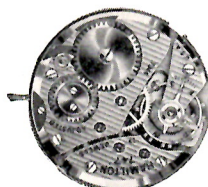


DIAL SIDE
 2 x Actual



ACTUAL SIZE



TRAIN SIDE
 2 x Actual

Summary Description of Hamilton Movement Grade 747

DESIGN: Hamilton Grade 747 is a modern three-quarter plate movement with wide bevels on the bridges and the pillar plate. Both bridges and the pillar plate are rhodium plated. The balance cock and both bridges employ integral steady pins. And a case alignment slot in the pillar plate provides for accurate and secure location of the movement in a case. While Grade 747 is the first 8/0 movement Hamilton has ever manufactured in quantity, it is not the first one it has ever designed or made. Hamilton engineers and technicians have been designing and building and studying experimental 8/0 models for more

than 10 years. While work on the movement was virtually abandoned during World War II, final development was not sacrificed. The experience and new knowledge acquired building war timepieces proved to be precisely the experience and knowledge needed to complete the project.

Grade 747 is a fine movement through and through. It is a fine looking movement. More than that, it is a fine watch to service or repair. For a quick summary of the outstanding features of Hamilton Grade 747 see the description below.

Size 8/0 Round
 Jewels 17—Direct friction set
 Winding and Setting... Rugged construction, smooth action; entire stem hole in pillar plate
 Minute Wheel..... Skeletonized for visibility of third power jewel
 Cannon Pinion..... Improved fit to center staff
 Click Spring..... Extra long to reduce stress
 Click New design, affords increased recoil protection of mainspring
 Setting Cap Spring.... Accurately located by steady pins in pillar plate
 Mainspring Extra long for improved performance
 Train Completely new; maximum freedom, smoothness, and efficiency of operation
 Escapement Completely new; lever type; highly responsive
 Balance Mono-metallic; 18,000 oscillations per hour

*Balance Cap, Upper... Camlock construction for accurate alignment; no screws employed
 Balance Cap, Lower... Steel, nickel-plated; two screw type; screws thread *into* cap from train side of pillar plate
 Hairspring Hamilton Elinvar-Extra; over-coiled
 Hairspring Stud..... Round, V-seated for accurate and convenient locating
 Hairspring Stud Screw... Long head with deep slot
 Regulator Smooth, positive action
 Screws Employ new series of thread standards; balance screws designed with a "dog" point instead of cone point
 Interchangeability Complete except for hairspring which requires matching with balance wheel
 Service Convenience... Maximum accessibility for all service and repair operations

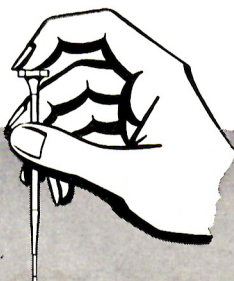
* Patent Pending

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HAMILTON WATCH CO.

LANCASTER, PENNSYLVANIA

SERVICE



BULLETIN

Performance Characteristics

Low deviation tolerance or steadiness of rate is the performance characteristic most desired in a timepiece. In the Grade 747 performance will more than maintain the Hamilton tradition. It is a fine watch and incorporates much of the advanced knowledge and experience acquired during World War II in the design, development, and manufacture of the now famous Hamilton Marine Chronometer and all other special war timepieces. The design improvements which make the most significant contributions to performance of the Grade 747 are: the Hamilton Elinvar-Extra hairspring (see Technical Bulletin 200 on this subject); the train, which approaches the ultimate in freedom and smoothness; the escapement, which has been made acutely responsive; the barrel assembly, which permits the use of an extra long mainspring; and a new type click which, because it possesses greater recoil, relieves undue strain on the mainspring at full wind.

