



MODEL	DESCRIPTION	BULLETIN	
		<u>OLD</u>	<u>NEW</u>
CSS-2	Frequency Standard	6005A	207-1316
KTL-17	Electronic Repair Kit		207-2010
KTL-64	Relay Service Kit		207-2030
KTL-69	Printed Circuit Repair Kit		207-2020
KTL-77	Field Engineer's Tool Kit		207-2050
KTL-81	Designer Kit		207-2060
KTL-90	Precision Instrument Repair Kit		207-2070
KTL-99	Mechanical Repair Kit		207-2080
PTE-4	R.F. Spectrum Analyzer	6001	207-1214
SWR-1K	Standing Wave Ratio Indicator	2014	207-1401
SWR-10K	Standing Wave Ratio Indicator	2031	207-1402
TTG-2	Test Tone Generator	6002	207-1311
TP Series	Misc. Tools		207-3000



TECHNICAL BULLETIN NUMBER 6005

Primary Frequency Standard
TMC Model CSS-2



Model CSS-2

The Model CSS-2 Primary Frequency Standard is Technical Materiel Corporation's newest frequency standard. Completely transistorized, it features highly stable outputs at 10 mc, 1 mc, and 100 kc. Its basic crystal oscillator is contained in a hermetically sealed temperature-stabilized oven and has a stability of at least one part in 10^9 for 24 hours. A multi-turn front panel control with 3600 divisions provides total deviation of ± 100 parts in 10^9 . Additionally, Model CSS-2 will accept external DC correction voltage to provide correction of ± 100 parts in 10^9 . This circuit provides correction when the standard is used with a comparison unit and a still more stable frequency source, such as a standard VLF transmission, to increase stability by at least one order of magnitude. The electrical correction circuit can be remoted for central control and correction of more than one of this type of standard.

Features such as low current drain, small size, and ruggedness make it ideal for both mobile and fixed operation. Because of its versatility it is applicable in many areas where an ultra-stable frequency standard previously could not be used.

An accessory battery pack, Model BPS-1() automatically provides operating power in the event of AC power failure.

TMC's new completely transistorized Model LFS-1 synthesizer (described in Bulletin 6004) will provide adjustable output frequencies between 100 cps and 99.999 kilocycles in one cycle steps with the same high stability, when used with this standard.

Primary Frequency Standard

TECHNICAL SPECIFICATIONS, TMC MODEL CSS-2

STABILITY:	At least 1 part in 10^9 for 24 hours after warm-up of 24 hours.
FREQUENCY ADJUSTMENT:	Multi-turn front panel control with 3600 divisions provides total deviation of ± 100 parts in 10^9 with resettable accuracy of 1 part in 10^9 .
ELECTRONIC CORRECTION:	The frequency of the standard can be varied ± 100 parts in 10^9 by application of appropriate DC control voltage.
OUTPUTS (FRONT PANEL):	<ol style="list-style-type: none">1. 1 mc at 1 volt across 50 ohm load (BNC).2. 100 kc at 1 volt across 50 ohm load (BNC).3. 10 mc at 1 volt across 50 ohm load (BNC). (1, 2 and 3 are outputs from transistor amplifiers.)
OUTPUTS (REAR PANEL):	<ol style="list-style-type: none">1. 1 mc at 1 volt across 50 ohm load (BNC).2. 100 kc at 1 volt across 50 ohm load (BNC).3. 10 mc at 1 volt across 50 ohm load (BNC). (1, 2 and 3 are in parallel with front panel outputs.) <ol style="list-style-type: none">4. 1 mc output direct from standard through isolation resistor.
FRONT PANEL METER:	A front panel meter is provided which is switchable to the following functions: <ol style="list-style-type: none">1. Monitors operating voltage.2. Indicates correct oven temperature.3. Meters all amplified output signals.
OPERATING POWER:	105/115/125/210/230/250, 50/60 cycle single phase AC, 10 watts maximum.
BATTERY SUPPLY: (accessory equipment) Model BPS-1()	Batteries capable of operating the unit for a minimum of 4 hours. Batteries are maintained on trickle charge and will automatically power the unit in the event of AC power failure. Unit power consumption on battery operation, 5 watts.
DIMENSIONS:	3½" × 19" × 13¾" deep.
WEIGHT:	8 lbs.
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.

