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PECULIARITIES IN THE APPLICATION OF FIELD ENGINEERING IN THE SO--ETC(U)
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TITLE: Peculiarities in the Application of Field Engineering in the Solution of Problems in Naval Field Engineering

Besonderheiten der Nutzung der Pioniertechnik beim Loesen von Aufgaben des Marinepionierwesens

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PECULIARITIES IN THE APPLICATION OF FIELD ENGINEERING IN THE SOLUTION OF PROBLEMS IN NAVAL FIELD ENGINEERING

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In every service branch, certain demands are made on the application and suitability of technology to assure achievement of the primary objectives. In the domain of the People's Navy, such factors as hydrometerological conditions, coastal relief and areas of deployment must be taken into consideration, since special demands for modification of the various types of equipment are derived from these factors. /129*

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1. Conditions for the Application of Field Engineering in the Domain of the People's Navy

The application of field engineering in the domain of the People's Navy serves primarily to support actions in shore-based units and organizations of the fleet. From this point of view, we have, inter alia, the following typical field engineering support tasks:

- Construction of shelters and emplacements to protect the crew and the technology, including materiel;
- Completion of command and control points;
- Establishment of loading and unloading points on coasts lacking facilities;
- Blocking portions of the coast and sweeping;
- Securing the production and treatment of water, as well as
- Elimination of destruction, or the consequences of nuclear weapons attacks by the enemy.

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In planning for the application of field engineering technology, it is therefore necessary to take into account all those factors which arise from the hydrometerological conditions and coastal relief of the operational area envisaged. For example, wind and sea state, since they exert considerable influence on the maneuverability of floating craft, and they permit deployment only with certain additional equipment. Moreover, the relief in the coastal and beach area must be evaluated, and then the level and scope of the engineering development, including the applicable field engineering, must be determined. One must also take into account the fact that because of the lack of natural protective features of the land in the coastal area, the very high water table, and the predominant soil type, the required emplacements and shelters for personnel and combat equipment can be constructed or erected only at great expense. One must also judge the minimal thickness of the ground in the beach area, the waterline, which continually changes as a result of the inshore and offshore winds, and the aggressiveness of the seawater.

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*Numbers in right margin indicate pagination in original text.

Proceeding from these factors, each application of field engineering technology in the beach area must be preceded by a check of the information, signal, and safety devices, and must be monitored by special equipment with regard to support and proper application of technology. Entry routes must be measured and marked. The applied field engineering technology, as well as the rescue and salvage teams, must be centrally controlled.

2. Application of Field Engineering Technology Under Naval Field Engineering Conditions

From the aforementioned conditions and factors encountered in the coastal and beach zones there ensue consequences which must be taken into consideration in the training and education of crews, as well as in the application of field engineering. For example, it is advantageous to introduce field engineering primarily on a tracked vehicle basis. The operating parameters of this technology correspond in large measure to the operating conditions; in addition, they make it possible to solve the given problems with a higher degree of quality.

On both land and water, the field engineering technology must be capable of use under all operating conditions and must allow for the combined application of various methods of field engineering support. It must also be set up for handling aboard transport and landing ships, and equipped with special means, such as shipboard equipment for floating craft, recovery equipment, transfer equipment, and the like. As an example, the PMP pontoon bridge should be noted. The latter is used to facilitate the loading and unloading of landing craft, and is specially equipped for such. The same is true, for example, with additional mooring lines and mooring posts for acquiring and securing the puller-pontoon-ship connection, as well as with additional lines and ropes.

Ship units are equipped with coupling parts, loading and pulling devices, and special equipment for securing the ship-pontoon connection; pushers, on the other hand, are equipped with coupling devices and towing gear for the connection between pusher and pontoon.

Thus, field engineering technology has a significatn place in the chain of support technology. Especially in the building of landers and in the creation /130 of conditions for loading and unloading and for the care of ships and boats on unadapted coasts, a close cooperation between engineers and the other services of the People's Navy is required; without effective planning for the application of engineering technology it is unimaginable. In this regard, it is essential that personnel resources be unified, and that the technology and means be employed in the system in a coordinated manner. In the process, the various hydrometerological conditions, i,e., sea state, the constantly changing relief in the beach zone, the height of the waves in the surf zone, and visibility conditions must be considered. In addition, one must consider the size of the force grouping, their position in the area of deployment, and the length of the supply lines. Because of these conditions, problems arise which can be solved by the crews, drivers, and machinists only if they act independently and with a high sense of responsibility, if they are well-trained, if they have a good command of their technology, and if they apply themselves and attend to their work conscientiously.

