

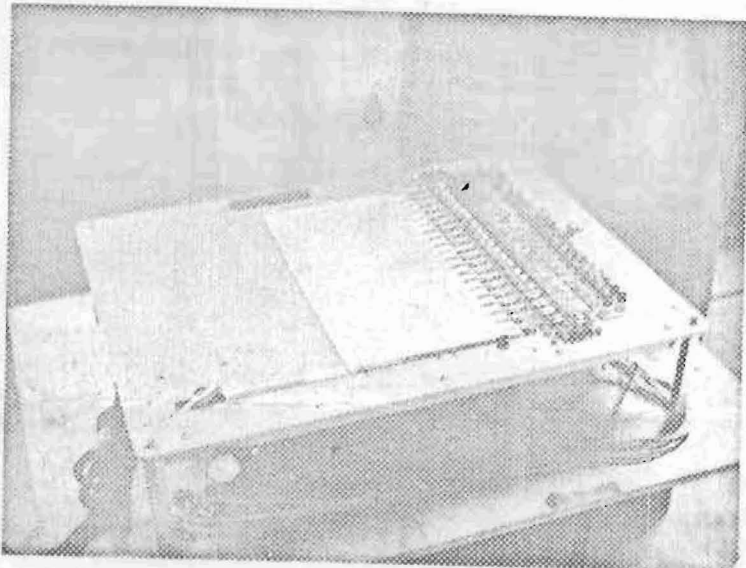
11/3/67

Brush, Esterline Angus, Sanborn and Gilson all make multiple trace instruments. all have very fast writing speeds which is quite unnecessary. To secure these fast speeds a stiff spring is used on pen assembly. To overcome stiff spring a powerful pen motor is needed which consumes a lot of power, all this is unnecessary. The multiple trace feature is the only desirable feature. Perhaps a standard instrument may be constructed using all standard paper, drive and pen motor parts, except spring stiffness reduced by factor of ten. This will slow instrument down but greatly increase its sensitivity. Try making inquiries of the above manufacturers.

Mr. Reber: Here's a copy of Miss Gieschen's letter. She enclosed a photograph which is reproduced here.

This is what I asked for before (that is, quotation and details on 20-pen recorder). The ways of people are indeed strange sometime.

JE



*Posted on 7/6/66
arrived 14/6/66*

1 20-pen recorder -----\$4,150.00

Chart Speeds

2.5, 1, 0.5, 0.25, 0.1, and 0.05 mm/sec.

Top plate on which are mounted the galvanometers, pens, inking system, and chart drive; no cabinet or enclosure supplied. Picture of recorder is enclosed.

Galvanometer Coil

Edge to edge deflection = 20ma above 3000 ohms = 60 volts.

Resistance 3000 ohms center tapped. Maximum permissible coil power dissipation: 5 watts. The mechanical zero of the galvanometer is in the center of its range of excursion. 10 ma. through the entire coil or a difference of 20 ma. through the 2 halves when connected push-pull gives full scale deflection from center zero. Resonant frequency- approximately 45 CPS. Resistance for critical damping - 2500 ohms.

Above prices are FOB Middleton, Wisconsin. Delivery requires 4 months after receipt of order. The above quotation is for a recorder identical to the one supplied to Yale University. Please let us know if there are any further questions.

Sincerely yours,

H. Gieschen

Hulda Gieschen (Miss)

President

Gilson Medical Electronics

HG:cw
enc.

GILSON MEDICAL ELECTRONICS
MIDDLETON, WISCONSIN
(On Madison's West Beltline Highway)

Price List January 1, 1964
Subject to change without notice.
All prices FOB Middleton, Wisconsin

*Posted 1/6/66
arrived 6/6/66*

Model CCE-10	ELECTROENCEPHALOGRAPH -----	\$4500.00
	Complete clinical 10-channel console.	
Model CCE-8	ELECTROENCEPHALOGRAPH -----	4000.00
	Complete clinical 8-channel console, can later be expanded to 10 channels.	
Model CE-2	CARDIO-ENCEPHALOGRAPH -----	1350.00
	Portable, 2-channel -- one ECG channel and one EEG channel. Other combinations on special order.	
Model ME8	ELECTROENCEPHALOGRAPH -----	\$4300.00
	Portable 8-channel. Nine preset combinations on selector switch (specify when ordering).	

