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CT-5 HIGH-CURRENT TRANSFORMER

INSTRUCTION MANUAL

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97077

070-1130-00
Product Group 60

Serial Number _____

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INSTRUMENT SERIAL NUMBERS

Each instrument has a serial number on a panel insert, tag, or stamped on the chassis. The first number or letter designates the country of manufacture. The last five digits of the serial number are assigned sequentially and are unique to each instrument. Those manufactured in the United States have six unique digits. The country of manufacture is identified as follows:

B000000	Tektronix, Inc., Beaverton, Oregon, USA
100000	Tektronix Guernsey, Ltd., Channel Islands
200000	Tektronix United Kingdom, Ltd., London
300000	Sony/Tektronix, Japan
700000	Tektronix Holland, NV, Heerenveen, The Netherlands

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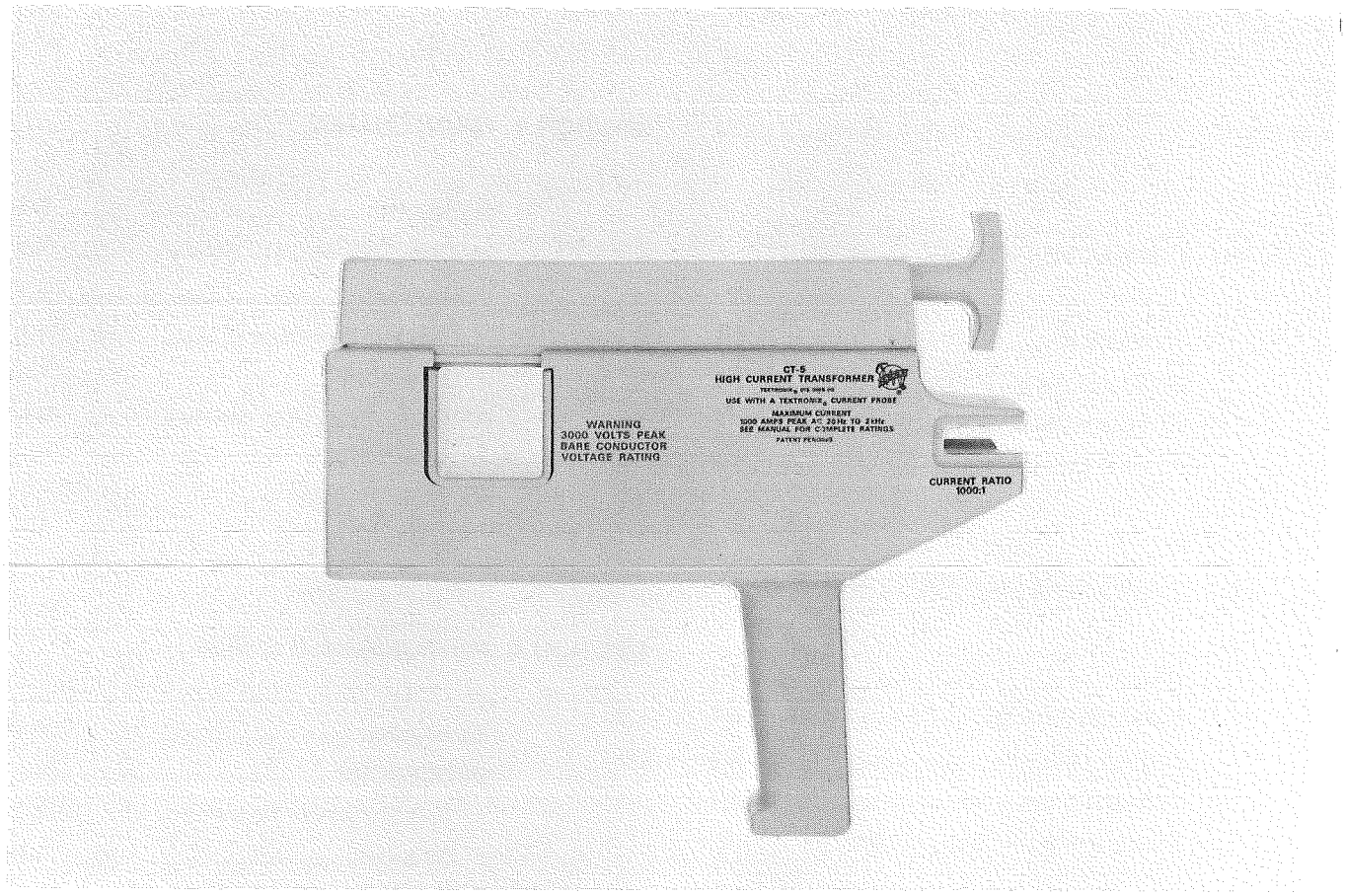


Fig. 1-1. CT-5 High Current Transformer.

DESCRIPTION

The CT-5 High Current Transformer is designed to extend the current measuring capability of either the Tektronix A6302 Current Probe (used with the AM503 Current Probe Amplifier) or the Tektronix P6021 Current Probe (used with the Type 134 Current Probe Amplifier). With either probe, the CT-5 extends the measurement range by a factor of up to 1000X.

The CT-5 includes a pistol-grip type handle with receptacles to accept the P6021 or A6302 in either of two positions, providing a choice of two current ranges. A sliding jaw on the transformer permits insertion of the current-carrying conductor without breaking the circuit under test.

The core and shield assembly is insulated from the windings and the handle, allowing measurements on bare conductors with potentials to 3000 volts. The accessory high-voltage insulation may be used to extend the allowable voltage by several times. The DC Bucking Coil assembly, which slips over the front of the CT-5, nullifies the saturating effects of dc currents to 300 amperes without appreciably degrading the transformer characteristics.

CHARACTERISTICS

Electrical Characteristics

The following electrical characteristics are valid when the CT-5 is used with a calibrated A6302/AM503 or P6021/134 combination and a calibrated oscilloscope, and operated within the limitations stated in this Specification section.

Table 1-1
Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Bandwidth (−3 dB)		
CT-5 with A6302/AM503	0.5 Hz to 20 MHz.	
CT-5 with P6021/134	12 Hz to 20 MHz.	
CT-5/A6302/DC Bucking Coil	1 Hz to 1 MHz.	
Transient Response		
Risetime		17.5 ns (With A6302/AM503 or P6021/134, calculated from bandwidth).
Aberrations		
20:1 Receptacle		±5%, total less than 7% p-p within 100 ns of 50% amplitude point. ±4% after this interval.
1000:1 Receptacle		±9%, total less than 15% p-p within 100 ns of 50% amplitude point. ±4% after this interval.
Current Ranges		
A6302/AM503		
20:1 Receptacle		20 mA to 100 A/div.
1000:1 Receptacle		1 A/div to 5000 A/div.
P6021/134		
20:1 Receptacle		20 mA/div to 20 A/div.
1000:1 Receptacle		1 A/div to 1000 A/div.
Accuracy		Within 4% (when less than 20 A dc current is present). Accuracy deteriorates with higher dc current. See Fig. 2-8.
Maximum Continuous Input Current (25°C ambient)	100 A peak from 20 Hz to 1.2 kHz.	Derated with frequency. See Fig. 2-4.
Maximum Pulse Current	50,000 A peak.	(Figure of merit.) Derated with repetition rate and pulse duration. Maximum pulse limitation of the associated current probe must also be considered (with respect to the stepped-down pulse amplitude). See Section 2.
Maximum Ampere-Second Products		
CT-5 Only		8 ampere seconds.
CT-5 with A6302/AM503	0.1 ampere second.	Probe installed in 1000:1 receptacle.
CT-5 with P6021/134	0.5 ampere second.	

Table 1-1 (cont.)
Electrical Characteristics

Characteristic	Performance Requirement	Supplemental Information
Insertion Impedance		20 μΩ at 60 Hz, increasing to 30 mΩ at 1 MHz. See Fig. 2-6.
Maximum Input Voltage	3000 V peak with bare conductor.	
With HV Insulation	10 kV (rms) or 14 kV (peak).	
External Magnetic Field Susceptibility		35 mA/Gauss (20:1 Receptacle)
Voltage Feedthrough Susceptibility		Less than 3 mA/V up to 5 MHz. Less than 30 mA/V at 20 MHz.
CT-5 With DC Bucking Coil		
Maximum DC Bucking Current	300 ampere turns.	(300 mA, 1000 turns.)
Power Supply Requirement	1 V for 20 A bucking, 300 mA 15 V maximum.	
Aberrations		±30% for the first 5 μs. Within 4% thereafter with up to 320 A dc (300 mA bucking current applied).
External Magnetic Field Susceptibility		500 mA/Gauss. May be improved by selecting physical placement.

Table 1-2
Environmental Characteristics

Characteristic	Information
Temperature	
Non-Operating	
In Carrying Case	−40°C to +60°C
CT-5 Only	−40°C to +130°C.
Bucking Coil	−40°C to +60°C.
Operating	0°C to +50°C.
Altitude	
Non-Operating	To 50,000 feet.
Operating	To 15,000 feet.
Vibration (Operating)	15 minutes along each axis to 0.015 inch total displacement with frequency varied from 10 Hz to 50 Hz to 10 Hz in 1 minute cycles. Three minutes at any resonant point or at 50 Hz.
Shock (Non-Operating)	30 g's, one-half sine, 11 ms duration, 2 shocks per axis.
Transportation	
Package Vibration	1 hour at 1 g. (Package just leaves vibration surface).
Package Drop	36 inches on 1 corner, all edges radiating from that corner, and all flat edges.

