9. Affective-Interest Amortization Methods

The theoretically preferable approach to recording premium and discount amortization is the effective-interest method. It recognizes interest expense as a constant percentage of the bond's carrying value, rather than as an equal dollar amount each year. The theoretical merit rests on the fact that the interest calculation aligns with the basis on which the bond was priced; that is to say, the interest expense is calculated as the effective-interest rate times the bond's carrying value for each period. The amount of amortization is the difference between the cash paid for interest and the calculated amount of bond interest expense.

9.1 The Premium Illustration

Recall that when Schultz issued its bonds to yield 6%, it received $108,530. Thus, effective interest for the first six months is $108,530 X 6% X 6/12 = $3,255.90. Of this amount, $4,000 is paid in cash and $744.10 ($4,000 - $3,255.90) is premium amortization. The premium amortization reduces the net book value of the debt to $107,785.90 ($108,530 - $744.10). This new balance would then be used to calculate the effective interest for the next period. This process would be repeated period after period. The following table demonstrates the full amortization process for the life of Schultz's bonds.

Period Ending	Beginning of Period Net Book Value of Bonds Payable	Interest Expense (Net Book Value X 6% X 6/12)	Amount of Payment	Premium Amortization (payment minus expense)	End of Period Net Book Value (beginning balance less amortization)
6-30-X1	$ 108,530.00	$ 3,255.90	$ 4,000.00	$ 744.10	$ 107,785.90
12-31-X1	107,785.90	3,233.58	4,000.00	766.42	107,019.48
6-30-X2	107,019.48	3,210.58	4,000.00	789.42	106,230.06
12-31-X2	106,230.06	3,186.90	4,000.00	813.10	105,416.96
6-30-X3	105,416.96	3,162.51	4,000.00	837.49	104,579.47
12-31-X3	104,579.47	3,137.38	4,000.00	862.62	103,716.86
6-30-X4	103,716.86	3,111.51	4,000.00	888.49	102,828.36
12-31-X4	102,828.36	3,084.85	4,000.00	915.15	101,913.21
6-30-X5	101,913.21	3,057.40	4,000.00	942.60	100,970.61
12-31-X5	100,970.61	3,029.39	4,000.00	970.61	100,000.00

The initial journal entry to record the issuance of the bonds, and the final journal entry to record repayment at maturity would be identical to those demonstrated for the straight-line method. However, each journal entry to record the periodic interest expense recognition would vary and can be determined by reference to the above amortization table. For instance, the recording of interest on 6-30-X3 would appear as follows:

6-30-X3	Interest Expense	3,162.51	
	Premium on Bonds Payable	837.49	
	Cash		4,000.00
	To record interest payment and amortization of premium		

The resulting balance sheet disclosure as of June 30, 20X3, would include the following:

Long-term Liabilities

Bonds payable	$ 100,000	
Plus: Unamortized premium on bonds payable	4,579	$ 104,579

With effective-interest techniques, interest expense varies in direct proportion to the ever reducing amount of debt. Thus, interest expense is a constant percentage of the reported debt rather than a constant amount of expense as with the straight-line method.

9.2 The Discount Illustration

Recall that when Schultz issued its bonds to yield 10%, it received only $92,278. Thus, effective interest for the first six months is $92,278 X 10% X 6/12 = $4,613.90. Of this amount, $4,000 is paid in cash, and $613.90 is discount amortization. The discount amortization increases the net book value of the debt to $92,891.90 ($92,278.00 + $613.90). This new balance would then be used to calculate the effective interest for the next period. This process would be repeated period after period. The following table demonstrates the full amortization process for the life of Schultz's bonds.

Period Ending	Beginning of Period Net Book Value of Bonds Payable	Interest Expense (Net Book Value X 10% X 6/12)	Amount of Payment	Discount Amortization (expense minus payment)	End of Period Net Book Value (beginning balance plus amortization)
6-30-X1	$ 92,278.00	$ 4,613.90	$ 4,000.00	$ 613.90	$ 92,891.90
12-31-X1	92,891.90	4,644.60	4,000.00	644.60	93,536.50
6-30-X2	93,536.50	4,676.82	4,000.00	676.82	94,213.32
12-31-X2	94,213.32	4,710.67	4,000.00	710.67	94,923.99
6-30-X3	94,923.99	4,746.20	4,000.00	746.20	95,670.19
12-31-X3	95,670.19	4,783.51	4,000.00	783.51	96,453.69
6-30-X4	96,453.69	4,822.68	4,000.00	822.68	97,276.38
12-31-X4	97,276.38	4,863.82	4,000.00	863.82	98,140.20
6-30-X5	98,140.20	4,907.01	4,000.00	907.01	99,047.21
12-31-X5	99,047.21	4,952.79	4,000.00	952.79	100,000.00

be determined by reference to the above amortization table. For instance, the recording of interest on June 30, 20X3, would appear as follows:

6-30-X3	Interest Expense	4,746.20	
	Premium on Bonds Payable		746.20
	Cash		4,000.00
	To record interest payment and amortization of discount		

The resulting balance sheet disclosure as of June 30, 20X3, would include the following:

Long-term Liabilities

Bonds payable	$ 100,000	
Less: Unamortized discount on bonds payable	(4,330)	$ 95,670