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Y4R 2026-10 БЭ-ЛҮ

BULLETIN



3522-0000025 OM
Operation Manual

Number of sheets

6

Sheet

1

GROUND: VK OP 3500-811, PK 3500-855

Bulletin Y4R 2026-10 БЭ	TRACTOR MODEL	3522
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Annotation:

This service bulletin contains the following information:

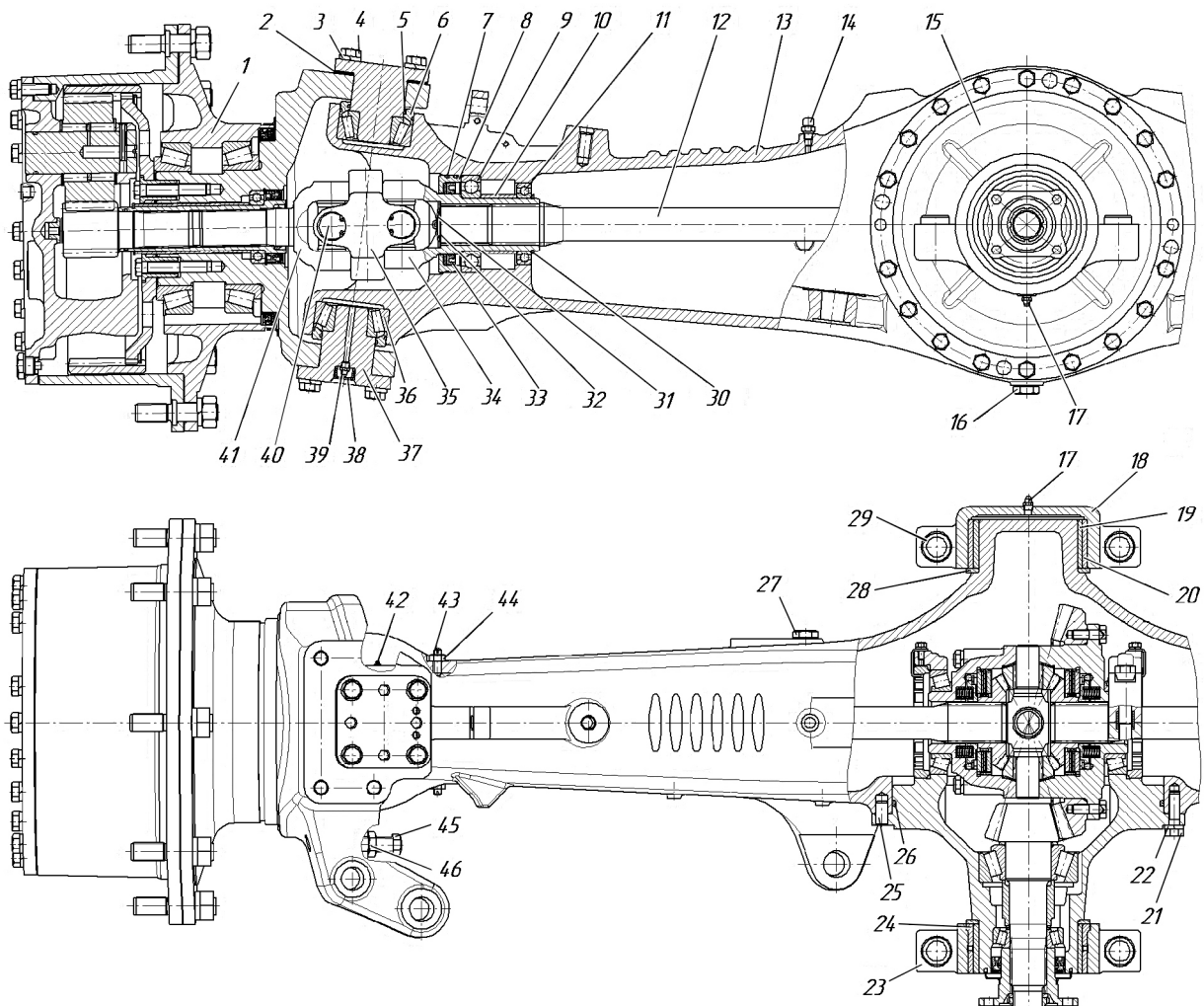
- Subsection 3.12 "Front driving axle" provides information related to a change in the design of the Front driving axle (FDA) at the junction of the double joint and the wheel gear group;
- In subsection 6.4 "Scheduled maintenance service operations" paragraph 6.4.3.3 "Operation 25. Lubrication of the bearings of the FDA kingpin axles" has been changed..