Table 1-2
Physical Characteristics

Characteristic	Information
Dimensions	
CT-5	10.5 inches L × 2.2 inches W × 9.7 inches H (includes handle).
DC Bucking Coil	
Coil	3 inches L × 3.5 inches W × 1.6 inches H.
Base	5.4 inches L × 3.6 inches W × 1.7 inches H.
Carrying Case	15 inches L × 11.6 inches W × 6 inches H.
Maximum Conductor Size	
CT-5 Only	1.5 inch × 1.6 inch rectangle.
CT-5 With DC Bucking Coil	0.89 inch × 1.6 inch rectangle.
Weight	
CT-5	4 lbs, 4 oz.
DC Bucking Coil	2 lbs, 5 oz.
Carrying Case	6 lbs.

OPERATING INSTRUCTIONS

General

The CT-5 High Current Transformer may be used with either the A6302 Current Probe and the AM503 Current Probe Amplifier[a] or the P6021 AC Current Probe with the 134 Current Probe Amplifier. Characteristics and use of the CT-5 are the same with either probe, except the low-frequency response extends to 0.5 Hz with the A6302 (vs. 12 Hz with the P6021/134).

Probe Receptacles

At the rear of the CT-5 are two probe receptacles, providing a choice of current ranges. With a current probe installed in the receptacle labeled "20:1", the current range is 20 mA/div to 100 A/div (assuming the current probe normal range is 1 mA/div to 5 A/div). The "1000:1" receptacle provides a current range of 1 A/div to 5000 A/div. See Fig. 2-1.

The 20:1 receptacle is recommended for all current measurements within the dynamic range of the associated current probe (400 A peak with the A6302). One advantage for using the 20:1 receptacle is that the stray field susceptibility of the associated current probe is less noticeable when operated in the higher current/div ranges. For measurements where large dc currents are present, refer to "DC Bucking Coil" in this section.

[a]Requires a TM500- or TM5000-Series Power Module Mainframe.

Probe Installation

To install either the P6021 or A6302 in the CT-5, first select the appropriate receptacle, considering the anticipated current magnitude. Then, open the thumb-controlled probe slider and insert the probe into the selected receptacle, hooking the probe jaw over the enclosed conductor. Press the probe slider fully forward to ensure that the core is closed. See Fig. 2-2. The current probe should always be inserted so that the probe slider faces outward from the CT-5. This will ensure correct current polarity.

Connecting the CT-5

With a current probe installed in one of the receptacles, turn the CT-5 Locking Lever 1/4 turn ccw to unlock and pull the sliding jaw back to the stop. Hook the test conductor into the CT-5 transformer opening and push the sliding jaw fully closed. Then, turn the Locking Lever 1/4 turn clockwise to lock. Fig. 2-3 shows the effect on low-frequency response when the CT-5 sliding jaw is not properly closed.

Measurements on High-Voltage Conductors

The CT-5 is insulated to withstand bare test conductor voltages to 3000 V peak. For measurements on conductors at higher voltages, a length of high-voltage insulation

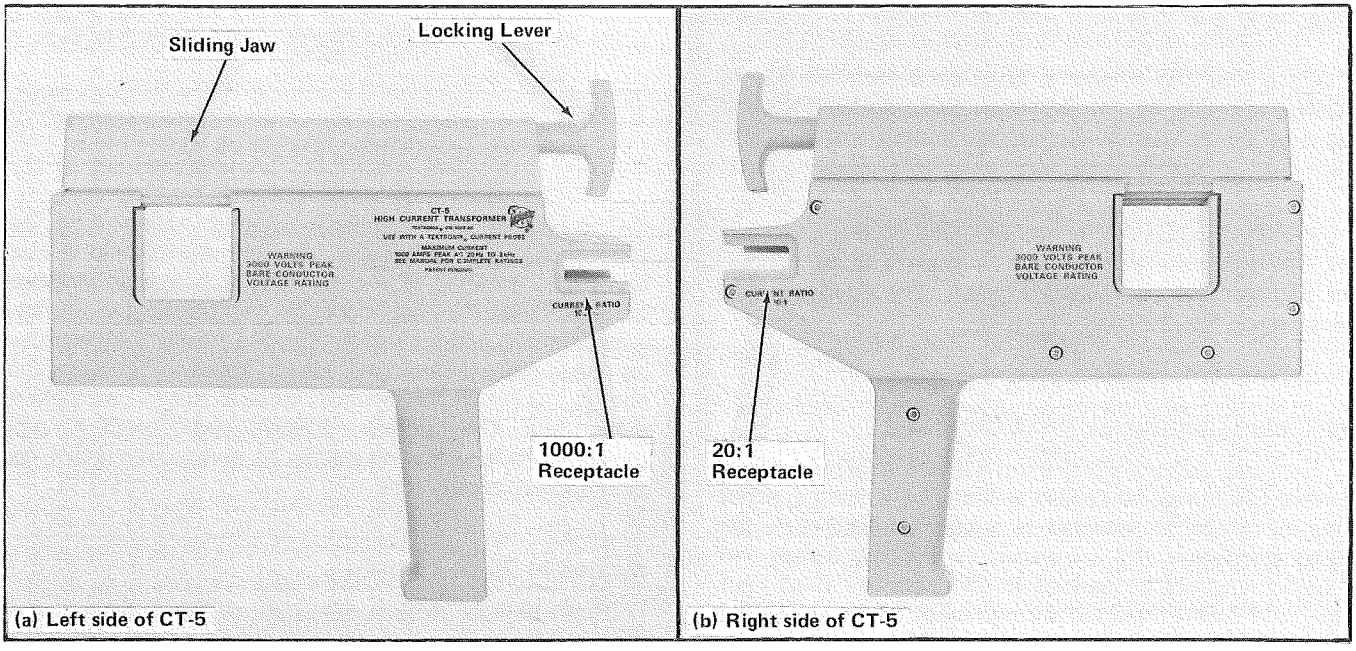


Fig. 2-1. CT-5, showing the 1000:1 and 20:1 current ratio receptacles.

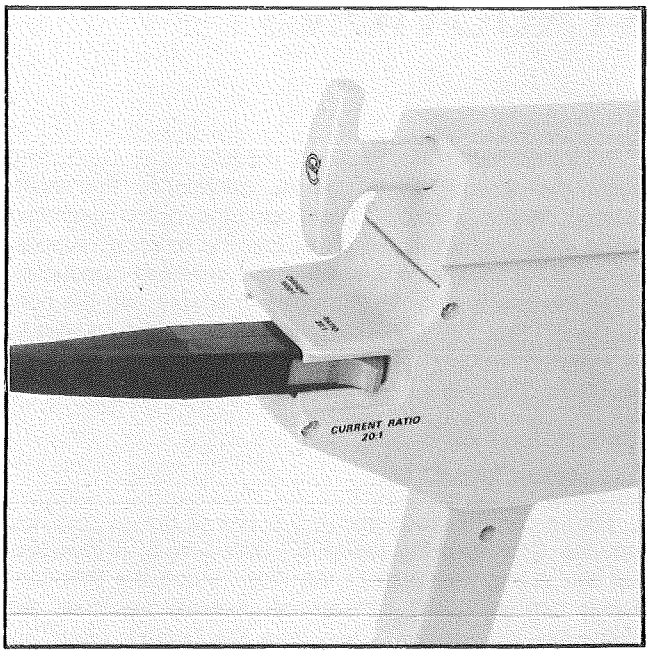


Fig. 2-2. CT-5 with A6302 attached to the 20:1 current ratio receptacle.

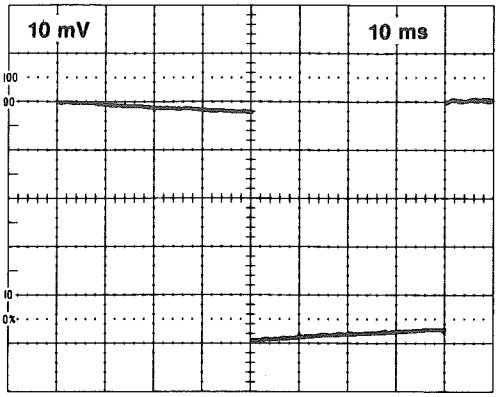
is provided. This insulation should be wrapped around the test conductor at the test point before attaching the CT-5. To ensure protection, the insulation should be wrapped around the conductor at least three turns or a minimum insulation length of six inches. The length supplied as a standard accessory will provide approximately three layers when wrapped around the largest conductor that the CT-5 will accept. When attaching the CT-5, it should be centered on at least a six-inch width of insulation.

When wrapped around a large conductor, the natural coiling tendency of the insulation will usually hold it in place on the conductor. On smaller conductors, it may be necessary to tape the insulation to prevent sliding.

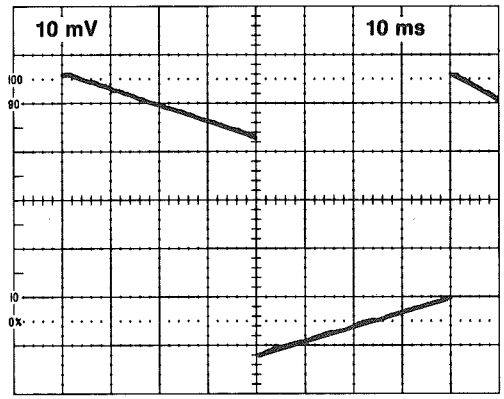
With the insulation wrapped around a bare test conductor, current measurements may be made with the conductor at potentials up to 14 kV peak. The CT-5 must be centered on the insulation.

