

CHASE-DURER

OPERATION MANUAL

*CENTRAL COMMAND
ALARM CHRONOGRAPH*

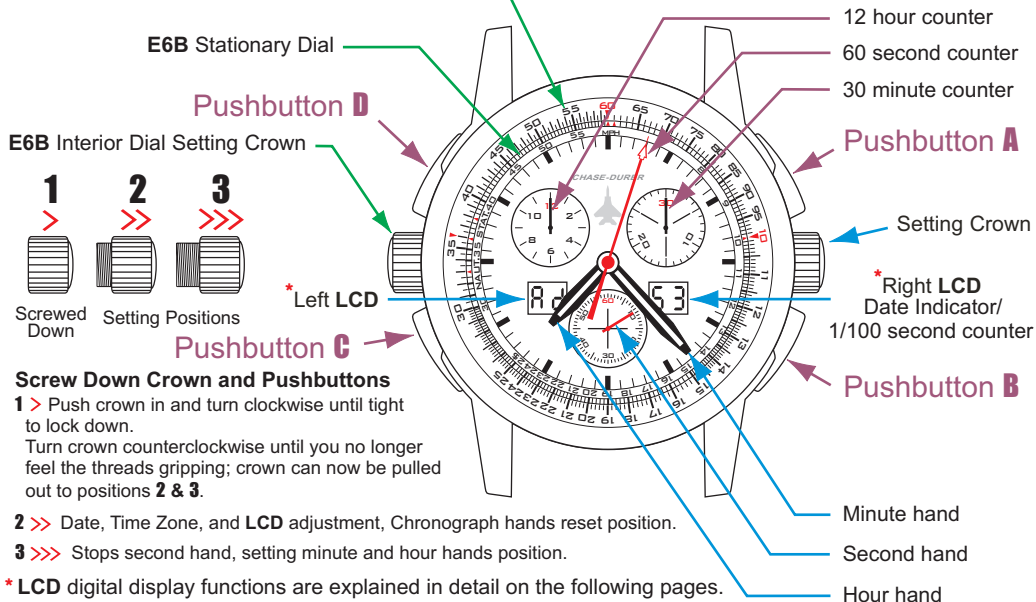


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E6B Flight Computer Interior Rotating Dial

CHRONOGRAPH HANDS



Screw Down Crown and Pushbuttons

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

2 >> Date, Time Zone, and LCD adjustment, Chronograph hands reset position.

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

* LCD digital display functions are explained in detail on the following pages.

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

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

WATCH HANDS

Information Displayed on LCD Panels

Left LCD

Time Setting

77	} Time Mode
77	
77	
17	Month

Alarm Indicators

06	Alarm Hour Setting
AL	} Alarm Mode
AL	
0n	Alarm ON
0F	Alarm OFF

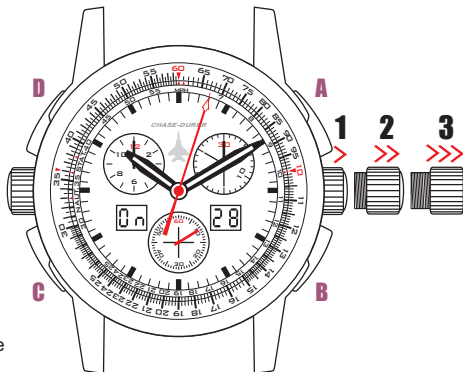
Chronograph Indicators

CH	Chronograph	79	} Chronograph 1/100 second
Ad	Add Function	79	
SL	Split Time Function	79	
ST	Last Elapsed Time	79	
LP	Lap Time Function	79	
77	Total Time	79	

Right LCD

24	24 Hour Time
Am	} 12 Hour Time
Pm	
d	Date

30	Alarm Minutes Setting
Am / Pm / 24	12/24 Hour Time mode indicators
d	} Date
d	
d	



Note - When the displays are flashing while watch is in *setting mode*, it indicates the watch is waiting for input.



Blinking or partial displays when watch is in normal operating mode (not setting mode) indicates a low battery condition.

