Planning and Recording Depreciation Adjustments

Categories of Assets: Most businesses use two broad categories of assets in their operations. Cash and other assets expected to be exchanged for cash or consumed within a year are called **current assets**. Assets that will be used for a number of years in the operation of a business are called **plant assets** (also known as long-term assets). Typical examples of plant assets might include computers, cash registers, display cases, and furniture. Businesses may have three major types of plant assets – equipment, buildings, and land.

Depreciating Plant Assets: A business buys plant assets to use in earning revenue. In order to match revenue with the expenses used to earn the revenue, the cost of a plant asset should be expensed over the plant asset's useful life. A portion of a plant asset's cost is transferred to an expense account in each fiscal period that a plant asset is used to earn revenue. The portion of a plant asset's cost that is transferred to an expense account in each fiscal period during a plant asset's useful life is called **depreciation expense**.

Three factors are considered in calculating the annual amount of depreciation expense for a plant asset:

1. Original Cost. The original cost of a plant asset includes all costs paid to make the asset usable to a business. These costs include the price of the asset, delivery costs, and any necessary installation costs.
2. Estimated Salvage Value. Generally, a business removes a plant asset from use and disposes of it when the asset is no longer usable. The amount that will be received for an asset at the time of its disposal is not known when the asset is bought. This, the amount that may be received at disposal must be estimated. The amount an owner expects to receive when a plant asset is removed from use is called **estimated salvage value**. Estimated salvage value may also be referred to as residual value or scrap value.
3. Estimated Useful Life. The total amount of depreciation expense is distributed over the estimated useful life of a plant asset. When a plant asset is bought, the exact length of useful life is not known. Therefore, the number of years of useful life must be estimated. Two factors affect the useful life of a plant asset: (1) physical depreciation and (2) functional depreciation. Physical depreciation is caused by wear from use and deterioration from aging and weathering. Functional depreciation occurs when a plant asset becomes inadequate or obsolete. An asset is inadequate when it can no longer satisfactorily perform the needed service. An asset is obsolete when a newer asset can operate more efficiently or produce better service.

Straight-Line Depreciation

Charging an equal amount of depreciation expense for a plant asset in each year of useful life is called the **straight-line method of depreciation**.

Example: Hobby Shack. On January 2, 2017, Hobby Shack purchased a lighted display case for $1,250.00, with an estimated salvage value of $250.00 and an estimated useful life of 5 years. Using the straight-line method of depreciation, the annual depreciation expense, $200.00, is the same for each year in which the asset is used.

Original Cost	–	Estimated Salvage Value	=	Estimated Total Depreciation Expense
$1,250.00	–	$250.00	=	$1,000.00

Estimated Total Depreciation Expense	÷	Years of Useful Life	=	Annual Depreciation Expense
$1,000.00	÷	5	=	$200.00

Calculating Accumulated Depreciation

The total amount of depreciation expense that has been recorded since the purchase of a plant asset is called **accumulated depreciation**. The amount accumulates each year of the plant asset's useful life. First, the depreciation expense that has accumulated over all prior years is determined. Second, the depreciation expense for the current year is calculated. Third, the prior accumulated depreciation and current depreciation expense are added.

2016 Accumulated Depreciation	+	2017 Depreciation Expense	=	2017 Accumulated Depreciation
$400.00	+	$200.00	=	$600.00

Calculating Book Value

The original cost of a plant asset minus accumulated depreciation is called the **book value of a plant asset**. The book value is calculated by subtracting the accumulated depreciation from the original cost of the asset.

Example: Hobby Shack.

TRIAL BALANCE

ACCOUNT TITLE	UNADJUSTED		Adjustments		ADJUSTED	
	Debit	Credit	Debit	Credit	Debit	Credit
Office Equipment	35,864,950				35,864,950	
Acc. Depr. – Office Equipment		6,497,700		6,540,000		13,037,700
Store Equipment	40,849,950				40,849,950	
Acc. Depr. – Store Equipment		5,069,900		5,250,000		10,319,900
Depr. Exp. – Office Equipment			6,540,000		6,540,000	
Depr. Exp. – Store Equipment			5,250,000		5,250,000	

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2017 Date		Account Title	Doc. No.	Post. Ref.	Debit	Credit
December	31	Depr. Exp. – Office Equipment			6,540,000	
		Acc. Depr. – Office Equipment				6,540,000
	31	Depr. Exp. – Store Equipment			5,250,000	
		Acc. Depr. – Store Equipment				5,250,000

Practice Problem 1: Calculating Depreciation Expense and Book Value

1. Calculate depreciation expense for a computer printer costing $1,600.00; estimated salvage value, $100.00; useful life, 5 years.

2. Calculate book value of the computer printer at the end of its second year of service.

Practice Problem 2: Calculating Depreciation Expense and Book Value

1. Calculate depreciation expense for a display rack costing $2,350.00; estimated salvage value, $600.00; useful life, 7 years.

