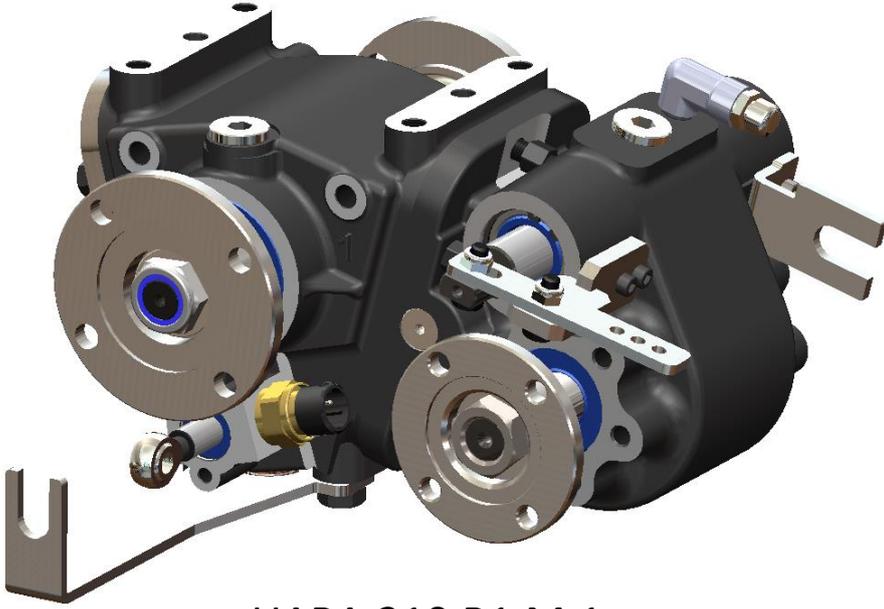


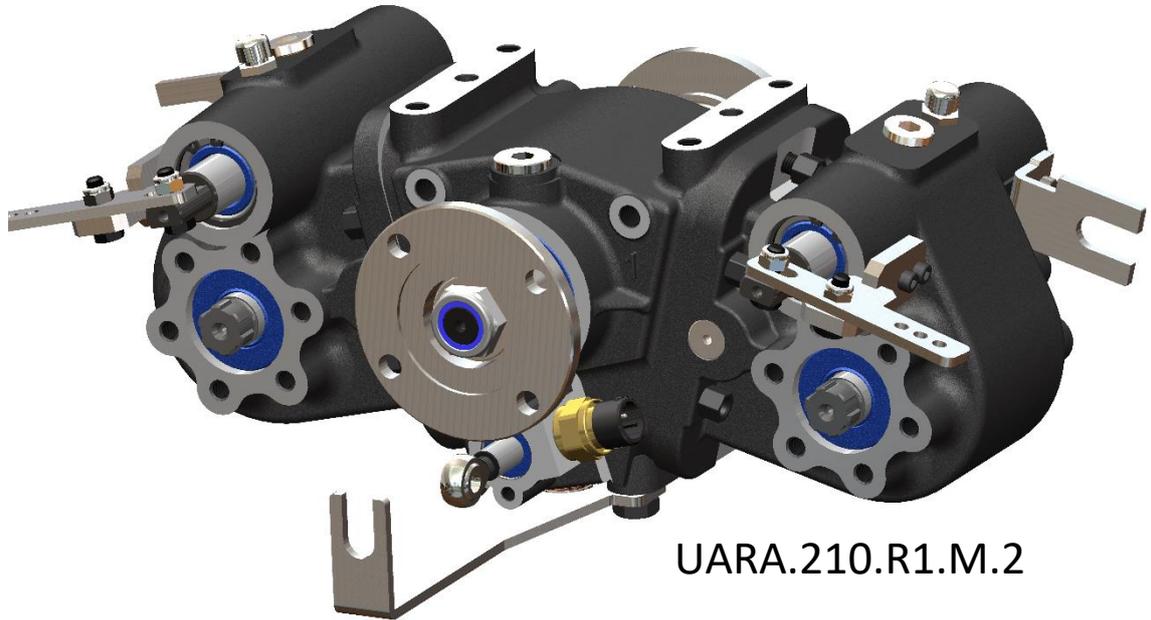


KOZANOĞLU

**KOZMAKSAN**



UARA.210.R1.M.1



UARA.210.R1.M.2

**UARA.210.R1.M**

**SPLIT SHAFT PTO USER MANUAL**

## **Table of Contents:**

<b>I. Safety Information.....</b>	<b>3</b>
<b>II. Instructions for Operation in Cold Weather.....</b>	<b>3</b>
<b>III. Split Shaft PTO Features.....</b>	<b>4</b>
III.1 <i>Technical Data</i>	
III.2 <i>Engage and Disengage.....</i>	<b>5</b>
<b>IV. Split Shaft PTO Mounting.....</b>	<b>6</b>
<i>Shaft Mounting</i>	
<b>V. Servicing and Maintenance.....</b>	<b>7</b>
V.1 <i>Adding Oil</i>	
V.2 <i>Recommended Lubricants</i>	
V.3 <i>Oil Level Inspection</i>	
V.4 <i>Oil Change</i>	
V.5 <i>Oil Leakage Detection</i>	
V.6 <i>Troubleshooting for Potential Issues and Recommended Solutions</i>	
V.6 <i>Periodic Maintenance</i>	
<b>VI. Precautions for Emergency .....</b>	<b>13</b>
<b>VII. Technical Drawings .....</b>	<b>13</b>
<b>VIII. Warranty Terms .....</b>	<b>15</b>
VIII.1 <i>Situations Which Terminate Warranty Obligations</i>	

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

## **Safety Information**

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

