SERVICE MANUAL

LW230.B
WHEEL LOADER

6036706100NA

S U M M A R Y

Transmission - Torque converter

Countershaft power-shift type with 6 clutch packs for 4 forward and 4 reverse speeds. The torque converter is mounted are the transmission housing and is a 3 element type, single stage, single phase.
The hydraulic circuit has:
- The lubrication fo the shaft with the directional clutches assured by a section of the feed pump.
- The second speed clutch engagement modulation is assured by an accumulator and a no-return valve with an orifice.

The hydraulic circuit is feed by a two-section gear type pump. The first section feeds the clutch engagement circuit, the torque converter and assure the lubrication of the shafts with the speed clutch packs.
The second section assures the lubrication of the directional clutch packs.
On the second speed shaft is installed the multiple disc parking brake. It is disengaged by hydraulic pressure and engaged by spiral type springs. The control is assured by means of a steel cable actuated by a control lever located on side of the operators seat and operating an hydraulic control valve.
The selection of the various speeds is obtained through a control valve incorporating all the valves, such as, the spools, the main pressure regulating valve and the modulating valves.
Totally there are 4 solenoids that are controlled by a speeds selector installed on steering wheel support.
The only valves placed outside the control valve are the torque converter inlet safety valve and the modulating valve with accumulator for the engagement of the second speed.
To avoid traction losses during shifting operations from second to first speed, a non-return valve with orifice and accumulator is fitted or the second speed supply retarding the disengagement of the clutch pack.
As a result there will be a temporary pressure overload in the first and second clutch packs (also of the third clutch pack as a result of the system arrangement) with partial engagement of the two clutch packs.
In this way the machine is not moving backward during shifting from second to first speed in uphill operations.
The emergency pump is connected to the output shaft through on idler gear placed on 3rd and 4th gear shaft.
The transmission disassembly does not reguire particular cautions, there are no adjustment either for clutch packs or shafts.
All shafts are rotating on ball bearings. The only caution to be observed regards the removal of the torque converter that must be removed together with thee transmission front cover to which it is connected with screws mounted on the inside.
Besides for the removal of the parking brake, it is necessary to compress the engagement springs by means of a screw placed on it.
This operation must be carried out each time the machine must be moved with a dead engine.

Transmission control

The gear shifting is completely electric and there are various gearshifting modes:

- Normal working phase in automatic and manual modes.
- Kick-down function.
- Shift-down function (only for automatic mode).
- Transmission disengagement when braking.

All the components are located inside the cab. the gear selector located on the steering column, a switch located under the throttle pedal and a switch located at the base of the bucket control for "Kick-down" function, a series of relays and fuses located in the main electric board and the transmission electronic unit located behind the seat the main difference between a machine with automatic transmission and one with manual transmission is given by the fact that all functions described above are in an automatic transmission controlled by the electronic unit, while in the manual transmission the sames are controlled by the relays and fuses console.

Advantages of automatic transmission:
- Comfort.
- Modulation.
- Less gearshifting requirements.
- Less noise (two to medium low no-load engine speeds during gearshifting).
- No loads on transmission.
- Optimized use of power-train components (engine, transmission, axles).
- No possibility of incorrect operation.
- Performance and production.
- Maximum use of engine output.
- Overall efficiency of torque converter.
- Less fuel consumption.
- Reduction in travel times.
- Increased production.
- Easy and safe driving.
- More operator concentration on production.

