

Pulsar

THE TIME COMPUTER®

JEWELER'S TECHNICAL MANUAL

INTRODUCTION

The fine jewelry business was built and continues to grow on a sound business premise — a combination of quality products, sold and serviced in a quality way. Your profitable Pulsar business is no exception.

Time Computer, Inc. is dedicated to providing you and your discriminating customers with the finest, most innovative digital electronic timepieces available anywhere in the world, supported by equally fine and responsible worldwide service facilities. We continue to be dedicated to these principles.

In publishing this new Jeweler's Technical Manual, we hope to assist you to provide quality service to your customers in three ways:

- (1) By identifying those simple, routine service procedures which can and should be provided in the store.
- (2) By providing you with the information, materials and equipment you need for prompt, reliable in-store service.
- (3) By suggesting when and how your nearest Pulsar Regional Service Center can be utilized for maximum customer convenience and satisfaction.

This Jeweler's Technical Manual also provides you with complete data on every Pulsar model — product numbers, features and specifications, operating instructions, service procedures and replacement materials information. As new models are added to the Pulsar line, supplemental pages will be issued.

Please consult the index on the following page to locate the information you need. And if you ever have a service question or problem, please use our toll-free "hot line" to request what's needed. Call 800-233-0262 (Pennsylvania residents call collect 717-299-0840). We're here to help you and your customers in every possible way.

Customer Service
Time Computer, Inc.
P.O. Box 1707
Lancaster, Pa. 17603

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IN STORE SERVICE

WHAT A PULSAR JEWELER CAN AND CANNOT SERVICE

In the interest of customer convenience and satisfaction, and as is the case with the other fine products you sell, simple routine service procedures should be performed in the store.

You Can

- Replace power cells with genuine Pulsar (Ray-O-Vac) cells specified for that particular model. Do *not* use other brands — they may adversely affect the Pulsar's performance and cannot provide the long life and satisfactory service of genuine Pulsar cells.
- Re-set your customer's Pulsar to the correct time or date.
- Regulate timing with the Pulsar Analyzer to conform with guaranteed accuracy of plus or minus 60 seconds a year.
- Adjust bracelet length.
- Remove minor scratches on case or bracelet with a glass brush.
- Install module shunt to correct malfunctioning magnetic switching when seconds or date continue to display after command button is released. See page 22 of this Technical Manual.
- Return the Pulsar to your nearest Service Center for problems you cannot correct.

You Cannot

- Make adjustments to or change any of the electronic components attached to the module.
- Replace a damaged time screen.
- Refinish a deeply scratched or damaged case.
- Repair a command button assembly — except for installation of a shunt on magnetic set models.
- Make any repairs to a Time Computer/Calculator.

Module Replacement

The increasing number and complexity of Pulsar product innovations have made it impractical for most jewelers to maintain an inventory of Pulsar replacement modules. For this reason, we recommend that any replacement modules in your stock be returned to the Lancaster Service Center for full credit. In the interests of prompt service to your customers, module replacement — when necessary — will be provided only by the Regional Service Centers.

Non-Warranty Service

The Pulsar warranty does not cover case, bracelet or mineralite time screen repairs. For this reason, the following services are available through our Regional Service Centers at the suggested retail prices* shown:

- Refinish case and bracelet, including new mineralite time screen.
\$45.00 plus postage
- Replace mineralite time screen.
\$35.00 plus postage.

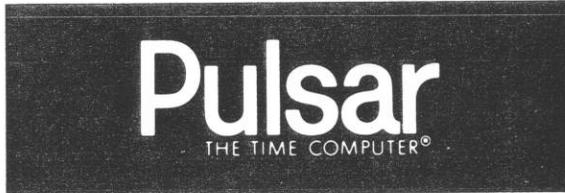
*Keystone

IN STORE SERVICE

CONSUMER SERVICE GUIDE

When service cannot be accomplished in the store, you should forward the Pulsar to your *nearest* Pulsar Service Center.

1. Receipt will be acknowledged in writing on the day of arrival in the Service Center.
2. If the product is under warranty and meets guarantee requirements, our acknowledgement will indicate "no charge" and the Pulsar will in most instances be returned within 14 working days. Be sure to allow for time in the mail going to and from the Service Center.
3. Receipt of products out of warranty, and for service not covered by the guarantee will be acknowledged with an invoice estimating cost of repair. Such invoices are accompanied by a return postcard which, when returned to the Service Center, will indicate your authorization to proceed. To expedite service, you can — if you choose — give authorization in advance. *No out of warranty service is performed until we receive your authorization.*
4. When returning a Pulsar for service — either in or out of warranty — *be sure to indicate the problem.* The printed check list in your Consumer Service Guide (sample illustrated) provides a quick, convenient way for you to tell us what service is needed. The more you tell us, the quicker we can perform the needed repairs and return the Pulsar to you. Be sure to note the Pulsar Case Serial Number and to include your own Job Number.
5. Correspondence or telephone inquiries to a Service Center regarding a repair should always refer to the Pulsar service invoice number.



