product magazine
Expert
KRAMP
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PTO Shafts

GOOD MAINTENANCE IS A NECESSITY

Handy plan provides overview

The ServicePlus System from GKN Walterscheid is an essential aid for everyone who wants to optimally maintain and utilise their power take off shafts. The plan provides an at-a-glance overview of the new maintenance classes and makes it possible to perform the exact maintenance required for specific levels of use and product types.

Spring is the perfect time of year to carry out PTO shafts maintenance. Later, once the hectic harvest season has arrived, there will hardly be enough time for the harvesting, let alone for the necessary maintenance. A good lubrication plan is therefore necessary. But which maintenance do you need to perform when and what intervals apply to which shaft types?

To make PTO shaft maintenance easier, Walterscheid has established various maintenance classes. Within these classes the appropriate maintenance interval is clearly specified, depending on the intensity of use and the specific PTO shaft. For some models the maintenance interval has been extended by up to 250 hours, which means maintenance costs and man hours have now also been reduced by as much as 70%

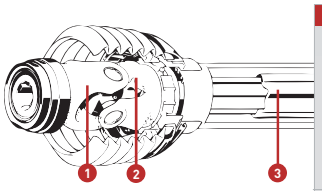
Other advantages include:
- Lower consumption of lubricants
- Reduction of maintenance effort
- Minimal downtime and stoppages

The extension of the maintenance intervals is possible due in part to:

- Various improvements made to component details, such as improved seals in the universal joints
- Profile tubes made of hardened steel, fitted with a special scraper
- New factory lubrication with high quality lubricants

The PTO shaft applications are divided into two classes: W1 stands for less maintenance intensive use, such as grass mowing and corn harvesting, while W2 represents more maintenance intensive use, such as soil tilling and cultivation.

At a second level, the various types of PTO shafts are listed. Wide angle and standard PTO shafts are distinguished according to their technical design. The required intervals for the universal joints, telescopic shaft and guards are all clearly specified. You can see at a glance what the applicable maintenance interval for each intensity of use is, for all the new GKN Walterscheid PTO shafts.



1 Yoke
2 Universal Joint
3 Profile Tube

Application		Series P-line 1 2 3	Series PWE / PWZ 1 2 3	Series W 1 2 3	Series WWZ / WWE 1 2 3	Series E 1 2 3
1		250h	60h	100 h / 250 h**	100h / 8h / 60h	8h
2		250h / 100h*	40h	50h	8h / 40h	8h

WALTERSCHEID BONDIOLI & PAVESI gopart work smart

Three strong brands

With top brands Bondioli & Pavesi and Walterscheid, Kramp has two European market leaders in its range. In addition, the brand Gopart is an inexpensive alternative. So it should come as no surprise that a number of top manufacturers use PTO shafts from these suppliers for their base product. And that means guaranteed availability of the top quality replacement parts every customer has the right to expect.

Walterscheid and Bondioli maintain the very highest quality standard in this market segment. Reliable, durable, carefully designed and specifically developed for the most demanding use. During the harvest, everything has to work optimally and there should be no concerns about the quality of the equipment. Kramp not only supplies the complete PTO shaft but also all the necessary parts for repairs and overhauls.

In addition to the top brands, the product range also includes our house brand Gopart, which is perfectly suited for applications in which the Walterscheid and Bondioli quality standard exceeds requirements. The Gopart range is naturally very competitively priced, while still offering the quality you can expect from Kramp. After all, the Gopart PTO shafts are made entirely in accordance with current European standards.

WALTERSCHEID DRIVES THE AGRICULTURAL SECTOR

Efficient innovation as goal

GKN Walterscheid is one of the world's most authoritative manufacturers of driveline and attachment systems for tractors. The company develops and manufactures high quality systems and offers a specific solution for every agricultural application.

Walterscheid system solutions are known for their high quality and for maintaining the highest standards of safety. The solutions are modular, providing maximum flexibility and convenience. The company is proud of its business history of more than 80 years and draws upon decades of experience. "In continuous dialogue with all leading national agricultural sector manufacturers, we consistently develop innovative system solutions for efficient, as well as sustainable, agricultural technology. It is this mission statement that drives our engineers as they develop new agricultural innovations", explains Walterscheid.

Synergistic advantage

Walterscheid is a division of international technology group GKN Land Systems based in England, and delivers various synergistic advantages. The company is one of the world's leading suppliers of parts and equipment for agricultural machinery, the forestry and mining sectors and the automotive industry. The Walterscheid division has more than 6000 employees. Walterscheid places high demands on its products and uses only high quality raw materials, secondary materials and production techniques. This results in a wide range of top quality products specifically designed for reliable agricultural use. Walterscheid products are easily recognised by the approval sticker with the Walterscheid diamond.

For more info, please visit
www.gkn-walterscheid.de

Keep 'em lubricated

For trouble free use of a PTO shaft, it must be lubricated regularly. This applies to both the profile tubes as well as the universal joints. Unfortunately this necessary maintenance work is occasionally forgotten, particularly if the lubrication nipple is located in a difficult to reach place. Walterscheid joints can prevent this problem.

