

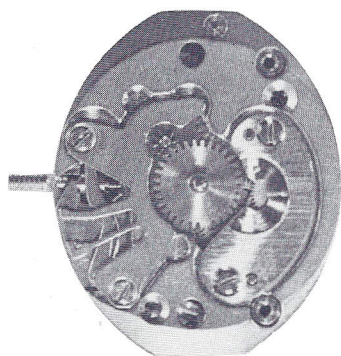
BULOVA WATCH COMPANY, Inc.

TECHNICAL BULLETIN

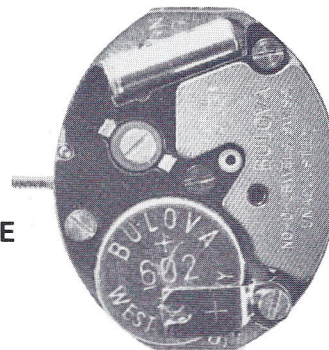


BULOVA[®] ACCUTRON[®] QUARTZ

S M Q[®] Series 250



DIAL SIDE



PRINTED
CIRCUIT SIDE

Fig. 1.

Enlarged view of movement

INTRODUCTION

The Series 250 is an electronic movement with analog display. A Quartz Crystal controlled Stepping Motor drives the gear train and the dial train, causing the hands to turn.

TOOLS

- Quartz Crystal Counter with 32,768 Hz. capacity
- Bulova Service Meter #700
- Accessory #9920/6603
- Non-magnetic tweezers
- Watchmaker's hand tools
- Watchmaker's Loupe
- Movement holder #12015

IMPORTANT:

See page 2 for recommended Power Cell replacement procedure.

CHARACTERISTICS

QUARTZ FREQUENCY

32,768 Hz. (cycles per second)

ELECTRONIC CIRCUIT

Integrated circuit with one impulse every 10 seconds.

NO POWER DISCONNECT SYSTEM

There is no saving of Battery life when watch is stored with crown in setting position.

STEPPING MOTOR

Bipolar, 2 steps per revolution. Steps once in 10 seconds.

DIMENSIONS

13.00 x 15.15 mm

LIGNE SIZE

5½ x 6¾

DISPLAY

Model 2500 Minute and Hour Hand.

POWER SOURCE

One Silver Oxide Battery 1.55 volts, Bulova 602.

POWER CELL REPLACEMENT

1. — Loosen the cell strap screw and swing cell strap counter clockwise.
2. — Remove power cell from movement and insert new cell positive (+) (Printed) side up. Use Bulova 602 cell.
3. — Reposition cell strap over cell and tighten screw.

CHECKING THE FREQUENCY (RATE)

Quartz Frequency should be regulated to 32,768 Hz., ± 0.17 seconds per day.

ADJUSTING THE FREQUENCY (RATE)

To regulate, turn the trimmer (see Page 4 Fig. 3). The maximum rate change is approximately 8 seconds per day.

AUDIBLE SOUND

There is no constant audible sound present as with other types of watch movements.

SETTING

It is normal for the train wheels to rotate when turning the crown during setting.

SERVICE

It is not necessary to periodically clean the Series 2500 movement, nor completely disassemble the movement when it requires cleaning. DO NOT CLEAN MOVEMENT IN "MIRACLE LUBE," "ONE STEP," etc. — Use regular clean and rinse solutions only. When cleaning the movement, the following parts must be removed:

- Electronic Circuit (#10.513)
- Coil Assembly (#20.590)
- Rotor (#20.580)

NOTE: Remove metal particles from rotor magnet with gummed tape or "One Touch." Pivots and Pinion can be cleaned with "One Touch" or soft (Pith) wood.

HANDLING THE COMPONENTS:

ELECTRONIC CIRCUIT

Avoid contact with the Printed Circuit Pattern. Care should be taken that the contact surfaces are clean.

ROTOR

Use a non-magnetic tweezer to grip the rotor by its pinion and **not** by the magnet.

COIL ASSEMBLY

Use tweezers to grip the coil assembly at the core hole that does not contain the printed circuit contacts.

COIL WINDING CHECK

A process of elimination is recommended when checking the coil winding assembly (see Basic Test Procedure Page 3).

Occasionally, the meter pointer will indicate an erratic alternate impulse reading (one normal, one very high). If replacing the electronic circuit does not correct, replace the coil assembly. Testing the coil resistance (3.5 K-3.9 K Ohms) with an Ohm Meter, may not reveal the problem, since the coil is not under tension (held down by screws) when being tested.

