

microwave engineers

• The Hughes Research and Development Laboratories are engaged in basic and applied research and development programs in a wide variety of fields, including antennas, radomes, microwave and storage tubes, masers, ferrite devices, microwave circuitry, instrumentation, and other fields.

One of the several interesting problems is the design of feedback loops for locking the local oscillator klystron to an available reference signal. The requirements—good stability and low noise in a very trying environment.

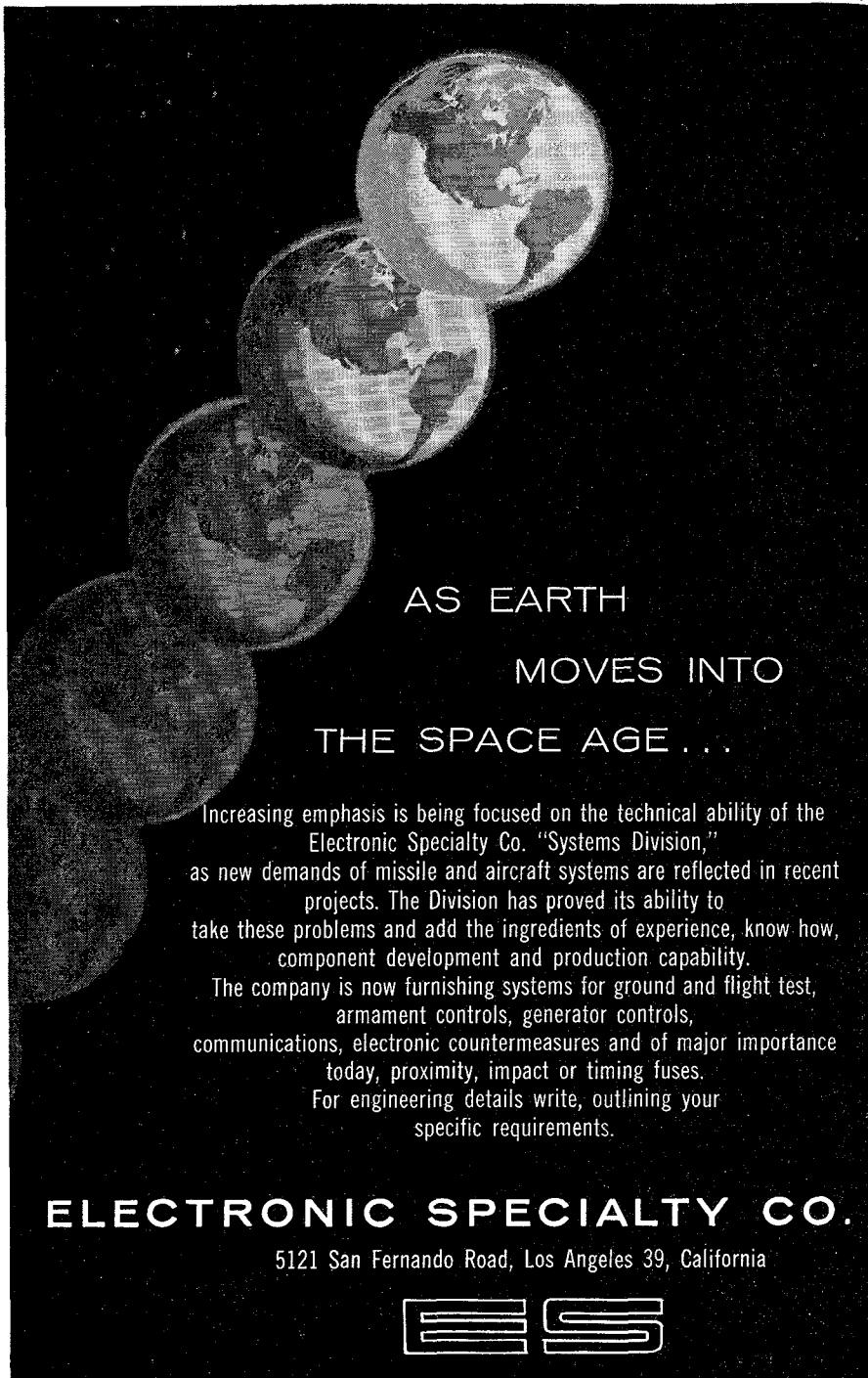
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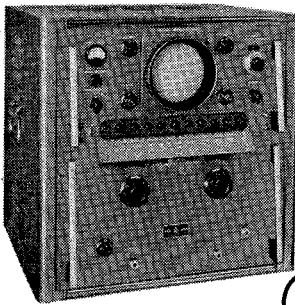
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New MICROWAVE INSTRUMENTATION

