SPORTY'S E6B
ELECTRONIC FLIGHT COMPUTER SOFTWARE

Sporty's E6B Flight Computer software is designed to perform 23 aviation functions and 14 standard conversions, and includes timer and clock functions. This manual is designed to offer an introduction to the operation of the E6B software. For each calculation, a sample problem has been given.

We hope that you enjoy your Sporty's E6B Flight Computer software. Its use has been made easy through direct path menu selection and calculation prompting. As you will soon learn, it is one of the most useful and versatile of all aviation computers.

Version 08A

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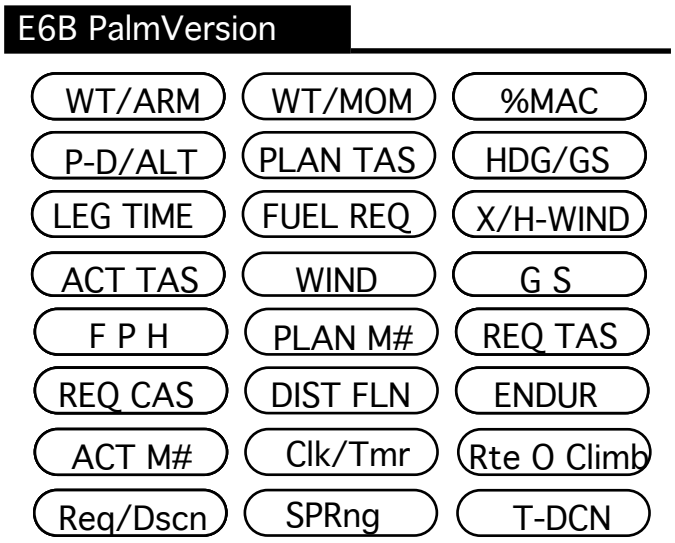
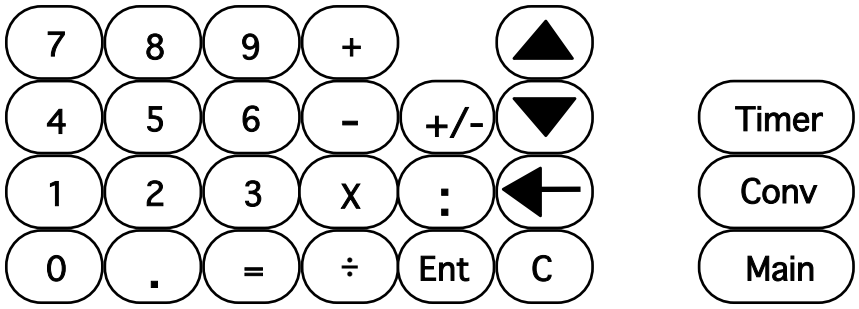
DISPLAY SCREEN



The figure above shows the main menu. To choose a function, press the appropriate button with the stylus pen. The display will change to the function showing the values to be entered at the top, the calculated values shown below the line and the entry keypad (shown below) at the bottom of the screen.



Your E6B software performs all of the basic arithmetic functions with the keys shown above (addition, subtraction, multiplication, and division). These functions, as well as any conversions, can be performed at any time while performing an aviation function. The E6B software will display up to eight digits of the answer. The 

button should be used to compute any arithmetic function.

AVIATION FUNCTIONS

The aviation functions are displayed on the main menu. Your E6B software will automatically save computed values from one aviation function to another. To override this option, key in the new value when prompted. The E6B software will save true airspeed, groundspeed, time, and fuel per hour calculations. It will also save cumulative weight and balance totals.

