

MAGNETI MARELLI

Automatic Gear Box Oil Exchanger MM TC 200

User's manual

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WARNING INFORMATION RELATED TO SAFETY – SAFETY MEASURES



Note: In order to reduce the risk of injuries and material damage, always follow basic safety rules, when using the device. It is recommended to read the Operation Manual, before the first activation of the device.

- 1) **Keep the workplace clean and tidy:** Messy workplace may result in injuries.
- 2) **Pay attention to the working conditions in a particular area:** Do not operate electric machines and equipment in humid or wet places. Do not expose such equipment to rain. Provide proper lighting in the workplace. Do not operate electric equipment in the presence of gases of flammable fluids.
- 3) **Keep the workplace out of the reach of children.** Make sure that children cannot access the workplace. Do not let children play with the device or use tools/extension cords.
- 4) **Put unused material back, where it belongs.** Unused tools must be stored in a dry place, so as to protect them against corrosion. Always keep tools locked and away from the reach of children.
- 5) **Adjust tools to the type of work to be done.** Do not attempt to carry out any work with small tools or accessories, if such work must be done with large industrial tools. This device has been designed only for certain applications. The device will operate in the most efficient and safe manner, provided that is used according to the frequency it has been designed for. Do not modify the device or use it for any other purposes (that the intended one).
- 6) **Wear proper working clothes.** Do not wear any loose clothing, or necklaces that could become trapped in the moveable parts of the machine. It is recommended to always wear protective clothing and shoes, when working. Use protective headwear to cover long hair.
- 7) **Use eye and ear protection.** When working in dusty environments and in the presence of chemical vapours, always wear a dust-mask or a protective mask with an ANSI certificate.
- 8) **Do not lean over.** Make sure your feet are well supported and there is no risk of losing balance. Do not reach beyond working machines.
- 9) **Take proper care of tools.** Carry out periodic inspections of non-collapsible and flexible cords, so as to make sure that they are clean, dry, and not soiled with oils and lubricants, at all times.
- 10) **Make sure that the device cannot be switched on inadvertently:** Check, whether the air pressure switch is in the OFF position, when the device is not in operation or before connecting a flexible hose.

- 11) **Exercise maximum care:** Pay attention, when carrying out operations and always observe the rules of common sense. Do not work with the device or any tool, if you feel too tired.
- 12) **Make sure that there is no potential damage to any of the tools.** Prior to using any tool, carefully check every element that seems to be damaged. This is the only way to make sure that it will work properly and perform all required functions. Check the location and fixing of all moveable parts. The device may not work properly, if assembly elements or tools are damaged or show other defects. All damaged elements must be repaired or replaced, by a qualified technician. Do not operate the device, if any of its control systems/the breaker switch works improperly.
- 13) **Spare parts and accessories:** When carrying out maintenance inspections of the device, use only original spare parts. The warranty becomes null and void, if non-original spare parts have been used. Use only those accessories that have been specifically designed for the operations carried out with the device.
- 14) **Do not operate the device, if you are intoxicated with alcohol or drugs.** When using prescribed drugs, carefully read the package leaflet to make sure that the taken medication has no adverse effects on the ability to assess situations or the correctness of reactions. Refrain from using the device, if in doubt.
- 15) **Maintenance inspections.** For safety reasons, the device must be used and regularly maintained, by qualified technicians.
- 16) **Warning for people with pacemakers.** People with pacemakers must consult a doctor, before operating the device. The electromagnetic field present in the vicinity of a pacemaker may disturb or damage the pacemaker. Furthermore, people with pacemakers must observe the following recommendations: Exercise extra care in the vicinity of coils, electric cords of sparking plugs, or timing gears in a working motor. The motor must be turned off, prior to commencing any adjustment on a timing gear.



Note: Performance of the device may vary, depending on air pressure fluctuations and on the capacity of the compressor.

SAFETY MEASURES RELATED TO THE PRODUCT



Note: The device must only be operated by qualified workers, who have undergone proper training, read and understood the warning information concerning safety, as well as

the information concerning implementation procedures provided herein.

- 1) Wear protective goggles with an ANSI certificate.
- 2) Do not smoke in the vicinity of the device.
- 3) Use the device in a well-ventilated place.
- 4) In the case of leaking from the device or from hoses, immediately turn off the device and eliminate the leakage.
- 5) Do not apply any detergents on the device.
- 6) There must always be an empty container present near the device, to contain a potential leakage.
- 7) Keep an ABC fire extinguisher near the device, to contain any potential fire.
- 8) Make sure that oils and solvents have no contact with eyes and skin.



Note: The warning remarks and instructions contained in this Operation Manual do not include all possible conditions and situations that may actually occur. The operator must understand that common sense and care are the two factors that make the product safer, and they are the sole responsibility of the operator.

UNPACKING

When unpacking, make sure that the package contains all the elements listed below. Should any of the elements be missing or damaged, contact a local distributor.

Package content:

