

ESTERN

ONSTRUCTION

DECEMBER 1960



MAINTENANCE—

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Asphalt surfaces . . . p. 54

WARREN & BOB
DIST. ENGINEER
PORTLAND CEMENT
816 WEST 5TH
LOS ANGELES 1

P27

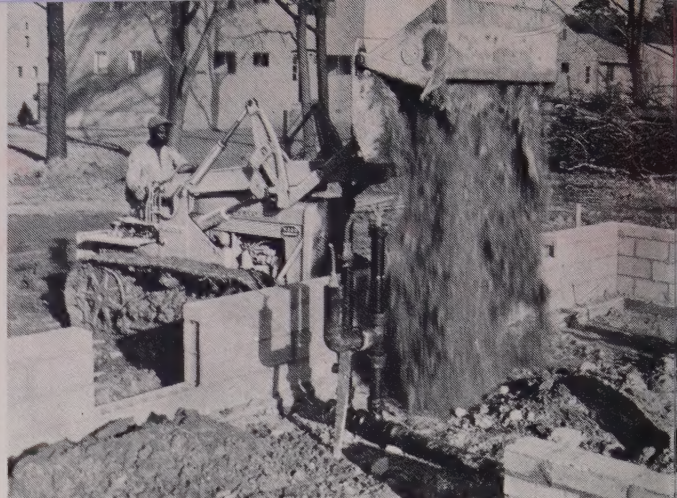
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47 hp* International 340 with 21½-foot fork lift, 4,000-lb capacity. Other models, 5,000 and 6,000 lb capacity.



47 hp* International T-340 crawler with ¾ cu yd Drott 4-in. ... loader, dozer, scraper, clamshell all in one!



61 hp* International 460 with International Wagner loader and backhoe ... leads its field in trenching speed.

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Take materials handling. To match your *exact* job needs, IH offers no less than three power sizes of fork lift-equipped tractors, 47 to 72.5 hp* ... lift capacities 4,000 to 6,000 pounds ... lift heights to 21½ feet. Your IH dealer also offers front loaders for loading out sand and other loose materials; dozer blades for grading, leveling, maintenance and cleanup on the job site.

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*Maximum flywheel hp at standard sea level conditions.

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INTERNATIONAL HARVESTER

... for more details, write No. 1 on Reader Service Postcard

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NORTHWESTS Get the Jobs done!



P-80-17-SC

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These things combine to get the job done faster and more profitably. They are the things that make it possible for you to say, "That Northwest is always ready to go." They are the features that make the Northwest the finest machine of its kind.

Details make the machine. It will pay you to dig them out. Ask a Northwest man!

NORTHWEST ENGINEERING COMPANY

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READY TO GO!"**

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WESTERN



CONSTRUCTION

DECEMBER

1960

Vol. 35 No. 12

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How a leading Oregon contractor has all but eliminated downtime and overhead with the aid of an elaborate maintenance program and a number of startling new equipment inventions.

How to improve parts ordering 31

A survey made by Western Construction develops information that will help contractors order repair parts more effectively.

Tire maintenance plan for hauling 12,000,000 cu. yd. 34

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A new product for asphalt maintenance 54

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EDITORIAL DIRECTOR

James I. Ballard

MANAGING EDITOR

Robert L. Byrne

FIELD EDITOR

Ralph W. Booze, Jr.

ASSISTANT EDITOR

M. A. Carroll

★

CONTRIBUTING EDITORS

E. E. Halmos, Jr.—Washington

Clifford S. Cernick—Alaska

Alan Goodfader—Hawaii

★

PUBLISHER

Jack R. Vanneman

★

DIRECTOR OF RESEARCH

Ken Walden

★

CIRCULATION MANAGER

C. J. Prodingar

★

PRODUCTION MANAGER

S. J. Hunt

★

ADVERTISING SALES

Joseph R. Mayner

Eastern Manager

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Chagrin Falls, Ohio (Cleveland)

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Richard E. Hoierman

Southwestern Manager

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Texas, Louisiana, Oklahoma,

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Hal Styles

Western Manager

609 Mission Street

San Francisco 5, California

Phone: YUkon 2-4343

1417 Georgia St.

Los Angeles 15, California

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James I. Ballard . . . President

L. P. Vrettos . . . Vice President

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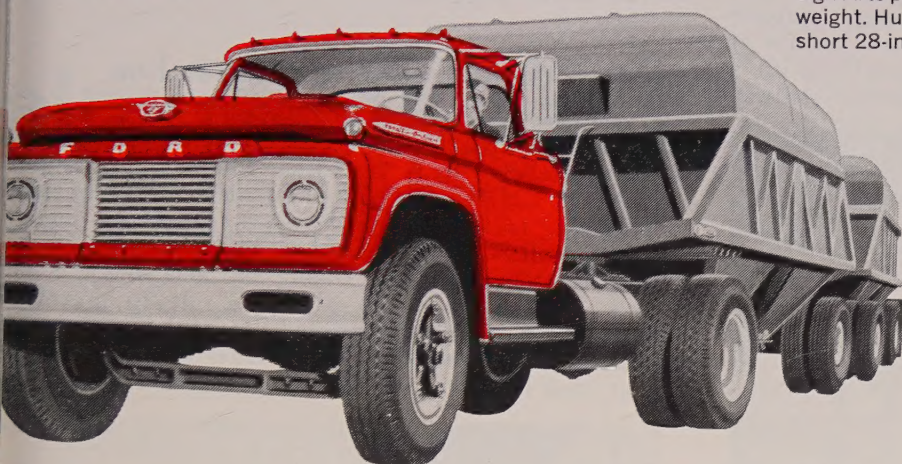
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For 34 years serving the construction industry of the Western States

OFFER YOU GREATER ECONOMY AND DURABILITY IN EVERY WEIGHT CLASS

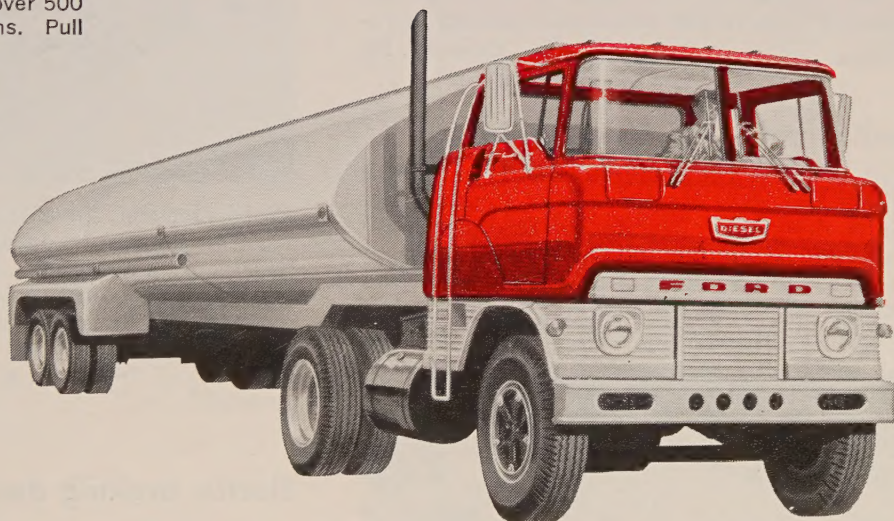
New! Super Duty Extra Heavies



Ford's Extra Heavies are built for unprecedented durability! Double-channel frames for truck models and single-channel frames of high-tensile steel for tractor models have been designed to provide proper strength with minimum weight. Huskier axles, wider power train choice, short 28-inch front axle setting, plus new high-durability cabs and sheet metal are typical of the advancements that add up to greater earning power for you.

New! Diesel- or Gasoline-Powered Tractors

Ford's new H-Series tractors with 28-inch front axle setting and 82-inch BBC are offered in four diesel and four gasoline models with over 500 line-axle-transmission combinations. Pull bigger trailers and bigger payloads! Choose from ten industry-accepted engines—five Cummins diesels and Ford Super Duty V-8's!



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look for this sign at Ford Dealers' across the country, for service on all Ford gas and diesel trucks!

FROM SUPER ECONOMY PICKUPS TO SUPER DUTY DIESELS

FORD TRUCKS COST LESS

OUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" PROVES IT FOR SURE!



FORD DIVISION, Ford Motor Company.

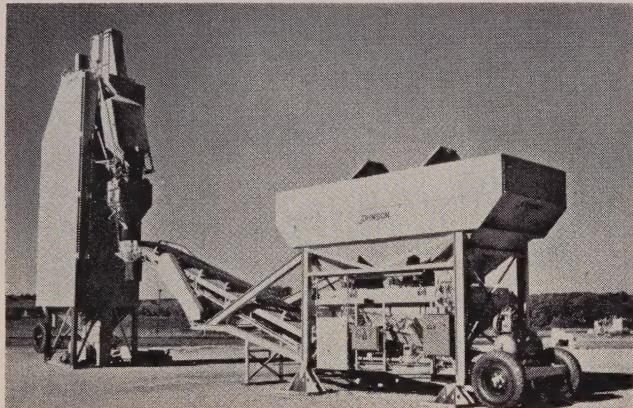
... for more details, circle No. 6 on Reader Service Postcard

NEW EQUIPMENT

Obtain more information on these new developments in construction equipment by writing the corresponding numbers on reply postcard.

Compact and mobile transit-mix plant

Named the "Rover", C. S. Johnson Co., has a completely new 100-120-cu. yd. per hour mobile transit-mix plant. Johnson is a division of Koehring Company and the plant was introduced at a company display of its equipment. The Rover features mobility with a width of 8 ft. and a height of 13 ft. to permit highway

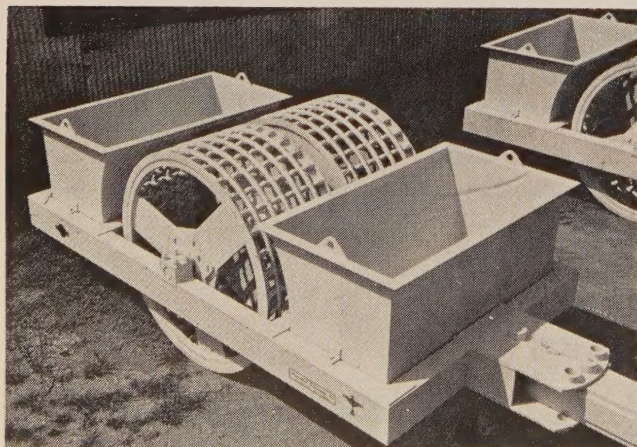


travel in most states without special permit. It consists of two units—one for aggregate, and the other for cement—each equipped with complete running gear and an easy attachment for hooking to a tractor. Wheels remain attached to both units during operation.

... Circle No. 150

Crusher-Pak roller by Thunderbird

Designed to crush, cut and compact, Thunderbird Engineering, Inc., has announced its Crusher-Pak. The unit is designed to aerate sub-base materials, crush rock, an aid in the salvaging of bituminous roadbeds. Its drum consists of a 15/8-in. diameter bars with openings of 37/8 in. The design provides a complete peripheral cutting edge with alternate breaker



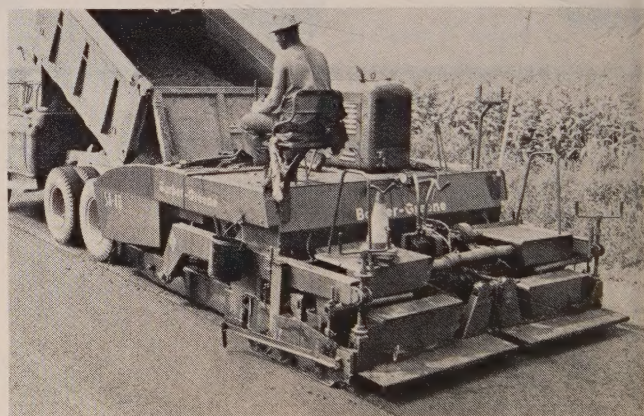
bars. The ballast tanks, which are standard equipment, are easily removable with lifting eyes provided. Each ballast tank has a capacity of 50 cu. ft. With

20 cu. ft. of cast iron ballast in each of the two tanks, the loaded capacity is 40,000 lb. Adjustable tongue can be positioned for offset towing and is easily removable for shipping.

... Circle No. 151

Barber-Greene adds to finisher line

With the announcement of Model SA-40, a crawler mounted asphalt finisher, Barber-Greene Co. places a fifth model in its finisher line. The new unit is designed to lay all types of asphalt surfacing in widths from 8 to 14 ft. with speeds up to 100 ft. per min. It also possesses an unusually high travel speed for a crawler mounted paver. Among the new design features are: hydraulically raised hopper sides to improve self-cleaning, oscillating pivoted truck contact rollers to help the operator control the direction of the finisher, and hopper gates that are controlled from the



screed platform for ease in adjustment. The crawlers are 7 ft. long, with optional 10- or 12 in. pads. Each crawler is individually controlled and mounted on a 3-point oscillating suspension. Compaction before strikeoff is provided by a hydraulically driven tamper. Particular attention has been given to the ease and efficiency of the operator's controls, with dual columns provided.

... Circle No. 152

Electric braking devices from France

Sales rights and an option to manufacturer have been granted to Lear, Inc. for an electrical braking device for trucks and trailers by the French manufacturer Telma, Paris. This retarder has been used successfully in France for more than ten years and is now compulsory for all coaches and buses operating in mountainous regions. The unit is inserted in the drive shaft and permanently geared to the rear wheels. The retarder requires only the battery for exciting the unit and the vehicle's own energy is used to retard motion.

... Circle No. 153

(Turn to page 90 for more New Equipment)
(New Literature can be found on page 88)

WESTERN CONSTRUCTION—December 1960

TYTON®

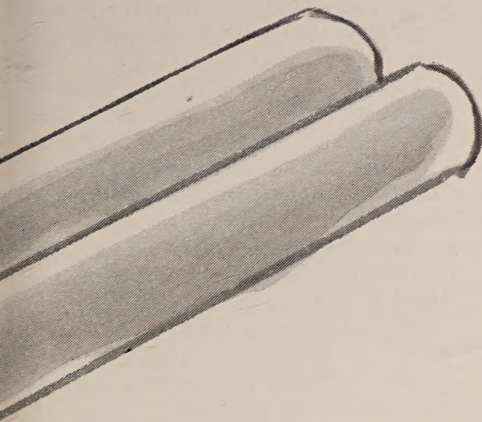
ONLY FOUR SIMPLE ACTIONS

almost as easy!

On their enthusiasm our hillbilly pals sometimes exaggerate.

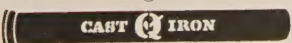
Tyton Joint® pipe isn't quite as easy to install as pulling off a log. But almost! One simple accessory and you're in business! No bell holes. No nuts, bolts, boots or ladles. Fewer weather delays, too. Tyton® can be installed in rain or wet trench, if need be. And even inexperienced crews can lay it.

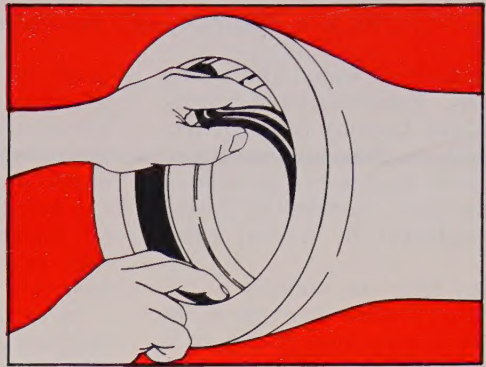
Want more working days, less time, trouble in the trench? Tyton Joint pipe is your answer. Get the facts. Call or write today.



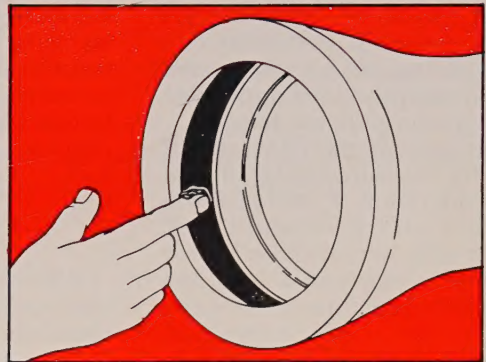
U.S. PIPE AND FOUNDRY COMPANY
General Office: Birmingham 2, Alabama

A Wholly Integrated Producer from Mines
and Blast Furnaces to Finished Pipe.

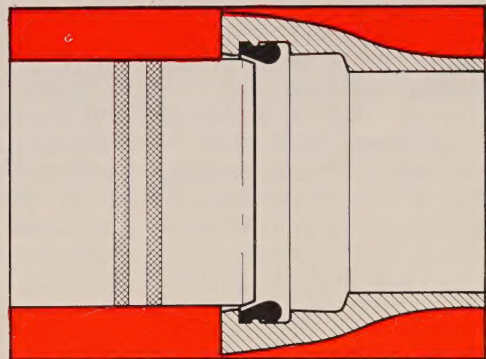
INDUSTRIAL SERVICE  CAST IRON



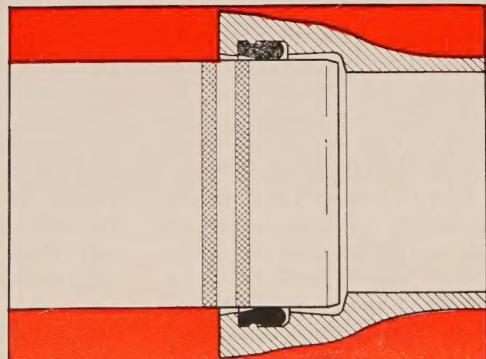
Insert gasket with groove over bead in gasket seat... a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed... bottle-tight, permanently! The job's done... fast, efficiently, economically. Could anything be simpler?

... for more details, circle No. 8 on Reader Service Postcard

The WEST from WASHINGTON

By E. E. HALMOS, JR., Washington, D. C.

You may have noted the strong speech by Reclamation Commissioner Floyd Dominy (at a Denver meeting of the National Society of Professional Engineers) in defense of the use and retention of professional engineers by federal agencies.

Dominy took the occasion to argue that (1) work performed by engineers in government service is "not directly comparable" to that of consultants in private practice; (2) that performance of major engineering work by government forces is necessary, particularly in BuRec; (3) that such work has not by any means precluded opportunities for private practitioners.

Background of the talk and the reasons for it is interesting, in your own consideration of relations with BuRec and other government agencies. Part of it stems from criticism, more than a year and a half ago, of Dominy's appointment as Commissioner. He is not a graduate civil engineer (he holds a B.S. in agricultural science, and an A.B. in liberal arts), but has spent more than 25 years with the Agriculture Department and BuRec, with particular emphasis on work in the arid regions of the West.

Nevertheless, when he succeeded the retiring W. A. Dexheimer — a civil engineer—the long-standing contention of the professional societies that the post should be filled by a man with civil engineering background came to the fore. With it, also, a drumfire of criticism of government practise of "lending" some of its experts for what amounts to consulting work in foreign countries was renewed.

A direct-spoken, Nebraska-born individual, Dominy was obviously somewhat nettled by the criticisms. In interviews and in speeches, he has continued to hammer at his own concept: The job of the Commissioner of Reclamation is basically an administrative one, demanding broad understanding of the whole problem, not an engineering post alone; and that the Bureau's 2,000-man professional engineering staff is the world's finest in its field, represents continuity and storehouse of knowledge that is indispensable to proper performance of the Bureau's functions.

In his Denver speech, Dominy traced the steps that are necessary

from the inception to the finish of a reclamation project, using this demonstration to enforce his belief that the coordination of all of the effort involved is a function that can best be handled by an integrated, laboratory-backed organization such as exists at Denver and elsewhere.

As to the employment of private engineering organizations the Commissioner had this to say:

"... I believe that the Bureau's practice is consistent with (recommendations of) the NSPE. We have on many occasions utilized private consultant engineer services... where this has been in the best interests of the public. We plan to continue this practice wherever such... services can be used effectively to augment or supplement the work of our engineering staff..."

Western contractors—who have seen their hiring-hall and union clearance agreements declared out of bounds by the National Labor Relations Board (see November column)—can also find a matter of major interest in another speech by a highly-placed government official.

Speaker was Stuart Rothman, NLRB's General Counsel. His forum was an AFL-CIO state convention at Grand Island, Nebraska.

His point: Hiring halls and union clearances are illegal under certain circumstances, but so-called "prehire" agreements are specifically legal, under provisions (Section 8 (f) of the 1959 "Landrum-Griffin" bill amendments to the Taft-Hartley Act. The provision applies only to the construction industry.

Specifically, said Rothman, the law says it isn't an unfair labor practice for construction contractors and unions to make agreements that (1) recognize the union as representative for labor, even though the majority status of the union hasn't been established; (2) require employees to join the union after seven days; (3) requires the employer to notify the union of job opportunities; (4) specifies qualifications for employment based on seniority with the employer or in the industry or geographical area.

"It is clear," said Rothman, "that appropriate employers and labor organizations in the... construc-

tion industry, may freely enter into agreements relating to any one or all of the four special situations... without committing an unfair labor practice. Congress placed an express stamp of approval upon agreements which require an employer to give unions an opportunity to refer employees—agreements which are quite prevalent..."

Under provisions of the labor law amendments, and interpretations of the intent of Congress, Rothman added, hiring halls and referral agreements are also perfectly legal—if they include three important points: (1) provision that the employer has the right to reject men referred by the unions; (2) set up criteria on the basis of which men will be referred; (3) make it clear that men are not to be sent out to the job on the basis, primarily, of their union membership.

Lack of these provisions has been the basis for NLRB's disapproval of hiring hall pacts in the recent past.

* * *

The question of whether highway needs of a community, in effect, supersede the needs for parkland or other uses of land, is now before the U. S. Supreme Court. The case in question (Docket No. 457) involves the City of Los Angeles and the State Department of Public Works, and the family of a Los Angeles city benefactor.

What's at issue is the question of whether a piece of land, dedicated as a public park (Griffith Park), can be later taken (in part) for highway use, without compensation to the heirs of the donor.

According to information filed with the High Court, the original deed of gift provided that "when-ever said tract of land, or any part of it... shall cease to be used as a park... then the lands revert to the donor or his heirs." Van M. Griffith, one of the heirs, thus contends that when Los Angeles took part of the park as right-of-way for a freeway, he and others should have been compensated.

Lower courts held that the taking of the land was proper, and the heirs are owed no consideration, since a provision of the State Streets and Highway Code permits the acquisition of any property dedicated to park purposes "how-ever it might have been dedicated" when the public works commission has determined by resolution that such property is necessary for state highway purposes.

When a part breaks — Plan or Panic

WHEN a part breaks on a piece of construction equipment, a chain of actions is set in motion. The sequence moves forward either as a well-organized procedure, or it can verge on panic. In any case, the key to the situation rests with the Parts Manager of the local distributor. His help can be fast and effective, or slow and frustrating to all parties. It will depend on the foresight of the contractor. The time that elapses before the part arrives and the machine is re-started is definitely out of his pocket.

Such a situation and the resulting problems are particularly severe in this Western region; distances are long, many jobs are at remote locations, and working conditions are tough. Distributors and their parts departments understand and appreciate the resulting difficulties. But contractors, as a group, could be better informed on what to do in equipment emergencies.

To be of service to the contractors of this region, *Western Construction* has asked the parts managers of some leading distributors to discuss the problem and offer some constructive suggestions. We asked them to tell us how they could work with greater efficiency in the interests of helping the frustrated superintendent get his machine going again. Results of our survey are presented in this issue.

The letters received in response to our request were sympathetic in tone and helpful in providing information. The parts manager of any Western distributor accepts the responsibility of his position in meeting such a problem. He is more than anxious to produce results that will reflect credit on himself and his organization.

If the constructive suggestions of this group could be boiled down to a single phrase, it would emphasize the importance of advance

planning on the part of the contractor and the men of his organization. Only as plans have been made to meet this type of emergency, will the resulting action move smoothly. Such planning must originate at the top of the organization, and extend down to each job site with proper assignments, responsibilities, and instructions. One important rule is to have the willing, but uninformed keep their hands off the proceedings.

It is not only necessary to lay out a plan of action, but it must be implemented with some training. Having a rule that designates one person to be responsible for ordering parts does not necessarily mean that he can carry out this assignment effectively. He should visit some distributors and advance his education in the matter of parts, parts manuals, and parts ordering. Further, he should discuss the subject whenever possible with representatives of distributors or manufacturers who are qualified to instruct. In other words, he must know his assignment thoroughly and keep himself informed. With such a plan in effect, and with men properly trained at the various positions to carry out the procedure, the operations of the parts manager can move with smoothness and dispatch.

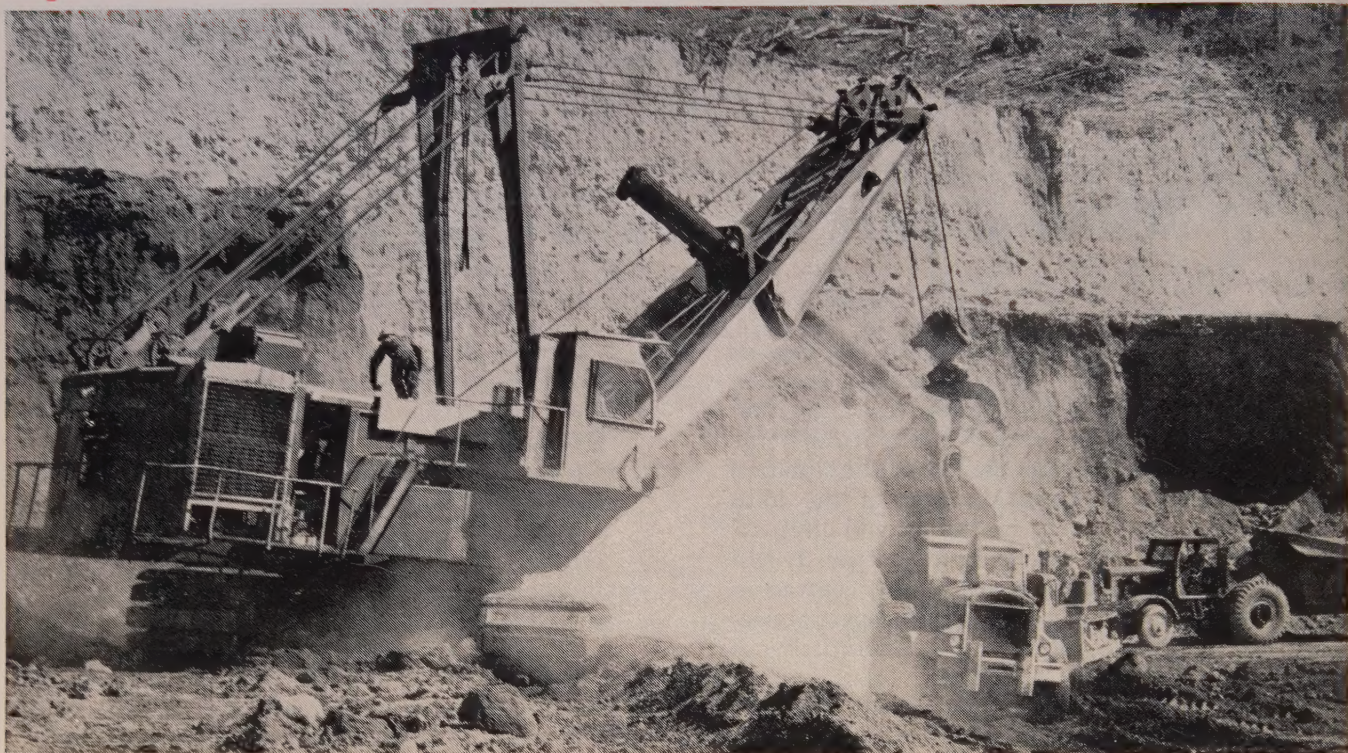
Whenever there are equipment emergencies on a construction job, the parts manager can be the contractor's best friend, but he must have intelligent cooperation. Western contractors would do well to read his composite suggestions and act accordingly.

Jim Ballard

ENGINEER'S FIELD REPORT

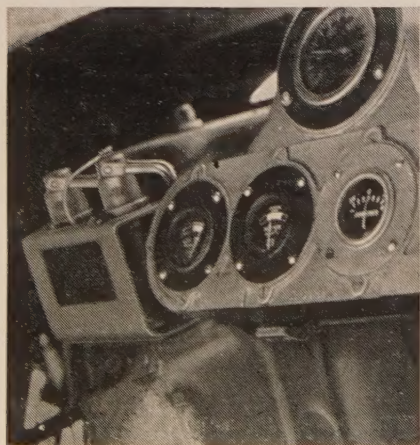
**CHEVRON PRESSURE
PRIMER SYSTEM**
JONES-TOMKINS CO.
Cougar, Washington

Special cartridge fires giant diesel in seconds



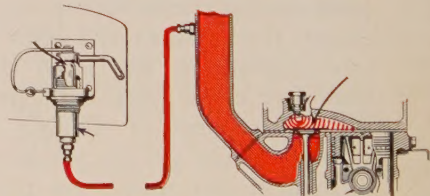
At world's highest earth-filled dam construction site near Woodland, Washington, three giant diesel shovels get immediate starts from Chevron Pressure Primer System, reports Jones-Tomkins, general contractors. System helps speed shovel's fill-borrowing operations for this \$51,000,000 project.

Five-year-old 4500 Manitowoc Speed Crane (above), powered by Caterpillar 350 h.p. V-12 D397 engine, operates 18 hours a day, six days a week, loading 21-yard dump trucks in just 70 seconds. Jones-Tomkins uses Standard fuels and lubricants exclusively on this job.



Chevron Pressure Primer Discharger mounted on instrument panel (left) operates satisfactorily despite heavy vibration, reports shovel foreman Henry Watson (right). "We've had absolutely no trouble with this system. The Chevron Pressure Primer System eliminates dust clogging and allows fluid to reach the cylinders quickly. It's the practical way we've found to get these rigs going."

Why Chevron Pressure Primer System assures fast starts



- Volatile Chevron Priming Fuel atomizes in induction system at all temperatures even at -65°F , no hand-pumping required.
- Pressure or weakest spark from engine fires mixture.
- Simple rugged air-tight discharger prevents Priming Fuel leakage.
- Small, fireproof, pressurized steel cartridges protect Priming Fuel from water and dirt.

For More Information or the name of your nearest distributor, write or call any of the companies listed.



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THE CALIFORNIA COMPANY
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STANDARD OIL COMPANY OF TEXAS
P. O. Box 862 • El Paso, Texas

... for more details, circle No. 13 on Reader Service Postcard
WESTERN CONSTRUCTION—December 1960



DECEMBER, 1960

WESTERN CONSTRUCTION

Roy Houck's war on waste and wear

Oregon's largest independent highway contractor maintains a unique organization noted for its elaborate maintenance program, the virtual absence of overhead office organization, and some of the most unusual paving machines ever seen.



ROY L. HOUCK—A mobile phone and equipment ledger constitute his "office."

AFTER SOME forty years in Oregon heavy construction, Roy L. Houck has successfully demonstrated that he can do without two factors in contracting which have come to be accepted, like death and taxes, as inevitable. These are: office overhead and mechanical down-time.

