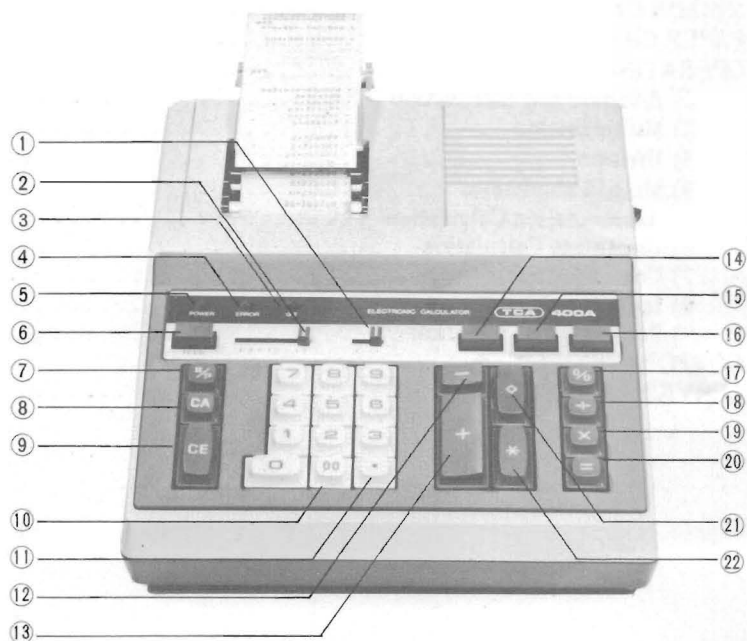# OPERATING INSTRUCTION MANUAL

Model 400A

TCA

ELECTRONIC CALCULATOR

FEATURES

- ○ Fast, quiet printing up to 12 digits plus decimal point and two symbols.
- ○ Automatic accumulation
- ○ Percent add on/discount
- ○ Comma punctuation
- ○ Add-mode with over-ride.
- ○ Item Counter, counts up to 999 entries
- ○ Roll-over keyboard with 8 digit Buffer Register
- ○ Double entry protection
- ○ Automatic Grand Total
- ○ Automatic constant in four function

CONTENTS

1. Round off Selector
2. Decimal Selector
3. Grand Total Indicator
4. Overflow Indicator
5. Power Indicator
6. Paper Advance Key
7. Non-Add/Print Key
8. Clear All Key
9. Clear Entry Key
10. Numeral Keys
11. Decimal Key
12. Subtraction Key
13. Addition Key
14. Equal Plus Key
15. Equal Minus Key
16. Grand Total Key
17. Percent Key
18. Division Key
19. Multiplication Key
20. Equals Key
21. Sub-total Key
22. Total Key

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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: 2.8 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:
13W

6. SERVICE TEMPERATURE:
32.0 F - 104.0° F

7. DIMENSIONS:
9-1/8"(W) x 14.0"(L) x 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, automatically enters dollars and cents punctuation in 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. **|FEED|**

   Advances paper

4. **#/p Non Add/Print Key**

   This key has a dual function when depressed immediately after a number is index it will print the number on the left side of the tape, if depressed during a chain calculation it will print the intermediate result.

5. **|CA| Clear Key**

   Clears entire machine

6. **|CE| Clear Entry**

   a) Clears keyboard entry.

   b) Clears double entry lock out.

7. **|0| ~ |9| numeral keys.**

8. **|·| Decimal Key**

   Enters decimal point.

9. **|+| Addition Key**

   Adds entries to addition register.

10. **|−| Subtraction Key**

    Subtracts entries from addition register.

11. **|✕| Total Key**

    Totals results of addition, subtraction and accumulation and adds totals to Grand Total register.

12. **|◇| Sub Total Key**

    Prints results of addition, subtraction and accumulation without clearing add register.

13. **|✕| Multiplication Key**

    Sets up multiplication and holds multiplier as constant.

14. **|÷| Division Key**

    Sets up division and holds divisor as constant.

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15. $=$ **Equals Key**
Calculates result of multiplication and division.
Depress to clear incorrect entry to multiply or divide.

16. $\%$ **Percent Key**
See examples.

17. $=+$ **Equal Plus Key**
Calculates results of multiplication and division and automatically adds results to the add register.

18. $=-$ **Equal Minus Key**
Calculates results of multiplication and division and automatically subtracts results from the add register.

19. ○ **Power Light**
Indicates when power is on.

20. ○ **Error Light**
Indicates overflow.

21. ○ **Grand Total Light**
Indicates figures are in Grand Total.

22. **GT** **Grand Total Key**
Totals results of Grand Total register.