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ELECTRONIC MAINTENANCE TOOL KIT KTL-17

TECHNICAL BULLETIN 207-2010



KTL-17 tool kits include virtually every standard tool required for field adjustment or repair, and are particularly suited for maintenance of electronic communications, radar, computers and office equipment of all kinds.

Over 50 fastener tools are provided, in each kit, including screwdrivers, nut-drivers, hexagonal and spline drivers, wrenches and sockets. In addition, there are seven pairs of pliers, from heavy-duty channel-locks to fine instrument dykes. Other items include a selection of specialty tools such as contact burnishers, spring tools, oiler, flashlight, dental mirror, soldering iron and portable voltmeter. Most of the tools are mounted on two removable pallets which hold the tools securely in a well-organized manner for easy selection and use.

The deluxe cases feature hardwood construction with Llama-grain covering and solid brass hardware. Roomy compartments are provided in the bottoms of the cases for larger tools, special tools and spare parts. Spaces for service manuals, schematics, and documents are provided in the covers.

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LIST OF TOOLS
Model KTL-17
Electronic Maintenance Tool Kit

Allen-hex driver blade set, 9 pieces .050-3/16"	Screwdriver, Phillips, No. 1, 3" blade
Alignment tool set, 2 multi-purpose tools	Screwdriver, Phillips, No. 2, 4" blade
Burnishers, contact type, set of 3	Screwdriver, Phillips, stubby, No. 2, 1-5/16" blade
Calculator, inch to metric	Screwdriver, regular, 3/32", 2" blade
Center punch, 3/32" point	Screwdriver, regular, 1/8", 8" blade
Crimping tool, with bolt cutter and stripper	Screwdriver, regular, 3/16", 3" blade
Feeler gauge, 11 blades	Screwdriver, regular, 1/4", 4" blade
Flashlight, 2-cell	Screwdriver, regular 5/32", 3" blade
Hammer, ball pein, 4 oz. head	Screwdriver, regular 5/16", 6" blade
Handle for hex, spline, and nutdriver blades, 3"	Screwdriver, regular stubby, 1/4", 1-1/4" blade
Handle for hex, spline, and nutdriver blades, 4"	Screwdriver, screwholding type
Icepick-scribe	Scissors, electrician's type
Knife, multi-purpose electrician's type	Spline driver blade set, 6 pieces, .048-.096
Mirror, dental type	Spring hooks-push tool, pull tool
Nutdriver, blade set, 9 pieces 3/16 to 1/2"	Soldering iron
Oiler, long-reach instrument type	Solder aid, fork and hook
Pin-punch set, 2 pieces, 1/16 and 1/8"	Solder brush
Pliers, diagonal cutter, 5"	Solder, small coil
Pliers, instrument type chain-nose, 4-3/4"	Tweezers, reverse action, 4-3/4"
Pliers, long-nose with side cutter, 6"	Wire stripper-cutter, adjustable stop
Pliers, miniature cutters, 4-1/4"	Wrench, adjustable, 4"
Pliers, retaining ring, external	Wrench, adjustable, 8"
Pliers, retaining ring, internal	Wrench set, 1/4"-drive sockets with ratchet, spinner and extensions
Pliers, utility power track, 10"	Wrench set, 5-piece ignition-type open-end
Rule, stainless 6", with wire gauge	VOM test meter, 20,000 ohms per volt, 18 measurement scales (optional item)
Screwdriver, jeweler's, 6 blades .025-.100"	Case, attache-type with removable tool pallets and compartments for parts and documents
Screwdriver, offset type No. 6-10 screws	
Screwdriver, Phillips, No. 0, 2" blade	

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PRECISION INSTRUMENT REPAIR KIT Model KTL-90

TECHNICAL BULLETIN 207-2070



The KTL-90 Instrument Repair Kit contains more than 60 carefully selected precision tools used by instrument technicians, engineers and electronic technicians who work on very intricate and delicate instruments or assemblies. It is ideal for servicing, repair and assembly of precision electronic equipment.

