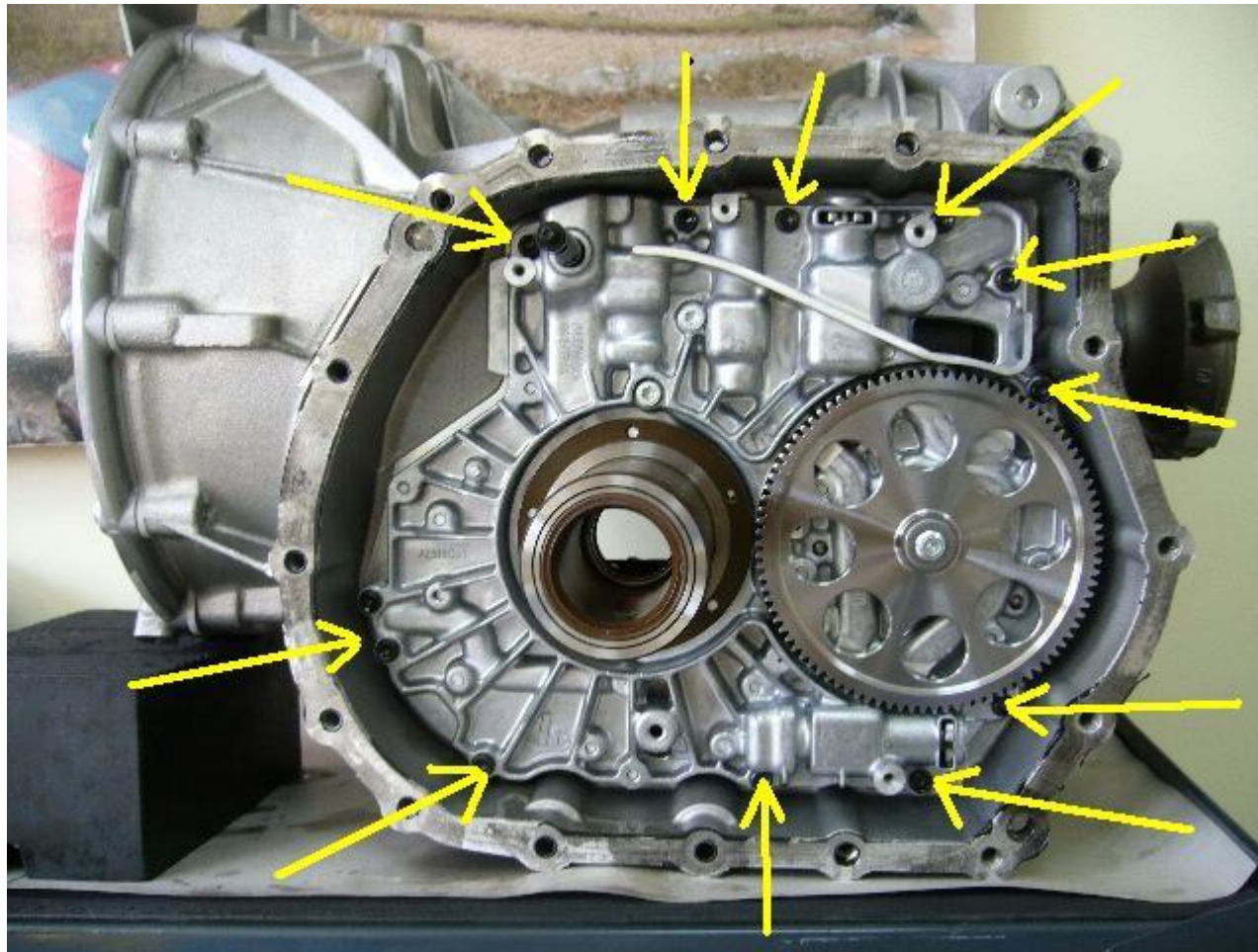
Mount the central casing on workbench ready for disassembly.



Remove the wiring connector CCP.



Remove the screws holding the Valve Body/ oil pump assembly.



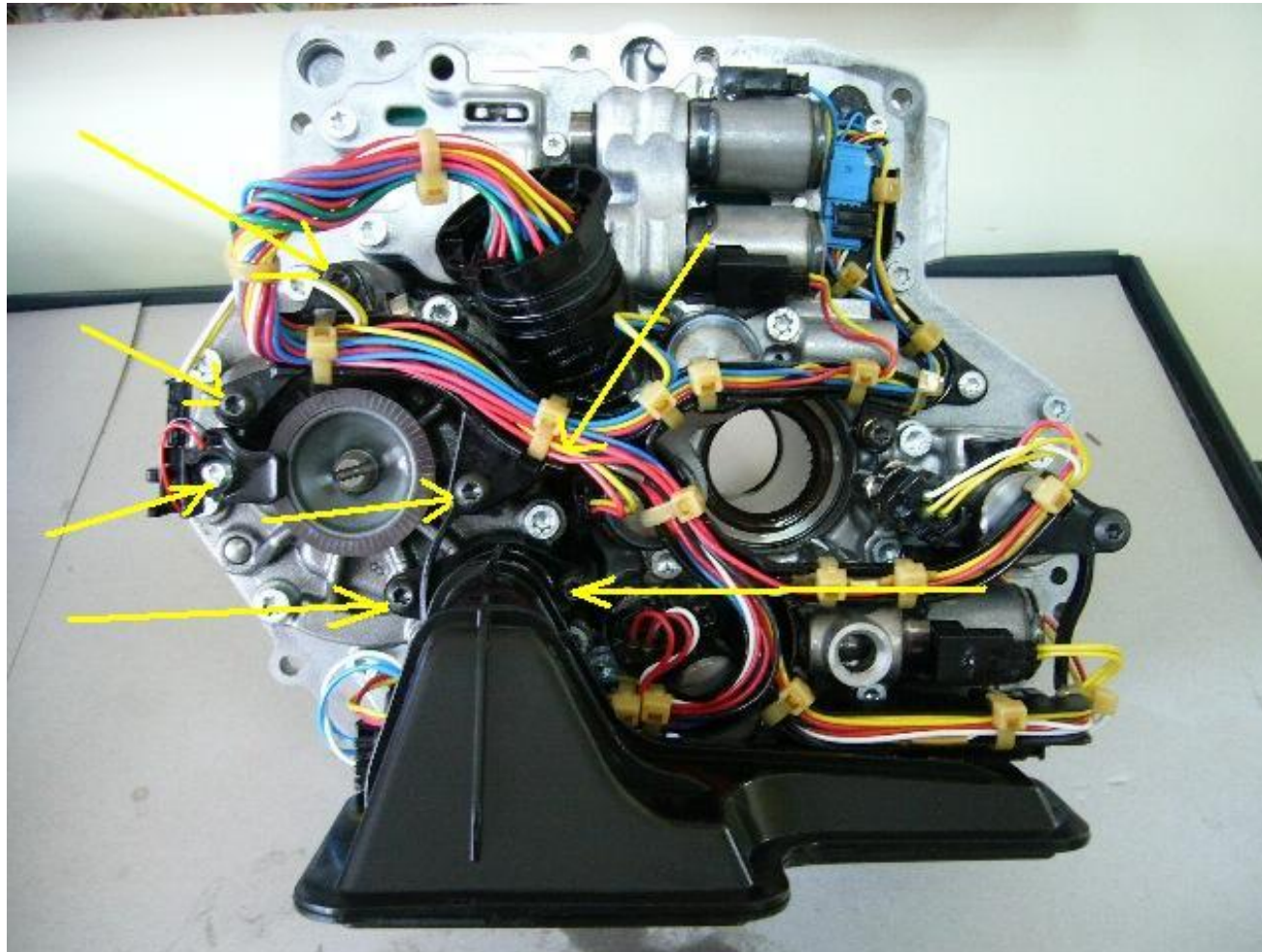
Carefully remove the Valve body/ oil pump from the casing



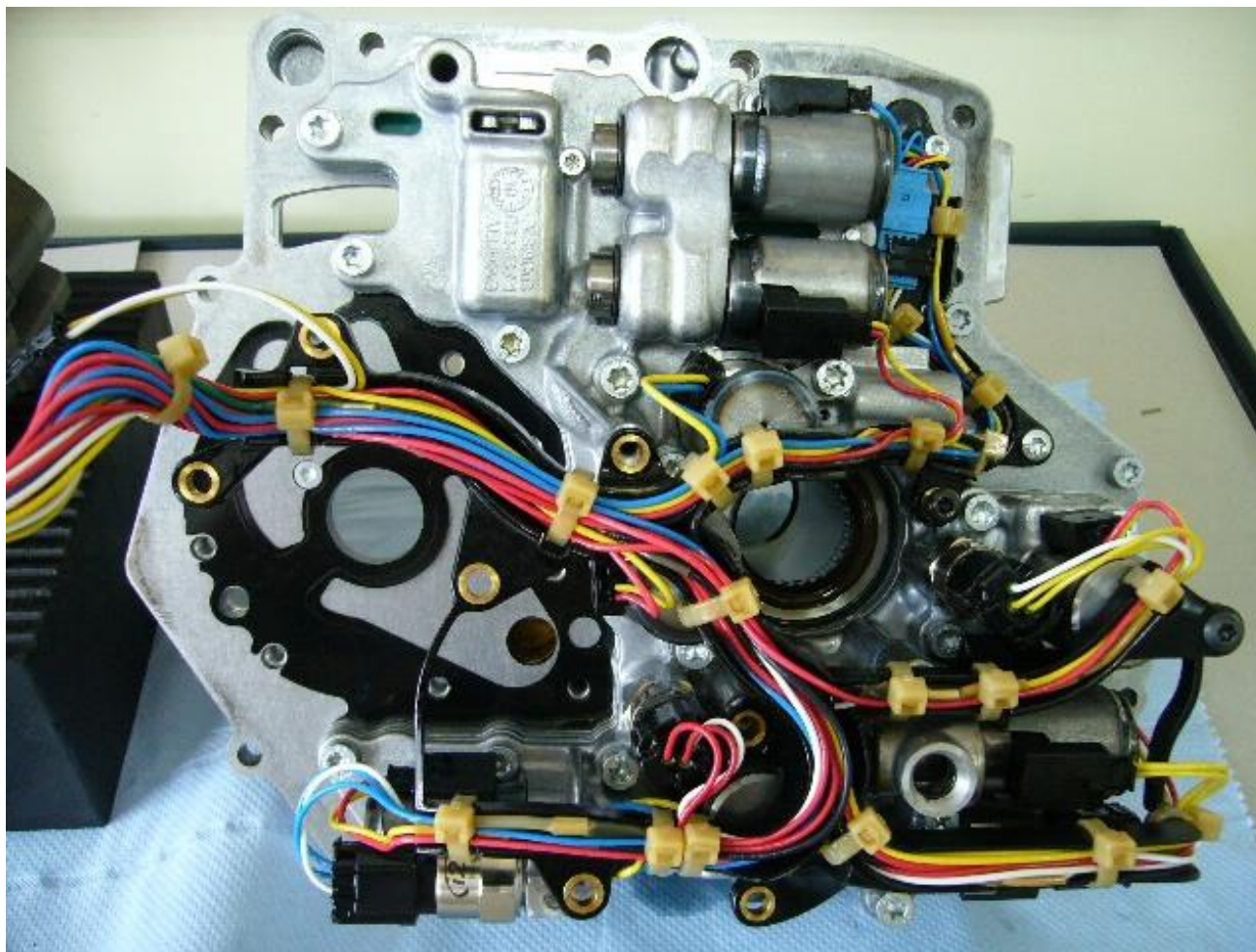
Remove the screw and pulley and key for the oil pump.



Remove the oil filter/ speed sensor/ wiring harness screws



Remove the oil pump assembly from the valve body, and clean all components with Locktite 7063 to ensure all oil residue is removed.