1. The MM TC-200 device.

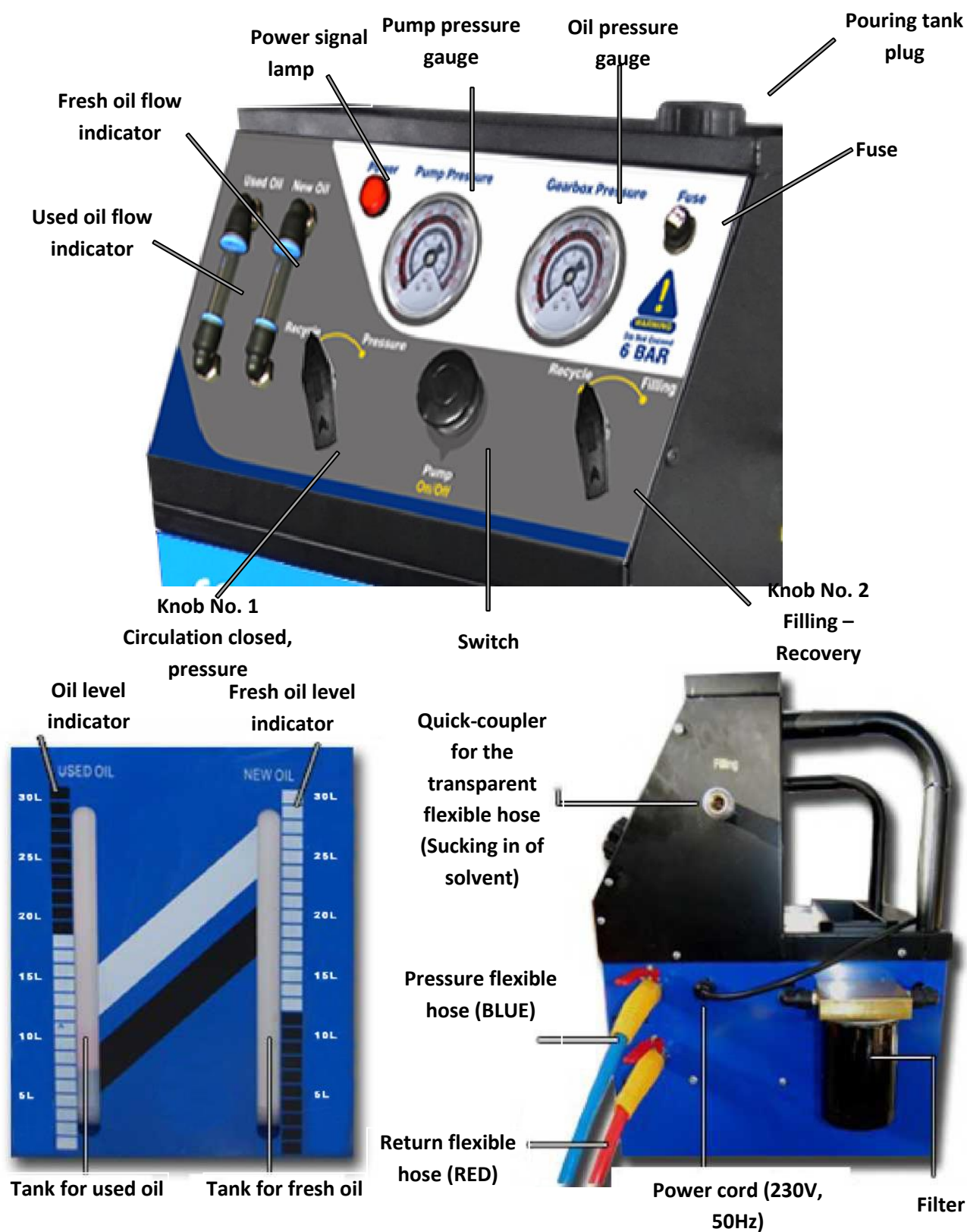


The MM TC-200 device with
flexible hoses



Note: Prior to activating the MM TC-200 device, check whether there are any loose couplings or connections.

LEGEND RELATED TO CONTROL INSTRUMENTS AND INDICATORS PROVIDED ON THE DEVICE



OPERATION INSTRUCTIONS

1. Preparation

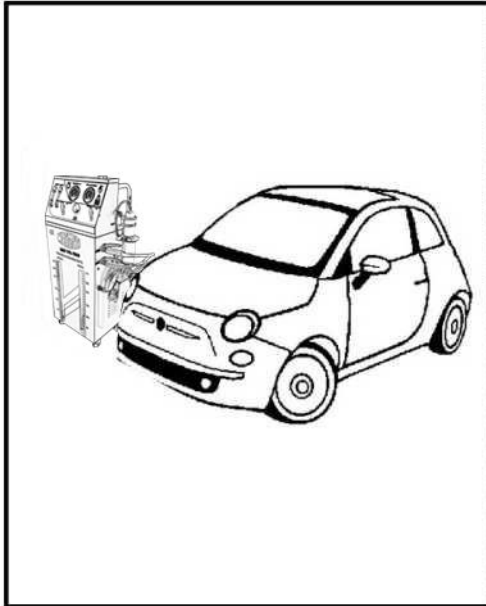
Note: Never start car engine in a garage or any other closed room, if there is no proper extraction system for exhaust gases. Working engine generates carbon monoxide, which becomes lethal in a closed room. The first symptoms of carbon monoxide intoxication are similar to flu (headache, dizziness, or nausea). Should any of such symptoms occur, immediately leave the room and get some fresh air.



Put the vehicle on a car lifting frame or on other equivalent safe supports, in a ventilated room.

Pull up the handbrake, put the gear-change lever in the "P" position and turn off the engine.

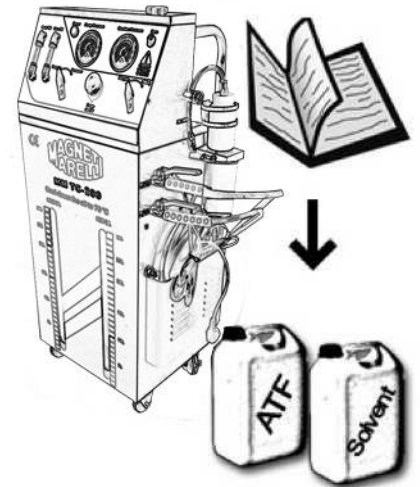
Note: Before commencing further steps, read and understand service instructions provided by the vehicle manufacturer, and observe all remarks and guidelines related to safety, contained therein.



Place the MM TC-200 next to one side of the vehicle.

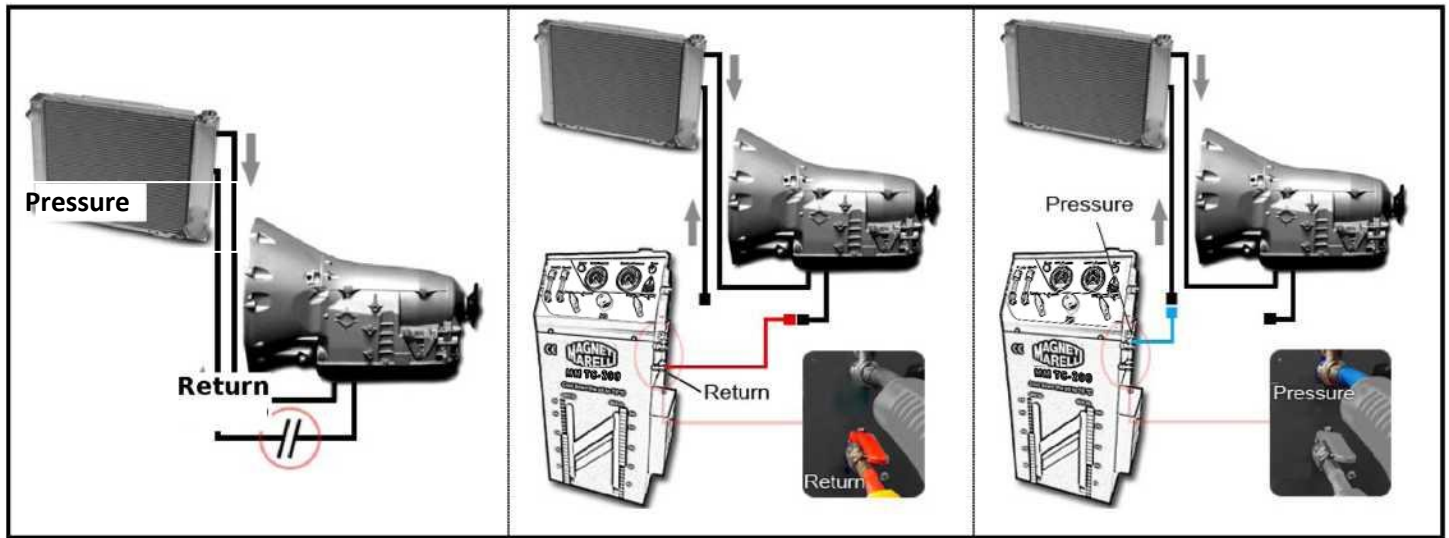


Put the power plug of the MM TC-200 to an earthed power socket (230V, 50Hz) and check, whether the POWER signal lamp is lit.



Prepare fresh oil (according to the specification provided by the vehicle manufacturer) or a cleaning solvent, and put it next to the MM TC-200 device.

