

(Notice)

2019 June 10th

Office of Air and Space Bureau

### About factor of F-35A fighter crash and relapse prevention measures

On April 9th (Tuesday), the 3rd Air Wing (Misawa base), belonging to the Air Self-Defense Force, experienced an F-35A crash and grounded F-35A operations.

The Air Self-Defense Force, based on the matters known so far regarding this accident, will thoroughly implement measures such as education and training for F-35A pilots to prevent a recurrence of this accident.

#### 1. Summary of the crash:

(1) Date of occurrence:

April 9 (Tuesday) 19:27 (the exact crash time was estimated to be 19:26:30).

(2) Occurrence location:

Aomori Prefecture, Eastern Pacific Ocean (135km east of Misawa base).

(3) Overview:

The F-35A fighter aircraft belonging to the 3rd Air Wing, 302nd Tactical Fighter Squadron (Misawa base), took off from Misawa base as the lead of a four-aircraft formation at around 18:59. While conducting air-to-air combat training with between the four same-type aircraft, in the east training airspace, the radar wake disappeared and the aircraft crashed.

(4) The pilot:

Major Akinori Hosomi (41 years old)

#### 2. Matters identified so far (by data link, ground radar, etc recordings):

1. At around 19:25, the aircraft transmitted that it had shot down two opposing aircraft for training.
2. At 19:26, upon receiving a descent instruction from the ground control agency to separate from a US military aircraft, the aircraft sent a "Yes. Roger that" message and starts a left descending turn (at approximately 31,500ft).

3. At around 19:26:15, after receiving an instruction from the ground control agency to turn left to separate from a US military aircraft, the F-35A turned left and sent "Yes, knock it off (stop training)" (at about 15,500ft). At this time, the transmission is performed with a calm voice. Between points 2 and 3 there is a sudden descent attitude with an average descent rate of about 900km/h or more.
4. At around 19:26:30, the radar track disappeared and the aircraft crashed shortly after. Between points 3 and 4, for about 15 seconds, the steep descent attitude continued, with an average descent rate of 1,100km/h or more. The aircraft is estimated to have crashed shortly after. There is no evidence of an ejection during that time. In addition, the fuselage was destroyed violently, with parts and fragments scattered on the seabed.

### 3. Factor analysis:

#### (1) Between points 1 and 3, the pilot:

- A. had continued to communicate, but gave no communication that suggested an anomaly with the aircraft.
- B. In response to instruction from the ground control agency, replied with "Yes. Roger that", and after intentional thrusting, descent and turning, sent "Yes, knock it off". From these statements, it is believed that the pilot was conscious during this period and the aircraft was operating normally.

(2) Between points 3 and 4, (about 15 seconds after sending "Yes, knock it off"). Regarding the possibility of the pilot being unconscious and aircraft abnormalities occurring, it is not possible to fall into unconsciousness due to hypoxia in a short time while descending at a low altitude, while G-LOC\*, problems with engine control, maneuvering, electrical systems, etc have an extremely low possibility due to the normal interaction ("Yes, knock it off") occurring after the left turn, and no further maneuvering, communication or escape have been confirmed to occur.

\* G-LOC: loss of consciousness due to G-forces.

(3) Between points 2 and 3, the average descent rate is about 900km/h or more, between points 3 and 4, the average descent rate is 1,100km/h or more, and there is no possibility of loss of thrust or a defect in the airframe structure. Even at low altitudes no recovery maneuver was seen, so it is presumed that the pilot had fallen into "spatial disorientation" (a state of losing balance), and is highly likely that the pilot was not aware of it.

#### 4. Measures:

(1) For the likely cause of "spatial disorientation", implement measures:

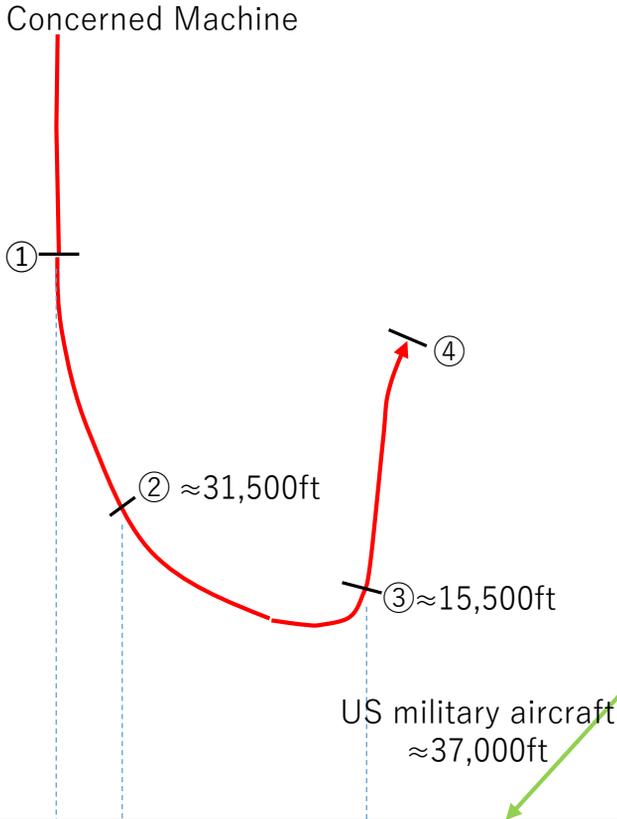
- A. Spatial awareness education for F-35A pilots.
- B. Training with spatial awareness training equipment and simulators for F-35A pilots.

