

Chapter 3700 - Lease / Purchase Equipment

CONVERSION TABLE

(Section Number Revisions)

<u>Old Numbers</u>	<u>New Numbers</u>
None	3700
None	3701
3700	3710
3710	3720
3720	3730
3730	3740
3731	3710
3750	3750
3761	3760

3700 GENERAL POLICY

(New 8/92)

When acquiring equipment, determine if it would be better to lease or purchase the equipment. An analysis will make it possible to know which method of acquiring the equipment is the least expensive. This chapter gives the guidelines to make a lease/purchase analysis.

3701 TERMS AND DEFINITIONS

(New 8/92) 3701

The following terms are defined as they are used in this SAM chapter. Many of the terms are explained with examples and in more detail later in this chapter.

Amortization. Evenly spreading equipment acquisition costs over the period of useful life or the period of payment.

Annuity. A series of payments made at evenly spaced intervals.

Break-even point. The point during a lease when the cumulative leasing costs to date equal the purchase price.

DGS. The Department of General Services.

Present Value. The value today of an amount to be paid later, discounted at some interest or discount rate.

Purchase Option. The legal right to buy something during a defined period at a defined price.

Rental Payments. Periodic payments, such as monthly, for the right to use leased equipment.

Salvage Value. The selling price, less removal or disposal costs, of your used equipment.

Useful Life. The length of time that the equipment will serve program needs before it wears out or the program need for the equipment ends, whichever occurs first.

3710 LEASE/PURCHASE ANALYSIS-EQUIPMENT

(Revised & Renumbered from 3700 8/92)

Prepare a lease/purchase analysis in accordance with SAM Section 1276 and Management Memos regarding acquisition of equipment. The analysis must be completed on the "Lease Versus Purchase Analysis-Equipment" form shown in the Appendix at the end of this chapter. Any assumptions which are peculiar to a given acquisition should be noted on the back of the form. If this format will not fit the particular situation, use some other logical analytical sequence. Use present value techniques when doing a lease/purchase analysis. Submit one copy. If you have questions or need help working on the analysis, call the Research and Analysis Unit of the DGS Office of Procurement. A completed sample form is provided in the Appendix. See SAM Section 3740 for instructions on completing the sample form.

Do a lease/purchase analysis when arranging to rent certain equipment. In this case, submit the analysis with the contract to the DGS Office of Legal Services. See SAM Section 1276. This analysis must be in the same format.

The lease/purchase cost comparison views the purchase of equipment as an investment. Therefore, the basic issue is if the rental and other costs that are saved by investing in (purchasing) the equipment will provide an adequate return on investment. This approach compares the purchase price with the present value of the series of payments and other costs that are saved when the equipment is purchased. The present value (discounted cash flow) concept is based on the time value of money. It considers the fact that the dollar today is worth more than a dollar tomorrow because of its earnings potential. If the value of money is 9.479 percent annually, then \$100 a year from now is worth \$91.34 today; i.e., $\$91.34 \times 1.09479 = \100 .

Even when your lease/purchase analysis indicates that purchasing is more desirable, the best alternative for the State may be to lease or lease with an option to buy. This is most often true if any of the following conditions exist:

1. Trying out the system for a while before buying it.
2. The system's design is new and untried.
3. Decisions are pending that might change how the system is defined.
4. Data needed to complete the analysis is still uncertain.

3720 ITEMS TO BE CONSIDERED

(Revised & Renumbered from 3710 8/92)

Consider the following items when making your lease/purchase analysis:

Maintenance Costs. Is the cost of keeping the equipment in good working condition the same for each alternative? If not, include the maintenance costs in the present value calculations. Deduct the maintenance costs from lease costs, or add them to the purchase price for proper analysis.

Purchase Options. If the lease gives an option to buy the equipment, how will using this option affect the total cost? Also, when is it least costly to use the purchase option, and when will using the option cost more than the cash purchase price?

Useful Life of the Equipment. There are two ways to look at how long equipment will be useful. One way is, how long will the equipment be needed for the program it will support? The second way is, how long will the equipment last before it wears out? Check with the equipment vendor to see if the equipment can last as long as needed. The DGS has set the useful life of office copiers at five to seven years depending on workload categories and word processing equipment at seven years.

