

Mueller[®] Service Lines

NEWS ABOUT MUELLER MARKETS, PLANTS, PRODUCTS, PERFORMANCE, AND PEOPLE

The "Mueller Margin" is you

Every hand that touches the product makes the critical difference

Anyone who works on the production of a Mueller product becomes aware sooner or later that its manufacture is a matter of many closely coordinated procedures.

The individual who works, say, at a sorting table may not have this perspective. But imagine what would happen if the sorting job were eliminated. Or that of the individual who files the core parting lines after the coreboxes are emptied? Or any of the many operations that on the surface may seem minor and unimportant?

It's tightly organized . . . but you are what makes it work!

All of these tasks are the result of time, study, evaluation, and in some cases, trial and error. What's done at one station and how well

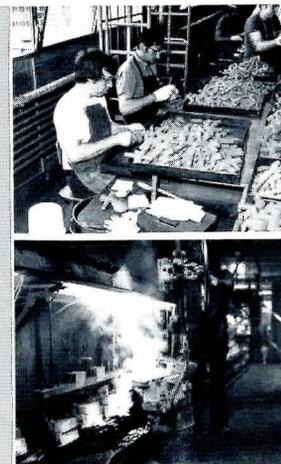
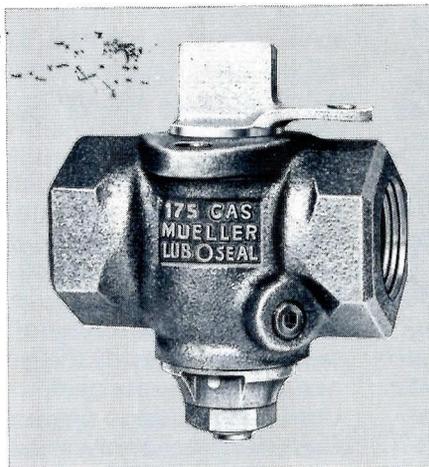
it's done, determines how quickly, smoothly and efficiently it can be handled at the next. The "Mueller Margin" has been described as the extra margin of quality and value that makes Mueller products so highly regarded in the marketplace. And everyone involved in the manufacturing process plays a vital part. The care, pride of workmanship, skill and personal involvement of each individual is what creates that margin. Management can't make the Mueller Margin. Marketing can't. Sales can't. Only you can because you are the Mueller Margin.

Here's a "for instance"

To demonstrate this, let's follow an Iron Body LubOseal[®] Straight Way Tamper Proof Gas Service Valve from the first step of its manufacture to the point where it is packed for shipment. This unit consists of four components — all 100% Mueller made.

Coremaking — a right start can be critical

Department 50 in Plant #4 is where it all starts. Here, the rough castings for both the body and key are produced. Cores are blown into plastic core boxes, conveyed through a dielectric oven for drying, strengthening and to relieve gas that could cause blow holes in the castings. The coreboxes are then emptied, core part-



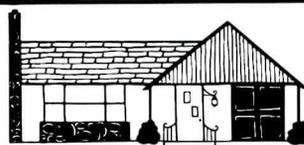
ing lines filed and the cores sent to the brass and iron foundries.

How well the coremaker does his job is of critical importance, because faulty cores make faulty castings, which not only creates a waste of time, but work and material as well.

Molding — a job for the experts

Molding the brass key, key washer and key nut takes place in Department 60, while the iron body is molded in Department 12.

Continued on page 2



The Housing Scene: Outlook Excellent

A significant portion of our business depends on new home construction. That's why it's important to keep our finger on the pulse of the building industry.

The present situation

On the recent scene, housing starts at the beginning of 1977 jumped 13% above those reported for the year's end, which brings the yearly rate to 1,940,000

units, seasonally adjusted. Construction of apartment buildings improved, but permits for future building declined a little.

The severe winter weather took its toll of both industrial production and home building. This decline is proving to be short-lived, as new home building has improved along with the weather.

Continued on page 4

This is the first full issue of Service Lines. It includes a new approach to the Mueller Newsletter, titled "Strictly Personal," which will be not only a part of Service Lines, but will also be published on a more frequent basis to keep you up-to-the-minute on happenings at Mueller Co. and items of interest about Mueller Co. personnel.

