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AIR TRANSPORT PROCESSES. REMUNERATION OF PILOTS

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Aviation is one of the leading industries in developed countries. The development of aviation is directly related to the strategic interests of any state. The development of market relations in this area presupposes the development and improvement of the methods of stimulating labor, the remuneration of employees of airlines, primarily of the flight crew. The airlines efficiency is largely dependent on the policies in the field of remuneration. Wages are an important incentive for the effective work of the airline, but at present the methods of remuneration of flight personnel in many companies do not fully meet present-day requirements. The article sets out major forms and systems of remuneration of flight personnel. Need to improve the wage system and to stimulate flight personnel has been emphasized. The author offers practical solutions to upgrade this system.

Key words: Labor remuneration, labor incentives, wages, civil aviation, flight personnel, personnel policy.

INTRODUCTION

The importance of civil aviation in present-day conditions of social development, growth in the number of people moving (with both tourism and business purposes) and cargo between countries and continents cannot be overestimated. This implies an increase in air travel in the world. For example, the International Civil Aviation Organization (ICAO) indicates that airlines for 2017 set a record for the transportation of passengers, and it amounted to 4.1 billion people, which is higher than the 2016 level by 7.1% and higher than the 2000's level by 4 times¹. The share of US passenger traffic in 2017 accounted for 14%, Europe holds 37% of this market (with a growth of 8.1% in 2017), and the Asia-Pacific region (APR) accounts for 29% (with a 9.6% growth in traffic), Latin America and the Caribbean's area share in 2017 amounted to 4% of traffic (with the most significant growth of 10.0%), the share of Africa -3% (with growth of 7.6%)². In general, the largest growth was experienced in Latin America followed by Asia, but Asia is the second largest market after Europe. It can also be noted that in 2017, the operating profit of companies engaged in air transportation amounted to \$ 60 billion, and net profit – to \$ 36 billion, and of these, about 45% of net profit is accounted for by companies from North America³. At the same time, the World Bank forecasts an improvement in economic conditions, which should contribute to the development of this industry, and eventually lead to an improvement in the financial performance of airlines.

It is obvious that wages are important for the efficiency of the airline. First of all, the salary of flight personnel, since this is the most important category of workers for companies in the industry, requiring specific qualifications, experience and education. In general, wages are remuneration for the performed work, it remains one of the main incentives for the rational use of labor resources. In addition, wages are the main source of income for employees, which affects the quality and level of their lives. Therefore, issues related to wages are relevant both for the employee and for the employer. At the same time, the issues of regulating wages are resolved both by means of state regulation measures (within the framework of the labor law) and by means of contractual relations between employers and employees.

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Philbin, A. and Raillant-Clark, W. (2018). Continued passenger traffic growth and robust air cargo demand in 2017. [Electronic resource]. URL: https://www.icao.int/Newsroom/NewsDoc2018/COM.01.18.EN.pdf. (accessed 04.01.2019)

² Ibid.

³ Ibid.

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Over the century of innovation, aviation has become one of the most technologically advanced industries of our time. A key example is the creation of a jet plane, which made it possible to travel faster and further at a lower cost. Another important step is the use of composite materials in modern liners. This increased efficiency, changed production technology and improved the quality of passenger service in the final product [1].

Human resources play a dominant role in air transport. The number of people employed in the industry is about 10 million people, and another 63 million jobs are supported by aviation. Staff productivity, passenger service efficiency gives the airline a competitive advantage [2].

The relative availability of commercial aviation has allowed it to become an integral part of the lifestyle of many people. Every year, more than 9 million passengers worldwide make 104,000 flights on a network of 51,000 routes. The economic impact of aviation is estimated at \$ 2.7 trillion, equivalent to 3.5 percent of global gross domestic product (WFP) [3].

Therefore, the author has set a goal to consider progressive solutions in the field of remuneration of flight crews (airline pilots), taking into account the modern requirements of a market economy, since the payroll policy of flight personnel is an integral part of the management of aviation enterprises.

To achieve this goal, the articles of such authors as D.A. Abdulgamidov [4], I.Yu. Rosainenko [5], L.M. Tulyakova [6], A.A. Miroshnichenko [7], and also comprehensive research on the issues of remuneration of flight personnel in the world and the global labor market of pilots have been used.