To eliminate down-time, the Roy L. Houck Sons Corp. of Salem, operates an elaborate maintenance system, including portable garages which provide nightly storage for the firm's fleet of trucks; portable maintenance shops, where equip-

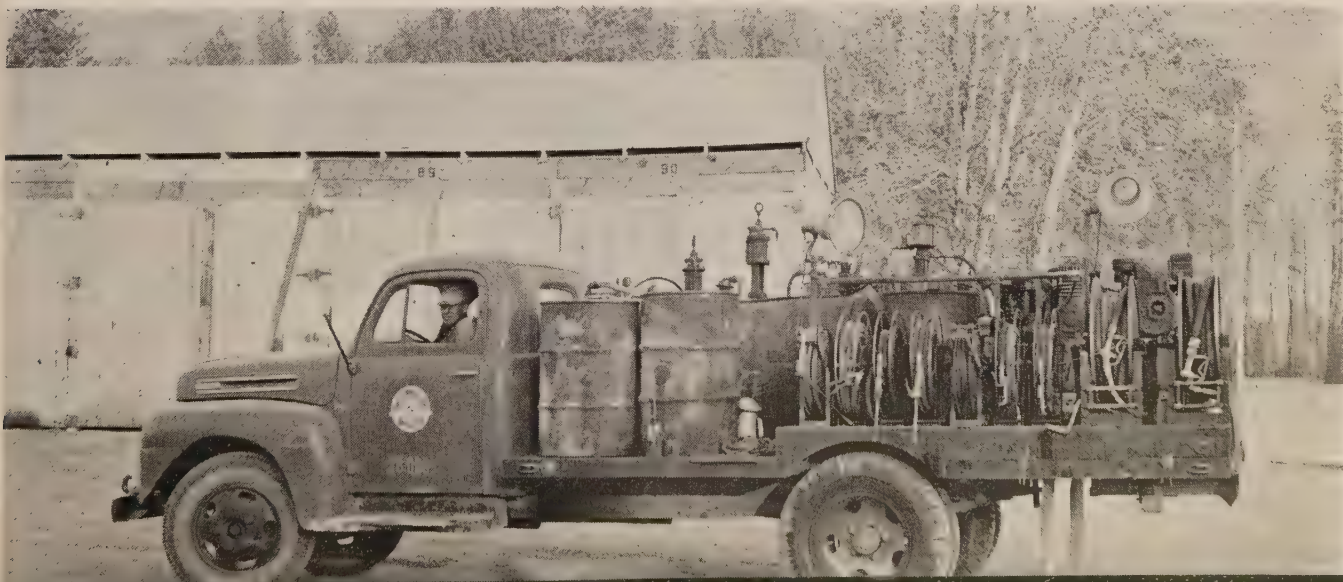
ment gets a daily maintenance check; and a full-time force of field mechanics, who service the paving spread and other equipment which cannot readily be moved to the shop.

Since Houck contends that the largest single cause of equipment wear is the equipment operator, he also maintains a continuous driver-training and driver-checking pro-

gram with a "check pilot" assisting the truck boss on each fleet.

There is no revolutionary wizardry or unique procedure about the Houck maintenance program. Generally, it consists of performing daily all those inspections and service chores recommended by the equipment manufacturer. Houck's secret, if such exists, is the fact that these maintenance inspections are performed in meticulous detail. To the standard inspection charts he has added a few points of his own. For example, truck cabs are cleaned out and washed twice a week. Daily

LUBE TRUCK built in Houck shop services the paving spread. Note lights for night operations.





WIRE MESH is embedded in fresh concrete by vibrating grid beneath this machine designed by Houck and built by his crew. Engine driving

two Ford transmissions located behind shield at rear. Note mesh on concrete surface in foreground. Grid has 4 Jackson vibrators.

check includes all cab mountings, seat bolts, and springs.

Buildings

Houck's portable buildings are designed by him and fabricated by his construction crews. Framing is composed of 6 x 6 timbers supporting prefabricated trusses. The roof and one side is covered by aluminum panels. The ends and remaining side are made up of doors. The buildings are constructed in 14-ft. bays and are 28 ft. wide and either 12 or 14 ft. high. Roof trusses, posts, beams, panels, and other components are pre-cut to standard length so that the building materials are interchangeable and buildings can be constructed in 14-ft. multiples to any length desired. They can also be erected side by side with one common set of center supporting posts. It is typical of Houck planning that truss members are butted and joined with fishplates to reduce their thickness so that more trusses can be stacked on a semi-trailer for transport to the next location.

Shop buildings are floored with $\frac{5}{8}$ -in. plywood panels laid on 2 x 12's placed flat over a gravel sub-base. Garage buildings are not floored.

The shops are equipped with self-contained portable lube racks, also built by Houck crews and have overhead traveler crane riding on steel rails atop the timber caps. Trailers containing tools, parts, and supplies in interior bins is spotted at the shop building with the end of the trailer fitted into a pre-cut opening to form part of the

building wall. A steam cleaning unit is installed nearby.

Houck even sets up his own out-houses, jaunty yellow-painted cubicles, each having its own pair of permanently attached trailer wheels.

If the maintenance building is to handle batch trucks or other automotive equipment, the units are brought in through side doors and parked crosswise of the building. For big trailer rigs or earth-moving units, the end doors are used and the rigs are run through the building in assembly line fashion.

The company has enough of these buildings to supply two full sets plus standbys for each operating division. It takes about five days to set up a shop, and considerably less time to dismantle it.

Truck maintenance

The concrete division keeps its batch trucks under roof at night. Each batch truck is parked in its own stall, identified by the truck number painted over the top of the door. This is a definite part of the maintenance system as Houck explains; the garages protect bodies from the heavy Oregon dew, which would cause cement to stick for first two or three batches. Exterior of all the batch trucks is sprayed with a combination of diesel fuel oil and a small quantity of crank case oil to prevent concrete from sticking to the truck surfaces.

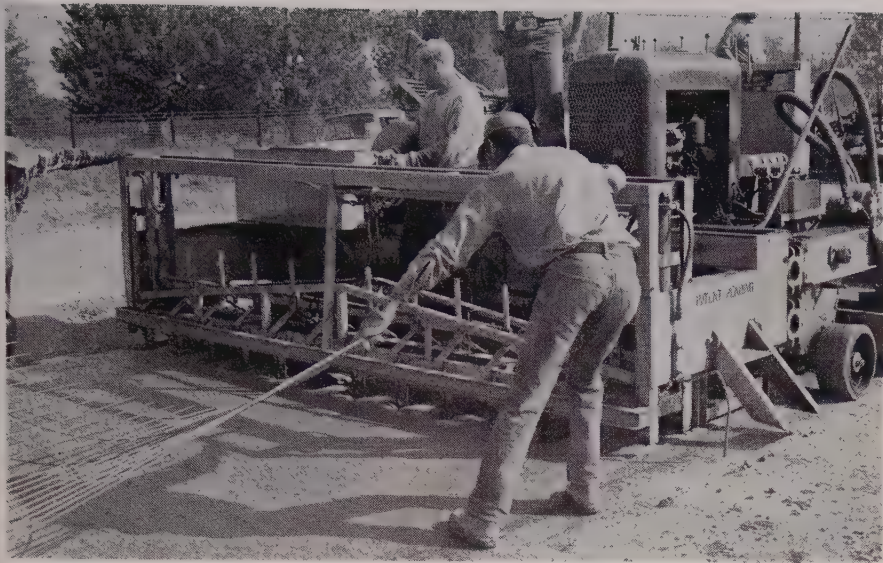
Maintenance is divided into two general areas, lubrication and mechanical. A separate check sheet is used for each operation. The

check sheets are made up by the company and printed on heavy card stock of $8\frac{1}{2}$ x 11-in. size. Lube charts are printed on light green stock, while mechanical check lists are on white. The charts are used as service records, with each one covering a one week period. The lube chart for a concrete batch truck includes 20 daily check items, 8 semi-weekly, and 6 on a mileage basis. The latter includes changing oil and oil filters in the crank case, transmission and differential. Mechanical check lists include 23 daily items and 10 weekly items, and cover electrical system and engine accessories, clutch, transmission, power train, cab, hoist assembly, wheels and axles. (Tire pressure is part of the lube system.) These check lists lay heavy emphasis on keeping bolts tight and checking conditions of gaskets, seals, and covers.

Engine maintenance is done on a unit basis, with one important variation. Houck's mechanics customarily pull a truck engine in need of repair and replace it with a stand-by. They then rebuild the sideline engine themselves and put it on stand-by basis for the next switch. To simplify this system, the company standardizes as far as possible on make and model of equipment.

Paving string maintenance

Maintenance of the paving equipment follows the same pattern as the truck program with one important difference. Since it is not possible to bring pavers and form-riding finishing machines to the



ANOTHER Houck invention places dowel bars beneath transverse joint in roadway. Hydraulic cylinders push frame in pavement and release fingers holding dowels 4 in. beneath surface.

garage, the mechanics go to the pavers. This they do faithfully every night as soon as the string is shut down. First order of business is to wash down each machine to remove any concrete residue. This is a relatively easy job since paving units are also coated with the diesel oil and crank case oil mixture to prevent concrete sticking. Mechanics and lube truck crew men run through the same sort of detail chart checks used for truck maintenance.

Houck does not rely entirely on his meticulous maintenance program to combat down-time. He also keeps stand-by units, two or three for each string of trucks, and one extra on earthmoving spreads. The stand-by system enables mechanics to pull a rig out of the working string at any time to perform major overhaul work without disrupting production. In addition, of course, the stand-by unit provides insurance in the unlikely event of a break-down.

Tires are purchased for all equipment from one company on an annual contract basis. Since Houck's operations are confined to a relatively small area, worn carcasses are picked up from the various job locations and recapped at a central point. There is very little need for emergency recap service, since the Houck organization budgets its expected tire consumption 12 months in advance and carries a large stock of replacements.

The concrete division includes a batch plant, 50 trucks, pick-ups,

and automobiles and 19 pieces of paving equipment. All of this is maintained by a staff of 12 mechanics working two shifts. Similar set-ups are employed in the asphalt, aggregate, and earth-moving divisions. Fuels, lubricants, and all bituminous products for all four divisions are purchased on contract from one company, which supplies portable storage tanks and makes deliveries to job sites.

Driver training

Roy Houck regards his driver training and checking program as a key to preventive maintenance. The program starts when drivers are hired. They are given a check ride and their performance rated on an A, B, C, D, scale. The minimum

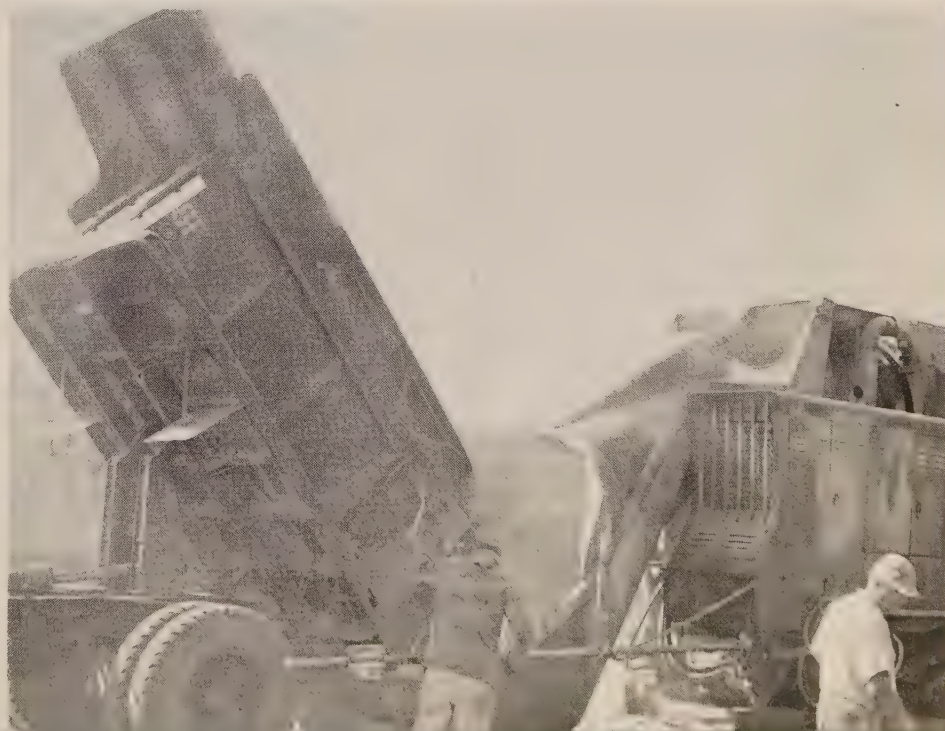
level acceptable varies from job to job, depending upon the number of available drivers. The truck boss and the riding instructor of each truck spread continually ride with drivers to observe and improve their performance.

On the big Peterbilt diesel rigs and for aggregate and base material hauling, recording devices are used to chart the truck's mechanical operations. The "stool pigeon" record is the final judge of a diesel driver's performance no matter what sort of recommendation he may bring from the union.

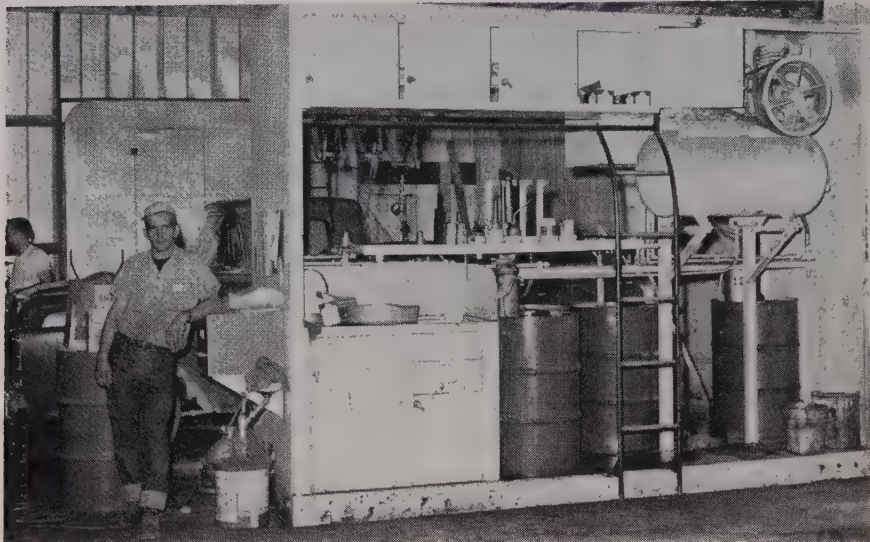
The company enforces strict driving safety rules. For example, batch-truck drivers are required to maintain intervals of at least 300 ft. on the haul road. Accidents are simply not tolerated.

Does this elaborate maintenance set-up pay off? A mechanic superintendent was asked if the Houck-maintained trucks commanded higher trade-in prices. "I don't know," he replied. "We've never sold any. Roy has still got the original trucks he bought in 1947." It was explained that these 13-year-old models have long since been demoted from the batch string to flat rack and utility operations. The superintendent was then asked what his procedures were on truck breakdowns. "We don't have any breakdowns," he replied. "I did tow one truck in this summer, but it had been in a wreck."

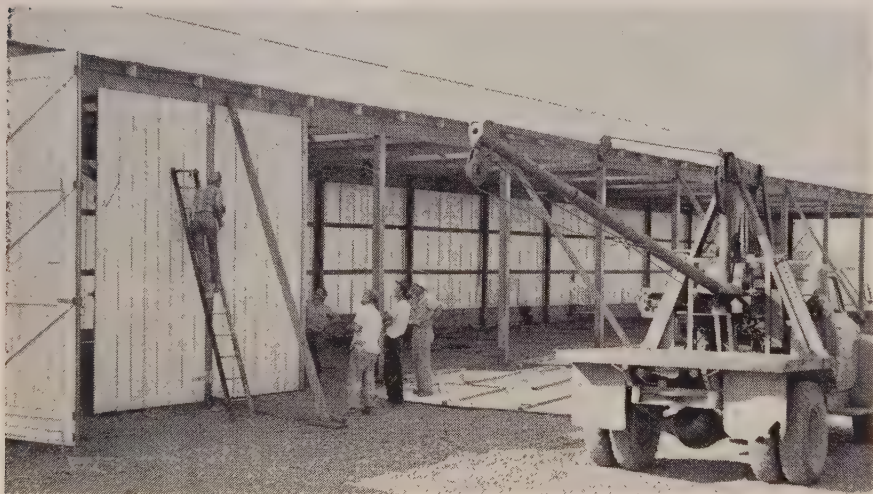
There are other reasons over and above the immediate economic benefits which prompt Houck's tremendous maintenance program. He believes that, as he puts it, "This is



DUMP BODY divided into compartments by Houck attachment bolted to top. Air cylinders trip gates as truck backs into the skip.



STANDARD lube rack built by maintenance crew equips each of firm's four shops. Note back of parts trailer in wall at rear. Bud Atwood, left, is foreman of paving division shop.



TYPICAL service shop building being dismantled for move to new location. Erected in standard-size bays 14x28x14, shops can be built any length or placed side by side for double width.

the only way to grow." To use available capital for expanding his equipment fleet and his construction capabilities, rather than merely to replace existing units.

HOUCK MACHINES

Houck has also designed and built a great many machines of his own and these include some spectacular innovations in concrete paving. The string, which has attracted visitors from throughout the nation, is headed by a Koehring Tribatch paver, the largest mixer of its type. He uses this machine to place 12-ft. strips in contrast to the growing practice of placing full width, 24 ft., pavement in other areas.

Houck uses his big mixer economically by placing his concrete to the full 8-in. depth in one lift. Since the state of Oregon requires placement of wire mesh reinforce-

ing steel and use of steel dowel rods across each transverse joint, Houck had developed machines to imbed both mesh and dowels in the freshly placed concrete.

The wire mesh placing machine is a long, decked car which carries a stack of 16-ft. lengths of mesh on top. Beneath the deck is a steel grid which consists of 5 crossbars welded to the bottom of a pair of heavy steel channel members; and joined along their outer edges by steel strips to make a frame 11 ft. 6 in. wide and 16 ft. long. The grid is attached to the main frame of the car by 4 hydraulic cylinders, and is powered by 4 Jackson eccentric vibrators. In operation, a sheet of mesh is pulled off the top deck over an idler roller by two men and dropped onto the fresh concrete. The back fringe of mesh wire is quickly twisted into the projecting ends of a previously placed strip and the self-propelled car is moved

forward so that it straddles the mesh joint. The grid is lowered to the mesh at the surface of the concrete, the vibrators started, and the grid quickly pushes the mesh into the concrete. Depth is mechanically controlled by a chain stop which limits the downward travel of the grid.

The concrete surface is diced when the machine passes over it, and Houck points out that the idea of slicing fresh concrete into cubes like fudge is against all accepted practice. However, the mesh machine is followed by a Rex hydraulic finisher whose two reciprocating screens smooth the pavement back to its original appearance.

The resulting concrete has passed all core tests made by Oregon highway technicians, who cut cores from virtually every location.

Placing dowels

Placement of the dowels which must be installed across each transverse joint is done with a hydraulically powered frame mounting two pairs of spring-loaded fingers for each of the 12 dowel bars. The dowels are coated with heavy grease and inserted in their notched finger grips by the operator. The machine is located at a previously marked pavement joint and the dowel carriers are thrust into the concrete by hydraulic cylinders located at each end of the frame. When dowels reach the specified depth the grips are automatically opened and the frame is withdrawn, leaving the dowels in the concrete.

This spudding device was originally mounted on a self-propelled carrier which rode the header boards. But in later models, it has been attached to the back of a Jaeger finisher. Hydraulic power for the dowel unit is supplied by a separate pump driven by the finisher engine.

Houck has applied for patents on the dowel placement and the concrete mesh machine, but these are by no means the only Houck inventions in the paving string. In fact, most of the machines in the train bear the marks of the contractors' ingenuity, starting with the batch trucks. These are standard 6-yd. dump-trucks with two interior partitions mounted on a frame which fits like a sideboard around the top of the dump-body and converts it into three batch compartments.

The Koehring Tribatch which supplies all the concrete for the

(Continued on page 40)

Parts Managers of Western distributors advise on —

How to improve ordering of parts

KEEPING Western construction jobs rolling is a joint effort of contractor and distributor. This is particularly true in the ordering and delivery of repair parts for equipment. If the ordering is accurate and correct in all details the delivery can be prompt and satisfactory. Ordering procedures and practice can best be judged by those on the receiving end, and suggestions can be made to improve the entire operation.

In the interest of providing

tangible and authentic help **WESTERN CONSTRUCTION** requested comments from the Parts Managers of representative construction equipment distributors of this Western region on the ordering of parts by contracting organizations and how it could be improved. The men have responded (See accompanying list) and from their experiences have been willing to make helpful suggestions.

In general they replied that

contractors are well acquainted with ordering procedures and problems, with little to complain about. However, there are some contractors, either young or indifferent, who are making things tough and costly for themselves by their poor handling of parts ordering. For this group, and their equipment supervisors, the parts managers have helpful suggestions and comments that were used as the source of this informative discussion.

—Editor

WHOEVER said that life was simply one damned thing after another must have been a contractor. Most construction projects are overflowing with grotesque and appalling surprises, and anybody who stays in the business more than a month deserves a hearty round of applause. The same can be said for selling construction equipment—another occupation not conducive to growing old gracefully. At first it might seem that it would be no tougher than selling shoes or hardware, but the thing to remember is that a large percentage of parts orders received by a distributor are one of three kinds—rush, desperation, or panic.

Of course, there would be no special problem if all parts were accurately ordered by name, make, model, and serial number, but this isn't always possible. Sometimes, the foreman or superintendent discovers that the parts book covering the crippled machine has been misplaced, or left in the home office, or is out-of-date, or impossible to read because of its complexity or a layer of grease. In these cases there is nothing much to do except call the parts manager and try to describe the part to him.

But the distributor is often in an impossible situation when he receives an order without the precise identifying facts. Changes and improvements in construction equipment are being made at such a bewildering rate that sometimes the manufacturer himself finds it difficult to keep on top of them and issue accurate parts books.

Distributors realize fully that there will always be emergency situations in construction when parts must be ordered with inadequate information, and they will do their very best to make the right guess as to which part is needed. But parts managers get gray and ulcerous because they know that many of the so-called emergencies need never arise. This article, the result of an original survey of distributors all over the West, will show some of the ways down-time and equipment costs can be reduced by improving parts ordering procedures.

"... the color of his truck is red... let someone who knows do the ordering... have all the facts ready before you pick up the phone."

Too often orders for parts are placed by someone who is not familiar with the equipment. A distributor in the Northwest relates two hideous examples of this:

Caller: I need a new filter element.

Distributor: What size?

Caller: Well, it's about as big as a milk pail.

Another time a phone call came from the wife of a superintendent who had called her from the job to tell her he was well and asked her to order some parts for him. The conversation went something like this:

Wife: My husband asked me to call you and tell you he needed some parts for his truck.

Distributor: What kind of parts?

Wife: I don't know. He just said he needed some parts.

Distributor: What kind of a truck is it?

Wife: I believe it's red.

When the equipment supervisor or mechanic asks someone else to order parts for him—someone who is not thoroughly familiar with the equipment, such as a wife, time-keeper or office man—and when he doesn't give the second party complete information, it is impossible for the parts man to get answers to questions necessary to get the details. The result is that the distributor usually has to try to locate by phone the person in the contractor's organization who has the facts, thereby wasting a great deal of time.

In the West, where construction projects are ordinarily many miles from sources of supply, a large share of orders are placed by long distance phone calls. It is surprising how many of these calls have to be repeated, doubling the phone bill, because the caller neglected to have all the information at hand the first time. There would be no cases like this if everybody who ordered parts was as aware as his distributor of the changes, revisions and modifications of equipment which are constantly being made by manufacturers. If they were, they would see the necessity of having the model and serial number of the machine, and checking the parts book for the number before placing their order. Furnishing this information would relieve the distributor's parts man

of a search in his own files. One hundred such calls a day is not uncommon in a busy parts department. Ordering by part number instead of description would speed things up all the way around. Most of the time consumed by a parts man in filling a contractor's order is spent looking up parts numbers for customers who fail to make use of their own parts books.

"... keep accurate and complete equipment record... have only designated and trained personnel order parts..."

Some contractors apparently think it takes too much time and trouble to keep the equipment records needed for precise parts ordering, but if they will study their own operations, they will discover that the expense of record keeping pays for itself a dozen times over in faster service, reduction of down-time, and the virtual elimination of mistakes in parts delivery. Such records should contain a description of every bit of work done on a machine, and the details of every part installed. Good equipment records do more than improve parts ordering. They enable the owner to more accurately estimate his equipment costs, for one thing, and serve as the heart of a preventive maintenance program, for another. And there is probably nothing that can reduce costly down-time more than a thorough program of preventive maintenance.

The most effective way a contractor can improve his parts ordering operation is to make sure that trained personnel place the orders, perhaps the same man responsible for keeping the service records. Authority to order parts should be confined to as few men as possible. Some well-organized contractors give this authority to just one man in the company; others give it to one man on each job. The important thing is that orders are made by men who know the equipment, who have access to full service records, and who are on a personal basis with the distributor's parts man.

"... even if available, the parts book may not be the complete answer... teach the contractors' men how to use it."

Unfortunately, even if the superintendent has the parts book handy when placing an order there are still problems: (1) it may be un-

CONTRIBUTORS

These managers of parts departments participated in our survey and provided the comments and constructive suggestions that formed the basis for this discussion.

ARTHUR L. AKERS

Cummins Arizona Diesel
Phoenix, Arizona

JOHN BRANDLIN

Berglund Tractor & Equipment Co.
Napa, California

JOHN BRUNDAGE

Spokane Kenworth Co.
Spokane, Washington

MAX E. CARDEN

Pacific Tractor & Implement Co.
Richmond, California

K. W. CRANDALL

Cate Equipment Co.
Salt Lake City, Utah

L. DICKERT

Montana Powder & Equipment Co.
Helena, Montana

L. A. DICKINSON

Road Machinery Co.
Phoenix, Arizona

FRED DUVALL

Blakemore Equipment Co.
Oakland, California

L. R. EVANS

Peterson Tractor Co.
San Leandro, California

F. T. HALL

Western Machinery Co.
Denver, Colorado

O. C. JANSSEN

N. C. Machinery Co.
Seattle, Washington

BOB JEROME

Western Construction Equipment Co.
Billings, Montana

JESS KIGHT

Intermountain Equipment Co.
Boise, Idaho

H. J. McKENNA

Allied Equipment Co.
Fresno, California

ROBERT N. McLELLAN

Weaver Tractor Co.
Sacramento, California

N. E. NEWELL

Sacramento Valley Tractor Co.
Sacramento, California

B. V. OLSON

Tractor-Equipment Distributors, Inc.
Los Angeles, California

LESTER POGUE

Shaw Sales & Service Co.
Los Angeles, California

HENRY W. RAUTIO

Modern Machinery Co., Inc.
Spokane, Washington

MARSHALL SEWELL

A-D Machinery Co., Inc.
Elko, Nevada

O. A. SYLTE

Wortham Machinery Co.
Cheyenne, Wyoming

ROBERT R. TRUE

Booth-Rouse Equipment Co.
Denver, Colorado

J. D. VAN CLEVE

Westmont Tractor Co.
Missoula, Montana

C. W. WILKES

Studer Tractor & Equipment Co.
Casper, Wyoming

readable, because of grease and dirt, (2) it may be difficult to decipher, (3) there may be no records to go with it which show modifications made by the contractor or (4) it may be obsolete. Most distributors receive almost daily from manufacturers supplements, corrections, addenda, partgrams, etc., and they have a tough time maintaining their own catalog library, let alone a multitude of customers who maintain such records.

In some cases, the manufacturer can help by making sure the parts book is written as simply and clearly as possible (sometimes even the factory representative can't figure them out) and by having it sturdily bound so the pages don't fall out at the first rough treatment. Manufacturers should also be certain their distributors are advised of every change.

Almost every distributor makes sure that anyone who might be ordering parts has a parts book, but some neglect to make sure they know how to use it. A distributor in the Southwest has this to say: "At every opportunity, whenever we can get these men into the store, the parts men go through the parts manuals with them, teaching them to correctly read and order parts. To supplement this individual instruction, we have held several schools at our main plant to which we have invited mechanics, maintenance men and all related groups. These schools cover the machines we have in the greatest number in our customers' fleets. We provide parts manuals, maintenance manuals, supplementary materials and expert instruction in the proper use of each. Consequently, our 'beefs' as to the way our orders are received are very few."

"... distributors are forced to keep the records... salesmen have to bring the information in from the job... contractors could at least cooperate in helping the distributor maintain such records."

Because the equipment service records of the contractor are inadequate in many cases, distributors must maintain their own records even though in theory it would be more efficient for the owner to do this. There are a great many difficulties the distributor faces if he expects to keep up-to-date records of every piece of equipment he handles working in his territory. He has direct knowledge only of those machines he himself has sold

or repaired. It takes a lot of effort to keep track of the machines contractors buy and trade among themselves or other dealers, the machines brought in by contractors from other areas, and the work that contractors do on their equipment in their own shops.

Distributors have to rely on their salesmen and service men to dig out this information because the contractor almost never provides it voluntarily, even though it would be to his advantage to do so. One distributor goes to the trouble of keeping his customers supplied with self-addressed form letters to encourage them to keep him advised of what they do to their equipment.

Here is what a Washington distributor reports:

"We keep a sizeable file of what we call 'Chassis Bills of Material' covering each truck that is built and is operating in our area. This is filed in two ways. One is retained by truck serial number so that if a customer has it we can quickly run it down. The other is an alphabetical file by the customer's name. Now, where this falls down and where the contractor could help us is when the truck begins to change hands. If we are not notified, then the bill or material stays under the original owner's name, losing its identity.

"If it changes hands more than once without our knowledge, it could easily become lost in our file. It would be simple for the new owner to drop us a card or let us know that he has purchased truck serial number so and so. Then we could transfer all the records to his name. But this is almost never done by the contractor. Also, quite frequently a contractor from another part of the country will move into our area with some of our equipment. With his help, we could check through our factory and very quickly set up a file covering the truck he is operating."

Distributors should make every reasonable effort to show their customers the value of keeping them informed of the condition of their equipment.

"... keep high-wear and emergency items at the job shop ... the distributor can advise ... have 'insurance' parts on remote jobs ... use of spare parts kits ..."

With good service records a contractor will not only be able to make precise parts orders, he will

also know what items to keep on hand for emergencies. Smart contractors maintain an ample supply of emergency items, high wear items, and daily maintenance items, such as oil, fuel, filter elements, fan belts, cutting edges, hydraulic hoses, and wire rope. Contractors who do their own major overhauls usually have a lockable building, parts bins, a full time parts man and a sizeable investment in parts.

But it is easy to be overstocked and be left with obsolete parts when a machine is worn out. Every contractor should have some sort of inventory control system to keep track of parts on hand. In the absence of good equipment records, the distributor is usually happy to discuss with the contractor what items and how many of each he should keep on the job.

The most mistakes are made on rush orders, because everybody is under pressure. The sad fact is that most rush orders are due to a lack of foresight on the part of the contractor and could be avoided. Preventive maintenance programs, or at least periodic inspections of equipment, would reveal which items should be ordered and replaced to prevent failure during working hours.

The value of such foresight is great in the West, where jobs are often remote. At remote sites contractors must equip themselves with "insurance" parts they may not need but which they can't afford to be without because of the time needed for delivery. Complete assemblies such as clutches, transmissions, and torque converters, and other items which are hard to repair are extremely valuable if they are on hand when needed.

Most distributors will supply to their customers on remote jobs a "spare parts kit." At specified intervals a serviceman can review the contents of the kit and advise the parts department of the items used. A billing is then made to the contractor, and the parts replaced in the kit. At the end of the job the kit is returned to the distributor, or bought by the contractor.

The contractor should also return for credit, from time to time, parts that he has not used, in order to avoid building up a stock which may become obsolete. He should also ask the dealer to take back immediately any major part that was ordered for a specific repair job and then not used. If such parts are allowed to accumulate in the contractor's warehouse, the value of his inventory can increase

greatly without a proportional increase in protection.

