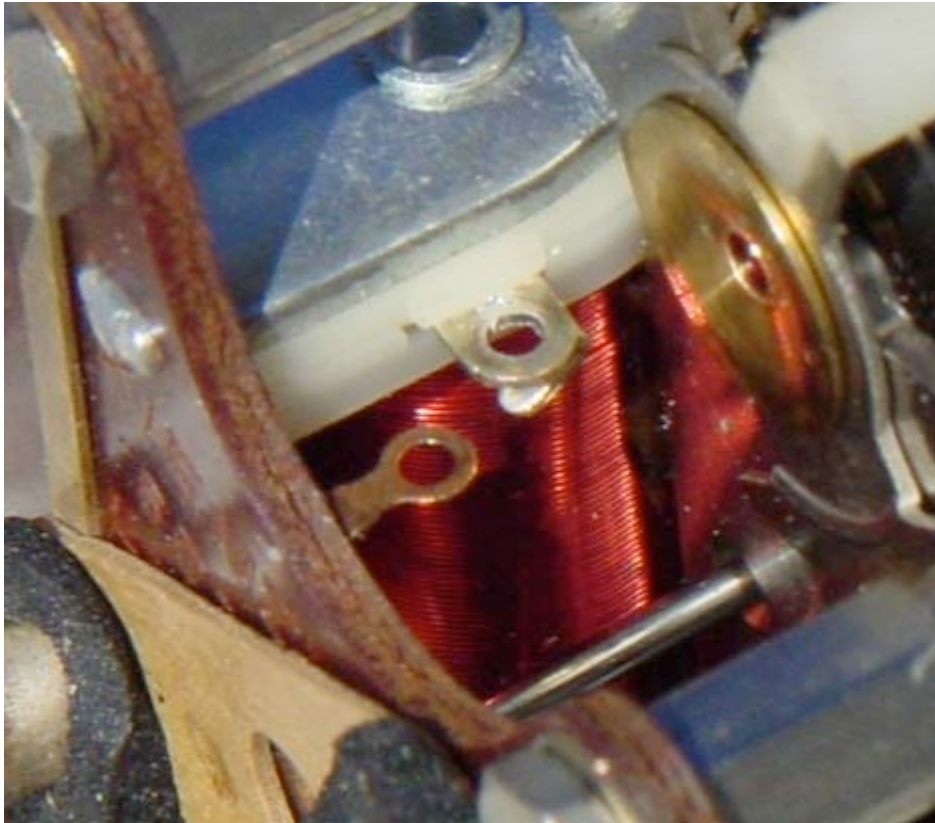


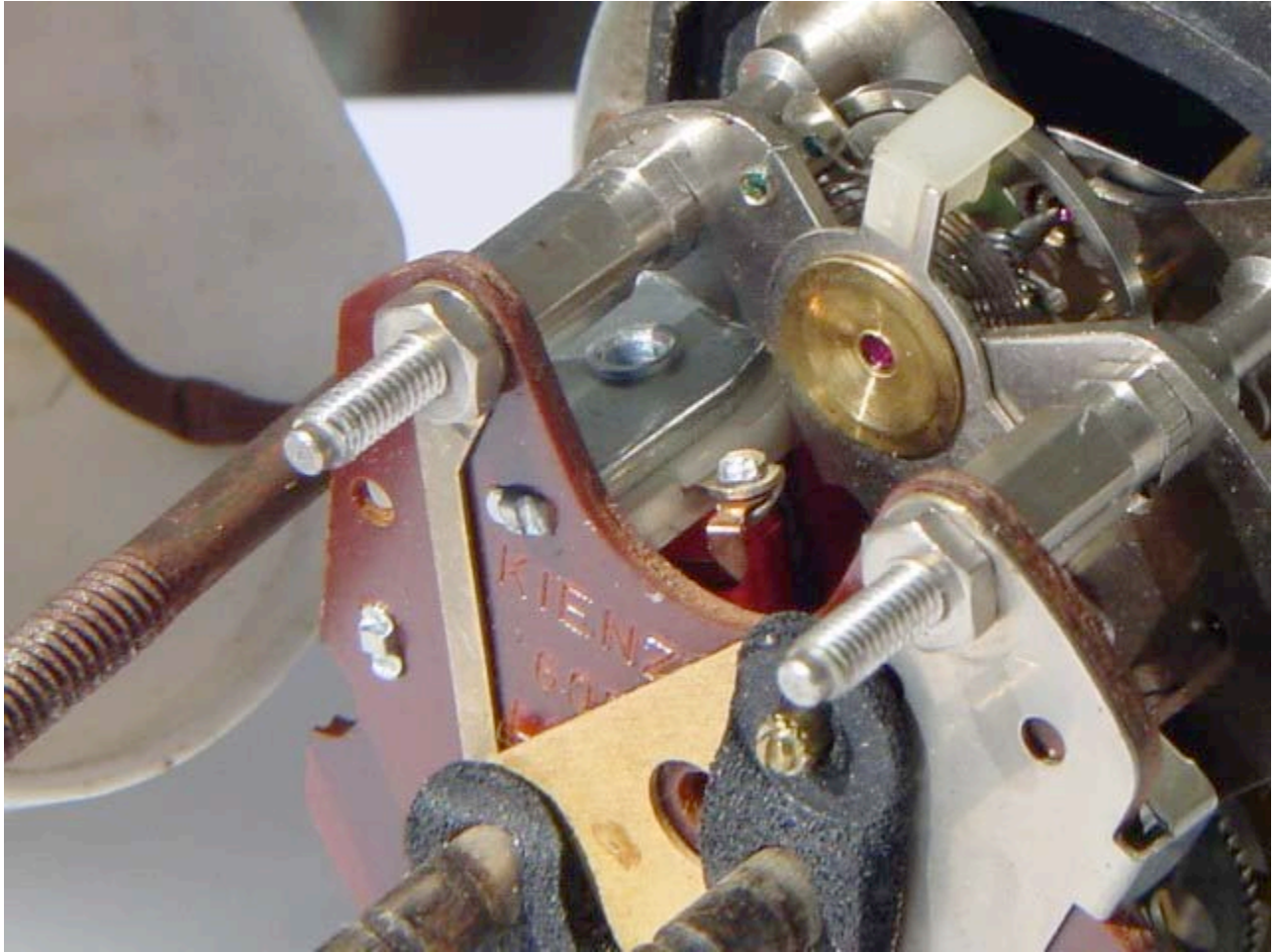
Clock

The fuse is actually the solder that attaches the copper strap to the winding solenoid. It is a special low temperature solder that is supposed to melt if there is an overload. If the solder is gone the copper strap will pull apart from the fitting, if you look closely the one in the photo has partially separated. On this clock it is causing the solenoid to buzz instead of winding the mainspring. I just re solder them with regular rosin core solder when they come apart.

The strap separates from coil after the fuse is gone:



The original fuse material still in place:



Adjusting the clock

To adjust the clock, set up the clock on a bench with a 12-volt power supply. Make EXTREMELY small movements of the adjustment pinion, and allow the clock to settle for at least 24 hours between adjustments. To get a really fine adjustment can take a week, and it will be spoiled as soon as the car heats up inside. An inability to achieve adjustment indicates wear on the plates. Altitude compensation for the case is provided by a labyrinth vent, hidden under the plastic tape with fuse specs. One of three nuts on the back of the case is warranty-sealed with a two-part plastic lock.

Troubleshooting

Normal failures are as follows:

1. The thermal fuse. This fuse is installed as a rivet, made of bismuth/tin alloy, and is intended to prevent fire in the rare event of a failure of a flat, phosphor bronze spring on the wind clapper. These fuses eventually fail out-of-specs. A bronze spring separates the electrodes, and the remains of the fuse are usually evident somewhere in the case. I suggest replacing the fuse with lead-tin solder, with the warning that this voids the purpose of the fuse.