Note - It is very important that the following steps 1 - 6 are performed in sequence when setting the Time and Date. Failure to do so can prevent accurate display of time and correct Alarm function!

1. Pull setting crown out to position **2** >> and preset the *hour hand* to the correct hour with the crown.
2. Pull setting crown out to position **3** >>> when the small *second hand* reaches "60" to stop the *second hand* for exact time setting. The following steps 3 - 6 will be made with the crown in this position.

Setting AM/PM or 24 hour Time Mode

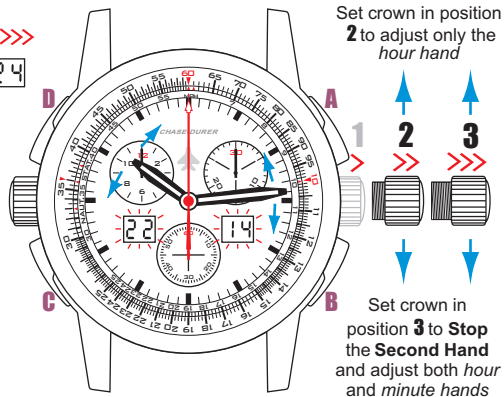
3. Make sure the setting crown is still in position **3** >>> and press button **A** to display $\boxed{11} + \boxed{PM} / \boxed{PM} / \boxed{24}$ (time). If $\boxed{11} + \boxed{d}$ (date) appears, press button **A** once more. During the 2 seconds that $\boxed{11} + \boxed{PM} / \boxed{PM} / \boxed{24}$ displays, press button **D** to change the right LCD between standard **AM/PM** or **24 hour military** time. Your new Time Mode selection will appear for 2 seconds in the LCD's, after which, it becomes the default **time** mode with the **hours** and **minutes** displayed as flashing numbers.



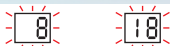
4. Set the **hour** in the left LCD to match the hour hand setting in step 1 with button **C**, set the **minutes** in the right LCD several minutes ahead of actual time using button **B**. Pressing **B** or **C** for longer than 1 second will advance the **hours** and **minutes** rapidly.

Setting the Date

5. Make sure the setting crown is still in position **3** >>> and press button **A** to display $\boxed{11} + \boxed{d}$ (date). If $\boxed{11} + \boxed{PM} / \boxed{PM} / \boxed{24}$ appears, press button **A** once more. After 2 seconds, the two displays will show flashing numbers for the **month** in the left LCD, and the **date** in the right LCD.



(continued)



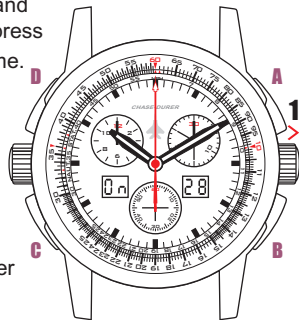
Set the **date** with button **B** and the **month** with button **C**. Pressing buttons **B** or **C** for longer than 1 second will advance the **date** and **month** rapidly.

- For the final time setting step, turn the crown and adjust the *minute hand* to **MATCH** the **minutes** set in the right **LCD** with button **B** in previous step 4. Set the current time by pushing in the crown to position **1** > while using an accurate time signal. Screw down the setting crown to finish the setting procedure.

Setting the Alarm

- Make sure the setting crown is in position **1** >.
- Press button **D** momentarily and the left **LCD** will display **AL** for 2 seconds and then change to one of the following: **0n/0F** with the **date** in the right **LCD**, or **hours and minutes** in both **LCD**'s. If **0n/0F** are displayed in the left **LCD**, press **D** again to display **hours and minutes** currently set for the alarm time.
- Press either button **B** or **C**; the **LCD**'s will flash indicating you are in alarm setting mode. Set the **minutes** by pushing button **B**, and **hours** with button **C**.

Note - While adjusting the left **LCD (hour)** setting, the right **LCD (minutes)** will display **Am/Pm** if digital time is set to standard time mode. If digital time is in 24 hour military time mode, the right **LCD** will display **minutes**. Pressing buttons **B** or **C** for longer than 1 second will advance the **hours** and **minutes** rapidly.