Maximum Continuous Input Current

The main factor limiting the maximum continuous input current which may be applied to the CT-5 is heating effect. This is, of course, affected by ambient temperature and signal frequency. Fig. 2-4 shows the derating curves over a broad range of frequencies at 25°C and 50°C ambient. The solid lines of the curves represent tests which have been made under actual operating conditions. The dashed lines are projections of the measured data, indicating performance to be expected.



(A) Low frequency response with the sliding jaw fully closed and locked. Current range is 40 mA/div.



(B) Same signal as (A), with the sliding jaw locked in a position just short of fully closed.

Fig. 2-3. CT-5 response to a 12.5 Hz square wave.

The maximum continuous current rating may be exceeded, provided that measurement time is held to certain limits. Heating of the core and transformer windings takes a finite time, depending on the magnitude and frequency of the current signal. Fig. 2-5 shows the permissible measurement durations versus frequency at twice the normal maximum continuous current rating, or 2000 A peak. For CW signals, 2000 A peak (4000 A p-p) represents a practical limitation of maximum current for saturation considerations.

Maximum Pulse Current

The maximum pulse current that can be measured usuing the CT-5 is limited by transformer core saturation. The Ampere-second Product specification provides a basis for calculating the current limitation with any given pulse

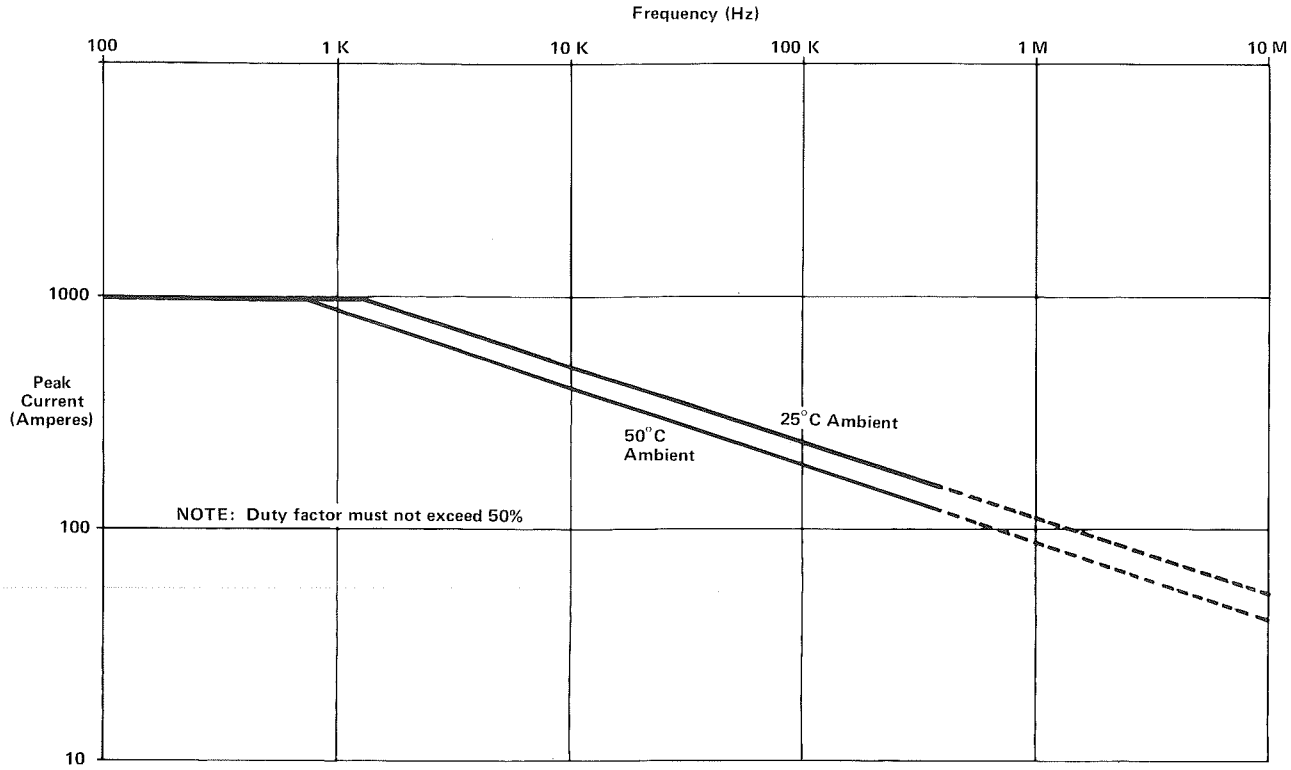


Fig. 2-4. Maximum continuous input current, derating with frequency.

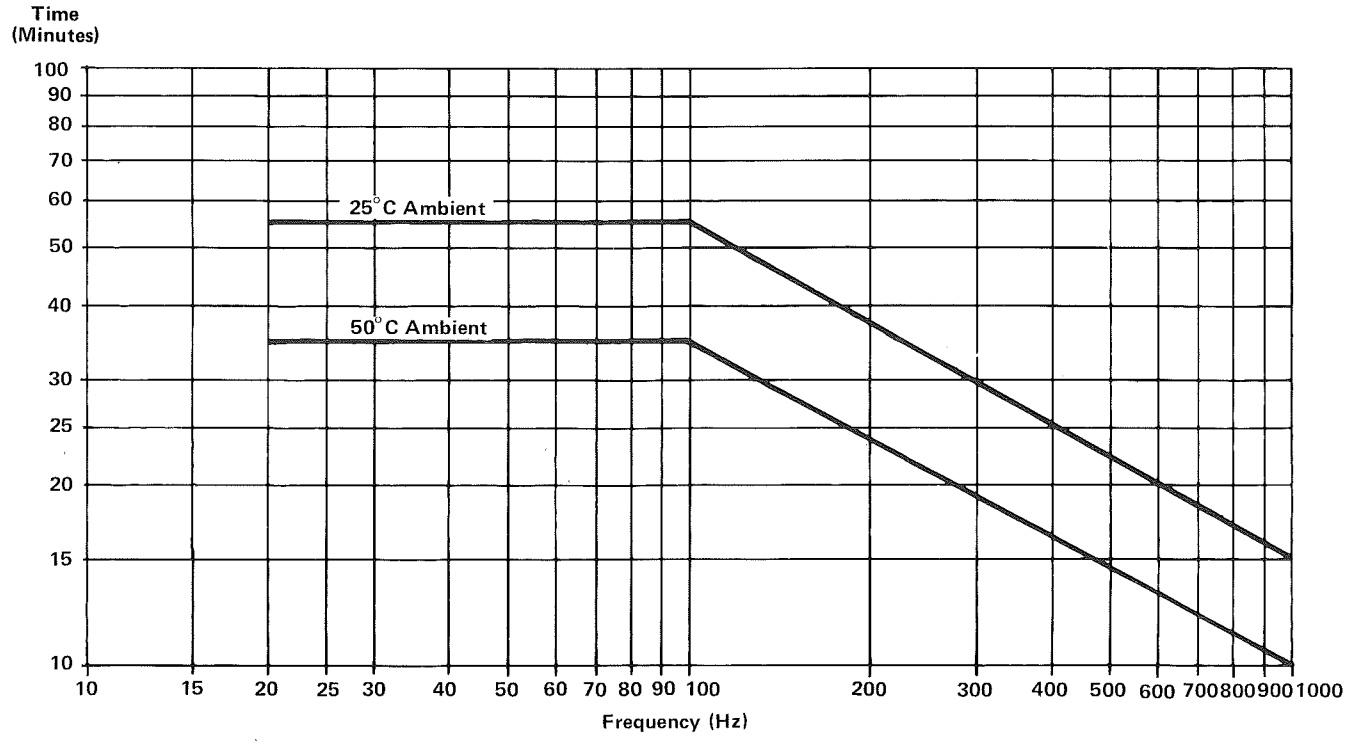


Fig. 2-5. Maximum recommended measurement duration at 2000 A peak or 4000 A p-p versus frequency for CW signals.

width. Although CT-5 has an Ampere-Second Product of 8 ampere seconds, the real limit is that of the associated current probe. The Ampere-Second Products of the CT-5 with the probes are listed in the "Characteristics" section of this manual. An example of applying this specification follows:

Problem: Given the Maximum Ampere-Second Product for a CT-5/A6302/AM503 of 0.1 Ampere Seconds, calculate the maximum pulse width for a current pulse with an amplitude of 50,000 A peak.

0.1 (ampere seconds) $= I \times t$ $\quad I =$ current in amperes

$$t = \frac{0.1}{I} \qquad t = \text{pulse width in seconds}$$

$$t = \frac{0.1}{50{,}000}$$

$$t = 2\ \mu s$$

Solution: The maximum allowable pulse width for a current pulse of 50,000 amperes peak is 2 μs.

The ampere-second product normally refers to a single, nonrepetitive current pulse. Another factor that must be considered in measuring high-current pulses is repetition rate. Repetition rate for pulses which exceed the Maximum Continuous Input Current rating must be limited to provide a maximum rms equivalent of 700 A. See Fig. 2-4 for derated current at higher frequencies.