Consumer Service Guide

Most customer service problems can be handled by you on the spot by using this Customer Service Guide. Here's how you can solve the most frequent problems:

1. Ask the customer to describe his problem.
2. Check off the problem as described in one of the boxes below:
 - Doesn't light up when button is pressed
 - I can't set my Pulsar
 - Display stays on after I release the button
 - When I push for time, I get date instead
 - It's not keeping good time
 - Display looks dim
 - Display looks broken
 - Date, hours or minutes don't appear in proper sequence

COMMENTS/INFORMATION _____

If you have any questions, call our toll-free service "hot-line" — 800-233-0262 (in Pennsylvania, call collect to — 717-299-0840). A qualified Pulsar Service Representative will assist you with your customer's problem.

Be sure to complete the check list above and return it with the complete Pulsar to your nearest regional Pulsar Service Center.

Jeweler's Name _____

Address _____

Phone _____ Serial No. _____

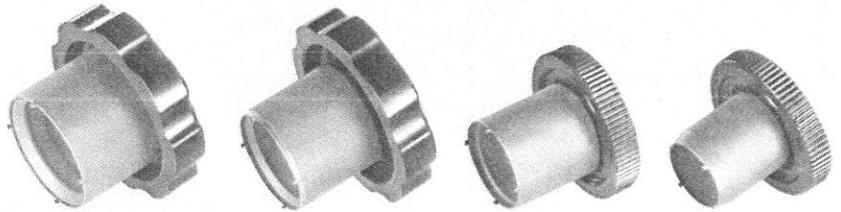
Model No. _____ Jeweler's Job No. _____

IN STORE SERVICE

MATERIALS REQUIRED FOR IN-STORE SERVICE OF PULSAR

Most of the jeweler's in-store service on Pulsar products can be accomplished with the familiar tools and equipment shown here.

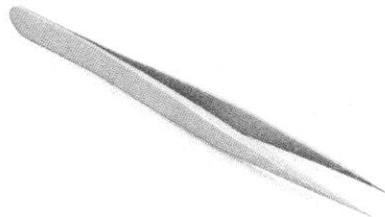
Items identified with an asterisk (*) are available through the Lancaster Service Center. In some instances, there is a nominal charge — see the Material Sales Parts Lists for each model for part numbers and costs.



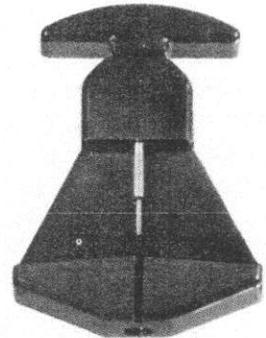
***Heavy Duty Case Wrenches** for the following models (left to right): P-II and P-III; P-IV; Lady Pulsar and Men's Dress; Ladies' Touch Command.



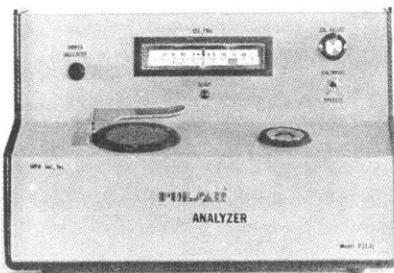
Jeweler's Screwdriver



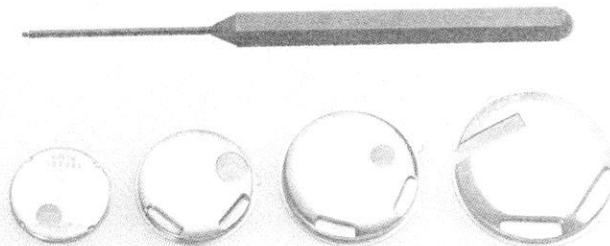
Tweezers



***Bracelet Sizing Fixture** for P-IV "Executive" Stainless Steel bracelets only.



***Pulsar Analyzer** for timing regulation and cell testing. See separate brochure on use of Analyzer also timing regulation instructions for individual models.



***Cut-Out Case Backs** (center), **Regulating Screwdrivers** (top and bottom) Case backs shown are (left to right) for Ladies' Touch/Command, Lady Pulsar, P-IV and P-III models.

IN STORE SERVICE

POWER CELL REPLACEMENT

Installation of correct and fresh Pulsar power cells is the single most important service function the jeweler can perform. Our service records indicate that up to 40% of the Time Computers returned for service have battery related problems which could have been solved in the store by proper installation of fresh cells of the type specified by Pulsar. See the Replacement chart in this manual.

Use Ray-O-Vac "Ditronic" Cells Only

Pulsar cells are manufactured only by Ray-O-Vac, a pioneer and world leader in the electronic watch energy cell industry. The Ray-O-Vac "Ditronic" (or Silver II) cells recommended by Pulsar are of the divalent silver oxide type and provide the greatest amount of energy and longest life possible in a watch cell. Other brands of cells will provide from 25% to 40% less life and — in the event of leakage — can damage the Time Computer module.