(2) For the very unlikely, but still possible, causes of G-LOC unconsciousness, or problems with aircraft engine control, maneuvering or electrical systems:

- A. Education for all F-35A pilots on loss of consciousness due to G-LOC.
- B. Perform special inspections of F-35A fighters (engine controls, steering and electrical systems).

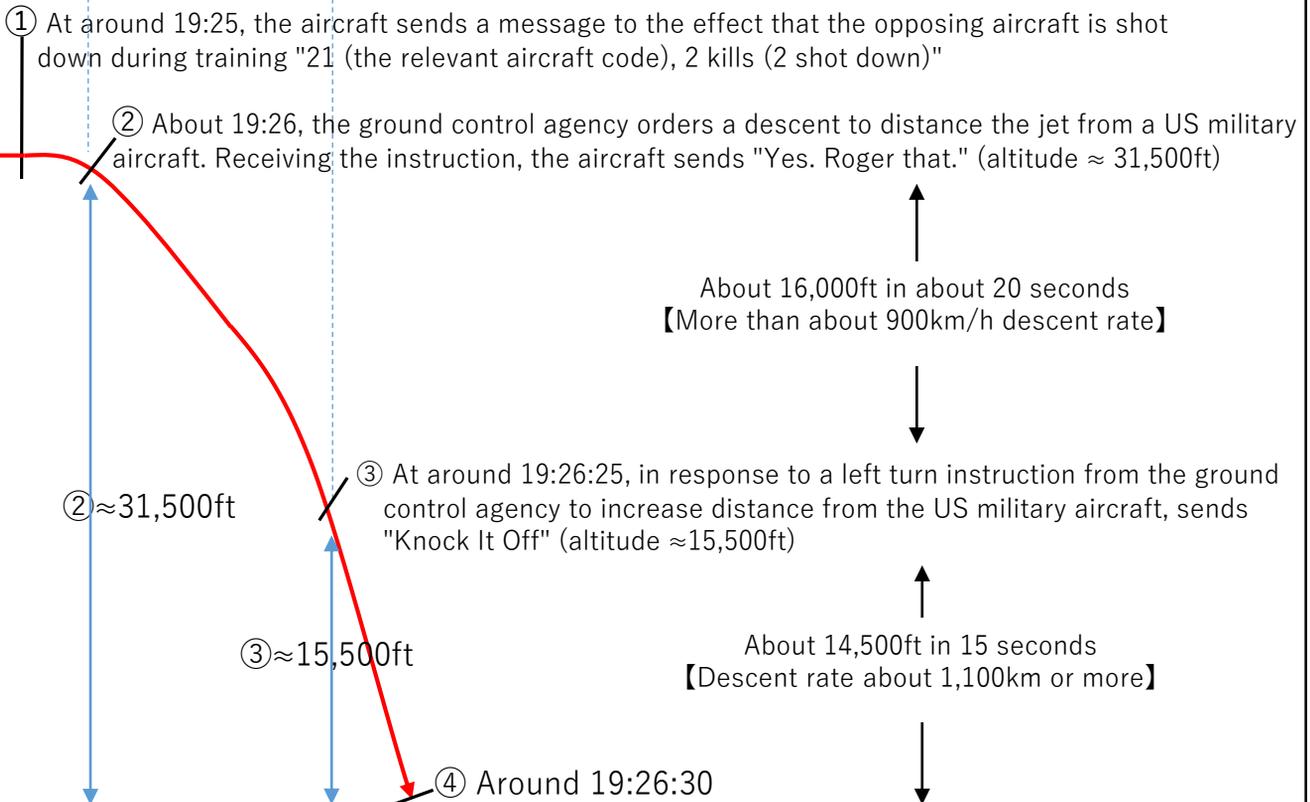
# 航跡概要図 (イメージ)

## 【Horizontal View】



Name	F-35A
	Fighter
Model	
Aircraft	Length: 16m Width: 11m全 Height: 4m
Type	Single seat (1 person)
Thrust	43,000lbs×1 engine
Speed	Up to M1.6
Cruising Distance	Range : approx 2,200km Combat radius : approx 1,093km
Armament	AIM-120C :4 (interior) AIM-9X :2 (exterior) JDAM(2,000lb), etc

## 【Vertical View】



# Wake Outline Map (Image)

【Reference】 P : the relevant operator (21 : the relevant call code)  
G : Ground control agency