Note – Front driving axles with a modified design are marked with the letter "Б" after the serial number stamped on the front left tube of the beam.

Content of changes

Section 3 "Description and operation of tractor components", subsection 3.12 "Front driving axle", paragraph 3.12.1 "General information", shall be set out in a new version:

3.12.1 General information



1 - wheel gear group; 2 - adjusting shims; 3 - spring washer; 4 - bolt; 5 - ring; 6 - sleeve; 7 - ring; 8 - sleeve; 9 - bearing; 10 - bushing; 11 - bearing; 12 - axle shaft; 13 - FDA housing; 14 - breather; 15 - central reduction gear; 16 - plug; 17 - grease fitting; 18 - hoop; 19, 20 - bracket; 21 - bolt; 22 - spring washer; 23 - hoop; 24 - bushing; 25 - pin; 26 - ring; 27 - plug; 28 - washer; 29 - bushing; 30 - retaining ring; 31 - blind plug; 32 - gasket; 33 - seal; 34, 41 - joint fork; 35 - double fork; 36 - bearing; 37 - pivot pin; 38 - cap; 39 - grease fitting; 40 - crosspiece with bearings; 42 - grease fitting; 43 - screw; 44 - lock nut; 45 - adjusting bolt; 46 - lock nut.

Figure 3.12.1 – Front driving axle

The front driving axle (FDA) is designed to transmit torque to the steered front wheels of the tractor. The front axle consists of a solid beam (FDA housing) 13 (Figure 3.12.1), a central reduction gear 15, double cardan joints, axle shafts 12 and planetary wheel gear groups 1.

The central reduction gear 15 is installed in the FDA housing 13 on two pins 25 and is secured to it with bolts 21. A rubber ring 26 is used to seal the junction between the housing and the central reduction gear. Torque from the central reduction gear to the wheel gear groups is transmitted by axle shafts 12 and double cardan joints. The double cardan joint consists of forks 34 and 41 connected to a dual fork 35, two crosspieces 40 with needle bearings. The joint is installed in the front axle housing on two ball bearings 9 and 11, between which a spacer bushing 10 is installed.

To prevent oil from leaking out of the FDA housing along the cardan joint fork 34, there is a sleeve 8 with a seal 33 and rubber rings 7 installed in it. In the axle housing 13, the double cardan joint is fixed with a locking ring 30 and locking screws 43.