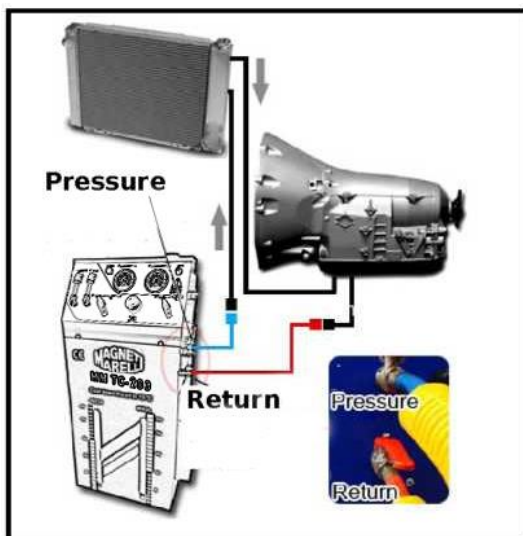
2. Connecting the device



Isolate and disconnect the return hose that connects the gear box and the radiator used to cool oil.
IMPORTANT: Should there be any doubts concerning the correctness of connection, disconnect the cooling hose from the gear box and start the engine for a short while. Move on to the next phase, if oil flows out.

Check, if the **Return** manual valve on the station has been closed.
Connect the red **return** hose of the MM TC-200 device to the oil drain coupling located on the gear box (it may be necessary to use adapters or accessories delivered with the device).

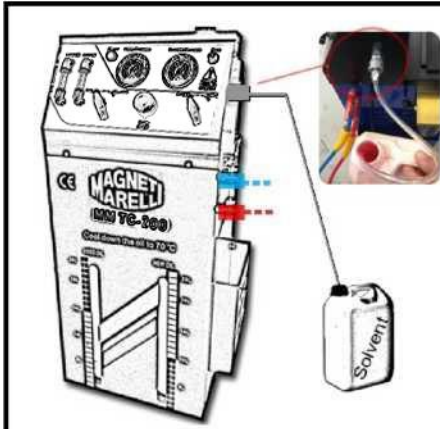
Check, whether the **Pressure** manual valve located on the station has been closed.
Connect the blue **pressure** hose of the MM TC-200 device to the coupling located on the gear box.



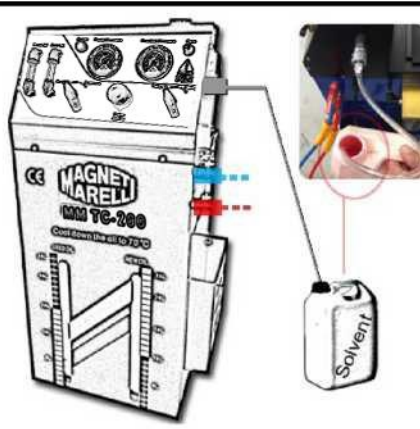
The connecting of the MM TC-200 device has been completed. Now it is possible to reopen manual valves for hoses.

3. Injecting the cleaning agent

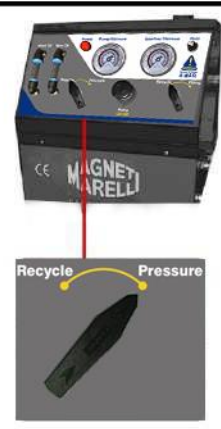
Note: Prior to commencing the operation, check the lists of permissible cleaning agents included in the vehicle service documentation. **The temperature of the ATF fluid must be below 70°C.**



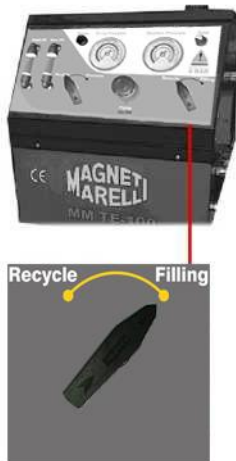
Connect the transparent flexible hose (delivered with accessories) to the coupling for the flexible hose that supplies fresh oil (on the MM TC-200 device).



Put the other end of the transparent flexible hose into the tank with a cleaning agent, so as to enable the sucking in of the agent.



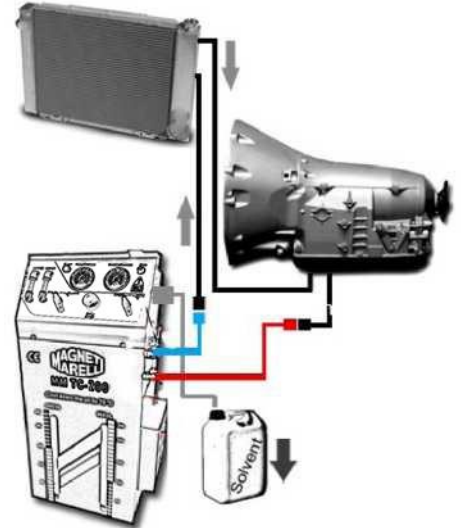
Turn the knob No. 1 (located on the left side of the MM TC-200 device's control panel) to the **PRESSURE** position.



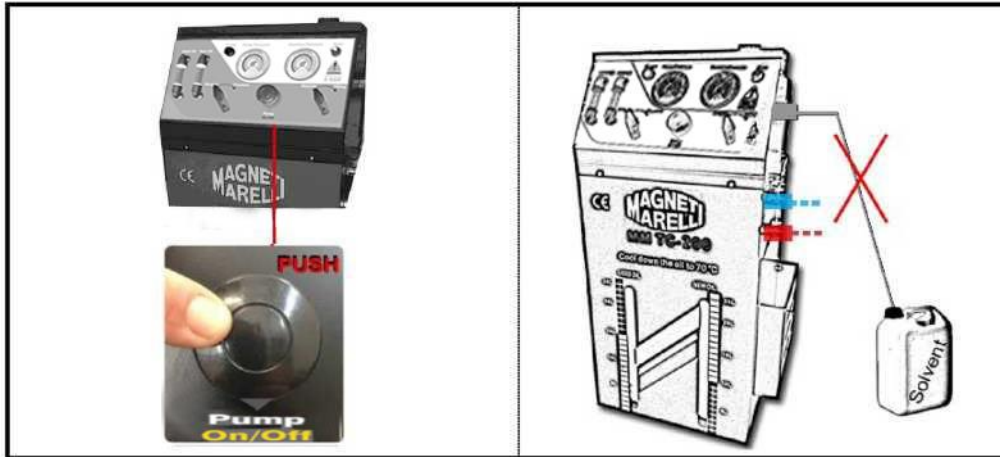
Turn the knob No. 2 (located on the right side of the MM TC-200 device's control panel) to the **FILLING** position.



