

Managing Spare Parts for Greater Cost Savings

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▼ TKD Store - Site Co-ordination



Spare Parts - Important Yet Often Overlooked

It has been an industrial practice for railway contracts (trains and other E&M equipment) to include spare parts as a small portion of the total contract sum (usually ranging from 3 to 5% or sometimes going up to 6 to 8%).

Wastage or Saving?

Very often, spare parts are recommended as part of the main contract at the very initial stage, thereby making the spares list vague and inaccurate. It will then be tuned by the contractors upon design finalisation. The so-called finalised spares list is then presented to the employer of the contract in the final procurement form. As the employer often lacks practical experience in new trains and equipment, the Corporation usually accepts the contractors' recommendations on spares.

Experience tells that very often, upon commencement of railway operation, maintainers will find that they do not have a clear idea of what spares have been received due to the vague and incomplete part numbers, OEM names, etc. In addition, many spares on hand are not what they want, the problem being either inadequate or excessive supply.

Throughout the construction period, spare parts are often considered as a low priority item due to their relatively low value. However, calculated in cumulative terms, 5% of the contract spares valued against a total E&M contract sum of say US\$1 billion may represent US\$50 million and misuse of 1% in spares may amount to **US\$10 million!**

Managing for Better Results

Certainly, contract spares can be managed in a much better way with savings of multi-million US Dollars. This necessitates careful thoughts on a lot of issues. Expert advice and consultancy prior to the award of contracts will significantly enhance effectiveness of procurement of contract spares and substantial cost savings. Procurement of contract spares must go along with the maintenance strategy and repair philosophy for the optimum result in spares availability and inventory cost saving.

Recognising the importance of spares in maintaining safe and reliable railway operation, the Stores Department has played an active role in the Initial Provisioning Group (IPG) and acted as the Secretary of the majority of IPG Meetings since the commencement of Airport Railway (LAR) Project. The IPG comprises representatives from the Project Division, Operations Division, Procurement & Contracts Department (Project), Operations Training Department, Stores Department and main contractors. The IPG aims at achieving the best results and safeguarding the Corporation's benefits in three aspects, namely Spares, Special Tools and Testing Equipment, Operating & Maintenance Manual (including Illustrated Parts Catalogue) and Training. The success in spares provisioning through IPG has been witnessed from the high spares serviceability since the LAR opening.

Railway Stores, Racking Systems and Space Utilisation

In compliance with the Railway Inspectorate Statutory, sufficient maintenance spares shall be available and store, not simply the so-called storage area of goods, shall be established to support the operation of a new extension. The 3 Stores located at the Kowloon Bay Depot, Tsuen Wan Depot and Chai Wan Depot serve the Kwun Tong Line, Tsuen Wan Line and Island Line respectively. Since 1998, the Siu Ho Wan Depot (SHD) Store has been fully developed to cope with the operation of the Airport Railway comprising of the Airport Express Line and Tung Chung Line.

SHD Store: From Temporary to Permanent

Owing to the budget constraint, a temporary SHD Store shall be established on the site of the Rolling Stock Workshop of 3,500m², and removed to another site of 5,500m² in LAR Phase 2. Therefore, the architecture was originally designed as the Rolling Stock Workshop instead of a warehouse. However, after further review on cost, it was decided to carry out the Rolling Stock Heavy Maintenance at the KBD Workshop and finally, the temporary SHD Store has become permanent.

The construction of the Store was not without hassles. At the time when the SHD Store was developed, difficulties were encountered due to the tight schedule and various interfacing areas with different construction programmes controlled by different contractors. Project management is crucial for implementation of the design and plan. The Stores Department had to closely monitor the construction progress in order to take over the site for the SHD Store in time to enable the Contractor to finish building the racking and other facilities well before depot inspection by the Fire Services Department. Unfortunately, the Civil Contractor took quite a long time to refine the floor flatness to very fine tolerance. The floor flatness was critical to the alignment and uprightness of the racking and shelving in the narrow aisles. In order to catch up with the milestone, erection of the racking and shelving was completed on time.

New Design, Greater Productivity

Currently, the SHD Store comprises a Heavy Store and a Light Store. The Heavy Store of 2,000m² accommodates many heavy and bulky maintenance spares for the LAR system / equipment. In order to maximise the storage space, we have set up the Very Narrow Aisle (VNA) Racking System to increase the shelving substantially from the conventional design of 800 bays to 2,000 bays. In line with the Racking System, we have employed the VNA Handling Equipment to automate certain processes and increase productivity. The erection of the 3-Tier Light Store with non-

SHD Store



▲ Mechanical handling equipment



▲ Cantilever rack



▲ VNA rack

concrete materials is indeed a record in Hong Kong! The advanced design has maximised the storage space but minimised the set-up costs.

Based on our past experience, the layout of the SHD Store has been specially designed to optimise cost efficiency and productivity from space utilisation and mechanical handling equipment without compromising safety and statutory requirements. Suitable locations of Fire Compartmentalisation and In-rack Sprinklers have been worked out to meet the stringent requirements of the Fire Services Department. Besides, In-rack Lighting and Aisle Dimensions have been cautiously determined.

Design Concept Extends to New Depot Stores

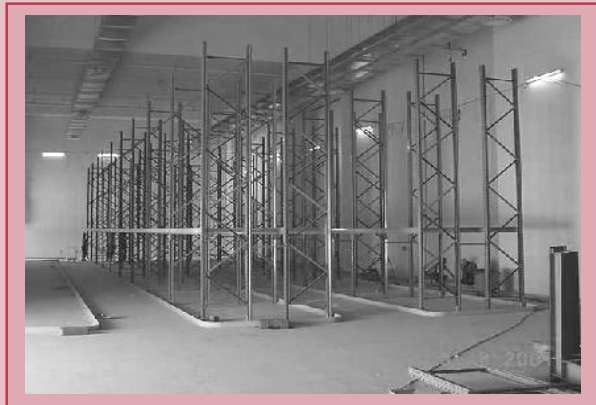
Thanks to the collaborative efforts of all parties concerned, we are now enjoying the fruitful harvest. The high reputation of the layout design and neatness of the SHD has attracted many visitors, both internal and external, for experience sharing. Last year, the Mincom Consultants of the MIMS Computer System took a digital photograph of the SHD Store and exclaimed, "We'll let our clients know what a warehouse should look like!" The British Consultants who recently visited the SHD Store were deeply impressed by the tidiness of the modernised warehouse as a result of effective management. A similar design has been adopted for the Tseung Kwan O Depot Store and will be extended to other new depot stores in future to gain the maximum benefits from cost efficiency. ♦

TKD Store - Installation Progress

▼ Installation material



▼ VNA pallet rack installation 1



▼ VNA pallet rack installation 2



▼ Cantilever rack installation

