

# **648C User's Guide**

**LoanMaker<sup>®</sup>**

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User's Guide and Software

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## Description

The 648C calculator computes and discloses installment, installment-balloon, and single-payment loans. Credit-life and accident-&-health insurance, if desired, can be computed on any type of loan.

The 648C also computes Truth-in-Savings Annual Percentage Yields and interest earned for time accounts and converts an interest rate to an A.P.Y. and vice versa.

The APR routine will compute the Annual Percentage Rate for simple or complex installment loans with several payment changes. The routine is designed as a compliance tool to verify the A.P.R. for nearly any type of installment loan.

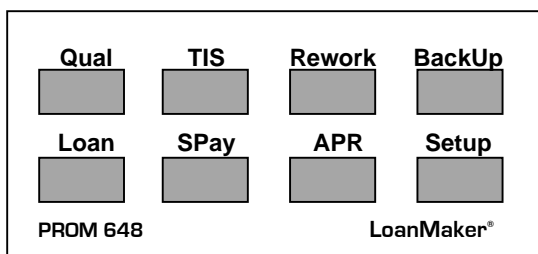
The Qualification routine determines the maximum loan amount a borrower can qualify for based on his or her income, current debt service, and total debt service ratio percentage.

The 648C can calculate installment loans with any of several payment frequencies, and can calculate monthly loans with or without a balloon payment. The regular payment and balloon can be calculated, or the regular payment specified and the balloon computed.

The user can select either an actual calendar or "federal" calendar to measure the length of the first period for both the interest accrual and A.P.R. calculations. Subsequent payments are assumed to be made at regular intervals, i.e., weekly payments every seven days, monthly payments each month, quarterly payments every three months, and so forth. Payment intervals after the first are all assumed to be of uniform length, e.g., 1/12th of a year for monthly payments, 1/52nd of a year for weekly payments, once a year for annual payments, and so forth.

Interest can be calculated by the "simple" method using the actual calendar for the first period or by the actuarial method using the "federal" calendar.

The calculator features a [Backup] function key which allows you to back up in the prompting routine to correct an entry, and to back up in the disclosure section to review an item. The [Rework] function key allows you to review all your entries and the computed results of the last calculation.



In response to a prompt, enter a value and push [ENTER]. Incorrect entries may be cleared by pushing the red [C-CE] key unless you have already pushed [ENTER], in which case you should use the [Backup] key. You can also use the [Rework] key to start over.

## Computed Payment & Balloon Routine [Loan] & [Rework] Function Keys

<u>Prompt</u>	<u>User Response</u>
PMT/BALL 1/2?_	Enter a "1" to run this routine.
LOAN xxxxxx.xx?_	Enter the loan amount.
FEES xxx.xx?_	Enter any financed fees.
PPD CHG xxx.xx?_	Enter the prepaid charge. <sup>1</sup>
RATE xx.xxx%?_	Enter the interest rate as a percentage.
FREQ xx?_	Enter the appropriate payment frequency. <sup>2</sup>
AMORT TERM xxx?_	Enter the amortization term in months.
# OF PMTS xxx?_	For a regular, fully amortizing loan enter a 0 here. For balloon loans, enter the number of months to the balloon payment. <sup>3</sup>
LDATE <i>mmddy</i> ?_	Enter the correct loan date. Enter the date in the mmddy format, e.g., November 3, 1998, as 110398.
FD/DYS?_	Enter either the date of the first payment or the number of days to the first payment. <sup>4</sup>
SS LIFE 1?_	Enter the life insurance code (ss is the state abbrev) (1: single, 2: joint, and 0: none).
A&H 1?_	Enter the A&H insurance code (1: single, and 0: none).

The computed payment<sup>5</sup> will appear in the display. To disclose the loan, continue to push [ENTER]. To change any of the loan parameters either push the

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<sup>1</sup> This feature may need to be enabled. See the 648C LoanMaker Setup Guide. To finance the prepaid charge, enter it with a leading "-" sign, e.g., enter "-50" to finance a \$50 prepaid charge.

<sup>2</sup> Allowed entries are 1, 2, 4, 12, 26 & 52 representing annual, semi-annual, quarterly, monthly, biweekly and weekly payments.

<sup>3</sup> This prompt only appears for monthly loans.

<sup>4</sup> To compute a loan with exactly one unit period to the first payment, enter a 0 here.

[Backup] or [Rework] key. To start the routine again (or another routine), press the appropriate key.