- When finished setting hours and minutes, press button **D**; the left **LCD** will display **AL** for 2 seconds followed by **0n** or **0F** indicating the alarm's mode and the right **LCD** will display the **date**.
- To set alarm state, press and hold button **C** until the left **LCD** changes from **0n** to **0F** or **0F** to **0n**.

Note - To test the alarm, press and hold **D**; the alarm should produce a beeping tone.

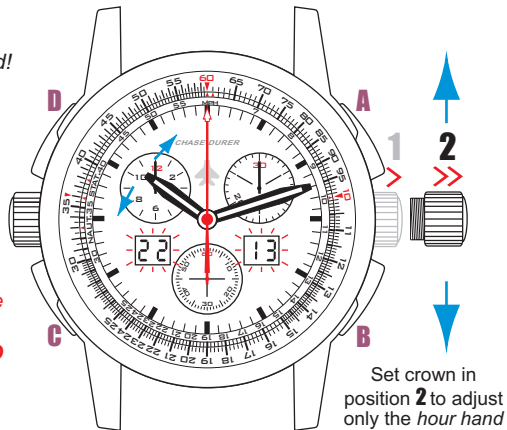
Setting Time Zones

1. Pull setting crown out to position **2**>> and turn to set the *hour hand* to another time zone when traveling, or to adjust for Daylight Savings.

Note - The **hour** displayed in the left **LCD** will also change in synchronization with the *hour hand*!

If you wish to retain the original time zone, pull setting crown to position **3**>>> and press button **A** to set **LCD's** to **time** mode. Reset the current **hour** on the left **LCD** by pushing button **C** until original time is displayed.

*Please note that the **LCD** time is used for the Alarm function! If you wish to have the Alarm synchronized to the hour hand, then the **LCD** and hour hand must be set to the same time.*



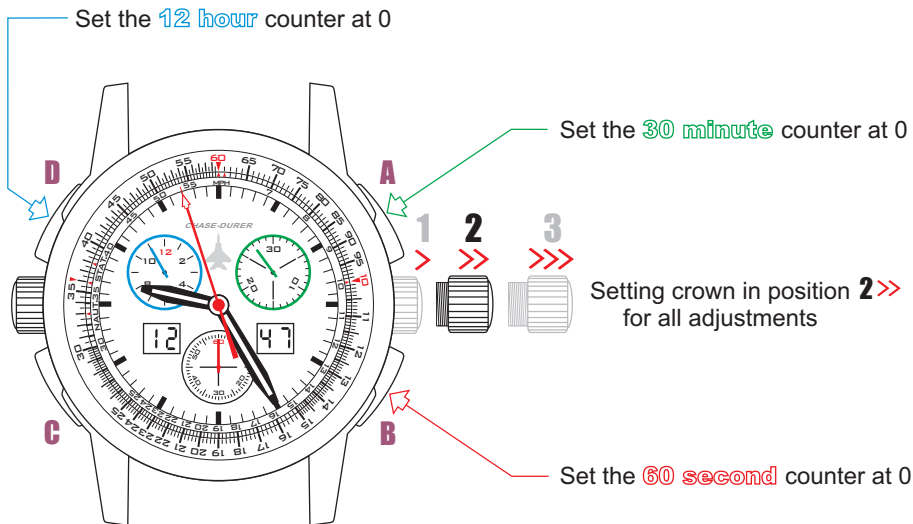
Set crown in position **2** to adjust only the *hour hand*

Correcting for Leap Year

February 28 will normally change to March 1 and only needs to be adjusted on February 29 every four years to accommodate leap years.

1. Pull setting crown out to position **2**>> and turn the *hour hand* counterclockwise (backwards) 24 hours or two revolutions.
2. Push setting crown back to position **1**> and the right **LCD (date)** will display the correct date **29**
3. Screw down the setting crown to finish.

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



Note: Pressing **PUSHBUTTONS** momentarily will advance hands one index mark at a time.
To advance hands rapidly, press **PUSHBUTTONS** longer than 1 second .