Salvage Value. When the equipment will last longer than the need for it, include an estimate of the equipment's salvage value in your cost analysis.

Opportunity Cost. Figure out how much money would be earned over the same period of time if the money was invested in something else other than the purchase. Use the interest rate of 9.479 percent to compute present value.

Other Items. Be sure to consider other items that are unique to the proposal when making the lease/purchase analysis.

3730 COMPOUND INTEREST AND ANNUITY TABLES

(Revised & Renumbered from 3720 8/92)

Use compound interest and annuity tables when making the lease/purchase analysis. Three commonly used tables are described below. These can be found in this SAM chapter's Appendix, Annuity Tables. Choose the right set of interest tables according to whether the period is monthly, quarterly, semiannually, or annually as noted on the top of each page.

1. **Present Value of \$1.** Use this percentage to find the value now of an amount due sometime in the future when the interest is compounded at the given interest rate for the periods shown in the table. This table is not cumulative.
 2. **Present Value of Annuity of \$1.** Use this percentage to find the value now of a series of payments that are due at equal intervals of time in the future when payments are made each period at the given interest rate. This table is cumulative.
 3. **Annuity Whose Present Value is \$1.** Use this percentage to find the monthly amortization payment which is enough to pay both principal and interest for a set number of times over a given length of time. This table is cumulative.
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3740 PRESENT VALUE TECHNIQUES

(Revised & Renumbered from 3730 8/92)

Before making a lease/purchase analysis, gather the following information from the sources listed:

1. Cost, *if purchased*, of:
 - a. Purchase price. -From the vendor.
 - b. Maintenance. -From the vendor.
 - c. Sales tax. -Compute from the purchase price.
 - d. Delivery and installation. -From the vendor.
 - e. Any other incurred costs. -From the vendor.
2. Cost, *if leased*, of:
 - a. Amount of each lease payment. -From the vendor. For office copiers, estimate the average number of monthly copies.
 - b. Maintenance (if not included in the lease payment.) -From the vendor.
 - c. Sales tax. -Compute from the lease payment.
 - d. Delivery and installation. -From the vendor.
 - e. Any other incurred costs. -From the vendor.
3. Useful life of the equipment. Determine how long the equipment is needed based on the length of the program. From the vendor, find out how long the equipment should last.
4. Estimated salvage value when the equipment is no longer needed. This value is only needed if the equipment will outlast the program. Estimate this value with help from the vendor and/or the DGS Office of Procurement.

Complete the lease/purchase analysis on the Lease Versus Purchase Analysis-Equipment Form, GSOP 176, shown in the Appendix at the end of this chapter. Both a blank and completed example of this form are shown in the Appendix. This form uses the three most common ways to figure present value.

1. Discounted cash flow.
2. Amortized cost.
3. Break-even point.

The following information is given to help explain these three present value techniques. It also serves as an example for filling out the form's three sections.

Figuring out the Discounted Cash Flow. Use this method to compare the total cost of leasing to the total cost of purchasing. This method allows for the time value of money, based upon the premise that a dollar today is worth more than a dollar tomorrow because of earnings potential. If the value of money is 9.479 percent annually, then \$100 a year from now is worth \$91.34 today; i.e., $1.09479 \times \$91.34 = \100 . Thus you can find out if it is less expensive to postpone the payments until some future time by leasing, or make the entire payment right away by purchasing.

The eleven items under **Computation of Discounted Cash Flow** in the example shown in the Appendix were computed as follows:

1. Purchase price = \$8,000. (When rental credits can be applied, the amount subtracted from the purchase price should be stated.)
2. The following purchase costs:
 - a. **Maintenance if purchased:** \$50 per month (indicate period). Monthly table for Present Value of Annuity of \$1 for 96 months (useful life) shows a factor of 68.04:

$$\$50 \times 68.04 = \$3,402$$
 - b. Sales tax of six percent on \$8,000 = \$480.
 - c. Any other costs should be shown.

