

IN STORE SERVICE

SERVICING THE TIME COMPUTER/CALCULATOR

TROUBLE SHOOTING

PROBLEM: Display does not light when command button is pressed.

SOLUTION: Replace all four power cells. If problem remains, return the complete unit to the Lancaster Service Center.

PROBLEM: Power cells seem to wear out quickly.

SOLUTION: Advise the customer to be sure to press command button to return computer to timekeeping mode after using Calculator functions. If left in Calculator mode for an extended time, excessive battery drain will occur.

If the Calculator is worn while sleeping, the wearer may inadvertently activate the command button many times during the night. For this reason, wearing the Calculator to bed is not recommended.

PROBLEM: Time or date displays skip, or unusual displays appear when command button is pressed.

SOLUTION: On some Calculator models, the "S" (setting) key is located just above and to the right of the command button. If the command button and "S" key are inadvertently pressed at the same time, the month and hours may automatically cycle to 12, or a full array of digits may appear.

To remedy this condition, simply re-set the functions affected and re-cycle the computer back to normal operating mode in the usual manner.

PROBLEM: Missing LED segments.

SOLUTION: This condition sometimes occurs when the case back has been removed and replaced. To correct it, put Calculator in setting mode and cycle the hours and minutes (or month and date) to correct display, as indicated in the Power Cell Replacement section of this manual. If power cells are extremely weak, missing LED segments can also result. To remedy the condition in this event, just install fresh cells as indicated previously. If the problem remains, return the complete unit to the Lancaster Service Center.

PROBLEM: Computer is in calculating mode and will not accept calculations.

SOLUTION:

1. Calculator may be in overflow. Touch "C" key to clear.
2. A number or function key may be struck. Rotate the calculating tip of the Command Pen around the outer edge of each key, to make sure it is free and operating properly. In most instances, this will "pop" the key back to its correct position. If problem remains, return the complete unit to the Lancaster Service Center.

NOTE: Caution the wearer to use the special pen stylus provided. Other sharp instruments could cause damage.

PROBLEM: Excessive timekeeping gain or loss.

SOLUTION: Adjust Timing with the Pulsar Analyzer, as follows:

1. Remove case back and two **top** cells. (See Power Cell Replacement section of this manual for correct procedure.) Leave cells under L-shaped clamp in place — they power the oscillator and are the only ones needed for timing.
2. With case back removed, place Calculator face down on the Analyzer timing plate. Carefully insert the flat trimmer tool into the trimmer and rotate until the Analyzer meter is centered on zero.
3. Replace two top cells. Make sure case gasket is in place and replace case back. See Power Cell Replacement section of this manual for correct procedure.

NOTE: If the Calculator has received a severe shock, its quartz crystal may require adjustment beyond that possible with the Pulsar Analyzer. If further timing adjustment appears to be necessary, return the complete unit to the Lancaster Service Center.

IN STORE SERVICE

SERVICING TOUCH/COMMAND MODELS

Pulsar's newest ladies' and solid gold models have the highly reliable 801 module which is 25% smaller than earlier designs. Sensitive pressure points replace moving command buttons and merely have to be touched lightly with the finger tip to activate time and date displays. Setting is also accomplished by touching the command buttons. The Touch/Command display and setting system cannot be activated when the buttons are touched by metal, plastic, cloth or virtually any other material except the skin.

The Touch/Command system responds to capacitance inherent in the skin of the finger tips. The command buttons are permanently attached to the case bezel and are always in contact with the module. They are epoxied in place and cannot be removed in the field. The epoxy cement provides a permanent seal against moisture and dirt, and both buttons are anodized to make them an integral part of the Touch/Command system.

The system will not function correctly if the anodized coating is damaged or removed. Should it be necessary to buff or polish the case, be sure to protect the top of the buttons with tape or other similar material. Moisture or surface contaminants (particularly salt or saline solutions) can activate a display. Should the buttons become wet or dirty, clean and dry thoroughly with a soft cloth or cotton swab.

Water Resistance

Because water and moisture have capacitance properties, they can activate a Touch/Command display. For this reason, we recommend that a Touch/Command model not be worn in the bath, shower, or while swimming. If both buttons become wet — as might happen while swimming — the day and date will be displayed for 1.5 seconds, then go out and remain out

for as long as both buttons are wet. As the module is fully protected by its water-resistant case, no harm will result. To avoid excessive battery drain, however, wet buttons should always be dried promptly with the finger tip or a clean cloth.

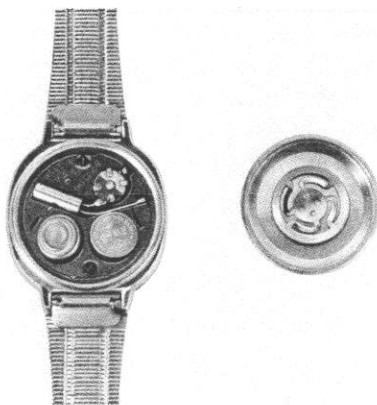
Battery Replacement

The 801 module is powered by two Ray-O-Vac RW-48 "Ditronic" cells.

Do not use other cells — they will materially reduce the intensity of the displays and cannot provide the long life of the recommended Ray-O-Vac RW-48 cells. If one cell fails or tests inadequately, always replace **both** cells — the other may be close to expiration, even though it may test to adequate voltage at that time.

If the display appears dim when new cells are installed, activate the display about 15 or 20 times to "re-energize" the cells. The display brightness will increase.

