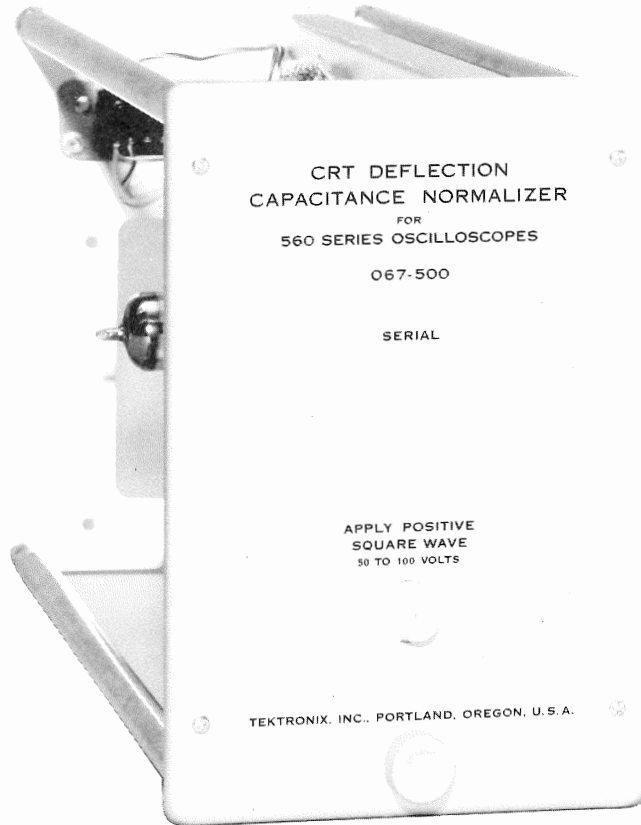


**067-0500-00 CALIBRATION FIXTURE**

CRT Deflection Capacitance Normalizer



The 067-0500-00 is a plug-in unit for normalizing CRT deflection plate capacitance in 560 series instruments.

The plates of the Schmitt multivibrator are connected push-pull through time constant dividers to the CRT deflection plate. A square wave approximately 5 cm high will be displayed when a positive square wave of 50 to 100 volts in amplitude is applied to the input. C760 or C761 in 560 series scopes is adjusted for optimum square corner (no rolloff or spike) to achieve normalization.

