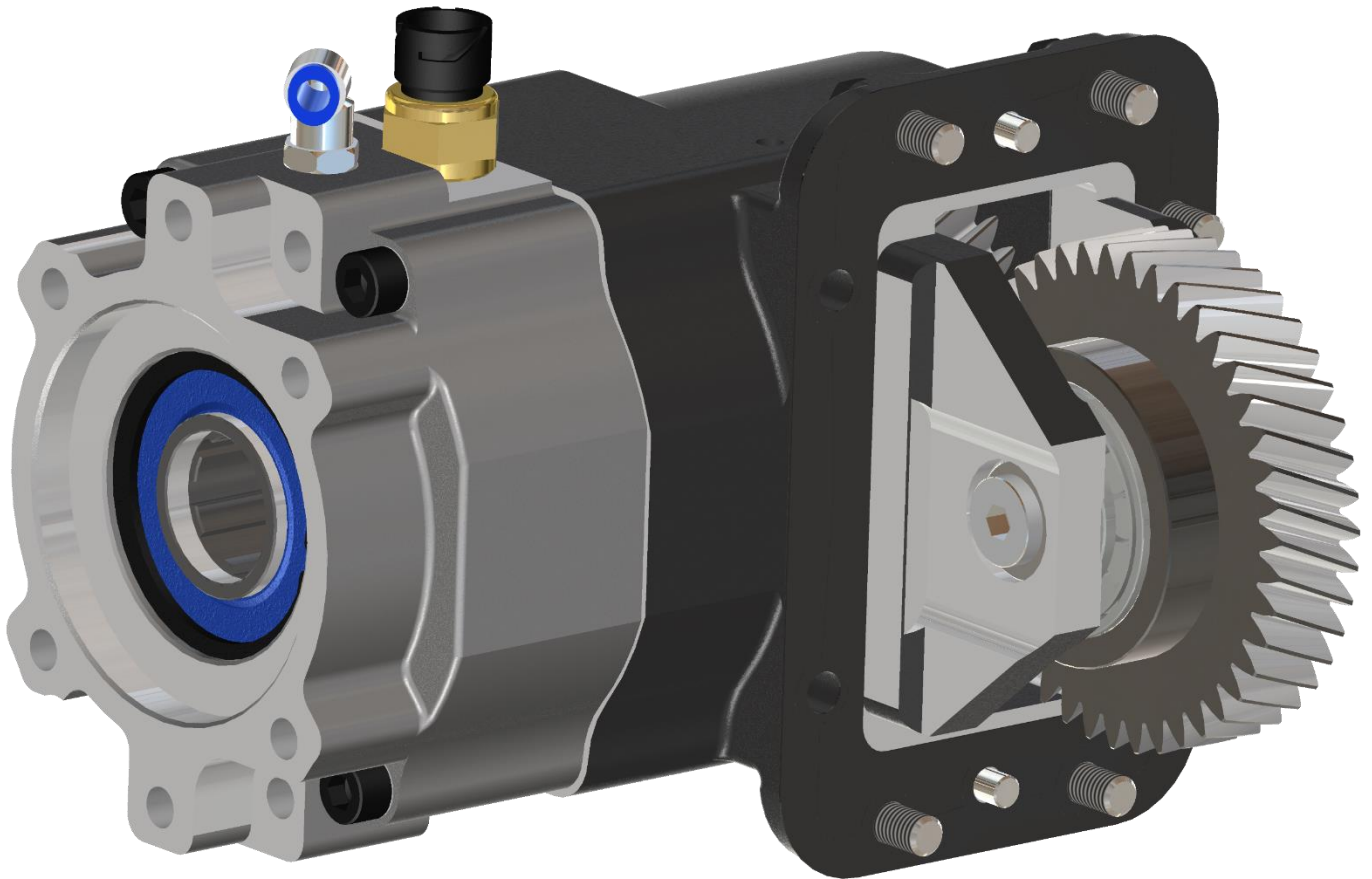


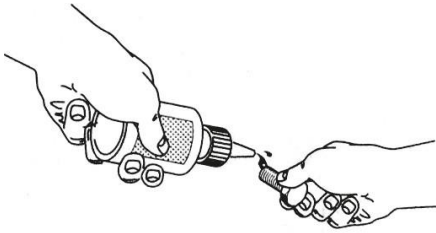
ZF.08.AP USER AND MAINTENANCE MANUAL



Important;

For correct installation of PTOs and all related accessories, it is very important to follow these general rules. Always check the PTO instruction manual and any further specific instruction sheets included in the PTO package. Always operate taking into account the gearbox operating manual.

