



TOM'S TIPS

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article #9

MODERN ETA CALIBERS

Technical Info for Modern ETA Calibers

Technical information is one of our most needed and valued assets. With many of our members working on modern watches daily (circa 70s to the present), we've compiled a useful chart of specifications for the modern ETA calibers with the assistance of ETA and Swatch Group. This useful chart contains vital information concerning lift angles, turns of the ratchet wheel to "full winds" and "less 24 hours," approximate power reserve in hours, and the number of hours it takes to make 1 revolution of the barrel, which is great for troubleshooting.

One important fact that sticks out when glancing at the chart is that there is no modern ETA caliber that has the 52° lift angle, which was virtually thought of as the default lift angle. In order to get the correct amplitude reading, you must manually enter the correct lift angle.

Looking at the chart, there is also a run time difference in the ETA 6497-1 versus the ETA 6497-2. Even though they look identical, they have two different beats (18000 and 19800 respectfully). The mainspring is also longer and stronger on the faster beat caliber. So even though a lot of parts interchange, the train wheels, pallet and balance wheel definitely do not. So pay attention when ordering parts or if you manually input the "beats per hour" on your timing machine.

If an ETA 7750, for example, stopped after 5 hours, or consistently every 5 hours, by using the chart you could confirm that the barrel indeed makes 1 revolution in 5 hours. There could be an obstruction in between two of the teeth or a broken/damaged tooth. But this information also gets us to think in other terms as well. If the barrel turns once every 5 hours and the ratchet

wheel turns 10½ times to full wind, then we can calculate the approximate run time of 52½ hours ($5 \times 10\frac{1}{2} = 52\frac{1}{2}$ hours). Likewise, if the watch runs 52½ hours and the barrel turns 1 time every 5 hours, we then can calculate the number of turns to "full wind" of the ratchet wheel ($52\frac{1}{2} \div 5 = 10\frac{1}{2}$ turns).

Lastly, the term "less 24 hours" is used instead of "half wind" because the different ETA calibers made will vary in total power reserve, ranging from 43 hours to as much as 60 hours. What we are mainly concerned with is how the watch will perform from "full wind" until "less 24 hours" later, when it will either be wound again or it will be worn again in the case of a self-winding watch. The chart reflects the number of turns necessary to take the watch from "no wind" to "less 24 hours" more accurately than just dividing by 2.

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ETA CALIBERS

CALIBER	WINDING	Ratchet wheel turns to FW / & Up to" less 24 hrs" (rounded to .25)	THE BARREL MAKES 1 TURN IN (HOURS)	THEORETICAL RUNNING TIME (HOURS)	Lift angles in degrees
2000 -1	SELF	~9.10 / 4.25	4.86	~44.2	50
2004 -1	SELF	~9.10 / 4.25	4.86	~44.2	50
2094	SELF	~9.10 / 4.25	4.86	~44.2	50
2660	MANUAL	~7.60 / 3.50	6.03	~45.8	51
2671	SELF	~7.20 / 3.25	6.03	~43.4	51
2678	SELF	~7.20 / 3.25	6.03	~43.4	51
2681	SELF	~8.20 / 4.25	6.03	~49.4	51
2688	SELF	~8.30 / 4.25	6.03	~50.0	51
2801 -2	MANUAL	~8.50 / 4.50	5.86	~49.8	50
2804 -2	MANUAL	~8.50 / 4.50	5.86	~49.8	50
2824 -2	SELF	~7.70 / 3.50	5.86	~45.1	50
2834 -2	SELF	~7.70 / 3.50	5.86	~45.1	50
2836 -2	SELF	~7.70 / 3.50	5.86	~45.1	50
2846	SELF	~9.00 / 5.00	5.86	~52.7	50
2890A9	SELF	~8.10 / 4.00	5.86	~47.4	51
2891A9	SELF	~8.10 / 4.00	5.86	~47.4	51
2892A2	SELF	~8.10 / 4.00	5.86	~47.4	51
2893 -1	SELF	~8.10 / 4.00	5.86	~47.4	51
2893 -2	SELF	~8.10 / 4.00	5.86	~47.4	51
2893 -3	SELF	~8.10 / 4.00	5.86	~47.4	51
2894 -2	SELF	~8.10 / 4.00	5.86	~47.4	51
2895 -1	SELF	~8.10 / 4.00	5.86	~47.4	51
6497 -1	MANUAL	~6.75 / 3.50	7.30	~49.2	44
6497 -2	MANUAL	~8.30 / 5.00	7.30	~60.5	44
6498 -1	MANUAL	~6.75 / 3.50	7.30	~49.2	44
6498 -2	MANUAL	~8.30 / 5.00	7.30	~60.5	44
7001	MANUAL	~6.50 / 3.00	7.00	~45.5	50
7750	SELF	~10.50 / 5.75	5.00	~52.5	49
7751	SELF	~10.50 / 5.75	5.00	~52.5	49
7760	MANUAL	~10.50 / 5.75	5.00	~52.5	49

Tom Schomaker, CMW21, former watchmaking instructor for the American Watchmakers-Clockmakers Institute (AWCI), has received brand-specific training in the U.S. and Switzerland, and has performed after-sales service for a Swiss manufacturer.

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