Always Install Fresh Cells

All Ray-O-Vac cells are date coded with a four digit number. The first three digits indicate the day of manufacture, and the fourth digit indicates the year. For example, a date code of 0257 would indicate manufacture the 25th day of the year (January 25), 1977. A date code of 1207 would indicate the date of manufacture to be the 120th day of the year (April 30), 1977. All cells will lose some of their electrical capacity in storage, and cells with less than 90% of full potential should *not* be put in service. Cells you've had in stock for more than 6 months should be discarded.

Cell Storage

If stored at an average room temperature of 72 degrees Fahrenheit (+22.2°C), a cell will lose 10% of its electrical capacity in 6 months. For this reason, we recommend that, when possible, cells be refrigerated at 40 degrees Fahrenheit (+4°C). Cells stored at these temperatures will retain 90% of their capacity for as long as 18 months. Only cells packaged in hermetically sealed foil should be refrigerated, and — before the package is opened — it should be brought to room temperature to eliminate condensation before installation in the module. Otherwise, condensation may form on the cell and could greatly reduce its effective life. If refrigeration is not available, store cells in a cool, dry area at about 60-70°F (+15.6-22.2°C).

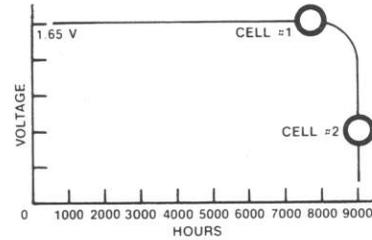
Bulk cells (i.e., those not foil packaged) should *never* be refrigerated. In those areas of the country where dampness and high humidity are prevalent, only foil packaged cells should be purchased. Extremely high temperatures such as those found in a display window or beneath a spotlight can also reduce cell life.

Due to the relatively limited shelf life of energy cells, we recommend that only a 3 to 5 month inventory of replacement cells be kept by the jeweler. Be sure to rotate your cell stock on a "first in, first out" basis.

Always Replace Both Cells

It is characteristic of watch power cells that they maintain constant voltage almost up to the point of failure. If

one cell should fail or test below its effective voltage level, the other cell in the module may be close to failure — even though it tests positively.



In the diagram above, Cell #1 tests adequately, while Cell #2 has less than the required voltage. If only Cell #2 were replaced, Cell #1 would probably fail in about 1000 hours — a little over one month. For this reason, always replace both cells when one tests inadequately — and all four cells in the Time Computer/Calculator and Pulse/Time Computer.

Cell Testing

The Pulsar Analyzer incorporates a cell testing device. Keep in mind, however, that a positive reading only indicates that the cell will operate the module, not how much energy is left in the cell.

Proper Handling Technique

Do not handle energy cells with bare fingers, use finger cots or plastic tweezers. Moisture on the fingers could cause contamination.

Make Sure Polarity is Correct

Cell holders in the module are marked, "plus side up" and "plus side down." There is a plus sign clearly marked on every Pulsar cell — make sure it's installed properly.

IN STORE SERVICE

POWER CELL REPLACEMENT GUIDE

IMPORTANT NOTICE!

Only the recommended Ray-O-Vac power cells can assure the fine performance built into each Time Computer at the factory. Do **not** use other brands of cells, even though they may be of the same size and configuration. Other cells will adversely affect product performance and provide from 25% to 50% of the life expectancy of the recommended Ray-O-Vac power cells.

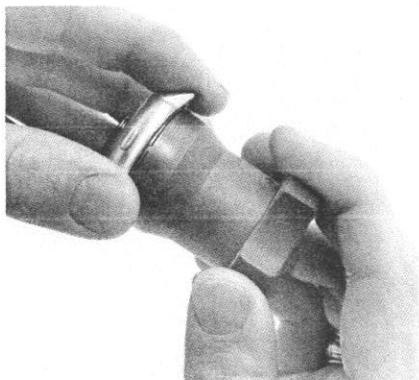
Style	Model No.	Module No.	Setting *	Ray-O-Vac
Limited Edition	2800	201	M	RW 25
P-II 1 button	3238, 2900, 2975, 3276 2970, 3286, 2980	201	M	RW 25
P-II 2 button	3230, 3216	301	M	RW 25
P-III	3100, 3336, 3120, 3376, 3115 3396, 3130, 3386, 3140, 3366	301	M	RW 25
P-IV (Executive)	3201, 5201, 7201	401 402	M A/S	RW 42 RW 42
	3211	406	A/S-24 hr.	RW 42
	3310, 5310 (DOW)	403	A/S	RW 42
3210, 5210	402			
Classic	3315 (DOW)	403	A/S	RW 42
	3215	402		
Men's Dress	3408, 5408, 7408	102 104	M A/S	RW 44
	3416	110	A/S	RW 42
	2407, 4407, 6407, 6420	101 103	M A/S	RW 44
Ladies' Cushion	2406, 4406, 6406, 6414, 6412	101 103	M A/S	RW 44
Ladies' Oval	3822, 5822, 1822	901/902	A/S	RW 42 (4)
Time Computer/Calculator	2912, 4912	801	A/S	RW 48
Ladies' Oval	2926, 4926	801	A/S	RW 48
Ladies' Cushion	2927, 4927	801	A/S	RW 48
Ladies' Square	7917, 1917	801	A/S	RW 48
Men's Solid Gold Rectangular	7918, 1918	801	A/S	RW 48
Men's Solid Gold Cushion	6931, 1931, 1934	801	A/S	RW 48
Ladies' Solid Gold Rectangular	6921, 1921	801	A/S	RW 48
Ladies' Solid Gold Cushion	7725, 3725	910	A/S	RW 42 (4)
Pulse/Time Computer				