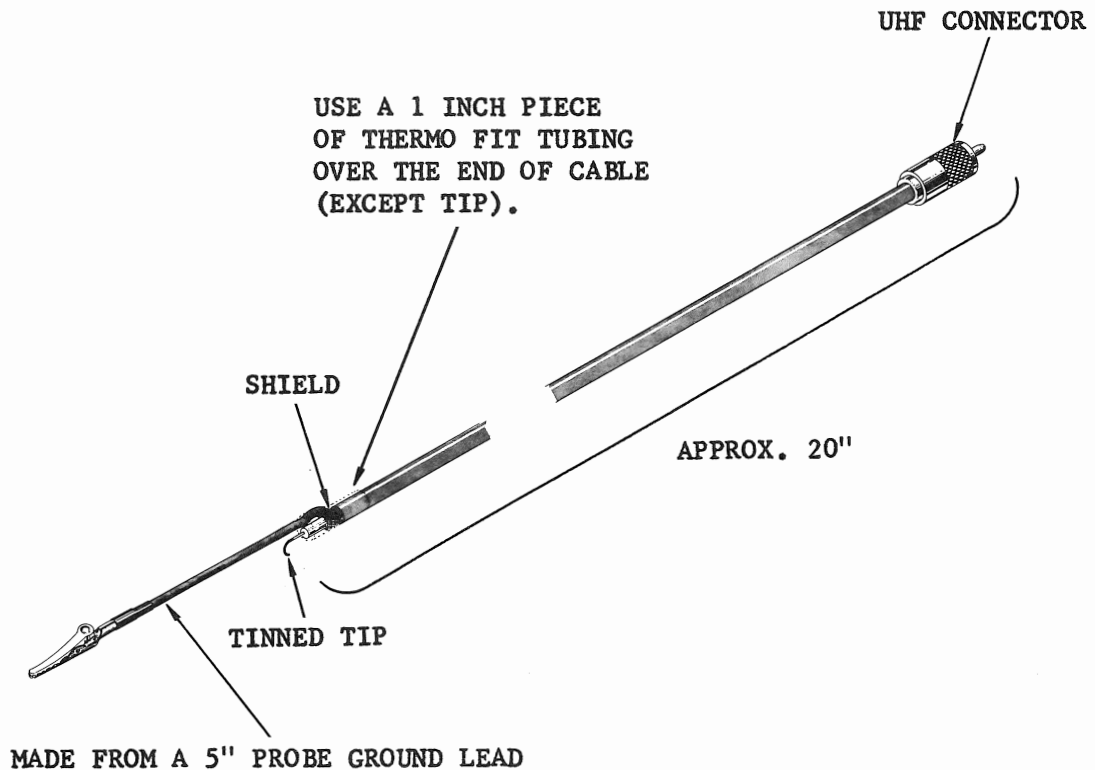


TYPE 067-0500-00

CALIBRATION PROCEDURE

EQUIPMENT REQUIRED

- 1 TEKTRONIX TYPE 561A OSCILLOSCOPE
- 1 TEKTRONIX TYPE 2B67 TIME-BASE UNIT
- 1 TEKTRONIX TYPE 130 DIRECT-READING LC METER
- 1 S-30 DELTA STANDARD P/N 015-0001-00
- 1 1KC CALIBRATOR 50-100 VOLTS
- 1 42 inch BNC CABLE P/N 012-0057-01
- 1 SPECIAL CABLE (as pictured below)



Strip cable back approximately 3/8 inch, exposing 1/8 inch of shield. Tin tip of the cable. Solder end of ground lead to shield of cable. Ground lead should be approximately 5 inches long.



CALIBRATION

- Step 1. CHECK CALIBRATION OF TYPE 130 LC METER. Use S-30 Delta Standard to check for accurate calibration of 3 pF and 10 pF scales. Consult Type 130 Instruction Manual for Proper operation of the meter.

PRECAUTIONS

- (1) Make measurements on a wooden bench away from masses of metal which might overload the guard voltage.
- (2) Do not contact conducting surfaces of the 561A or LC 130 with hands when zeroing meter or when making measurements. This may either load the guard voltage or give an incorrect zero.
- (3) Remove both vertical and horizontal plug-ins from the 561A and make certain there are no connections to the 561A including line cord.
- (4) Be extremely careful not to accidentally move the CRT deflection plate leads when making measurements or when adjusting C760. They may of course be moved to intentionally change  $C_{eff}$ .

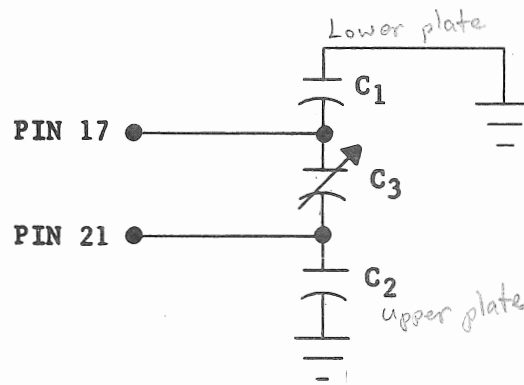
- Step 2. ADJUST C760 OF THE 561A FOR CORRECT EFFECTIVE DEFLECTION PLATE CAPACITANCE. (For C760 between pin 17 and pin 21)

- (a) Measure and record the capacitance between the lower deflection plate pin and ground. Guard the upper deflection plate pin. This is the value of  $C_1$  in the equation below.
- (b) Measure and record the capacitance between the upper deflection plate pin and the ground. Guard the lower deflection plate pin. This is the value of  $C_2$  in the equation below.
- (c) Substitute the values of  $C_1$  and  $C_2$  into the following equation:

$$C_3 = 7.15 - \left( \frac{C_1 + C_2}{4} \right)$$

$C_3$  is the value of capacitance which is to be measured between the two deflection plate pins guarded. Adjust C760 to obtain this value of  $C_3$ .  
*ground?*



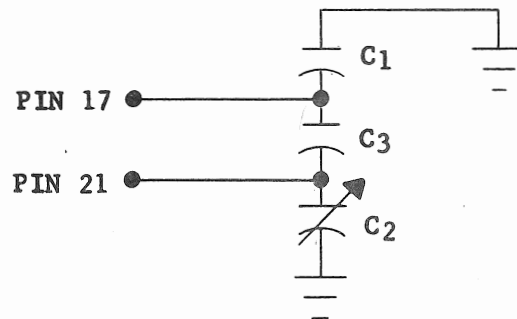


Step 3. ADJUST C760 OF THE 561A FOR CORRECT EFFECTIVE DEFLECTION PLATE CAPACITANCE. (For C760 between pin 21 and gnd)

