Wet Gap Crossing as a High Priority for Russian Engineers

OE Watch Commentary: The Russian military has a well-founded interest in wet gap crossings. Most of Russia's relief is flat with many wide and relatively shallow rivers. In general, Russia has small rivers at 30-40 kilometer intervals, and average-sized rivers at 50-70 kilometer intervals. This terrain characteristic has led to the design of most Russian vehicles to either have some amphibious capability, or to be able to ford water. In addition, Russia has invested in a number of capabilities that can span large bodies of water, such as pontoon bridging systems, that are operated by Russia's Engineer Troops. The accompanying excerpted interview of Lieutenant General Yuriy Stavitskiy, Chief of the Russian Federation Armed Forces Engineer Troops, from *Rossiyskaya Gazeta*, discusses the Russian acquisition of new bridging kit to include the TMM-7 Heavy Mechanical Bridge, MTU-2020 Armored Mechanical Bridge, and the PP-2005M Pontoon Bridging System. The accompanying excerpted article from *Krasnaya Zvezda* explains how a Railroad Troops' Construction Brigade, could employ a REM-500 Collapsible Steel Railway Bridging System to replace damaged or destroyed railroad bridges.

The Russian military's engineer and bridging capabilities are often leveraged for civil defense purposes during particularly severe Spring flooding. Russian military engineer efforts to restore road and rail networks during these crises are well publicized in the Russian mass media. **End OE Watch Commentary (Bartles)**

Lieutenant General Yuriy Stavitskiy, Chief of the Russian Federation Armed Forces Engineer Troops.
Source: Russian Ministry of Defense, https://ru.wikipedia.org/wiki/Ставицкий,_Юрий_Михайлович#/media/Файл:Yuriy_Stavitskiy_(2020).jpg, CC BY 4.0

Source: Aleksandr Stepanov, "Разминирование на удаленке [Remote Mineclearing]," *Rossiyskaya Gazeta* Online, 13 May 2020, https://rg.ru/2020/05/13/stavickij-robot-pomozhet-shturmovym-podrazdeleniiam-pod-ognem-protivnika.html

New models of equipment, including robotized complexes, are being developed and created for needs of the Engineer Troops. The technical reequipping of formations [soyedineniye] and military units with advanced and state-of-the-art models will permit almost a 30-percent increase in efficiency of the work of military engineers. Yuriy Mikhaylovich Stavitskiy, Chief of the Russian Federation Armed Forces Engineer Troops, told Rossiyskaya Gazeta about innovations coming to the troops.

What other innovations may appear in the Engineer Troops?

New means for negotiating demolished areas and obstacles and for mechanizing earthwork now are being created for increasing troop mobility. Thus, the UBIM general-purpose armored engineer vehicle, created using T-72B3 tank assemblies and components, has been developed and already is in state testing. This vehicle has a combat module for engaging enemy personnel and lightly armored vehicles. This innovation is being created in place of the IMR-3M engineer obstacle-clearing vehicle and BAT-2 route clearance vehicle.

In addition, work now is being done to create the MTU-2020 armored mechanical bridge. Its load-carrying capacity has been increased to 60 tons, which permits promptly supporting the crossing of the newest T-14 Armata tanks, among others. The MTU-2020 should replace armored mechanical bridges now supplied to the troops. We also are developing the TMM-7 heavy mechanical bridge. Light composite materials have been used in this vehicle, which permitted increasing the length of a bridge structure to 16 meters. The new bridge opening arrangement, modern hydraulic equipment, and increased level of automation of the bridge assembly process will reduce the time for launching bridge crossings…

What models of new munitions and equipment and of special equipment entered the Engineer Troops in the past year and how many is it planned to supply in 2020?

Last year more than 133,000 suites of engineer property were supplied to the troops. In particular, these were engineer vehicles -- TMT-K mineclearing tank attachments, BUM-2 percussion drilling vehicles, mobile field sawmill complexes, KRVD suites for operationally laying temporary roads, PP-2005M pontoon bridging system, SKO-10 integrated water treatment stations, power generators, mobile repair complexes, BMK-MO bridge erection boats, excavators, truck cranes of varying load-lift capacity, and much more. The delivery of more than 600 pieces of engineer equipment is planned as part of the State Defense Order in 2020.

