

# EQUIPMENT: How to maintain it and when to replace it

by Harold LeSieur

*Harold LeSieur is the principal of his own management consulting firm in Santa Maria, Calif. He holds an M.S. degree in engineering from the University of Southern California and an M.B.A. degree from Stanford University.*

Many turf professionals "depend upon their equipment, but don't treat it like they depend upon it" is the shrewd observation of an experienced equipment company service manager. Yet, imagine a total mower failure during a major golf tournament, or even a shabby putting green during a heavy weekend of play—all for lack of a mower part. Effective preventive maintenance is the answer, of course, but when this is no longer economically justified, equipment should be replaced without delay. Nice in theory, but this does not happen very often, even for affluent golf clubs or well-budgeted cities.

What is the answer? Without systematic programs of maintenance and replacement, your equipment is "Soon worth only what it weighs", says Joe C. Judd, Los Angeles City Parks Chief Maintenance Supervisor. But if you "learn the truth" about your equipment, he adds, and install meaningful





Superintendent Don Lokey of Valley Club in Montecito, Calif., illustrates mechanism of Toro sand trap rake, awaiting repair in his shop.

Superintendent Lokey displays spray tanks adapted for use on Cushman scooter and mounted on jacks for easy loading.



replacement and maintenance programs, you may be in for some pleasant surprises!

### Preventive maintenance pays off

Imagine a simple adjustment to reel bearings on a Toro Greensmaster III, requiring 5 to 10 minutes per cutter, becoming an \$800 plus job because all three cutting units were damaged beyond repair. Between an operator failing to disclose a "floating reel", and a mechanic who did not bother to check, this equipment continued to mow 5 days per week until it self-destructed. And not at some under-budgeted, small course but at a "prominent, exclusive" club in Southern California. On the other hand, consider a California college operating a Toro Superpro which broke down every year for 5 years, then went 2½ years without missing a mowing schedule or needing a major repair. The difference? A matter of preventive maintenance in the second case, according

to Service Manager John Johnston of Toro Pacific Distributing Co.

Nor is this problem limited to golf courses. Foreman Leo Nichols of Ventura County in California tells of a large Yazoo riding rotary mower brought into his shop for replacement belts. An alert mechanic found also two bad bearings, adjusted the steering mechanism and replaced a defective battery cable and spark plug. This mechanic is instructed to go over such equipment "each time for all possible defects", and so he did. "We don't want any surprises for our operators," says Nichols. "If the equipment in our shop is not ready to use when it leaves, my people will hear about it," he adds.

"A half-day job costing \$50 can easily lead to a week's downtime with a \$300 pricetag", explains Toro's Johnston, "simply because communications are bad and preventive maintenance is neglected". Operators tend to let equipment get dirty, he continues, "and 18 pounds of grass hung-up may be hiding 18 grease fittings". This is

where damage will occur, Johnston adds. In his estimation, a piece of equipment "will operate about as it looks". Thus, 8- or 10-year old equipment which is clean and sharp will probably operate better than 3 year-old machines which have been neglected. With this philosophy in mind, Johnston claims Toro "goes overboard" on its warranty program—even after 2 years on a one-year warranty—providing the customer has taken "exceptional care" of the equipment.

What constitutes exceptional care is probably included in Johnston's recommendation to put away equipment each night in a "semi-storage state". This he defines to include washing, drip-drying, flushing and lubricating bearings, "eyeballing" for loose fasteners and repairing as needed. He especially advises operators to listen for bad bearings or other suspicious sounds, and report them to a mechanic. If equipment is stored with moist and contaminated bearings, as during the common 3- or 4-day weekends, corrosion pitting will commence. It

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is small wonder, then, that working this equipment a full day without lubrication can lead to early failure.

By comparison, there is little difference between the recommended Toro Pacific preventive maintenance procedure and that of Lakeside Country Club in North Hollywood. Small additions include superintendent Eichner's recommendations to replace expendable parts, (chains, sprockets, belts) before failure; a minor tune-up of engines; plus sharpening and adjusting reels. To this he adds checking mower bearings for end play — an adjustment requiring only a "few seconds" that can easily save early bearing replacement.

There is a right way and a wrong way to change oil, and a better way to insure correct greasing! Oil should be changed only when hot, advises Toro's Johnston, since contaminants picked up by oil will not remain suspended when oil cools. Again, he cautions to wipe off the oil filter before opening or closing, to avoid debris collecting in the oil. Oil changing on air-cooled engines is doubly important, Johnston cautions, since these engines run hotter and are not equipped with oil filters. As for greasing, reverse the usual order of greasing, attending first to those fittings commonly neglected — the hard-to-get-to ones. To accomplish this, use a color coding system, with "code" recorded on underside of engine hood. For example, all fittings due for daily greasing can be designated by a yellow marking; all scheduled for weekly attention by a green coloration.

Some equipment or components can best be described as "self-destructive," so high is their maintenance. Examples are gears and chains exposed to water and dirt, requiring constant replacement. To this list, Larry Bicking of New-Castle County, Del., adds hand-operated tools such as chain saws, rotary push-type mowers and the Weed Eater. Eichner of Lakeside Country Club nominates as the highest maintenance item of all, per hour of operation, the aerifier. On

this he claims "universal agreement," and describes his own maintenance procedure: Once per year, open cam case and replace followers (if indicated); next year, repair externals, including rod bearings and rod slide bushings. "Our machine destroys itself as it operates," he says, not unlike an automobile engine operated upside down and with no crankcase! However, results are so essential to maintaining healthy turf under traffic, "we put up with it."

