



Modernization of Fighter Pilot Training in the PLA Air Force Proceeds Apace

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In the past several months, the Chinese People’s Liberation Army (PLA) has reported and released information about new developments in its effort to modernize the PLA Air Force’s (PLAAF) training of prospective fighter pilots. One of the institutions that conduct that training, the Shijiazhuang Flight Academy, is poised to completely replace an older training program and the aircraft used in it, thereby shortening prospective pilots’ training there by a year. Meanwhile, the Xi’an and Harbin Flight Academies are establishing new units to train recent graduates to transition to fighter aircraft, shifting the burden of that training from combat units to the academies. Both these developments indicate that the PLAAF is steadily making progress in long-standing efforts to streamline and centralize its initial fighter pilot training program, efforts that should be complete by the beginning of the next decade.

The Initial Training Program and Its Problems

The PLA does not have service academies or officer training schools. Those who aspire to become pilots in the PLAAF must undergo three years of officer training and education at the PLAAF’s Aviation University before beginning flight training in their fourth and final year at the university.

Until 2020, prospective fighter pilots’ initial training program consisted of four steps. After completing one year of basic flight training at the Aviation University, prospective pilots would proceed to one of the PLAAF’s three flight academies, where they would undergo one year of intermediate flight training and another year of advanced flight training.¹ Those who completed flight training at a flight academy would earn their wings and then be assigned to a combat unit, where they would immediately undergo approximately one year of training to transition to a fighter aircraft.² Therefore, until 2020, it took four years of flight training to produce a fighter pilot in the

PLAAF. In comparison, initial flight training in the U.S. Air Force can take up to two years. The initial fighter pilot training program took approximately eight years at the beginning of the 2010s, so the PLAAF had significantly streamlined the program by the end of the decade.³



A JL-8 armed with cannon and rocket pods

The lack of a suitable advanced trainer hindered the PLAAF's effort to streamline the program further.⁴ In the late 2010s the PLAAF was conducting basic flight training with the piston engine CJ-6, intermediate flight training with the JL-8, and advanced flight training with the JJ-7 or JL-9ⁱ trainers.⁵ The JJ-7 was based on the Mig-21 and had been used for transition training to the third-generationⁱⁱ J-7 and J-8 fighters.⁶ Consequently, the JJ-7 is not the kind of aircraft that a pilot candidate whose only flight training had been in the CJ-6 can immediately operate. The JL-9 is essentially an improved JJ-7, so it, too, likely proved difficult for novices to operate.⁷ Therefore, the PLAAF is likely to have retained the JL-8 and an entire year of intermediate flight training just to prepare pilot candidates to train in the JJ-7 and the JL-9.

However, retaining the JJ-7 and the JL-9 created another problem. Their suitability as advanced trainers only lessened as the PLAAF's effort to replace its third-generation fighters with fourth- and fifth-generation aircraft accelerated in the late 2010s. By the end of the decade, a new advanced trainer was urgently needed to accommodate further revisions to the curriculum and to serve as a bridge between basic flight and transition training.

The Elimination of Intermediate Training

Several years ago the PLAAF's flight academies began receiving the new trainer that was needed. Each flight academy has several training brigades. In 2020 the Shijiazhuang Flight Academy became the first of the flight academies to have a training brigade operating the PLA's newest trainer, the JL-10.⁸ The JL-10 is based on a proven trainer, the Yak-130, and its advanced

ⁱ Chinese sources often refer to the JL-9 as the JJ-9, indicating its status as a lead-in trainer.

ⁱⁱ There is no universal standard for distinguishing fighter jet generations, so the PLA classifies its fighters differently from how they are commonly classified in the USA. For example, the PLA classifies its J-10, J-11, and J-16 as third-generation fighters, not fourth-generation fighters. Paradoxically, however, the PLA has been referring to its J-20 as a fifth-generation fighter, so the PLA's classification standard may be changing—or, perhaps, the PLA just wants to avoid facile and unfavorable comparisons between the J-20 and America's fifth-generation fighters.



A JL-10 armed with cannon and rocket pods

avionics and fly-by-wire controls likely make it easier for novices to operate.⁹ Moreover, being a fourth-generation aircraft itself, it is the only trainer in the PLAAF's inventory that can approximate flight and combat in a fourth-generation fighter.¹⁰ Hence, prospective fighter pilots in a brigade operating the JL-10 undergo an accelerated initial flight training program in which pilot candidates proceed directly from basic flight training to advanced flight training, shortening their training by a year.¹¹

Not all the training brigades of the Shijiazhuang Flight Academy immediately began operating the JL-10, so since 2020 the academy has been conducting initial flight training according to both the old and the accelerated programs. However, between late May and early June 2024, the PLA reported that the academy's last group of pilot candidates to undergo intermediate flight training in the JL-8 had finished their training.¹² The JL-8 would be retired from service at the academy and the academy would no longer conduct intermediate flight training.¹³ Henceforth, all pilot candidates entering the Shijiazhuang Flight Academy will immediately undergo advanced flight and fundamental combat training.¹⁴

The Shijiazhuang Flight Academy's elimination of intermediate flight training and its retirement of the JL-8 indicates that almost all the academy's training brigades now operate the JL-10. The academy is almost certain to have one last training brigade operating the JL-9, but it is likely to retire the JL-9 next year after the last group of pilot candidates to have undergone intermediate flight training in the JL-8 complete their advanced flight training in mid-2025.

