




FLYWHEEL PTO MOUNTING AND USER MANUAL

P.000082.VP.SAE1

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 **The pictures used in this manual are for demonstration purposes and may not be identical to the actual purchased products.**

1. Safety Information

The following information is for your safety. Make sure to read and understand them before attempting to use the equipment.

1.1 Overall Safety

- ✓ Carefully read the user manual provided and take notice of the instructions indicated.
- ✓ The important sections for operator safety and a prolonged product life are marked with symbols. Take notice of such symbols.
- ✓ Never work alone when doing repair or maintenance works under the vehicle.
- ✓ Make sure to check if the instructions you follow and the tools you use are intended for the work you are engaging in.
- ✓ Never use worn or damaged parts.
- ✓ Do not attempt any modification on the PTO or any other drive components of the vehicle.
- ✓ Ensure to mount the parts properly.

2. Instructions for Operation in Cold Weather

For prevention of injuries and damage to the gearbox;

- ✓ Check the drive components of the vehicle.
- ✓ Do not attempt to use drive components without warming up the vehicle for a reasonable period of time.

3. Description and Technical Data

The Flywheel PTO positioned between the engine and main transmission provides high torque independent of the speed of the auxiliary equipment in heavy-duty vehicles with superstructure.

The PTO is compatible with SAE1 engine connection. It is driven by the engine flywheel and works independent of the vehicle clutch. The system is oil-cooled and the drive from the engine is transmitted to the PTO on the top axis, thereby activating the equipment connected on the output. The system consists of a single PTO output.

The overall system provides uninterrupted motion transmission from the engine through the main transmission clutch pack. The PTO on the top can be engaged/disengaged through hydraulic control.

Outputs

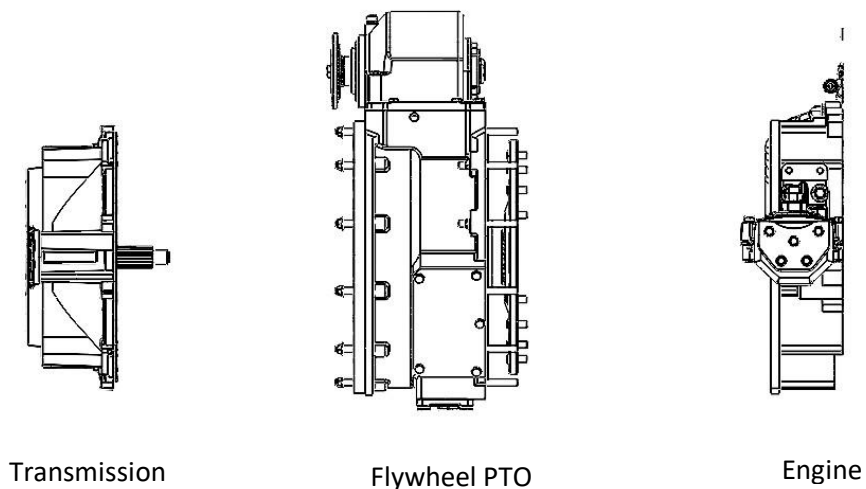
| | |
|----------------|----------|
| Maximum Torque | 2000 Nm |
| Maximum RPM | 2500 rpm |
| Ratio | 1/1 |

| |
|---|
| Connected with: |
| ZF 9S1310 Transmission - Cummins ISB 6.7 e5 285 Engine (SAE1) |

4. Flywheel PTO Position on Vehicle

It is mounted between the engine and transmission.

Figure 1

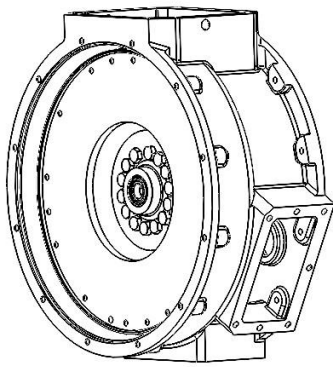


5. Mounting Steps

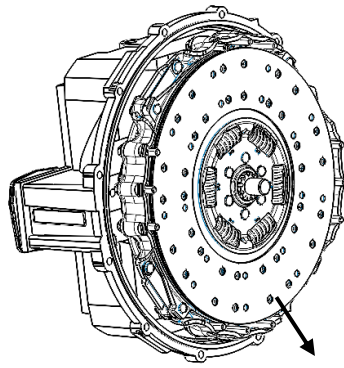
1- The top PTO output, bottom lubrication pump and side output covers need to be removed in order to mount the PTO on the engine (Figure 2).

