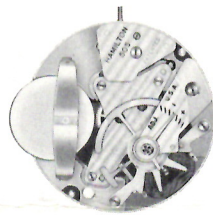


DIAL SIDE
2X Actual



ACTUAL SIZE



TRAIN SIDE
2X Actual

HAMILTON 505

This new movement is so simple that any watchmaker can service it with no special training. It incorporates a greatly improved design in the electrical contact system, and is completely different from any other electric watch on the market. The following information serves only as a guide when disassembling and re-assembling the movement.

SPECIFICATIONS

Pre-adjusted contact system
Kif "Flector" shock system with
attached spring
Familiar 18,000 beat train
(makes contact 9000 times per hour)
Fully jeweled at 11 jewels
through simpler design

Stavar hairspring extremely
anti-magnetic
Coil resistance 4300 ohms \pm 300 ohms
(4000 to 4600 ohms)
Second setting, with positive
self starting

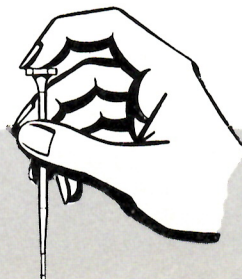
HOW TO START AND SET THE WATCH

The Hamilton Electric watch has a seconds setting feature. Pulling the crown out to setting position mechanically stops the watch. When the mechanism is in setting position, the balance assembly is not in contact with the electrical system and there is no drain on the energy cell. The crown can then be pushed in to start the watch.

To set the watch to the second, pull the crown into setting position, stopping the watch in advance of a time signal, or of a standard time piece. Set the hour and minute hands to the desired hour and minute. At the signal, or when the standard time piece coincides with the watch setting, snap the crown to its seat, in running position. The watch will start, on time to the second.