DOW—Day of Week

*M—Magnetic Set

*A/S—Auto Set

INSTRUCTIONS FOR POWER CELL REPLACEMENT



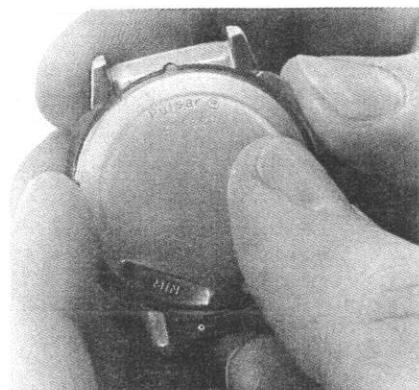
1. Remove one pin bar in clasp of bracelet and lay Pulsar face down. If model has double bracelet attachment spring bars, remove innermost spring bars from both sides of case. This allows full access to back of case.

2. Using case wrench, place it in case back ring slots and turn counter-

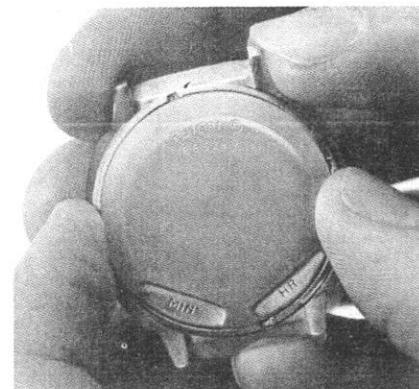


4. Remove old power cells, and replace with new cells. Cell holders are marked "plus side up" and "plus side down," referring to the "plus" sign on one side of each power cell. Be sure cells are placed accordingly.

Do not let cells touch when installing them, and do not handle with tweezers, as this may short-circuit the fresh cells.



6. Replace case back, making sure the small tab is properly seated in the slot at the "12 o'clock" position. Press back into place and hold with fingers of left hand.



7. Take case "O" ring in right hand, place into position and start screwing ring into threads in a clockwise direction. Now take case wrench and tighten "O" ring securely.

8. Reset Pulsar to the correct time.

clockwise until threaded ring is unscrewed. If case nut is frozen due to accumulated dirt, body oils, etc., scrub with a brush and liquid soap to loosen contaminants.

3. Remove ring and case back ("O" ring gasket may stick to back; if not, leave it in place).

5. If "O" ring gasket has been removed, place it back in the case, making certain that it is positioned entirely in its groove.

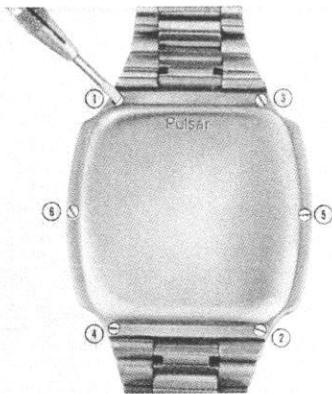
NOTE: Sometimes, when the command button is first pressed after the case back has been opened and then replaced, odd combinations of numbers appear (e.g., 0.00) or some LED segments may not function. This is normal, and is easily corrected by cycling hours and minutes (or month and date, if necessary).

IN STORE SERVICE

SERVICING THE TIME COMPUTER/CALCULATOR POWER CELL REPLACEMENT

1. Remove one pin bar from bracelet clasp and lay Calculator face down to allow full access to case back.

2. When removing case back, be sure to use a proper size screwdriver — one with a blade that fits well in the screw slot. Loosen and remove screws in sequence shown below.



3. When screws are removed, carefully remove case back and gasket. Note cell arrangement — two (at top) are free, two (in center) are held by L-shaped clamp.



