

PACKARD ELECTRIC

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CAD/CAM: Packard gains from computer graphics

by Patricia Reilly
Public Relations intern

Some Packard Electric engineers may soon do their work faster and better with the help of a newly developing Computer Aided Design Computer Aided Manufacture (CAD/CAM) system.

"It will revolutionize the way engineering is done, and provide for more experimentation," said Bob Tucker, supervisor, divisional Tool Engineering.

Until 1981 Packard relied solely on its 16 two-dimensional Computervision stations to perform drafting, tool design, electrical machine control design, plant layout and printed circuits functions. Then the Packard Electric Executive Committee made a larger commitment to CAD/CAM by approving the addition of a significant number of Intergraph work stations.

"In 1981-82 Packard decided to go after the best system it could find," Tucker explained. "We're phasing into an Intergraph system that is three-dimensional, full color and 19 work stations currently."

Additional work stations and functions

As the Intergraph implementation plan progresses, Packard will gain up to 29 more work stations to bring the total to 48. The additional work stations will perform more and more engineering functions. "The significance is not only more stations, but that they penetrate every type of engineering function at Packard," said Vitaliy Pechenuk, toolroom engineer.

Component design, assembly design, component engineering, application engineering and manufacturing engineering will benefit from the implementation of the CAD/CAM system, which is expected to reduce lead times, errors and costs.

This means manufacturing can begin sooner, engineers will make fewer mistakes and designs will improve—all with fewer manhours involved.

Currently CAD/CAM is in the developmental stage. "We don't yet have all the systems designed to let responsibility for a model change rest on us," Pechenuk said. "We're learning to crawl before we can run."

Three stage implementation

Intergraph will be implemented in three phases:

Phase one began in January for the division. During this period, departments have been working to develop the system, load the data base, and train personnel to use the system. "When you bring in a system you need to establish pro-

cedure and get comfortable with it," Pechenuk said.

Phase two, planned to begin in July 1985, might bring the new system to a 1:1 or better proficiency with the current manual system — work with either system will require equal amounts of time. Still, work done with CAD/CAM will contain fewer errors.

Significant additional productivity gains should begin with the onset of Phase three sometime thereafter. Then engineers and designers using the Intergraph system might work twice as fast as their counterparts using the manual method.

CAD/CAM advantages

Exactly what kind of functions can a CAD/CAM system perform better than a manual one?

Manufacturing Engineering can use the same models created by Component and Application Engineering. Calculations performed once remain in the database, so engineers need not recalculate them. For example, this system instantly calculates mold shrinkage factor, which normally would take an engineer 14-16 hours to perform.

In addition to relieving engineers of laborious calculations, the CAD/CAM system can simulate parts and processes, thereby eliminating the trial-and-error method.

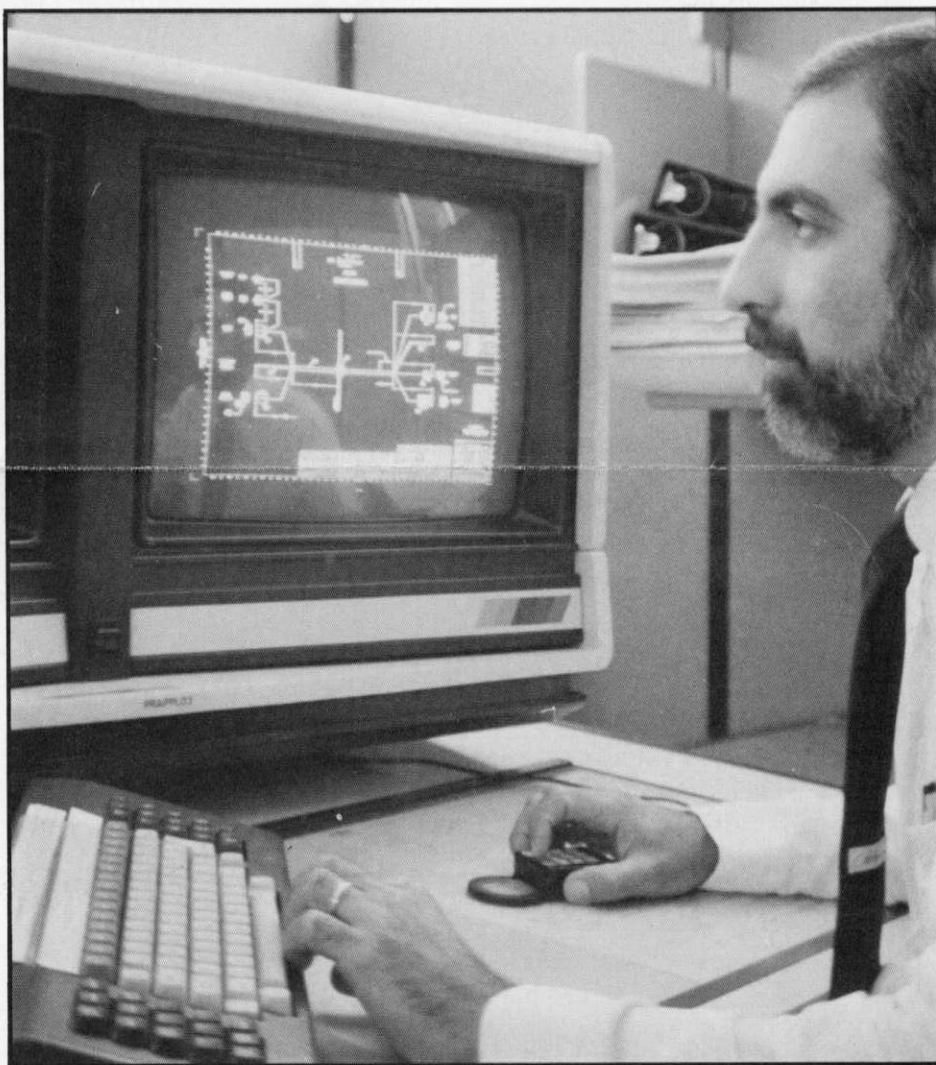
"Many times we would draw a mold component that looks very good by itself, but the fact is that when it mates with the rest of the components in a tool assembly it doesn't fit, whereas with CAD/CAM we'll be able to test that fit directly on the screen. That way