### People relations key to preventive maintenance

Few would disagree with Bob O'Link Golf Course superintendent Robert W. Williams of Lake Forest, Ill., that preventive maintenance is the "cheapest, best way to go." This requires, he adds, "daily attention to machines used daily." Well and good, but there are really two "answers" to equipment longevity, according to Al Noble of B. Hayman Co. in Los Angeles. "First in importance is a motivated operator, followed by good preventive maintenance." And how to get the "man in the field" to take care of his equipment is often over half the problem.

"If we could consistently get the man in the field to take care of his equipment, this would go a long way," according to maintenance supervisor William Mc Kennrick of Los Angeles County. In this statement, he includes regular lubrication and oil changes, together with attention to "picking up bottles" before they can break blades and ruin mowers. How can this be accomplished?

Inspiring a "That's my machine" pride in each operator by "locking" each employee to a specific piece of equipment is the successful method used by the Valley Club's Don Lokey in exclusive Montecito, Calif. Even more specific is the method used by Ventura County's George Lawhead and Leo Nichols, wherein each employee is assigned to a specific item of equipment, and given two hours each Friday for the "get ready for Monday" ritual. This consists of an oil change, lubrication, filter cleaning and a hunt for loose nuts and bolts, as well

as more serious attention (as needed) by a professional mechanic.

On the same theme, with a clever variation, is the scheme used by superintendent Richard Eichner of the Lakeside Country Club. All operators are recalled from the course one hour early, every other week, on — yes, on pay days: And who forgets a pay day? While washing and oil additions are daily responsibilities of operators, this bi-weekly routine insures a regular oil change and systemic check on mechanical problems, advises Eichner.

Getting the most from your men, by establishing good communications and confidence, is the approach favored by Lokey of the Valley Club. "It takes time to build this confidence," says Lokey, "but there are few who will not respond." Working on a daily basis with his foreman on preventive maintenance, Lokey admits that periodic "jogging" of his men is necessary. However, rather than hurt a man's pride, he finds that a compliment to one soon leads others to follow suit.

It helps communications for a worker to know that he is not going to be fired if he damages equipment. As an example, Lokey cites one of his men who "froze" and drove a tractor over a 15-foot embankment from a wet, steep hill. When free from this fear, workers will be more willing to report equipment out of order, rather than just park the faulty machine and "disappear." As expressed by Toro Pacific's John Johnston, the "I didn't do it" psychology can only be overcome by constant attention to two-way communications between the superintendent, mechanic and operators.

Of course, it's not all that easy when available labor is unfitted or unskilled. A shortage of qualified mechanics is one problem. Another is the hiring sometimes, under many civil service systems, of unqualified help. Thus, passing a written test may still not insure mechanical aptitude. "When you get a good man, hang onto him" is the sensible advice of Los Angeles County's Bill McKennrick. Again, at Newcastle County, Del., a unionized shop sometimes forces superintendent





Superintendent Richard Eicher instructs operator of irrigation service vehicle at Lakeside Country Club in North Hollywood, Calif. A Cushman flat bed cart has been equipped with service box, sprinkler rack, pipe vise and air tank.



Howard Turf-Quaker aerifies turf at Lakeside Country Club. Equipment consists of tractor-towed rototiller with slicing reel.

Larry Bicking to use inexperienced people acquired by promotion or transfer. Thus, a back hoe operator or sewer tile man from Public Works may not be well suited to operating a large mower on Newcastle's stadiums and golf courses. Bicking estimates, for example, that problems with 40 percent of the mowing equipment brought into his shops could have been averted by better equipment knowledge and preventive maintenance.

Another problem is salaries too low to attract competent people. Then, misuse of equipment becomes common, according to superintendent Ed Dembnicki from the Country Club of North Carolina in Vass, N.C. "When salaries are so low, it is hard to find men who take pride in their work and can be motivated." Dembnicki is at least blessed with a competent mechanic.

One happy answer to some of these problems is the hiring of female operators. Women, it seems, have proven they can drive well and will follow instructions and precautions. As explained by Al Noble of B. Hayman Co. in Los Angeles, females don't have to prove male "macho," and will take fewer chances while driving and care for their machines as instructed (and not blow seals while lubricating!).

Taking a cue from superintendents who have had success with women in turf work, "Rich" Eichner of Lakeside Country Club plans to add separate women's facilities in his new 50 percent shop expansion.

In the last analysis, "heads up" supervision is still the most important answer to results through people (and excellent equipment maintenance as a result). A shortage of Grade A superintendents is one complaint heard from the ranks of equipment suppliers, but attentiveness to the job is even more important. One example will illustrate the point. At a prominent course in Southern California, five 7-gang mowers were purchased between 1965 and 1975, because reels and side plates were consistently broken. Reason: Operators were fording rock-strewn creek beds (an 18-hole "finger" course) without declutching reels or lifting arms. This example of "flat abuse" was licked by purchase of a hydraulic mower, with easy-to-lift arms and reels. Needless to say, supervision had to be "jacked-up" as well.

At a time when skilled labor costs are escalating more rapidly than equipment prices, a premium is placed on sharp supervision. An amusing story is told of a prominent course in San Luis Obispo, Calif.,

whose "no nonsense" superintendent demanded that his men take care of their scooters. When overtaken by this alert professional, an operator who was "drag racing" his scooter was summarily sentenced to walking the course for 30 days! And after 13 years, the same transportation equipment is in daily use, "and good operators have resulted."

