



FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

January 22, 2021

Dear Owners, Operators and Network members,

The Flight Information Letter (FIL) serves as a communications channel from DAHER AEROSPACE to TBM and Kodiak Operators, Pilots, Training Institutions, Instructor Pilots, and Mentors. The aim is to enhance the pilot's situational awareness when flying the Kodiak or the TBM. At no time does this information replace the procedures within the POH. Below is a list of topics that will be gradually broadcast throughout the TBM and Kodiak fleets.

- **Introduction**
- **FIL.2015-T1: Stabilized Approach Criteria**
- **FIL.2015-T2: TBM cabin pressure messages and warnings (Rev.1)**
- **FIL.2016-T3: Uncoordinated / Asymmetric Flight**
- **FIL.2017-T4: Ice contamination, speed, and flap awareness**
- **FIL.2019-T5: When turning the Autopilot ON**
- **FIL 2020-T6: Flight Control Trim**
- **FIL.2021-T7: Weight & Balance**
- Energy management and speed control
- Risks associated with engine speed (Ng) low idle
- Inertial separator & foreign object damage (FOD)
- Propeller beta range and brake management
- Advisory panel
- Weather radar
- Winter operations
- Summer operations
- Prop over-speed test
- Flight director modes
- Flap configuration
- Pilot-induced oscillations on landing (PIO; a.k.a. Porpoise)
- Unsealed aerodrome taxiways and airstrips
- Landings
- Minimum stabilized ITT
- Engine shutdown

The list of Topics, brought to you via the Flight Information Letter, will grow and evolve with varying priorities.



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.

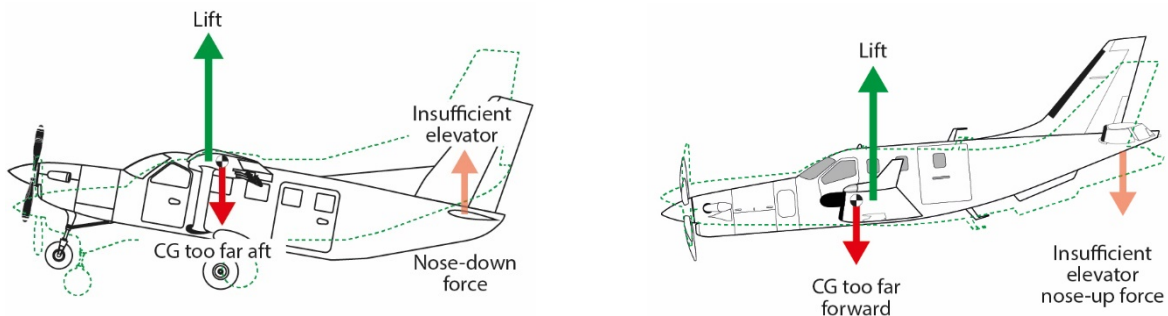


FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

This Flight Information Letter concerns Aircraft Weight and Balance.

An important part of flight preparation is determining the weight & balance of the aircraft and controlling it before flight to ensure your aircraft is safe. Weight must be within the allowable limits and the center of gravity (CG) within the allowable range. Improper loading decreases the efficiency and performance of an aircraft affecting pitch attitude, maneuverability, rate of climb, speed, and can cause failure due to structural overloading.



Weight and balance limitations for a given airplane begin at the factory with the design and determination of maximum allowable weight given the amount of lift the wings provide, the structural strength of the aircraft, and the associated position of the center of gravity (CG) depending on operational conditions. When the aircraft manufacturing is completed the aircraft empty weight and CG as configured are determined and provided to the operator when the certified aircraft leaves the factory.

Weight and balance records must be maintained and updated after every configuration change, repair, or alteration by service organizations. For instance; replacement of older, heavy electronic equipment and avionics with newer, lighter types that helpfully result in a weight reduction can cause the CG to shift. This must be computed and properly annotated in the weight and balance record.