A peculiarity in the training of crews, drivers, and machinists in field engineering technology in the realm of naval field engineering technology lies

in the fact that, for a Certificate of Competence III, they also have to take an additional examination on navigation in territorial waters, inland waters, and the sea lanes of the German Democratic Republic. This test involves the regulations contained in DV 052/0/009, Nos. 217-221, Instruction 052/1/014, Nos. 4-6 and 37-40, the directive on the regulation of sea traffic, the Rules of the Road (SEE VO) of 18 October 1978 (Print No. 993), the directive on pleasure craft traffic, the Sport Boat Order (SBAO) of 2 July 1974 (Print No. 730), and Directive 2 on pleasure craft traffic of 15 May 1979 (Print No. 730/1). The training for this is complex, as one must organize all of the structural elements, practice cooperation in the deployment areas, and thus ensure the greatest possible deployment and combat readiness.

3. Suggestions for Maintaining Engineering Technology Under the Conditions of Deployment on the Coast

All maintenance measures should be directed to ensuring that the established utilization periods for the engineering technology be attained and adhered to, even under deployment conditions on the coast. In addition to the current types of maintenance, the following additional measures should therefore be carried out:

Wvd E--Lubricate and seal all units, assemblies, and replacement parts which are exposed to sea water;

Wwd E--Shorten the lubrication intervals;

Wnd E--Rinse immediately with fresh water; if water invades the oil tanks, change the oil immediately; lubricate all units and assemblies below the waterline.

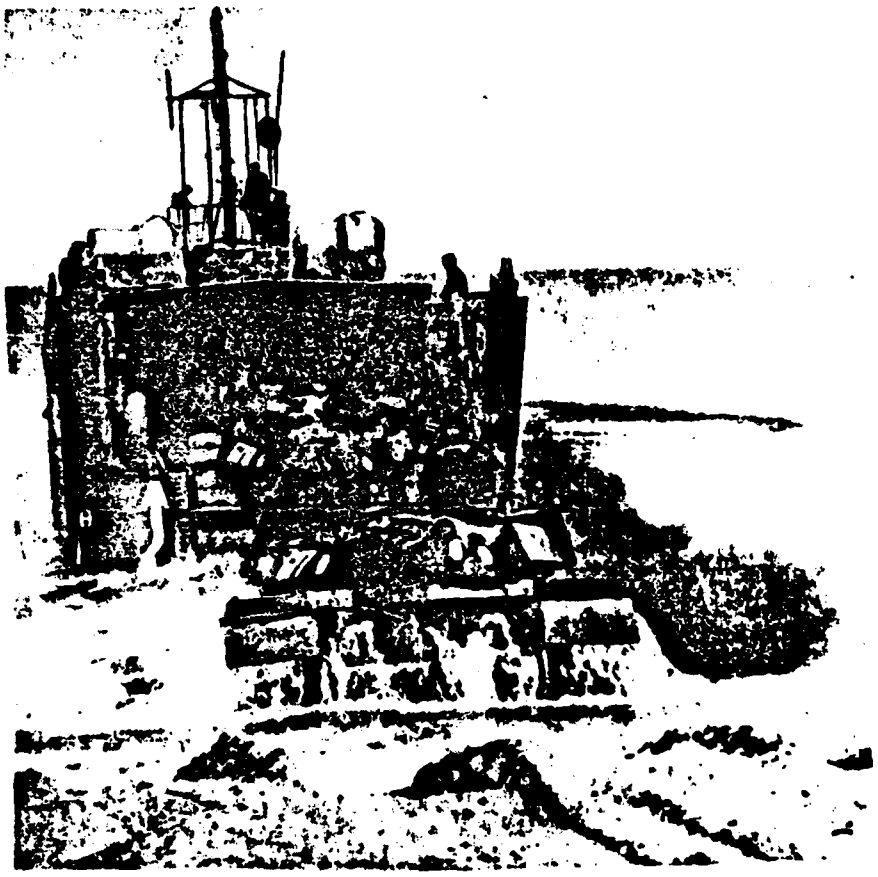
Technical Maintenance No. 2--Camouflage on the basis of A 200/1/011: camouflage of ships, boats, weapons, technical material, installations, and equipment. This has particularly proven itself in the case of transport techniques of in naval field engineering.