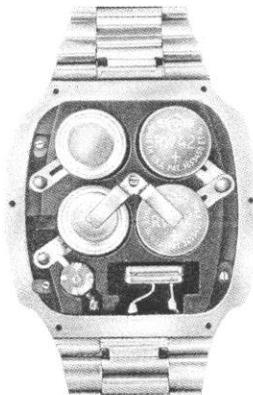
4. Examine cell connector in case back to make sure it is fastened securely.

5. Remove two loose cells. To release two cells held by L-shaped clamp, loosen clamp screw slightly and rotate clamp as shown below.



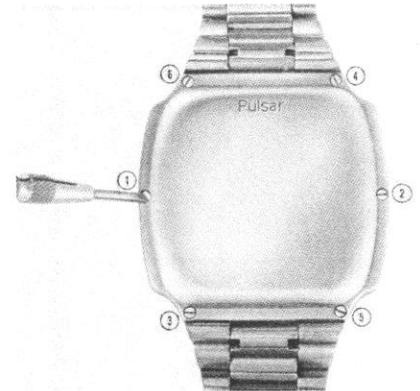
Do not loosen clamp fully or remove it from module. If clamp is removed accidentally, be sure to replace it properly — with the long lead **under** the double connector in the lower left cell cavity.

6. When old power cells have been removed, replace all four with fresh Ray-O-Vac RW-42 "Ditronic" cells.



Be sure cells are located properly in accordance with the "+ UP" and "+ DN" markings in each cavity, as pictured above. Re-position L-clamp as shown and tighten screw.

7. After making sure that the gasket and case back are properly positioned, insert case back screws and turn in partially.



Tighten one screw, then another diagonally opposite, as you did in removing the case back. Do not over-tighten.

NOTE: When the command button is pressed after the case back has been removed and replaced, the display you see will sometimes be unusual (i.e. 0:00), or some LED segments may not light. This condition is normal under these circumstances and is easily remedied. Touch the "S" key to put the Calculator in setting mode and cycle the hours and minutes (or month and date, if necessary) to the correct time or date.

IN STORE SERVICE

THE PULSAR CASE

Cases for Pulsar models are made of stainless steel, 80-micron-thick 14kt. gold-filled, and 14kt. or 18kt. solid gold. Because of the unique Pulsar setting and command systems, there are no holes through the walls of the case. Pulsar cases are tested for water resistance to an underwater depth of 100 feet.

There are three service functions

related to the Pulsar case which the jeweler can perform:

1. Repair "bow-tie" cell connector inside case back.
2. Clean accumulated dust and dirt from exterior button well.
3. Repair leaking cases.

Details for correcting each of these problems follow.

REPAIRING "BOW-TIE" CELL CONNECTOR

The "bow-tie" cell connector is fastened to the inside of the case back to maintain proper contact with both power cells in the module. Occasionally, when removing the case back, you may find that this cell connector has broken loose.

1. Remove old epoxy from cell connector and inside of case back using emery paper.
2. Then clean cell connector and inside of case back using a grease-removing solvent such as

Chlorothene. After this step, be sure not to touch the cleaned surfaces with your fingers (the natural oil from your fingers on the cleaned surfaces will not permit proper bonding).

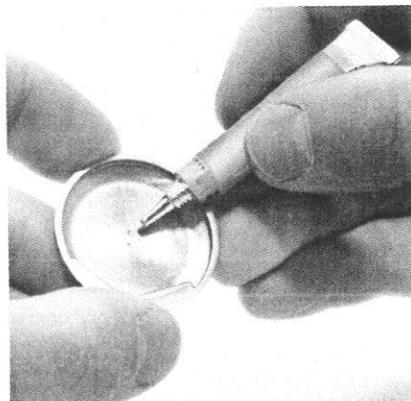
3. Use an alpha cyanoacrylate contact cement (available under such trade names as Permabond, Aron Alpha, Eastman 910, etc.) to re-establish bond.

Apply cement to case back (approximately one drop).

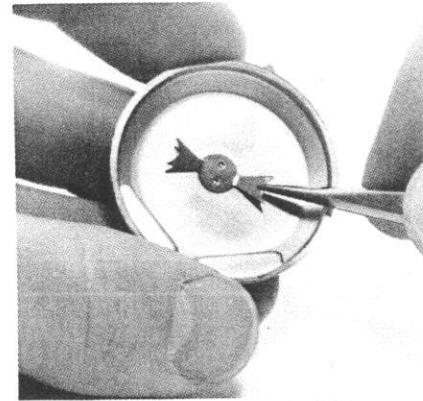
Align the two little dots on the case back through the two holes in the cell connector. Press cell connector into place and hold 10 to 15 seconds.

4. Although an alpha cyanoacrylate contact cement sets in 5 to 10 seconds, full bonding strength is not obtained for 24 hours. We therefore urge you to let the newly epoxied cell connector set for 24 hours before replacing case back onto the Pulsar case.

NOTE: Ladies' Touch/Command models (801 module) have a circular cell connector on the inside of the case back. Should it loosen, use the same repair procedures, being sure to align the connector correctly.