### **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.
- ✓ Make sure to check if the instructions you follow and the tools you use are intended for the work you are engaging in.
- ✓ Never work alone when doing repair or maintenance works under the vehicle.
- ✓ Ensure to mount the parts properly.
- ✓ Never use worn or damaged parts.
- ✓ Do not attempt any modification on the split shaft PTO or any other drive components of the vehicle.

### **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 minimum period of 5 minutes.

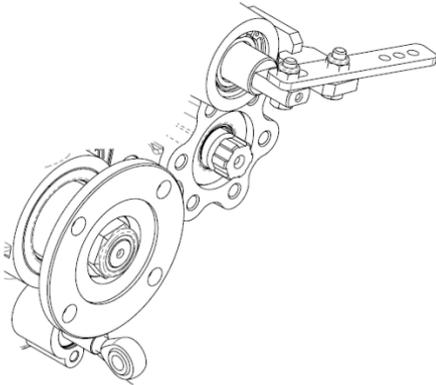
## UARA.210.R1.M Features

UARA.210.R1.M is coupled with the driveline and provides the following functions;

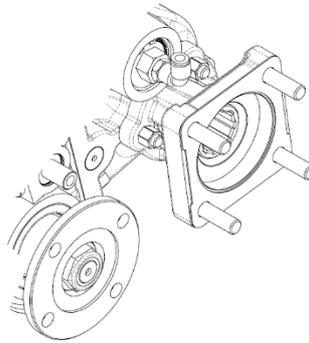
- ✓ Output for equipment,
- ✓ RPM increase,
- ✓ Change of axial distance.

### Product Features;

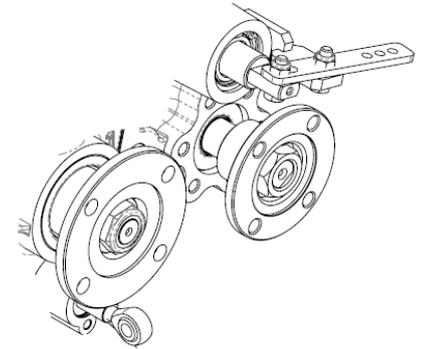
- ✓ UARA.210.R1.M has three axes.
- ✓ The single output version has 1 equipment output, and the double output version has 2 equipment outputs.
- ✓ The equipment can run when the vehicle is motionless or in drive mode.
- ✓ It has mechanical control cable.
- ✓ Side output properties are as follows;;