If the peak pulse current and pulse duration are known, the maximum repetition rate without exceeding the rms current limitation can be determined using the following formula:

$$f_p = \frac{(I_{rms})^2}{(I_p)^2\ (T_p)}$$

where

f_p = repetition rate (Hz)
I_p = peak pulse current (amperes)
T_p = pulse duration (seconds)
I_{rms} = 700 amperes (20 Hz to 1.2 kHz)

Obviously, the formula may be transposed to solve for any of the listed factors.

Example problem: Calculate the maximum repetition rate for a current pulse of 8000 A peak with a pulse width of 250 μs.

$$f_p = \frac{(700)^2}{(8000)^2\ (250 \times 10^{-6})} = 30.6 \text{ Hz}$$

[b]Not included with Option 09.

Insertion Impedance

In measuring high current amplitudes with the CT-5, especially at higher frequencies, insertion impedance may be a factor to consider. Voltage drop due to insertion impedance could represent a significant percentage of the source voltage when working with a low-voltage source. For example, at 100 kHz the insertion impedance is approximately 4 mΩ. If a peak current of 250 amperes is to be measured, approximately 1 volt will be dropped across the section of the test conductor passing through the CT-5. Fig. 2-6 shows the typical insertion impedance versus frequency.

External Magnetic Field Susceptibility

This characteristic is affected by physical position of the CT-5 in relation to the external magnetic field. The specification of 35 mA/Gauss covers the most susceptible position. Best position can be determined by placing the CT-5 in various positions in relation to the field (without inserting the test conductor) while observing the oscilloscope display. In practice, the induced current may be too small to be of concern.

Minimizing Loading Effect

To minimize loading of critical circuits, connect the CT-5 at the low or ground end of the system being tested wherever possible. This will minimize the voltage feedthrough.

Increasing Sensitivity

To measure low current levels in conductors too large for the A6302 core opening, two or more loops may be passed through the CT-5. Sensitivity increases directly with the number of turns.

DC Current Distortions

The CT-5 will tolerate up to approximately 20 amperes of dc current without appreciable effect on the frequency response characteristics. Above this level, saturation increasingly affects the low-frequency performance. Fig. 2-7 illustrates the effect of dc current on low-frequency response. Measurement error also increases with dc currents above 20 amperes over the full bandwidth of the CT-5. Fig. 2-8 shows the typical measurement error with increasing dc current. Use of the DC Bucking Coil is recommended for applications where significant dc currents are present in the test conductor.

DC Bucking Coil

The DC Bucking Coil (Tektronix Part No. 015-0190-00) is a standard accessory to the CT-5[b]. It is useful for nullifying the effects of moderately high dc currents on the

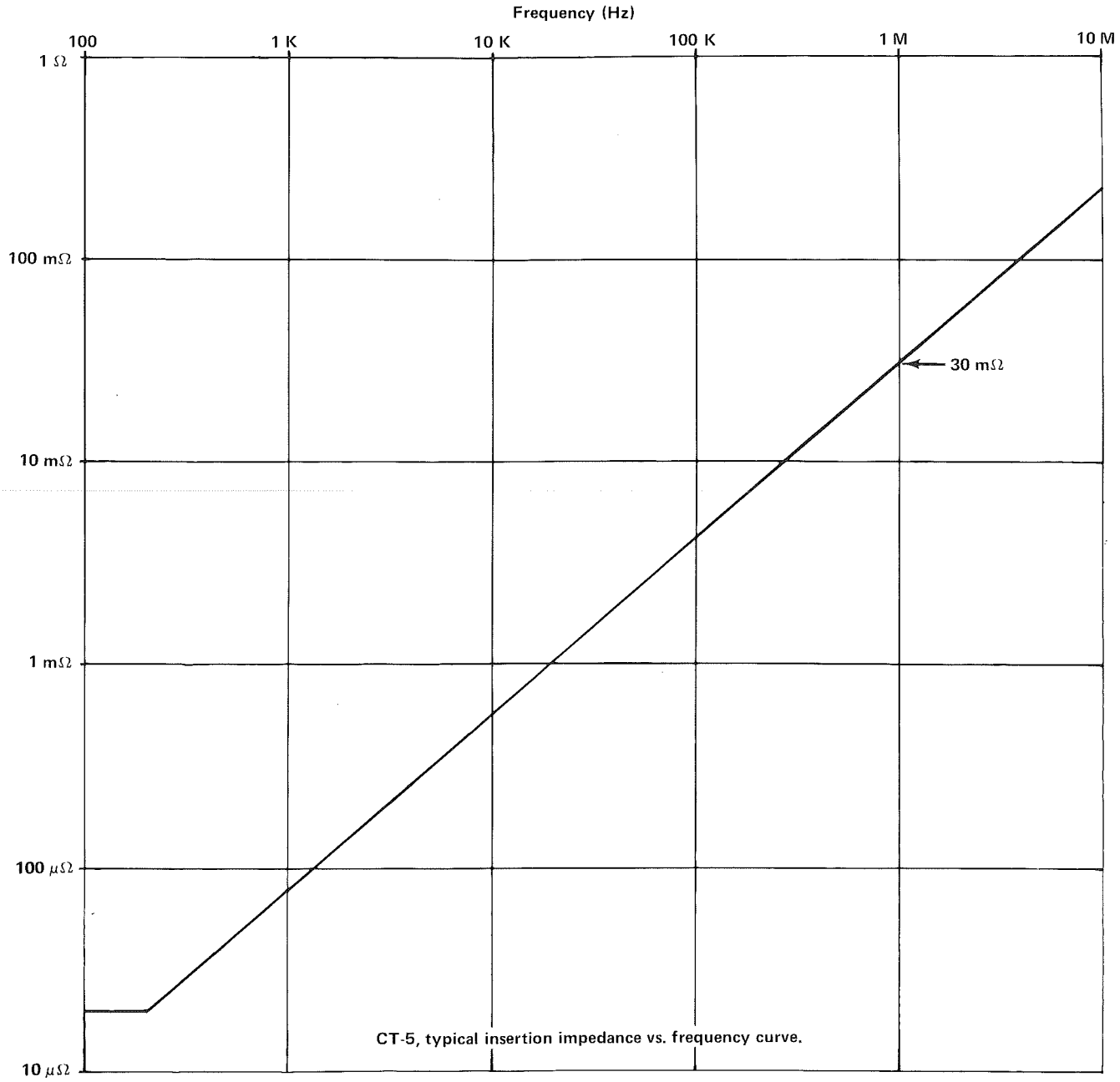


Fig. 2-6. CT-5, typical insertion impedance versus frequency curve.

transformer core. Normally, distortions due to core saturation occur when attempting to observe or measure ac signal currents in the presence of dc currents exceeding approximately 20 amperes. The DC Bucking Coil can negate saturating effects of dc currents up to 300 A, extending the maximum tolerance of the CT-5 to 320 A.

The bucking coil assembly includes a 1000-turn coil which slides over the stationary core of the CT-5, and a base unit which contains current-limiting resistors and a compensation network. An external power supply is required, with a variable output of 0 to 15 V, capable of supplying output current to 300 mA. The DC Bucking Coil requires 1 volt per 20 amperes bucking current, presenting a 50-ohm load to the power supply.

Only the 1000:1 Current Ratio receptacle should be used when using the DC Bucking Coil. When the bucking coil is mounted on the CT-5, a sample of the ac signal current is internally coupled back to the 1000:1 loop, compensating for objectionable aberrations which would otherwise be present. See the rear of this manual for circuit diagrams.

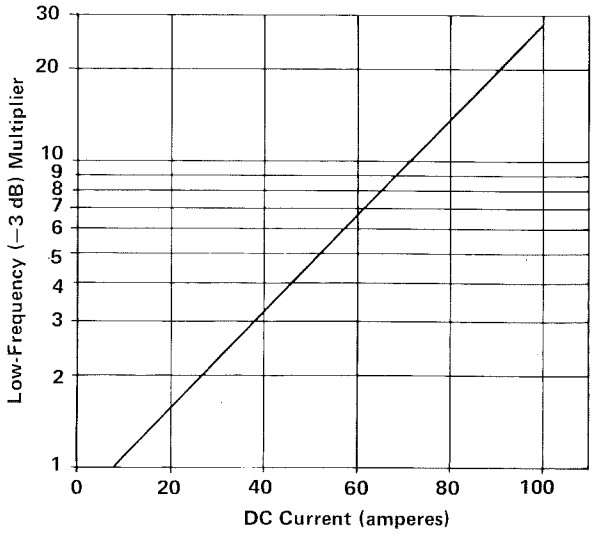


Fig. 2-7. Change in low-frequency response (−3 dB) with dc current present in the test conductor conductor. For example, the low-frequency response has moved up by a factor of 10 with 72 amperes of dc current.

