Replace Your Old Equipment?

Equipment Does Get Old, But Finances Exert Considerable Influence on *When* It Is Advisable to Initiate the Replacement Process

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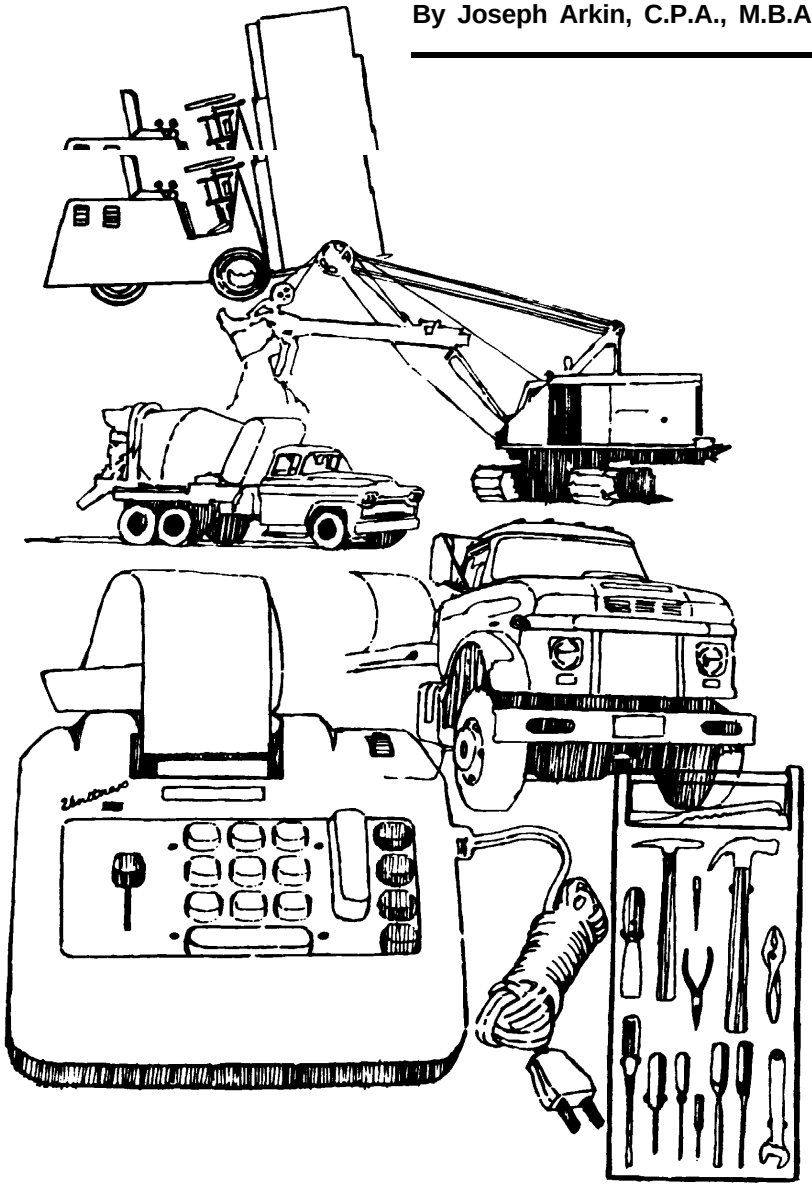

Each contractor/business owner must decide when it is financially advantageous to replace old equipment with new.

It doesn't matter what type of contracting business you operate, the old equipment gets older, costs more to operate and repair, and can cause bottlenecks in produce or in office management.

Thus the manufacturing plant with gypsum production machinery, the wholesaler or distributor with an automated warehouse, or the contractor with pumping equipment, trucks, hand tools and yard equipment, all face the same problem-is it better to keep old equipment or make an investment in new equipment.

And, all of these types of business enterprises own and operate a multitude of office equipment — possibly typewriters, calculators, bookkeeping machines, addressing machines, etc.

Could not all of these items from by-gone days be replaced? The manual or old-model electric typewriters with new cartridge typewriters capable of printing repeat letters from a cassette, with another cassette supplying names and addresses; the old bookkeeping machines and other adding machines, etc. with small computer systems.

At some point in time breakdowns occur and if frequently, this wrecks havoc with production schedules, or in shipping and billing. Of course this

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causes additional cost per unit labor, and overtime to complete "paper" work and accounting chores.

Faced with these problems a decision has to be made based on several financial factors, the chief one being the initial cash outlay and the loss of interest on dollars invested in fixed assets.

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Depreciation

Accountants consider depreciation as the theoretic decline in the value of fixed assets (other than land) based on existing laws as promulgated in the Internal Revenue Code. Actually the amounts charged as depreciation are not true as the real measure of depreciation is the initial cost less what an asset would bring at the time of its sale.

To make a decision based on the premises set forth in this discussion, you have to ignore tax law and consider actual depreciation—the first cost, estimated service life and expected salvage value. Thus a $1000 assets, useful life of 4 years, salvage value of $200 has true depreciation of $200 per year.

If you do this calculation for equipment you intend to use as replacement you can readily see which batch of equipment has the greater annual depreciation.

There are those who argue and insist the problem isn't that simple. You have to take into account factors about other aspects. We'll touch on these.