Turn the MM TC-200 device. **It is advised to supply the maximum of 350ml of the cleaning agent.**



When the full volume of the cleaning agent has been supplied:

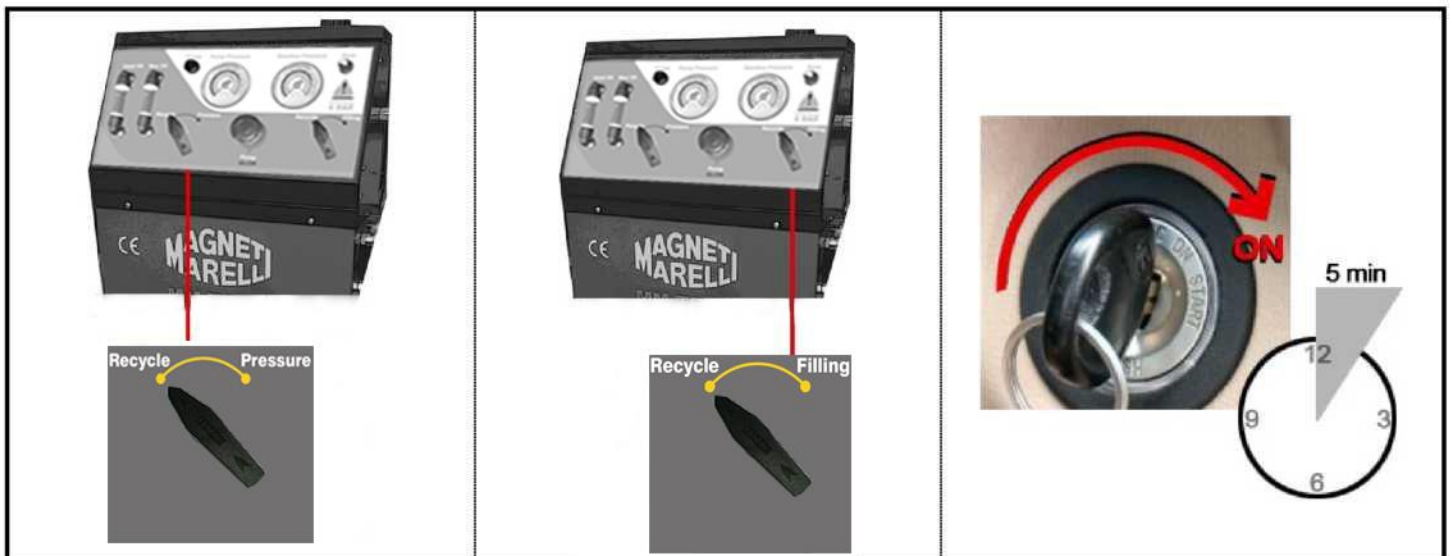


IMPORTANT: Alternatively, the cleaning agent can be supplied via the inspection/filling hole for oil (located in the gear box).

Turn off the MM TC-200 device.

Disconnect the transparent flexible hose from the coupling that supplied fresh oil to the MM TC-200 device.

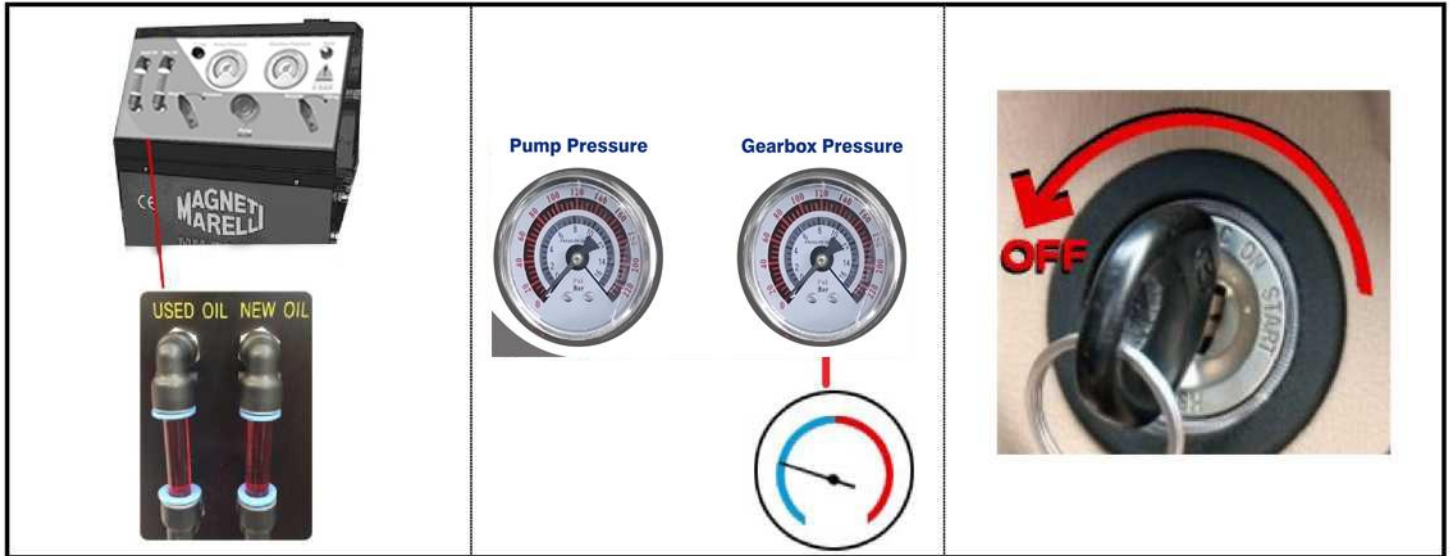
4. Cleaning cycle



Turn the knob No. 1 (located on the left side of the MM TC-200 device's control panel) to the **RECYCLE** position.

Turn the knob No. 2 (located on the right side of the MM TC-200 device's control panel) to the **RECYCLE** position.

Start the car engine to commence the cleaning process of the gear box. Keep the engine working for approximately 5 minutes.



Check the flow of fluid in inspection hoses, during the cleaning process.

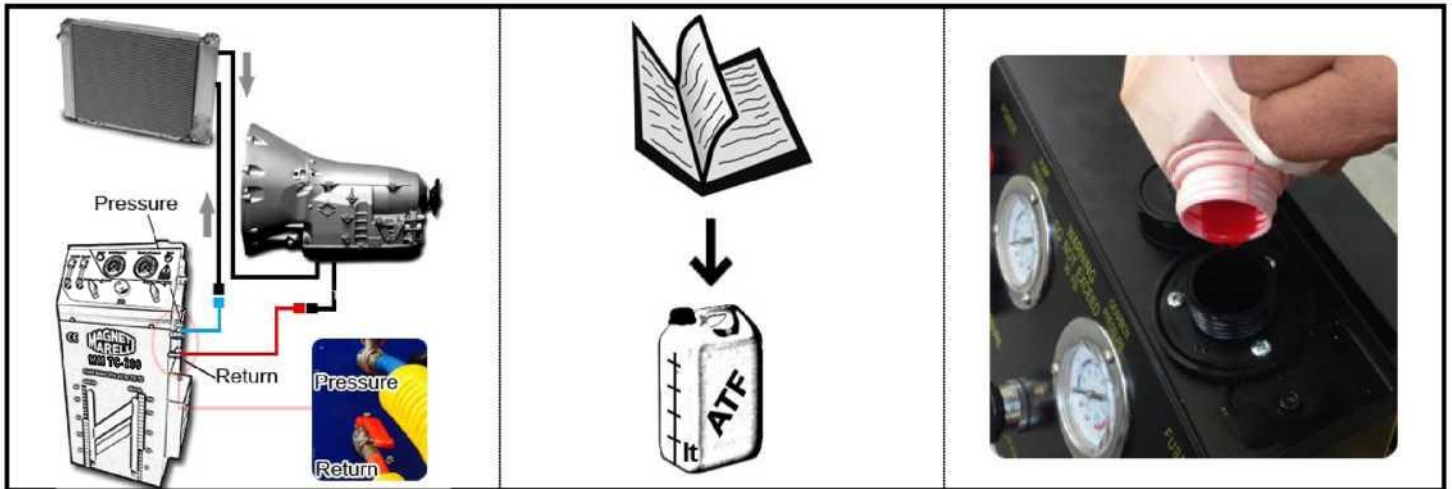
Make sure that the inflow pressure to the gear box is correct, on the gear box pressure gauge.