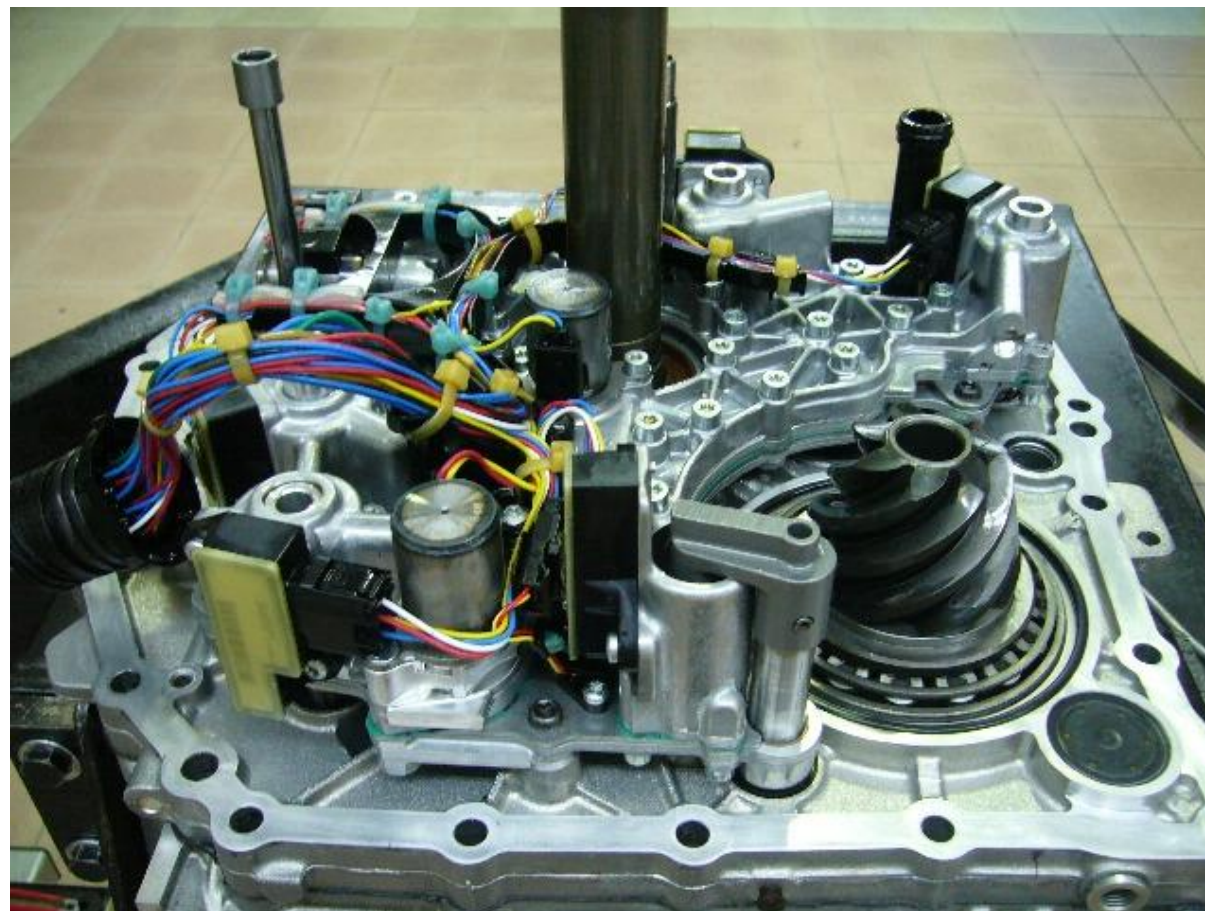
Take extreme care not to damage the speed sensor rotor, and oil pump gears during removal.



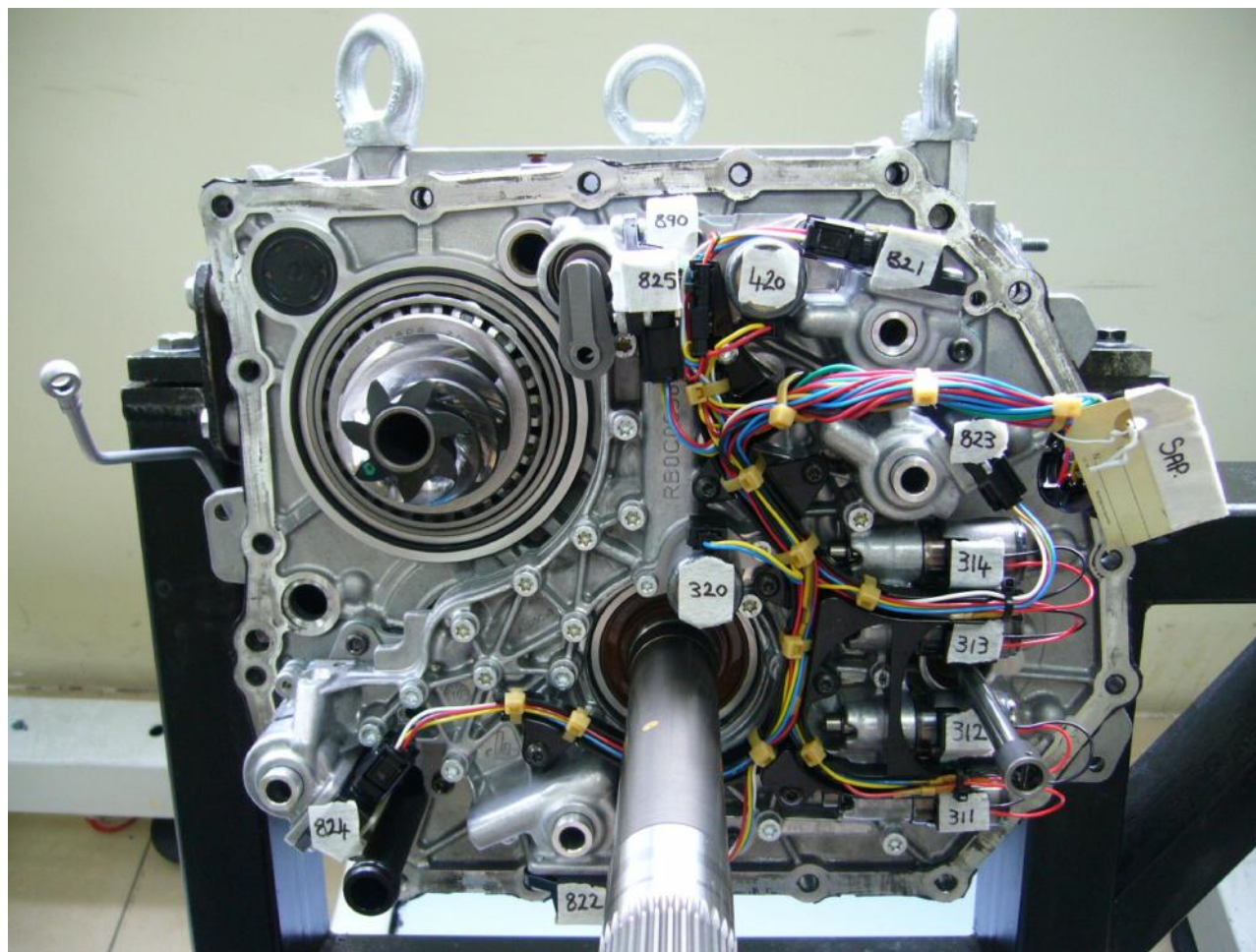
Rotate the gearbox stand to the upright position and carefully clean ready for inspection.



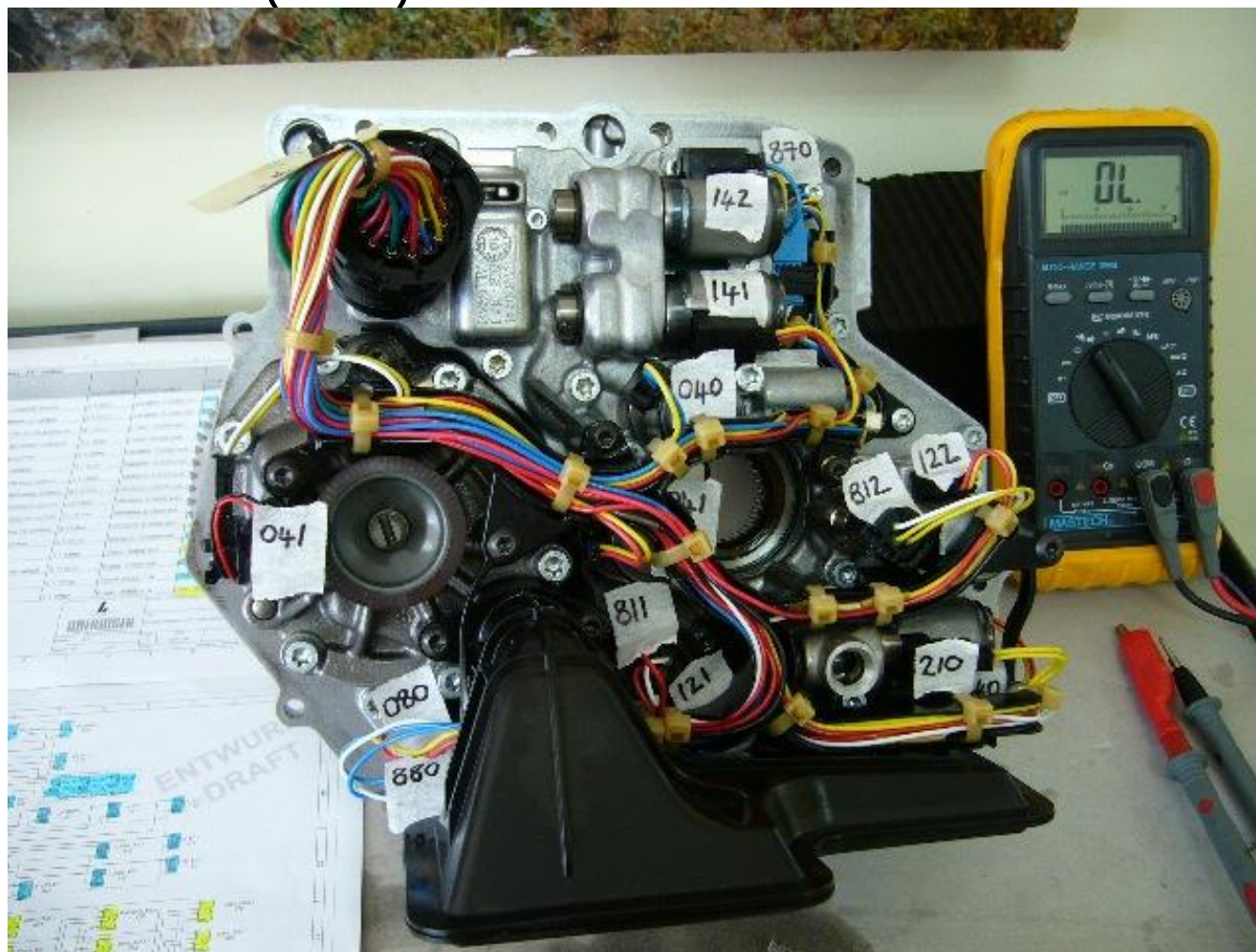
All solenoid valves, wiring, sensors and connectors should be cleaned with Loctite 7063 to ensure all oil residue is removed.



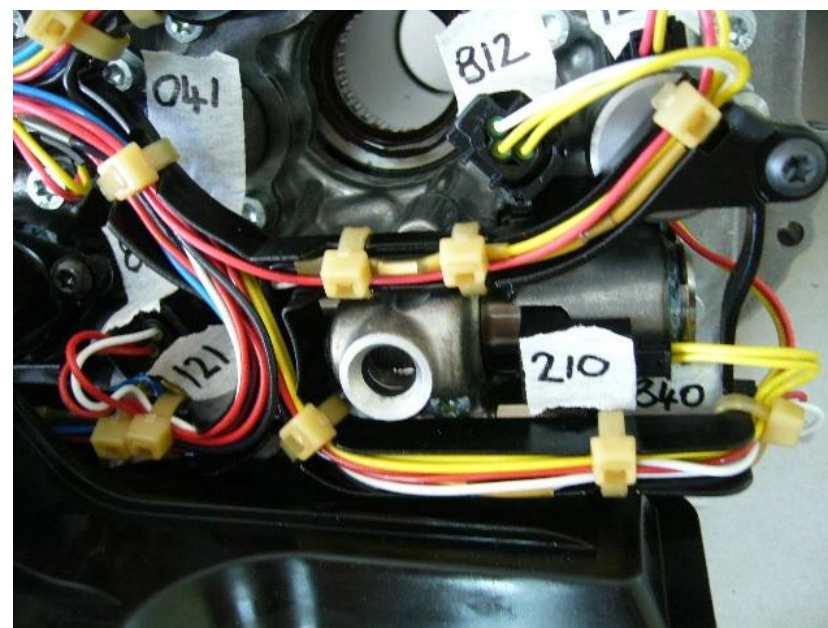
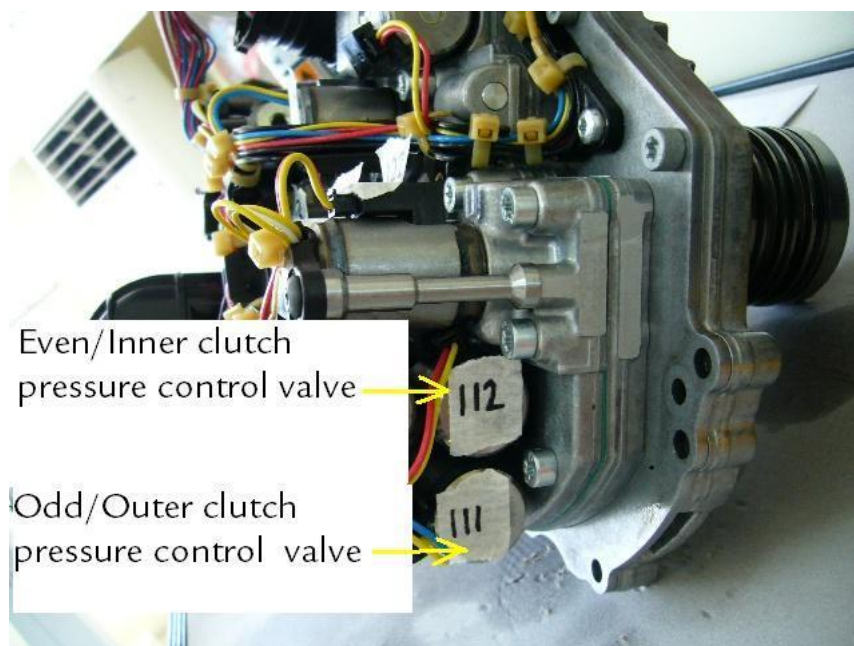
Reference for DCT Solenoids and Sensors connected through the SAP Connector (X402)



