

# The Evolution of an Equipment Repair Parts Inventory System

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"Your budgetary request for Equipment Repair Parts of \$55,068 is too high." This, I was told by the Finance Committee Chairman of our two golf course complex in September of 1978.

We usually arrive at the final budget figure for the complex by adding an approximate allowance for rising costs and contingencies to the actual amount spent the previous year. The \$55,068 figure did seem inordinately high, particularly when compared with actual expenditures of \$26,958 in 1974-75, \$29,554 in 1975-76 and \$34,907 in 1976-77. The request for 1978-79 represented a 36% increase over projected 1977-78 expenditures. We therefore felt we should make do with a figure that excluded rising costs and contingencies.

At about this time, Dr. Max Brown submitted a report to our Board of Governors based on a three-month study of our entire greens operations. He stated our actual expenditures could be broken down into four categories: payroll and payroll taxes 61%, fertilizer and herbicides 12%, electricity and fuel 8% and equipment repair parts 11%. According to Dr. Brown, "the mean average for Equipment Repair Parts for golf courses in southeast Florida is 7.1%." He considered expenditures in the first three categories either uncontrollable or at an irreducible minimum.

Since I agreed with the Finance Committee Chairman, and knowing our expenditures were way out of line compared to the statistics provided by Dr. Brown., I was determined somehow, some way, these costs would be cut. For want of a better yardstick, I took Dr. Brown's mean average figure of 7.1% and arrived at a new total of \$38,000. The revised budget was resubmitted, accepted and approved.

It was apparant drastic control measures had to be instituted to meet this budget. The department consisted of a head mechanic, three full time mechanics and one part time mechanic — and no one was keeping any records.

The first step was obvious: daily job records had to be kept. A supply of three-part snapout forms modeled on those used by service stations was ordered. The forms provided space for listing parts, their cost and labor cost.

It was the head mechanic's responsibility to keep the records, noting the description of the job, the date and the

name of the mechanic who performed the work. The number of hours worked was also noted at an hourly rate arrived at by adding a percentage for payroll taxes, unemployment insurance, etc. to an average hourly cost (salary) of the entire work force.

The original copies were kept in numerical order in a binder, the duplicates were placed in individual manila folders assigned to specific machines. The head mechanic kept the third copies as a record of preventative maintenance, parts used and for whatever need future experience would dictate.

The system was started on October 1, 1978 and worked out very well right from the beginning. The time required for record keeping was negligible and easily absorbed as we were averaging only six jobs a day. After three full months, it became clear we were garnering a wealth of feedback information. According to our Accounting Department, purchases for the period totaled \$12,119; however, the total cost of parts used as taken from the job tickets was \$7,531. Why the discrepancy of \$4,588? The most logical assumption was the dollar value of our inventory had increased by that amount, but *without records* this had to be merely an assumption!

Armed with these figures, we arranged a meeting with the head mechanic and the greens superintendent. It was agreed to establish an inventory control system immediately. The first step was the taking of a physical inventory on a crash program basis. Under the direction of the head mechanic a team of three girls was organized. They were drafted from the maintenance crew, selected on the basis of their educational background, innate intelligence, etc. They worked during slack periods, after hours, and full time on rainy days. The work was completed on January 12.

The procedure was quite simple. The part number, description, and the number of units were annotated on lined 8½ × 14 sheets. Parts were categorized as either related to specific equipment or interchangeable. For example, all parts used to repair Greensking mowers were listed under the heading "Greensking". Parts used interchangeably were listed under separate headings such as "bearings", "fanbelts," and "sparkplugs". The completed sheets were given to the head mechanic who added the unit cost, multiplied this figure by the number of units and entered the total in the last column on the right hand side of each

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sheet. At the bottom of each sheet a total for this column was annotated. By adding up the bottom line figures from the 55 inventory sheets, we arrived at a dollar value of the inventory — \$30,000.

We found that our inventory consisted of 2,100 different categories of parts with a total of 5,000 units.

Once the initial inventory was completed a method to keep it up to date had to be devised. Many suggestions were advanced by the superintendent and members of the Greens Committee. We seriously considered computerizing the initial inventory through a rental service. Then daily information on parts used could be taken from the job tickets and fed to the computer. The same could be done for parts added to the inventory by using delivery receipts of incoming shipments. We felt this method was not quite tailored to our needs, but that the same principles could be employed and handled by our own people.

The first step was to index every item on all 55 sheets. We used a technique similar to the Dewey Decimal System used by public libraries. For example, the first 26 items were indexed from A1 to Z1, the next 26 items from AA1 to ZZ1, and so forth. Our last entry was NNN30, the 2,107th item. This method was chosen because a straight numerical system could possibly cause errors due to conflict with parts numbers.

The next step was to design an inventory card — one to be used for each part category. We were able to include all the desired information on an 8 × 5 index card. The card illustrated below shows a typical entry. The cards were filed in a



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double metal file, two drawers side by side and placed on a desk in the general office of the equipment shed. To make it easier to find a particular card, we placed colored pressboard dividers between each alphabetical grouping. The dividers had elevated tabs and were stepped from left to right. They can be purchased at any business stationery supply house.

The problem now was to transfer the parts listings from the 55 sheets to the new "inventory" cards. With the cooperation of Club Manager Sam Grayson, a team of three clerks was enlisted from the Accounting Department. They were furnished with a copy of the inventory sheets from which they transcribed the needed starting information, namely the index number, part number and description, equipment for which used, the date (January 12), the number of units on hand, the unit cost and the total dollar amount. The job was done in less than three days.

The new system was now ready to go. At approximately the same time, we were fortunate in securing the services of Kenneth Nicholson as our new greens superintendent. We outlined the new inventory control system to him seeking his reaction, comments and suggestions. His response was most enthusiastic. He welcomed it without reservation, but suggested that it be kept on a daily basis. This would make it a true perpetual inventory and make it a simple matter to prepare an end-of-the-month inventory figure for the Finance Committee.

The starting date for the new system was February 1, concurrent with the beginning of Mr. Nicholson's tenure. The daily work tickets and delivery receipts for the period from January 12 to February 1 were entered on the inventory cards within an hour or two.

How is this system working? At the end of each work day, our head mechanic, Cesar Condemarin, delivers all the completed job tickets and all the day's delivery receipts to the office. Using a copy of the January 12 written inventory, he adds the appropriate index number beside each part entry on the job tickets and delivery receipts. As a result, it takes our part time secretary no more than 15 minutes a day to pull the necessary cards from the file, make the entries and refile the cards. On the last work day of each month, it takes only minutes to compute the dollar value of the inventory and submit it to the Accounting Department. They in turn provide us with an Operations Statement which shows the cost of "equipment repair parts" for the month adjusted for an increase or decrease in the final inventory total. This figure is then carefully checked against the total parts utilization for the month, taken from the daily work tickets.

By June 30, five months of operation had elapsed with no significant discrepancies. The figures for inventory (dollar value), parts utilization and purchases were all in balance. The bottom line figure was \$11,469. This was an average of \$2,294 per month compared to our initial budget request which averaged \$4,589 per month. *The tremendous drop was dramatic indeed. We have been at 5.4% of total budget as opposed to our original projection of 7.1% and actual previous expenditures of 11%. ■*