

# PULSE

EMR  
Schlumberger



The EMR-Telemetry News  
Sarasota, Florida

Vol. X, No. 8

September, 1975

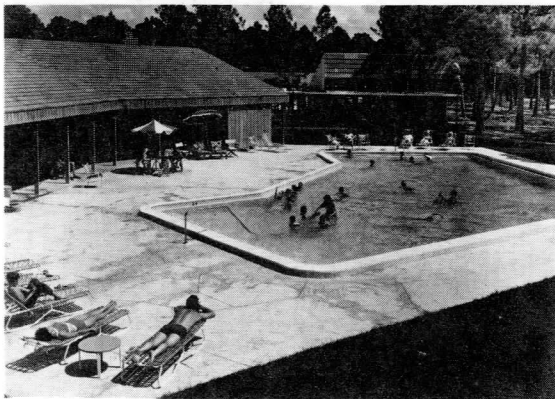
## SEE YOU AT THE PICNIC ON OCTOBER 4

IT'S EMR FAMILY PICNIC TIME.

Saturday, October 4, is the day. Plans call for an active day with the traditional picnic menu--hamburgers, hot dogs, all the trimmings, beverages, beer, etc. There will be swimming, volleyball, shuffleboard, horseshoes, children's games, bingo and lots of prizes--topped off by the annual Crazy Auction. The time is 11 a. m. to 5 p. m.

A busy committee is firming up the last-minute details. Some EMR families are even making a big weekend of it by camping at the Royal Coachmen Resort.

SEE YOU AT THE PICNIC!



Swimming--just one of many activities planned for EMR Family Picnic on Oct. 4.

## SURFACE EFFECTS SHIP CONTRACT AWARDED EMR BY AEROJET GENERAL

Aerojet General Company, of Tacoma, Wash., has awarded EMR-Telemetry a contract valued at over \$500,000 for a Test & Trials Instrumentation System for a new Navy Surface Effects Ship.

Called Jeff A, the Aerojet ship is one of two new Amphibious Assault Landing Craft the Navy is sponsoring in a design run-off between two major contractors--Aerojet General, building the Jeff A, and Bell Aerospace, Jeff B.

Several years ago EMR also provided instrumentation systems for testing earlier advanced-design Surface Effects Ships built by Aerojet and Bell.

Jeff A is to weigh 170 tons, with a length of 96 feet and beam of 48 feet. The amphibious craft is designed to ride on a cushion of air at very high speed.

In April, 1976, when the craft is launched at AGC, Tacoma, Wash., the EMR equipment is to be waiting at dockside to be driven aboard. EMR's system will be housed in a 20 x 10-ft. shelter. During performance tests, EMR's Test & Trials Instrumentation System (TTIS) will be lashed to the cargo deck, and two operators will ride inside. The TTIS will record and display data describing the performance of the craft during tests, according to Ed Kucharski, of Applications Engineering. (Cont'd on Page 8)

## T/C SYSTEM UPDATED

This van-mounted EMR Telemetry/Computer system--originally delivered to the U. S. Army Aviation Systems Test Activity at Edwards Air Force Base, Calif., several years ago--has returned to Sarasota for updating.



Don Jones and Joe Faso with Army van containing EMR T/C system.

A new and enlarged memory is being installed as part of the 6135 computer, and the van will return to Edwards AFB to resume processing flight test engineering data on U. S. Army aircraft.

The well-traveled system is one of several that EMR has supplied for use at the Army's AIDAS (Advanced Instrumentation and Data Analysis System) facility at Edwards AFB, California.

## ANNIVERSARY GREETINGS



Observing major service milestones in August and September are:

Ten years: Harold Leslie and Rosemary Williams. Insert, Mike Russell.

15 years: Everett Layton, Don Buffington Chet Reynolds, of our Lancaster, Calif., Office, marks his 5th anniversary with EMR this month... Happy anniversary! -2-

## PPG GETS REPEAT ORDERS

Repeat orders are good news for the Power Protection Group, according to Pete Farinas. Idaho Power Co. has ordered another fault location system to be installed near Boise... Repeat orders from Mexico have amounted to more than \$110,000 to date. Recently Pedro Farinas, who is bilingual, spoke in Spanish to a gathering of Mexican national utility commission personnel near Mexico City.

New orders for fault locators have been received from Pacific Power & Light Co., Portland; Wisconsin Electric Power, Milwaukee; Alabama Power, Birmingham. In Canada, Saskatchewan Power completed evaluation of a Distance Relay and ordered four units for delivery this year.