"... loaned parts must be returned in good order ... prompt return with proper records is the basis for credit ..."

Distributors regularly accept the return of parts and assemblies "loaned" to contractors for possible use on remote jobs, and will usually give credit for the return of any unused part, even though they are asking for trouble by so doing. The trouble is that the contractors' storage facilities are often not too good and the parts become shelf worn or damaged. Listen to this parts manager from Southern California:

"There is a tendency among some contractors to promiscuously order parts—if they think they'll need two they'll order ten—and then much, much later returning them for credit. This applies particularly to expensive assemblies not normally carried by distributors and seldom required by other customers. Often these return parts have been jostled around in the back of a truck, exposed to the elements, grease, and what-have-you. Oil seals and gaskets have shrunk, bearings have been removed from original boxes to accumulate sand and grit, and machined parts have rusted beyond any possible sale or use. We have actually had customers drive up to our back door in a dump truck, raise the body and let the parts drop out as if they were dumping a load of dirt. Yet, they expect us to sort them, identify them, eliminate the used parts, clean, AND issue full credit."

Another service which some distributors provide is an "assembly exchange" in which contractor is loaned a part or assembly to use while the distributor repairs the old one.

Complaints and Suggestions

Here is a sampling of comments from Parts Managers around the West.

WASHINGTON—"So often a contractor will jump from supplier to supplier in an effort to find a lower price on a given item. As a result, no supplier becomes real familiar with the problems of that particular contractor. The

(Continued on page 35)



Tire maintenance plan for hauling 12,000,000 cu. yd.

MOVING 12,000,000 cu. yd. of fill into Cougar Dam is requiring a fleet of about 60 units moving on rubber tires to build the largest structure of its type in the Pacific Northwest. Merritt-Chapman & Scott Corp., during a four-year construction period, will move the material into the embankment by truck, tractor and scraper, not to mention the auxiliary units of miscellaneous trucks, water wagons, rollers and truck-mounted cranes.

Cougar Dam is being built by the Corps of Engineers, Portland District, across the south fork of the McKenzie River about 50 mi. east of Eugene, Ore. Col. Walter L. Winegar is district engineer. The dam will be about 485 ft. high, 1,600 ft. long, and will create a reservoir that will extend 6 mi. and provide a storage capacity of 215,000 ac. ft. Crest of the fill will be 40 ft. wide and the maximum width of the dam at its base will be almost 1,500 ft. At a cost of nearly \$50,000,000, the multi-purpose project will provide flood control, electric power production, and recreational facilities for the public.

Realizing the importance of keeping this fleet of earth-moving equipment rolling, and the loss that could result from down-time, the contractor set up a tire service program which is operated by B. F. Goodrich Tire Co. The service program includes careful and systematic tire inspection every day. This work is under the direction of E. L. "Spike" McMillan, the lead tire man for the tire company at the

Cougar Dam project. The ultimate goal in this service is to keep more than 600 tires in daily service without a time-delaying flat. McMillan and his crew operate from a tire warehouse and service facility which is less than one mile away from the dam. Calls for tire service are answered at any time, but are rare because every tire on every piece of equipment is inspected three times a day. These inspec-

tions are normally in the morning before the equipment starts to work, at noon while the operators are at lunch, and during the change of shifts at 4:30 p.m. Whenever it is necessary to make a tire change, the operation seldom takes longer than 15 min., even to change an 18.00-25, used on the International Payhaulers.

Under this rigid inspection program, any tire showing damage or evidence of possible failure is replaced immediately or noted on an inspection chart for further attention. It is estimated that tires operating under this plan of close scrutiny will give 25% more service than can be expected from tires that are simply allowed to perform



MODERN tire handling equipment enables B. F. Goodrich tire servicemen to handle huge 27.00-33 tires with minimum effort. Large equipment working at Cougar Dam often pauses in front of the service shop to make certain all tires are in good condition.



CONSTRUCTION jobs of today run on rubber. At the tire shop R. L. Tunnell (left) Pacific region special contractor representative of The B. F. Goodrich Co., discusses fine points of tire design with D. K. "Deke" Holmes, rock superintendent for the contractor, Merritt-Chapman & Scott Corp.

until they fail. Some of the tires will be retreaded two or three times before they are taken out of service. The haul roads and the heavy loads handled on the project give tires a real workout. Operations of the dam continue around the clock with two 10-hr. shifts combined with a 4-hr. stop for maintenance, refueling and repairs. Tires on all types of equipment range from size 4.00-8 on portable pumps, to the large 27.00-33 Rock Service tires that weigh 1,632 lb. each.

The large stock of tires maintained in the service shop at the job guarantees immediate replace-

ment each time a tire wears out or fails in service. Those removed for minor damage or mishap are repaired and returned to service.

Personnel

On the project, James Irwin is project manager for Merritt-Chapman & Scott, Corp.; William Hill, project engineer; Herman Schuman, project superintendent; D. K. Holmes, rock superintendent, and Joe Handy, master mechanic.

R. L. Tunnell is Pacific region special contractor's representative for B. F. Goodrich Tire Co.

and shipped the same day. In the latter part of the day we can expect to run into transportation problems which force us to hold the shipment over until morning."

MONTANA—"We have one manufacturer that we represent that puts out a parts book for each model of a machine regardless of serial number. They are continually making changes in the model, yet they do not show it in the parts book and they don't issue amendments. It adds up to this: if the contractor does use his parts book he doesn't know if he is ordering correctly, neither do we, and, in most cases, neither does the manufacturer."

COLORADO—"The filling of parts orders would be much easier if the customer would let us know the urgency of the order—needed within two days—ten days, etc."

CALIFORNIA—Quite often we will go out of our way to obtain parts a customer requested only to find the customer has changed his mind when the items arrive. There should be a definite understanding that the customer wants all the items which he orders."

ARIZONA—"We maintain an engine serial number file with parts build-up records and modifications from the time it is manufactured until it is discarded or leaves our area permanently. We also keep a customer file with shop orders on any repairs made to any of the customer's engines. We maintain an alphabetized customer record of the engine models and serial numbers. We are now making a parts build-up record of each engine that is overhauled in our shop; copies of which go to our file and to the customer's file to assist him in ordering parts and to encourage him to keep similar records."

WYOMING—"Many owners will not order material or parts until the machine is broken down, or is on the verge of breaking down. For this reason the majority of the orders we receive are extreme rush cases and this causes errors to happen. We realize not all items can be ordered in advance, but many of them can. When they are, we have more time to make sure no mistakes occur and we have more time to devote to the genuine emergency cases. When every order is labeled 'Rush,' no order gets true rush treatment."

How to order equipment parts

(Continued from page 33)

supplier usually is not in as good a position to serve this contractor and nine times out of ten is not quite as interested in serving him."

CALIFORNIA—"My biggest 'beef' concerning the parts orders received is that the contractor will ask for parts for the tractor that a piece of equipment is mounted on, when he actually wants parts for the attachment, which may have no relation to the tractor. For example, a man may have a Wagner Loader mounted on a Ford tractor, but will insist he wants parts for a Ford loader."

MONTANA—When an out-of-

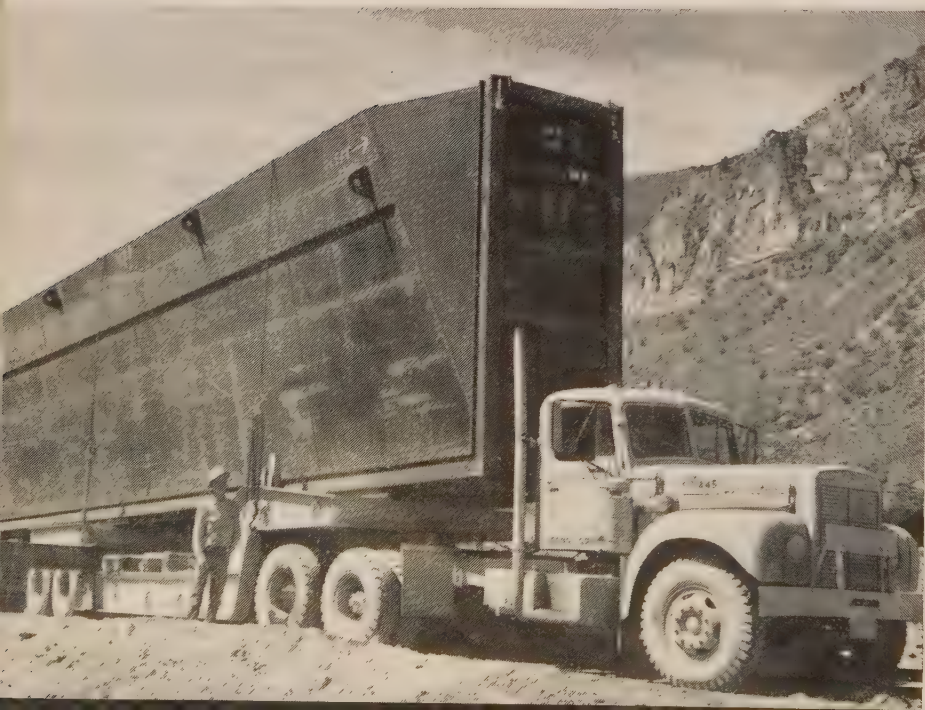
state contractor moves in to do a job, it would be to everybody's benefit if he would bring a list of his machines, with serial and model number, improvement kits that have been installed, and any other pertinent data, to the place of business where he will be buying parts. Also, every customer should become acquainted with his parts man. Where a good relationship exists, a parts man will go all out to help the contractor in any situation day or night."

CALIFORNIA—On emergency repair jobs, order parts as early as possible in the day. Then we can process the order during normal working hours and should there be any shortages they can be located



MACK LVX DUMPERS RIPRAP A RISING RIVER. When complete, Washington State's Rocky Reach Dam will raise a pool in the Columbia River that would have periled the track foundations of the Great Northern Railroad. To prevent this, Goodfellow Bros., Inc., of Wenatchee is using 15 big LVX Mack dumpers to move over a million tons of rock for riprapping and reinforcement of the roadbed.

Mighty Muscles



CAISSON ROLLING—THE MACK WAY. Heavy equipment and material for the dam was handled easily and efficiently by this big tractor-drawn flatbed operated by Rocky Reach Contractors. The 64-ton floating caisson section is being moved into position by a Mack B-73 tractor.

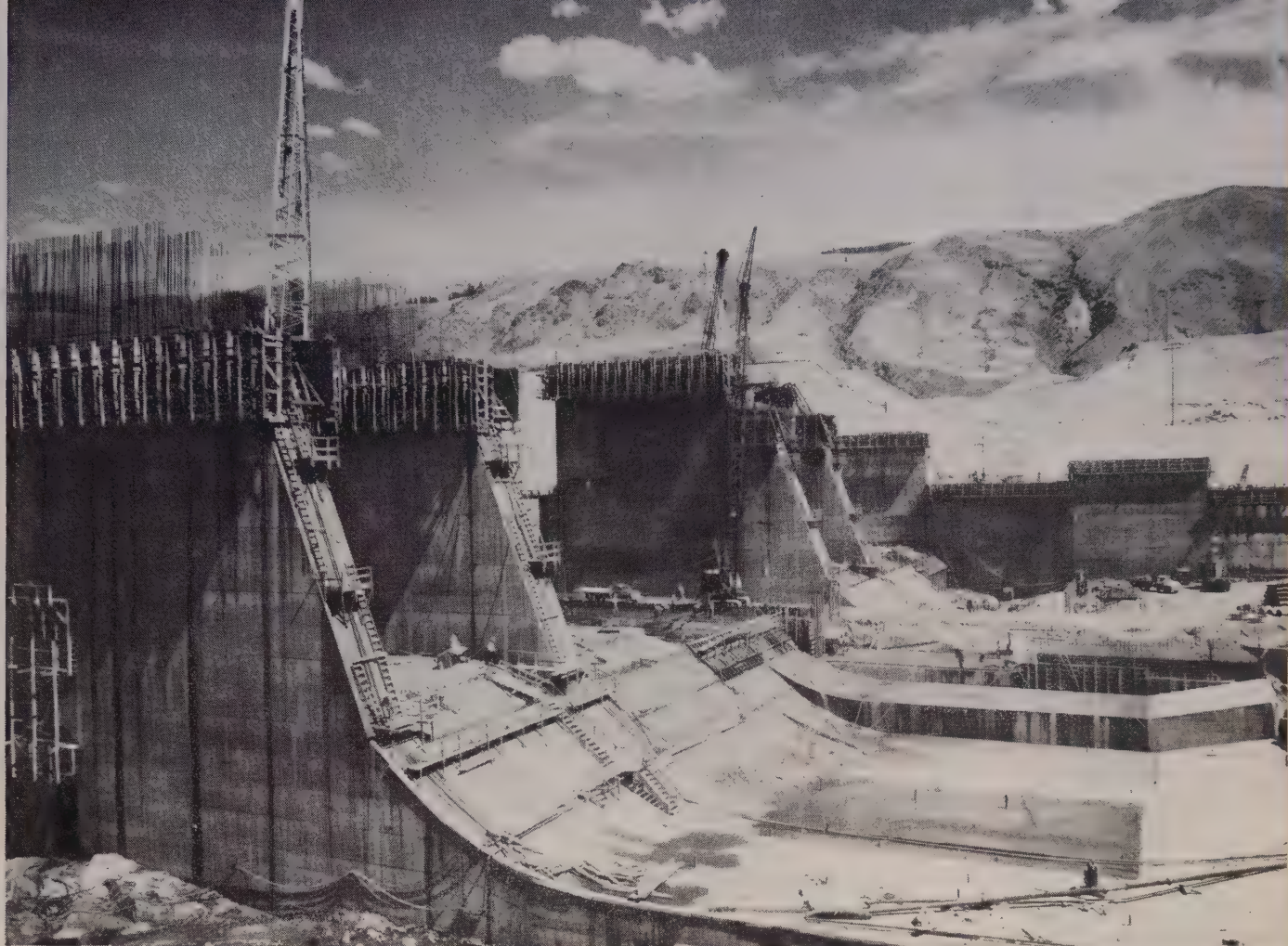
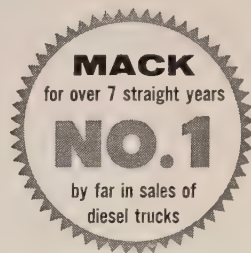


Photo credit to Stone & Webster Engineering Corporation, Rocky Reach project engineers.

at Rocky Reach



In the harnessing of a big river, trucks supply the big moving muscles, and the Rocky Reach Hydro-Electric Project being built by Chelan County Public Utility District on the Columbia River at Wenatchee, Wash., is made to order for brawny Macks. Handling the heaviest jobs known to big-league construction, they have hauled everything from riprap to caissons. And everywhere they've worked, they've set the pace for reliability, stamina and economy of operation.

Dumpers, concrete mixers, tractors, flat-bed trucks—there are dependable, economical Macks for every construction job . . . right up to the biggest. Moreover, when you standardize on Macks, you gain the

added savings of a completely integrated parts and upkeep operation. Mack controls the quality of every Mack part because it makes more of its own major components—engines, clutches, brakes, transmissions, bogies, cabs, etc.—than any other maker. And every Mack is "Built like a Mack"...made to outlast, outwork, outearn anything else on demanding jobs.

Why not join the swing to Macks—the swing that means maximum hauling efficiency at minimum unit costs. Contact your Mack branch or distributor for full details and specifications. Mack Trucks, Inc., Los Angeles, Denver, San Francisco, Seattle, Portland, Salt Lake City, Albuquerque.

MACK FIRST NAME FOR **TRUCKS**

. . . for more details, circle No. 14 on Reader Service Postcard

Constructive suggestions on care of construction hose

In addition to helpful suggestions on the proper selection of hose, some equally helpful don'ts are presented just in case you want to "kill your hose."

PROPER maintenance of rubber hose is an on-the-job *must* at every construction job and should not be overlooked in efforts to keep costs down.

It is estimated that thousands of dollars worth of hose ends up on the scrap heap each year, due in large part to careless handling and abuse—much of which could be avoided by following several simple rules of hose life.

Dayton Industrial Products Company, division of Dayco Corp. (formerly Dayton Rubber Co.), suggests some do's and don'ts applicable in the use of hose on construction jobs.

Running a check list of the application of your hose for each job—in short, proper selection—can insure that it will hold up under the work load and be used again.

Proper selection involves three simple check points, according to Dayton engineers. These are:

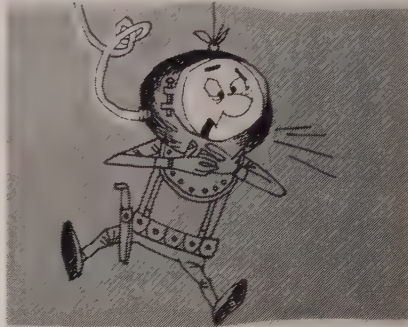
- Materials carried. Choose hose identified by the manufacturer for specific use and designed to handle specific materials.

- Working pressure. Know the pressures under which hose is to operate and allow adequate safety factor so that burst strength exceeds maximum recommendations by several times. This will assure longer life and trouble-free performance over a longer period.

- External conditions. Abrasion is but one factor, though a major one, to consider. Resistance to sunlight, acids, oil heat, and vehicular traffic are other hazards that can create hose havoc and discount the value of proper hose cover materials.

A brief study of basic hose construction gives the hose buyer a working knowledge of what to look for when selecting hose. Hose has

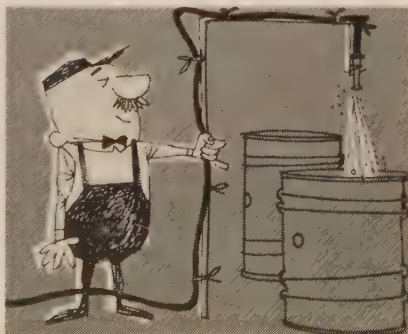
three basic parts: (1) tube or inner liner that must be resistant to the material carried; (2) reinforcement members that determine the amount of pressure or vacuum the hose will withstand, and (3) a cover that determines how much external abuse the hose will take.



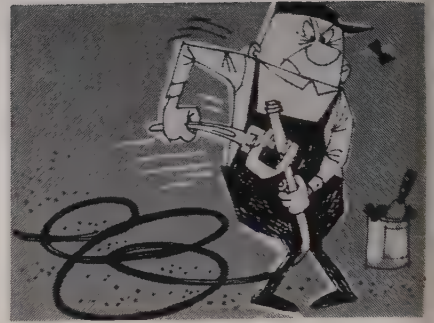
SELECT THE WRONG HOSE FOR THE JOB — This way you won't have to use it very long because chances are it—or you—won't last long.



EXCEED RECOMMENDED WORKING PRESSURE — Sure, you can always push more through the hose this way. (But look out!)



BEND HOSE SHARPLY TO MAKE IT LOOSE — This does a lot to destroy the reinforcement member and makes the hose easier to handle. Bending it at right angles will help, too. Don't let leaks and blowouts rattle you, because you can always buy more hose.



STICK IT IN DIRT TO STOP FLOW — Forget to check and clean the fittings. It'll help if you douse the couplings in oil and grease. It's not necessary to wash them in soap and water as the manufacturer recommends. (Not much, it isn't.)



YANK AND JERK HOSE — Especially if it's hung up on a piece of machinery or is kinked. You can flatten it by driving over it, too. This will certainly make it more pliable, and may make it air conditioned.



DON'T CLEAN THE HOSE AFTER USE — If it gets clogged, insert sticks and sharp objects inside to clean out the debris. If the hose protests, beat it with a sledge hammer. This is guaranteed to loosen up the clogged areas.

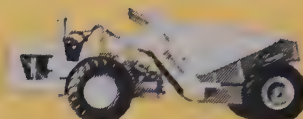


DRAG THE HOSE EVERYWHERE — Don't bother to help it over rough surfaces and sharp rocks. Dirt and grime . . . these will really put your hose in shape.

DEMONSTRATIONS PROVE CURTISS-WRIGHT SUPERIORITY



CW-226 — 26 CU. YDS. STRUCK



CWD-221 — 35 TON CAPACITY



CW-220 — 20 CU. YDS. STRUCK



CWD-214 — 25 TON CAPACITY



CW-215 — 15 CU. YDS. STRUCK



CWD-321 — 35 TON CAPACITY



CW-28 — 8.2 CU. YDS. STRUCK



CWT-30 — 30 CU. YDS. STRUCK



CW-320 — 20 CU. YDS. STRUCK



CWT-8 — 8 CU. YDS. STRUCK



Greater Bowl Factors — Faster Cycles Give Top Profit Per Equipment Dollar

You know that the machine that moves the most dirt makes you the most money — but, how do you select that machine? By past experience? No, because constantly changing models, techniques and contract conditions make this method impractical . . . By appearances? No again! You wouldn't bid a job on surface appearances alone, so why risk your profits by buying a scraper by the same method.

This leaves only one practical solution to the problem of buying a scraper. That is actual performance evaluation in the field, with a decision based on load weights, bowl factors, cycle times and the many other points that add up to high production. As one contractor says: "We considered three other major makes of scrapers for the job, but comparison and field demonstrations proved Curtiss-Wright the best machine. We feel that the added production and high bowl factors will save several cents per yard for any contractor, as it has for us."

Savings such as this are the result of buying by proven performance. See these results for yourself with a Curtiss-Wright demonstration on your job.

ATLAS EQUIPMENT COMPANY, Salt Lake City, Utah • CENTURY-WHITE TRUCK COMPANY, INC., Casper, Wyoming • CONSTRUCTION MACHINERY COMPANY, Albuquerque, New Mexico • FARIS-MORITZ EQUIPMENT COMPANY, Denver, Colorado • GENERAL EQUIPMENT COMPANY, Reno, Nevada • PIONEER EQUIPMENT & SUPPLY COMPANY, Butte, Montana • WASHINGTON MACHINERY COMPANY, Seattle, Washington—Branch: Spokane • YELLOWSTONE MACHINERY COMPANY, Sidney, Montana • NORTHERN SUPPLY, INC., Anchorage, Alaska

SOUTH BEND DIVISION
CURTISS-WRIGHT
CORPORATION

SOUTH BEND, INDIANA
Distributed in Canada by Canadian Curtiss-Wright Ltd.

Circle 100



STORAGE IS NO REAL PROBLEM—Just leave it. Don't bother about reels or racks, or the sun, acid or the elements. Hang it on a nail or hook. These are sure to grab into the hose and hold it firmly.

Since the hose coupling is an integral part of overall hose strength its proper use and selection becomes as important as your choice of hose. Correct coupling methods

bear directly on proper maintenance and extend the life of the hose. Below are a few simple tricks that can mean dollars saved.

Correct coupling methods

Use rubber or neoprene cement or a thick soap as a lubricant when inserting the coupling shank. Never use oil, grease or paint.

Do not cut or destroy any part of the hose in order to fit a coupling shank or clamp.

Do not use a fitting that must be screwed into the hose wall or tube.

If the hose must flex at the fitting end, extra clamps should be positioned to give additional support.

In high pressure service, clamps should be tightened a second time 4 to 24 hrs. after installation.

MAINTENANCE

(Continued from page 30)

paving spread is innocent of Houck's modifications as is the Blaw-Knox spreader, which is next in line. This is followed very closely by the first of two hydraulic finishers, a Jaeger machine which also mounts Houck's dowel placing assembly across the back.

The spreader and the finisher machines work with an interval of no more than 6 ft. between them so that the spreader operator can judge the amount of excess concrete being screeded off and carried forward by the finisher and can make the necessary adjustments in the depth of his own screed to fill the forms with a minimum amount of overage. (Houck also keeps a small Ford tractor with front-end loader spotted beside the paving train to pick up excess concrete and move it ahead of the spreader.)

The finisher and dowel machine combination is followed by the wire mesh placing machine which in turn is followed by a Rex finisher. This machine also carries a Houck hitch-hiker, a hydraulically powered vibrating knife which impresses the transverse joints in the slab. The unit is manned by two operators. It cuts a shallow slot in the pavement which the operators fill with an asphalt impregnated joint filler. This is tamped down with the edge of a wooden screed

notched to proper depth, and the joint is then smoothed over and brought to grade with the flat part of the screed.

At the end of the paving train is another Houck invention, a combination brooming device and automatic spray unit for curing compound. The anti-skid, anti-glare surface required by Oregon's inspectors is applied by broom heads mounted on an endless belt traveling across the slab and propelled forward on the front end of a small form riding carrier.

Houck schedules about 500 to 550 ft. of 12-ft. reinforced concrete slab per hour and at times has made more than 650 ft. He prefers to place in 12-ft. width, because he says he is spared the expense of cutting longitudinal joints and he can supply the entire string with one paver and one fleet of batch trucks. He also notes that much of the Oregon freeway system calls for three lane roadways, and he can place these with the same speedy efficient paving train.

In developing his various paving specialty machines, Roy salvaged the carrier on which he originally mounted the dowel machine and converted it to coating headers with form oil (salvaged crankcase oil) using a small pump and automatic spray heads.

Company organization

The organization and operations of the Roy L. Houck Sons Corp. is as unorthodox as its paving spread.

Roy and his three sons run the company's four divisions, each functioning as his own project superintendent. Headquarters of the company is in the basement of Roy's home in Salem. Here a permanent office force of four people handles all the accounting and record keeping for the entire firm. Until this year, the company has never had a permanent yard or shop for winter storage of its equipment. However, a small shop building is scheduled for construction in Salem.

Each job has one time-keeper, but no other field office personnel. Thus the six million dollar corporation is able to function with no project superintendents, no office engineers, no field accountants nor purchasing agent, and with next to no overhead.

The firm operates only in the state of Oregon and in southern Washington, and does nothing but highway work. All its operations are set up for this specialty. The four company divisions are: grading and earthmoving, headed by Roy Houck, Jr.; asphalt and oil, under James Houck; aggregate and base material, headed by Carlos Houck; and the concrete division which is under Roy himself.

Each division operates as an autonomous entity with its own equipment, maintenance forces, shops, portable buildings and records.

When the firm bids a job covering both grading and surfacing, the various divisions will often move in to perform their particular specialty and move out independently of each other. Thus, it is possible for the grading division to bring the roadway up to base grade, dismantle its portable shops and move out to be followed immediately by the aggregate and surfacing divisions re-erecting their own maintenance shops at the same or nearby locations.

The aggregate material division operates a gigantic crusher, employing five TelSmith cone crushers and hundreds of feet of conveyor. The crusher plant is entirely electrically operated, and includes a semi-trailer fitted out by Houck with all the necessary switchgear for operation of the crusher components. Electric power for the crusher comes from local utility service lines rather than portable diesel generators. Houck forces will build a line of 10 mi. or more where necessary to tie into a service line. Where needed, the firm will rent transformers and establish a

(Continued on page 45)

PNEUMATIC concrete set-up on job-made carrier in operation. Concrete dumped into hopper is blown to receiving head and dropped into forms.



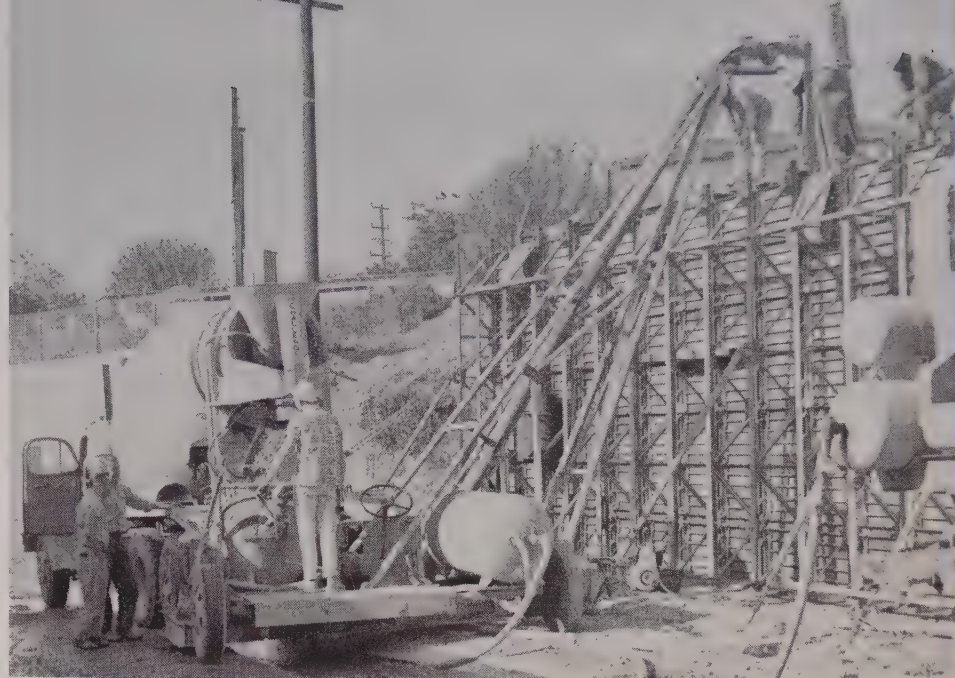
THE INGENUOUS combination of a pneumatic concrete conveying system and a job-made self-propelled carrier has enabled Gordon Ball Co. to cut its cost in construction of 13-ft. high walls which enclose a paved channel extending some four miles along San Lorenzo Creek, south of Oakland, Calif., as part of a \$3,900,000 Corps of Engineers flood control project.

The contractor now has completed two of a scheduled three seasons of work. During the first season, a conventional truck crane and bucket set-up was used to place part of the vertical wall portion of the job. During the second season, the contractor introduced his air placing device to elevate concrete from transit-mix trucks on the paved invert to the top of the wall forms. The successful use of this system allowed a reduction in the labor force from six to five men and released a comparatively expensive truck crane for other operations.

The air conveying unit consists of a model CP-15 Airplaco hopper unit, an 6-in. diameter pipe rising at a 45-deg. angle to a cylindrical discharge box, and a compressed air receiver tank. The piping and discharge head are supported by a steel pipe A-frame, pin connected to one side of the small car on which the hopper and receiver tank are mounted. The carrier has automotive type wheels with automotive steering system. It is propelled by a 3-kw. gasoline generator and electric drive motors. Air for the conveyor system is supplied by a 215-cfm. Gardner-Denver compressor on a utility flat-bed truck.

In operation, the conveyor is positioned with its discharge head over the forms, and a transit-mix truck is backed up in front of the car so that its discharge chute is just above the mouth of the hopper. The hopper is filled with 15 cu. ft. of concrete and the top opening closed by a slide valve. Compressed air is introduced into the closed hopper, and the concrete is blown through the piping system to the discharge head. Here interior baffles swirl the material, remove entrained air, and slow down its velocity so that the concrete drops into the forms in a controlled stream. The hopper empties in 11 sec.

The unit places an average of 26 cu. yd. per hr., enough to com-



Contractor "pipes" concrete to channel wall forms

plete one wall panel pour.

The air placement unit is used in connection with 12 set-ups of Economy steel forms, each enclosing a wall panel 50 ft. long. Since specifications require 24 hours curing time before removing the form the contractor pours six sets and strips the remaining six sets each day to maintain a uniform placing routine. The air placing system on its own self-propelled carrier can move back and forth along the 50-ft. length of each set-up to maintain an even depth of concrete as it is placed in the forms.

The idea for this mobile pneumatic placing unit originated last winter with Wayne Haapala who heads the Gordon Ball structural operations, and Bill Zimmerman, district manager of the Edward R. Bacon Co., Oakland office, distributors of Airplaco.

