Unmanned Aircraft System / UAS Flight Manual

(DID, night, beyond visual line of sight, 30 m, hazardous materials, object drop)

Applicable to applications with an unspecific location

Name of operator: _____

Japan Civil Aviation Bureau / JCAB of the Ministry of Land, Infrastructure, Transport and Tourism /
MLIT Standard Manual (2) (March 31, 2025 edition)

About this manual

This manual describes the procedures, etc. necessary for flying an Unmanned Aircraft System / UAS with permission and approval based on the Civil Aeronautics Act.

The procedures, etc. described in this manual are considered to be at least necessary to ensure the safe flight of any Unmanned Aircraft System / UAS, and in addition to complying with this manual, operators must fully understand the functions and performance of the aircraft to be used and take all possible measures for the safe flight of an Unmanned Aircraft System / UAS, such as taking additional safety measures after examining in advance the flight risks that may occur depending on the mode of the flight and the place.

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1. Inspection and maintenance of Unmanned Aircraft System / UAS

1-1. Inspection and maintenance of the aircraft

Based on the "Procedures for Handling the Flight Logbook of Unmanned Aircraft System / UAS," the daily inspection items are as follows, and the aircraft is inspected and maintained.

(1) Pre-flight inspection

Before the flight, the aircraft shall be inspected for the following points:

- Are devices securely attached (coming off, loosening, etc. of screws, etc.)?
- Is there any abnormal noise from the engine and motor?
- Is there any damage or distortion to the airframe (propeller, frame, etc.)?
- Is the amount of fuel or battery charge sufficient?
- Is the communication system, propulsion system, power system and automatic control system operating normally?

(2) Post-flight inspection

After the flight, the aircraft shall be inspected for the following points:

- Is there dust on the aircraft?
- Are devices securely attached (coming off, loosening, etc. of screws, etc.)?
- Is there any damage or distortion to the airframe (propeller, frame, etc.)?
- Is there any abnormal heat generated by each device?

(3) The Unmanned Aircraft System / UAS shall be inspected every 20 hour flight for the following items:

- Are there any parts that need to be replaced?
- Are devices securely attached (coming off, loosening, etc. of screws)
- Is there any damage or distortion to the airframe (propeller, frame, etc.)?
- Is the communication system, propulsion system, power system and automatic control system operating normally?

1-2. Preparation of inspection and maintenance records

When an Unmanned Aircraft System / UAS is inspected and maintained before and after a flight and every 20 hours of flight as specified in 1-1. (1) to (3), the inspection and maintenance records shall be prepared and managed in accordance with the "Procedures for Handling the Flight Logbook of Unmanned Aircraft System / UAS."

2. Training and matters to observe for persons who fly an Unmanned Aircraft System / UAS

2-1. Acquisition of basic flight skills

In order to get used to the operation of the proportional controller, an operation practice shall be conducted for at least 10 hours until the operator learns to perform the following operations easily. In addition, flight training shall be conducted under the supervision of a person with sufficient experience. Training shall be conducted in places for which permission, etc. is not required or permission, etc. has been obtained for training.

Item	Content
Take-off and landing	The operator shall be able to make the aircraft take off from a position 3 m away from the operator to a height of 3 m and land within the specified range. The operator shall be able to perform this flight five times consecutively and stably.
Hovering	The operator shall be able to make the aircraft stay within a designated area (within a radius of 1 m) by hovering for a certain period of time at the eye height of the operator who flies the aircraft.
Lateral movement	The operator shall be able to make the aircraft move to and land at a landing point 20 m away laterally from the designated takeoff point. The operator shall be able to perform this flight five times consecutively and stably.
Longitudinal movement	The operator shall be able to make the aircraft move to and land at a landing point 20 m away longitudinally from the designated takeoff point. The operator shall be able to perform this flight five times consecutively and stably.
Flight in a horizontal plane	The operator shall be able to make the aircraft move through designated points in order while maintaining a certain height. The operator shall be able to perform this flight five times consecutively and stably.

2-2. Acquisition of operation skills necessary to implement work

After acquisition of basic operation skills, operation training shall be conducted to enable the operator to perform the following operations: Training shall be conducted in places for which permission, etc. is not required or permission, etc. has been obtained for training.

