PULSE

EMR

The EMR-Telemetry News
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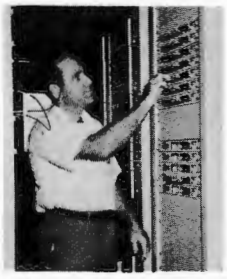
MOBILE TELEMETRY SYSTEM EN ROUTE TO LOCKHEED

An EMR quick-look mobile telemetry system, mounted in a special van, has been shipped to Lockheed-California Co., Palmdale, Calif., for use in processing flight test telemetry data from Lockheed's new L-1011 TriStar commercial jet airliner.

This new van-mounted telemetry station joins the large EMR telemetry/computer data processing system shipped to Lockheed-California earlier this month. These equipments will handle flight test data such as pressure, temperature, vibration, strain, valve and control positions, etc., from over 1300 data points in the new aircraft.

Lockheed's TriStar is scheduled for its maiden flight in November of this year.



The 600-mile-an-hour three-engine L-1011 begins regular flights in 1971, carrying 250 to 345 passengers in a spacious 20-foot-wide cabin. (Cont. Page 3)

Vic Boucher, of Systems, with EMR telemetry in Lockheed van.

EMR-T BUILDS SUBSYSTEMS FOR EDISON INSTRUMENT DIV.

EMR-Telemetry has been awarded a contract by Thomas Edison Instrument Division of McGraw-Edison, Fort Lauderdale, Fla., to design and build more than 600 Aircraft Transport Rack (ATR) boxes for a new aircraft altitude alert system.

The Edison contract calls for EMR-T to manufacture and assemble printed circuit cards and metal containers for the ATR electronic subsystem which will become part of Edison's AD 140 Computer. The Altitude Alert System is a new Federal Aviation Agency requirement for improved aircraft safety.

EMR-T's work involves design, drafting, printed wiring fabrication, sheet metal fabrication, and assembly, according to D. A. Buffington, Manager of Production Engineering. Buffington has project responsibility for this contract.

GOLF TOURNEY TOMORROW

Tomorrow's EMR-T Golf Tournament at De Soto Lakes Golf and Country Club is expected to attract about 50 EMR golfers, including several ladies: Willa Bodycote, Martha Lambert, Mona Nainby, Eloise Pakish. Shotgun start at 8 a. m., with prizes and buffet featured, according to Chairman Jim Appledorn.

PULSE PUBLICATION CHANGED

With this issue, Vol. V, No. 1, PULSE begins publication every three weeks.

ROSS TILTON RECEIVES EL PASO JAYCEES AWARD

Ross Tilton, Field Applications Specialist in EMR-T's El Paso, Texas, sales office, has received the El Paso Jaycees annual Award for Outstanding Service and Leadership. The honor recognizes Ross' activities during the past year in Jaycees projects such as leadership training, ways and means, community development, environmental improvement, plus many others. He also participated in civic coordinating groups, city planning committees, and State legislative seminars.

Ross is President of Jaycom, a non-profit corporation consisting of Jaycees membership and Board of Directors. Jaycom has been active for the past year in sponsoring a non-profit low-rent-supplement apartment complex under HUD program 221D-3. The 100-unit, $1.4 million project is designed to provide much needed housing for low income families in El Paso. FHA approval for the housing project is expected this week, and the Jaycees hope that the first tenants will move in within six months.

"All of this work takes up a lot of my spare time," Ross says, "but I feel we should all do our share to help improve our environment and our relationship with other people."

John Sherman congratulates Ross Tilton on his award from El Paso Jaycees.

Ross joined EMR in El Paso in 1967. Leilani and Ross are the parents of two children--Jeffrey, nearly 2, and Tamara, 6 months.

Special thanks to Maggie Cook, of our El Paso office, for sending Pulse the news about Ross' Jaycees award.

PRODUCT USES VARY-- SOME GO UP, SOME DOWN

Interesting applications for EMR-T telemetry products range from away up to way down. As examples, here are a couple of recent business items showing a variety of uses for our equipment--

If Lightning Strikes

During the Apollo 12 launch from Kennedy Space Center, lightning struck the launch vehicle. As a result, NASA Kennedy Space Center has ordered EMR-T VCO's and Discriminators to be used in a lightning detection system, according to Sales Engineer Harry Johnson, of the Eastern Sales Area. Harry also reports that Patrick Air Force Base has ordered some Model 267 Discriminator equipment to be used in a weather forecasting system--to reduce data transmitted from a weather balloon.

Down Deep

And, at the other extreme--exploring for oil beneath the earth's surface--Schlumberger Well Services, Houston, has awarded EMR-T's Microelectronics Lab an order to develop and deliver a small quantity of operational amplifiers designed to operate in extreme environments of high temperature, vibration and shock. If our design meets the stringent requirements, the small amplifiers will be used down hole in well logging operations.

PULSE - The EMR-Telemetry News
M. E. Herbst, Editor

MOBILE TELEMETRY SYSTEM EN ROUTE TO LOCKHEED

(Continued from Page 1)

The new Lockheed-California van contains EMR-T 2700-series digital telemetry modules, Model 287 Discriminators, plus other equipment such as tape recorders and a chart recorder. Racks have been shock-mounted in the paneled and carpeted van. Power for the self-contained van full of electronic equipment will be supplied by a trailer-generator, permitting operation of the mobile telemetry system in the hangar area and along the flight line.