Reference for DCT Solenoids and Sensors connected through the CCP Connector (X400)



Reference for DCT Solenoids and Sensors connected through the CCP Connector (X400)



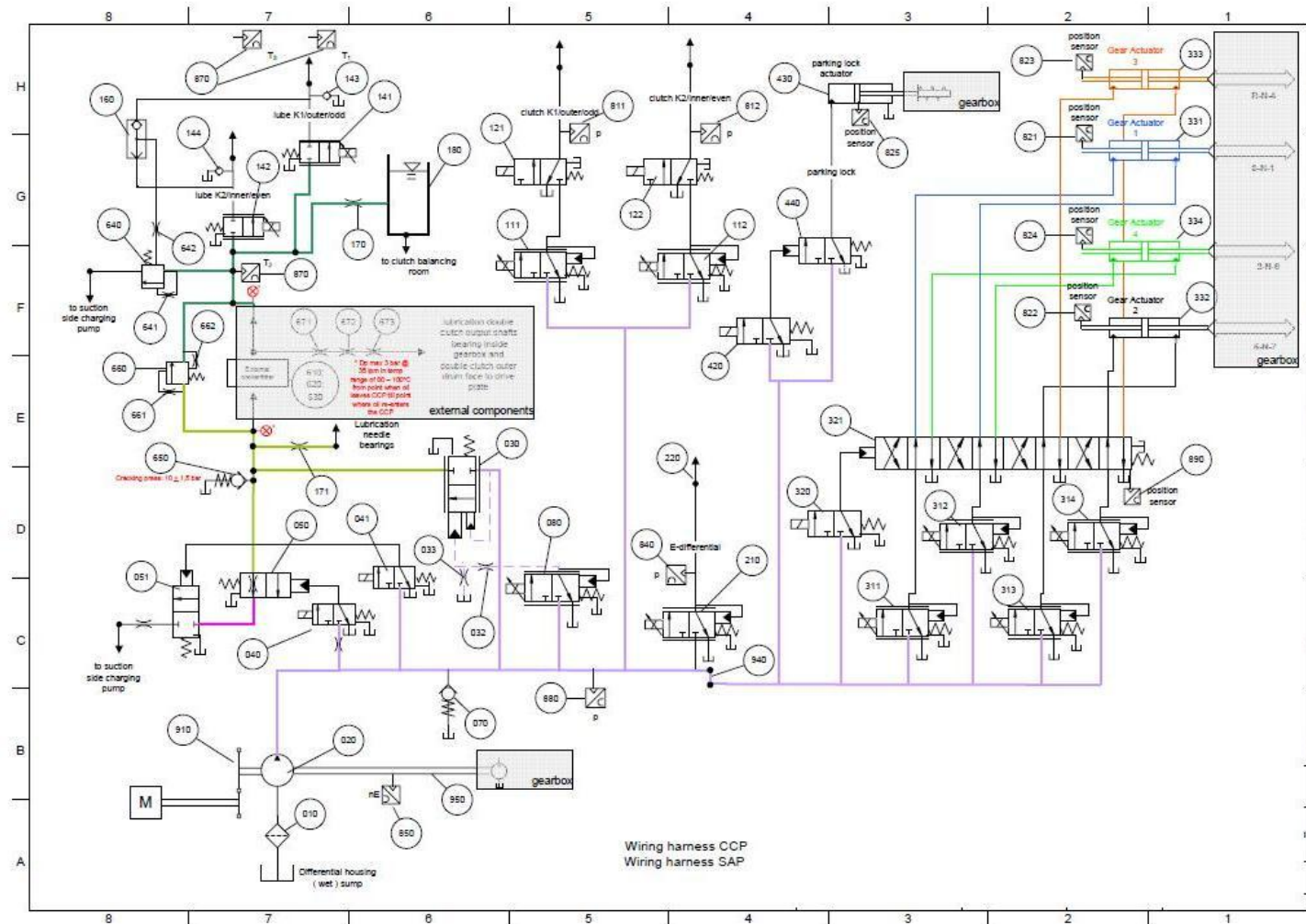
DCT Sensors- ATF section reference diagram.

DCT sensors - ATF section								
N°	Sensor type	Part number	Hydraulic System Reference 1	Hydraulic System Reference 2	DCT Function	Type / Output	Mounting Interface	Electrical Interface
1	Temperature	psns0042f	870	Ts_1/Ts_2/Ts_3	Oil Temperature: Outer (odd clutch) ,oil cooler outlet, Inner (even clutch)	pt1000	Plastic tube / bolted	CCP Connector
2	Pressure	psns0046f	811	ps_K1	Clutch pressure	ratiometric, 0-40 bar / 0-5 V	O-ring / M10	CCP Connector
3	Pressure	psns0046f	812	ps_K2	Clutch pressure	ratiometric, 0-40 bar / 0-5 V	O-ring / M11	CCP Connector
4	Pressure	psns0046f	840	ps_ediff	E-differential pressure	ratiometric, 0-40 bar / 0-5 V	O-ring / M12	CCP Connector
5	Pressure	psns0046f	880	ps_system	System pressure	ratiometric, 0-40 bar / 0-5 V	O-ring / M13	CCP Connector
6	Position	psns0036f	821	poss_GA1	Actuator position	plcd, 0-25 mm / 0-5 V	Bolts	SAP Connector
7	Position	psns0036f	822	poss_GA2	Actuator position	plcd, 0-25 mm / 0-5 V	Bolts	SAP Connector
8	Position	psns0036f	823	poss_GA3	Actuator position	plcd, 0-25 mm / 0-5 V	Bolts	SAP Connector
9	Position	psns0036f	824	poss_GA4	Actuator position	plcd, 0-25 mm / 0-5 V	Bolts	SAP Connector
10	Position	psns0036f	825	poss_parklock	Actuator position	plcd, 0-25 mm / 0-5 V	Bolts	SAP Connector
11	Speed	psns0041f	850	nE	Engine speed	TLE 4976	Bolt	CCP Connector
12	Position	psns0043f	890	Poss_Sel	Selector position	hall (kmi15), 7 - 14 mA	Bolt	SAP Connector

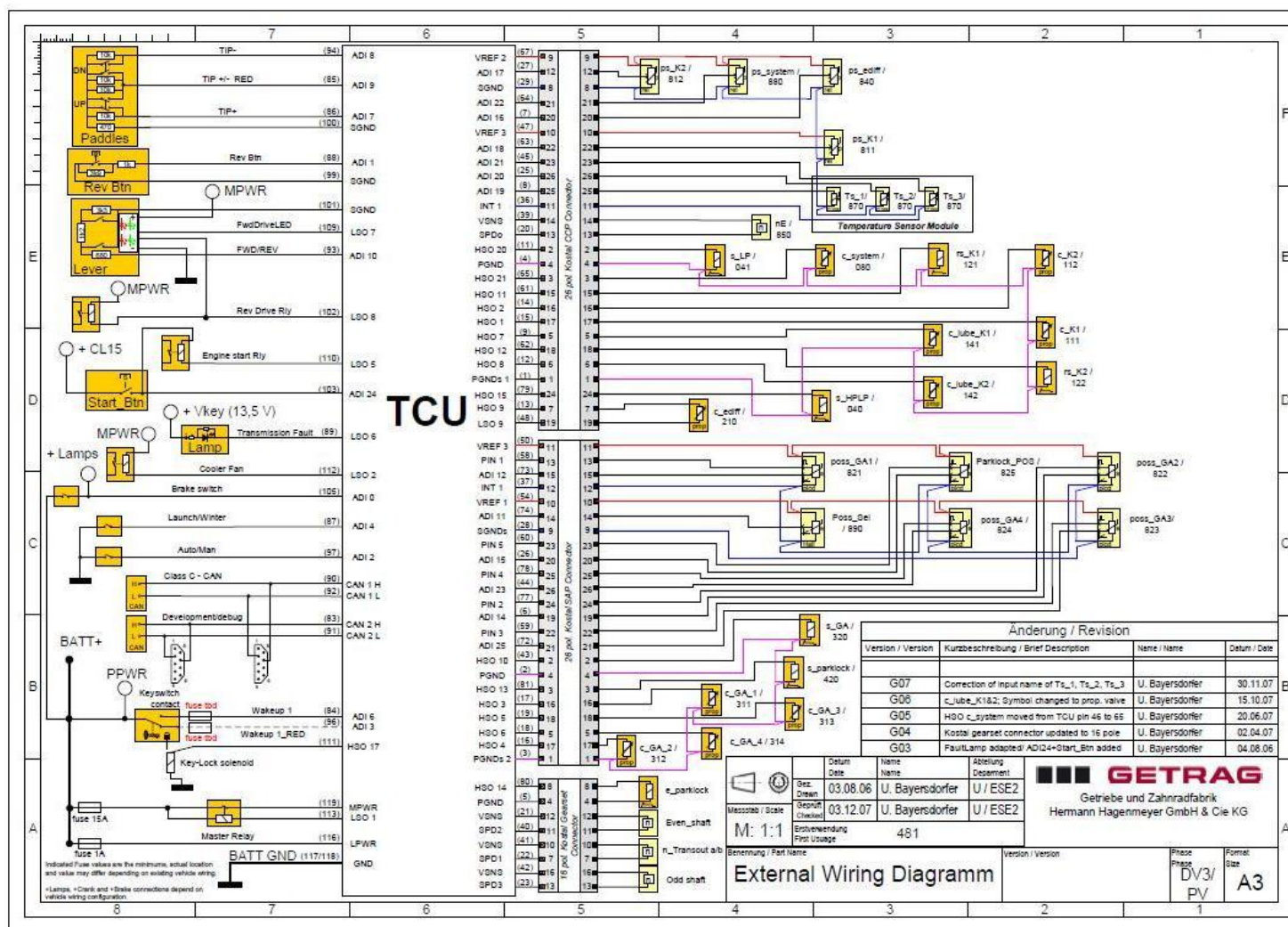
DCT Solenoids- ATF section reference diagram

DCT Solenoids - ATF section								
N°	Coil Type	Part number	Hydraulic System Reference 1	Hydraulic System Reference 2	DCT Function	Coil Resistance	Current Control	Electrical Interface
1	Proportional	pavs0096f	111	c_K1	Proportional clutch pressure control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
2	Proportional	pavs0096f	112	c_K2	proportional clutch pressure control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
3	Proportional	pavs0095f	121	rs_K1	Redundant shutdown for clutch pressure	3,1 Ohm	Fixed: 0/1500 mA	CCP Connector
4	Proportional	pavs0095f	122	rs_K2	Redundant shutdown for clutch pressure	3,1 Ohm	Fixed: 0/1500 mA	CCP Connector
5	Proportional	pavs0098f	141	c_lube_K1	Proportional clutch lube control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
6	Proportional	pavs0098f	142	c_lube_K2	Proportional clutch lube control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
7	Proportional	pavs0094f	210	c_ediff	Proportional differential pressure control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
8	Proportional	pavs0094f	311	c_GA_1	Proportional gear actuator pressure control	3,1 Ohm	Variable: 0-2000 mA	SAP Connector
9	Proportional	pavs0094f	312	c_GA_2	Proportional gear actuator pressure control	3,1 Ohm	Variable: 0-2000 mA	SAP Connector
10	Proportional	pavs0094f	313	c_GA_3	Proportional gear actuator pressure control	3,1 Ohm	Variable: 0-2000 mA	SAP Connector
11	Proportional	pavs0094f	314	c_GA_4	Proportional gear actuator pressure control	3,1 Ohm	Variable: 0-2000 mA	SAP Connector
12	Proportional	pavs0097f	080	c_system	Proportional system pressure control	3,1 Ohm	Variable: 0-2000 mA	CCP Connector
13	On/Off	psol0026f	420	s_parklock	Park lock On/Off	3,1 Ohm	Fixed: 0/900 mA	SAP Connector
14	On/Off	psol0026f	040	s_HPLP	High pressure / Low pressure pump select	3,1 Ohm	Fixed: 0/900 mA	CCP Connector
15	On/Off	psol0026f	041	s_LP	Low pressure pump bypass	3,1 Ohm	Fixed: 0/900 mA	CCP Connector
16	On/Off	psol0026f	320	s_GA	Gear actuator group select	3,1 Ohm	Fixed: 0/900 mA	SAP Connector

DCT Hydraulic system reference diagram



DCT Electric wiring diagram reference.