1 to **X** order of functions

Note* Step **2** (or **3**) may be repeated as many times as necessary; Step before **X** is the final reading.



START 1
STOP 2

Setting crown in position **1**

Reset to Zero X

Note - The left LCD will display **RD** after step **2** (STOP) until Reset to zero (**X**).
The right LCD will display hundredths of a second until Reset to zero.

ADD FUNCTION: Order in which pushbuttons should be pressed.

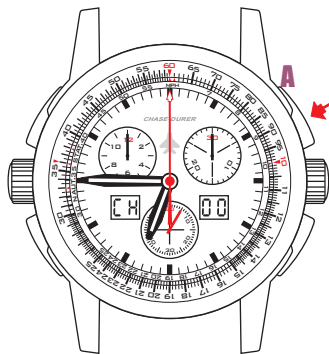


Timing Mode • Split-Time or Intermediate Times Function

8.

1 to 7 order of functions

Note* Step 2 (or 4) may be repeated as many times as necessary; Step 6 is the final reading.



START 1

Crown set in position 1



SPLIT 2 4

Read
TIME 2
1 hour
32 minutes
06 seconds
83/100 second

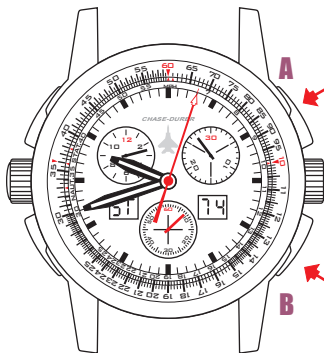
RESTART 5
(catching up)



SPLIT 1 2

Read
TIME 1
0 hour
15 minutes
26 seconds
25/100 second

RESTART 3
(catching up)



STOP 6

Read
LAST TIME
2 hours
57 minutes
03 seconds
74/100 second

Reset to **7**
Zero

Timing Mode • Lap-Time Function

9.

1 to **9** order of functions

Note* Step **2** (or **4**) may be repeated as many times as necessary; Steps **7** and **8** are final readings.



A **START 1**

Crown set in position 1

4 LAP 2

Read

TIME 2

0 hour

1 minute

43 seconds

30/100 second



5 RESTART
(catching up)

C

2 LAP 1

Read

TIME 1

0 hour

2 minutes

06 seconds

12/100 second



3 RESTART
(catching up)

C



A **STOP 6**

7 Read

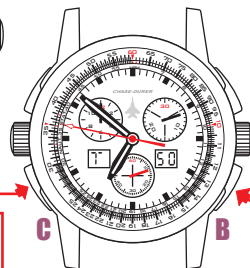
FINAL TIME

0 hours

2 minutes

58 seconds

08/100 second



8 Read

TOTAL TIME

0 hours

6 minutes

47 seconds

50/100 second

9

Reset to Zero

The **E6B** Flight Computer is based on the principle of the slide rule. The unit of measurement is the base 10 logarithms (\log_{10}). These instructions cover only the basics of using the **E6B** Flight Computer dial/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 dial

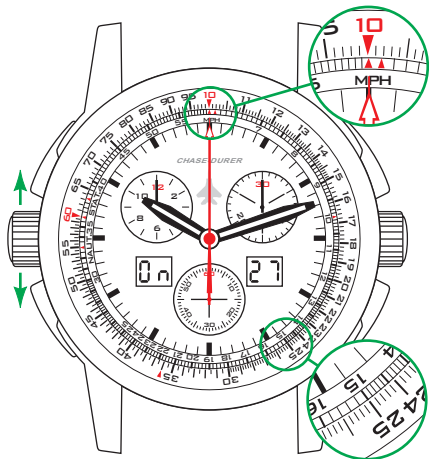
When doing calculations, the rotating dial will represent the time and the face/dial the units (distance, pounds, gallons, etc.)

☉ 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 rotating dial so that the red numeral **10** on the dial (which represents 1 hour) is directly over the "**60**" indicator triangle 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 dial 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**.