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LIST OF TOOLS
Model KTL-90
Precision Instrument Repair Kit

Anvil, watchmaker's	Rule, 6" with wire gauge
Blower, hand operated, watchmaker's	Scissors, iris-type, 4½"
Broach set, smoothing, 13-pieces	Screwdriver, #0 Philips, 2" blade
Burnisher/contact type	Screwdriver, #1 Philips, 3" blade
Drill set, 20 drills, #61-80	Screwdriver, regular, 1/8", 2" blade
File set, needle type, 8-pc., 4"	Screwdriver, regular, 1/8", 6" blade
Hammer, ball pein, 4 oz.	Screwdriver, regular, 3/16", 4" blade
Hand drill, miniature	Screwdriver set, jeweler's, .025-1"
Handle for driver blades, 3"	Scribe
Hemostat clamp, 5" straight	Solder aid, fork and hook
Hex blade set, 6-pc., .050-1/8"	Solder brush
Knife set, precision, 10-pc.	Soldering iron, miniature, 15W.
Lamp, high intensity, miniature	Solder removal bulb
Loupe, magnifying, 10 power	Spline blade set, 5-pc., .048-.076"
Mirror, dental type	Spring tool
Nutdriver blade set, 3/16-1/4"	Tweezers, Dumont type, style #7
Nutdriver set, miniature, 5/64-5/32"	Tweezers, Dumont type, style #00
Oiler, long-reach, instrument type	Vise, hand type
Pin punch set, 2-pc., 1/16" and 1/8"	Wire stripper-cutter, adjust. stop
Pliers, long-nose, 6"	Wrench, adjustable, 4"
Pliers, miniature cutters, 4-1/4"	Wrench set, open and 3/32-5/16"
Pliers, retaining ring, external	Case, attache, 16-1/4 x 11-5/8 x 3-1/4"
Pliers, groove-joint, opens to 1"	inside, with removable pallet
Optional: VOM test meter, 20,000 ohms per volts, 18 measurement scales	

Technical Specifications Are Subject to Change Without Notice

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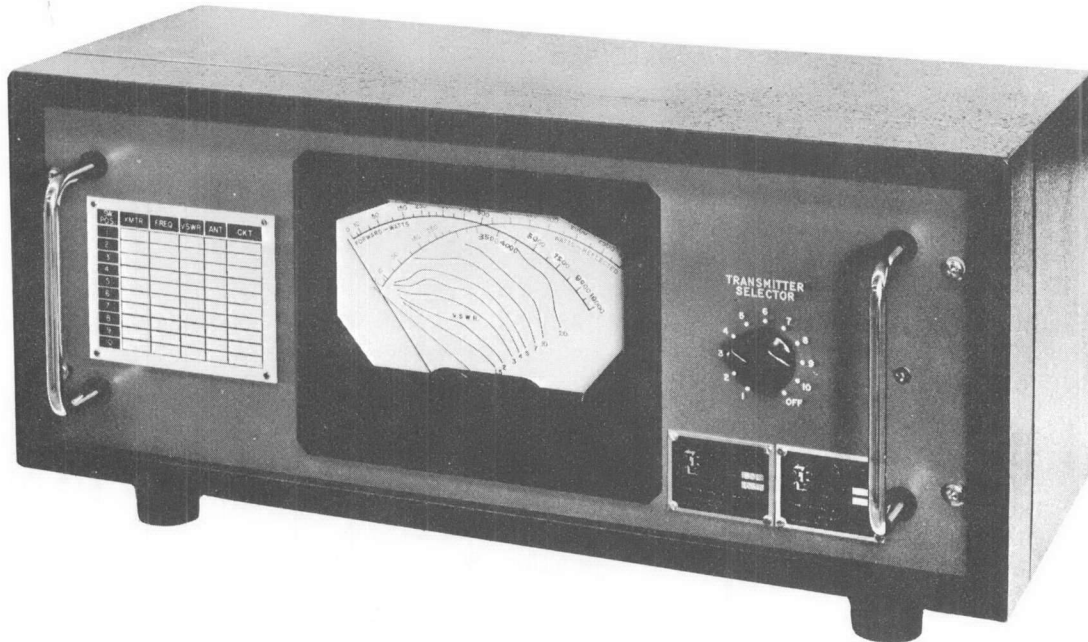
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Standing Wave Ratio Indicator
TMC Model SWR-10K/50U