**Type 1;** UNI 3 bolts,  
direct coupling with UNI  
hydraulic pump



**Type 2;** (through adapter)  
direct attachment with ISO 4  
bolt hydraulic pump



**Type 3;** Output for shaft  
attachment

## Technical Data

### Main Input-Output

Max. Torque	430 Kgm
Max. Revolution	6500 - 6750

### Outputs (Side PTOs)

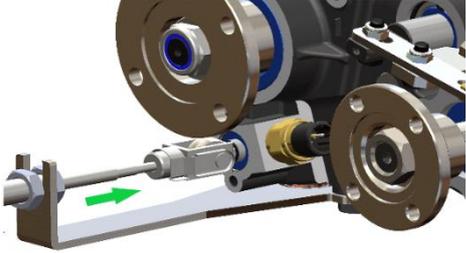
Max. Power	22 Kw (Type 1*) 22 Kw (Type 2*) 37 Kw (Type 3*)
Max. revolution	2800-3600 RPM
Ratio	1/1.42 (increases rpm)

\* Output types are defined on page 4.

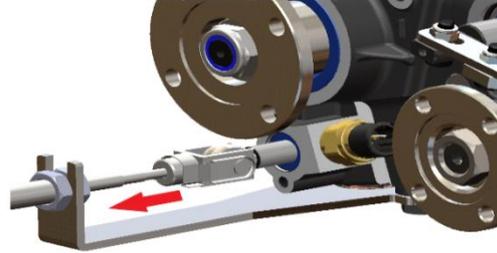
 **This split shaft PTO guarantees the indicated values provided that it is used in suitable conditions and safety rules are abided by.**

## Engage and Disengage

**Main drive mode;** This is activated by pushing forward the fork shaft through the cable lever system (Picture 1) (Cable lever in forward position). Pulling it back disengages the main drive (Picture 2) (Cable lever in backward position).

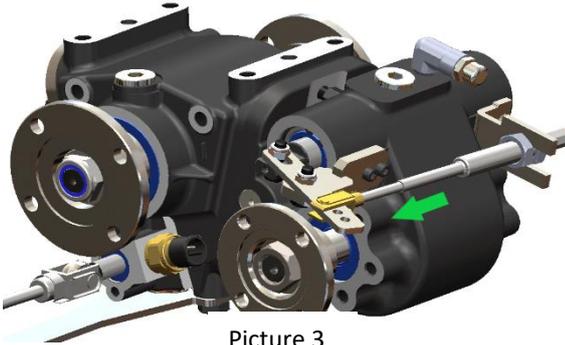


Picture 1

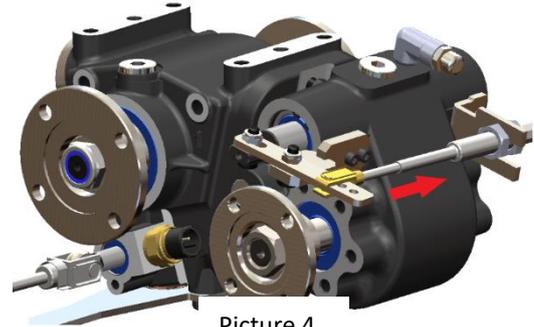


Picture 2

**Side PTO;** This is activated by pushing forward the fork shaft through the cable lever system (Picture 3) (Cable lever in forward position). Pulling it back disengages the PTO (Picture 4) (Cable lever in backward position).