- (a) Measure and record the capacitance between the lower deflection plate pin and ground. Guard the upper deflection plate pin. This is the value of  $C_1$  in the equation below.
- (b) Measure and record the capacitance between the two CRT deflection plate pins guarding ground. This is  $C_3$  in the equation below.
- (c) Substitute the values of  $C_1$  and  $C_3$  in pico-farrads into the following equation:

$$C_2 = 28.6 - (C_1 + 4 C_3)$$

$C_2$  is the value of capacitance which is to be measured between the upper deflection plate pin and ground with the lower deflection plate guarded. Adjust C760 to obtain this value of  $C_2$ .



Step 4. CALIBRATION OF THE TYPE 067-0500-00.

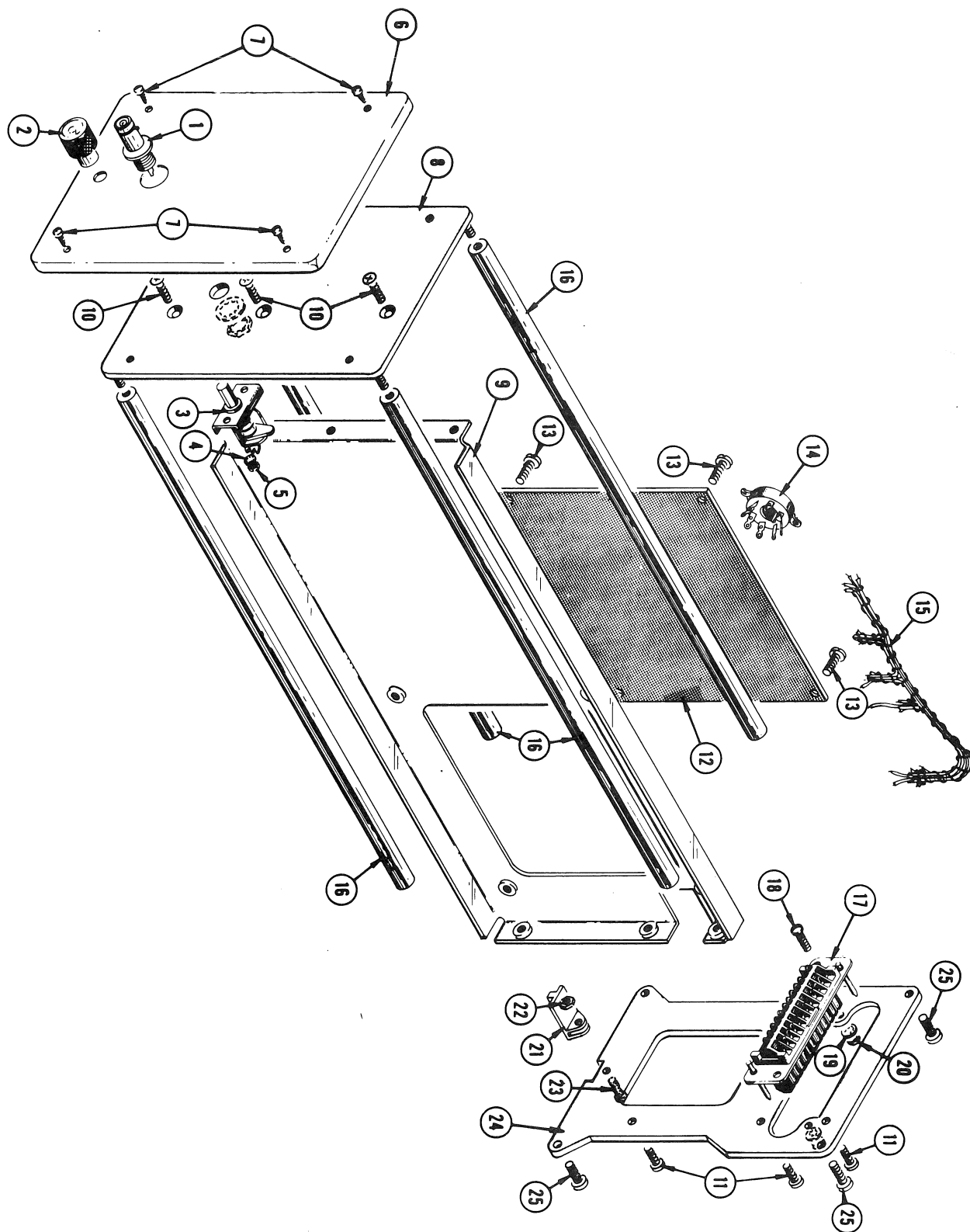
- (a) Place a 560 Series Time-Base Unit into the right hand plug-in compartment.
- (b) Place the 067-0500-00 to be calibrated into the left hand plug-in compartment.





