*WAR DEPARTMENT TECHNICAL MANUAL*

*TM 9-1575*

*ORDNANCE MAINTENANCE*



# WRIST WATCHES, POCKET WATCHES, STOP WATCHES, AND CLOCKS







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RA PD 77447

*Figure 1 — Pocket Watch With Ordnance Markings*




RA PD 77421

*Figure 2 — Diameter of Pillar Plate of a Watch*

# CHAPTER 1
# GENERAL

## Section I
## INTRODUCTION



### 1. SCOPE.*

**a.** This manual is published for the information and guidance of ordnance maintenance personnel. It contains detailed instructions for inspection, disassembly, assembly, maintenance, and repair of pocket watches, wrist watches, stop watches, and message center clocks, and is supplementary to those in the Field Manuals and Technical Manuals prepared for the using arms. This manual does not contain information which is intended primarily for the using arms, since such information is available to ordnance maintenance personnel in TM 9-575.



### 2. CHARACTERISTICS.

**a.** The materiel covered in the manual consists of military timepieces issued to the using arms and services for timing operations.

**b. Pocket Watches.** Pocket watches are of American manufacture. All pocket watches are of the open-face type. They are all 16 size.



**c. Wrist Watches.** Wrist watches are all of American manufacture. Several types of cases have been issued. Cup-type, and screw bezel and back type had been issued, but now all wrist watches are being issued in the waterproof case. Standard sizes in use are 10½ ligne, 6/0, and 8/0. Wrist watches are authorized for issue to all branches of the service.

**d. Stop Watches.** The term "stop-watch" or "time-interval recorder" is used interchangeably, to designate an instrument used primarily to indicate time intervals of minutes, seconds, and fractions of a second. Formerly a distinction was made between these instruments. The stop watch, as formerly distinguished from the time-interval recorder, was an ordinary timepiece with an additional auxiliary sweep hand for indicating time intervals of seconds and fractions of a second. A time-interval recorder, as formerly distinguished from a stop watch, lacked the hour, minute, and seconds hands of an



*To provide maintenance instructions with the materiel, this technical manual has been published in advance of complete technical review. Any errors or omissions will be corrected by changes or, if extensive, by an early revision.

ordinary timepiece. The terms "stop watch" and "time-interval recorder" are now applied without distinction to an instrument. Such instruments do not function as timepieces, but as indicators of time intervals.

**e. Message Center Clock.** The message center clock is issued to headquarters for use by message center personnel. The message center clock is mounted in a hardwood carrying case, which provides protection while in transit and a support while set up for use. The clock is of the 8-day type and is fitted with an 11-jewel watch escapement. It is mounted inside a screw bezel type case.

**f. Tank Clocks.** Tank clocks were formerly standard equipment on the instrument panel of tanks. These are no longer standard for issue and are not being maintained (War Department Supply Bulletin 9-39).

## 3. ORDNANCE DEPARTMENT MARKINGS.

**a.** The Ordnance Department numbers each watch with letters which signify the grade of the watch and the service to which it is issued, followed by the ordnance serial number marked plainly on the exterior back of the case. This serial number is the only number referred to in identifying an ordnance timepiece. Each watch is identified by the following ordnance code markings:

(1) For new manufacture:

*(a)* OA—for 7- to 9-jewel pocket watches.

*(b)* OB—for 15- to 17-jewel pocket watches.

*(c)* OC—for 7- to 9-jewel wrist watches.

*(d)* OD—for 15- to 17-jewel wrist watches.

*(e)* OE—for 21-jewel railroad grade pocket watches.

*(f)* OF—for 15- to 17-jewel wrist watches (waterproof case).

*(g)* OFA—for 15- to 16-jewel wrist watch, waterproof case, Air Corps (Navigation, Type A-11, substitute standard).

*(h)* OG—for 7- to 9-jewel wrist watch (waterproof case).

*(i)* OS—for stop watch.

(2) For manufacture prior to 12 November 1940. (Identification to be added at time of repair on watches not previously marked.)

*(a)* OW—for 7- to 9-jewel pocket watches.

*(b)* OX—for 15- to 17-jewel pocket watches.

*(c)* OY—for 7- to 9-jewel wrist watches.

*(d)* OZ—for 15- to 17-jewel wrist watches.

## 4. WATCH SIZES.

**a.** The standard measurement used by American watch manufacturers is the Lancashire gage, which is of English origin. With

this system, the 0 size movement, which measures $1\frac{5}{30}$ inch diameter, is used as a basic figure. Every $\frac{1}{30}$ of an inch added increases the number size by one; every subtraction of $\frac{1}{30}$ of an inch decreases the number size by one. To determine the size of a watch, measure the diameter of the dial side of the lower (pillar) plate (fig. 2). The following table (subpar. b, below) shows Lancashire gage watch sizes in terms of fractions of an inch, lignes, and millimeters.



**b.** Comparative values of standards of measurement:

1 inch = 25.4 millimeters
1 millimeter = 0.03937 inch
1 ligne = 2.256 millimeters
(French unit of measurement)

| Watch Size | Fraction Inch | Decimal Inch | Ligne Size | Millimeters |
|---|---|---|---|---|
| 18 | $1\frac{23}{30}$ | 1.766 | 19.87 | 44.86 |
| 16 | $1\frac{21}{30}$ | 1.700 | 19.12 | 43.17 |
| 12 | $1\frac{17}{30}$ | 1.566 | 17.62 | 39.79 |
| 10 | $1\frac{15}{30}$ | 1.500 | 16.87 | 38.09 |
| 0 | $1\frac{13}{30}$ | 1.166 | 13.12 | 29.63 |
| 00 or 2/0 | $1\frac{11}{30}$ | 1.133 | 12.75 | 28.78 |
| 3/0 | $1\frac{3}{30}$ | 1.100 | 12.37 | 27.93 |
| 4/0 | $1\frac{2}{30}$ | 1.066 | 12.00 | 27.09 |
| 5/0 | $1\frac{1}{30}$ | 1.033 | 11.62 | 26.24 |
| 6/0 | 1 | 1.000 | 11.25 | 25.39 |
| 7/0 | $\frac{29}{30}$ | 0.966 | 10.87 | 24.55 |
| 8/0 | $\frac{28}{30}$ | 0.933 | 10.50 | 23.70 |





## Section II

## FUNCTIONAL DESCRIPTION



### 5. GENERAL.

**a.** This section contains a brief description of watch construction applicable to all ordnance timepieces. It also contains explanations of functioning, and factors which affect functioning of timepieces. Specific features of individual timepieces are contained in later chapters.

**b. Power Assembly.** The power assembly in a watch consists of the mainspring, mainspring barrel, arbor, and cap. The mainspring furnishes the power to run the watch. It is coiled around the arbor and is contained in the mainspring barrel, which is cylindrical and has a gear on it which serves as the first wheel of the train. The arbor is a cylindrical shaft with a hook for the mainspring in the center of the body. The cap is a flat disk which snaps into a recess in the barrel. A hook on the inside of the mainspring barrel is for the purpose of attaching the mainspring to the barrel.

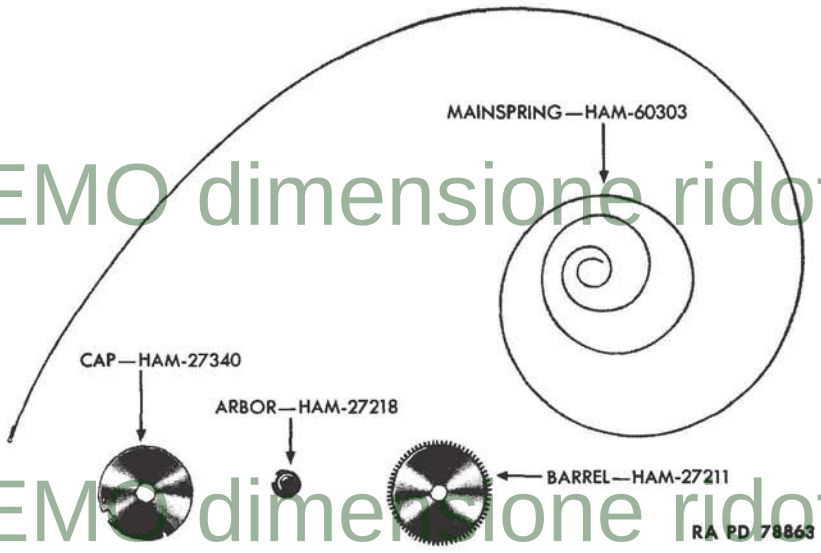





*Figure 3 — Watch Movement Barrel Assembly Disassembled*

**c. Mainspring.** The mainspring is made of a long thin strip of steel, hardened to give the desired resiliency. Mainsprings vary in size but are similar in design; they have a hook on the outer end to attach to the mainspring barrel, and a hole in the inner end to fasten to the mainspring barrel arbor. Various types of mainsprings used in service timepieces are shown in figures 185 and 218.