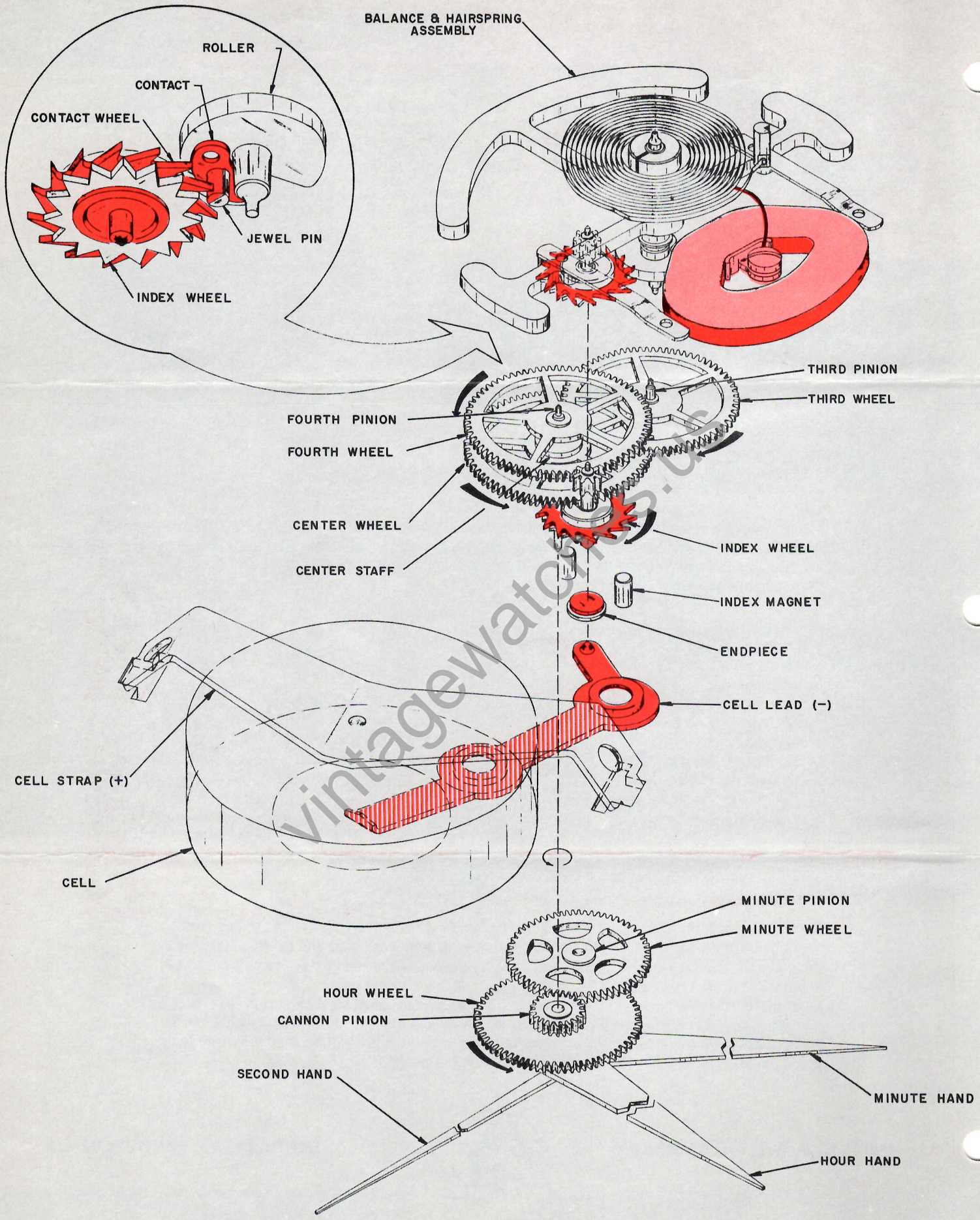
HAMILTON WATCH COMPANY

LANCASTER, PENNSYLVANIA



SERVICE

BULLETIN



Flow of current from battery to coil is shown in red.

HOW THE 505 WORKS

Like the first electric watch, the balance assembly of the 505 carries a coil which is impulsed electrically and works in conjunction with two permanent magnets. But there the similarity in the electrical system ends.

A combination contact wheel and index wheel and a half gold/half jewel pin perform the double duty of making the electrical contact and advancing the train. This ingenious wheel is a four piece assembly—an index pinion, an index hub, a contact wheel, and index wheel. The index pinion is insulated from the hub. Current flows from the energy cell, thru the cell lead, the end piece, the lower pivot of the index wheel, to the contact wheel. See illustration opposite page. Fig. 1

As the balance assembly turns counterclockwise, the gold side of the half gold/half jewel pin contacts the contact wheel closing the circuit. Current then flows thru the gold half of the pin and the wire "pigtail" to the coil. The current passes thru the coil energizing it, then returns thru the coil attachment, the balance, the hairspring, the balance bridge and pillar plate to the positive side of the energy cell.

In addition to closing the circuit while the balance is turning counterclockwise, the gold side of the half gold/half jewel pin advances the index wheel. It is a steel wheel fastened to the lower side of the platinum contact wheel. The indexing action is completed and the wheels are held in their proper rest position by two small permanent magnets beneath the index wheel. The index wheel is advanced one tooth for each counterclockwise swing of the balance. The train and, in their turn, the hands, are caused to rotate by means of this indexing action.

On the clockwise swing the balance is merely returning. The jewel side of the half gold/half jewel pin trips past a tooth of the contact wheel without changing teeth of the index wheel over the index magnets, and no electrical contact is made since the jewel side of the pin is a non-conductor of electricity.

The parts of this contact system are so perfectly made that no adjustments are ever necessary, in fact adjustments cannot be made.

CHANGING THE ENERGY CELL

The energy cell is held in place by a clamp having T shaped ends, with a hole in each end. Insert tweezers in either hole of the clamp, press toward the cell and remove its "T" end from the "T" slot in the pillar plate. Lift the clamp off, turn the watch over and the cell will fall out.