Picture 3



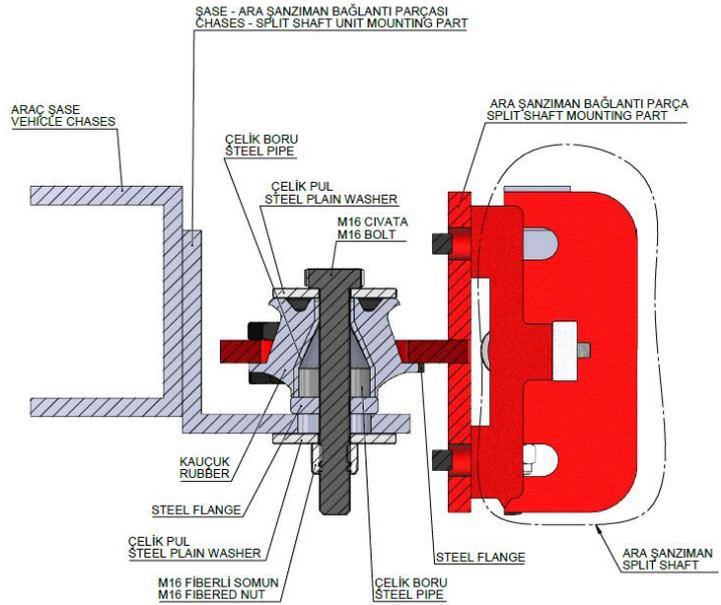
Picture 4

 The cable lever has to complete the stroke distance during engagement/disengagement. Otherwise the gearbox would not start running or cause noise as the safety catch would not engage properly.

 The above engage-disengage operations are to be done once the main shaft is totally still. Do not attempt to engage or disengage while driving. Damage resulting from engagement or disengagement done during drive is not under warranty coverage.

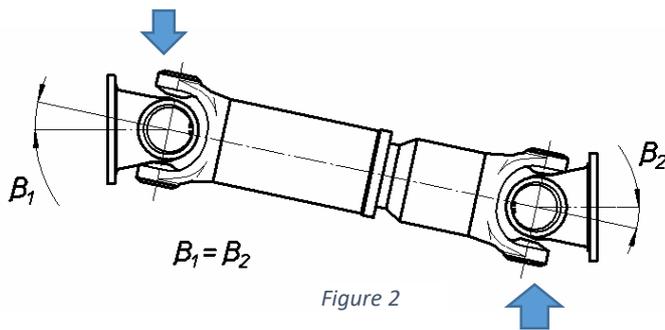
## Mounting

Oil must be added into the PTO before the mounting. After adjusting the position, the PTO must be fastened with suitable connection brackets and rubber pads on the connection holes. Make sure that the loadbearing direction of the pads are correctly aligned with this PTO.



## Shaft Mounting

1 - U-connection flanges and the centers indicated by arrows must be parallel to each other in planar sense. Such a position would prevent vibration and noise. The transmission shaft must be mounted accordingly.  $B_1$  and  $B_2$  angles must be identical. These angles vary depending on the chassis and operating rpm, however they must be between  $3^\circ$  and  $7^\circ$  (Ensure that the shaft manufacturers have provided shaft connections complying with operating rpm-connection angle values). It must be borne in mind that connections with excessive shaft angle would cause noise (See Figure 2.)



Max Speed (RPM)	Max angle
3500	$5^\circ$
3000	$5^\circ$
2500	$7^\circ$
2000	$8^\circ$
1500	$11^\circ$
1000	$12^\circ$

2. When calculating the angle during mounting a combination of top (A) and side (B) view of the shaft must be taken into consideration. ( See Figure 3)

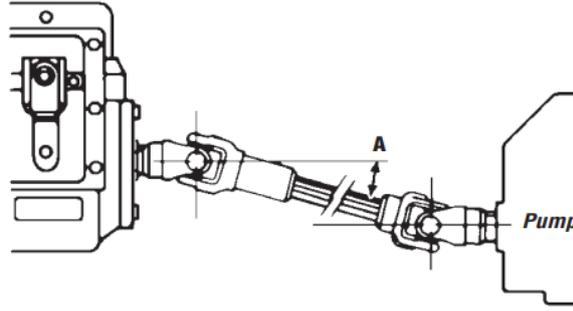


Figure 3

## Servicing and Maintenance

### Adding Oil

Split Shaft PTOs are shipped without oil inside. Oil must be added into them before commissioning through the green oil filling plug (Photo 1). The task must be performed on a flat ground. Oil must be added by checking the oil level indicator provided on the equipment. The oil must be completely clean. You should only use the recommended oil types.