- (c) Apply the appropriate calibration waveform to the input of the 067-0500-00 and adjust the time-base unit for a stable display.
- (d) Adjust C131 and C136 of the 067-0500-00 for optimum square corner at both top and bottom of waveform.







MECHANICAL PARTS LIST-067-0500-00

| FIG. &<br>INDEX<br>NO. | TEKTRONIX<br>PART NO. | SERIAL/MODEL |      | Q      | DESCRIPTION   |
|------------------------|-----------------------|--------------|------|--------|---|
|                        |                       | EFF          | DISC | T<br>Y |   |
| 1                      | 131-0106-00           |              |      | 1      | CONNECTOR, coaxial, 1 contact, BNC,<br>- w/mounting hardware                  |
| 2                      | 366-0109-00           |              |      | 1      | KNOB, plug-in securing  |
| 3                      | 214-0052-00           |              |      | 1      | FASTENER, pawl right w/stop<br>- mounting hardware: (not included w/fastener) |
| 4                      | 210-0004-00           |              |      | 2      | LOCKWASHER, internal, #4  |
| 5                      | 210-0406-00           |              |      | 2      | NUT, hex., 4-40 x 3/16 inch   |
| 6                      | E333-1017-01          |              |      | 1      | PANEL, front<br>- mounting hardware: (not included w/panel)                   |
| 7                      | 213-0120-00           |              |      | 4      | SCREW, 2-56 x 1/4 inch, PHS   |
| 8                      | E386-1298-00          |              |      | 1      | PLATE, sub-panel  |
| 9                      | E441-0754-00          |              |      | 1      | CHASSIS<br>- mounting hardware: (not included w/chassis)                      |
| 10                     | 211-0538-00           |              |      | 3      | SCREW, 6-32 x 5/16 inch, 100° csk, FHS  |
| 11                     | 211-0507-00           |              |      | 3      | SCREW, 6-32 x 5/16 inch, PHS  |
| 12                     | E388-0611-00          |              |      | 1      | BOARD, circuit (Dwg #E-156-P)<br>- mounting hardware: (not included w/board)  |
| 13                     | 211-0507-00           |              |      | 4      | SCREW, 6-32 x 5/16 inch, PHS  |
| 14                     | 136-0061-00           |              |      | 1      | SOCKET, tube, 9 pin   |
| 15                     | E179-0955-00          |              |      | 1      | CABLE HARNESS   |
| 16                     | 384-0615-00           |              |      | 4      | ROD, spacer   |
| 17                     | 131-0149-00           |              |      | 1      | CONNECTOR, 24 contact<br>- mounting hardware: (not included w/connector)      |
| 18                     | 211-0008-00           |              |      | 2      | SCREW, 4-40 x 1/4 inch, PHS   |
| 19                     | 210-0004-00           |              |      | 2      | LOCKWASHER, internal, #4  |
| 20                     | 210-0406-00           |              |      | 2      | NUT, hex., 4-40 x 3/16 inch   |
| 21                     | 334-0679-00           |              |      | 2      | TAG, serial number & mod insert (not shown)                                   |
|                        | 351-0037-00           |              |      | 1      | GUIDE, plug-in<br>- mounting hardware: (not included w/guide)                 |
| 22                     | 210-0406-00           |              |      | 1      | NUT, hex., 4-40 x 5/16 inch   |
| 23                     | 211-0013-00           |              |      | 1      | SCREW, 4-40 x 3/8 inch, PHS   |
| 24                     | 387-0581-00           |              |      | 1      | PLATE, rear<br>- mounting hardware: (not included w/plate)                    |
| 25                     | 212-0044-00           |              |      | 4      | SCREW, 8-32 x 1/2 inch, RHS   |