By placing the nipple not in the middle of the joint but rather on the cups, it has become much easier to keep the joint properly lubricated. This makes maintenance a pleasure and ensures trouble free, smooth running of the PTO shaft for longer. Cup lubricated universal joints are available for various dimensions, seal types and maintenance classes. For more information, please visit the web shop or phone your product specialist. We nearly always have a maintenance friendly solution for you.

W2200	**2000131**
W2300	**2100131**
W2400	**3500131**
W2500	**3600131**
W2600	**2600131**

More information at www.kramp.com

A WELL PREPARED START TO THE SEASON

Springtime inspection of drive shafts

Safety is an important aspect of a well functioning PTO shaft. Accidents occur every year as a result of failing or defective cut-out clutches. This is reason enough to perform a thorough inspection in the springtime so you will be well prepared for getting to work later, without any worries or concerns.

Despite the use of top quality materials and the latest technologies, optimal lubrication of the PTO shaft is and remains of great importance. Those who carefully follow the manufacturer's recommendations will certainly spend less time and money on maintenance throughout the service life of their drive shafts. As stated earlier in this Expert, Walterscheid has summarised the proper maintenance intervals for the universal joints, profile tubes and guards in an easy-to-read chart. So just one question remains: How much lubricant should actually be applied? As a general rule, standard grease can be used. The quantity of grease dispensed by a typical grease gun is about 3 grams per stroke. The required quantities are: 15 grams for universal joints, 6 grams for the guards and 15 grams for the profile tubes.

Springtime inspection

The clutch is one of those parts that we often only think about once it no longer functions properly. Its function is mainly to provide protection against overloading. Most manufacturers employ various types of clutches in their equipment. If these interrupt normal operation on a regular basis, this is usually a sign that they are insufficiently maintained or adjusted. Therefore it is wise to perform the necessary maintenance on your clutches before the season begins. Friction clutches need to be aerated after a period of disuse, such as the winter period. Once the pressure has been relieved, the clutch must be twisted back and forth to free it from any contamination that may be stuck to the disk surfaces. Cut-out clutches, such as friction and overrunning clutches, must be inspected regularly for play between the yoke and machine hub. With too much play the PTO shaft will begin to bang.

Good lubrication is also of vital importance for the cam-type cut-out clutch

Maintaining rotary harrow and cam-type cut-out clutches

Rotary harrows are usually protected with a cam-type cut-out clutch. Every two years or 500 hours of operation, the cam-type cut-out clutch must be opened to check the state of the lubrication. If necessary, all the parts must be cleaned and re-lubricated. GKN Walterscheid recommends the use of special grease for this application. The same grease can optionally be used as for the profile tubes and universal joints, but in this case the clutch must be checked every year.

Cultivators – Take care with individually tensioned spiral springs

Check the quantity of grease in the clutch

Most cultivators are fitted with friction clutches. The fact that the friction disks are permanently under pressure from the springs means they can stick to the carriers. Prior to the start of the season, the pressure must be relieved from these clutches and they must then be re-tensioned to the proper torque rating, in order to ensure that the machine is protected.

During this process it is important to tighten the compression bolts evenly until the pressure has been relieved from the spring assembly. The PTO shaft should then be allowed to rotate so the stuck on lining material will loosen and drop off. Finally, the compression bolts must be re-tightened.

Be very careful with springs that are tensioned individually rather than as a package. Since every spring has its own pretension, it is a good idea to pay careful attention to the following aspects during the disassembly process (see photo):

Number every spring and measure the compressed height. Only then loosen the compression bolts far enough to relieve the tension from the springs. Once the hub has been rotated, the springs are re-tensioned to their original compression, i.e the measured height. Carefully follow the notes you made earlier.

Seed drills – Check the overrunning clutch

To prevent the seed drill fan from slowing down as the tractor reduces speed, the PTO shafts are fitted with overrunning clutches. These clutches must be lubricated once each season. If you notice turning resistance in the overrunning clutch, it is time to clean and re-lubricate it.

Fertiliser spreader

What really matters is the clutch

Various types of clutches are used for fertiliser spreaders: shear bolt clutches, friction clutches and cam-type cut-out clutches. For shear bolt clutches you must check whether the bolt is secure. For friction clutches you follow the steps described for cultivators. For cam-type cut-out clutches, perform lubrication every season.