## TEACHERS BRIEFED ON FREE ENTERPRISE

EMR-T has received a citation from State and Sarasota Chambers of Commerce for participating in "Adventures in Business" --a pilot project to broaden economic understanding among educators in local and state schools.

Instructors representing nine schools and colleges attended a half-day briefing at EMR to learn more about how our business functions. Norman Siegel, EMR Director of Manufacturing led the discussions here. Shelby Bass, Director of Marketing, and Dave Wiegand, EMR-T Controller, also participated.

The "Adventures in Business" program started at the State level as part of the Florida Chamber's Focus on Free Enterprise" -- an effort to encourage teachers to give their students better insight into free enterprise in their classes.

PULSE - The EMR-Telemetry News

M. E. Herbst, Editor

Permission to reprint material herein may be obtained from the Editor, Pulse

COPYRIGHT © 1975 EMR TELEMETRY, WESTON INSTRUMENTS, INC.

A SCHLUMBERGER COMPANY

# Announcing... COMING EVENTS

Here are two big EMR events you'll want to put in your date book:

Sat., Dec. 13 -- EMR's gala Christmas Dance--to be held at the brand new Sarasota Hyatt House, overlooking Sarasota Bay and the Van Wezel Performing Arts Hall.

Sat., Dec. 6 -- EMR Family Day and Open House -- an opportunity for your family to visit EMR.

Save the dates!

## EXPORT PURSUES SALES AROUND THE GLOBE

Pursuit of new export business sends EMR people to the far corners of the world. Some current export activities include showing EMR equipment in Iran and Germany. In addition, Export Marketing Manager Gerry Breyton has only recently returned from a swing through Japan, Taiwan, Hong Kong, Australia and New Zealand, and was in South America last week.

In Iran, Bob Brant, of Export, is showing our 3200 series Supervisory Control equipment as well as the EMR SRDM (Scanning Radiometer Data Manipulator) which is used with weather picture transmission equipment. EMR's equipment was demonstrated at a U. S. Dept. of Commerce Instruments and Control Show in Tehran, Sept. 21-25.

During the same week EMR was at the Telemetry Conference Show, Munich, Germany, with demonstrations of EMR Models 711, 713, 720 and 721, plus some of our 4000-series equipment. Frank Bost, of Marketing, and Bill Waggener, of Engineering, went to Munich.

Bill Waggener presented three technical papers at the Munich Conference.

## NEW MACHINE IMPROVES PRINTED WIRING BOARDS

A new Infrared Solder Fusing System has been installed as part of our printed wiring board fabrication process. The machine fuses electro-plated solder on the printed circuit boards, after the etching process, and then washes and cleans the boards.



Dorothy Richey, Emma Green and Peggy Thiele with new Solder Fusing System.

Some of the advantages of the new system include better reliability of the printed wiring boards, longer shelf-life, and elimination of solder "slivers" -- detached bits of solder which break off and cause problems.

"The fusing system is expected to be a time saver in manufacturing and inspecting printed wiring boards, and we should also get better solder joints," said Fred Stiefel, of Manufacturing Engineering. "In addition, we will save the time formerly spent trouble-shooting test problems resulting from shorts created by slivers."

Dorothy Richey, Emma Green and Peggy Thiele have already learned how to operate the new machine, according to P. C. Fab Supervisor Les Kocsis.

"Dutch Fontaine's crew did their usual fine job in installing the equipment," Fred Stiefel said.

# SOLAR ENERGY-- DON AND ALLEN ARE PUTTING ALL THAT

SOLAR ENERGY--and how to use it -- has fascinated researchers for centuries. Today, energy costs are rising and there is talk of shortages of fossil fuels. What could be better than to harness the sun's energy for heating and cooling? Particularly in sunny Florida.

Some EMR men are actively pursuing projects to use the sun's energy. It is an intriguing hobby. They are studying, experimenting, and, in one case, actually installing a working solar energy system in a home.

Don Woodworth, of Engineering, has been conducting experiments at his home for over three years. "I've been partially heating our hot water with the sun's energy for about a year and a half by various methods, finally culminating in the present system which works best, by far," Don reports.

Don and Allen Wollscheidt (also of Engineering) frequently exchange data and ideas about solar energy projects. They share research and the results of their experiments. Don was the first, however, to complete a functioning solar-heated water system. Allen has a long-range plan--to include provisions for future solar energy heating and cooling systems in a new house he expects to build during the next year.

Here's how Don's solar hot water system works: He installed two solar collectors panels on the roof of his house. The collectors, open to southern exposure, lie flat against the tile roof and are securely held down by guy wires, using a truss-type support.

