

Nighthawk Series (mvt. cal. B877) Quick Identification



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24 Hour Hand and 24 Hour sub dial - The 24 Hour hand enables the user to set the watch for the correct AM or PM time. It is shorter side which corresponds to the 24 Hour sub dial AM scale and longer on the other which corresponds to the 24 hour sub dial PM scale. The color of each tip of the 24 Hour hand will correspond to the color of the 24 Hour Time Sub Dial AM or PM scales. It is especially important to refer to this hand when setting the time to ensure the correct AM or PM time is set for proper operation of the date.

Crown 'A' - Used to change time and date.

Crown 'B' - Used to rotate the Pilots Slide Rule Dial Ring.

Date - Indicates Date based on a 31-day month. It is not perpetual and must be adjusted for months shorter than 31 days.

Pilots Slide Rule Dial Ring ('Outside scale') - Used for flight related calculations and can be rotated by 'Crown - B'. Referred to in the instructions as 'Outside scale' and readings are compared to the 'Inner scale' when performing calculations.

Movement Caliber B877 Quick Setting Instructions



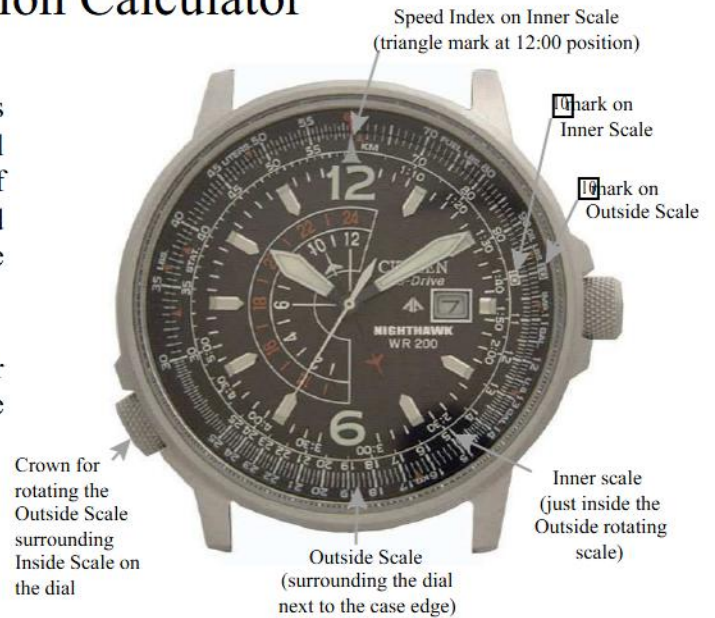
To set Base or '0' position and then the time/date:

- 1) If your model features a screw down crown, unscrew crown 'A' from case.
- 2) When the second hand reaches 12:00, pull crown 'A' out two 'clicks'. This will stop the second hand at the 12:00 or '0-position'.
- 3) With the crown 'A' pulled out two 'clicks', turn the crown clockwise until the PM side of the 24-hour indicator (red tip side in this example) is pointing to 12:00 or '0-position' (minute hand should also be pointing at 12:00 or '0-position'). Note: The AM side of the 24-hour indicator hand (white tip side in this example) indicates AM hours (12:00 am through 11:59:59 am), while the PM side of the 24 Hour hand (red tip side in this example) indicates PM hours (12:00 pm to 11:59:59 pm)
- 4) Push crown 'A' in 1 'click'. Rotate crown 'A' clockwise to move the hour hand until you see the date change. If the hour hand is not already at the 12:00 position, continue to rotate the crown clockwise to move the hour hand to the 12:00 position. This sets the hour to 'midnight' ensuring the date will change at night, rather than during the day.
- 5) Set the current date by rotating crown 'A' counterclockwise until the current date is shown in the date window. The watch is now set for 'midnight' on the current date.
- 6) Pull crown 'A' out one 'click' to the time setting position.
- 7) Rotate crown 'A' clockwise to set your current time. Keep in mind that your watch is currently set at 'midnight' on today's date.
- 8) Push crown 'A' to the closed position. The time, date and 24-hour time are now set. If your model features a screw down crown, be sure to screw crown 'A' into the case.

Use of the Navigation Calculator

Flying distance and other navigation calculations as well as general calculations can be performed using the slide rule located around the dial. This slide rule is not capable of displaying decimal places, and as such, should only be used as a general reference and as an alternative to more accurate calculations.

Turning the crown, located at the 8:00 position, in either direction allows the Outside Scale surrounding the dial to be rotated.



Navigation Calculator

1. Calculation of time required

Question : How long does it take an airplane flying at 180 knots to fly a distance of 450 nautical miles?

