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TRADE KRAISSL MARK
MARINE

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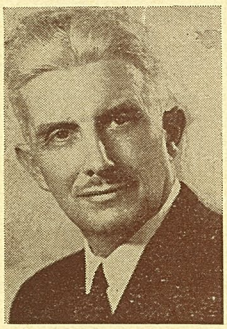
ENGINEERS IN INDUSTRY NEED THE COOPERATION OF STATE EXAMINING BOARDS

FREDERICK KRAISSL, Jr., P.E.
President
THE KRAISSL COMPANY, INC.

It can probably be stated without contest, that Engineers-In-Industry who voluntarily affiliate with the Professional Engineering movement by qualifying for licenses should be commended for their dedication to the upgrading of the profession. Their action is basically unselfish. They are not required to be licensed and their greatest satisfaction must come from the knowledge that they are setting a worthy example, which in the last analysis is the best form of leadership.



That there are many so motivated is indicated by the increasing percentage of our membership employed in industry which makes possible the organization of Functional Groups at a rapidly accellerating rate.

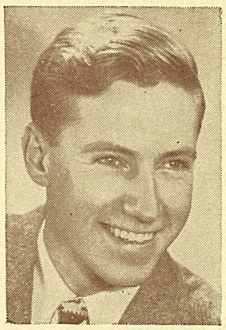
Since engineers employed in industry do not have the same motivation of other engineers who are required by state laws to be licensed before engaging in the practice of Professional Engineering, it seems to me that their special problems merit unusual consideration. Everyone understands that licensure acts were set up to protect the public from exploitation by unqualified individuals. The average engineer employed by a manufacturing company producing a product sold on the competitive market is not placed in a position where the public must be protected against him. He can make his recommendations, but the decision may be made by the sales manager of the company as to saleability with or without the features recommended by the engineer. This is right and proper as the company is risking in many cases great fortunes on the acceptability of the product by the public. After that the public is the boss. It can try it, test it and prove it and if it does not like it, the business will go to a preferred competitor. The public needs no protection from engineers employed by manufacturing industry. It has its protection. It does not need to buy the product.

Licensure Acts are usually supported by examinations either verbal or written to determine an applicant's qualifications. After an engineer employed by industry has qualified for a Professional Engineer's license in an industrialized state and has demonstrated proficiency in his field, he needs the assurance that he can accept industrial employment in a similar line of activity in another state that encourages the development or migration of this type of industry. Until this principle has been put into effect by the various states it seems unrealistic to believe that Engineers-In-Industry can support programs requiring Professional Engineers Licenses even if their employers should be willing to do this for certain top flight assignments. The reason might be they could program themselves out of a job. Suppose a company decides to organize a branch in a state wanting this industry. It decides to send a team of its top flight engineers to act as a neucleus. The job descriptions have been set up calling for Professional Engineers Licenses. The engineers arrive, but find they are required to take an examination before they can be licensed in this state. I have talked to many Professional Engineers who have been licensed for many years and most will agree that they do not believe they could pass the examinations they passed many years ago without taking refresher courses. So far I have not found any appreciable number who indicated a willingness to undergo refresher courses so that they could pass examinations in other states.

I believe that high on the agenda for Engineer-In-Industry Functional Groups will be the necessity for obtaining an agreement between State Boards to grant reciprocity recognition of a current license held in another state without examination where the employment will be similar and in a line where proficiency has been demonstrated. Perhaps it will be necessary to differentiate between licenses granted to Professional Engineers employed in industry from those engaged in private practice. The potential in industry is very great and well worth considering the special problems involved. In the last analysis the industry that employs the engineer is a good check on his proficiency and will not continue his employment if he does not carry his assigments to a satisfactory conclusion.

EMPIRICISM vs. THEORY

As engineers we are constantly faced with problems related to the predicted performance of equipment in the field, under conditions not previously experienced. Our solution must be both satisfactory and economical in terms of time and money spent as compared with the importance of the problem.



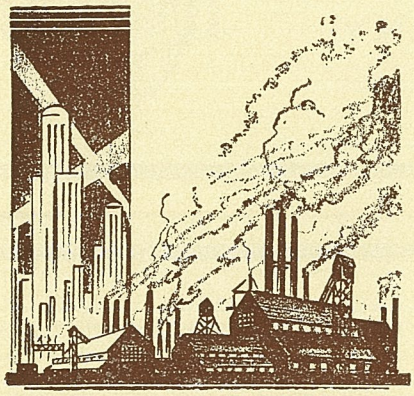
R. C. MICHEL, P.E.
Vice-President

We have two basic approaches open to us in developing the solution. The problem can be analyzed in terms of the basic laws of science which we believe apply and a theoretical solution may be obtained. The second approach is to set up an experiment with the equipment or prototype and determine the results under the imposed conditions.