Continued: Wet Gap Crossing as a High Priority for Russian Engineers

Source: Vladimir Sosnitsky, "Построить и защитить мост [Build and Defend a Bridge]," *Krasnaya Zvezda* Online, 19 August 2020, http://redstar.ru/postroit-i-zashhitit-most/

Having carried out a combined march, the brigade's subunits moved out to the banks of the Laba River from the side of the Republic of Adygea, where, according to available data, the "enemy" had delivered a bombing strike, destroying a railroad bridge and its access roads…A technical reconnaissance platoon is sent…to promptly determine the nature and amount of damage to the track structure, artificial structures, earth work, communications and signaling devices, and power systems in the area of the destroyed bridge across the Laba River...One of the platoon groups is studying the conditions for building detours and the possibility of using local construction and restoration materials. And the bridge crossings reconnaissance group will examine the nature of the damage in surviving parts of the bridge, the status of the bridge bays, and the position of their elements…The scouts carefully record the bridge dimensions, bridge crossing plan and profile, design, size and condition of the supports, specs of the watercourse and soils, and the status of the access roads to the bridge. All this is at the basis of the assessment of the situation, and the decision-making by the commander. And the decision made by Colonel Andrey Kuzmin, the formation commander, was as follows: in the interests of restoring interrupted train traffic, it is necessary to promptly begin the construction of a near bypass, 3 km downstream the river, with a combined railroad bridge assembled from the REM-500 and the SRP-33.6 collapsible superstructure inventories.

Literally in a matter of minutes, after receiving the combat order, the mechanized armada of the subunit began productive work. A comprehensive assault on the barrier obstacle on the path of military transport began in several directions. Subunits of the mechanization battalion under the command of Lieutenant Colonel Oleg Minko has immediately begun earthworks. The earthmoving effort amounted to thousands of cubic meters of soil, removed by powerful bulldozers, excavators, and transported by dump trucks. Literally before one's eyes, the mechanizers of the subunit transformed the surrounding landscape into clear, calibrated geometry of the mound, designed to support the railroad.

Lieutenant Colonel Yevgeniy Smoliy's railway battalion took the baton of this truly striking work without missing a beat. The soldiers of his subunits, equipped with modern vehicles and equipment, turned the earthen mound quickly and smoothly into a reliable steel path to the Laba river. Their main technical armament – track layers -- were rapidly building up the upper structure of the tracks. After that, the operational service platoon began finishing and filling the sand-gravel mixture for the purpose of ballasting the path. At the same time, the railroad troops employed various equipment for the continuous process of straightening, realigning, and setting the path on the axle. As a result, the 2-kilometer long bypass path was constructed well ahead of the combat standard…

The construction of the bridge is considered to be one of the most difficult tasks for military railroad men. And with the 300-meter breadth of the Laba River in this section, the complexity of the task required special skills of bridge builders. In the process, the technological operation of erecting the supports, on which the superstructure was to be mounted, became especially important. The production of frames from bars, driving the piles in the water using the USA-2 universal pile driving unit is all very labor intensive work. It was skillfully performed in the course of the exercise by Lieutenant Colonel Ramiz Guseynov's bridge battalion personnel.

In the course of the current special tactical exercise, during the construction of the bridge, the formation's railroad workers simultaneously used the REM-500 metal dismountable overpass and the steel superstructure of the SRP-33.6 for the first time. Specialists of captain Aleksey Legenkiy's equipment assembly company skillfully coped with this oversized and quite complex in the technical sense equipment. Not only the personal proficiency of military railroad personnel, but also the teamwork of the crews, which contributed to the reduction of the established time standards, reflected in each technological operation…the quality of the accomplishment of the task by the railroad servicemen is checked by a real military echelon consisting of a locomotive and 10 cars carrying various purpose equipment. The command's order to restore operational transportation was successfully accomplished by the railroad brigade…

MTU-2020 Armored Mechanical Bridge.
Source: Vitaly Kuzmin, https://www.vitalykuzmin.net/Military/ARMY-2019-Static-part-4/i-xZQd87S , Creative Commons license - CC BY-NC-ND 4.0

TMM-7 Heavy Mechanical Bridge.
Source: Vitaly Kuzmin, https://www.vitalykuzmin.net/search?q=%E2%80%A2%09TMM-7Heavy+Mechanized+Bridge+#q=%E2%80%A2%09TMM-7+Bridge , Creative Commons license - CC BY-NC-ND 4.0

Pontoon Section of the PP-2005M Bridging System.
Source: Mil.ru, https://commons.wikimedia.org/wiki/File:PP-2005_-_Bridging2017-05.jpg / CC BY (https://creativecommons.org/licenses/by/4.0)

REM-500 Collapsible Steel Railway Bridging System.
Source: Russian Ministry of Defense, https://function.mil.ru/news_page/country/more.htm?id=11830171@egNewsg, CC BY 4.0