Touch/Command models have a standard screw-back case construction. To remove the case back, use the proper tool provided by Pulsar. Note that, when the case back is removed, the module rises slightly out of the case.



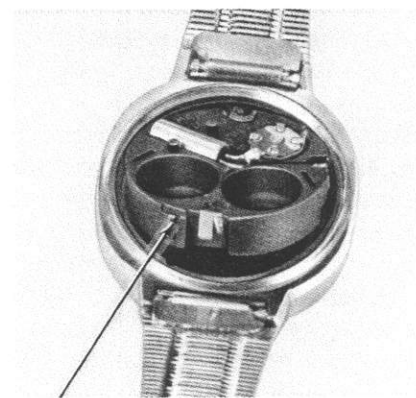
Note which cell is "plus side up" and "plus side down." Instructions are printed in each cell compartment but may be partially obscured by the cell leads.

It is not necessary to have the case back in any special position to close the case. The cell connector on the inside of the case back is a circular ring — it will make proper contact regardless of the position of the case back. Before replacing and tightening the case back, be sure the circular gasket in the case is properly seated.

Module Interchangeability

With Touch/Command models, there is complete interchangeability with all models having the 801 module. Unlike other models which require Command buttons and reed switches to be matched perfectly, any 801 module will function in any Touch/Command model.

There are no screws to hold the module in the case. When the case back is removed, the module can be lifted out with a pair of tweezers.



Note that the module has a small T-shaped protrusion on its outer edge, just to the left of the contact spring at "6 o'clock" position. When replacing the module in the case, align this protrusion with the small groove in the comparable position on the inside of the case back. When you replace and tighten the case back, the module is properly seated in operating position.

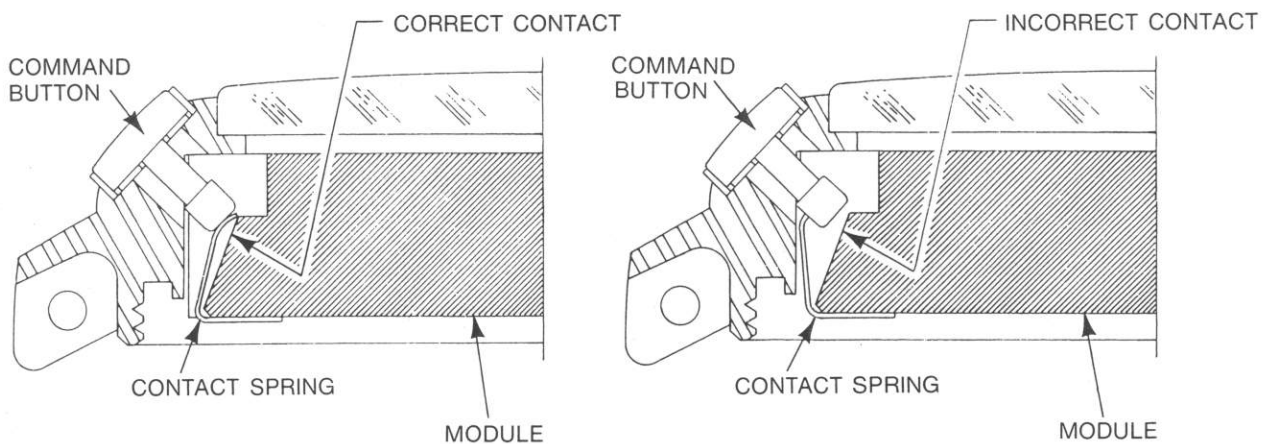
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IN STORE SERVICE

SERVICING TOUCH/COMMAND MODELS (CONT.)

When replacing the module in the case, be sure to keep it flat and straight, to insure proper contact spring position. The contact springs (at 6 and 12 o'clock positions on the module edge) must be kept **inside** the button posts, as shown below.

Note that when the case back has been removed and replaced, it will be necessary to re-set the time and/or date, as when changing energy cells.



TROUBLE SHOOTING

PROBLEM: Display comes on too easily.

SOLUTION: Anodized surface of command button(s) may be too sensitive. Return complete unit to your nearest Service Center for de-sensitizing.

PROBLEM: Display requires hard touch.

SOLUTION: Make sure customer does not have dry or calloused skin on finger tips — such conditions may impede proper capacitance. If this is not the case, return the complete unit to your nearest Service Center.

PROBLEM: One display will not light.

SOLUTION: Check position of contact springs by installing another module. If display activates, it may be that the spring on the first module needs adjustment to provide proper contact — as shown previously.

PROBLEM: Display lights intermittently (or stays lit constantly) without being touched.

SOLUTION: Contaminants may have become imbedded in seam between button(s) and case. Clean and dry buttons thoroughly. If problem persists, return complete unit to your nearest Service Center.

PROBLEM: Display is still dim when new cells have been installed.

SOLUTION: If the display appears dim when new cells are installed, activate the display about 15 or 20 times to "re-energize" the cells. The display brightness will increase.

PROBLEM: Cannot set time or date.

SOLUTION: Check Instruction Manual for proper setting procedure — Touch/Command models have a new and improved setting system. If problem persists, return complete unit to your nearest Service Center.

PROBLEM: Poor timekeeping.

SOLUTION: Timing can be adjusted with use of the Pulsar Analyzer. Install special cut-out case back provided by Lancaster Service Center and follow timing procedures in Pulsar Analyzer brochure.

PROBLEM: Scratched, chipped or broken data screen.

SOLUTION: Synthetic sapphire data screen is fully guaranteed by Pulsar. Return complete unit to your nearest Service Center for free replacement.