"It's very unobtrusive," Don said. "The combined panel area is about 44 square feet. The panels contain purchased, pre-fabricated aluminum sheets, with parallel tubing for carrying a water and antifreeze solution throughout the panels. The aluminum panels are mounted into a rugged



Allen Wollscheidt and Don Woodworth confer about solar energy projects.

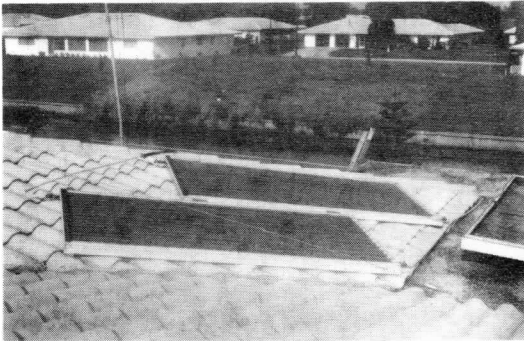
wooden frame with insulation underneath, and a nearly transparent cover on top." Don uses corrugated fiberglass for the cover. It works fine for a few years, but gradually deteriorates. "Ordinary window glass is slightly better and lasts indefinitely (if not broken) but costs more and is more difficult to work with," he said.

In his garage, Don has two water tanks--one is a regular domestic hot water tank (40-gallon electric hot water heater) and the other, a converted 52-gallon electric hot water heater tank. This larger tank features a heat exchanger attached to the bottom of the tank. This storage tank holds the solar-heated water. A small pump circulates the heat transfer fluid (the water and antifreeze) from the solar panels through the heat exchanger and back to the panels on the roof.

Then the solar-heated water from the storage tank is fed into the "cold" water inlet of the 40-gallon electric hot water heater. There the water is maintained at a constant 135°.

"Our regular community water supply enters the 52-gallon solar storage tank, usually at 82° in the summer and 72° in the winter. The water inside the 'solar' storage tank is heated (via the heat exchanger) to temperatures ranging from 110° to 145°, depending upon the amount of sunshine and the particular hot water

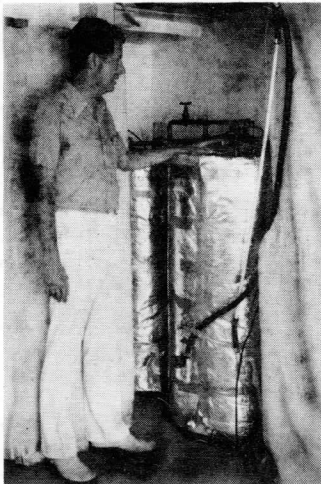
# SUNSHINE TO WORK



Solar collector panels on rooftop of Don Woodworth's house. At right is test bed for his earlier solar hot water experiments.

usage for any particular day," Don explains. "Of course, any amount of pre-heating of the water by solar energy results in a direct savings in electricity used by the electric hot water heater."

The pump which circulates the heat transfer fluid is controlled by electronic temperature sensors--one on the roof, under the cover of the solar collectors, and the other attached to the side of the solar storage tank. When the temperature of the roof sensor is hotter than the tank sensor, the pump is automatically switched on and heat is added to the solar storage tank. Even a cloud passing over will cause the circulator pump to stop running, Don said.



Pictured at right: In Don's garage, two hot water tanks used for solar-heated water system. Extra insulation makes for better economy.

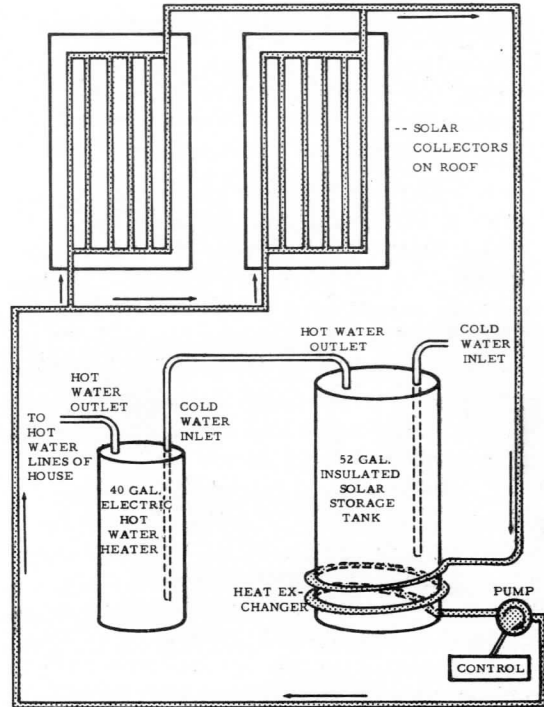


Diagram of Don Woodworth's Solar Hot Water System.