Working drawings for the proposed car were supplied by Air Placement Equipment Co., manufacturers of the pneumatic system, and these were turned over to Beebe LaTorre, Gordon Ball master mechanic, who built the carrier and A-frame in the contractor's shop.

The contractor notes that concrete placed with the air conveyor is of excellent quality, producing wall surfaces that are virtually free

of air pockets or blemishes.

Forms are stripped and transported with a truck crane which moves each face intact to the next set.

Openings are left in the walls at intervals to permit small earthmovers to get behind the walls to place back-fill material. The contractor uses a Caterpillar D2 crawler to pioneer ramps and short haul roads behind the walls and hauls his back-fill materials in a fleet of small Euclid scrapers having an 8-ft. width.

The contractor expects to complete the entire project in one more season, and will use his air conveying unit to place remainder of the vertical concrete walls. Total cost of the conveyor is about \$9,000 including \$5,500 for the Airplaco components, and \$3,500 for the construction of the carrier.

Personnel

For the contractor, Gordon Ball Co., Jay Row is superintendent; Nate Ball, assistant superintendent; Bob Provorse, engineer; Beebe LaTorre, master mechanic; Leacle McDonald, carpenter foreman; and Jack Armstrong, dirt foreman.

Corps of Engineers staff includes Harry Cohen, resident engineer, Jim Fox, job resident and C. V. Harris, inspector.



ONLY LOADER WITH

You shift from any one gear to any other—forward or reverse...on-the-go. Allis-Chalmers tractor loaders make fast work far easier for any operator.

It's simple for a tractor loader operator to work faster—get more done. It's just as easy for him to go into a high gear as into a low gear—forward or reverse. ONE LEVER controls both speed and direction. No fumbling around with two or more levers or a combination of levers and foot pedals.

Besides operating simplicity, a tractor loader has *firmly connected axles*—attached to frame with 2-inch diameter steel pins... no rolling and shifting under load. *Extra stability* lets operators get and deliver

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SINGLE-LEVER SHIFT

bigger loads with greater comfort. Add *extra reach* for fast, even dumping and you can see why production is higher with an Allis-Chalmers tractor loader. Let your dealer show you.

The "Big Three" tractor loaders range in size from the TL-14 with 5,300-lb carry capacity to the TL-20 (shown) with 9,000-lb carry. Each has a family of buckets—18 bucket loader combinations in all.

move ahead with

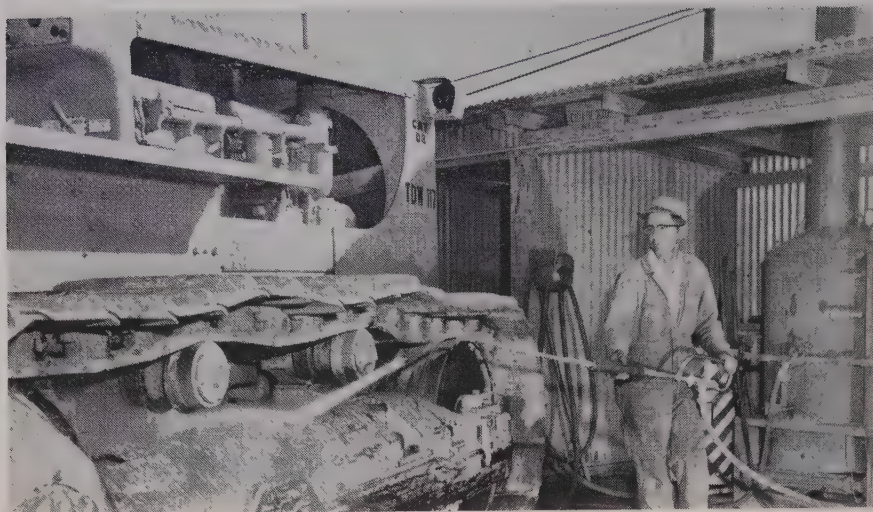
ALLIS-CHALMERS



power for a growing world



... for more details, circle No. 16 on Reader Service Postcard



A CONTRACTOR who has been a long-time user of heavy-duty cleaners for big equipment is A. Teichert & Son, Inc. In this Teichert shop an operator is using a hot solution from a high-pressure cleaner (HPC) at 400 psi. to remove accumulated grease and dirt from a track assembly.

What about steam cleaning?

Is it necessary? Where does it fit in the maintenance picture? Is your cleaner big enough to reduce repair down-time? Should it be portable or stationary? How steam cleaners can keep winter jobs rolling.

"BEFORE WE START any equipment we steam clean it thoroughly so mechanics or welders can work on it . . . You have to steam clean before you can find out what to do . . . Without steam cleaning, thorough inspection is almost impossible . . . It's easier for mechanics to work on equipment that's clean . . . Steam cleaning is the only way to effectively prepare equipment for either repairs or a new paint job."

This composite statement, taken from comments by five maintenance superintendents, summarizes the necessity for steam cleaning and indicates they think it's the proper beginning for most construction repair jobs. Says one of them:

"Our steam cleaners are used to clean engines, transmissions, pistons, shovels, gears, compressors, trucks, tractors, etc. We clean the parts as we dismantle the units, and after the repairs are made, we give them another cleaning to make sure they're free of grit."

For preventive maintenance

Steam cleaning, considered a must on repair jobs by many, can be equally important as a preventive maintenance tool. For exam-

By PATRICK DUNNE,
Service Manager
Malsbary Manufacturing Co.
Oakland, Calif.

ple, on a large job in sandy soil the shop foreman tells us, "Sand becomes embedded in the grease and oil of the trucks, enough to abrade them seriously, and it coats the engine badly enough to cause overheating. That's why regular, thorough cleaning is so important to us."

Says another maintenance man "When a machine comes off the field in a dirty or dusty condition, we bring it in for steam cleaning between jobs, even without other maintenance."

A contractor, who works mostly with asphalt, mounts his steam cleaner on his lube truck, so he can clean rigs right in the field. By cleaning grease off fittings and parts to be lubricated, he speeds up greasing and keeps abrasive material out of working parts. Field cleaning also enables his roving mechanic to spot worn parts and cracks in time to prevent costly down-time.

The larger and more costly your rigs, the more down-time hits you in the pocket. Kenneth F. Park, a top authority on earthmoving production, figures tractors of the D9 size should produce \$60 to \$75 profit an hour—and that ain't hay! Down-time on any productive rig pinches profits in direct relation to its hourly production. So anything you can do to reduce down-time helps your profit picture.

Many maintenance men find us-

ing larger, more powerful steam cleaners cuts downtime significantly. One shop foreman in charge of 225 rigs, including draglines, tractor-scrappers, and dump trucks, says, "Getting equipment back into service quickly is vital and our high pressure combination cleaner can give us an extra day. With it, we need only 3 hr. to complete a job that our old steam jenny took six to do, and which would mean 12 hr. of hand work."

Combining steam and solution

His older cleaner relied on steam pressure alone for its cleaning force. This meant its effective pressure ranged between 60 and 100 psi. and it probably delivered no more than 120 or possibly 180 gal. of cleaning solution hourly. His new cleaner combines the thermal pressure of a steam cleaner with pump-produced hydraulic pressure and can deliver 360 gal. of hot solution hourly at 300 psi. Other models, capable of delivering both hot solution and cold water simultaneously at up to 400 psi. and from 480 to 2,100 gph., reduce downtime even more.

The service manager for a Southwestern LeTourneau-Westinghouse dealer, who uses one of the largest models, reports: "Our cleaner can do in 10 min. the cleaning job that would take a mechanic or welder at least 2 hr. to perform before he can go ahead and work on a damaged part."

Another maintenance superintendent who switched to one of these larger, more powerful cleaners reports, "It used to take us a full day to clean a truck or tractor in from the field. Now we've cut that to half a day, and we get better results besides."

One advantage of higher pressures is the ability to clean hard-to-get-at spots. Speaking of using a cleaning force of 200-300 psi., one shop foreman says, "It reaches easily and effectively between and around the core and pipes of radiators and around transmissions, two of the least accessible parts insofar as cleaning is concerned."

Stationary vs. portable

Trailer-mounted cleaners can be a big help in reducing repair down-

MAINTENANCE

(Continued from page 40)

miniature sub-station to supply power to the giant crushing plant.

Roy Houck and his sons use an unusual method of planning the forthcoming year's operations. They start with the equipment spread they expect to operate, and work up to the amount of business they must do in the 12-month period to maintain this equipment spread. Additionally, virtually all progress and profit and loss estimates are made on the basis of hours of equipment use.

Winter quarters

Onset of the winter rains in Oregon about Dec. 1 begins a four-months construction shutdown for the Houck forces every year. Roy utilizes the rainy season to rebuild and refurbish equipment to be ready for the spring start-up. In getting ready for the rainy season, Houck's equipment is put under roof. This extends even to the concrete batch plant, which is dismantled, stored at the site, and a portable building erected over it to protect it from the winter rains.

About 50 men, 10 % of the firm's operating strength, are retained for winter operations. In addition to maintaining and rebuilding the equipment and building new company-designed machinery, the winter crew also fabricates highway signs including the big overhead scaffold types for freeway marking.

Despite Houck's spectacular mechanical organization, he credits most of his company's success to another quarter: personal supervision. He and his three sons customarily work two shifts a day and most of this time is spent on the grade, not in the office. Each of the four Houcks has a pick-up truck with a radio telephone in it, but the firm does not use standard radio communications. Houck insists that his superintendents and foremen do their supervising, as far as possible, at the grade and on foot.

This rule applies to his own activities and he is far more likely to be found prowling the paving line than at his trailer desk. He says that the personal supervision factor alone is worth about 10% advantage, and he can cite the record to back up this statement. Since the state of Oregon returned to Portland cement concrete paving in 1957, the Houck organization has built 85% of the concrete highways in the state.



CLEANING is not only a shop procedure prior to overhaul, but is equally important on the job. For example, a high-pressure cleaner mounted on the lube truck can reduce the time of the mechanic during inspection, and the time of the welder in making repairs.

time, especially on large, difficult-to-move machines. One firm with four stationary steam cleaners in its repair shops, says of its fifth cleaner, a large, trailer-mounted unit:

"We are able to reduce our field service time substantially because we can transport this cleaner to the site in much less time than it takes to transport numerous parts, many too large for, economical moving, to our repair shop. On a 6½-yd. shovel, now being overhauled and steam cleaned in the field, we will reduce overhaul time to about five weeks from the eight weeks necessary when we took parts to the shop for cleaning."

Two cleaners

Some maintenance men figure it pays to have two cleaners on each major job—one a stationary at the repair shop, where mechanics can use it for all sorts of cleaning and where the cleaning can be done on a concrete slab; another trailer-mounted unit, which can be taken into the field for cleaning equipment prior to inspection, and for cleaning before welding or making emergency repairs. There's another advantage: two cleaners assures you a standby in case one breaks down.

Where you have a fairly steady volume of cleaning, two or more cleaners in the same shop make sense. For example, one West Coast

Caterpillar dealer uses a big, 4-gun cleaner just outside his shop on a well-drained concrete slab for cleaning all rigs before disassembly for repair. Inside the shop, mechanics use two smaller cleaners for cleaning parts.

How many cleaners and whether they should be stationary or portable depends on your cleaning volume, the importance you attach to maintenance and the nature of your job and equipment.

When frost comes

Finally, where winter weather causes freezing, steam cleaners can be a decided aid to keeping jobs rolling. For example, cable breakage plagued a Canadian contractor's job when temperatures hung around zero. On investigating, he found dirt and mud froze overnight in the scraper bowls, locking aprons and tailgates in place, and causing cables to snap when operators started up next morning. So he put two Malsbary HPC cleaners to work cleaning out this mud and dirt each night the weather fell to freezing. That licked the trouble.

Muck freezing inside the dump trucks of a contractor on the St. Lawrence Seaway, kept building up and reducing payloads. He whipped the problem by a quick steam clean with high pressure hot solution at the dump.

MILE-HIGH CALIFORNIA ROAD JOB

NEW TRACTOR- REALLY



Packs it in—two D8H Tractors, pulling and pushing, fill a 491 Scraper with hard-to-load breccia, a cemented gravel, in 45 seconds.

SCRAPER TEAMS PRODUCE

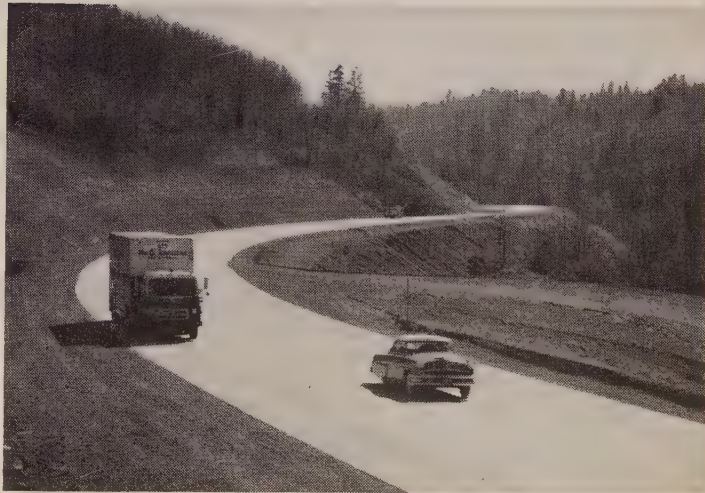
"A GOOD COMBINATION FOR THE ROUGHEST WORK"

TAKE boulders, volcanic ash and mud—mix well with decomposed shale—then add mile-high working altitudes, side-hill operation and unfavorable weather... these are some of the problems facing A. Tiechert and Son Inc. as they push a new highway through the Sierra Nevada Mountains in Eastern California. The job, 7.8 miles of freeway construction on State Highway 40, involves moving two million yards of earth in two five-month seasons. In spite of the obstacles, the Sacramento contractor holds the work to schedule, expects to complete the job on time this October.

Four D8 Series H Tractor-491 Scraper teams, push-loaded by D8s of the same series, set the pace for this difficult job. Because of the steep hill haul roads, they start the cuts and fills, then handle earthmoving on hauls up to 700 feet. DW21 wheel units take over on the longer hauls that range up to 7000 feet.

"The 491 Scrapers with D8s front and rear performed very well—especially in wet, rocky ground," says W. W. Staring, Project Manager. And he adds, "Operators and foremen especially like the 491 in rock because of higher apron clearance, excellent ground clearance and the good distance from axle to apron. In most cases we used D8-491 teams instead of shovels on shot breccia. It's a good combination for the roughest work."

On rugged big volume, short haul operations like this, Caterpillar track-type Tractor-Scraper combinations are the most efficient way to move earth. The new D8 Series H, for example, is over two tons heavier than the previous model, packs 23% more horsepower (235 flywheel HP), and with direct drive has a speed of 6.3 MPH forward. Team it with the 491 Scraper



The finished product—traffic moves with speed and safety over a newly completed section of California State Highway 40.

(34 cu. yd. heaped, 27 cu. yd. struck) or the 463 Scraper (28 cu. yd. heaped, 22 cu. yd. struck) for big capacity loads.

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**BORN OF RESEARCH
PROVED IN THE FIELD**



ADRIAN COX, Gibbons & Reed, measures fuel in job storage tank. Tank is kept full to reduce air chamber, and has filtered breather.

condensation on the walls of partially filled storage tanks accounted for much of the gum problems.

He points out that fuel contamination from tank trucks that have not been properly flushed is a problem more frequently encountered in out-of-the-way areas where tankers must haul a variety of liquids. His only suggestion: Keep after the supplier to flush his tanks before loading with diesel.

* * *

In Culp Creek, Ore., however, excessive ambient moisture has not presented **Tiny Heckman**, Bohem-

Maintenance men report on fuel contamination problems

HOW DOES THE user of modern diesel construction equipment handle field fuel problems? What fuel does he use? How does he store it? What fuel problems arise from field storage and how are they solved?

These questions were asked of a number of the West's leading maintenance superintendents in on-the-job interviews by *Western Construction*.

A summary of the experiences of the heavy equipment maintenance men interviewed indicates that in most instances storage itself was the bugaboo as far as diesel fuel contamination was concerned. Gums, sediment and water were encountered and in most cases this was traced to field storage tanks.

There were some exceptions, and some of the firms that had at one time experienced fuel contamination traceable to field storage of diesel fuel have solved the problem. But even to those who had solved their fuel difficulties, problems associated with gums, moisture and sediment in storage remained a matter of general concern.

J. B. Wesson, lube and fuel boss for Guy F. Atkinson Co. on the recently completed Grapevine highway job, reports that fuel problems were nonexistent in #2 diesel fuel stored in an unsheltered 10,000-

gal. tank adjacent to the shop area, but recalls difficulties in other areas.

"I've had serious gum and moisture problems on other jobs," stated Wesson. "I've associated these difficulties with two things: the presence of moisture in the air and contaminated tank trucks that deliver the fuel."

Wesson explains that on jobs in the Bay area where ambient moisture content is high, he's noticed increases in gums. Where under normal conditions he will change fuel filters at 500 hours, he will check them much more frequently in moist areas. He felt nighttime



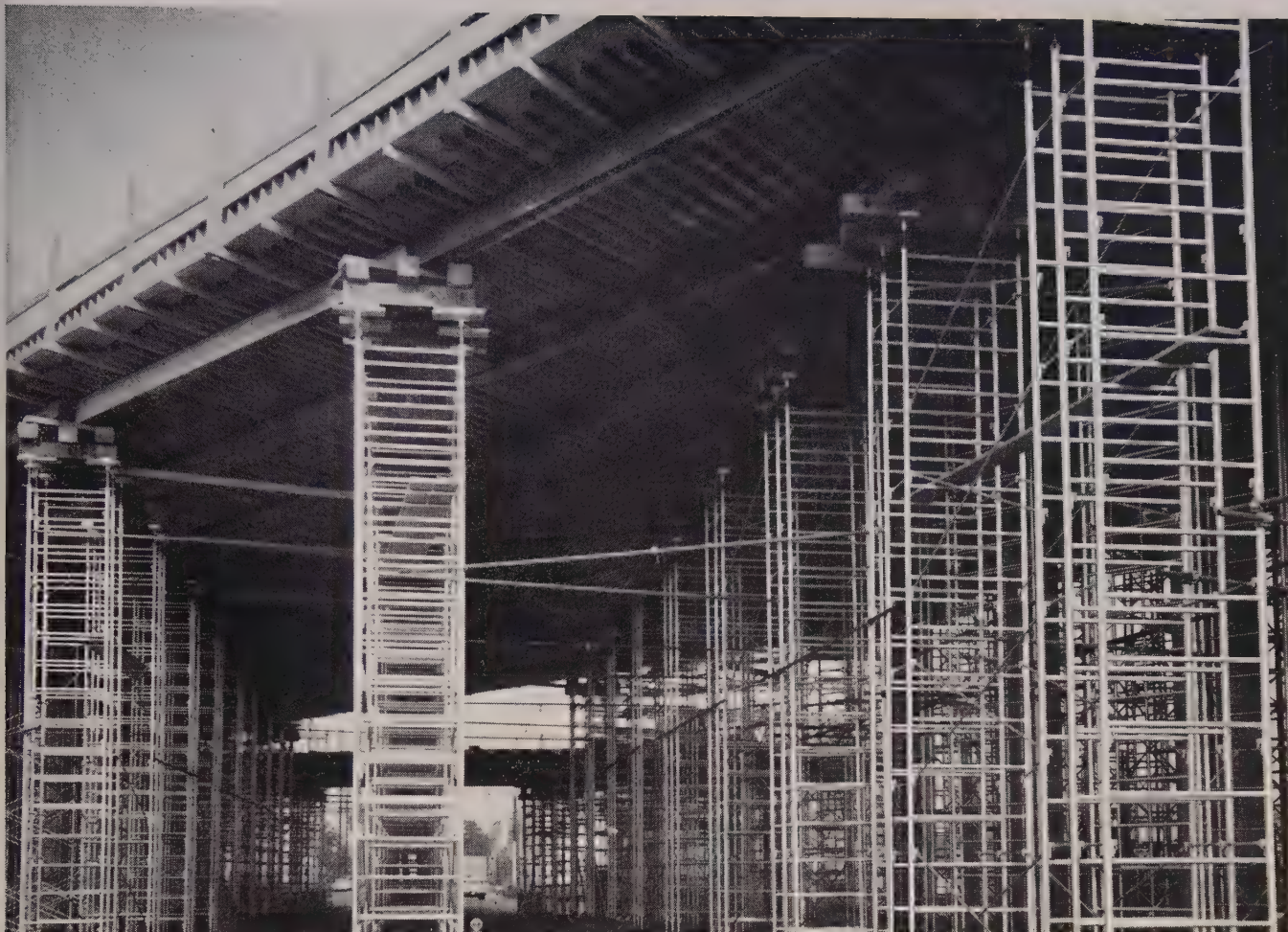
J. B. WESSON, Guy F. Atkinson Co., reports diesel fuel difficulties vary with area. A big problem is residue in delivery tankers.

ia Lumber Co. maintenance superintendent, with problems with his diesel storage. Tiny, who uses #2 diesel for a fleet of tractors and diesel trucks, believes the absence of moisture-induced fuel contamination results from holding fluctuations in storage temperature to a minimum by keeping fuel storage underground.

"When you get sharp rising and falling of storage tank temperatures over a short period of time, say every 24 hours," reports Heckman, "you're bound to get moisture condensation inside the tank. If you can keep these fluctuations evened off, you can stand a relatively high amount of ambient moisture without it causing too much difficulty. We've had our share of fuel contamination problems and this is the best solution we've been able to come up with."

* * *

In the Kaiser Steel Mill in Southern California, **Cecil Lane**, heavy duty equipment foreman, had excessive gum and carbon build-up troubles. It showed up in everything from the big diesel-powered Alco yard switch locomotives down to small high speed diesels. Lane switched from one major fuel supplier to another, had chemical analyses run of the fuel, relied almost entirely on fuel contractors



New Heavy Duty 20K Frames Shore 6-mile Freeway Access

BY MOVING a minimum amount of equipment only 19 times, the contractor, Griffith Company, is able to save considerable material costs on shoring work for the six mile Santa Monica viaduct section of a connecting Freeway near Los Angeles.

The design of the job involves a heavy concrete box girder system. To provide adequate support for this construction, PS Co.'s new heavy duty 20K "Trouble Saver" Shoring frames are used. 9000 of these frames shore a section 850' long by 65' wide. Lift trucks move this same shoring equipment to adjoining sections of the same size. In this way the work is accomplished

with minimum material.

Weight of the concrete box girders can be realized from these details: bottom slab is 5½" to 6½" thick; top 5" to 5½" thick; box depth is 4' to 5' and made in three pours. Overall viaduct height varies from 15' to 33'. A total of 13,900 20K frames was used on this project.

20K FRAMES of "Trouble Saver" Shoring are designed for heavy

duty work in accordance with PS Co.'s high standards of safety and are tested under simulated field conditions—and proved on recent jobs, like this one—to safely support up to 10,000 lbs. on each leg. Frames are 4' wide, in 3'6", 5' and 6' heights. Legs are 2⅜" o.d. U-heads, sprockets, adjustable legs, base plates can be arranged in any manner, top or bottom. For complete details, write for Bulletin PSS-51.

PSS

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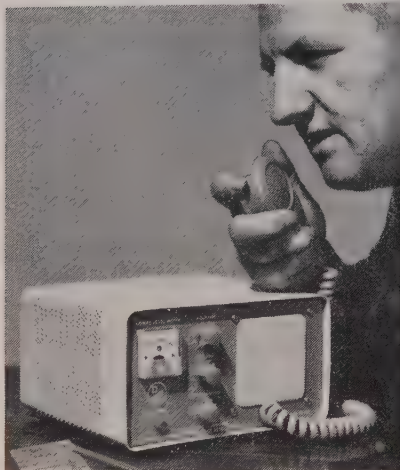
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to pump fuel directly into the equipment.

"I've finally turned to fuel additives," reports Lane, "and have completely eliminated the problem. I switched over to other fuel sources and tried the additive with



CECIL LANE, Kaiser Steel, uses additive to fight gum and carbon in fleet of 100 pieces of diesel equipment.

their product and found it worked equally well. Now, we contract with our suppliers specifying an additive in all diesel fuel delivered. Additives solved the problem with us, doubling the overhaul life of a lot of our equipment."

* * *

In Northern California, Gibbons & Reed, working on the Whiskeytown road job in Shasta County, uses an exposed 12,000-gal. steel storage tank for #2 diesel fuel. The area experiences a temperature fluctuation of as much as 80° and frequently lots of dust. But moisture content is low. Equipment superintendent Adrian Cox has noted modest gum problems in diesel equipment and reports licking fuel contamination by dust with the installation of a dry filter on the storage tank vent. Cox makes a special effort to keep diesel fuel level high in the storage tank to cut down the air chamber.

* * *

Several contractors stated they had no fuel or storage problems because they didn't store their fuel ... they had it pumped directly into their equipment from the fuel distributor's tank truck. One contractor, however—Buzz Haskins of South San Francisco—not content to blame all fuel problems on field storage, has periodic lab analyses

run of diesel fuel pumped from tankers into his equipment.

Commenting on this, Buzz Piombo, Haskins' master mechanic, explained that they were particularly concerned about sulphur content.

"High sulphur content is what we're afraid of. We make sure it doesn't get over .5%. No matter who's supplying it, we run it through a lab every so often. We have the distributor meet the equipment on the spread at predetermined times and fuel directly from the tank truck."

Though this may be a little more expensive, it has rewarded Haskins' operations with a distinguished lack of fuel difficulties.

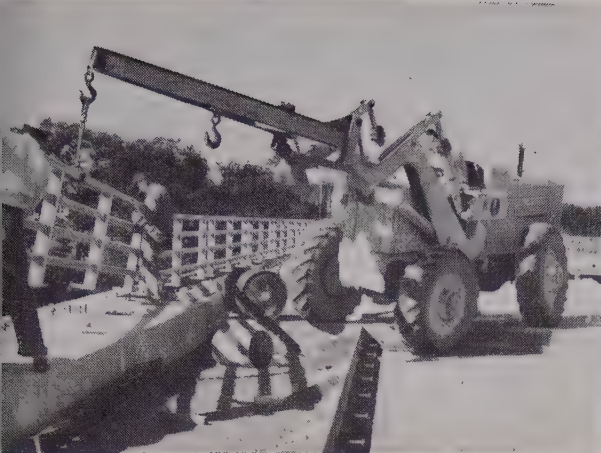
It was noticeable that no matter how well each of these men felt he had solved his own particular fuel contamination problems, all were anxious to hear what other people were doing in the field. The consensus among them all: Fuel troubles are most likely to develop in field storage ... that moisture condensation is the biggest troublemaker.



BUZZ PIOMBO, Buzz Haskins, Inc., regularly analyzes field deliveries, which are pumped directly into equipment, for sulfur content.

Big pipe line

MORE than \$500,000,000 will be invested within the next 15 months in the construction of new gas and electric facilities to serve Pacific Gas and Electric customers in Northern California. Included in the amount is the Canadian gas line project of more than \$300,000,000 on which construction now is getting under way at a number of points along the 1,400-mi. route between the Bay Area and the Province of Alberta.

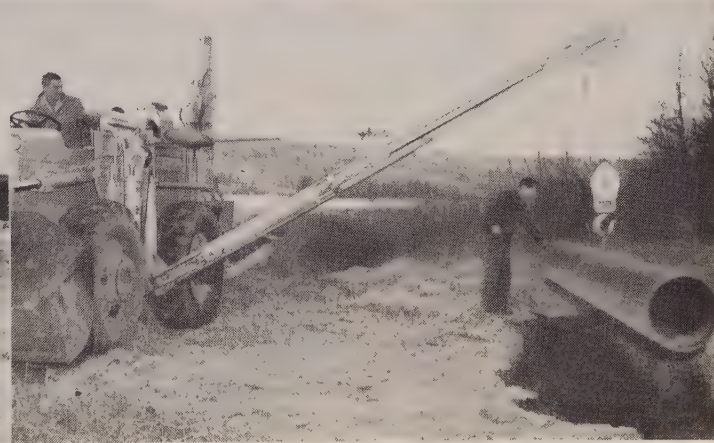
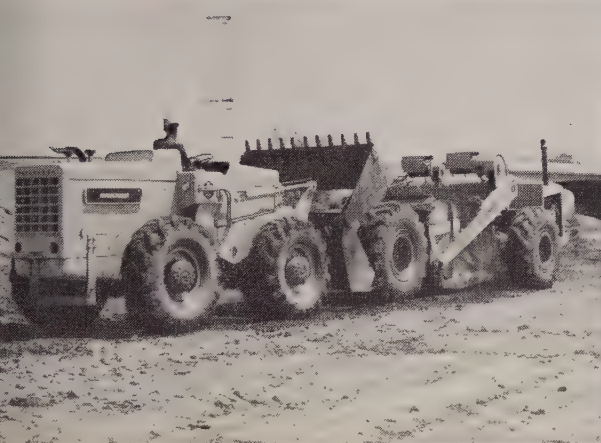


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LARGE parking area north of Terminal Building at Meadows Field, Bakersfield, showing distributor applying 0.20 gsy. of Reclamite

diluted 2:1. It is evident that fluid is penetrating readily into dry asphalt concrete surface, as indicated by the change in color.

New product for asphalt maintenance

Surface treatment developed to revitalize and replastice asphalt surfaces that are dry and brittle through the process of weathering. Application is simple, product diluted with water is applied cold by distributor.

By B. A. VALLERGA

Director of Products Engineering
Golden Bear Oil Co.
Bakersfield, Calif.

PAVEMENT MAINTENANCE engineers have a tough assignment in organizing and carrying out a planned preventive maintenance program on asphalt paved surfaces. Even with adequate financing, there is always the problem of finding the materials and equipment necessary to do the job effectively.

One of the most difficult types of asphalt pavement deterioration to arrest, for example, has been that of weathering. With the easily recognizable symptoms of dryness, surface pitting and shrinkage cracking, the maintenance engineer soon realizes that something must be done in the early stages of such distress or extensive raveling and cracking will quickly develop, leading to major expenditures for large-scale corrective maintenance or even reconstruction.

In order to meet the need for a material to overcome this type of asphalt pavement deterioration, the Golden Bear Oil Co. of Los Angeles and Bakersfield has developed a new product called "Recla-

mite" whose function is to revitalize and replastice asphalt pavements which have become or are in the process of becoming dry and brittle through natural or artificial weathering processes.

What is Reclamite?

Reclamite is composed of selected petroleum oils and resins in an emulsified form. The emulsion is highly stable and free-flowing, having an emulsification system which

- (1) facilitates penetration of the Reclamite into an asphalt pavement surface,
- (2) effects preferential wetting of the asphalt over the aggregate by the Reclamite components, and
- (3) accelerates penetration of the aged asphalt.

In other words, the material is designed to combine with the aged asphalt and bring the asphalt back to its original state prior to weathering. In some cases this reclaiming process will make the asphalt even better (i.e. chemically more stable) than it was originally because the components added are of much higher quality than those originally in the asphalt.