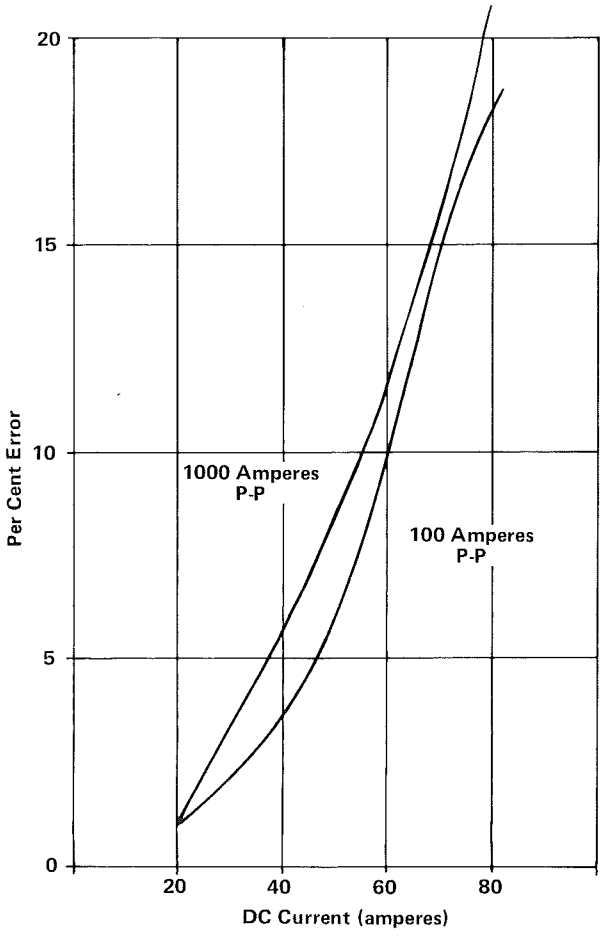


Fig. 2-8. CT-5, typical error introduced versus dc current in test conductor.

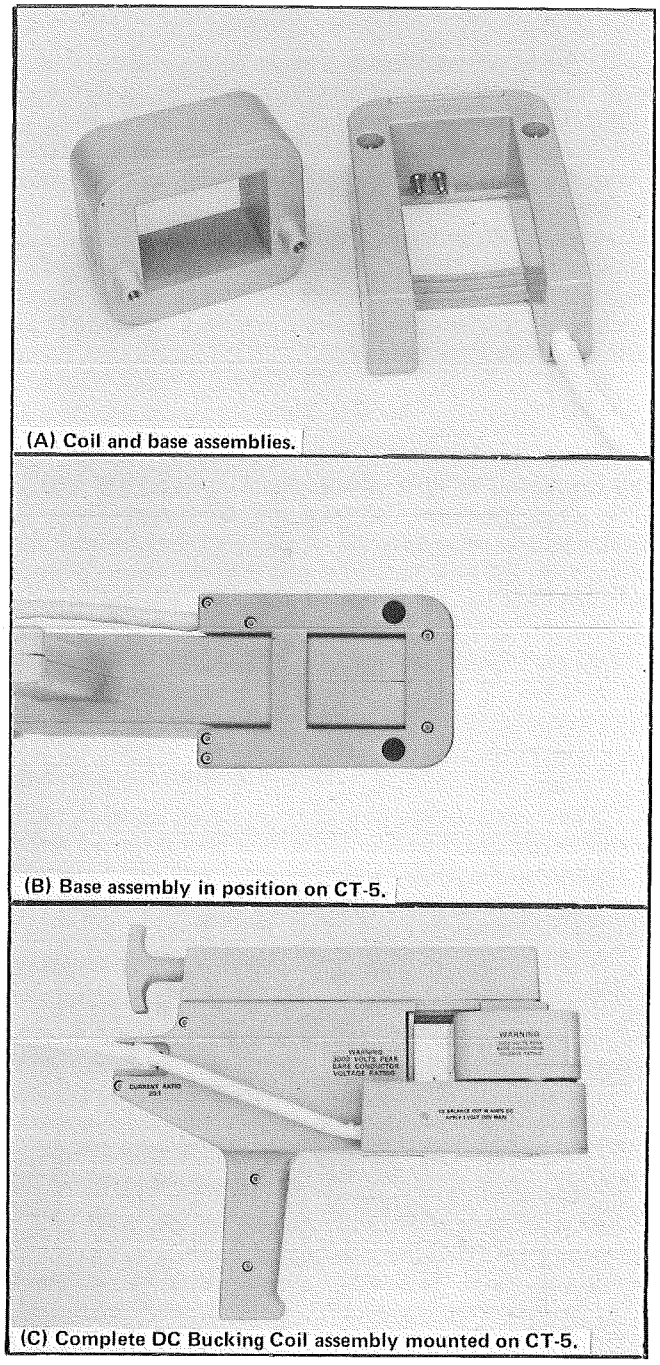


Fig. 2-9. DC Bucking Coil assembly.

Adjusting for Optimum DC Bucking Current

When measuring sinusoidal signals, optimum dc bucking current is determined by adjusting the bucking current for maximum amplitude of the sine wave display. For low-frequency flat-topped pulses, the bucking current should be set for minimum tilt of the pulse.

Mounting the DC Bucking Coil

Attaching the DC Bucking Coil assembly to the CT-5 is a very simple process, requiring only a screwdriver and approximately two minutes. To attach, refer to Fig. 2-9 and proceed as follows:

a. Slide the base over the lower front of the CT-5 core, engaging the two plugs on the base with the connector sockets on the front of the CT-5.

b. Release the Locking Lever and pull the sliding jaw of the CT-5 back to the stop.

c. Slide the bucking coil over the stationary core section so the mounting studs on the coil mate with the mounting screws on the base. Push the sliding jaw forward and lock.

d. Turn the CT-5 upside-down and firmly tighten the two mounting screws in the base. If a torque wrench is used, tighten to a maximum of 15 inch-pounds. Attach the power cable to the outer lip of the 20:1 Current Ratio receptacle.

NOTE

The power cable clip serves the dual function of supporting the cable and preventing use of the 20:1 Current Ratio receptacle while using the DC Bucking Coil.

Measuring DC Currents

The CT-5 with the DC Bucking Coil can be used to determine an approximation of the dc current in a test conductor. To perform this measurement, proceed as follows:

1. Connect the CT-5 to a current loop which is driven by a low-frequency square wave generator (10 to 15 Hz). The TEKTRONIX PG506 as used in Section 4 of this manual provides a good example. Note the amount of tilt in the square wave.

2. With the square wave current loop still connected in the CT-5, also connect the test conductor. Apply current to the DC Bucking Coil and increase until the square wave displays the same degree of tilt noted in step 1. The dc current in the bucking coil may be metered directly at the power supply, or can be determined from the source voltage (20 amperes per volt). Accuracy of this method is greater at higher dc current levels.

MAINTENANCE

Introduction

The CT-5 is a very rugged device and should give many trouble-free hours of operation when used within the specified limits. However, if the CT-5 becomes damaged, replacement parts are available. Refer to the exploded view and parts list in the rear of this manual for Tektronix Part Numbers.

PREVENTIVE MAINTENANCE

Preventive maintenance consists of cleaning, visual inspection, and lubrication of sliding surfaces. The environment in which the CT-5 is used will determine how frequently is should be cleaned and lubricated. For typical conditions, the unit should be serviced every 12 months or 2000 hours of use, whichever comes first.

Disassembly

To clean and lubricate the CT-5, it must be completely disassembled. To perform this operation, remove the DC Bucking Coil (if used). Referring to the exploded view in the rear of this manual, remove the 7 exterior and 4 interior screws, using 7/64-inch and 3/32-inch hex wrenches. To separate the stationary transformer subassembly from the left body half, the conductor held in the 1000:1 loop should be removed by uncrimping the loop. Disassemble the individual components as indicated in the exploded view.

Cleaning Procedure

Use a soft bristle brush to dislodge the dust and wipe clean with a lint-free cloth. An alcohol-type cleaner may be used to remove persistent dirt. Avoid use of chloride cleaning agents, as they may craze or discolor the plastic. No abrasives should be used in areas containing printing.

Lubrication

Areas requiring lubrication are indicated by the small diamond-shaped symbols and arrows on the exploded view. The recommended lubricant is Lubriplate A Type 105 (Tektronix Part No. 006-0617-00). This type is commonly available at your local hardware store.

Reassemble, again using the exploded view as a guide. Don't forget to replace the conductor in the 1000:1 loop and recrimp the loop. If a torque wrench is available, tighten all assembly screws to 15 inch-pounds (overtightening may crack the plastic components).

REPACKAGING FOR SHIPMENT

If the CT-5 is to be shipped to a Tektronix Service Center for service or repair, attach a tag showing the owner (with address), the name of an individual at your firm who may be contacted, complete instrument serial number and a description of the service required.

Save and reuse the original packaging. If the original packaging is unfit for use or not available, repackage the instrument as follows:

1. Obtain a corrugated cardboard carton having inside dimensions of no less than 2 inches more than the instrument dimensions to allow cushioning. Use a carton having a test strength of at least 200 pounds.

2. Surround the instrument with polyethylene sheeting to protect the finish.

3. Cushion the instrument on all sides by tightly packing dunnage or urethane foam between the carton and the instrument, allowing 2 inches on all sides.

4. Seal carton with shipping tape or industrial stapler.

PERFORMANCE CHECK

Introduction

Characteristics of the CT-5 are fixed, no calibration adjustments are needed. High-frequency response, current-handling capability, breakdown voltage, and other characteristics should remain unchanged with time or normal usage.

The only moving parts on the CT-5 are the sliding core segment and the locking lever. If foreign material, such as a small piece of insulation or wire clipping becomes lodged in the jaw area, or if the locking lever fails to work properly, the low-frequency response of the CT-5 will be adversely affected. Since either of these conditions could occur without being obvious, it is recommended that the low-frequency response be checked periodically.