TRAIN ASSEMBLY

Place the train wheels and rotor into mainplate in the normal manner (see Fig. 3). Position train bridge and hold in place with pegwood. Using a wire oiler, first ease train wheels and then rotor pivot into bearings. Screw bridge in place.

CHECKING THE TRAIN WHEELS

Remove cell from movement. The rotor, held in place by its magnetic field, does not allow the train to turn freely. The freedom of the train wheels can be checked by moving each wheel up and down.

CHECKING HAND MOVEMENT

After casing, visually check that the minute hand advances. This movement of the minute hand is barely visible, short in length, and occurs only once in a 10 second period. The hand advancing indicates that the transmission of power to the dial is occurring. No advancement indicates a problem.

LUBRICATION

ONLY the following are lubricated: (sparingly) Fig. 3

- Upper and Lower Rotor Bearings OL-216
- Dial Train Bearings OL-206
- Setting Mechanism OL-206

CONNECTING METER TO MOVEMENT

Step 1. Loosen the cell strap screw and swing cell strap counter clockwise.

Step 2. Remove power cell from movement and place in the meter cell well.

Step 3. Set meter selector at "LOW AMPLITUDE."

Step 4. Connect Blue meter clip to loop in service accessory (9920/6603) marked "Blue;" Yellow meter clip to accessory loop marked "Yellow."

Step 5. Connect "Red" accessory clip to power cell strap (+), or stem.

Step 6. Connect "Black" accessory clip to lower contact spring (—).