**d. Power.** By turning the crown clockwise, the barrel arbor is rotated and the mainspring is wound around it. The mainspring barrel arbor is held stationary after winding by means of the ratchet wheel and click. As the mainspring uncoils, it causes the mainspring barrel to revolve. The barrel is meshed with the pinion on the center wheel, and as it revolves it sets the train wheels in motion. Pocket and wrist watches, in most cases, will run up to 36 hours on one winding. The message center clock is designed to run for a period of 8 days.



**6. TRAIN.**

**a.** The train is a set of wheels through which the power of the mainspring is transmitted to the escapement. The first wheel of the train is the mainspring barrel. The second wheel is referred to as the center wheel, because of its position in the movement. The third wheel, fourth wheel, and escape wheel complete the train. The center, third, and fourth wheels are made of brass, mounted on steel

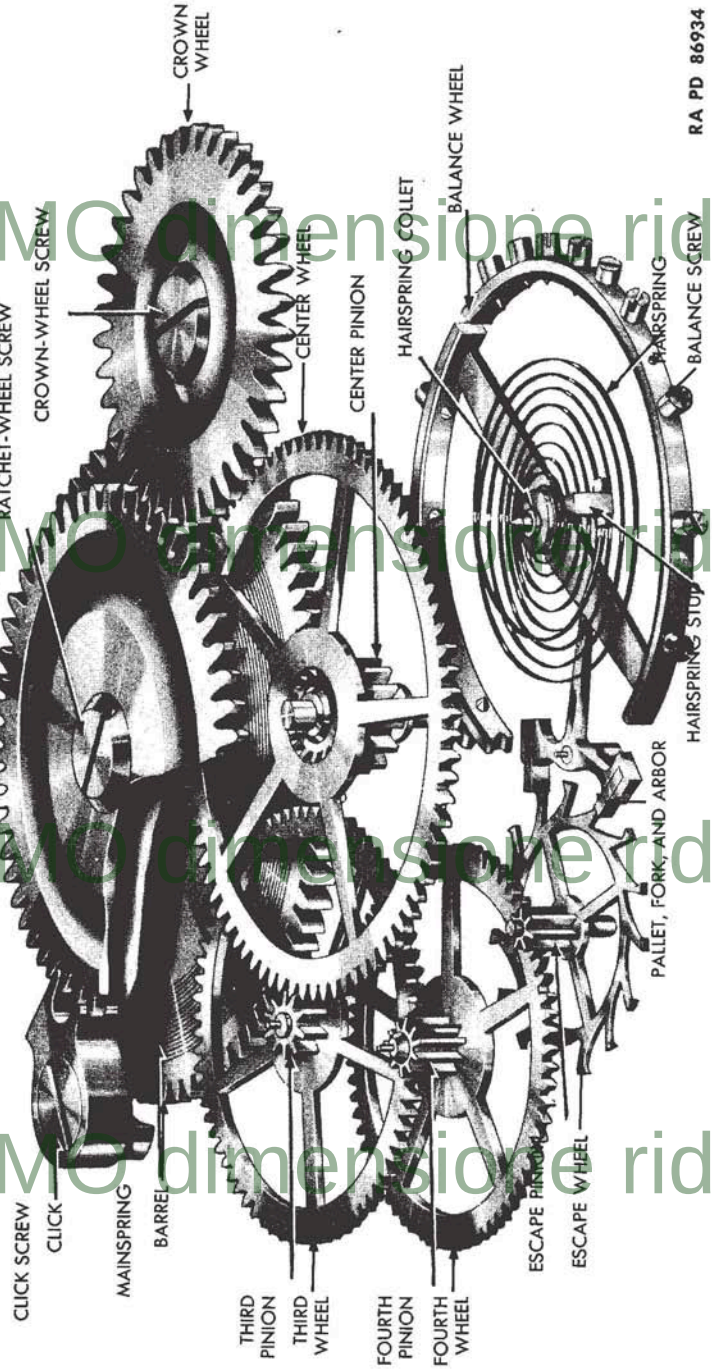
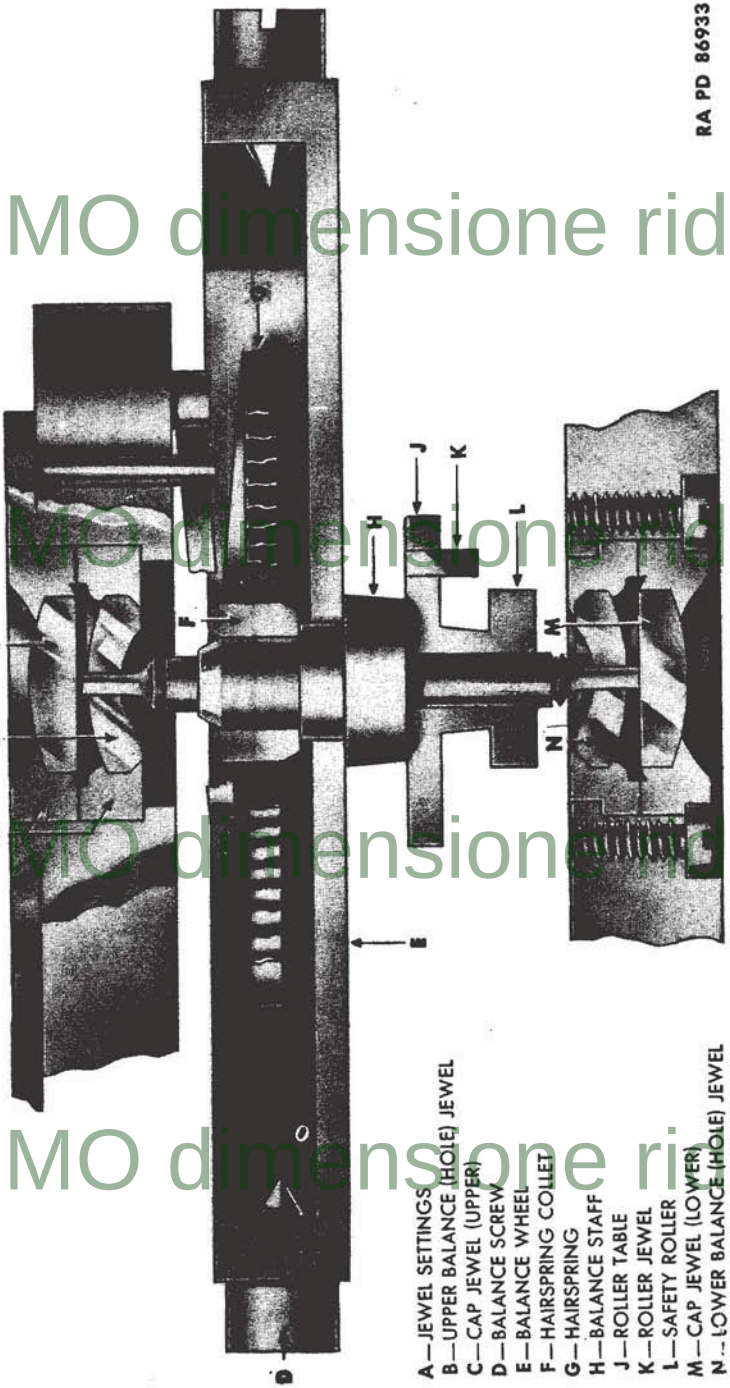



*Figure 4 — Relative Position of Watch Parts in Typical Movement — Rear View*




A—JEWEL SETTINGS
B—UPPER BALANCE (HOLE) JEWEL
C—CAP JEWEL (UPPER)
D—BALANCE SCREW
E—BALANCE WHEEL
F—HAIRSPRING COLLET
G—HAIRSPRING
H—BALANCE STAFF
J—ROLLER TABLE
K—ROLLER JEWEL
L—SAFETY ROLLER
M—CAP JEWEL (LOWER)
N—LOWER BALANCE (HOLE) JEWEL