Table 4-1
Test Equipment Required

Item	Minimum Requirements	Recommended Example
Oscilloscope	Sensitivity: 10 mV/div, dc coupled.	TEKTRONIX 7603 with 7A15A and 7B50A Plug-Ins.
Square Wave Generator	Output current capability 100 mA into 50 Ω, variable. Repetition rate 10 Hz to 100 Hz, continuously variable.	TEKTRONIX PG506[a].
Current Probe Amplifier	TEKTRONIX AM503[a].	
Current Probe	TEKTRONIX A6302.	
50 Ω BNC Feed-Through Termination (2 required)		Tektronix Part No. 011-0049-01.
BNC Cable		Tektronix Part No. 012-0482-00.
Adapter	BNC Male-to-dual banana jack.	Tektronix Part No. 013-0035-00.
Adapter	BNC Female-to-dual banana plug.	Tektronix Part No. 013-0090-00.
Patch Cord	Dual banana plugs.	Tektronix Part No. 012-0031-00.

[a]**Requires a TEKTRONIX TM500- or TM5000-Series Power Module Mainframe.**

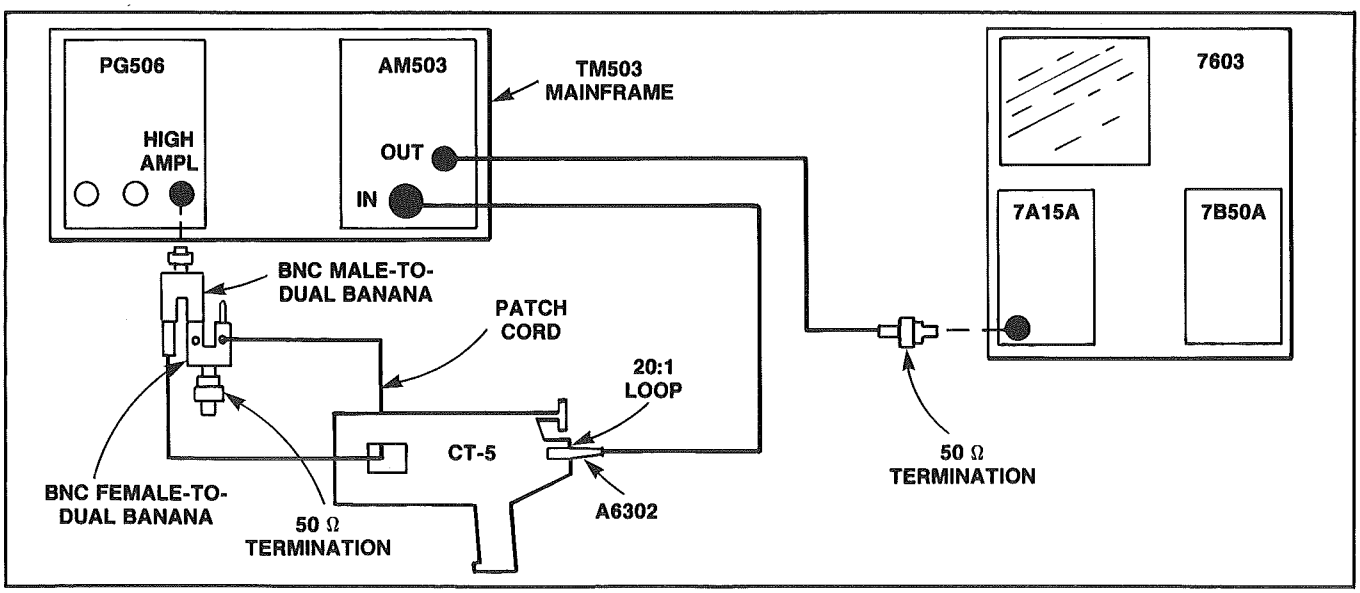


Fig. 4-1. Equipment setup for checking low-frequency response.

PROCEDURE

Test Equipment Required

The test equipment listed in Table 4-1, or its equivalent, is required for completion of this procedure. If equipment is substituted, control settings or test equipment setup may need to be altered. Substitute equipment must meet or exceed the minimum requirements given.

CT-5 Only

a. Connect the CT-5 and test equipment as shown in Fig. 4-1. Connect the BNC male-to-banana jack adapter to the High Amplitude output BNC of the PG506. Connect a 50 Ω termination to the BNC female-to-banana plug adapter. Place one leg of the BNC female-to-banana plug adapter in one leg of the BNC male-to-banana jack adapter. String the patch cord through the CT-5 core center and into the remaining open legs of the two banana adapters.

b. Set the oscilloscope time/div to 10 ms/div and volts/div to 10 mV/div. Set the input coupling to dc.

c. Set the Current/div on the AM503 to 1 mA/div. The A6302 should be clamped onto the 20:1 Current Ratio loop of the CT-5.

d. Set the PG506 PERIOD to 10 ms and adjust the Amplitude control for 5 divisions of vertical deflection on the oscilloscope.

e. Adjust the PG506 PERIOD variable control so that one complete cycle occurs in 8 major divisions on the screen (80 ms).

f. Position the display horizontally so that the positive half-cycle ends on the graticule center line. Position the display vertically to place the start of the top of the square wave on the line 2 major divisions above the center line.

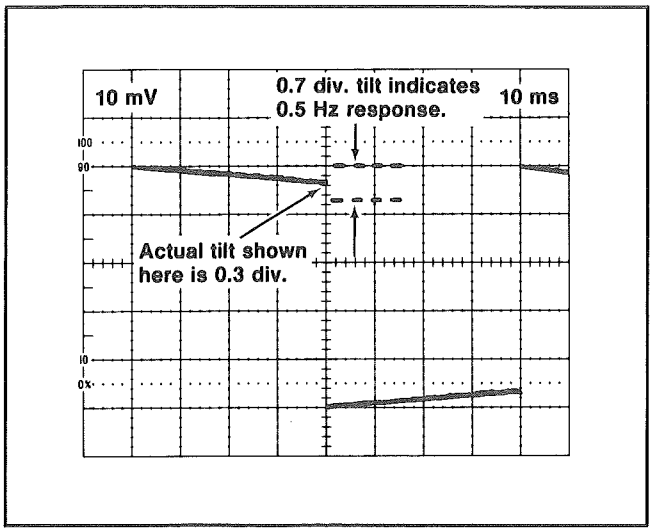


Fig. 4-2. Typical response of the CT-5 with A6302/AM503 to a low-frequency square wave. A tilt of 0.7 division indicates a −3 dB response of 0.5 Hz.

g. Measure the tilt of the positive half-cycle. The tilt should be 0.7 division or less, indicating a low-frequency response of 0.5 Hz or lower (see Fig. 4-2).

CT-5 with DC Bucking Coil

Attach the DC Bucking Coil assembly to the CT-5. The bucking coil power leads should be connected to a DC power supply with the voltage set to 0 V, or the lead should be shorted together with a jumper.

The low-frequency response is checked in the same manner as for the CT-5 (previously described). The tilt should be 1.1 division or less, indicating a low-frequency response of 1 Hz or lower.

PARTS LIST AND DIAGRAMS

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest circuit improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

ITEM NAME

In the Parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear as incomplete. For further Item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentation system used in the description column.

1 2 3 4 5 Name & Description

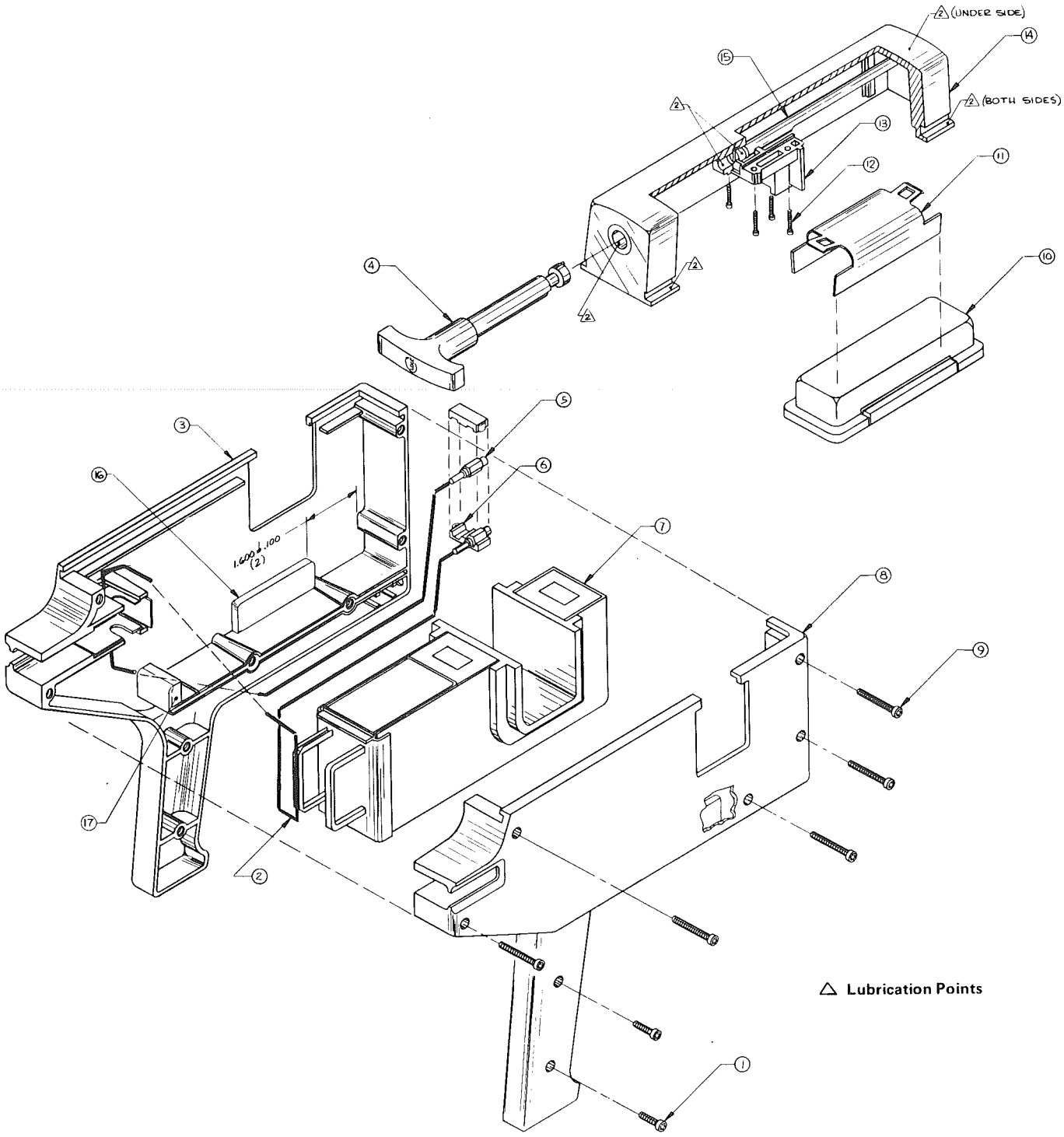
Assembly and/or Component
Attaching parts for Assembly and/or Component
••••END ATTACHING PARTS••••
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
••••END ATTACHING PARTS••••
Parts of Detail Part
Attaching parts for Parts of Detail Part
••••END ATTACHING PARTS••••

