HP-27
Owner's Handbook
Addendum

This addendum contains updating information for the *HP-27 Owner's Handbook,* manual part number 00027-90001, printed January 1976.

Page 7. The description of the **9** prefix key should read "alternate function in black," not "blue."

Page 31, Planck's Constant Example. When you press **CHS**, the display should show 6.625   -00 .

Page 32. The display for **1** **SCI** 7 should read 0.0000000 00

Page 43, Last X Register. Add to the end of the first paragraph: LAST X remains unchanged and does not save x after executing $\sin^{-1}x$, $\cos^{-1}x$, and $\tan^{-1}x$ when x equals 0. For all other values, LAST X saves x.

Page 53, Extracting Roots. Change key sequence in first sentence from **1** **1/x** to **1** **√x** .

Page 56, Trigonometric Functions. Add the following: The $\sin^{-1}x$ function of six values of x, their corresponding negatives, and their corresponding values in grads and radians produce an answer which is inaccurate to an extent that could be excessive for some applications. The correct values for $\sin^{-1}x$ and the values returned on the HP-27 for the six arguments are:

x	$\sin^{-1}x$ Radians Correct to 10 Significant Digits	$\sin^{-1}x$ Radians on the HP-27
3×10^{-6}	3×10^{-6}	3.02×10^{-6}
4×10^{-6}	4×10^{-6}	4.10×10^{-6}
5×10^{-6}	5×10^{-6}	5.20×10^{-6}
6×10^{-6}	6×10^{-6}	6.40×10^{-6}
7×10^{-6}	7×10^{-6}	7.58×10^{-6}
8×10^{-6}	8×10^{-6}	8.92×10^{-6}

Page 58, Hours, Minutes, Seconds.
Change 173°45′12″ in sixth line to 137°45′12″.

Change Penelope's location in the Example to 15°55′S, 5°43′W.

Change distance formula to Distance = $\cos^{-1}$ [sin (LAT$_s$) sin (LAT$_d$) + cos (LAT$_s$) cos (LAT$_d$) cos (LNG$_d$ − LNG$_s$)] × 60.

Page 67. Because of a registration problem in some of the books, a number was effaced in the first example. The example should read:
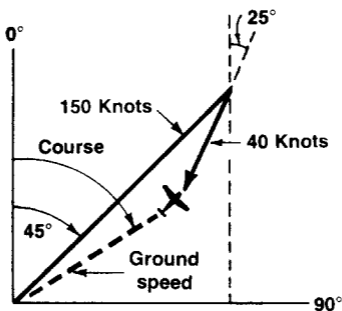
g [RESET]
2 [ENTER♦] 12 **×** **f** [n]   *24.00*   Number of months.

Continue on with the rest of the example as shown in your handbook.

Page 83, Vector Summations. The next to last sentence of the example should read: What is Sweeney's true course?

Page 84, Vector Summations.
Change figure as follows:

Change first sentence to: The true course and ground speed…

Page 85, Vector Summations. Change last comment to: True course of the Swordfish in degrees.

Page 95, Power Curve Fit. Change last formula to:
$$x = e^{[(\ln y - \ln a)/b]}$$

Page 96, Power Curve Fit.
Change formula in second line to: $\ln y = \ln a + b (\ln x)$.

Change key sequence in step 6 to $\boxed{f}$ $\boxed{\text{LN}}$ $\boxed{\hat{y}}$ $\boxed{g}$ $\boxed{e^x}$.

Change key sequence in step 7, line 1 to $\boxed{g}$ $\boxed{\text{L.R.}}$ .Change line 2 to $\boxed{f}$ $\boxed{\text{LN}}$ $\boxed{x \gtrless y}$ $\boxed{-}$ $\boxed{x \gtrless y}$ $\boxed{\div}$ $\boxed{g}$ $\boxed{e^x}$.

Page 101, t Statistic for Two Means. Change the formula for t to:
$$t = \frac{x - y - D}{\sqrt{\left(\dfrac{1}{n_1} + \dfrac{1}{n_2}\right)\dfrac{\Sigma x_i{}^2 - n_1 x^{-2} + \Sigma y_i{}^2 - n_2 y^{-2}}{n_1 + n_2 - 2}}}$$

Page 104, Analysis of Variance (One-Way). The Treat SS equation should read:

$$\text{Treat SS} = \sum_{i=1}^{k} n_i (x_i - x)^2 = \sum_{i=1}^{k} \frac{\left(\sum_{j=1}^{n_i} x_{ij} \right)^2}{n_i} - \frac{\left(\sum_{i=1}^{k} \sum_{j=1}^{n_i} x_{ij} \right)^2}{\sum_{i=1}^{k} n_i}$$

Page 119, Vector Dot Product. Delete the sample at the bottom of the page. The area of the parallelogram can be calculated by taking the vector *cross* product; i.e., $\overline{AB} \times \overline{AD} = (AB)\,(AD)\,\sin\theta$.