Notes on wiring modifications for F142 Challenge

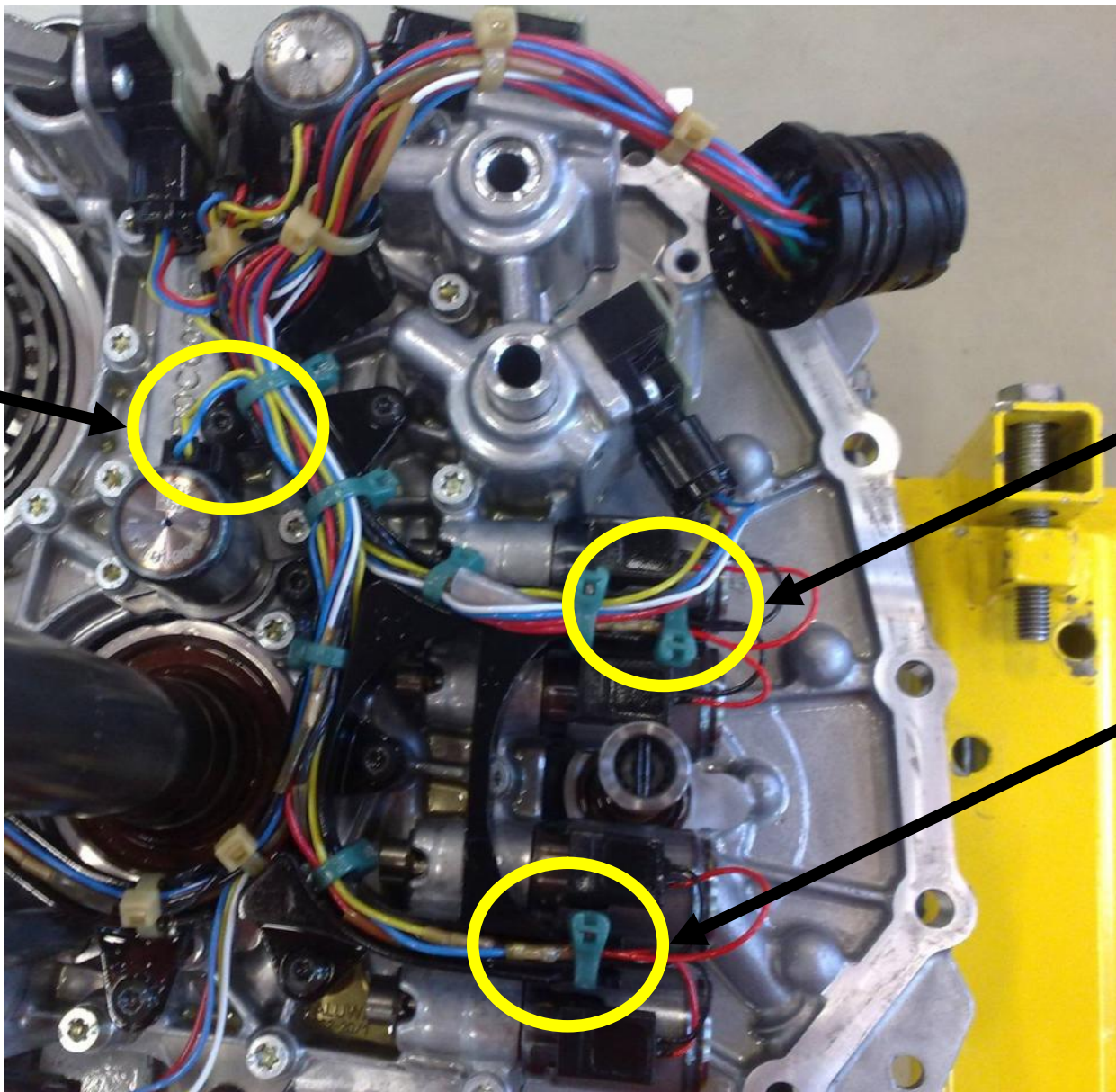
Step 2 Modification (2 Red dots)