A dye has been added to the emulsion so that in bulk it is coral

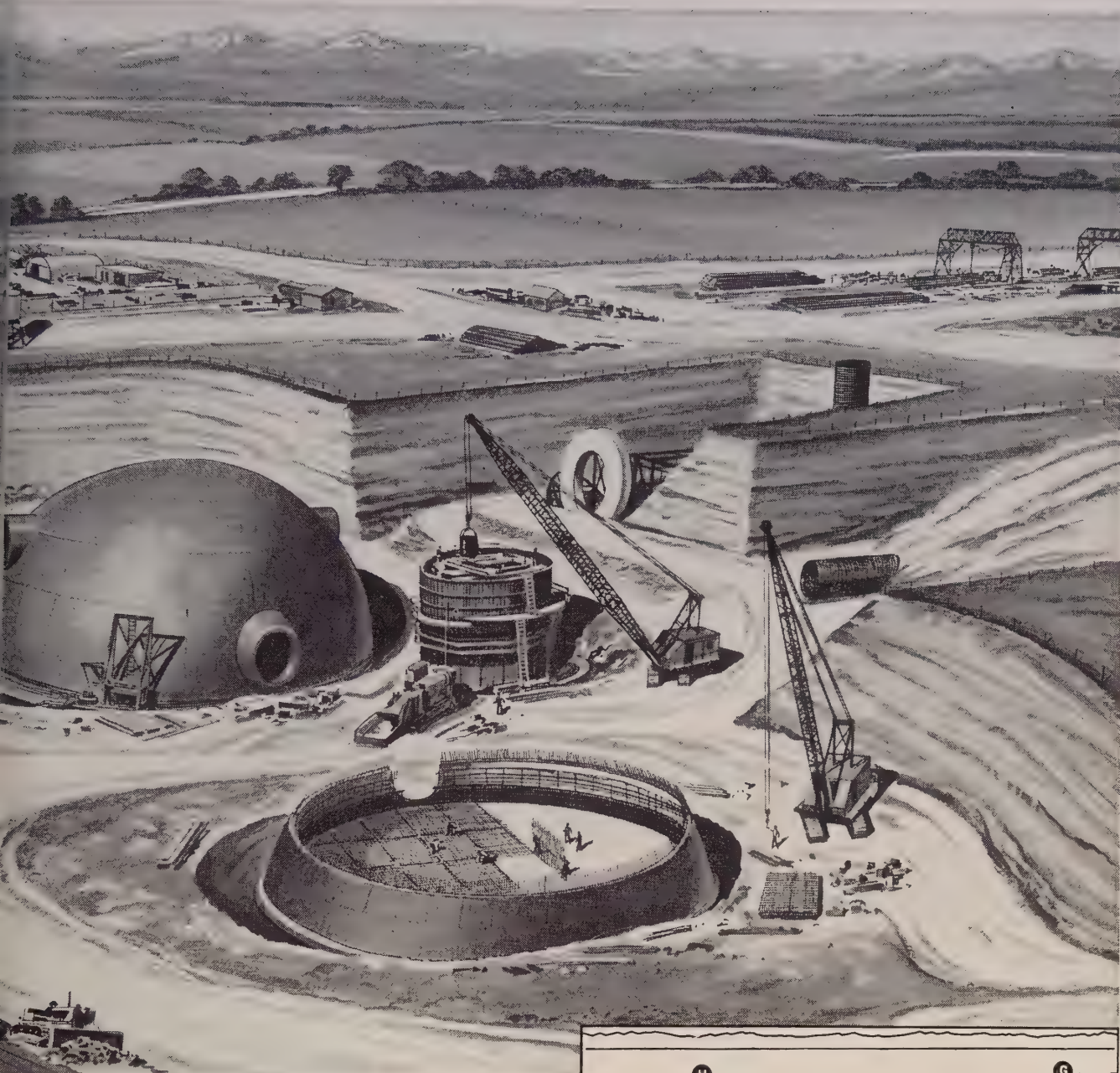
red in color. When sprayed on the pavement it is pink. The color disappears when the emulsion penetrates the surface on which it has been applied or when the emulsion breaks, whichever occurs first. However, because the emulsion is extremely stable, the change in color has proven to be an excellent index of the rate at which penetration is being achieved.

Uses of new product

This new product can be used in both preventive and corrective maintenance. In preventive maintenance it should be applied to the pavement before there is visible evidence of pitting or cracking, but when there is reason to suspect that such may soon occur. Excessive dryness of the pavement surface, brittleness and high pavement porosity are all symptoms which can be used to judge the need for treatment.

In corrective maintenance the product is usually employed in conjunction with other measures such as scarifying, mixing and recompacting. Of the two methods, the use of Reclamite in preventive maintenance is the most direct and economical and is the approach which is presented and discussed in this article.

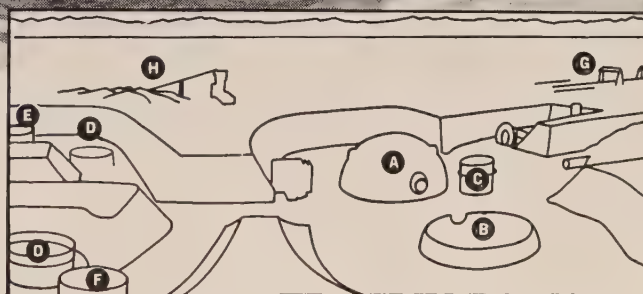
A word of caution, however, is in order at this point. Reclamite is not a panacea for all maintenance problems. Its sole function is to replastice the aged asphalt in weathered pavements. More-



restressed Concrete Strand and Wire were also used in the concrete bridges on the entry roads.

CF&I Industrial Screens were selected for many sand and gravel separators. And CF&I Galvanized Steel Strand is prominent as guy wire on utility poles.

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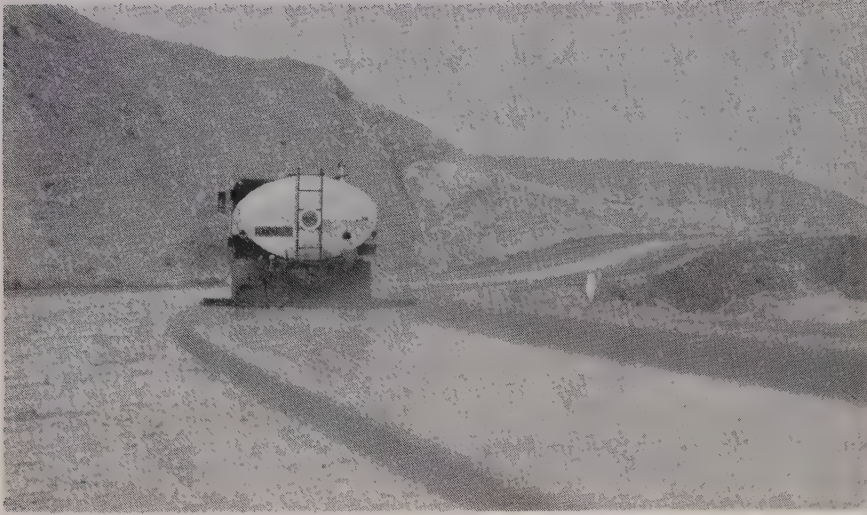
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DISTRIBUTOR truck applying 0.18 gsy. on inner lane of 4-lane, divided freeway from Hart Park towards Bakersfield. Total of 10,000 gal. of Reclamite concentrate required to treat all four lanes. Outer lanes treated on following day to avoid interference with traffic.

over, it cannot be expected to overcome surface conditions caused by factors other than weathering of the asphalt, such as insufficient asphalt, degrading aggregates, etc. Experience to date indicates that when properly used on initially well proportioned but now dry and weathered asphalt surfaces, Reclamite has proven most effective, provided the surface is receptive to treatment. To assist in determining whether or not an asphalt surface is receptive to treatment, a test method has been adopted which will be described later.

Field studies

During the past two construction seasons, a large number of controlled field applications and tests have been made with Reclamite on a wide range of asphalt pavement types exhibiting various degrees of weathering. Observations were made to provide answers to such questions as when is an asphalt pavement ready for treatment, how much of the material should be applied and at what dilution, how best to apply it, how effective is the treatment, and what are the delays or hazards to traffic?

As a result of this large scale program of field observations certain general testing and application procedures were found to be most practical and effective. These will be briefly discussed in the following paragraphs.

When and what to apply?

An asphalt pavement is ready for treatment at any time it begins to

show signs of dryness and brittleness, as evidenced by pitting of the surface (i.e. loss of matrix around larger aggregate particles) and incipient shrinkage cracking. On asphalt concrete surfaces, for example, this may occur at any time between 2 to 10 years after construction depending on climatic conditions, type of mix, type of asphalt, etc.

Pavements weathered to a very advanced stage, it was found, may not respond to treatment if they have become too hard and brittle. Treatment, therefore, should not be deferred for too long a period.

The Reclamite is marketed in concentrated form in order to avoid excessive freight charges. Therefore, when delivered on the job it must be diluted with water prior to use. The best all-around dilution giving the optimum balance between good penetrating power and resistance to streaking is 2 parts of Reclamite to 1 part of water (2:1).

How much?

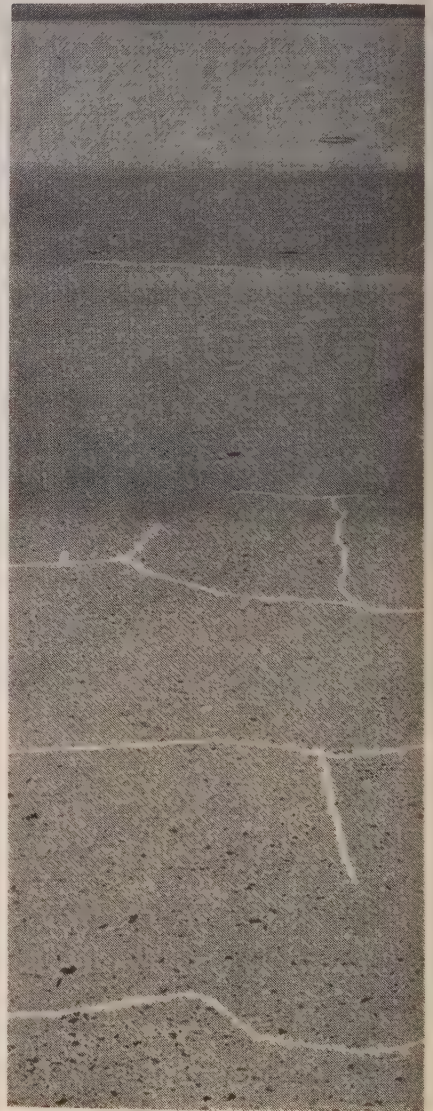
The quantity of Reclamite required (i.e. rate of spread) is best determined by a very simple field test. Essentially, the test is a modification of the State of California "Grease Ring" test for measuring the water permeability of pavements.

The procedure is simply to form a 6-in. diameter circle on a representative portion of the pavement surface in question using a 1/4-in. (approximately) bead of medium chassis grease extruded from an ordinary grease gun or calking gun and sealing the bead of grease to

the pavement by running the index finger around the outside of the circle. In the area of the circle thus formed is then placed any given quantity of the Reclamite dilution to be used in treating the pavement.

(Note: A quantity of 8.3 milliliters of fluid placed on the 6-in. diameter circle is equivalent to a spread rate of 0.1 gal. per sq. yd.)

The time required for complete penetration of each quantity of fluid applied is recorded. As many "grease ring" tests as necessary are run until the rate of spread which will penetrate in a period of 15 minutes is established by interpolation.



TEST STRIPS at Meadows Field, Bakersfield, June, 1960. White chalk used to outline shrinkage crack pattern in untreated area. When above photo was taken in October 1960, no shrinkage cracks were visible in treated area although cracks on one side of treated area could be lined up with cracks on other side and in narrow strip between passes. Upper test strip treated with 0.11 gsy. and lower strip with 0.22 gsy. of 1:1 Reclamite-water dilution.

The rate of spread recommended for use is generally that quantity which completely penetrates the pavement within the 15-minute time interval. However, there are circumstances and conditions when more or less may be advantages, but the above procedure is considered the general rule.

Application tips

Spreading of the diluted material should be by a clean, well-regulated pressure distributor with a fully circulating spreader bar equipped with fine spray tips. It is essential that the driver be experienced and familiar with the calibration of the distributor truck as the quantities applied must be closely controlled. The spreading should always be from a running start to assure uniform distribution.

A laborer with a stiff bristle broom (stable broom) should also be at the job site to correct puddling and areas of excessive overlap.

In areas inaccessible to the distributor, pressure hand sprayers with fine tips should be used and spraying should be carefully controlled by an experienced operator.

When quantities of dilution to be applied exceed 0.15 gal. per sq. yd., it is frequently desirable to spread the Reclamite in two applications in order to avoid excessive puddling or runoff, unless the pavement is extremely flat or porous or both. The second application should follow immediately after the first application has soaked into the surface.

Effectiveness of treatments

The effectiveness of the treatment used in preventive maintenance can best be demonstrated by citing several specific examples of its use.

At Edwards Air Force Base in California various test strips were placed in June and September of 1959 which have been kept under very close surveillance. In the short period of one year, it became visually evident that the treatment was definitely beneficial to asphalt concrete just beginning to show signs of deterioration in that the treated areas did not become pitted and cracked, whereas the adjacent untreated areas did. On the basis of this experience, 50,000 gal. of Reclamite concentrate were ordered and applied to over 400,000



ASPHALT-CONCRETE taxiway shoulder at Edwards Air Force Base with 0.15 gsy. of a 4:1 dilution just applied at left. Note excessively dry and pitted surface and large shrinkage cracks in background. Pavement, about 6 yr. old, receiving treatment just barely in time as surface beginning to ravel and becoming quite rough. Over 400,000 sq. yd. of such pavement treated to date with 50,000 gal. of Reclamite concentrate. Note pavement markings still visible in treated area.

sq. yd. of asphalt concrete at this base using spread rates varying between 0.15 and 0.20 gsy.

The road commissioner of the County of Kern, on the basis of three experimental test sections on Bear Mountain Blvd., about 12 mi. south of Bakersfield, Calif., decided to treat Airport Drive from Norris Road to the entrance of Meadows Field, the airport at Bakersfield. This 4-lane, divided, 1/2-mile long roadway was only three years old, but was extremely dry and beginning to develop cracks. On the basis of "grease ring" tests, it was treated with 0.15 gsy. of a 2:1 Reclamite dilution on the inner lanes and 0.05 gsy. of the same dilution on the outer lanes.

The results were excellent, as in a few days the pavement had improved markedly in appearance and the cracks which had appeared to be forming were no longer detectable. One explanation for the disappearance of the cracks in this instance is that the Reclamite combining with the aged asphalt reverses the shrinkage process, thereby closing the cracks. This would probably not have been possible had the cracks been wider and filled with dirt and other debris.

Encouraged by the success of the Airport Drive project, the Kern County road commissioner then decided to treat the 3.66-mi. long, 4-lane divided freeway leading from northeast Bakersfield to the entrance of Hart Park. By the "grease ring" test this 3-year old pavement was found to be receptive to treatment and to require 0.20 gsy. of a 2:1 dilution in the inner or passing lane and 0.10 gsy.

in the outer or travel lane. Only 10,000 gal. of Reclamite concentrate was needed to complete the entire project.

This project was complete on October 3-4, 1960, with little interference with traffic. The inner lanes were treated first and opened to traffic before proceeding with the outer lanes. Judged merely by its appearance two months after treatment, this project can also be considered successful.

Finally, a survey of the asphalt pavements at Meadows Field, revealed that most were in urgent need of immediate treatment; they were extremely dry and porous and beginning to crack. The airport administration concurred in this view and ordered a Reclamite treatment to be applied in accordance with recommendations based on the results of the "grease ring" tests. On October 17-18, 1960, the roadways, public parking and service areas in front of and adjacent to the terminal building, the asphalt concourse, the light plane parking area, and various other asphalt pavements at the airport were treated. The results are quite pleasing as the asphalt surfaces no longer look dry and their life spans have obviously been extended.

All of the above examples are well documented in reports on file and will be more fully presented in technical papers now in preparation for publication in appropriate technical journals. It should suffice to state here that Reclamite has proved extremely effective on dry and weathered asphalt surfaces

(Continued on page 62)



North Carolina Highway Engineers

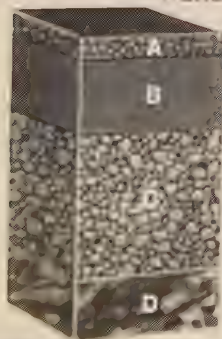


STAGE CONSTRUCTION IN WIDTH—This new section of N. Carolina's Interstate 85 is a good example of *stage construction in width*. Two new lanes (left), built with DEEP STRENGTH Asphalt pavement, have been constructed alongside existing two

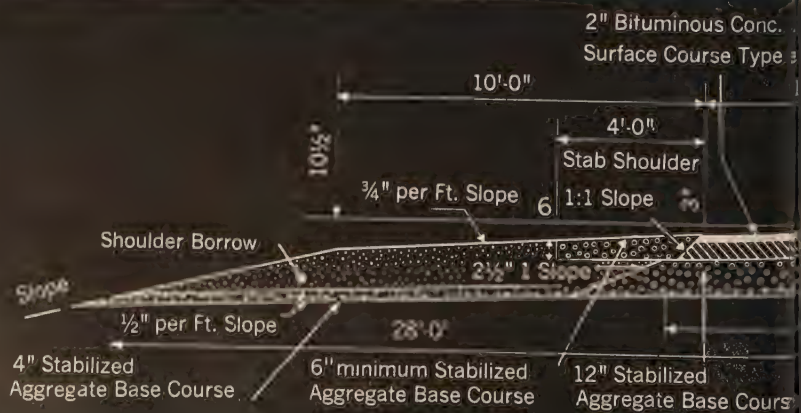
lanes of Route 70 (right) to form a new section of this Interstate Highway. This combination of DEEP STRENGTH Asphalt pavement and *stage construction* is helping states to stretch construction dollars and still provide necessary highways quickly.

HERE IS DEEP STRENGTH

DESIGN ON I 85



- A**
2-inch Asphalt concrete surface course
- B**
6-inch Asphalt concrete base course
- C**
12-inch Stabilized Aggregate Base Course
- D**
Subgrade



SOLVE TROUBLESOME OIL AND DRAINAGE PROBLEM

Build North Carolina Interstate 85 with new DEEP STRENGTH Asphalt pavement

new Guilford County section of Interstate No. 85, North Carolina Highway Engineers have chosen DEEP STRENGTH Asphalt pavement.

In Guilford County, engineers faced a difficult problem. The soil in this area contains extensive strata of silty clay with moisture content which could weaken the support of a finished road. To eliminate this threat to Interstate 85, the foundation was fully proof-rolled with a 50-ton pneumatic tire roller to locate weak areas. These areas were then strengthened by replacing silty soil with suitable materials or installing necessary sub-drainage. Only after this painstaking effort that actual construction of pavement structure was begun.

In building this new part of Interstate 85, N. Carolina engineers followed several precepts of DEEP STRENGTH Asphalt pavement design. Notice in pictures and cross-section (below) use of 6 inches of Asphalt base under 2 inches of Asphalt concrete surface course . . . Asphalt surface treated outside shoulder . . . depressed median for good drainage . . . heavy proof-rolling of the subgrade . . . and use of high-contact pressure pneumatic tire proof-roller on the aggregate base course. The result is strength and durability!

When designed like this—for DEEP STRENGTH—Asphalt pavements will carry the heaviest traffic loads without distress and with minimum maintenance. Also, use of Asphalt pavement avoids high initial costs due to damaging action of de-icing salts experienced with other pavement type.

BEST USE OF ROAD FUNDS

After state is finding that when Interstate Highways are built with Advanced Design DEEP STRENGTH Asphalt pavements, the maximum use is made of road building funds. That's because the Advanced Design Criteria permit inexpensive Asphalt base to be substituted, within limits, for more expensive Asphalt concrete paving. In addition, when Asphalt treated base is used in place of stabilized base, reduction in total structure thickness may be allowed.

THE ASPHALT INSTITUTE

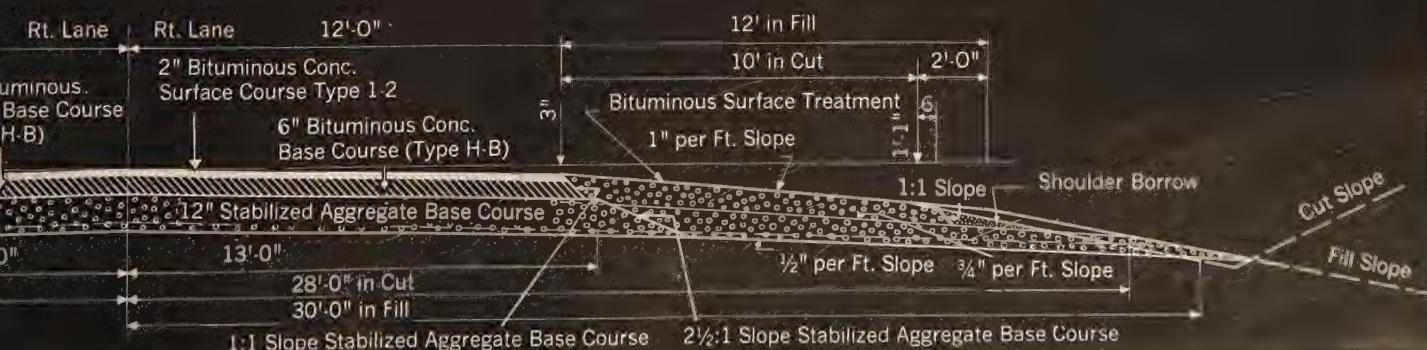
Asphalt Institute Building, College Park, Maryland



Heavy compaction—This 50-ton rubber tire roller was used to proof-roll the subgrade. The aggregate base was proof-rolled with a 25-ton pneumatic tire roller exerting 82 psi contact pressure.



Outside Shoulders of stabilized aggregate base were Asphalt surface treated for width of 10 ft. One-half inch granite stone chips provide better traffic lane demarcation.



ASPHALT

(Continued from page 59)

which are found, by test, to be receptive to treatment.

Precautions with traffic

In most cases this treatment interferes little with traffic. However, should a Reclamite treatment fail to penetrate into the pavement surface within a reasonable length of time a skidding hazard might develop.

Two measures may be taken in this eventuality. One is to keep the traffic off the area until penetration of the residue is completed, which may take one or two days. The other is to broadcast a light covering of clean sand over the problem area, which will make it usable to traffic.

By careful testing and control of application, however, instances of slippery areas can be avoided or at least kept to a minimum. The rule to remember is where the dilution penetrates, skidding will not be a problem.

One major advantage of Reclamite, particularly on parking lots

where there is quite an investment in paint markings, is that paint stripes and other pavement markings are not obliterated by the treatment. In all applications to date there has been no need to repaint pavement markings.

Summary

A new product called Reclamite has been developed for use in the field of asphalt maintenance. Its most direct, immediate, and economical usage is in preventive maintenance as a spray application on asphalt pavement surfaces beginning to show signs of deteriorating associated with weathering or aging of asphalt, such as dryness, brittleness, surface pitting, shrinkage cracking and ravelling. The Reclamite is diluted with water generally at a rate of 2:1 before spraying. It is pink in color when applied. The color disappears when the application penetrates into the surface, hence color and color change have been found helpful in judging rates of penetration.

Reclamite is an emulsion of petroleum oils and resins which act

to rejuvenate and replasticize aged asphalt. When the oily phase of the emulsion combines with the weathered asphalt it replaces those fractions which have been lost through weathering, thereby revitalizing the asphalt.

Experience with the field application of Reclamite during the past two construction seasons has proven its value as a preventive maintenance measure.

Bur. of Recl. Offices

APPROVAL of the establishment of field offices to initiate construction of three new Reclamation facilities has been announced.

Curecanti Unit, Colorado River Storage Project, headquarters office to be located near Sapinero, Colo.

Florida Participating Project, Colorado River Storage Project, headquarters to be made a part of the existing Durango Development Office which will become the Durango Projects Office.

Yellowtail Unit, Missouri River Basin Project, headquarters office to be established near the dam site.

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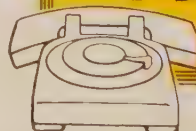


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 WESTERN CONSTRUCTION—December 1960

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California has record highway budget

THE California Highway Commission has adopted a record \$633,460,812 budget for the 1961-62 fiscal year. The budget contains \$509,078,312 for state highway construction purposes, including rights-of-way.

The previous budget, adopted in October 1959, for 1960-61, contained a gross total of \$569,244,000 of which \$452,785,000 was for construction purposes. The corresponding 1959-60 totals were \$610,712,000 and \$497,000,000. The current record budget reflects increases in federal highway apportionments and in estimated revenue from state sources.

Total 1961-62 federal highway apportionment to California is \$273,570,812, including \$220,070,812 for work on Interstate highways. The 1960-61 apportionment was \$227,708,867, of which \$181,086,840 was for the Interstate System.

Estimated revenue from state sources is up about \$18,000,000 from the previous year as a result of the state's constantly increasing motor vehicle registration and use.

The budget provides for construction of 240 mi. of multi-lane freeway and expressway, plus 42 mi. of 2-lane access-controlled highway and many additional miles of conventional highway and other improvements.

Major sources of state-collected highway revenue expected for 1961-62 include \$263,967,000 in gasoline taxes (up about \$10,500,000 from the previous year's estimate); \$56,596,000 in motor vehicle fees (up \$3,500,000); \$24,800,000 from the use (diesel) fuel tax (up \$2,500,000); and \$13,200,000 from transportation taxes on for-hire carriers (up \$1,700,000).

The \$509,078,312 in the budget for highway construction purposes includes:

Major construction and improvement (contracts plus engineering), \$348,072,000; rights-of-way, \$145,926,000; contingencies (normally

available for construction purposes), \$7,280,312; resurfacing program, \$5,000,000; signs and striping, \$2,000,000; and minor improvements, \$800,000.

Proposed expenditures for state highway purposes other than construction include: maintenance, \$41,500,000; buildings and plants, \$9,000,000; administration, \$10,900,000; statewide highway planning survey, \$2,000,000; maintenance of state toll bridges, \$3,000,000; and honor camps, \$1,750,000.

Another big gas line

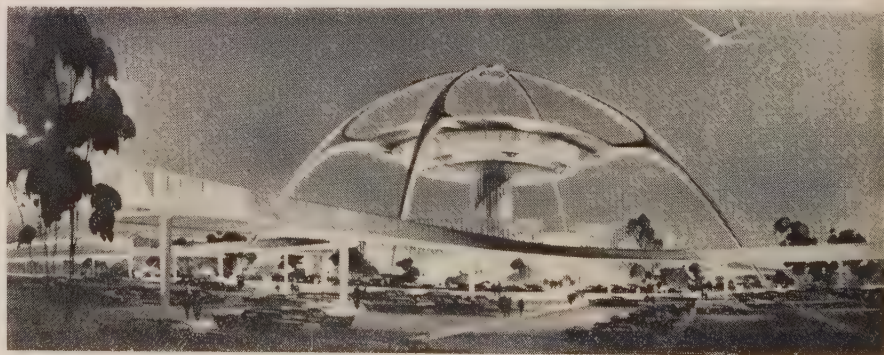
THE \$225,000,000 pipeline project designed to bring new supplies of natural gas into Southern California from Texas and Mexico has moved an important step nearer realization with signing of a 20-year agreement between Southern California Edison Co. and Humble Oil & Refining Co., calling for delivery of a major portion of the fuel. Texas supplies are in addition to gas to be obtained from Mexico.

Gravel more valuable than gold at Oroville

GRAVEL is more valuable than gold in Oroville, Calif. The placer gold operation at Oroville was discontinued years ago because of the low price of gold. Today the millions of tons of gravel from which the gold was washed is to be mined and marketed by American Mining & Development Company of Houston, Tex. The value of the gravel to be mined will far exceed the value of the gold previously mined. American Mining & Development Co. is putting the former gold operation back into business, as a gravel supplier, to the contractors building the series of proposed dams on the Feather River.

Because of the strategic location of the Oroville deposits, less than two miles from the site of the largest dam of the project, it is anticipated that the Houston-based firm will supply the major portion of the tremendous tonnages of gravel needed for the huge project.

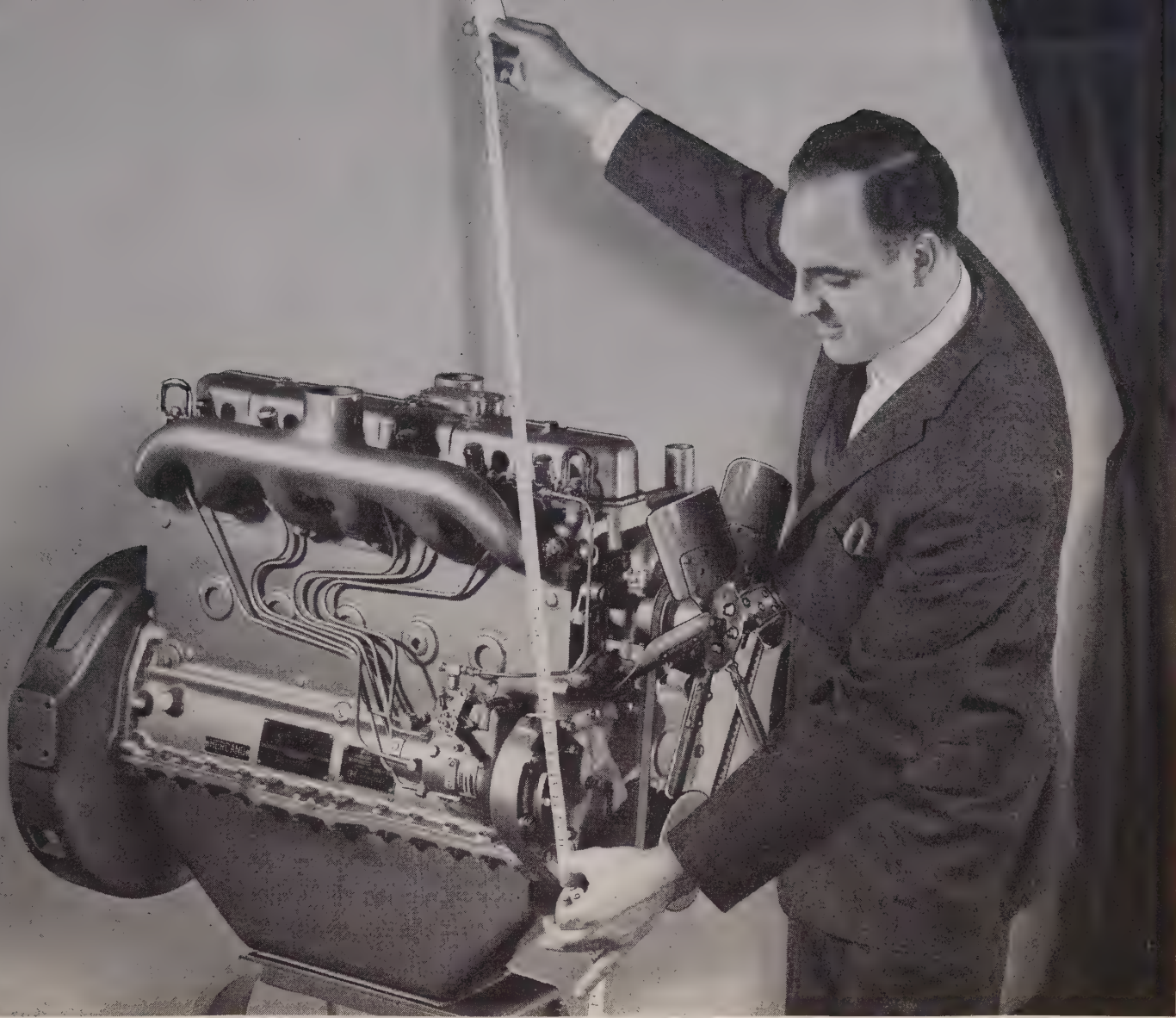
The first dam of the seven planned will be 730 ft. high, 20 feet higher than the Hoover Dam.