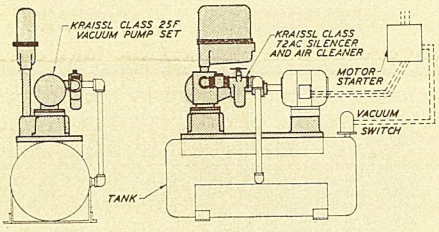
A purely theoretical approach usually has the advantage of lowest cost in terms of time and money, but the empirical approach quite often will take into account the effect of secondary factors which do not readily lend themselves to the simplification often assumed in a theoretical analysis.

The best solution usually involves both procedures. In predicting the capacity, horsepower and operating temperature of an air compressor, for example, experimental test work can be greatly reduced by first calculating the theoretical performance based on heat transfer, fluid flow, and thermodynamic theory. Tests can then be devised carefully and limited to those considerations which go beyond simple theory. In this way, a solution is reached at minimum time and expense. We try at the Kraissl Company to properly relate empiricism and theory in the solution of our engineering problems.

INDUSTRIAL FIELD



VACUUM AND PRESSURE SYSTEMS FOR HOSPITALS



We were reminded recently of the number of Kraissl Class 25 Series Pumps that we have supplied for Hospital Systems by an order for parts for a pump that we supplied in 1938.

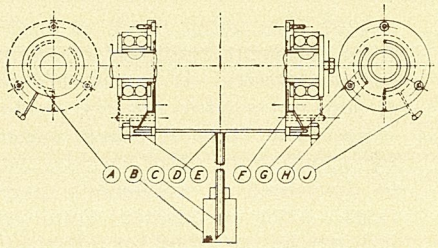
The advantages of our pumps are chiefly economic where reasonable first cost is coupled with long life. There may be a possible advantage of oil lubricated compressors over water sealed units for this service since the discharge air is probably not supercharged with moisture vapor to the same extent. Moisture vapor can cause water condensation in pipe lines resulting in pipe scale as well as being in itself undesirable extraneous matter. Kraissl Class 25 Series Pumps are force feed oil lubricated and are normally supplied with our Class 26 Series Air Filters of appropriate size, which reduce oil vapor in discharge air to a minimum in addition to filtering out undesirable impurities that have passed the intake separator. These pumps are available in radiant cooled, fan cooled and water cooled models depending on the operating requirements.

Our single station Class 26 Series Air Filters of wall mounted design, when installed near each outlet will remove many impurities that may be entrained by compressed air passing over pipe scale or condensate that may have formed in compressed air lines. These filters provide two stage separation where both trapped and coalesced liquids can be drained off. The air so processed should provide an absence of foreign matter rarely experienced in most air supplies.

LUBRICATING SYSTEM KRAISSL CLASS 25 SERIES AIR PUMP

Many individuals have appreciated a more detailed explanation of the lubricating system of our Kraissl Class 25 Series Air Pumps and we hope that the following description meets the requirement.

The Kraissl patented force feed system of lubrication utilizes the differential pressure of the pump to circulate oil to the various parts in motion.



Oil is stored in the reservoir which is at the discharge pressure of the pump. The entrance of the oil to the pump interior occurs in the two large, crescent-shaped grooves (A) machined in the ball bearing cover plates.* These grooves are located on the suction side of the pump and line up with the bottoms of the slots from which the blades emerge. The static pressure at (A) is lower than that in the oil reservoir. By this differential pressure, oil is forced to flow from the oil reservoir, through the strainer (B) and vertically through the oil pipe (C) which is screwed into the pump housing at (D). At this point, the oil flow splits and travels horizontally through the internal hole drilled in the housing to the face plate and end plate. At the terminals of this hole, there are two tapped holes which are fitted with orifice feed screws (E) that are removable from the pump exterior for maintenance and oil control purposes. These screws contain the smallest holes in the oil feed system.

The flow of oil is through the oil feed screw interior and out the smaller space cut in the screw at the base of the threaded portion. The oil then flows through internal drilling in the face and end plates to the vertical holes drilled in the B.B. cover plates* at (F). These holes are connected to the grooves (A).

