

**OPERATING
INSTRUCTION
MANUAL**

**Model 420
440**



ELECTRONIC CALCULATOR

FEATURES

- Fast, quiet printing up to 12 digits plus decimal point, and two symbols; display 12 digits plus one symbol.
- Independent, addressable 6 key memory
- Automatic constants in all four functions
- Percent add on/discount (separate register)
- Punctuation (separation of numbers)
- Add-mode with over-ride
- One touch grand total operation
- Bright easy to read display
- Double Item Counter, counts up to 999 entries
- Non Print
- Roll-over keyboard with 8 digit Buffer Register
- Paper release

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|--|---------------------------|----------------------------|
| 1. Paper Release | 11. Clear Entry Key | 22. Memory Total Key |
| 2. Round Off Selector | 12. Numeral Keys | 23. Memory Sub-Total Key |
| 3. Decimal Selector | 13. Decimal Key | 24. Memory Minus Equal Key |
| 4. Memory Light | 14. Addition Key | 25. Memory Plus Equal Key |
| 5. Negative Indicator | 15. Subtraction Key | 26. Equal Plus Key |
| 6. Overflow Indicator | 16. Total Key | 27. Division Key |
| 7. Feed Key | 17. Non Add/Sub-Total Key | 28. Multiplication Key |
| 8. Item Counter Key
(420 only)
Grand Total Key
(440 only) | 18. Memory Minus Key | 29. Equal Key |
| 9. Clear All Key | 19. Non Print Key | 30. Memory Plus Key |
| 10. Clear Key | 20. Percentage Key | |
| | 21. Print Key | |

SPECIFICATIONS

1. CAPACITY:

Entry	12 digits
Addition and Subtraction	12 digits
Multiplication:	
Multiplier	12 digits
Multiplicand	12 digits
Product	12 digits
Division:	
Divisor	12 digits
Dividend	12 digits
Quotient	12 digits
Accumulator	12 digits
Maximum Decimals	12 digits

2. PRINTING:

Number of print characters:	
(12 numerals, 1 decimal point and 2 symbols)	
Speed: 2.5 lines per second	
Paper: Standard roll paper	
Width	2 1/4"
Diameter	2 3/4"
Ribbon: 2-color (Black and Red)	
Width	1/2"
Length	216"
Ribbon Spool	Standard Type

3. COMPONENTS:

LSI

4. VOLTAGE:

AC 117V 50/60HZ

5. POWER CONSUMPTION:

18W

6. SERVICE TEMPERATURE:

32.0 F - 104.0°F

7. DIMENSIONS:

9- 1/8"(W)× 14.0"(L)× 3-3/8(H)

8. WEIGHT:

7 lbs.

KEY EXPLANATION

1. DECIMAL SELECTOR

Settings F, A, 0, 1, 2, 3, 4, 6

F, Floating Decimal, will calculate all decimals in the answer.

A, Add Mode, setting used for addition and subtraction.

0, 1, 2, 3, 4, 6 setting determines the number of decimals in the answer only.

2. ROUND OFF SELECTOR

↓ 5/4 ↑

↓ Truncate or drop off, 5/4 Round Off 5 or more, ↑ Round Up 1 or more.

3.

Advances paper.

4. ITEM COUNTER (420 only)

Recalls number in the item counter register (add register and =+ register).

5. NON-PRINT (Latch Down)

Turns off print mechanism.

6. PRINT KEY

Prints only the last number when depressed.

7.

Clears entire machine.

8. CLEAR KEY

Clears \times and \div function only.

9. CLEAR ENTRY

Clears keyboard entry not function \times or \div .

10. 0 . . . 9 numeral keys.

11. DECIMAL POINT KEY

Enters decimal point.

12. ADDITION KEY

13. MINUS KEY

14. TOTAL KEY

Totals result of addition and subtraction.

15. $\diamond/\#$
This key has dual function, when depressed immediately after number is indexed acts as non-add, when depressed after $+$ or $-$ acts as subtotal.
16. $\boxed{\times}$ MULTIPLICATION KEY
Sets up multiplication and holds multiplier as constant.
17. $\boxed{\div}$ DIVISION KEY
Sets up division and holds divisor as constant.
18. $\boxed{=}$ Calculates result of multiplication and division.
19. $\boxed{\%}$ PERCENTAGE KEY (See examples)
20. $\boxed{=+}$ EQUAL PLUS
Calculates results of multiplication and division and automatically accumulates result in add register.
21. $\boxed{M+}$ MEMORY PLUS EQUALS
Automatically calculates results of multiplication and division and adds results in memory.
22. $\boxed{M-}$ MEMORY MINUS EQUALS
Automatically calculates results of multiplication and division and subtracts results from memory.
23. $\boxed{M\Diamond}$ MEMORY SUBTOTAL
24. $\boxed{M*}$ MEMORY TOTAL
25. $\boxed{M+}$ MEMORY PLUS
Adds directly to memory.
26. $\boxed{M-}$ MEMORY MINUS
Subtracts directly from memory
27. \boxed{GT} Prints contents of Grand Total Register, Item Counter of GT Register, Item Counter of GT Register and clears (440 only).
28. M LIGHT IN DISPLAY PANEL
29. \leftarrow OVERFLOW LIGHT IN DISPLAY PANEL
30. $-$ NEGATIVE LIGHT IN DISPLAY PANEL

