



New-Size Ford 4110 LCG with Ford seven-foot flail mower

NEW-SIZE FORD LCG's with POWER SHIFT

or clutching—all the while maintaining constant rated PTO speed. Mower plug-ups can be avoided and tractor speed instantly adjusted to mowing conditions.

Two power sizes: New-Size Ford 2110 LCG delivers 30 PTO hp* with gasoline engine. May be specified with four- or eight-speed manual or 10-speed power-shift transmission. New 4110 LCG delivers 45 PTO hp.* Available with diesel or gasoline engine and 10-speed power-shift transmission.

No other tractors offer all of New-Size Ford LCG advantages for better mowing performance! See your Ford tractor and equipment dealer for information or write Ford Industrial Tractor Sales, 2500 East Maple Road, Birmingham, Mich., 48012 for detailed specifications.

**Maximum observed PTO hp.*

FORD

For more information circle number 1026 on card

Pipe installed, but play continues

An irrigation system consisting of 3.2 miles of PVC pipe was recently installed throughout an 18-hole golf course at the French Lick Sheraton Hotel in French Lick, Ind., without interrupting a single round.

"We didn't find a single leak in the entire system either during test-out or in the subsequent daily operation," noted Gene Stephens, owner of the Automatic Lawn Sprinkler Company of Indianapolis, which made the installation.

John Brogan, general manager of the French Lick Sheraton, said, "The major factor influencing our choice was the necessity of having to have the system installed in less than five weeks." Actually, the project was completed in 4½ weeks, working in wet, spring weather.

The pipe selected for the job was 200# Type I, manufactured by Crescent Plastics, Inc., of nearby Evansville, Indiana,



from DACOVIN 52701, a dry-blend PVC pipe compound produced by Diamond Alkali Company.

The compound meets ASTM and D of C requirements and is approved by the National Sanitation Foundation. Dia-

Continued on page 44



There's Carlyle Golf Club Quarry Tile at The PGA National Golf Club...

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MOSAIC



For more information circle number 1027 on card

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Screening*
Jobs

**BIG,
LITTLE
AND
IN-BETWEEN**

**K-10 Shredder-
Elevator and
Screener for
hand shovel
feed.**



B Models, like their big brothers, pass materials (wet or dry) through a synchronized dual assembly for instant action and complete shredding, aerating and mixing. Screener attachment, using shredder's power, is available.

*Screener attachment optional
— removes debris from
shredded material

CL Models provide the complete high-volume processing plant—three size capacities 75, 100, and over 200 cubic yards per hour. Load directly into truck.



The Lindig "D"—Two sizes available (20 or 15 yards per hour). High volume and high discharge level. Use inside or out—tractor bucket feed.



L Models with belt conveyors load shredded materials directly into trucks or direct to storage areas three sizes (25, 40 or 60 cubic yard capacity).



All around it's LINDIG, the complete line with Use-Versatility for top soil suppliers, nurserymen, florists, municipalities, golf course superintendents, park and landscape people, universities, peat processors, mushroom growers . . . you name it, there's a LINDIG model to fit your purposes.

All LINDIG equipment features exclusive hammermill action—users benefit with quality production and with time and labor savings. Most models have optional screener attachment for preparation of stone-free materials for top dressing, fine seeding, packaging, etc.

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For more information circle number 1028 on card

mond is the nation's largest producer of powdered rigid PVC pipe compounds. The pipe ranged in size from 1½" to 6" and was installed in 20-foot lengths to minimize the number of fittings required.

Automatic Lawn Sprinkler realized a 50 per cent savings in manpower, according to Stephens. "The width of the trench required was about one-half to one-third that required for conventional piping materials," he said.

The flexibility of the pipe was cited as another factor contributing to the 50 per cent labor savings. "It can be curved without the use of fittings, thereby eliminating the initial cost of the fittings and the time required to install them," Stephens pointed out.

A four-man crew was used and the average number of feet of pipe laid per day was approximately 1,200, Stephens noted.

A major advantage of using PVC for turf irrigation systems is the reduction of pressure loss due to the glass-smooth

interior surface of the pipe, according to Stephens.

The irrigation system replaces an old system which served tees and greens only. The new system includes fairways.

