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E6B Flight Computer Rotating BEZEL (E6B Outer Dial)

CHRONOGRAPH HANDS

E6B Inner Dial

Tachymetre Dial

12 hour counter

60 minute counter

60 second counter

Pushbutton: **START/STOP**

1/10 second counter

Setting crown

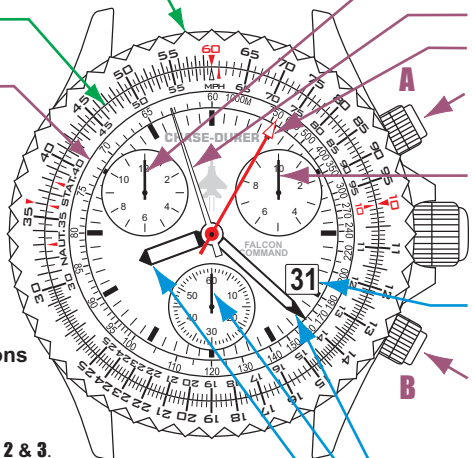
Date indicator

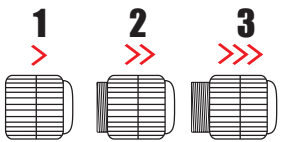
Pushbutton: **Split-Time / Reset to Zero**

Minute hand

Second hand

Hour hand





Screw Down Crown and Pushbuttons

1 > Push crown in and turn clockwise until tight. Turn crown counterclockwise until you no longer feel the threads gripping; crown can now be pulled out to positions **2** & **3**.

2 >> Date and Time Zone adjustment position.

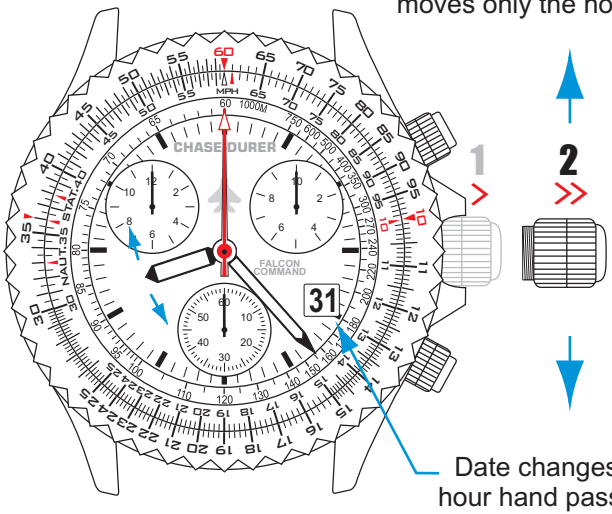
3 >>> Stops second hand, setting minute and hour hands position.

WARNING: Crown must be locked down in position **1** at all times, use positions **2** & **3** for adjustments only. Pushbuttons do not screw down; *Do not operate pushbuttons under water!*

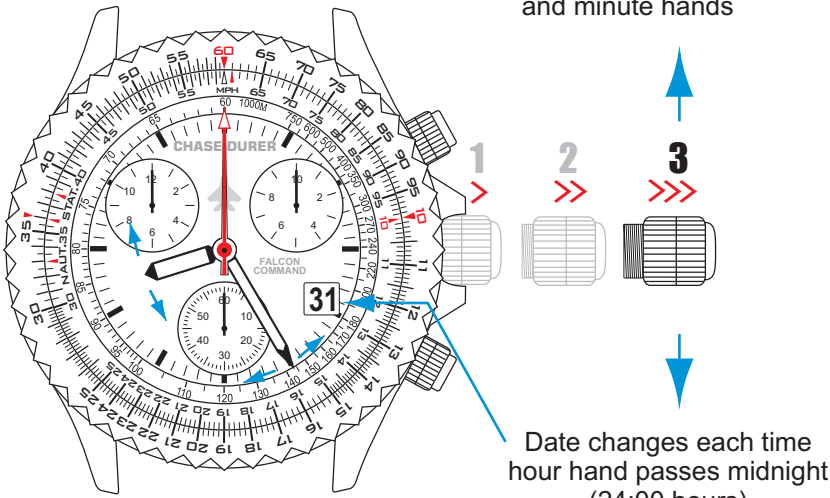
NOTE - Failure to screw down Crown to resist moisture will void your warranty