The TMC Model SWR-10K/50U, Standing Wave Ratio Indicator, provides an accurate indication of the voltage standing wave ratio for up to ten 50 ohm transmission circuits over the frequency range of 2 to 30 megacycles. The unique design of the instrument permits simultaneous indications of incident RF power, reflected RF power and direct readings of Standing Wave Ratio. A ten position switch is used to select the transmission line on which measurements are to be made.

The power rating of the system is 10,000 watts average RF with a maximum VSWR of 5:1. The equipment consists of two units, the SWR Meter and SWR Coupling Unit. The meter is available in two forms:

1. Mounted in a standard 19" rack panel with a ten position selector switch which is used in a supervisory position in conjunction with up to ten coupling units.
2. Same as above but mounted in a cabinet.

Standing Wave Ratio Indicator

The coupling unit should be placed in the coaxial line as close to the transmitter as possible. The coupling unit output is DC and is connected back to the meter panel by means of two coaxial cables for RF shielding.

The junction box allows a portable meter to be connected at a transmitter position either permanently or temporarily, and permits the coupler output to be switched to either the portable meter or the supervisory meter. This junction box is only required where a portable meter is to be used in conjunction with a standard meter.

UNIT DESCRIPTION

A. Model SWR-1K RM Control Indicator	SWR Meter Panel with 10 position selector switch. Standard 19" relay rack mount.
B. Model SWR-10K PM Portable Control	Portable SWR Meter Unit, hand held or bracket mounted.
C. Model SWR-10K CU-50 Directional Control Indicator	50 ohm system coupling unit, with 1 $\frac{5}{8}$ " EIA flange.
D. JB-1 Junction Box	Junction Box, furnished with bracket for ease in mounting to transmitter.