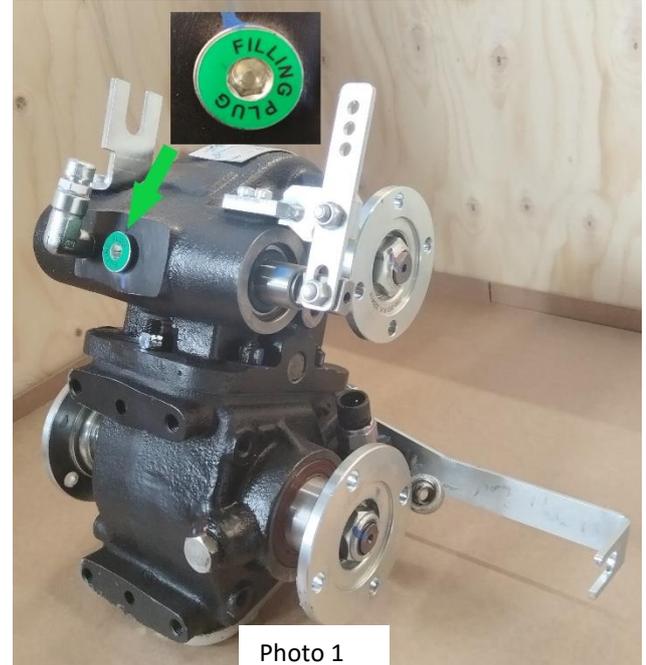


Photo 1

### Recommended Oil Types

- 75W90 Gearbox Oil
- 80W90 Gearbox Oil

### Capacity:

- Single Output Vertical -1 liter
- Single Output Horizontal- 0,8 liter
- Double Output Horizontal- 1 liter

 The optimal running temperature of the gearboxes is 65C° - 95C°. Any project resulting in more than 95C° will require additional cooling system. (On surfaces

where there is a lot of friction (such as seal housings), the temperature value for NBR seals is 110 C°, while 135 C° for FKM seals).

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

**⚠️ The oil adding operation should be done by referring to the oil level indicator on the split shaft PTO. If the equipment does not have such an indicator, then fill oil to the extent recommended by KOZMAKSAN.**

### Oil Level Inspection

Oil level should be inspected referring to the oil level indicator on the split shaft PTO. The equipment periodic maintenance should be performed weekly, and maintenance works should also be done after long operation hours. The maintenance must be performed on ground level and when the engine is off. Add oil if the oil levels are below the required limit.

### Oil Change

Make sure to drain the used oil completely before changing oil. It can be drained by opening the red draining plug (Photo 2). It is recommended to remove the filling cap to accelerate the process. The draining plug must be cleaned before fastening it back. Care must be taken to have a new oil from the types recommended. Mixing old and new oil would result in shortening gearbox oil life.



Photo 2

**⚠️ 🌱 Avoid contacting hot oil during oil change for your occupational health. Remember to use your required personal protective equipment during split shaft PTO maintenance keeping in mind the occupational health safety requirements.**

Act in accordance with the applicable regulations considering environmental protection concerns while disposing the used oil.