Items 2a, 2b and 2c are then subtotaled.
3. Purchase price and subtotaled purchase costs are combined to produce a total purchase cost; i.e., $\$8,000 + \$3,882 = \$11,882$.
4. Subtract the following if the equipment will last longer than your program:
 - a. Estimate of salvage value.
 - b. **The Present Value of \$1** for the periods of your program's life. Find this value in the tables in the Appendix.
 - c. Salvage value is multiplied by the Present Value of \$1 figure to give you the present value of the salvage value.
5. Subtract the salvage value (none in this example) from Total Purchase Costs to give you the Net Purchase Costs, which remain \$11,882.
6. Lease payment per month (indicate period) = \$350.
7. Add the following costs for leasing over the same length of time as line 6 above.
 - a. The maintenance contract is included in this lease but should be shown if separate.
 - b. Sales tax of six percent on \$350 = \$21.
 - c. Any other costs should be shown.

Subtotal these lease costs.

8. Add the lease payment and subtotaled lease costs to get the Total Lease Payment; i.e., $\$350 + \$21 = \$371$.
9. The monthly table (periods must match) for the **Present Value of Annuity of \$1** for 96 periods (useful life) shows a factor of 68.04.
10. The present value of the lease is computed by multiplying the total lease payment by the factor for the **Present Value of Annuity of \$1**; i.e., $\$371 \times 68.04 = \$25,243$.
11. Compare the Net Purchase Cost with the Present Value of the Lease. Subtract the smaller amount from the larger amount; i.e., $\$25,243$ minus $\$11,882 = \$13,361$.

The number on line 11 shows the amount that can be saved by choosing the less costly option. In this example the purchase is less costly.

Computation of Amortized Cost. Use this method to compare the cost of leasing and purchasing on a monthly basis (or some other regular period). A sum of money today is converted to a series of equal payments for a given number of times. This follows the same principle as an installment loan.

The three items under **Computation of Amortized Costs** in the example shown in the Figures Appendix were computed as follows:

12. The monthly table for the **Annuity Whose Present Value is \$1** for the period of the useful life (96 months) shows a factor of .8147.
13. Multiply the net purchase costs shown on line 5 by the factor shown on line 12. This gives you the amortized cost of purchase; i.e., $\$11,882 \times .8147 = \175 , which equals the monthly cost of purchase over the period of the useful life.
14. Compare the Total Lease Payment (line 8) with the Amortized Cost of Purchase (line 13). Subtract the smaller amount from the larger amount; i.e., $\$371$ minus $\$175 = \196 .

The number on line 14 shows the amount that can be saved per period by choosing the lesser option. In this example the purchase is less costly.

Computation of Break-even Point. Use this method to figure out when the leasing costs equal the purchase price. This method allows for the effect of interest. In order to figure out the break-even point, any maintenance costs that are included in the purchase price or lease payment must be removed.

The four items under **Computation of Break-even Point** in the example shown in the Figures Appendix are computed as follows:

15. Subtract the maintenance cost for purchased equipment (line 2A) from net purchase costs (line 5). This gives you the total purchase cost without maintenance; i.e., $\$11,882$ minus $\$3,482 = \$8,480$.
16. Write down the maintenance costs per period which are included in the lease payment (see line 2A). Then subtract this amount from the lease payment (line 8); i.e., $\$371$ minus $\$50 = \321 .
17. Divide the purchase costs (line 15) by the lease payment (line 16). This gives you the present value factor; i.e., $\$8,480$ divided by $\$321 = \26.42 .
18. Find the factor now shown in line 17 on the appropriate period table for the **Present Value of Annuity of \$1** in the Tables Appendix at the end of this SAM chapter; i.e., on the monthly table, 26.42 appears at 30 months.

Line 18 shows the break-even point; i.e., the point in time when lease costs equal purchase costs. When the useful life exceeds the break-even point, as in the above example, it is less costly to purchase the equipment. If the useful life is shorter than the break-even point, it is cheaper to lease the equipment. In our example, the break-even point is at 30 months.