Service Suggestions

Replacement of Balance Staff, requires removing the collet, hairspring, and roller, following which the lower shoulder of the balance staff should be turned off in a lathe with a sharp graver. The old staff can then be safely pushed out with a standard staking set. Installation of a new staff and restaking can be done in the conventional manner. For detailed data on replacement of damaged balance staffs, a Technical Bulletin on this subject will be furnished. Watchmakers who have a file of Hamilton Technical Data Sheets should refer to T.D. 129.

Hairspring Manipulation will be virtually unnecessary in Hamilton Grade 747. Elinvar-Extra hairsprings are rugged and with reasonable care in handling will not be distorted. In addition, the assembly convenience provided by the new accurately aligned balance upper endstone cap and the regulator removes the need for hairspring manipulation. When and if hairspring manipulation is essential, watchmakers will find the illustration in Fig. (1) showing the characteristic shape and position of the overcoil to be a useful reference.

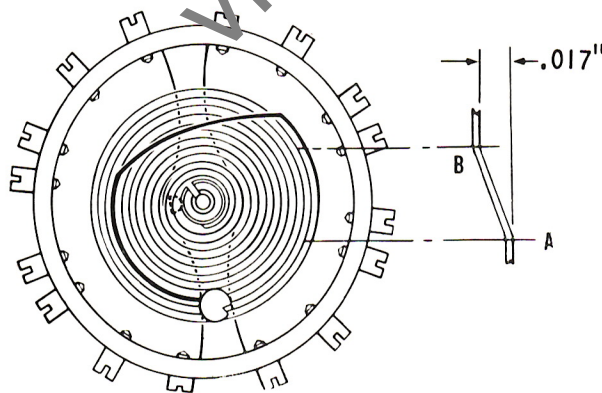


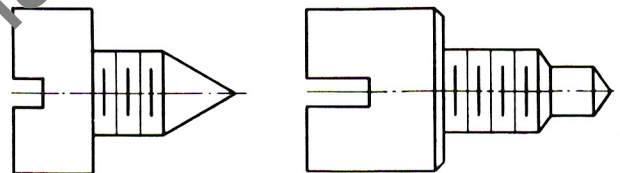
FIGURE 1

OVERCOIL SHAPE ON
HAIRSPRING FOR
HAMILTON GRADE 747

Dis-assembly of the Grade 747 movement can be done in the conventional manner except for the balance upper endstone cap. This part is of unique construction; see paragraph entitled "Balance upper endstone cap" for dis-assembly procedure. The balance lower endstone cap, while it is not of unique construction, can not be removed until the balance has been removed. See the paragraph "The balance lower endstone cap" for details.

Assembly of the Grade 747, with the exception of the balance upper (and lower) endstone cap, can follow the conventional order. See section "Replacement of Jewels" . . . "The balance upper endstone cap" . . . and "The balance lower endstone cap."

Balance Wheel Screws used in Hamilton Grade 747 are different from those used in any other Hamilton movement. Like all other screws used in the movement, the balance wheel screws employ a new thread standard. So that these screws will readily be distinguished from balance screws in other Hamilton movements they have been designed with a dog point instead of the cone point commonly used. Under no circumstances should a watchmaker attempt to substitute balance screws on this movement. He will invite difficulties which, under extreme circumstances, may make it necessary to replace the balance wheel.



COMMON CONE
POINT BALANCE
SCREW

DOG POINT BALANCE
SCREW USED IN
HAMILTON GRADE 747

FIGURE 2

Replacement of Jewels

All balance and train jewels in Grade 747 are friction set directly in the plate and bridges. Removal or replacement of these jewels *requires that they be pressed—not driven—in or out of position.* Friction set jewels should, of course, be pressed out in the opposite direction from which they were inserted. Conventional staking sets with either a lever or screw press attachment can be employed.

To replace bar hole jewels, use a flat faced punch larger than the diameter of the jewel. Press jewels into position from the *inside* of the pillar plate and from the *train side* of bridges. Lower bar hole jewels must be pressed flush with their respective recesses. Endshake adjustments should be restricted to upper jewels; such adjustments can best be done with the same punch used to remove the jewel.