RIBBON CHANGE

1. Inked Ribbon should be good quality and high density inked ribbon.
2. Inked Ribbon should be set as shown in figures one (1) and (2). Spools should latch in place.
3. If Ribbon is loose, turn spool until ribbon is taut.

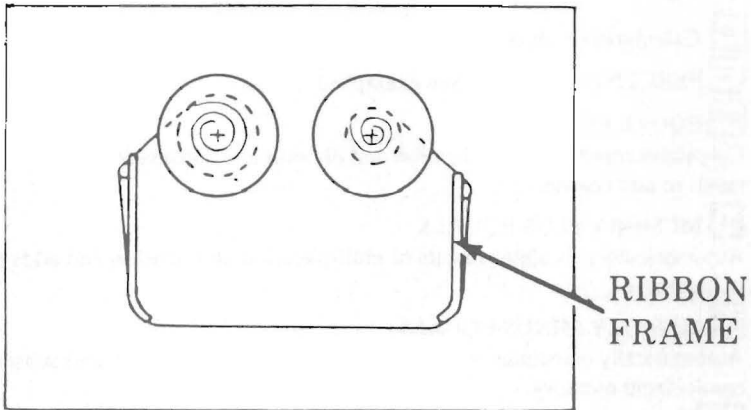


FIG. (1)

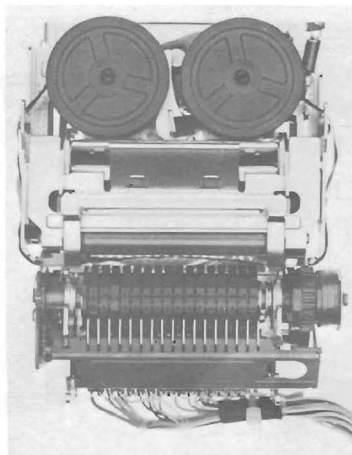
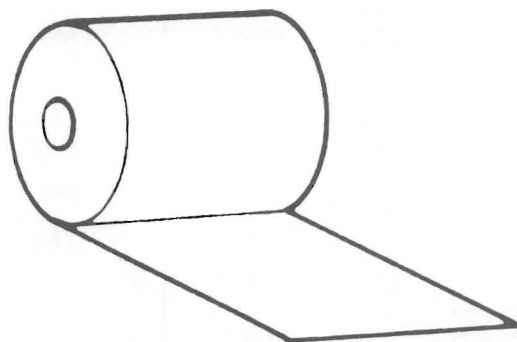


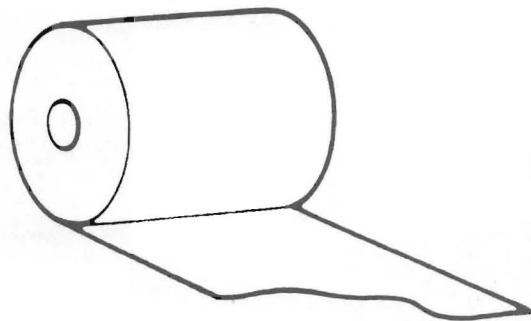
FIG. (2)

PAPER CHANGE

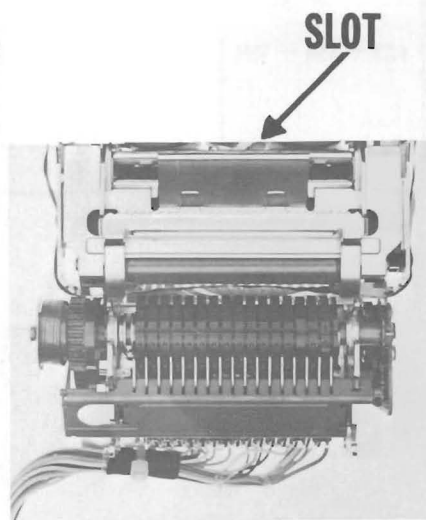
1. Before loading paper roll, be certain the end that is to be inserted into the machine is not torn or irregular.
2. Mount Paper roll on Paper Holder. Insert paper into the slot and depress **FEED** Key until paper extends beyond tear off blade.