WAGES AS A MOTIVATING FACTOR IN THE WORK OF THE FLIGHT PERSONNEL

Wages at the same time are remuneration for work (as a form of material incentives for labor), an effective motivational factor for staff, and the main incentive for the rational use of labor for an enterprise that hires workers. Researchers agree that a market economy takes into account the need to use factors affecting wages, such as fairness (equal wages for equal work), the complexity of work performed by employees, the qualifications of workers, the harmfulness and complexity of the working conditions, the volume and quality of work, and also labor productivity. From this it should be understood that the remuneration of employees is the price of labor resources that must be involved in the production process.

Labor remuneration is usually based on the market price of labor, but the state also influences this process by determining the size of the minimum wage, regulating the labor market itself (for example, limiting it from cheap foreign labor if it can damage the population of this particular country). The conditions and amount of remuneration can be determined by coordinating the interests of workers and employers, and should be fixed in the form of an employment contract (agreement). Remuneration as a whole should provide real conditions for the reproduction of the workforce, stimulating an increase in the efficiency of the work of the personnel and its fixation in the workplace. The market mechanism also assumes that the level of remuneration of workers may be determined by the socially necessary level of individual expenditures on the reproduction of labor, as well as the income of the employer (since income must exceed expenditures and wages can often have a significant share in expenditures) [8, p. 217]. The labor market, and with it the remuneration of labor, also depend on the supply and demand in the labor market, including individual indicators: an excess of personnel of one profession on the market can lead to lower wages, and a lack (shortage of personnel) - to growth of wages, because growth can attract professionals, provide employers with labor resources. In addition, wages can be considered not only as an economic, but also as a moral category, since its size not only allows to satisfy human needs, but also forms its social status [4, p. 74].

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Employees of flight crews of airlines are among the leaders in highly paid professions in the world, they are quite expensive specialists in the labor market in terms of the price/labor ratio [5, p. 817]. This makes the pilot's profession quite attractive for young professionals. Therefore, at present it can be said that the pilot profession is prestigious, unique and well paid. Nevertheless, it is rather difficult to master this profession: it requires training in a special higher educational institution, for entering which you need to pass health exams and tests, and it is necessary to gain flight experience.

In general, the wages of pilots depend on a number of main factors noted by A.A. Miroshnichenko [7, p. 55] and I.Yu. Rosainenko [5, p. 818]:

- Qualification (education, acquired knowledge and practical skills);
- Work experience in aviation;
- The number of flight hours;
- Experience in the management of an aircraft of one type or another;
- Previous job (valued work experience, especially in large companies).

In addition, the level of payment can be influenced by a diploma from an educational institution that the pilot graduated from (influences the prestige of the educational institution), knowledge of foreign languages (which is very important if the pilot joins a foreign company).

At the same time, a significant and even decisive factor affecting the employment and pay of a pilot is his qualification, which must be confirmed by a document issued by a specialized flying educational institution. Currently, there are several pilot qualifications:

- Fans (the minimum flying time is 42 hours);
- Linear;
- Civil aviation pilots (passenger airlines can take them);
- Pilots of ultra-light air vehicles.

There are a number of skills and knowledge that a licensed pilot should have:

- Theory and practice of planning;
- Preflight preparation;
- Execution of basic maneuvers:
- Air traffic rules;
- Skills in taking off and landing an aircraft.

The salary depends largely on what type of aircraft the pilot controls. A pilot of a small-engine aircraft can count on a relatively small salary, a pilot of an Airbus A380-type of aircraft to a maximum. This is because control of this aircraft requires the maximum qualifications.

The standard crew of pilots of a passenger aircraft consists of two pilots: the captain of the aircraft (crew commander) is the first pilot and the second pilot. Accordingly, the commander of the aircraft requires more qualifications and experience than the co-pilot, he is solely responsible for any decision, makes important decisions for the crew related to interrupting takeoff, go-around, landing in adverse weather conditions and other situations. While the co-pilot ("the right pilot") is the assistant commander of the aircraft, his work is seen as preparing the pilot for the role of the commander of the aircraft (usually ranging from 4–5 years as co-pilot). But the pilot who is on board the aircraft for training purposes (without having the appropriate certificate) as a co-pilot cannot yet be considered. Therefore, it is clear that the aircraft commander has every reason to receive a higher salary than the co-pilot, which, I.Yu. Rosaynenko [5, p. 818] and L.M. Tulyakova point out in particular [6, p. 130].