By taking "all hands" into your confidence, superior results can be your reward. As explained by golf course supervisor Neil Beeson from the City of Anaheim, Calif. (home of famed Disneyland), "Operators can make or break a piece of equipment." Before any such equipment is purchased at Anaheim, all concerned must be consulted, and this includes actual operation by the rank-and-file employee. If the operator's recommendations are not followed, supervision feels obligated to explain exactly why.

Precisely the same procedure is followed at famed Forest Lawn Memorial Parks in Southern California. Manager of grounds maintenance Robert Davidson explains that, before purchase, equipment must be driven by actual operators on the steep slopes of Forest Lawn's main park. This provides not only better input to the final decision, but

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helps to win the cooperation and interest of operators in their equipment. This is valued, considering the hazards and abuse mowers encounter in the unique and difficult environment of steep cemetery hill-sides.

"Don't be afraid to ask dumb questions. They're easier to handle than dumb mistakes." This bit of advice hangs as a sign over the shop bench in the County of Ventura's landscape maintenance headquarters. This attitude, spelled out in actions as well as words, should go a long way toward winning worker cooperation in effective equipment maintenance.

### "So you think you have problems?"

If you think your turf equipment is subject to abuse, just consider the difficult situation with cemeteries. Especially is this true with Forest Lawn and Mt. Sinai Memorial Parks, lying astride mountainous Griffith Park in North Hollywood, Calif. "Endlessly rattling over bronze or stone grave tablets does our equipment no good," says Grounds Maintenance Manager Robert Davidson of Forest Lawn. Not only this, but machines at both cemeteries must operate continuously on grades of 30 percent or better, often on wet grass, and with constant stop and go operation during visitation hours. To compound the problem, stones from freshly dug graves and loose wire, sticks and glass vases from flower arrangements are often lost until discovered by a mower operator! Or until the teeth of a turf aerator are broken off.

Superintendent Al Dennis of Mt. Sinai estimates such treatment shortens the life of his equipment by at least 20 percent, and causes "nothing but high repair bills."

To remedy this problem, Forest Lawn professionals literally rebuild a standard 76-inch mower, and "give back" some \$1,300 worth of gear to the vendor on a \$3,000 machine. This includes the sit-down

sulky, since safety requires the mower be remodeled into a stand-up machine with trailer in rear. Then, a customized steering gear is added to suit each operator's height, dual rubber wheels may be added, a hand emergency brake and kill switch installed, and the reels and frame "beefed up."

If Forest Lawn officials could buy this type of equipment, or at least more rugged mowers, they might gladly pay an extra \$1,000 for a 5-gang mower costing \$4,600. Most of these, observes Davidson, are manufactured for mowing bent-and bluegrass on golf courses or median strip grasses to a depth of 2 inches to 6 inches, not Kikuyu grass to 3/4 inch on such steep slopes. "And they can't understand why their machines won't work," adds Davidson.

To be sure, memorial parks do not have a corner on difficult equipment problems. Consider operating mowers on a slope of the Rocky Mountains, with a total fall of 350 feet in little more than one mile. "We have tipped a few mowers over," reports Broadmoor Golf Course Director Charles Clark, "and our National mowers take a real beating in only 2 years."

A more usual situation is the maintenance shop located remotely from any golf course. Lack of a blacktop road to such a shop, even if only a quarter mile away, increases wear by an estimated 20 percent. Another common problem for municipalities, reported by Larry Bicking of Newcastle County, Del., is the "pooling" of turf equipment. In this case, where machines are not assigned to individual operators, equipment may be treated with less respect and be much more subject to abuse.

Speaking of unusual examples of heavy wear and maintenance, the cleaning of seaweed from beach sand by the Huron-Clinton Metropolitan Park Authority of Detroit has to be unique. Director David Laidlaw describes a converted potato and bean digging machine which picks up a 6-foot swath of seaweed and sand, conveying the mixture by belt and separating by rough screening. This machine is towed by a tractor and is subject to heavy wear from the sand and high

maintenance requirements. The same is true for a separate tractor-towed trash pickup trailer.

### "East is East, West is West"

Interesting regional differences exist in maintenance practices between courses, based on three months of heavy winter weather in the East and up to 363 days per year of playing time on the West Coast. "Our course is closed only on Yom Kippur each year," explains Superintendent David Mastroleo of the Hillcrest Country Club in Southern California. "We mow our fairways like crazy all spring and summer," he adds. Consequently, equipment on California courses is used continuously and must be repaired "on the run," in his words. Having worked at Arrowhead Country Club and Addison Golf Club, both in Illinois, Mastroleo is qualified to note the differences between eastern and western maintenance practices.