Attaching Parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation.

Attaching parts must be purchased separately, unless otherwise specified.

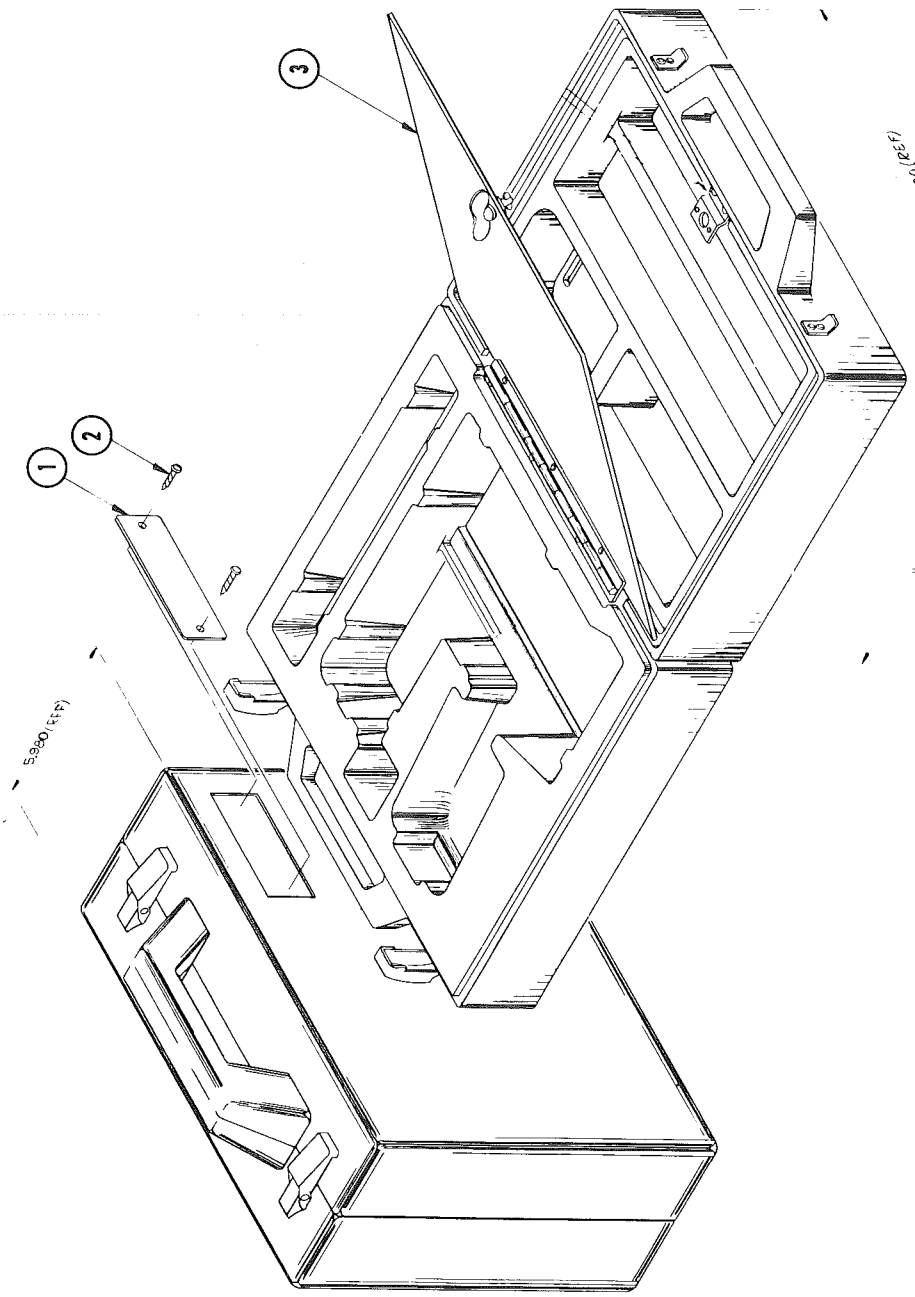
ABBREVIATIONS

"	INCH
#	NUMBER SIZE
ACTR	ACTUATOR
ADPTR	ADAPTER
ALIGN	ALIGNMENT
AL	ALUMINUM
ASSEM	ASSEMBLED
ASSY	ASSEMBLY
ATTEN	ATTENUATOR
AWG	AMERICAN WIRE GAGE
BD	BOARD
BRKT	BRACKET
BRS	BRASS
BRZ	BRONZE
BSHG	BUSHING
CAB	CABINET
CAP	CAPACITOR
CER	CERAMIC
CHAS	CHASSIS
CKT	CIRCUIT
COMP	COMPOSITION
CONN	CONNECTOR
COV	COVER
CPLG	COUPLING
CRT	CATHODE RAY TUBE
DEG	DEGREE
DWR	DRAWER
ELCTRN	ELECTRON
ELEC	ELECTRICAL
ELCTLT	ELECTROLYTIC
ELEM	ELEMENT
EPL	ELECTRICAL PARTS LIST
EQPT	EQUIPMENT
EXT	EXTERNAL
FIL	FILLISTER HEAD
FLEX	FLEXIBLE
FLH	FLAT HEAD
FLTR	FILTER
FR	FRAME or FRONT
FSTNR	FASTENER
FT	FOOT
FXD	FIXED
GSKT	GASKET
HDL	HANDLE
HEX	HEXAGON
HEX HD	HEXAGONAL HEAD
HEX SOC	HEXAGONAL SOCKET
HLCPS	HELICAL COMPRESSION
HLEXT	HELICAL EXTENSION
HV	HIGH VOLTAGE
IC	INTEGRATED CIRCUIT
ID	INSIDE DIAMETER
IDENT	IDENTIFICATION
IMPLR	IMPELLER
IN	INCH
INCAND	INCANDESCENT
INSUL	INSULATOR
INTL	INTERNAL
LPHLDR	LAMPHOLDER
MACH	MACHINE
MECH	MECHANICAL
MTG	MOUNTING
NIP	NIPPLE
NON WIRE	NOT WIRE WOUND
OBD	ORDER BY DESCRIPTION
OD	OUTSIDE DIAMETER
OVH	OVAL HEAD
PH BRZ	PHOSPHOR BRONZE
PL	PLAIN or PLATE
PLSTC	PLASTIC
PN	PART NUMBER
PNH	PAN HEAD
PWR	POWER
RCPT	RECEPTACLE
RES	RESISTOR
RGD	RIGID
RLF	RELIEF
RTNR	RETAINER
SCH	SOCKET HEAD
SCOPE	OSCILLOSCOPE
SCR	SCREW
SE	SINGLE END
SECT	SECTION
SEMICOND	SEMICONDUCTOR
SHLD	SHIELD
SHLDR	SHOULDERED
SKT	SOCKET
SL	SLIDE
SLFLKG	SELF-LOCKING
SLVG	SLEEVING
SPR	SPRING
SQ	SQUARE
SST	STAINLESS STEEL
STL	STEEL
SW	SWITCH
T	TUBE
TERM	TERMINAL
THD	THREAD
THK	THICK
TNSN	TENSION
TPG	TAPPING
TRH	TRUSS HEAD
V	VOLTAGE
VAR	VARIABLE
W/	WITH
WSHR	WASHER
XFMR	TRANSFORMER
XSTR	TRANSISTOR