WATCH HANDS

Setting Date and Time Zone

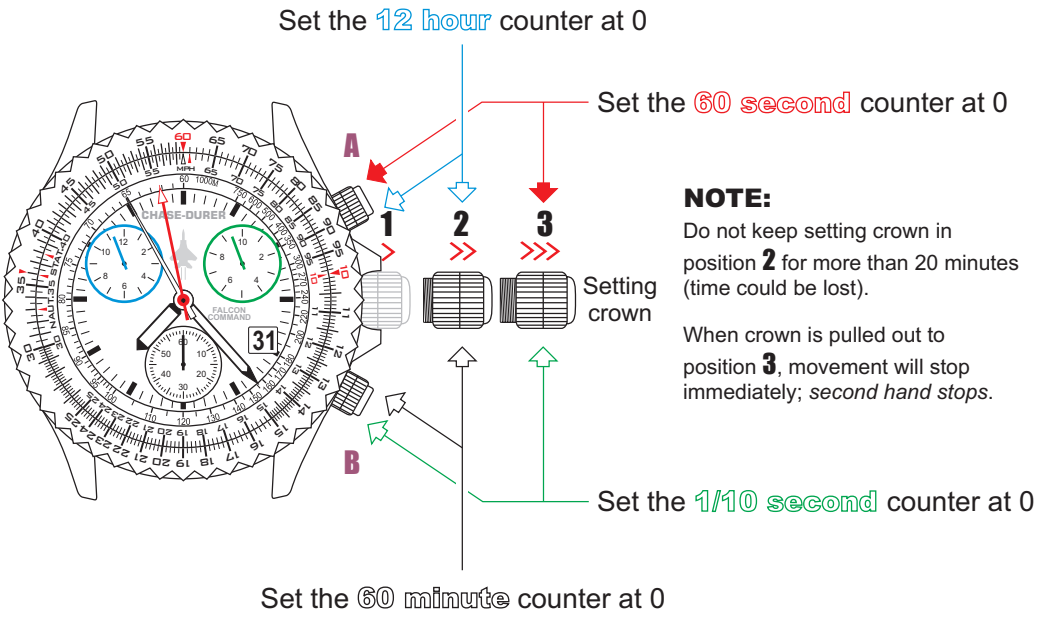


Setting Crown in position **3**
Stops Second Hand
and adjusts both hour
and minute hands



Date changes each time
hour hand passes midnight
(24:00 hours)

The chronograph hands can be set at zero or another time zone.



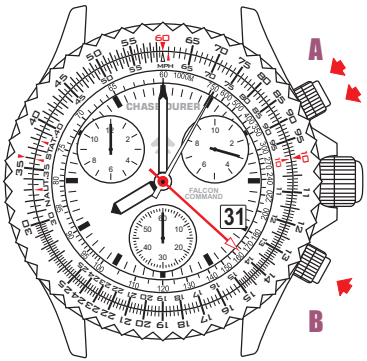
NOTE:

Do not keep setting crown in position **2** for more than 20 minutes (time could be lost).

When crown is pulled out to position **3**, movement will stop immediately; *second hand stops*.

Note: Press **PUSHBUTTONS** longer than 1 second to advance hands quickly

❶ to ❸ order of functions

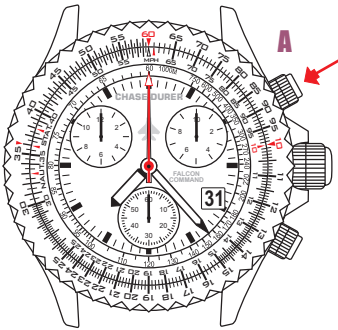


ADD FUNCTION: Order in which pushbuttons should be pressed.

