

Comparison study of China-Eu freight trains between Xi'an and Chongqing

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Abstract: With the proposal of the "the Belt and Road" strategy, China has opened a number of international railway transport trains from China to Europe, including "Chongqing-Europe", "Zhengzhou-Europe", "Chengdu-Europe", etc. The opening of Xi'an International Freight Train "Chang'an" has improved the gathering and radiating capacity of Xi'an inland port, by combining multiple transportation modes, reducing logistics costs and improving customs clearance capacity. In order to further improving the operation efficiency of "Chang'an", this paper makes a comparative study on the opening time, operation route, freight cycle, goods category and other indicators of Xi'an and Chongqing trains, to find the shortage of Chang'an trais. Finally, we give the promotion countermeasures from the aspects of source organization, route improvement and customs clearance optimization.

With the gradual promotion of China "the Belt and Road" strategy, Maritime Silk Road Economic Belt has increasingly formed a closed-loop economic circle integrating sea, land and air from the three continents of Europe, Asia and Africa and the Silk Road Economic Belt, making trade between countries increasingly active, and trade exchanges and cooperation between ports, ports and other departments have become increasingly close. As the carrier of connecting Eurasian and African economies, China Europe train has the important advantages of short transportation distance, fast transportation speed, high safety performance, safety and environmental protection, and also occupies a very important position in the international land transport channel.

1. Operation status of Xi'an- European and Chongqing-European freight train

Xi'an, adjacent to Chongqing, is a central city in the west of China. Since Chongqing was established as a municipality directly under the central government, its economy has developed rapidly, and its total GDP ranks the top five in China. Xi'an, as an ancient capital, has great potential for development. The opening of "Chongqing-Europe freight train" and "Chang'an freight train" are even more powerful, contributing to the development of foreign trade for the two cities.

1.1 Operation status of Chang'an freight train

Since November 28, 2013, the "Chang'an" international freight train, from Xi'an to Almaty, has officially opened. Taking Xi'an railway container center station as the starting point, it passes through Baoji, Tianshui, Lanzhou and Urumqi, leaving China from the Alataw pass. The domestic mileage is 3105 kilometers, and the planned operation time is up to 72 hours. By the end of 2018, "Chang'an" freight trains had a total of 1235 trains, with a total freight volume of 1.22 million tons, 5.18 times of the total freight volume in 2017, with a value of more than \$1.7 billion, 8.7 times of the total volume in 2017. In terms of the heavy load rate, freight volume and actual number of lines, these indexes rank first in China. At present, there are 13 freight train operation lines in Central Asia and central Europe, which connect Australia, New Zealand, the United States and other countries seamlessly, and establish a three-dimensional silk road of "land, sea and air network". Accelerate to promote Xi'an international port area to become the gathering and distribution of goods in Central Asia in Shaanxi, and make it play an important role in the distribution center of goods sources in the West and the international transit hub port.

1.2 The operation status of Chongqing - Europe freight trains.

"Chongqing-Europe" international logistics channel was officially launched in 2011. With the railway as the carrier, it has successively built four international channels, namely, the west, the south, the north and the East. After the routine operation, "Chongqing-Europe" has become the first freight train in China and Europe to break through 1000. In 2018, 1442 trains of "Chongqing-Europe" trains were opened, with the total volume of goods transported exceeding 110800 TEUs, and the total value of import and export goods accounted for about 35% of the total value of China Europe trains. The train has added five new routes from Chongqing to Vietnam, Chongqing to Hamburg, Chongqing to Iran, Chongqing to Minsk and Chongqing to Mannheim. "Chongqing -Europe" has become the trump brand of Chongqing at present. It is popular with investors from all over the world, such as HP, BMW and Mercedes Benz. This line is more efficient in transporting high value-added goods between Europe and Europe than traditional shipping.

2. Comparison of freight train between Xi'an and Chongqing

2.1 Comparison of urban location

Xi'an is located in the center of China's inland area and the junction of China's two major economic regions. From the perspective of the national regional economic layout, Xi'an is the largest and most populous western central city along the economic belt of the new Eurasian Continental Bridge - Longhai Lan- Xin Railway in China, and also the key development city for the implementation of the western development in China. It has an important position to connect the East, the West and the north and the south, and is one of the important node cities in the national trunk highway network. Chongqing's topography is complex, with basins as the main part and mountains and rivers alternating, which is even more comparable to "Sichuan Road is difficult". Chongqing, located at the junction of the central and western regions of China, is a super large city of water, land and air integrated transportation and resources in the upper reaches of the Yangtze River and an important transportation hub in the southwest. It has established a "two ring and ten shoot" expressway network and a "one hub and eight trunk lines" railway transportation network. The annual throughput of the port reaches 160 million tons, including the Yangtze River golden waterway and "Chongqing New Europe" As a support, international railway has built three transportation hub centers, including aviation, railway and inland port.