Don wrapped both hot water tanks with foil-backed fiberglass to reduce heat losses from the tanks. Allen Wollscheidt's experiment at his home showed that in his case it costs him as much to keep his hot water hot as it does to replace the used hot water. Therefore, insulation is very important.

## SAVINGS ? ? ?

Don says that during the summer months, approximately 80% of his domestic hot water needs are provided by the sun. The figure will be lower during the winter months when days are shorter and the sun is lower in the sky.

"It is estimated that the average family of four spends between \$14 and \$18 a month for electricity for hot water," he said. Actually, Don has invested hundreds of dollars and much effort in his studies and experimental systems. "My Dad was a big help in the design and

(Cont'd on Page 6)

## solar energy (Cont'd.)

fabrication of these solar experiments during his winter visits to Sarasota," Don said.

### CON GAMES

Both Allen and Don are concerned about solar flim-flam schemes which cheat consumers. They concur with a recent editorial in the Sarasota Herald-Tribune warning consumers to beware of solar con games and "...urging consumers to consult reputable architects or engineers, to insist on proof (such as lab tests) that the collector units and other paraphernalia offered them really do the job..."

"Components such as solar hot water collectors are being offered for large sums of money, and they can in no way live up to the manufacturers' claims," Don noted. Allen has personally followed up on some solar system ads which were obviously erroneous.

Don and Allen offer these tips to prospective buyers of solar hot water systems:

1. A solar hot water system should produce at least 20 gallons of hot water per person per day. (30 gallons is preferred)
2. The area of the solar collector should have 0.75 to 1.0 sq. ft. of area per gallon of hot water to be heated.
3. The heat collecting tubing should be permanently bonded to a collector plate (soldered, for example) to provide adequate heat transfer. Or, as in Don's panels, the tubing may be one-piece with the panel.
4. If household water is to pass through the solar collector, it must not attack the basic material of the collector and the tube must be large enough to resist clogging by boiler scale over a long period of time. If household water is used in the collector and associated plumbing, don't overlook the possibility of winter freezes.

Here's to more sunny days!

## EMR EQUIPMENT AT WORK ON VIKING MARS MISSION

Those two Viking spacecraft, now soaring across 440 million miles of space en route to Mars, had some help from EMR employees. EMR equipment was used before and during the Viking launches, and also in post-launch data handling.

An EMR ground data acquisition system was supplied to Martin Marietta, Denver, for use in checkout during testing and pre-launch checkout of the spacecraft on the Viking Project. This EMR equipment was mounted in a van at the Cape and monitored the spacecraft prior to launch. Earlier, the same EMR equipment monitored the spacecraft during a simulated Mars landing on the New Mexico desert as the spacecraft descended by 'chute.

Our Transmitters were also aboard the Titan booster, relaying "housekeeping" data about the launch vehicles during the Titan/Centaur launches.

The twin Viking spacecraft will travel for nearly a year to reach Mars orbit, scheduled for July, 1976. Then each will separate into two primary systems--an orbiter and a lander. The four systems will then send back scientific studies of Mars from orbit, in the atmosphere, and on the surface.

Meanwhile, back on earth, EMR equipment helps handle the data sent back from Mars--via the earlier Mariner shots as well as the current Viking spacecraft. Jet Propulsion Laboratories are using EMR systems as part of their Deep Space Network. Several EMR automatic checkout systems have been supplied to JPL for use at tracking facilities at Goldstone, Calif., in Australia and in Spain.

Chalk up another successful effort for EMR people and equipment.

Group medical insurance is an important employee benefit for you and your family. To help you get the most benefit from your insurance coverage, PULSE is passing along some insurance tips. Here's the second in our Insurance series. . . Questions? Call Ruth LaCroix, Ext. 322.

**Q.** Our insurance coverage has a 1% of annual salary deductible for Type B "major medical" expenses for each family member. That means I'm paying the first \$90 of my annual medical expenses. Why?

**A.** The basic principle of our group medical insurance coverage is to provide financial security for you at time of major medical expenses.

Our insurance coverage is not aimed at "first dollar" coverage. Instead, it is aimed at helping you in times of emergency and times of serious medical expenses--hospitalization, surgery, major illnesses, disability, death.

For example, maximum benefit for covered medical expenses is \$25,000. The philosophy is to have maximum coverage for the really big medical expenses which can cause a major financial crisis. "First dollar" coverage is very expensive. Therefore, it is felt to be in the long-range interest of employees and the company to secure the larger comprehensive medical benefits rather than the smaller 'nickel and dime' benefits.