ACCESSORIES

(When ordering parts, give serial number of apparatus or year of purchase.)

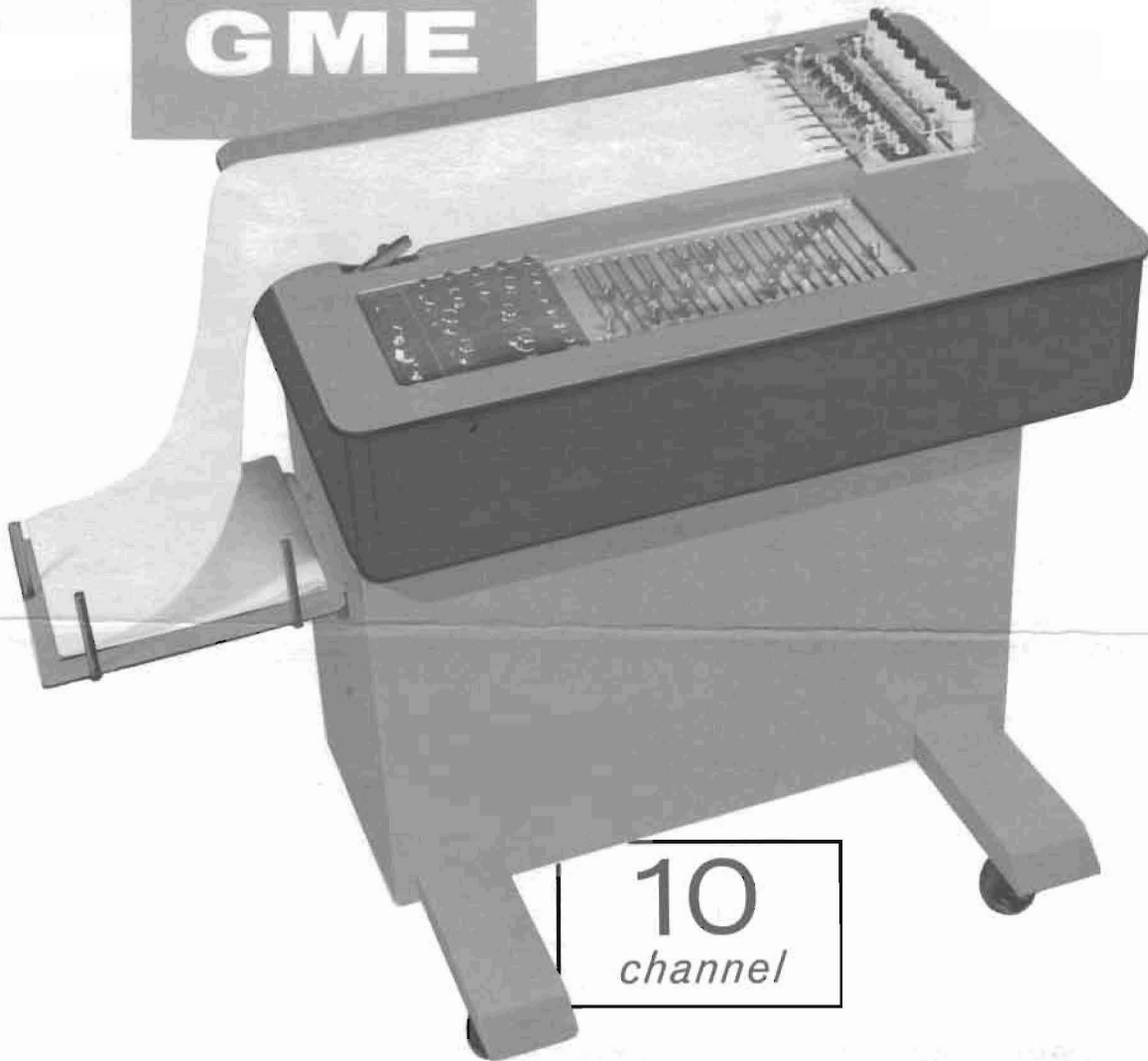
GMEP10	Power supply printed circuit board, with tubes, for CCE-10 and CCE-8 -----	150.00
EEGP6	EEG amplifier, printed circuit, with tubes, for CCE-10 & CCE-8	100.00
GME-850	Galvanometer for CCE-10 and CCE-8 -----	125.00
GMEP1	Pen for CCE-10 and CCE-8 -----	3.00
GMEP2	Pen for CE-2 -----	3.00
EEG15CE	Amplifier, printed circuit, with tubes, for EEG channel for CE-2	85.00
ECG15CE	Amplifier, printed circuit, with tubes, for ECG channel for CE-2	85.00
GME-860	Double galvanometer for ECG and EEG channels for CE-2	200.00
GMEW3B	Patient cable, 5-tail, for simultaneous ECG & EEG, 8 ft. (for CE-2)	15.00
GME-P15	Printed circuit voltage regulator, for CE-2 -----	85.00
GMEH48	Plugs to make your own EEG electrodes, fit sockets on CCE-10 and CCE-8 patient cable box -----	.15
GMEW14	Tensolite wire, flexible, to make your own EEG electrodes, per foot	.03
	Bentonite powder, dry -----per lb.	.20
	Electrode paste. (Bentonite mixed with saturated saline solution.) per pint jar	1.50
	Ink, green, slow-drying anti-plugging ----- per 1/2 pint	.70
GMEE3	Ink wells, plastic -----	.15
GMEE4	Ink wells, plastic, with stainless steel and plastic tubing -----	.45
GMEE5	Plastic tubing for pens -----per ft.	.05