Even when the pump first starts or when it is idling, oil flows because a slight vacuum is created at (A) due to the increase in the volume of the slots at the base of the blades as the blades emerge. By the means outlined above, a profuse supply of oil is fed to the pump interior at all times.

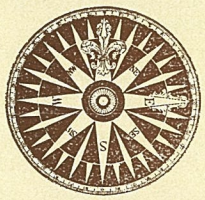
Oil is fed to the bearings by one of two methods, depending upon pump size. Some sizes have a second, smaller, crescent-shaped groove (G) machined in the B.B. cover plates*. Oil accumulates in the slots at the base of the blades during the suction portion of the cycle as described above and carried around to grooves (G) by pump rotation. During this portion of the cycle, the blades are returning into their slots and the oil is thereby displaced into groove (G). The static pressure at (G) is almost the discharge pressure of the pump because (G) is on the discharge side of the pump. A hole is drilled through the B.B. covers* to the bearings at (H). On some models, groove (G) and hole (H) are omitted and the oil is fed to the bearings along the shaft through diametrical clearances.

Oil is returned to the suction port of the pump from the bearings through the return drilling (J) in the face and end plates. By this means, the bearings are constantly flushed with oil.

During the process of oil feed to the pump interior, the oil becomes finally divided and is entrained in the discharge air. The oil is returned to the oil reservoir as the air passes through the reservoir above the oil level. Most of the oil separates out as it impinges on the oil surface and the reservoir walls. Some of it is further removed in the Class 26 air filter or Class 72 oil separator furnished on "F" and "[illegible]" assemblies respectively.

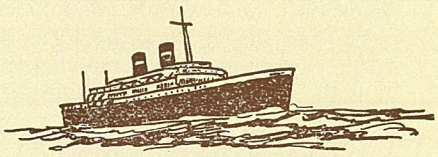
The oiling system of Kraissl air pumps insures long life and maximum operating efficiency when the pumps are used and properly maintained, under the most rigorous operating conditions consistant with their design.

*In some models, the grooves are machined directly in the face and end plates.

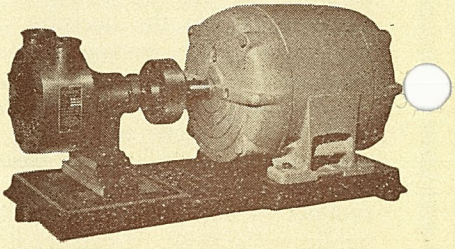


MARINE FIELD

SHIPBUILDING INDUSTRY



OIL PUMPS FOR MARINE APPLICATIONS



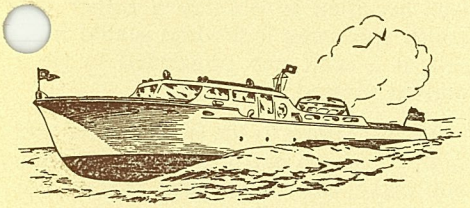
It has been stated that it is difficult for our shipbuilding companies to compete with foreign organizations due to ...bor differentials in cost. This is prob...y true but it can be aggravated by over specification of components.

Our experience has indicated that many specifications have been so rigidly drawn that standard production pumps cannot be used at proportionately lower costs. While ships under way do not have the same service facilities as shore installations rigid specifications do not necessarily assist with the matter as production model spare parts can be carried at lower cost or replacements obtained more rapidly than parts that must be fabricated to order.

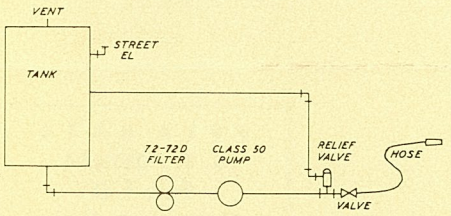
Kraissl Class 60 and 66 standard and high pressure production type pumps will meet many requirements on ship board with as satisfactory performance characteristics as are being supplied on a daily basis to shore installations. Where fuel oil applications are involved our Class 60 design has been listed as standard by Underwriters Laboratories, Inc.

Who is in favor of saving some money for ordinary service?

BOATING INDUSTRY



EVERY MARINE GASOLINE DISPENSING FACILITY NEEDS ONE.



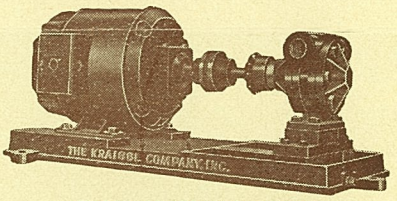
The number of Marinas is increasing by leaps and bounds which means that the facilities for fueling the many boats moored at marinas or privately maintained, must keep pace to accommodate.