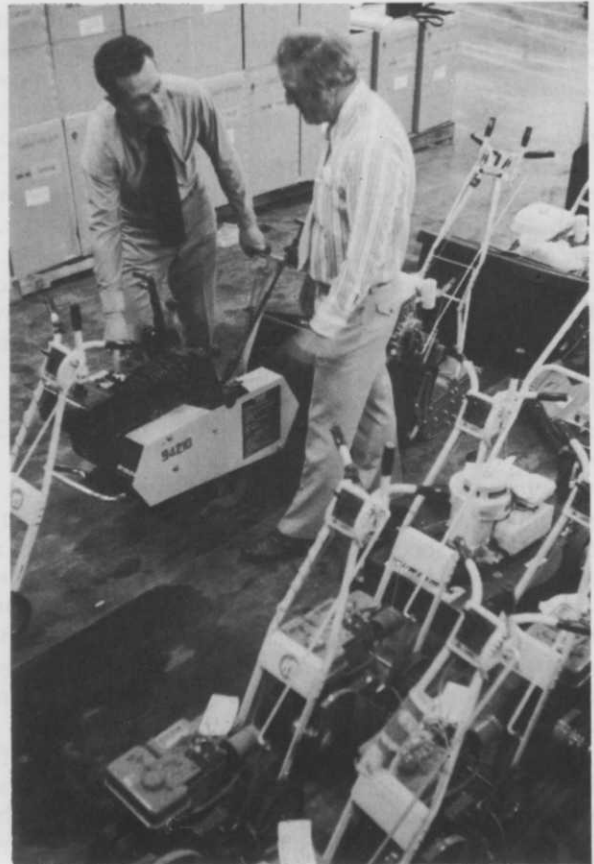
Each winter, an eastern or mid-western golf course will typically go through its equipment thoroughly, repairing and repainting. Engines will be torn down, if needed, gears will be checked, then bearings and bushings replaced. Even Colorado Spring's Broadmoor Golf Course, considered the "Far West" to many Easterners, undertakes its heaviest rebuilding and repainting jobs when the "frost is on the ground." Again, bermudagrass goes dormant from November to mid-March in California, often accompanied by rain (except under present drought conditions). Consequently, Forest Lawn Memorial Parks uses this period to rebuild its mowers, since bermuda is its principal turf grass.

Even further west, Lokey of Montecito, California's Valley Club prefers the January-February "frost" period to pull down motors, regrind reels and generally to anticipate bearing and other jobs which could "hold up the show" in summer weather.

In one sense, the luxury of warm weather may tempt some to neglect their equipment. Bob O'Link's Robert Williams notes eastern clubs all keep their equipment inside. Not so in the South, especially Florida, and in California. Here he observes open

Chief Maintenance Supervisor Joe C. Judd illustrates operation of sod cutter to Central Storeroom Manager Howard. A backlog of new machines, purchased under engineered equipment replacement program, is kept at this Los Angeles City facility.

Superintendent Richard Eichner inspects greens mowers lined up for repair in machine shop of Lakeside Country Club.



equipment sheds, and equipment sometimes left to rust. Does this practice unduly hasten the need for replacement, he asks?

### Replace or repair?— THE BIG QUESTION

To replace or to repair? That is the question. And there is no one answer, even for the same class of equipment, since each user has a different problem.

To illustrate the divergence possible, we need but consider two large governmental units in the same area, namely the City and County of Los Angeles.

Los Angeles City has gained some reputation for its turf maintenance equipment replenishment program. This emphasizes prompt replacement of on-line or high frequency use equipment, according to engineered standards of life expectancy. Under this program, triplex and 30-inch mowing units are removed from front-line service promptly after 4 years, to a standby or low-frequency use. Chain saws and edgers are retired after only 2

years. The results, according to Chief Maintenance Supervisor Joe C. Judd, have been a better job, newer equipment to work with and less cost in the long run. There is now less temptation for supervisors to "squirrel away" extra mowers. Further, careful accounting of equipment has actually permitted Judd to set up a "spare and loan equipment program" with the same equipment inventory. Needless to say, equipment distributors such as Toro Pacific are very fond of the L.A. City program!

At the other extreme is Los Angeles County, which Toro Pacific's Johnston rates as having the "best parts department in the country and a shop second to none." Here the emphasis is on "keeping equipment until it begins to cost money," and probably well beyond.

Nor is Los Angeles County alone in this approach. In the very same area, the City of Los Angeles School District maintains two separate repair shops, to service mowers, tractors, sprayers and other equipment used in its 700 square-mile maintenance territory. "We

have to live with our equipment longer than we like," says James H. Lane, gardening technical supervisor. Operating under a predetermined dollar budget, equipment used 10 to 15 years is not at all uncommon. "We may buy a piece of equipment two times over," he explains, "really beyond the point of economic feasibility to repair." A good preventive maintenance program helps to compensate for this policy, and this school district hires four travelling equipment repairmen to make minor repairs. Larger jobs are picked up by truck and transported to one of two central machine shops.

Even prestigious golf courses have had the problem of antiquated equipment to overcome. Both superintendent Terry Bucken of the Riviera Country Club in Pacific Palisades, and Don Lokey with the Valley Club of Montecito, both in California, speak of replacing high maintenance, "museum"-type equipment. In fact, Lokey proudly displays a gear-driven spray rig from the 1920's, no longer in use but recalling memories of a steam cal-

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## Equipment

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liope.

There are really only three basic approaches to equipment replacement, according to Robert Davidson, manager of grounds maintenance for the largest of Forest Lawn Memorial Park cemeteries in Southern California. Thus, one can (1) replace equipment after a set number of years (say, 5 years average), or (2) replace when maintenance becomes too high, or (3) "work over old machines to keep them running." This, he admits, is the Forest Lawn approach, partly because of the difficulty in "getting the weak points worked out." With steep hillsides to contend with, plus stop and start mowing over rugged terrain Forest Lawn finds it necessary to rebuild mowers to its own specifications.

Still another municipality which must use equipment "typically to the breakdown point" is the City of Norfolk, Va. Like California, Norfolk has a temperate, long growing season, so that tractors and mowers are in constant use. Responsibility for maintaining 4,000 acres of turf, Parks & Recreation Director James Colley believes down-time would be reduced, and performance increased, if most equipment were replaced at least one year earlier. At Norfolk, Colley explains, the Central City garage must "sign off" on all existing equipment, certifying it as "beyond repair."