ELECTRICAL PARTS LIST-067-0500-00

Values are fixed unless marked Variable.

| Ckt. No.   | Tektronix Part No. | Serial/Model No. Eff | Disc                | Description |       |     |
|--|--------------------|----------------------|---------------------|-------------|-------|-----|
| Capacitors                                       |                    |                      |                     |             |       |     |
| Tolerance $\pm 20\%$ unless otherwise indicated. |                    |                      |                     |             |       |     |
| C105   | 283-0000-00        |                      | 0.001 $\mu\text{F}$ | Cer         | 500 V |     |
| C118   | 281-0506-00        |                      | 12 pF               | Cer         | 500 V | 10% |
| C131   | 281-0081-00        |                      | 1.8-13 pF           | Cer         | Var   |     |
| C132   | 281-0577-00        |                      | 14 pF               | Cer         | 500 V | 5%  |
| C136   | 281-0081-00        |                      | 1.8-13 pF           | Cer         | Var   |     |
| C137   | 281-0577-00        |                      | 14 pF               | Cer         | 500 V | 5%  |

Diodes

|      |              |  |         |          |          |    |
|------|--------------|--|---------|----------|----------|----|
| D115 | *152-0061-00 |  | Silicon | Tek Spec |          |    |
| D116 | 152-0057-00  |  | Zener   | 1N3807B  | 1 W 56 V | 5% |
| D125 | *152-0061-00 |  | Silicon | Tek Spec |          |    |

Connector

|      |             |  |                            |  |  |  |
|------|-------------|--|----------------------------|--|--|--|
| J101 | 131-0106-00 |  | Coaxial, 1 contact, female |  |  |  |
|------|-------------|--|----------------------------|--|--|--|

Resistors

Resistors are fixed, composition,  $\pm 10\%$  unless otherwise indicated.

|      |              |  |                 |       |      |    |
|------|--------------|--|-----------------|-------|------|----|
| R104 | 323-0422-00  |  | 243 k $\Omega$  | 1/2 W | Prec | 1% |
| R105 | E323-0364-00 |  | 60.4 k $\Omega$ | 1/2 W | Prec | 1% |
| R106 | 323-0385-00  |  | 100 k $\Omega$  | 1/2 W | Prec | 1% |
| R108 | 301-0102-00  |  | 1 k $\Omega$    | 1/2 W |      | 5% |
| R115 | 308-0101-00  |  | 5.5 k $\Omega$  | 5 W   | WW   | 5% |





## Resistors (cont)

| Ckt. No. | Tektronix<br>Part No. | Serial/Model No.<br>Eff | Disc            | Description |      |    |
|----------|-----------------------|-------------------------|-----------------|-------------|------|----|
| R116     | 308-0212-00           |                         | 10 k $\Omega$   | 3 W         | WW   | 5% |
| R118     | 323-0404-00           |                         | 158 k $\Omega$  | 1/2 W       | Prec | 1% |
| R119     | 323-0384-00           |                         | 97.6 k $\Omega$ | 1/2 W       | Prec | 1% |
| R120     | 301-0102-00           |                         | 1 k $\Omega$    | 1/2 W       |      | 5% |
| R123     | 308-0092-00           |                         | 4.5 k $\Omega$  | 5 W         | WW   | 5% |
| R125     | 308-0101-00           |                         | 5.5 k $\Omega$  | 5 W         | WW   | 5% |
| R128     | 301-0335-00           |                         | 3.3 M $\Omega$  | 1/2 W       |      | 5% |
| R129     | 301-0105-00           |                         | 1 M $\Omega$    | 1/2 W       |      | 5% |
| R132     | 323-0385-00           |                         | 100 k $\Omega$  | 1/2 W       | Prec | 1% |
| R133     | 323-0385-00           |                         | 100 k $\Omega$  | 1/2 W       | Prec | 1% |
| R137     | 323-0385-00           |                         | 100 k $\Omega$  | 1/2 W       | Prec | 1% |
| R138     | 323-0385-00           |                         | 100 k $\Omega$  | 1/2 W       | Prec | 1% |

## Electron Tube

|      |             |      |
|------|-------------|------|
| V115 | 154-0187-00 | 6DJ8 |
|------|-------------|------|



