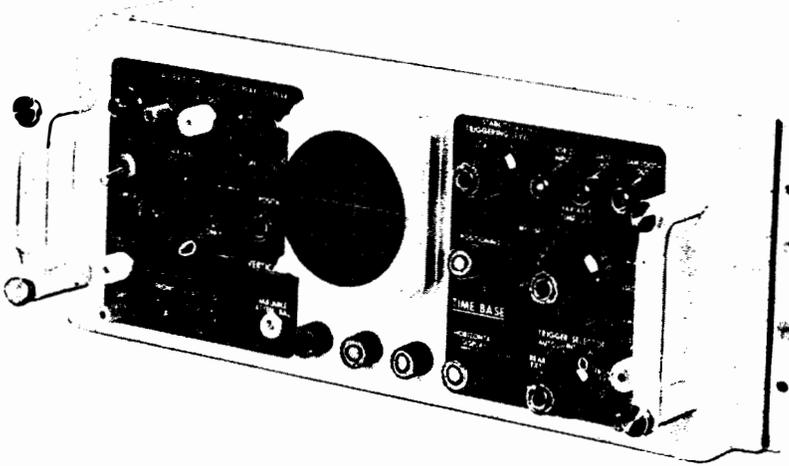


OSCILLOSCOPE**AN/USM-109****A 382***Oscilloscope AN/USM-109***FUNCTIONAL DESCRIPTION**

Oscilloscope AN/USM-109 is a compact, general purpose oscilloscope. It has calibrated vertical and horizontal amplifiers which permit easy measurement of various characteristics of the input signal, including amplitude, frequency, and pulse width.

No field changes in effect at time of preparation (12 January 1960).

EQUIPMENT REQUIRED BUT NOT SUPPLIED

(1) Senior Volt Ohmyst (RCA) Type WV-97A and High Voltage Probe (RCA) Type WG-289; (1) Square Wave Generator (Tektronix) Type 1-7 (or equal); (1) Time-Mark Generator (Tektronix) Type 180A (or equal); (1) Universal Polyranger (Sensitive Research and Instrument) Model USP; (1) Variac (General Radio) Model V-5MT; (1) Resistance Bridge ZM-4/U; (1) Signal Generator (Hewlett Packard) Model 650-A.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**VERTICAL DEFLECTION**

UNCLASSIFIED

INPUT IMPEDANCE

DIRECT CONNECTION: 1 meg in parallel with 38 uuf.

WITH ATTENUATOR PROBE: 10 meg in parallel with 13 uuf.

SENSITIVITY

CALIBRATED, AC COUPLED: 9 calibrated vertical sensitivities 0.01 to 50 μ per scale div, accurate within 3%.

UNCALIBRATED: Continuously variable sensitivities, 0.01 to 125 v per scale.div.

FREQUENCY RESPONSE (VARIABLE VOLTS/DIV. SWITCH AT ANY POSITION BETWEEN 0.1 AND 50).

AC COUPLED: 2 cps to 10 mc.

DC COUPLED: DC to 10 mc.

AC COUPLED, WITH ATTENUATOR PROBE: 0.2 cps to 10 mc.

AC COUPLED, WITH ATTENUATOR PROBE (SWITCH BETWEEN 0.01 AND 0.05): 1.3 cps to 10 mc.

RISE TIME: 0.035 usec.

HORIZONTAL DEFLECTION**SWEEP RATE**

CALIBRATED: 22 calibrated sweep rates from 2 sec to 0.2 usec per scale div, accurate within 3%.

UNCALIBRATED: Continuously variable

Test-Wave Form Measuring

AN/USM-109

OSCILLOSCOPE

sweep rates from 6 sec to 0.2 usec per scale div.

MAGNIFIER: Expands sweep 5 times to the right and left of the screen center; extends fastest sweep to 0.04 usec per scale div, accurate within 5%.

TRIGGERING SIGNAL

INTERNAL: Pulse with an amplitude equal to 0.2 scale div.

EXTERNAL: 0.2 to 10 v peak-to-peak.

FREQUENCY RANGE: DC to 15 mc.

SYNCHRONIZING FREQUENCY RANGE: 5 mc to 15 mc.

HORIZONTAL INPUT

DEFLECTION FACTOR: Approx 1.3 v per scale div.

FREQUENCY RESPONSE: DC to 500 kc.

VOLTAGE CALIBRATOR

OUTPUT WAVEFORM: Square wave at approx. 1 kc.

VOLTAGES: 11 fixed voltages from 0.05 to 100 v peak-to-peak; accurate within 3%.

OUTPUT WAVEFORMS AVAILABLE

GATE OUTPUT: Positive gate of same duration as sweep, approx. 30 v.

SAWTOOTH OUTPUT: Positive-going sweep sawtooth, approx. 150 v.

POWER REQUIREMENTS

LINE VOLTAGE: 105, 115, or 125 v, 50 to 60 cy.

OPERATING POWER: 350 W (approx).

STARTING: 13 amp (first sec).

OPERATING CURRENT: 2.6 amp (after 5 sec).

MANUFACTURER'S OR CONTRACTOR'S DATA

Sylvania Electronic Systems, Div of Sylvania Electric Products Inc, Buffalo, New York.
Contract NObsr-75232.

TUBE AND/OR CRYSTAL COMPLEMENT

(3) 6AN8	(8) 6AU6WA	(1) 6AQ5WA
(7) 6BQ7A	(1) 5651WA	(1) T32P1
(2) 6CL6	(3) 6V8	(1) 12AT7WA
(2) 5642	(1) 6CB6	(1) 5687WA
(1) 5726	(1) 5814A	(1) 6080WA

Total Tubes: (34)
No Crystals used.

REFERENCE DATA AND LITERATURE

NAVSHIPS 93450: Technical Manual for OSCILLOSCOPE AN/USM-109 and OS-100/USM-109.

TYPE CLASSIFICATION (NAVY)
DESIGN COGNIZANCE USN, BUSHIPS
PROCUREMENT COGNIZANCE
STOCK NO.
R.D.B. IDENT. NO. 3.1

SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Oscilloscope AN/USM-109	1.61	6.875 X 19.5 X 23.5	55

EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Oscilloscope AN/USM-109 includes:		
1	Oscilloscope OS-100/USM-109		
1	Green Filter F510-5		
1	Attenuator Probe P510A		
1	Binding-Post Adapter A510		