General Rules for PTO Installation



- Use the appropriate tools and instruments such as torque wrenchs, gauges and thickness gauges.
- Use only gaskets supplied by the Manufacturer. Use paste gasket only if recommended.
- Mastic is forbidden if used together with paper gaskets.
- It is advisable to use medium thread locking fluid for locking bolts and studs.
- Perform all Installation operations with the vehicle standing on a level surface, otherwise oil levels cannot be checked.
- Operate with engine and gearbox at ambient temperature.
- Check that the PTO is equipped with the correct mounting kit.

Use of the PTO

IMPORTANT: When engaging and disengaging the PTO, reduce to the idle speed or reduce the transmission speed by pressing the clutch pedal for 8-10 seconds. Keep in mind that you are working on an automatic clutch PTO.

Working temperature and load conditions;

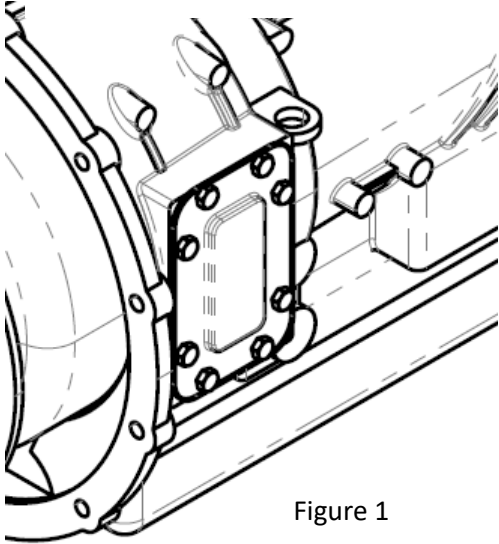
The temperature depends on the way the PTO is used and it is recommended to keep it between the following values short duration (less than 15 minutes) max.120 °C, long duration (more than 15 minutes) max 100 °C.

The PTO temperature is affected by various factors; it is possible to reduce overheating by:

- Changing the oil more often in case of heavy duty system.
- When the PTO is side mounted, ensuring that the gear backlash is accurately checked.

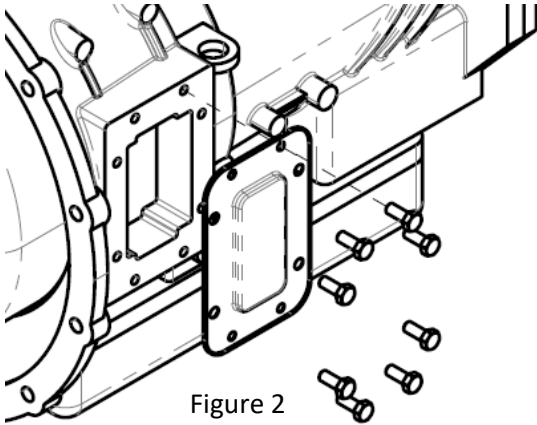
PTO Installation

- 1) Take the vehicle to a level ground for installation.
- 2) Empty or reduce the gearbox oil level, check cleanliness. If oil is dirty or contaminated it should be replaced. If the level is low, add from the type recommended by the manufacturer in the quantity recommended.



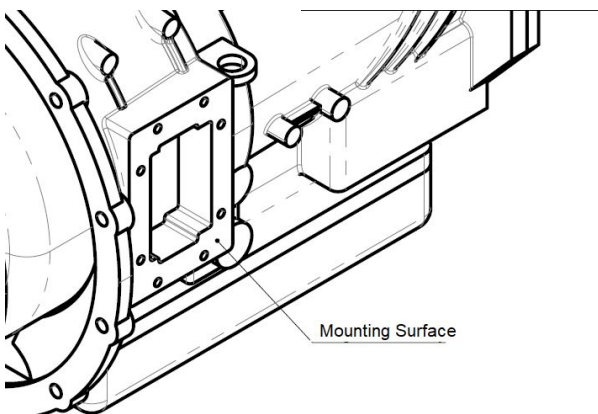
PTO installation cover (Figure 1)