Identifying interventions notebook wiring points

SAP

C



A

B



Identifying interventions notebook wiring points

CCP

J

G

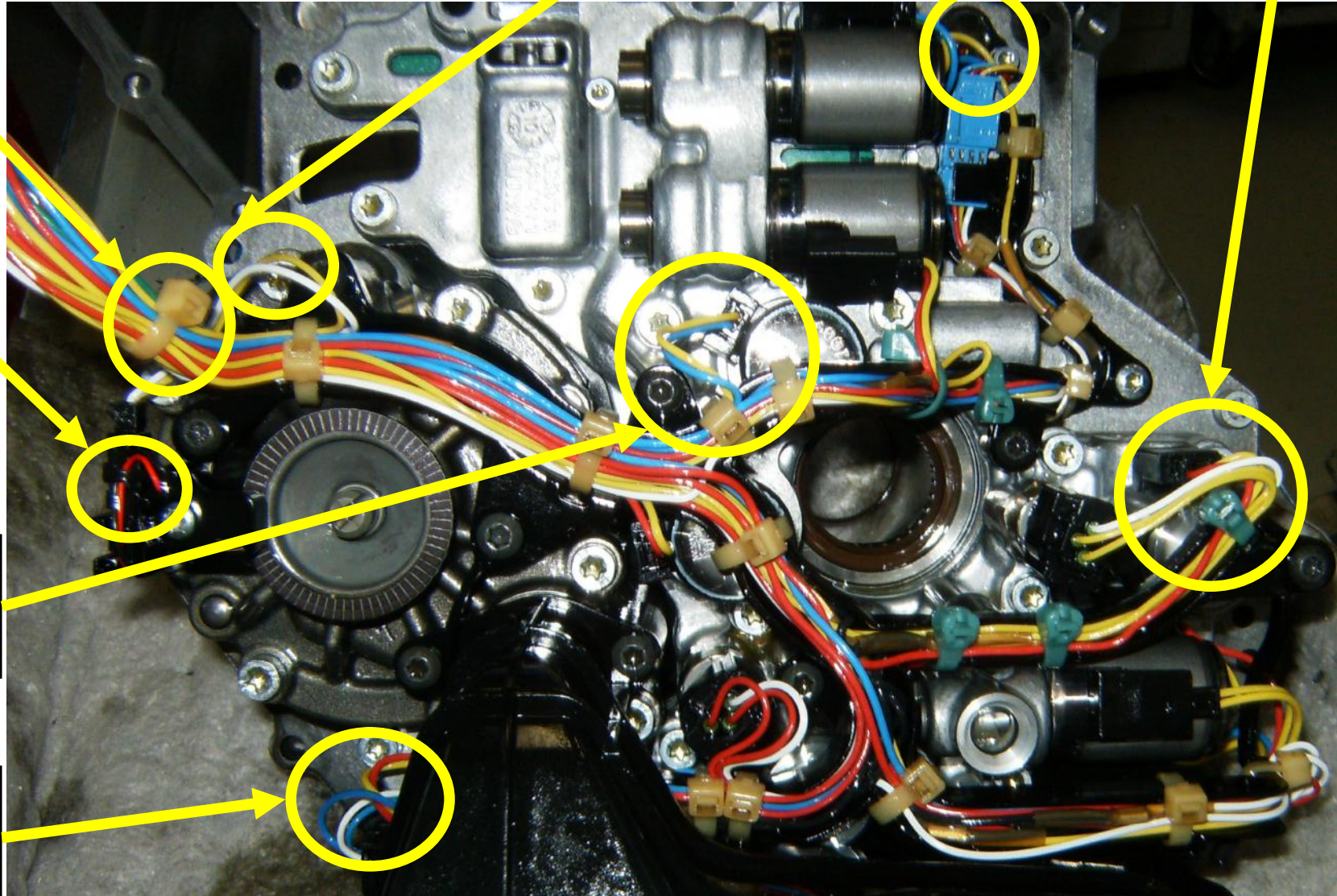
E

F

H

D

K

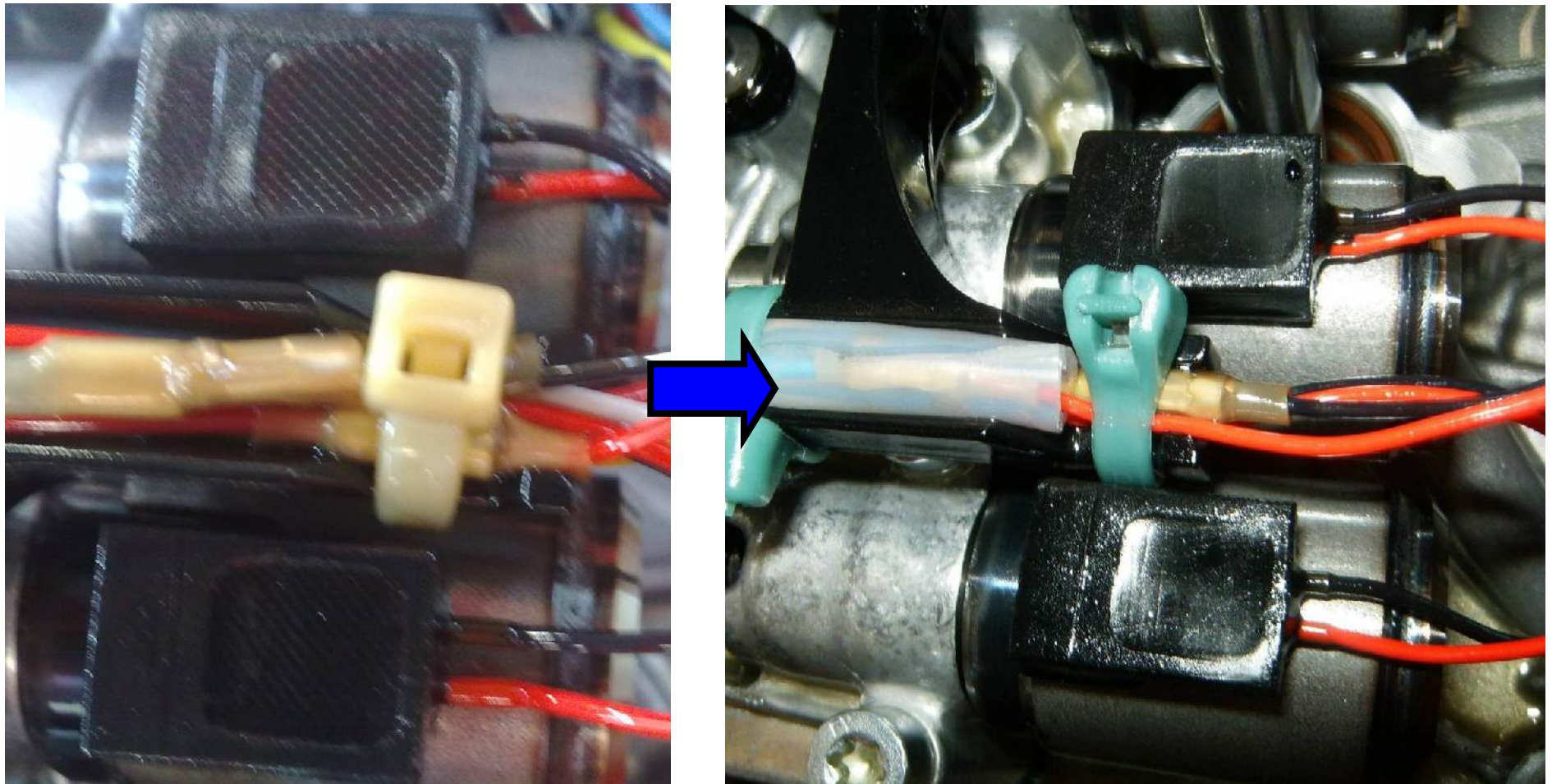




Description wiring notebook interventions

SAP point A/B

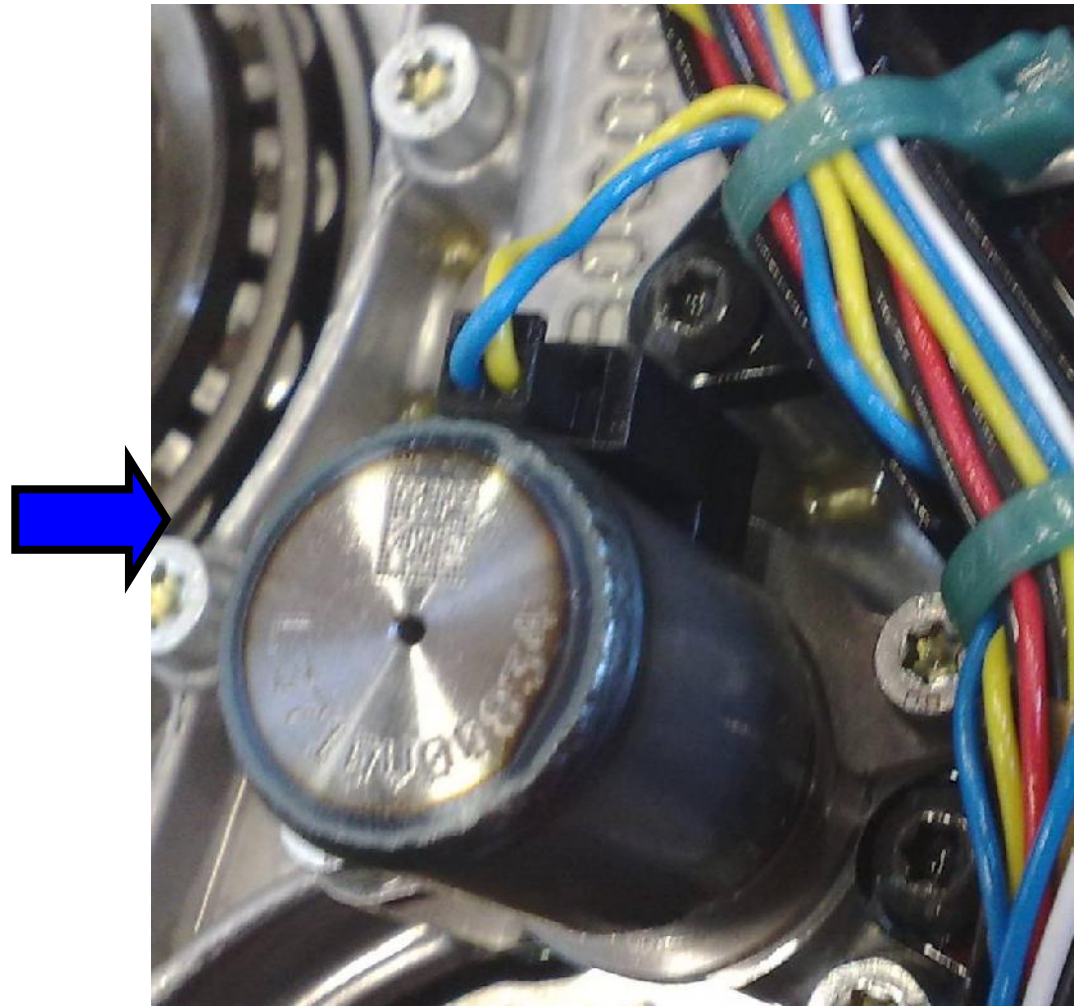
Eliminate overlapping crimps and distribute the new cable ties along the support. Avoid if possible to overtighten the clamp end of crimps. Ensure that the wires are crimped correctly.





Description wiring notebook interventions SAP point C

Ensure that the wires are routed and secured as shown below.

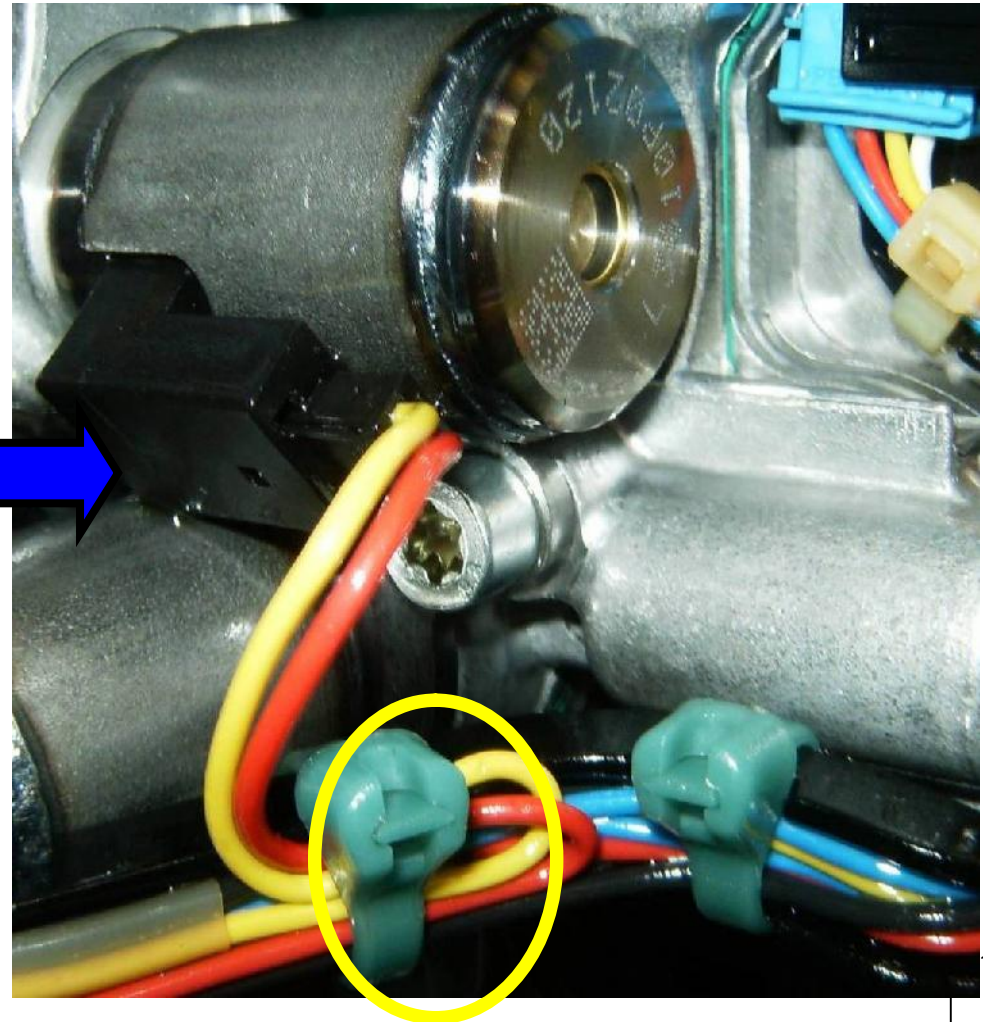




Description wiring notebook interventions

CCP point D

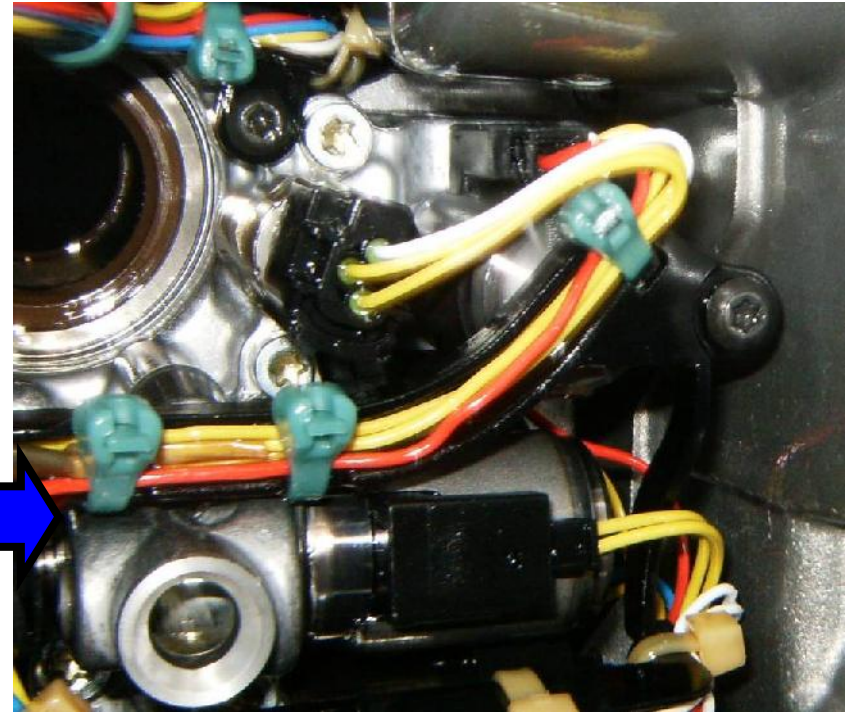
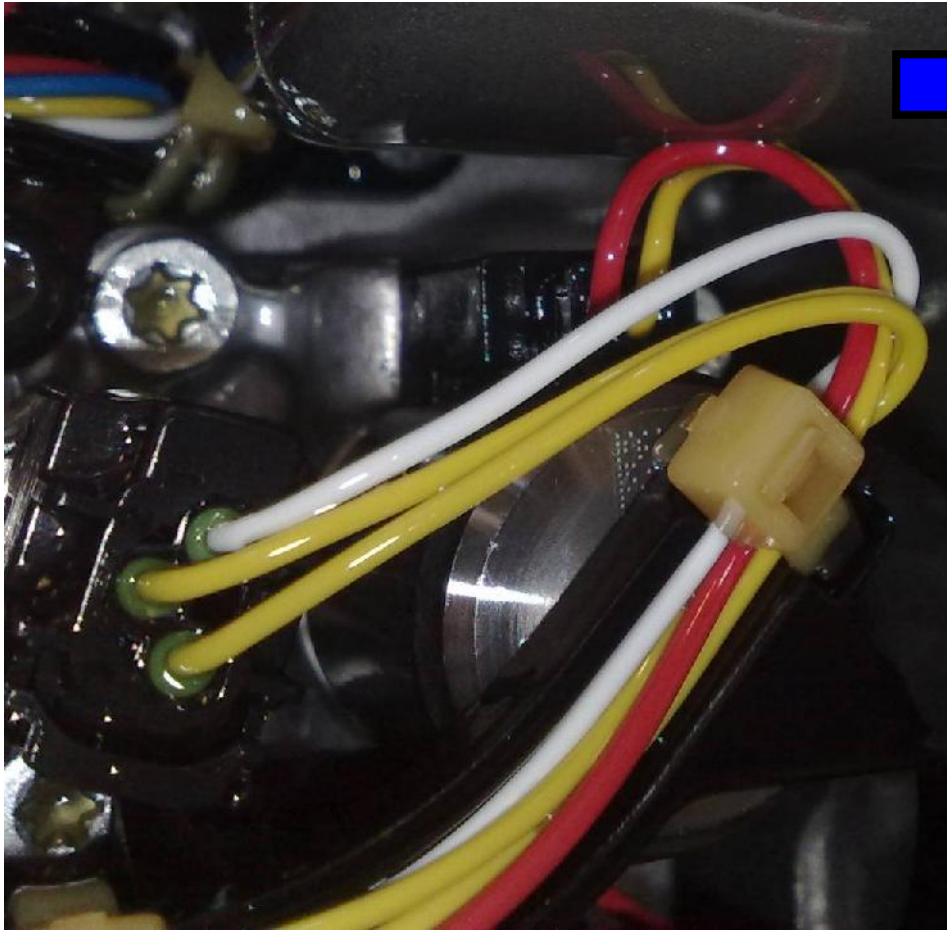
Arrange wiring as shown, and attach modified cable ties (blue high temperature version)





Description wiring interventions CCP point E

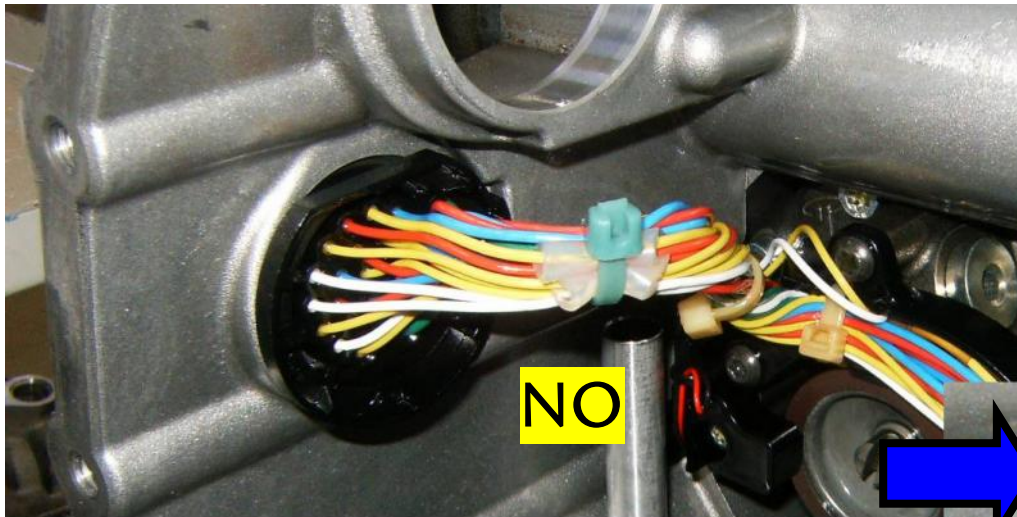
Ensure the wiring is routed and secured as shown.