Item	Content
Flight facing the operator	The operator shall be able to smoothly perform lateral movement, longitudinal movement, and flight in a horizontal plane through flight facing the operator.
Combination of flights	The operator shall be able to stably fly the aircraft by combining horizontal flight and ascent and descent 5 times consecutively at a point 10 m away from the operator.
Figure-eight flight	The operator shall be able to perform figure-eight flights five times consecutively and stably.

2-3. Retention of flight skills

In order to retain the control skills specified in 2-1 and 2-2, operation training shall be conducted periodically. Training shall be conducted in places for which permission, etc. is not required or permission, etc. has been obtained for training.

2-4. Night flight training

In order to ensure that the operations listed in 2-2 can be performed stably even at night, training shall be conducted at a place for which permission, etc. for training has been obtained or indoors.

2-5. Operation training for flight beyond visual line of sight

In order to ensure that the operations listed in 2-2 can be performed stably even in flight beyond visual line of sight, training shall be conducted at a place for which permission, etc. for the training has been obtained or indoors.

2-6. Flight training for object drop

In order to achieve stable attitude control of the aircraft before and after object drop, and to accumulate the experience of object drop five times or more, the training shall be conducted at a place for which permission, etc. for the training has been obtained or indoors.

2-7. Preparation of flight records

When you fly an Unmanned Aircraft System / UAS, you shall prepare and manage flight records in accordance with the "Procedures for Handling the Flight Logbook of Unmanned Aircraft System / UAS."

2-8. Matters that must be observed by a person flying an Unmanned Aircraft System / UAS

(1) In order to prevent injury to third parties, do not fly an Unmanned Aircraft System / UAS over third parties.
(2) Before the flight, confirm that the weather, the condition of the aircraft, and the flight route are in a condition where the aircraft can fly safely and that the place to fly is not designated as an emergency response airspace.
(3) Suspend the flight immediately in the event of an unexpected situation where you cannot fly an Unmanned Aircraft System / UAS safely such as a gust of 5 m/s or more. However, if the manufacturer's instruction manual or other documents confirm that the drone can be flown in wind gusts of 5 m/s or more, then flight will be subject to those conditions.
(4) Suspend the flight immediately when it is found that the aircraft flies over a place where many people gather.
(5) Do not fly an Unmanned Aircraft System / UAS while you are likely to be unable to fly it normally owing to the influence of alcohol or drugs.
(6) Do not fly the aircraft over areas where there is a risk of flight danger.
(7) Do not fly the aircraft if you find an aircraft in flight beforehand.

(8) If you find another Unmanned Aircraft System / UAS in flight beforehand, the flight date, flight route, flight altitude, etc. shall be coordinated with the person flying the other Unmanned Aircraft System / UAS.
(9) If you find an aircraft in flight during the flight of your aircraft, avoid approaching or colliding with the aircraft by landing your aircraft or the like.
(10) If you find another Unmanned Aircraft System / UAS in flight during the flight of your aircraft, fly your aircraft keeping a safe distance from the Unmanned Aircraft System / UAS. In other cases where it is deemed that there is a risk of collision, avoid close approach or collision by landing your aircraft or the like, and the flight date, flight route, flight altitude, etc. shall be coordinated with the other person flying the Unmanned Aircraft System / UAS.
(11) Do not make the aircraft fly unnecessarily at a low altitude, emit high-pitched sounds, dive, or perform any other flight that may cause trouble to others.
(12) When suspending or towing a objects, it is required to set the limits for flight distance and altitude and avoid unnecessary flights. Also the impact on third parties and properties in the vicinity of the relevant location (neighborhood) should be confirmed and evaluated on-site in advance, taking into account unforeseen circumstances such as gusty winds and radio interference, and the number of assistants should be increased, etc.
(13) Do not fly the aircraft in clouds or fog where sufficient visibility is not secured.
(14) Perform periodic inspection and maintenance of the aircraft in accordance with the "Procedures for Handling the Flight Logbook of Unmanned Aircraft System / UAS" and prepare records of inspection and maintenance.
(15) In accordance with the "Procedures for Reporting the Flight Plans of Unmanned Aircraft System / UAS," report the flight plan in advance using the Drone/UAS Information Platform System (flight plan reporting functions) In addition, use the system to confirm the flight plan information of the other Unmanned Aircraft System / UAS related to the flight route.
(16) In accordance with the "Procedures for Handling the Flight Logbook of Unmanned Aircraft System / UAS," prepare the flight records for each flight.
(17) In the event of the occurrence of an event prescribed in the "Procedures for Reporting Accidents and Serious Incidents of Unmanned Aircraft System / UAS," based on the relevant procedures, use the Drone/UAS Information Platform System (Accident Reporting Functions) to report immediately the information to the government office that issued the permission in case of permitted flights and to the government office that has jurisdiction over the flight route in case of unauthorized flights.
(18) In the event of the occurrence of a situation requiring rescue and protection of the injured, immediately stop the flight of the Unmanned Aircraft System / UAS and take rescue and protection measures as described in the "Procedures for Reporting Accidents and Serious Incidents of Unmanned Aircraft System / UAS."
(19) When you fly an Unmanned Aircraft System / UAS, carry the original or a copy of the permit or approval. Electronic data may also be carried.

