

### TRIGGERING CONTROLS

#### 23. HOLDOFF/PULL CHOP Control.

##### **HOLDOFF:**

Rotation adjusts holdoff time (trigger inhibit period beyond sweep duration). When control is rotated fully counterclockwise, the holdoff period is **MIN**imum (normal). The holdoff period increases progressively with clockwise rotation.

##### **PULL CHOP:**

When this switch is pulled out in the dual-trace mode, the channel 1 and channel 2 sweeps are chopped and displayed simultaneously (normally used at slower sweep speeds). When it is pushed in, the two sweeps are alternately displayed, one after the other (normally used at higher sweep speeds).

#### 24. Trigger SOURCE Switch. Selects source of sweep trigger. Four-position lever switch with the following positions:

##### **CH1/X-Y/ALT:**

##### **CH1:**

Causes the channel 1 input signal to become the sweep trigger, regardless of the **VERTICAL MODE** switch setting.

##### **X-Y**

Used with two other switches to enable the X-Y mode -see the Operating Instructions under "XY Operation".

##### **ALT:**

Used with the channel 1 **POSITION/PULL ALTERNATE TRIGGER** control to enable alternate triggering. Alternate triggering, used in dualtrace mode, permits each waveform viewed to become its own trigger source.

##### **CH2:**

The channel 2 signal becomes the sweep trigger, regardless of the **VERTICAL MODE** switch setting.

##### **LINE:**

Signal derived from input line voltage (50/60 Hz) becomes trigger.

##### **EXT:**

Signal from **EXTERNAL TRIGGER** jack becomes sweep trigger.

#### 25. Trigger COUPLING Switch. Selects trigger coupling. Four-position lever switch with the following positions:

##### **AUTO:**

Selects automatic triggering mode. In this mode, the oscilloscope generates sweep (free runs) in absence of an adequate trigger; it automatically reverts to triggered sweep operation when an adequate trigger signal is present.

##### **NORM:**

Selects normal triggered sweep operation. A sweep is generated only when an adequate trigger signal is present.

##### **TV-V:**

Used for triggering from television vertical sync pulses. Also serves as lo-pass/DC (high frequency reject) trigger coupling.

##### **TV-H:**

Used for triggering from television horizontal sync pulses. Also serves as hi-pass (low frequency reject) trigger coupling.

used at slower sweep speeds). When it is pushed in, the two sweeps are alternately displayed, one after the other (normally used at higher sweep speeds).

#### 26. TRIGGER LEVEL/PULL (-) SLOPE Control.

##### **TRIGGER LEVEL:**

Trigger level adjustment; determines the point on the triggering waveform where the sweep is triggered. Rotation in the (-) direction (counterclockwise) selects more negative triggering point; rotation in the (+) direction (clockwise) selects more positive triggering point.

##### **PULL (—)SLOPE:**

Two-position push-pull switch. The "in" position selects a positive-going slope and the "out" position selects a negative-going slope as triggering point for main sweep.

#### 27. EXTERNAL TRIGGER jack. External trigger input for single-and dual-trace operation.

#### 28. FREQ: Turn this knob to set the desired frequency Generated. This knob is for fine adjustment.

## FS-409 CONTROLS AND INDICATORS

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(NOTE: PULL: F.G. DISPLAY For FS-409 only)

**29.RANGE:** The main Frequency switch of the Function Generator Each step raise up the frequency 10 times from 50Hz to 5MHz and back to 50Hz circulatory. Also the range will be set at 50Hz automatically when switch on the Oscilloscope, the frequency can be observed from **34 LED DISPLAY** or connect the 45 output signal to the 10 **INPUT** of the oscilloscope to display on CRT.

**30.Function:**the Function wave selector to set the wave from output of the Function Generator send to the output BNC 45.

**31.AMPL/PULL:-**20dB/Amplitude knob. Turn the knob to adjust the amplitude of the output signal to max 10 time continuously. Or pull out the switch to attenuate the output signal 20dB (Amplitude becomes 1/10 level).

**32.Hz:**the LED lit means the display units are "Hz".

**33.KHz:**the LED lit means the display units are "KHz"

**34.LED DIGITS:**5 digits to indicate oscilloscope TRIG'S frequency and EXT. Counter input frequency and Function Generator wave frequency.

**35.TRIGD/GATE TIME LED:**the LED will be light when the signal was trigger by the counter circuit Each flash of the LED means the new data been calculated and been display. The time between two flash of the LED is the Gate time. If the counter system can not detect a new signal for 10sec. The display will be reset automatically. When the signal was input from the input BNC of CH1, CH2 or EXT of the oscilloscope The trigger condition can be adjusted by (26) TRIG LEVEL knob. The Gate time are controled by the CPU from 0.25sec to 10sec automatically.?

### REAR PANEL CONTROLS

**41. Fuse Holder/Line Voltage Selector.** Contains fuse and selects line voltage.

**42. Power Cord Receptacle.**

**43. Handle/Tilt Stand.**

**44. Feet/Cord Wrap.**

**45.OUTPUT:**Function Generator Main output BNC, output impedance 50Ω, Max, amplitude 20Vp-p for no-load and 10Vp-p for 50Ω load.

**46.SYNC:** Synchronous output. TTL level Square wave output with same frequency as the Main output BNC.