Without quoting statistics it is evident that outboard powered motor boats greatly outnumber inboard in...llations and that the trend to higher ...sepower outboard engines is still in progress. These large outboards consume more fuel and the mix and carry six gallon outboard tank is no longer a convenient or acceptable answer to refueling requirements. Attention has been given to premixed oil and gasoline that can be supplied thru standard type measuring dispensers, but this procedure has apparently run into conflict with the requirements of Departments of Weights and Measures in the various states. Furthermore, it is still not clear that all outboard gasoline engines will perform most satisfactorily on the same oil and gasoline mixture, and it could be some time before premixed oil and gasoline is available thru standard measuring type dispensers.

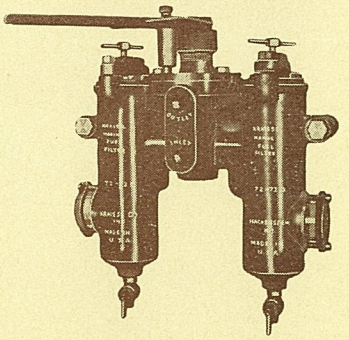
In the meantime, a mixing assembly should pay for itself where large outboards are being supplied with fuel, as this convenience should attract customers. A mixing assembly can be easily arranged by obtaining a standard thirty gallon range boiler available at most plumbing supply stores. This can be obtained with an inexpensive stand that sets it well above the mounting surface so that last ends from the tank can be drained into a container placed below it. This tank should be mounted near one of the marine gas pumps. One of our direct connected Class 50 Series Pumps should be mounted at the foot of the tank. This design is suggested as it will stand more than usual abuse and the roller mechanism assists with the mixing action. Our size 50-3 with a displacement of approximately four gallons per minute at 1800 RPM is adequately powered by a ¼ HP motor for this service and the flow would not be so fast that splashing of gasoline should be a problem. However we have larger sizes if this is considered too small. One of our 72-72D duplex filters should be mounted on the tank base. The flow should be from the bottom of the tank thru the fuel filter and to the suction port of the pump. The duplex fuel filter is suggested to insure against interrupting the dispensing procedure if a considerable amount of condensate is indicated in the sight gauge. The fine mesh screen provided in the filter will not only separate water from the fuel but filter out sludge formation or extraneous matter. A Tee should be mounted on the discharge side of pump and a relief valve mounted on one arm and a return line piped back to a top inlet into the tank. The other arm of the Tee should be piped up with the necessary length of gasoline hose with standard shut off dispensing nozzle.

This leaves at least one high threaded inlet into the tank, unused. This is where fuel and oil should be introduced. A close nipple and Tee might be screwed into this port and a large size Street Ell screwed into the side branch. The street ell could be used for pouring in the oil with a standard pipe plug as a closure for the other branch of the Tee. When this plug is removed, it could supply a convenient port to introduce the gasoline nozzle from the gasoline dispensing pump. After the gasoline and oil have been placed in the tank in proper proportions, the Kraissl Pump can be started. As long as the shut off nozzle on the outlet hose remains closed the pump should circulate the mix thru the relief valve back into the tank, until a homogenious mixture has been obtained. The setting of the relief valve should be as low as possible, the point of control being adequate flow when the nozzle hand valve is released. A few test runs will establish the recirculation interval which should not be long since the fuel mix is being drawn from the bottom and returned to the top. Pumping from the bottom avoids stratification and permits pumping the tank dry. The hose should be long enough to be lowered to the boats so that the fuel tanks can be filled with the hand conrolled dispensing nozzle. As tanks with outboard fill plates make their appearance, this arrangement is almost a must, and under most circumstances should be safer than present methods. Since this procedure makes use of pumping the gasoline from standard dispensers equipped with integral meters and since oil will be poured into the mixing tank from either sealed cans or measures, this should satisfy all requirements, particularly when carried on in the presence of the purchaser.

The schematic diagram shows the basic components. We will be glad to sell the Class 50 Direct Connected Pump and Fuel Filter. We will even quote on a complete bill of materials if someone wants to pay our overhead and a reasonable profit to assemble this equipment.



CLASS 50 ROLLER PUMPS
BULLETIN A1330



CLASS 72 FUEL FILTERS
BULLETIN A1222

SALES REPRESENTATION

HOME OFFICE

We have reserved the areas of Connecticut, Delaware, Metropolitan New York, including the Hudson valley, Long Island, New Jersey and eastern Pennsylvania less Philadelphia District for coverage by Kraissl Company personnel.