Page 123, Triangle Solution a, b, C. Change step 5 key sequence to [RCL] 1 [+] [f] [COS] [CHS] [9] [COS⁻¹].

Page 128, Triangle Solution B, b, c. Change first version of formula for A to $A = 2 \sin^{-1} 1 - (B + C)$.

Page 135, Rhumb Line Navigation. Change the ''6'' in the keystroke sequence in step 12 to ''60.''

Page 138, Great Circle Navigation. The keystroke sequence in step 4 should read: [9] [H↔] [STO] 3.

Page 140, Example. The first line of keystrokes at the top of the page should be: 1 [I] [→R] [STO] 5   *0.98*

Page 143, Example. In the figure, the northing and easting for station 4 should read:

$$\frac{766.836}{1105.477}$$

Page 146, Example. In the figure, the northing for station 3 should read: 356.529

Page 148, Inverse from Coordinates.

Change keystroke sequence in step 1 to: ∎ REG ∎ FIX 4.

Change first keystroke sequence in step 5 to ∎ LAST x x≷y 9 →P.

Page 185. Add to the end of the page. The following constraints apply to the IRR function.

1. The number of cash flows (n) must be 1 or more and may not exceed 10.
2. The sequence PV, cf_1, cf_2 ... cf_n may contain only *one* sign reversal. That is, if the first several cash flows are negative quantities, they may be followed by positive quantities only. You cannot intersperse positive and negative cash flows.
3. The loss or gain should not be extravagant, and the IRR must be greater than −100%. Extreme values will produce a meaningless answer or a continually blinking display.

Page 188. Delete the two paragraphs titled **Traveling with the HP-27**, delete the **CAUTION** note, and delete step 1 under **Charging the Battery.**

Page 191, Warranty. Change the **Full One-Year Warranty** paragraph to read as follows:

All Hewlett-Packard calculators and their accessories are warranted against defects in materials and workmanship for one (1) year from the date of delivery. During the warranty period Hewlett-Packard will repair or, at its option, replace at no charge components that prove to be defective, provided the calculator or accessory is returned, shipping prepaid, to Hewlett-Packard's Customer Service Facility. (Refer to Shipping Instruction.)

Warranty Information Toll-Free Number
800/648-4711 (In Nevada call collect 702/323-2704.)

Page 203. Storage register R_9 should be labelled Σxy:

$$\Sigma xy \quad 9$$
$$\boxed{600.00}$$

The value in register R_8 should be 8900.00

Page 204, Value Limits. Retain the first three paragraphs and replace the rest of the copy with the following:

The ⌈N.D.⌉ function is designed to copy with all realistic statistical applications. All calculations are accurate to $\pm 1 \times 10^{-7}$. However, if large input values are used to calculate extremely small tail areas, the function will produce answers accurate to two significant digits.

Extreme input values should not be used for all financial calculations. For example, do not use negative interest rates close to -100% or extremely small interest rates within $\pm 0.000001\%$.

Interative solutions for $\boxed{i}$ and $\boxed{\text{IRR}}$ are accurate to $\pm0.0001\%$ for small interest rates and to six significant digits for large interest rates. If the input value limits are not met, your HP-27 will try but may fail to find a solution in one of several ways. For example, you could so choose a combination of investment and cash flows or a combination of $\boxed{\text{PMT}}$, $\boxed{\text{PV}}$ and $\boxed{\text{FV}}$ such that the problem has no real solution, or it may have more than one solution. Your HP-27 may signal $\boxed{\textit{ERROR}}$; it may display one of several possible solutions; it may display what is "almost" a solution; or it may search interminably until it is turned off. In any case, you can easily verify the answer in two ways. You can calculate the $\boxed{\text{NPV}}$ for the IRR that is displayed and see if NPV is close to 0, or you can solve for $\boxed{\text{PMT}}$ or $\boxed{\text{n}}$ using the displayed interest rate and see if it agrees with the original inputs.

Page 208, Depreciation. Change depreciation formula for year k to

$$DEP_k = RBV_{k-1} \times \frac{F}{L}$$

Back of book, HP-27 Warranty Card. Your calculator is now automatically covered by the full, one-year warranty. Even though the Warranty Card is no longer required for the purpose of warranty registration, the information on the card allows us to design and distribute our products to serve the needs of our customers. We would, therefore, appreciate you taking the time to fill out and mail the card to us.