Most Economical Method of Acquisition. In the case of our example, the most economical method of acquisition is "purchase." Therefore, check the purchase box on line 19.

3750 LEASE WITH OPTION TO PURCHASE

(Revised 8/92)

Evaluation of the Option to Purchase. It may be best to lease with an option to purchase instead of regular lease or purchase. A lease with an option to purchase is like a regular lease but it gives the right to purchase the equipment at some time before all of the lease payments have been made. This alternative may be best when it is necessary or advantageous to proceed with the acquisition of the equipment that meets system specifications, but it is desirable to temporarily postpone a decision to purchase. This may be the case when an agency wants to try the system out for a short while to first prove the validity of the system design. This is especially the case when there is no previous experience with the system, or when decisions which might substantially alter the system specifications are imminent.

The possibility that future advances in technology will render the selected equipment comparatively obsolete before the cost advantage point (see break-even analysis) is reached should not stop an agency from purchasing the equipment as long as the equipment is able to satisfy their requirements.

Evaluate the above considerations against the costs associated with postponing the decision to purchase. This cost is determined as follows:

$[(\text{Purchase price}-\text{rental credits towards purchase}) \times \text{Present Value of } \$1] - [\text{Price}-(\text{Present Value of Annuity of } \$1 \times \text{lease payment})]$

Example:

For this example, assume the same facts as in the sample form and instructions used in SAM Section 3740, and also assume the following:

1. 100 percent of the first three months of rental is credited toward the purchase.
2. After the first three months, 50 percent of the monthly rental payments is credited toward the purchase.
3. Payments are credited up to a maximum of 50 percent of total payments.
4. The decision to purchase will be postponed for one year.

The cost of postponing the decision to purchase is determined as follows:

Purchase price = \$8,000
 Total rental payments for one year = \$4,200

Rental credits:
 Months 1-3 = \$1,050
 Months 4-12 = \$1,575
 Total = \$2,625

50 percent of total rental payments = \$2,100

Credit allowance = \$2,100
 Cost = $(\$8,000-\$2,100) \times .9134172^*$
 $= \$8,000-(11.4294263^{**} \times 350)$
 $= (\$5,900 \times .9134172)-(\$8,000-\$4,000)$
 $= \$5,389-\$4,000$
 $= \$1,389 = \text{cost of postponing decision to purchase}$

* See tables for monthly payments Present Value of \$1.

** See tables for monthly payments Present Value of Annuity of \$1.

Compare the cost of postponing the decision of whether to purchase (as determined above) with the advantages of postponing the decision in order to gather additional information. When the desired equipment has been used or tested by other units, there is generally little need to further test the equipment.

3760 REVIEW OF LEASE

(Revised & Renumbered from 3761 8/92)

Review any equipment that is acquired under a lease when the conditions that lead to the lease decision have substantially changed, or may soon change. Frequently, there are changes in the projected useful life. For example, the useful life of the equipment may change with increased workload volume. These changes alter the balance between lease versus purchase costs. At such times the equipment lease/purchase should be reviewed by using the lease/purchase analysis, using the same format as the original lease/purchase analysis. Generally, vendors allow credits of rental payments toward the purchase. Adjust the purchase price accordingly.

[Lease/Purchase Analysis-Equipment Form \(Sample\)](#)

[Lease Versus Analysis-Equipment Form \(Blank\)](#)

FORMS:

[Lease/Purchase Analysis-Equipment Form \(Sample\)](#)

(3700) A-1

[Lease Versus Purchase Analysis - Equipment Form \(Blank\)](#)

(3700) A-2

ANNUITY TABLES:

(3700) AT-1

[Annuity Tables \(3700\) AT-1](#)

[Annuity Tables \(3700\) AT-1 \(Cont. 1\)](#)

[Annuity Tables \(3700\) AT-1 \(Cont. 2\)](#)

[Annuity Tables \(3700\) AT-1 \(Cont. 3\)](#)

[Annuity Tables \(3700\) AT-1 \(Cont. 4\)](#)

[Annuity Tables \(3700\) AT-1 \(Cont. 5\)](#)