Fuse Repair See: http://www.sl113.org/forums/topic.asp?TOPIC_ID=6239

2. Points. Causes stalls at the end of the wind cycle without solenoid meltdown. The precious-metal points can become burned or distorted. Lubricant evaporates and is burned to soot in the points, and this can cause overheating. Metal can also sputter and migrate from point to point. Dress the points with fine abrasive.
3. Flywheel bearing failure. Causes uneven force on the first wheel and stalls between winds. The heavy steel flywheel on the solenoid plate should not wobble on its bearing. For some reason these things wear out prematurely on some cars, particularly on SLs, and it may be high-frequency vibration related. It is held on its shaft by an E-clip. On later models the clip is built with a bronze tail, so you can't lose it. Replace the flywheel. Lubricate this bearing.
4. First and second wheel bearing failure, back plate. Causes the clock to stall between winds. The first wheel takes a severe side load from the winder, and this will eventually doodle out the back bearing. The second wheel can also lose its back bearing. Replace the back plate (with attached balance), or repair the bearings. The bearings respond to shrinkage under a staking punch (with subsequent reaming), or to bushing. As good back plates are becoming rare, I find myself resorting to staking punch more and more.
5. Setting knob (rare). The rubber suspension goes soft, and you can't reach the hands with the setting knob clutch. Use the clock for parts.
6. Front plate bearings (very rare). The wheels wobble on the front bearings. Use the clock for parts.
7. Weathering. Red rouge on a cloth wheel can do wonders for the plating on the brass bezel, and even for scratches on the plastic crystal.
8. Cracked or smashed crystal (very rare). Use the clock for parts. Assure the owner that they're all just alike, and he won't notice the difference if he buys a new one.
9. Previous repair work (more common). Note extra stickers or the absence of the nut seal. Note a promiscuous use of lubricant. Stalls in mid-wind. Clean it thoroughly. If the pivots and plates are not too worn, a tiny drip of watch oil on each of the pivots and the pins of the anchor escapement will make the clock's regulation less affected by changes in temperature. **Do not, repeat DO NOT spray the movement with WD 40 or any type of spray lubricant**, a drip of 3 in 1 oil from the tip of a toothpick makes a good substitute for a watch oiler.
10. Salt water immersion. (More common than you'd like to think.) Excellent source of parts - the brass bearing plates are unaffected. Springs will be ruined.
11. Only seen once: Winding pawl worn out. Clapper spring breakage. Clock possessed by demons.
12. Clock Wiring



Suggestions:

Be careful of the cleaning fluid you use to remove old, oxidized lubricant. Most organic solvents will play havoc with the various plastic components. The best is freon, which to my utter dismay is no longer available. Professionals advise the use of detergent in water. Lubricate conservatively, using only fine watch oil. Silicon-based oil is certain not to harm plastic components.

Quartz replacement clocks

As parts get more difficult to find for these clocks, and replacement clocks are getting harder (and more expensive) to buy, you may be able to replace it with a more accurate quartz clock.

A source for clock repair and replacements is Palo Alto Speedometer (<http://www.paspeedo.com/>) in Palo Alto, California. They calibrated it too and it has been keeping virtually perfect time for four years (it gains about 1 minute a month). Great points, however you should ALSO note that Palo Alto Speedometer can "rebuild" the clock with a quartz movement. Not original, but it is better, will probably last forever, and is way more accurate. The movement isn't visible; the clock looks the same, it just works better.

An alternative supplier for VDO clock from my 1970 280 SL repair is David Lindquist, 12427 E. Penn St., Whittier, CA 90602. His phone # is (562) 698-4445. He is listed in Hemings magazine, a highly recommended source for vintage/classic cars. David is pleasant, reliable and reasonable. He specializes in auto clock repair. He rejuvenated mine for \$45 (2002 prices) and I had it back in 2 weeks. He also offers a quartz conversion if originality is not an issue. My clock has been accurate ever since.