Figure 1

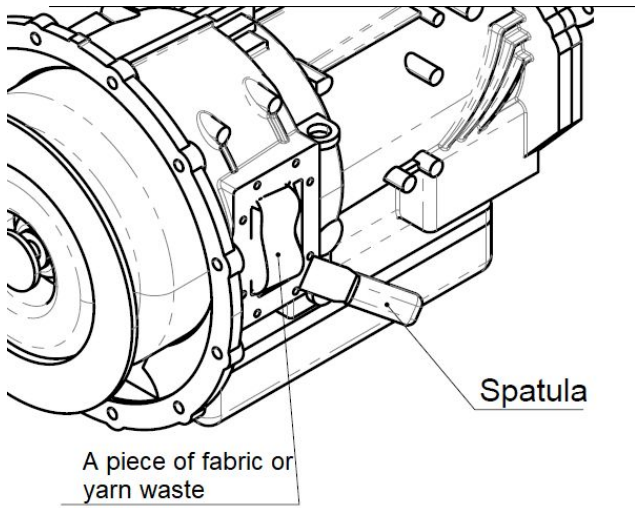


Remove the bolts and cover. (Figure 2)

Figure 2

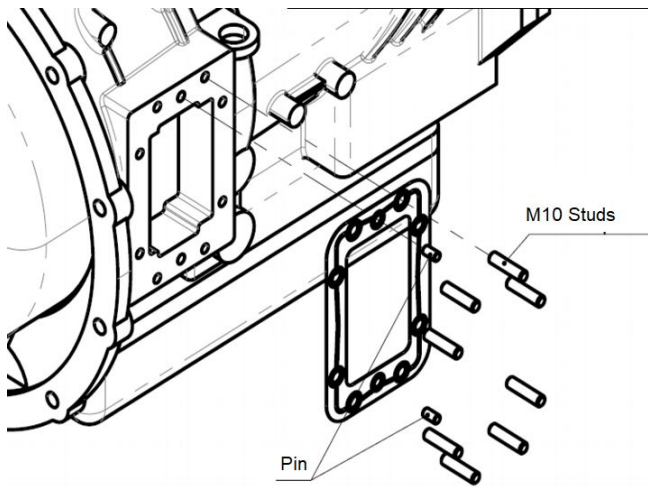


If necessary, use a spatula to clear surface, gasket residue or oil (Figure 3 -4)



Make sure to use a piece of fabric or yarn waste to cover the opening when cleaning the surface to avoid foreign objects entering the transmission. (Figure 3.1)

Figure 3.1



There will be 1 gasket, 2 pins and 8 studs. Mount them all on the relevant spots on the transmission. (Figure 4)

Figure 4

Install ZF.08.AP PTO on the transmission by referring to the pins. Install the PTO through 8 studs, and use 3 studs to fix the bracket (Figure 5).