To replace olive hole jewels, use a hollow staking tool smaller in diameter than the jewel. Press these jewels into position from the dial side of the pillar plate and from the top side of the balance cock. Care must be taken to allow the proper amount of space between the jewel and the endstone for oil.

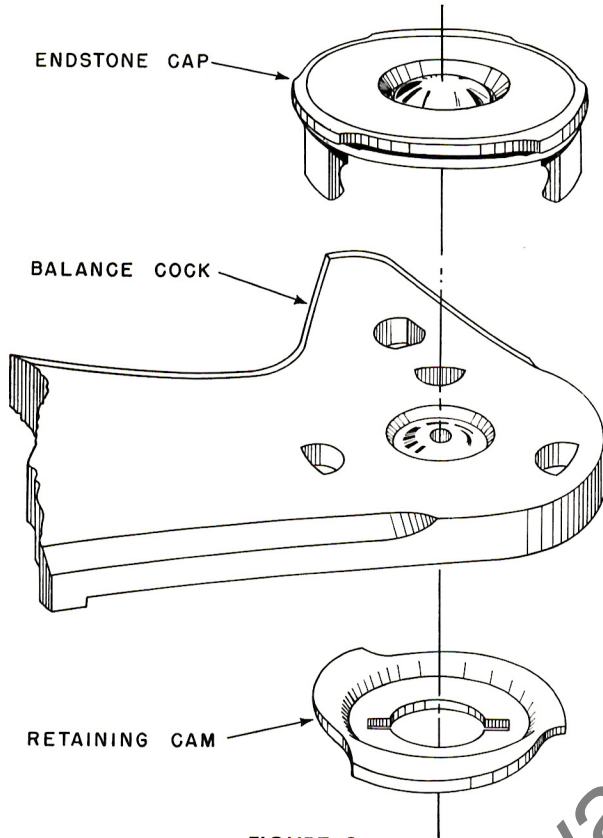


FIGURE 3

EXPLODED VIEW OF BALANCE UPPER ENDSTONE CAP ASSEMBLY

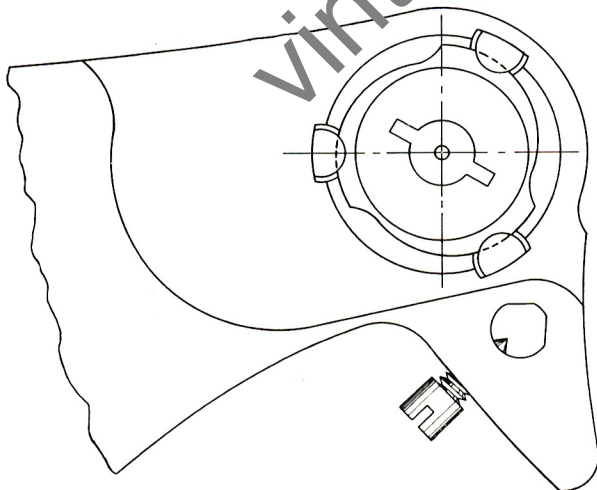


FIGURE 4

PLAN VIEW OF UNDER SIDE OF BALANCE COCK WITH RETAINING CAM ASSEMBLED

The balance upper endstone cap assembly is completely new in design. (See Figs. 3 and 4.) The new design affords accurate alignment of the upper endstone cap which, when the regulator is positioned around it, reduces the need for hairspring manipulation. The balance upper endstone cap can be easily and quickly replaced. Remove balance cock, invert it and, with a screw driver of proper width, unlock the cam as you would unscrew a screw and remove it. If the endstone cap does not drop free from the balance cock it can be gently pushed out by placing it on an anvil over the proper size hole and pushing on the feet. To replace a new cap, reverse the dis-assembly steps being sure that the retaining cam is snugly anchored but not forced.