The van was shipped to California via flat-bed low-boy van. The quick-look van-mounted telemetry system contains manually-operated equipment, while the large computer-controlled 21-rack main ground station consists of EMR telemetry and an EMR 6040 High-Speed Digital Computer.

EA SPORTS CORNER

SOFTBALL

1st - Yoder Bros.
2nd (tie) EMR, Ball & Shoe
Next game: 7/1/70 Ebersole Farms

GOLF LEAGUE

	Tuesday	Thursday
1st -	Pakish/Pakish	Haugh/Haugh
2nd -	Dunn/Shumaker	Bodycote/Ritenour

MIXED BOWLING LEAGUE

1st - T. & M. Cohen, G. & P. Germond
High Game: A. Sass, 249; C. Holderman, 276
High Series: G. Proper, 681; D. Gray, 672
High Average: G. Proper, 148; D. Gray, 185

HOLIDAY PAY

A reminder: EMR-T pay deposits are effective on Friday of each week. When holidays occur -- such as the July 4 holiday which EMR observes as a paid holiday on Friday, July 3 -- your pay receipt is given to you a day earlier as a convenience to you. But the effective deposit date remains Friday.

GERMAN SERVICE REP VISITS SARASOTA PLANT

Manfred Smolka, of Munich, Germany, visited EMR-T recently for a week's exchange of technical information about EMR products and systems. Smolka is employed

Manfred Smolka (right), of Germany, with Foreman George Keegan in Production.

under a service contract with SOMV (that's Schlumberger Overseas Messgerätebau und Vertrieb) in Munich--a contract which includes field servicing of EMR equipment in German installations. His field service responsibilities include the large 20-rack EMR system at EWR, Manching, and a van load of EMR equipment in a mobile telemetry system.

During his visit, Smolka gained information about new products which he expects to be servicing as more EMR-T equipment goes to foreign markets.

ANNIVERSARY GREETINGS

Among the 50 EMR-T employees who are observing anniversaries of employment in June are the following, marking service anniversaries of 7, 10 and more years:

1948
L. G. Chappell

1953
John Harry
Don Parker

1954
Jo Baisley

1955
Betty Boyce
Bettye Webber Bunn

1959
Tony Brancati
Gladys Butler
Luella Clabough
Milton Litwiller

1960
Kent Morgan
Don Santaniello

1963
Polly Delangis
Edythe Himes

THICK FILM LAB MOVED TO CLEAN ROOM AREA

EMR-T's Thick Film Microelectronics facility has moved into larger quarters with improved clean room conditions for producing the microcircuits.

The area, in the center part of the S-1 building, was formerly known as the Celescope Clean Room. It now houses our Microelectronics Thick Film Lab and manufacturing capability in a carefully-controlled clean room environment, with temperature, dust and humidity control. Screening, printing and firing the thick film precision microcircuits takes place here. Our regular Microelectronics assembly facility and Thin Film Lab remain in their nearby clean room quarters in S-2.

What does "thick film" mean? Making thick film microcircuits involves affixing a very thin deposit of metal on a tiny ceramic substrate in a specific pattern via a screen printing process.

"The term 'thick' film is relative," says Microelectronics Engineer Dietrich Riemer, head of the Thick Film Lab. "Thick in this case means the metal deposits are about one-thousandth of an inch thick, or one-third the thickness of a human hair. Thick film is about 250 times thicker than thin film."

The new Thick Film facility consists of a dark room, production area, and electrical testing room. In the dark room, an exact photographic film pattern of the precision circuit is transferred to a small, very fine, light-sensitized screen. The screen then becomes a printing pattern. Using special inks, the ink is forced through the screen pattern and "printed" on the ceramic substrate.

These inks cost about $90 an ounce. They contain gold, platinum, minute glass particles, plus solvents.

The tiny substrates, with the inked pattern (printed conductor), are then fired in precision ovens at temperatures between 750°C and 1000°C. The heat causes the glass particles in the ink to become fused to the ceramic substrates, and firmly attaches the metal particles which form the thin conductor pattern.

In Microelectronics Thick Film Lab, Elmer Hitchings and Johnnie Williams at precision oven; Bonnie Iler (seated) tests thick film substrates; Dietrich Riemer at right. Each tray (or boat) on table contains 50 individual substrates.

Tweezers are used to handle the tiny substrates during manufacture. Substrate sizes vary from smaller than one-half inch square to about 2 inches square.

Resistors are added by another printing process and more oven firing. After testing, the thick film substrates are ready for assembly. In the Microelectronics assembly clean room, skilled Assemblers use microscopes and special thermo-compression bonding machines to affix tiny specks of transistor chips and lead wires to the thick film conductor patterns.

The resulting microcircuits are used in EMR-T products. (The 5515 operational amplifier, for example, is part of our Model 4520 VCO and Model 4130 Discriminator.) Special microcircuits are also made to order for other customers such as Weston Instruments, EMR-Photoelectric and EMR-Computer.

Be Security conscious--Wear your badge!