PULSE

EMR

The EMR-Telemetry News

Sarasota, Florida

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SOFTBALL SEASON OPENS

EMR Social Club's Softball Team plays its first game of the season next Wednesday, March 5, against Publix. The game begins at 7:15 p. m., at the City Softball Diamond, 12th Street.

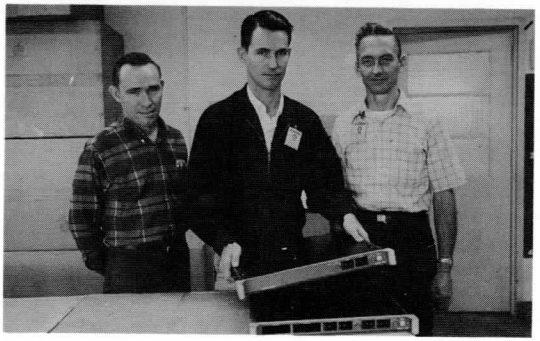
"We're facing some tough opposition this season," says Team Manager Tom Toler, "and I know the team will welcome the support of an active rooting section."

The EMR team captured The Western Division championship in the Sarasota Slow Pitch League last year, finishing the season with a record of 17 wins and five losses.

Currently, the roster for the team includes:

Bob Anderson
Tony Brancati
Marcelo Breton
Lee Darling
Larry Dorsey
Joe Faso
Tony Faso
Jim Hawkins
Howard Jory
Bud Lang
Jim Maguire
Don Roberts
Rick Schneider
Dave Tharpe
Dan Toler
Tom Toler
Harry Underwood
Ron Vander Vliet

NEW PRODUCTS SHIPPED



Technicians Harry Durrett, of Digital Products Engineering, Richard Bridgman, of Production Test, and Stan Fusselle, of Systems, are pictured here with two new EMR-Telemetry products ready for shipment. The Model 2756 Decimal Display (on the table) and the Model 2758 Printer Drive (held by Richard) are two of our newest manually-controlled 2700 series digital products. The modules, designed in Digital Products Engineering, were assembled by Betty Drymon in Bill Gibson's Production area.

The units in the photo form part of a small EMR PCM Telemetry Decommutation System ordered by the U. S. Department of Commerce's Environmental Science Services Administration (ESSA). The system will be used in real-time determination of spacecraft performance at the National Environmental Satellite Center (NESC) Command and Data Acquisition Station, Wallops Island, Va. ESSA/NESC environmental satellites provide data to the Weather Bureau for the weather reports we all depend upon so much.

A NEW EMR PRODUCT LINE IS BORN -- THE 1000 SERIES

A versatile new EMR-Telemetry product line--the 1000 Series--is now being developed for the airborne PCM encoder (data acquisition) market.

EMR-Telemetry is offering customers this advanced 1000 series product line for use in airborne telemetry applications such as testing new aircraft and monitoring performance of air-to-air missiles or surface-to-air missiles.

Even before regular production begins, considerable time and money have already been invested in early phases of planning, design and packaging. Beyond introducing individual new products, the research investigations which have gone into developing this new product line have created a "base-line" technology -- a base from which EMR-Telemetry can build other future products.