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.
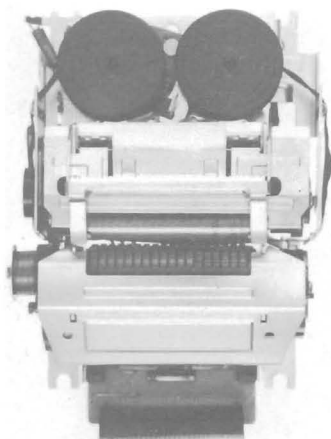3. If Ribbon is loose, turn spool until ribbon is taut.
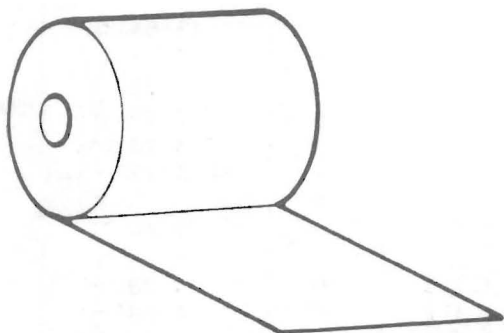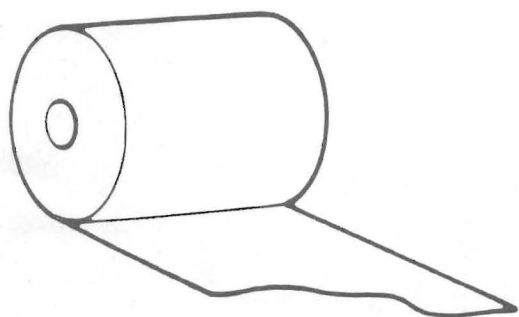

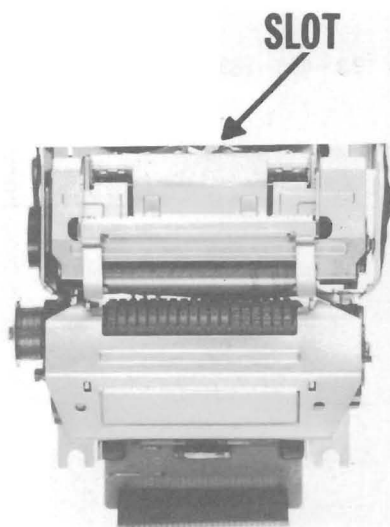RIBBON FRAME
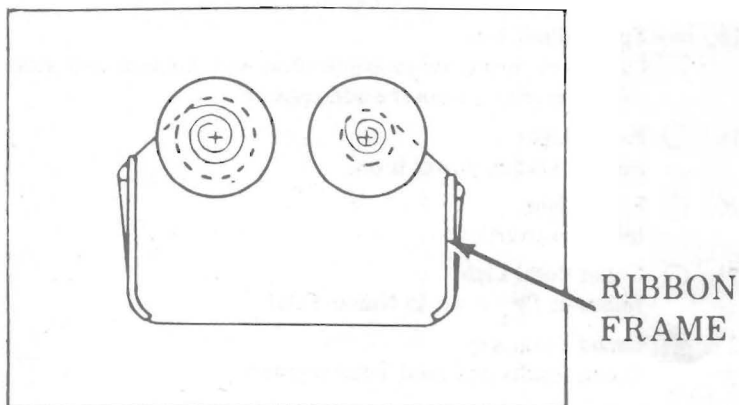
FIG. (1)

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

SLOT

INCORRECT

OPERATING EXAMPLES

Addition and Subtraction

Problem	Switches	Entry	Depress	Tape
123+456+789	Decimal A, 5/4	1 2 3	+	1·23 +
		4 5 6	+	4·56 +
		7 8 9	+	7·89 +
			✳	003
				13·68 ⊥
Repeat addition and subtraction	A, 5/4	1 2 3	+	1·23 +
			+	1·23 +
			+	1·23 +
			−	1·23 − (red)
			✳	004
				2·46 ⊥
123+456−789	A, 5/4	1 2 3	+	1·23 +
		4 5 6	+	4·56 +
		7 8 9	−	7·89 − (red)
			✳	003
				2·10 − ⊥ (red)

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Multiprication

Problem	Switches	Entry	Depress	Tape
12×13	Decimal 2, 5/4	1 2 1 3	✕ =	12·00 ✕ 13·00 = 156·00 ✳
Chain Multiplication 2×3×4	2, 5/4	2 3 4	✕ ✕ =	2·00 ✕ 3·00 ✕ 4·00 = 24·00 ✳
Constant Multiplication 12×2	2, 5/4	1 2 2	✕ =	12·00 ✕ 2·00 = 24·00 ✳
12×3		3	=	3·00 = 36·00 ✳
12×4		4	=	4·00 = 48·00 ✳
12×5		5	=	5·00 = 60·00 ✳