we'll get a lot of the error out of there before it's even built," said Mike Romig, superintendent, Divisional Tool Engineering.

Manufacturing Engineering bene-

fits from the use of CAD in Product Engineering. Component Engineering is beginning to use its CAD system to design components and

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Nick Forte, supervisor, Computer Operations, Application Engineering, examines a wiring assembly design.

Mississippi Operations ratify

Employees represented by IUE locals at Packard Electric's Clinton and Brookhaven, Ms. Operations recently ratified new local contract agreements.

Terry Lee, personnel director, Mississippi Operations, reported that Local 698 members at Clinton ratified a new agreement on July 29. The Clinton ratification came following the July 11 tentative agreement. "Tentative agreement was reached one day before the target date Packard and Local 698 set," noted Lee.

He added, "I think that the management and union representatives did an outstanding job of trying to put together a contract that addressed the needs of the hourly workforce as well as man-

agement concerns. Members of Local 698 acted very responsibly in addressing the desires of the workforce and at the same time recognizing the competitive problem Packard now faces."

Horatio Jones, shop chairman of Local 698, said, "I feel good about the outcome of these negotiations. Job security and enhancing seniority rights of our members was our main objective, and I think the contract we just negotiated reflects that."

Local 698 represents more than 900 Clinton employees.

Members of the IUE Local 718 at Packard Electric's Brookhaven, Ms. plant also ratified a new local contract last month.

Ratification of the agreement was by unanimous vote. The action

came less than one week after union and management reached tentative agreement covering local issues and working conditions, according to Ed Zuga, Brookhaven plant manager.

"Both union and management followed a responsible course in achieving this agreement; they did the right thing for the membership and the operations here in Brookhaven," Zuga said.

He continued, "This agreement will help us maintain our unique system, and enable us to provide our customers with the best quality products we can."

Brookhaven has approximately 338 hourly employees represented by IUE Local 718, which was formed following a representation election in 1982.

Newsbriefs

GM Goodwrench Motor Oil

General Motors is marketing its own brand of motor oil. The oil, according to Van R. Peters, general director of GM Parts, is produced by outside sources to GM specifications and marketed through more than 11,000 GM dealers as "GM Goodwrench Motor Oil."

"We see this as a good marketing opportunity for us, capitalizing on the recognized Goodwrench name to provide a superior quality motor oil which meets or exceeds all GM specifications for GM cars and light duty trucks," said Peters.

"The trend to smaller, higher output engines and the emphasis on fuel economy and less frequent routine maintenance places added importance on selecting the right motor oil," he added.

The GM Goodwrench Motor Oil is available in four grades — SAE 5W-30 SF, SAE 10W-30 SF/CC, SAE 15W-40 SF/CF, and SAE 30 SF/CC. Phased distribution of the oil began in November and it became available at GM dealerships nationwide Feb. 1.

Joint Ford - U.S. Steel plant

Ford Motor Company's Rouge Steel Co. subsidiary and U.S. Steel Corp. have announced a joint venture in which they will build a plant in Dearborn, Mi., to make corrosion-resistant steel, according to **The Wall Street Journal**. Annual capacity of between 560,000 and 700,000 tons of two-sided electrogalvanized sheet steel is predicted for the new plant. Ford is expecting the plant to begin operation in mid-1986, in time for 1987 automobile production.

July auto sales up

Domestic car sales climbed to a seasonally-adjusted annual rate of 8.7 million last month, the strongest monthly sales pace this year, according to **The Detroit News**. U.S. automakers sold 684,112 cars last month, up 18.6 percent from the same month last year. Sales for the final 10 days of July increased 15.7 percent, while domestic car sales for the year to date are up 25.3 percent. For July, Ford car sales climbed 25.7 percent, Chrysler gained 10.6 percent, AMC jumped 69.7 percent and VW of America was up 7.6 percent.

GM dealers in the U.S. sold 527,534 new cars and trucks last month, a 17 percent increase over the 451,040 vehicles sold last July. GM car sales of 400,294 were the best for July since 1979 and up 15 percent over a year ago. July truck sales of 127,240 were the highest since 1978, and 23.4 percent better than July 1983. For the first seven months of this year, both GM car and truck sales are up 25 percent over a year ago, with total sales topping the 3.8-million mark.

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Packard people make moves

Packard Electric Division General Manager Elmer E. Reese has announced the appointment of Thomas J. Morr to the position of Assistant Personnel Director, Personnel Administration and Development in Packard's Warren Operations, succeeding Gordon S. White, Jr.

The appointment was effective Aug. 1.

Morr most recently was Administrator, Executive Compensation Activity, in GM's Central Office Personnel Administration and Development (PAD) Staff.

White will succeed Morr in Detroit.

In his Packard assignment, Morr will be responsible for Salaried Personnel functions and policy.