FUTURISM AT THE LOS ANGELES AIR TERMINAL

HIGHLIGHT of the \$50,000,000 Los Angeles International Airport is the Theme Structure, a fanciful construction of steel and concrete overlooking the 3,000-ac. field. It consists of two parabolic arches, whose legs touch the ground across a diameter of 340 ft. Suspended from the arches, 70 ft. in the air, is a 100-ft. diameter saucer of glass, steel and concrete that provides luxurious dining and observation facilities. At ground level, a low circular building contains retail shops, offices, and food preparation facilities.

The whole structure is coated with sprayed-in-place vinyl coating, off-white in color and 40-mil-thick. It provides protection against the elements, and is flexible and elastic enough to handle expansion and contraction without impairing its integrity.



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Corps of Eng. program in Northwest

MILITARY construction involving an expenditure of about \$100,000,000 and providing for contract awards on 124 Air Force and Army projects is planned by the Army Corps of Engineers for the fiscal year 1961 construction program of the North Pacific Division. The division area covers Washington, Oregon, Idaho, Montana and Alaska. Brig. Gen. Allen F. Clark, Jr., Division Engineer, stated bids would be received through June by the Seattle, Walla Walla, and Alaska districts on a wide variety of construction work at Air Force stations and defense areas throughout the Northwest and Alaska.

Largest single project for which bids will be invited is a ballistic missile project (Minuteman) for the Air Force in the Great Falls, Mont., area, estimated to cost over \$25,000,000. Award and administration of the contract will be handled by CEBMCO.

Cost of other individual projects ranges from a few thousand dollars to well over \$5,000,000. The projects include dormitories, chapels, water supply systems, warehouses, radar towers, airplane hangars, runways, airfield lighting, electrical distribution systems, fuel storage facilities, family housing, and other miscellaneous installations.

One project in the \$5,000,000 to \$10,000,000 bracket, bids for which will be asked in February by the Seattle District, provides for a large Capehart housing project at Fort Lewis. The Seattle District has taken bids for construction of an airplane runway at Fairchild Air Force Base, near Spokane, costing upwards of \$2,000,000. Other work for which the Seattle District will invite bids includes: paving an operational apron at Portland International Airport, bids to be called in January, with estimated cost of slightly under \$500,000; construction of an airmen's dormitory and conversion of BOMARC facilities at Adair Air Force Station near Albany, Ore., both in the under-\$500,000 category, bids to be asked this month; construction of an airmen's dormitory, a water supply system and auto storage facilities at Baker Air Force Station near Baker, Ore., bids to be invited in March and April, all in the under-\$500,000 price range.

The Walla Walla District has taken bids on construction of a group headquarters building at

Mountain Home Air Force Base, near Boise, costing upwards of \$500,000. The District will also consider bids on an airmen's dormitory at Mountain Home AFB estimated in the same cost range. A Bureau of Reclamation plan to construct a small debris dam on Spring Creek, Shasta County, Calif., in order to reduce maintenance and operation costs of power facilities of the Trinity River Project, has been announced. The debris dam would be located upstream from Spring Creek power plant, now under construction and expected to be ready for operation in August 1961.

This small dam would reduce debris removal costs by about \$118,000 a year, a substantial saving in the maintenance and operating costs of Trinity River Division power facilities. For many years Spring Creek has been heavily laden with metallic silts from old mines and exposed mineral deposits. This presents a costly maintenance problem which the proposed debris dam will go far toward mitigating.

The debris dam, by regulating flows of Spring Creek, would also substantially reduce the present loss of salmon and other fish in the Sacramento River due to the influx of the toxic waters of the creek under natural conditions.

Total cost of Spring Creek Dam and Reservoir is estimated to be \$4,625,000, of which \$1,869,000 is allocable to commercial power and is considered reimbursable. The remaining costs, allocated to fish and wildlife, will be non-reimbursable.

Irrigation district plans \$36,800,000 project

NEVADA Irrigation District, Grass Valley, Calif., has filed an application with the Federal Power Commission for a license for a proposed hydroelectric project in Sierra, Nevada, and Placer counties. The proposed Yuba-Bear River development would be located on the South Fork of North Yuba River, Middle Yuba River, South Fork of Middle Yuba River, Canyon Creek, South Yuba River and Bear River. The proposed works would consist of two powerhouses having a combined capacity of 59,100 kw., three reservoirs having a total storage capacity of about 125,170 ac.

ft., diversion structures, conduit, canals and other appurtenant facilities. The cost of the development is estimated at about \$36,825,000. The Commission, in April 1960, granted Nevada Irrigation District a 24-month preliminary permit to study the proposed development.

Road Foundation (BHIF) to spend \$220,000

THE pace of the roadbuilding industry's national campaign for "good roads" has been stepped up. The executive committee of the Better Highways Information Foundation has approved two major measures, both of them designed to move the program out of its initial organizational stage and into a long-range promotional effort:

1. Expansion of a staff organization to include a president, a vice president, a director of information, and a field coordinator.
2. Launching of a \$220,000 public information program to publicize the need for and the benefits of modern highways.

In addition, the BHIF officials received reports from 19 states reporting successful completion of their drives for money to finance the national "good roads" program. The roadbuilding industry hopes to raise \$360,000 for the first year of its new public service campaign. Contributions are being solicited in each state by a team of highway industry leaders representing contractors, equipment distributors and materials producers.

"The building of a four-man staff in the Washington office and the launching of our public information program will definitely turn the Foundation out into mid-stream," H. D. Anderson, vice chairman of BHIF said following the executive committee meeting.

"We have adopted a course which will take us into every kind of communication media with the highway story—newspapers, magazines, radio, television, motion pictures, and public meetings," he announced. "We are going to do everything we can to let people know how important a balanced program of highway system development is to this country."

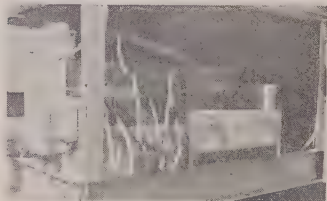
Meanwhile, a number of state industry groups have organized to implement the Foundation objectives on the local level. They are staging press tours, public meetings and other special projects to draw attention to local highway needs.



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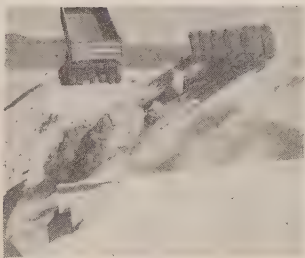
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ALASKA Newsletter

By CLIFFORD S. CERNICK, Fairbanks

THE YEAR'S END—Alaska has entered the "doldrums" so far as construction is concerned; the winter months have traditionally been a time of "hibernation" for the Alaska construction stiff. An unusually late fall this year, however, permitted much work to go on beyond the anticipated shutdown time. Some road projects were continued as much as three weeks later than the time originally scheduled for "buttoning up." But now, the below-zero cycle of weather has set in. Except for some inside work, the wheels have stopped turning on most of the major projects, and road work, of course, is at a standstill.

BOND ISSUES PASS—More than \$30,000,000 in new construction projects and transportation enterprises was authorized by Alaskan voters in the Nov. 8 general election. The most important measure which passed was that calling for issuance of general obligation bonds in the amount of \$23,000,000 for a state ferry system in Southeastern Alaska. Other projects which voters approved in the election were for vocational education, the University of Alaska, hospitals and "bush" airports. The vocational education measure calls for \$1,500,000 for construction of a vocational school to be located north of the Yukon river. A new gymnasium and utilities in the amount of approximately \$2,000,000 was authorized for the University of Alaska. Another of the bond measures approved calls for issuance of general obligation bonds in the amount of about \$2,500,000 to provide matching funds for Federal Hill-Burton funds—which are appropriations earmarked for hospital construction and equipment. Another measure which will mean more Alaska construction was the "bush" airfield bond proposal. This calls for \$1,500,000 to be used in building airfields in outlying areas of Alaska.

ONE ISSUE FAILS—Only one of the six bond issues on the ballot went down to defeat in the election. This was the proposal calling for \$9,000,000 for the construction of state office buildings in Anchorage and Fairbanks. This

measure was defeated by a slim margin.

REARWARD JOBS—Eighteen rearward communication stations will have been completed by year's end, the Army Engineers has announced. Construction of the stations was contracted for last spring, with contracts reaching a total of about \$9,600,000. The chain of communication links, 32 of which are in Alaska, stretches southward through Canada, providing instantaneous contact between Alaska warning stations and North American defense nerve centers. The stations will be operated by the Alaskan Air Command, a component of the Alaskan Command. Stations are located either in the general vicinity of the Alaska Highway or along the coast, extending to the tip of Southeastern Alaska. Nine contractors worked on the completed phase of the rearward projects. These included major contractors such as S. S. Mullen, Inc., Peter Kiewit Sons' Co., and Manson-Osberg of Seattle and well-known Alaskan firms such as Burgess Construction, Reed & Martin and Pacific General Constructors.

CHANCES FOR RAMPART—Both of the Presidential candidates, including the winner, pledged action toward construction of a giant power dam on the Yukon River at Rampart. The main champion of the Rampart Dam proposal is Sen. Ernest Gruening. With a Democratic president in the White House, Sen. Gruening is expected to renew his efforts for approval of the project. Funds for preliminary studies of the dam already have been approved.

CAUSEWAY CONSCIOUS—The city of Anchorage, hemmed in by two narrow arms of Cook Inlet, has become extremely causeway-conscious. Numerous proposals for construction of causeways have been advanced in the past few years, but none of these have gone beyond the talking stage. However, the Anchorage City Council recently heard proponents of the Turnagain Arm causeway, and other Anchorage groups are pushing for

BPR HEAD RESIGNS

Ellis L. Armstrong has resigned as Commissioner of the Bureau of Public Roads, according to a statement from the Secretary of Commerce. The commissioner has served since October 1958. His resignation is effective in January when he will become president of the Better Highways Information Foundation, a private non-profit organization devoted to a national highway education campaign.

a causeway across Knik Arm. Both of the projects are a long way from the construction stage, but agitation to secure them undoubtedly will intensify in 1961. The Knik causeway would provide quick access to the Matanuska Valley and would link Anchorage with the direct, Susitna-river route to Fairbanks, now under construction. The Turnagain Arm causeway would cut off more than 50 mi. of the distance to the Kenai Peninsula.

A NEW SCHOOL—Anchorage has a new junior high school—the A. J. Wendler \$2,500,000 school dedicated early in November. A second high school also is being planned in Anchorage, with construction to start in 1961. Fairbanks also has two new schools in the offing, one now under construction (the circular Aurora structure) and the other on the drawing board. Phenomenal increase in enrollment in recent years required large-scale school construction program.

CAPITAL MOVE REVIVED—The agitation to move the state capital from Juneau to some point in Western Alaska is being revived, with an organization in Anchorage spearheading the movement. The proposal was defeated by the people of Alaska in a statewide election; however, proponents of the move, who feel Juneau is too inaccessible, say they will not give up and intend to intensify their efforts next year. The move is centered principally in Anchorage and the surrounding area, but the new "move-the-capital" proposal stipulates that the capital site will be at least 50 mi. distant from either Anchorage or Fairbanks. Estimates of the cost of constructing a new capital city in the Alaskan wilderness range from \$100,000,000 to four or five times that amount.

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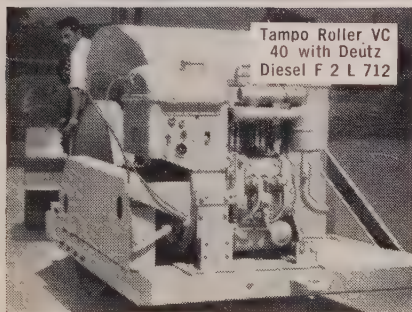
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HAWAII Report

By ALAN GOODFADER, Honolulu

OVER THE HUMP—Estimated dollar value of building permits issued by the City of Honolulu in September pushed the 9-month total to more than the total for all of 1959. The value of buildings permitted—an index of civilian construction on Honolulu's island of Oahu—was \$16,062,496. This brought the year's total to \$135,000,000, compared to something less than \$130,000,000 in 1959. The September total also set a 1-month record. Big factors in the total after home construction were permits for 13 apartment buildings worth \$2,734,100, six factories worth \$1,098,000, an office building valued at \$3,946,000 and a public building valued at \$1,122,000. If construction continues at its \$15,000,000-plus a month rate, 1960 could see a \$180,000,000 total.

MORE STATISTICS—Meanwhile, according to the Bank of Hawaii, construction completed in July in Hawaii totaled \$23,900,000, an increase of 12.9% over July 1959. This brought the year's total to \$149,400,000 for a 23.8% increase over 1959. Construction let for bids during August reached \$19,800,000 for a 77% increase over August 1959. This brought the year's total to \$197,400,000 for a 63.1% increase.

LABOR STILL TIGHT—While seasonal lay-offs dropped state-wide employment in September to 226,700 from its peak of 230,980, the state continues to enjoy an unemployment rate of only 3.1% of the total labor force, according to the State Department of Labor. Most of the lay-offs were of pineapple cannery and harvest workers. Many of these are school children and women who enter the work force only for that activity. The department said a lowering of the industrial construction level in Honolulu contributed to a drop in the work force there, but noted that construction activity helped boost the employment total on the Island of Hawaii.

BIG PROJECT LAYING OFF—Bechtel-Hawaiian Dredging & Construction Co. revealed recently

that it is laying off workmen as its first phase construction at the Barber's Point, Oahu, Standard Oil Co. refinery project nears completion. The work force was down from a peak of about 1,500 to 970 in mid-October and was to be cut to about 700 by the end of the year. R. W. Guy, new project superintendent, said this was because the \$30,000,000 second phase of the project will be done at a slower pace than the \$33,000,000 first phase. Guy took over from James P. Finan, who was moved to the Mainland by the Bechtel Corp. Guy had been general superintendent on the job since April 1.

CAPITOL PROJECT NUDGED—Hawaii's multi-million-dollar State Capitol project got a nudge forward with the selection by Governor William Quinn of a San Francisco-Honolulu combine of architects and engineers to design a capitol for consideration of the Legislature in February. Selected were John Carl Warnecke and Associates of San Francisco and the Honolulu firm of Belt, Lemmon and Lo.

SOMETHING NEW—Honolulu's construction industry gets a crack at a first-of-its-kind project shortly after this writing when bids are opened for a \$200,000 planetarium project by Hawaii's Bishop Museum.

BIG BOOSTER—Clarence O. Furuya, president of Ilco Construction Co., Ltd., has offered to build or renovate a Honolulu stadium at cost to help promote professional sports here. Honolulu has been endeavoring to attract a pro baseball team from the Mainland, and this has increased interest in City purchase of the Honolulu stadium. The majority ownership of the stadium is now in the hands of the University of Hawaii. Furuya made the offer in a letter to Honolulu Mayor Neal Blaisdell in which he offered to "renovate or completely reconstruct" the stadium on "a straight cost, no profit basis" as a civic undertaking.

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monari, formerly with James B. and John C. Mann, civil engineers and surveyors, has been named head land surveyor and right-of-way agent for the City of Honolulu. A surveyor and civil engineer, Tomonari succeeds the late Francis Kanahale.

HEADS NEW BRANCH—George Powers, a 14-year veteran with Hawaiian Equipment Co., has been named head of the firm's new Kahului, Maui, branch.

BUDGET TIME—State and City of Honolulu budget officials are preparing their requests for 1961 and, in the process, raising belief that governmental spending on

public works will continue at its present hot-and-heavy pace. The City Planning Commission has asked Mayor Blaisdell to recommend a \$128,300,000 capital improvements program for the next six years that would spend \$18,100,000 in the first six months of 1961. Blaisdell makes his recommendation to the City Council sometime before Nov. 17. The 6-month budget, designed to allow a change in the starting date of the City's fiscal year, would spend \$10,700,000 on schools, \$1,200,000 on recreation projects, \$3,400,000 on drainage projects, \$155,000 on the Fire Department, \$6,000 on the Police Department, \$2,100,000 on sewers, and \$469,000 on public buildings.

Low bids and contract awards

ALASKA

B-E-C-K Constructors of Seattle, Wash., submitted a low bid of \$362,000 for hangar rehabilitation and taxiway repair at Shemya Island. **Fairbanks Builders** of Fairbanks received a \$347,753 contract for construction of base multi-cubicle magazine storage at Galena airport. **Green Construction Co.**, Fairbanks, submitted a low bid of \$840,025 for clearing, draining and grading Shrine Creek—Herbert River section of Glacier Highway. **Morrison-Knudsen Co., Inc.**, Seattle, Wash., received a \$602,449 contract for storm sewers in city of Fairbanks. **Wright Truck & Tractor Service Inc.** of Fairbanks submitted a low bid of \$731,745 for constructing roadway and bridge work on Sterling Highway, Soldotna to Kasilof.

ARIZONA

Tanner Bros. Contracting Co., Inc., Phoenix, submitted a low bid of \$408,527 for grading and surfacing on 2.6 mi. of the Ft. Grant-Bonita highway U. S. 666, in Graham County. A low bid of \$96,660 was submitted by **Givens Construction Co.**, Phoenix, for grading and surfacing on various sections of highway in Navajo and Apache counties.

CALIFORNIA

Guy F. Atkinson Co. of South San Francisco received a \$13,888,-

094 contract for construction of Briones Dam for the East Bay Municipal Utility District. **Yuba-Kaiser**, San Francisco, submitted a low bid of \$11,482,000 for superstructure of bridge across Los Angeles Channel, between San Pedro and Terminal Island, Los Angeles County. A \$5,506,099 contract was awarded to **Madonna Construction Co.**, San Luis Obispo, for grading, paving and construction of 9 bridges on U. S. Highway 101 freeway bypass south of Santa Maria in Santa Barbara County. **Peter Kiewit Sons' Co.**, San Francisco, received a \$4,696,579 contract for constructing the Contra Costa County approach to the Benicia-Martinez Bridge in Contra Costa County. **Fredrickson & Watson Construction Co.**, Oakland, received a \$4,198,239 contract for construction of the Solano County freeway approach to the Benicia-Martinez Bridge, Solano County. **Scheumann & Johnson** of Seattle, Wash., received a \$4,126,456 contract for the construction of Spring Creek powerplant, Trinity River Division, Central Valley Project, in Shasta County. **E. L. Yeager Co.**, **E. L. Yeager Construction Co., Inc.** and **J. B. Stringfellow** of Riverside received a \$3,872,547 contract for grading, paving, and construction of 8 bridges on U. S. 60, City and County of Riverside. A \$3,117,296 contract was received by **E. C. Young and Muns Construction, Inc.** of San Diego for grading, paving, and structures on 2.3 mi. of U. S. Highway 80 in La Mesa, San Diego County.



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COLORADO

Herren-Strong, Inc., Platteville, received a \$924,178 contract for grading and structures on 6 mi. of Interstate 80S between Fort Morgan and Brush in Morgan County, and \$491,000 contract for relocation of Colorado No. 151 near Arboles in Archuleta County. **Colorado Constructors, Inc.** of Denver received a \$916,700 contract for earthwork, structures and relocating county roads, Navajo Unit, Colorado-New Mexico, San Juan Division of the Colorado River Storage Project. **E. J. Rippey Sons**, New Castle, submitted a low bid of \$645,176 for grading, structures and surfacing on 12.8 mi. between Carbondale and Redstone in Pitkin County. **Rocky Mountain Construction Co.** of Missoula, Mont., received a \$599,000 contract for grading and surfacing on the Cedaredge-Mesa route in Grand Mesa National Park in Mesa County. **Schmidt Construction, Inc.**, Arvada, received a \$222,139 contract for improvement of 4 mi. of Colorado 141, from Gateway south in Mesa County. **Pioneer Construction Co.** of Pueblo submitted three contracts for roadwork in Kiowa, Baca and Pueblo counties: \$318,102 for 12.9 mi. of grading and surfacing between Haswell and Eads in Kiowa County; \$212,193 for grading, structures and surfacing on 4.9 mi. between Springfield and Campo in Baca County, and \$267,362 for grading, structures, and surfacing between Eden and Pueblo in Pueblo County.

IDAHO

Arrington Construction Co., Idaho Falls, received a \$1,220,780 contract for construction of Idaho Falls Junior High School. A low bid of \$758,584 was submitted by **Rogers Construction Co.**, Portland, Ore. for Section A, stockpile project on Shubbuck-South Blackfoot I. C. in Bannock and Bingham counties. The low bidder on Section B of the same project was **Pickett & Nelson**, Idaho Falls, at \$410,019.

MONTANA

Cherf Bros., Sandkay-Sime of Ephrata, Wash., in a joint venture, received a \$1,395,336 contract for the relocation of 15.2 mi. of Union Pacific Railroad now located on reservoir site, situated about 13 mi. southwest of Dillon. **Hilde Construction Co.** of Great Falls received a \$1,129,814 contract for

grading, structures and surfacing on the Helena-South highway in Lewis and Clark County. A \$292,065 contract was received by **S. Birch and S. Birch & Sons Construction Co.**, Great Falls, for grading and surfacing on 3.9 mi. on the Livingston-South highway in Park County. **W. R. Cahoon Construction Co.**, Pocatello, Idaho, received a \$280,204 contract for construction of one steel bridge on the Reedpoint-Columbus highway in Stillwater County. **Schye & Sullivan** of White Sulphur Springs received a \$106,856 contract for constructing one concrete bridge on the Silver Star-Waterloo highway in Madison, Silver Bow and Jefferson counties. **James Crick & Sons of Yardley, Wash.**, submitted a low bid of \$693,493 for construction of 10.9 mi. of the Chief Mountain road and approach near the northeast corner of Glacier National Park.

NEW MEXICO

Broce Construction Co., Clayton, submitted a low bid of \$599,879 for grading and surfacing on 14.2 mi. on U. S. 54, northeast of Tucumcari in Quay County. A low bid of \$576,309 was submitted by **C. R. Davis Contracting Co.** of Albuquerque for 1.1 mi. of grading and surfacing on U. S. 87 Clayton-urban in Union County. **Universal Grading Co.**, Albuquerque, submitted a low bid of \$222,392 for 1.7 mi. of grading and surfacing on U. S. 85 east to Broadway in city of Albuquerque, Bernalillo County.

OREGON

Peter Kiewit Sons' Co., Omaha, Nebr., submitted a low bid of \$1,222,159 for grading, surfacing and related work on the Buena Vista Wayside-Cape Sebastian section of the Oregon Coast Highway in Curry County. A \$671,071 low bid was submitted by **Roy L. Houck Sons' Corp.**, Salem, for grading, 8 structures and surfacing on the Coast Fork Willamette River-Cottage Grove section of the Pacific Highway in Lane County. **Earl L. McNutt Co.**, Eugene, submitted a low bid of \$234,178 for grading and oiling on the Wrights Point-Narrows section of the Frenchglen Highway in Harney County. **J. F. Konen Construction Co., Inc.** of Lewiston, Idaho, submitted a low bid of \$221,100 for grading and surfacing on the Sheep Creek Hill-Hayden Creek section of the Little Sheep



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Creek Highway in Wallowa County. Salem Road & Driveway Co., Salem, submitted a low bid of \$201,504 for grading, structures and paving on the Rickreall-Orr Corner of the Pacific West Highway in Polk County. A low bid of \$173,623 was submitted by **Tom Lillebo Construction Co.**, Reedsport, for structures, grading and paving on the Amity-Rickreall section of the Pacific West Highway in Polk and Yamhill counties. **Access Construction, Ore. Ltd.**, Roseburg, submitted a low bid of \$166,497 for grading and oiling on the Coquille Junction-Rhoda Creek section of the Powers Highway in Coos County. **M. J. Coleman and M. J. Coleman, Inc.**, (joint venture) of Paradise, Calif., submitted a low bid of \$247,504 for earthwork, structures and laterals on the Tule Lake Division, Ore.-Calif., Klamath Project. **F. L. Somers**, Medford, received an \$882,399 contract for grading and related work on 11.8 mi. of the Lake of the Woods Highway in Jackson and Klamath counties. A low bid of \$627,234 was submitted by **Hamer Corp.**, Roseburg, for grading and bridge construction on the North Umpqua Highway in Douglas County.

UTAH

L. C. Stevenson and Hansen Co. of Altamont submitted a low bid of \$203,065 for grading, structures and surfacing on State Road No. 33, near Castle Gate in Carbon County. A low bid of \$168,471 was submitted by **W. W. Clyde & Co.**, Springville, for 4.9 mi. of grading and surfacing on State Road 264 near Jensen in Uintah County. **Eldon H. Knudsen Construction Co.**, Ogden, submitted a low bid of \$334,001 for earthwork, pipe lines and structures, West Farmington Lateral System, Weber Basin Project. **Strong Co.**, Springville, submitted a low bid of \$949,768 for grading, structures and surfacing on 6.1 mi. on Interstate 15, near the Arizona State Line in Washington County. **Cox Brothers**, Manti, submitted a low bid of \$549,377 for 10.8 mi. of grading and surfacing, from Marysville southerly on U. S. 89 in Piute County. **Max Rosenlof** of Orem received a \$1,373,000 contract for construction of a new high school in Spanish Fork. **Diversified Builders** of Paramount, Calif. submitted a low bid of \$16,485,000 for construction of Air Force Plant No. 78, a missile fuel

facility located northwest of Brigham City.

WASHINGTON

Hart Construction Co., Tacoma, submitted a low bid of \$1,163,744 to the Port of Tacoma for construction of the Sitcum waterway pier for bulk cargo handling. A low bid of \$761,990 was submitted by **Alfred DeCoria** of Auburn for grading and constructing 2 bridges on 2.5 mi. of the Cascade Wagon road in Mount Baker National Forest in Whatcom County. **MacDonald Builders Co.**, Tacoma, submitted a low bid of \$2,815,415 for construction of Tacoma General Hospital. **Seattle Contracting Co.**, Seattle, is low bidder at \$294,905 and \$295,375 on the alternate schedules of contract for paving and grading in Golden Gardens Park, City of Seattle. **Lockyear & White, Inc.**, Longview, received a contract of \$415,477 for construction of 2 bridges on P.S.H. No. 1, Dakota Creek bridges, in Whatcom County. **Hoffman Construction Co.**, Portland, Ore., received a \$2,103,560 contract for construction of a cement terminal for Ideal Cement Co. near Seattle.



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A green light has been given to the California Water Plan with the approval of the \$1,750,000,000 bond issue by the voters in the November 8 election.

General aspects of the project are well known to readers of *Western Construction* and include the proposed record size dam on the Feather River near Oroville and the extensive series of canals, tunnels, and pumping lifts to convey surplus water from the northern part of the state into the southern section.

Preliminary work has already been started on railroad and highway relocation for the Oroville Dam and the approval of the bonds should permit this work to move forward into actual dam construction without interruption.

Anchorage making plans for 20 years of urban growth

AS A BASIS for coordinating city growth and development during the next 20 years, the City of Anchorage, Alaska, has engaged Wilsey, Ham & Blair, consulting engineers, to prepare a plan for urban development. The engineering study and resulting plan is partly financed with Federal funds as well as some money from the Alaska Housing Authority.

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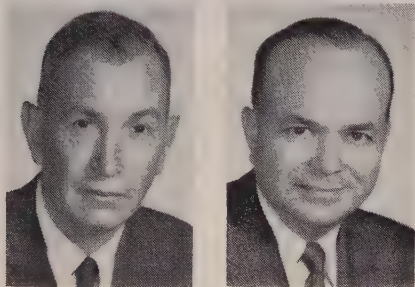
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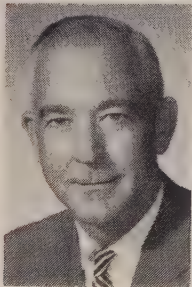
ENGINEERS and CONTRACTORS

Appointments of **John L. Hallett** and **Louis H. Oppenheim** as vice presidents of Kaiser Industries Corp., and of **Franklin T. Matthias** as vice president of Henry J. Kaiser Co. are announced. Hallett joined the Kaiser organization in 1938 as



Oppenheim
(above)

Hallett
(above, left)



Matthias
(left)

an engineer on heavy construction projects. He is general manager of Kaiser Engineers International. Oppenheim is general manager of Kaiser Engineers. He also has been with Kaiser since 1938, starting as a sand-and-gravel-plant engineer. Matthias is manager of heavy construction for Kaiser Engineers. Before joining the organization earlier this year he was chief engineer of the Aluminum Company of Canada.

* * *

R. L. "Moon" Mullen, formerly explosives engineer with the Utah Construction & Mining Co., has started a blasting consulting service at 411 Azalea Way, Los Altos, Calif. Mullen has twenty-five years of experience in all phases of heavy construction blasting as well as work underground in mining and tunnels. His early training was obtained while in the employ of Atlas Powder Co. and with the Explosives Division of Olin Mathieson Chemical Corp.

Charles A. McMahon, one of the best known men in the Western construction industry, is now located in Honolulu and associated with Pacific Construction Co., which has completed more than \$200,000,000 worth of construction projects. "Chuck" is also giving an evening course in construction at the University of Hawaii. This is the first construction course ever offered by the university and covers construction methods and cost estimates. Previously, while located in Southern California, McMahon presented a course on construction management at UCLA.

* * *

Jack W. Rodner, manager of the Westlands Water District at Fresno, Calif., since 1953, has been appointed regional supervisor of irrigation for the Bureau of Reclamation's Region 3 at Boulder City, Nev. He fills the position vacated when Regional Director **A. B. West** was promoted last spring to his present post as head of Region 3.



HORACE J. GUNN, new executive manager of the Intermountain Branch of the Associated General Contractors, with headquarters in Salt Lake City. He was formerly with the Utah State Road Commission, as chief of its information and education division, and left the post in September to take over his AGC duties.

Walter A. Mackie, project engineer at Detroit Dam on the North Santiam River, has been appointed project engineer at Bonneville Dam on the Columbia following the retirement of **Albert M. Capps** in December. Announcement is made by **Col Walter L. Winegar**, Portland District Engineer, Corps of Engineers.

* * *

R. Robinson Rowe, Sacramento, Calif., principal bridge engineer in charge of special studies for the California Division of Highways, is retiring following a 40-year engineering career, 26 years of it in State service. A member of many national professional organizations, Rowe is a past president of the San Diego and the Sacramento sections of the American Society of Civil Engineers. He was a national director from 1955 to 1958.

* * *

Timber Structures, Inc., nationally known timber laminators and fabricators, announces the opening of a new district office at 440 San Mateo Ave., San Bruno. The office will provide on-the-spot service to building contractors and engineers of Northern and Central California. Manager of the office is **Werner F. Itzel**, an engineering representative with the firm for ten years. Assisting him is **J. J. "Jerry" Gustafson**.

CALENDAR

Jan. 26-28—Institute of Transportation and Traffic Engineering, University of California, annual California Street and Highway Conference, Berkeley Campus.