The engine must be separated from the transmission. The clutch set will be later mounted on the front of transmission, and it shall be kept there (Figure 3).

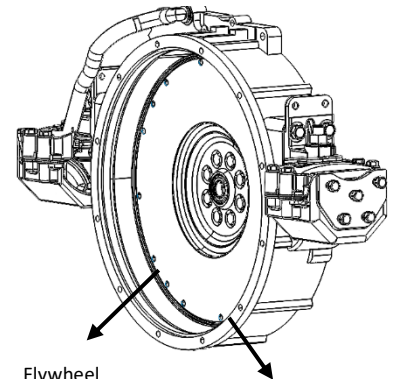
The flywheel PTO will be mounted on the engine. The part no. 4941995 available with the customer must be already available on the engine (Figure 4).



Flywheel PTO (Figure 2)

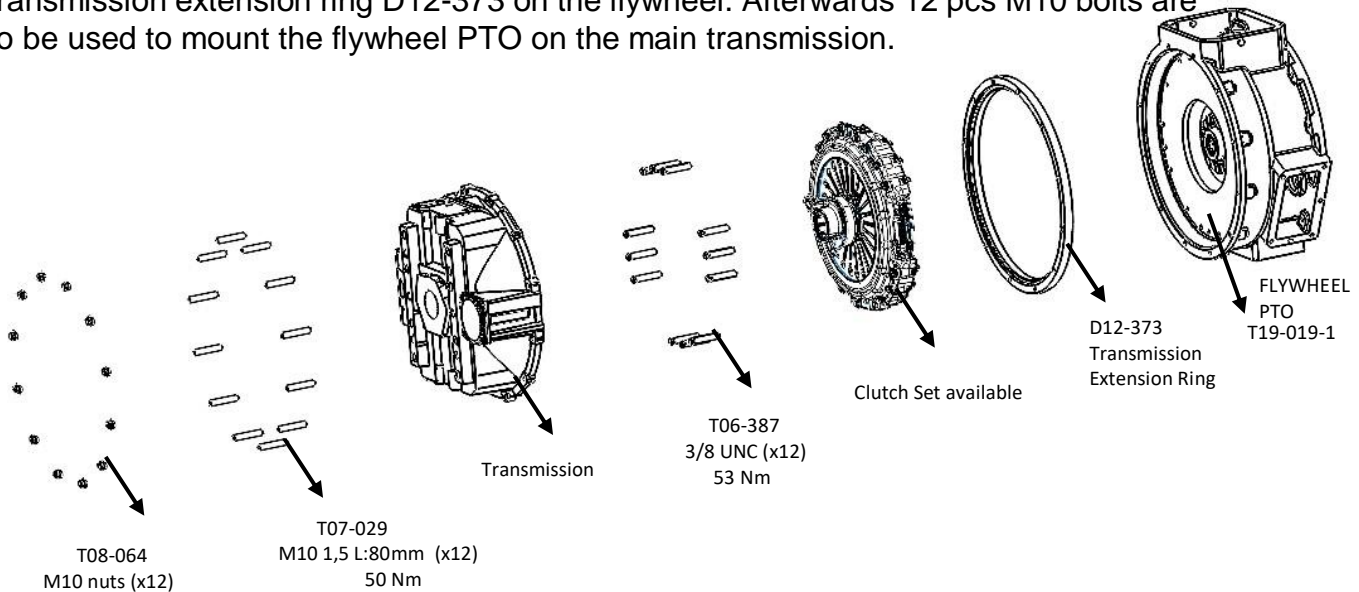


Transmission (Figure 3)

