Analysis of the Maintenance System for Keys Combines in Uzbekistan

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Abstract: In the article, even today in Uzbekistan, the use of economical and modern new types of combine harvesters for harvesting grain is recommended to the grain farmers of the Republic, by improving the quality of the grain, using the harvesting technique in harvesting grain with high efficiency, to harvest it at a short opportunity without loss, and to harvest the grown crop with high quality, and the effective use of, the dependence on compliance with the harvesting procedure and timely maintenance and repair of combine harvesters is described as the uniformity of all working parts of the highly productive and modern combines "Keys-2166" and "Keys-2366", which are used for harvesting grain

1 INTRODUCTION

Today, even in Uzbekistan, economical and modern new types of combine harvesters are used for harvesting grain. "Keys" ' combine, "Keys-2166" and "Keys-2366", were also included in such combine harvesters, now numbering 1,730 units.

And before the grain of our republic, the task is to improve the quality of the grain, to harvest it at a short opportunity without loss by using the harvesting technique with high efficiency.

Figure 1: Keys - 2366 grain combine working process.

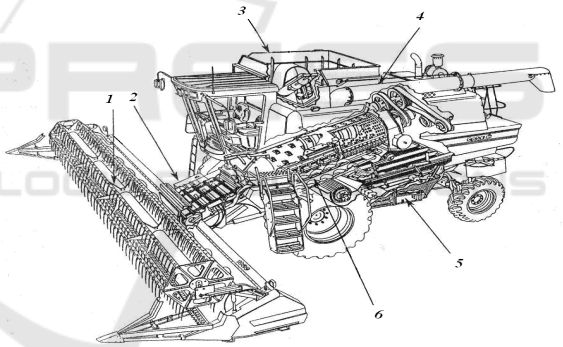

Figure 2: The main working parts of the "Keys" grain mowing combine: 1st -jacket; 2nd- reverse transporter; 3rd- grain bunker; 4th -schnecks; 5th- grain cleaning part; 6th - axial rotor milling-separation device.

Harvesting the grown crop with high quality and the effective use of grain combines depends on the preparation of fields for harvesting, the correct adjustment of the working organs of combines, compliance with the harvesting procedure and timely maintenance and repair of combines (Babusenko, 1990).

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All the working parts of the high-performance and modern combines "Keys-2166" and "Keys-2366", which are used in Uzbekistan to mow and harvest grain, are the same, except that the rear axle of the "Keys-2366" combine harvester is strengthened (Kompleksnaya, 1985). The actual appearance of these combines is in Figure 1, the constructive structure is in Figure 2, and the technical description is given in the table below.

2 MATERIALS AND METHODS

The main working parts of the" Keys " combine are the jatka and the oblique transporter, the grain bunker and the schnecks, the grain cleaning part, the axial rotor mowing-separation device with high permeability (Ekonomicheskaya, 2005).

The type of mowing apparatus of the Keys-2166 and Keys-2366 combines is rotor with a diameter of 610 mm, the range of their number of rotations is 530-1260 min-1, the coverage angle of the deck is 360°. In this combine, no somonelizer is placed on it, since the work of milling the grain and separating the ground grain is carried out with 1 working organ, that is, a rotor. The grain cleaning part is air-granular and is made up of upper and lower granules (Severny, 2001), (Spravochnik, 2003). Their total surface area is 3.82 m2. The volume of the combine grain bunker is 5100 l.

Accordingly, a 6-cylinder engine with turbonadduv was installed in the combine, the power of which is equal to 230 horsepower. A single refill will take up to 350 litres of fuel to the fuel tank.

Table 1:Technical description of grain combines “Keys".

№	Specification name	Keys--2166, 2366
1.	Jatka range and coverage width	1010 (4,57-7,62 m)
2.	Type of milling machine	rotor
3.	Milling machine length or width, mm	2790
4.	Milling drum diameter, mm	610
5.	Yanchish drum number of turns, ayl / min	530-1260
6.	Deka's coverage angle, grade	360
7.	Grain cleaner type	Cleaning system
8.	Grain cleaning surface, m^2	3,82
9.	Don bunker size, l	5110
10.	Engine type	6- cylinder, turbonadovli
11.	At full capacity, kW (o.k.)	171 (230)
12.	Useful capacity, kW	160 (215)
13.	Fuel tank capacity, l	350
14.	Constructive mass, kg	9880

Repair and maintenance service systems available in foreign and their analysis.

In foreign countries with progressive agricultural production, the firm service of high-power tractors has become an independent network of their economy (Otchet, 2011).

The organizational structure of the FTs in agriculture of foreign countries consists of General agencies and dealers (internal and external), which are firms-manufacturers and their sellers (Figure 3).

The results of experiments accumulated over many years in foreign countries show that the rational form of Organization of FTS is a dealer system

(Boyarshinov, 2013). In states such as the United States, England, Germany, the Netherlands, the FTS system consists mainly of three zvenos: a machine company or firm, dealers and farms, that is, FTS consumers [Figure 4].

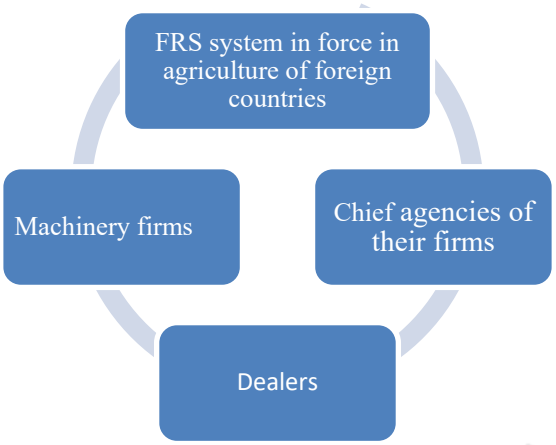

Figure 3: Organizational structure of the FTS system, which is practiced in agriculture of foreign countries. Around 7-9 thousand dealerships operate in the US.