When cool, the molds are dumped, castings removed from the gating system, cleaned and sorted. And here again, the skill and precision of the sorters plays a vital role in production efficiency. A defective casting that is overlooked and passed along can sometimes go through several further steps before it is finally caught. And the farther it goes the more wasted time and effort.

Defective castings are inspected to determine if salvage grinding can save them. Rejected castings are charged against the production of those responsible, which is an incentive to produce quality castings. Here is where that little extra care and effort can pay off.



Grinding — a sensitive touch needed

The iron bodies and keys are sent to the grinding rooms where excess metal is removed. The key nut and washer do not require grinding. The pieces are then shipped to Department 80 in Plant #1 for the machining operations.

This grinding process is another important step where care and precision can make a significant difference in the operations that follow. In the case of the key, a poor grinding job can create

havoc when it's machined. No matter how tightly a machine is set up, a poorly ground key can cause machine chatter, excessive wear on machine parts, and ultimately create a key that is either gouged or out of round. This, in turn, creates problems during the next operation, or causes a part to be scrapped.

Machining — who's important, the man or the machine?

The only machining the key nut requires is drilling and tapping. The key washer also requires one machining operation: coining on a 75 ton press to insure square faces and consistent thickness. Five separate operations are needed to prepare the key for assembly. First, a multiple spindle key machine center drills the key on both ends, hollow mills it on the thread diameter, on the washer flat, and threads the stem. The key is next sent to the rough turn lathe where excess metal is removed. The third operation is recentering the key for positive placement on the fit-in lathes to assure a precise taper and alignment of ports.

The fourth operation involves forming "O" ring grooves on a lathe, while the fifth and final machining operation consists of milling the grease grooves.

As anyone who runs a machine knows, it's the operator who makes the critical difference. The machine, depending on how skillfully it's set up, can produce junk as well as a perfectly machined and matching part.

The Iron Body — it's a job that's got to be done right

The first machining operation on the body begins with the bore, counterbore and face, and is performed on a multiple spindle machine. The second operation



is drilling, counterboring and tapping the grease hole on a tapping machine. Third, the inlet and outlet ends are drilled and tapped on a multiple spindle machine in Department 80. The parts are cleaned and shipped to the assembly area of Department 80 for final operations.

At this point, the actual making of the parts has been completed, and how well or how poorly everyone involved up to this point performed is about to be tested as the pieces are put together.

Finishing — you're getting closer to the customer

The bodies and keys are conveyed to the filing bench where burrs are removed. The keys are ground into the bodies on lap-in lathes to provide microscopically perfect mating surfaces. They are washed and sent to the "O" ring assembly bench where two "O"

rings are placed on the key. Next is the hand assembly bench where the key washer and nut are assembled to the key stem and the nut torqued to 200 inch pounds. A blind hole is bored through the washer into the key and they are



locked together with a pin, making disassembly impossible. This is why the valve is designated as Tamper Proof. The valve is filled with grease at 2,400 lbs. pressure and a plug assembled in the grease hole. Assembly continues with tightening the

Strictly Personal Decatur

Don Bathe

NEWS ABOUT MUELLER CO. EMPLOYEES AND THEIR FAMILIES

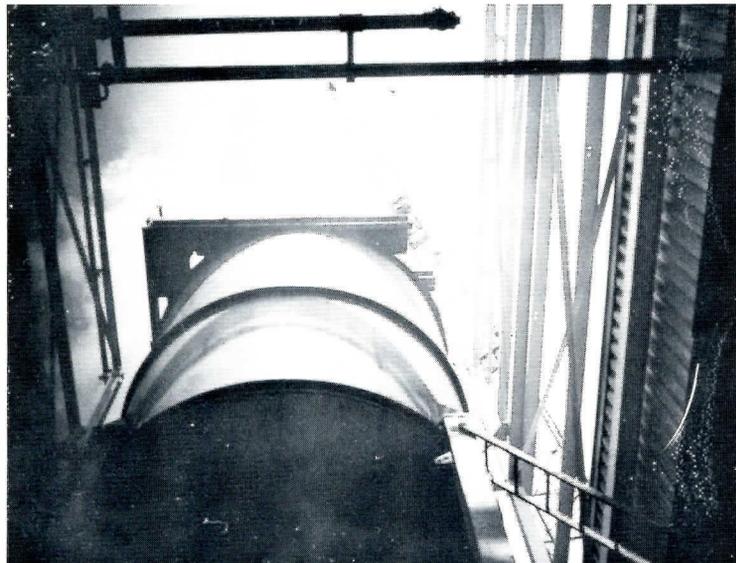
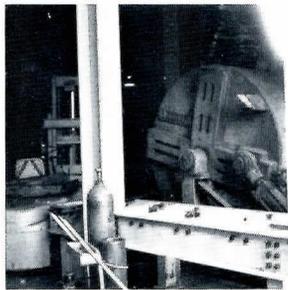
Iron Foundry Changes



Linemelt furnace being moved into place and muller being lowered through the roof and put into place makes the Iron Foundry take on a new face.

