ORGANIZATIONAL IMPROVEMENT IN TECHNICAL SERVICE OF TRACTORS AND AGRICULTURAL MACHINE IN NORTHWESTERN DISTRICT OF RUSSIA

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Abstract: in the article organizational improvement in technical service of tractors are considered by creating universal diagnostic modular mobile laboratory and developments of its organizational structure.

KEYWORDS: *TRACTORS, UNIVERSAL DIAGNOSTIC MODULAR MOBILE LABORATORY, ORGANIZATIONAL IN TECHNICAL SERVICE*

Intoduction

Analysis of tractor technical support of the northwest district, including Leningrad region of Russian Federation, is shown that the mixed park of tractors consists of domestic (4%) and foreign (19%) tractors under warranty, domestic (13%) and foreign (39%) tractors out of warranty, domestic (4%)and foreign (21%) secondary market tractors. Taking into consideration that dealers are responsible for tractor technical support of the mixed park, who, because of efficient technical scarcity doctrine, impose their conditions on the market, define their own pricing policy and refuse from secondary market tractor support.

Differential quantitative and qualitative composition, rosemarket, design features tractors, large territorial service areas, uneven annual loading tractors and personnel require specific technical services in the Northwest region. In addition, the existing maintenance system does not take into account the peculiarities of functioning of dealer technical centers equipped with diagnostic equipment of domestic and foreign production.

Preconditions and means for resolving the problem

At the Department of Automobiles, tractors and technical services", Saint-Petersburg State agrarian University developed universal mobile modular diagnostic laboratory (Fig. 1). The laboratory is used for diagnosing mixed fleet of tractors and tractors aftermarket; to diagnose harvesters, mobile agricultural units; determine the status of land, as well as being the operator of the agricultural machine. Laboratory (UMMDL) formed on the basis of an all terrain vehicle (four-wheel drive vehicle with a diesel engine, comprises a diagnostic module (Fig. 1, a) and repair of the module (Fig. 1, b). UMMDL has patented (patent for useful model № 151681).

Justified the complication of tools, devices, diagnostic tools and technological equipment, as well as versatility, portability, and modularity diagnostic and repair modules offered UDML.

Diagnostic module serves for the diagnosis and routine maintenance. Repair module is used for repair and maintenance work and emergency waivers of tractors and agricultural machines in the field. UMMDL also can be effectively used for field and environmental issledovanii, including monitoring local technical dirt.

Instruments, devices and diagnostic equipment is placed in the body (2) special versions of the diagnostic module (Fig. 1, a).

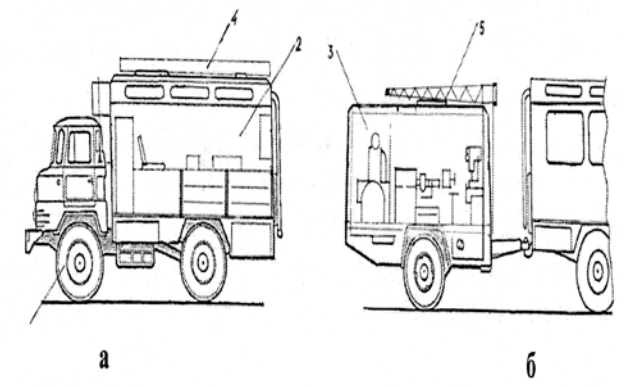

Fig. 1. *Universal modular diagnostic mobile laboratory (a) repair the module (b): 1 – vehicle terrain; 2 – body special design: 3 – single axle trailer repair module; 4 – tent (tent); 5 – console lifting device.*

With the use of the mobile laboratory it is possible to determine the technical condition of tractors and assign appropriate preventive work and even perform them in the field. Application diagnosis if simple maintenance is performed on the temporary Parking lot or in the field.

If you are just testing whether a particular device (e.g., control unit fuel pump or suspension) tester or scanner is connected directly to a socket Assembly through available in the laboratory of special adapters. To conduct non-complex repair of impact in the field UMMDL close to the tractor. If necessary, install the canopy 4. Under these conditions it is possible to conduct maintenance impacts, such as replacing a fuel pump, subsequent adjustment and tuning of the entire fuel system, then you need to record diagnostic parameters in the electronic control unit on-Board computer of the tractor.

In addition to the above equipment to the laboratory attached to a single axle covered trailer, which houses a diesel generator, small-sized lathe and milling machines, drilling machine, electronical, electric and gas welding machines, universal tool kit. The presence of the trailer allows for relatively easy repair in the field. For more complex repair of impact in the field (for example, the suspension system repair with the necessity of removing the unit and the inability to transport the tractor to the place of deployment; in the case where the integrated agricultural unit is difficult or impractical, demonti face and transported to the Central database management) developed by us technology allows repair impact in the field without dismantling the unit. Laboratory (1) repair the module (3) p is extended in accordance with the scheme (Fig. 2). In this scheme of organization of the repair area difficult repair the affected individual tractor (or a mobile agricultural machine).

Diagnostic laboratory (1) repair the module (3) are placed at an angle of 90 0 to leeward. Repair area is covered with a canopy (4) and is mounted jib crane boom (5). Repair area shall be organized in such a way that the failure of a tractor or agricultural unit was in the area.

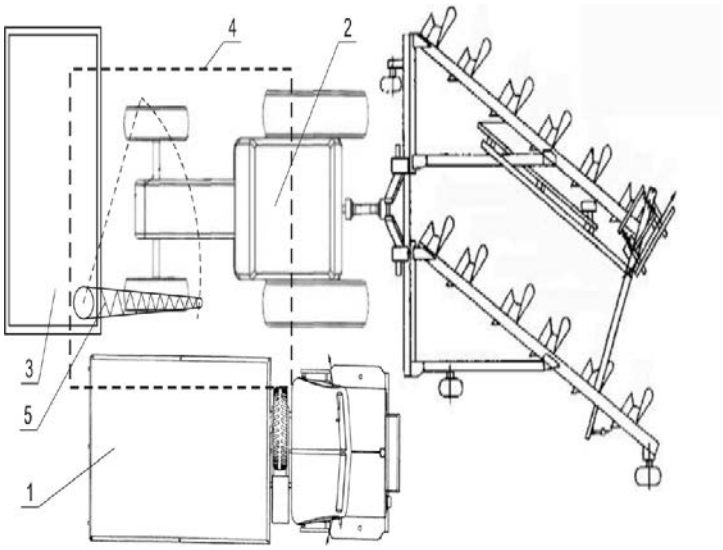

Fig.2. *. Organization of the repair zone in field conditions: 1 – UMMDL; 2 – tractor unit repaired; 3 – repair module; 4 – cover; 5 – rotary valve; 6 – integrated agricultural unit*

Conclusion

The developed technology all repair effects in the field do not violate the requirements of manufacturability of products (GOST 14.205 – 83).

Application service according to the proposed technology, often carried out with tractors of the secondary market, both domestic and foreign production. In this complex the repair actions are applied mainly to domestic tractors. In our opinion, the use of universal mobile diagnostic units are aimed at improving the technical and instrumental support field research. In addition, significantly increasing opportunities for diagnosing and Troubleshooting in field work, reduces the downtime of the units, eliminating the dependence of agricultural enterprises from the dictates of a few dealers. This is especially true of service tractors aftermarket. The results of operational research technology diagnostic of the domestic production of tractors show that the proposed technology by the time of diagnosis is reduced by 27 %.

Literature

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