Interest cost:

When dollars are tied up in fully-paid equipment you lose an amount equal to the interest on what the assets would bring at their current market value, in their current condition.

This applied whether or not you're presently borrowing money. The "lost" interest factor applies to your inability to use the proceeds from sales to invest in short-term or other investments.

Operating costs:

Typical operating costs are the expenditures for labor, materials, supervision, maintenance, and power.

The choice of equipment has a direct bearing on operating costs. If a particular machine cost is segregated and found to be $750 per year, and a newer model replaces it, with only $375 per year for the same costs, it can readily be seen that there are overall savings, subject of course to the difference in the interest factor.

Revenues:

Sometimes you'll find that new equipment doesn't always result in any increase in gross revenue. However, the revenues increase in a tangible way of having greater productions with same labor cost, thus reducing per unit labor costs, or greater production for same overhead (rent, insurance, lights, etc.) which does in a back-handed way result in increased revenue.

You can handle an increase in an-

nual sales by increasing the cost of repairs of the older machines, or you can reduce the costs of the new machines by the amount of additional sales generated. This is simplistic, for increased sales contain an element of merchandise (raw material) costs not taken into account.

To consider annual average cost you can make the necessary cost analysis on the new and old equipment only after you have the proper data for each. For the new equipment, the data include first cost, service life, salvage value, operating costs, and revenue advantage. For the old equipment, the data include market value, remaining service life, future salvage value, and operating costs. In addition, for both alternatives, the cost of money must be stated in the form of an interest rate.

By using these data, you can determine the elements of the total costs. These elements consist of depreciation expense, operating costs, and possibly lost revenue. Now, it so happens that these costs can be expressed in a variety of ways.

However, the simplest way for cost comparison purposes is to describe these cost elements in terms of an average annual cost. Doing so permits you to calculate and compare the total average annual costs of the old and new equipment and reach a decision.

To illustrate: You have a piece of equipment in use which can be sold to a dealer or other company in your industry by direct sale, for $7000. You expect this piece of equipment to have a remaining useful life of four years after which it would only have a salvage value of $1000. In the forthcoming year you expect $300 for upkeep, with an expected increase to $350, 400 and 500 for the remaining three years.

Using these figures, the annual *depreciation expense* is calculated as follows:

$$\frac{\$7000 - 1000}{4} = \$1500.$$

Annual *interest expense* is computed as follows:

(1) $\frac{\$7000 + 100}{2} = \$4000$
average investment

(2) $4000 x 12%
assumed interest rate = $480

The annual *operating costs* is determined by computing the average of the individual annual costs.
We add

$\frac{\$300, 350, 400, 500}{4} = \$1550 = \$387.50$

To recap the cost of using the old equipment in operating a contracting business, we have:

Item	Average Annual cost
Depreciation	$1500.00
Interest	480.00
Operating Costs	387.50
Total	$2367.50

Special note: Disposal of fixed assets for which an Investment Tax Credit has been claimed before the number of years used in the ITC computation will result in a "recapture" of part of the credit, giving rise to a tax liability.

Up to now we've considered the average annual cost of retained, outdated, often inefficient machinery and equipment. But to make a judgmental decision we have to calculate the costs for replacement by new equipment.

Let's assume you buy fixtures, machinery or other spray equipment for $10,000 and can reasonably assume that there will be $2000 of salvage value after being used for ten years. Also, for the sake of being able to make a calculation, it is assumed that the existing rate for money is 12% and that operating costs will average $800 per year. Some $1200 of new revenue will probably be realized because of new features of the equipment.

The annual depreciation expense is calculated as follows:

$\frac{\$10,000 - \$2000}{4} = \$800.$

The annual *interest expense* is computed as follows: Average investment = one half of the initial cost of $10,000 plus $2000 salvage, or $6000 X 12% or $720.

To recap the costs of replacing the old equipment with new equipment for manufacturing plants, wholesaler or distributor premises, or a retail establishment, we have:

Item	Average Annual cost
Depreciation	$800
Interest	720
Operating costs	800
	$2320

Less: Revenue advantage	1200
	$1120

Again you have to consider that the investment in new equipment will give rise to an Investment Tax Credit, an actual reduction of income tax liability, dollar for dollar, not just a deductible expense.

Thus the investment in new equipment shown, average annual cost of $1120 vs. average annual cost of $2368 for old equipment, shows a savings of $1248 per annum but does not tell the whole story. In addition to dollar savings, tax liability decrease due to Investment Tax Credits, there are some intangible benefits.

Newer machinery is bound to increase productivity and employee morale, remove frustrations in handling obsolete equipment and having too many interruptions in the work routine due to stoppages.

Irreducible factors:

When your calculated annual costs show that the one unit of equipment has a decided advantage over the other, you can usually select the better alternative by comparisons. But what if no great difference? Then you might consider that estimates are estimates, and that there could be variances due to errors. So decisions may have to be made on irreducible factors — those that cannot be reduced to dollars and cents.

For approximately the same average annual costs, you might favor the equipment requiring the small investment and shorter life. This will be especially, true if technological advances can be expected in the near future.

Finally, should you fear increase in interest rate, or in the prices of new equipment, you will most likely choose to invest now.