CT-5 MECHANICAL PARTS

Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345 Name & Description	Mfr. Code	Mfr. Part No.
1-	015-0189-01			1	XFMR,HIGH CUR:CT-5 W/COIL	80009	015-0189-01
	015-0189-00			1	.XFMR,HIGH CUR:CT-5	80009	015-0189-00
-1	211-0627-00			2	..SCREW,CAP:6-32 X 0.5,SCH,STL,HEX REC	50394	ORDER BY DESCR
-2	175-0602-00			AR	..WIRE,ELEC:SOLID,22 AWG,600V RMS,WHITE,PVC	TK0282	ORDER BY DESCR
					..(1.25 FT REQUIRED)		
-3	204-0449-01	B010100	B023691	1	..BODY HALF,CT:LEFT W/SHIELD	80009	204-0449-01
	204-0448-02	B023692		1	..BODY,HALF CT:RIGHT & LEFT	80009	204-0448-02
-4	367-0137-00			1	..HANDLE,LATCH:	80009	367-0137-00
-5	131-1014-00			2	..CONTACT,ELEC:CONN,BRASS TIN PL	80009	131-1014-00
-6	343-0319-00			2	..RTNR,ELEC CONT:ABS PLASTIC	80009	343-0319-00
-7	120-0733-00			1	..TRANSFORMER,CUR:STATIONARY HALF	80009	120-0733-00
-8	204-0448-01	B010100	B023691	1	..BODY HALF,CT:RIGHT W/SHIELD	80009	204-0448-01
	204-0448-02	B023792		1	..BODY,HALF CT:RIGHT & LEFT	80009	204-0448-02
-9	211-0592-00			5	..SCREW,CAP:6-32 X 1.0,SCH,STL,HEX REC	50394	ORDER BY DESCR
-10	120-0732-00			1	..TRANSFORMER,CUR:UPPER HALF	80009	120-0732-00
-11	214-1500-00			1	..SPR,XFMR LOCATE:SLIDE HALF	80009	214-1500-00
-12	211-0183-00			4	..SCREW,CAP:4-40 X 0.5,SCH,STL,HEX REC	50394	ORDER BY DESCR
-13	343-0300-00			1	..RETAINER,HANDLE:NYLON	80009	343-0300-00
-14	351-0277-00			1	..SLIDE,CUR XFMR:8.765X1.95X1.6,GY NYLON	80009	351-0277-00
-15	384-0791-00			1	..SHAFT,LATCH:5.215 L X 0.437 OD,AL	80009	384-0791-00
-16	348-0070-01			2	..PAD,CUSHIONING:2.03 X 0.69 X 0.18 SI RBR	85471	ORDER BY DESCR
-17	348-0090-01			1	..PAD,CUSHIONING:0.69 X 0.46 X 0.312 SI RBR	85471	ORDER BY DESCR
	015-0190-00			1	.COIL,DC BUCKING:CT-5	80009	015-0190-00
					.(SEE 062-1387-00 DATA SHEET)		

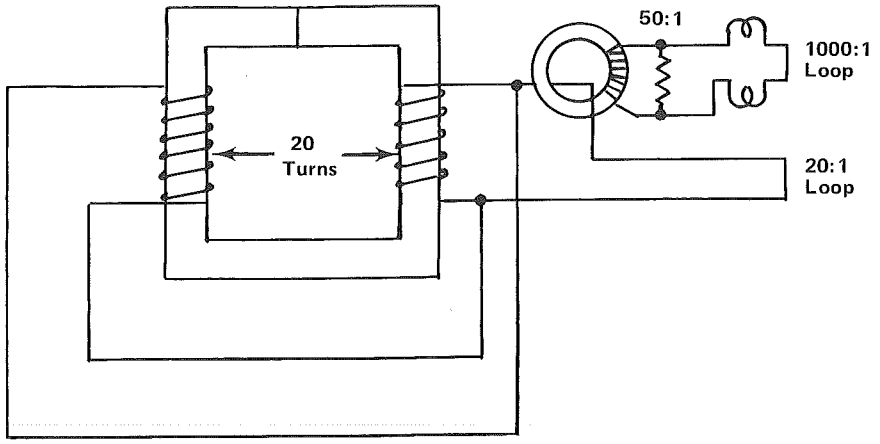


CT-5 CARRYING CASE
(016-0191-00)

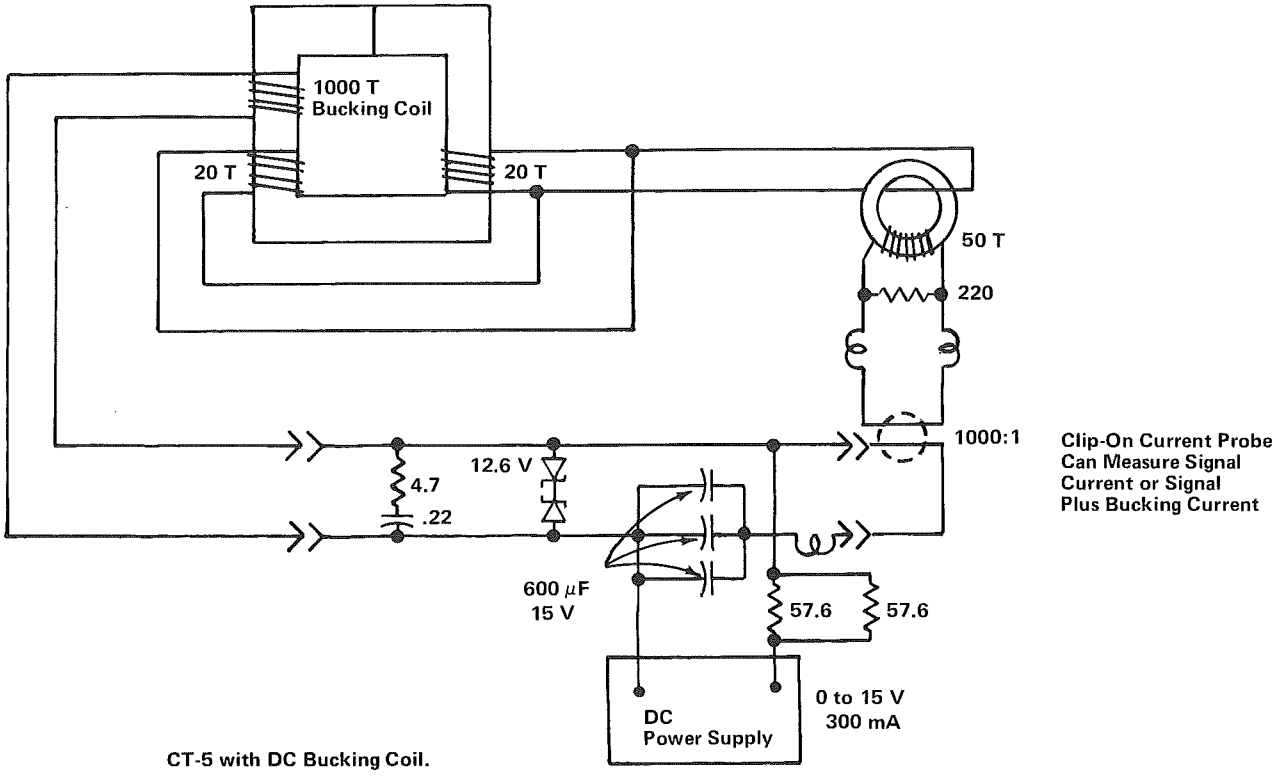
Fig. & Index No.	Tektronix Part No.	Serial/Assembly No. Effective	Dscont	Qty	12345	Name & Description	Mfr. Code	Mfr. Part No.
2-								
						STANDARD ACCESSORIES		
	015-0194-00			1		BUSHING,HV:12 IN	80009	015-0194-00
	016-0191-00	B000100	B001211	1		CASE,CRYG,PROBE:	80009	016-0191-00
	016-0191-03	B001212		1		CASE,CRYG,PROBE:	80009	016-0191-03
	070-1130-00			1		MANUAL,TECH:INSTRUCTION	80009	070-1130-00
	062-1387-00			1		DATA SHEET:	80009	062-1387-00
						CARRYING CASE REPLACEMENT PARTS		
	016-0191-00			1		CASE,CRYG,PROBE:	80009	016-0191-00
-1	334-1818-00			1		.PLATE,IDENT:MKD CT-5 HIGH CURRENT XFMR	80009	334-1818-00
-2	213-0120-00			2		.SCREW,TPG,TF:2-32 X 0.25,TYPE B,PNH,STL	83385	ORDER BY DESCR
-3	200-1257-00			1		.LID,CARRY CASE:	80009	200-1257-00
	016-0191-03			1		CASE,CRYG,PROBE:	80009	016-0191-03
	334-2084-08			1		.PLATE,IDENT:MKD CT-5	80009	334-2084-08
	202-0200-00			1		.CASE,CARRYING:18.5 X 5.0 X 14.5,PLSTC,BLU	53718	RX313
	348-0378-00			1		.PAD,CUSHIONING:17.0 X 13.0 X 1.25 URETHANE FOAM	80009	348-0378-00
	436-0124-00			1		.TRAY,XFMR CASE:	80009	436-0124-00

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
50394	SPS TECHNOLOGIES INC UNBRAKO DIV	HIGHLAND AVE	JENKINTOWN PA 19046
53718	GRACE W R AND CO AIRMOLD DIV	BECKER FARMS INDUSTRIAL PK P O BOX 610	ROANOKE RAPIDS NC 27870
80009	TEKTRONIX INC	4900 S W GRIFFITH DR P O BOX 500	BEAVERTON OR 97077
83385	MICRODOT MANUFACTURING INC GREER-CENTRAL DIV	3221 W BIG BEAVER RD	TROY MI 48098
85471	BOYD INDUSTRIAL RUBBER DIV OF A B BOYD CO	2527 GRANT AVE	SAN LEANDRO CA 94579
TK0282	SONIC WIRE SALES INC	2698 MARINE WAY	MOUNTAINVIEW CA 94043



CT-5 High-Current Transformer



CT-5 with DC Bucking Coil.