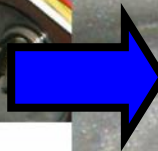
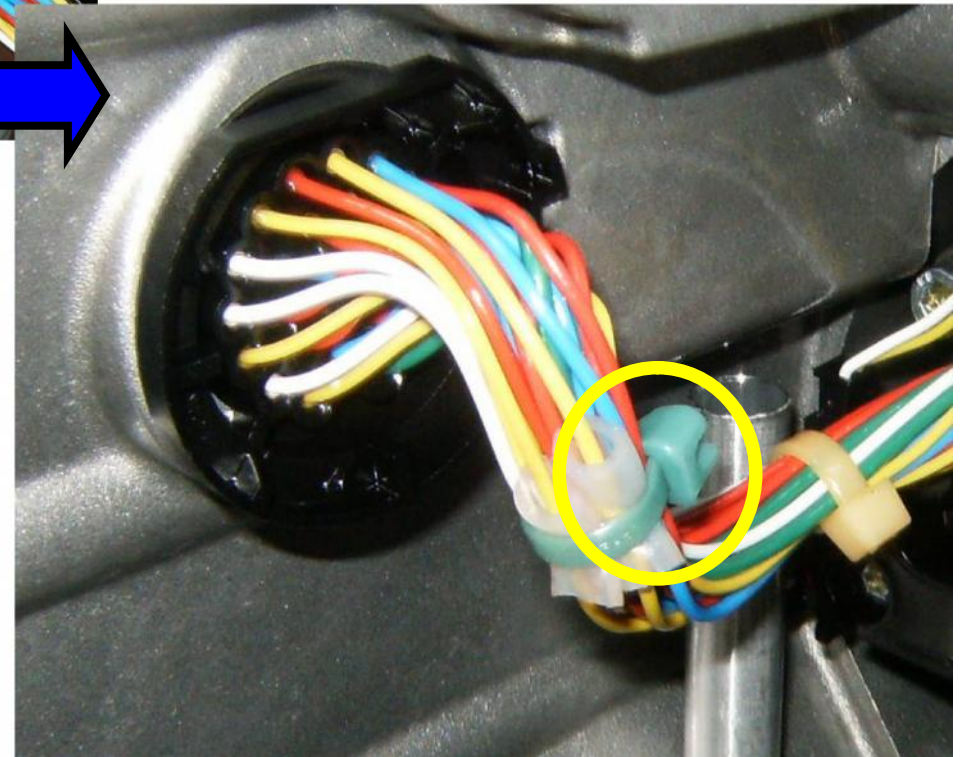


Description wiring notebook interventions

CCP point F



Arrange the wiring as shown below. Ensure that the wiring is secured away from the differential, and not positioned above the oil level check tube.

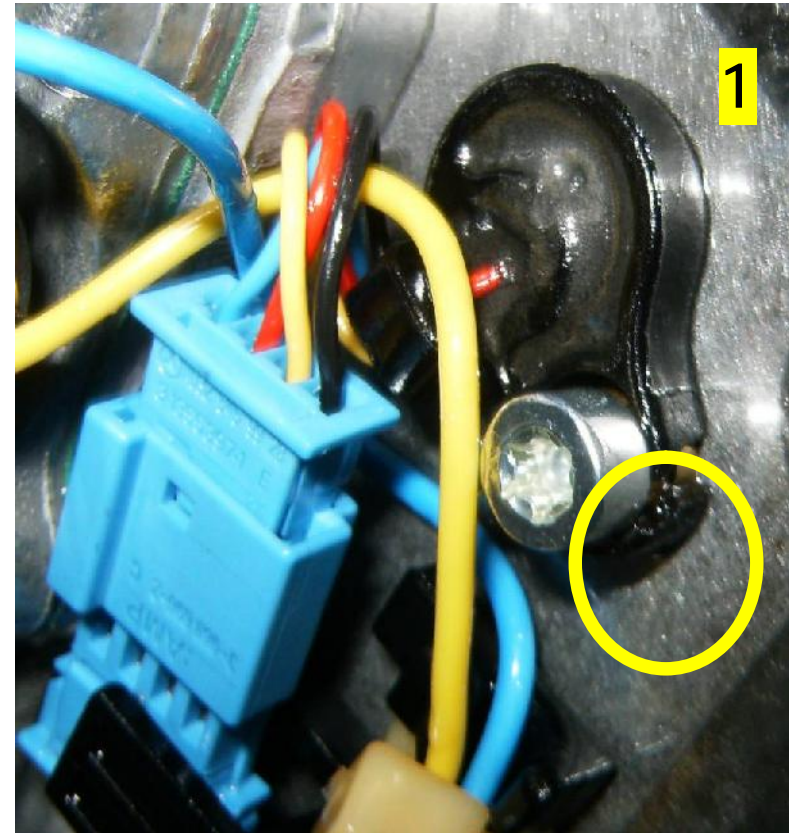




Description wiring interventions CCP point G

Replace if broken temperature sensor module (1).

Incorrect position (2), the sensor must be inserted up to the stop on the CCP (1) and engage in the hole on the front cover (3)