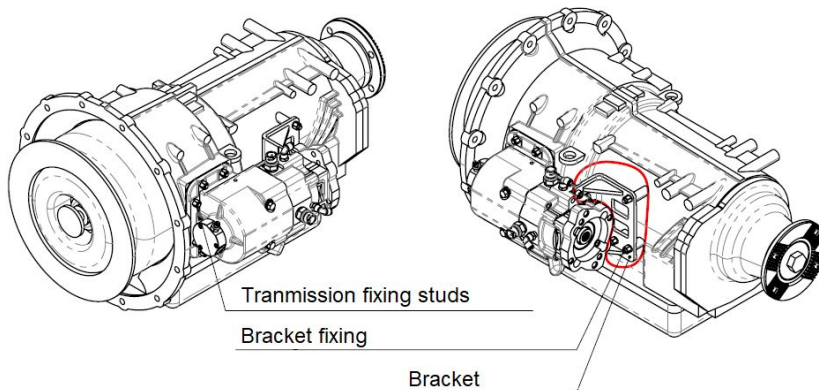


Figure 5

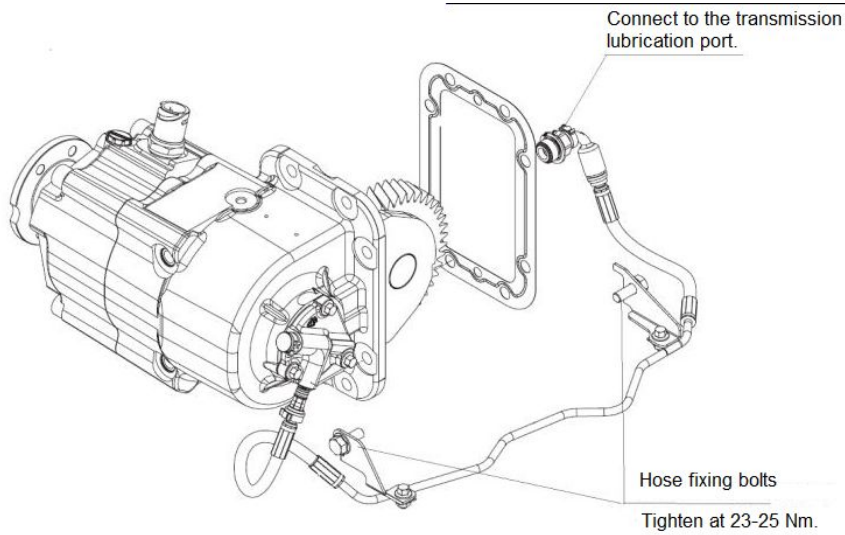


Figure 5.1

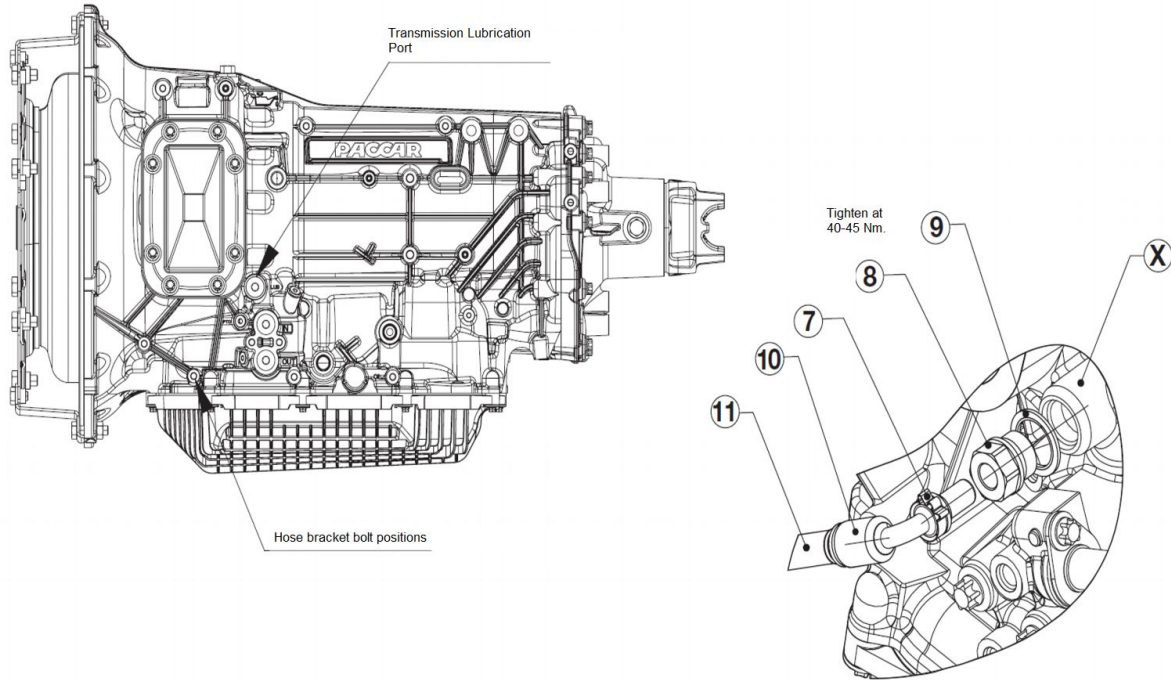


Figure 5.2

Install the lubrication pump parts included in the package on respective positions and lubrication line as shown above (Figure 5.1)

Use a torque wrench when installing PTO studs on the transmission as well as mounting the PTO nuts. Table 6 shows required tightening torques.

TIGHTENING TORQUE					
Thread diameter - Screw (mm)	M8	M10	M12	UNC 3/8	UNC 7/16
Screws and nuts torque (Nm)	25	50	80	25	60
Studs torque (Nm)	6	10	18	10	20

For some aluminium gearboxes the tightening torque needs to be reduced by 30%.
 Note on the tightening torque: the tightening torques reported are only means as a guide and do not replace the indications given by the vehicle's manufacturer or the gearbox manufacturer.

Figure 6

Use the hose in the package to install the oil line from the PTO to the transmission oil port.

The on/off sensor should be connected to the suitable sensor input in the vehicle ECU system.

Extend an air line from the vehicle pneumatic installation to the PTO engagement input (If no conditioner and dryer is available as a part of the pneumatic system, those needs to be provided) (Figure 7).

