American Journal of Science and Learning for Development

ISSN 2835-2157
Volume 2 | No 4 | April -2023

Reliability of the Method of Preventing Malfunctions of Volatile Content in the Sphere of Automation and Telemechanics

[1]Kurbanov Janibek Fayzullaevich,
[2]Akmal Usmanov Muzafarovich

[1]Toshkent State Transport University (Toshkent, Uzbekistan)
[2]Tashkent Railway Company LLC (Tashkent, Uzbekistan)

Abstract: *This scientific article in railway transport, automation and maintenance of the system if the node telemexanika xarakatlanuvchi format buk discusses the analysis of the control device. Currently security in action, using modern technology in the prevention of heat flow are buksalarini xarakatlanuvchi content. With the help of this technology it was clear ahead of buk be overheating the wagon wheel, wagon repair are sent to the technical xarakatlanuvchi format. Also in this article "Uzbekistan railways" joint-stock company "the department of communication and Signallashtirish" according to the data obtained from ct vurilmasida all detected failures are explained. In the analysis of global and chivilgan shchit see in the world.*

Keywords: *The mover content on duty at the cargo train station, the passengers in the train, wagon, buk, if CT, telemexanika automation and analysis.*

INTRODUCTION

Today, large-scale work is being done on the system to ensure kharak at khavaz in the railway Sox and to improve operational reliability. Malfunctions in the volatile content can be detected in a timely manner and eliminate this malfunction in a timely manner, preventing technical and material losses that occur in this Soha. As a result of these failures, the development of a system of control and automatic diagnostics of volatile content was stimulated.

The threat content control system includes the following types of controls:

- Control of the steering wheel during braking and in the Buxa system;
- Control of the overall dimensions of the wagons;
- Control of defects of wheels in a circle;
- Control of geometric parameters of wheels;
- Control of the parameters of my shock-absorbing mechanics;
- Control of irregular loading of wagons;
- Control of the creep of the wheels;

Complete information about the content will arrive when the above types of controls enter the existing units at the station, between the stops (peregonga) or if the wagons are installed before the maintenance points until the arrival of the intended content. With the help of this data, the correct

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elimination of malfunctions of volatile content and the quality of maintenance will greatly increase [1].

The research object is characterized by the" multifunctional complex of technical means "("COMPLEX technicheskix sredstv mnogofunksionalny " (KTSM)).

The object of the study is: "multifunctional complex of technical means" ("COMPLEX technicheskix sredstv mnogofunksionalny" (KTSM)).

Main part. The technical means control complex-peregon devices installed to monitor the technical condition of wagons, designed to detect overheating of Wagon buckles automatically without contact, as well as malfunctions in the brake system of wagons and locomotives. The main task of the KTSM device is to determine the overheating of the Buxa on the wagon wheels of the destructible content and, if there is a malfunction, to deliver the data "Trevoga – 0", "Trevoga-1", "Trevoga-2" in the form of a signal to the electromechanical responsible for the ham on the station Shift [2].

In the KTSM installation, "Trevoga-0", "Trevoga-1", "Trevoga-2" are the appropriate Soha personnel order when the signals are deployed.

- When the" Trevoga-0 " signal is started the station watchman (DSP), the coach maintenance operator (PTO) will determine the type of technical failure (the car's serial number, the side of the resulting fault, the degree of overheating), and all data from the DSP will be delivered to the station inspection officer and the charakatlanuchi content machinist. If no disruptive content is required to stop at the station DSP will deliver all data to the next station shift to the Hamda precinct dispatch (DNS). DSP will slide all data into DU-46 magazine.