Lastly, purely economic factors and the conditions in which the airlines and the pilots themselves work in influence the wages of the flight personnel. This is actually the development of the country's economy, which determines the wages and incomes of the population in the country, the level of wages in the industry in a given country (which is important for large countries with significant aircraft fleets, for example, in the USA, China, Russia), openness of the economy (when pilots are able

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to join foreign companies offering higher wages), as well as the actual state of the airline itself, in which the pilots work (usually successful companies can offer more advantageous conditions for pilots remuneration to attract and retain the most experienced professionals). The development strategy of the airline largely influences the pilots' pay: the growth of the airline implies an increase in the number of pilots and an increase in salaries and an increase in the attraction of pilots locally as well as from abroad with a shortage of domestic specialists.

It should be noted that the development of Chinese airlines in recent years has stimulated the outflow of Russian pilots to work in China, where wages are much higher, and flights schedule is more convenient for pilots; this trend has been observed since 2015 (after the bankruptcy of Transaero) to the present day. At the same time, Russian authorities attempted to limit the outflow of pilots from Russia at the expense of purely administrative methods: refusal (with reference to secrecy) to confirm licenses, attempts to collude with Chinese airlines so that they would not consider Russian candidates. This became relevant when, after an excess of flight personnel in the labor market in 2015 and the beginning of 2016, the Russian market began to experience a shortage of personnel [9]. But at present, counteraction to the outflow has been transferred more on an economic basis: Russia's largest airline, Aeroflot, increased pilots' wages by 38% in 2018⁴, and Russian airlines, with the authorization from the government, began to attract foreign pilots for work (companies are on a quota of 200 foreign pilots per year, yet during the first 8 months of 2018, due to their insufficiently high salaries (in their opinion, only 13 people were hired)⁵. A. Pestereva generally assesses the current personnel situation in Russian aviation as critical, since with the growth of passenger traffic and further increase in the aircraft fleet it is difficult to find qualified personnel (even to attract them from abroad), to prevent the outflow of qualified personnel abroad (taking into account the growth in salaries in foreign airlines in recent years, as noted by RBC⁶). Other countries of the former USSR (Belarus, Kazakhstan, Ukraine, and even the Baltic countries) have similar difficulties in staffing aircrews, since the airlines of these countries cannot offer competitive salaries to pilots in comparison to the growth of these salaries in the world⁷. In general, the factors of a salary of the flight personnel of airlines can be represented in the form of the following scheme:

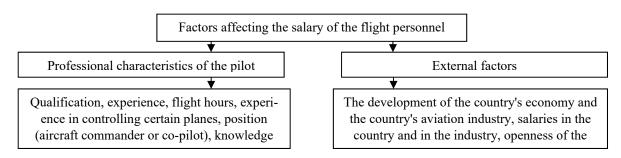


Fig. 1. Salary factors for flight crews of airlines

⁴ Po sravneniyu s nami oni v kosmose! Skolko poluchayut piloty u nas i za granitsey [Compared to us they are in pace! How much do the pilots earn here and abroad]. (2018). Rambler-Finansy [Rambler-Finance]. [Electronic resource]. URL: https://finance.rambler.ru/markets/39252256/?utm_content=rfinance&utm_medium=read_more&utm_source=cop ylink (accessed 03.01.2019). (in Russian)

⁵ Pestereva, A. (2018). *Rossiyskiye aviakompanii zhdut inostrannykh pilotov* [Russian airliner are waiting for the foreign pilots to apply]. [Electronic resource]. URL: http://www.shpls.org/press/news/2039/view/ (accessed 03.01.2019). (in Russian)

⁶ Kazakulova, G. (2017). *Skolko poluchayut piloty krupneyshikh mirovykh aviakompaniy* [How much do the pilots of the largest airlines earn]. RBC. [Electronic resource]. URL: https://www.rbc.ru/photoreport/15/06/2017/5941b2459a7947d315cafd45 (accessed 03.01.2019). (in Russian)

⁷ Po sravneniyu s nami oni v kosmose! Skolko poluchayut piloty u nas i za granitsey [Compared to us they are in pace! How much do the pilots earn here and abroad]. Op. cit.