PROMPTS AND LABELS

WT:	Weight	**I°C:**	Indicated Temperature in Celsius
W SPD:	Wind Speed	**MOM:**	Moment
RWY:	Runway	**CG:**	Center of Gravity
X-WIND:	Crosswind	**GS:**	Groundspeed
H-WIND:	Headwind	**HDG:**	Heading
W DIR:	Wind Direction	**P ALT:**	Pressure Altitude
ARM:	Arm	**T°C:**	Temperature in Celsius
CAS:	Calibrated Airspeed	**CRS:**	Course
TAS:	True Airspeed	**RF:**	Reduction Factor
MACH#:	Mach Number	**GW:**	Gross Weight
D ALT:	Density Altitude or Desired Altitude	**DIST:**	Distance
%MAC:	Percent Mean Aerodynamic Chord	**HOME:**	Home Time Clock Label
FPH:	Fuel Per Hour	**TIME:**	Time
I ALT:	Indicated Altitude	**MAC:**	Mean Aerodynamic Chord
FUEL:	Fuel	**LOCAL:**	Local Time Clock Label
°C:	Temperature in Celsius Label	**FEET:**	Feet

NAUT:	Nautical	**CONV:**	Conversion Function
RGR:	Required Gradient Rate	**MROC:**	Minimum Rate of Climb
CRALT:	Crossing Altitude	**FXDIS:**	Fix Distance
RQ/DN:	Required Descent Rate	**SPRNG:**	Specific Range
RATE:	Descent Rate	**T-DSC:**	Top of Descent

LEMAC: Leading Edge Mean Aerodynamic Chord

ZULU: Coordinated Universal Time Clock Label

BARO: Altimeter Setting in Inches in Mercury (Barometer)

SPECIAL FUNCTION KEYS

Clk/Tmr	Displays clocks and timer.
Main	Returns to main menu.
Conv	Converts the value between units of measurement.
Timer	Imports current value from timer onto current number entry line.
Ent	Accepts the entered number.
=	Totals calculator functions.
←	Deletes last digit entered.
C	Clears current number entry line.
▲ ▼	Moves cursor between number entry lines.
+/-	Changes a positive value to a negative and a negative value to a positive. A negative number will be denoted with a minus sign in front of the number.

CONVERSIONS

Conversions may be made at any time during any function. For example, if a calculation prompts for the temperature in Celsius and only 68° Fahrenheit is available, enter 68 as the value, press (Conv), press (F ► C). 20.00 will be displayed on the top line. Press (Return) to accept this value and return to the calculation. Conversions can be calculated for:

Nautical Miles	→ Statute Miles	Nautical Miles	→ Statute Miles
Nautical Miles	→ Kilometers	Kilometers	→ Statute Miles
Feet	→ Meters	Meters	→ Feet
Pounds	→ Kilograms	Kilograms	→ Pounds
Gallons	→ Liters	Liters	→ Gallons
Fahrenheit	→ Celsius	Celsius	→ Fahrenheit
Hours	→ Hours, Minutes, Seconds	Hours, Minutes, Seconds	→ Hours

There are no conversion keys for kilometers to statute miles or statute miles to kilometers. To convert from kilometers to statute miles, first convert kilometers to nautical miles, then nautical miles to statute miles. To convert statute miles to kilometers, first convert from statute miles to nautical miles, then nautical miles to kilometers.

CLOCKS AND TIMER

The E6B software has three clocks that run simultaneously. They are labeled as Zulu, Home and Local. The independent timer is below the clocks. To display, press (Clk/Tmr).

To set 11:25:00 on Zulu clock, tap ▲▼ under the hour position until 11 is displayed. Tap ▲▼ under the minutes position until 25 is displayed. Press (Set) to start the clock. This also synchronizes the minutes and seconds of the Home and Local clocks with the Zulu clock.

Set the hours for the Home and Local clocks using ▲▼, then synchronize the minutes and seconds by tapping (Set) on the Zulu clock.

A time can be entered in the timer by using ▲▼. To activate the timer, tap (Up) to start the timer counting up or tap (Down) to start counting down. (Stop) pauses the timer. (Reset) returns the timer to 0:00:00. An indicator to the right of the timer indicates if the timer is counting up (▲) or counting down (▼). ■ indicates the timer is stopped.