With a temporary wall in place, the equipment is being installed without any interruption to the other foundry operations.

The wave of a hand, the point of a thumb up or down, the movement of a finger lets the crane operator know what to do next. These fellows would make good ball players with the different signs that assist them in getting the equipment into right position.



Service Awards

CHATTANOOGA

20 years: James A. Carter
Charles W. Hassler
Raymond H. Phillips
Willie W. Carter
James B. Davis
Cleveland T. Rogers

30 years: Bernice R. Compton

OUTSIDE SALES

10 years: Sam R. McWilliams

30 years: Frank Kellett

Familiar Faces in New Places

William K. Lindgren, formerly data processing senior programmer has been promoted to the position of manager of data processing.

David Stewart, formerly computer operator has been promoted to the position of programmer - trainee.

Michael T. Leatherman, formerly quality control technician has been promoted to the position of programmer.

Retirements

BREA

Alfred E. Hembree, general factory inspector, 28 years, 10 mos., 3 days, February 25, 1977 (80 plan).

Frank W. Williams, tool and die foreman, 30 years, 3 mos., 21 days, February 25, 1977 (80 plan).

CHATTANOOGA

Milford H. Morton, machine repair maintenance man, 20 years, April 29, 1977 (80 plan).

Thomas L. Greene, iron pourer, 18 years, 4 mos., November 30, 1976, (disability)

DECATUR

Roy L. Dingman, production tool grinder, 21 years, 9 months, March 25, 1977 (80 plan).

DECATUR

10 years: Richard D. Curtis

20 years: Vernon H. Brunner Jr.

30 years: Joseph M. Parkison,
Harold E. Friend,
Charles H. Taylor,
Carl C. Wilhelm,
John Gubola,
Ray M. Littrell

SARNIA

10 years: Jean Toll

40 years: Neal Turnbull

Hugh L. Baker Recieves Service to Mankind Award

The Decatur Sertoma Club presented Hugh L. Baker the "Service to Mankind Award", in recognition for outstanding devotion in serving his fellow man in the areas of mental health, education, civic and spiritual groups, and service to the mentally handicapped.

In the manner of a statesman he has been instrumental in securing the firm foundation of our community's mental health program. Though committed to many time-consuming endeavors, Mr. Baker is one of those given credit for initiating Decatur's Alcohol Detoxification Center. While it is a new program, the community is quite impressed with its ability to meet the needs caused by alcohol abuse. His active membership in the Alcohol Advisory Committee for the counties of Macon, Piatt, Dewitt and Moultrie, have made his community a better place to live.

In his work with the problems of alcoholism he has been instrumental in starting a half-way house for alcoholics. This center in Decatur provides a place for individuals with problems to recover and get on their feet again.

A federal group that has Mr. Baker on its board is the South Central Illinois Health Planning Council. Board members are chosen for their expertise in all areas of health, and Mr. Baker represents the field of mental health.

For many years he has been intensely involved in the Lincoln State School Parent's Association. This group has been most concerned with the patient's growth and happiness at the Lincoln State School.



One of his chief goals in his leadership of this organization has been the development of the programs for de-institutionalization of people who can be placed back into the community and then serve as useful citizens, rather than a burden to society.

He has also been a member of the Illinois Association for the Mentally Retarded, which serves as a coordinator for all such group's activities in Illinois.

A native of Decatur, Hugh L. Baker is married and has two children. After graduating from the University of Michigan at Ann Arbor, School of Marine Engineering and Naval Architecture, he began working for Mueller Co. in Sales and Engineering in 1934. He later worked in Sales, Marketing Services, Advertising and Promotion, Product Development, and was a consultant for export sales at his retirement. He still is associated with Mueller Co. on a consulting basis.