*Figure 5 — Typical Balance Assembly*

## FUNCTIONAL DESCRIPTION

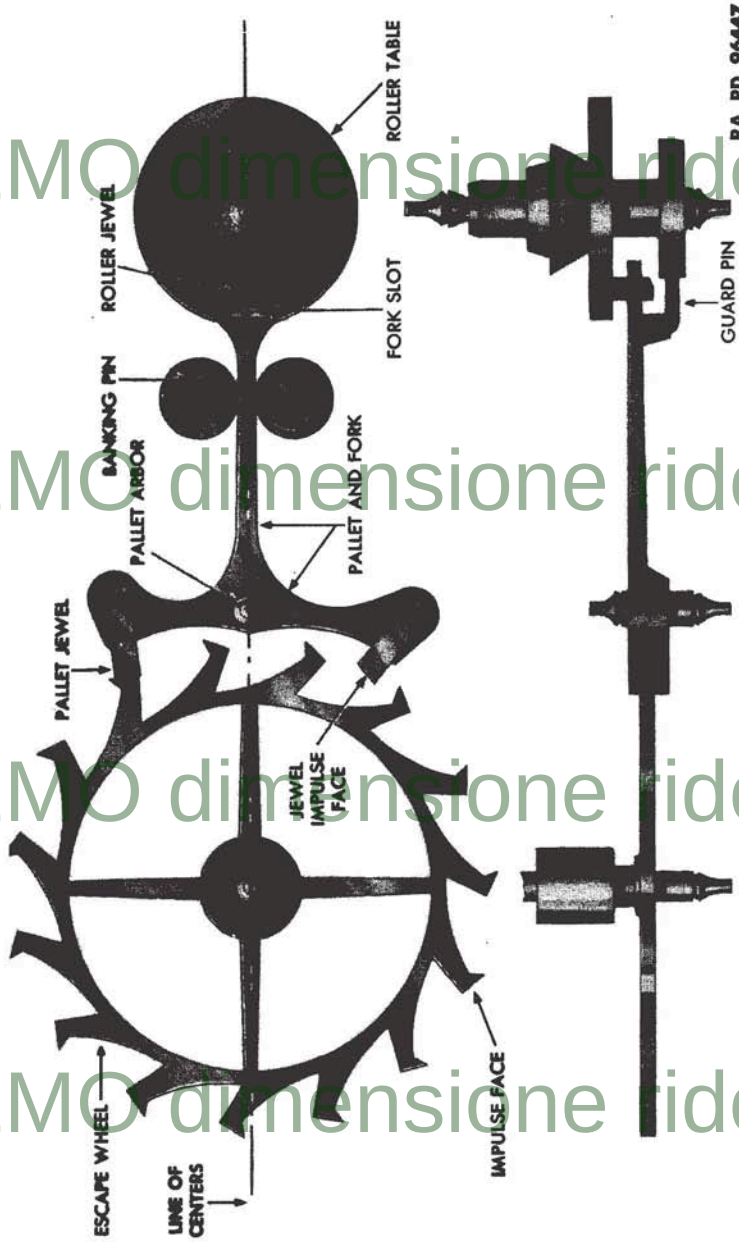



*Figure 6 — Pallet and Fork at Rest With No Power Being Exerted on Escape Wheel Pinion by Mainspring*

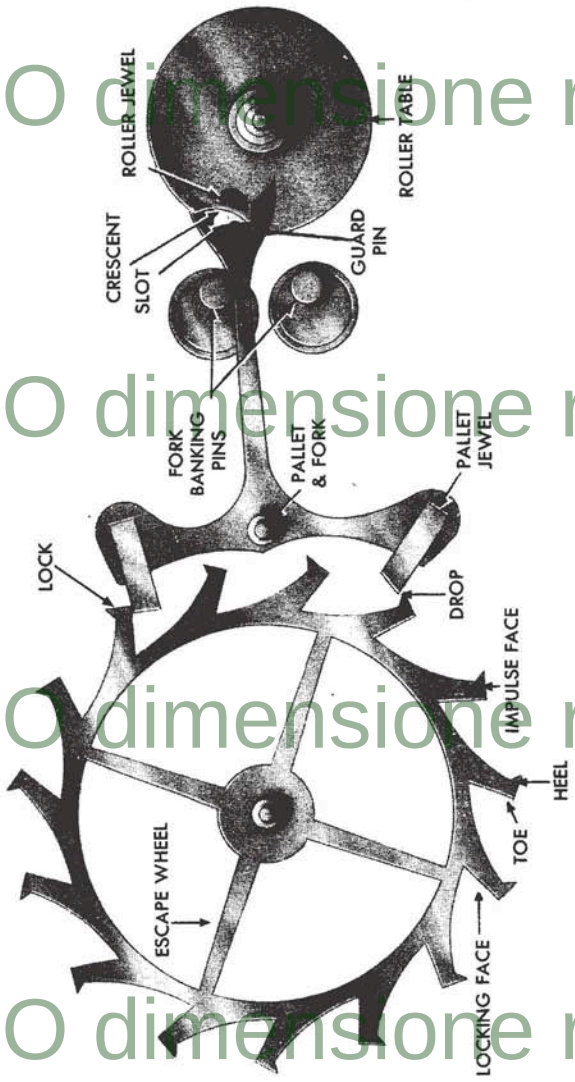



*Figure 7 — Fork at Rest Against Right Banking Pin and Right Pallet Jewel Engaging Tooth of Escape Wheel*

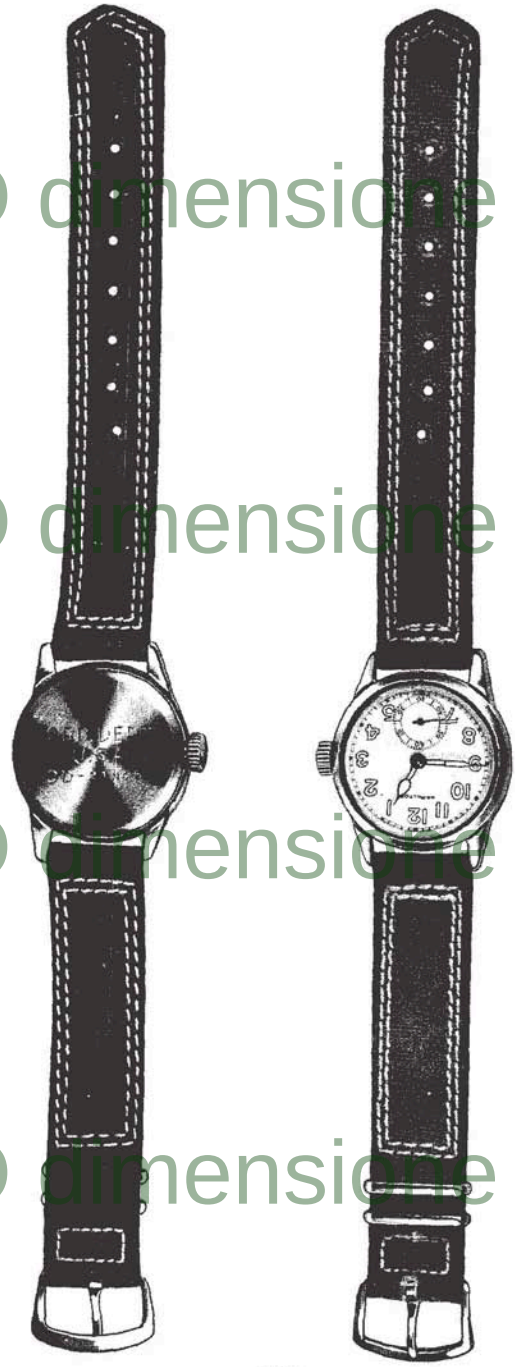


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*Figure 112 — Hamilton Wrist Watch, 17-jewel, 6/0 Size — Front and Back*

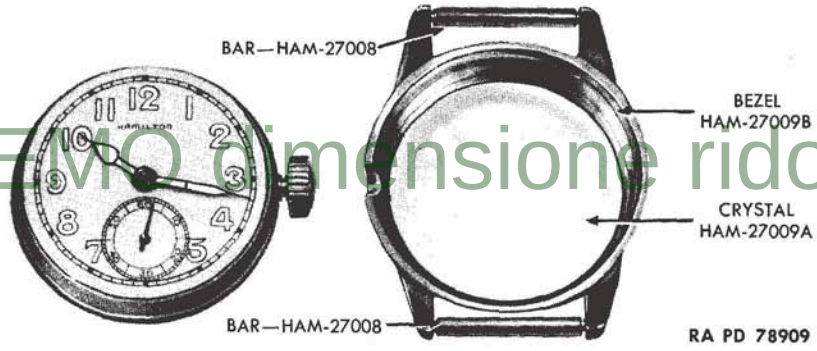


*Figure 113 — Hamilton Wrist Watch — Bezel Removed*




*Figure 114 — Hamilton Wrist Watch — Hands Removed*



number. The hour dial is graduated in minutes; and arabic numerals indicate the hours. The second dial orbit is graduated in seconds, with 10-second divisions indicated by numerals. The hour numerals and hour and minute hands are coated with radium luminous material for night use. The second hand is of blued steel.