Next to this indicator is a **+** or **-**. When the timer is counting down and reaches 0:00:00, this changes from **+** to **-** to show the timer is now counting how much time has passed since reaching zero. The count down timer can be used as a reminder when to switch fuel tanks, to fly a non-precision approach (**LEG TIME** function) or measuring groundspeed from one checkpoint to another checkpoint (**GS**).

Any function requiring time to be entered, the timer may be used by tapping (**Timer**), (**Ent**) when prompted for time.

ADDING AND SUBTRACTING TIME

Time can be entered into the E6B software in either hours or hours, minutes and seconds. To enter in hours, simply key in a normal decimal number. For example, entering **2.75** hours is the same as entering **02:45:00.**

To key in time in hours, minutes and seconds mode, the (:) must be used. For example, to enter 3 hours, 14 minutes and 25 seconds, tap 3, (:), 1, 4, (:), 2, 5. The display will read 3:14:25.

To key in 5 minutes even, the leading zeroes must be used: tap 0, (:), 0, 5. The display will read 0:05.

Time can be added in either mode; times from different modes can also be added without converting. For example, to add 3.45 hours and 2:45:00 :

Enter in 3.45 and tap (+)

Enter in 2:45 and tap (=)

The diplay will read 6.2. Answers will always appear in hours. Use the conversion function (H ► HMS) to change to hours, minutes and seconds. The display will read 6:12:00.

PERCENT MAC
(%MAC)

This function computes the center of gravity in terms of percentage of mean aerodynamic chord, or the percentage distance of the center of gravity from the average distance between the leading edge to the trailing edge of the wing. In this example, leading edge mean aerodynamic chord (LEMAC) is 22.29, the CG is 37.27, and the mean aerodynamic chord (MAC) is 61.4.

Tap (%MAC) from the main menu. The display will prompt for **LEMAC.** Key in **22.29** and press (Ent).

The display will prompt for **CG.** Key in **37.27** and press (Ent).

The display will prompt for **MAC.** Key in **61.4** and press (Ent).

The display will read:

LEMAC	22.29
CG	37.27
MAC	61.4
%MAC	24.4

The total for %MAC should be checked against the aircraft's approved operating limits.

PRESSURE AND DENSITY ALTITUDE (P-D/ALT)

This function will compute the pressure and density altitude given the indicated altitude, barometric pressure (altimeter setting in inches of Mercury), and temperature in Celsius. In this example, indicated altitude is 10,000 feet, the barometer is 29.94 inches, and the temperature is 5°C.

Tap (P-D/ALT) from the main menu. The display will prompt for **IAlt**. Key in **10000** and press (Ent).

The display will prompt for **BARO**. Key in **29.94** and press (Ent).

The display will prompt for **T°C**. Key in **5** and press (Ent).

The display will read:

IAlt	10000
BARO	29.94
T°C	5
PAlt	9980
DAlt	11088

FLIGHT PLAN TRUE AIRSPEED (PLAN TAS)

This function is used to calculate true airspeed for preflight planning. It will compute the density altitude, mach number and true airspeed in knots, given the pressure altitude, temperature, and calibrated airspeed in knots. In this example, pressure altitude is 10,000 feet, temperature is 2°C, and CAS is 200 knots.

Tap (PLAN TAS) from the main menu. The display will prompt for **PAlt.** Key in **10000** and press (Ent).

The display will prompt for **T°C**. Key in **2** and press (Ent).

The display will prompt for **CAS**. Key in **200** and press (Ent).

The display will read:

PAlt	10000
T°C	2
CAS	200
DAlt	10770
Mach#	0.36
TAS	234.7

HEADING AND GROUNDSPEED (HDG/GS)

This function will compute heading and groundspeed given wind direction, wind speed, course, and true airspeed. In this example, the wind is from 270° at 20, course is 180°, and true airspeed is 185.

Tap (HDG/GS) from main menu. The display will prompt for **WDir**. Key in **270** and press (Ent).

The display will prompt for **WSpd**. Key in **20** and press (Ent).

The display will prompt for **CRS**. Key in **180** and press (Ent).