APR	xx.xx%
FIN CG	xxxxxx.xx
AMT F	xxxxxx.xx
TOT P	xxxxxx.xx
PPD CHG	xxxx.xx
xxx PT@	xxxxx.xx
(frequency)	
1 PMT@	xxxxxx.xx
LOAN ON	mm/dd/yy
1ST ON	mm/dd/yy
(days to first)	
NOTE	xxxxxx.xx
PPD CHG	-xxx.xx
PRCDS	xxxxx.xx
FEES	xxx.xx
D-LP x	xxxx.xx
L-LP	xxxx.xx
A&H x	xxxx.xx
xx INS/DAY	x.xx
AM=xxx	xx.xxx%
L BEN	xxxxx.xx

Fed Box.

Appears if enabled.

Payment schedule.

Balloon payment

Loan date.

First payment due date.

Days or unit periods & days to first.<sup>6</sup>

Note amount.

Prepaid charge.

Proceeds.

Fees.

Credit-life code & premium.

Level life premium (if applicable).

A&H premium.

Insurance cost per day.

Amortization & interest rate.<sup>7</sup>

Original amount of life insurance.

Continue to press [ENTER] to review the disclosure; press the [Backup] key to back up in the disclosure; press the appropriate key to start a routine. If you wish to use a printer, see Enabling the Printer on page 13.

<sup>5</sup> The calculated payment is truncated to the lower whole cent.

<sup>6</sup> If an actual calendar is selected for the first period, the number of days in the first period is shown; if the "Federal" calendar is used, the number of unit periods and odd days are shown.

<sup>7</sup> In the fixed payment/computed balloon routine, "AM" is 0.

## Fixed Payment/Computed Balloon Routine [Loan] & [Rework] Function Keys

This routine computes the final balloon payment based on an entered loan amount and monthly payment amount.

<u>Prompt</u>	<u>User Response</u>
PMT/BALL 1/2?_	Enter a "2" to run this routine.
LOAN xxxxxx.xx?_	Enter the loan amount.
PMT xxxxx.xx?_	Enter the monthly payment amount.
FEES xxx.xx?_	Enter any financed fees.
PPD CHG xxx.xx?_	Enter the prepaid charge. <sup>1</sup>
RATE xx.xxx%?_	Enter the interest rate as a percentage.
# OF PMTS xxx?_	Enter the term to the balloon payment. This is the total number of payments to be made, including the balloon payment.
LDATE <i>mmddy</i> ?_	Enter the correct loan date. Enter the date in the <i>mmddy</i> format, e.g., November 3, 1998, as 110398.
FD/DYS?_	Enter either the date of the first payment or the number of days to the first payment. <sup>8</sup>
SS LIFE 1?_	Enter the life insurance code (ss is state abbrev.) (1: single, 2: joint, and 0: none).
A&H 1?_	Enter the A&H insurance code (1: single, and 0: none).

The entered monthly payment will appear in the display. To disclose the loan, continue to push [ENTER]. To change any of the loan parameters either push the [Backup] or [Rework] key. To start the routine again (or another routine), press the appropriate key.

If the computed balloon payment is less than 1/2 the entered monthly payment or less than \$10, the message "BALLOON < \$xx" will appear. You need to reduce the number of monthly payments or the payment amount.

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<sup>8</sup> To compute a loan with exactly one unit period to the first payment, enter a 0 here.

If the computed balloon is greater than twice the entered loan amount, the message "BALLOON TOO BIG!" will appear. Increase the monthly payment and/or increase the number of monthly payments to correct the problem.

## Single-Payment Loan - [S Pay] Function Key

The Single-Payment Loan routine calculates loans which call for the principal and interest to be paid as one payment at some point in the future.

<u>Prompt</u>	<u>User Response</u>
LOAN   xxxxxx.xx?_	Enter the loan amount.
PPD CHG xxx.xx?_	Enter the prepaid charge. <sup>1</sup>
RATE xx.xxx%?_	Enter the interest rate as a percentage.
LDATE <i>mmddy</i> ?_	Enter the correct loan date. Enter the date in the <i>mmddy</i> format, e.g., November 3, 1998, as 110398.
FD/DYS?_	Enter either the date of the first payment or the number of days to the first payment. <sup>4</sup>
ss LIFE 1?_	Enter the life insurance code (1: single, 2: joint, and 0: none).