## 56. DISASSEMBLE HAMILTON WRIST WATCH, 6/0 SIZE, 17-JEWEL, MODEL 987A.

**a. Remove Bezel** (fig. 113). Insert case opener in slot in bottom portion of case and pry off bezel.

**b. Remove Hands** (fig. 114). Cut a V-slot in a piece of paper and slide it under the hands to protect the dial. Remove hands with hand remover.

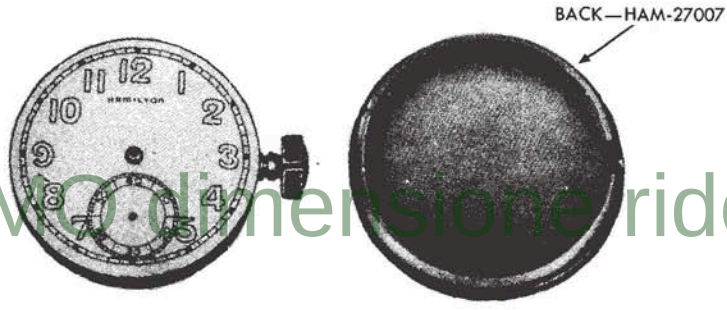




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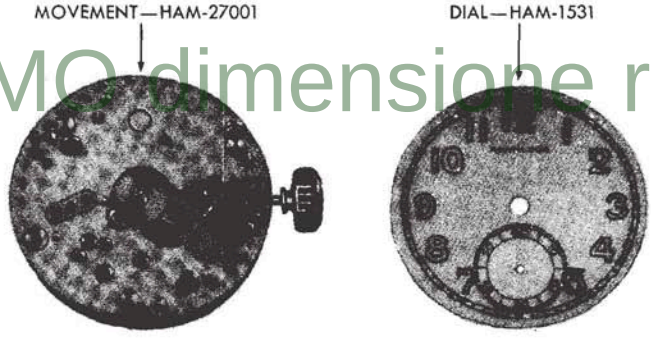
*Figure 115 — Hamilton Wrist Watch — Movement Removed From Case*






RA PD 79029

*Figure 116 — Hamilton Wrist Watch — Dial Removed*



**c. Remove Movement From Case** (fig. 115). Place edge of case opener under flange of movement and pry it loose at two sides. Remove movement, being careful not to hook balance wheel on case.

**d. Release Unused Power of Mainspring** (fig. 52). Release unused power of mainspring by holding crown with thumb and index finger. Disengage click with a small screwdriver and allow the crown to turn slowly between the fingers, releasing power of the mainspring.



**e. Remove Dial** (fig. 116). Back out dial foot screws two turns from contour of pillar plate and remove dial. Screw dial foot screws back into position to avoid losing them.

**f. Remove Hour Wheel** (fig. 117). Remove hour wheel with tweezers.

**g. Remove Balance Cock and Balance Assembly** (fig. 118). Invert movement on movement block, train side up. Loosen hairspring

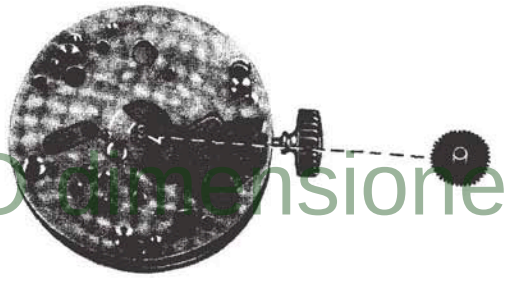
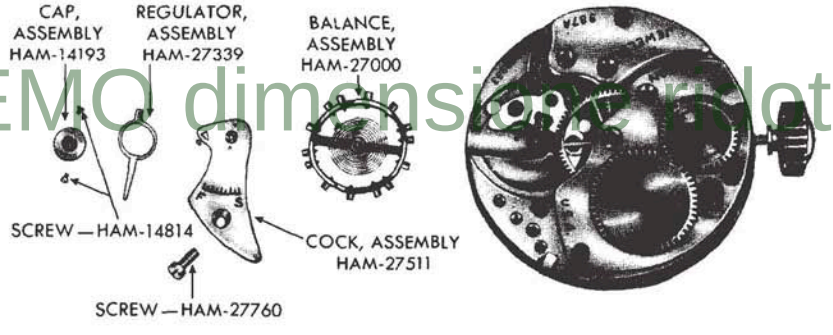




*Figure 117 — Hamilton Wrist Watch — Hour Wheel Removed*




RA PD 79050



*Figure 118 — Hamilton Wrist Watch — Balance Cock and Balance Assembly Removed*



stud screw with a small screwdriver and free stud from balance cock. Remove balance cock screw and balance cock. If balance cock is tight, insert a screwdriver in slot underneath cock and pry it loose. Remove balance assembly with tweezers, securing stud screw to prevent its being lost. Invert balance cock on bench and remove upper balance end stone cap assembly screws; this permits removal of end stone cap assembly setting and regulator assembly.

**h. Remove Pallet Bridge and Pallet Assembly** (fig. 119). Remove pallet bridge screws and pallet bridge assembly. Grasp pallet assembly with tweezers and lift it out of movement.



**i. Remove Setting Cap Spring** (fig. 120). Invert movement on movement block and remove setting cap spring screw and setting cap spring.

**j. Remove Setting Mechanism and Lower End Stone Cap Assembly** (fig. 121). Remove minute and setting wheels. Remove

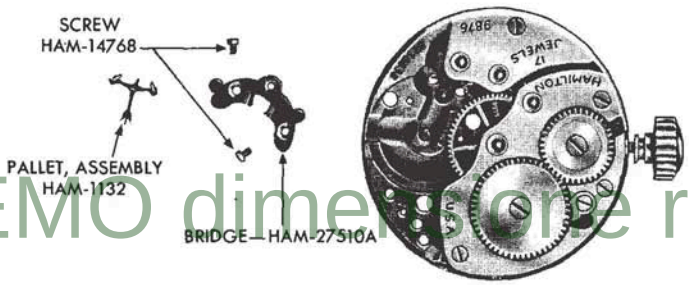





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*Figure 119 — Hamilton Wrist Watch — Pallet Bridge and Pallet Assembly Removed*

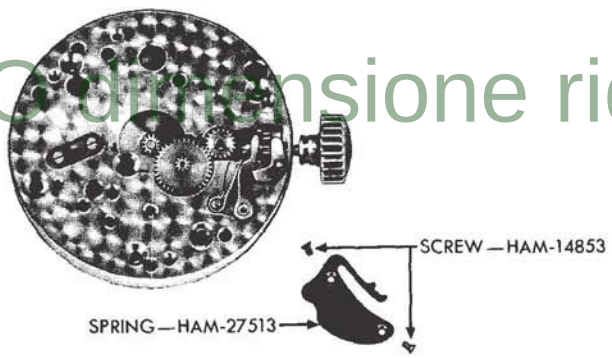




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*Figure 120 — Hamilton Wrist Watch — Setting Cap Spring Removed*

clutch lever spring by placing the end of index finger over the clutch spring and stud to prevent it from being lost and then removing the clutch lever spring with tweezers. Remove the clutch lever. Place index finger on setting lever, invert movement, and unscrew setting lever screw until setting lever is released. Invert movement and remove setting lever. Pull out stem and crown; remove winding pinion and winding and setting clutch. Remove cannon pinion (fig. 121). Remove lower end stone balance assembly cap screws and lower end stone cap assembly.



**k. Remove Winding Wheels and Click Assembly** (fig. 122). Remove winding wheel screw by turning clockwise. Remove winding wheel hub and winding wheel. Remove ratchet wheel screw and ratchet wheel. Remove click screw, click, and click spring. Note how the click spring is inserted in the recess of the click for reference in replacement.