In the end, all of these measures should prevent contaminants from penetrating structural groups and installations and curtailing their reliable functioning. With the maintenance methods used, the following units and assemblies should therefore get special monitoring and maintenance: air and fuel systems, hydraulic equipment, undercarriage (especially drives, rollers, and tracks), hulls (especially hatches and their seals), drive shafts, propeller and rudder drives, bilge pumps and auxiliary bilge pumps, as well as exhaust systems in transport technique.

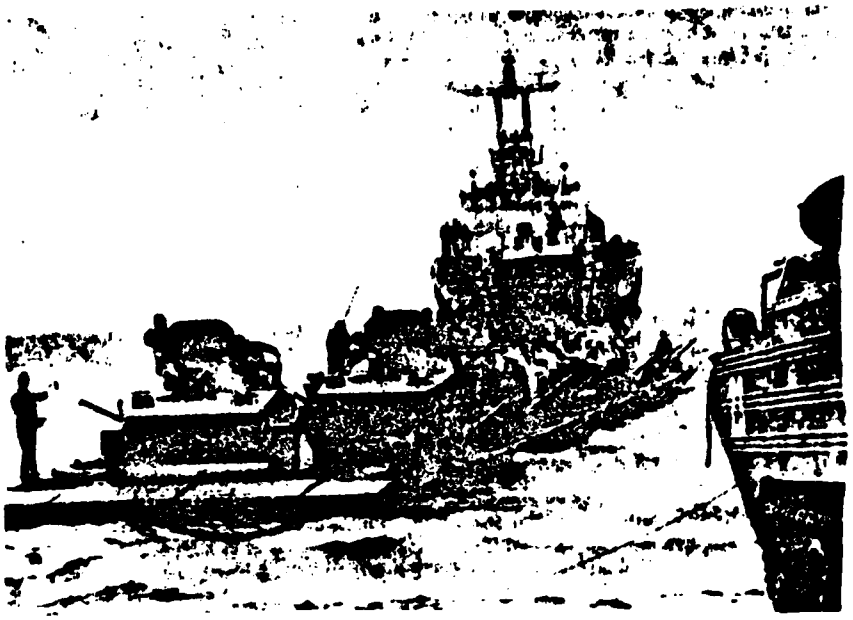
4. Security Regulations and Concluding Remarks

In the application of field engineering technology in naval engineering one must--as in all other areas of the National People's Army (armed forces) adhere to the laws and military regulations having to do with technical security and health and industrial safety. In general, it is a fact that the deployment of floating craft can take place only after appropriate preparation and with established auxiliary equipment. The crews must be made familiar with the estuary to be navigated and the special requirements in the deployment areas.

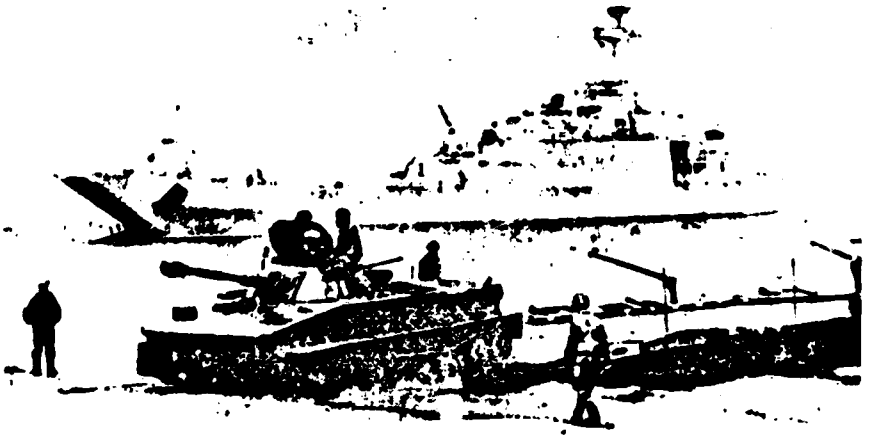
Finally, it has been established that the field engineering technology of the naval engineering of the National People's Army (armed forces) has proved itself under all conditions. It is reliable, and it conforms to the all-sided applicability of Soviet military technology. The steady progress in the level of modernization of technology places great demands on deployment and operation. This requires that we reach such a level of proficiency that we are able to apply technology effectively and more safely. Maintenance and diagnosis cannot fall short of these requirements.



Tanks leave a landing boat on an unfortified beach.



Modern landing ship with a coupled PMP pontoon bridge during landing.



Unloading combat equipment from a landing ship across a PMP pontoon bridge on an undeveloped coast.

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