The display will prompt for **TAS**. Key in **185** and press (Ent).

The display will read:

WDir	270
WSpd	20
CRS	180
TAS	185
HDG	186.2
GS	183.9

LEG TIME (LEG TIME)

This function computes the time required to fly a particular distance given distance and groundspeed. In this example, distance is 25 and groundspeed is 185.

Tap (LEG TIME) from the main menu. The display will prompt for **Dist.** Key in **25** and press (Ent).

The display will prompt for **GS**. Key in **185** and press (Ent).

The display will read:

Dist	25
GS	185
Time	0.1351351
	0:08:06

Note: The calculated time is displayed in both hours and hours, minutes, seconds.

FUEL REQUIRED (FUEL REQ)

This function calculates fuel requirements given time and fuel per hour consumption. In this example, flying time is 3 hours 15 minutes and fuel per hour consumption is 14 gallons.

Tap (FUEL REQ) from the main menu. The display will prompt for **Time.** Key in **3 hours, 15 minutes.** Tap 3, (:), 1, 5 and press (Ent).

The display will prompt for **FPH.** Key in **14** and press (Ent).

The display will read:

Time	3:15
FPH	14
Fuel	45.5

Note: The Fuel Required function computes the fuel consumption only. It does not take required fuel reserves into account.

CROSSWIND, HEADWIND AND TAILWIND (X/H-WIND)

This function computes the crosswind component and headwind or tailwind component given wind direction, wind speed and runway number. In this example, the wind is from 270° at 20, and the runway number is 30. Note that the runway heading of 30 should be entered, not 300.

Tap (X/H-WIND) from the main menu. The display will prompt for **WDir**. Key in **270** and press (Ent).

The display will prompt for **WSpd**. Key in **20** and press (Ent).

The display will prompt for **RWY**. Key in **30** and press (Ent).

The display will read:

WDir	270
WSpd	20
RWY	30
H-Wind	-17.3
X-Wind	-10

Right crosswinds are shown as positive numbers, while left crosswinds are shown as negative numbers. A positive value for H-WIND denotes a tailwind, while a negative value denotes a headwind.

ACTUAL TRUE AIRSPEED (ACT TAS)

This function calculates true airspeed, mach number and density altitude given pressure altitude, indicated temperature in Celsius and calibrated airspeed. In this example, the pressure altitude is 10,000 feet, temperature is 3°C, and calibrated airspeed is 200.

Tap (ACT TAS) from main menu. The display will prompt for **PAlt**. Key in **10000** and press (Ent).

The display will prompt for **I°C**. Key in **3** and press (Ent).

The display will prompt for **CAS**. Key in **200** and press (Ent).

The display will read:

PAlt	10000
I°C	3
CAS	200
DAlt	10039.6
Mach#	0.36
TAS	232

WIND SPEED AND DIRECTION (WIND)

This function calculates wind speed and direction given course, true airspeed, groundspeed, and heading. In this example, the course is 355°, true airspeed is 200, groundspeed is 170, and the heading is 350°.

Tap (WIND) from main menu. The display will prompt for **CRS**. Key in **355** and press (Ent).

The display will prompt for **TAS**. Key in **200** and press (Ent).

The display will prompt for **GS**. Key in **170** and press (Ent).

The display will prompt for **HDG**. Key in **350** and press (Ent).

The display will read:

CRS	355
TAS	200

GS	170
HDG	350
WDir	324.2
WSpd	34

GROUNDSPEED
(GS)

This function calculates groundspeed given distance and time. In this example, distance is 18, and time is 7 minutes.

Tap (G S) from the main menu. The display will prompt for **Dist.** Key in **18** and press (Ent).

The display will prompt for **Time.** Key in **7 minutes.** Tap 0, (:), 0, 7 and press (Ent).

The display will read:

Dist	18
Time	0:07
GS	154.3

NOTE: Time can be imported from the timer for groundspeed calculations. This can be done by tapping (Timer), (Ent) when the computer prompts for time.