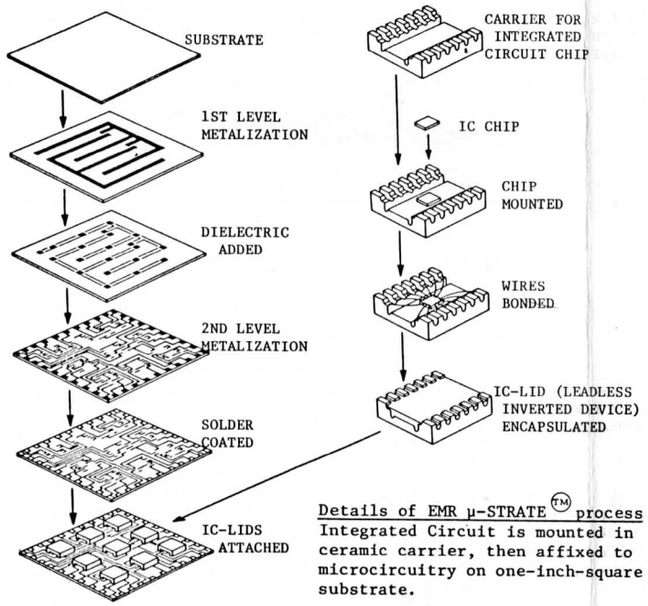
STARTLING INNOVATIONS

Be prepared for some startling innovations when you first meet the new and different 1000 series products -- reduced size, tiny microcircuit construction, new packaging ideas, and new technologies.

In size, the 1000 series products look like tiny matchboxes, only 1.4 inch x 1.4 inch x 1/2 inch. Inside, the matchbox-sized special plastic and metal container holds four hybrid microcircuits. Each hybrid microcircuit is a thin, one-inch-square wafer (alumina substrate) to which integrated circuits and conductor patterns are affixed, using the latest advances in microelectronics technology.

The thin wafers, or microcircuit assemblies, are connected to each other not by standard wiring or cable, but by a new, ribbon-like, flat flexible printed circuit interconnect.

Using the flexible interconnect, the wafers can be folded together like an accordian



Details of EMR μ-STRATE ™ process
Integrated Circuit is mounted in ceramic carrier, then affixed to microcircuitry on one-inch-square substrate.

(in serpentine fashion) or "rolled up" into a small package to fit the matchbox-sized container.

NEW WORDS

These new EMR innovations and new technologies have created some new words. Two are exclusively EMR-Telemetry words -- protected by trademark -- to describe the 1000 series product line's "wafer" substrate assembly and the flexible-fold technique:

μ-STRATE ™ -- (pronounced Microstrate) describes the assembly of integrated circuits on a one-inch-square thin ceramic base (substrate).

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μ-FOLD ™ -- (pronounced Microfold) describes the flexible-fold packaging technique which permits the μ-STRATEs and their interconnecting ribbon of flat, flexible "cable" to be folded up into a small, space-saving package about the size of a matchbox.

ADVANTAGES SEEN

Many advantages are readily apparent in the 1000 series product line:

Size: Through LSI (Large Scale Integration) and improved packaging concepts, the size of an airborne PCM Encoder (such as the Model 371) can be reduced from a 65-pound drawer to a small 3-pound box, approximately 3 x 3 x 4 inches.

Flexibility: Separate "building blocks" permit custom design of PCM systems to fit the individual customer's requirements, and also allow easy expandability.

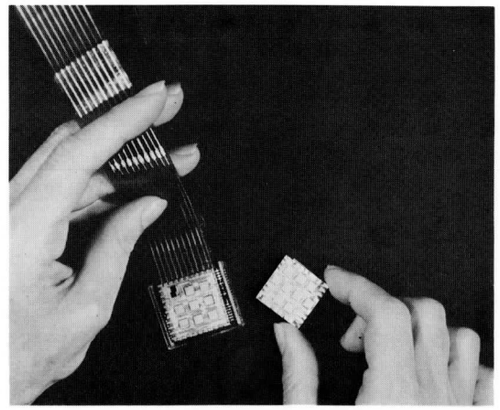
Distributed System: Individual "matchbox" assemblies can be placed in small nooks within a missile or torpedo, for example, and readily interconnected by the special 1000 series slim, flexible interconnect instead of bulky wiring. Or, combinations of the matchbox assemblies can easily be packaged to fit unusual shapes -- round, L-shaped, or even a pie-shaped wedge.

Repairability During Manufacture: Manufacture and testing is facilitated because μ-STRATEs and flexible interconnect can be laid out flat for easy accessibility.

High Environment Integrity

Low Cost

Marketing and Engineering have cooperated closely in early market research and in developing plans for selling the new products. Research and Engineering had knotty problems to solve in developing the new product line's techniques, hardware, circuitry, its mechanical and packaging aspects, and investigating new materials and processes.