Applying cement.



Lining up two dots on case back with two holes in cell connector.

IN STORE SERVICE

ULTRA SONIC CLEANING OF CASE AND BUTTON ASSEMBLY

After months or years of wearing a Pulsar, the command buttons (date or time) may operate sluggishly, or stick. This probably indicates that excessive dirt or lint has accumulated inside the button well.

Ultrasonic cleaning will generally correct this problem. Proceed as follows:

1. Fill ultrasonic tank with soap/ammonia solution.

NOTE: Do not use trichloroethylene or chloroethene solutions as they will cause the rubber gasket in the button assembly to swell.

2. Open case back and remove module.
3. Place portion of case containing command buttons into the ultrasonic cleaner, button facing **down** to dislodge dirt, etc. from button assembly. For Date/Command models, case must be turned and processed again to clean second button assembly.

NOTE: Do not place complete case and module in solution. This will damage module.

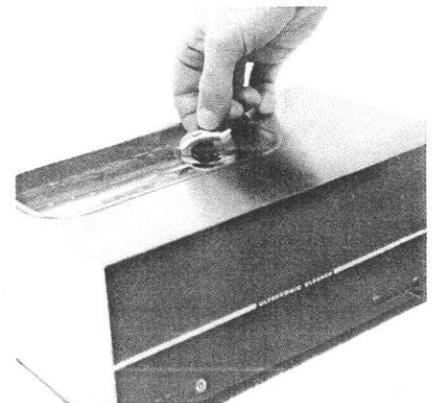
4. After cleaning, follow with a water rinse, then an alcohol rinse for drying purposes.
5. After case is dry, install module, new power cells and case back. Reset and return to your customer.
6. Never grease or oil the button assembly. If a lubricant is necessary, we suggest a powdered graphite.

NOTE: Oil or grease will coagulate and trap dirt, causing button assembly to stick.

Do not clean calculator case. Return complete unit to Lancaster Service Center.



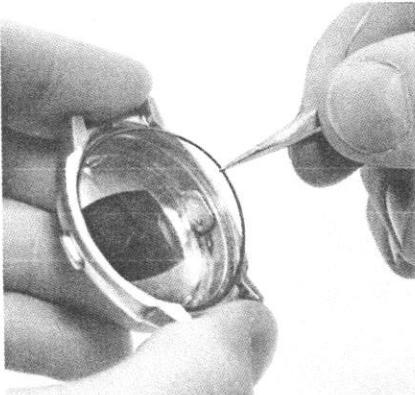
Remove module from case before ultrasonic cleaner.



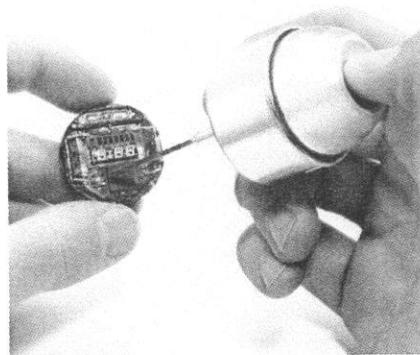
Placing case front in ultrasonic cleaner.

IN STORE SERVICE

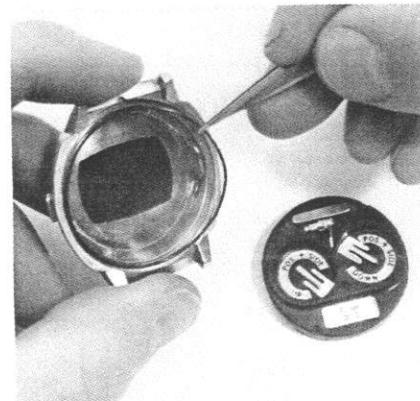
LEAKING CASE



Open case, module, "O" ring gasket.



Air-drying module.



Installing new "O" ring gasket.

Leaking is usually caused by incorrect closing of the case back, or by a faulty "O" ring gasket. If you observe water inside the case of a Pulsar, do not assume that the performance of the module has been adversely affected by such exposure. Unlike mechanical watches, if water enters the case of a Pulsar the only problem it causes, generally, is to short out the power cells. The unique construction of the Pulsar Time Computer module protects it from water damage.

You can correct the problem as follows:

1. Open the case and remove power cells, module and "O" ring gasket.
2. Rinse case and module using fresh water.
3. Dry inside of case with a selvyt cloth.
4. Air-dry the module with an air syringe.
5. Replace module in case.
6. Install new "O" ring gasket and new power cells.
7. Close case and reset Pulsar.

NOTE: When a Pulsar module has been immersed in salt water for an extended period of time it will become permanently damaged. If signs of corrosion appear when you open the case, return entire unit to your Service Center.

If button cup assembly inside case appears to be loose, allowing water to enter the case, return entire unit to the Service Center for resealing.

Do not attempt calculator case repair. Return complete unit to Lancaster Service Center.