Morr joined the corporation in 1965 with the Delco Electronics Division in Kokomo, Ind. He advanced through several Labor Relations and Personnel assignments before joining the Central Office Industrial Relations Staff in 1978. Three years later, Morr moved to the PAD staff.

Morr holds a bachelor's degree in political science from Northwestern University and a master's degree in management from Stanford University, where he studied under the Sloan Program.

White joined Packard in 1977 as manager of Labor Relations and Safety after nearly 14 years with Delco Products in Rochester, N.Y.

In addition to his assignments at Packard, White completed a special management program at Harvard University.

In other appointments involving Packard Electric personnel, Richard L. Huber, group director of Personnel for the Chevrolet, Pontiac, GM of Canada (C-P-C) Group, has announced effective Aug. 1 the appointments of: Nicholas J. Bozich to Director of Organizational Development for the C-P-C Group, Barbara Mahone to Director of Human Resources Management for the C-P-C Group, and Joseph C. Tatham to Director of Financial Systems.

Bozich was plant manager for

Packard's Warren Branch Operations.

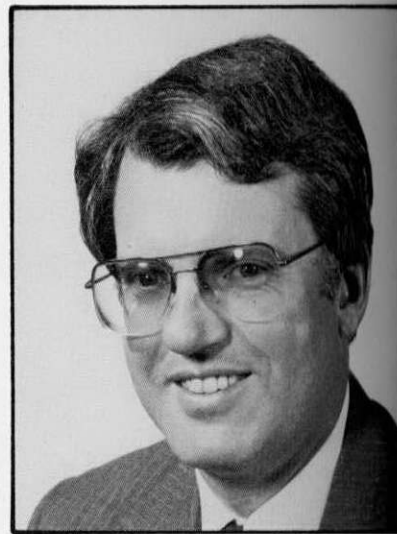
His GM career began at Packard in 1962. Bozich's assignments have included staff project engineer, superintendent of Manufacturing Engineering, plant manager of Packard's Brookhaven plant and chief engineer - Application.

Mahone was Packard Electric's manager of Labor Relations and Safety before accepting a position last year with the federal government as chairman, Federal Labor Relations Authority.

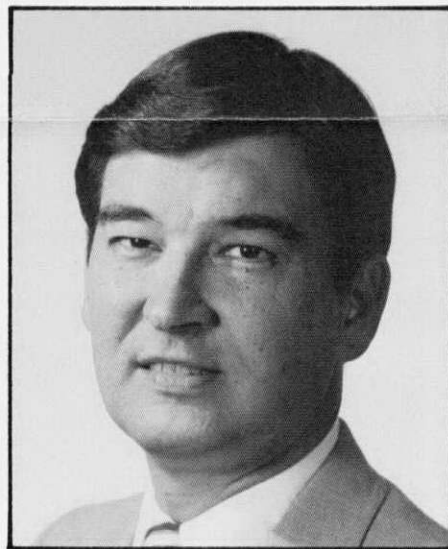
Tatham served as assistant comptroller at Packard Electric from 1975 to 1980. Most recently he was assistant comptroller of the GM Assembly Division.



Morr



White



Bozich



Mahone



Tatham

Salaried employees show benefits from GM Savings-Stock program

On August 1, salaried employees who participated in the 1981 Class of the General Motors Savings-Stock Purchase Program (S-SPP) became entitled to settlements valued at \$441 million, representing \$2 for every dollar employees saved during 1981, according to Tom Habel, Packard's administrator of Salaried Benefits.

He added that returns range from \$2.10 for employees enrolled 100 percent for General Motors Common Stock, to \$1.91 for those enrolled for Series EE bonds. The rate of return for each of the five investment options is as follows:

Options	Calculated Return
1. U.S. Series EE Bonds	\$1.91
2. Portfolio of Diversified U.S. government securities	\$2.02
3. 100 percent GM Common Stock	\$2.10
4. Income Fund	\$1.96
5. Equity index fund	\$1.97

This is the third class distribution made under the revised pro-

gram, explained Habel, which was modified in Dec. 1981 to accelerate the maturity period for S-SPP classes to two and a half from three years.

He said that more than 26,000 employees chose to leave their 1981 assets, valued at over \$162 million, in the tax-sheltering S-SPP trust until they decide to withdraw them at a later time or until retirement.

"Leaving matured assets in the trust is an excellent way to help prepare for a more financially secure retirement," emphasized Habel. He added that participation in the "Savings With a Plus" provision also is an excellent way to help plan for a more financially secure future. "Moreover, the 'Plus' participant's current federal tax liability (and in most cases, state and local tax liability) is reduced."

Habel explained that 79 percent of the GM salaried workforce participates in the Savings-Stock Purchase Program and saves an

average of 8.5 percent of their eligible pay (more than 60 percent of the salaried workforce is enrolled for "Plus" savings).

"By comparison," he continued, "72.6 percent of the eligible Packard Electric salaried employees participate in the S-SPP, saving an average of 7.2 percent of their eligible pay." He noted that 36.9 percent of Packard's salaried workforce is enrolled for the "Plus" savings.

Habel further explained that since the 1981 class has matured, all assets, including Employee Savings required to be invested in GM common stock and matching Corporate contributions, are now available for transfer to other investment options.

"Until the date of maturity," cautioned Habel, "the only funds which may be transferred are the option monies. Transfers are still permitted only once each calendar year."

Packard developing CAD/CAM system

(Continued from Page 1)

pass three-dimensional models of these designs directly to Manufacturing Engineering.