At left, a 1000 series module, with flat, flexible interconnect; at right, a single μ-STRATE. ™ The module contains four μ-STRATEs.

ADVANCE TEAM

In Digital Products Engineering, Engineering Support, and the Microelectronics Lab, an advance team of Engineers, Technicians, Designers, Draftsmen, Mechanical Engineers, and Microelectronics Assemblers have devoted months of effort to the new product line. Bill Hardman, of Digital Products Engineering, is the 1000 series Product Engineer; C. B. Hord heads the mechanical engineering effort; Lake Brown heads the microelectronics effort, and Ron Gadway, of Product Marketing, coordinates the Marketing aspects of the new line.

During 1969 more and more EMR employees will have an opportunity to participate in manufacturing, testing and selling these new products as another new EMR product line is born.

IT'S NOT ELEMENTARY...

When you work at EMR-Telemetry, you get used to explaining what "telemetry" means. But it's a shock to see how many different ways telemetry can be misspelled. Here are some examples from recent incoming mail:

EMR-Telementary EMR-Telemetery
EMR-Elementery EMR-Telimitry

To set the record straight, "telemetry" or "telemeter" comes from two Greek words: *tele* - meaning distant, at a distance, or over a distance (i. e., telegram, telephone, television), and *metron* - meaning measure.

Just put the two together and you have "telemeter" -- measuring at a distance.

As a noun, telemeter is defined as an electrical apparatus for measuring a quantity, transmitting the result to a distant station, and there indicating or recording the quantity measured. As a verb, "to telemeter" means to transmit by a telemeter. "Telemetry" is another noun form of "telemeter."

Now, about that spelling...

ANNIVERSARY GREETINGS

A listing of all the EMR-Telemetry employees who joined us in the month of February over the years would total 55 names. Here, instead, is a list of our colleagues who are observing 3, 5, 7 and over 10 years with the company. To these, and to all the February anniversary group, we say "Happy Anniversary."

1953
Adele Ritch

1957
Janie Hand
Sara Harp
Clio Hutcheson
Helen James
Vida Jarrett
Fannie Belle Johnson
Bobbie Klein
Della Presley
Pat Prince
Doris Pruitt
Dorothy Richey
Don Riker
Bob Sayre
Hester Spann

1958
Eugene Harbert
James Huff, Sr.
Don Murray

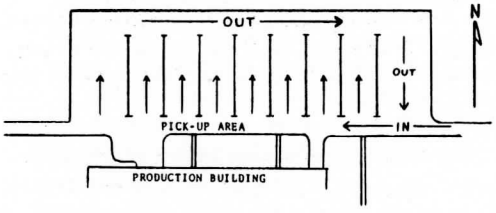
1962
Jerry Block
Elizabeth Christensen
Marian Cook
A. J. Lawton
Sal Martino
Jim Rexrode
Carl Steineckert
B. J. Tucker
Clara Vann
Minnie Mae Vann
Morrie Wild

1964
Dave Clouse
Mort Cohen

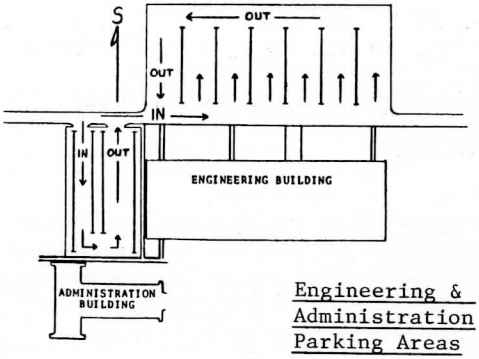
1966
Jon Brown
Dave Colin
Paul Germond
Bob Heaton
Rick Long
Arlene MacNevin
Sara Primola
Joe Volpe

AVOID THAT DENT! FOLLOW TRAFFIC PATTERN

Had any narrow squeaks in the parking lot lately? You can save yourself a crumpled fender -- and even help traffic move more speedily -- by following the traffic flow patterns for our parking lots, as illustrated:



Production Parking Area



Engineering & Administration Parking Areas