3. System required to ensure safety

3-1. Basic system for flying an Unmanned Aircraft System / UAS

(1) Ensure sufficient space, confirm surrounding conditions, and do not fly the aircraft over third parties. In the unlikely event that a third party enters the flight range, take measures such as suspending the flight.

(2) Do not fly the aircraft in a state where the wind speed is 5 m/s or more. However, if the manufacturer's instruction manual or other documents confirm that the drone can be flown in wind gusts of 5 m/s or more, then flight will be subject to those conditions.

(3) Do not fly the aircraft when it is raining or is likely to rain. However, this does not apply if the manufacturer's instruction manual or other documents confirm that the drone can be flown in the rain.

(4) Do not fly the aircraft in clouds or fog where sufficient visibility is not secured.

(5) At the time of flight, assign the necessary number of assistants to ensure safety and adopt a system to mutually confirm safety. In addition, if it is possible to clearly indicate the entry control area by installing walls, fences, etc., or installing signboards, cones, etc., to restrict the entry of third parties according to the flight range and the surrounding environment, and to reliably restrict the entry of third parties, it can substitute for the assistant placement.

(6) The assistant shall call attention to prevent any third party from entering the flight range.

(7) The assistant shall constantly monitor the flight conditions of the Unmanned Aircraft System / UAS and changes in the surrounding weather conditions, etc., at a position where he or she can oversee the entire flight route, and shall give necessary advice to the operator so that he or she can fly it safely.

(8) Do not fly the aircraft in places where helicopters and other aircraft take off and land and may collide with aircraft in flight.

(9) Do not fly the aircraft over places where there is a lot of third-party traffic, places where many unspecified people gather such as schools, hospitals, shrines and temples, tourist facilities, etc.
However, when a request for a flight is received from the relevant facility, the flight shall be made over a certain area of space, while limiting the flight route to the relevant facility, during a time period such as school holidays, closed days for medical examinations, or early morning, when a third party is unlikely to come and go. In addition, restrict the entry of a third party under the route, and if a third party enters the space under the route, immediately suspend the flight as well as confirm and assess the impact on third parties and objects in the vicinity of the place taking into account gusts of wind, etc. on site in advance, and increase the number of assistants.

(10) Do not fly the aircraft over or near expressways, busy roads or railways.

(11) Do not fly the aircraft over or near high-voltage lines, substations, radio towers, radio facilities, etc.
However, when flights are necessary for the inspection of facilities such as high-voltage lines, substations, radio towers, radio facilities, etc., limit the flight range to prevent unnecessary flights. In addition, fly the aircraft over a certain area of

space and restrict the entry of a third party under the route, and if a third party enters the space under the route, immediately suspend the flight. In addition, in consideration of unforeseen circumstances such as gusts of wind and radio interference, confirm and assess the impact on third parties and objects in the vicinity of the place concerned (neighboring areas) on site in advance, and increase the number of assistants.

(12) Confirm and assess the impact on people and objects around the flight site on site in advance, and increase the number of assistants, etc.