"It will result in elimination of redundant effort we have in our current design system," said Bob Mallinger, assistant staff engineer, Component Engineering.

Component designs can also be analyzed on the computer by a method called Finite Element Analysis. These processes will allow designs to be more fully developed than they are today without taking any more time. CAD and Finite Element Analysis are done on two different computer systems.

"In the future we need to be able to tie in the models we make on the Intergraph to the finite element analysis we're doing," Mallinger said. "It's a good technique, but we're still in the development stage of the software."

Application engineers also see the potential for a great leap forward in technology through the use of CAD/CAM. "Today we use paper and pencils to create our

wiring assembly design," said Nick Forte, supervisor, Computer Operations, Application Engineering. "We transmit a print of that information back and forth through the mail from Packard to the customer, and we use that print to communicate information to our assembly plants. We hope to eventually use the computer to do that process electronically."

Application Engineering currently uses five Intergraph work stations to develop techniques to design wiring assemblies. Current experimental programs include those for the 1988 GM-10, the 1986 N-car, and the 1986 ST-truck.

"These techniques include Information Systems personnel writing programs in-house based on Application Engineering requirements. We will test that programming effort to make sure it does what we want it to do," Forte explained. "When it does, then we will put it into actual production."

Forte said he expects the system to provide improved quality of designs, prints and communication. It will also encourage innova-

tions that cannot yet be done today, such as the complete analysis of a wiring system from an electrical standpoint.

Using CAD/CAM techniques allows engineers to predict how well a product will perform. "The earlier in the engineering cycle you can realize what's going on in the product and process, the better your decisions are going to be and the less it will cost you," said Bill Engelke, supervisor, Information Systems.

"We ask ourselves, 'Can our products stand the cost of an investment into an expensive, complex system like this?' I don't think our products can stand for us NOT to make that investment."

Developing a CAD/CAM system requires training and experience, Engelke said. "We have probably gone as far as five or 10 percent as compared to where we need to be," he said. "We're making mistakes and learning from them and going back to do things better. It's

something that takes a lot of patience because it takes so long to do some of these things, but in fact it's quite common within the industry to have long start-up periods."

Engelke noted that CAD/CAM techniques have become necessary due to the increasing complexity of Packard's products and manufacturing processes.

"We're going toward high technology with our electrical system as well as our manufacturing and engineering; our wiring assemblies are getting more sophisticated. They're carrying more kinds of different signals, and we're beginning to put devices such as transistors, modules, and integrated circuits all over the car," he said.

The success of Packard's CAD/CAM effort will likely rest on the edge it will give the division over competitors. "We at Packard Electric know we have to be competitive," Engelke said. "We ask ourselves, 'Can our products stand the cost of an investment into an expensive, complex system like this?' I don't think our product can stand for us NOT to make that investment."

Quality training eases changeover

A quality training program for Brookhaven workers in Packard's Mississippi Operations is helping to ease the changeover this year from final assembly to lead prep manufacture. This seven-year-old program has been offering training classes to help improve employee productivity.

"I've done the quality training since we started the program," said Carolyn Day, Quality Control. "Now every time we have a group that moves to lead prep from final assembly, we give these training classes on quality to teach them what they should know about leads and set-ups."

Each four-hour session includes:

- set-up
- terminal identification
- cable identification
- gauge identification
- lead inspection

"I then go back to do on-the-job training," Day explained. "We go over some of the things we talked about in training."

These training sessions marry with Statistical Process Control (SPC) to emphasize building quality into the leads rather than simply inspecting the leads for flaws after the fact. Participants learn how to identify and prevent problems.

"I try to give them examples of things when I talk about them," she said. "I was a member of lead



Carolyn Day, (right above), Quality Control, conducts a quality training class with Brookhaven assemblers (above from front to back) Ruby Blount, David Bulkhalter, James Sutton and Dena Martin. At left, Day makes a point with assemblers Nora Thompson (left) and Vickie Brumfield.

prep when I started, so I know the problems I ran into and the things that helped me out."

Day has conducted more than 300 training sessions since the program began in 1977. Some Brookhaven employees who began working in lead prep before that time have not had this training.

"A lot of them have asked for these classes because they never had them before," she pointed out. "It's an ongoing program where they get first hand knowledge of

learning how to do a job."

In addition to oral instruction and on-the-job training, workers receive training booklets to help them when they begin work at their new jobs. These booklets include cable charts, gauge sizes and application codes. Day updates the booklets as new information becomes available.

Armed with their reference booklets, the newly trained employees spend four weeks at their jobs before returning to Day for a refresher course. "These are some of the things I thought were helping people," she said.

After seven years, the program boasts its own quality improvements. "I think the program is good—I cover a lot of ground," Day emphasized. "I've gotten good feedback from the people."



Division packaging program

by Mark Rollinson

Packaging has been a business concern ever since products were first produced for shipping. The more intricate and complex the product, the more complicated are the packaging requirements. This is particularly true with regard to wiring harnesses which can become tangled during packaging, shipping or removal of the product at an assembly plant. Tangled harnesses can result in damage which could lead to electrical problems after vehicle assembly, and finally customer complaints.

A team program of Cooperative Involvement was recently developed by Packard Electric as one part of the division's quality improvement efforts. One of five main quality thrusts of Packard Electric's Cooperative Involvement Program includes packaging harnesses on a much more comprehensive and aggressive level than in the past—through the development of a Divisional Packaging System.