A	❶ START	❷ STOP **Read**	❸ START	❹ STOP **Read**	• • • •	B	✕ Reset to zero

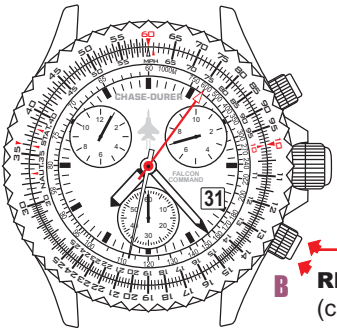
❶ to ❼ order of functions

Note* Step ❷ (or ❹) may be repeated as many times as necessary; Step ❻ is the final reading.



START ❶

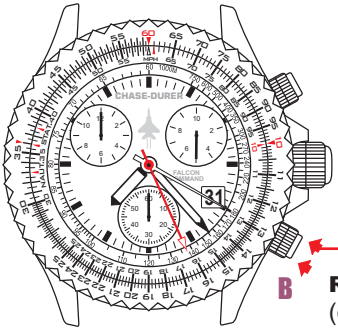
Crown set in position **1**



SPLIT 2 ❹

Read
TIME 2
1 hour
32 minutes
06 seconds
7/10 second

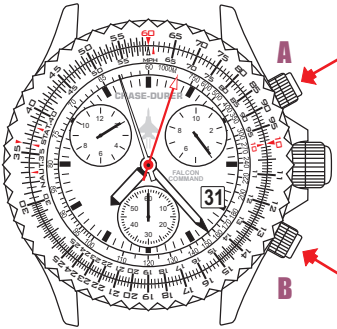
RESTART ❺
(catching up)



SPLIT 1 ❷

Read
TIME 1
0 hour
20 minutes
26 seconds
5/10 second

RESTART ❸
(catching up)



STOP ❻

Read
LAST TIME
2 hours
57 minutes
03 seconds
4/10 second

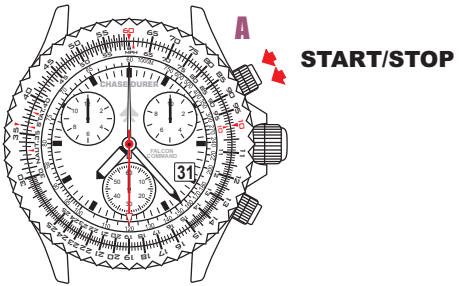
Reset to Zero ❼

Using the TACHYMETRE scale

The TACHYMETRE dial is mainly used to compute an *average* speed after noting how long it takes to travel a fixed distance (like one mile or one kilometer), but it can also be used to compute many other things.

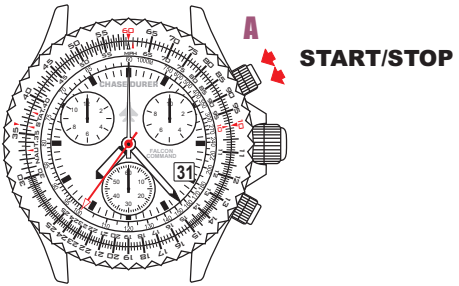
The dial is a logarithmic scale that uses this formula to compute: **TACHYMETRE DIAL = 3600 / Elapsed Time In Seconds**

The chronograph second hand indicates 1/10, 1/4, 1/2, 1, 10, 100 or 1,000 etc. units (miles, objects, pounds etc.). When stopped, the second hand points to the number on the TACHYMETRE scale by which the number of units (1, 10, 100 or 1,000 etc.) must be multiplied to obtain per-hour production rate or per-hour speed.



Example No. 1 – A car covers one mile in **30** seconds. The second hand, stopped as the mile marker is passed, reads **120** on the TACHYMETRE scale. Average speed of the car is **120** x **1**, or **120** miles per hour.

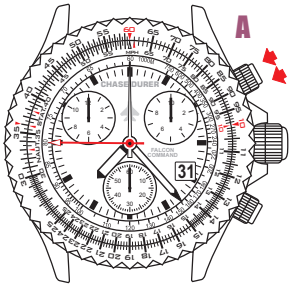
Although decimal units (100 liters, 1 mile, 10 kilometers) make computing simple, in practice, the TACHYMETRE scale can be used to calculate velocities and production rates from any number of units.