Grease quantities:
K31/32 15 grams = approx. 5 pump strokes
K31/34 30 grams = approx. 10 pump strokes
K31/36 45 grams = approx. 15 pump strokes

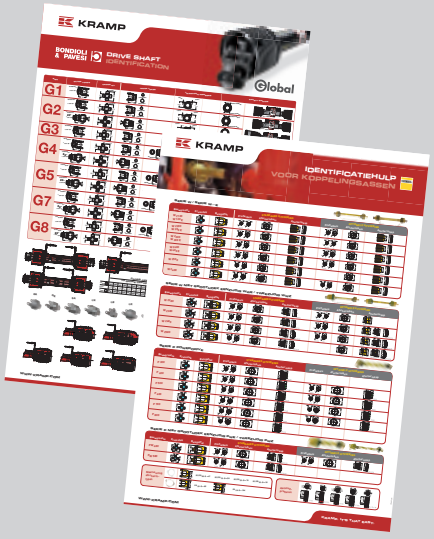
Measure the compression of the springs before removal so they can be set properly again afterwards

Release the tension from the plate type clutch after a longer period of disuse and remove any caked on residue

Handy posters make selection simple

PTO shafts are available in various sizes and versions. This means it is not always easy to choose the right replacement parts. To make the process of ascertaining the right types and corresponding article numbers as simple as possible, Kramp has developed two handy aids. A poster with clearly organised information is available for both Bondioli and Walterscheid. Here you will find the right dimensions for the profile tubes, guards, universal joints and all sorts of clutches, all cleverly categorised into power classes.

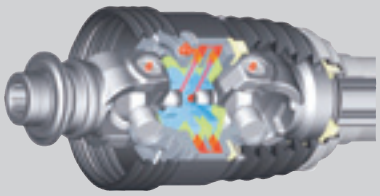
It has never been so easy to make the right choice!



For more info, please visit **www.kramp.com**

Superpower in wide-angle shafts

Agricultural contractors often face the most demanding operating conditions. In such situations, you must be able to have absolute confidence in the equipment. The strongest wide-angle PTO shafts in the world have been developed especially for this purpose: the Bondioli SFT shaft, type SH. Thanks to the patented double centring disks, the shaft runs exceptionally quietly and reliably, even under the most extreme loads.



The SH series is surprisingly compact, has a maximum operating angle of 75 degrees and a lubrication interval of 50 hours. There is also an 80 degree wide-angle version available in the SH series which is convincingly stronger than any similar wide-angle PTO shaft on the aftermarket.

The axle is specifically designed for heavy, tractor drawn machines, such as transport trailers, big pack balers and potato lifting machines.

Square profile tube: maximum torque transfer, minimal sliding resistance

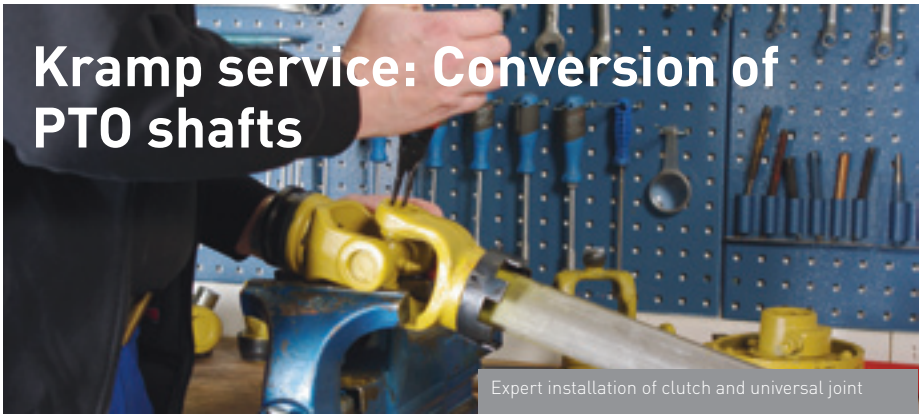
BONDIOLI & PAVESI

FROM THE PROFESSIONAL, FOR THE PROFESSIONAL

Quick and accurate testing of cut-out clutches

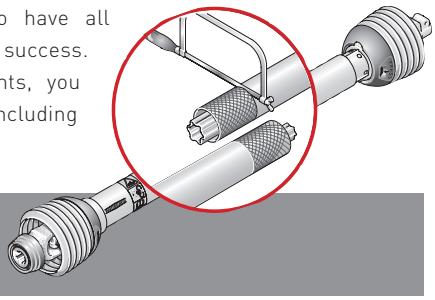
When using a PTO shaft, you want to be absolutely certain it is going to do its job properly. Kramp has a test bench designed for simple and reliable cut-out clutch testing without disassembly of the PTO shaft. This test bench allows you to take your service to a higher level.

With the RKP3000, you can establish the load limit of the cut-out clutch with absolute certainty. The test bench effortlessly tests every clutch with a maximum load of up to 3000 Nm. No special torque spanner is required for performing the measurement—a regular 3/4" drive ratchet is all that you need. Operation of the RKP3000 is also exceptionally simple. There is no need to disassemble the shaft, the only preparation required is to slide back the guard. Because the measuring instruments and tools have been carefully selected to work together, the test bench has a very high measuring accuracy. After every test, the measurement result is shown on the display, where it remains until the next baseline measurement. You then record your test results and prepare the test protocol for your customer. Via the download service in the web shop you can download a complete test report that can be included with your service documents.



Expert installation of clutch and universal joint

If you are looking to adapt an existing PTO shaft for a different use, Kramp has the professional service you seek. Our specialists are not only experienced but also have all the know how to make the conversion a success. Whatever your specific wishes and requirements, you can trust Kramp to get the job done right, including installation of the cam-type cut-out clutch.



Custom made PTO shafts: shortening, deburring and careful assembly for trouble free use

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