The calculator will compute the loan and start the disclosure. Continue to push [ENTER] to disclose the loan. To change an entry push the [Backup] or [Rework] function key.

APR	xx.xx%	Fed Box.
FIN CG	xxxxxx.xx	
AMT F	xxxxxx.xx	
TOT P	xxxxxx.xx	
LOAN	xxxxx.xx	
PPD CHG	xxxx.xx	
LIFE x	xxx.xx	Credit life premium.
LOAN ON	mm/dd/yy	Loan date.
PMT DUE	mm/dd/yy	Due date.
DAYS TO PMT	xxxx	Term of loan in days.

## Compute APR Routine - [APR] Function Key

This routine will compute the annual percentage rate of a simple or complex installment loan or mortgage. The user enters the amount financed, loan date, first payment due date, and the number and amount of the payments in the payment stream. Up to 20 levels of payments can be entered.

- AF xxxxxxx.xx?\_ Enter the correct amount financed.
- FREQ xx? Enter the appropriate payment frequency.<sup>2</sup>
- LDATE *mmdyy*?\_ Enter the loan date in the format *mmdyy*, e.g., "030899" for March 8, 1999.
- FDATE?\_ Enter the date the first payment is due in the same *mmdyy* format.
- # PMTS?\_ Enter the number of payments to be made at the first payment amount.
- xxx@ xxxxx.xx?\_ Enter the correct payment amount. (Payment amounts can be \$0.00 to represent skipped payments.)
- # PMTS?\_ Enter the correct number of payments to be made at the second level.
- For a final balloon payment, enter "1" as the number of payments and enter the balloon amount at the next prompt.
- To end the stream of payments, enter a "0" as the number of payments.
- xx@ xxxxx.xx?\_ Enter the correct payment amount.

Continue to enter all the streams of payments and then enter a "0" in response to the "# PMTS?" prompt to terminate the entry of payment streams. The estimated APR will appear in the display while the actual APR is being computed.

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APR	xx.xxx%	Computed A.P.R.
FC:	xxxxxx.xx	Finance charge.
AF:	xxxxxx.xx	Amount financed.
TP:	xxxxxx.xx	Total of payments.
(first period)		Length of first period. <sup>6</sup>
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## Truth-in-Savings Routine - [TIS] Function Key

These routines perform two Truth-in-Savings functions. The first converts interest rates to an APY (Annual Percentage Yield) and vice versa, and the second computes the interest amount and APY.

### Prompt

### User Response

APY/INT 1/2?\_

Enter "1" to convert rates, or "2" to compute the interest earned.

## Converting Interest Rates

Use this routine to convert from an interest rate to the equivalent annual percentage yield or vice versa. To compute the APY from the interest earned, see Find APY and Interest Paid below.

RATE xx.xx%?\_

Enter the interest rate percentage. To compute the interest rate from the APY, enter a 0.

APY xx.xx%\_

Enter the APY.

COMP FREQ 365?\_

Enter the correct compounding frequency.<sup>9</sup>

The annual percentage yield or interest rate will be computed.

APY	xx.xx%
RATE	xx.xx%

Computed annual percentage yield.<sup>10</sup>

Computed interest rate.

For example, an interest rate of 5.25% compounded daily (365 times a year) converts to an annual percentage yield of 5.39% (5.3899%). If the interest rate is compounded weekly (52 times a year) instead of daily, the equivalent annual percentage yield is 5.39% (5.3875%).

If an annual percentage yield is advertised as 5.80% with monthly compounding (12 times a year), the equivalent interest rate is 5.65% (5.6513%).

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<sup>9</sup> Allowed compounding frequencies are 1, 2, 4, 6, 12, 13, 24, 26, 52, 365 & 366.

<sup>10</sup> To compute the Annual Percentage Yield to four decimal places, push the [Setup] function key and enter a "4". To change the precision back to two places, push the [Setup] function key and enter a "2".

## Find APY and Interest Paid

This routine computes the annual percentage yield for a deposit based on the amount of interest earned over a specified period and the interest to be paid based on the interest rate or annual percentage yield. For account disclosures, this routine can be used to compute the annual percentage yield.