The PLAAF's other flight academies have not acquired the JL-10 and adopted the accelerated initial fighter pilot training program as quickly as the Shijiazhuang Flight Academy. The Harbin Flight Academy may have begun training pilot candidates with the JL-10 in 2021, one year after the Shijiazhuang Flight Academy began doing so.¹⁵ Therefore, it is possible that the Harbin Flight Academy will similarly retire the JL-8 in 2025 and then the JL-9 in 2026.

There is no conclusive evidence that the PLAAF's third flight academy, the Xi'an Flight Academy, has any training brigades operating the JL-10 yet, so it is likely that beyond 2026 it will continue conducting flight training with the JL-8 and the JL-9 according to the old initial fighter pilot training program.¹⁶ Therefore, from 2026 it is possible that the majority of, but not all, the PLAAF's potential fighter pilots will complete their initial flight and transition training in three years.

New Transition Training Brigades

As the PLAAF has been making progress in its effort to streamline its initial fighter pilot training program, it has also been making progress in its effort to centralize the program. Training new pilots to fly and fight in fighters has mostly been the responsibility of the combat units receiving the pilots, but the PLAAF's flight academies have been taking on a greater role in transition training. In 2021 the Shijiazhuang Flight Academy began conducting year-long transition training with the J-10 for graduates of the accelerated initial fighter pilot training program.¹⁷ The Xi'an Flight Academy probably began conducting transition training with the J-11 in late 2021.¹⁸



A J-10S at the Xi'an Flight Academy. The J-10S is a two-seat version of the J-10 fighter.

The reports about the elimination of intermediate flight training at the Shijiazhuang Flight Academy coincided with the publication and broadcast of new information indicating that transition training is expanding at the Xi'an and Harbin Flight Academies. Between April and July 2024, the PLA published and broadcasted evidence that a brigade at the Xi'an Flight Academy is now operating the J-10 fighter.¹⁹ In addition, in June 2024 a PLA television news program showed new pilots at the Harbin Flight Academy training to attack ground targets in the J-11BS, a two-seat variant of the J-11B fighter.²⁰

Although only flight instructors have been mentioned training in the J-10 at the Xi'an Flight Academy, it is likely that the academy will begin conducting transition training for new pilots in the autumn of 2024 if it has not already done so.²¹ This would conform with past practice: the Shijiazhuang Flight Academy received the J-10 one year before it began conducting transition training.²² The Harbin Flight Academy is likely to have begun transition training with the J-11 by late 2023 because flight training commences in September of each year, so the air-to-ground attack training indicates the existence of a training program that began in the previous year.

The elimination of intermediate training at the Shijiazhuang Flight Academy and the expansion of transition training at the Xi'an and Harbin Flight Academies indicate that the PLAAF's reform of its initial fighter pilot training program is progressing as expected: a years-long effort to accelerate the program is approaching completion, and more training brigades are being established at the flight academies to shift the burden of transition training from combat units to institutions that are dedicated to training.²³

It is likely that the PLAAF will retain some old trainers and the old training program for almost as long as it continues to operate some third-generation fighters, but given the progress of the PLAAF's effort to replace such fighters, it is safe to predict that those fighters will all be retired around 2030. The PLAAF is likely to totally eliminate its old trainers and the old training program several years before it retires its third-generation fighters. The operation of those fighters will probably be left to a shrinking group of experienced pilots whose retirements may coincide with the retirement of their aircraft. It is likely that the PLAAF will need until at least 2030 to establish enough new training brigades to completely shift transition training away from combat units, but the pace of this effort could increase as each flight academy acquires more experience and personnel to accomplish it. Consequently, it is likely that by the early 2030s the PLAAF will have completely modernized its institutions, aircraft, and program for training fighter pilots.