Assuming a reasonable equipment replacement program stands a chance at your institution, what kind of service life does experience show to be possible? This one needs to know in setting up a budget and depreciation schedule, a procedure lauded by such oldtimers in the golf superintendent business as Art Twombly of the Bel Air Country Club near Beverly Hills, Calif. and GCSAA past president Bob Williams of the Bob O'Link Golf Club in Lake Forest, Ill. For a walking green mower costing approximately \$1,000, Twombly considers 4 to 5 years of life "about it," if the machine is run daily. Other estimates may vary from this. At the City of Anaheim, Calif., golf course supervisor Neil Beeson (who teaches

equipment maintenance at a nearby college), rates the practical life of greens mowers at only 3 years, although his city programs a 5 year life. Famous Broadmoor Golf Course in Colorado Springs, places a 3 year schedule on their mowers. "After this," says superintendent Tommy D. Anderson, "we may move this equipment down and use as a tee mower."

Walt Disney World in Florida follows the University of Florida's Extension Service recommendations of 3 years life for riding-type greens mowers and triplexes, and 5 years for fairway and rough mowers. Superintendent Larry L. Kamphaus adds that one-cylinder machinery is replaced in less than 3 years, as vibration and metal fatigue soon wear out such equipment.

Many equipment replacement decisions can be made as a matter of "common sense," without the benefit of formulas. In fact, formulas are seldom used in actual practice, although espoused by some equipment manufacturers. On small equipment, selling new for under \$200, such facilities as Mt. Sinai Memorial Park in North Hollywood or Bob O'Link Golf Course in Illinois simply discard such equipment after two years' use. Thus, there is no sense in buying a new \$50 or \$60 motor for a rotary trim mower costing only \$60 to \$85 in the first place. On the other hand, a \$700 motor replacement in a \$3,000 to \$3,500 Cushman Truckster is well worth considering, feels Bob O'Links' Bob Williams.

More mundane equipment, such as diesel tractors, may last from 5 to 10 years, and spreaders or renovators even "indefinitely." Twombly of the Bel Air Country Club expects no maintenance at all for the first 10 years from a Massey Ferguson diesel tractor with bucket loader and excavator. For most equipment, however, he complains, "Manufacturers are not building machines like they used to," thinking of his 1947 Buick which lasted 120,000 miles "without the head off."

Forest Lawn's Supervisor of Mechanics, John McKinney, agrees with this observation, adding that today's turf equipment engines have a "built-in" obsolescence. After 400

operating hours, he says, they begin to have problems. McKinney admits, however, that running even an automobile engine 100 percent of the time on a slant would soon wreck it.

Neil Beeson from the City of Anaheim, California is somewhat more generous in his estimate of engine life than the Forest Lawn people, probably based on his experience with less severe environments. Beeson offers a useful formula for operating costs:

Year 1) Low maintenance, excepting for accident or other major problem.

Year 2) 2 times cost of Year 1

Year 3) 3 times cost of Year 1 (or 1 1/2 times Year 2).

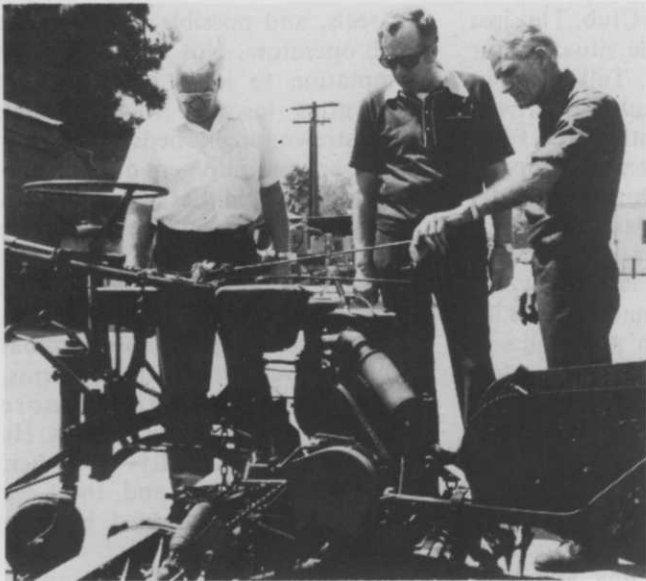
After the third year, Beeson explains, engines will probably need all new bearings, bushings and rollers, and total engine life will approximate 1,500 hours, for the environment of Anaheim's golf courses.

Of course, there is always the grey area between complete replacement and simple repair, where one can profitably rebuild equipment. Some professionals prefer this, or are forced into rebuilding by a die-hard greens committee. Superintendent "Rich" Eichner of the Lakeside Country Club considers in-house engine rebuilding a "loser". He has had two tractor engines rebuilt on the outside, and bought fitted blocks for in-house replacement of trap edgers and trimmers. But Eichner is happy for a switch to diesel engines. Now he needs only new injectors and injection pump adjustments, although he acknowledges fuel injectors require outside specialists and he prefers outside help for a major tune-up yearly.