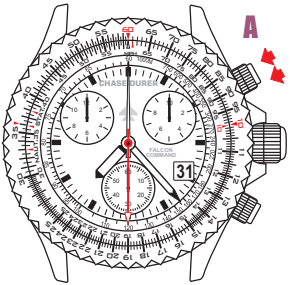
Example No. 2 – To measuring something much slower, such as a bicycle, you must use a shorter distance because the elapsed time must fall within the ***7.2 - 60*** second range.

For this example, it took **36** seconds for a cyclist to travel **1/4** of a mile. Reading the TACHYMETRE dial displays a speed of **100**mph, but the cyclist only traveled **1/4** of a mile, so the actual speed would be **1/4** of that or an average speed of **25**mph over the quarter mile.

*NOTE - The scale is valid for elapsed times from **4.8** seconds to **60** seconds. If the duration of the event is outside this range, then the answer on the dial is not valid. Short durations of **under eight seconds** can be extremely difficult to time accurately. Some of the following examples show ways to get around this limitation.*



Example No. 3 – A copier makes **10** copies in **45** seconds. The sweep second hand was thus stopped at the 45-second mark, which coincides with the figure **80** on the TACHYMETRE scale. The hourly rate of this copier is **80** x **10**, or **800** copies.



Example No. 4 – A manufacturing production line timed for **30** seconds produces **72** parts. Stopped at the 30-second mark, the chronograph second hand points to **120** on the TACHYMETRE scale; the production rate of the machine is **120** x **72**, or **8,640** parts per hour.

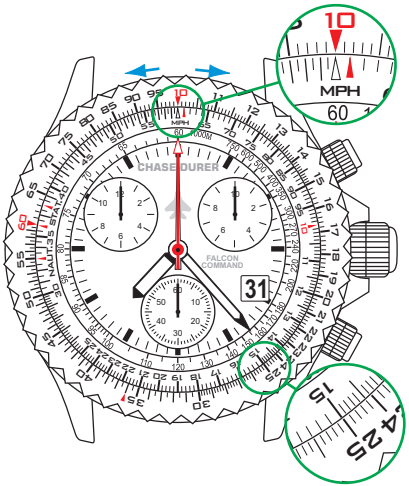
More Examples:
Suppose you wanted to measure the speed of a jet airplane. After traveling **10** kilometers, you noted that **40** seconds had elapsed. The TACHYMETRE dial displays **90**, but you traveled **10** kilometers, so the answer would be **10** times that, or **900** km/hour.

You can also measure other things, like fuel consumption. Suppose a pound of fuel took **48** seconds to burn. The chronograph second hand indicates on the TACHYMETRE dial that you are burning **75** pounds of fuel per hour.

The **E6B** Flight Computer is based on the principle of the slide rule. The unit of measurement is the base 10 logarithms (log10). These instructions cover only the basics of using the **E6B** Flight Computer Bezel/slide rule. A more complete description may be found in your public library or on the internet.

How to read the scale

The most important technique to master is reading the scale. The numbered tick marks can represent a range of values. For example, on the scale on the face of the watch, the numeral **30** to the left of the letters "NAUT" can represent *30*, or *300* or *3000* or *3.0*. The nine tick marks between the **30** and **35** each represent 1/10 of the distance between *30* and *35*, or *300* and *350*, or *3000* and *3500*, or *3.0* and *3.5*. So for *3.0* and *3.5* each one of the tick marks represents *.05*; for *30* and *35*, *0.5*; for *300* and *350*, *5*; for *3000* and *3500*, *50*. You can see it is important that you keep track of the range that each interval represents.



How to use the E6B Flight Computer Bezel

When doing calculations, the rotating bezel will represent the time and the face/dial the units (distance, pounds, gallons, etc.)

⊙ Let's try an example:

You're in your car on the freeway traveling at **60** miles-per-hour. You've been traveling for **2.5** hours. How far have you gone?

⊙ Solution:

Turn the bezel so that the red numeral **10** on the bezel (which represents 1 hour) is directly over the "**60**" on the face at 12 o'clock (which represents the 60 miles traveled in 1 hour). Directly below the numeral **25** (2.5 hours) on the bezel you should see the numeral **15** on the face. The **15** represents the significant digits of the answer and we must decide whether there should be *none*, *1* or *2* zeros after the **15**.