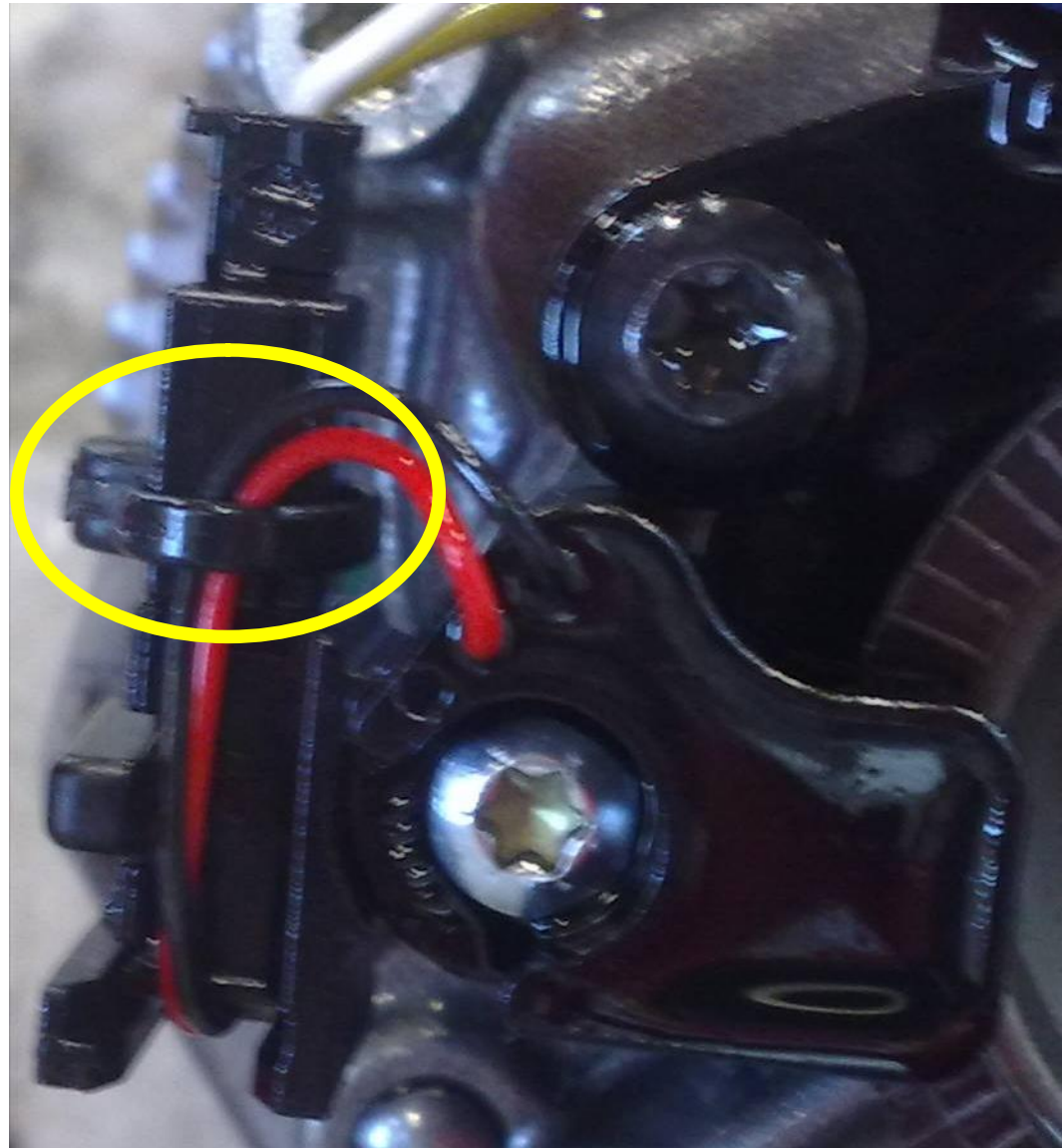




Description wiring notebook interventions

CCP point H

Add black strap of speed sensor cables to limit the free length

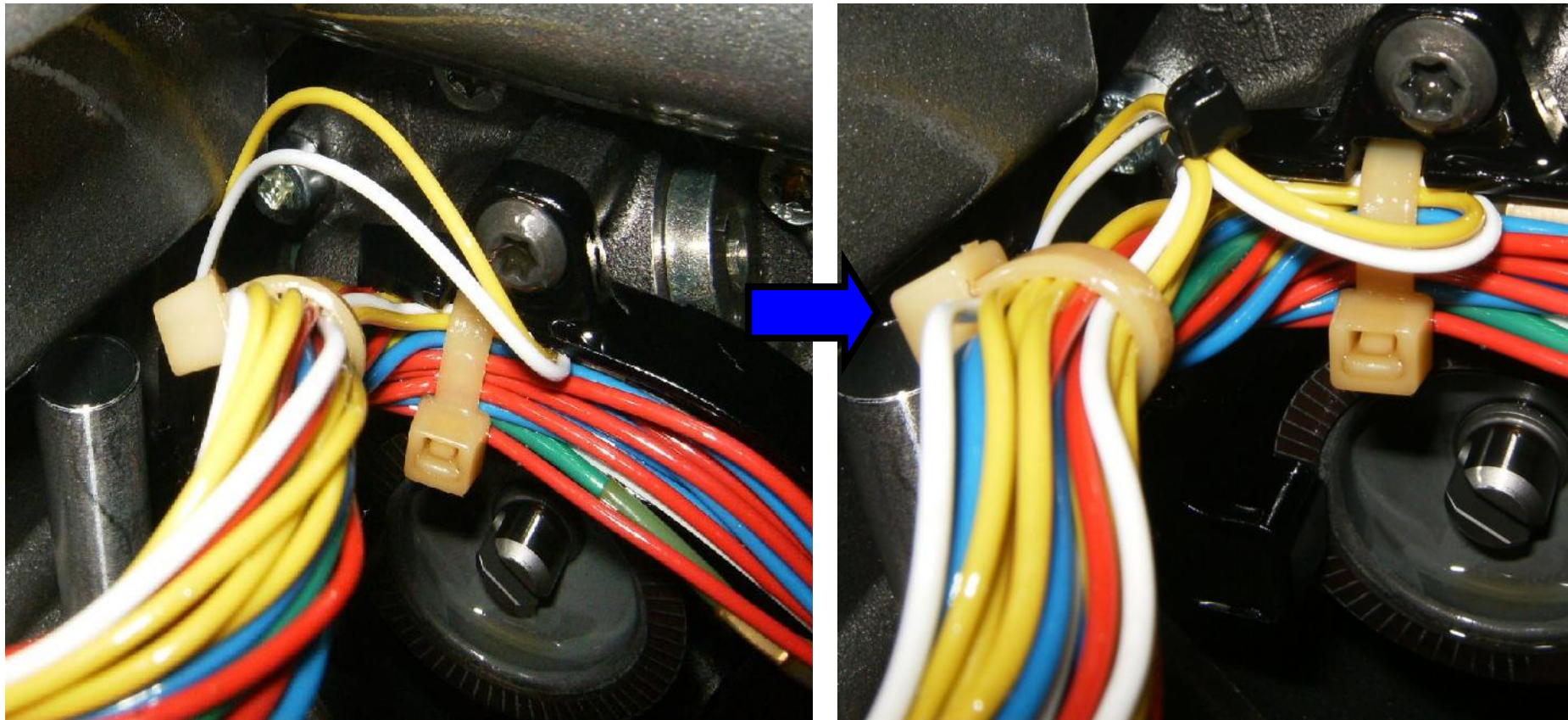




Description wiring notebook interventions

CCP point J

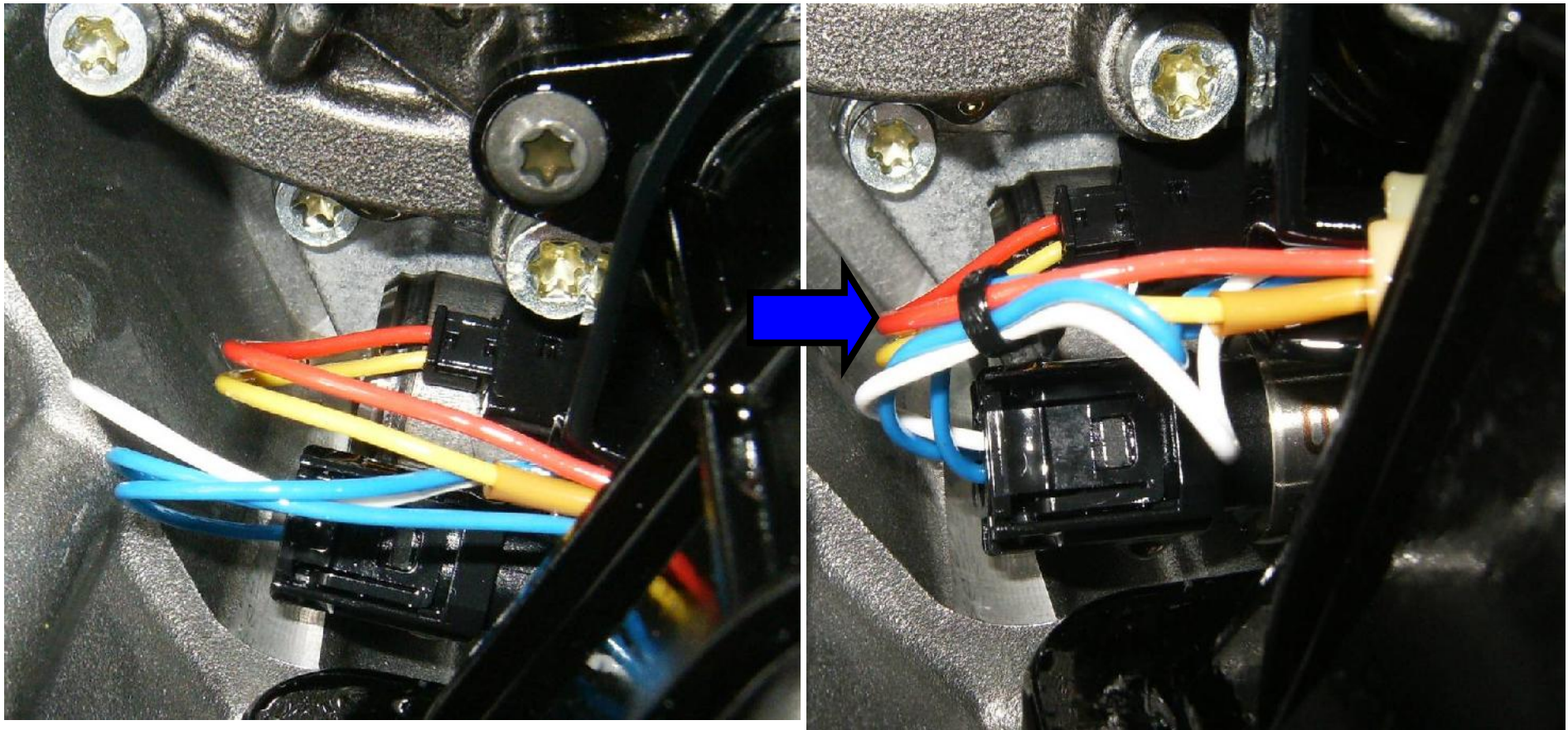
Ensure the wiring is routed and secured as shown below.





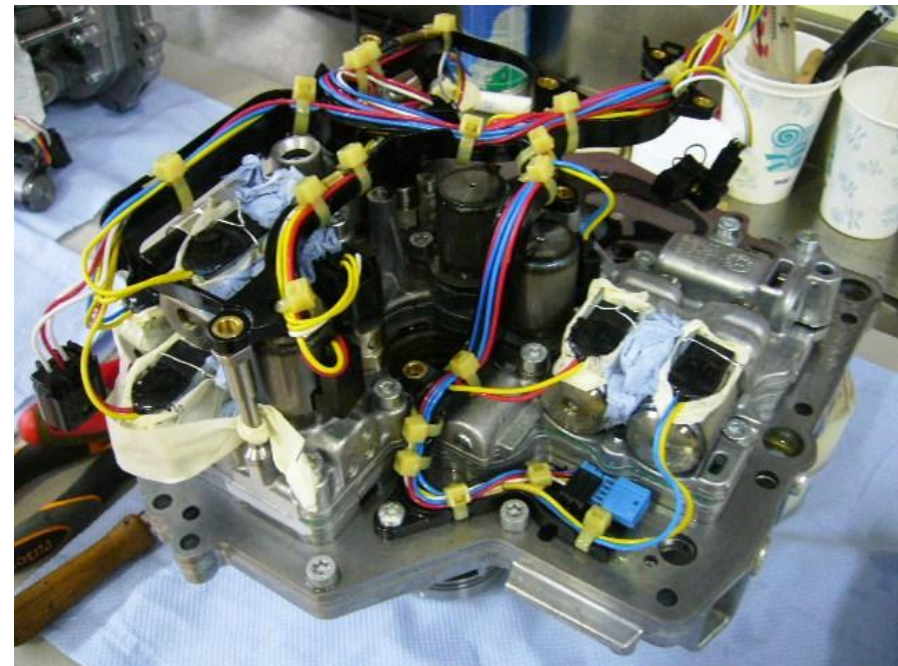
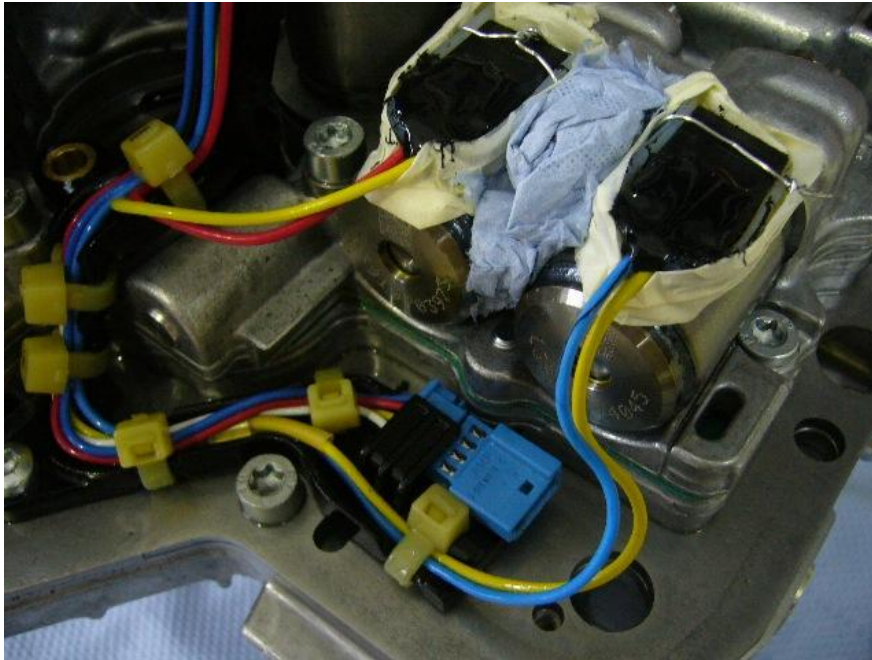
Description wiring notebook interventions CCP point K

Ensure the wiring is routed and secured as shown below.



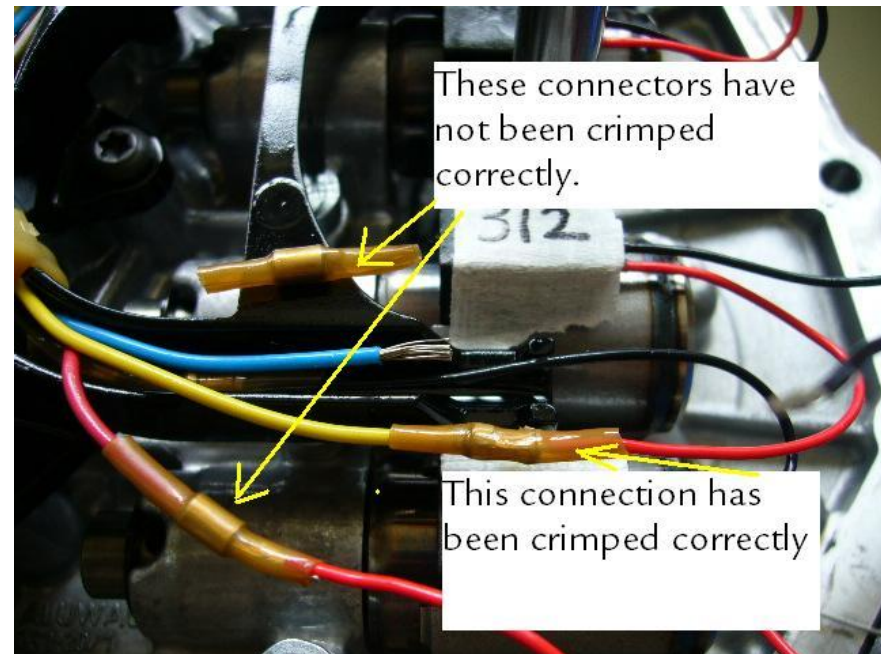
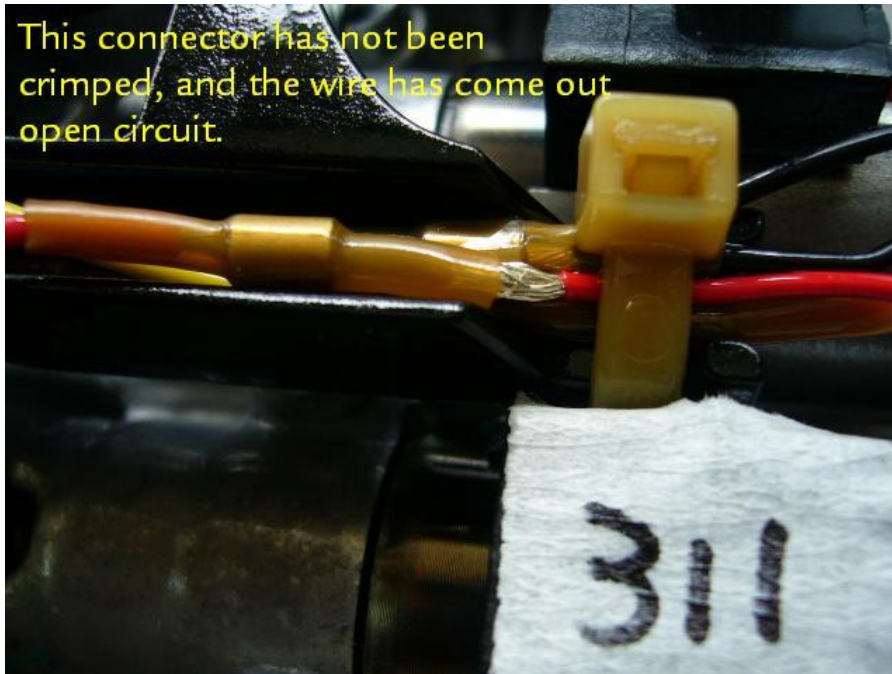


