

FACTORY CALIBRATION PROCEDURE

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INTRODUCTION:

This is the guide for calibrating brand-new instruments, it therefore, calls out many procedures and adjustments that are rarely required for subsequent recalibration. *This procedure is company confidential.* In this procedure, all front panel control labels or Tektronix equipment names are in capital letters (VOLTS/DIV, etc.) internal adjustment labels are capitalized only (Gain Adj, etc.).

Tek form number:

0-423

April 1967

For all serial numbers.

CALIBRATION
FIXTURE
067-0518-00
(Harmonic
Modulator)



FACTORY TEST LIMITS:

We initially calibrate the instrument to Factory Test Limits. These limits are often more stringent than advertised performance requirements. This helps insure that the instrument will meet advertised requirements after shipment, allows for inaccuracies of test equipment used, and may allow for changes in environmental conditions.

QUALIFICATION:

Factory test limits are qualified by the conditions specified in the main body of the calibration procedure. The numbers and letters to the left of the limits correspond to the factory calibration procedure steps where the check or adjustment is made. Instruments may not meet factory test limits if calibration or check-out methods and test equipment differ substantially from those in this procedure.

ABBREVIATIONS:

Abbreviations in this procedure will be found listed in TEKTRONIX STANDARD A-100.

CHANGE INFORMATION:

This procedure has been prepared by Product Manufacturing Staff Engineering. For information on changes that have been made to this procedure, to make suggestions for changing this procedure, or to order additional copies: please contact PMSE, 47-261. (DC)



EQUIPMENT REQUIRED:

The following equipment is necessary to complete this procedure:

a. *TEKTRONIX Test Equipment*

- 1 TYPE 540B SERIES OSCILLOSCOPE
- 1 TYPE 1L10 PLUG-IN
- 1 TYPE 184 TIME-MARK GENERATOR
- 1 TYPE 106 SQUARE-WAVE GENERATOR

b. *Test Fixtures and Accessories*

- 1 Sine Wave Generator 1 Hz - 1 MHz (067-0542-99)
- 4 50 Ω BNC Cables (012-0057-00)
- 1 50 Ω X10 Attenuator (011-0059-00)
- 1 50 Ω Termination (011-0059-00)
- 1 GR to BNC Female Adapter (017-0063-00)
- 1 Patch Cord BNC to Banana Plug (012-0091-00)
- 1 Cable Assembly, BNC to BNC (012-0097-00)

Substitute test equipment may be used. The Plant Staff Engineer must approve any substitutions. All equipment listed must perform within its manufacturer's specifications, unless otherwise stated.

It is assumed that all equipment is provided with BNC connectors; if equipment used has other than BNC connectors, adapters, not listed, may be needed.

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FACTORY TEST LIMITS

QUALIFICATION

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1. PRELIMINARY INSPECTION
2. PRESET CONTROLS
3. 60 MC TRAP
4. MODU FREQ 1
5. CHECK RF VARIABLE
6. MODU FREQ 2

1. PRELIMINARY INSPECTION

Inspect the case for scratches, chips, stains or defects in the paint or metal parts. Remove the cover and check for unsoldered joints, rosin joints, lead dress and long leads. Replace cover and check controls and switches for smooth mechanical operation. Check for sufficient clearance between knobs and front panel.

2. PRESET CONTROLS*a. Test scope controls*

TRIGGERING MODE	AC
TRIGGER SLOPE	+
STABILITY	cw
HORIZONTAL DISPLAY	A
TIME/CM	10mSEC

b. TYPE 1L10

RF CENTER FREQ	35
VERTICAL DISPLAY	LIN
RF ATTEN	OFF
OSC SELECTOR	INT OSC
DISPERSION-KC/CM)	SEARCH
COUPLED RESOLUTION)	

Plug the TYPE 1L10 into the test scope plug-in compartment. Connect the BNC to BNC cable assembly between OSC OUT and OSC IN. Connect SAWTOOTH A to SWEEP INPUT with a BNC to banana plug patch cord. Turn the test scope power on.

3. 60 MC TRAP*a. Setup*

Connect TYPE 184 MARKER OUTPUT--50 Ω cable--
Harmonic Modulator RF--Harmonic Modulator
MODU HARM OUT--50 Ω cable--50 Ω 10:1 Attenuator--
50 Ω termination--TYPE 1L10 RF INPUT 50 Ω .

b. Check 60 MC trap

Must attenuate 60 MHz spurious responses.