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Thus, it can be noted that the wages of pilots are a stimulating factor for their work. It depends primarily on the quality characteristics of the personnel themselves: qualifications, experience, pilot's flight hours, some other factors, including the pilot positions (aircraft commander or copilot). The pilot's profession implies significant training and experience requirements, as it primarily depends on the safety of passenger aircrafts. In addition, the pilots' wages are an important component of airline expenses, and they depend on the state and development of the airline itself (including its development strategy for the future), as well as on the state of the country's economy, directly affecting the airline industry, the labor market and wages, the openness of the economy (the ability of pilots to join foreign companies, which has become relevant with the development of globalization in this market in recent years).

MODERN FORMS, METHODS AND TRENDS IN THE PAYROLL OF FLIGHT PERSONNEL

Forms and systems of remuneration determine different ways of payroll. Currently, there are two main forms of wages – piecework and time-based [11, p. 140]. At the same time, in the piece-rate form of wages, wages are charged for the unit of work performed or production at the set piece-rates. In time-based form, wages are charged for the hours worked (hourly or monthly wages, and this, as a rule, is established by the legislation of the country, as is the minimum amount of hourly or monthly wages).

At the same time, in the presence of these two main forms, wage systems can be distinguished. In particular, by piecework:

- Direct piece-rate (payment directly for the volume at piece-rates);
- Indirect piece-rate (for non-core employees, payment is used at piece-rates based on the volume of work performed by the main employees they serve);
 - Piece-bonus (when awards are expected for the fulfillment of the plan by volume);
- Piece-progressive (when higher costs are offered for doing above a certain level of work or production).

Time wages also imply the possibility of using a time-bonus system as an alternative to a simple time-based system. Even a simple system can assume payment by month – this is a "salary" system (when the total number of days and hours of work is not taken into account, the rate is tied to a month), or by the hour (which is important in countries like the USA, Germany, and also often used for wages of part-time workers and temporary workers).

Airlines around the world choose forms and systems of remuneration, taking into account the specific production conditions and tasks that face the company, based on the criterion of economic efficiency. Thanks to the liberalization process, carriers have creatively approached the introduction of new products in terms of their business models [10]. For example, in Japan in the 70s salaries were formed on the basis of the American system of tariff rates, a synthesized tariff form of remuneration, which implied the use of two rates: personal (based on seniority and age of the employee) and labor (which depended on the qualifications and performance of a particular employee). At the same time 40% of the remuneration was determined by the pilot's experience in the company. Great importance was also paid to additional payments (family, transport allowance, regional allowance for special working conditions), bonuses in the amount of several official salaries were calculated according to the results of labor for the year. In Sweden, "joint and several" wages of the flight personnel are used, which provides for equal pay for equal work on the basis of industry average indicators and industry agreements. In the UK, a system of payment under individual contracts is used, and it also often provides for the use of a system of "fluctuating" wages, which depends on the profit of the airline. It should be noted that the participation in the profits applies in addition to the fixed salary. Distribution is possible through the following schemes: participation in profits (operating), participation in net income, participation in turnover or formed value, labor equity participation, and pure labor participation. In France, the system of individualization of wages is most often used, also involving the conclusion of individual contracts. In the USA, the most often used system of remuneration of flight crews is wages, combining elements of piecework and time-based systems, often not providing for bonuses, since they are already laid at a high tariff rate. But in recent years, more and more airlines are still inclined to use systems that combine time wages and bonuses. At the same time, in the USA, collective bonuses are also applied, when bonuses are paid according to the results of the past month in proportion to the labor participation of an employee on the basis of the basic wage⁸.

As mentioned above, due to the shortage of pilots all over the world, there are many opportunities for employment in high-wage airlines. At the same time, pilots often do not receive a fixed annual salary, but receive hourly wages, which also vary according to the type of aircraft and the pilot's length of service. Pilot's salaries vary depending on the type of aircraft they fly, their positions and length of service. However, a number of airlines, in particular, companies in Southeast Asia, set a solid monthly salary, stipulating the rate of flying hours, with the payment of the premium when it is exceeded. The principle of "Seniority" is often used, depending on the experience of the pilot in the company, which affects the preference in planning prestigious flights, work on weekends and holidays.

