Hints:
- The BNC shield is at earth ground. Use only the probe TIP for measuring high voltages. "Floating" the BNC shield or connecting it to a high voltage could cause a safety hazard.
- Make sure probes are compensated and set to proper scale (X1, X10, X100).
- If you can't get the signal on screen:
  - Check Probe connection
  - Touch: SETUP, Default Setup
  - Touch: AUTOSCALE
  - Check for offset (ground symbol). If offscale, adjust vertical sensitivity. If still offscale, Touch:
    - Check Trigger Source
    - Set Mode Auto

Getting Started:
1. Line
   - (Power ON)
2. Setup
   - Default
   - (All settings to default)
3. Connect probe to calibrator
4. Auto-scale
5. Calibrate

Compensate probes:
- Adjust screw to eliminate:
  - Overshoot
  - Undershoot

What the display says:
- Vertical sensitivity of CH1 is 1 Volt per major division
- Horizontal sweep speed is 200 microsec per major division
- Ground (V=0) is displayed as a 0 Volt level
- Channel 1 is ON
- Trigger slope is positive (rising edge)
- Blinks if no trigger

What the main controls do:
- Display:
  - Grid: Full
  - Vectors: On
  - Time/division: 100 µsec/division
  - Position: Vertical
  - Delayed: 200 µsec/division
- Horizontal delay:
- Trigger level:
- Storage:
  - Auto-store, Erase, RUN/STOP

Set probe attenuation factor:
- Press Channel key for selected probe.
- Toggle softkey for setting that matches probe

Match

Measure: Vrms, tr, f/Trace/Setup Memory
Display: grid, vectors, averaging
Triggering:
- Modes: Auto, Normal, TV
- Sources: Ch1, Ch2, Ext, Line
- Horizontal:
  - Main Sweep Speed
  - Sweep Modes: Delayed, KY, Roll
  - t = 0 Reference
Other main controls:

- Enable channel
- Set up probe

Math Functions
- Add waveforms
- FFT (if equipped with module)

Making Measurements: Vp-p

Measure Vp-p, using cursors:

1. Hook Calibrator signal to CH1
2. Display Grid
3. Source Set for the correct channel
4. Active Cursor + Trigger to highlight the Y1 display, Rotate
5. Active Cursor - Change to Y2 cursor

Clear Cursors
Cursors already on the screen

Enable channel
Set up probe

Signals with multiple zero crossings per cycle cause unstable displays. Holdoff ignores the false triggers for a given length of time.

Holdoff = 11.5 us

Making Measurements: RISETIME

Risetime Answer

If answer needs more resolution:

Time/Div Rotate for best display:

Risetime Answer

Making Measurements: FFT

(Frequency Domain)

Setup: Default
Auto scale

Operation

To do FFT, a Measurement/Storage Module must be installed on back of scope.

Hint: To look ONLY at FFT signal without time domain signal, turn channel off:

Hint: To return to FFT menu at any time, use Math key

Making Measurements: AUTOSTORE

Displays all waveforms (Good for looking at jitter, noise, glitches)

Example: Calibrator signal in CH 1. Setup Default: AUTOSCALE. Touch AUTOSTORE.
Now more horizontal delay knob and watch all waveforms stay on screen, making an overlapping pattern.

Storing Waveforms: AUTOSTORE

To do FFT, a Measurement/Storage Module must be installed on back of scope.

Hint: To look ONLY at FFT signal without time domain signal, turn channel off:

Hint: To return to FFT menu at any time, use Math key

Use Time/Div to set FFT resolution

Making Measurements: RISETIME, Using DELAYED SWEEP:

Time/Div Rotate to show multiple cycles on screen

Time/Div Rotate. See how upper bracketed part is exploded into lower window

Time/Div Main/Delayed Delayed XY Roll

|-------Horizontal Mode --------|

Rise(1) 920 ns

Rise(1) <4.000 us

Rise(1) <4.000 us

Making Measurements: FFT (Frequency Domain)

Operation

Function 2

Off On Menu

Function 2

Off On Menu

Operation

FFT

Use Time/Div to set FFT resolution

Hint: To look ONLY at FFT signal without time domain signal, turn channel off:

Hint: To return to FFT menu at any time, use Math key
Storing Waveforms: TRACE MEMORY

1. Example: Calibrator signal in CH 1. Setup Default. AUTOSCALE.
2. Save to Trace 1
3. Trace 1: ON
4. Now move waveform with horizontal delay and vertical position knobs. Note that Trace 1 still stays on screen, allowing comparison with stored waveform.