

MAINTENANCE EQUIPMENT

WHEN IS REPLACEMENT A MUST?



There is a point at which a piece of maintenance equipment is no longer economical to operate. Here are some authoritative guidelines for judging when to propose replacement in your budget

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The cost of labor in the last decade has increased almost 50 per cent.

Industry and business can offset their increases by raising prices, expanding markets or laying off workers. Golf courses, too, can raise prices and fees. But memberships are static; if fees and prices become too high, members drop out.

Club officials can trim the superintendent's budget. The plan for the new irrigation system is shelved, expansion programs are put off and crews are thinned out.

The superintendent is expected somehow to surmount these conditions, to pull off nothing less than a miracle. Members expect a well-

conditioned course, even though the superintendent lacks equipment, manpower and money.

For an answer to his dilemma, the superintendent has turned to technology, or to put it another way, he has begun to replace men with machines.

But each new or additional piece of equipment requires a considerable financial outlay by the golf club, which means the superintendent must nudge budget conscious committees into approving his requests for capital expenditures. His reasons for requesting new or re-

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REPLACEMENT continued

placing old equipment must be explicit and be supported by precise methods that tell him when and how.

He can justify his requests generally by showing that the equipment will increase efficiency or accomplish a job faster and better at a lower cost on three simultaneous levels: 1) by replacing equipment that is uneconomical to repair; 2) by replacing old equipment with equipment of greater capacity, and 3) by replacing manual labor with equipment.

REPLACING WORN OUT EQUIPMENT

Most golf courses, because they can rebuild equipment during the off season, keep equipment in service well beyond the bounds of good economics.

There is a point at which repairing a machine is no longer economical. When is that point reached? The superintendent must examine many factors, such as the cost of the next repair job, the cost of replacement with new equipment, trade-in value and depreciated value of present equipment.

There are numerous accounting methods for depreciating equipment. The one used most frequently is an accelerated method that depreciates larger amounts during the early life of the equipment. Because many golf courses are non-profit, there is no particular advantage to utilizing more rapid accounting methods of depreciation.

The following table illustrates a typical accelerated depreciation schedule for a \$10,000 hydraulic mowing tractor/gang mower combination. The depreciation is shown with hours of use, operating and repair costs. These costs are based on

a 30-week mowing season with 32 hours of operation a week. Operating costs are predicated on two gallons of fuel an hour at 25 cents a gallon, lubricants and one hour of preventive maintenance a week at \$5 an hour.

The cash investment in a new piece of equipment should yield always a minimum 15 to 20 per cent return in one-third to one-half the useful life of the machine. To illustrate: A public course has 18 greens, averaging 6,500 square feet, and a

**DEPRECIATION VALUES OF A \$10,000 HYDRAULIC MOWING TRACTOR
BASED ON 10 YEAR LIFE & \$500 SALVAGE VALUE**

ACCELERATED DEPRECIATION

Year	Depreciation							
end	sum of digits	%	\$	value	operating costs	repairs	total	hours
1	10/55	18.18	1,727.10	8,272.90	\$550	300	850	960
2	9/55	16.36	1,554.20	6,718.70	550	600	1,150	1,920
3	8/55	14.54	1,381.30	5,337.40	550	750	1,300	2,880
4	7/55	12.73	1,209.35	4,128.05	550	600	1,150	3,840
5*	6/55	10.91	1,036.45	3,091.60	750	850	1,600	4,800
6*	5/55	9.09	863.55	2,228.05	850	1,100	1,950	5,760
7*	4/55	7.27	690.65	1,537.40	850	800	1,650	6,720
8*	3/55	4.45	422.75	1,114.65	1,000	1,050	2,050	7,680
9*	2/55	3.64	345.80	768.85	1,100	1,250	2,350	8,640
10*	1/55	1.82	172.90	595.95	1,200	1,500	2,700	9,600

* Increased operating costs in years five to 10 include increased maintenance and downtime expense.

There are many rules governing the most economical points at which to replace a piece of equipment. The major ones are:

1. Replace when major components require overhauling. In the case of the tractor, this means overhauling the engine or drive train;
2. Replace when the cost of all repairs to date equal 30 to 40 per cent of the tractor's cost. This would be \$3,000 to \$4,000 and replacement would come in the seventh year;
3. Replace when the total repair cost in the next year exceeds the remaining value of the machine. This would occur with the tractor after seven years. Replacement would be in the eighth year.

Two more factors, almost as important as those listed above, are the cost of downtime and the ability to get capital for replacement.