<u>Prompt</u>	<u>User Response</u>
PRIN?_	Enter the deposit amount. (Minimum is \$25.00 -- it is suggested that you use 10,000 for account disclosures.)
# DAYS?_	Enter the number of days the amount is on deposit.
RATE xx.xx%?_	Enter the interest rate percentage. To compute the APR from an interest amount paid, enter a 0.
COMP FREQ 365?_	(Appears only if an interest rate was entered.) Enter the compounding frequency. <sup>11</sup>
INT PD xxxxx.xx?_	(Appears only if a 0 was entered at the RATE prompt above.) If the amount of interest paid is correct, push [ENTER], otherwise enter the correct amount of interest paid.

INT \$        xxxxx.xx	Computed or known interest amount
ddddD APY    xxx.xx%	Number of days and APY. <sup>10</sup>

For example, if an institution pays an interest rate of 5.77% compounded monthly (12 times per year) on a \$6500.00 deposit over a period of 91 days, the interest that should be paid is \$93.95 and the annual percentage yield is 5.92% (5.9248%).

As another example, if an institution pays an interest rate of 5.00% which is not compounded (use a compounding frequency of 0) on a \$10,000 deposit over a period of 181 days, the interest to be paid is \$247.95 and the annual percentage yield 5.06% (5.0631%).

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<sup>11</sup> Allowed compounding frequencies are 1, 2, 4, 6, 12, 13, 24, 26, 52, 365 & 366. To calculate interest without any compounding, enter a 0.

## Qualify Routine (Find Loan Amount) - [Qual] Function Key

This routine can be used to qualify a borrower by calculating the maximum amount that can be borrowed based on his or her income, existing debt service, and desired debt service ratio percentage.

<u>Prompt</u>	<u>User Response</u>
INC/MO?_	Enter the correct monthly income.  To skip the maximum payment calculation and enter the payment amount directly, enter a 0 here and push [ENTER].
MTGE/MO?_	Enter the monthly mortgage payment.
TAX/YR?_	Enter the annual property taxes and insurance premiums.
UTIL/YR?_	Enter the annual utilities amount.
OTHER/MO?_	Enter any other monthly debt service payments for existing loans that will continue after the new loan is issued.
TDSR xx%?_	If the total debt service percentage shown is correct, push [ENTER], otherwise enter the correct percentage.

*The maximum available monthly payment will now be calculated using the TDSR percentage. The payment displayed is the largest the borrower can afford without exceeding the specified TDSR debt service percentage.*

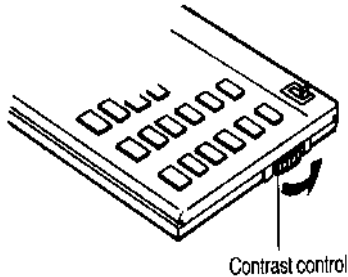
PMT xxxx.xx?_	If the payment shown is correct, push [ENTER], otherwise enter the desired monthly payment. (If the payment is less than \$1.00, the routine will end.)
RATE %?_	Enter the qualifying interest rate.
TERM?_	Enter the desired qualifying term in months.

PRIN	xxxxxx.xx
xxx PT@	xxxx.xx

Principal amount, rounded to nearest \$100.  
# of payments and payment amount.

## Battery Replacement & Maintenance

### Adjusting the Display Contrast



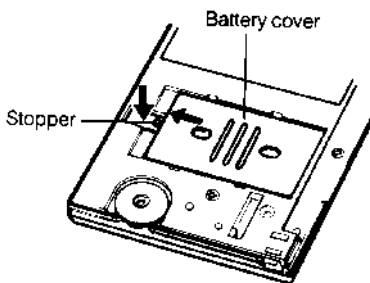
The calculator is equipped with a control to adjust the contrast of the LCD (liquid crystal display). While looking at the display from a position about 70 degrees above the keyboard, first increase the contrast until black squares are clearly visible behind the characters and then decrease the contrast slowly until the squares just disappear.

If the display contrast becomes too dim, the batteries should be replaced.

### Battery Replacement

To replace the batteries, you should first have replacement batteries at hand. Two lithium type CR2032 batteries and a small screwdriver are required.

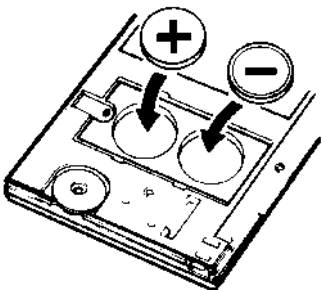
1) Make sure the calculator is turned off. Place the calculator face down on a table with the contrast control in the upper left-hand corner (the writing on the back of the calculator will be right side up).



2) Remove the Software Cartridge from the calculator.