Prior to every flight it is the pilot's responsibility to determine the weight and CG location and to ensure both will stay within published limits during the flight as fuel is consumed or passengers and/or cargo are repositioned.

As detailed in POH Section 6 the aircraft weight and CG location depend on:

- Empty weight at the time of the flight. NOTE: Equipment, repairs, changes, configuration of the aircraft can change the original empty weight when the aircraft was certified and delivered.



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.



FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

- People on board; choose the right seat for the right person depending on his/her weight to help adjust the CG.
- Baggage on board; place luggage in the different compartments to adjust the CG and remind passengers to stow and secure personal items properly.
- Fuel on board; manage fuel, always balanced laterally, during the flight. In certain configurations, fuel consumption can lead to the CG moving out of limits.

Remember that for your TBM and Kodiak, as for most modern aircraft, all seats occupied + full baggage compartments + full fuel tanks can overload an aircraft.

POH Section 6 includes information, tables, charts and examples to help pilots determine the weight of the loaded aircraft and the associated CG, and check that they are fully compliant within the limits. Any existing software or app such as TBM Performance, Garmin Pilot, Foreflight, etc. can perform the math part for you after you have entered and confirmed all the data.

Remember that even with the weight within the allowable limits and the center of gravity (CG) within the allowable range; the performance of the aircraft including stall characteristics, take-off or landing distances, rate of climb, range, etc. will be affected and must be checked in accordance with POH Section 5 to determine if the aircraft is loaded so that the flight can be safely completed.

Examples of tables, charts and information

For TBM:

Weight and Balance Record

Date	Equipment or modification description	(+) (-)	Weight modification			Basic empty weight		
			Weight lb	Arm in.	Moment lb.in/1000	Weight W	Arm "d ₀ "	Moment
	According to delivery							



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.



FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

For TBM:

Weight and Balance Form

Item		Weight (lbs)	Arm (in)	Moment (in.lbs)	CG (MAC %)
Empty weight (lbs)					
Baggage FWD	(< 110 lbs)		128.0		
Front seats (lbs)			178.5		
Inter. seats	- 33.1 lbs per seat removed *		224.8		
	Pax				
Rear bench/net	- 45.2 lbs per seat removed *		267.1		
	Pax				
	Cargo (< 176 lbs)				
Baggage AFT (< 220 lbs)			303.0		
Zero fuel weight (< 6032 lbs)					
Fuel (lbs)			189.8		
Ramp weight (< 7430 lbs)					
Taxi fuel (lbs)			189.8		
Takeoff weight (< 7394 lbs)					
Trip fuel (lbs)			189.8		
Landing weight (< 7024 lbs)					



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.