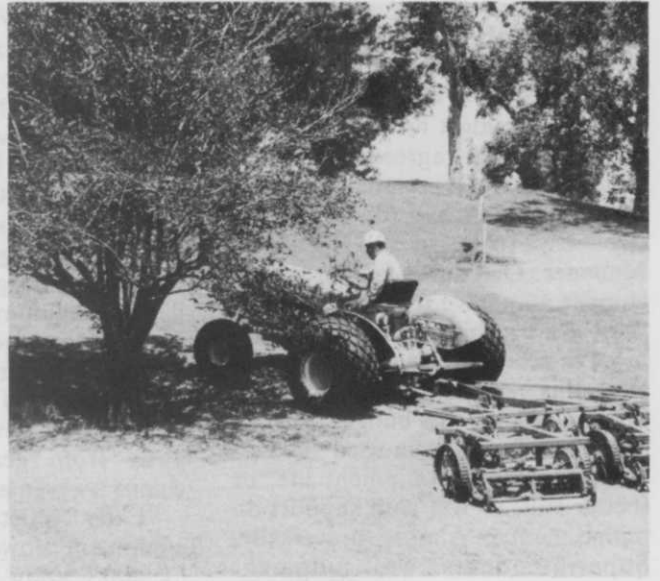
In contrast, David Mastroleo of the Hillcrest Country Club in Southern California prefers rebuilding his engines. For a greens-mower costing over \$900, for example, he can short-block his engine and replace reels, and continue to operate after 12 years. As usual, there is more than one way to skin a cat!

### Budget and inventory rated "musts"

Not every club, or even municipi-



*Mechanic answers questions concerning rebuilt 76-inch mower for Forest Lawn Memorial Park's John McKinney, left, and Robert Davidson, center.*



*At exclusive Lakeside Country Club in North Hollywood, Calif., Massey Ferguson diesel tractor tows 5-gang Toro mower.*

pality, can afford the computerized cost accounting system of the Broadmoor Golf Club, retreat of the late President Eisenhower, in Colorado Springs. Here, each piece of equipment is assigned a code number, and monthly printouts keep golf course director Charles Clark fully informed on maintenance costs. Even so, there would hardly be a single club which could not benefit by a systematic equipment inventory and a long range plan, or budget, for equipment replacement. "Remember," says Art Twombly of the Bel Air Country Club, "many of your members are business people, and you must show them how they can spend money to make money." He urges that such a budget be "properly prepared," listing each item to be replaced, with its value at today's prices "through 1995."

Riviera Country Club's Terry Bucken, in Pacific Palisades, Calif. arrived in his new job only to find no equipment inventory available. Not only did he install Hamilton Watch hour meters on major equipment, Bucken also inventoried all equipment by name, model year, serial number, original and current expected life, original cost ("which we can't find in most cases"), and annual depreciation.

A further refinement would be to

establish a depreciation reserve, funded in cash for equipment replacement. If your club is strapped, this may be hard to come by. Lakeside Country Club, which boasts such Hollywood notables for dues-paying members as Bob Hope, Bing Crosby, Arnold Palmer, and John Wayne, has a "substantial" depreciation or replacement reserve, which Superintendent Eichner nevertheless labels as "prudent and reasonable." Laguna Hills Golf Course is another Southern California club with affluent members, including several top leaders of business and industry. Golf superintendent John Polder, Jr. reports they enjoy a depreciation reserve to back up a practice of 5-years for depreciation and replacement of equipment.

Many municipalities are not this fortunate. Cleveland's Maintenance Superintendent Edward Lubie, reputed to have "one of the best" equipment maintenance programs in government, has faced a "little dollars" budget for the past 5 years. Then he brightens and reports, "This year we received almost \$225,000 for new tractors, jeeps and turf equipment." In addition, Lubie enjoys an \$80,000 yearly budget for equipment maintenance. Much of this he uses during September and October, by calling in equipment from each of 12 parks and com-

pletely overhauling as needed, including transmissions, engines and all working parts.

If Cleveland seems reasonably affluent, consider Newcastle County, Del. whose superintendent Larry Bicking says, "We are at the mercy of the budget people, still operating equipment with 5 years life expectancy after 10 or 15 years." Sound familiar? Bicking says a complete inventory list is submitted each year, but Parks and Recreation typically gets about 30 percent funded in practice. "We are always behind," he adds.

More fortunate is the Huron-Clinton Metropolitan Park Authority in Detroit, whose director David Laidlaw presides over maintenance of 16,000 acres of parkland, including beaches and golf courses. With a 1977 equipment budget totaling \$342,000 (not all for grounds maintenance, however), Laidlaw is able to affirm, "We definitely believe in an early replacement program, retiring equipment at the end of its useful life, and not getting into excessive maintenance." Lucky suppliers!

Each year, in the Fall, Huron-Clinton Park people meet to review the "condition of and when to replace" each piece of equipment. This is the first step toward a capital

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## Equipment

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equipment budget for the next year, and priorities are agreed upon by individual Park Superintendents and mechanics, the Chief Mechanic, and the Equipment Purchasing Manager. Of course, a new stump chipper may have to wait until next year, if a brush grinder is older and more in need of replacement. But, at least, this park authority is not hurting as a result of its budget process.

Can a formula be used successfully, to predict equipment life, or (better still) to win club support on replacements? Almost universally, Superintendents use judgment rather than mathematical formulas to prove their case. Most that is, but not all. Broadmoor's Chuck Clark frankly admits to using a formula "only if it helps our case." Oakland Hills Country Club's Ted Woehrle acknowledges that both Toro and Jacobsen have formulas to enhance sales of equipment, but adds smilingly, "They're different than ours." As a rule, Woehrle shoots for equipment replacement when maintenance costs reach the 25 percent level, as compared to original cost of a given machine.

Mt. Sinai Memorial Park's Al Dennis admits he guesses at life spans for equipment. "We would all be out of the woods if we had a good rule," he says, "but there's no formula around worth a damn."

