Equipment Storage and Supply Mode Based on Information Integration

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Abstract. This paper first analyzes the army equipment storage-supply mode and the deficiency of the existing problems to be solved, and then at the army information integration based on the existing study, further study of the guarantee of equipment and supplies, for equipment guarantee model for scientific and reasonable planning, this paper proposes a new equipment storage-supply model, mainly divided into reserve mode and supply mode, for the equipment security reform provides a new way of thinking.

Keywords: Cloud Computing, Equipment Storage Mode, Equipment Supply Mode

1 Introduction
Equipment for military security necessary material basis, high and low for the efficiency of security and aging has a critical impact on the modern war, when the equipment failure, in order to improve the timeliness, race against time to crack down on the enemy to defend itself, often in a repair ways to change a repair damaged equipment.⁴ At the same time, the advantages of cloud platform of mass data storage and heterogeneous platform data sharing mechanism, equipment management departments at all levels to real-time control equipment consumption of each unit is truthful and accurate decision provides the reliable data for the equipment material support base.⁵ Therefore, whether the maintenance and support law and purpose of equipment can be followed to accurately grasp the support demand of equipment and scientifically and reasonably plan the storage mode and supply method of equipment has a direct impact on the integrity rate and operational efficiency of equipment.

2 Existing Problems
At present, the army is carrying out a series of reforms, and its tasks and missions have also been greatly adjusted. The joint operation of multiple services and arms is the main mode of operation in the future.⁶ The variety of combat environment, the complexity of mission and the diversity of combat units all put forward higher requirements for equipment support. It should be noted that the current layout of equipment maintenance equipment reserve is difficult to meet the operational requirements of each strategic direction.⁷ The main performance is as follows:
(1) In terms of storage methods, the current equipment and equipment reserves are mostly based on the combination of physical reserves and funds reserves, and the physical reserves are all based on military warehouses and troops. The storage methods are relatively single, which are difficult to meet the storage requirements of the sharp increase in the types and quantities of equipment reserves. The military and civilian integration is not fully utilized, and the equipment storage methods are enriched, with low storage efficiency and reserve. The management effect is not high.

(2) In terms of base standard reserve, the form of containerization is not suitable for the matching mode of support forces. On the one hand, with the continuous promotion of the reform of the maintenance support system and mechanism, the equipment reserve structure is out of line with the current equipment support force composition mode, which has not yet been combined with the adjustment process of the maintenance support system and mechanism, and cannot effectively form a joint force, limiting the benefit of the equipment reserve; [7] on the other hand, with the continuous listing of high-tech equipment, more and more common components are available between different types of equipment, the components of equipment base are not adjusted in time, and the current equipment base array is mostly based on the model division, which causes the repeated reserve of equipment resources, is difficult to meet the requirements of equipment reserve in the new era, and affects the improvement of equipment reserve efficiency.

(3) In terms of support means, there are still a large number of phenomena such as sorting, ex warehouse and assembly of equipment mainly based on manpower and manual work, which affect the efficiency of equipment support, and it is difficult to meet the requirements of construction of equipment support system for combat readiness maintenance with accurate support as the goal. [8-9]

In order to adapt to the needs of military struggle in the new era and smoothly realize the needs of transformation and construction, combined with the needs of equipment and the characteristics of equipment rescue and repair, this paper reasonably analyzes the status, characteristics and shortcomings of equipment and equipment reserves, makes full use of the existing information integration means, scientifically and reasonably re-plans the equipment support mode, studies the support and supply of equipment and equipment in depth, and meets the opportunities and challenges in the new era. [10] It is of great significance to improve the equipment support ability. Based on the study of the existing information integration of the army, this paper proposes a new mode of equipment storage and supply, which is mainly divided into storage mode and supply mode. The next step is to analyze them separately.

3 Analysis of Equipment Storage Mode
Figure 1 Storage Mode of New Equipment and Equipment

The logistics support department will allocate funds to the army equipment department. The army equipment department will collect spare parts and equipment from the production plant and transport them to the plant (usually the equipment overhaul plant) for modular assembly. On this basis, it will build the heavy loss base, medium loss base and light loss base closely related to the operational direction, preset operational style and equipment support capability, and store the heavy loss. As shown in Figure 1, the medium loss base is stored in the agent storage factory and the area level preset storage point, while the light loss base is stored in the agent storage factory, the area level preset storage point and the team warehouse.