Maintenance Period	Actions
First 50 Hours or 1 Month	<ul style="list-style-type: none"> <li>✓ Regularly check the PTO for oil leakage.</li> <li>✓ After 50 hours or 1 Month (whichever lapses first), change the oil.</li> </ul>
First 50 to 300 Hours or 1 to 6 Months	<ul style="list-style-type: none"> <li>✓ Regularly check the PTO for oil leakage.</li> <li>✓ <b>If the ambient conditions cause corrosion, apply protective agent on suitable surfaces (Repeat the action every six months)</b></li> <li>✓ After 300 hours or 6 Months (whichever lapses first), change the oil.</li> </ul>
After First 300 Hours or 6 Months	<ul style="list-style-type: none"> <li>✓ Regularly check the PTO for oil leakage.</li> <li>✓ After 300 hours or every year (whichever lapses first), change the oil.</li> <li>✓ After every 1200 hours or 2 years (whichever lapses first), change the sealing components (O-ring, seal etc.).</li> <li>✓ After every 2400 hours or 4 years (whichever lapses first), change all bearings.</li> </ul>

**⚠ 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.**

### Oil Leakage Detection

Check for oil leakage periodically. Watch for oil leakage in vehicle operation site or surroundings. Upon detecting leakage, prevent 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.

## TROUBLESHOOTING

**⚠ In case of failure in superstructure, first make sure if the driving system and attached equipment (pumps etc.) are functioning well before looking into the PTO. Next, follow the steps below and consider the solutions to resolve the problem.**

<b>V.5 ) Potential Issues and Recommended Solutions</b>	
<b>Issues</b>	<b>Solutions</b>
<ul style="list-style-type: none"> <li><b>Noise from the gearbox during operation</b></li> </ul>	<ul style="list-style-type: none"> <li>Check the oil level in the gearbox.</li> <li>Check the shaft angles (See page 5 for Shaft Mounting)</li> <li>Check shafts if they have imbalance.</li> <li>Check rubber pads of the gearbox ( See Page 7)</li> <li>For cable actuation applications, make sure that the cable stroke distance is arranged to have it click and sit in the spring-ball notch and doesn't come loose. ( See engage/disengage section)</li> <li>If the issue persists, contact Kozmaksan aftersales team at <a href="mailto:hakan@kozmaksan.com.tr">hakan@kozmaksan.com.tr</a> for a detailed examination.</li> </ul>
<ul style="list-style-type: none"> <li><b>Gearbox operation high temperature</b></li> </ul>	<ul style="list-style-type: none"> <li>The gearbox positioning must not be next to a heat source, otherwise it must be well-insulated.</li> <li>Check if the operation conditions might be beyond the limits (See Technical Data)</li> <li>Check for shaft angles (See Shaft Mounting)</li> <li>Check if excessive/insufficient oil is available inside the gearbox.</li> <li>A wrong oil type (other than recommended) might have been added. Check and replace.</li> </ul>