Turn the engine, when 5 minutes have passed.

WARNING:

Oil in the gear box must be changed, when the cleaning agent has been used. Prolonged presence of the cleaning agent may have adverse effects on the operation of the gear box and/or result in irregular operation.

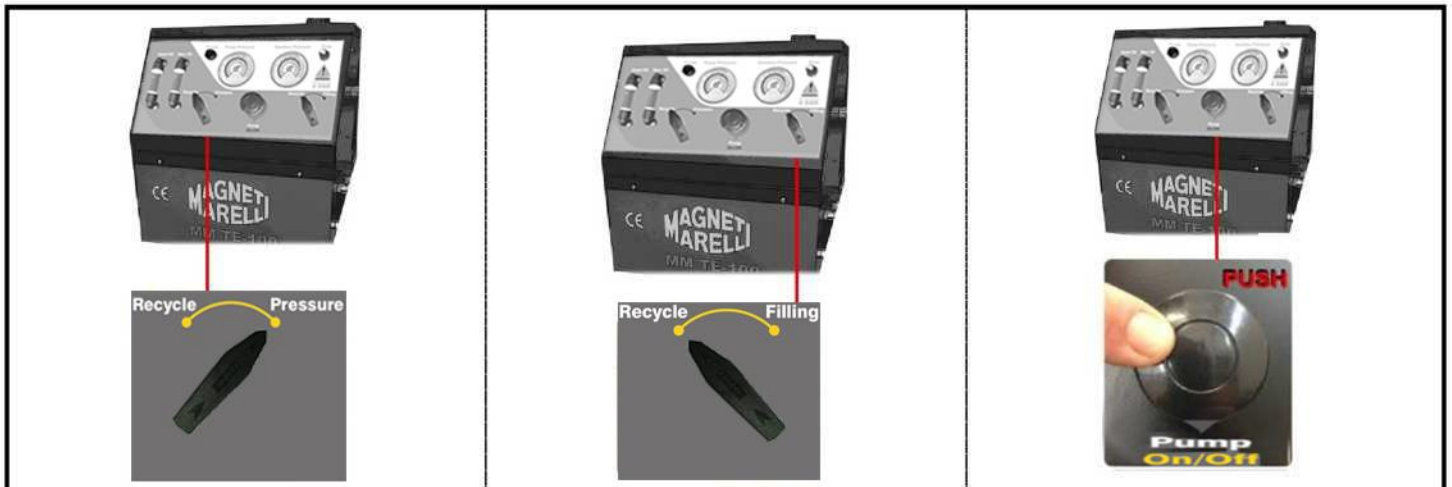
5. Oil change cycle



The red flexible hose (**Return**) and the blue flexible hose (**Pressure**) of the MM TC-200 device must be connected to the vehicle – same as during the cleaning procedure.

Read the quantity and type of ATF oil (appropriate for the particular gear box in the vehicle) from the vehicle's maintenance documentation.

Undo the black plug on the upper surface of the MM TC-200 device and pour the appropriate quantity of fresh oil (according to the specification of the vehicle's manufacturer), and then add extra 2 litres, as reserve.



Turn the knob No. 1 (located on the left side of the MM TC-200 device's control panel) to the **PRESSURE** position.

Turn the knob No. 2 (located on the right side of the MM TC-200 device's control panel) to the **RECYCLE** position.

Turn on the MM TC-200 device.



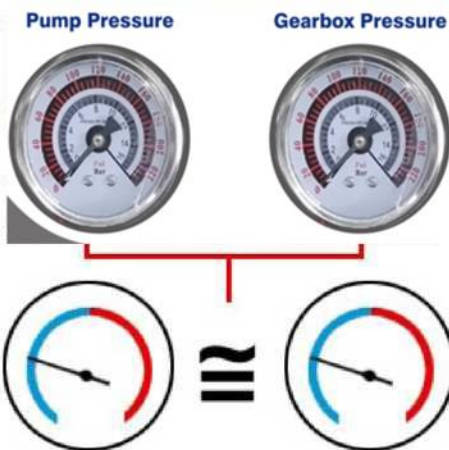
Start the engine and commence oil change. Pump pressure will facilitate the filling of the gear box with fresh oil.



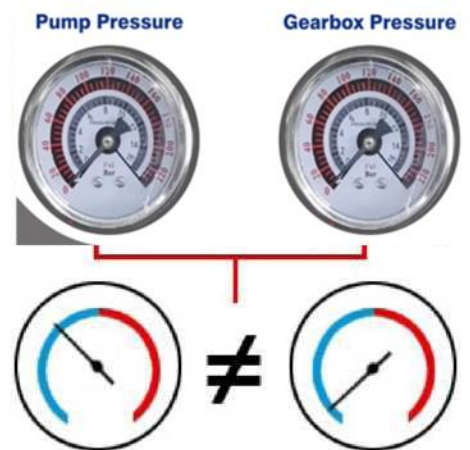
When changing oil, verify that there is no excess of air bubbles in any of the inspection tubes.



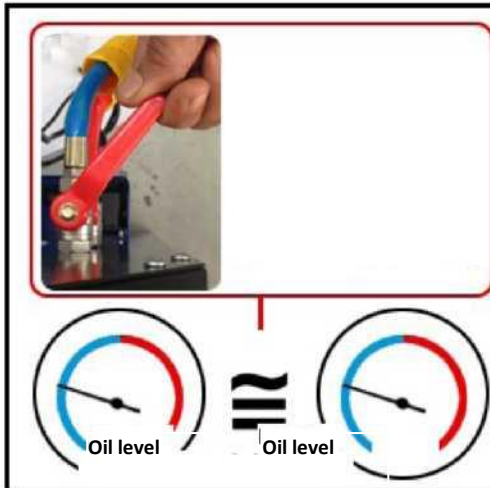
When changing oil, check the flow of fresh and used oils on appropriate pressure gauges.



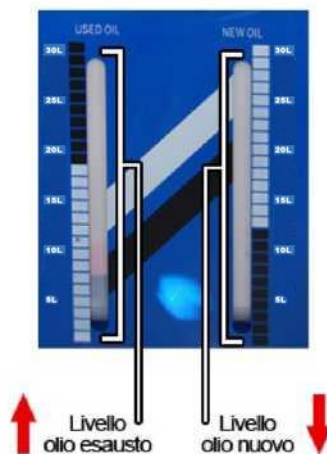
The flow rate of both streams must be more or less the same.



In the case that the flow rate of used oil differs from the flow rate of fresh oil:



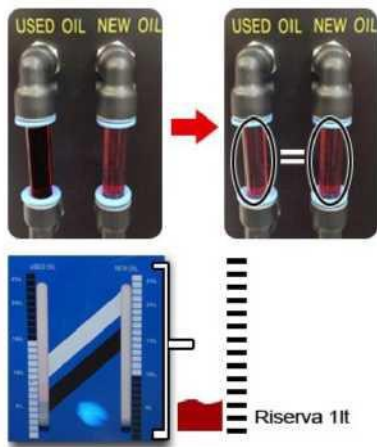
Adjust the plug valve on the blue hose (Pressure), in order to obtain the same flow rate (virtually the same reading on both pressure gauges).