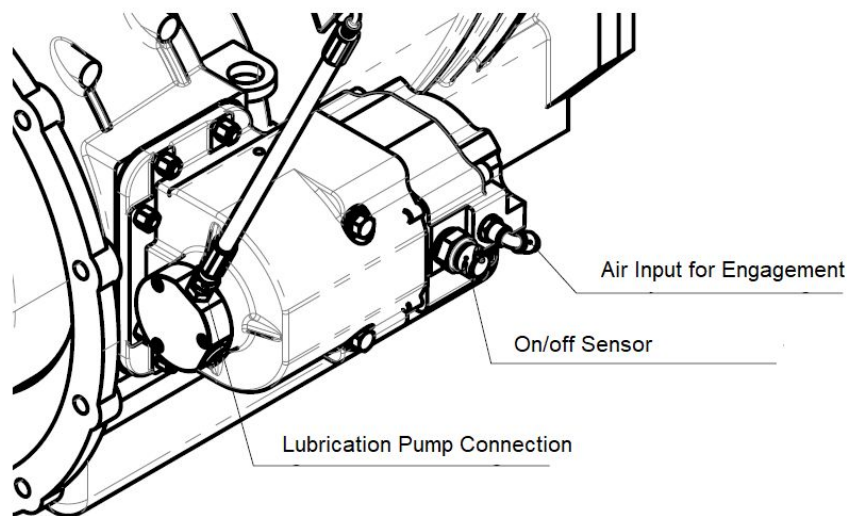
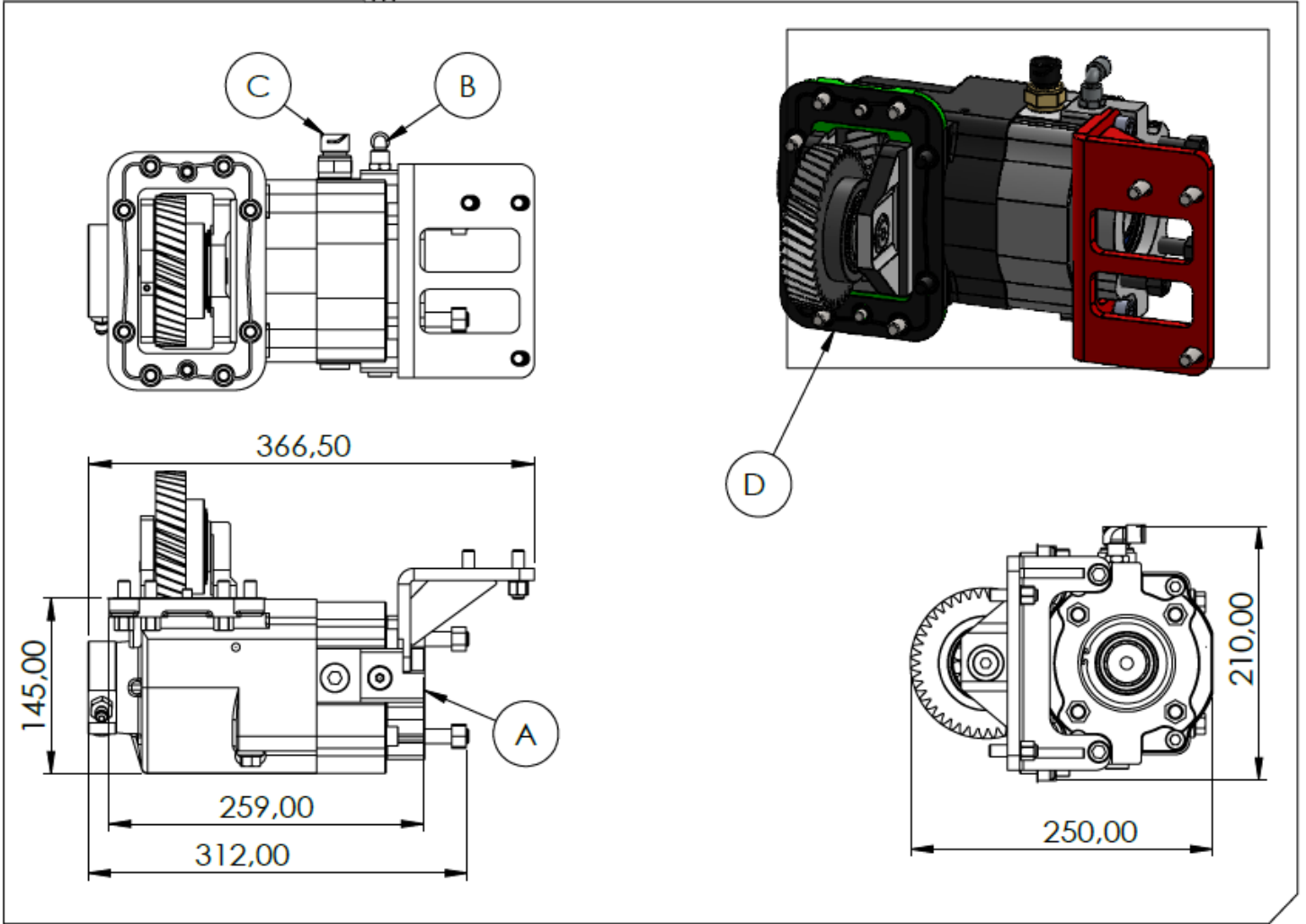