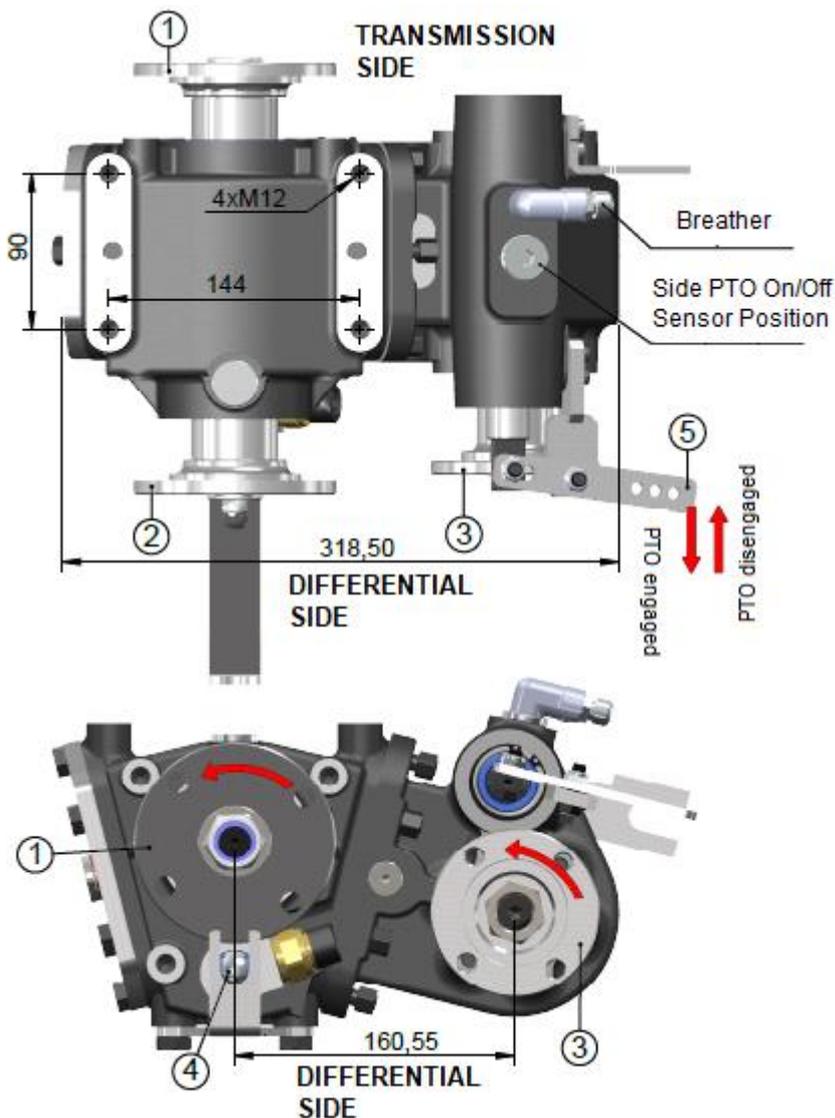
	<ul style="list-style-type: none"> <li>• If the issue persists, contact Kozmaksan aftersales team at <a href="mailto:hakan@kozmaksan.com.tr">hakan@kozmaksan.com.tr</a> for a detailed examination.</li> </ul>
<ul style="list-style-type: none"> <li>• Oil Leakage</li> </ul>	<ul style="list-style-type: none"> <li>• If the oil comes from the breather plug, do the following: Check oil amount inside, excessive oil might have been added.</li> <li>• If the oil leaks through the seals ; <ul style="list-style-type: none"> <li>- Check the shaft angles and balance condition.</li> <li>- Check if the seals were damaged during vehicle installation (by hitting somewhere or because of welding drops or other unintentional cuts and damages).</li> <li>- Corrosion on the surfaces where the seal is positioned would damage the seal in time. Take measures to prevent corrosion.</li> </ul> </li> <li>• If the oil leaks through the gearbox body; <ul style="list-style-type: none"> <li>- The gearbox might have been damaged during truck installation (hitting, dropping etc.) The gearboxes are 100% tested against leakage before leaving the factory. Contact Kozmaksan aftersales team at <a href="mailto:hakan@kozmaksan.com.tr">hakan@kozmaksan.com.tr</a> for a detailed examination.</li> </ul> </li> <li>• If the oil leaks through the plugs; <ul style="list-style-type: none"> <li>- The copper washers underneath might be missing (not fitted back during oil filling-draining operations). The gearbox is fully tested against leakage before leaving the factory.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Gearbox corrosion</li> </ul>	<ul style="list-style-type: none"> <li>• To prevent corrosion on the gearbox; <ul style="list-style-type: none"> <li>- Ensure suitable storage conditions.</li> <li>- Keep the Kozmaksan product packaging intact during the storage period (do not open the plastic bag).</li> <li>- After mounting the gearbox on the truck, follow the maintenance periods and actions.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Engagement/ Disengagement Issues</li> </ul>	<ul style="list-style-type: none"> <li>• Check the cable stroke distance to make sure the cable is locked on the spring-ball notch ( See engage/disengage section).</li> <li>• Check cable-gearbox connection for any problem.</li> <li>• Check cable wire for any problem.</li> <li>• If the issue persists, contact Kozmaksan aftersales team at <a href="mailto:hakan@kozmaksan.com.tr">hakan@kozmaksan.com.tr</a> for a detailed examination</li> </ul>

## Precautions for Emergency

If you wish to disengage the split shaft PTO in case of emergency, use the emergency stop mechanism provided by the manufacturer of the vehicle superstructure. This has to be done only by pressing the vehicle clutch pedal.