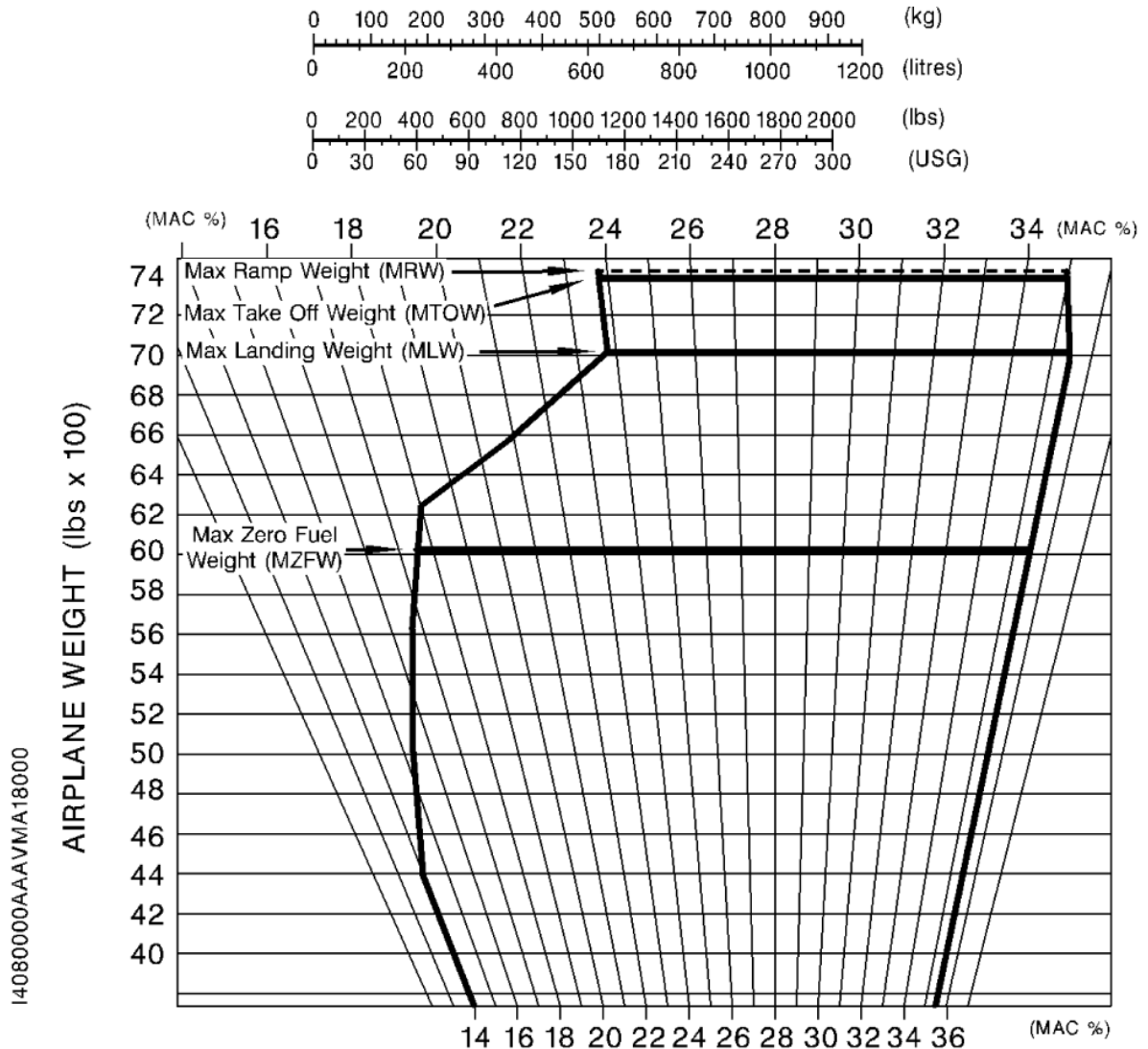


FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

For TBM:

Weight and Balance Diagram



TBM

This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.



FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

For Kodiak:

Example Weight and Balance Form

Section 6

WEIGHT & BALANCE

KODIAK®
100 SERIES

EXAMPLE WEIGHT AND BALANCE FORM				
Registration No.: NXXXXX			Date: X/X	
Serial No.: 100-00XX			Initials: XX	
	Description	WEIGHT (LB)	ARM (IN)	MOMENT/1000
1.	BASIC EMPTY WEIGHT: <i>Includes full oil and unusable fuel. Use data pertaining to your airplane as it is presently equipped.</i>	3893	—	281.4
2.	FUEL LOADING: (FS 83.4) <i>315 Gallons Usable @ 6.7 LB/GAL (Max Capacity)</i>	1100	83.4	91.7
3.	TKS FLUID <i>16.0 Gallon Capacity (Refer to supplement for density and ARM)</i>	—	—	—
4. SEATS, OCCUPANTS, AND CARGO LOADING	ROW 1 AND ZONE 1 (CREW):	WEIGHT (LB)	ARM (IN)	MOMENT/1000
	Installed Crew Seats, (see seat weights) (FS 41.0)	Included In Basic	41.0	Included In Basic
	Occupants Actual Weight (FS 35.0)	380	35.0	13.3
	Zone 1 Cargo, Baggage, or Equipment (FS 40.0)	0	40.0	0.0
	ROW 2 AND ZONE 2 (PASSENGER):	WEIGHT (LB)	ARM (IN)	MOMENT/1000
	Installed Passenger Seats, (see seat weights) (FS 79.3)	58.4	79.3	4.6
	Occupants Actual Weight (FS 73.2)	360	73.2	26.4
	Zone 2 Cargo, Baggage, or Equipment (FS 71.0)	0	71.0	0.0
	ROW 3 AND ZONE 3 (PASSENGER):	WEIGHT (LB)	ARM (IN)	MOMENT/1000
	Installed Passenger Seats, (see seat weights) (FS 110.3)	58.4	110.3	6.4
	Occupants Actual Weight (FS 104.2)	180	104.2	18.8
	Zone 3 Cargo, Baggage, or Equipment (FS 102.0)	0	102.0	0.0
	ROW 4 AND ZONE 4 (PASSENGER):	WEIGHT (LB)	ARM (IN)	MOMENT/1000
	Installed Passenger Seats, (see seat weights) (FS 141.3)	58.4	141.3	8.3
	Occupants Actual Weight (FS 135.2)	0	135.2	0.0
	Zone 4 Cargo, Baggage, or Equipment (FS 133.0)	0	133.0	0.0
	ROW 5 AND ZONE 5 (PASSENGER):	WEIGHT (LB)	ARM (IN)	MOMENT/1000
	Installed Passenger Seats, (see seat weights) (FS 172.3)	0	172.3	0.0
	Occupants Actual Weight (FS 166.2)	0	166.2	0.0
	Zone 5 Cargo, Baggage, or Equipment (FS 164.0)	0	164.0	0.0
	ZONE 6 (CARGO): MAXIMUM 200 LB			
	Zone 6 Cargo, Baggage, or Equipment (FS 195.0)	75	195.0	14.6
5.	TOTAL RAMP WEIGHT AND MOMENT: <i>Add items 1 through 3</i>	6163.2	—	465.5
6.	STARTING, TAXI, AND RUNUP FUEL: <i>Normally 50 LB (moment of 4170)</i>	50	83.4	4.2
7.	TAKEOFF WEIGHT AND MOMENT: <i>Subtract item 5 from item 4</i>	6113.2	—	461.3

Figure 6-4: Example Weight and Balance



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.



FLIGHT INFORMATION LETTER

FIL.2021-T7: Weight & Balance

For Kodiak:

Airplane Weighing Form

Section 6
WEIGHT & BALANCE

KODIAK®
100 SERIES

AIRPLANE WEIGHING FORM

Reference Datum
(Firewall Forward Face)
Lower Portion
STA 0.0

LEMAC FS 54.81

64.92 In. (MAC)

C.G.

Level at pilot seat rail

X

A

B

DATA		
A=	B=	A - B =
C. G. = Total Moment ÷ Total Weight		

WEIGHING EQUIPMENT	
Scale Number:	Cal Due Date:

SCALE READING			
Position	Weight (LB)	Arm	Moment
Left Main			
Right Main			
Nose			
Total as Weighed:			
Adjustments (+/-):	Weight (LB)	Arm	Moment
Totals:			
Empty Weight: (Including Undrainable Fluids and Full Oil)			
Plus Drainable Unusable Fuel:			
Basic Empty Weight:			

Table 6-1: Airplane Weighing Form

6_6
Revision 19

Pilot's Operating Handbook
Date: 10/20/2017



This letter is part of Flight Information communications transmitted to TBM and Kodiak Pilots & Operators and focuses on specific flying tasks. This letter neither replaces nor overrides any POH and PG which are the only official documentation, this letter is for information only.