

## FIELD SERVICE NEWS

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FAN-005

Date: 15 December, 1969

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### Flight in FA-200 in mountainous area

#### 1. Forward

Fuji Heavy Industries, Ltd. believes that you have fully satisfied with stable maneuverability of your FA-200. For enjoying pleasant, safe flight, your special attention is invited to the following information. Available records indicate that most aircraft accidents have occurred in mountainous areas, and the following are considered to be the probable causes for the accidents:

- a. The aircraft was trapped in mountainous area and failed to get out of the area.
- b. The aircraft failed to ascend along walls of a mountain, resulting in a forced down, or stall occurred while orbiting in an attempt to escape.
- c. The aircraft contacted high tension cables or trees etc., drifted by down-draft or flank wind.
- d. Air intake system of the aircraft became frozen during flying over a mountain.

e. Collision against mountain due to poor visibility.

In this Field Service News, description is made mainly on items "a" through "c" above, giving considerations on the performance of EA-200.

## 2. Local weather in mountainous area

Let's reexamine weather conditions at mountainous area, although you may be familiar with them. Especially, attention is invited to the powerful blow-down air current at mountainous area.

Even at a plain where ordinary surface wind is blowing, very high turbulence occurs sometimes due to irregular wind wave, local ascending or descending air current. This phenomenon is more peculiar at a mountainous area. Ascending or descending air current flows along the slope of mountain, and high turbulence occurs in the down wind stream due to wave of wind blowing down from the summit of the mountain. Probability for occurrence of this phenomenon increases in proportion to increases of wind power and velocity. Ascending air current is advantageous to aircraft flight as may be easily understood from the fact that a glider utilizes ascending air current to obtain the necessary altitude.

Very frequently, descending air current exceeds the maximum rate of climb of a light plane. In such a case, the airplane is considered to be flying down with respect to the ground although it may be flying up with respect to the air flow. It is generally known that turbulence occurs toward a range three times as great as the height of the surrounding mountains when wind is blowing hard.

## 3. Precautions during flight

First, it must be emphasized that you should avoid making a flight in a mountainous area, especially on a windy day. It should also be

noted that wind blows in mountainous area although no wind is noticed blowing on the surface of the plain. When flying in a valley surrounded by mountains and the flight is made under a sufficient speed, you may be able to ascend and easily escape by means of chandelle; otherwise, you may lose chance to get out of the area. To make it worse, descending air current exists in such a place in most cases.

When flying over a mountain, examine geographical conditions in advance and select a course in as low altitude as possible. Even if you are confident in that there is a sufficient altitude separation, you will not be able to fly over the mountain in most cases due to the existence of descending air current. Hence, you should absolutely avoid flying up along wall-shape mountain slope. It will be safer to select a course in low-altitude place such as narrow plain between mountains, etc. keeping a sufficient altitude separation.

Although the condition is not worse as described above, when you make a flight in the vicinity of a slope of mountain, similar hazardous conditions may exist. To be specifically, the aircraft may be turned around due to turbulence of layer of discontinuity between winds on the mountain and the ground, the aircraft may be blown by wind, or may accidentally contact high tension cables or trees.

#### 4. Escaping from space between mountains

In the event that you have been trapped in a space between mountains, try to escape from the area by orbiting with every possible performance of the aircraft utilized. You may not be able to see bank or pitch when flying along the wall-shape mountain side, and therefore, it is of prime importance for you to pay attention to the readings of the instruments.

As the matter of fact, once you are trapped in such a situation, you are allowed no time to take action after you think. Thus, it is absolutely necessary for you to study about requirements of flight in a mountainous area. Always note that you can escape as long as flight speed, altitude against the ground and spaces in both sides are sufficient and that you should try to escape before you lose the chance for making turn or pulling up.

((Reference performance data.))

1. Power On Stall Speed (with Full Throttle)

Flap Deflection (degree)	Bank Angle (degree)	mph CAS			
		800 kg (1760 lb)	900 kg (1980 lb)	1000 kg (2200 lb)	1100 kg (2420 lb)
0	0	55	58	61	65
	30	59	63	66	70
	45	66	70	73	77
	60	78	82	86	91
35	0	46	49	52	54
	30	49	52	55	58
	45	55	58	61	64
	60	65	69	73	76

2. Minimum Turn Radius (ft)

	Weight (lb)	Clean			Flap 35°		
		V knot	Bank	Radius	V knot	Bank	Radius
FA-200 -160	1760	76	55°	360	59	50°	260
	1980	76	50°	425	59	45°	330
	2200	76	45°	510	59	35°	425
	2335	76	40°	575	59	30°	510
FA-200 -180	1980	79	55°	395	61	45°	330
	2200	79	50°	460	61	40°	395
	2420	79	45°	560	61	35°	490
	2535	79	40°	610	61	30°	560

3. Maximum Climb Angle Speed.

The speed of 5 - 10 mph less than best rate of climb speed described in the Flight manual.