The level of fresh oil will drop, while the level of used oil will go up.



Monitor the colour of oil through special inspection tubes.



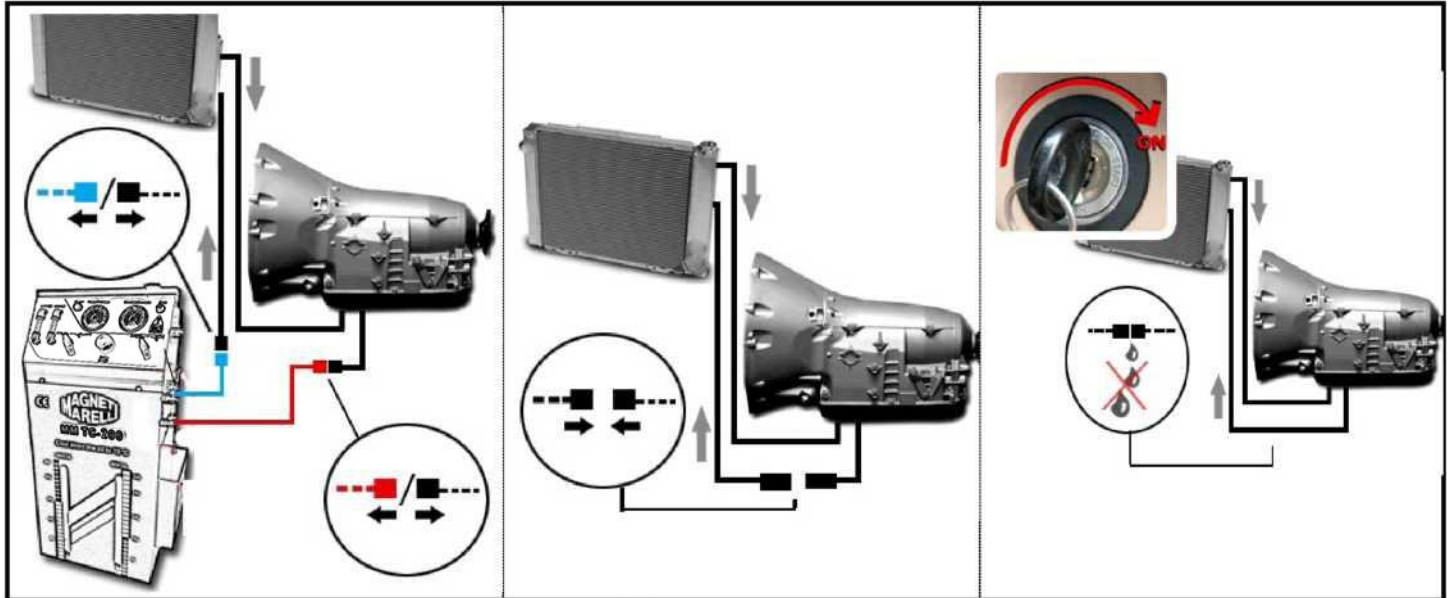
If used oil has the same colour, as fresh oil, or when fresh oil has run out (**NOTE:** keep oil reserve of approximately 1 litre):



Turn off the MM TC-200 device.



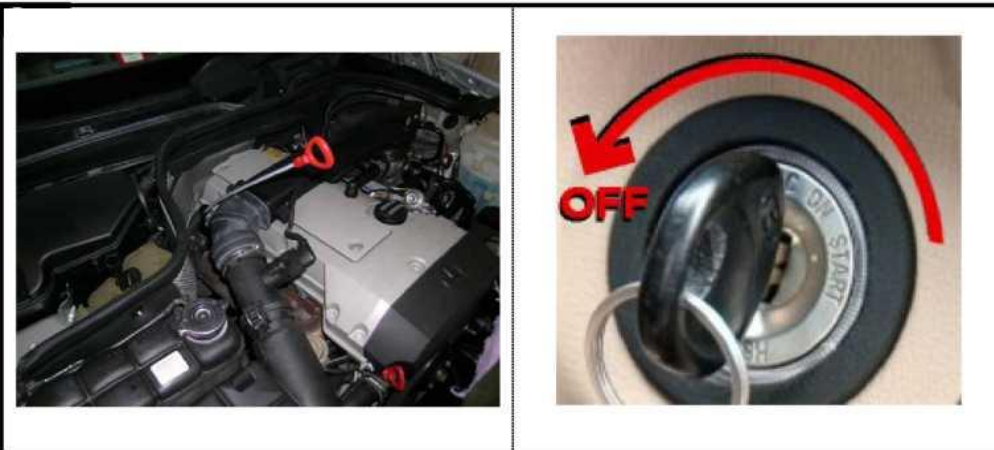
Turn off the engine.



Disconnect the blue flexible and red hoses of the MM TC-200 device from the vehicle.

Restore circulation between the gear box and the radiator.

Start the engine and check, whether there is no leakage of oil from the system.



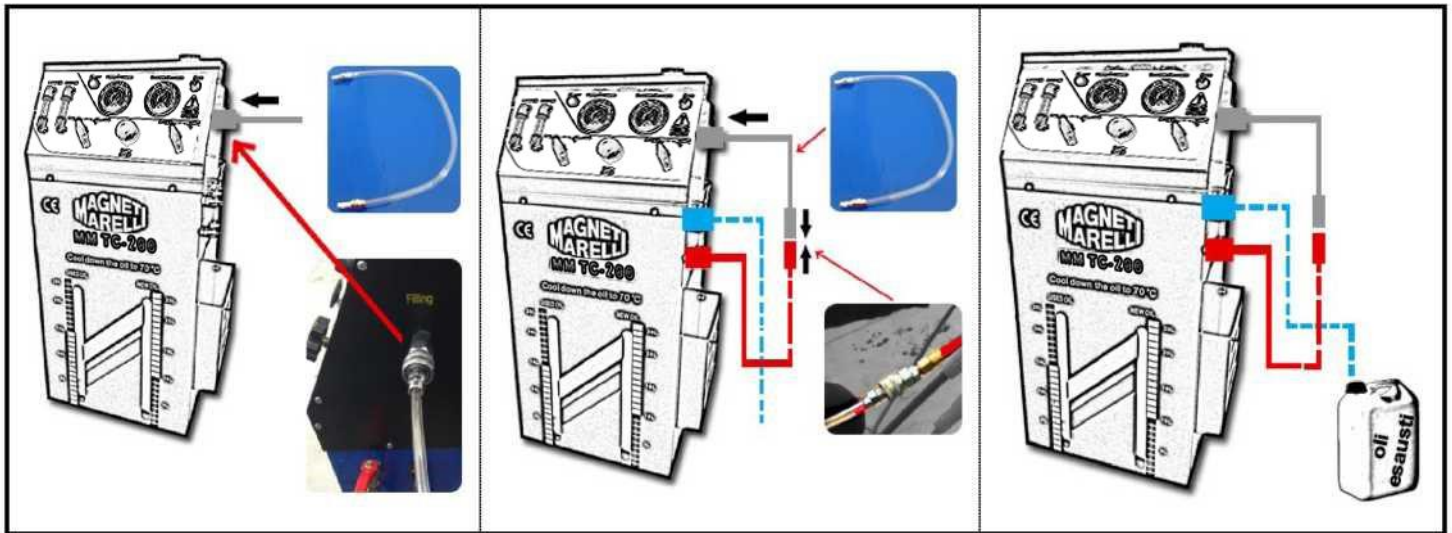
Check oil level in the gear box, following the procedure specified by the vehicle's manufacturer.