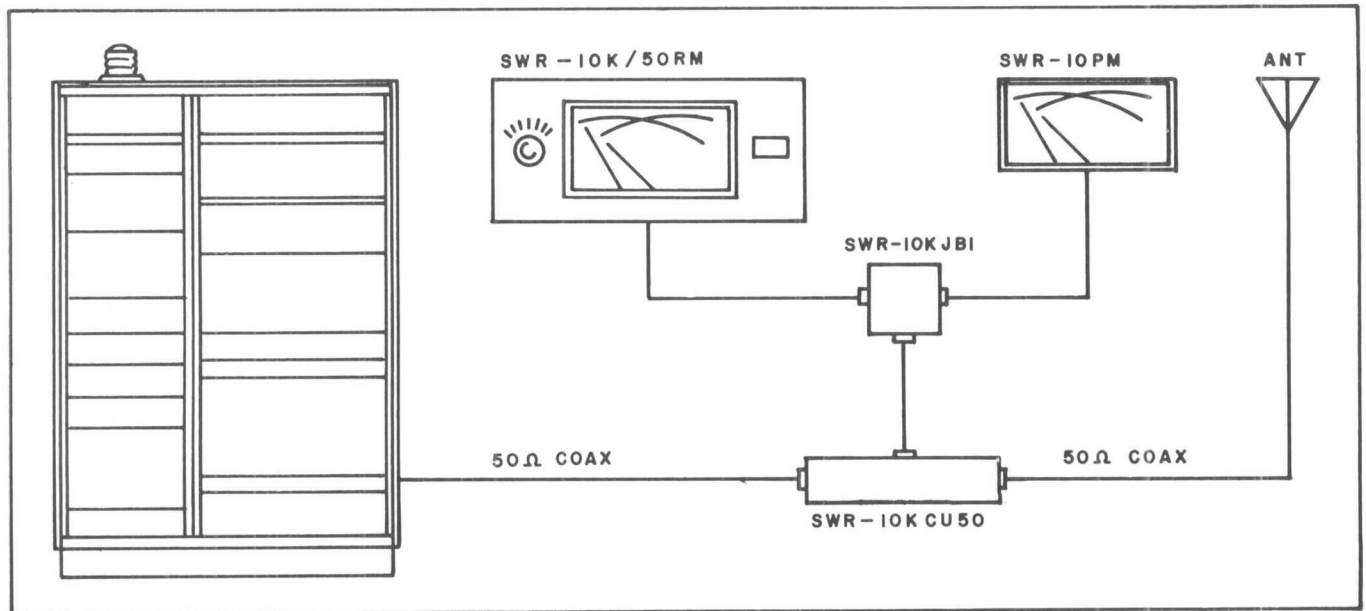
TECHNICAL SPECIFICATIONS

FREQUENCY RANGE:	2 to 30 mcs.
POWER CAPACITY:	10,000 watts average with a maximum VSWR of 5:1.
ACCURACY:	Within $\pm 5\%$ for SWR readings.
DIAL CALIBRATION:	Analog isolines directly indicate VSWR. Power indication on linear scales.
SIZE AND WEIGHT:	

	SIZE	WEIGHT
CONTROL INDICATOR (in cabinet)	20½" × 8½" × 9¾"	20 lbs. (approx.)
CONTROL INDICATOR (for rack mount)	19" × 7" × 8"	16 lbs. (approx.)
PORTABLE CONTROL INDICATOR	7" × 6" × 2"	2 lbs. (approx.)
DIRECTIONAL COUPLER (cylindrical)	6¾" × 3½"	5 lbs. (approx.)
JUNCTION BOX	3" × 3" × 1½"	1 lb. (approx.)

COMPONENTS AND
CONSTRUCTION:

All equipment manufactured in accordance with
JAN/MIL specifications wherever practicable.



Functional Block Diagram Model SW-10K/50U

We reserve the right to
make engineering changes.

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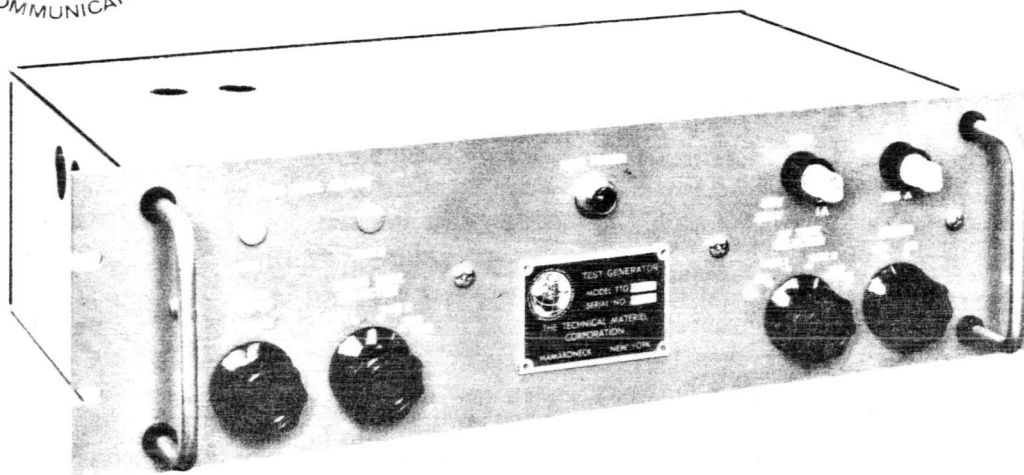
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TECHNICAL BULLETIN NUMBER 6002

Two Tone Generator
Model TTG-2
O-579A/URT



The Technical Materiel Corporation's Model TTG-2 (O-579A/URT) is a two-tone generator designed to be used with distortion analyzing equipment in the testing of single sideband exciters and transmitters.