Divisional Packaging System

The goal of the Divisional Packaging System, according to Bill Dunham, Packard's manager of Engineering, is to provide a final assembly

package to Packard customers which will assure a quality product, and will facilitate installation at the most economical corporate cost. The Packard program involves attention to the packaging design of products and the containers used to ship Packard products from the standpoint of reduced chance of damage during loading, shipping and unloading at GM assembly plants.

"Packaging the product is as important as the product quality itself," stressed Dunham. "Improper packaging can result in a customer complaint just as easily as a defective product."

Merrie Lee Soules, Packard's superintendent of Quality Control, agreed with Dunham's analysis of the importance of packaging to the division. "Packaging has a significant impact on our ability to prevent damage and quality problems. That's really where the quality focus is."

Prior to the initiation of Packard's packaging program in 1982, Packard Electric packaging of wiring harnesses consisted mainly of the use of tear tape, wire ties and "hanking." Once the product was built and packaged prior to the advent of the Divisional Packaging System, Packard Electric had little control over how it

was treated during shipment, and how it was treated when it was unloaded at assembly plants during uncrating and installation.

The Packard packaging program as it is conducted today, Dunham explained, begins long before the vehicle program is in production. The program is based on visits by teams of Packard Packaging, Methods Lab and Reliability representatives to customers' plants and working closely with them to find out what kind of packaging is needed to maintain the quality of Packard's products. Dunham noted that the visiting procedure is usually a two-way street with plant engineers, technicians and assemblers who install the harnesses at the assembly plants visiting Packard Electric.

Packard packaging timetable

Dunham noted that the on going program is on a timetable to include Packard harness input in all new GM vehicle programs each model year. The vehicles included this model year are C-cars (Oldsmobile 98, Buick Electra and Cadillac Sedan DeVille), P-car (Pontiac Fiero) and the Y-car (Chevrolet Corvette). For the 1985 model year,

Packard Electric uses team approach to determine packaging requirements

Packard Electric's involvement in the C-car program from a packaging standpoint began early in 1983. Packard sent Packaging, Methods Lab and Reliability representatives to the Lake Orion, Mi. assembly plant where the C-car pilot program was to be conducted.

"Our objective there was to see what they were doing with the harness after they received it, and get their ideas of what we (Packard) could do for them to make their job of taking the harness out of our packing crates easier, and to reduce the likelihood of damage," explained Pete Carusone, a senior methods engineer in Packard Electric's Warren Operation. "We got their ideas on what we could do at our plants to help them in their job of assembling the harnesses in the car."

Similar goals

He noted that the goal at the Lake Orion assembly plant for the C-car packaging program was essentially the same as the goal Packard Electric had established for the entire Packard packaging program. "From an assembler's point of view they were just as concerned about customer complaints as we were (and still are) from

a builder's point of view."

According to Carusone, the Lake Orion assembly plant representatives initially embraced individual packaging for each of the nine major harness families shipped to the plant from Packard Electric for the C-car. Packard saw the answer as somewhere between mass packaging and individual packaging. "There is a level that we would like to attain that benefits us (Packard), and which benefits our immediate customers (our assembly plants), and also will benefit in the long run the people who buy General Motors cars."

He continued that following the meeting between the Packard and Lake Orion assembly plant representatives, meetings were held at Packard to develop three or four designs. The Packard design emphasis, according to Carusone, involved the number of harnesses shipped in each container, how the containers are shipped and the cost to Packard of shipping. Other concerns were the costs passed along to the assembly plant in order to comply with some of the plant's special packaging requirements.

'Something special'

"There was a need in this particular case on the harness itself to do something special," said Dick Flanery, superintendent of Packard's Clinton Methods Lab.

The "something special" involved provisions for feeding a three-foot branch of the C-car harness through the bulkhead from the interior of the car into the engine compartment. Flanery noted that this was the first time Packard had designed a harness branch of this large size to accomplish such a feat. When confronted with this sort of design in the past, Packard had always elected to replace the branch with another separate harness or interface.

The advantage of having the three-foot C-car branch remain as part of the harness, according to Flanery, was two fold. "One thing is that it eliminates the interface which is a reliability and quality improvement, but the other thing is it gets down to 'buildability.' In some cases the way cars are designed today, you just can't get to that point (on the bulkhead) where the harness comes through. They wanted it to come through the firewall (bulkhead) and then route up to where they could reach it to aid in their assembly process as well as improve the quality."

'Heat shrink'