With rising medical costs, and with rates for Sarasota hospital semi-private room and board rates at \$50 to \$60 a day, most people would agree that the coverage for the big, major medical expenses is most important. Most of us can manage to pay a few hundred dollars in medical bills when necessary. However, when our medical expenses mount to thousands of dollars, we really appreciate our insurance benefits.

**Q.** Does our group medical insurance pay for my annual physical?

**A.** No, physicals and tests or x-rays relating to physicals are not included when calculating your annual deductible. They are not illnesses. But be sure to save all your bills and receipts relating to

illnesses -- they will count toward satisfying your 1% of annual earnings deductible under our Type B group medical coverage.

**Q.** My calendar year deductible is \$80 for Type B expenses. Does each member of my family also have to reach this \$80 deductible each year?

**A.** Yes, each member of your family has his own deductible--1% of your annual base salary. However, the family limit on deductibles is an amount equal to four times the calendar year deductible. Here are some examples:

#### Type B Medical Expenses Deductible

	<u>Annual Wages</u>	<u>Annual* Deductible</u>	<u>Family Deductible</u>
Single Empl.	\$5,950	\$60	-
Married employee, spouse & 1 child	\$7,250	\$80	(3 x \$80) \$240
Married employee, spouse & 5 children	\$7,250	\$80	(Limit = 4 x \$80) \$320

\*Calendar year deductible is 1% of employee's annual earnings, taken to next higher multiple of \$10, but not more than \$250 nor less than \$50. (\$250 for retired employees)

**Q.** Can I carry over medical expenses from one year to the next for Type B medical expenses?

**A.** Sometimes! Each calendar year a separate deductible applies to each family member. However, when part of a calendar year's deductible is applied against expenses arising during the last 3 months of the year, the following calendar year's deductible will be reduced by the amount so applied. So, consider whether your medical expenses of Oct., Nov., Dec., '74, can be included in 1975's deductible.

## AIR FORCE TO USE EMR SYSTEM FOR A10 TESTS

A new EMR computer-controlled telemetry system, mounted in a special transporter, is on its way to Edwards Air Force Base, Calif., for use by the Air Force in aircraft testing at various locations under different climate conditions.

The transporter, which contains the EMR system, is scheduled to be airlifted to widely separated locations--from California to Alaska, Central America and Florida--to process test data on the A10 aircraft under a variety of extremes of weather conditions such as heat, cold, humidity, etc. The A10 is a new, close air support aircraft.

Valued at over \$200,000, the system was completed ahead of schedule and accepted by the customer in Sarasota. The transporter--eight feet wide and 20 feet long--is being shipped to California by van.

Jack Cain had project responsibility for this job. Other team members included Randy Mitchell, Mike Hutchinson, Sue Sutherland, Paul Weller.

---

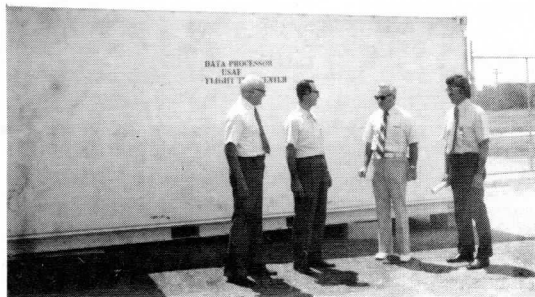
## Surface Effects Ship

(Cont'd from Page 1)

The TTIS must withstand severe vibration, shock and acoustic environments, in addition to salt spray in 100-knot winds--due to the speed of the ship.

In addition to the large TTIS shelter, there will be a power unit behind the shelter, to accommodate two motor generators for the electronics, air conditioning, heating, lighting, etc.

Wiley Dunn is the EMR Program Manager for this project. EMR's system will include a considerable amount of newly-designed equipment as well as some of our 600 series signal conditioning, Model 2705 and 2706 ADC/Multiplexers, plus 711 and 713 PCM units.



Shown with the Data Processor Transporter during customer acceptance are Bill Black, Jack Cain and Carl Steineckert, of EMR, with K. Yamasaki, Project Engineer, Edwards AFB.



Inside Transporter--EMR telemetry/computer system. Paul Weller is seated at computer console at right.

---

## SPEAKING

EMR representatives have been telling area Service Clubs and other groups about EMR and what we do. Don Buffington addressed the Breakfast Optimist Club of Sarasota recently, and will speak to the Hi-Noon Lions Club on Oct. 13... Ed Kucharski talked to the Optimist Club of Roberts Bay in Venice this month... Chris Papastrat will soon speak to the Riverview Junior Executive Training Class and will escort the group on a visit to EMR... Bill Salter will host a plant visit by the West Florida Christian School.