The TTG-2 is unique for two important reasons:

1. The spacing of the two audio tones is such that the third, fifth *and seventh* order products may be presented.
2. Two RF tones are generated for the specific purpose of checking the proper operation of spectrum analyzing equipment.

The TTG-2 is supplied with the necessary cables and connectors for quick installation. All controls are on the front panel with AF and RF output on the rear apron.

TECHNICAL SPECIFICATIONS:

AUDIO FREQUENCY OSCILLATOR

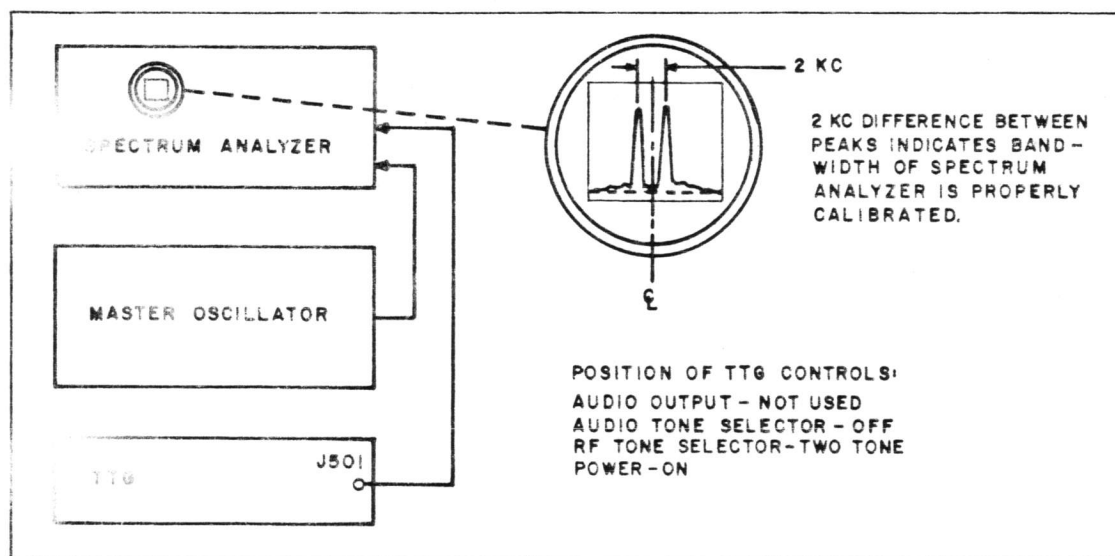
OUTPUT FREQUENCIES:	935 cps 2805 cps Either or both selectable from the front panel
HARMONIC DISTORTION:	More than 60 db down
INTERMODULATION DISTORTION:	More than 55 db down
OUTPUT IMPEDANCE:	600 ohms unbalanced
OUTPUT LEVEL:	0 to 0.5 volts continuously variable from front panel
OUTPUT CONNECTION:	Barrier Terminal Strip

Two Tone Generator, Model TTG-2

RADIO FREQUENCY OSCILLATOR

OUTPUT FREQUENCIES:	1999 kc crystal controlled 2001 kc crystal controlled Either or both selectable from the front panel
DIRECTION:	More than 60 db down
OUTPUT IMPEDANCE:	70 ohms unbalanced
OUTPUT LEVEL:	0.5 volt
OUTPUT CONNECTOR:	BNC
CONTROLS:	Power Switch AF Tone Selector RF Tone Selector Audio Output Control
PRIMARY POWER:	115/230 volts, 50/60 cps approximately 35 watts
SIZE:	19" W x 5¼" H x 13½" D
SHIPPING WEIGHT:	50 lbs.
COMPONENTS AND CONSTRUCTION:	Equipment manufactured in accordance with JAN/MIL specifications wherever practicable.

TYPICAL INSTALLATION



Specifications Are Subject to Change Without Notice

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