The functions of dealer enterprises can be conditionally divided into two groups. The first is the sale of new equipment, devices and spare parts to farmers and the implementation of marketing, information and consulting and advertising related to these activities. These account for 70-85% of the activities of dealer enterprises (Makhkamov and Irgashev, 2014).

The second function of dealer Enterprises is to perform their technical service during the warranty periods of the machines, repair the defective machines in the farm field itself or in the workshop, and inform machine firms about the types, frequencies and causes of failures occurring in the equipment. Such a technical service function will consist of 20-25% of the total activity of the dealer (Makhkamov and Irgashev, 2014).

3 RESULTS AND DISCUSSION

The repair and service facilities of a typical dealer enterprise(shop)consist of an open area where new equipment is put on display, a repair workshop, service cars, a spare parts warehouse, a tool storage room, car washing, Assembly and painting plots, an office and a hall for customers. The dealership employs around 10-20 highly qualified professionals, depending on its size and size.

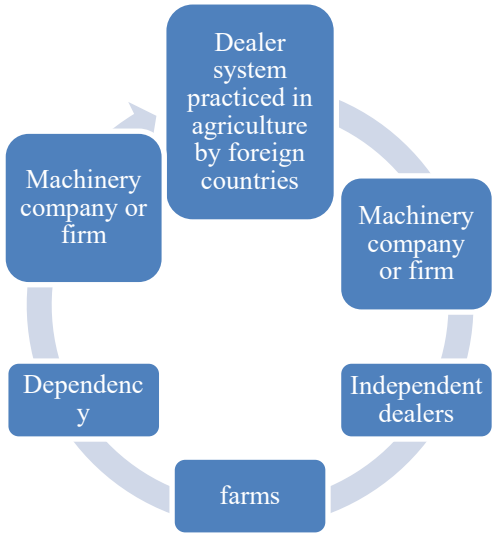

Figure 4: Organizational structure of the dealer system, which is practiced in agriculture of foreign countries.

The customer pays the dealer based on the time of work spent by him. The time spent (Go and come) by the dealer's shop mechanic on the road is included in the paid working time. Dealers of major agricultural machinery companies in the United States serve 300-500 regular customers(farmers)based at 50 km radius.

The firms "Jon-dir" and "Interneyshnl" establish small dealer enterprises with a service radius of 40-50 km. And the dealers of the firm" Caterpillar " serve farmers at large radii. In this case, each dealer opens 3 - 8 small sections in the area in which he / she is operating.

There are more than 200 agricultural machinery enterprises in Russia, but some of them (Rostov agricultural machinery plant, Krasnoyarsk tractor plant, Volgograd tractor plant) have already established their own dealerships in the regions, no less.

To perform FTs on tractors of the Minsk Tractor Plant (Republic of Belarus), a dealer Center "Belorusyugservis" was opened in the Rostov region. "MTZ" will provide the center with 25-30 percent cheaper than its initial prices for its tractors during the inter-season period. The center also makes a 2-10 percent discount on prices, depending on the size of the tractors that dealers are buying.

According to the calculations of the specialists of" Belarusyugservis", the establishment of firm dealerships ensures that the maintenance of" MTZ " tractors saves up to 25 percent of the costs spent by the owners.

The Production Association "Agrotextractor" in Ukraine has organized the work of providing firm services to T-150k tractors in use in Russia. The "Gomel agricultural machinery plant" of the Republic of Belarus has established dealerships in the territories of the Czech Republic, Hungary, Bulgaria and other countries in Europe.

The Vilnius fuel apparatus plant has established its own products in a number of districts of the state of Lithuania, namely tsexs that overhaul fuel apparatus.

In Uzbekistan, the system of technical service for agriculture (TS) has been formed to some extent. TS consumers and performers are key elements of this system. They operate within the framework of a republic, a province and a district, that is, a three-level system.

The provisions of the agreement on long-term cooperation signed in 1996 between the government of Uzbekistan and the company "Keys Corporeyshn" defined the program of Joint Action Strategy in the field of FTS. The tasks of the firm maintenance of grain combines brought from the company" Keys "were assigned to the joint venture" Özkeysservis".

The uzkeysservis enterprise was established on September 4, 1997, based on the decision of the Cabinet of Ministers of the Republic of Uzbekistan. The functioning structure of"özkeysservis" consists of its service department and Training Center, Service Center, spare parts department and Central Warehouse and 13 service centers in the Republic of Karakalpakstan and regions (Figure 6).

Each of the service centers in the Republic of Karakalpakstan and regions has a warehouse of service cars, spare parts and repair materials, equipped with high-precision equipment and stands, as well as an office with modern equipment and communication facilities. But do not have enough repair and service points and the equipment necessary for them.

As a result, the failed complex nodes and aggregates of the Keys combine are removed by the mechanics of the service center and brought to the Regional Center. Faulty nodes and aggregates collected in the regional service center are brought to the service center in the head office "Özkeysservis" for correction.

The center's repair and spare parts specialists repair and sort nodes and aggregates by type, and then send them to the appropriate specialized tsexes.

Nodes and aggregates in a state of repair are brought to the main service center and sent to their customers, that is, to the regional service centers where they were sent. This will take a lot of time and will not allow you to start the combines by fixing them in time.

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4 CONCLUSIONS

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Repairs in the combines are not planned. The reason is which part of the combined fails during the harvest period is perceived as a random phenomenon, and it is painted in the theory of probability.

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