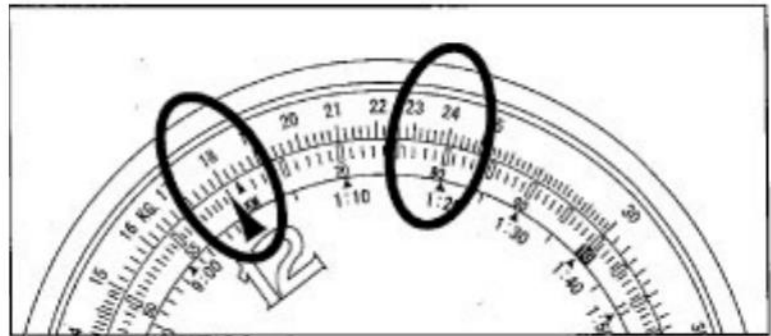
Solution: Rotate the lower left crown in either direction to set the '18' mark on the 'outside' scale to the "Speed Index" at 12:00. At this time, the point on the inside scale that is aligned with '45' on the outside scale indicates (2:30). The answer is 2 hours and 30 minutes



2. Speed (Ground Speed) calculation

Question: What is the speed (ground speed) of an airplane when it takes 1 hour and 20 minutes to fly a distance of 240 nautical miles?

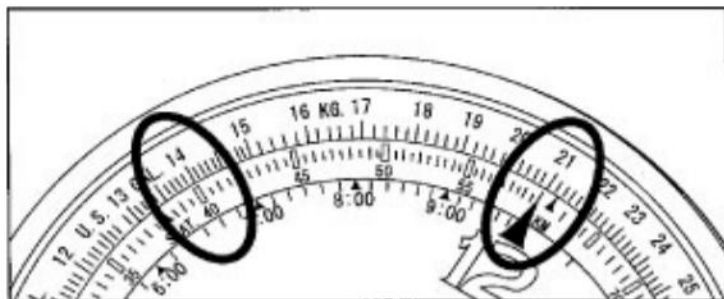
Solution: Rotate the lower left crown in either direction to align the '24' on the outside scale with '1:20' (80) in the inside scale. At this time, '18' is aligned with the "Speed Index" on the inside scale and the answer is 180 knots.



3. Flying Distance Calculation

Question : What is the flying distance traveled in 40 minutes at a speed of 210 knots?

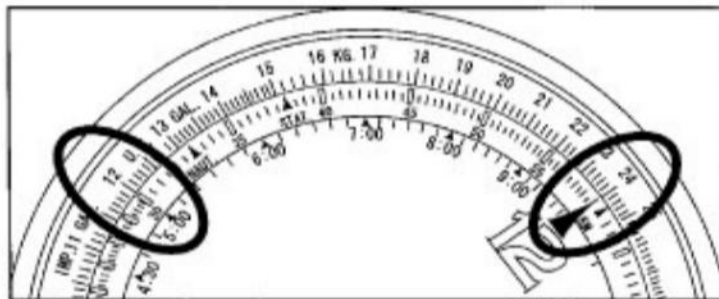
Solution: Rotate the lower left crown in either direction to align the '21' on the Outside Scale with the 'Speed Index' on the Inside scale. The '40' of the Inside scale is now pointing to '14'. The answer is 140 nautical miles.



4. Fuel consumption rate calculation

Question: If 120 gallons of fuel are consumed in 30 minutes of flying time, what is the fuel consumption rate?

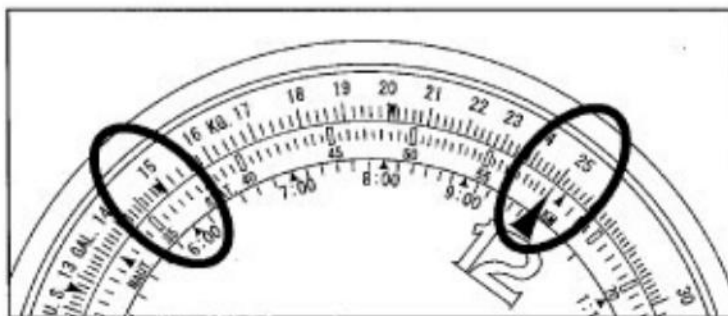
Solution: Rotate the lower left crown in either direction to align the '12' on the Outside scale with '30' on the Inside scale. The 'Speed Index' on the Inside scale now points to '24' on the Outside Scale. The answer is 240 gallons per hour.



5. Fuel consumption calculation

Question: How much fuel is consumed in 6 hours at a fuel consumption rate of 250 gallons per hour?

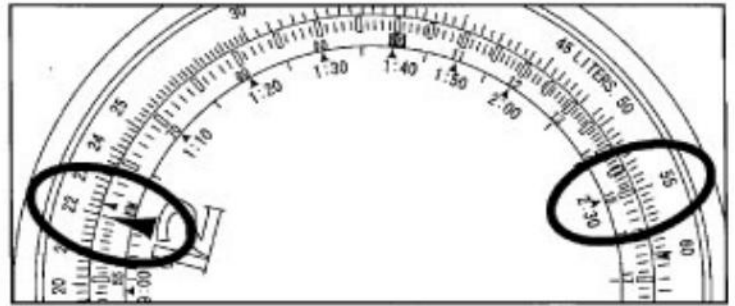
Solution: Rotate the lower left crown in either direction to align the '25' on the Outside scale with the 'Speed Index' on the Inside scale. The 6:00 is aligned with '15'. The answer is 1,500 gallons.



6. Maximum flying hours

Question : With a fuel consumption rate of 220 gallons per hour and a fuel supply of 550 gallons, what is the maximum flying hours?

