

Depreciation Worksheet

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|-----------------------------------|-----------------------------|-----------------------------------|---------------------------|
| Cost Basis 1,000,000.00 | Salvage 50,000.00 | Life 31.5 | Table |
| Model ▶ SL | Conv. ▶ DAY | Start Date Jun 25, 2022 | DB% 200.0 |
| Depreciation for Year 1 | | | |
| ◀ | RBV 984,300.94 | RDV 934,300.94 | DEP 15,699.06 ▶ |

This worksheet allows the calculation of depreciation schedule using different depreciation methods and conventions:

- Straight line (SL).
- Sum-of-the-years-digits (SYD).
- Declining balance (DB).
- Declining Balance with Crossover to SL (DBX).
- Modified Accelerated Recovery System with SL or DB methods.

| Depreciation Menu Actions | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [Cost] | Stores the cost of the asset at acquisition. |
| [Salvage] | Stores the salvage value of the asset at the end of its useful life. |
| [Life] | Stores the expected useful life of the asset in years. |
| [Table] | Shows a complete depreciation schedule of the asset. |
| [Model ▶] SL: (Straight Line) SOYD: (Sum of the Years) DB: (Declining Balance) DBX: (DB with crossover) MACRS-SL: (Modified ACRS width SL) MACRS-DB: (Modified ACRS width DB) | Menu to select the depreciation method. Select the Straight Line depreciation method. Select the Sum-Of-The-Years depreciation method. Select the Declining Balance depreciation method. Select the Declining Balance with crossover to Straight Line depreciation method. Select the Modified Accelerated Recovery System with Straight Line depreciation method. Select the Modified Accelerated Recovery System with Declining Balance depreciation method. |

Depreciation Menu Actions

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>[Conv. ►]</p> <p>DAY: Count Every Day</p> <p>HM: Half-Month</p> <p>FM: Full-Month</p> <p>HQ: Half-Quarter</p> <p>FQ: Full-Quarter</p> <p>HY: Half-Year</p> <p>FH: Full-Year</p> | <p>Use the 'Starting Date' to calculate the actual number of days for the first year depreciation.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the midpoint of the 'Start Month'.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the beginning of the 'Start Month'.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the midpoint of the 'Start Qtr.'.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the beginning of the 'Start Qtr.'.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the midpoint of the year.</p> <p>Calculates the first year depreciation assuming the asset was placed in service at the beginning of the year.</p> |
| <p>[Start Date ►]</p> | <p>In 'Count Every Day' convention, stores the date that the asset was placed in service.</p> |
| <p>[Start Month ►]</p> | <p>In 'Mid-Month' & 'Full-Month' conventions, stores the month that the asset was placed in service.</p> |
| <p>[Start Qtr ►]</p> | <p>In 'Mid-Quarter' & 'Full-Quarter' conventions, stores the quarter that the asset was placed in service.</p> |
| <p>[DB%]</p> | <p>Stores the declining-balance factor as a % of the straight-line rate.</p> |
| <p>[Year]</p> | <p>Stores the 'Year' to calculate depreciation.</p> |
| <p>[◀] [▶]</p> | <p>Calculate the Previous or Next 'Year' depreciation.</p> |
| <p>[DEP]</p> | <p>Enters the Depreciation of the current 'Year' in the calculator's stack.</p> |
| <p>[RBV]</p> | <p>Enters the Remaining Book Value at the end of the 'Year' in the calculator's stack.</p> |
| <p>[RDV]</p> | <p>Enters the Remaining Depreciable Value at the end of the 'Year' in the calculator's stack.</p> |

Example 1: 'SL' Depreciation Method with Half-Month convention

In June 25th, 2022 a company begins depreciation of a commercial building with a 31½ year life and with \$50,000 salvage value. The building cost \$1,000,000. Use the straight-line depreciation method to compute the depreciation expense, remaining book value, and remaining depreciable value for the first three years using the "Half-Month" convention.

Solution:

| Keystroke | Description |
|---------------------|---------------------------------------------------------------------|
| 1000000 [Cost] | Input the asset cost value. |
| 50000 [Salvage] | Input the salvage value of the asset at the end of useful life. |
| 31.5 [Life] | Stores the useful life of the asset. |
| [Model ► SL] | Select the Straight Line depreciation method. |
| [Conv. ► HM] | Select the Mid-Month depreciation convention. |
| [Start Month ► 6] | Select the Starting month to 6 (June). |
| 1 [Year] | Set the first year to calculate depreciation. |
| [DEP] | Depreciation for year #1: DEP = 16,335.98 |
| [RBV] | Remaining Book Value for year #1: RBV = 983,664.02 |
| [RDV] | Remaining Depreciable Value for year #1: RDV = 933,664.02 |
| [►] [DEP] | Depreciation for year #2: DEP = 30,158.73 |
| [RBV] | Remaining Book Value for year #2: RBV = 953,505.29 |
| [RDV] | Remaining Depreciable Value for year #2: RDV = 903,505.29 |
| [►] [DEP] | Depreciation for year #3: DEP = 30,158.73 |
| [RBV] | Remaining Book Value for year #3: RBV = 923,346.56 |
| [RDV] | Remaining Depreciable Value for year #3: RDV = 873,346.56 |

Example 2: Depreciation Methods

For the asset of the previous example, What depreciation method maximize the depreciation expense of the first year? (Use a Declining Balance factor of 200%).