The system is designed to permit complete winter drainage and prevent possible rupture caused by freezing. Threaded plugs were installed at all creek crossings. Low points in the system are drained through buna rubber-seated gate valves with 4" pipe to grade and locking cast iron covers. Gravel-filled sumps with sheet plastic covers were installed beneath the gate valves.

Plans are underway for the installation of a new irrigation system which will include fairways at French Lick's second 18-hole championship C.C. course nearby. PVC probably will be used for this system also, based on the success of the recently completed installation.

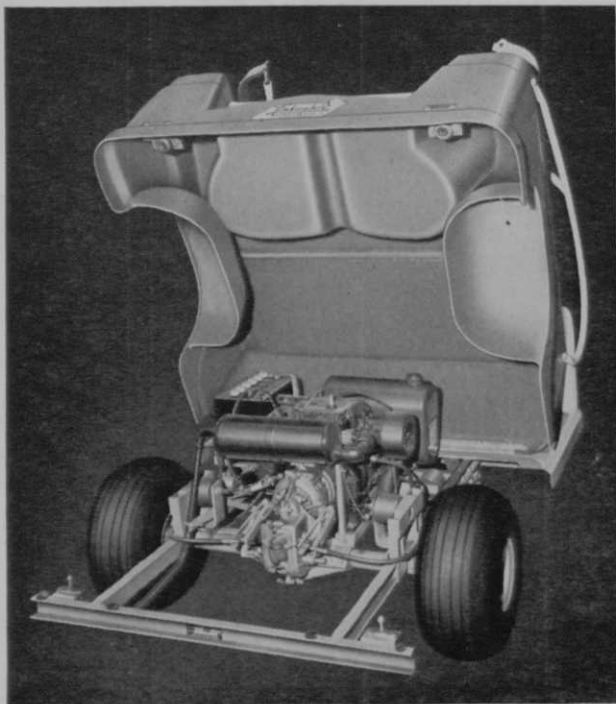
Stephens noted that PVC piping is used in the majority of turf irrigation systems installed by Automatic Lawn Sprinkler, which specializes in this type of work. •

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For more information circle number 1029 on card

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(In the West): Rain Bird, Glendora, Calif. 91740. (In the East and Midwest): Rain Sprinkler Sales, Div. L. R. Nelson Mfg. Co., Inc., 1012 West Pioneer Parkway, Peoria, Ill.

RAIN BIRD

For more information circle number 1030 on card

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... to hold moisture evenly and reduce erosion ... to help moisture, air, and fertilizer go deep into the root zone for healthy growth. To improve your fairways, plan a continuous aerating program. Follow spring coring with regular slicing every 2 to 3 weeks into fall, when you core again or renovate before grass goes into its dormant period. If your tractor has a 3-point hydraulic hitch, ask for literature on the Ryan Tracaire.



◀ See how Ryan units team up to do more jobs: improve those trouble spots on fairways with the self-propelled Ryan Matabay. It controls thatch, thins sod-bound grasses, aerates soggy turf—and is also invaluable for regular greens maintenance use. See your Ryan distributor or write:



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HELPFUL

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has this much in common with the St. Bernard: both come through as expected. Copper Sulfate is still the most dependable, economical means of controlling plankton and filamentous green algae, as well as many kinds of fungus. It is widely recommended for treating reservoirs, ponds and lakes... irrigation and filtration systems... pipes and drains. Crash programs clear away scum, murkiness and algae odor within five days. Used in the early stages of algae growth — the better way — Copper Sulfate maintains good conditions.

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PHELPS DODGE REFINING CORPORATION **PD**

300 PARK AVENUE, NEW YORK 22, N.Y.

For more information circle number 1032 on card

Winter Storage for golf cars

*Taking the right steps now
can prevent 1001 headaches
next Spring when many other
jobs demand attention.*

Golf cars going into wintertime storage in cold climates require a certain amount of care to protect the mechanical and electrical parts from deterioration. Moreover, this is an ideal time to get cars in good mechanical shape for the next golfing season. Here are some general points which apply to both gas and electric cars:

1. Cars should be parked in a dry garage or shed which will protect them from rain, snow and dust. Some amount of heating is desirable in colder areas. Bring the minimum temperature above 20 degrees to protect the batteries.

2. Check tires. Be sure they do not go flat because of a slow leak. Over-inflate by about 10 pounds of pressure before storing—especially with tubeless tires.