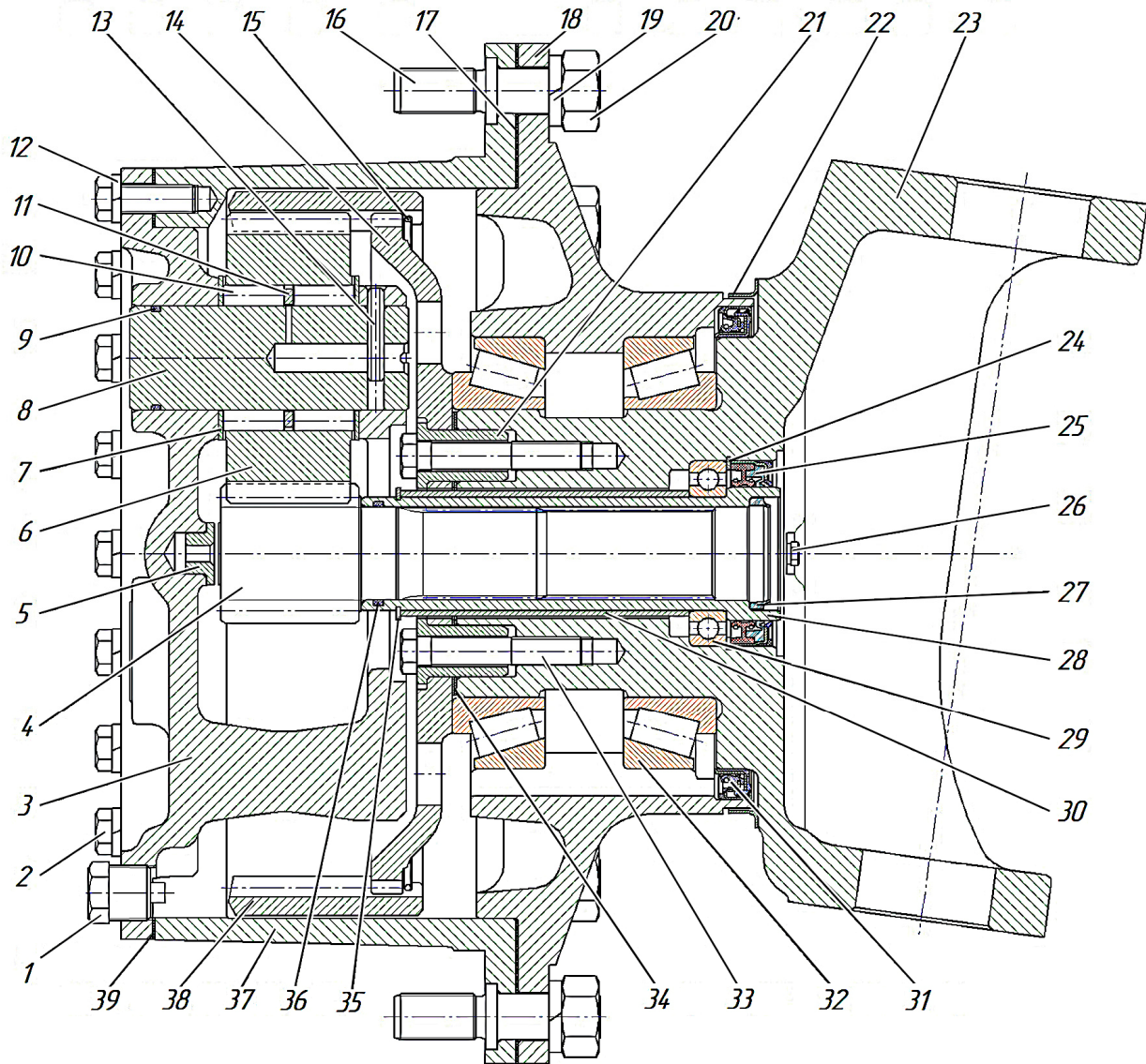
The axle shaft 12 with double-sided splines is installed between the double joint and the differential of the central reduction gear. On the splines on the side of the double joint there is a collar preventing axial movement of the axle shaft. To prevent oil from leaking along the splines of the axle shaft from the FDA beam, a blind plug 31 and a gasket 32 are installed in the fork 34 of the double joint.

Planetary wheel gear groups 1 are connected to the FDA housing using pivot pins 37 and can rotate relative to the FDA beam on two bearings 36. The connection of the axles to the steering knuckle of the wheel gear group is carried out using bolts 4. Bolts 45 and locknuts 46 are used to adjust the angle of rotation of the wheel gear groups.

Lubrication of kingpin bearings 36 is carried out through grease fittings 39 and 42, installed on pivot pins 37 and housing 13. The grease fittings 39 are protected from dirt by rubber caps 38. To prevent dirt from getting to the kingpin bearings, races 6 with rings 5 are installed in the FDA housing. Bearings 36 are adjusted by gaskets 2. Oil is filled into the FDA housing up to the lower edge of the filler hole, into which plug 27 is installed, and drained by unscrewing drain plug 16. The front axle housing is equipped with a breather 14, which maintains normal pressure in the cavity of the FDA beam.