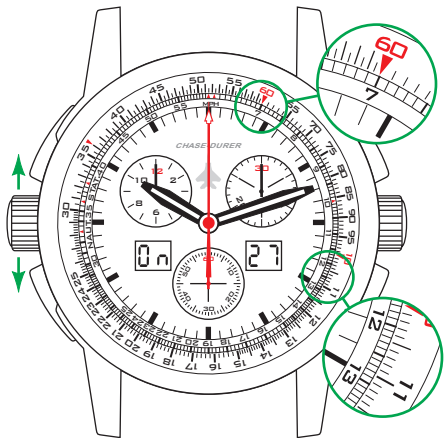
You can probably guess how many, because 15 miles in 2.5 hours is obviously too little and 1500 is obviously too much. So the answer must be **150** miles.

☉ 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 dial so that the numeral **60** (which represents 60 minutes) on the dial is right above the number **7** (which represents 70 miles-per-sixty minutes). Now find the numeral **11** on the dial 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 dial 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 dial that represents the time interval and set the dial so that number is directly above the numeral on the face that 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 dial and look directly below it for the approximate distance traveled, fuel usage, etc.

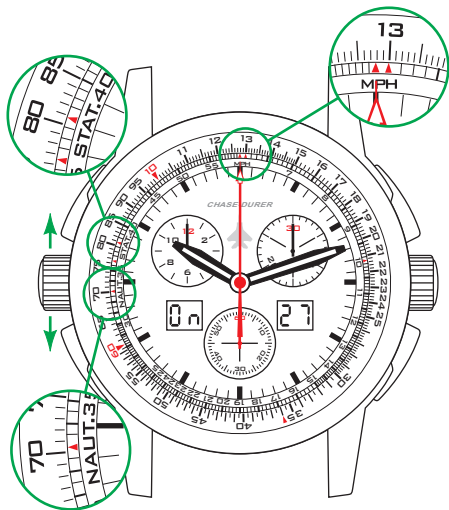
How to convert basic units

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 dial so that the numeral **13** on the dial is directly above the red arrow over the "H" in "MPH" on the face. The statute miles in **13 KM.** is found on the dial directly above the red arrow above the "A" in "STAT" on the face, which is the numeral **8.1**.

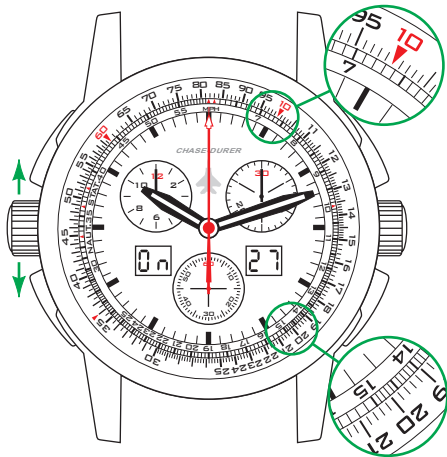
Thus **8.1** statute miles equals **13 KM.** If you look directly above the red arrow above the "U" in "NAUT" you will see the numeral **7.05**. This is the number of nautical miles in **8.1** statute miles and **13 KM.**



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 dial 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 dial 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 dial over **7.35** and looking under **20** on the dial 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

CENTRAL COMMAND Technical Specifications

- ◆ SWISS Made, 23-jewel precision ETA 251.265 quartz movement.
- ◆ Chronograph: 1/100th second, 60 seconds, 30minutes & 12-hour elapsed time, split time, and lap time.
- ◆ Interior rotating and stationary E6B navigational slide rule dials for calculation of speed, distance, and fuel consumption.
- ◆ Digital power alarm.
- ◆ Twin LCD displays.
- ◆ Super-LumiNova advanced illumination system on hands & indexes.
- ◆ Case and bracelet in combination of brushed/polished solid 316L stainless steel.
- ◆ Deployment buckle with double lock security clasp.
- ◆ Screw-locked crown and screw-in back.
- ◆ Water resistant to 100m/330 feet.
- ◆ Domed scratch-resistant sapphire crystal.
- ◆ Diameter - 45mm.
- ◆ Serial numbered.
- ◆ 2 year limited international warranty.

ETA Cal. 251.265

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