Replace the cell, flat side up, with your fingers. Replace the clamp by placing one end in the slot provided. Press the other end in place with your tweezers. Suggestion: Scratch the date of replacement on the new cell. Note: The energy cell for the 505 is slightly larger than the energy cell for previous models. It is colored white (stainless steel) rather than gold. They are not interchangeable.

DISASSEMBLY HINTS

1. Remove upper shunt bridge—Turn movement so that the coil is nearest you with the balance at its dead rest position. The upper shunt bridge is directly over the coil. NOTE: The two prongs extend outward or toward you. Remove screw on right hand end. Partially loosen other screw. Lift off free end and gently pull outward until shunt bridge is well away from balance. Remove other screw and lift off bridge.

2. Remove the balance assembly—First disconnect the hairspring stud from the balance bridge making sure outer coil is free of the regulator pins. Lift the balance out by placing tweezers on its rim. NEVER GRASP COIL WITH TWEEZERS.

3. Remove cell lead and contact endpiece from dial side—NOTE: The contact endpiece serves the same purpose as does an endstone cap for the lower index pivot. It has a small plastic washer fastened permanently to it, which serves to insulate it from the pillar plate. It is held in place by the cell lead. The cell lead screws have insulating washers under their heads; these may be left on the screws even during cleaning. The cell lead insulator, located under the cell lead, need not be cleaned, but should be removed from the pillar plate. With the cell lead off, the contact endpiece will drop onto the bench by inverting the movement.

DO NOT OIL INDEX-CONTACT WHEEL LOWER JEWEL. THIS PIVOT MUST RUN DRY. Lubricate all other jewels with PML 79 oil.

Train bridge, cover plate and set cap spring screws are identical.

4. Replace balance assembly—Before replacing balance assembly, check freedom of the finger block. With the balance assembly in a horizontal position the finger block should rest on the lower collar as shown in figure 2. By inverting the balance with the hairspring on the bottom the finger block should drop of its own accord from the lower collar to the upper collar as shown in figure 3. If the finger does not drop between collars, and a light tap of your finger on the tweezers does not make it do so, then it is sticking and the complete assembly must be re-cleaned. When assembling the balance to the movement the finger block must be lined up under the coil before the balance is put into place, as shown in figure 4, and the coil over the magnets.

CLEANING INFORMATION

All types of commercially recognized watch cleaning and rinsing solutions are safe to use with the grade 505 electric movement. However, solution used for the every day cleaning of watches becomes contaminated. Therefore it is suggested that the balance assembly and combination index-contact wheel be given a final rinse in a good grade of isopropyl or denatured alcohol after removal from the cleaning machine.

Minute iron filings may have gathered on the two large permanent magnets and the two smaller index wheel magnets during cleaning. These can easily be removed with cellophane adhesive tape without leaving any sticky residue on the magnets.

ASSEMBLY HINTS & LUBRICATION

1. Replace stop lever. The stop lever requires no lubrication.

2. Replace train wheels—Before replacing train wheels, lubricate the center wheel jewel and bearing shoulders of the long fourth wheel staff with PML 79 oil.

3. Replace contact endpiece and cell lead—NEVER OIL CONTACT ENDPiece—Place the endpiece, flat side down, in its recess over the contact-index wheel jewel. The exposed side should now reveal an indentation which matches a dimple in the cell lead. Replace cell lead insulator, which insulates the cell lead from the pillar plate. Replace the cell lead. Make sure cell lead screws have their insulating washers attached before replacing screws.