Admittedly, there is a good bit of psychology to winning approval from a golf club Board of Directors for an equipment budget. "You had better be right," admonishes Don Lokey of Valley Club. He favors pitching improved maintenance and greater safety, rather than emphasizing labor savings and opening the door for cutting a man off the payroll. By setting up an amortization schedule, he is able to say, "I am instructed to replace this equipment" rather than simply asking for money.

### Hydraulic revolution

"I had to take a course in hydraulics, but we needed this kind of equipment desperately," says

Don Lokey of Valley Club. This just about summarizes the situation for hydraulic equipment. Talked about for years, the hydraulically-driven, 9-gang mower was introduced from England by the Ransomes Company in the early 1960's. During the same period, Toro and Jacobsen both were developing hydraulic mowers, but only during the last two years has such equipment made serious inroads into American golf courses, parks and cemeteries. Now, few superintendents fail to recognize the tremendous advantages in getting away from gears, sprockets and chains — even at a higher first cost.

Early resistance to hydraulic equipment slowed its introduction. "I don't know anything about it, and don't want to fool around with hydraulic equipment. I'm afraid I might mess it up." These were the early laments heard from some turf mechanics. Then, too, some superintendents objected to possible hose breakage and oil spillage on golf greens — a valid protest. But all that is changed now. Hydraulic mowing equipment has come of age, and superintendents widely acknowledge this as the most significant machinery development in many generations. They recognize the advantages of less maintenance, less down time, no clutch slippage, greater safety on hillsides and more work output. These all help to justify a higher price tag.

Hydraulic equipment, despite its glamour, is not without problems. A Ransomes fairway mower operating at Walt Disney World in Florida is reported to do a "real good job" on thatch and fairways, yet a problem is experienced in keeping reels level. Also, oil spillage "does happen," according to Disney's golf superintendent.

One weakness in this new breed of fairway equipment inherent with hydraulics: power goes to the point of least resistance. One basic improvement has been to develop separate hydraulic drives for cutting reels, rather than "rob" drive wheels of power. As a result Don Lokey of the Valley Club has found his hydraulic equipment safer on dangerous hillsides, claiming more traction and weight at the wheels than conventional units. Also, hydraulics eliminate manual lifting

of reels, and possible back trouble with operators. Not to mention the temptation to leave reels engaged and arms lowered when fording rock-strewn creek beds. Or when transporting equipment on the road.

Do municipalities also believe in hydraulic equipment? Yes, if the five years experience of Newcastle County, Del. may be taken as a good example. Superintendent Larry Bicking speaks of his "bat wing" mowers with hydraulic arms, as being "substantially more reliable" than mechanical types. He says their productivity is higher, maintenance lower, and they are more rapidly transported between parks.

"It is common for hand mowers to be out of commission, but rare for hydraulic equipment," is the comment of Don Lokey. He concludes that minor maintenance (chiefly checking pressure hoses) is adequate, "two or three times per year"

### Your mechanic: A key person

"Our equipment salesman told us if we didn't get rid of our mechanic, he never could sell us a new piece of equipment!" Not every golf course is blessed with two excellent mechanics as is exclusive Pine Valley Golf club and veteran superintendent Eberhard Steinger of Clementon, N.J. On the importance of a good mechanic to a golf club, some will go even further. According to Richard Eichner of the Lakeside Country Club, if the mechanic should leave, many clubs would "come to a halt in one week" (after, he continues, the "bailing wire" falls off the machinery). Richner appreciates what he calls "incredibly reliable" preventive maintenance. Toro Pacific's John Johnston states he believes that a club can "get along" without a manager or pro, before it can sacrifice a good mechanic (and superintendent, he adds).

Why do some courses or municipalities have trouble in hanging onto first-rate mechanics? Principally because they try to find an \$8 to \$10 per hour class of man for only \$2 or \$3, says Johnston of Toro Pacific. Such mechanics can do bet-

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ter at their local Chevrolet or Ford agency, although "this is starting to reverse," he notes. Al Noble of B. Hayman Co. in Los Angeles agrees with this observation, concluding that skimping on mechanics is very "short sighted."

Not everybody pays low wages, however; the City of Los Angeles Recreation and Parks offers an entrance-level mechanic \$1,200 per month plus 30 percent fringe benefits. Or Lakeside Country Club, which considers itself "extremely competitive" in paying \$6.00 per hour plus 29 percent fringes for its Shop Foreman-Mechanic or \$4.50 per hour for a non-supervisory mechanic. Los Angeles City's Joe C. Judd agrees that it is not only hard to get good mechanics (even at his high wage offering), but that attrition through advancement under civil service works an additional hardship.

It is not hard to understand why Southern California's Forest Lawn Memorial Park has 21-year and 15-year veteran mechanics in its non-union shop. Based on area surveys, Forest Lawn's Bob Davidson states that his organization pays higher wages than any other local cemetery, and is "way ahead of golf courses." He adds, "We are competitive with anybody hiring mower mechanics, and offer fantastic fringe benefits." Turnover, as a result, is so low as to be "almost unhealthy," Davidson comments.

At a time when additional and more complicated equipment has come on the scene, requiring extra mechanics, there is in many areas an apparent shortage of qualified people. What is needed, says superintendent Al Dennis of Mt. Sinai Memorial Park is the "jack-of-all-trades," who knows "diesel to 2-cycle engines," and can engineer and design small jobs as well as be a practical welder. Dennis finds men with a farm background best for this purpose. Similarly, Lee Nowacki, Golf Manager for Twin Lakes Golf Club in El Monte, California complains of mechanics being "too specialized," able to do brakes or ignitions (for example) but not broad

enough to handle such variations as mower repairs.