3. Any batteries to be used the following season should be removed from the cars before storing.

4. Remove any seats to be upholstered and send to an automobile trim shop to be recovered. Trim shops are less busy during the winter, and your cost will be less. Seats will be ready when needed.

5. If trading cars in the spring, insist your dealer pick up the trades

at the close of the season. The fewer cars you have, the less work involved.

6. Cars should be checked over very carefully for loose or damaged parts—nuts, bolts, wiring, terminals, etc. Dirt and grease should be cleaned from all areas. Also, see that your cars have been updated according to manufacturer's specifications. These are jobs easier done now *before* spring, when the rush to start the next playing season begins.

Before storage, make certain that regular lubrication and maintenance checks have been performed. On both electric and gas cars:

- Check oil level in transmission drive unit, reverse gear box and differential housing.

- Oil brake and acceleration pedal bearings, oil steering chains and body hinge.

- Inspect and tighten all electrical connections.

- Check and adjust steering chain and brakes. Lubricate brakes.

On gas cars the following additional points should be noted:

a. Drain fuel from tank and line by removing hose from tank fitting. Start up engine and run until carburetor fuel is used up and engine stops. Replace fuel line on tank fitting. Remove air intake hose at carburetor. Operate engine with starter and hold throttle open while pouring approximately 4 ounces oil (see manufacturer's recommendations) into carburetor air intake. Replace air intake hose on carburetor. This will thoroughly coat cylinder, crankshaft and bearings with a corrosion resistant oil film and it will be necessary only to clean or replace the spark plugs before starting up in spring.

b. Oil throttle, governor and choke cables at conduit ends.

On electric cars, additional points would include:

- a. Adjust drive belts and check pulleys.

- b. Lubricate speed switch, check operation and condition of contacts.

c. Inspect motor brushes and motors. If mechanical work is needed, do it in the fall and winter—not in the spring when a hundred other tasks are pressing.

As regards batteries, these should first be tested for weak or dead cells. If they are in serviceable condition, store over the winter at temperatures between 20 degrees and 50 degrees F.

Batteries should be thoroughly washed and dried, and all corrosion removed. Apply a light coat of vaseline to battery terminals and battery hold-down frames. Charge batteries to 1280 degrees specific gravity before storing and do not allow them to drop under 1260 degrees S.G. during the winter.

A temperature-corrected hydrometer is very useful to establish the true specific gravity of the batteries. If you haven't got one, keep in mind that for every 10 degrees drop in acid temperature, the actual specific gravity reading will be four degrees lower. For instance, at zero degrees acid temperature, if the hydrometer reading is 1260 degrees, the *corrected* specific gravity is only 1228 degrees. A good rule of thumb is to charge

batteries to 1280 degrees specific gravity once each month during the winter.

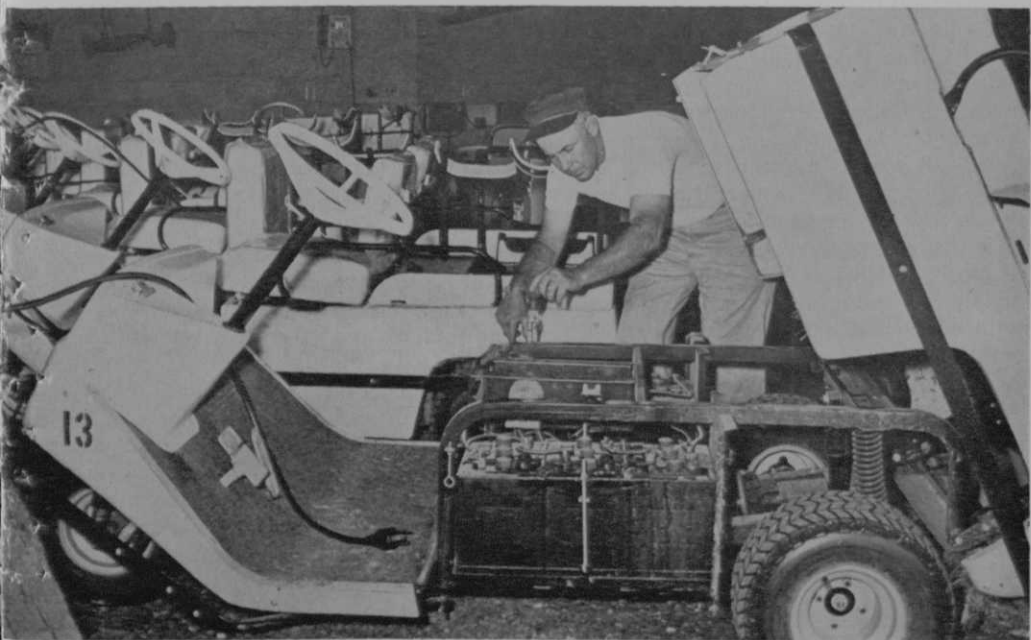
If you are charging batteries in *unheated sheds* during the winter, be sure to check the battery chargers the following day. During cold weather, timers frequently do not function properly and do not shut off automatically.