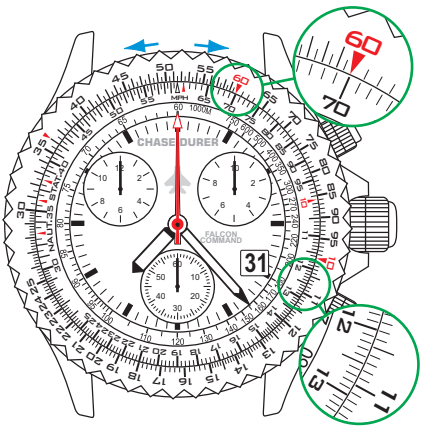
You can probably guess how many, because *15* miles in **2.5** hours is obviously too little and *1500* is obviously too much. So the answer must be **150** miles.

⊙ Let's try another example:

Again, you're going down the freeway at **70** miles-per-hour. You've been traveling at that speed for **110** minutes. How far have you traveled?

⊙ Solution:

Turn the bezel so that the numeral **60** (which represents 60 minutes) on the bezel is right above the number **70** (which represents 70 miles-per-sixty minutes). Now find the numeral **11** on the bezel and look directly below it on the face. You will note that the **11** is between the numerals **12** and **13** on the face. We must now interpolate. First we must decide whether the numerals **12** and **13** on the face represent *12* and *13*, *120* and *130*, *1200* and *1300*, etc. It's obvious that *12* is too little and *1200* is too big, but sometimes it's not so obvious. So here's another method.



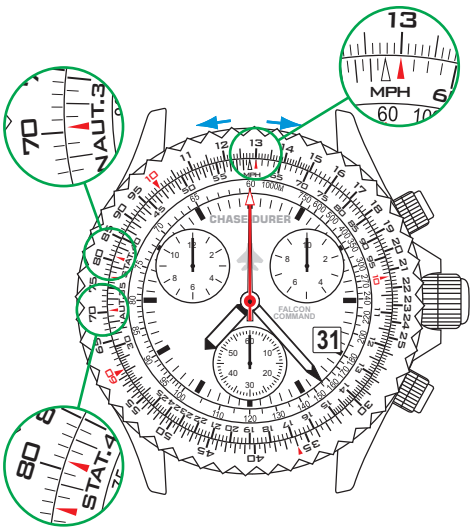
At **70** miles-per-hour (70 miles in 60 minutes), you would have to travel over *14* hours to go further than *1000* miles. *14* hours is *840* minutes. So the answer must have more than *2* and less than *4* digits. In other words, it must have *3* digits until you get above *14* hours or *840* minutes.

After using the Flight Computer for a while these mental/estimates will become second nature (i.e. intuitive). Now that we've done the mental calculation, we know that the answer must have *3* digits. Therefore **12** must represent the number **120** and **13** must represent the number **130**. Since there are nine ticks between the **12** and **13**, there are ten divisions between them. Since they represent the difference between the numbers **120** and **130**, which is *10*, each tick must represent *1*. Since the numeral **11** on the bezel is above the eighth tick after

the **12** on the face, it represents **8**. Therefore the distance traveled in **110** minutes at **70** miles-per-hour is **120** + **8** or **128** miles.

How to calculate distance and fuel usage

Now that you know a few of the basics, you can start using the Flight Computer to estimate your distance or fuel usage in relation to time. Simply select the numeral on the bezel that represents the time interval and set the bezel so that number is directly above the numeral on the face represents the number of miles, kilometers, nautical miles or pounds of fuel traveled or used in that time period. Then, as time passes, you locate the lapsed time on the bezel and look directly below it for the approximate distance traveled, fuel usage, etc.



How to convert basic units

The Flight Computer is provided with red arrows on the face for converting to and from nautical miles, statute miles and kilometers. The Red arrow above the “A” in “STAT” on the face is for statute miles. The red arrow above the “U” in“NAUT” on the face is for nautical miles.

The red arrow above the “H” in MPH is for kilometers.