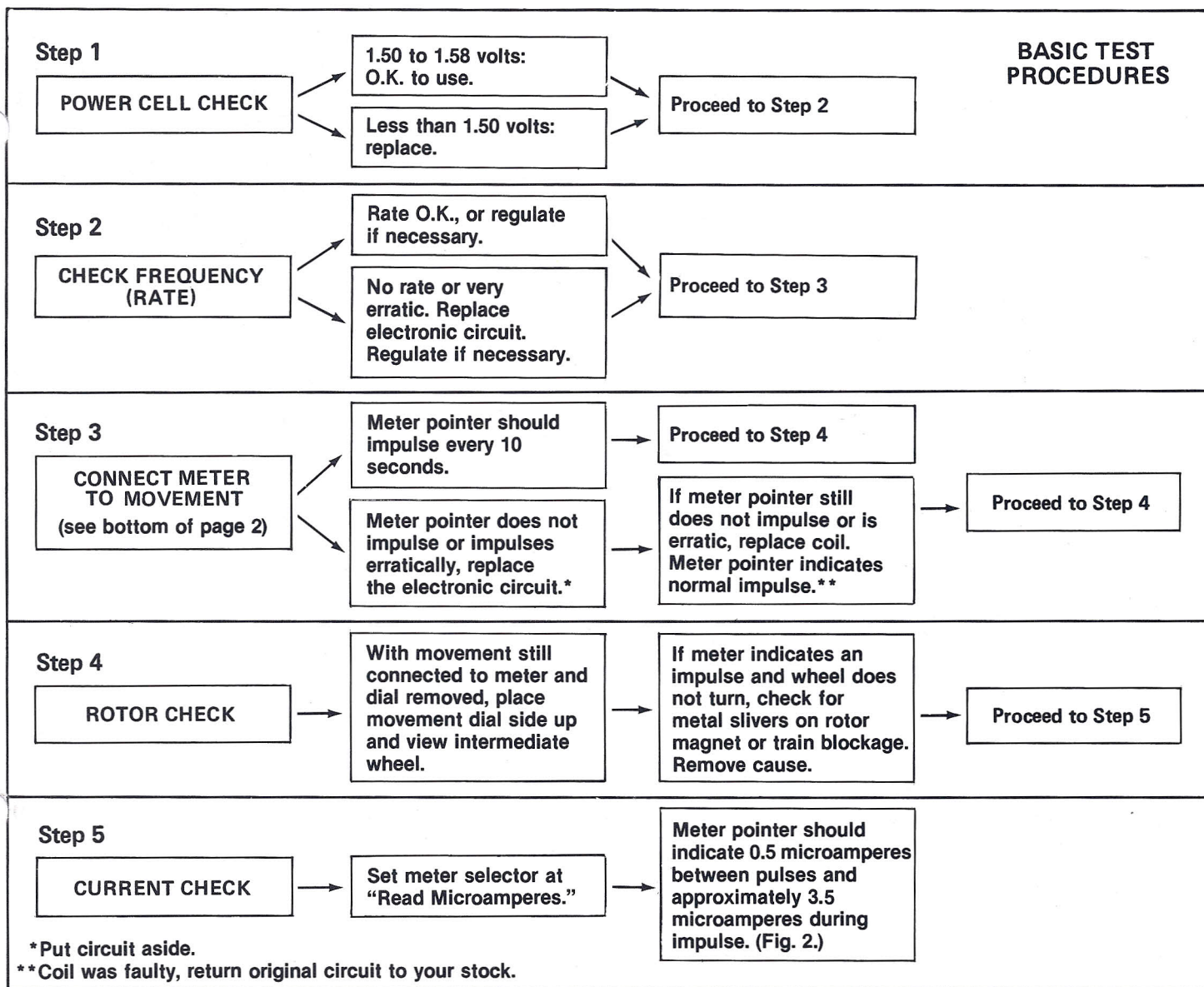


Fig. 2

Note: photographs of units are not to actual size.

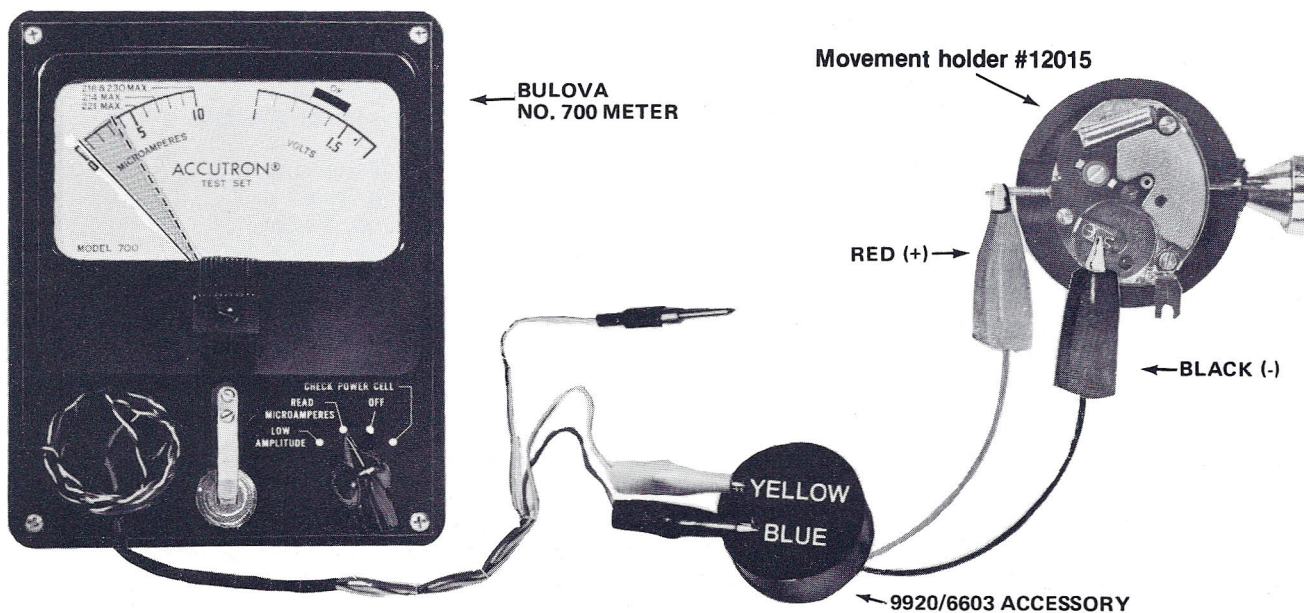
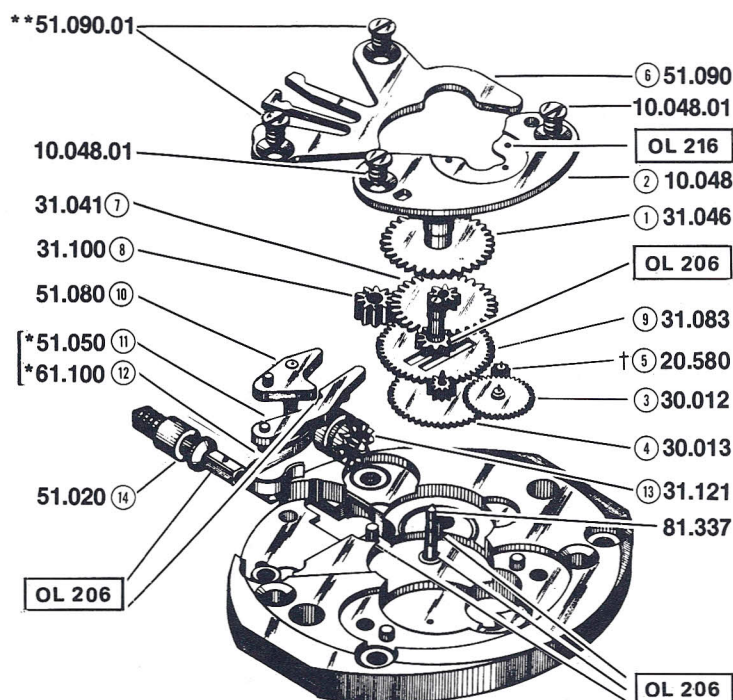