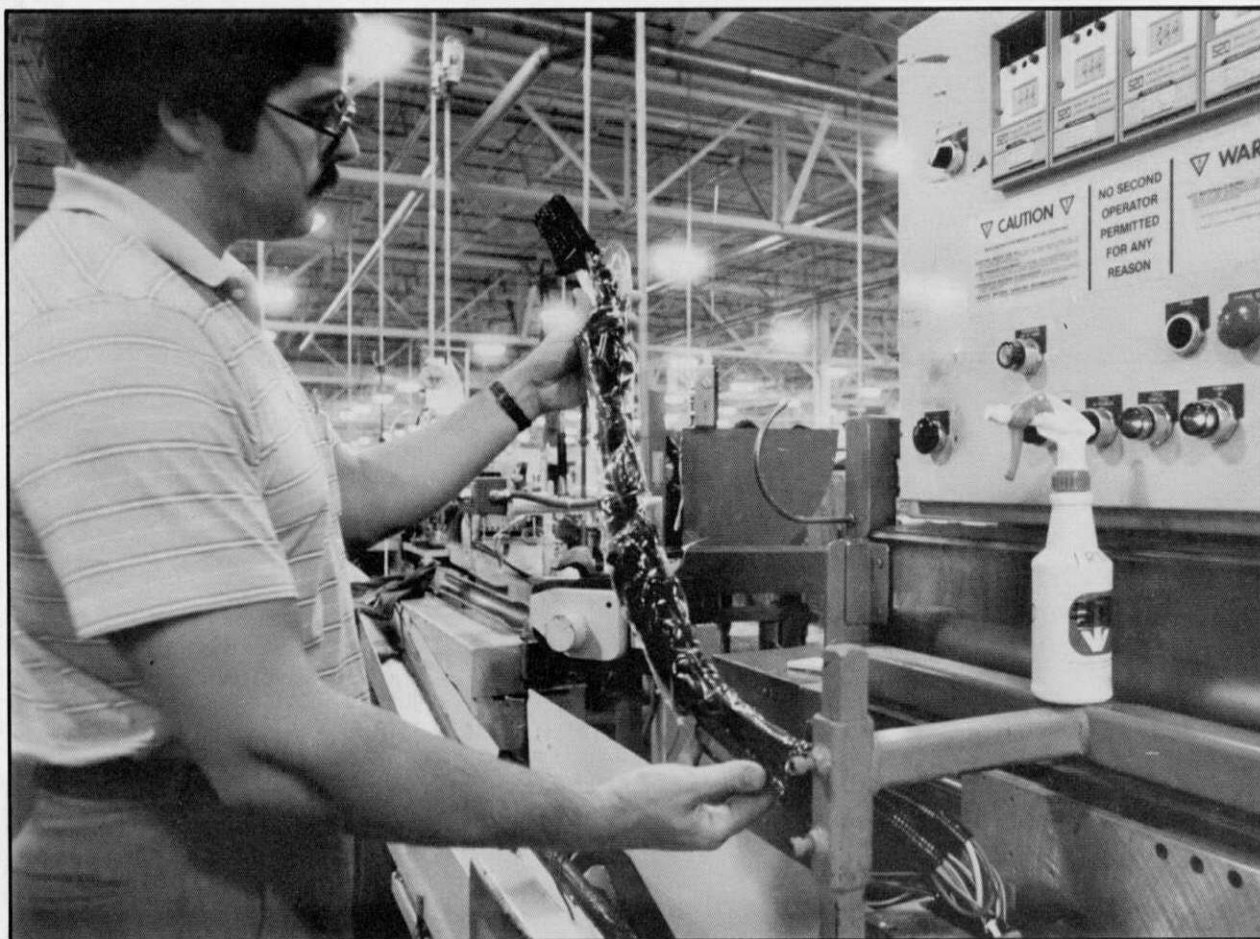
Packard's Clinton plant developed an innovative packaging plan for the C-car harness called "heat shrink." Flanery described the C-car "heat shrink" wrap as a four-foot clear plastic sleeve which fits easily over the C-car branch during harness assembly. Prior to shipping, the plastic sleeve is heated which causes it to shrink tightly around the harness branch.

The heat shrink solves the problem of damage due to tangling during shipping, and also helps at the assembly plant by keeping the branch harness together so that it can easily be threaded through the C-car bulkhead. Additionally, Flanery explained, "we applied grease on that branch on several connectors. This was the first time we had seen grease used on an instrument panel harness." He noted that the heat shrink removed the concern of assemblers getting grease from the harness on the interior of the car during assembly.

The shipping answer for the C-car harness became a combination of returnable and disposable shipping containers developed by Packard's Design Engineering, Methods Lab and Reliability representatives.

Feedback from the Lake Orion, and later the Wentzville assembly plant representatives was very positive regarding Packard's C-car packaging program. "They were very happy with the fact that we initiated it and that we included them in our talks, in our discussions, in our

(Continued on Page 5)



Dick Flanery, superintendent of Packard's Clinton Methods Lab, holds "heat shrink" branch section of C-car harnesses.

nsures product quality . . .

the Packard packaging program has already addressed wiring harness input for the M-van and N-car. The packaging program will expand for the 1986 model year to include E, K and H cars, Dunham explained.

The first official packaging project for Packard Electric began in September, 1982 with the Chevrolet Corvette being assembled in Bowling Green, Ky. Packard Electric began working on the Corvette project early in the planning and development stage. Three months after the pilot project began at the Corvette plant, packaging programs for the Pontiac Fiero and the C-bodied cars were started.

Packaging proliferation

The packaging program was proliferated after the Corvette pilot project. "Once we had an idea of what we wanted to do," said David Clary, Packard's supervisor - Material Handling and Package Design Engineering, "and how we wanted to proliferate, we looked at C-car and Pear which were the next two car programs (after the Corvette) for the 1984 model change. We implemented what we learned on the Corvette and went to a full-blown program. We

looked at every wiring package that Packard Electric supplies to them regardless of the shipping location. Mississippi, Mexico and Warren all supplied information and sent methods engineers and preplanners to the car divisions and worked with their people."

Plant representatives from Pontiac's Fiero plant in Pontiac, Mi. and the GM C-car plant located in Lake Orion, Mi. and Wentzville, Mo. toured Packard's plants to see how the harnesses are built, and to get an explanation of why Packard has so many different types of packaging and containers from which to choose.

Corporate costs

Beyond the basis of insuring the quality of Packard's harnesses during shipment, packaging designs, explained Clary, are rated on the basis of total cost to GM. "We look at transportation, packaging, labor, package, material and assembly labor (i.e. putting the harness into the container and removing it at an assembly plant.)"