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Endnotes

¹ Citing the China Aerospace Studies Institute’s “China’s Little Eagles: People’s Liberation Army Developing its Next-Generation Pilots,” I wrote in “Initial Fighter Pilot Training in the PLA Air Force” that the duration of basic flight training had been changed to six months in 2012. “China’s Little Eagles” cited a book from the publishing house of the PLA’s Academy of Military Science. However, students who are simultaneously enrolled at one of three civilian universities and the PLAAF’s Aviation University spend their fourth and final year of enrollment in basic flight training, and an officer in a training brigade at Xi’an Flight Academy recently explained that basic flight training lasts for one year. It is possible that the book that was cited in “China’s Little Eagles” was wrong, or it is possible that there have been changes to the basic flight training program since the book was published, but it is also possible that “six months” refers to a period of pure flight training, a period that is part of a year including classroom instruction. “China’s Little Eagles: People’s Liberation Army Developing its Next-Generation Pilots,” China Aerospace Studies Institute, November 13, 2019, 7, https://www.airuniversity.af.edu/Portals/10/CASI/documents/Research/Other-Topics/2019-11-13%20Little_Eagles.pdf; Derek Solen, “Initial Fighter Pilot Training in the PLA Air Force,” China Aerospace Studies Institute, February 16, 2021, 2, <https://www.airuniversity.af.edu/CASI/Articles/Article-Display/Article/2502985/initial-fighter-pilot-training-in-the-pla-air-force/>; “志在蓝天！我国空军首批歼-11B 战机组女飞行学员顺利单飞” [My aspiration is the blue sky! The first female J-11B fighter pilot candidates of our country’s air force easily conduct solo flights], 央视新闻客户端 [CCTV News Client], March 14, 2023, accessed August 7, 2024, https://content-static.cctvnews.cctv.com/snow-book/index.html?item_id=1276723747243431206.

² Transition training at the flight academies lasts for one year, so it is possible that most combat units have been conducting transition training for the same duration. Even after the initial fighter pilot training program was shortened in 2012, though, transition training for the J-7 was taking two years. Derek Solen, “PLA Air Force Shifts Transition Training to the Schoolhouse,” China Aerospace Studies Institute, November 3, 2021, 2, <https://www.airuniversity.af.edu/CASI/Articles/Article-Display/Article/2831138/pla-air-force-shifts-transition-training-to-the-schoolhouse/>; Solen, “Initial Fighter Pilot Training,” 10n6.

³ Solen, “Initial Fighter Pilot Training,” 1.

⁴ Solen, “Initial Fighter Pilot Training,” 2-3.

⁵ Solen, “Initial Fighter Pilot Training,” 2-3.

⁶ Solen, “Initial Fighter Pilot Training,” 2-3.

⁷ Solen, “Initial Fighter Pilot Training,” 3.

⁸ Solen, “Initial Fighter Pilot Training,” 3-4.

⁹ Solen, “Initial Fighter Pilot Training,” 3.

¹⁰ Solen, “Initial Fighter Pilot Training,” 3.

¹¹ Solen, “Initial Fighter Pilot Training,” 3-4.

¹² 李敏 [Li Min], 贾晓永 [Jia Xiaoyong], 张力元 [Zhang Liyuan], 晏涛 [Yan Tao], 杜梦尧 [Du Mengyao], and 肖政言 [Xiao Zhengyan], “飞行人才培养加速转型升级” [Transformation and upgrading of flight personnel training accelerates], 正午国防军事 [National Defense and Military Affairs at Noon], aired May 22, 2024, on CCTV-7, accessed August 5, 2024, <https://tv.cctv.com/2024/05/22/VIDEfOgKGkbcTyoyFYzIpnE2240522.shtml>; 李敏 [Li Min], 贾晓永 [Jia Xiaoyong], 张力元 [Zhang Liyuan], 晏涛 [Yan Tao], 杜梦尧 [Du Mengyao], and 肖政言 [Xiao Zhengyan], “空军石家庄飞行学院：最后一批教-8 飞行学员顺利结业” [The air force’s Shijiazhuang Flight Academy: the last group of JL-8 pilot candidates finishes training without problems], 国防军事早报 [Morning Report on National Defense and Military Affairs], aired May 23, 2024, on CCTV-7, accessed August 5, 2024, <https://tv.cctv.com/2024/05/23/VIDEk9wHpYYQlPBEUI8KIHHM240523.shtml>; 李敏 [Li Min] and 李建文 [Li Jianwen], “最后一批教-8 飞行学员结业” [Last group of JL-8 pilot candidates finishes training], 解放军报 [Liberation Army News], June 6, 2024, accessed August 5, 2024, <https://tv.cctv.com/2024/05/22/VIDEfOgKGkbcTyoyFYzIpnE2240522.shtml>.

¹³ Li Min et al., “Transformation and upgrading of flight personnel training accelerates”; Li Min et al., “The air force’s Shijiazhuang Flight Academy: the last group of JL-8 pilot candidates finishes training without problems”; and Li Jianwen, “Last group of JL-8 pilot candidates finishes training.”