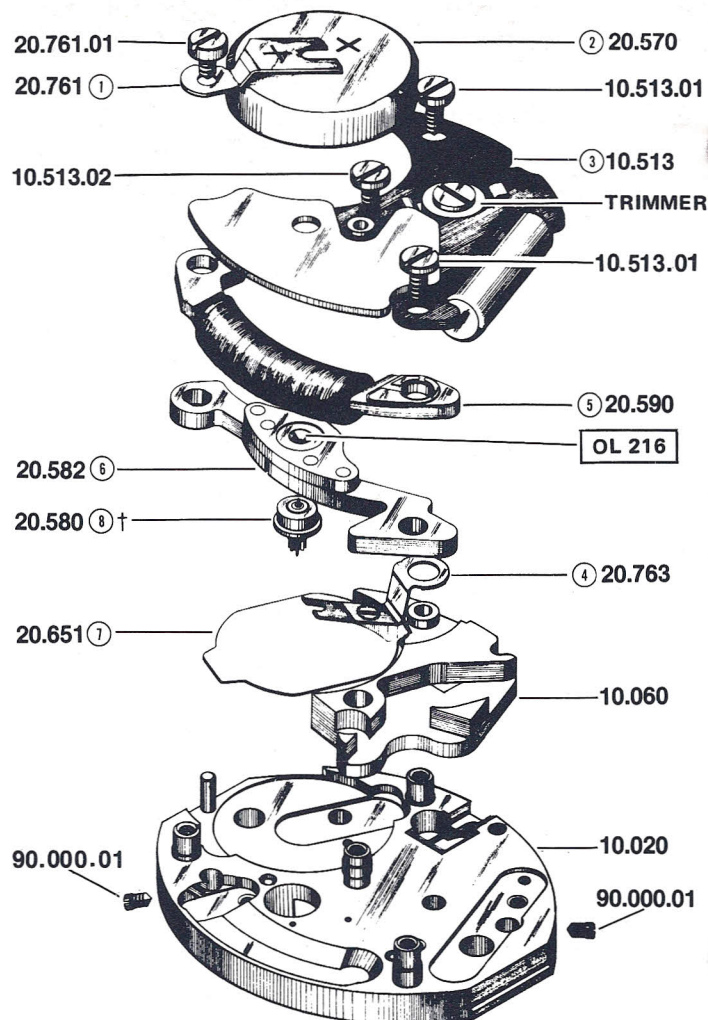
Fig. 3

ISO PART NUMBERS

○ Numbered Disassembly Sequence



† (#20.580) Rotor can be removed
from either side.



Part #	Part Name	Part #	Part Name
10.020	Main Plate	30.013	Transmission Wheel
10.048	Train Wheel Bridge	31.041	Minute Wheel
10.048.01	Train Wheel Bridge Screw	31.046	Hour Wheel (Ht. 1.12, 1.37, 1.87)
10.060	Stem Bridge	31.083	Cannon Pinion W/Driver (Hts. 2.10, 2.35, 2.85)
10.513	Electronic Circuit	31.100	Setting Wheel
10.513.01	Electronic Circuit Screw (Long)	31.121	Sliding Pinion (Clutch)
10.513.02	Electronic Circuit Screw (Short)	51.020	Stem
20.570	Power Cell (Bulova #602)	*51.050	Yoke (Clutch Lever)
20.580	Rotor	51.080	Setting Lever
20.582	Stator	51.090	Set Lever Bridge
20.590	Coil	**51.090.01	Set Lever Bridge Screw
20.651	Battery Insulator	*61.100	Yoke Spring
20.761	Power Cell Strap	81.337	Cannon Pinion Post
20.761.01	Power Cell Strap Screw	90.000.01	Dial Screw
20.763	Contact Spring		
30.012	Intermediate Wheel		

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81.337	Cannon Pinion Post
90.000.01	Dial Screw

* Available as single unit only.

** Use 10.048.01



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All information contained in this service bulletin is based on the latest product information available at the time of printing.
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