FUEL PER HOUR
(FPH)

This function computes fuel per hour given time and total fuel consumed. In this example, time is 3 hours 15 minutes, and fuel consumed is 45.5 gallons.

Tap (F P H) from the main menu. The display will prompt for **Fuel.** Key in **45.5** and press (Ent).

The display will prompt for **Time.** Key in **3 hours, 15 minutes.** Tap 3, (:), 1, 5 and press (Ent).

The display will read:

Fuel	45.5
Time	3:15
FPH	14

FLIGHT PLAN MACH NUMBER
(PLAN M#)

This function will compute the true airspeed given the temperature in Celsius and the mach number. In this example, temperature is -20°C and the Mach# is 0.85.

Tap PLAN M# from the main menu. The display will prompt for **T°C.** Key in **20**, press **+/-** and press **Ent**.

The display will prompt for **Mach#.** Key in **0.85** and press **Ent**.

The display will read:

T°C	-20
Mach#	.85
TAS	527.2

REQUIRED TRUE AIRSPEED
(REQ TAS)

Required True Airspeed is a planning function used to maintain a certain groundspeed and course in order to arrive at a desired point at a specific time. It will compute true airspeed and heading given wind direction and speed, course, and groundspeed. In this example, the wind is from 270° at 15, course is 355°, and groundspeed is 225 kts.

Tap REQ TAS from main menu. The display will prompt for **WDir**. Key in **270** and press **Ent**.

The display will prompt for **WSpd**. Key in **15** and press **Ent**.

The display will prompt for **CRS**. Key in **355** and press **Ent**.

The display will prompt for **GS**. Key in **225** and press **Ent**.

The display will read:

WDir	270
WSpd	15
CRS	355
GS	225
TAS	226.8
HDG	351.2

REQUIRED CALIBRATED AIRSPEED
(REQ CAS)

This function calculates the calibrated airspeed, corresponding mach number, and density altitude given the pressure altitude, temperature in Celsius, and true airspeed. In this example, pressure altitude is 10,000 feet, temperature is 2°C, and the true airspeed is 200.

Tap (REQ CAS) from main menu. The display will prompt for **PAlt**. Key in **10000** and press (Ent).

The display will prompt for **T°C**. Key in **2** and press (Ent).

The display will prompt for **TAS**. Key in **200** and press (Ent).

The display will read:

PAlt	10000
T°C	2
TAS	200
DAlt	10769.5
Mach#	0.31
CAS	170.4

DISTANCE FLOWN (DIST FLN)

This function calculates for distance given time and groundspeed. In this example, the groundspeed is 185 and time is 15 minutes.

Tap (DIST FLN) from the main menu. The display will prompt for **GS.** Key in **185** and press (Ent).

The display will prompt for **Time.** Key in **15 minutes.** Tap 0, (:), 1, 5 and press (Ent).

The display will read:

GS	185
Time	0:15
Dist	46.3

ENDURANCE (ENDUR)

This function calculates endurance given the total fuel on board and the fuel per hour consumption. In this example, fuel on board is 74, and fuel per hour is 14.

Tap (ENDUR) from the main menu. The display will prompt for **Fuel.** Key in **74** and press (Ent).

The display will prompt for **FPH**. Key in **14** and press (Ent).

The display will read:

Fuel	74
FPH	14
Time	5.2857143
	5:17:09

Note: The calculated time is displayed in both hours and hours, minutes, seconds.

ACTUAL MACH NUMBER
(ACT M#)

This function calculates true airspeed given the indicated temperature and mach number. It differs from the PLAN M# function only in that indicated temperature is used. In this example, the indicated temperature is -17°C and the mach number is 0.85.

Tap (ACT M#) from the main menu. The display will prompt for **I°C.** Key in **17**, press (+/-) and press (Ent).

The display will prompt for **Mach#.** Key in **0.85** and press (Ent).