Northeast Region
Robert Bacon Co.
272 Centre Street, Newton, Mass.

John S. Stone
P. O. Box 127, Holcomb, N. Y.

Eastern Region
Engineering Associates, Div. Trymac, Inc.
16 West 5th St., Erie, Pa.

Valley Equipment Company
404 Frick Building, Pittsburgh 19, Pa.

Shanklin Company
330 East 25th St., Baltimore, Md.

W. H. Titus
401 North Broad St., Philadelphia, Pa.

Southeast Region
L. M. Lee, Jr.
Richmond Federal Bldg., Richmond, Va.

Dillon Supply Company—Main Office
Raleigh, N. C.

Dillon Supply Company
Durham, No. Carolina

Dillon Supply Company
Rocky Mt., No. Carolina

Dillon Supply Company
Goldsboro, North Carolina

Dillon Supply Company
Charlotte, No. Carolina

Boiler Supply Company, Inc.
490 Craighead Street, Nashville, Tenn.
2006 Sutherland Ave., Knoxville, Tenn.

Applied Engineering Co., Inc.
P. O. Box 506, Orangeburg, S. C.

Spotswood Parker & Co.
313 Techwood Drive, Atlanta, Ga.

T. W. McCuiston
504 S. W. 69th Ave., Miami, Fla.

North Central Region
Charles R. Davis
2970 W. Grand Blvd., Detroit, Mich.

Hetler Equipment Co.
1904 Clyde Park Ave., S. W.
Grand Rapids, Mich.

Central Region
Wm. G. Taylor
1900 Euclid Bldg., Cleveland, Ohio

Lightfoot Pump & Equipment Co.
1989 Guilford Rd., Columbus, Ohio

The Jordan Engineering Co.
7401 Shewango Way, Cincinnati 43, Ohio

T. A. Heidenreich Co., Inc.
2036 East 46th St., Indianapolis, Ind.

Lowden & Company
3404 N. Harlem St., Chicago, Ill.

A. K. Howell Co.
1001 Bellevue Ave., St. Louis, Mo.

South Central Region
Creole Engineering Co.
2617 Banks Street, New Orleans, La.
3786 Scenic Highway, Baton Rouge, La.

Sterling & Newby Houston Corp
2611 Crocker St.
Houston, Texas

Sterling & Newby—Dallas Corp.
4431 Maple Ave.
Dallas 9, Texas

Northwest Region
Bruce P. Rutherford, Inc.
122 First Ave., S. W., Portland, Oregon

Bruce P. Rutherford, Inc.
1954 First Avenue South, Seattle, Wash.

Western Region
A. C. Cope Co.
435 Bryant Street, San Francisco, Cal.

Power Engineering Co.
1806 South State St., Salt Lake City, Utah

Thermo Tech Products Co.—Power Plant
2466 So. Delaware
Denver 23, Colorado

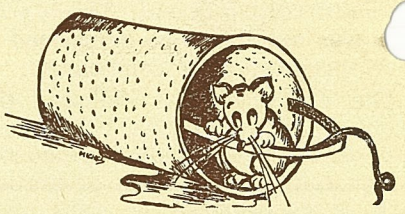
Southwest Region
Walter T. Humes Co.
230 East Anaheim, Wilmington, Cal.

Wagner Hydraulic Equip. Co.
10814 Santa Monica Blvd.
Los Angeles, California

Canada—Ontario and Quebec Provinces
Kirk Equipment Ltd.
1460 Bishop Street
Montreal, Quebec, Canada

Canada—British Columbia Province
Fred McMeans & Co.
1608 West 5th Avenue
Vancouver, B. C., Canada

FOUND IN THE STRAINER BASKET



A man from the city was motoring through the country when he observed some sportsmen conducting field trials with their dogs and was amazed at the intelligent responses of the canines.

During a lull in the activities, he approached one of the trainers and remarked "My dear man, how can you possibly train your dog to do such wonderful things, I cannot train mine to do a single trick?"

The country man, resenting the patronizing attitude, calmly replied, "Well, you see, I always figger that to train a dog you must know more than he does."

* * *

The manager of an elite restaurant was horrified to observe a rather u[n]couth appearing individual seated hi[m]self at a table and proceeded to tie a napkin around his neck.

He beckoned to the head waiter and said, "Use as much tact as possible, but make him understand that is not acceptable, here."

The head waiter walked up to the customer and with courteous dignity asked, "Shave or haircut, sir?".

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