Figure 7

General Information

Ürün Görünümleri / Products View



Opsiyonlar / Options

A : PTO Çıkışı (Standart DIN 5462 8X32X36 ISO 4 Delikli)
 Dişli pompaya akuple (3 delikli UNI bağlantı) Kaplinli (flanşlı bağlantı)
 B : Hava Girişi R1/4"
 C : Elektrik Müşürü
 D : PTO Yağlama hortumu

A : PTO Output (Standard DIN 5462 8X32X36 ISO 4 Bolt)
 Direct mounting UNI 3 bolt mtg. adapter Drive flange
 B : Air Inlet R 1/4"
 C : Passing Contact Switch
 D : PTO Lubrication Pipe

General Checks

- **Checking the Coupling** or PTO

Connect and disconnect the PTO a few times (follow the paragraph HOW TO USE THE PTO) to check the coupling system is working properly).

Any anomalous noise produced during coupling is only due to the fact that the PTO's gearings are not completely still and therefore to the fact that the vehicle's clutch is not working properly. Either the clutch pedal has not been fully pressed or one has not waited the time necessary for the gearbox's gearings to stop.

– **Checking Noise Levels** for Side PTOs

– If the PTO does not produce anomalous noises or noises that are not that different from those of the clutch, this means that the assembly and the teeth clearance are correct;

– If the PTO produces a screeching noise (whistle) this means that the PTO has been assembled with insufficient clearance between the teeth. In this case it is necessary to disassemble the PTO and add a gasket between the surface of the PTO and that of the gear box;

– If the PTO produces a beating, this means that the PTO has been assembled with excessive clearance between the teeth. In this case it is necessary to disassemble the PTO and remove a gasket or use a thinner gasket.

For the purposes of the durability of the PTO it is generally preferable to have a slightly higher clearance between the teeth rather than a low one.

– **Leak Check**

After it has been operating for a few minutes, stop the vehicle and check there are no oil leaks from the surface connecting the gearbox to the PTO or from other parts of the PTO.

– **Clamping Check**

After a few minutes of operation, check that the threaded parts have been tightened.

Checks related to noise levels, leaks and clamping should also be conducted when the vehicle is hot.

How to use the PTO

The procedure applies to PTOs installed on automatic and semi-automatic gearboxes;

- 1- Apply the hand brake and put the gear into N.
- 2- Apply the brake again. Turn on the PTO button and make sure that the 'Pto Is On' light is active (Standard buttons lights but some vehicles have a warning light on the panel).

Disengaging the PTO in Automatic and Semi-automatic Transmissions:

- 1- Press the brake and turn off the PTO control button and make sure the PTO light dies and the pump driven by the PTO stops.



ATTENTION: Incorrect connection or disconnection causes premature damaging to the internal components of the PTO. Therefore CAREFULLY follow the indicated instructions.

WARNING: WHEN THE VEHICLE IS ON THE MOVE THE PTO MUST BE ALWAYS OFF.

PTO Maintenance

In order to get a longer PTO life, it is necessary to execute regularly the following controls:

– LEAKAGE: Make sure there leakage from the surface connecting the gearbox the PTO or from any other parts of the PTO itself.

Check the gearbox oil level.

– TIGHTENING: Verify that the tightening of the bolt/nuts/screws is correct and, eventually, set it at the recommended value (see TABLE 3).

– SHAFT GREASING: In order to prevent early wearing, it is recommend to grease the shaft at each maintenance operation.

The frequency of the maintenance services depends by the way the PTO is run.

Legal Information



Adhere to occupational rules in your country when mounting and doing maintenance works on the PTO.

Observe the national rules when changing the transmission.

DO NOT MOUNT OR RUN THE PTO WITOUT READING THIS MANUAL