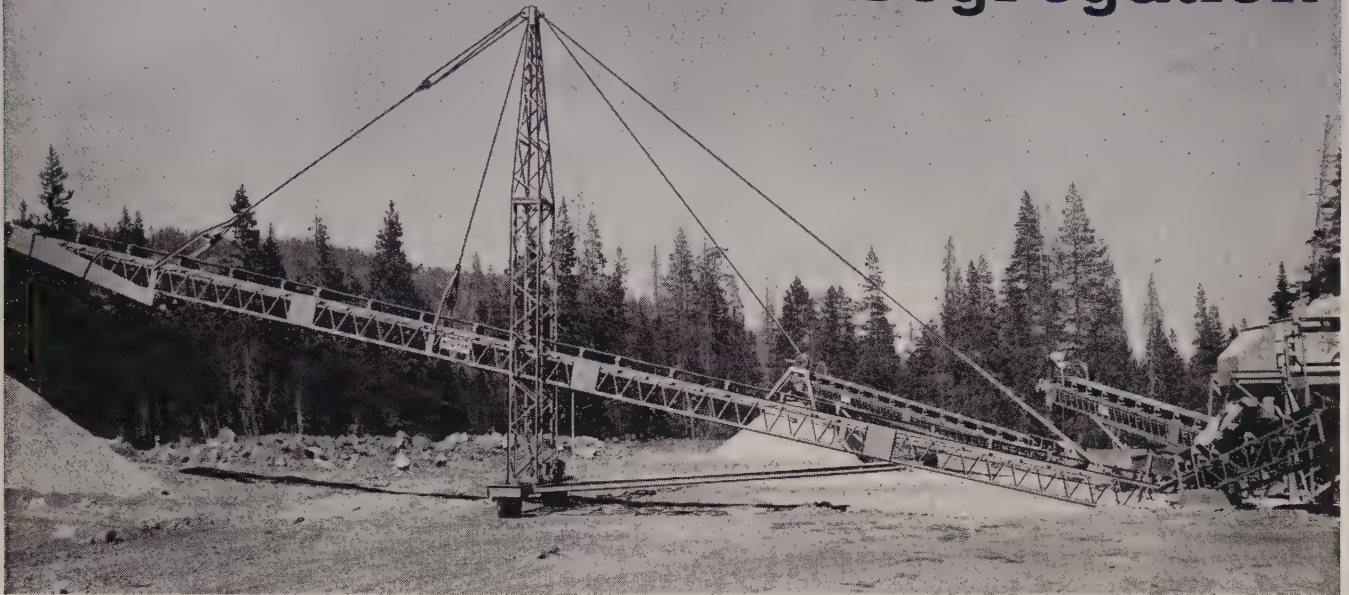
Feb. 5-9—Associated Equipment Distributors, annual meeting, Statler Hilton Hotel, Los Angeles.

Feb. 20-23 — American Concrete Institute, annual convention, Chase-Park Plaza hotels, St. Louis, Mo.

Mar. 5-8—American Road Builders Association, annual convention, Chalfonte-Haddon Hall, Atlantic City, N. J.

April 23-28 — Western Association of State Highway Officials, 40th annual convention, Las Vegas, Nev.

KOLMAN Radial Stackers Minimize Material Segregation



PNEUMATIC-TIRED STACKERS IN LENGTHS UP TO 150 FEET

Reports of outstanding performance by the Kolman Model 101-R Radial Stacker are rolling in from all parts of the country. Owners are enthusiastic about bonus features offered by the Kolman Stacker — features like cable suspension of the boom, two-position wheels, balanced electric drive on the head section, power lift, power travel, and cam hinge. Sizes up to 150 feet long build larger stockpiles with a single setting.

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Kolman's cable suspension design eliminates the segregation encountered with stackers having fixed discharge heights. By raising the stacker as pile is built, the fall of material is kept at a minimum.

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WYOMING

CHEYENNE, CASPER, ROCK SPRINGS and SHERIDAN—Wortham Machinery Co.

100'x24" Stacker is one of four Kolman Stackers used in the production of aggregate at Squaw Valley, California, in preparation of roads and site for the 1960 Winter Olympic Games. Stackers in the background are 70'x24".



150'x30" Stacker shown includes electric power lift and electric power travel for finger-tip control of stacker discharge position.



100'x24" Stacker in the background stockpiles sand produced with an 8'x48" double-deck vibrating screen on a Model 101 Kolman Portable Conveyor-Screen Plant.

WRITE FOR LITERATURE

KOLMAN MANUFACTURING CO.

5670 West Twelfth Street, Sioux Falls, S.D.

... for more details, circle No. 39 on Reader Service Postcard

SUPERVISING the jobs

A. J. Chinn is superintendent and Curt Hunter, engineer, for Keystone Construction Co., Inc., successful bidder for grading and paving state highway from Pleasant Valley to Hill Creek, Old Oregon Trail, Oregon. Winning bid was \$1,153,851. Work started Sept. 6, and according to Otis Van Blaricom, business manager at Keystone's home office in Prineville, Ore., the job will be finished the end of next June.

* * *

Joe McNabb is project manager for Trinity Dam Contractors which is building the 2-unit Trinity Powerplant near Lewiston, Calif., a feature of the Central Valley Project. Errol Platt is business manager. The \$1,047,867 construction started in September and will be finished sometime in 1962.

* * *

Don McGuire is superintendent for Harrison Construction Co., which is doing 19 mi. of grading, with structures, south of Cortez, Colo. September 1 was the starting date of the \$776,774 job, which will run until next March.

* * *

John T. Roe, Sr., superintendent, assisted by Roy Newman, general foreman, is in charge of a general work contract in the amount of \$2,511,358 covering building construction at the San Fernando Valley State College in Los Angeles County. Scheduled for completion Dec. 1 next year, the contract has been under way since Sept. 1. Fred S. Macomber is the contractor.

* * *

Macomber also successfully bid a school building job in Butte County, Calif. Construction of a new building and remodeling of another is involved in the \$1,363,252 project at the Chico State College. Started Sept. 1, Macomber expects to have this project complete about Sept. 1, 1961. Here, Clifford E. White, Jr., is

doing the superintending, aided by Donald K. Cupples, general foreman.

* * *

J. D. Martin, project superintendent, has charge of Guy F. Atkinson Co.'s freeway construction job extending from No. Santa Rosa to Windsor in California. Involved in the \$3,993,744 project are grading, surfacing, and 14 concrete structures to be constructed on 9.6 mi. of 4-lane divided freeway. Other important personnel on the job are Ben Sandkulla, excavation superintendent, Fred Moody, structures superintendent, Bob Bates, office manager, Jack Agresti, timekeeper, Brent Booth, project engineer, and Jack Lemley, office engineer. Earmarked for completion November 1961, work has been under way since mid-August.

* * *

Norm Hawley is job superintendent for Peter Kiewit Sons' Co. on a \$3,806,235 contract covering grading, surfacing and construction of 9 bridges, portions of substructures for 4 bridges and 11 retaining walls in Oakland, Calif. Additional key personnel are Orvill Saalfeld, structures superintendent, John Kaufmann, excavation superintendent, Dick Steingraber, project engineer, Sailor Hamby, master mechanic and Jack Tribolet, office manager. Scheduled for completion November 1961, job has been going since August.

* * *

M. R. Varela, project manager, P. J. Kennelly, project engineer, and Richard Rose, general superintendent, comprise the top personnel employed by George M. Brewster & Son, Inc., successful bidder on a San Diego Freeway job in Southern California. Included are 1.3 mi. of grading, paving, 8-lane freeway, and 10 major structures. Other key men for Brewster here are Walter Stotz, bridge superintendent, Archie Hill, drainage superintendent, Ralph Bitter, excavation superintendent, and Guy Bureman, master mechanic.

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lets you drop either corner of the blade 13" on-the-go — with hydraulic power. Husky 88"-wide blade can also be lifted hydraulically to clear 31". Shipping wt., with blade, is 13,900 lbs. Winch is optional.

*Case Model 750 is also available as a 1½-cu. yd. loader or as a power-angling dozer.



NEW CASE® 750

The one-size tractor "most wanted" by the majority of crawler users! Powered right, priced right; with all the "big-rig features" you need to handle a wider variety of both large and small jobs at highest net profit.

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Job-proved on Case crawlers since 1955, the exclusive, hydraulically-operated Case Terramatic® transmission gives the "750" unequalled maneuverability and handling ease. You get split-second power-shifting, effortless power-steering, plus independent power control of each track. You just touch a hydraulic foot brake to make sharp pivot turns — *no hand or foot clutching!* Or you can operate one track fast, the other slow to turn gradually with *full power* on *both* tracks — a big advantage when you're moving heavy loads in mud, cutting along hillsides, turning trailing loads on downhill runs.

One-Hand Tractor Control

With just fingertip pressure on

handy hydraulic controls, you reverse direction without clutching... change speeds from high to low, low to high "on-the-go". This easy one-hand operation — combined with exceptional power, speeds to 6.6 mph, and elimination of time-wasting motions — enables the Case 750 to handle a wider variety of work at highest net profit per job.

A New High In Usable Power

The "750" is powered by a 301 cu. in., Case-built diesel engine — proved in over 15 million hours field use. Also, the "750" is equipped with "load-sensing" torque converter that instantly, automatically adjusts power to changing loads and tractive conditions. Result: the "750" moves bigger payloads at higher average speeds — without clutching, shifting, or stalling.

Long-Life Track System

Proven on larger Case units, the "750's" track system is designed to take the punishment imposed by fast, non-stop cycling. *You get up to twice the work output of ordinary crawler tracks.*

Exclusive Case torsion suspension absorbs shocks... increases traction... keeps bucket or blade level — even when the front of one track is raised as much as 10 inches higher than the other.

Easy Access, Simple Maintenance Cuts Downtime

To mention just a few of the "750's" downtime-cutting features — there's hydraulic track adjustment, automatic roller lubrication, swing-out grille guard, tilt-forward cowl and *dual fan belts*.

Get the facts from your Case Industrial Dealer now. Ask to see the sound and color action movie on the new "750". Learn why this "years-ahead" Case crawler loader or dozer will help you increase your profits this year as well as throughout the competitive 60's.

CT-D-541

CASE®

J. I. CASE CO., RACINE, WIS.†

MASTER MECHANIC

New alloys to increase life of rebuilt rollers and rails

NEW WELDING alloys are expected to make it possible for the well-equipped master mechanic to double the life of such high-wear items as rails and rollers of track-laying equipment.

R. A. "Bob" Hand, supervisor of the Automatic Sales & Service Division of the Stoodly Company in



Los Angeles

made this point while discussing the refacing of rollers, idlers and rails of heavy construction equipment during the October meeting of EMSA's Los Angeles chapter. He added that longer wear from resurfacing accomplished with present welding materials can usually be experienced with an improvement in preparation and resurfacing techniques.

"The complete removal of all foreign material," stated Hand, "is just as important with the modern automatic welding equipment and submerged melt techniques as it was in the days of manual welding. Foreign material trapped in the weld accounts for a large percentage of resurfacing failures."

Backing up his talk on resurfacing techniques with an uncommonly fine collection of colored slides, Hand demonstrated how minute foreign objects trapped in a weld can cause the breakdown of an otherwise perfect resurfacing job. Similarly demonstrated was the limit of wear beyond which components — particularly rollers — could not be fully rebuilt.

"When flanges become so badly rounded that a substantial core for the overlay does not exist," notes Hand, "you are probably wiser to buy a new part rather than to attempt rebuilding. Successful flange rebuilding must start with a roller that is not completely worn out."

"As-welded" rollers do not generally operate as well or last as long as rollers that are finished following overlay work, according to Bob Hand. He notes that the proper finishing of rollers preserves the



SPEAKER R. A. "Bob" Hand, Stoodly Co., explains roller and idler rebuilding methods.

accurate relationship required between the flanges and the center bore of the roller. This relationship cannot be accurately and consistently obtained through proper overlay alone.

The rails, rollers and idlers on some of the later equipment have been induction hardened, a hardening technique that extends to a depth of as much as 5/16 in. Rebuilding these induction hardened parts should not be attempted until the hardened area has been worn or cut away.

Though several welding materials are available, Hand noted that the most common material to use in building up rollers is a No. 104 rod for the core, then finish the overlay with two or three passes of No. 105. With some of the heavier units such as D-8's and D-9s, four or five passes of just the No. 105 works satisfactorily. Hand emphasized, however, that great care be exercised to see that there is at least a 50% bead overlap.

"The alloy we've tested and which we expect to double the life of properly resurfaced tracks," states Bob Hand, "is called X-4329 and has a Rockwell hardness of 45-48. It has been field tested in several parts of the United States and is expected to be in common use very shortly."

Ultrasonic welding described in new book

The American Welding Society announces the publication of a new booklet, *Ultrasonic Welding*. Containing 38 pages and 29 illustrations, the booklet meets a growing demand for authoritative technical literature on new developments in the welding industry.

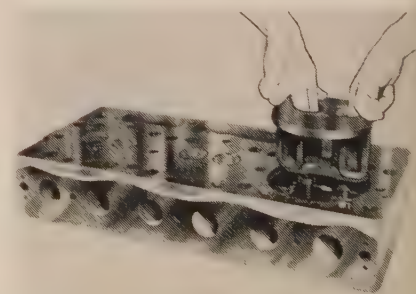
Many similar and dissimilar metals which were previously considered unweldable can be welded by this process. By introducing a high frequency vibratory energy into the metals, ultrasonic welding produces a sound metallurgical bond without arc or spark, melting of the base metals, or deformation of the materials being welded.

Copies of *Ultrasonic Welding*, at \$1.50 each, may be obtained from the American Welding Society, 33 West 39th Street, New York 18, N. Y.

New cylinder head has replaceable sections

Introduction of the "Stres-Fre" cylinder head, created by Stancliff Engineering, Inc. is a practical solution to loss of efficiency and horsepower, cracked blocks and heads, valve failure in heavy-duty engines from "hot spots."

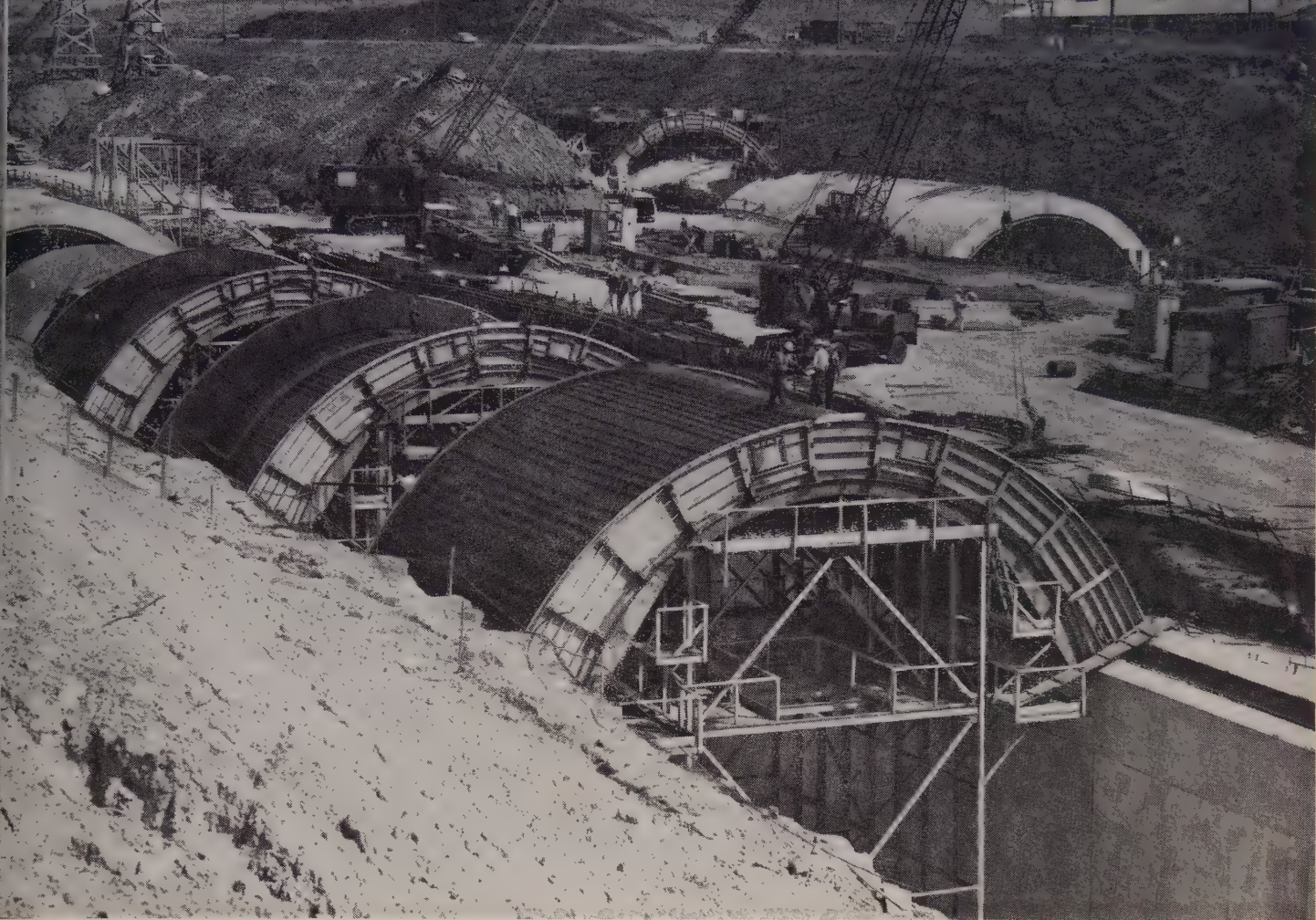
The "Stres-Fre" head has a separation of approximately .030 between the fast expanding "hot spot" combustion area and the cooler, lesser expanding area of the cylinder head casting. By allowing the "hot spot" combustion zone to



freely expand and contract without resistance from the surrounding cooler area, "Stres-Fre" has eliminated the distorting strains and stresses that cause cracking of heads and blocks and damage to valve seats.

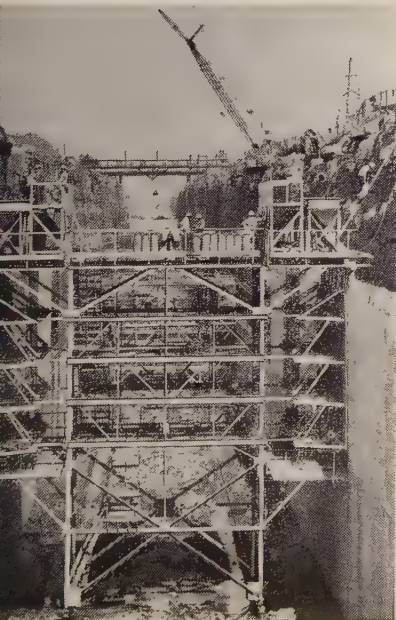
The "Stres-Fre" head is so designed as to allow the replacement of each individual section without the necessity of replacing the complete assembly.

... Circle No. 155



Arch-placed concrete has a 23-ft. radius, varies in thickness from 4½-ft. at crown to 6-ft. at abutments. Abutment-positioned hinges have a 15-in. radius. Crown hinge radius is 12-in. Compressible filler near hinges allows rotation and opening and closing of outside concrete faces.

Blaw-Knox Steel Forms shape five miles of twin conduits at Niagara Power Development



Three contractors are building twin conduits 22,600 feet long, 46 feet wide and 66 feet high. All three use especially designed Blaw-Knox Steel Forms to place a total of 1½ million cubic yards of concrete.

The flexible conduit will permit arch loads to carry into rock through abutments. Steel rods anchor slab and wall concrete to guard against hydraulic pressure during conduit dewatering and possible rock movement.

Saves 35% assembly time. Forms are assembled faster and at reduced labor cost, according to Balf-Savin and Winkelman, one of the contractors on the \$100 million conduit project. Another, Gull-DeFelice notes that only 15% of its men are needed to erect, move, set-up, and maintain Blaw-Knox Forms. And Merritt-Chapman & Scott "can always count on Blaw-Knox for quality equipment and dependable professional service."

More and more contractors turn to Blaw-Knox Steel Forms Consulting Service for skilled assistance in building dams, tunnels, bridges, and other projects. Backed by 40 years of forms building, Blaw-Knox has complete facilities to fabricate forms to your needs, and to deliver them on time. For details, write Blaw-Knox Equipment Division, Pittsburgh 38, Pa., or call STerling 1-2700.

BLAW-KNOX

Steel Forms

... for more details, circle No. 41 on Reader Service Postcard

CONSTRUCTION BRIEFS



Channel dredges move ahead on \$43,000,000 project

THE Sacramento River Deep Water Channel project, which will create a seaport of California's capital, Sacramento, is scheduled for completion in 1962. The 43-mile long, 30 foot deep channel will link Sacramento with the Pacific Ocean and will allow ocean-going ships to travel 90 miles inland. The estimated cost of the project is \$43 million.

The two dredges which are rooting out this man-made channel are excavating and pumping about 40,000 yards of material a day, or one million yards a month. It is estimated that upon completion of the project, the dredges will have sucked up and spewed out almost enough mud and silt to fill a four-story building eight city blocks long and eight blocks wide.

Basically, the dredges are floating platforms. Extending from the bow of each dredge is the cutter head and suction head, supported by a ladder or boom. The ladder, weighing between 90 and 100 tons, uses Wickwire rope to hold the tremendous weight of the heads as they work along the channel bed.

Swing lines, anchored on the shores, are worked off drums aboard the dredges. The dredges swing

their heads from side to side by pulling on one swing line and releasing the other. As the dredges reach the forward limit of the swing lines, the anchors on shore are moved forward to allow the entire operation to be repeated.

The dredges walk their way through water by means of spuds, or posts, located at the stern. A digging spud weighing between 25 and 35 tons is rammed into the channel bed and used as a pivot. Its mate, the "fleeting" spud, is then used to walk the dredge forward a prescribed distance. CF&I's Wickwire rope is used on the ladder, the spuds and on the swing lines.

Plastic sandwich forms water barrier

A new reservoir has been constructed in Los Angeles County with a sheet of vinyl plastic sandwiched between two slabs of concrete to form a water barrier.

The new type water barrier, fabricated into one circular piece 72 feet in diameter covering 3,850 square feet at the job site, is made of Koroseal vinyl sheet supplied by B. F. Goodrich Industrial Products Co.



Tall house on narrow lot

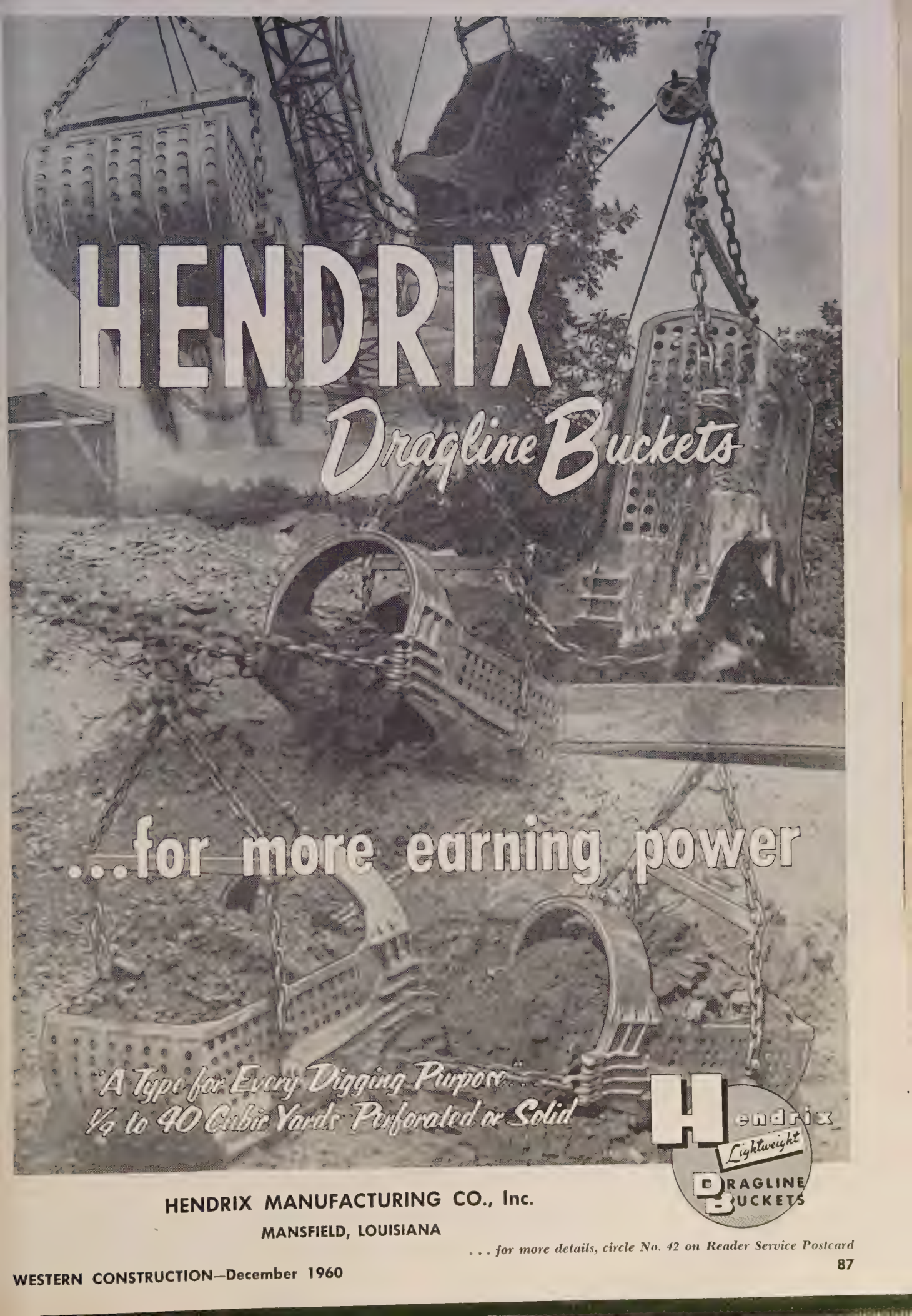
HOW DO you erect the steel for a 15-story apartment building working entirely within the limits of a lot only 50 ft. wide.

This was the unusual problem that faced Terminal Steel Company, Ltd. of Honolulu, Hawaii, when this firm began the steel erection of the Waikiki Shore, a co-operative apartment now rising on the beach at Waikiki.

Were you to face the ocean, looking out over the 525-ft. deep lot that terminates at the beginning of a generous width of Waikiki Beach, you would see the Reef Hotel on the left and Fort De Russy (U.S. Armed Forces Recreational Center) on the right. When the idea of the building was originally conceived, the developers requested permission of the U.S. Government to use a fringe of the Fort De Russy area for working space. Government regulations, however, prohibited such use.

"We were not allowed to swing our boom over Fort De Russy," said Terminal Steel president Ray Ortiz. "There was no room for storage of our equipment or materials on the narrow lot."

The solution to this problem, devised by Terminal Steel Co. and the Hood-Thompson Construction Co. (the general contractor), was both novel and effective. A gravel road was laid from Kalia Road, the beginning of the lot, to Waikiki Beach. Material was "fed" into the growing interior of the building over this road, and cranes used the road for access to all working areas.



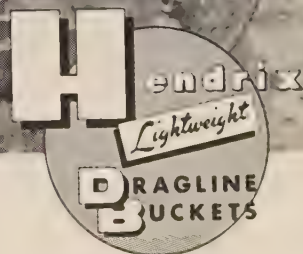
HENDRIX

Dragline Buckets

...for more earning power

*"A Type for Every Digging Purpose"
1/4 to 40 Cubic Yards Perforated or Solid*

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA



... for more details, circle No. 42 on Reader Service Postcard

NEW LITERATURE

Curing compound catalog

Concrete curing compound developed by the **A. C. Horn Research Laboratories** and marketed under the name **Horncure** are described in a 4-page brochure recently issued by the company. Products covered include the 100% resin base curing compound, white pigmented curing compound, and the wax resin base curing compound. Advantages and uses of each material are discussed, and specifications and quantities required are provided. Features of the materials include positive seal, greater surface strength, higher compressive and flexural strength, easier application, quicker drying, uniform slab strength, economy.

... Circle No. 156

Heavy-duty pump bulletin

High capacity pumps to permit effective control and regulation of large volumes of water are described in a newly issued bulletin by **Peerless Pump, Hydrodynamics Div., Food Machinery & Chemical Corp.** The "Hydro-Foil" line of pumps is available in two types, one an axial flow propeller type, the other a mixed flow type. Both are available with single or multi-stage design. Complete details of each pump type along with rendered sectional views of various components are contained in the bulletin. Other sections deal with types of available drives and photos of installations. A page of diagrams illustrating typical pump station arrangements is included.

... Circle No. 157

Backhoe brochure

Backhoe attachments for **Schild Bantam Co.** crane-excavators are described in a 4-page 2-color leaflet issued by the company. The bulletin covers backhoe attachments and options for the company's crawler-mounted, carrier-mounted, and self-propelled units. Specifications and work ranges are described along with illustrations of the standard backhoe, long boom backhoe, hydraulic bucket, V-type bucket, rock bucket, together with all the options available with the detachments.

... Circle No. 158

Concrete stadium construction

Photographs and construction case histories on 16 giant stadiums and auditoriums are covered in a new 20-page booklet issued by the **Master Builders Co.** In addition to many of the nation's famous football arenas, the booklet discusses such structures as the Mexico City bull ring and the jai alai sports stadium in Manila. The booklet deals with concreting problems encountered and solved in the various projects. Case histories included are the Dallas Memorial with its unique lightweight roof design, the Albuquerque Civic Auditorium with its reinforced concrete dome roof, and the thin shell concrete roof design at the University of Cincinnati Armory. The role played by Pozzolite in acquiring the desired handling properties of concrete during placement and to meet exacting requirements for hardened concrete also is stressed.

... Circle No. 159

Catalog lists entire Michigan line

The complete Michigan line of construction equipment ranging from the familiar front-end loader (available in 9 sizes) to such specialty equipment as rubber tired exploration tractor trains is contained in a handsome 4-color brochure recently issued by **Clark Equipment Co.** The catalog contains descriptions and full color illustrations of Michigan tractor shovels, tractor dozers, tractor scrapers, tractor loggers, and excavator cranes. This is the first general catalog to show the 600-hp. Model 480 tractor dozer and 3 new models in the tractor shovel line. One section of the new catalog describes the Clark power train basic to all Michigan machines. Components pictured are the torque converter, 4-speed power-shift transmission, and steering and non-steering axles. ... Circle No. 160

Crane catalog

Components of the American 900 Series crawler crane-excavator are fully illustrated and described in a new 8-page catalog issued by **American Hoist & Derrick Co.** Literature covers the new air-controlled American 900 with 4½ cu. yd. capacity and a rated lifting capacity of 110 tons. The unit has a maximum boom length of 270 ft. Features covered include modern carbody design, travel assembly, upper machinery, full vision cab, air controls and numerous optional attachments.

... Circle No. 161

Sand-Sort brochure

A 4-page brochure describing the **WEMCO Sand-Sort**, a free settling classifying tank for removing excess slimes and water from a sand slurry has been issued by **WEMCO, Div. of Western Machinery Co.** Bulletin describes operation of the settling tank which is capable of eliminating unwarranted size fractions and producing two or more sands of different gradations. Included are functional drawings, action photographs, illustrations of components, and tables of dimensions and specifications.

... Circle No. 162

Lime stabilization

A 6-page bulletin titled "Build Better Roads at Low Cost" explaining use of lime as a stabilizing additive in road construction has been issued by **Construction Equipment Div. of American-Marietta Co.** The fully illustrated brochure covers sub-base and base construction, also the mixing and compacting equipment used. Featured are the American-Marietta Trav-L-Plant, Pulvi-Mixer, pneumatic and steam wheel compactors, and lime spreader.