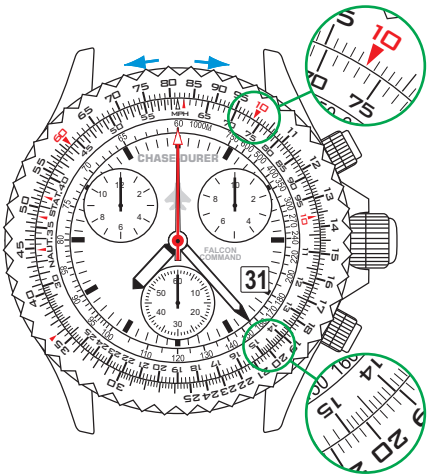
To convert, for example, **13** KM. to statute and nautical, move the bezel so that the numeral **13** on the bezel is directly above the red arrow (above/right of the “H” in “MPH”) on the face. The statute miles in **13** KM. is found on the bezel directly above the red arrow above the “A” in “STAT” on the face, which is the numeral **8.1**.

Thus **8.1** statute miles equals **13** KM. If you look directly above the red arrow above the “U” in “NAUT” you will see the numeral **7.05**. This is the number of nautical miles in **8.1** statute miles and **13** KM.

Other conversions

You can also do other conversion calculations on the Flight Computer. You can, for example, convert pounds of aviation gasoline, kerosene, or JP-4 to gallons. You can also convert from gallons to pounds. Simply move the bezel so that the **10** is over the numeral on the face that represents the number of pounds in 1 gallon of that type of liquid (see the conversion table on next page), find the number of gallons you're converting on the bezel and look directly below that at the corresponding number on the face. That is the number of pounds!

The example below converts **20** gallons of oil (petroleum) to pounds. The Conversion Table shows **1 gallon = 7.35 pounds**, so setting the **10** on the bezel over **7.35** and looking under **20** on the bezel shows **147** pounds on the watch face scale.



NOTE!

Use the Flight Computer only to estimate fuel usage and travel distance. Do not rely on it for navigation purposes. Its purpose is to allow you to keep track of approximate fuel usage or distance traveled over time and to estimate equivalent kilometers, statute and or nautical miles. Any other use is outside the design parameters of the Flight Computer and is not recommended.

Conversion Table

1 GALLON =	POUNDS
alcohol	6.55
aviation gasoline	6.00
garbage	4.01
gasoline (auto)	6.14
jet fuel (JP-4)	6.50
kerosene	6.67
oil (lubricating)	7.59
oil (petroleum)	7.35

1 BARREL =	This Amount
(U.S. oil)	5.62 cu. ft.
(U.S. oil)	42 U.S. gal.

ONE (1) =	This Amount
knot	51.44 cm/sec
knot	1.69 ft/sec
knot	.514 m/sec
knot	1.15 stat mi/hr

ONE (1) =	This Amount
foot	30.48 cm
foot	.167 fathoms
foot	.305 meters
meter	.547 fathoms
meter	3.28 feet
kilometer	3280.84 ft.
kilometer	.621 stat miles
kilometer	.540 naut miles
kilometer	1093.6 yards
nautical mile	1012.7 fathoms
nautical mile	6076.12 feet
nautical mile	1.85 kilometers
nautical mile	1852 meters
nautical mile	1.15 stat miles
nautical mile	1 minute of lat.
nautical mile	1 minute of Great Circle

FALCON COMMAND
Technical Specifications

- SWISS Made, 27-jewel precision ETA 251.262 quartz movement.
- Chronograph: 1/10th second, 60 minutes & 12-hour elapsed time; lap time.
- Soft slide bi-directional E6B navigational slide rule bezel for calculation of speed and fuel consumption.
- Tachymetre.
- Super-LumiNova advanced illumination system on hands & indexes.
- Case in polished solid 316L stainless steel with 10-micron gold accents.
- Screw-locked crown.
- Screw-in back.
- Water resistant to 100m/330 feet.
- Scratch resistant sapphire crystal.
- Diameter - 40mm.
- Two-tone 10-micron gold and 316L stainless steel bracelet or leather strap.
- Deployment buckle with double lock security clasp.
- Serial numbered.
- 2 year limited international warranty.