CORRECT



INCORRECT



OPERATING EXAMPLES

Addition and Subtraction

Problem	Switches	Entry	Depress	Tape	Display
123 + 456 + 789	Decimal A. 5/4	<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/>	<input type="text" value="+"/>	1.23 +	1.23
		<input type="text" value="4"/> <input type="text" value="5"/> <input type="text" value="6"/>	<input type="text" value="+"/>	4.56 +	5.79
		<input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="9"/>	<input type="text" value="+"/>	7.89 +	13.68
			<input type="text" value="*"/>	13.68 T	13.68
Repeat addition and subtraction	A. 5/4	<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/>	<input type="text" value="+"/>	1.23 +	1.23
			<input type="text" value="+"/>	1.23 +	2.46
			<input type="text" value="+"/>	1.23 +	3.69
			<input type="text" value="-"/>	1.23 - (red)	2.46
			<input type="text" value="*"/>	2.46 T	2.46
123 + 456 - 789	A. 5/4	<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="3"/>	<input type="text" value="+"/>	123 +	1.23
		<input type="text" value="4"/> <input type="text" value="5"/> <input type="text" value="6"/>	<input type="text" value="+"/>	4.56 +	5.79
		<input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="9"/>	<input type="text" value="-"/>	7.89 - (red)	-2.10
			<input type="text" value="*"/>	-2.10 T (red)	-2.10

Multiplication

Problem	Switches	Entry	Depress	Tape	Display
12×13	2, 5/4	<div>1 2</div> <div>1 3</div>	<div>×</div> <div>=</div>	12. × 13. $\frac{5}{4}$ 156.00*	12. 156.00
Chain multiplication $2 \times 3 \times 4$	2, 5/4	<div>2</div> <div>3</div> <div>4</div>	<div>×</div> <div>×</div> <div>=</div>	2. × 3. × 4 $\frac{5}{4}$ 24.00*	2 6 24.00
Constant multiplication 12×2	2, 5/4	<div>1 2</div> <div>2</div>	<div>×</div> <div>=</div>	12 × 2 $\frac{5}{4}$ 24.00*	12 24.00
12×3		<div>3</div>	<div>=</div>	3 $\frac{5}{4}$ 36.00*	3 36.00
12×4		<div>4</div>	<div>=</div>	4 $\frac{5}{4}$ 48.00*	4 48.00
12×5		<div>5</div>	<div>=</div>	5 $\frac{5}{4}$ 60.00*	5 60.00

Division

Problem	Switches	Entry	Depress	Tape	Display
144 \div 12	2, 5/4	1 4 4 1 2	\div =	144 \div 12 $\overline{) 144}$ 12.00*	144 12.00
Chain division 123 \div 5 \div 6	2, 5/4	1 2 3 5 6	\div \div =	123 \div 5 \div 6 $\overline{) 123.0}$ 4.10*	123. 24.6 4.10
Constant division 145 \div 12	2, 5/4	1 4 5 1 2	\div =	145 \div 12 $\overline{) 145.0}$ 12.08*	145 12.08
159 \div 12		1 5 9	=	159 $\overline{) 159.0}$ 13.25*	159 13.25
144 \div 12		1 4 4	=	144 $\overline{) 144.0}$ 12.00*	144 12.00

Mixed Calculation

Problem	Switches	Entry	Depress	Tape	Display
(123-23) \div 4 \times 5	2, 5/4	1 2 3	+	123.00 +	123.00
		2 3	-	23.00 - (red)	100.00
			*	100.00 T	100.00
			\div	100.00 \div	100.00
		4	\times	4 \times	25.00
		5	=	5 $\overline{) 125.0}$	125.00
				125.00*	125.00

Accumulation Calculation

Problem	Switches	Entry	Depress	Tape	Display
12×12	A. 5/4	<input type="text" value="1"/> <input type="text" value="2"/>	<input type="text" value="×"/>	12 ×	12
10×10		<input type="text" value="1"/> <input type="text" value="2"/>	<input type="text" value="÷"/>	12 ÷	
				144.00 +	144.00
$1.25 +$		<input type="text" value="1"/> <input type="text" value="0"/>	<input type="text" value="×"/>	10 ×	10
		<input type="text" value="1"/> <input type="text" value="0"/>	<input type="text" value="÷"/>	10 ÷	
				100.00 +	100.00
		<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="5"/>	<input type="text" value="+"/> <input type="text" value="×"/>	1.25 +	245.25
			<input type="text" value="×"/>	245.25 T	245.25

