

220TH AVIATION COMPANY
APO US Forces 96308

21 October 1965

SUBJECT: Flight Safety-Weight and Balance of O-1F

TO: All Aviators 220th

1. As all of you know our O-1F aircraft are being operated over the maximum recommended gross weight. Those of you who have checked the operator's manual - all of you I hope - have noted that recommended maximum gross weight is 2400 lbs and recommended combat gross weight is 2165 lbs.

2. A weight and balance computation for one of our O-1F aircraft shows the weight at take off to be approximately 2658 lbs. This weight computation includes two crewmembers, two parachutes, two flak vests, two groin protectors, two M-16's with ammo, one survival kit, one URC-4 radio, four rocket tubes with rockets and eight smoke grenades. With this combat loading configuration the aircraft center of gravity computes to be 3.5 inches aft of the aft limit. Assuming expenditure of all rockets and 27 gallons of fuel the landing center of gravity computes to be 3.2 inches aft of the aft C.G. limit.

3. We all know that the aircraft performs adequately in this configuration. The fact that the aircraft does take off and land under these load conditions does not negate the need for extreme caution. Actually, the fact that the aircraft does fly under these conditions demands an extra measure of caution from those of us who operate it.

4. The operator's manual notes that the aircraft is stressed to withstand 4.4 positive G's at a gross weight of 2400 lbs. It further notes that investigation of structural strength beyond 2400 lbs. gross weight has not been accomplished. Therefore, extreme caution must be used at all times, particularly while maneuvering in flight and when landing. Remember, a 60° bank turn has the effect of doubling aircraft weight. Any pull-up maneuver will increase the wing loading. The amount of increase will be dependent upon the severity and abruptness of the pull-up.

5. I feel I cannot overstress the need for caution in this situation. Our aircraft can sustain damage from daily overloading and we

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will not be aware of it until it is too late. Damage to wing spars and struts is insidious. With each repeated loading these members are bent and stretched until finally the elastic limit of the material is exceeded. Once this occurs permanent distortion begins and cracks result. Once cracking begins the material has lost a major portion of its strength and loads less than the normal design load will cause fracture.

6. I think each of you can deduce for yourselves the problem attendant to the center of gravity location. This problem becomes extremely important during landing and slow speed operations. Pointing out that under no conditions should you allow weighty objects to be stowed behind the rear seat for flight seems needless. However, I have noticed that some of you insist on transporting tool boxes, heavy pieces of baggage etc. in this compartment. This cannot be done.

7. Gentlemen, we cannot treat our little craft with disdain, contempt or familiarity. One of our sister services takes this approach to the O-1. They have numerous posthumous awards of the purple heart to prove the inadvisability of this approach.

JERRY R. CURRY
Major Infantry
Commanding