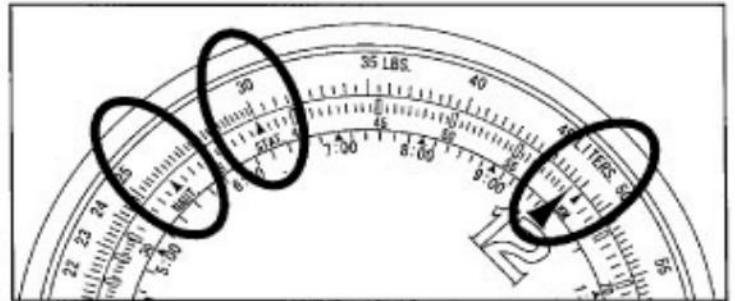
Solution: Rotate the lower left crown in either direction to align the '22' on the Outside scale with the 'Speed Index' of the inside scale. The '55' of the Outside scale is now aligned with '2:30' on the Inside scale. The answer is 2 hours and 30 minutes.



7. Conversion

Question: How do you convert 30 miles into nautical miles and kilometers?

Solution: Rotate the lower left crown in either direction to align the '30' with the 'STAT' mark on the Inside scale. You will notice that '26' is aligned with the 'NAUT' mark on the Inside scale and '48.2' is indicated at the 'KILOMETERS' on the Inside scale.

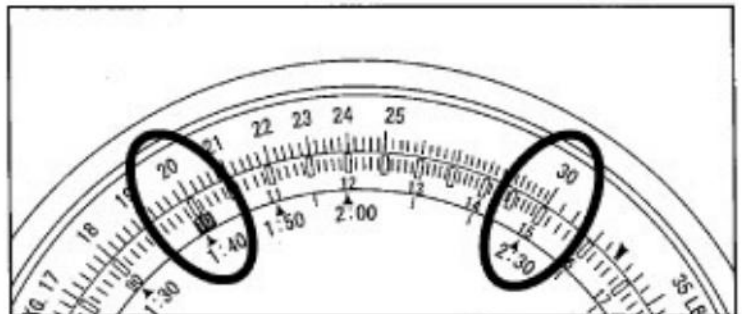


General Calculation Functions

1. Multiplication

Question: What is 20 times 15 (20 x 15)?

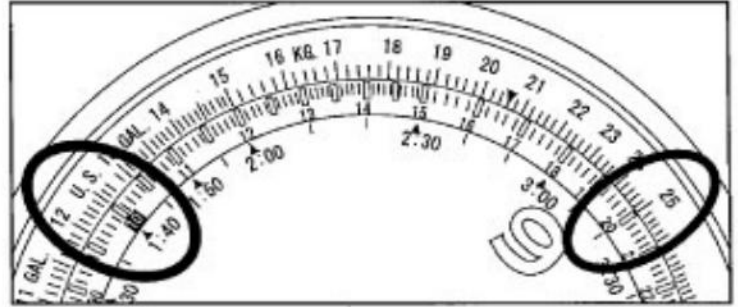
Solution: Rotate the lower left crown in either direction to align the '20' on the Outside scale with the '10' mark on the Inside scale. Read the Outside scale at the '30' mark which is aligned with '15' on the Inside scale. Figure the number of decimal places. The answer is 300. Remember: decimal places cannot be read on this scale.



2. Division

Question: What is 250 divided by 20 ($250 / 20$)?

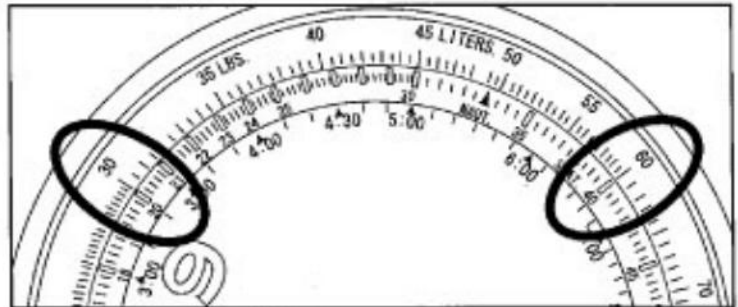
Solution: Rotate the lower left crown in either direction to align the '25' on the Outside Scale with '20' on the inside scale. Read the '12.5' mark that is aligned with the 10 mark on the Inside Scale. Figure the number of decimal places. The answer is 12.5.



3. Reading Ratios

Question: What is 'x' in the calculation thirty divided by 20 equals 60x
($30/20 = 60x$)

Solution: Rotate the lower left crown in either direction to align the '30' on the Outside Scale with the '20' on the inside scale. At this time, the answer of '40' can be read from the Inside scale corresponding to '60' on the Outside scale. In addition, the ratio of the value on the Outside scale to the value of the Inside scale is '30:20' at all positions on the scale.



4. Determining the square root of a number

Question: What is the square root of 225?

Solution: Rotate the lower left crown in either direction so that the value on the Inside scale corresponding to '22.5' on the Outside scale is equal to the value on the Outside scale corresponding to 10 on the Inside scale. Read off the answer of 15 at that location.