The display will read:

I°C	-17
Mach#	.85
TAS	502.2

REQUIRED RATE OF CLIMB
(Rte O Climb)

This function calculates required rate of climb (common in departure procedures) in feet per minute given groundspeed and required climb gradient in feet per mile. In this example, the groundspeed is 80 and the required climb gradient is 330 feet per mile.

Tap (RteOClimb) from the main menu. The display will prompt for **GS**. Key in **80** and press (Ent).

The display will prompt for **RGR**. Key in **330** and press (Ent).

The display will read:

GS	80
RGR	330
MROC	440
GRAD	5.4%

REQUIRED RATE OF DESCENT
(Req/Dscn)

This function determines the required descent or climb rate to arrive at a fix at a specific altitude given groundspeed, indicated altitude, crossing altitude and fix distance. In this example, the aircraft is cruising at 14,000 feet with a groundspeed of 180. ATC assigns a crossing altitude of 8,000 feet for a fix located 25 miles away.

Tap (Req / Dscn) from the main menu and the display will prompt for **GS**. Key in **180** and press (Ent).

Display will prompt for **IALT**. Key in **14,000** and press (Ent).

Display will prompt for **CRALT**. Key in **8,000** and press (Ent).

Display will prompt for **FXDIS**. Key in **25** and press (Ent).

The display will read:

GS	180
IALT	14000
CRALT	8000
FIXDIS	25
RQ/DN	720

This ATC crossing restriction will require a descent rate of 720 feet per minute.

A positive value for RQ/DN indicates a descent. A negative value indicates a climb to the crossing altitude.

SPECIFIC RANGE
(SPRNG)

Specific range is a planning function used to determine the most desirable altitude for long range flight. Range is calculated in miles given the total fuel, groundspeed and fuel burn. In this example, we will compute aircraft range at 12,000 feet with 140 gallons of fuel. Our fuel burn will be 24 gallons per hour with a groundspeed of 150.

Tap SPRNG from the main menu and the display will prompt for **FUEL**. Key in 140 and press Ent.

Display will prompt for **GS**. Key in **150** and press Ent.

Display prompts for **FPH**. Enter **24** and press Ent.

The display will read:

FUEL	140
GS	150
FPH	24
SPRNG	875

This cruise altitude will yield a range of 875 miles.

Following the same sequence for a flight at 8,000 feet with 140 gallons of fuel, a groundspeed of 165, and fuel burn of 27 gallons per hour, a specific range of 855.6 is calculated. An additional 20 miles of range is available at 12,000 feet.

TOP OF DESCENT (T-DCN)

This function determines when to begin a descent to arrive at the destination at a desired altitude given aircraft groundspeed, indicated altitude, desired altitude and rate of descent. In this example, our indicated altitude is 11,500 feet. We desire to be at a pattern altitude of 1,500 feet descending at 600 feet per minute with a groundspeed of 140.

Tap T-DCN from the main menu and the display will prompt for **GS**. Key in 140 and press Ent.

Display will prompt for **IALT**. Key in **11,500** and press Ent.

Display will prompt for **DALT**. Key in **1,500** and press Ent.

Display will prompt for **RATE**. Key in **600** and press Ent.

The display will read:

GS	140
IALT	11500
DALT	1500
RATE	600
T-DSC	38.9

The descent should begin 39 miles from our destination.

WEIGHT/ARM
(WT/ARM)

This function is an easy method to compute the proper loading of the aircraft. The E6B software will retain and display cumulative totals for center of gravity, (CG), gross weight (GW), and moment (MOM). This will allow you to continue keying in weight and ARM values for to obtain running totals. In the WT/ARM mode, the E6B software continuously prompts for new WT and ARM values.

ARM is the distance in inches from the datum line to the center of gravity of an item. The datum line is an imaginary line established by the manufacturer from which all ARM measurements are taken. The moment is the product of arm and weight, divided by the reduction factor. The reduction factor is a constant of 1 for WT/ARM calculations. The computer will always assume RF=1.

In this example, aircraft empty weight is 2467, arm is 76.7", and the reduction factor is 1.