3. (cont'd)

Rotate the MODULATION 2 VARIABLE and RF VARIABLE controls ccw. Move the MODU FREQ 2 switch to OFF and 60 MC TRAP switch to out. Press the TYPE 184 μ S MARKER SELECTOR button. Center the display with the TYPE 1L10 RF CENTER FREQ control. Change the DISPERSION-KC/CM COUPLED RESOLUTION to 2. Again center the display with the RF CENTER FREQ and FINE RF CENTER FREQ controls. Change the 60 MC TRAP switch to IN. A large spurious response at the right side of the graticule should disappear or be attenuated. See fig. 1 & fig. 2.

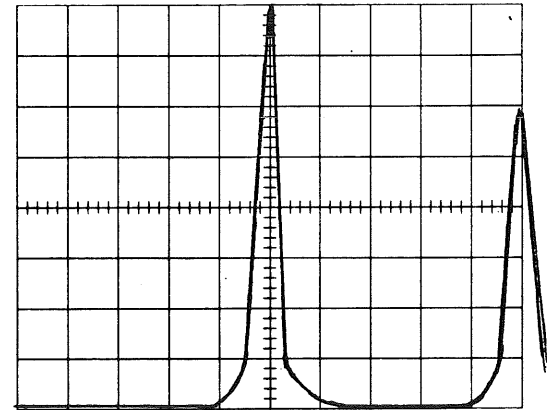


Fig. 1 60 MC TRAP OUT

4. MODU FREQ 1

Must display center frequency plus side bands. Connect the SINE WAVE GENERATOR--50 Ω cable--Harmonic Modulator MODU FREQ 1. Set the SINE WAVE GENERATOR FREQUENCY to 2 + 0 and MULTIPLIER to 1KHz. Set the AMPLITUDE to 2 and AMPLITUDE MULTIPLIER to 1. Check for a display of a center frequency plus side bands. See fig. 3.

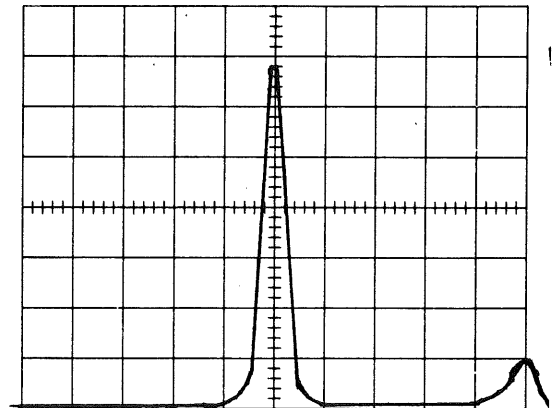


Fig. 2 60 MC TRAP IN

5. CHECK RF VARIABLE

Must change the amplitude of the RF center frequency display.

Rotate the RF VARIABLE cw. Check that the amplitude of the center frequency increases and the amplitude of the side bands decreases. Turn the RF VARIABLE ccw. Remove the signal cable from MODU FREQ 1.

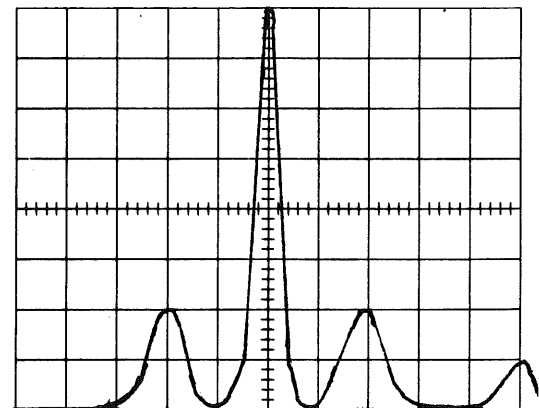


Fig. 3

6. MODU FREQ 2

a. Setup

Connect TYPE 106 OUTPUT--50 Ω termination--Harmonic Modulator MODU FREQ 2. Set the TYPE 106 REPETITION RATE RANGE to 1KHz, MULTIPLIER to 2 SYMMETRY centered, AMPLITUDE $\frac{1}{4}$ turn from ccw and HI AMPLITUDE-FAST RISE switch to HI AMPLITUDE.

6. (cont'd)

b. Check MODU FREQ 2

Check for a display of a center frequency with no side bands. Change the MODU FREQ 2 switch to ON. Check for a display of a center frequency with side bands.

c. Check MODULATION 2 VARIABLE

Check that the amplitude of the sidebands increases as the MODULATION 2 VARIABLE control is rotated cw and decreases as the control is rotated ccw.

THE END