When the signal "Trevoga-1 "starts, the DSP must notify the exit traffic light that it should take a red light and stop at the station with a decrease in speed to the car of the intended content (the car of the scheduled content No. 1 Guliston station Station Station Station Station Station will inform you that, on the KTSM device, the signal" Trevoga-1" has). The DSP conveys the information that the plot dispatcher was given by xam KTSM. The DSP compares the data given by KTSM with that of the chargeable content machinist (the number of chargeable content wagons) and records data on this failure to the DU-46 magazine. Disruptive content is checked by the wagon controller after being admitted to the station, allowing DSP content to leave the station after an act has been drawn up with the relevant Soha personnel after the failures have been eliminated. The DSP does not allow the contents to leave the station without an act, if the contents must be disconnected from the wagon after disconnecting and sending the contents to the next station.

- When the signal "Trevoga-2" starts, the DSP must take the input traffic light to the red light. With the help of Radio communication, the train immediately communicates to The Machinist the information that the stop haqida and KTSM gave. The train machinists coming after the DSP suspended train are instructed that the delivery of all data should reduce the speed to 20 km/h and stop if necessary. The DSP does not allow all trains between the stop where the train stops to leave and red-lights the exit traffic lights. DSP delivers all data to the precinct dispatcher. The DSP train machinist will receive information about the use of the brake system in Khudu, where the KTSM devices are located, and the number of train cars will be compared with the number in the cell and recorded in the DU-46 log. A faulty wagon Buxa, which the train mechanic gave after 20 minutes after receiving all the data from the DSP, is checked, and this is reported to the DSP. If the malfunction seen with the help of a machinist is serious, the relevant Soha personnel will be sent to the place where the train stopped. After all failures are eliminated, the act is drawn up and the train is sent to the station [3,4].

The functionality of the KTSM system is its extension for many subsystems, which have a common network interface combined with subsystems information to monitor the state of the structure of the character, and consist of a single protocol [5]. The structure of the KTSM device is shown in Figure 1.

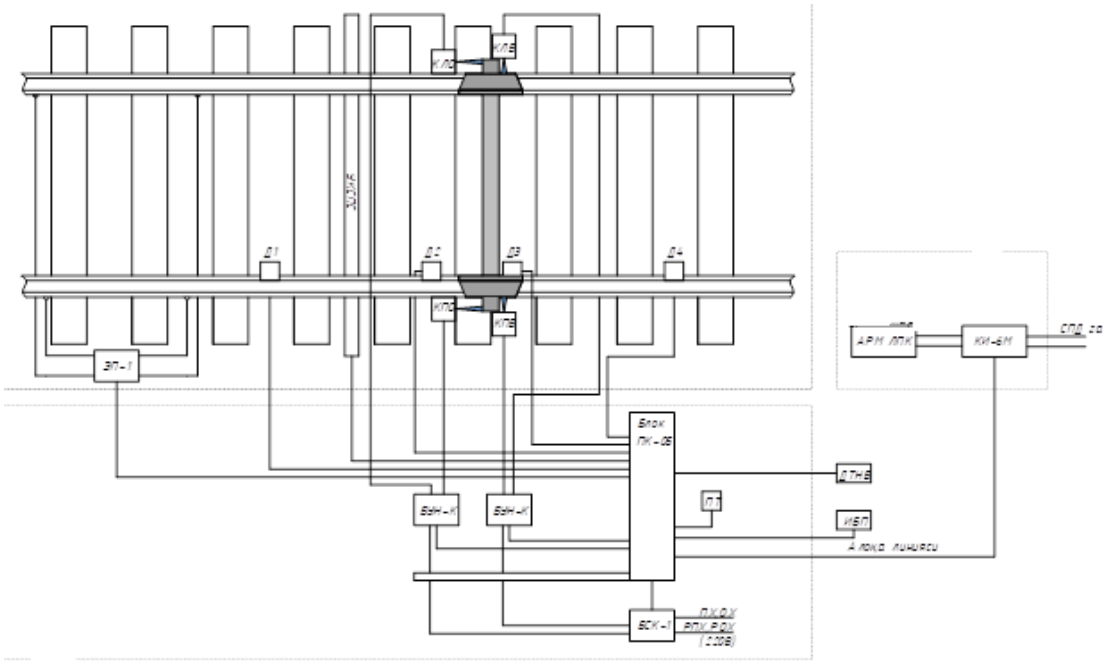

Figure 1. Structure of the KTSM device.