In combination with figure 1, it is illustrated as follows:

(1) Reserve mechanism

① Update the rotation mechanism. With the improvement of the storage mechanism, the storage plant can regularly rotate the equipment according to the overhaul plan of the equipment and the storage situation of the equipment, so as to improve the use efficiency of the equipment;

② Fed joint supply mechanism. The continuous promotion of the practical training, the modular storage mode of equipment and the improvement of the supply support ability lay the foundation for the improvement of the joint supply mechanism between the revolving equipment and the equipment Federal Reserve;

③ To replace the storage mechanism with factory. Store the partial heavy loss base, partial medium loss base and light loss base in the agent storage plant, and supply them to the demand point according to the wartime equipment demand.

(2) Reserve layout

According to the reserve system, the reserve layout can be further divided into the reserve layout of the agent storage factory, the layout of the regional preset reserve point and the layout of the team owned warehouse, while the agent storage factory is generally the equipment overhaul factory, so its candidate range is relatively small, and the team owned warehouse is relatively closely related to its subordinate forces, so no further study is made on its location selection process; while the regional preset reserve The selection of points is closely related to the factors of battlefield survivability, supportability and supply ability, and has high research value.

(3) Form of reserve
The equipment stored in the pre-set storage point at the regional level and the warehouse belonging to the army level team is in the form of physical storage based on modules, while the equipment of the storage factory is in the form of combination of physical storage and contract storage, and the equipment production capacity and assembly capacity are the important basis for the division of physical storage and contract storage scale;

The equipment base composition of different strategic directions is different, and the modular equipment storage mode lays the foundation for the different base composition.

4 Analysis of Equipment Supply Mode

The basic task of equipment supply is to organize and implement the supply of equipment according to the dispatching demand, so as to solve the contradiction in time, space and quantity of equipment between the two sides, so as to achieve the balance between "supply" and "demand". With the continuous promotion of civil military integration, equipment supply is mostly carried out by multimodal transport. As the equipment reserve system can be divided into three levels: factory, region and army, and different levels of the reserve system cover a certain number of equipment resource points, when the demand for equipment dispatching arises, the command organization shall determine the appropriate supply mode and make the supply scheme in combination with its supply support force, as shown in Figure 2.

Figure 2 Equipment Dispatching Organization Chart

Due to the particularity of the military establishment system, the equipment supply plan for all resource points takes a lot of time and has little significance when the equipment scheduling needs to be generated. It is necessary to define the resource point level in combination with the subordinate relationship of the military establishment.

1. First level resource point warehouse in the region
   The regional warehouse is the main supplier to meet the equipment demand.
2. Level 2 resource point - other force level warehouses in the region
   In general, it is only used as the supplement of regional warehouse to supply the demand point.
3. Third level resource point factory
   Along with the promotion of military civilian integration, renewal rotation, fed joint supply and improvement of factory storage mechanism, the factory has become an important body of equipment storage, but generally, it is far from the demand point, so it is often used in the early stage of equipment scheduling when the resources in the region are difficult to meet the requirements.
4. Level 4 resource point - other areas and subordinate unit level warehouses
Therefore, the principle of equipment and equipment scheduling can be determined as follows: first, the equipment is supplied by the team owned warehouse under the force level reserve system. If the demand can be met, the equipment will be supplied directly; if not, the demand gap will be determined and reported to the regional warehouse; after the regional receiving task demand, the equipment demand and the regional warehouse equipment inventory will be coordinated to determine the scheduling scheme. If the regional warehouse can meet demand, supply is provided by the region. If the warehouse in this area cannot meet the demand, it is judged whether the army level warehouse in the region can meet the demand gap. If the army level warehouse in this region cannot meet the demand, then it will make a request to the army according to the equipment demand gap, and the army will dispatch equipment directly from the storage plant to the equipment demand point if it cannot meet the demand. For material demand, the army will coordinate and implement cross-regional supply. If the equipment demand still cannot be met, the emergency ordering mechanism will be triggered for the production plant.

Therefore, after the equipment dispatching demand is generated, determine the supply sequence of resource points at all levels: resource points in the region → resource points below the region → factories (with factories as storage units) → resource points in other regions and below → production factories. Equipment supply mainly emphasizes time efficiency, and can implement cross-regional direct supply.

5 Concluding Remarks
According to the requirements of equipment and equipment storage, the equipment storage mode to adapt to the modern war is defined, and the construction of equipment storage mode is planned, focusing on the improvement of equipment storage mechanism, optimization of storage layout and design of storage mode. In the next step, the equipment supply mode under the background of civil-military integration can be further studied.

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