

	wt	arm	mom		
pilot (F)	210	11.5	2415		
pass (r)	199	42	8358		
bags	0	64	0		
fuel	42	-15	-630		
oil	8	-33	-264		
bew	865	12.5	10812.5		
tot weight\	1324			max gross	1220
tot mom	20691.5				
cg	15.62802				
Post accident Calculation					
Pilot weights from FAA records					
7 gallons fuel used for calculation					

PILOT SOLO w/ FULL FUEL & MAX BAGGAGE			
	WT (LBS)	ARM (IN)	MOM (LBS IN)
PILOT	165	+11.5	1,897.5
PASS	0	+42.0	0.0
BAGGAGE	40	+64.0	2,560.0
FUEL	78	-15.0	-1,170.0
OIL	8	-33.0*	-264.0
BEW	865	14.5	12,539.0 ^F
	<u>1,156</u>		<u>15,562.5</u>

LOADED CG = $\frac{15,562.5}{1,156} = \underline{13.5''}$ FROM WING LEADING EDGE

$10.9 \leq 13.5 \leq 21.5$ OK ✓
MIN MAX

$1,156 \leq 1,220$ OK ✓
MAX

PILOT & PASSENGER w/ FULL FUEL (13 GAL)			
	WT (LBS)	ARM (IN)	MOM (LBS IN)
PILOT	165	+11.5	1,897.5
PASS	101	+42.0	4,242.0
BAGGAGE	3	+64.0	192.0
FUEL	78	-15.0	-1,170.0
OIL	8	-33.0*	-264.0
BEW	865	14.5	12,539.0 ^F
	<u>1,220</u>		<u>17,436.5</u>

LOADED CG = $\frac{17,436.5}{1,220} = \underline{14.3''}$ FROM WING LEADING EDGE

$10.9 \leq 14.3 \leq 21.5$ OK ✓
MIN MAX

$1,220 \leq 1,220$ OK ✓
MAX

REVISED WEIGHT/BALANCE AND EQUIPMENT LIST

DATE:----- 3-14/06
 NUMBER:----- N84396
 A/C MODEL:--- 7AC
 A/C S/N:----- 3089

AUTHORIZED SIGNATURE

PREVIOUS W/B DATED: 12/21/04

	WEIGHT	ARM	MOMENT
AIRCRAFT:	871	13.65	11.889
Propeller McCauley (Removed)	-21.0	-51	+ 1071
" Sensenich (Installed)	+11.0	-51	- 561
Shoulder Harness "	3.9	+36	+ 140
	864.9	14.5	12.539

TOTALS:

NEW CENTER OF GRAVITY----- 14.5
 MAX GROSS WEIGHT----- 1220.0
 NEW EMPTY WEIGHT----- 864.9
 MAX / USEFUL LOAD----- 355.1

WEIGHT & BALANCE CONTINUED

MAX USEFUL LOAD = 349 #

- 8 # (1 gal oil)

- 28 # (full fuel)

263 # People Load

Assume Pilot = 215 #

" Rear Passenger = 48 #

LOADED CENTER OF GRAVITY: (Wing Leading Edge Datum,

	WT.	ARM	Mom
Pilot	215	+11.5	2473
Pass	48	+42	2016
Fuel	28	-15	-1170
Oil	8	-22	-176
BEW	<u>871</u>	<u>+13.65</u>	<u>11889</u>
TOTAL	1220	? CG	15032

$$\underline{\underline{\text{LOADED C.G.}}} = \frac{15032}{1220} = \underline{\underline{12.32 \text{ inches from Wing Leading Edge}}}$$

$$\underline{\underline{10.9 < 12.32 < 21.5}} \Rightarrow \text{O.K.}$$

REVISED 3/14/06
COPY IN RECORDS
N 84396
WEIGHT & BALANCE 12/21/04

(40)

MEASURED SCALE WEIGHTS -

Main Wheels - 408 lbs each

Tail Wheel - 63 lbs

$$\text{TOTAL WEIGHT} = 408 + 408 + 63 = 879 \text{ lbs}$$

(includes 4 gals oil = 8 lbs)

$$\text{BASIC EMPTY WEIGHT} = 871 \text{ lbs [832]}$$

$$(879 - 8 = 871)$$

EMPTY WEIGHT C.G.:

Sum Moments about Main Wheels

$$\frac{\text{Tail Wheel} \times 192.2}{\text{Total Weight}} = \frac{63 (192.2)}{871} = 13.9" [14.56]$$

from Main Wheels

$$\pm \text{Main Wheels to Wing Leading Edge} = 0.25"$$

EMPTY WEIGHT C.G. from Wing Leading Edge =

$$13.9 - 0.25 = 13.65"$$

$$14.56 - 0.25 = [14.30] \text{ within standard range}$$

$$\text{MAXIMUM GROSS WEIGHT} = 1220 \text{ lbs}$$

ALLOWABLE C.G. RANGE = 10.9 to 21.5 from Wing Leading Edge

USEFUL LOAD:

$$\begin{aligned} &1220 \text{ Max Gross Wt.} \\ &- \underline{871 \text{ Basic Empty Wt}} \\ &\underline{349 \#} \end{aligned}$$