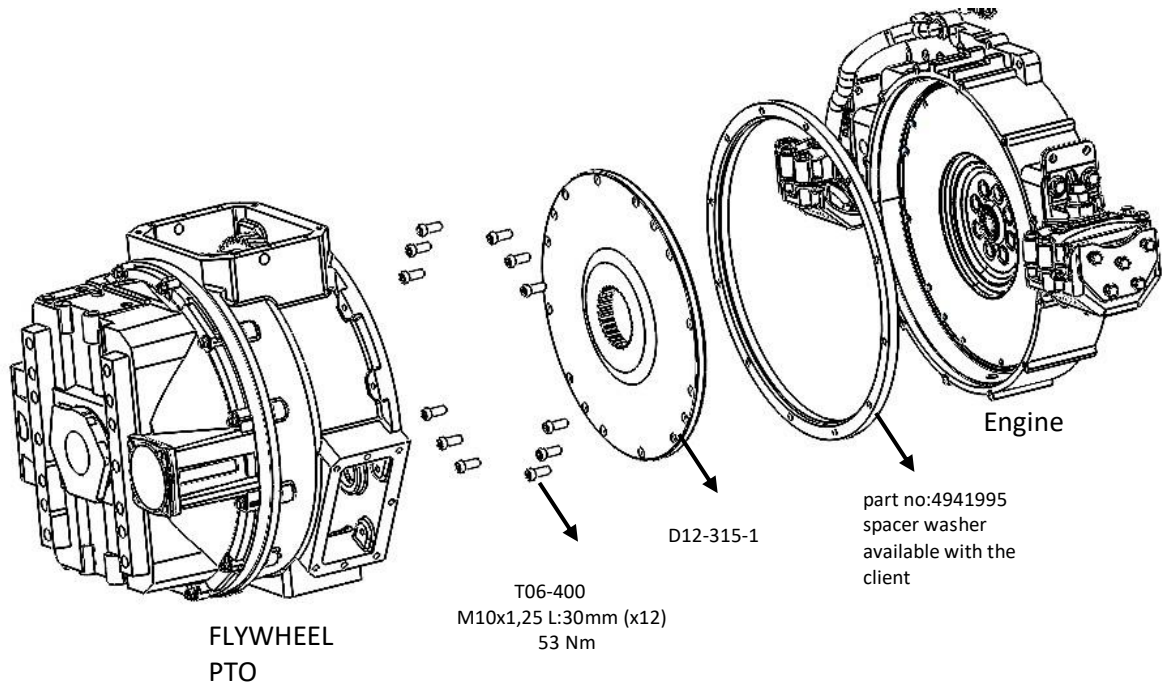


Engine (Figure 4)

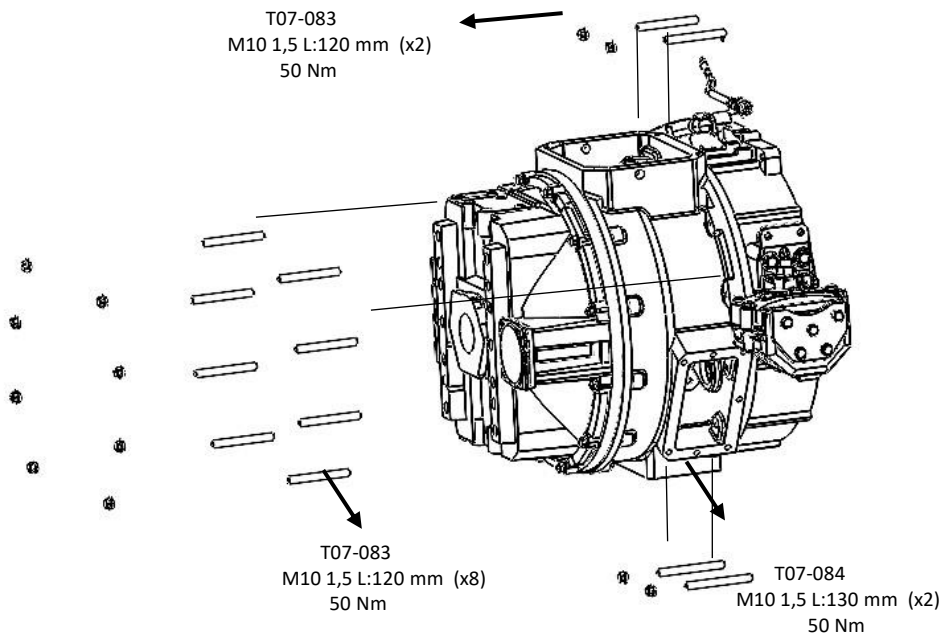
2- Once the flywheel PTO main transmission side is available for mounting, the clutch set removed previously need to be mounted on the part T19-019-1 using the 12 pcs 3/8 UNC bolts sent with the PTO. This is to be followed by mounting the main transmission extension ring D12-373 on the flywheel. Afterwards 12 pcs M10 bolts are to be used to mount the flywheel PTO on the main transmission.