Turn off the engine.

IMPORTANT:

The oil change cycle in the gear box can only be considered completed, if oil level in the gear box has been verified.

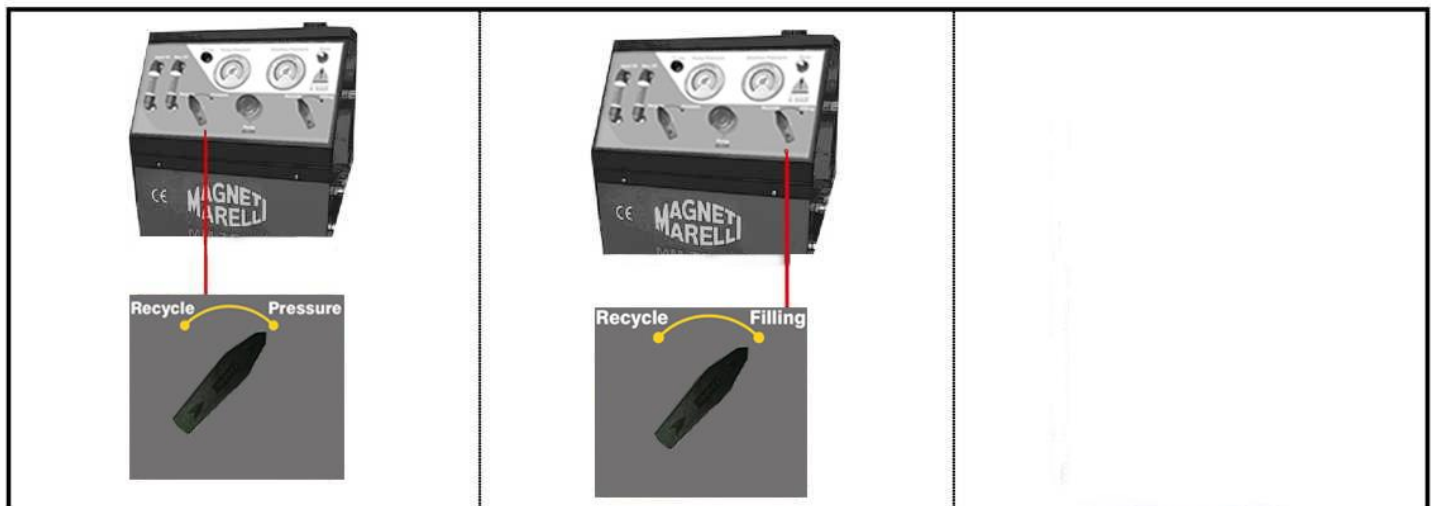
6. DRAINING used oil



Connect one end of the transparent flexible hose with two-sided couplings to the quick-coupling that supplies fresh oil.

Connect the other end of the transparent flexible hose with two-sided couplings to the red flexible hose (**Return**).

Put the end of the blue flexible hose (**Pressure**) into the tank for used oil.



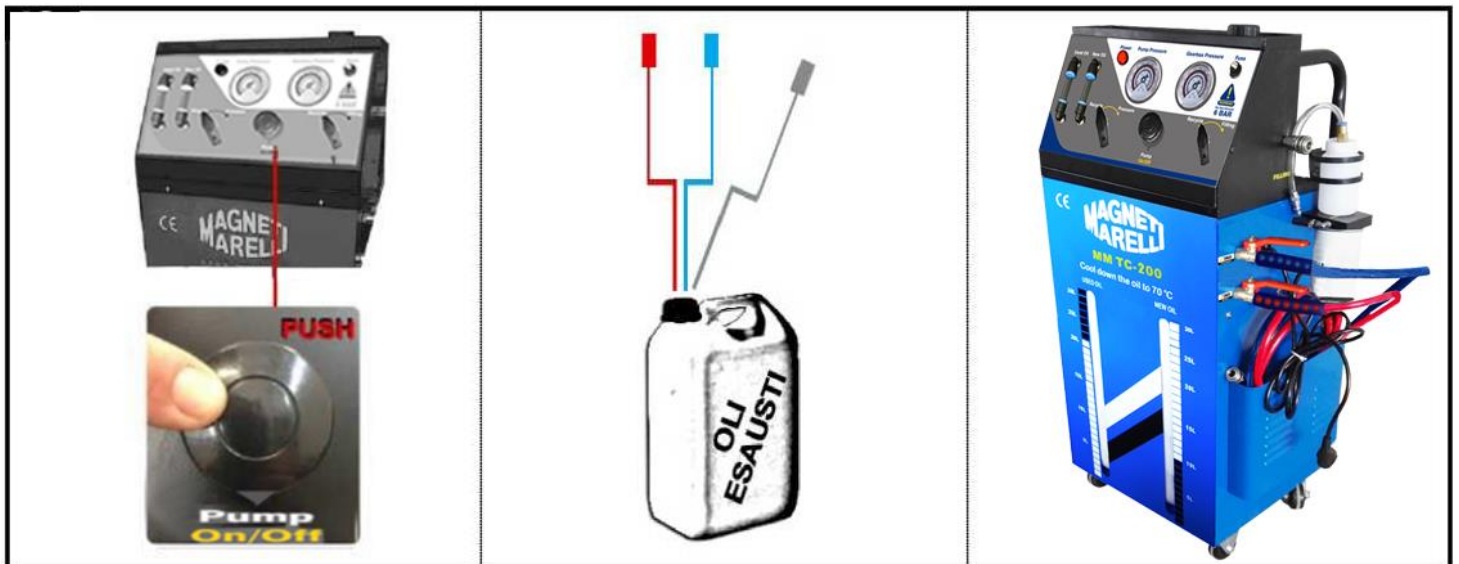
Turn the knob No. 1 (located on the left side of the MM TC-200 device's control panel) to the **PRESSURE** position.

Turn the knob No. 2 (located on the right side of the MM TC-200 device's control panel) to the **FILLING** position.



Turn on the MM TC-200 device.

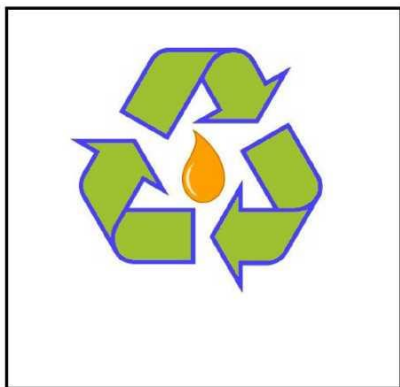
Check oil flow in the inspection tube. When the entire used oil has been poured from the used oil tank in the MM TC-200 device into the collecting tank for used oil:



Turn off the MM TC-200 device.

Drain the oil remaining in tubes into the collecting tank for used oil.

Clean all tubes and couplings, and then put them back to their original locations.



Dispose of used oils and solvents according
to local regulations.