2. Calculate book value of the display rack at the end of its third year of service.

Practice Problem 3: Calculating Depreciation Expense and Book Value

1. Calculate depreciation expense for a vehicle costing $32,550.00; estimated salvage value, $2,550.00; useful life, 10 years.

2. Calculate book value of the vehicle at the end of its fifth year of service.

Practice Problem 4: Worksheet Adjustments and Journal Entries

On December 31, 2017, Coastal Aquatics determined the following amounts:

Office Equipment beginning balance: $25,150.00
Store Equipment beginning balance: $33,750.00
Accumulated Depreciation – Office Equipment, $1,100.00
Accumulated Depreciation – Store Equipment, $900.00
Depreciation Expense – Office Equipment, $560.00
Depreciation Expense – Store Equipment, $320.00

Plan the worksheet adjustments and calculate the adjusted trial balance amounts. Then record the general journal entries for these expenses. Finally, calculate the book value for each plant asset.

TRIAL BALANCE

ACCOUNT TITLE	UNADJUSTED		Adjustments		ADJUSTED	
	Debit	Credit	Debit	Credit	Debit	Credit

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2017 Date		Account Title	Doc. No.	Post. Ref.	Debit	Credit

What is the ending book value for the Office Equipment and Store Equipment?

Declining-Balance Method of Depreciation

The straight-line method of depreciation charges an equal amount of depreciation expense each year. However, many plant assets depreciate more in the early years of useful life than in later years. For example, a truck's value will decrease more in the first year than in later years. Therefore, charging more depreciation expense in the early years may be more accurate than charging the same amount each year.

Multiplying the book value by a constant depreciation rate at the end of each fiscal period is called **declining-balance method of depreciation**. The declining-balance depreciation rate is a multiple of the straight-line method rate. Many businesses use a declining-balance rate that is two times the straight-line rate. This method of depreciation is referred to as the **double declining-balance method**.

Estimated Depreciation Expense	÷	Years of Useful Life	=	Straight-Line Rate
100%	÷	5	=	20%
Straight-Line Rate	x	2	=	Double-Declining Balance Rate
20%	x	2	=	40%

Plant Asset: Truck Depreciation Method: Double-Declining Balance		Original Cost: $25,000.00 Estimated Salvage Value: $2,500.00 * Estimated Useful Life: 5 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1	$25,000.00	40%	$10,000.00	$15,000.00
2	15,000.00	40%	6,000.00	9,000.00
3	9,000.00	40%	3,600.00	5,400.00
4	5,400.00	40%	2,160.00	3,240.00
5	3,240.00	- -	740.00 *	2,500.00 *

Although the depreciation rate is the same each year, the annual depreciation expense declines from one year to the next. A plant asset is never depreciated below its estimated salvage value. Therefore, in the last year, only enough depreciation expense is recorded to reduce the book value of the plant asset to its salvage value.

Regardless of the depreciation method used, the total depreciation expense over the useful life of a plant asset is the same. The accounts used in the journal entries to record depreciation expense and the sale of plant assets are also the same. Each depreciation method is acceptable according to generally accepted accounting principles (GAAP).

The straight-line method is easy to calculate. The same amount of depreciation expense is recorded for each year of estimated useful life. The double-declining balance method is slightly more complicated. This method records a greater depreciation expense in the early years than the straight-line method. The declining-balance method is referred to as an accelerated depreciation method. The method accelerates depreciation in the early years of the asset's useful life.

Practice Problem 1: Declining Balance Method of Depreciation

Plant Asset: Truck Depreciation Method: Double-Declining Balance		Original Cost: $22,000 Estimated Salvage Value: $2,200.00 Estimated Useful Life: 4 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1		50%		
2		50%		
3		50%		
4		- -		

Practice Problem 2: Declining Balance Method of Depreciation

Plant Asset: Cash Register Depreciation Method: Double-Declining Balance		Original Cost: $1,200.00 Estimated Salvage Value: $100.00 Estimated Useful Life: 5 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1				
2				
3				
4				
5				

Practice Problem 3: Declining Balance Method of Depreciation

Plant Asset: Clothing Rack Depreciation Method: Double-Declining Balance		Original Cost: $500.00 Estimated Salvage Value: $50.00 Estimated Useful Life: 8 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1				
2				
3				
4				
5				
6				
7				
8				

Practice Problem 4: Declining Balance Method of Depreciation

Plant Asset: Delivery Truck Depreciation Method: Double-Declining Balance		Original Cost: $25,000.00 Estimated Salvage Value: $2,000.00 Estimated Useful Life: 3 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1				
2				
3				

Practice Problem 5: Declining Balance Method of Depreciation

Plant Asset: Filing Cabinet Depreciation Method: Double-Declining Balance		Original Cost: $600.00 Estimated Salvage Value: $50.00 Estimated Useful Life: 4 years		
Year	**Beginning Book Value**	**Declining-Balance Rate**	**Annual Depreciation**	**Ending Book Value**
1				
2				
3				
4				