HAMILTON WRIST WATCH, 6/0 SIZE, 17-JEWEL, MODEL 987A

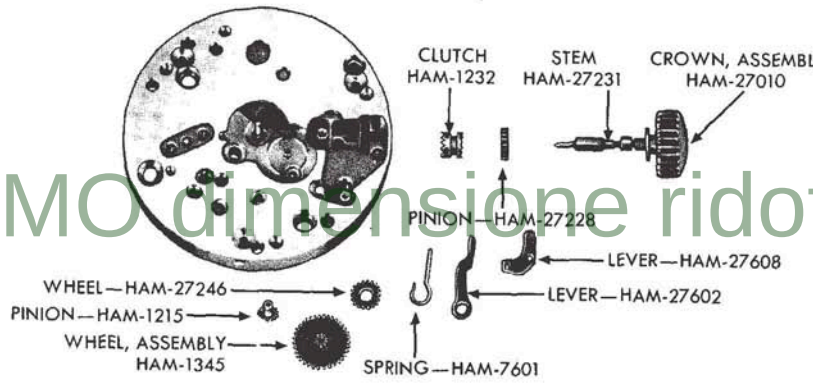


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*Figure 121 — Hamilton Wrist Watch — Setting Mechanism Removed*

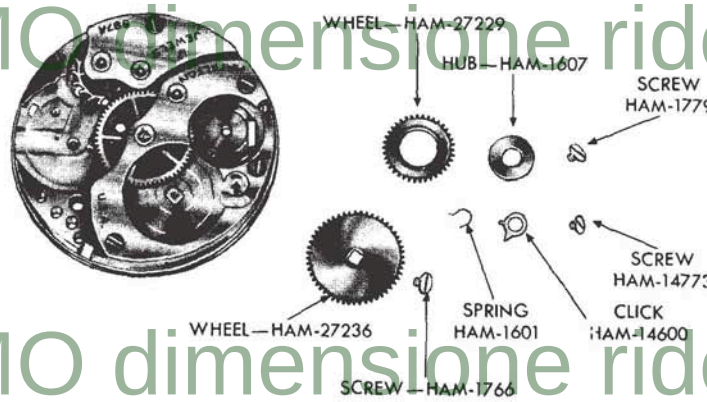


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*Figure 122 — Hamilton Wrist Watch — Winding Wheel and Click Assembly Removed*

**l. Remove Bridges** (fig. 123). Remove barrel and train bridge assembly screws; then remove bridge assemblies. If the bridges are tight, insert a screwdriver in the slots provided in the pillar plate and pry loose.

**m. Remove Train Wheels and Barrel** (fig. 124). Remove center, third, fourth, and escape wheels. Remove barrel assembly.

**n. Remove Setting Lever Screw** (fig. 125). Lift setting lever screw off the pillar plate. This completes the disassembly of the movement, stripping it down to the pillar plate and leaving only the hole jewel assembly settings in place.

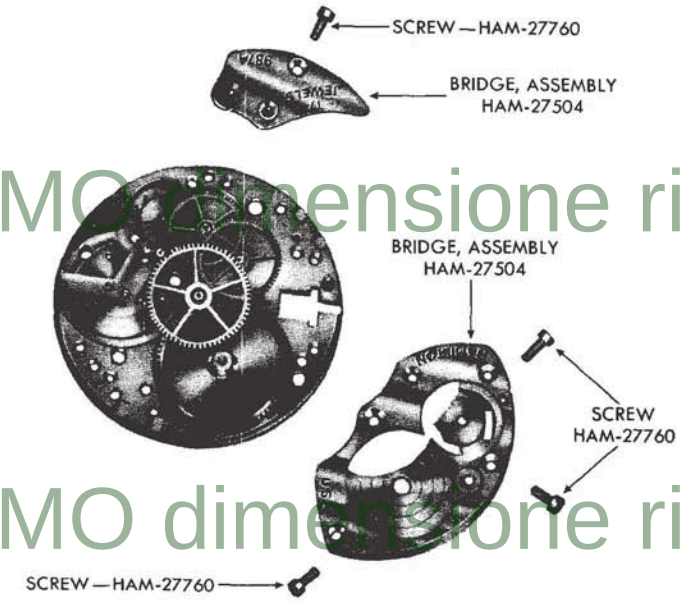




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*Figure 123 — Hamilton Wrist Watch — Train and Barrel Bridge Assemblies Removed*



**o. Remove Mainspring From Barrel** (fig. 71). Hold the mainspring barrel between thumb and index finger while the barrel is supported on the anvil, and place a screwdriver of the proper size within the slot provided in the cap and pry off the cap. Remove barrel arbor, grasp the inside coil of the mainspring with tweezers, and pull it out of the barrel slowly, letting it uncoil as it comes out. Refrain from handling mainspring with bare fingers as much as possible.

## 57. ASSEMBLY OF THE HAMILTON WRIST WATCH, 6/0 SIZE, 17-JEWEL, MODEL 987A.



**a. Wind in Mainspring** (figs. 68, 69, and 70). Select proper mainspring winder and wind mainspring into it slowly. Insert mainspring winder in barrel, hook end of mainspring on barrel hook, and press plunger which transfers mainspring into barrel. Insert barrel arbor and replace barrel cap, snapping it into its recess.

**b. Replace Setting Lever Screw** (fig. 125). Place pillar plate on proper size movement block and replace setting lever screw in its hole.

## HAMILTON WRIST WATCH, 6/0 SIZE, 17-JEWEL, MODEL 987A

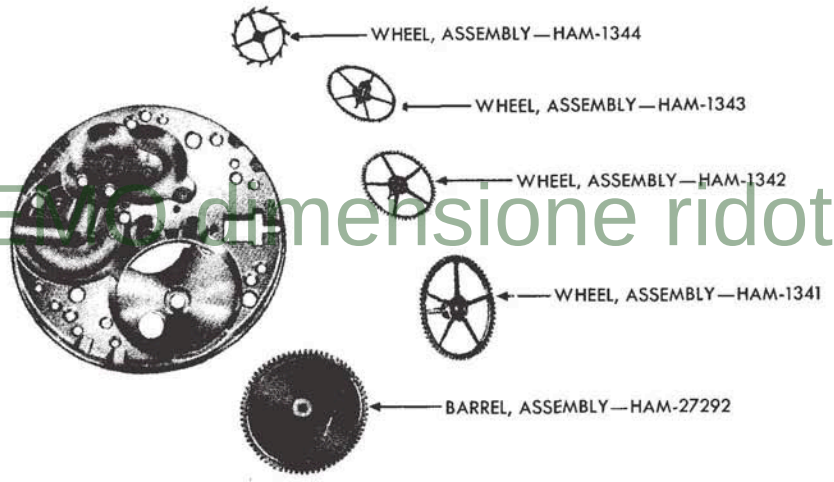




*Figure 124 — Hamilton Wrist Watch — Train Wheels and Barrel Assembly Removed*

**c. Replace Train Wheels and Barrel Assembly** (fig. 124). Place mainspring barrel assembly on pillar plate. Replace train wheels in order: escape, fourth, third, and center wheels.

**d. Replace Bridges** (fig. 123). Replace the barrel bridge assembly, alining the pivots of the center and third wheels in their respective pivot holes. Secure in place with bridge screws. Replace train bridge assembly, alining the pivots of the fourth and escape wheels in their respective holes. Secure bridge with bridge screws.

**e. Replace Winding Wheels and Click** (fig. 122). Replace winding wheel and winding wheel hub and secure with winding wheel screw. Place click spring in recess in under side of click. Insert both ends of click spring into recess of click and push into position with a screwdriver. Replace click assembly on its stud and secure with click screw. Replace ratchet wheel, fitting it on square of mainspring barrel arbor, and secure with screw.

**f. Replace Setting Mechanism and End Stone Cap Assembly** (fig. 121). Replace lower end stone balance cap assembly and secure with cap screws. Replace winding pinion and winding and setting clutch in their respective places; then insert winding stem, allowing it to pass through the winding pinion and winding and setting clutch. Replace setting lever, placing the larger stud in the recess of the stem and the hole directly over the setting lever screw. Place the index finger of the left hand over the setting lever, holding it in place. Invert movement; turn setting lever screw clockwise, securing setting

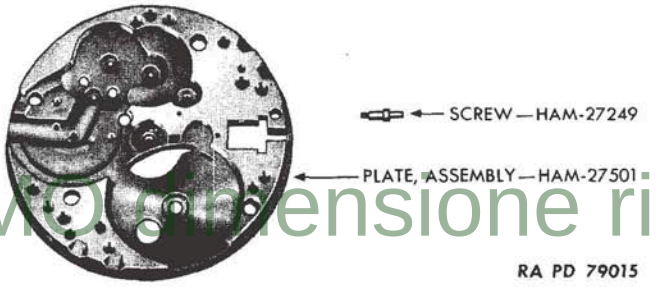




***Figure 125 — Hamilton Wrist Watch — Setting Lever Screw Removed From Pillar Plate***

lever and locking stem into the movement. Replace clutch lever on its stud, inserting end of lever in the recess of the clutch. Place clutch spring around its stud; hold clutch lever spring in position with one screwdriver and pull the long end of the spring back until it falls into place back of the clutch lever. Replace the cannon pinion. Place setting and minute wheels on their respective studs.