Section 3 "Description and operation of tractor components", subsection 3.12 "Front driving axle", paragraph 3.12.3 "Wheel gear group", shall be set out in a new version:

3.12.3 Wheel gear group



1 - plug; 2 - bolt; 3 - carrier; 4 - sun gear; 5 - bushing; 6 - satellite; 7 - thrust washer; 8 - satellite shaft; 9 - sealing ring; 10 - roller; 11 - washer; 12 - spring washer; 13 - pin; 14 - disk; 15 - wire ring; 16 -stud; 17 - gasket; 18 - hub; 19 - spring washer; 20 - nut; 21 - bush-ing; 22 - mud guard; 23 - steering knuckle; 24 - locking ring; 25 - seal; 26 - plug; 27 - scraper; 28 - shaft; 29 - bearing; 30 - bushing; 31 - cassette seal; 32 - bearing; 33 - bolt; 34 - adjusting shims; 35 - locking ring; 36 - sealing ring; 37 - housing; 38 - epicyclic gear; 39 - sealing gasket

Figure 3.12.3 – Wheel gear group

The planetary wheel gear group is mounted on the steering knuckle 23 (Figure 3.12.3). The driving gear of the planetary row of the wheel gear group is the sun gear 4, the driven part connected to the tractor wheel is the planet carrier 3 with three satellites 6, while the slowed-down gear, which perceives the reactive torque, is the epicyclic gear 38. The sun gear is floating between the teeth of the three satellites, and its splined shank is connected to shaft 28, mounted in bearing 29 and secured with locking ring 35. Satellites 6 rotate on shafts 8, installed in the bores of the planet carrier 3. The satellite bearings are cylindrical rollers 10, located in two rows.

Both rows of rollers are separated by washer 11. One roller raceway is the ground surface of shaft 8, and the other is the ground inner surface of satellite 6. The axial movement of satellites and rollers is prevented by washers 7. The axes of the satellites are secured against axial movement in the carrier seats by pins 13.

The carrier is attached to the housing 37 by means of bolts 2 with spring washers 12. The carrier is centered by a collar entering the housing bore. The carrier flange also has a hole for a conical plug 1, coinciding with the hole in the housing flange and used to fill the wheel gear groups with oil and drain it. A sealing gasket 39 is installed between the carrier 3 and the housing 37.

The gear group housing 37 is centered and attached with studs 16 to the hub 18, rotating on two tapered roller bearings 32, the support for which is the steering knuckle 23. A sealing gasket 17 is clamped between the housing and the hub using nuts 20 and spring washers 19.

Thus, the driven unit, consisting of a carrier with satellites, a housing and a hub, rotates on bearings 29. A disk 14 is attached to the end of the steering knuckle 23 using bushings 21 and bolts 33, which with its splined part prevents the crown epicyclic gear from turning.

Between the end of the steering knuckle 23 and the end of the disk 14, adjusting shims 34 are installed, which serve to adjust the bearings 32. The epicyclic gear 38 is held from axial movement by a wire spring ring 15, inserted into the annular groove of the gear 38.

The internal cavity of the wheel gear group is sealed by ring 36, collars 25 and cassette seal 31. To prevent dirt from getting to the splines of shaft 28, a mudguard 27 is mounted. The bores of the carrier 3 are sealed by rubber rings 9.

Section 6 "Maintenance", subsection 6.4 "Scheduled maintenance service operations", paragraph 6.4.3.3 "Operation 25. Lubrication of the bearings of the FDA kingpin axles", shall be set out in a new version:

6.4.3.3 Operation 25. Lubrication of the bearings of the FDA kingpin axles

To lubricate the bearings of the FDA kingpin axles, the following must be done:

- remove caps 38 (Figure 3.12.1) from two grease fittings 39 of bearings 36;
- clean the grease fittings 39 and 42 from dirt and dried grease;
- inject grease into grease fittings 39 and 42 until grease appears from the hole (diameter 3 mm) of sleeve 6.

When using MS-1000 lubricant TU 0254-003-45540231-99 the operation should be performed every 500 hours of tractor operation

Note: On BELARUS-3522 tractors with a modified design of the junction between the double joint and the wheel gear group, the location of the upper grease fittings 42 (Figure 3.12.1) may remain the same as on the FDA of the previous design. In this case, operation 25, "Lubrication of the bearings of the FDA kingpin axles," should be performed according to the procedure described in document 3522-0000025 OM.