"We're interested in corporate cost because our (allied) customers pay for the transportation," explained Clary. "We need to look at the whole program (transportation) from start to finish."

Clary explained, for example, that shipping returnable metal containers to a customer results in a cost disadvantage to General Motors. "When you consider the cost of cleaning them out (containers), handling them internally, and also the cost required to return them to Packard, they're not as cost effective as disposable containers. Since we're not paying the freight to move the baskets from one point to another it's cost effective for Packard," he emphasized. "If Packard had to pay the freight then it wouldn't be cost effective." He noted this was the reason that packaging is being examined in terms of corporate costs.

Returnable/disposable containers

"If we change to corrugated (disposable containers) then we can fully utilize the cube (shipping space) of the truck, and then the baskets come back in the same upright condition. They return empty in the small amount of space as they went full." Clary added that Packard is currently investigating a new generation of returnable containers designed specifically for truck shipment.

Corvette harness packaging provides pilot experience

The pilot project for the Packard Electric packaging program was initiated in September and focused on packaging the Chevrolet Corvette instrument panel harness out of Packard's Clinton, Ms. plant and shipping it to the Bowling Green, Ky. assembly plant. According to David Clary, Packard's supervisor - Material Handling and Package Design Engineering, the Corvette was selected to be the first packaging project because the vehicle body design and the Corvette assembly plant were new.

Also, Clary explained that it was easier for Packard to get involved in the Corvette at that time because its introduction was six months ahead of C and P-car production—the next two GM car programs.

Quality assured packaging

He noted that Packard Electric developed about six packaging samples designed to assure the quality of the Packard Corvette instrument panel wiring harness throughout the shipping process. Clary added that the Packard packaging designs had to be developed to include certain features. "Corvette had some specific requirements for the instrument panel. They wanted individual harness segregation, they wanted returnable containers and the full length of the harness (65 inches) couldn't have a bend in it."

The main reason Chevrolet wanted to have the Clinton plant ship the Corvette harness without bending it, according to Dick Flanery, superintendent of Packard's Clinton Methods Lab, was that the three-inch diameter harness provided extra strength to the instrument panel. He explained that bending the harness would result in kinks which, due to the large size of the harness, would cause the Corvette instrument panel to deform.

Long package required

"That (the long package requirement) was probably the single most driving factor that caused us to take another look at our packaging," Flanery emphasized. He added that Packard Electric did not have a package that was long enough to accommodate the Corvette harness. "To that point we had been dealing with 42-inch cells and now we needed something that was much longer."

He noted that the Clinton plant was already investigating ways of separating the instrument panel harnesses as they were packed in the cartons. "We knew from previous experiences that there were tangling problems, and that there were problems at the car plants in getting instrument panel harnesses out of our boxes if they were packed en masse."

Flanery explained that the Corvette instrument panel harness packaging experience provided information regarding who Packard repre-

sentatives can work with at GM car plants to determine packaging parameters. "Finding the person at the car plant that could say, 'This is what we want,' had been very elusive. At this point we began getting very definite direction and very definite feedback from the customer as far as what he wanted, and how he wanted that package to look."

Samples were sent to the Bowling Green plant for review. All the packaging designs, which included Packard's quality considerations, explained Clary, were rated on the basis of total cost to GM. "We looked at transportation, packaging, labor, package/material and assembly labor (i.e. putting the harness into the container and removing it at an assembly plant.)"

He noted that many of the early packaging designs for the Corvette instrument panel harness consisted of plastic containers using a vacuum-formed tray. One by one the plastic container designs were discarded because they were not cost effective.

A corrugated five-panel folder design was finally adopted by the assembly plant. A harness is placed inside the folder and sealed. The folder is then placed into a 70-inch long shipping cell. The result is each harness is individually segregated which, emphasized Clary, eliminates tangles.

Room for negotiation

Clary noted that despite the specific nature of the packaging requirements from officials at the Corvette assembly plant, there was room for negotiation. "Even though their original consideration was returnables (containers)," he explained, "when we got through with the evaluation, their decision was to go with the corrugated and expendable packaging." The Corvette plant recycles the corrugated containers.



Wyonie Singleton, Dept. 2405, heats a plastic "heat shrink" sleeve around a C-car branch harness.

Packaging challenges await Packard experts

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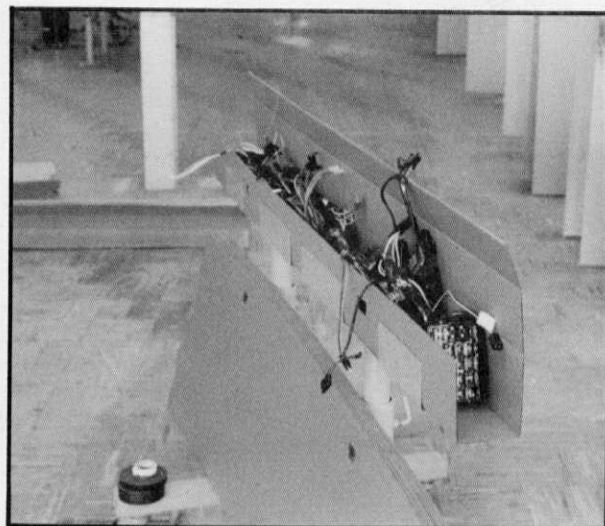
proposals, in our ultimate decisions, and that we continue to follow up after we gave them a product package," Flanery noted.