... Circle No. 163

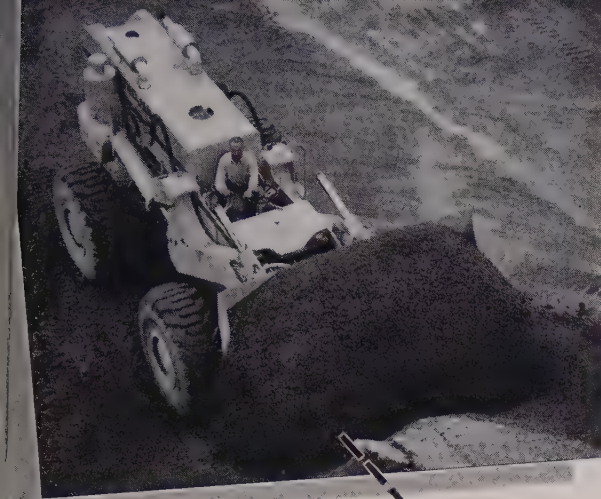
Drilling equipment bulletin

Data and operating information on a complete line of crawler-mounted drilling equipment is contained in a new 12-page bulletin issued by **Gardner-Denver Co.** Bulletin CDAT-1 offers complete information on drill carriers, drill feeds and various types and sizes of drills. Combinations of this equipment are graphically illustrated to show the right combinations for any specific drilling applications. Features of the equipment construction operation and specifications are included.

... Circle No. 164

TROJAN 404

... A new look with better than ever performance



Better than ever performance features and refinements now make the Trojan 404 the unequalled tractor shovel in its own power and weight class . . . Today's '404' is available with a 336 h.p. G.M. diesel engine. Wheelbase has been increased for greater stability. A newly designed filtered hydraulic system, new main boom hydraulic lift cylinders with longer lived packing, and armored three wire hydraulic hoses, greatly reduce maintenance problems. Wider tire selection too. The man to see is your Trojan distributor. Ask him to prove the *better than ever* Trojan 404 on your job.

TROJAN MODEL 404 24,000 LB. LIFTING CAPACITY

All the time-proven features so valuable in the production ability of Trojan, have been maintained in the new Model 404. These added refinements now provide even better performance.

TROJAN DIVISION

THE YALE & TOWNE MANUFACTURING CO.

BATAVIA, NEW YORK

TROJAN®
TRACTOR SHOVELS
YALE & TOWNE

CENTURY-WHITE TRUCK CO., INC.
Casper, Wyoming
CONNELL MOTOR TRUCK CO., INC.
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INLAND SERVICE & SUPPLY CORP.
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HALL-PERRY MACHINERY CO.
Billings, Montana
Branches: Butte, Great Falls, Missoula
ROAD MACHINERY CO., INC.
Phoenix, Arizona
Branch: Tucson

SIERRA MACHINERY CO., INC.
Reno, Nevada
TRACTOR SUPPLY CO.
San Diego, California
WESTERN MACHINERY CO.
Idaho Falls, Idaho
Branch: Boise
WESTERN MACHINERY CO.
Salt Lake City, Utah
MACHINERY SUPPLY, INC.
Stockton, California

LIFT TRUCK SERVICE CORP. Fresno, California

... for more details, circle No. 43 on Reader Service Postcard

NEW EQUIPMENT

Obtain more information on these new developments in construction equipment by circling the corresponding numbers on reply postcard.

Alloy ripper point of radical design

A long narrow ripper point made of a new alloy and said to increase performance by 2 to 3 times is introduced by the Construction Equipment Div. of **Electric Steel Foundry Co.** The point is made of a new ESCO alloy "12S," specifically developed for ripping



tools. The point is produced in 4 lengths to match ripping conditions. The shortest point, 14 in., is designed to rip in extremely tough material where other points will not penetrate. The 16-in. point is intended for tough production ripping where it has increased yardage from 20 to 40%. The 18-in. point is for general ripping and the 20-in. point is designed for extremely long service in easily ripped materials. The company also markets cast ripper shanks in ESCO alloy "12M" and weld-on nose sections that will convert any shank to ESCO ripper points.

... Circle No. 165

Compact 2-way radio

A "Super-portable" two-way radio unit smaller than a quart milk carton and retailing for less than \$130 has been introduced by **Kaar Engineering Corp.** The Model TW330 Hand-D-Phone offers simple, one-hand operation and a

range of up to several miles depending on terrain. The unit weighs less than 2 lb. and is equipped with a large speaker for loud reception and earphone jacks for private listening and an exclusive "Squelch" device which keeps the instrument silent until signals are received. Operating on the "Citizens Band" the unit requires no FCC license.

... Circle No. 166

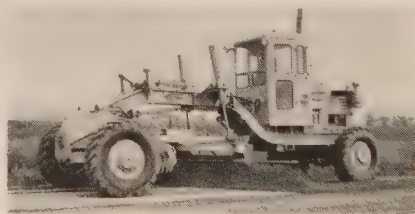
Calk material for jet runways

A new formulated calk material designed for primary use in sealing joints in concrete of jet-age airport runways is announced by **Products Research Co.** Designated PRC Rubber Calk 100, it will withstand fuel and oil spillage, weather and jet engine blasts with little or no effect. The material is tack free in 10 minutes and is firm and flexible 20 minutes after application. It is completely cured in 24 hours.

... Circle No. 167

Two-axle grader features 4-wheel drive

The line of motor graders produced by the Pettibone, New York, Division of **Pettibone Mulliken Corp.** is increased to 9 units with the introduction of Model 502, which offers an exclusive combination of planetary axles, 4-wheel



drive, 4-wheel steering, 4-wheel brakes, power shift transmission and torque converter. The 502 has 4 forward speeds to 19 mph. and 4 reverse speeds to 23.5 mph. Standard equipment includes full hydraulic steering, 12-ft. hydraulic sideshift moldboard, and GMD 3-71 diesel engine of 106 hp. Total weight is 23,000 lb. A wide range of optional accessories and equipment is available.

... Circle No. 168

Twin-engine scraper is self loading

Production of an all-wheel drive twin engine scraper of 14 cu. yd. struck capacity is announced by **Euclid Division of General Motors.** The new unit is powered by two GM 4-71 engines, each with a sep-

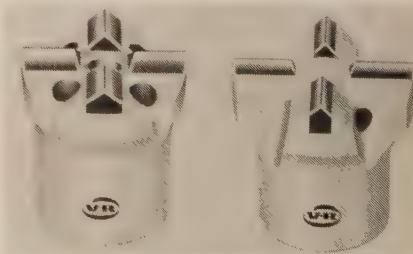


arate Allison Torqmatic Drive. Its ability to self load and work under the most adverse conditions makes the TS-14 virtually a one-man earthmoving spread. All scraper operations are hydraulically and independently controlled. The ejector is of positive roll-out type actuated by a hydraulic jack identical to the apron jack. Cutting edge consists of 4 sections which are identical and reversible. The unit has 296 hp., full 90 deg. steering and no-spin differential on both drive axles. It uses 24 x 25 tires. Literature available.

... Circle No. 169

Throw-away line of bits announced by V-R

Designed for long life and low cost operation, a new line of percussion bits has been announced by **Vascoloy-Ramet Corp.** The bits are of the throw-away type with carbide inserts perfectly positioned in the heat-treated alloy steel bit



bodies. These bit bodies are manufactured to the same specifications as other V-R percussion bits. The new type is offered as standard in 1 3/8, 1 1/2 and 1 5/8-in. diameters.

... Circle No. 170

1961 Dodge line features service with economy

Following its new line of trucks introduced in 1960, Dodge is now introducing another entirely new line of trucks which range from the Dart pickup to a 2½-ton heavy tractor. Styling, chassis, steering, and sus-



pension systems are all new. The 1961 trucks (CT-800 dump truck pictured) have exceptional fuel economy, derived from the new 6-cylinder engine. The Dart pickup has a low, wide silhouette, a drop-center frame, and a balanced design suspension for road stability. The larger of the inclined engines develops 140 hp. and a smaller 101-hp. engine is also offered. By inclining the engine in the Dart, the height of the hood is lowered and accessibility is increased. All routine servicing can now be performed on the left side of the engine.

... Circle No. 171

Vibrator design features high-amplitude

To speed up the vibrating of low-slump concrete, Stow Mfg. Co. is marketing a new high-amplitude 60-cycle motor-in-head vibrator. This rugged Model YUA has 48% more amplitude and tests demonstrate its efficiency of handling ½-in. slump concrete in less than 1/3 the time previous models had required. The



machine has a rugged universal motor built into the vibrator head and operates on AC or DC current. It vibrates at from 12,000 to 15,000 rpm. Additional design features are a strong-wear resistance casing that covers electric wires and acts as a handling hose, and is available in 7, 14, or 25-ft. lengths. There is also a completely covered on-off switch 7 ft. from the head and a thermal overload switch.

... Circle No. 172



TECHKOTE

... products for Concrete

CONCRETE CURING COMPOUNDS

Clear — Pigmented — Black

TILT-UP COMPOUNDS

Wax Base — Non-Wax Base

LIFT SLAB COMPOUNDS

(YOUTZ-SLUICK METHOD)
Wax Base — Non-Wax Base

SPRAY EQUIPMENT

Hand and Power Operated

JOINT SEALING COMPOUNDS

(COLD APPLIED IN 3 TYPES)
Ready Mixed Rubber Base Mastic,
Rubber Base Emulsion and 2 Component Mastic

SEALING COMPOUND APPLICATORS

AIR ENTRAINING AGENT

AIR ENTRAINING AGENT DISPENSERS

AIR METERS FOR CONCRETE ENGINEERING

- Comply with all leading specifications
- Distributed and stocked in principal cities

DISTRIBUTORS

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Sacramento, California, W. J. Burke & Co.
Los Angeles, California, W. J. Burke & Co.
San Diego, California, Squires-Belt Material Co.
Portland, Oregon, W. J. Burke & Co.
Seattle, Washington, W. J. Burke & Co.
Billings, Montana, Midland Materials Co.
Casper, Wyoming, Casper Concrete Co.
Denver, Colorado, K. C. Construction Supply Co.
Albuquerque, New Mexico, W. J. Burke & Co.
Salt Lake City, Utah, Intermountain Concrete Specialties
Phoenix, Arizona, Superior Building Materials
San Antonio, Texas, Rufus A. Walker & Co.
Honolulu, T. H., R. L. Castendyk Company
Vancouver, B. C., Canada, Burrard Construction Supplies, Ltd.

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PRESSTITE DIVISION

AMERICAN-MARIETTA COMPANY

Western District
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Sacramento.....	GI 2-0445	Kansas, Kansas City.....	HA 1-5542	Cleveland.....	BE 4-2011
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Colorado, Denver.....	AC 2-8676	Maryland, Baltimore.....	PL 2-3500	Oregon, Portland.....	MO 5-8181
Connecticut, Hartford.....	BU 9-1551	Massachusetts, Boston.....	AV 2-0010	Pennsylvania, Harrisburg.....	CE 8-7244
Florida, Jacksonville.....	EL 4-1414	Michigan, Detroit.....	WO 3-1060	Philadelphia.....	SA 7-2604
Miami.....	OX 1-8980	Grand Rapids.....	GL 1-2911	Pittsburgh.....	MO 1-2100
Georgia, Atlanta.....	CE 7-1531	Minnesota, Minneapolis.....	ST 9-2466	Tennessee, Memphis.....	WH 8-4443
Hawaii, Honolulu.....	6-3641	Missouri, St. Louis.....	PE 1-6880	Nashville.....	CY 1-4122
		Nebraska, Omaha.....	733-4114	Texas, Dallas.....	FL 1-9907
		New Jersey, Newark.....	MA 2-6250	Houston.....	WA 3-7630
		New York, Albany.....	HE 6-0701	San Antonio.....	CA 7-7375
		Buffalo.....	TX 6-8803	Utah, Salt Lake City.....	EM 4-5620
		New York.....	PL 7-6200	Virginia, Richmond.....	BE 3-6947
		Syracuse.....	GR 5-9904	Washington, Seattle.....	MA 3-5474
				Wisconsin, Milwaukee.....	SH 4-9860

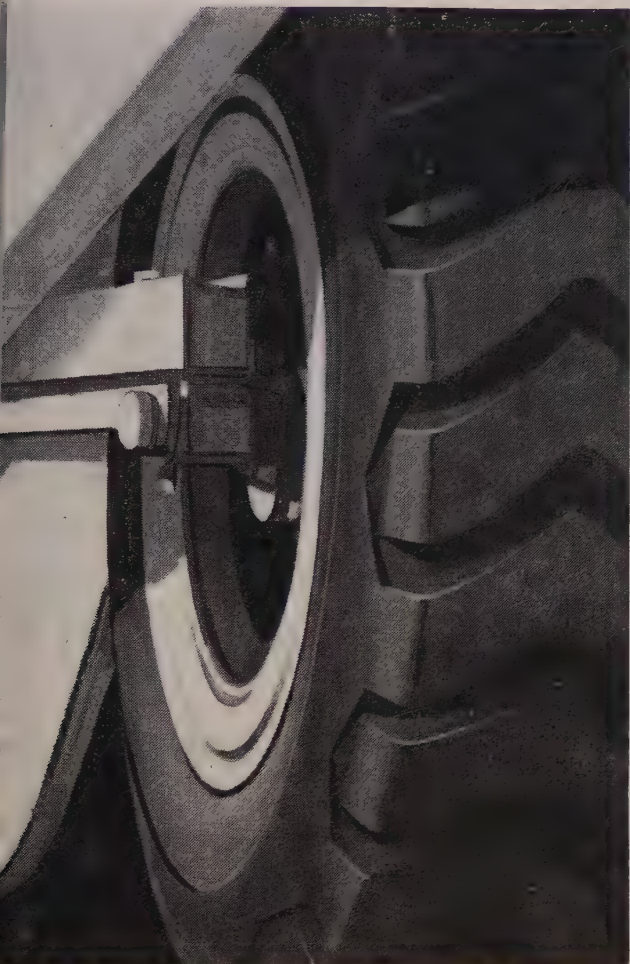
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WESTERN CONSTRUCTION—December 1960

NIGHT DAY



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Wide Base* Super Rock Grip
Deep Tread*
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Firestone

FROM RUBBER FROM START TO FINISH

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in Eyewitness to History every Friday evening, CBS Television Network.

WESTERN CONSTRUCTION—December 1960

Ford announces new pickup in 1961 line

In its new low-cost Econoline series, Ford Motor Co. announces a pickup truck on a 90-in. wheelbase. The Econoline units handle a volume and load comparable to conventional pickup or panel trucks, yet have far less weight, greater maneuverability, and much better

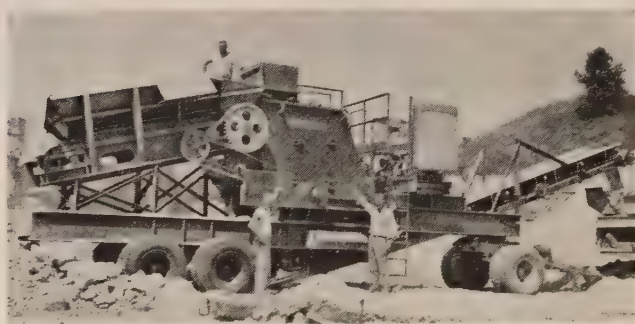


economy. They are powered by a modified version of the economical 85-hp. Falcon engine and have an overall length of 168 in. The engine is mounted forward beside the driver's seat. The pickup weighs only 2,389 lb. and has a 73-cu. ft. volume in the box. Payloads up to about 1,700 lb. can be carried. An 8-passenger bus model is also included in this series.

... Circle No. 173

Impactor features over-all rugged design

Performance and design details have been released by Lippmann Engineering Works, Inc., on its new 40 x 36 single-impeller impactor. Field tests indicate that the unit can maintain a steady output of 175 tph., or better, producing minus 3-in. limestone with 2-in. grate opening. Peaks of 210 tph. were recorded in extensive testing. Product gradation was exceptionally uniform. An improved design provides for use of double-reversible rotor hammers which can be re-



versed 180 deg. as well as end-over-end to provide four wearing surfaces in place of the customary two. Examples of rugged design are: (1) extra-rigid shaft that measures 8 1/8 in. at the rotor, (2) tapered double roller shaft bearings, (3) 1 1/2 in. thick manganese liners, and (4) oversize feed-opening with comparably large upper chamber that prevents bridging of large pieces. Recommended power for the machine is 150 hp. and operating speeds extend from a low of 425 to a high of 725 rpm. The new design is also available in a 45 x 48 in. size.

... Circle No. 174

News of DISTRIBUTORS

Intermountain distributor named

Holland Equipment Co., Salt Lake City, Utah, has been appointed distributor for Amsco Simplex teeth and adapters in the Intermountain area. These teeth are available for all types of dipper and other buckets in the earth-moving field.

Managerial changes in Reno firm

Sanford Tractor & Equipment Co., Reno, Nev., announces the following managerial appointments: George Miller, general manager; Frank Stauts, sales manager; Bob Heiderman, parts manager; Bob Dunn, service manager; Fred Carlson, credit manager; Elwood Kaiser, office manager; Harvey Gordon, personnel manager, and Marta Sanford, advertising manager. This distributor recently added a new Bacha rack pump test stand in the tractor shop and is installing a new dynamometer in the truck shop.

New sales manager; new account

Lloyd J. Klingler was recently appointed sales manager of Hall-Perry Machinery Co., Butte, Mont. He will live in Billings and supervise sales work for the entire Hall-Perry organization. Well known in Billings, Klingler has over twelve years experience in the heavy equipment field. Hall-Perry recently took on the Trojan tractor shovel line manufactured by Yale & Towne.

Personnel change

Dean Pefley has recently joined the Construction Equipment Division of Star Machinery Co. in Seattle, Wash., replacing Frank S. Kline.

Promotions at Moore Equipment

H. W. Moore Equipment Co., Denver, Colo., announces the appointment of Jean Parkinson as supervisor of parts and service. Parkinson has been with Moore for two years as service manager. In conjunction with this appointment, Les Meisner, former assistant parts manager, has been pro-

moted to parts manager, replacing Hank Nerheim who has moved to Florida.

New Insley dealer

Insley Manufacturing Corp. announces the appointment of Fred E. Barnett Co., San Francisco, as dealer for the northern-coastal and north-central counties in California; all of Oregon, except Wallowa County; and the southern counties in Washington.

White appoints distributor

The White Motor Co., a major heavy-duty truck manufacturer, announces the appointment of Lou Marietta as distributor for White, Autocar and White-Freightliner trucks for Ventura, Santa Barbara and San Luis Obispo counties in California. Marietta recently took over as president and general manager of the facility which operates under the name of Trucks & Equipment, Inc., and is located at 3400 Ventura Road, Ventura.

Cal-Rex opens Berkeley office

Cal-Rex Machinery Sales, Los Angeles, Calif., exclusive distributor of Rex construction machinery, announces the opening of a new branch office and warehouse at 2940 Seventh St., Berkeley, to serve the Northern California area. C. R. Angell, Jr. has been named branch manager of the Berkeley office and will be assisted by William F. Reed, sales representative; Russell L. Jenzon, parts and inside sales; and Robert K. Roup as service representative.

Veteran heads Cummins service

Aldon C. "Bud" Burrill has been appointed service manager for Cummins Colorado Inc., locally owned distributor organization for Cummins diesel engines, with headquarters in Denver. Burrill boasts more than fourteen years experience on Cummins engines. Prior to his move to Denver, he was a sales representative for the regional office in Seattle, Wash., and prior to that served in Portland, Ore.

Cummins opens in Grand Junction

Cummins Colorado Inc. has opened a new branch operation in Grand Junction, the third expansion for the Denver based operation. Located at 2969 North Ave., the outlet will feature complete service facilities and complete stock of Cummins diesel parts. Managing the new plant is Frank M. Everett, widely known in the diesel engine field throughout Colorado.

R. E. Stiegele named Deere dealer

Richard E. Stiegele has been appointed representative for John Deere industrial tractors and equipment to serve the area around San Jose, Calif. Stiegele's career spans 25 years in the application of industrial equipment, with Caterpillar and Hyster in sales and parts merchandising posts. In addition to the full Deere Line, Stiegele also handles ESCO points and adapters, crusher parts, dozer and scraper blades; Aeroquip hose and Mac-hyite wire rope.

WMC named Yale truck rep

Western Machinery Co., Salt Lake City, Utah, has been appointed franchise representative for the sale and service of industrial lift-trucks and tractor shovels manufactured by the Yale Materials Handling Division of The Yale & Towne Manufacturing Co. A leading distributor of construction equipment since 1915, Western Machinery has sub-branch sales operations in Boise and Idaho Falls, Idaho. The Salt Lake operation covers western Wyoming, southern Idaho and northeast Nevada besides the Salt Lake area.

M-F announces Western dealers

Appointment of General Service Co., Ogden, Utah, and C. Jim Quinn Co., Tulare, Calif., as area dealers for Massey-Ferguson is announced. These companies will handle M-F industrial equipment including tractor shovels, tractor-mounted backhoes, loads and other power matched attachments.

Western representatives appointed

Oxy-Catalyst, Inc., manufacturer of catalytic automotive exhaust purifiers, announces the appointment of the following representatives in this Western area: Landes, Zachary & Peterson, Denver, Colo., Foster Equipment Co., Honolulu, Hawaii, and Crown Machinery Co., Mount Vernon, Wash.

A-C appointment in Washington

Hatten Machinery Co., Seattle, has been appointed western Washington dealer for Allis-Chalmers Construction Machinery Division. As exclusive A-C representative, the Hatten organization offers complete repair facilities, a full line of factory-quality parts, with experienced field service men readily available for any problem.

MANUFACTURERS

R. A. Cook joins American-Marietta

Robert A. Cook has been appointed sales promotion manager of American-Marietta Co.'s Construction Equipment Division, Milwaukee. Cook was formerly advertising manager of Hevi-Duty Electric Co.

Baumann is new Euclid rep

J. W. Bloomquist, sales manager of Euclid Division of General Motors Corp., announces the appointment of Fred L. Baumann as district representative in the Pacific Northwest. His territory includes western Washington, western Oregon and northern California, as well as British Columbia, Canada.

Lee heads Case marketing division

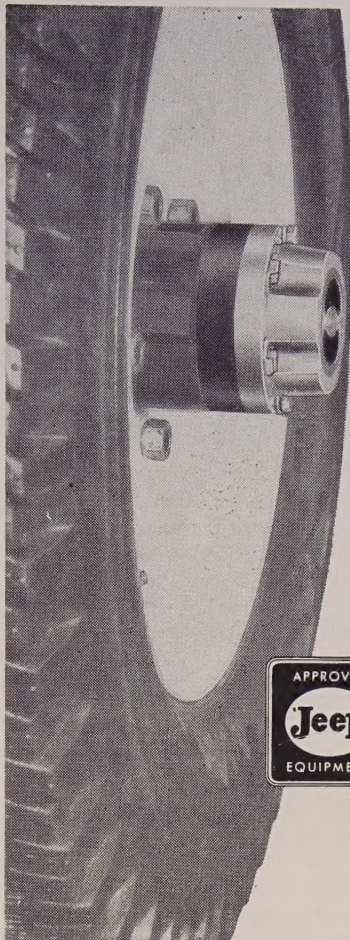
A. Earl Lee has been appointed vice president in charge of the newly established Marketing Division of J. I. Case Co., manufacturer of industrial tractors and equipment. Lee, who moves up from marketing coordinator, was formerly associated with Massey-Ferguson before joining Case.

New sales and distribution heads

McCulloch Corporation, manufacturer of power chain saws and other engine products, has appointed Donald C. Blasius general sales manager, having over-all responsibility for the nationwide sales and service of McCulloch products. Assuming Blasius' previous post of distribution manager is Bill Johnson, who has been with McCulloch since 1957.

Atlas Copco names sales engineers

Appointment of Richard J. Far-num and Edwin P. Montague as sales engineers for Atlas Copco Pacific, Inc., is announced. Atlas Copco is the world's largest exclusive manufacturer of air compres-



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4-wheel drive!*

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**stop front end drag, wear,
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DEALERS

M. W. (Bill) Cassidy, Seattle, Washington, Phones: ME 2-6622 — ME 2-1932; Myrl Bartmess, Boise, Idaho, Phone: 3-8196; M. G. (Mike) Ervin, Los Angeles, Calif., Phone: MA 9-2181; Robert J. Binford, Millbrae, Calif., Phone: OX 7-1839; Ralph A. Bartlett, Sacramento, Calif., Phone: GI 1-0181; S. T. Wyndham, Seattle, Washington, Phone: LA 5-8496; Bob Fashbaugh, Prescott, Arizona, Phone: HI 5-0557

D-A LUBRICANT COMPANY, INC. • Indianapolis 23, Indiana

... for more details, circle No. 47 on Reader Service Postcard

sors and pneumatic equipment. Farnum comes to his new post from Dorr-Oliver, while Montague until recently was with Yale & Towne Manufacturing Co. Both men will be headquartered at San Carlos, Calif.

New OTC Northwest sales managers

Robert Allyn, distributor sales manager, Owatonna Tool Co., announces the appointment of John Hann and Robert Wilkinson as OTC district sales managers for the Oregon, Washington, and Northern California territory. Both men have considerable sales experience and will offer valuable service to distributors in the area.

Personnel changes by Edwards

Announced by E. H. Edwards Co., South San Francisco, Calif., wire rope manufacturer, are three personnel changes. Fred M. Butler, district manager in San Francisco, has been named branch manager in Seattle. He succeeds John W. Hockaday, who was selected to manage the Los Angeles Branch. Michael I. McCarthy, sales representative for Edwards in the Bay Area, replaces Butler at San Francisco.

DeLong retires; Nelson elected

James E. DeLong, president of Waukesha Motor Co., manufacturer of heavy-duty internal com-



De Long



Nelson

bustion engines for nearly sixty years, has announced his retirement. His successor is Charles E. Nelson, Jr., formerly executive vice president, who has been with the firm since 1929.

White Motor acquires Oliver Corp.

The White Motor Co.'s newly-acquired farm and industrial equipment business is to be operated as a wholly-owned separate subsidiary under the name of Oliver Corporation and continue manufacturing operations in all plants. Announcement was made by J. N. Bauman, White Motor president, and the man named as the new president of Oliver, Samuel W. White, Jr., who has been with Oliver for fifteen years.

Continental opens on West Coast

Continental Motors Corp. has opened West Coast offices at 3402 Century Blvd., Inglewood, Calif. C. J. Reese, president, said the new office is staffed to furnish engineering assistance to prospective users of Continental engines in the area, as well as field follow-up.

Kaiser Steel sales promotions

Thomas H. Wakeman and Jack H. Webber have been appointed to management positions in the sales

division of Kaiser Steel Corp. Wakeman has been named manager of plate, structural, and bar sales in Oakland, Calif., while Webber will fill Wakeman's previous post as district sales manager at Tulsa, Okla.

Barker named area service engr.

John W. Barker has been promoted by Barber-Greene Co. to area service engineer in the Pacific Coast states of Washington, Oregon, California, Nevada and Arizona. He will headquarter at B-G's branch office in South San Francisco. Barker replaces Harry Jackson who resigned because of health and family considerations.

Buffalo-Springfield promotes two

H. J. "Jack" Allen has been promoted to vice president of sales by Buffalo-Springfield Co., manufacturer of compaction equipment and



H. J. "Jack" Allen

drills. Glen E. Moore moves up to assist him. Both men joined Buffalo-Springfield in 1959 when Star-drill-Keystone Co. was acquired by Koehring.

L-W receives achievement award

LeTourneau-Westinghouse Co. has received a citation for "outstanding achievement in military ground support equipment . . . and, for outstanding engineering development of the 'Goer' support vehicle." The award was presented by the publication *Ground Support Equipment* and was accepted for the Peoria firm by L. A. Depolis, L-W vice president-marketing.

Ottawa appoints sales manager

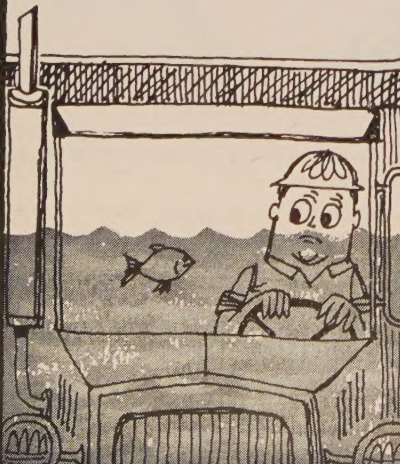
Appointment of Fred A. Strine as Ottawa sales manager is announced by Charles A. Watson, general sales manager, Equipment Division, Young Spring & Wire Corp. Strine will be responsible for sales of all construction equipment manufactured by the Ottawa Steel Division.

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... for more details, circle No. 49

L-W promotes Lloyd Rager

Announcement is made of the appointment of Lloyd A. Rager as manager of the new Products Marketing Department of LeTourneau-Westinghouse Co. Rager moves up from the post of product manager of the Motor Grader Division.

Fastener firm opens S.F. warehouse

A new factory warehouse to service Bay Area users of industrial fasteners has been opened at 1700 Bancroft Ave., San Francisco, by Russell, Burdsall & Ward Bolt & Nut Co. RB&W's regional sales office under John Boyd and Robert Blanchard, will also be at the warehouse location, as well as Edward Newhall, from Kortick Manufacturing Co., the manufacturer's former Bay Area distributor.

G. J. Tupac named NCMPA rep

George J. Tupac, Van Nuys, Calif., has been appointed division engineer of the National Corrugated Metal Pipe Assn., to represent this group as well as the California Corrugated Metal Pipe Assn., with headquarters in Los Angeles.

J. P. Rudow becomes NW manager

John P. Rudow has been appointed Northwest district manager for Smith Engineering Works, a major manufacturer of mining, quarry and gravel pit machinery. Rudow, who will work out of the Portland, Ore., office, succeeds William P. McConnell, who now becomes sales manager in Milwaukee. Nicholas J. Arnold succeeds to Rudow's former position of chief service engineer.

Laegeler named Hough v.p.

Announcement is made of the appointment of Jules C. Laegeler

as vice president in charge of engineering for The Frank C. Hough Co. He formerly held the position of chief engineer. Announced simultaneously is the appointment of Keith W. Kampert as chief engineer, product design; and Thorvald Granryd as chief engineer of research and development.

ESCO builds steel service center

One of the most modern steel service centers in the West is being constructed by ESCO Corporation (formerly Electric Steel Foundry Co.) adjacent to its main plant at Portland, Ore. Scheduled for completion early in 1961, the center will house the offices and customer service facilities of ESCO's Portland sales district.

Lewin heads Carter pump sales

Ralph B. Carter Co. has named Fred E. Lewin as vice president in charge of sales and director of marketing for its pump division. Operation of sales services for the firm's entire "Humdinger" line is now consolidated under the supervision of Lewin, who has been with the firm for 28 years.

Transportation center planned

PROPOSED for an important site on Seattle's water front, a Transportation Center, estimated to cost \$21,000,000, has been announced with completion to coincide with the Century 21 Exposition. The proposal calls for facilities for local ferry lines, shops, offices, an aquarium, and hotel accommodations.

The center would occupy a frontage of more than 1,000 ft. in the vicinity of Marion St., and a setback would provide a park-like area.

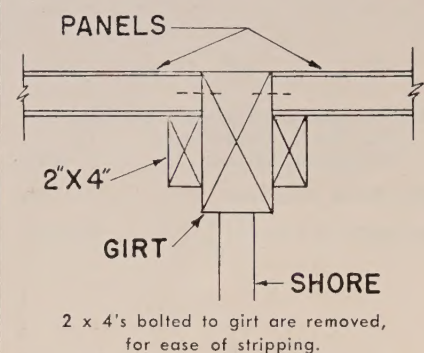
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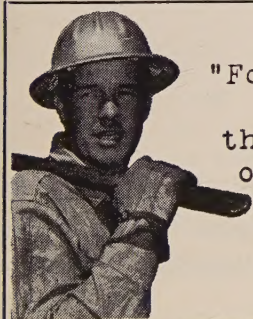
Seattle 8, Washington

Phone: MAIn 2-5153

2112 North Rosemead Avenue

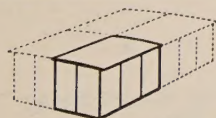
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