**g. Replace Setting Cap Spring** (fig. 120). Replace setting cap spring, positioning the spring end behind setting lever stud. Replace screws and secure. At this point, an examination must be made to check freedom of the train. This is done by turning the crown one full turn and allowing the train to rotate; if wheels of the train backlash on reaching the end of the winding, train has perfect freedom. If they slow down or stop abruptly, a bind exists and must be corrected.



**h. Replace Pallet and Pallet Bridge** (fig. 119). Replace pallet assembly. Replace pallet bridge assembly, carefully alining the pallet arbor pivot in its hole. Secure the pallet bridge with the two pallet bridge screws. Check freedom of pallet assembly; then check the action of pallet assembly and escape wheel.

**i. Replace Balance and Balance Cock** (fig. 118). Place upper end stone cap assembly on bench with polished surface down. Place balance cock inverted on end stone cap assembly. Aline screw holes, replace end stone cap assembly screws, and secure. NOTE: *Upper end stone cap assembly screws have highly polished ends.* Replace regulator assembly, allowing it to snap into place around the end stone cap assembly setting. Invert balance and loosen the hairspring stud screw. Grasp the balance wheel assembly with tweezers and insert hairspring stud in hole in balance cock, allowing the overcoil of the hairspring to be placed between the regulator pins simultaneously. Secure hairspring stud screw. Grasp balance cock assembly

with tweezers and invert carefully in order not to distort the hairspring. Place balance under center wheel and engage roller jewel pin in the slot of the pallet fork; then cautiously set balance cock in place. Replace balance cock screw and secure.

**j. Replace Hour Wheel** (fig. 117). Invert movement on movement block and replace hour wheel.



**k. Replace the Dial** (fig. 116). Back dial foot screws out three turns and replace dial. Secure by tightening foot screws.

**l. Replace Hands** (fig. 114). Replace seconds hand. Replace hour hand with the point at the twelth hour. Replace minute hand in the same position.

**m. Replace Movement in Lower Portion of Case** (fig. 115). Carefully place movement in lower portion of case with stem over cut-out in case; cautiously push movement until it is seated in its proper position.



**n. Replace Bezel** (fig. 113). Place bezel on lower portion of case with cut-out over stem and snap into place. Check to make sure movement is centered and stem does not bind.

---

Section VI

## ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL

### 58. IDENTIFICATION.



**a.** Three Elgin models have been issued, all 8/0 size, having 7, 15, and 16 jewels. The 7- and 15-jewel standard watches are the same in construction, the difference being in the number of jewels and the ordnance markings on the exterior back of the case. The 7-jewel watch has the prefix "OD" before the serial number, and the standard 15-jewel has the prefix "OC" before the serial number. The 16-jewel (Hack) type A 11, differs from the standard Elgin wrist watch in that it is equipped with a waterproof case, a sweep second hand, and a black dial. Although they are normally issued to the Air Corps as a navigation watch, some have been issued, however, to ground troops. The ordnance marking on the exterior back of the case has the prefix "OFA" before the serial number. The 7- and 15-jewel watches pictured in figure 126 in cup-type cases are now issued in a waterproof case. The hour dials are graduated in minutes and arabic numerals indicate the hours. The second dial orbits are graduated in seconds, with 10-second divisions indicated by numerals. The hour numerals and the hour, minute, and sweep second hands are coated with a radium luminous material for night use. The second hands are all of blued steel.





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*Figure 126 — Elgin Wrist Watches — 7- and 15-jewel, 8/0 Size — Front and Back*

ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL






*Figure 127 — Elgin Wrist Watch — Opening Case With Case Opener*



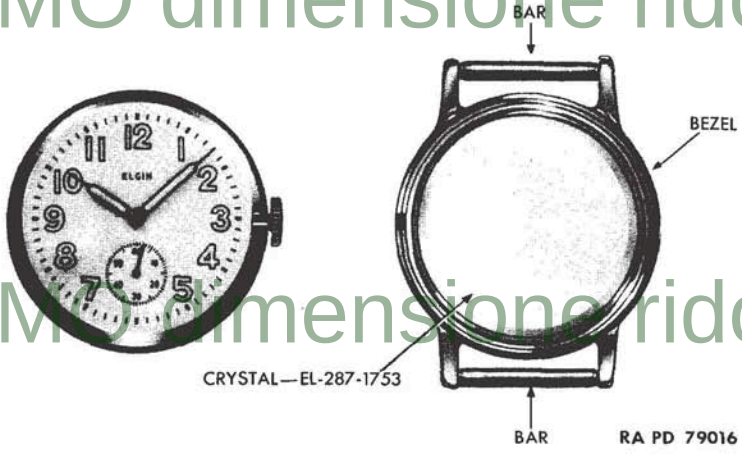




*Figure 128 — Elgin Wrist Watch — Bezel Removed*

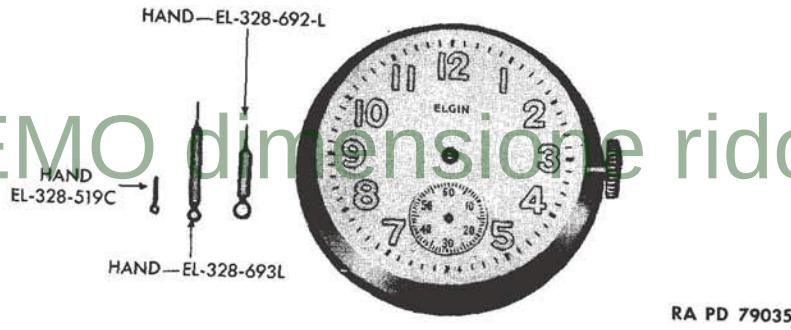




*Figure 129 — Elgin Wrist Watch — Hands Removed*

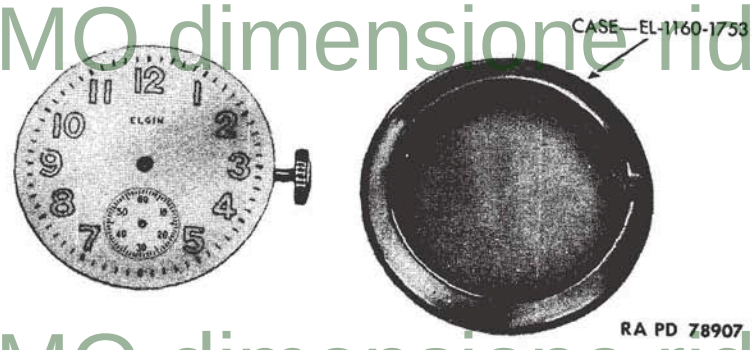




*Figure 130 — Elgin Wrist Watch — Movement Removed From Case*

### 59. DISASSEMBLY OF ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL.

**a. Remove Bezel** (figs. 127 and 128). Insert case opener in slot in bottom portion of case and pry bezel off.

**b. Remove Hands** (fig. 129). Cut a V-slot in a piece of paper and slide it under hands to protect dial. Remove hands with hand remover.



**c. Remove Movement From Case** (figs. 130 and 131). Place edge of case opener under flange of movement and pry it loose at two sides. Remove movement, being careful not to hook balance wheel on case.

**d. Release Unused Power of Mainspring** (fig. 52). Release unused power of mainspring by holding crown with thumb and index finger. Disengage click with a small screwdriver and allow the crown

ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL



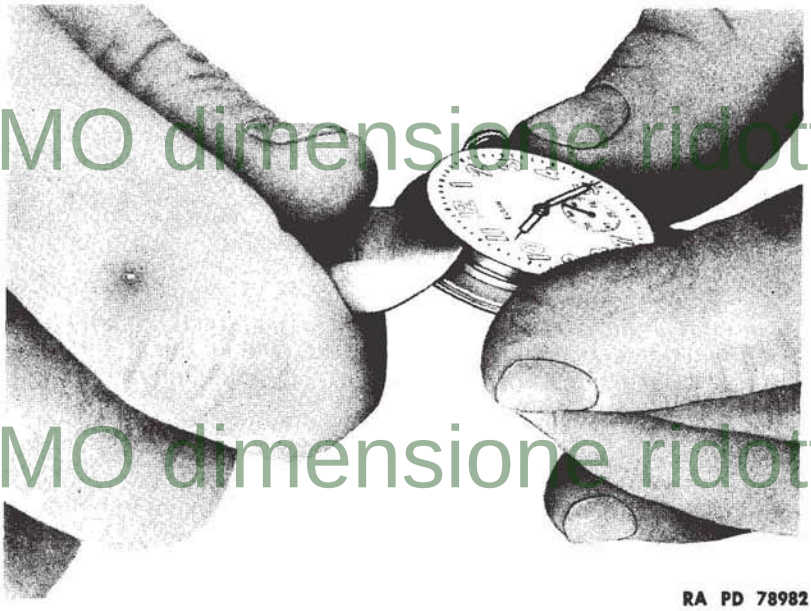

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*Figure 131 — Elgin Wrist Watch — Removing Movement From Case*




RA PD 79017



*Figure 132 — Elgin Wrist Watch — Dial Removed*

to turn slowly between the fingers, releasing power of mainspring.

