International Civil Aviation Organization

WORKING PAPER

A40-WP/314[1]
TE/133
2/8/19
(Information paper)
Chinese only
Revision No. 1
9/9/19
(Information paper)
English and Chinese only

ASSEMBLY — 40TH SESSION

TECHNICAL COMMISSION

Agenda Item 30: Other issues to be considered by the Technical Commission

G597/A326 DOUBLE TRACKING ROUTE BETWEEN CHINA AND ROK

(Presented by China)

REVISION NO. 1

EXECUTIVE SUMMARY

In order to alleviate the congestion on the routes between China and ROK, optimize the airspace structure and enhance flight safety and operational efficiency in Northeast Asia, G597/A326 double tracking route between China and ROK was officially launched at 0:00 on December 6, 2018 (Beijing Time). This paper presents the background and the program regarding the one-way transformation of the trunk route A326 between China and ROK.

Strategic Objectives:	This working paper relates to Strategic Objective:Capacity and Efficiency in Air Navigation
Financial implications:	N/A
References:	N/A

[1] English and Chinese versions provided by China.

1. INTRODUCTION

1.1 The route A326 represents an important air corridor connecting Europe and Japan and ROK by China. It is also a key part of the route network in Asian-Pacific region, spanning Bohai Bay of China. The Bohai Bay is located in the center of Northeast Asia Economic Zone, covering Liaodong Peninsula, Shandong Peninsula, Beijing, Tianjin and Hebei Province. It plays a crucial role in the coastal development of China.

1.2 There is a dense air transport network and a complicated route network in the Bohai Bay. In accordance with the overall way of thinking for airspace optimization of “expansion in the east, extension in the west, diversion in the south, straightening in the north and dredging in central area”, Air Traffic Management Bureau of CAAC officially launched the project of airspace optimization of the G597/A326 double tracking route in 2014, aiming at reducing the congestion on the routes between the China and ROK by means of airspace structure optimization.

1.3 Focusing on improving the airspace structure and operational efficiency in Northeast Asia and taking into consideration China's current reality, Air Traffic Management Bureau of CAAC made full use of the platform of the bilateral air traffic management coordination conference between China and ROK to map out arrangements for direction of the flight flow in the Bohai Bay and determine the general principle of "the northbound flight by eastern routes and the westbound flight by southern routes". ATMB of CAAC maintains technical communication with ROK. After years of coordination and with the strong support of ROK, the two sides signed the Memorandum of Cooperation on China-ROK Route Optimization, which lays a solid foundation for the smooth implementation of the program of airspace optimization of G597/A326 Double Tracking Route.

1.4 Bohai Bay is an area where adjustment of the main routes covered by the program of the airspace optimization of G597/A326 Double Tracking Route is centralized. It involved a large number of airspace users and relevant coordination was very complex. After more than four years of bilateral technical talks on air traffic management and many civil-military consultations, an agreement was finally reached, which determined that the program of G597/A326 Double Tracking Route be formally implemented at 0:00 on December 6, 2018 (Beijing time).

2. BACKGROUND

2.1 The route network in Bohai Bay is intricate and the main routes such as A326 and A588 are operated in an intertwined way. Over the years, flights to/from Europe and West Asia and Japan and ROK have flown along the single route A326 in China. The route A326 represents an important air corridor between China and ROK and Japan, and also an important part of the Asia-Pacific route network. The daily flight has exceeded 400 movements on this route, and the flow of busy business points has approached 1000 movements, which show that relative operational risks of the route are prominent and the congestion becomes increasingly serious (see Figure 1 for details). With the sustained and rapid economic development of Northeast Asia and with the preparation for the 2020 Tokyo Olympic Games and the 2022 Beijing-Zhangjiakou Winter Olympic Games on the way, the route will definitely be much busier.