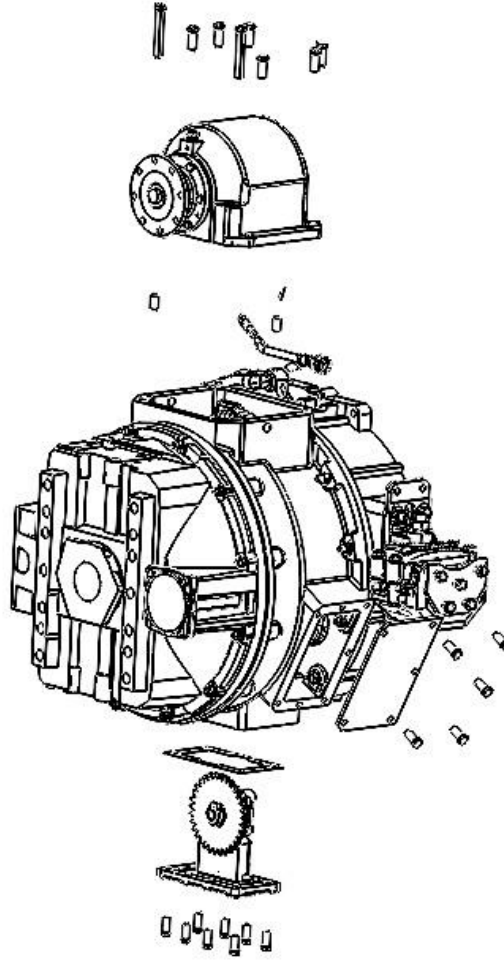
3- Having mounted the flywheel PTO on the transmission, the next step is to mount the piece D12-315-1 on the flywheel available on the engine using 12 pieces M10x1,25 L:30 mm bolts. With the part no:4941995 available, the flywheel PTO will be ready for mounting.



4- After mounting those parts on the engine flywheel, a total number of 10 x M10x1,5 L:120 mm bolts must be fastened on the holes on the top and surrounding the body. 2 x M10x1,5 L:130 bolts need to be fastened on the spot where the lubrication pump is to be mounted.

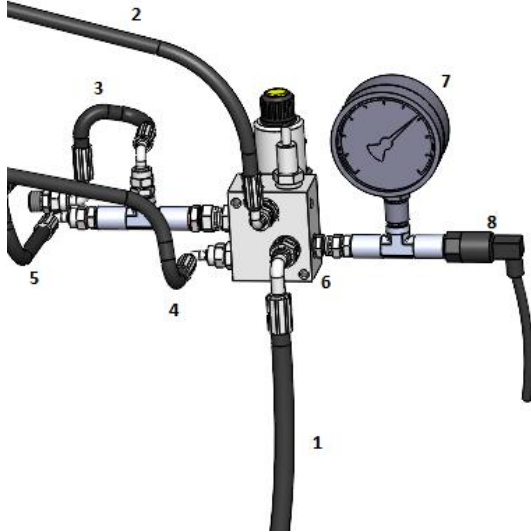


5- Finally, a layer of liquid gasket is applied on the surface for connecting the top PTO and side covers and then lubrication pump connections are mounted.