The balance lower endstone cap on Grade 747, unlike this part on other Hamilton grades, is held by two screws which enter from the train side and thread into the cap which is made of nickel-plated steel. This feature is employed to eliminate the occasional annoyance of stripped threads in the pillar plate. Flat fillister head screws are used to secure a flat seating of the part. Assembly of the balance lower endstone cap to the pillar plate requires no special tools or methods. The cap can be positioned bottom side up on the bench; then the pillar plate with the recess for the cap aligned with it can be placed over the cap. A rounded pointer can be used to line up the screw holes in the cap with those in the pillar plate. The screws then can be located and fastened.

Cleaning and Oiling

Annual cleaning and oiling of Grade 747 will, under normal use conditions, prove adequate. Thorough cleaning procedures are highly important. The watch should be completely dis-assembled, including endstone caps, and thoroughly cleaned. After cleaning, all pivots, hole jewels, and endstones should be carefully inspected to insure that they are in prime condition. And any parts which cannot be restored to prime condition by conventional service methods should be replaced.

Any good watch oil may be employed to lubricate the Grade 747 and the procedure for oiling can follow the conventional order employed by fine craftsmen. For more detailed reference on the general subject of cleaning and oiling Hamilton watches, ask for Hamilton's Technical Bulletin on this subject. Address: Technical Publication Section, Hamilton Watch Co., Lancaster, Pa.



Genuine Repair Materials for Hamilton Grade 747

The following is a complete list of the available repair materials for the Hamilton 8/0 Size, Grade 747 movement. Material orders should always be sent to Hamilton Material Wholesalers. A list of the company's Material Wholesalers will be furnished on request to the Material Sales Department, Hamilton Watch Co., Lancaster, Pa. Always order material by catalog number and part name to insure accurate filling of orders.

<i>Cat. No.</i>	<i>Material</i>	<i>Cat. No.</i>	<i>Material</i>
7211	Arbor, barrel	7233	Pinion, escape
7234	Arbor, pallet	7214	Pinion, winding
7253	Balance, with screws	7258	Regulator
7254	Balance, (with screws) and staff	2963	Roller, combination, complete
7255	Balance, complete	7284	Screw, balance
7205	Barrel	7293	Screw, balance lower cap
7206	Barrel and arbor	7286	Screw, bridge or balance cock
7209	Cam, balance upper endstone cap retaining	7288	Screw, click
7219	Click	7291	Screw, dial foot
7215	Clutch	7295	Screw, hairspring stud
5065	Collet, hairspring	7294	Screw, pallet bridge
7279	Endstone Cap, balance upper	7297	Screw, ratchet wheel
7280	Endstone Cap, balance lower	7294	Screw, setting cap spring
7210	Hub, winding wheel	7300	Screw, setting lever
7267	Jewel, center upper	7293	Screw, winding wheel hub
2568A	Jewel, center lower	7220	Spring, click
7269	Jewel, third or fourth upper	7225	Spring, clutch lever
7270	Jewel, third lower	7240	Spring, setting cap
7272	Jewel, fourth lower	7261	Spring, hair, Elinvar Extra
7273	Jewel, escape upper	7227	Staff, balance
7275	Jewel, escape lower and pallet upper or lower	7246	Stem, winding
7277	Jewel, balance upper or lower	6266	Stud, hairspring
2983	Jewel, roller	7245	Wheel, center and pinion
7281	Stone, pallet, receiving	7248	Wheel, third and pinion
7282	Stone, pallet, discharging	7250	Wheel, fourth and pinion
7218	Lever, clutch	7252	Wheel, escape and pinion
7222	Lever, setting	7241	Wheel, hour
7221	Mainspring, Str. 9	7242	Wheel, minute
7256	Pallet and fork	7216	Wheel, setting
7257	Pallet, fork and arbor	7207	Wheel, ratchet
6095	Pin, banking	7208	Wheel, winding
7229	Pinion, cannon		