Tap (WT/ARM) from main menu. The display will prompt for **WT**. Key in **2467** and press (Ent).

The display will prompt for **ARM**. Key in **76.7** and press (Ent). The display will read:

WT	2467
ARM	76.7
CG	76.7
MOM	189218.9
GW	2467

After keying in the airplane's empty weight and arm, the next step is to calculate the weight and balance for the aircraft at takeoff. For this example, we'll assume the following load:

Item	Weight	Arm
Fuel	72.5 gal (6 lbs./gal.)	75
Front passengers	340	75
Rear passengers	340	115
Baggage	18	164

With display from the previous page shown:

Key in **72.5** (X) 6 (=) ; **WT** will display **435**. Press (Ent).

Key in **ARM** of **75**. Press (Ent).

New totals will appear for MOM, CG and GW. The passengers and baggage can be added onto the total in the same manner the fuel was added above. The final calculations can be used to confirm that the weight and CG are within the aircraft's operating limitations.

When finished, the cumulative totals will be displayed. The display will read:

WT	18
ARM	164
CG	80.39
MOM	289395.9
GW	3600

Weight can also be moved or subtracted. Suppose one of the rear passengers can't make the trip:

Key in **WT** of **170** and press (+/-); Press (Ent).

Key in **ARM** of **115**. Press (Ent). The display will read:

WT	-170
ARM	115
CG	78.67
MOM	269845.9
GW	3430

WEIGHT/MOMENT (WT/MOM)

This function is similar to the (WT/ARM) function. However, flight manuals for some aircraft describe weight and balance problems in terms of moments. Sporty's E6B software will retain and display cumulative totals for center of gravity, gross weight and moment given weight and moment for each item and reduction factor. The reduction factor for this example is 100. As an example, use the following table for entry:

ITEM	WEIGHT	MOM/100
Empty weight	3472	1220
Seat #1	170	63
Seat #2	160	59
Seat #3	100	68
Seat #4	120	82
Baggage, nose compartment	100	-31
Baggage, rear compartment	60	74
Fuel, main tanks	600	210
Fuel, auxiliary tanks	378	178

Tap (WT/MOM) from main menu. The display will prompt for **WT**. Key in **3472** and press (Ent).

The display will prompt for **MOM**. Key in **1220** and press (Ent).

The display will prompt for **RF**. Key in **100** and press (Ent).

The display will read:

WT	3472
MOM	1220
RF	100
CG	35.14
GW	3472

Enter remaining weights and moments. Since the RF has already been keyed in, the computer will not prompt for RF after the first entry. The E6B software will keep running totals for moment, center of gravity and gross weight.

When finished, the display will read:

WT	378
MOM	1923
RF	100
CG	37.27
GW	5160

Totals for moment, center of gravity, and gross weight should then be checked against the aircraft's approved operating limits.

APPENDIX A
SAMPLE PROBLEMS

TIME

4:45:00 + 2:15:30 = CONV H->HMS = 07:00:30
6.7 - 5:20:00 = CONV H->HMS = 01:22:00

CONVERSIONS

25 pounds to kilograms.....11.3398
12 kilograms to pounds.....26.4554
30 feet to meters 9.144
100 meters to feet 328.084
32° Fahrenheit to Celsius.....0°
100° Celsius to Fahrenheit .....212°
100 nautical miles to kilometers.....185.2
50 kilometers to nautical miles 26.9978
9.5125 hrs to hms 9:30:45
12:30:30 hms to hrs 12.5083
87 nautical miles to statute miles.....100.117
115 statute miles to nautical miles 99.9322
1 U.S. gallon to liters.....3.78541
10 liters to U.S. gallons 2.64172

INPUT		OUTPUT	

%MAC (use CG from WT/MOM problem)