Tariffs for pilots are quite high at present in the USA and China. Figure 2 shows the wages of pilots in American and Chinese companies (calculated for the month of work), however, the salaries of pilots are quite high in some other countries:

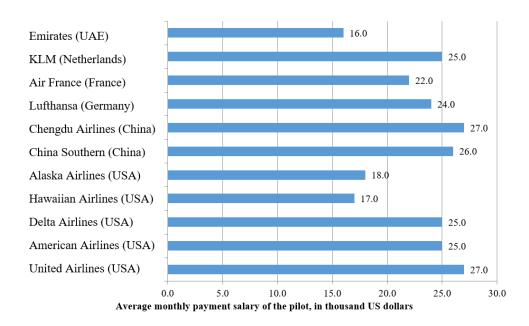


Fig. 2. The average wage for pilots in American and Chinese companies (calculated per month of work) in 2017^{10,11}

What do airline pilots earn? (2019). PEA. [Electronic resource]. URL: https://www.pea.com/airline-pilot-salary/ (accessed 03.01.2019)

⁹ Ibid.

¹⁰ Zarplata pilota grazhdanskoy aviatsii [Airline pilot's salary]. (2018). VisaSam. [Electronic resource]. URL: https://visasam.ru/russia/rabotavrf/zarplata-pilota.html (accessed 03.01.2019). (in Russian)

Langone, A. (2018). Here's how much airline pilots really make. Money. [Electronic resource]. URL: http://time.com/money/5125782/how-much-do-airline-pilots-make/ (accessed 03.01.2019)

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At the same time, in recent years there are trends in the indexation of wages for pilots. As a result, at the end of 2016, United Airlines increased the tariff rates for pilots for two years in advance, and this allows the company to maintain the status of the industry leader in this indicator, having a maximum rate of \$23-33 thousand per month. American Airlines raised the average salary for pilots by an average of 24% from January 1, 2017, and then indexed it until 2019 (an average of \$ 25–30 thousand per month). In 2016, the American Delta Airlines also ranked third in terms of the pilots wages. Depending on the experience and qualifications of the pilot, the company offers \$ 18–32 thousand per month. The American Alaska Airlines, which in 2016 acquired the company Virgin America, offers pilots salaries ranging from \$ 18 thousand to \$ 21 thousand per month. Also, Chinese airlines offer attractive conditions for experienced pilots from around the world, as the demand for pilots in this country is constantly growing with the development of aviation (both domestic and international flights). The largest Chinese company, China Southern, offers pilots \$ 26,000 a month, despite the fact that obtaining a work permit from this company has been simplified. Also, the Chinese Chengdu Airlines offers pilots about \$ 27 thousand per month, guaranteeing, in addition, a bonus of \$ 36 thousand when performing a three-year contract. In addition to competitive salaries, Chinese airlines offer attractive conditions for pilots: about 50 flight hours per month instead of the standard 80–100 hours. Emirates, the largest airline in the UAE, offers pilots a monthly salary of at least \$ 16,000 in addition to a monthly housing allowance of \$ 4,000 or a company provided housing. Also, pilots in this company have at least eight days off every month¹². German airline Lufthansa offers its pilots a salary of \$ 24 thousand per month on average, depending on qualifications and experience, it ranges from \$ 12–36 thousand per month. In Air France, the salary level of its pilots has been reduced in recent years (in 2016), but even now the average salary of pilots is \$ 22 thousand per month¹³. For comparison, in Russia as a former Soviet Union country with the most developed economy compared to other post-Soviet countries, the average salary of pilots is only about \$ 5-6 thousand per month, despite its indexation in 2018 [5, p. 818]. A. Langon, while assessing the prospects for the development of the labor market in civil aviation and the dynamics of salaries for pilots, fairly mentions the following. Currently, the operating profit of airlines is very high, and in 2018 it was expected to be at the level of \$ 38.4 billion (which is higher than the level in 2017). At the same time, economic growth is observed in the world, especially in Asia, which has led to an increase in the number of people who fly passenger planes and transport cargoes by airplanes. Growing demand for air travel worldwide has led to a shortage of pilots. In addition to insufficient training of aircrews, this is influenced in part by the rules of the Federal Aviation Administration (FAA) established by the United States in 2009. These rules stipulate that pilots must pass more hours of training and advanced training, and also devote a longer time to rest between flights. Therefore, the flight time of airline pilots per pilot is reduced. Such changes, moreover, occurred when a large number of pilots began to retire, which means that airlines also need to hire more pilots to replace retirees¹⁴.