Challenges of 1986 E-K car

Flanery is now looking ahead to the challenge of the dash harness which will be built in Clinton for the 1986 E-K car. "It is the granddaddy of all harnesses," he emphasized. "This harness is twice as big as the C-car dash harness which up to this point is the biggest harness we have seen at Packard."

He added that the new E-K car dash harness at about 26 pounds is twice as heavy as the C-car dash harness. "Weight will be a big factor in determining how we are going to package it."

Also from the packaging standpoint the new E-K dash harness will include other innovations such as thermoform conduit and two applications of heat shrink sleeves. From the shipping standpoint, and unlike the C-car dash harness, the Clinton plant will ship the E-K dash harness in returnable containers.



Corrugated five-panel package had to be designed for Corvette harness.

1903 Packard debuts at Sloan Summer Fair

by Donald Mumford
Public Relations staff

Packard Electric's own 1903 Packard made its public debut in Flint, Mich., June 30 and July 1 as the star attraction in the 1984 12th annual Sloan Summer Fair. Terry Martin, who had driven the 1903 Packard from San Francisco to New York last summer, in a recreation of a trip made 80 years before, was at the wheel in his duster, cap and goggles with Grand Marshall James A. Sharp, Jr. mayor of Flint, at his side. They led a parade of vintage cars through the streets of downtown Flint to kick off the two-day event.

The car, a 1903 Packard Model "F" purchased by Packard Electric earlier this year from Martin, was displayed in front of the Sloan Museum. More than 900 cars from pre-1900's through current year models were in the show which has been the traditional highlight of the fair. The fair raises money for the acquisition and restoration of historic vehicles for the Alfred P. Sloan Museum collection.

Spectators who expressed an interest in the 1903 Packard were given a card containing specific information about the car and a commemorative key tag with the Packard logo, a silhouette of the 1903 Packard and the slogan: "Packard Electric, a tradition of quality and innovation."

The car was also shown at the 14th Annual National Car Meet at Hale Farm and Village in Bath, Ohio, Aug. 11.

The 1903 Packard will also be shown September 23 at the Live Wire Motoring Club car show in Packard Electric's North River Road complex parking lot.

James A. Sharp, Jr., mayor of Flint, Mi., arrives at the Alfred P. Sloan Museum in Flint aboard Packard Electric's 1903 Packard. He and Terry Martin, (left) Packard Electric historian, are greeted by Mary Jane Taylor, (right) Packard Electric's director of Public Relations, after leading a parade which preceded the opening of the Sloan Summer Fair.



More publications coming

Packard employe editors receive training

Effective employe communication at Packard Electric received a boost last month through a three-day seminar given to nearly two dozen hourly employees from Packard's Warren Operations. These employees will soon edit new employe newsletters in their plants.

"Our philosophy is that we should have adequate training before we do things, and we wanted a news team in Bazetta Township Operations (BTO)," said Joe Palombi, Employee Participation Groups coordinator for the operations that include Plants 14, 15 and 16.

This training session represented one of the first times groups from

more than one Packard plant trained together. "For that reason it was a more effective training session," Palombi said.

Palombi stressed that the training resulted partly from management commitment and support for the idea. "The people are going to be expected to work together as a group, so we felt that training them as a group was a step in the right direction," he said. "Andy Matey (manager, Plants 14, 15, and 16) and George Kralovich (manager, Plant 13) should be commended for their belief and support for this project."

Employees from Warren Operations' Plant 41 at Thomas Road,

Plant 13, and Plants 14, 15 and 16 (Bazetta Township Operations) progressed through various team building exercises before performing writing assignments, mock interviews and sample newspaper layouts with the help of Michael Hissam, Public Relations staff assistant.

"I think it's terrific because it's been a long time since high school, so I've been enjoying the learning experience," said Patty Minotti, Baird press operator, Dept. 1346. "It's been very informative."

BTO and Plant 13 participants will put their new skills to work on plant-level papers scheduled to begin publication this fall, said Palombi and Bob Weitzel, who assisted with the Plant 13 delegation. Thomas Road employees intend to upgrade the quality of their current paper, "Focus Forty-one."

"It was a very profitable experience," commented Donna Perry, Index Line operator, Dept. 4122, and editor of "Focus Forty-one," "I'm going to be able to go back to

Plant 41 with everything I've learned and present it to our staff."

Their journalism training also included basic design techniques, one-on-one feedback from Hissam concerning writing styles, and a homework assignment in which they wrote news stories based on an interview.

"You must answer basic employee questions," Hissam told the group. "Give employees the best possible idea of where they're going and how they can participate. Your readers' most basic question is 'What does this—the story—mean to me?'"

Individual and group exercises combined to teach participants how to answer those questions and to give them a greater appreciation for the part an effective newspaper can contribute to employee communications.

"It's your job to seek new story ideas," Hissam said. "The more background work you do, the better you will do with your interviews. Your job as an editor is extremely important; information is the key to success."



This Buick Park Avenue did not fare as well as its passengers in a July 28 accident. John Merva, senior engineer, Manufacturing Development in Packard's Warren Operations, was traveling at 50 mph when another vehicle collided with him, resulting in Merva's car flipping over. Merva, his wife, and their two children, ages three months and three years—all wearing seatbelts—survived the crash with only minor injuries.



Packard Warren plant editors work on a sample newsletter layout at a recent workshop. From left are; Jeff Fleck, Dept. 1426, Vicki Mitchelltree, Dept. 1442, Bertha Smith, Dept. 1409, Jim Guy, Dept. 1422, Patricia Hinton, Dept. 1601, and Barbara Saxion, Dept. 1601.