Broadmoor Golf Club's Charles A. Clark prefers to train younger men, which he considers less "set in their ways" than older men. Even so, Clark relies on his 30-year veteran mechanic to "keep an eye" on progress by his mechanics-in-training.

Some golf courses get double-duty from their mechanics, using them also for course maintenance. For example, Golf Course Superintendents Association of America's President Ted W. Woehrle feels his mechanics can mow part of the day and still take care of mower adjustments. "They appreciate the equipment more," he explains. Even so, he considers his mechanic at the Oakland Hills Country Club the "most important man on the course" (next to the right waterman).

Probably no one in the business has such a unique arrangement for maintenance as Eberhard Steinger, C.G.C.S. from Pine Valley Golf Club in Clementon, New Jersey. Nestled between Atlantic City and Philadelphia is this smallest town in New Jersey, with golf course, waterworks and police force all under Steinger's control. Not unlikely then, is to see a "cop" cutting roughs, or caring for the private putting greens of wealthy residents in this 1000 acre idyllic retreat. Even more unusual is the arrangement for maintenance, where each man has his own machinery and completely cares for three tees, greens and holes from his private tool shed hidden in the woods! And it's worked now for 40 years, says Steinger. A brilliant example of motivation through pride of ownership.

### **Common pitfall: Inadequate spares**

Many golf courses get into a bind because they lack an inventory of spare parts and have not allowed for this in their equipment budgets. This is a "common trap," according to Service Manager John Johnston of Toro Pacific Distributing. He is concerned that customers fail to heed warnings, operating until parts

fail, then blame vendors for not producing the parts immediately.

On the other side of the picture, a number of superintendents complain they cannot get parts on time, or that distributors' inventories are "too small," and that some distributors feel they are "doing you a favor" to supply needed parts. "We never want a breakdown we're not able to fix," says Broadmoor's Chuck Clark, "and especially during a tournament, this would be disastrous." Tim Sedgley, Asst. Superintendent at Cherry Hills, lists getting parts on time as his "number one problem."

Getting parts is also rated as the biggest maintenance problem for Newcastle County, Delaware. This is complicated by a bidding process, which results in a varied mix of equipment and parts. Equipment may be out of service up to 3 or 4 weeks, according to superintendent Larry Bicking, but 3 to 5 days in the shop is average. Part of this delay results from "chasing parts," since such a variety of parts are "hard to stockpile."

Some superintendents are blessed with suppliers close by, so that stockpiling is less of a problem. Bob O'Link's Bob Williams prefers not to tie up much money in inventory, since his supplier is only one hour away. He advises, incidentally, not letting your mechanic purchase parts, lest you end up with "two knives for every one you really need." On the other hand, bed knives are one of the few things Pine Valley's Eberhard Steinger keeps on hand, even though both Jacobsen and Toro are located close by in Philadelphia.

Spare parts inventory has increased in importance, according to Richard Eichner of the Lakeside Country Club, for at least two reasons. First, there are more kinds of machines now ("Who bothered with Aeroquip fittings or 'O' rings ten years ago?" he asks). Second, uncertainty of supply. Some parts are just plain hard to get. Eichner painfully remembers allowing 9 days, "generously," to rebuild five 5-gang fairway mowers. To receive gear chain mechanisms, axles and mowing frame hangers took 5 weeks! Eichner recommends

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priority stocking of high-failure items, such as drive belts, bed knives, mower clutches and spare rollers.

Heavy expense, of course, is reason enough for at least some limitation in spare parts. Eichner lessens this problem by buying from industrial supply houses, rather than from original equipment manufacturers. As an example, he cites a drive belt for a Rogers cart costing \$14.65 plus tax and shipping from an equipment supplier, versus only \$4.26 from a bearing supply house, "with one hour delivery service." Eichner has also found a switch to Aeroquip fittings involves a high first cost, but "you gain back one-half of this on your first order for hose replacements."

How much spare inventory do major golf courses carry? Lakeside Country Club stocks about \$6,000 in spares, to care for a total equip-

ment selection valued at \$175,000 to \$190,000. Broadmoor Golf Club, servicing three golf courses, stocks this same amount of spares just for its Jacobsen Greens King mowers and at least \$15,000 or more total spares. These spares stand behind an equipment inventory costing \$385,000, but which would require over \$500,000 to replace today, according to Broadmoor's Chuck Clark.

### Training school available

"Universally," states Parks Director James Colley from the City of Norfolk, Va., "municipal administrators have a weakness in understanding and knowing maintenance equipment." Colley's remedy is more training programs, from universities and equipment manufacturers, which provide a broader base of product knowledge than any single manufacturer. One such course is taught by Golf Course Supervisor Neil Beeson from the City of Anaheim, Calif., at nearby Fullerton College. But, admittedly,

such offerings are scarce.

A more common approach, and one which increasing numbers of supervisors and mechanics are taking advantage of, is the "service college" put on by such equipment manufacturers as Toro, Jacobsen and Kohler. Toro accepts a 30 student limit on courses booked up to a year in advance, discussing lawn mowers, sharpening, engines, hydraulics and the like. Jacobsen holds schools for mechanics every two years, with additional sessions for their distributors and an advanced golf and park school. B. Hayman Co., Inc. in Los Angeles services usually 600 people in 3 sessions, holding additional schools in San Diego and Las Vegas.

Agreeing that there is a shortage of good mechanics, Toro Pacific's Johnston advises that every course needs a first-line mechanic as an instructor and an adequate budget. Los Angeles Trade Tech trains such specialist mechanics, "but can't supply enough graduates," concludes Johnston. □

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