Currently, in the next 15 years, additional 558 thousand pilots will be required for civil aviation in the world, with regional distribution as shown in Figure 3.

¹² Langone, A. (2018). Here's how much airline pilots really make. Money. [Electronic resource]. URL: http://time.com/money/5125782/how-much-do-airline-pilots-make/ (accessed 03.01.2019)

¹³ Ibid.

¹⁴ Ibid.

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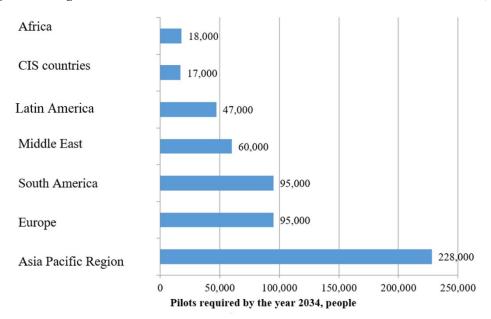


Fig. 3. Requirements for additional civil aviation pilots until 2034¹⁵

Each airline in the world uses its own remuneration system, reflecting the company goals and traditions, given the company financial resources and capabilities. Therefore, there is no universal, effective remuneration system in passenger aviation. Agreements with the administration, professional skills, the type of airline, the size of the planes and the routes assigned are key factors for the difference in the salaries of the pilots. The average annual salary of a commercial airline pilot in 2018 was \$130 thousand, while more significant salaries were offered by American, European, and Chinese companies. At the same time, wage growth was most significant in Chinese companies that require more and more qualified pilots. This trend will continue in the future, taking into account the growth in air travel, the improved financial performance of airlines, and the shortage of pilots, especially in the APR.

CONCLUSION

The Worlds civil aviation industry is a highly significant factor for the world economy that makes a significant contribution to the transport logistics of passenger and freight traffic. Also it is an industry supplying 58 million jobs. The profession of a pilot of a passenger airliner is one of the most highly paid professions, and it is the pilots who are one of the most expensive specialists in the labor market in general and in the aviation field in particular.

The pilot's salary depends on his qualification characteristics (qualification, experience, flying hours, control skills of an aircraft, the position of the first or second pilot), on the development of the country's economy and the aviation industry of the country in which the pilot works, on the state and development strategies of airlines, as well as the possibility of pilots moving to other airlines in other countries.

Currently, these are the following global trends that significantly affect the labor market of the airline's flight crews: the volume of air traffic in the world is growing rapidly, especially in the Asia-Pacific region, including China. Air transportation in other regions is increasing, but not at such a significant pace. In addition, the rules introduced in 2009 in the United States (which influenced other

¹⁵ Nastoyashchaya zarabotnaya plata pilota grazhdanskoy aviatsii [True salary of the airline pilot]. (2017). MoneyBudget. [Electronic resource]. URL: http://money-budget.ru/earn/zarplata/zarplata-pilota-grazhdanskoj-aviacii.html (accessed 03.01.2019). (in Russian)

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countries as well) force airlines to reduce the number of flying hours for pilots, paying more attention to improving their skills and rest. All this, together with the insufficient training of pilots, creates a shortage of personnel in this market and forces airlines to increase salaries, which has become a global trend in 2016–2018. At the same time, countries that are not able to provide competitive salaries for pilots lose the most qualified personnel (for example, there is an outflow of pilots from Russia and the CIS countries to China). Obviously, taking into account these global trends, trends in the growth of salaries and the flow of personnel in these areas will continue in the coming years.

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Авиация — одна из ведущих отраслей экономики развитых стран. Развитие авиации непосредственно связано со стратегическими интересами любого государства. Развитие рыночных отношений в этой сфере предполагает развитие и совершенствование методов стимулирования труда, оплаты труда работников авиакомпаний, прежде всего летного состава. От политики в области оплаты труда в значительной мере зависит эффективность деятельности авиапредприятия. Заработная плата является важным стимулом эффективной работы авиакомпании, но в настоящее время во многих компаниях методы оплаты труда летного состава не в полной мере соответствуют современным требованиям. В статье представлены основные формы и системы оплаты труда летного состава. Отмечена необходимость совершенствования системы оплаты труда и стимулирования летного состава. Автором предлагаются практические решения в этом направлении.

Ключевые слова: оплата труда, стимулирование труда, заработная плата, гражданская авиация, летный состав, кадровая политика.

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