Figure 1 shows the following peripherals.

- the electronic pedal (EP-1) is mounted on the rail chain, determining whether the rail chain is empty;
- wheels transition sensor (D1, D2, D3, D4);
- removable content derailment control device (UKSPS);
- main external camera, right (KPO);
- main external camera, left (KLP);
- yordachi external camera, right (KPV);
- auxiliary external camera, left (KLV);
- Provides the KTSM device with a current source from primary and backup sources (BSK-1);
- functions-acting pereferic microprocessor controller (PK-05), collects, processes and transmits data from a KTSM device to an ARM LPK;
- external camera control unit (BUNK);
- external storage sensor (DTNV);
- information concentrator (KI-6m);
- ARM-LPK

As of December 12, 2021, Uzbekistan Railways JSC has a total of 127 car Buxa hot detection devices, of which 72 are made up of DISK-B, 2 of DISK-2bt, 43 of KTSM-02bt, 5 of RSCVS and 7 of FUES-EPOS.

According to data from the" signaling and Communication Directorate "of the Uzbek Railways JSC, during the reporting period of this year, DISK-B, KTSM-02bt and FUES-EPOS units tracked 229,563 trains, and in the same period last year-211,070 trains. The number of trains observed during the 9 months of 2020/2021 is given in Table No. 1 below.From Schedule 1, the number of trains stopped by control devices decreased in 9 months of 2021 and amounted to 133 cases, during this period of the previous year, 200 trains were stopped. At the same time, compared to the same period last year, 132 out of 142 cases were confirmed, while in this year 82 out of 87 cases were confirmed.

There were 11 cases where the cause of overheating (nagrev) was unspecified control devices stopping trains, compared to 11 cases from the previous year. In the period under consideration, 7 cases were allowed for the operation of DISK-B and KTSM-02bt control devices, compared to 1 case last year. There have also been 16 recorded cases of sunlight falling on DISK-B control device cameras, compared to 23 cases from the previous year, these cases fall under Item NV-NSh/30 7.13 and local router instructions.

Distances	Controlled trains		Stop		Confirmed		No heat was detected in the following		Device failures		Cases of sunlight falling	
	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**
ShCh-1 Tashkent	29215	**28158**	11	**14**	11	**14**	0	**0**	0	**1**	0	**0**
ShCh-3 Hovos	41696	**42101**	36	**17**	33	**13**	3	**4**	0	**1**	0	**0**
ShCh-4 Kokan	14662	**15236**	16	**6**	16	**6**	0	**0**	0	**0**	0	**0**
ShCh-5 Samarkand	22200	**28295**	42	**41**	41	**41**	0	**0**	1	**2**	0	**0**
ShCh-6 Navoi	32997	**35303**	50	**20**	37	**16**	13	**4**	0	**2**	13	**9**
ShCh-7 Buxara	20106	**23572**	4	**6**	3	**5**	1	**1**	0	**0**	2	**0**
ShCh-8 Karshi	8275	**17390**	6	**7**	6	**7**	0	**0**	0	**0**	0	**0**
ShCh-9 Termez	6261	**8165**	0	**2**	0	**1**	0	**1**	0	**0**	0	**1**
ShCh-10 Urgench	15405	**17273**	16	**11**	12	**10**	4	**1**	0	**0**	0	**2**
ShCh-11 The bell	20253	**14070**	19	**9**	18	**9**	1	**0**	0	**1**	8	**4**
Total:	211070	**229563**	200	**133**	177	**122**	22	**11**	1	**7**	23	**16**

In Figure 2, we can see the diagram of the controlled trains at all distancing stations in the design of the “signaling and Communication Department of the Uzbek Railways” AJ“.