TIMING REGULATION OF PULSAR II, DATE/COMMAND AND DATE II MODELS WITHOUT PULSAR ANALYZER



If Pulsar runs fast, turn clockwise.



If Pulsar runs slow, turn counter-clockwise.

After assembly, each Pulsar unit is extensively tested and timed to our atomic reference clock, for a minimum of one week. Pulsar releases for sale only those units which conform during this test period to the guaranteed accuracy of 5 seconds a month, sixty seconds a year.

Occasionally, because of slight drift in the quartz crystal frequency, a customer may find that his Pulsar needs regulation. The Pulsar jeweler can make an adjustment by regulating the trimmer located inside the case back.

Begin by removing "O" ring and case back as outlined in **REPLACEMENT OF POWER CELLS**.

Trimmer is located at the "12 o'clock" position, immediately below the quartz

crystal housing (see illustration).

With slotted end of trimmer toward you, insert screw driver and turn as follows:

If Pulsar runs fast, turn clockwise (left to right) 1 turn equals *minus* 1 second per week.

If Pulsar runs slow, turn counter-clockwise (right to left) 1 turn equals *plus* 1 second per week.

NOTE: Total trimmer adjustment range is approximately 10 seconds per week. There is a span of nine full turns of the trimmer from full clockwise position to full counter-clockwise position.

After necessary adjustments are made, replace case back and "O" ring as outlined in **REPLACEMENT OF POWER CELLS**.

We wish to emphasize that the above timing procedure will generally improve performance, but that there are other factors to consider:

1. Without a Pulsar Analyzer, you cannot *precisely* measure the timing adjustment you have made on the Pulsar module.
2. A customer who complains about his Pulsar timing performance may have used an inaccurate

time reference to set it; if so, your adjustment of the trimmer may compound his problem. A Pulsar Analyzer eliminates this possibility.

3. A faulty quartz crystal oscillator may be causing your Pulsar customer's unit to be off time, in which case adjusting the trimmer will not help. Only a Pulsar Analyzer can tell you if it is an adjustment problem, or a defective crystal.

4. The timing trimmer itself may be defective. A Pulsar Analyzer will tell you instantly if your adjustments are having any affect on the module's timekeeping performance.

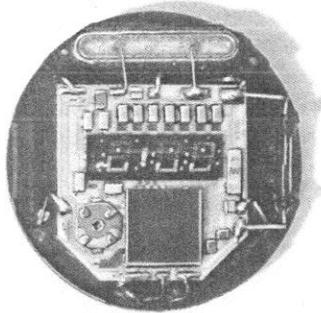
For these reasons, we recommend having a Pulsar Analyzer in your store — to correct timing to exact factory standards, and to help trouble-shoot problems related to quartz or trimmer performance. Details follow.

IN STORE SERVICE

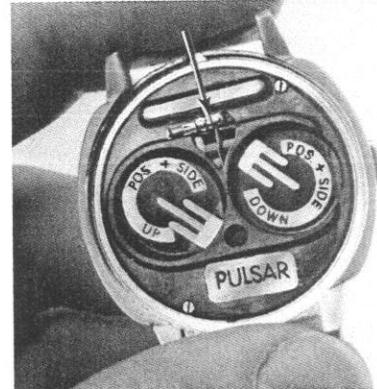
USING THE PULSAR ANALYZER TO TIME SINGLE TRIMMER VERSION OF THE NON-DATE SERIES

All necessary instructions for timing this model are contained in the Pulsar Analyzer Brochure.

NOTE: If your customer's Pulsar has received severe shock, it is possible that the quartz crystal cannot be adjusted to factory specifications of plus/minus 5 seconds per month. If this appears to be the case, return complete product to Service Center.



Front of module.



Back of module. Note timing trimmer, which is adjusted with a jeweler's screwdriver.

USING THE PULSAR ANALYZER TO TIME TWO-TRIMMER VERSIONS OF THE NON-DATE AND DATE/COMMAND SERIES

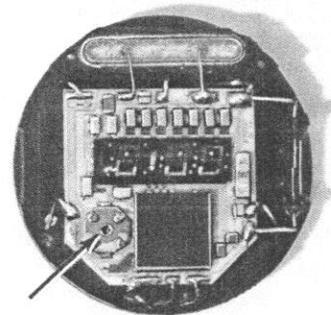
Early in 1973, Pulsar added a second "rough adjustment" timing trimmer to the front of the Computer module. This flat trimmer is also included on our Date/Command two-button series introduced fall 1973. The two-trimmer system enables you to make a much greater range of timing adjustment.

In most instances it is possible to bring the module back to factory timing standards by adjusting only the fine trimmer on the back of the module, as outlined in the Pulsar Analyzer brochure.

However, if regulating the fine trimmer is insufficient to achieve correct adjustment, then use the following procedures:



Back of module. Note fine-adjustment trimmer.