Percentage Calculation

Problem	Switches	Entry	Depress	Tape	Display
$100 \times 10\%$	2. 5/4	<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="×"/>	100 ×	100
		<input type="text" value="1"/> <input type="text" value="0"/>	<input type="text" value="%"/>	10 %	
				10.00*	10.00
$250 \div 25\%$	2. 5/4	<input type="text" value="2"/> <input type="text" value="5"/> <input type="text" value="0"/>	<input type="text" value="÷"/>	250 ÷	250
		<input type="text" value="2"/> <input type="text" value="5"/>	<input type="text" value="%"/>	1 000.00*	1000.00
Percent. Add on and Discount	2. 5/4	<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="5"/>	<input type="text" value="×"/>	125 ×	125
125. less 5%		<input type="text" value="5"/>	<input type="text" value="%"/>	5 %	
Discount plus				6.25*	6.25
6% Tax			<input type="text" value="−"/>	118.75 − %	118.75
			<input type="text" value="×"/>	118.75 ×	
		<input type="text" value="6"/>	<input type="text" value="%"/>	6. %	7.13
				7.13*	
			<input type="text" value="+"/> <input type="text" value="×"/>	125.88 + %	125.88

Memory Calculation

Problem	Switches	Entry	Depress	Tape	Display
6×5	2. 5/4	<div>6</div>	<div>×</div>	6 ×	6
4×8		<div>5</div>	<div>M⁺</div>	5 =	5
7×9				30.00+M	M 30.00
Total ?		<div>4</div>	<div>×</div>	4 ×	4
		<div>8</div>	<div>M⁺</div>	8 =	8
				32.00+M	32.00
		<div>7</div>	<div>×</div>	7 ×	7
		<div>9</div>	<div>M⁺</div>	9 =	9
				63.00+M	63.00
			<div>M*</div>	125.00*M	125.00
Memory Calc. with Constant	2. 5/4				
12×1.25		<div>1</div> <div>2</div>	<div>×</div>	12 ×	12
12×4.25		<div>1</div> <div>.</div> <div>2</div> <div>5</div>	<div>M⁺</div>	1.25 =	
12×7.95				15.00+M	15.00
		<div>4</div> <div>.</div> <div>2</div> <div>5</div>	<div>M⁺</div>	4.25 =	
				51.00+M	51.00
		<div>7</div> <div>.</div> <div>9</div> <div>5</div>	<div>M⁺</div>	7.95 =	
			<div>M*</div>	95.40+M	95.40
				161.40*M	161.40
Addition and Subtraction into Memory	A. 5/4	<div>1</div> <div>2</div> <div>3</div>	<div>M⁺</div>	1.23+M	1.23
$123 - 456 + 789$		<div>4</div> <div>5</div> <div>6</div>	<div>M⁻</div>	4.56—M (red)	4.56
		<div>7</div> <div>8</div> <div>9</div>	<div>M⁺</div>	7.89+M	7.89
			<div>M*</div>	4.56	4.56

Invoicing

Problem	Switches	Entry	Depress	Tape	Display
12 Items @ 1.25	A, 5/4	1 2	\times	12 \times	12
24 Items @ 2.98		1 . 2 5	M_{\pm}^{+}	1.25 \equiv	1.25
5 Items @ 1.59				15.00+M	15.00
Total		2 4	\times	24 \times	24
Discount 2%		2 . 9 8	M_{\pm}^{+}	2.98 \equiv	2.98
Tax 5%				71.52+M	71.52
Total		5	\times	5 \times	5
		1 . 5 9	M_{\pm}^{+}	1.59 \equiv	1.59
				7.95+M	7.95
			M_{\pm}^{+}	94.47*M	94.47
			\times	94.47 \times	94.47
		2	$\%$	2 %	2
				1.89*	1.89
			$-$	92.58- %	92.58
			\times	92.58 \times	92.58
		5	$\%$	5 %	5
				4.63*	4.63*
			$+$	97.21+ %	97.21

Cross Footing

Example:

1.23	1.47
4.56	2.58
7.89	3.69
<u>13.68</u>	<u>7.74</u>
	Grand Total 21.42

Switches	Entry	Depress	Tape	Display
Decimal				
A. 5/4	<div>1 2 3</div> <div>4 5 6</div> <div>7 8 9</div>	<div>+</div> <div>+</div> <div>+</div> <div>*</div>	<div>1.23 +</div> <div>4.56 +</div> <div>7.89 +</div> <div>13.68 T</div>	<div>1.23</div> <div>5.79</div> <div>13.68</div> <div>13.68</div>
	<div>1 4 7</div> <div>2 5 8</div> <div>3 6 9</div>	<div>+</div> <div>+</div> <div>+</div> <div>*</div>	<div>1.47 +</div> <div>2.58 +</div> <div>3.68 +</div> <div>7.74 T</div>	<div>1.47</div> <div>4.05</div> <div>7.74</div> <div>7.74</div>
		GT	21.42 G	21.42

Percentage Distribution

What Percent is each number of the Total?