Division

Problem	Switches	Entry	Depress	Tape
144 ÷ 12	Decimal 2, 5/4	① ④ ④ ① ②	÷ =	144 · 00 ÷ 12 · 00 = 12 · 00 ✳
Chain Division 123 ÷ 5 ÷ 6	2, 5/4	① ② ③ ⑤ ⑥	÷ ÷ =	123 · 00 ÷ 5 · 00 ÷ 6 · 00 = 4 · 10 ✳
Constant Division 145 ÷ 12	2, 5/4	① ④ ⑤ ① ②	÷ =	145 · 00 ÷ 12 · 00 = 12 · 08 ✳
159 ÷ 12		① ⑤ ⑨	=	159 · 00 = 13 · 25 ✳
144 ÷ 12		① ④ ④	=	144 · 00 = 12 · 00 ✳

Mixed Calculation

Problem	Switches	Entry	Depress	Tape
(123 − 23) + (4 × 5)	Decimal 2, 5/4	① ② ③ ② ③ ④ ⑤	+ − × ⊞	123 · 00 + 23 · 00 − (red) 4 · 00 × 5 · 00 = 20 · 00 +
			✳	003 120 · 00 ⊥

Accumulation Calculation

Problem	Switches	Entry	Depress	Tape	
12×12	Decimal A, 5/4	1 2	× =+	12·00 12·00 144·00	× = +
10 × 10		1 0	× =+	10·00 10·00 100·00	× = +
1.25 +		1 2 5	+ ⋇	1·25 003 245·25	+ ⊤

Percentage Calculation

Problem	Switches	Entry	Depress	Tape	
100 ×10%	Decimal 2, 5/4	1 0 0 1 0	× %	100·00 10·00 10·00	× % ⋇
250 ÷ 25%	2, 5/4	2 5 0 2 5	÷ %	250·00 25·00 1,000·00	÷ % ⋇

Cross Footing

Example:

1.23	1.47	
4.56	2.58	
7.89	3.69	
13..68	7.74	Grand Total 21.42

Switches	Entry	Depress	Tape	
Decimal A, 5/4		CA		0 · C
	1 2 3	+		1 · 23 +
	4 5 6	+		4 · 56 +
	7 8 9	+		7 · 89 +
		✳	003	
				13 · 68 ⊥
	1 4 7	+		1 · 47 +
	2 5 8	+		2 · 58 +
	3 6 9	+		3 · 69 +
		✳	003	
				7 · 74 ⊥
		GT	002	
				21 · 42 GS
		GT	002	
				21 · 42 GT

Invoice

Problem	Switches	Entry	Depress	Tape
12 items @ 1.25 24 items @ 2.98 Total	Decimal A, 5/4	1 2 1 · 2 5	✕ =+	12·00 ✕ 1·25 = 15·00 +
Discount 2% Tax 5% Total		2 4 2 · 9 8	✕ =+	24·00 ✕ 2·98 = 71·52 +
			✳	002 86·52 ⌶
		2	✕ %	86·52 ✕ 2·00 % 1·73 ✳
			−	84·79 −%
		5	✕ %	84·79 ✕ 5·00 % 4·24 ✳
			+	89·03 +%

Percentage Distribution

What Percent is each number of the Total ?

Example:

Amount	Percentage
123.00	.09 %
456.00	.33 %
789.00	.58 %
1368.00	1.00 %

Switches	Entry	Depress	Tape
Decimal 2, 5/4	1 2 3	+	123 · 00 +
	4 5 6	+	456 · 00 +
	7 8 9	+	789 · 00 +
		✕	003
			1 , 368 · 00 ⊥
		÷	1 , 368 · 00 ÷
		=	1 , 368 · 00 =
			1 · 00 ✕
	1 2 3	=+	123 · 00 =
			0 · 09 +
	4 5 6	=+	456 · 00 =
			0 · 33 +
	7 8 9	=+	789 · 00 =
			0 · 58 +
		✕	003
			1 · 00 ⊥

CORPORATE OFFICES

TCA, INC.
1711 S. PENNSYLVANIA AVE.
MORRISVILLE, PA 19067

SERVICE CENTER LOCATIONS

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

CALIFORNIA
ESS, Inc.
Suite #708
3605 W. MacArthur Blvd.
Santa Ana, CA 92704
(714) 549-8172

GEORGIA
ESS, Inc.
Suite #345
7094 Peachtree Industrial Blvd.
Norcross, GA 30071
(404) 449-6390

NEW JERSEY
ESS, Inc.
65 W. Sheffield Ave.
Englewood, NJ 07631
(201) 567-4990

PENNSYLVANIA
ESS, Inc.
1711 S. Pennsylvania Ave.
Morrisville, PA 19067
(215) 736-1328

TEXAS
ESS, Inc.
Suite #192, The Registry
6350 LBJ Freeway
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