This is important. Many so-called automatic chargers are severely affected by temperature. Do not depend on them to automatically charge batteries fully. After charging, check batteries with a hydrometer to make absolutely certain specific gravity is at least 1280 degrees.

While on the subject of chargers, make certain that electric car batteries are charged with the correct 36-volt charger. Do not charge for longer than 12 hours at a time. Use a regular 12-volt automotive-type charger to charge gasoline car batteries. Do not exceed 10 ampere charge rate.

A final tip: Any reliable golf car dealer will help you prepare your cars for the winter. Many offer storage at nominal prices. Others will arrange to periodically check your cars wherever stored, and at minimum cost. •

Before storage, perform all regular lubrication and maintenance checks.



How much equipment is enough?

In recent years, many of the newly built courses have suffered because adequate equipment for maintenance was not provided for in the original budget. By the time this shortage was discovered, a number of the new clubs hadn't the money to correct the mistake. Although most of them are doing well, it will be some time before the equipment deficiency is made up and maintenance operations made adequately efficient.

On the other side of the coin, it is not unusual for older clubs to lack adequate equipment. This is no joke in an era when it is difficult to get competent labor and therefore all the more necessary to save all the time and labor possible by the use of modern equipment. In fact, it may be costing some clubs more per year to be without such equipment than the equipment itself would cost.

But what is adequate equipment?

When GOLFDOM saw that the equipment shortage of newer courses, particularly, had developed into a serious situation, we asked The Clapper Co. and Sawtelle Brothers, two experienced golf course equipment and supply companies in New England, to prepare a list of equipment essential for operation of an 18-hole course (see page 52).

The list called for equipment that, in the spring of 1964 in New England, cost \$56,000, excluding irrigation. That exact figure, of course, won't apply now, but many superintendents, we feel, will find the list invaluable in budgeting for new courses or to bring older clubs into good operating condition.

Revisions of the New England list are, of course, advisable to make it applicable to other parts of the country. GOLFDOM sounded out several superintendents in key areas. Here is what they recommended:

Major Fred Bove, supt., Brentwood

CC, Los Angeles, Calif., thought that the list might better be identified as "suggested equipment" rather than "minimum" as it is here described.

Bove commented that the 7-unit tractor and mower outfit depended on the topography of the course. Both the 7- and 5-unit fairway mowers, he added, might well be backed up by reserve units, as heavy play now demands speeding up the mowing operation. This reserve mowing equipment also called for another tractor.

The 3-gang fairway roller, Bove said, wasn't needed on southern California courses. He also thought that wise use of money would be made in fitting the general construction type tractor with a front-end loader, and by making the power sprayer listed one with a boom for large area spraying, a 150 gal. tank and 10 gpm pump.

Bove suggested the addition of three powered scooters or utility cars, a brush chipper, a chain saw, a hydraulic lift metal trailer and a flat bed trailer. To the listed miscellaneous items, he suggested adding two cup cutters, a cup setter, a cup-cutting guide, wheel barrows, flexible drag mats and ropes. He also advised that acetylene and electric welding equipment, a power sander and two cranes should be added to shop service equipment.

L. W. DuBose, supt., Houston CC, Houston, Texas made the general comment that by and large this was still a good list. To the fairways and rough equipment he suggested adding 1 General Golf Type Tractor (\$3,200), and substituting 1 Fairway Aero Blade at a price of \$675 for the Fairway Power Renovator listed. He also thought that 1-5 Unit Fairway Gang Mower (\$2,500) should be added to the equipment listed for Tees and Greens.

Continued on page 54

See chart on page 52