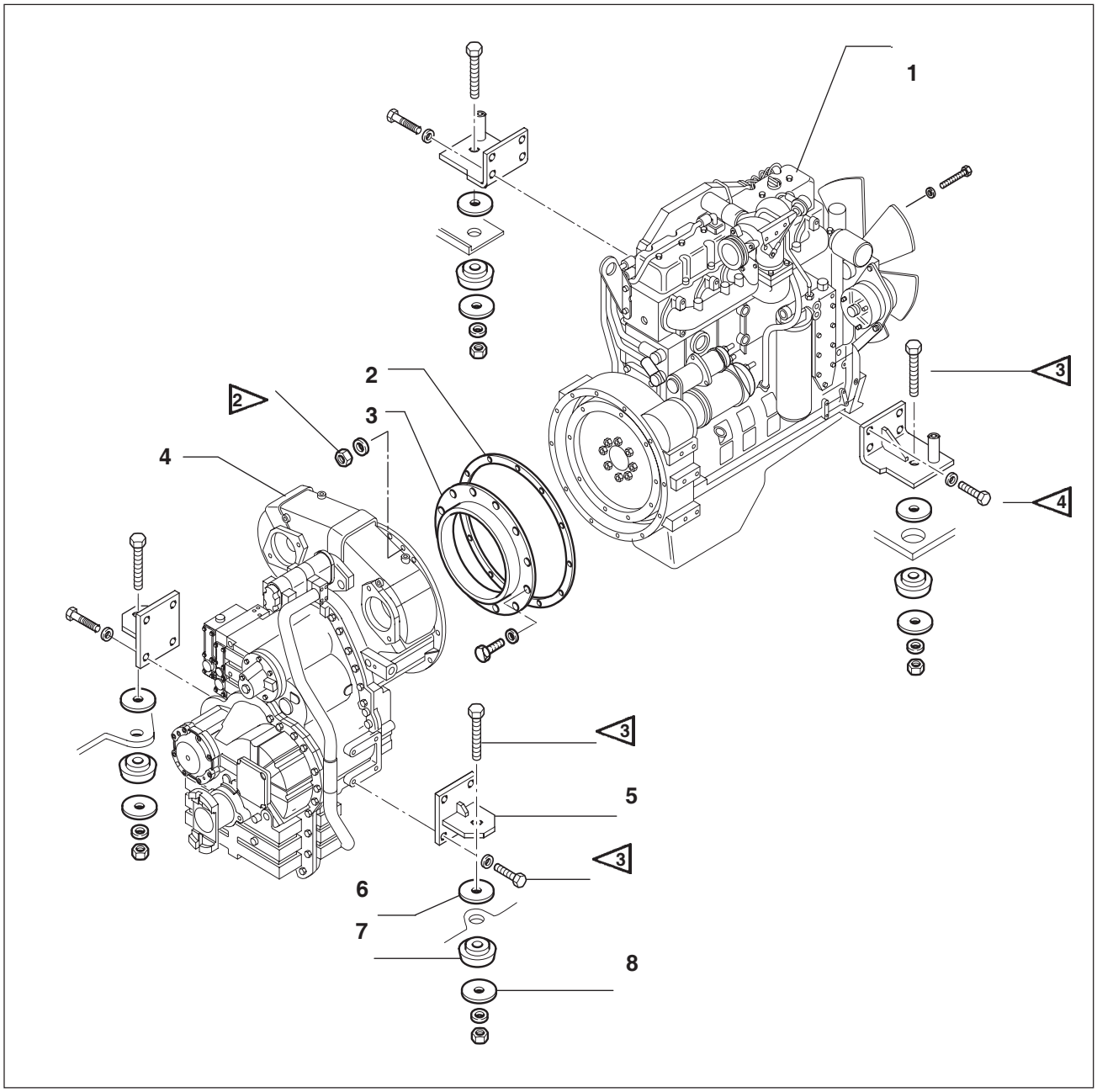

Fig. 2-2 Supports of the transmission-torque converter group

Note - 1 31 Nm

2 51 Nm

3 225 Nm

4 90 Nm

Threaded part: LOCTITE 262

1. Engine - **2.** Gasket - **3.** Cover - **4.** Torque converter-transmission group - **5.** Support bracket - **6.** Upper rubber support pad - **7.** Lower rubber support pad - **8.** Plate.