¹⁴ Li Min et al., “Transformation and upgrading of flight personnel training accelerates”; Li Min et al., “The air force’s Shijiazhuang Flight Academy: the last group of JL-8 pilot candidates finishes training without problems,” Li Jianwen, “Last group of JL-8 pilot candidates finishes training.”

¹⁵ The Shijiazhuang Flight Academy acquired the JL-10 one year before it began training pilot candidates with it. It is unknown when the Harbin Flight Academy began training pilot candidates with the JL-10, but the academy acquired the JL-10 in 2020, so like the Shijiazhuang Flight Academy, it may have begun training pilot candidates with the JL-10 in 2021, one year after acquisition of the aircraft. Solen, “Initial Fighter Pilot Training,” 3-4.

¹⁶ From late 2022 to mid-2023 the Xi’an Flight Academy trained a group of new pilots who had undergone advanced flight training with the JL-10 to fly the J-11B, but there is no evidence that any training brigade at the academy operates the JL-10. It is likely that the new pilots had undergone advanced flight training at one or both of the other flight academies. After all, a group of female pilot candidates who underwent transition training for the J-11B at the Xi’an Flight Academy during the same time period indeed transferred to Xi’an from another flight academy. “志在蓝天！我国空军首批歼-11B 战机女飞行学员顺利单飞” [My aspiration is the blue sky! The first female J-11B fighter pilot candidates of our country’s air force easily conduct solo flights].

¹⁷ Solen, “PLA Air Force Shifts Transition Training,” 2.

¹⁸ Derek Solen, “PLA Air Force Expands Fourth-Generation Transition Training to Another Academy,” China Aerospace Studies Institute, February 6, 2023, 1-2,

<https://www.airuniversity.af.edu/CASI/Display/Article/3282262/pla-air-force-expands-fourth-generation-transition-training-to-another-academy/>.

¹⁹ 常建礼 [Chang Jianli], 焦正行 [Jiao Zhengxing], and 李昱辰 [Li Yuchen], “战鹰振翅飞，亮剑再起航” [A warbird flaps its wings and flies; a shiny sword again takes to the sky], post to WeChat account 西部育鹰网 [Raising Hawks in the West Online], April 9, 2024 (6:30 AM), accessed August 7, 2024, permalink unavailable; 张云鹤 [Zhang Yunhe] and 洪翊凯 [Hong Yikai], “春日练兵场 | 助力战鹰高飞远航” [At the training site on a spring day: helping warbirds fly higher and farther], post to WeChat account 西部育鹰网 [Raising Hawks in the West Online], April 27, 2024 (5:27 AM), accessed August 7, 2024, permalink unavailable; “陌生靶场歼-10 战机地靶实弹训练” [Air-to-ground live-fire training in the J-10 at an unfamiliar training range], 生涛 [Shengtao], 子立 [Zili], 正行 [Zhengxing], 昱辰 [Yuchen], 志晔 [Zhiye], 朝阳 [Chaoyang], 建礼 [Jianli], 张晴 [Zhangqing], and 潇玉 [Xiaoyu], 正午国防军事 [National Defense and Military Affairs at Noon], aired July 15, 2024, on CCTV-7, accessed August 7, 2024, <https://tv.cctv.com/2024/07/15/VIDEcPviPp1J7v0rKdNclBfM240715.shtml>; 李昱辰 [Li Yuchen], “野外驻训热浪涌 从难从严砺精兵” [Heat wave of long-term field training surges: training troops rigorously and strictly], 解放军报 [Liberation Army News], August 7, 2024, accessed August 7, 2024, http://www.81.cn/szb_223187/szbqxq/index.html?paperName=jfjb&paperDate=2024-08-07&paperNumber=01&articleid=936964. Only the given names of the producers of the television news report were provided.

²⁰ “陌生靶场实弹射击训练 真实模拟战场环境” [Live-fire training at an unfamiliar training range truly simulates a battlefield environment], 杨明 [Yang Ming], 周斌 [Zhou Bin], 杨少龙 [Yang Shaolong], 魏来 [Wei Lai], 袁庭瑞 [Yuan Tingrui], and 陈兴利 [Chen Xingli], 正午国防军事 [National Defense and Military Affairs at Noon], aired June 3, 2024, on CCTV-7, accessed August 9, 2024, <https://tv.cctv.com/2024/06/03/VIDEIdC5oRChi8hQ36za8wV5240603.shtml>.

²¹ Chang Jianli et al., “A warbird flaps its wings and flies; a shiny sword again takes to the sky” and Shengtao et al., “Air-to-ground live-fire training in the J-10 at an unfamiliar training range.”

²² Solen, “PLA Air Force Shifts Transition Training,” 2.

²³ Solen, “PLA Air Force Shifts Transition Training,” 2; Solen, “PLA Air Force Expands Fourth-Generation,” 1-2.