BROADBAND SPECTRUM ANALYZER

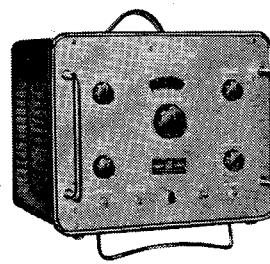
Type L701A: 950 to 2000 Mc/s (Fund.)
 Type S701A: 1900 to 4000 Mc/s (Fund.)
 Harmonic Operation: to 16,000 Mc/s
 Swept IF: 7 Kc and 50 Kc
 Sweep Width: 50 Mc
 RF Attenuator: 100 db Range
 Video Markers



701

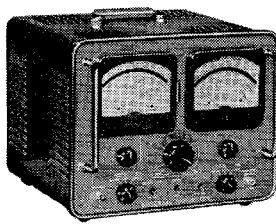
SIGNAL SOURCES

Type L771B: 950 to 2000 Mc/s
 Type S771B: 1900 to 4000 Mc/s
 Type C772A: 3950 to 8200 Mc/s
 Type X772A: 7000 to 10,750 Mc/s
 Output Power: 50 mw (average)
 Direct Reading Frequency Dial: 1%
 Internal Modulation: Pulsed, Square Wave, C.W.
 Integral RF Level Set Attenuator

771
772

UNIVERSAL RATIO METER

(COMBINED RATIO METER AND STANDING WAVE AMPLIFIER)
 RATIO METER—1000 cps operation
 VSWR Ranges: 1.02 to 1.22, 1.20 to ∞
 Reflection Coefficient: .01 to .1, .1 to 1.0
 Other Scales: db, Slotted Line VSWR
 Standing Wave Amplifier—1000 cps operation
 Range: 70 db in six 10 db steps
 Noise Level: .03 mv
 Scales: VSWR, db, Expanded VSWR
 Bolometer Bias: 4.5 and 8.75 ma
 Input Impedance: 200 ohms or 200 K ohms



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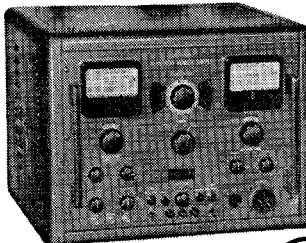
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UNIVERSAL KLYSTRON POWER SUPPLY

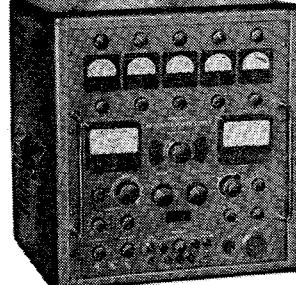
Beam: 200 to 2000 V, 125 ma max.,
 1800 to 3600 V, 100 ma or 250 W max.
 Reflector: 0 to 1000 V
 Control Grid: -300 to 0 to +150 V, 5 ma max.
 Regulation: 0.03%
 Ripple: 3 mv max.
 Internal Reflector Modulation: Square Wave, Pulse, Sawtooth, Sine Wave



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UNIVERSAL MICROWAVE POWER SUPPLY

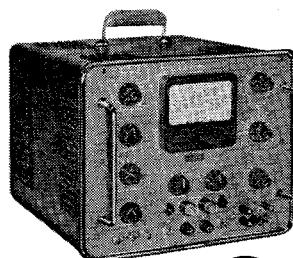
Helix or Beam: 0 to 1800 V, 125 ma max., 1700 to 3500 V, 100 ma or 250 W max.
 Collector: 0 to 300 V, 100 ma max.
 Anode: 0 to 600 V, 60 ma max.
 G-1: 0 to 300 V, 5 ma max.
 G-2 or Reflector: 0 to \pm 1200, 1 ma max.
 G-3: 0 to \pm 750, 1 ma max.
 G-4: 0 to \pm 500, 1 ma max.
 Regulation: 0.03%. Ripple: 3 mv max.
 Heater: 0 to 15 V D.C., Regulated.
 Internal G-1 or G-2 Modulation: Sine Wave, Square Wave, Pulse, Sawtooth.



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KLYSTRON POWER SUPPLY

Beam: 300 to 1000 V, 85 ma max.
 Reflector: 0 to 900 V, 20 μ a max.
 Control Grid: -300 to 0 to +150 V, 5 ma max.
 Regulation: 1%
 Ripple: 7 mv max.
 Internal Reflector Modulation: Square Wave, Pulse, Sawtooth



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