2.2 Comparison of operation route and freight time

2.2.1 "Chang'an" operation line and freight time.

The main routes of Chang'an freight train include Xi'an-five Central Asian countries, Xi'an-Warsaw, Xi'an-Hamburg, Xi'an-Moscow, Xi'an-Budapest and Xi'an-Kovola. All the lines are from the port of Alashankou (Horgos), which is the West passage of China-Eu train. The whole journey is about 9850 kilometers, and the total freight cycle is 18 days. The specific operation route is as follows:

Line name	origin-destination	access to major countries	Total length (km)	Running time (days)
China-Asian trains	Xi'an-five Central Asian countries	Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan	3866 (Almaty)	8
China-Eu	Xi'an- Hamburg	Kazakhstan, Russia, Belarus, Poland to Hamburg, Germany	9745	15
China-Eu	Xi'an-Warsaw	Kazakhstan, Russia, Belarus, Warsaw, Poland	9048	14
China-Eu	Xi'an Moscow	Kazakhstan, Moscow	7423	13
China-Eu	Xi'an-Budapest	Kazakhstan, Russia, Belarus, Poland, Budapest, Hungary	9312	17
China-Eu	Xi'an - Kovola	Kazakhstan, Russia, Kovola, Finland	8500	16

2.2.2 Chongqing operation line and freight time.

The operation route of "Chongqing-Europe" train starts from Chongqing, passes through Dazhou, Ankang, Xi'an, Lanzhou and Urumqi, passes through the North Xinjiang Railway to Alashankou in the west, reaches Kazakhstan, and then transfers to Russia, Belarus, Poland, and Duisburg in Germany, with a total length of 11179 km and a total freight cycle of 15 days. "Chongqing-Europe" has opened nearly 20 European trains to Duisburg, Frankfurt and Antwerp, Belgium. In the future, the "Chongqing New Europe" train will reach European countries and regions. For example, the Duisburg line from Chongqing to Germany has a total operation of 11179 kilometers. The domestic section: from Chongqing, it respectively passes through Dazhou, Ankang, Xi'an, Lanzhou and Urumqi to the Alashan pass, with a transportation distance of about 4000 kilometers. The foreign section: from the Alashan pass, it leaves the country to dostek, iletsk, Brest and malasevich, and finally to Duisburg, with a transportation distance of about 7000 kilometers.

2.3 Freight volume comparison

2.3.1 "Chang'an" freight volume

In 2016, the "Chang'an- Europe " freight train launched 145 trains, including 141 to go and 4 to return, with a year-on-year growth of 53%; in 2017, 169 to go, including 130 to go and 39 to return, with a growth of 17%; in 2018, 1235 to go, 745 to go and 490 to return, with a growth of 5.18 times.

2.3.2 "Chongqing" freight volume

In 2016, the number of "Chongqing-Europe" trains exceeded 400, with a year-on-year growth of 63%; in 2017, 663 trains, with a year-on-year growth of 58%; in 2018, China EU freight trains opened 7 years, with 714 trains on the way and 728 trains on the way back, with a year-on-year growth of 57.1%.

2.4 Goods category comparison

The import and export goods of China-Eu trains in the two cities are mainly light industrial products, spare parts, equipment, small commodities, etc., as shown in the table:

Table 1 Goods category comparison

Name of train	Opening time	Main goods category	
		Go journey	Return journey
Chang'an	2013.11	Auto parts, daily necessities, handicrafts, etc.	Volvo car parts, Express products, cross-border e-commerce imports, etc.
Chongqing	2011.03	Mechanical and electrical products, oil exploration equipment, it products, mechanical equipment, auto parts, coffee beans, etc	Automobile and spare parts, mechanical equipment, cosmetics, beer, milk powder, etc.