## Technical Drawings

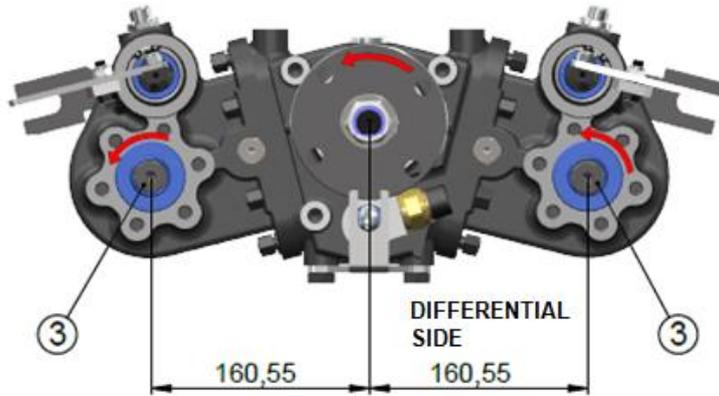
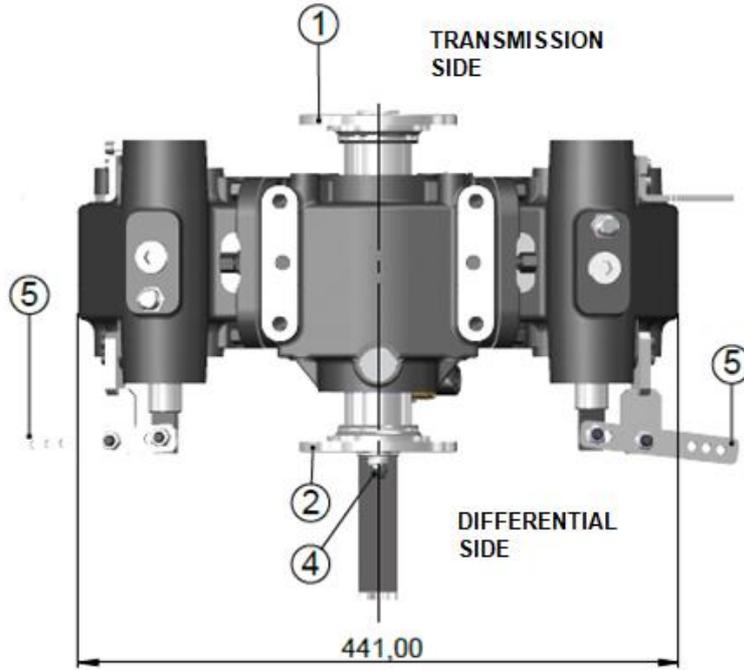
UARA.210.R1.M



- 1: Main Input / ISO 7647 - ISO 7646 STD. flange
- 2: Main Output / ISO 7647 - ISO 7646 STD. flange
- 3: Side PTO Output / ISO 7647 - ISO 7646 STD. flange
- 4: Main drive mechanical control lever
- 5: Side PTO output mechanical control lever

## Technical Drawings

UARA.400.R1.M.MSR.ESJ



- 1: Main Input / ISO 7647 - ISO 7646 STD. flange
- 2: Main Output / ISO 7647 - ISO 7646 STD. flange
- 3: Side PTO Output / ISO 7647 - ISO 7646 STD. flange
- 4: Main drive mechanical control lever
- 5: Side PTO output mechanical control lever

## 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. (Domestic claims) — 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 presented, then sales invoice (invoice with waybill) has to be presented.

### Situations Which Terminate Warranty Obligations

1. Using the product for a purpose other than the intended use,
2. Changes to the product that are not approved by Kozmaksan,
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 during the mounting on the vehicle.