Tubes and semi-conductors

6AS7G	\$ 4.93
12AU7A	1.37
12AX7 unselected	1.43
12AX7 selected	2.50
OB2	1.45
Texas Instr. 1N2071	1.70

Paper, fan-folded polygraph with millimeter squares, per box of 1000 sheets, 2"	2.10
Paper, fan-folded EEG with vertical lines, per box of 1000 sheets, 2"	1.70
Paper, fan-folded EEG with vertical lines, per box of 1000 sheets, 8"	4.00
Paper, fan-folded EEG with vertical lines, per box of 1000 sheets, 10"	5.00

GME



10
channel

CLINICAL ELECTROENCEPHALOGRAPH

A new clinical model 10-channel electroencephalograph . . . designed to make the recording of an accurate electroencephalogram as easy for the technician as possible

The technician often encounters difficulty in correlating movement of the patient with movement of the pens in order to identify movement artifacts. This correlation has been facilitated in the unique design of this apparatus by placing the paper at the rear of the console and slanting the entire structure. This permits putting the patient and pens in the same visual field.

There are three conveniently placed ganged controls for setting of gain and frequency response of all amplifiers. Individual controls are provided to equalize amplifier gains.

Records 10 channels on 10-inch paper. Records fit standard filing cabinets.



The cantilever construction of the control panel provides ample knee room and allows the technician to get in and out of operating position comfortably.

*Same instrument advertised on page 18 of Science 1 April 1966
Middleton, Wisconsin, 53562. Telephone 608/836-1551*

GME



10-channel clinical **ELECTROENCEPHALOGRAPH** features:

Rectangular Selector Switch

—of exclusive GME design— simply constructed, easier to operate than circular switches, and makes all positions of the various switches obvious at a glance. Patterns corresponding to commonly used switch settings can be made easily and at little cost. Technician merely places pattern on the surface of the switch and moves individual switches into the correct position, virtually eliminating switching errors.