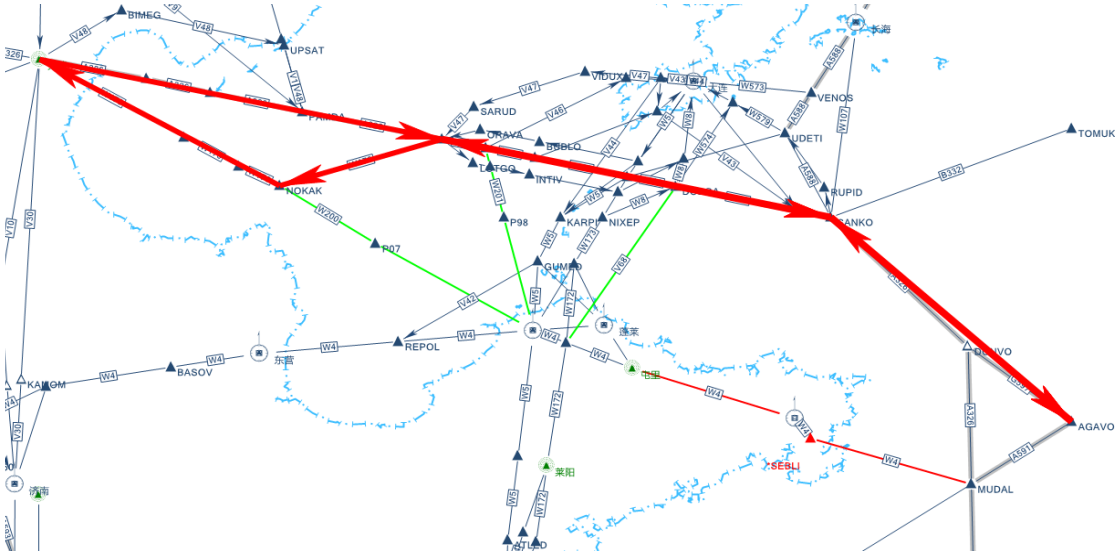

Figure 1. Operational Status of Route A326 before Implementation of program on G597/A326 Double Tracking Route

Note: the red lines represent trans-meridional flights on route A326.

2.2 For Europe, West Asia and China, G597/A326 Double Tracking Route is an urgent need to improve the overall operational efficiency of their flights to and from Japan and ROK, and G597/A326 Double Tracking Route is also an inevitable requirement for implementing the key project of capacity expansion and efficiency enhancement of the route A326. Based on the use of airspace along the route A326, ATMB of CAAC focuses on the connectivity of routes in the Asia-Pacific region, conducts targeted field surveys and researches, collects operational data on the airspace, and determines the overall target for demands of airspace use, and finally puts forward the program on airspace optimization of G597/A326 Double Tracking Route.

3. CONTENT OF PROGRAM

3.1 The one-way design concept is adopted for G597/A326 Double Tracking Route. The structure of the current route network is relied on organic combination of launching of some routes and adjustment of other routes, and at the same time. Consideration is given to optimization and integration of flow directions. As a result, the pattern of one-way circular operations by European flights to and from Japan and ROK in areas under China's jurisdiction is built and routes G597/Y644 of ROK are connected by two routes, resulting in effective improvement of the overall efficiency.

3.2 According to the program on the airspace optimization of the G597/A326 Double Tracking Route, three routes are opened to the outside world (see Figure 2 for details), with a mileage of 489 kilometers covered, six new international and domestic routes are newly launched or adjusted, with a mileage of 634 kilometers covered, and direction of the routes of 455 flights are adjusted.

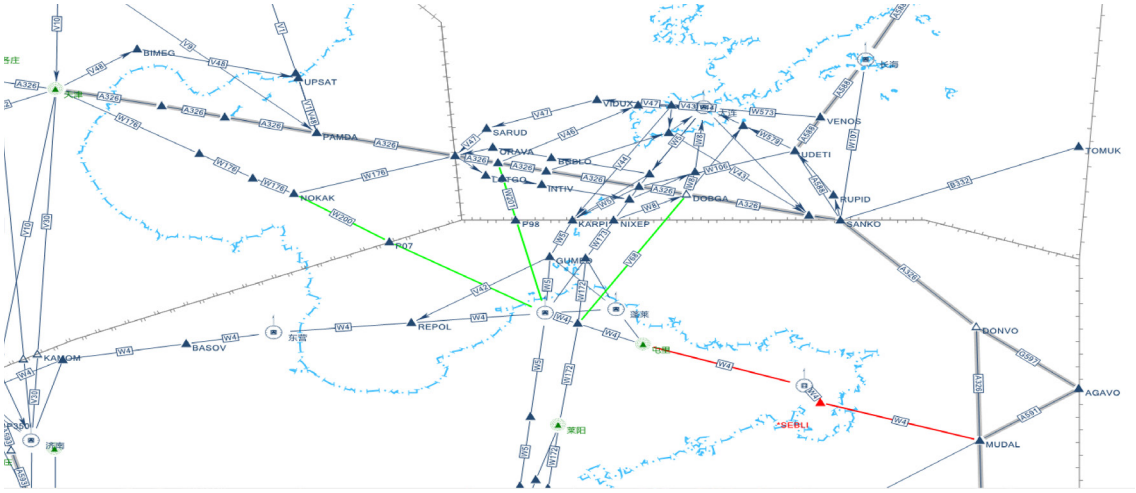

Figure 2. Diagram of program on G597/A326 Double Tracking Route

Note: green lines represent routes opened to the outside world;
red ones represent domestic and international routes adjusted.

3.3 In order to improve the optimization program in a scientific and the rational way, the Air ATMB of CAAC established a baseline model based on the current situation of the airspace over the Bohai Bay (see Figure 3 for details). Then ATMB used this model to carry out simulated assessment of the program on the airspace of G597/A326 Double Tracking Route in terms of frequency of flight conflicts, working time load, flight legs and flow of controlled sectors. G597/A326 Double Tracking Route is expected to expand the capacity of route A326 by 45% and reduce the safety risks by 42%.