Example:	Amount	Percentage
	123.00	.09%
	456.00	.33%
	789.00	.58%
	<u>1368.00</u>	<u>1.00%</u>

Switches	Entry	Depress	Tape	Display
Decimal 2, 5/4	<div>123</div>	<div>÷</div>	123.÷	123.
		<div>+</div>	123.00 +	123.00
	<div>456</div>	<div>+</div>	456.00 +	579.00
	<div>789</div>	<div>+</div>	789.00 +	1368.00
		<div>*</div>	1 368.00 T	1368.00
		<div>=+</div>	1368 ÷	1368.00
			0.09 +	0.09
	<div>456</div>	<div>=+</div>	456 ÷	456
			0.33 +	0.33
	<div>789</div>	<div>=+</div>	789 ÷	789
			0.58 +	0.58
		<div>*</div>	1.00 T	1.00

Percent of Increase or Decrease

Example:	Sales 1974	Sales 1975	Increase	Percent Increase
	789,654.00	987,456.00	197,802.00	25.05

Switches	Entry	Depress	Tape	Display
Decimal 2, 5/4	<div>987456</div>	<div>+</div>	987 456.00 +	987456.00
	<div>789654</div>	<div>M+</div>	789 654.00 +M	789654.00
		<div>-</div>	789 654.00 _(red) -	197802.00
		<div>÷</div>	197 802.00 ÷	197802.00
		<div>M*</div>	789 654.00 *M	789654.00
		<div>%</div>	789 654. %	
			25.05 *	25.05
		<div>*</div>	197 802.00 T	197802.00

Payroll

Example:

Rate per hour	4.52
Overtime	1.1/2
Hours (Reg.)	40
Hours (O.T.)	8.3/4
Social Security	.0585 (factor)
State Tax	.025 (factor)
Income Tax	(See Income Tax Chart)
Hospitalization	6.50

Switches	Entry	Depress	Tape	Display
Decimal				
A, 5/4	4 . 5 2 (Rate)	\times	4.52 +	4.52
	4 0 (Hrs. Reg.)	$M_{\text{=}}$	40 =	
			180.80+M	180.80
	1 . 5 (O.T. Rate)	$=$	1.5 =	6.78
			6.78*	6.78
		\times	6.78 \times	6.78
	8 . 7 5 (O.T. Hrs.)	$M_{\text{=}}$	8.75 =	
			59.33+M	59.33
		M_{O}	240.13 \diamond M	240.13
		\times	240.13 \times	240.13
	. 0 5 8 5 (S.S.)	$=+$	0.0585 =	
			14.05 +	14.05
	. 0 2 5 (State Tax)	$=+$	0.025 =	
			6.00 +	6.00
	4 8 . 0 3 (Income Tax Chart)	$+$	48.03 +	68.08
	6 . 5 0 (Hospitalization)	$+$	6.50 +	74.58
		$*$	74.58T	74.58
		$M_{\text{-}}$	74.58-M (red)	74.58
		$M_{\text{*}}$	165.55*M	165.55

CORPORATE OFFICES

TCA INCORPORATED

**1701 SOUTH PENNSYLVANIA AVENUE
MORRISVILLE, PENNSYLVANIA 19067**



TCA

SERVICE CENTER LOCATIONS

You may contact any of these Service Centers to obtain the location of the nearest authorized TCA dealer.

NEW JERSEY

65 W. Sheffield Avenue
Englewood, New Jersey 07631
(201) 567-4990

GEORGIA

3955 Pleasantdale Road
Suite #108
Atlanta, Georgia 30340
(404) 449-6390

ILLINOIS

2510 Dempster
Suite #106
Des Plaines, Illinois 60018
(312) 298-4260

TEXAS

6350 LBJ Freeway
Registry, Suite #137
Dallas, Texas 75240
(214) 233-7215

CALIFORNIA

3605 W. MacArthur Boulevard
Suite #708-709
Santa Ana, California 92704
(714) 549-8172

PENNSYLVANIA

1701 So. Pennsylvania Avenue
Morrisville, Pennsylvania 19067
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