Solution:

| Keystroke | Description |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 1 [Year] | Set the first year to calculate depreciation. |
| [Model ►] SL | Select the Straight Line depreciation method. |
| [DEP] | Depreciation for year #1: DEP = 16,335.98 |
| [Model ►] SOYD | Select the Straight Line depreciation method. |
| [DEP] | Depreciation for year #1: DEP = 31,186.87 |
| [Model ►] DB or DBX | Select the Declining Balance depreciation method. |
| 200 [DB%] | Set Declining Balance factor. |
| [DEP] | Depreciation for year #1: DEP = 33,854.17 |
| [Model ►] MACRS-SL | Select the Modified Accelerated Recovery System with Straight Line method. |
| [DEP] | Depreciation for year #1: DEP = 17,195.77 |
| [Model ►] MACRS-DB | Select the Modified Accelerated Recovery System with Declining Balance method. |
| [DEP] | Depreciation for year #1: DEP = 34,391.53 |
| <p>The best depreciation method to maximize the first year amount, as expected, is the “MACRS-DB” (Modified Accelerated Recovery System with Declining Balance) method.</p> | |

Example 3: Depreciation Conventions

With the previous example solution find the convention to use to maximize, even more, the first year depreciation expense.

Solution:

| Keystroke | Description |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| [Model ►] MACRS-DB | Select the Modified Accelerated Recovery System with Declining Balance method. |
| 200 [DB%] | Stores the DB factor. |
| 1 [Year] | Set the first year to calculate depreciation. |
| [Conv. ►] DAY | Select the “Count Every Day” convention and set the [Start Date] to Jun 25 th , 2022. |
| [DEP] | Depreciation for year #1: DEP = 33,050.66 |
| [Conv. ►] HM | Select the “Half-Month” convention. |
| [DEP] | Depreciation for year #1: DEP = 34,391.53 |
| [Conv. ►] FM | Select the “Full-Month” convention. |
| [DEP] | Depreciation for year #1: DEP = 37,037.04 |
| [Conv. ►] HQ | Select the “Half-Quarter” convention. |
| [DEP] | Depreciation for year #1: DEP = 39,682.54 |
| [Conv. ►] FQ | Select the “Full-Quarter” convention. |
| [DEP] | Depreciation for year #1: DEP = 47,619.05 |
| [Conv. ►] HY | Select the “Half-Year” convention. |
| [DEP] | Depreciation for year #1: DEP = 31,746.03 |
| [Conv. ►] FY | Select the “Full-Year” convention. |
| [DEP] | Depreciation for year #1: DEP = 63,492.06 |
| The best convention option to maximize the first year amount, as obvious, is the “ Full-Year ” convention. | |

Example 4: Crossover Depreciation

With the preceding examples result, “MACRS-DB” with “FY” convention, in what year occurs the change from DB to SL?

Solution:

| Keystroke | Description |
|-------------------------|--------------------------------------------------------------------------------|
| [Model ►] MACRS-DB | Select the Modified Accelerated Recovery System with Declining Balance method. |
| [Conv. ►] FY | Select the “Full-Year” convention. |
| [Table] | Shows the following depreciation schedule. |

| Depreciation Schedule | | | |
|-----------------------|--------------|------------|------------|
| Year | DEP | RDV | RBV |
| 1 | 63,492.06 | 936,507.94 | 936,507.94 |
| 2 | 59,460.82 | 877,047.12 | 877,047.12 |
| 3 | 55,685.53 | 821,361.59 | 821,361.59 |
| 4 | 52,149.94 | 769,211.65 | 769,211.65 |
| 5 | 48,838.83 | 720,372.82 | 720,372.82 |
| 6 | 45,737.96 | 674,634.86 | 674,634.86 |
| 7 | 42,833.96 | 631,800.90 | 631,800.90 |
| 8 | 40,114.34 | 591,686.56 | 591,686.56 |
| 9 | 37,567.40 | 554,119.16 | 554,119.16 |
| 10 | 35,182.17 | 518,936.99 | 518,936.99 |
| 11 | 32,948.38 | 485,988.61 | 485,988.61 |
| 12 | 30,856.42 | 455,132.19 | 455,132.19 |
| 13 | 28,897.28 | 426,234.91 | 426,234.91 |
| 14 | 27,062.53 | 399,172.38 | 399,172.38 |
| 15 | 25,344.28 | 373,828.10 | 373,828.10 |
| 16 | 23,735.12 | 350,092.98 | 350,092.98 |
| 17 | 22,586.64 | 327,506.34 | 327,506.34 |
| 18 | 22,586.64 | 304,919.70 | 304,919.70 |
| 19 | 22,586.64 | 282,333.06 | 282,333.06 |
| 20 | 22,586.64 | 259,746.42 | 259,746.42 |
| 21 | 22,586.64 | 237,159.78 | 237,159.78 |
| 22 | 22,586.64 | 214,573.14 | 214,573.14 |
| 23 | 22,586.64 | 191,986.50 | 191,986.50 |
| 24 | 22,586.64 | 169,399.86 | 169,399.86 |
| 25 | 22,586.64 | 146,813.22 | 146,813.22 |
| Σ | 1,000,000.00 | --- | --- |

Inspecting the schedule, scroll down until the DEP value becomes constant. There, you can see that the crossover occurs in the year 17.