Replacing the tractor after seven years is justified, because it still has some trade-in value and the costs of anticipated repairs and possible downtime in years eight to 10, coupled with still more depreciation, make a new acquisition economically sound.

REPLACING EXISTING EQUIPMENT

The reasoning behind the second method is that more efficient machines will reduce the operational costs of a particular job. The reduction is called a "payback" or "return on investment."*

10,000-square-foot practice green and a 10,000-square-foot nursery. The golfing season lasts about 30 weeks. All greens are cut four times a week. The labor rate is \$2.75 an hour. Four men using walk power greensmowers take a total of 16 hours to complete each mowing.

The superintendent needs to justify retiring his walk units (to be used as backups) to purchase one riding unit.

The cost of a riding greensmower is \$3,600. But the mower will allow one man to mow 18 greens in five hours. The savings breaks down this way:

Annual labor cost	
with present equipment	\$5,632
Annual labor cost	
with riding mower	\$1,920
Annual labor savings	\$3,712

The breakdown shows that the savings in labor in one year exceeds the cost of buying one greensmower. Therefore, the payback (minus any unusual costs) exceeds 100 per cent in the first year. The sale of two or three of the walking mowers makes the new acquisition even more attractive. Using a formula:

Useful life	5 to 6 years
One-half	
useful life	2 1/2 to 3 years
Annual saving	\$3,712
One-half	
life savings	\$9,279 to \$11,136
Buying two machines could be	

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*Although purchasing the new machine may be justified in maintenance programs because the ma-

chine may increase efficiency or reduce manhours per job, it is always translated into dollars.





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justified to cut mowing time in half.

The formula could be used to analyze any equipment purchase where a return in saved labor costs is desired.

REPLACING LABOR

A job that can now be done faster with more uniformity and at lower cost is sand trap maintenance. With one trap maintenance machine, one man does the work of three, or one man can work three times faster. One club, with 65 medium-sized sand traps, employed one man to rake traps. He worked a 40-hour week, cost the club \$2.75 an hour or \$5,720 annually. By purchasing one trap machine for \$1,800, the club reduced the hours required to maintain the traps to about 700, or \$1,925. The savings in labor cost for one year came to \$3,795 (\$5,720 minus \$1,925).

In this particular case buying two machines would be justified. The time needed to finish raking all 65 traps would be cut 50 per cent, and although two operators would be needed, the cost of labor would not increase.

In general, when the money that is saved from labor pays for a machine in from one-third to one-half of its useful life, the acquisition is justified. In the case of the sand trap machine:

Useful life	5 to 6 years
One-half useful life	2½ to 3 years
Annual savings	\$3,795
One-half life savings	\$9,487 to \$11,385
Cost of acquisition	\$1,800
Net savings	\$7,687 to \$9,585*

SUMMARY

Capital expenditures for equipment today generate substantial savings in labor, a continually rising factor. It is hard to establish a dollar value on the increased purchasing value of today's money, compared with tomorrow's costs, but it can be estimated. The emphasis has been on labor and cost savings realized through the intelligent purchase and use of equipment. One might ask how these savings manifest

**The actual savings spread over the useful life of the rake would double the above figures to \$18,975 to \$22,770.*

themselves when there is no reduction in labor force. One of the more obvious ways is the increased work capacity of the present work force. But the savings may be also appreciated in terms of increased membership, greater member/player satisfaction, higher green fees and a better quality of maintenance.

Too many golf courses have inadequate equipment purchasing programs, which result in costly downtime and repairs. Lack of such a

LEASING

Leasing is growing popular among golf courses. Its benefits to the golf course are varied:

1. It eliminates cost of acquisition; equipment is paid for as used. Therefore, no capital expenditures and attendant justifications are required, equipment is paid for from the club's operating budgets;
2. Continuation of lease programs ensures new equipment more frequently, allowing the club the use of the latest and newest equipment and reducing downtime and costly repairs. Typical lease terms on maintenance equipment cover three years;
3. The equipment is paid for from cash flow. That is, as the club receives its funds, leases can be tailored to the cash flow patterns of a particular club. If most income, for instance, is generated during six months of the year, payments can be arranged during those months, with no payments during the low income periods.

Lease contracts are available for all equipment used on a golf course that normally retails for \$1,000 or more, for terms of from two to four years.

program forces many courses into a position in which substantial amounts of equipment must be replaced in a single year rather than spread over a regular replacement schedule.

Most equipment dealers are willing to work with superintendents, chairmen of green committees and course accountants to develop a reasonable program of equipment replacement. □