3) Using a small screwdriver, remove the two screws holding the back. While lifting the edge of the calculator's back cover closest to you, slide it up to remove it.

4) Slide the silver-colored battery compartment cover upwards to open the compartment; remove the cover. The batteries are now disconnected; remove and discard them.

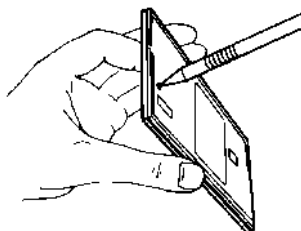


5) Install the new batteries, making sure the polarity (+ and -) is correct, and replace the battery compartment cover. (Make sure to replace the battery compartment cover--the batteries are not connected unless the battery compartment cover is in place.) Replace the back of the calculator by first hooking the 3 tabs on the top and then lowering the edge closest to you so you can replace the 2 screws.

6) Replace the Software Cartridge in the calculator. If it has been out of the calculator for more than about 5 minutes, you will have to initialize it. See below.

## Initializing the Software Cartridge

After replacing the batteries or if you remove the Software Cartridge from the calculator, you may need to initialize the Software Cartridge with the following steps. Software Cartridges have a label on the back side (the side that faces the calculator) which has instructions similar to the following.)



1) Install the Software Cartridge in the calculator. With a pencil or straightened paper clip and the calculator ON, push the "ALL RESET" button on the left side of the back of the calculator. You should see 4 stars in the display (2 on the left, 2 on the right). (On some calculators, there may be a white label over the "ALL RESET" button. If so, gently lift up the lower left corner to reveal it)

2) Push [ENTER]. You should now see a single star at the right edge of the display.

3) Turn the calculator off, wait a few seconds, and then turn it back on. You should see "0." in the display. The calculator is now ready to be configured.

4) Push the [Setup] key. You should see "CONFIGURING. . ." or "INITIALIZING. . ." appear for a moment and then, after several seconds, the calculator will require Setup information. See the 648C LoanMaker Setup Guide for detailed information.

## Year 2000 Compliant

The date routines in this program will correctly calculate dates for the Year 2000 and beyond. Dates are entered in a 'mmddy' format using 6 digits, with the last two 2 digits reserved for the year. The span of dates that can be entered is from '010150' through '123149' (January 1<sup>st</sup>, 1950 through December 31<sup>st</sup>, 2049). Thus a date entry of 010100 represents January 1, 2000.

Calculated dates are displayed in the same 'mmddy' format with the last two digits representing the last two digits of the year.

## Enabling the Printer

CODE?\_

Push the [Setup] function key and enter the code number 9911.

PRINTER Y

The printer is enabled. Enter the code number again to disable the printer.

**Notes:**

**Notes:**

## Installing Your Name in the LoanMaker

You can install your name (or an identification number, telephone number, or other message) in the LoanMaker Calculator. Once installed, your name will appear briefly each time you start a routine.

To install your name, push the [Setup] key and enter a code of 726 in response to the "CODE?\_" prompt. The message "INSTALL NAME" will appear briefly, followed by a single question mark, "?\_".

To enter a character (letter, number, or symbol), enter the appropriate code number from the table below and push [ENTER]. The character will appear in the display followed by a question mark. Enter the code number for the next character and push [ENTER] again. Continue entering code numbers for all the characters you wish to enter, and then push [ENTER] when you're done. If you make a mistake, push the [Backup] key to erase the last character.

You can enter up to 16 characters. The first character must not be a space (code 27), however, spaces can be used in any other position.

For example, to enter the name "LARRY 555-1234", enter the code numbers 12, 1, 18, 18, 25, 27, 35, 35, 35, 28, 31, 32, 33, 34.

To remove a name without installing a new one, start the Install Name routine and just push [ENTER] when the "?\_" prompt appears.

### Character Code Table

A	1	P	16	1	31	(	46
B	2	Q	17	2	32	)	47
C	3	R	18	3	33	+	48
D	4	S	19	4	34	,	49
E	5	T	20	5	35	.	50
F	6	U	21	6	36	/	51
G	7	V	22	7	37	:	52
H	8	W	23	8	38	;	53
I	9	X	24	9	39	<	54
J	10	Y	25	!	40	=	55
K	11	Z	26	"	41	>	56
L	12	(space)	27	#	42	?	57
M	13	-	28	\$	43	@	58
N	14	*	29	%	44		
O	15	0	30	&	45		