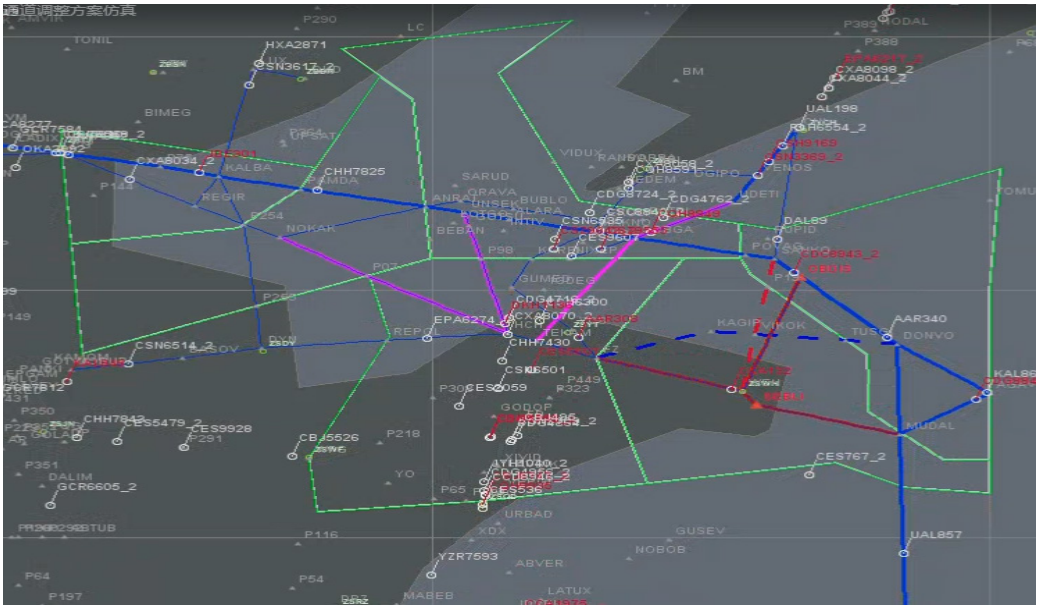

Figure 3 Baseline Model of Airspace over Bohai Bay

4. EFFECT OF PROGRAM

4.1 During the first month after the implementation of the program on airspace optimization of the G597/A326 Double Tracking Route, the ATMB of CAAC guaranteed 13393 flights, with a daily average of 432. Due to the adjustment of flights from Japan and ROK to route W4 on the southern side of route A326 (see Figure 4 for details), the operational pressure of route A326 has been effectively alleviated, the volume of MAKNO flights at busy business points has decreased significantly, and the overall operation of flights between China and ROK remains stable and smooth.

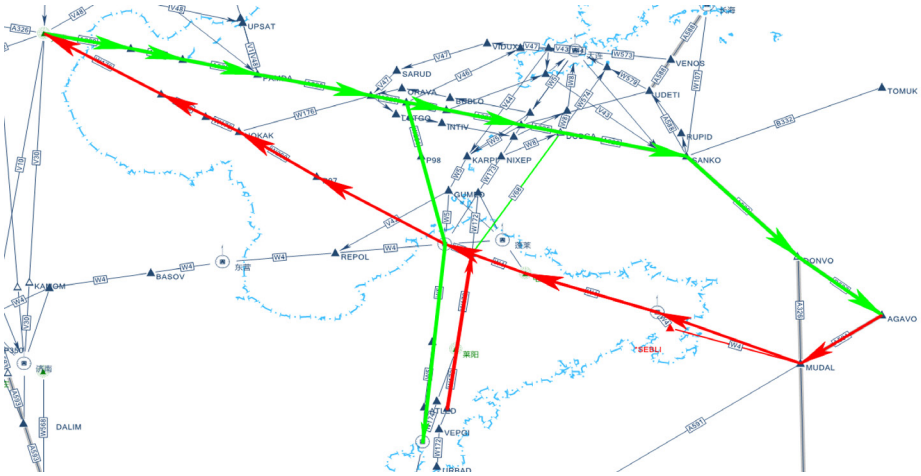

Figure 4. Diagram after Implementation of program on G597/A326 Double Tracking Route

Note: red lines represent westbound and northbound flights
green ones represent eastbound and southbound flights.

5. FUTURE EXPECTATIONS

5.1 The program of the airspace optimization of G597/A326 Double Tracking Route has been an innovative demonstration model in terms of alleviating the shortage of airspace resources in China. It not only helped improve the operation environment of the airspace over Bohai Bay and Jiaodong Peninsula, balancing the flight flow of the routes, reducing the risks of safe operations and improving the operational efficiency, but also alleviated the congestion of routes in China and South ROK and improving flight safety and operational efficiency in Northeast Asia.

5.2 The implementation of the program of the airspace optimization of the G597/A326 Double Tracking Route enables seamless connection of arriving flights and departure ones between the Beijing Daxing International Airport and the Bohai Bay in the future, thus connecting Northeast Asian countries such as China, Japan and ROK more conveniently.

5.3 The smooth implementation of the program will strengthen high-level mutual visits between the civil aviation authorities of China and ROK and bring exchanges and cooperation between technical personnel of the two sides closer. And the application of and cooperation in new technology between the two countries will be more extensive.

5.4 The G597/A326 Double Tracking Route has played a role in promoting the development of aviation industry in the entire Asia-Pacific region and even in the whole world.

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