3. Analysis of comparative results

3.1 Advantages of China-Eu train of Chang'an

The "Chang'an" freight train is located in Xi'an international port area, which is located in Bawei Delta in the northeast of Xi'an City, from Bahe River in the west, North Ring Road of railway in the north, West-Han highway in the East, the Third Ring Road of the city and Xi'an Ring Expressway in the South, with a total construction area of 88.9 square kilometers, promoting the rapid economic development of Xi'an and the "North expansion, east expansion and west connection" of urban construction. Xi'an is an important hub city in the inland western region of China, with significant

geographical advantages. It is connected with the Beltway expressway. The core area is about 5 kilometers away from the administrative center of Xi'an City, and 28 kilometers away from Xi'an Xianyang International Airport, and there is a Yaocun airport located inside the Xi'an international port area. The Xi'an Ring Expressway to the park is connected with Beijing Kunming expressway, Lianhuo Expressway and Baomao expressway. The national internal expressway network is closely connected, forming a "meter" shaped expressway network belt, and there is Xi'an Metro Line 3 leading to the main city, with obvious comprehensive traffic location advantages.

3.2 Disadvantages of China Europe train of Chang'an

3.2.1 Short operation line and long freight time

Compared with "Chongqing -Europe", the freight train of "Chang'an" has many countries passing by, but it is limited by customs and freight, and its freight cost is high. In addition, affected by the policies of the countries along the line, the freight time fluctuates greatly, while the operation line of "Chongqing- Europe" is longer, and the total freight cycle is only 15 days.

3.2.2 Low freight volume and insufficient return cargo

No matter the total amount of operation or the number of return flights, the freight train of Chang'an is less than Chongqing train. Since 2016, "Chang'an" freight train has seen a steady increase in the number of flights, but the time of cargo aggregation is longer, the return cargo source is relatively smaller, and the operation frequency is also lower. Although the number of Chang ' an flights exceeded Chongqing in 2018, there is still a certain gap in the number of return flights.

3.2.3 Less goods and low value

Chang'an train has a single category of goods, mainly including auto parts, handicrafts and some low-cost small commodities, while Chongqing mainly includes high-value-added precision instruments, such as mechanical and electrical products, oil exploration equipment, it products, etc.

4. Suggestions on the development of Chang'an freight train

4.1 Route proposal

Through the integration of public, rail, sea, air and other means of transport, establish a multimodal transport network system. On the one hand, through international railway intermodal transport to the west, the international logistics channel is opened. Based on the 13 existing train lines of "Chang'an", a distribution branch line covering the whole Europe has been opened through cooperation with overseas railway operators, forming a transport network radiating the whole Europe. On the other hand, through the five regular trains to the East, the domestic logistics channel can be opened. Which will Further strengthen land and sea cooperation with coastal ports, seamlessly connect international shipping routes, and enhance the distribution and distribution capacity of Xi'an port. In addition, relying on the road logistics enterprises, constructing the regional distribution network, relying on the sound logistics distribution network, advanced logistics information technology and successful platform operation mode of well-known domestic logistics enterprises such as ChuanHua logistics, Anbo logistics, Shentong and Yuantong, etc., constructing the regional distribution network of Xi'an port, and improving its "last public" international and domestic transportation channels "service experience " .

4.2 Adjust the good source structure

We will take multiple measures to raise sources of goods and continue to promote the operation of trains. First, on the basis of the existing cooperative operators of the train, we will continue to carry out extensive cooperation, recruit partners in an open platform manner, and constantly expand more sources and routes to supplement the development of the train in the later stage. Second, strengthen the organization of goods sources in the province and even in the whole country, take

serving Shaanxi and the output of production capacity in the West as the goal, actively connect with Shaanxi Automobile, BYD, Xidian and other large manufacturers in the province, provide relatively stable goods sources for trains, and continue to increase the frequency of domestic trade trains in major domestic ports.

4.3 Simplify customs clearance procedures

We will make more effort to promote port construction, improve circulation efficiency and improve port functions. On the one hand, in order to realize one-time inspection and release of informatization and improve the efficiency of customs clearance of Xi'an port, it will make in-depth connection with customs, inspection and quarantine, port, railway and other departments, and comprehensively start the Informatization Transformation of the train supervision service system. On the other hand, we will complete the construction of vehicle ports and actively apply for parallel import automobile ports. At the same time, we will vigorously develop cross-border e-commerce business, upgrade and upgrade the service facilities of Xi'an railway container center station and Xi'an comprehensive insurance zone, continue to increase the source of goods, improve the service capacity, ensure the service quality, and create favorable conditions for the normal operation of "Chang'an" in high frequency.

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