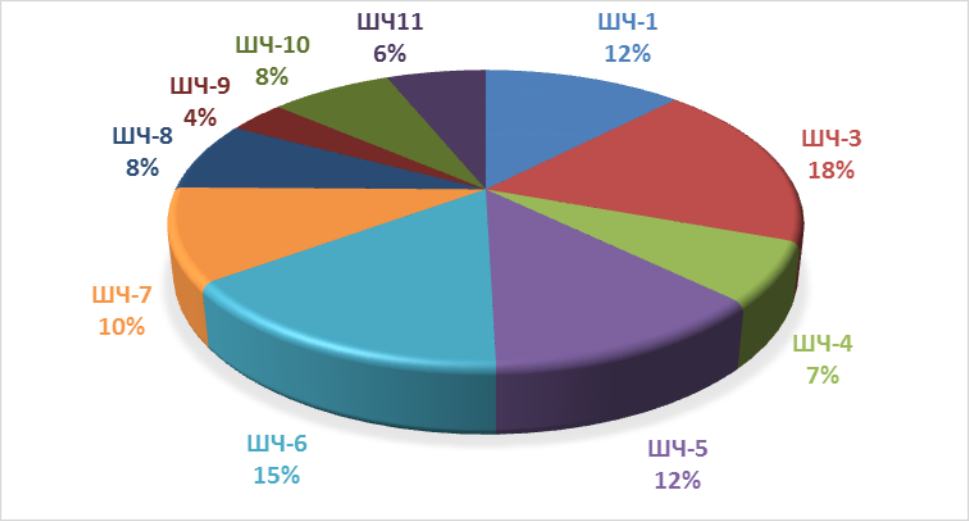

Figure 2. Diagram of controlled trains on ShCh plots

Table No. 2 shows the causal analysis of train stops in the operation of control devices, as well as which farms these cases belong to

Table No. 2.

№	Reasons for suspension	V		Sh		T		L		Pr.	
		2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**	2020	**2021**
1	Buxa node overheating										
1.1	Worker fever	43	**25**			1	**2**	0	**0**		
1.2	Launching bearings	3	**5**								
1.3	Buxa node overheating	49	**27**			5	**5**	0	**0**		
2	Brake hood clamping										
2.1	Brake hood clamping	21	16			0	**1**	2	**0**		
2.2	Autoregulatory not configured	1	1								
2.3.	Autoregulatory failure	2	1								
2.4.	Air distributor not configured	0	0								
2.5	Air distributor failure	2	1								
2.6	The brake mechanism is not configured	0	2								
2.7	Brake engine failure	2	0								
2.8	Brake given slow	0	4			0	**0**				
2.9	Overheating the edge of the wheel	9	0			0	**0**	0	**0**		
3	**Drainage truss fever**					1	**0**				
4	**Generator cabinet overheating**							3	**0**		
5	**Car malfunction**							0	**0**		
6	**Brake on the control body**					0	**4**				
7	**Device malfunction**			1	**7**	4	**5**			0	0
8	**Sunshine fall**									23	16
9	**Cassette bugs**									6	0
10	**The cause has not been determined**	9	**5**	5	**3**	2	**2**	0	**0**	4	1
Totals by administrations:		193	**87**	**6**	10	**10**	**19**	**5**	0	**33**	17
		2020						**2021**			
Total of stops:		200						**133**			
Wagon disconnection		20						**12**			
Disconnecting diesel locomotives		2						**2**			
The extension of the wagons and diesel locomotives, totalling.:		22						**14**			

At the same time, wagon farm workers confirmed 82 out of 87 cases of control device operation, representing 94.2% of the number of trains stopped. The Locomotive Works control unit has approved 17 of the 19 cases in operation, representing 89.4% of the number of trains stopped [6].

CONCLUSION. Advanced technologies are being introduced in the improvement of their devices, using these technologies it is necessary to reduce unreliable operations on control devices. With the help of microprocessor devices, it is possible to increase the principle of operation of diagnostic devices. Improvements to KTSM facilities will result in reduced resource costs, improved maintenance of scheduled content, reduced train schedule delays, and lower financial costs.

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