(13) Select a take-off and landing site that is at least 30 m away from a person or object as much as possible, and select a flight route where the entry of third parties in the vicinity can be restricted.

(14) If a third party enters the flight site, immediately suspend the flight.

(15) Do not conduct night flights over areas densely populated with people or houses.

(16) Do not conduct flights beyond visual line of sight over areas densely populated with people or houses.
However, when it is necessary to fly the aircraft for unavoidable business reasons, it is essential to perform an assistant placement who can communicate with the operator at all times, and limit the flight range to prevent unnecessary flights. In addition, fly the aircraft over a certain area of space and restrict the entry of a third party under the route, and if a third party enters the space under the route, immediately suspend the flight. In addition, in consideration of gusts of wind, etc., confirm and assess the impact on third parties and objects in the vicinity of the place concerned (neighboring areas) on site in advance, and increase the number of assistants.

(17) Do not conduct flights beyond visual line of sight at night.

*In addition to 3-1, implement properly the necessary systems described in 3-2 to 3-7 according to the flight configuration.

3-2. System for flying the aircraft over an area densely populated with people or houses, or for flying the aircraft for which a distance of 30 m cannot be maintained from people or objects on land or water

(1) The Unmanned Aircraft System / UAS you fly shall be equipped with propeller guards. If the aircraft cannot be equipped with guards, be sure to assign an assistant who monitors and calls attention to prevent a third party from entering the space under the flight route, and if a third party approaches or enters the space under the flight route, take appropriate safety measures such as giving appropriate advice to the operator and suspending the flight. When implementing third-party entry control measures in the flight range as described in 3-1 (5), it can substitute for the assistant placement.

(2) The assistant informs the surrounding people about the flight of the Unmanned Aircraft System / UAS.

3-3. System for night flight

(1) During night flight, flight beyond visual line of sight shall not be conducted, and an aircraft equipped with lights with which the direction of the aircraft can be visually confirmed shall be used, and the flight shall be limited to within the range where the lights of the aircraft can be easily recognized.
(2) During the daytime, the route to be flown and any obstructions in the vicinity shall be checked in advance, and an appropriate flight route shall be selected.
(3) The operators shall be limited to those who have completed night flight training.
(4) Assistants should also have a sufficient understanding of the characteristics of the Unmanned Aircraft System / UAS they are flying. When implementing appropriately third-party entry control measures as described in 3-1 (5), it can substitute for the assistant placement.
(5) At the take-off and landing place at night, secure sufficient illumination at an aircraft take-off and landing place by a headlight of a car, lighting equipment for photographing, etc.

3-4. System for flight beyond visual line of sight

(1) Prior to flight, confirm that there is no third party under the flight route, and the operator who performs flight beyond visual line of sight with an assistant with binoculars, etc.
(2) The operator shall be limited to those who have completed flight beyond visual line of sight training.
(3) The operators shall be limited to those who have completed flight beyond visual line of sight training. When implementing third-party entry control measures in the flight range as described in 3-1 (5), it can substitute for the assistant placement.

3-5. System for transportation of hazardous materials or object drop

(1) Based on 3-1, appropriately assign the assistant and fly the aircraft. When implementing third-party entry control measures in the flight range as described in 3-1 (5), it can substitute for the assistant placement.
(2) In the case of transportation of hazardous materials, the hazardous materials shall be handled safely in accordance with the relevant laws and regulations.
(3) In the case of object drop, the operator shall be limited to a person who has completed the training for object drops.

3-6. Emergency communication system

(1) Check the contact information of the police station, fire station, etc. that has jurisdiction over the place of flight in advance, and if an event listed in 2-8 (17) occurs, immediately contact the police station, fire station, other necessary organizations, etc. as well as the Unmanned Aircraft Systems Division, Japan Civil Aviation Bureau / JCAB Aviation Safety and Security Department of the Ministry of Land, Infrastructure, Transport and Tourism / MLIT, the Flight Operations Division, Security Department, Regional Civil Aviation Bureau, or the Airport Office that issued the permission, etc. as listed in the table: Accidents with Unmanned Aerial Vehicles on the website of the Ministry of Land,

Infrastructure, Transport and Tourism. For reports outside office hours such as at night, contact the 24-hour airport office by telephone.