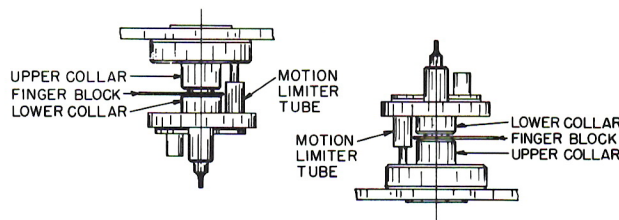


FIG. 2

FIG. 3

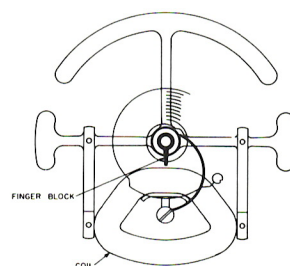


FIG. 4

NEVER LUBRICATE FINGER BLOCK • NEVER DRY BALANCE IN SAWDUST
It is easier to replace the balance without attaching the stud to the balance bridge. The watchmaker can replace the balance and bridge in the conventional manner if he so desires.

BEAT POSITION

Beat position, to a point, has no effect on the performance of the grade 505. It can be obtained, however, in the following manner.

Place the movement with the coil away from you and the 4th jewel toward you. Lightly place a sharpened piece of pegwood to the left of the balance arm opposite the coil. Move the balance to the right or counterclockwise 90 degrees as shown by the dotted lines in figure 5. Hold the pegwood against the arm and allow the balance to slowly return to its dead rest position in the clockwise direction. The arm will then be approximately centered over the fourth jewel if the movement is in beat. If it is not, then the hairspring collet can be turned until this position is obtained. The energy cell should not be in the watch while checking beat position.

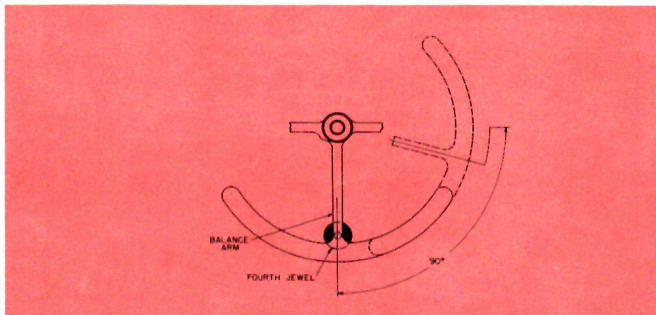


FIG. 5

505 PARTS LIST

50555	Balance, complete	50086	Screw, balance cock
50032	Block, lower with bow and spring	50088	Screw, case
50033	Block, upper with bow and spring	50585	Screw, cell lead
75518	Bridge, shunt, lower	50082	Screw, coil contact
75517	Bridge, shunt, upper	50087	Screw, cover plate
50531	Cell, energy	7291	Screw, dial
50501	Clamp, energy cell	7295	Screw, hairspring stud
50015	Clutch	50092	Screw, minute work cock
50028	Cock, minute work	50096	Screw, seconds setting lever
50504	Endpiece, index, c/w insulator	50000	Screw, setting lever
7780	Endstone, balance upper or lower	50071	Screw, shunt bridge
50507	Insulator, cell lead screw washer	50087	Screw, train bridge & set cap spring
50506	Insulator, cell lead strap	50012	Shockproof unit, lower
50077	Jewel, balance inseting upper or lower	50013	Shockproof unit, upper
50078	Jewel, center lower	50025	Spring, clutch lever
7269	Jewel, fourth upper	50040	Spring, setting cap
50575	Jewel, index lower	50026	Stem, setting
50573	Jewel, index upper	50002	Stem, setting 2-pc., female half
7275	Jewel, third lower	50003	Stem, setting 2-pc., male half
7273	Jewel, third upper	50545	Wheel, center c/w staff
50505	Lead, cell	50050	Wheel, fourth c/w pinion
50018	Lever, clutch, complete	50041	Wheel, hour
50510	Lever, seconds setting complete	50543	Wheel, index, contact c/w pinion
50022	Lever, setting	50042	Wheel, minute c/w pinion
50029	Pinion, cannon	50016	Wheel, setting
50558	Regulator	50048	Wheel, third c/w pinion