Mr. Baker has been gifted with leadership and objective organizational abilities. He has used these traits for a multitude of humanitarian causes -- mental health programs, mentally retarded associations, civic and spiritual organizations, and education.

Fishing Contest

Ron Clutter and partner walked away with the prize trophy at the 1977 annual Good Friday Bass fishing contest at Sancrist Lake west of Kincaid, Illinois. The fishing starts at the break of day and lasts until noon.

The prize winning bass tipped the scales at 3 lbs. 9 oz.

Ron had some of the losers gather around to show them the trophy, not that he would brag about winning.



Retiree Deaths

George Van Walters, Decatur

grease plug and adjusting the turning torque of the valve which is now completely assembled and ready for final testing.

The valve has now reached a stage where it will soon be in the hands of the customer, — the most critical inspector of all.

Final Test — will it work, or won't it?

In the final test, the valve is opened, placed in an underwater tester and pressurized to 263 lb. per sq. in. of air for 15 seconds. No air bubbles must be allowed to escape. Pressure is reduced to 175 lb. per sq. in., the valve closed, and again no air bubbles must escape. After successful testing, the valve is sent to the packing area where an instruction form is enclosed with each shipment to insure proper installation and operation.

Back to the Mueller Margin . . . and you

Experts can set up a factory, map out production step-by-step, set up standards, and plot all these in relation to what the cost of the finished product should be. But they have no control over the human element. This determines the quality of a product, and how efficiently the factory runs. And what controls the human element is pride of workmanship, a personal involvement and commitment to excellence, and that little extra effort and care that makes even the most seemingly minor job one of great importance. This is what creates products that can "make it" in the marketplace . . . offer the customer satisfaction in delivery schedules, performance and price. And that's why you'll hear it over and over again ... YOU ARE THE MUELLER MARGIN! □

The energy crisis...

The energy shortage, aggravated by what the National Weather Service called "the winter of the century," is still one of the more popular topics of conversation. The winter of 1976-77 will be talked about, for many years — barring a repeat performance. But the accompanying gas shortage will be remembered longest. Particularly by Mueller Co. and the employees in our Chattanooga plant, which was one of the temporary casualties of the shortage. The plant, forced to suspend operations in January, was back in production the following month.

Emergency measures help, but . . .

The President's action to draw gas supplies from areas where surpluses existed and distribute them into areas where shortages existed helped. That, plus the onset of warmer weather which eased the demand by top

priority customers, is enabling reserves to be replenished. And while production is back to normal, the problem has just been postponed, not solved.

500,000 workers idled

Existing fuel reserves once thought adequate have been exhausted. As a result, like Mueller Co.'s Chattanooga plant, hundreds of factories were forced to close, throwing close to half a million people out of work. The Federal Power Commission issued warnings that utilities might even be forced to curtail supplies to top priority customers — small businesses, hospitals and residences — for the first time in history. The question we should be concerned with is, will we see a repeat performance next winter?

Distribution systems inadequate

At present, there are approximately 649,000 miles

of pipeline operated by 141 major transmission companies. This supplies 40% of the gas used for industry, and 30% of the nation's total energy needs.

Even if natural gas were available in sufficient quantities, it could not be handled by the pipeline facilities we are using today.

And if new reserves of natural gas are tapped and new pipeline construction undertaken, it will be anywhere from three to five years before these facilities will be available for use.

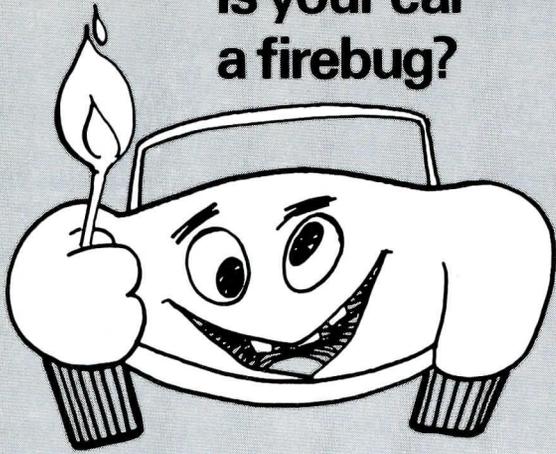
It's time to deregulate the wellhead price of gas

For years gas producers have been asking to have the lid on gas prices removed — or at least raised to a point where exploring and drilling operations can become profitable. The price of natural gas shipped outside the state where it is produced has been fixed by the Federal Power Commission at \$1.44 per 1,000 cu. ft. That price is too low to encourage conservation by consumers, or further drilling operations by the producers. Most of the untapped reserves are in deposits which can be reached only by costly offshore drilling. These reserves are thought to be in the neighborhood of 600 trillion cu. ft.