7. REPLACING THE MM TC-200 FILTER



Replace the filter, when oil flow in the MM TC-200 device is too low. **Remember to switch the device off, before commencing replacement.**

Place the container for used oil under the filter and unscrew the filter. Note! Oil will flow out.

Install a new filter.

TROUBLESHOOTING

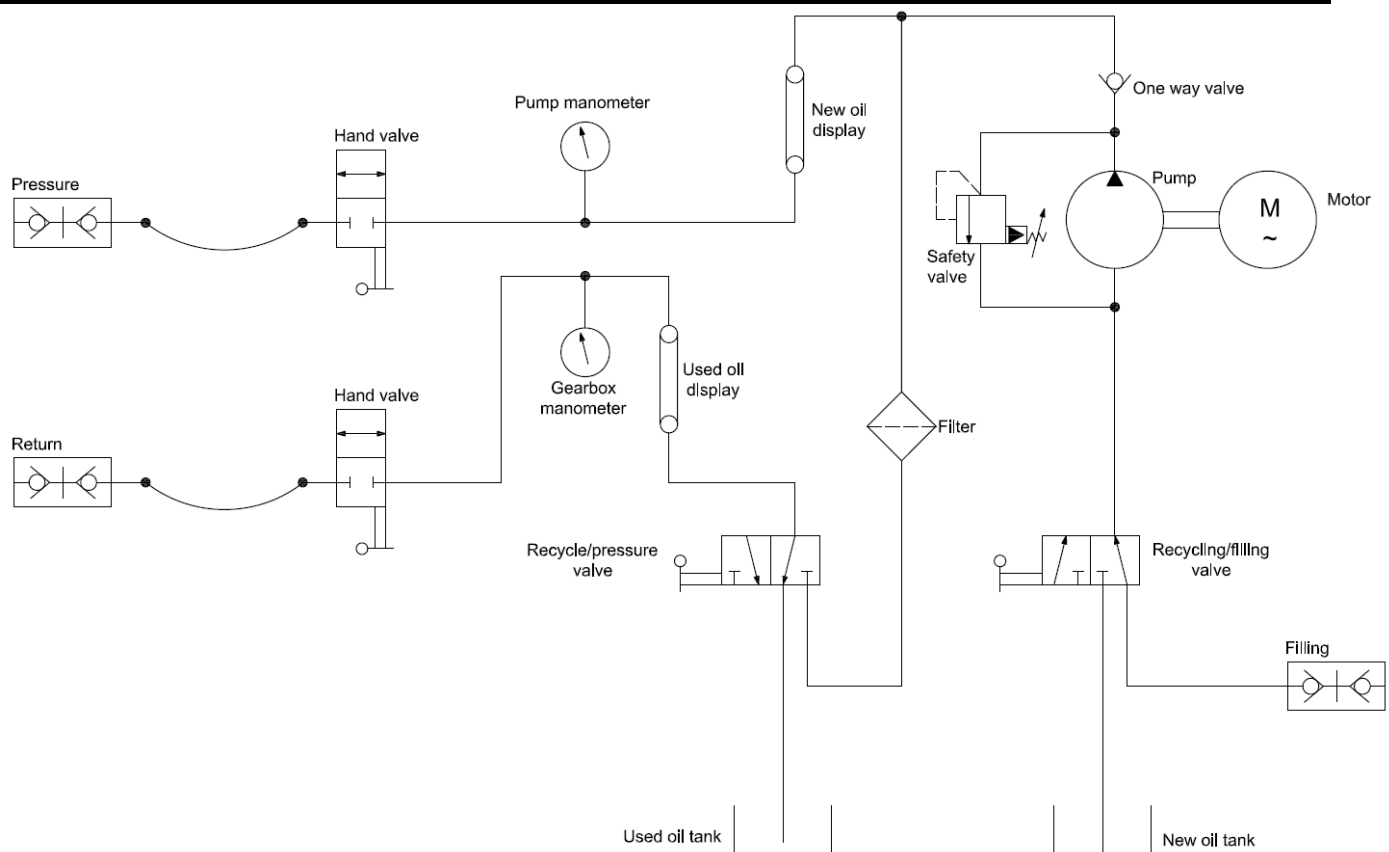
Problem	Remedy
The power switch has been pressed, but the device remains idle.	Check, if the power signal lamp is lit. Verify that the pump is working.
The flexible hoses have been connected to the gear box, but the flow indicators show zero oil flow – even under higher pressure.	Check, whether the knobs No. 1 (Recirculation – Pressure) and No. 2 (Filling – Recovering) are in the correct positions.
The flexible hoses have been connected to the gear box, but the flow indicators show zero oil flow – even under higher pressure. The engine is on.	Check, whether the supply and return flexible hoses have not been connected the other way round.

TECHNICAL DATA

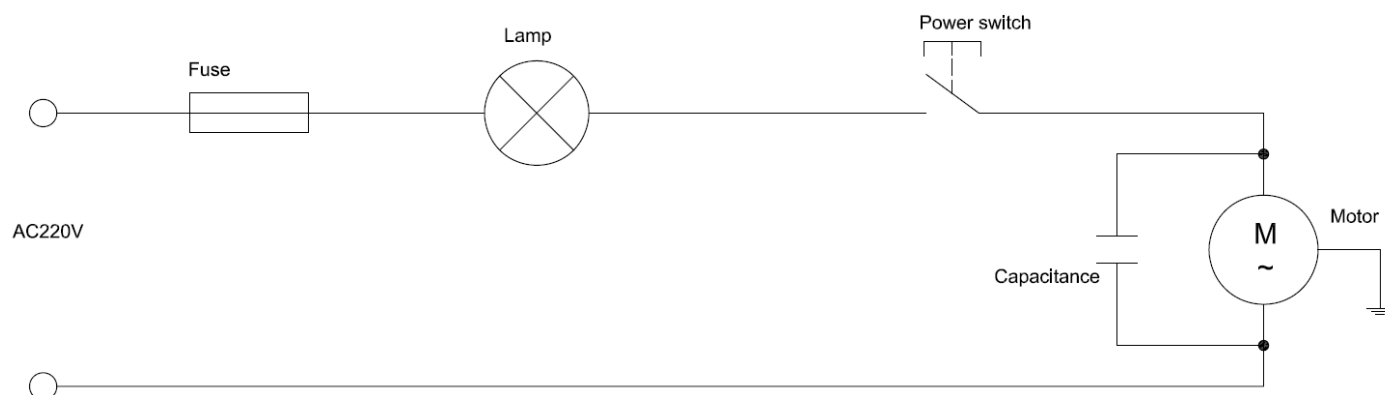
Pertains to	Description
Functions	Drains, cleans, and changes fluid in the majority of automatic transmission models, gear boxes, hydraulic gears, and torque converters, as well as in transmission radiators and radiator tubes.
Voltage	230V, 50Hz, 1PHASE
Pump power	250W

Supply and return oil hoses	98inches (L) × 1/2inches(dia.) (1-red, 1-blue)
Pressure gauges	0~230 PSI, 5 PSI increments / 0~16Bar, 1/2 Bar increments
Filter	Car oil filter, 4-1/2 (L) x 3 (diameter) inch. 17mm x 1.7 female thread
Quantity of fluid	2 tanks (for fresh and used fluids), each tank has the capacity of 30 litres
Weight	38kg

PIPING DIAGRAM



CIRCUIT DIAGRAM



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