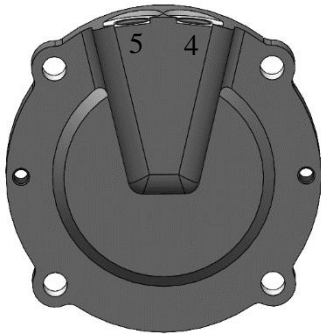


6. Installation Description, and Engage/Disengage

The hoses and parts you will receive are numerated for installation. You can proceed to connect same numbers. The following describes the numeration:



- 1: Lubrication pump line (3/8 hose)
- 2: Oil discharge line (tank) (1/4 hose)
- 3: Lubrication line (1/4 hose)
- 4: Engaging (locking the clutch discs) line (1/4 hose)
- 5: Lubrication line (1/4 hose)
- 6: 4/2 24VDC hydraulic direction control system
- 7: Manometer
- 8: Pressure sensor



The port no 4 on the cover is for engaging the output.
The port no 5 on the cover is for lubrication.

The top PTO can be engaged/disengaged through a hydraulic control. The port no.4 must be activated for engagement. The required pressure for engagement is 30-40 bar. After disengaging, the output will continue to rotate for some time and then will slow down to stop.

Port no.5 will be always active for lubricating the system. The lubrication line with a value of 10-15 bar.

7. Servicing and Maintenance

Recommended Lubricants

- ATF 320

 **Oil Capacity:**

- 5,5 L

 **Oil use other than the recommended oil types would put the equipment out of warranty coverage.**

Oil Leak Check

Check for oil leakage periodically. Watch for oil leakage in vehicle operation site or surroundings. Upon detecting leakage, take action to stop it. After checking the available oil level, add oil into the equipment where necessary. Contact KOZMAKSAN if the oil leakage persists in spite of the intervention.

REPLACEMENT PARTS

- ✓ **Do not forget that this is a technical product, and change the replacement parts on time for its maintenance.**
- ✓ **Sealing components are rubber (e.g. o-ring, seals) and need to be replaced once or twice a year.**
- ✓ **The bearings must be replaced every 4 years regardless of running time.**

 **Contact KOZMAKSAN in case of a failure.**

| Maintenance Period | Actions |
|--|--|
| First Maintenance First 100 Hours or 1 Month | <ul style="list-style-type: none"> ✓ Regularly check the PTO for oil leakage. ✓ After 100 hours or 1 Month (whichever lapses first), change the oil. |
| Second Maintenance First 300 Hours or 1 to 6 Months | <ul style="list-style-type: none"> ✓ Regularly check the PTO for oil leakage. ✓ After 300 hours or 6 Months (whichever lapses first), change the oil. |
| Regular Maintenance | <ul style="list-style-type: none"> ✓ Regularly check the PTO for oil leakage. ✓ After 300 hours or every year (whichever lapses first), change the oil. ✓ After every 1200 hours or 2 years (whichever lapses first), change the sealing components. ✓ After every 2400 hours or 4 years (whichever lapses first), have an overhaul. |

⚠ Note that this is a technical product, and change the replacement parts on time for its maintenance. Check the components periodically. Inspect mounting components, transmission elements, drive and pump connection shafts. If required, tighten them again.

⚠ Before each oil replacement, remove and clean the magnetic plugs on the lubrication pump.

8. Warranty

8.1 Warranty Terms

1. Warranty period is one (1) year from the delivery of the product.
2. In the event that the product fails during the warranty period, the following apply: — Failure repair time is 1 to 8 working days depending on its nature, — Where the repair time lasts more than 14 working days (except transportation time), a new product shall be supplied to the customer till the failure has been repaired.
3. Where a failure occurs within the warranty period due to the defects possibly arising from the manufacturing stages, the product shall be repaired free of charge in terms of servicing and replaced part price.
4. Warranty certificate has to be presented when asking for services for the products under warranty. Where the certificate is lost or not resented, then sales invoice (invoice with waybill) has to be presented.

8.2 Circumstances Terminating Warranty Obligations

1. Using the product for a purpose other than the intended use,
2. Changes to the product that are not approved by us,
3. Digression from defined specifications and reference limits,
4. Selling to third parties one or more products not bearing our approval seal,
5. Failing to perform indicated product maintenance,
6. Having a service provider, other than the manufacturer or trader, repair, carry out maintenance works or replace parts of the product within the warranty period,
7. Using the product against the usage terms set forth in the usage instructions,
8. Where the product is damaged due to the mounting.