The switch is constructed with twenty-four parallel silver bars bolted to a plastic base plate. Patient input leads are connected to these bars. The pick-up contact assemblies slide along twenty ¼-inch bars, each connected to an input grid. A ball-type detent mechanism positions and a compression coil spring holds the sliding contact against the silver bars, insuring trouble-free operation. This construction eliminates 456 connecting wires and 912 accompanying solder joints, as well as eliminating the possibility of human error in making these connections. The switch is so constructed that it may easily be disassembled from the front panel for cleaning.

Power Supply

Electronically regulated, provides DC to tube heaters and plates. No batteries are required.

Calibrator

Three separate push buttons provide 25, 50, and 100 microvolts from a standard cell.

Simple Circuitry

Straightforward 4-stage vacuum-tube amplifiers. Each channel is complete on one plug-in printed-circuit board. Printed circuits eliminate errors in wiring. The connections are individually hand-soldered—not dipped.

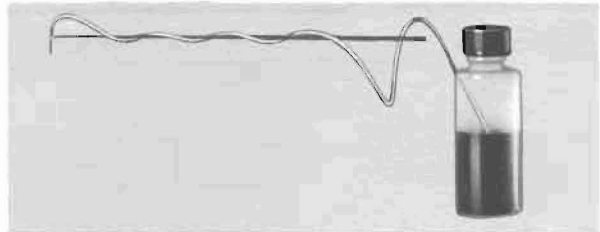
Paper Loading

Platen pivots, permits pulling paper into position easily, rather than pushing it through a slot.

Paper Puller

3 cm. per second operation is standard. A turret speed changer giving paper speeds of 150, 60, 30, 15, 6, and 3 mm. per second is also available.

This unique GME speed changer provides smooth instantaneous speed changing without shifting gears. The six speeds are available by means of gears arranged in a continuously meshed rotary form.



Ink Supply System

One of the annoyances of EEG technology is plugging of ink in the pens. This has been almost completely eliminated by a non-plugging ink supply system. In pens of conventional design, the plugging usually occurs at the bend in the stainless steel tubing. The bend is eliminated by using plastic tubing to carry the ink to a straight stainless steel tube at the tip of the pen. A new feature of this system is the use of plastic squeeze bottles as inkwells. These bottles permit the application of definite positive pressure to start ink flow, and definite negative pressure to empty the ink channels. The pens are mounted on horizontal pivots so that pre-set light pen pressure will never vary and need not be adjusted.

Easily Serviced

All parts containing wiring are easily removed from the cabinet, virtually eliminating the need for on-the-spot servicing. Replacement channels available if factory service is required.

Compact

35" x 26" x 37" high.

Mechanical Construction

Greatest accuracy and sturdiness. The mechanical components are mounted on ¾" aluminum jig plate which is accurately milled to assure proper juxtaposition of parts. The cabinet is constructed of 16-ga. steel, solidly welded to the base structure made of 4" channel iron.

GILSON MEDICAL ELECTRONICS

M I D D L E T O N , W I S C O N S I N

On Madison's West Beltline Highway

THE **GME** PORTABLE

CARDIO- ENCEPHALOGRAPH

An accurate and
dependable
electrocardiograph *and*
electroencephalograph.

Portable . . . easy to
operate . . . lightweight.