**e. Remove Dial** (fig. 132). Back out dial foot screws two turns from contour of pillar plate and remove dial. Screw dial foot screws back into position.

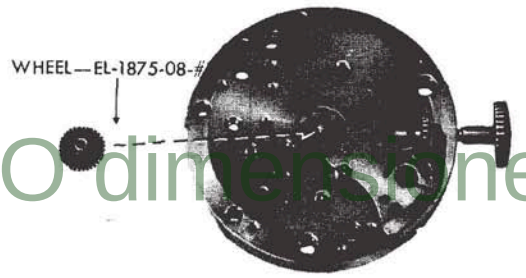




*Figure 133 — Elgin Wrist Watch — Hour Wheel Removed*

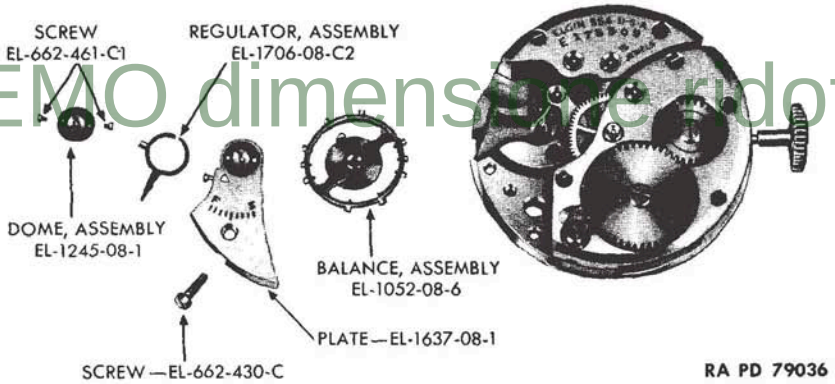






*Figure 134 — Elgin Wrist Watch — Balance Cock and Balance Assembly Removed*

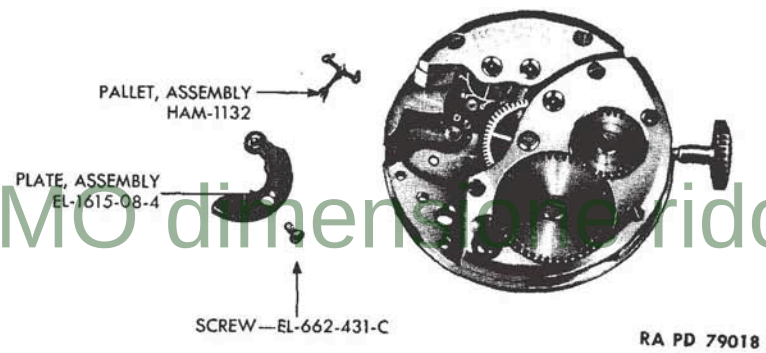




*Figure 135 — Elgin Wrist Watch — Pallet Bridge and Pallet Assembly Removed*

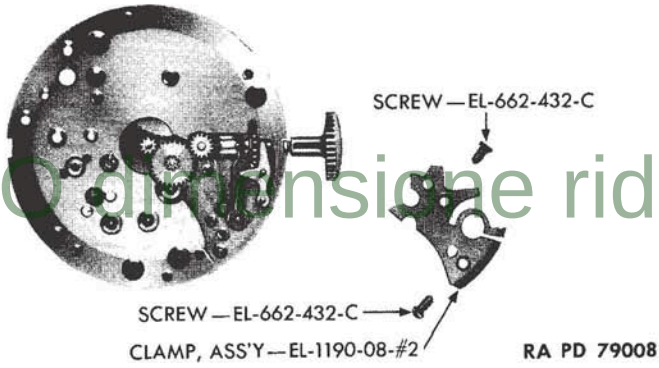


*Figure 136 — Elgin Wrist Watch — Minute Wheel Clamp Assembly Removed*



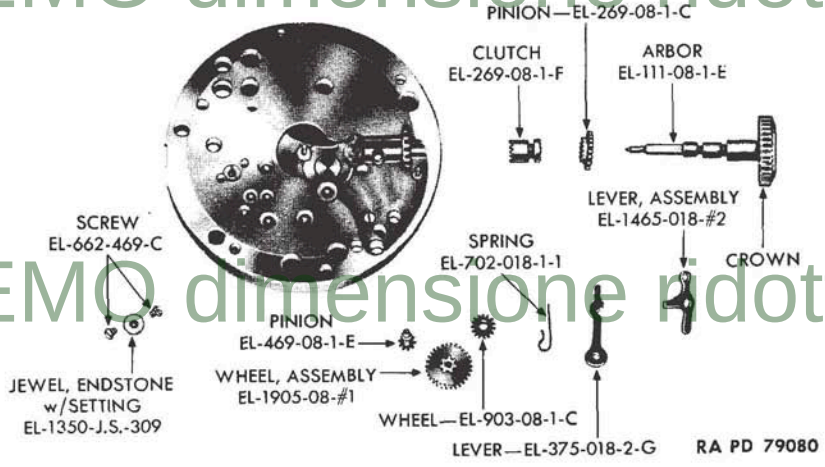


*Figure 137 — Elgin Wrist Watch — Setting Mechanism Removed*

**f. Remove Hour Wheel** (fig. 133). Remove hour wheel with tweezers.

**g. Remove Balance Cock and Balance Assembly and Disassemble** (fig. 134). Invert movement on movement block, train side up. Loosen hairspring stud screw with a small screwdriver and free stud from balance cock. Remove balance cock screw and balance cock. If balance cock is tight, insert a screwdriver in slot underneath cock and pry it loose. Secure stud screw to prevent its being lost. Re-

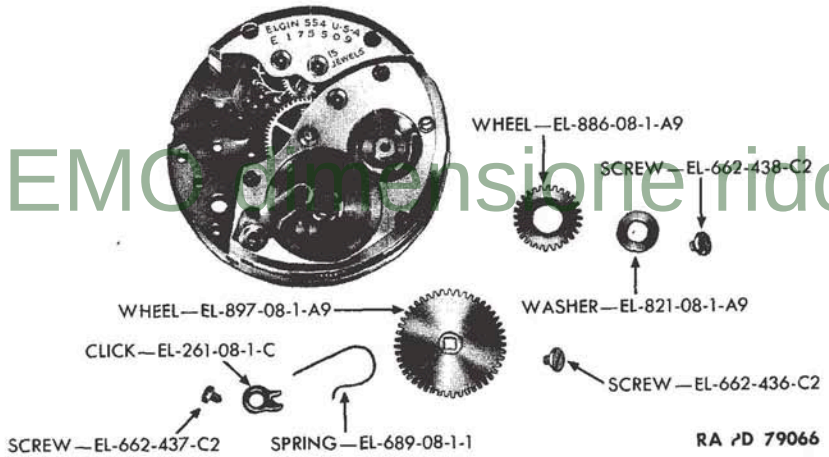




*Figure 138 — Elgin Wrist Watch — Winding Wheels and Click Assembly Removed*

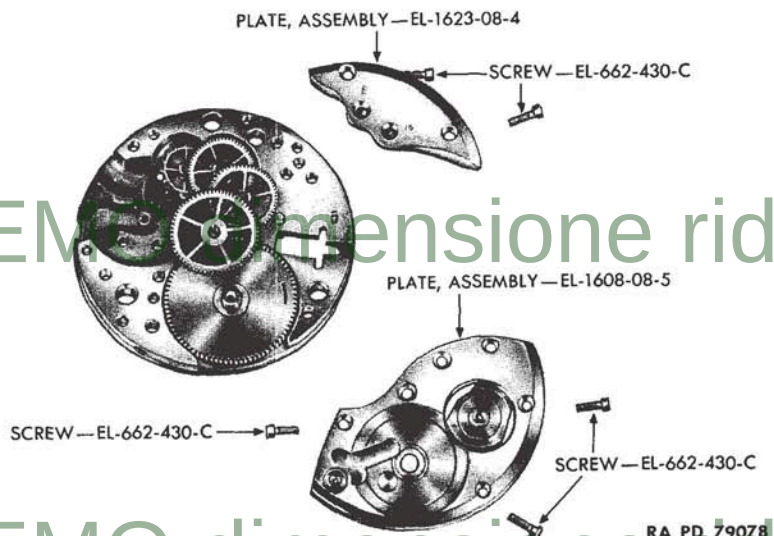




*Figure 139 — Elgin Wrist Watch — Train and Barrel Plate Assemblies Removed*

move balance assembly with tweezers. Invert balance cock on bench and remove upper balance end stone cap assembly screws; this permits removal of end stone cap assembly setting and regulator assembly.

ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL




*Figure 140 — Elgin Wrist Watch — Train Wheels and Barrel Assembly Removed*




*Figure 141 — Elgin Wrist Watch — Pillar Plate and Setting Lever Screw Removed*

**h. Remove Pallet Bridge and Pallet Assembly** (fig. 135). Remove pallet bridge screws and pallet bridge. Remove pallet with tweezers.



**i. Remove Minute Wheel Clamp** (fig. 136). Remove minute wheel clamp screws and minute wheel clamp.

**j. Remove Setting Mechanism and Lower End Stone Cap Assembly** (fig. 137). Remove minute and setting wheels. Remove clutch lever spring by placing end of index finger over clutch spring


*Figure 142 — Elgin Wrist Watch — 16-jewel, 8/0 Size — Front and Back*

ELGIN WRIST WATCH, 8/0 SIZE, 7- OR 15-JEWEL

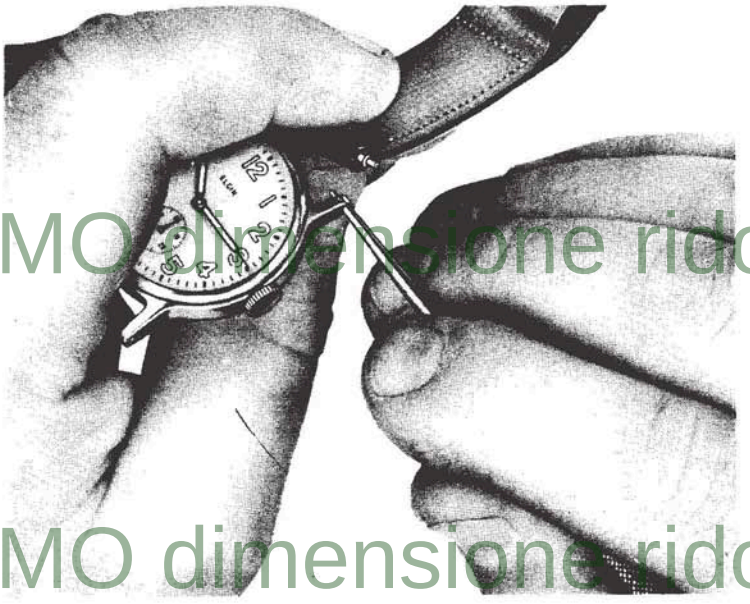





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*Figure 143 — Elgin Wrist Watch — Removing Wrist Band*

and stud to prevent it from being lost; then remove clutch lever.

**k. Remove Winding Wheels and Click** (fig. 138). Remove crown wheel screw by turning it clockwise; remove crown wheel washer and crown wheel. Remove ratchet wheel screw and ratchet wheel. Remove click screw, click, and click spring.



**l. Remove Train and Barrel Bridges** (fig. 139). Remove train and barrel bridge screws and remove bridges. If bridges are tight, insert screwdriver in slots provided in pillar plate and pry loose carefully.

**m. Remove Train Wheels and Barrel Assemblies** (fig. 140). Remove center, third, fourth, and escape wheels, and barrel assembly.

**n. Remove Setting Lever Screw** (fig. 141). Remove the setting lever screw and lift the setting lever off the pillar plate. This completes the disassembly of the movement, stripping it down to the pillar plate and leaving only the hole jewel assembly settings in place.



**o. Remove Mainspring From Barrel** (fig. 71). Hold the mainspring barrel between the thumb and index finger while the barrel is supported on the anvil, place a screwdriver of the proper size within the slot provided in the cap, and pry off the cap. Remove barrel

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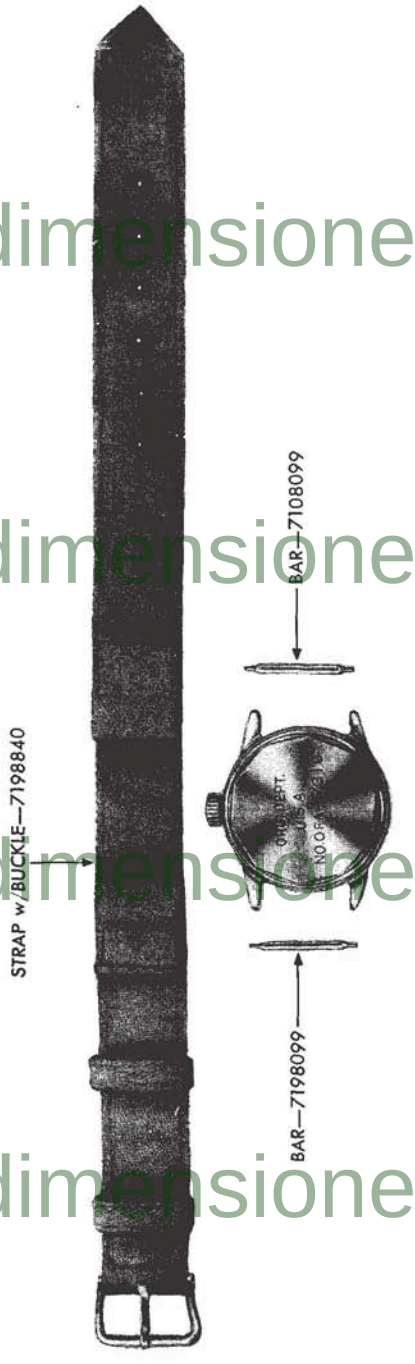


Figure 144 — Elgin Wrist Watch — Wrist Band Removed

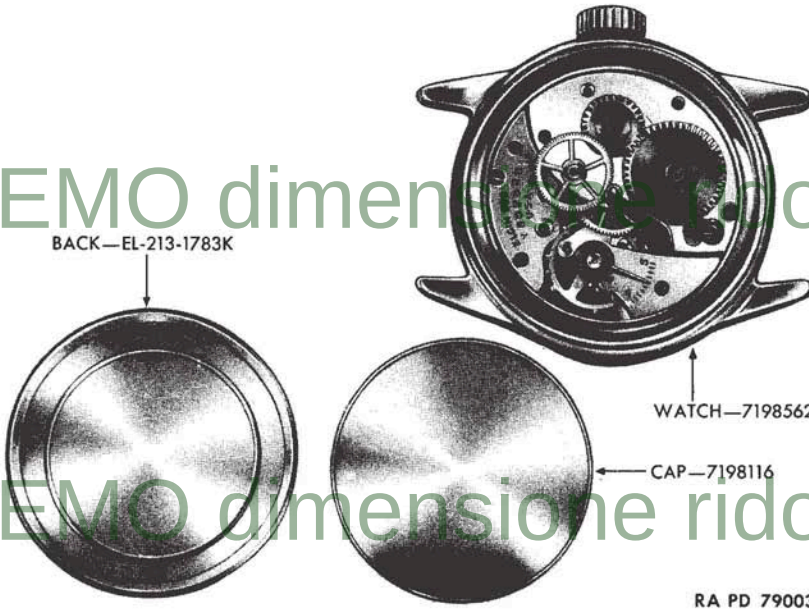




*Figure 145 — Elgin Wrist Watch — Back and Dust Cover Removed*

arbor, grasp the inside coil of the mainspring with tweezers, and pull it out of the barrel slowly, letting it uncoil as it comes out. Refrain from handling mainspring with bare fingers as much as possible.



**60. DISASSEMBLE ELGIN WRIST WATCH, MODEL 1783, GRADE 539, WATERPROOF CASE.**

**a. General.** The Elgin wrist watch, model 1783, grade 539, is equipped with a waterproof case with a screw-type back and a sweep second hand. The movement is 16-jewel. The addition of the sweep second hand requires a hollow center wheel pinion, a sweep second pinion bridge assembly, and an upper third wheel. The mainspring barrel bridge is drilled and tapped to permit attachment of the sweep second pinion bridge with a screw. The third wheel pinion is longer to permit attachment of the upper third wheel.



**b. Remove Wrist Band** (figs. 143 and 144). Press in on either end of the spring bar with a small screwdriver to release it from the case lug; then slide it from the lug, and pull it out of the opposite lug. The other spring bar is removed in the same manner.

**c. Remove Back and Dust Cover** (fig. 145). Unscrew the case back, using a case wrench. If the case back is screwed on very tight,

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