Example of Solenoid Valve connectors modification



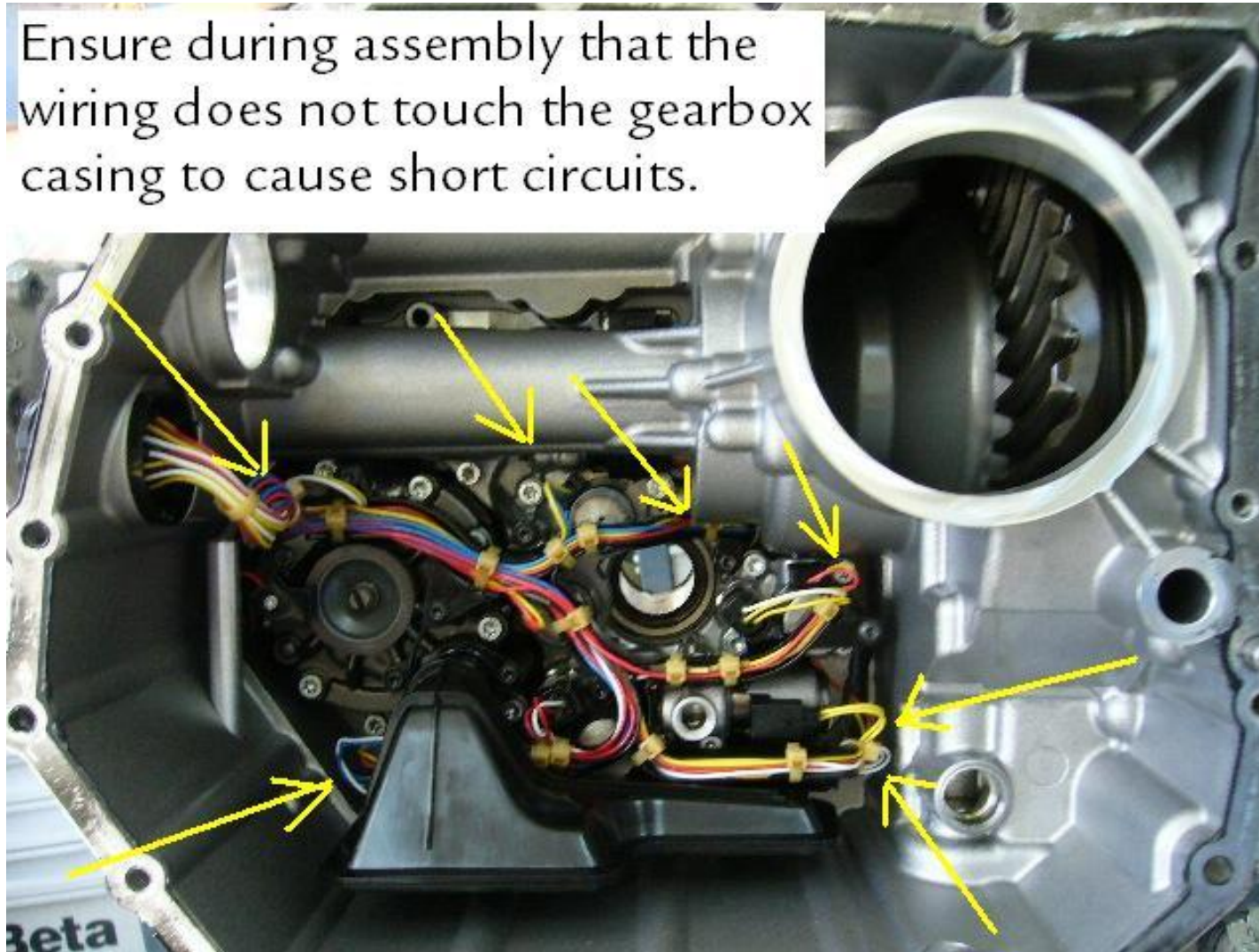


Example of Wiring Splices not crimped correctly.





Example of Wiring short circuit to gearbox casing (SC to Earth).



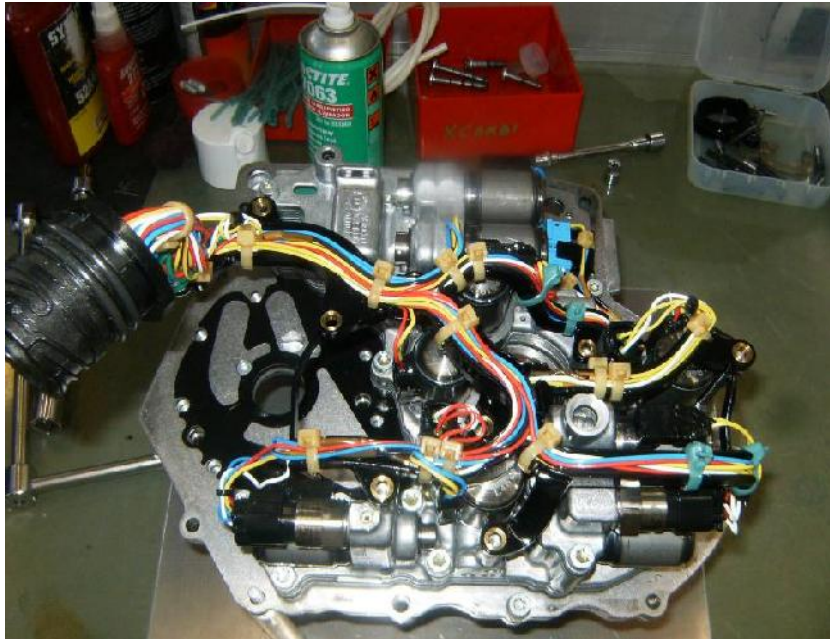


Notes on wiring modifications for F142 Challenge

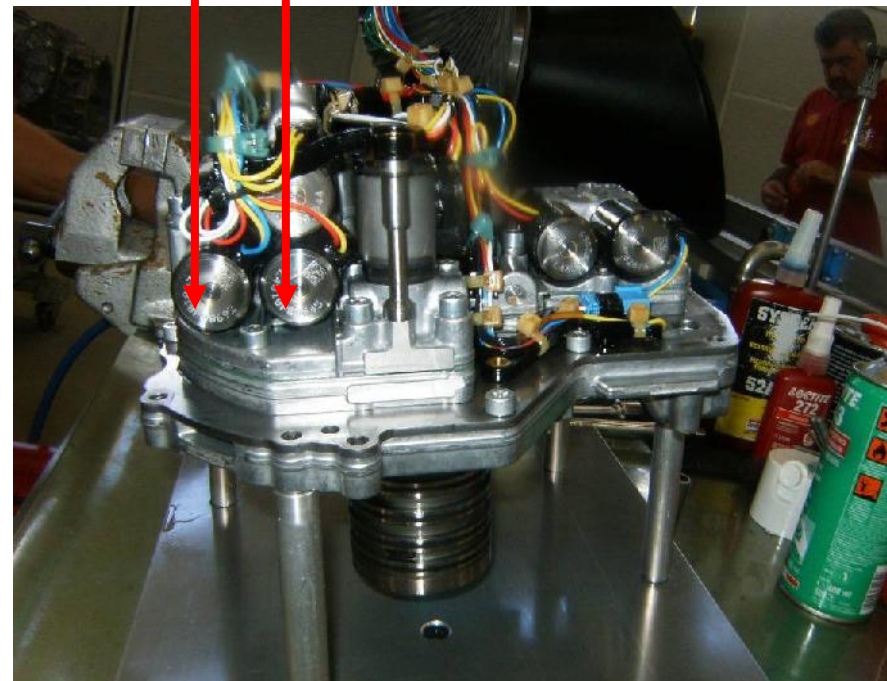
Step 3 Modification (3 Red dots)

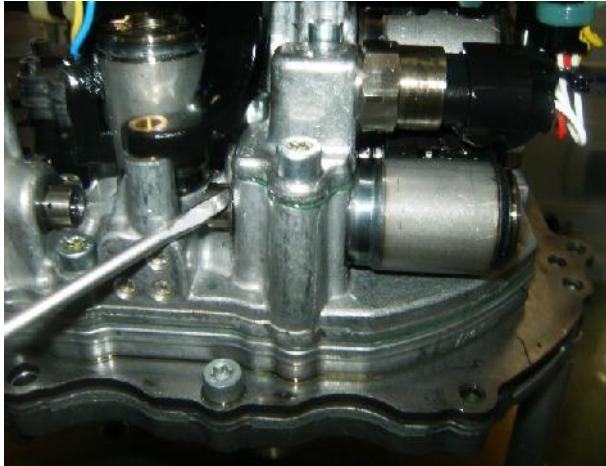


Clutch Pressure control valves to be modified



Solenoid valve with green ORING

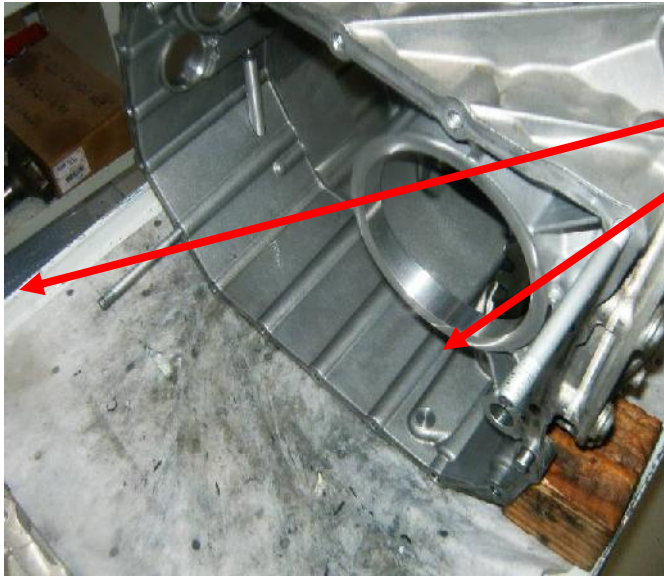




Cut and remove green ORING



Remove (solenoid valve)
segeer with screwdriver

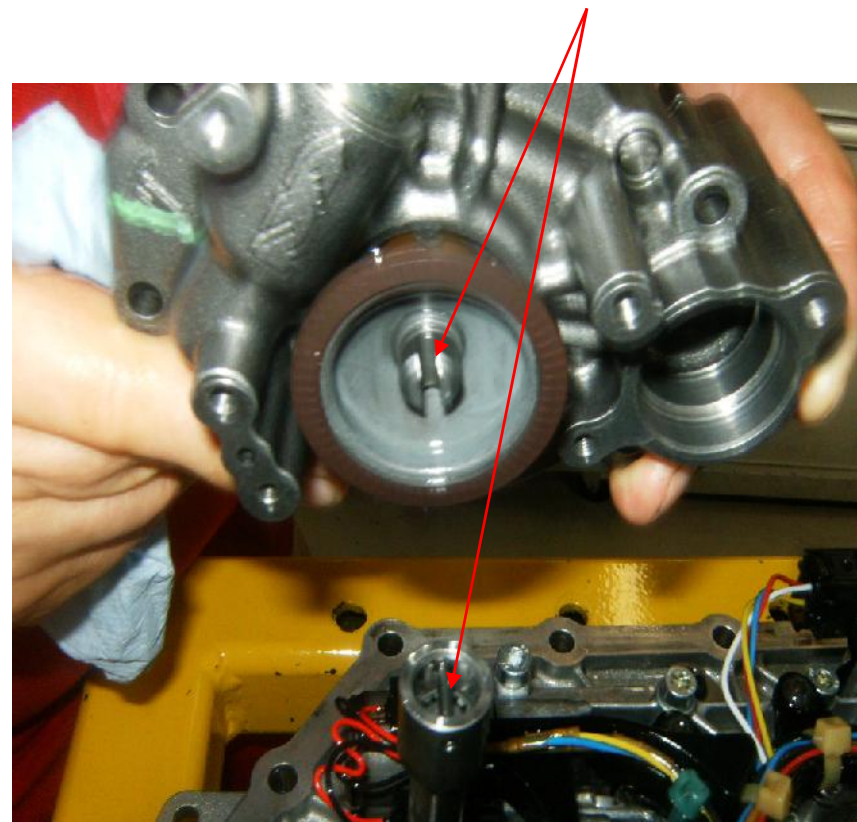


Insert 2 studs for alligning gearbox casing assembly.

During the assembly remember to align the oil pump and driveshaft



Apply loctite 5970 to the casings





Clutch Housing screws (Originally in Aluminum)

Original alluminum screw M8 X 1,25 X 38 torque 10 Nm + 90°

Alternative M8 X 1,25 X 40 iron 8.8 or 10.9 torque 25 Nm + washer
(thickness 1,5 mm)