LEMAC	285.6		
CG	308.08	%MAC	27.8
MAC	81.0		

P-D/ALT

IAlt	10000	PAlt	9920
BARO	30.00	DAlt	11014
T°C	5		

PLAN TAS

PAlt	12000	DAlt	13219
T°C	2	Mach#	0.37
CAS	195	TAS	237.7

HDG/GS

WDir	270		
WSpd	20	HDG	349.1
CRS	355	GS	192.2
TAS	195		

LEG TIME

Dist	25	Time	0.1282051
GS	195		0:07:42

FUEL REQ

Time	02:45:00	Fuel	38.5
FPH	14		

APPENDIX A (cont.)
SAMPLE PROBLEMS

INPUT **OUTPUT**

X/H-WIND

WDir	270	H-Wind	-17.3
WSpd	20	X-Wind	-10
RWY	30		

ACT TAS

PAlt	12000	DAlt	12367.9
I°C	2	Mach#	0.37
CAS	195	TAS	234.5

WIND

CRS	355		
TAS	195	WDir	307.8
GS	175	WSpd	27.8
HDG	349		

GS

Dist	32	GS	128
Time	00:15:00		

FPH

Fuel	33	FPH	12
Time	02:45:00		

PLAN M#

T°C	-45	TAS	482.8
Mach#	0.82		

REQ TAS

WDir	270		
W Spd	20	TAS	194.8
CRS	355	HDG	349.1
GS	192		

REQ CAS

PAlt	8000	DAlt	9457
T°C	12	Mach#	0.28
TAS	185	CAS	160.7

DIST FLN

GS	220	Dist	476.7
Time	02:10:00		

APPENDIX A (cont.)
SAMPLE PROBLEMS

INPUT **OUTPUT**

ENDUR

Fuel	70	Time	5
FPH	14		5:00:00

ACT M#

I°C	-52	TAS	451.7
Mach#	0.82		

RteOClimb

GS	70	MROC	460.8
RGR	400	Grad%	6.6%

Req/Dscn

GS	220	RQ/DN	1320
IALT	20000		
CRALT	11000		
FIXDIS	25		

SPRNG

FUEL	2500	SPRNG	1000
GS	280		
FPH	700		

T-DCN

GS	230	T-DSC	53.7
IALT	22000		
DALT	1000		
RATE	1500		

WT/ARM

	WT	ARM	MOM	GW
empty	2467	76.7	189218	2467
fuel	444	75.0	222518	2911
front seat	340	75.0	248018	3251
2nd row	0	115		
3rd row	0	148		
baggage	100	164	264418	3351

CG = 78.91

APPENDIX A (cont.)
SAMPLE PROBLEMS

WT/MOM
Payload computations

ITEM	WEIGHT (pounds)	MOMENT /1000

Basic operating weight	8916	2809.0
Cabin		
Seat 3	170	37.7
Seat 4	160	35.5
Seat 5	190	50.5
Seat 6	110	29.3
Baggage		
Nose	60	4.4
Tail cone	110	50.8
Zero fuel weight	9716	3017.2
+ Fuel	5424	1644.1
= Ramp weight	15140	4661.3
— Taxi fuel	-200	-61.8
= Takeoff gross weight	14940	4599.5
— En Route fuel	-2000	-612.9
= Landing weight	12940	3986.6

CG = 308.08

WEIGHT AND MEASURE CONVERSIONS

1 inch	=	2.54 centimeters
1 centimeter	=	0.3937 inches
1 statute mile	=	1.61 kilometers
1 kilometer	=	0.62 statute miles
1 U.S. gallon	=	0.833 Imperial gallons
1 Imperial gallon	=	1.201 U.S. gallons
1 liter	=	0.22 Imperial gallons
1 Imperial gallon	=	4.55 liters
1 ounce	=	28.35 grams
1 gram	=	0.035 ounces
1 inch of Mercury	=	33.86 millibars
1 millibar	=	0.0295" of Mercury

TROUBLESHOOTING & INFORMATION

Improper input of data will cause incorrect answers. Read the operating instructions to ensure that you are entering problems correctly. Also be sure that units agree, i.e., all units in statute miles, nautical miles, or kilometers.

NOTE: Sporty's E6B software is an instruction and informational aid, and is not an avionics instrument.