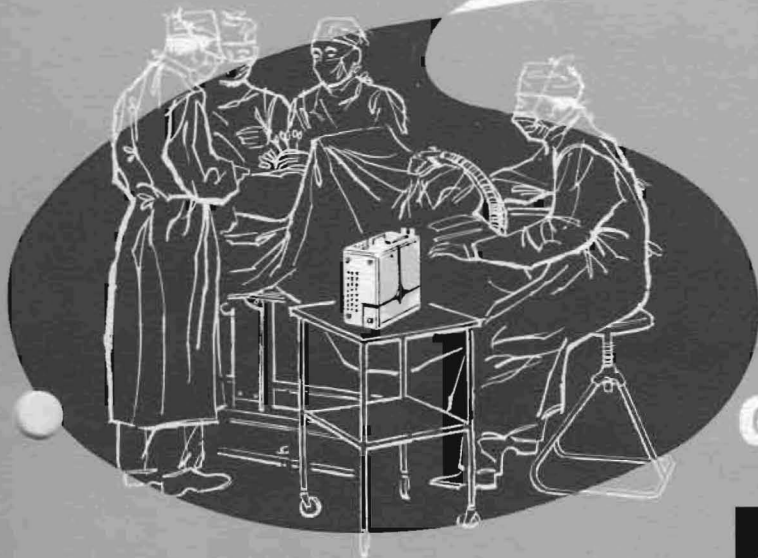


Cardiac condition and depth
of anesthesia conveniently and
continuously manifest to the
anesthesiologist.

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GME



Applications of The GME CARDIO-ENCEPHALOGRAPH

Although designed for use in the operating room, this instrument is also of value in the physiology-pharmacology laboratory, and for a wide variety of recording applications — e.g., for an internist to record electroencephalogram and electrocardiogram simultaneously during carotid stimulation. Because of the durable construction of the GME CARDIO-

ENCEPHALOGRAPH and the low cost of the recording medium, it is ideal for student use. Either the standard model (EEG-ECG combination) or an optional 2-channel EEG model may be used for a bedside evaluation of the general cortical condition of an acutely ill patient, not easily moved to the EEG laboratory.

Advantages of The GME CARDIO-ENCEPHALOGRAPH

- Small size — of great advantage in a crowded operating room.
- Light weight — makes it easy to move.
- Ink recording now dependable — the new GME-developed inking system almost completely eliminates plugging of pens. Makes ink writing practical for either routine or occasional use. There are no curved metal tubes in the line of flow. A plastic tube carries the ink to a short, straight stainless steel tube at the end of the pen. A new squeeze bottle inkwell makes it possible to start the ink flow, or to empty the ink from the tubing completely and easily when through using the apparatus.
- Unbreakable pens—mounted in solidly constructed pivots, with pen pressure predetermined by weight — no springs.
- Instantaneous speed change without shifting gears — permits monitoring of cardiac rate and rhythm at

2.5 mm/sec. and detailed examination of ECG and EEG at 25 mm/sec. A permanent, compact, easily handled record is made — it may be paged through like a book.

- Cost of recording is low — only 30 cents for an hour's recording at 25mm/sec., 3 cents at 2.5mm/sec. The record may be thrown away without worry about cost if no variations of interest have occurred, but will provide definitive and lasting information on the beginnings of a cardiac irregularity if such should occur.
- Convenient operating room use — the apparatus has been so designed that, during surgery, it may be operated on a 5-foot stand, keeping it above the level of present-day explosive anesthetic agents. When so operated, it rests on the 4 rubber feet visible in the illustration, and the paper flows down in a vertical plane, easily visible to the anesthesiologist.

Specifications of The GME CARDIO-ENCEPHALOGRAPH

- Ink writing on 2" wide fan-fold paper — standard for EEG.
- Speeds of 2.5 and 25 mm/sec. instantly selectable without gear shifting. (3 and 30 mm/sec. also available).
- A foot switch can be supplied for controlling the apparatus from a distance.
- Calibration of 100 microvolts for EEG and 1 mil-

livolt for ECG supplied by a Muirhead Weston standard cell.

- There are no batteries—it is entirely line-operated with an electronically regulated power supply.
- Weight 23 lbs.
- Size 6 $\frac{3}{8}$ " wide, 13" in the other two dimensions.
- Case of deep-drawn aluminum, baked enamel finish.
- 115v 60-cycle operation is standard. Other voltages and frequencies on special order.

GME**GILSON MEDICAL ELECTRONICS**
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