The gas industry is asking for a 40% increase — \$2.00 per 1,000 cu. ft. — to make it economically practical to tap these reserves and construct the pipelines required to carry gas supplies to users throughout the nation. Without this increase, says the gas industry, production will continue to diminish, and another severe winter such as the one we have just gone through, can cause hardships that will make our recent ones pale by comparison. □



Is your car a firebug?



If your car has a catalytic converter, as do some 1975 and most 1976 and 1977 models, heed those driver's manual warnings not to park on dry grass or leaves. In the Northeast last fall, an early cold snap left many suburban streets clogged with leaves, and cars have been frying in them after heat from the converters ignited the leaves.

Four cars in Milburn, N.J., were totaled by flames in a 10-day period. Three had converters; all were parked in leaves.

The danger is scarcely less for late-model cars without converters. All 1976 and later models must have either converters or fuel injection systems to meet federal emission standards. Fuel injection uses a thinner fuel mixture (with more air) that raises temperatures of exhaust manifolds to more than 800F after you stop and turn off the key.

Exhaust manifolds and catalytic converters reach their highest temperatures after the car's engine stops. In 1975, the U.S. Army Research and Development

Command in Warren, Michigan tested converter skin temperatures at upwards of 1,100F just after a vehicle was turned off. Dry leaves ignite at less than 500F.

Engine tuning: a critical factor

Keep your car tuned; malfunctions in the distribution timing or the carburetion can cause catalytic converter temperatures to rise sharply.

The Environmental Protection Agency has recorded converter temperatures of more than 1,200F on cars with partial ignition system failures.

In rural areas, never drive late model cars off roadways. Converters can ignite fields from midsummer through spring — particularly during dry weather. Also, if your garage has a leaf-clogged grease spot or oily cardboard or paper where you park, clean it away before it is too late.

General Motors Corp. has had more than 12,000 reports of converter malfunctions — mostly overheating. Open fires were involved in 1,975 cases, smoke and smoldering carpets in 500. □

*Housing Scene
continued*

The preference hasn't changed

In spite of changing lifestyles, the desire for most American families is still for the traditional "home of their own." Even the rapid proliferation of apartment complexes will not lessen the need for single family dwellings. A large proportion of young couples who start out married life in an apartment, or even a condominium, will sooner or later opt for the private single family home.

Back to the city

Only a small portion of the estimated 50 million new families coming onto the scene will be able to live in either rural areas or cities under 50,000 population. The majority will have to find — or build — homes in the existing metropolitan areas or move into cities that are now in the 50,000 to 250,000 population range, most in the South and West.

All this will have a decided bearing on the course of our business here at Mueller Co. Water, and to a lesser extent gas facilities and the necessary accompanying equipment, will be needed to serve these new homes, apartments and condominiums.

The problem of older homes

Dwindling supplies accompanied by increasing costs of natural gas and electricity will make most of the older houses less than desirable for the smaller family units. They are larger than many desire, expensive to heat and maintain. Many of these will undoubtedly be converted to two family dwellings or the extra rooms will be rented. Some builders see a situation where two families will occupy a home, each with private living and sleeping quarters, but sharing common kitchen and laundry facilities.

A look into the near future

The outlook for increased housing starts for the 1977-78 period, however, is very good. There is a continual growth of the young adult population, especially those in the 25 to 34 year old group. This is helping create a greater rate of *household* growth than the general population growth, and this trend is expected to continue for several years to come.

Roger Reville, director of the Harvard University Center for Population Studies says, "We're going to have the largest number of family formations we've ever had in the United States during the next 10 to 15 years. And these people will have to look for new houses." □

MUELLER CO. / **DECATUR, ILL. 62525**

Factories at Decatur, Ill., Chattanooga, Tenn., Albertville, Ala.
MUELLER LIMITED, Sarnia, Ont., St. Jerome Que., Canada.
Sales office and Western Service Center, Sparks, Nevada.

servicing the water and gas industries since 1857