Front of module. Note flat rough-adjustment trimmer.

(Continued)

IN STORE SERVICE

USING THE PULSAR ANALYZER TO TIME TWO-TRIMMER VERSIONS OF THE NON-DATE AND DATE/COMMAND SERIES (CONT.)

NOTE: Do not attempt to adjust "rough adjustment" trimmer without a Pulsar Analyzer.

1. Tools required:
 - (a) Pulsar Analyzer
 - (b) Plastic service case (red top, clear base)
 - (c) 2 power cells
 - (d) Jeweler's screwdriver for fine-adjustment trimmer on back of module.
 - (e) Rough-adjustment trimmer tool for trimmer on front of module (Supplied by Pulsar).
2. Remove bracelet or strap.
3. Remove module from case.
4. Using jeweler's screwdriver, turn fine adjustment trimmer on back of module clockwise to full-in position.
5. Next, turn fine-adjustment

trimmer **counter-clockwise** 4½ complete 360° turns. This sets the fine-adjustment trimmer to its mid-range.

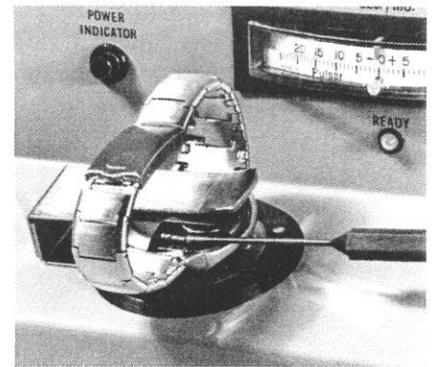
6. Install module in plastic service case **with power cells**. Position module in service case so that rough-adjustment trimmer on face of module is lined up under hole in the red top of the service case.



7. Place service case with module on Pulsar Analyzer, **power cells down**, and position it so you have access with rough-trimmer tool to hole over rough trimmer.



8. Insert rough trimmer tool into center of rough-adjustment trimmer. Turn until the Pulsar Analyzer meter indicates plus or minus 2 seconds/month.
9. Remove module in service case from Pulsar Analyzer.



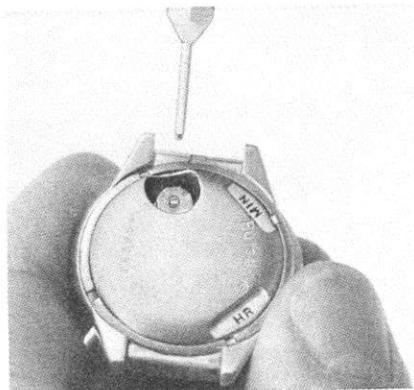
10. Take out module from plastic service case, and install module into Pulsar case with power cells.
11. Place special cut-out service back on case (this maintains contact with the power cells and also permits access with a jeweler's screwdriver to the fine-adjustment trimmer on the back of the module).
12. Place case on Pulsar Analyzer **face down**.
13. Using a jeweler's screwdriver, turn fine-adjustment trimmer clockwise (for slowing) or counter-clockwise (for speeding up) until Pulsar Analyzer meter is **centered at zero**.
14. Remove from Analyzer and replace Pulsar case back. Set to correct time.

NOTE: If your customer's Pulsar has received severe shock it is possible that the quartz crystal cannot be adjusted to factory specifications. If this appears to be the case, after following the foregoing procedures for timing adjustment, **replace** the module in the case and return the complete product to your nearest Service Center.

USING THE PULSAR ANALYZER TO TIME LADIES' AND MEN'S DRESS PULSAR MODELS



The module used in these models is about $\frac{1}{2}$ smaller than previous versions, but has all the identical features.



There is only one, flat timing trimmer located on the back of the module. Timing adjustment requires a special tool and a Pulsar Analyzer.

These models have only **one** trimmer, located on the back of the module. It is flat, and requires a special trimmer tool. Timing adjustment of this trimmer can only be accomplished by using a Pulsar Analyzer.

1. Tools required:
 - (a) Pulsar Analyzer
 - (b) 2 power cells
 - (c) Small Pulsar case wrench
 - (d) Special cut-out case back
 - (e) Flat trimmer tool
2. Remove bracelet or strap.
3. Remove case back, insert special cut-out case back (this maintains contact with the power cells and also permits access to the flat trimmer on the back of the module).
4. Place on Pulsar Analyzer, **face down**. Position so that cut-away hole in Analyzer case back is accessible with flat trimmer tool.
5. Carefully insert flat trimmer tool into hole in case, and turn until Pulsar Analyzer meter is centered at zero.
6. Replace Pulsar case back and set to correct time.

NOTE: If your customer's Pulsar has received severe shock, it is possible that the quartz crystal cannot be adjusted to factory specifications. If this appears to be the case after following the foregoing procedures for timing adjustment, **replace** the module in the case and return the complete product to your nearest Service Center.